NRSC REPORT

NATIONAL RADIO SYSTEMS COMMITTEE

NRSC-R58 Digital Audio Radio IBOC Laboratory Tests

Transmission Quality Failure Characterization and Analog Compatibility

August 11, 1995

Part VII - Appendices AM through AS



NAB: 1771 N Street, N.W. Washington, DC 20036

Tel: (202) 429-5356 Fax: (202) 775-4981



CEA: 1919 South Eads Street Arlington, VA 22202 Tel: (703) 907-7660 Fax: (703) 907-8113

Co-sponsored by the Consumer Electronics Association and the National Association of Broadcasters http://www.nrscstandards.org

NRSC-R58

NOTICE

NRSC Standards, Guidelines, Reports and other technical publications are designed to serve the public interest through eliminating misunderstandings between manufacturers and purchasers, facilitating interchangeability and improvement of products, and assisting the purchaser in selecting and obtaining with minimum delay the proper product for his particular need. Existence of such Standards, Guidelines, Reports and other technical publications shall not in any respect preclude any member or nonmember of the Consumer Electronics Association (CEA) or the National Association of Broadcasters (NAB) from manufacturing or selling products not conforming to such Standards, Guidelines, Reports and other technical publications, nor shall the existence of such Standards, Guidelines, Reports and other technical publications preclude their voluntary use by those other than CEA or NAB members, whether to be used either domestically or internationally.

Standards, Guidelines, Reports and other technical publications are adopted by the NRSC in accordance with the NRSC patent policy. By such action, CEA and NAB do not assume any liability to any patent owner, nor do they assume any obligation whatever to parties adopting the Standard, Guideline, Report or other technical publication.

This Report does not purport to address all safety problems associated with its use or all applicable regulatory requirements. It is the responsibility of the user of this Report to establish appropriate safety and health practices and to determine the applicability of regulatory limitations before its use.

Published by
CONSUMER ELECTRONICS ASSOCIATION
Technology & Standards Department
1919 S. Eads St.
Arlington, VA 22202

NATIONAL ASSOCIATION OF BROADCASTERS Science and Technology Department 1771 N Street, NW Washington, DC 20036

©2015 CEA & NAB. All rights reserved.

This document is available free of charge via the NRSC website at www.nrscstandards.org. Republication or further distribution of this document, in whole or in part, requires prior permission of CEA or NAB.

NRSC-R58

FOREWORD

NRSC-R58, Digital Audio Radio IBOC Laboratory Tests – Transmission Quality Failure Characterization and Analog Compatibility, documents the first comprehensive testing of in-band/on-channel digital radio systems. This report was prepared for Working Group B and the Combined EIA DAR and NRSC DAB Subcommittees.

The NRSC is jointly sponsored by the Consumer Electronics Association and the National Association of Broadcasters. It serves as an industry-wide standards-setting body for technical aspects of terrestrial overthe-air radio broadcasting systems in the United States.

Contents

Description	<u>Appendix</u>
Tests F-1, F-4 and G-1 Co-channel DAR to Analog	AM
Tests F-2, F-5 and G-2 First-adjacent DAR to Analog	AN
Tests F-3, F-6 and G-3 Second-adjacent DAR to Analog	AO
Tests H and I Analog to DAR	AP
Test L	AQ
Test M	AR
Test O	AS

APPENDIX AM

Tests F-1, F-4 and G-1 Co-channel DAR to Analog

Tests F1, F4 and G1

Receiver

Rx No.: #1

Mfg.: DELCO Model: 16192463 Serial: 1000499

Index

Page	Description
1	Cover sheet
2	DAR -> Analog interference at a 45dB signal to noise ratio with the Digital Proponent on the desired frequency (Co-channel)
3	DAR -> Analog interference at a 35dB signal to noise ratio with the Digital Proponent on the desired frequency
4	Digital Audio Tape recording log of the Co-channel results

- * Clipped pink noise used as the modulation signal for the analog channel of the Proponent signal (except AT&T)
- * ABBA used for main channel modulation on the desired analog channel
 - SCA group B included on both desired and undesired (proponent) signals
- * Total modulation on analog channels: 110% (SCA group level at 20%)
- * Receiver audio routed through a 15KHz low pass filter
- Audio measurements made using quasi-peak detection and a CCIR wieghting filter
- * Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver.
 - In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

	2
	000
	0
¥	

Test F-1, F-4 and G-1	1	F-1	IF-4	G-1 Urban Slow Rayleigh	G-1 Urban Fast Rayleigh
45 dB S/N			Co-Channel	Co-Channel	Co-Channel
Receiver #1			DAR to Analog	DAR to Analog	DAR to Analog
DELCO		1		with Multipath	with Multipath
16192463	Measurements	d/u in dB	EO&C	EO&C	EO&C
Analog to Analog	desired -	8.80 36.17	Interfering Audio detectable and		
Reference	Loss 4	0.71	tracks with ABBA beat		
	undesired -4	1,43	1		F.
RX Level	Loss 2	1.75			i i
-62,00 dBm	Attn 2	2.50	,		
AT&T	1	8.80 36.03	Audible background noise	DAR->FM Less Annoying than	FM-> FM same as
IBAC	Loss 4	0.71	increases	FM->FM	DAR-> FM
	undesired -1	5.61	DAR->FM Less Annoying than	No detectable modulation	
RX Level		7.68	FM->FM	with digital	
-62.00 dBm		2.25	d/u attn= 22.39 dB		
AT&T Amati		8,80 36.67	Same as Analog Reference	FM-> FM same as	FM-> FM same as
DSB IBOC		0.71		DAR-> FM	DAR-> FM
	undesired -	7.00			
RX Level		7.68			
-62,00 dBm		1,50	d/u attn= 31.00 dB		
AT&T Amati		·8.80 36.78	Same as Analog Reference	FM-> FM same as	FM-> FM same as
LSB IBOC		0.71	1	DAR-> FM	DAR-> FM
	undesired -	7.11			
RX Level		7.68			
-62.00 dBm	300000000000000000000000000000000000000	1.50	d/u attn= 30.89 dB		
USADR FM1		8.80 35.40	Same as Analog Reference	FM-> FM same as	FM-> FM same as
IBOC	Tr.	0.71	1	DAR-> FM	DAR-> FM
		9.73			
RX Level	****************	7.68			
-62.00 dBm	10/200000000000000000000000000000000000	7.50	d/u attn= 28,27 dB		
USADR FM2		8.80 35.47	Same as Analog Reference	FM-> FM same as	FM-> FM same as
IBOC	T T	0.71	1	DAR-> FM	DAR-> FM
		-6.05			
RX Level		7,68			
-62,00 dBm		31.25	d/u attn= 31.95 dB		
Notes: Subcarrier	Group B on interfere	rs and desired ana	Og		DAT REF No. DAR40110.DAT

Notes: Subcarrier Group B on interferers and desired analog

Clipped Pink Noise as Main Ch. modulation on interferers

Standard SCA Test Signal yields -20dB on Sony 7010 Input Monitor with Input Gain Set to 6 dB

Tests conducted February 17, 1995

DAT REF No. DAK40110.DA

Best case S/N ratio: 49dB

Test F-1			F-1	Test F-1 (Weak)			F-1	Test F-1 (Weak)			F-1
35 dB S/N				35 dB S/N				45 dB S/N			F-1
Receiver #1				Receiver #1				Receiver #1			
DELCO				DELCO			Ť.	DELCO	1		
16192463	Measurements		d/u in dB	16192463	Measurements		d/u in dB	16192463	Measurements		d/u in dE
Analog to Analog	desired	-8.80	23.67	Analog to Analog	desired	-8.80	22,91	Analog to Analog	desired	-8.77	NA NA
Reference	Loss	40.71		Reference	Loss	40.71		Reference	Loss	40.71	IVA
	undesired	-41.43		1	undesired	-41.42		Treater on the	undesired		
Desired Signal Level	Loss	21.75		RX Level	Loss	21.75		RX Level	Loss	-41.45	
-62.00 dBm	Attn	10.00		-77.00 dBm	Attn	9.25		-77.00 dBm	000000000000000000000000000000000000000	21.75	
AT&T	desired	-8.80	24.03	AT&T	desired	-8.80	22.07	AT&T	Attn desired	9.25	
IBAC	Loss	40.71		IBAC	Loss	40.71	22.07	IBAC	The state of the s	-8.77	NA
	undesired	-15.61			undesired	-15.65		IDAC	Loss	40.71	
RX Level	Loss	47.68		RX Level	Loss	47.68		RX Level	undesired	-15.49	
-62.00 dBm	Attn	10.25		-77.00 dBm	Attn	8.25			Loss	47.68	
AT&T Amati	desired	-8.80	24.43	AT&T Amati	desired	-8.80	23.67	-77,00 dBm	Attn	8,00	
DSB IBOC	Loss	40.71		DSB IBOC	Loss	40.71	23.07	AT&T Amati	desired	-8.77	NA
	undesired	-8.01			undesired	-8.00		DSB IBOC	Loss	40.71	
RX Level	Loss	47.68		RX Level	Loss	47.68		DVI.	undesired	-7.84	
-62.00 dBm	Attn	18.25		-77.00	Attn	17.50		RX Level	Loss	47.68	
AT&T Amati	desired	-8.80	24.80	AT&T Amati	desired	-8.80	24.02	-77.00 dBm	Attn	17.00	
LSB IBOC	Loss	40.71		LSB IBOC	Loss	40.71		3313131313131313131313131313131313131313	desired	-8.77	NA
	undesired	-8.13		1300	undesired	-8.10		LSB IBOC	Loss	40.71	
RX Level	Loss	47.68		RX Level	Loss				undesired	-8.00	
-62.00 dBm	Attn	18.50		-77.00 dBm	Attn	47.68		RX Level	Loss	47.68	
USADR FM1	desired	-8.80	23.91	USADR FM1	desired	17.75		-77.00 dBm	Attn	16.75	
IBOC	Loss	40.71		IBOC	F-10.	-8.80	21.67	USADR FM1	desired	-8.77	NA
	undesired	-9.49	1	iboc	Loss undesired	40.71		IBOC	Loss	40.71	
RX Level	Loss	47.68		RX Level	Loss	-9.50			undesired	-9.49	
-62.00 dBm	Atin	16.25		-77.00 dBm	SAMMAN COMPANIES CONTRACTOR	47.68		RX Level	Loss	47.68	
JSADR FM2	desired	-8.80	23.97	USADR FM2	Attn desired	14.00		-77.00 dBm	Attn	15.00	
BOC	Loss	40.71	0.0000000000000000000000000000000000000	IBOC		-8.80		USADR FM2	desired	-8.77	NA
	undesired	-6.05		шос	Loss	40.71		IBOC	Loss	40.71	
RX Level	Loss	47.68		RX Level	undesired	-6.09	1		undesired	-6.07	
-62.00 dBm	Attn	19.75		-77.00 dBm	Loss	47.68		RX Level	Loss	47.68	
02100 02111	p. accept	19,73		-//.00 dBm	Attn	18.00		-77.00 dBm	Attn	18.50	
								Notes: Best Case	s/N = -43.5 dB		

DAT File Number	Time Code Start Stop				Grade			
DAR40110.DAT	Otart	atub	+ +	1 1	Description	1 2		
2/15/95						ļ		
2/13/73			+ - + -		AT&T Co-Channel	<u> </u>		
Disregard			2		AT&T Co-Channel			
Disregard			3			ļ		
Disicgard			4		FMI Co-Channel			
			5		FM1 Co-Channel FM2 Co-Channel	ļ		
			6					
			171		Amati DSB Co-Channel			
Disregard			18		Amati LSB Co-Channel			
Disregard			8 9					
Disregard			10					
Distegard			111		L C DOD H 1 OI 11 O OI 1			
			12		Amati DSB Urban Slow with Co-Channel			
			13		Amati LSB Urban Slow with Co-Channel			
					AT&T Urban Slow with Co-Channel	<u> </u>		
			14		FM1 Urban Slow with Co-Channel			
					FM2 Urban Slow with Co-Channel			
			16		FM2 Urban Fast with Co-Channel			
			17		FM1 Urban Fast with Co-Channel			
			18		Amati LSB Urban Fast with Co-Channel			
			19		Amati DSB Urban Fast with Co-Channel			
Disregard			20					
			21		AT&T Urban Fast with Co-Channel			
			ļļ					
			<u> </u>					
			<u> </u>					
			1_1_					
			1I	1 I I				
			L					
			1					
			1 1					
100000 1811 70000 10000								
			1	·	<u>-</u>			

Tests F1, F4 and G1

Receiver

Rx No.: #2

Mfg.: DENON Model: TU-380RD Serial: 4056301149

Index

Page	Description
1	Cover sheet
2	DAR -> Analog interference at a 45dB signal to noise ratio with the Digital Proponent on the desired frequency (Co-channel)
3	DAR -> Analog interference at a 35dB signal to noise ratio with the Digital Proponent on the desired frequency
4	Digital Audio Tape recording log of the Co-channel results

- * Clipped pink noise used as the modulation signal for the analog channel of the Proponent signal (except AT&T)
- ABBA used for main channel modulation on the desired analog channel
- SCA group B included on both desired and undesired (proponent) signals
- * Total modulation on analog channels: 110%
 - (SCA group level at 20%)
- * Receiver audio routed through a 15KHz low pass filter
- * Audio measurements made using quasi-peak detection and a CCIR wieghting filter
- Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver.
 - In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

Test F-1, F-4 and G-1		F-1	F-4	G-1 Urban Slow Rayleigh	G-1 Urban Fast Rayleigh									
45 dB S/N			Co-Channel	Co-Channel	Co-Channel									
Receiver #2	1	1	DAR to Analog	DAR to Analog	DAR to Analog									
DENON		1		with Multipath	with Multipath									
TU-380RD	Measurements	d/u in dB	EO&C	EO&C	EO&C									
Analog to Analog	desired -8.77	43.39	Interfering Audio detectable and											
Reference	Loss 40.71		tracks with ABBA beat											
	undesired -41.37				9.									
RX Level	Loss 21,75													
-62,00 dBm	Attn 29.75													
AT&T	desired -8.77	42.53	Audible background noise	DAR->FM Less Annoying than	FM-> FM same as									
IBAC	Loss 40.71	1	increases	FM->FM	DAR-> FM									
	undesired -15.58		DAR->FM Less Annoying than	No detectable modulation										
RX Level	Loss 47.68		FM->FM	with digital										
-62.00 dBm	Attn 28.75		d/u attn= 29.61 dB											
AT&T Amati	desired -8.77	42.79		FM-> FM same as	FM-> FM same as									
DSB IBOC	Loss 40.71			DAR-> FM	DAR-> FM									
	undesired -7.84													
RX Level	Loss 47.68													
-62.00 dBm	Attn 36,75		d/u attn= 37.35 dB											
AT&T Amati	desired -8.77	1		FM-> FM same as	FM-> FM same as									
LSB IBOC	Loss 40.71			DAR-> FM	DAR-> FM									
	undesired -8,00													
RX Level	Loss 47.68													
-62.00 dBm	Attn 36,75		d/u attn= 37.19 dB											
USADR FMI	desired -8.77		Same as Analog Reference	FM-> FM same as	FM-> FM same as									
IBOC	Loss 40.71			DAR-> FM	DAR-> FM									
	undesired -9.44													
RX Level	Loss 47.68													
-62.00 dBm	Attn 35.25		d/u attn= 35.75 dB											
USADR FM2	desired -8,77		Same as Analog Reference	FM-> FM same as	FM-> FM same as									
IBOC	Loss 40.71			DAR-> FM	DAR-> FM									
	undesired -5.99													
RX Level	Loss 47.68													
	Attn 38.75		d/u attn= 39.20 dB											
-62.00 dBm				Subcarrier Group B on interferers and desired analog DAT REF No. DAR40112.DAT										
Subcarrier Gr				,	DAT REF No. DAR40112.DAT									

File Name: F1_RX2T_XLS 45dB

Tests conducted February 17, 1995

Standard SCA Test Signal yields -20dB on Sony 7010 Input Monitor with Input Gain Set to 6 dB

Test F-1 35 dB S/N			F-1	Test F-1 (Weak)			F-1	Test F-1 (Weak)		F-1
Receiver #2				35 dB S/N				45 dB S/N		F-1
DENON #2				Receiver #2				Receiver #2	1	1
TU-380RD				DENON				DENON		
	Measurements		d/u in dB	TU-380RD	Measurements		d/u in dB	TU-380RD	Measurements	d/u in d
Analog to Analog Reference	desired	-8.77	32.14	Analog to Analog	desired	-8,77	35.14	Analog to Analog	desired	NA NA
Kelelelice	Loss	40.71		Reference	Loss	40.71		Reference	Loss	INA
RX Level	undesired	-41.37			undesired	-41.37			undesired	
	Loss	21.75		RX Level	Loss	21.75		RX Level	Loss	
-62.00 dBm AT&T	Attn	18.50		-77.00 dBm	Attn	21.50		-77.00 dBm	Atm	
	desired	-8.77	31.53	AT&T	desired	-8.77	35.03	AT&T	desired	NA NA
IBAC	Loss	40.71		IBAC	Loss	40.71		IBAC	Loss	NA.
DV II	undesired	-15,58			undesired	-15.58			undesired	1
RX Level	Loss	47.68		RX Level	Loss	47.68		RX Level	Loss	- 1
-62.00 dBm	Attn	17.75		-77.00 dBm	Attn	21.25		-77.00 dBm	Attn	- 1
AT&T Amati	desired	-8.77	31.54	AT&T Amati	desired	-8,77	35.04	AT&T Amati	desired	
DSB IBOC	Loss	40.71		DSB IBOC	Loss	40.71		DSB IBOC	Loss	NA
	undesired	-7.84			undesired	-7.84		DOD IDOC	T 200-00	
RX Level	Loss	47.68		RX Level	Loss	47.68		RX Level	undesired	
-62.00 dBm	Attn	25.50		-77.00 dBm	Attn	29.00		-77.00 dBm	Loss	
AT&T Amati	desired	-8.77	31.70	AT&T Amati	desired	-8.77	35.45	AT&T Amati	Attn	
LSB IBOC	Loss	40.71		LSB IBOC	Loss	40.71		LSB IBOC	desired	NA
	undesired	-8,00		l i	undesired	-8.00	1	C3D IBOC	Loss	
RX Level	Loss	47.68		RX Level	Loss	47.68		RX Level	undesired	
-62.00 dBm	Attn	25.50		-77,00 dBm	Attn	29.25	DE I	-77.00 dBm	Loss	
USADR FM1	desired	-8.77	31.64	USADR FMI	desired	-8.77	35.39	USADR FM1	Attn	
BOC	Loss	40.71		IBOC	Loss	40.71		IBOC	desired	NA
	undesired	-9.44			undesired	-9.44	P 11	Вос	Loss	1
RX Level	Loss	47.68		RX Level	Loss	47.68		RX Level	undesired	
-62.00 dBm	Attn	24.00		-77.00 dBm	Attn	27.75	1 1	-77.00 dBm	Loss	
JSADR FM2	desired	-8.77	31.94	USADR FM2	desired	-8.77	35,44	USADR FM2	Attn	
BOC	Loss	40.71		IBOC	Loss	40.71		IBOC	desired	NA
	undesired	-5.99			undesired	-5.99		пвос	Loss	
XX Level	Loss	47.68		RX Level	Loss	47.68		RX Level	undesired	1
-62.00 dBm	Attn	27.75		-77.00 dBm	Attn	31.25	- 1		Loss	
					1	31,23		-77.00 dBm	Attn	
							100			

DAT File	Time Code		Start IDs					Grade		
Number	Start	Stop					Description	1		2
DAR40112.DAT	77 TO 10 TO	OCCUPATION OF CONTRACTORS		A17 277000	In milital					
2/17/95	•••••••				İ			·	-	
***************************************	***************************************				1			1		**********
Disregard			1		1	******		1	<u> </u>	
			2	····	1		AT&T Co-Channel	1	<u> </u>	************
			3			*******	Amati LSB Co-Channel	1	*****	***********
Disregard			4		T 1				····	***********
			5				Amati DSB Co-Channel		<u> </u>	
***************************************			6		1		FM1 Co-Channel	·		
			7		1		FM2 Co-Channel	1	····	
			8	200		272333	FM2 Urban Slow with Co-Channel	1		***************************************
	CONTRACTOR AND		9		i		FM1 Urban Slow with Co-Channel			
			10			******	Amati DSB Urban Slow with Co-Channel		1	
			11		1		Amati LSB Urban Slow with Co-Channel	·	i	
			12				AT&T Urban Slow with Co-Channel	1	····	***************************************
			13				AT&T Urban Fast with Co-Channel		<u> </u>	
COLUMN TANDOM PROPERTY OF THE COLUMN THE COL		100.000.000.000.000.000.000.000.000.000	14				Amati LSB Urban Fast with Co-Channel			
			15		T		Amati DSB Urban Fast with Co-Channel	1		***********
Disregard			16					1	1	*************
			17				FM1 Urban Fast with Co-Channel			
	Transpositional concessoration	510000000000000000000000000000000000000	18				FM2 Urban Fast with Co-Channel			
									1	***********
5117661 CC 31111 16 CC 10111 16 CC CC 3110 11 CC	11223100000011110170000123							1	····	***********
0.000000000000000000000000000000000000		V20121111111111111111111111111111111111								
						*****		1	1	
								T	*** T	
***************************************			1		[l	1		
							I	1	·····	***************************************
									<u> </u>	
***************************************			1					1		
					1		1	1	·····	***********
			T		T		<u> </u>	1	····†	************
					1	••••		·	····	
			1		1	•••••	İ	1	····	
					1	******		·		
	***************************************		11		†*****†	******	†		····t	**********
			1		†*******	*****	<u> </u>	·	*****	
			1			•••••				

Tests F1, F4 and G1

Receiver

Rx No.: #3

Mfg.: PANASONIC Model: RX-FS430 Serial: GR3J01184

Index

Page	Description
1	Cover sheet
2	DAR -> Analog interference at a 45dB signal to noise ratio with the Digital Proponent on the desired frequency (Co-channel)
3	DAR -> Analog interference at a 35dB signal to noise ratio with the Digital Proponent on the desired frequency
4	Digital Audio Tape recording log of the Co-channel results

- * Clipped pink noise used as the modulation signal for the analog channel of the Proponent signal (except AT&T)
- ABBA used for main channel modulation on the desired analog channel
- SCA group B included on both desired and undesired (proponent) signals
 Total modulation on analog channels: 110% (SCA group level at 20%)
- Receiver audio routed through a 15KHz low pass filter
- * Audio measurements made using quasi-peak detection and a CCIR wieghting filter
- * Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver.
- * In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

Test F-1, F-4 and G-1		F-1	F-4	G-1 Urban Slow Rayleigh	G-1 Urban Fast Rayleigh
45 dB S/N			Co-Channel	Co-Channel	Co-Channel
Receiver #3			DAR to Analog	DAR to Analog	DAR to Analog
Panasonic				with Multipath	with Multipath
RX-FS430	Measurements	d/u in dB	EO&C	EO&C	EO&C
Analog to Analog	desired -8.8	40.94	Interfering Audio detectable and		
Reference	Loss 40.7		tracks with ABBA beat		
	undesired -41.4	5			-
RX Level	Loss 21.7	5			
-62.00 dBm	Attn 27.2				
AT&T	desired -8.8		Audible background noise	DAR->FM Less Annoying than	FM-> FM same as
IBAC	Loss 40.7		increases	FM->FM	DAR-> FM
	undesired -15,6		DAR->FM Less Annoying than	No detectable modulation	
RX Level	Loss 47.6	3	FM->FM	with digital	
-62.00 dBm	Atta 27.2		d/u attn= 27.18 dB		
AT&T Amati	desired -8.8	40.91	Same as Analog Reference	FM-> FM same as	FM-> FM same as
DSB IBOC	Loss 40.7	1		DAR-> FM	DAR-> FM
	undesired -8.0				
RX Level	Loss 47.6	3			
-62.00 dBm	Attn 34.7	5	d/u attn= 34.78 dB		
AT&T Amati	desired -8.8	41.03	Same as Analog Reference	FM-> FM same as	FM-> FM same as
LSB IBOC	Loss 40.7	i.		DAR-> FM	DAR-> FM
	undesired -8.1	2			
RX Level	Loss 47.6	3			
-62.00 dBm	Attn 34.7	5	d/u attn= 34.66 dB		
USADR FM1	desired -8.8	41.14	Same as Analog Reference	FM-> FM same as	FM-> FM same as
IBOC	Loss 40.7	t I		DAR-> FM	DAR-> FM
	undesired -9,4	3			
RX Level	Loss 47.6	3			
-62.00 dBm	Atm 33.5		d/u attn= 33.30 dB		
USADR FM2	desired -8.8	40.98	Same as Analog Reference	FM-> FM same as	FM-> FM same as
IBOC	Loss 40.7	l.		DAR-> FM	DAR-> FM
	undesired -6.0	7			
RX Level	Loss 47.6	3			
-62,00 dBm	Attn 36.7		d/u attn= 36.71 dB		
	roup B on interferers ar	nd desired anal	og.		DAT REF No. DAR40114.DAT
Notes: Clipped Pink	Noise on interferers		CC		
		dB on Sony 7	010 Input Monitor with Input Gain Set to -3.5dB	Best Ca	se S/N =51dB
Tests conduc	ted February 22, 1995		-		

File Name: F1_RX3T.XLS 45dB

35 dB S/N											
·				35 dB S/N		-	F-1	Test F-1 (Weak) 45 dB S/N			F-1
Receiver #3				Receiver #3				Receiver #3	1	- 1	
Panasonic				Panasonic				Panasonic #5	l l		
RX-FS430	Measurements		d/u in dB	RX-FS430	Measurements		d/u in dB	RX-FS430	Measurements		
Analog to Analog	desired	-8.81	29.94	Analog to Analog	desired	-8.81	32.69	Analog to Analog			d/u in d
Reference	Loss	40.71		Reference	Loss	40.71	02.07	Reference	desired	-8.81	NA
	undesired	-41.46			undesired	-41.46		Reference	Loss	40.71	
Desired Signal Level	Loss	21.75		RX Level	Loss	21.75		RX Level	undesired	-41.44	
-62.00 dBm	Attn	16.25		-77.00 dBm	Attn	19.00			Loss	21.75	
AT&T	desired	-8.81	29.51	AT&T	desired	-8.81	32.26	-77.00 dBm	Attn	11.25	
BAC	Loss	40.71		IBAC	Loss	40.71	32.20	AT&T	desired	-8.81	NA
	undesired	-15.60			undesired	-15.60		IBAC	Loss	40.71	
RX Level	Loss	47.68		RX Level	Loss	85			undesired	-15.72	
-62.00 dBm	Attn	15.75		-77.00 dBm	Attn	47.68		RX Level	Loss	47.68	
AT&T Amati	desired	-8.81	29.66	AT&T Amati	desired	18.50		-77.00 dBm	Attn	30.00	
OSB IBOC	Loss	40.71		DSB IBOC	Loss	-8.81	32.16	AT&T Amati	desired	-8.81	NA
	undesired	-8.00		DOD IDOC	undesired	40.71		DSB IBOC	Loss	40.71	
XX Level	Loss	47.68		RX Level	# 12 TO SECTION 1	-8.00			undesired	-8.00	
-62.00 dBm	Atm	23.50	- 1	-77.00 dBm	Loss	47.68		RX Level	Loss	47.68	
T&T Amati	desired	-8.81	29.78	AT&T Amati	Attn	26.00		-77.00 dBm	Attn	37.50	
SB IBOC	Loss	40.71		LSB IBOC	desired	-8.81		AT&T Amati	desired	-8.81	NA
	undesired	-8.12		LSB IBOC	Loss	40.71		LSB IBOC	Loss	40.71	
X Level	Loss	47.68		RX Level	undesired	-8,12			undesired	-8.12	
-62.00 dBm	Attn	23.50		1000	Loss	47.68		RX Level	Loss	47.68	
ISADR FM1	desired	-8.81	29.89	-77.00 dBm	Attn	26.00		-77.00 dBm	Attn	37.75	
BOC	Loss	40.71		USADR FM1 IBOC	desired	-8.81	32.39	USADR FM1	desired	-8.81	NA
	undesired	-9.48	1	IBOC	Loss	40.71		IBOC	Loss	40.71	2363
X Level	Loss	47.68	1	Dag z	undesired	-9.48	1		undesired	-9.48	
-62.00 dBm	Atm	22.25		RX Level	Loss	47.68	1	RX Level	Loss	47.68	
SADR FM2	desired	-8.81	20.52	-77.00 dBm	Attn	24.75		-77.00 dBm	Attn	36.00	
BOC	Loss	60.000.000		USADR FM2	desired	-8.81	32.48	USADR FM2	desired	-8.81	NA
	undesired	40_71		IBOC	Loss	40.71		IBOC	Loss	40.71	1374
X Level	Loss	-6.07		200	undesired	-6.07			undesired	-6.07	
-62.00 dBm	Attn	47.68		RX Level	Loss	47.68		RX Level	Loss	47.68	
-02,00 dDill	permi.	25.50		-77.00 dBm	Attn	28.25		-77.00 dBm	Attn	39.50	
								Notes: Best Case	S/N = 38.5 dB	25/57	

DAT File	Time Co		Star	t IDs			Gra	ide		
Number	Start	Stop					Description	1 2		
DAR40114.DAT			T		T	Ī		•		
2/22/95	***************************************	***************************************				†	<u> </u>			
	••••••				****	·	<u> </u>		<u> </u>	
Disregard	***************************************		T			····	<u> </u>		. 	
Disregard	***************************************	***************************************	2				 			
	•••••••	***************************************	3		-		AT&T Co-Channel			
		••••••	4				Amati DSB Co-Channel		ļ	
			5			ļ	FM1 Co-Channel		ļ	
			6				FM2 Co-Channel		<u> </u>	
Disregard		***************************************	7				1 M2 CO-Chaine		ļ	
			8				Amati LSB Co-Channel		ļ	
		•••••	9				Amati LSB Urban Slow with Co-Channel		ļ	
			10				Amati DSB Urban Slow with Co-Channel		ļ	
	***************************************		11				AT&T Urban Slow with Co-Channel			
	***************************************		12				FM1 Urban Slow with Co-Channel		<u> </u>	
***************************************			13				IPMA II.L. Gl. A. C.		L	
			14				FM2 Urban Slow with Co-Channel		<u> </u>	
			15				FM2 Urban Fast with Co-Channel		y coogiananosou gazza.	
			16				FM1 Urban Fast with Co-Channel			
			17				Amati DSB Urban Fast with Co-Channel	1		
			18				AT&T Urban Fast with Co-Channel			
			10				Amati LSB Urban Fast with Co-Channel			
									(00)	
		•••••	11							
			11							
			1						***************************************	
			ļļ.							
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	11					1	***************************************	
		***************************************						1		
			L I							
		***************************************	L						***************************************	
	A A A E COLO E E E E E E E E E E E E E E E E E E								***************************************	
					T	******				
manufila.na.a					1				·····	
			l		1					
		***************************************	1		1					

Tests F1, F4 and G1

Receiver

Rx No.: #4

Mfg.: PIONEER Model: SX-201 Serial: OA3965843C

Index

Page	Description
Ĭ	Cover sheet
2	DAR -> Analog interference at a 45dB signal to noise ratio with the Digital Proponent on the desired frequency (Co-channel)
3	DAR -> Analog interference at a 35dB signal to noise ratio with the Digital Proponent on the desired frequency
4	Digital Audio Tape recording log of the Co-channel results

- * Clipped pink noise used as the modulation signal for the analog channel of the Proponent signal (except AT&T)
- * ABBA used for main channel modulation on the desired analog channel
- * SCA group B included on both desired and undesired (proponent) signals
- * Total modulation on analog channels: 110%
- (SCA group level at 20%)
- * Receiver audio routed through a 15KHz low pass filter
- * Audio measurements made using quasi-peak detection and a CCIR wieghting filter
- * Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver.
- * In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

Test F-1, F-4 and G-1		F-1	F-4	G-1 Urban Slow Rayleigh	G-1 Urban Fast Rayleigh
45 dB S/N			Co-Channel	Co-Channel	Co-Channel
Receiver #4			DAR to Analog	DAR to Analog	DAR to Analog
PIONEER				with Multipath	with Multipath
SX-201	Measurements	d/u in dB	EO&C	EO&C	EO&C
Analog to Analog		-8.78 44.18	Interfering Audio detectable and		
Reference	Loss 4	10.71	tracks with ABBA beat		
	undesired -4	11.42			
RX Level	Loss	21.75	1		
-62,00 dBm	Attn	30.50			
AT&T		-8.78 43.91	Audible background noise	DAR->FM Less Annoying than	FM-> FM same as
IBAC	Loss	10.71	increases	FM->FM	DAR-> FM
	undesired =	15.72	DAR->FM Less Annoying than	No detectable modulation	
RX Level	Loss	17.68	FM->FM	with digital	
-62.00 dBm	Attn	30.00	d/u attn= 30.27 dB		
AT&T Amati	desired	-8.78 43.69	Same as Analog Reference	FM-> FM same as	FM-> FM same as
DSB IBOC	Loss	40.71		DAR-> FM	DAR-> FM
	undesired	-8.00			
RX Level	Loss	47.68			
-62.00 dBm	Attn	37.50	d/u attn= 37.99 dB		
AT&T Amati	desired	-8.78 43.98	Same as Analog Reference	FM-> FM same as	FM-> FM same as
LSB IBOC	Loss	40.71		DAR-> FM	DAR-> FM
	undesired	-8.04			
RX Level	Loss	47.68			
-62.00 dBm	Attn	37.75	d/u attn= 37.95 dB		
USADR FM1	desired	-8.78 43.70	Same as Analog Reference	FM-> FM same as	FM-> FM same as
IBOC	Loss	40.71		DAR-> FM	DAR-> FM
	undesired	-9,51			2
RX Level		47.68			
-62.00 dBm	Attn	36.00	d/u attn= 36.48 dB		
USADR FM2	desired	-8.78 43.70	Same as Analog Reference	FM-> FM same as	FM-> FM same as
IBOC	Loss	40.71		DAR-> FM	DAR-> FM
	undesired	-6.01			
RX Level	Loss	47.68			
-62.00 dBm	Attn	39.50	d/u attn= 39.98 dB		
Subcarrier	Group B on interfere	rs and desired ana	log		DAT REF No. DAR40111 DAT

Notes:

Clipped Pink Noise on interferers

Standard SCA Test Signal yields -20dB on Sony 7010 Input Monitor with Input Gain Set to 6 dB

Tests conducted February 16, 1995

Page 2 of 4

Measurements desired Loss undesired	-8.78	d/u in dB	35 dB S/N Receiver #4 PIONEER SX-201			F-1	Test F-1 (Weak) 45 dB S/N Receiver #4			F-1
desired Loss			PIONEER					4	- 1	
desired Loss										
desired Loss			SX-201		- 1		PIONEER			
Loss		22.4	II	Measurements		d/u in dB	SX-201	Measurements		d∕u in dB
	40.04	32.68	Analog to Analog	desired	-8.78	34.18	Analog to Analog	desired	-8.77	
undesired	40.71		Reference	Loss	40.71	54.10	Reference	Loss		NA
	-41.42			undesired	-41.42		Reference		40_71	
Loss	21.75		RX Level	Loss	21.75		DV I and	undesired	-41.45	
Attn	19.00			****************				0.0000000000000000000000000000000000000	1970	
desired		32.14				22.64		#3000000000000000000000000000000000000	45.5000	
Loss			- C - C - C - C - C - C - C - C - C - C		792.50000	33.04				NA
undesired							IBAC	7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	20.0	
ENGREEN AND SOLD	12.5		RX Level		525,775			250000000000000000000000000000000000000		
CONTRACTOR CONTRACTOR								A A A STATE OF THE		
***************************************		32 17		E11700000000000000000000000000000000000						
100000000000000000000000000000000000000		32.17		RV62433500	24 (250) (34)			desired	-8.77	NA
77.000			DSB IBOC				DSB IBOC	Loss	40.71	
Charles and a second			DVI	Contraction of the Contraction o				undesired	-7,84	
G12000100011000110000011	558530		11			1		Loss	47.68	
200000000000000000000000000000000000000		20.01					-77.00 dBm	Attn	17.00	
a accompany	2.000	32.21		(CONTRACTOR (A) (A) (33.96	AT&T Amati	desired	-8.77	NA
			LSB IBOC				LSB IBOC	Loss	40.71	
					-8.04			undesired		
					47.68		RX Level	Loss		
					27.75		-77.00 dBm	Attn		
- 5000 000 000 m		32.18		desired	-8.80	33.68				NA
			IBOC	Loss	40.71					110
				undesired	-9.51				112	
A COMMOND STATE OF THE PARTY OF			RX Level	Loss	47.68		RX Level	The second second		
			-77.00 dBm	Attn	26.00			*****************	100000	
11.100.100.100.100.11		32.18	USADR FM2	desired		33.68				NA
	40.71	- 1	IBOC	Loss					0.000000	INA
undesired	-6.01			undesired			iboc	D. S. S. C. S. C. L.		
Loss	47.68		RX Level	Loss			RY I avel			
Attn	28.00		-77.00 dBm			1 1		COCCOST CONTRACTOR CONTRACTOR		
					27.50		-77,00 UBM	Aun	18.50	
							Notes:			
							110003.			
	desired Loss undesired Loss Attn desired Loss undesired Loss	Ann 19.00 desired -8.80 Loss 40.71 undesired -15.72 Loss 47.68 Atm 18.25 desired -8.80 Loss 40.71 undesired -8.00 Loss 47.68 Atm 26.00 desired -8.80 Loss 47.68 Atm 26.00 desired -8.80 Loss 40.71 undesired -9.51 Loss 47.68 Atm 24.50 desired -8.80 Loss 40.71 undesired -9.51 Loss 47.68 Atm 24.50 desired -8.80 Loss 40.71 undesired -6.01 Loss 40.71 undesired -6.01 Loss 47.68	Arm	Affin	Aftin	Attility	Attile	Attile	Attin	Attin 19.00

DAT File Number	Time Code	Start ID:	1	Grade		
	Start Stop		Description	1 1 2		
DAR40111.DAT						
2/16/95				·····		
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
Disregard						
		2	Amati LSB Co-Channel			
		3	Amati DSB Co-Channel			
		4	AT&T Co-Channel			
Disregard		5		········		
		6	FM1 Co-Channel	-		
Disregard		7		··········		
		8	FM2 Co-Channel			
		9	FM2 Urban Slow with Co-Channel			
		10	FM1 Urban Slow with Co-Channel			
	······		Amati DSB Urban Slow with Co-Channel			
		12	Amati LSB Urban Slow with Co-Channel			
		13	AT&T Urban Slow with Co-Channel			
***************************************		14	AT&T Urban Fast with Co-Channel			
		15	Amati LSB Urban Fast with Co-Channel			
***************************************		16	Amati DSB Urban Fast with Co-Channel Amati DSB Urban Fast with Co-Channel			
		17	FM1 Urban Fast with Co-Channel			
······		18	FM2 Urban Fast with Co-Channel			
			FWZ Ordan Fast with Co-Channel			
		 				
			<u> </u>			
				I		
	AFFECTION TO THE PROPERTY OF T					

Tests F1, F4 and G1

Receiver

Rx No.: #5 Mfg.: FORD

Model: F4XF-19B132-CB Serial: 281150B010

Index

Page	Description
1	Cover sheet
2	DAR -> Analog interference at a 45dB signal to noise ratio with the Digital Proponent on the desired frequency (Co-channel)
3	DAR -> Analog interference at a 35dB signal to noise ratio with the Digital Proponent on the desired frequency
4	Digital Audio Tape recording log of the Co-channel results

- * Clipped pink noise used as the modulation signal for the analog channel of the Proponent signal (except AT&T)
- * ABBA used for main channel modulation on the desired analog channel
- SCA group B included on both desired and undesired (proponent) signals
- * Total modulation on analog channels: 110% (SCA group level at 20%)
- Receiver audio routed through a 15KHz low pass filter
- * Audio measurements made using quasi-peak detection and a CCIR wieghting filter
- * Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver.
- * In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

Test F-1, F-4 and G-1		F-1	F-4	G-1 Urban Slow Rayleigh	G-1 Urban Fast Rayleigh
45 dB S/N			Co-Channel	Co-Channel	Co-Channel
Receiver #5			DAR to Analog	DAR to Analog	DAR to Analog
FORD				with Multipath	with Multipath
F4XF	Measurements	d/u in dB	EO&C	EO&C	EO&C
Analog to Analog	2	35.22	Interfering Audio detectable and		
Reference		0.71	tracks with ABBA beat		
	undesired -4	1.45	1		
RX Level	Loss 2	1.75			
-62.00 dBm	Atin 2	1.50			
AT&T		34.94	Audible background noise	DAR->FM Less Annoying than	FM-> FM same as
IBAC	Loss 4	0.71	increases	FM->FM	DAR-> FM
	undesired -1	5.49	DAR->FM Less Annoying than	No detectable modulation	
RX Level	Loss 4	7.68	FM->FM	with digital	
-62.00 dBm	Attn 2	1.25	d/u attn= 21.53 dB		
AT&T Amati	desired -	35.20	Same as Analog Reference	FM-> FM same as	FM-> FM same as
DSB IBOC	Loss 4	0.71		DAR-> FM	DAR-> FM
	undesired -	3.00			
RX Level	Loss 4	7.68			I.
-62.00 dBm	Attn 2	9.00	d/u attn= 29.02 dB		
AT&T Amati	desired -	35.31	Same as Analog Reference	FM-> FM same as	FM-> FM same as
LSB IBOC	Loss 4	0.71		DAR-> FM	DAR-> FM
	undesired -	3.11			
RX Level	Loss 4	7.68			
-62.00 dBm	Atta 2	9.00	d/u attn= 28.91 dB		
USADR FM1	desired -	35.19	Same as Analog Reference	FM-> FM same as	FM-> FM same as
IBOC	Loss 4	0.71		DAR-> FM	DAR-> FM
	undesired -	9.49			
RX Level	Loss 4	7.68	1		
-62.00 dBm	Atm 2	7.50	d/u attn= 27,53 dB		
USADR FM2	desired -	3.77 35.27	Same as Analog Reference	FM-> FM same as	FM-> FM same as
IBOC	Loss 4	0.71	1	DAR-> FM	DAR-> FM
	undesired -	5.07	l.		
RX Level	Loss 4	7.68	1		
-62.00 dBm	Attn 3	1.00	d/u attn= 30.95 dB		
Subcarrier (Group B on interferer	s and desired ana	og		DAT REF No. DAR40113.DAT

Notes:

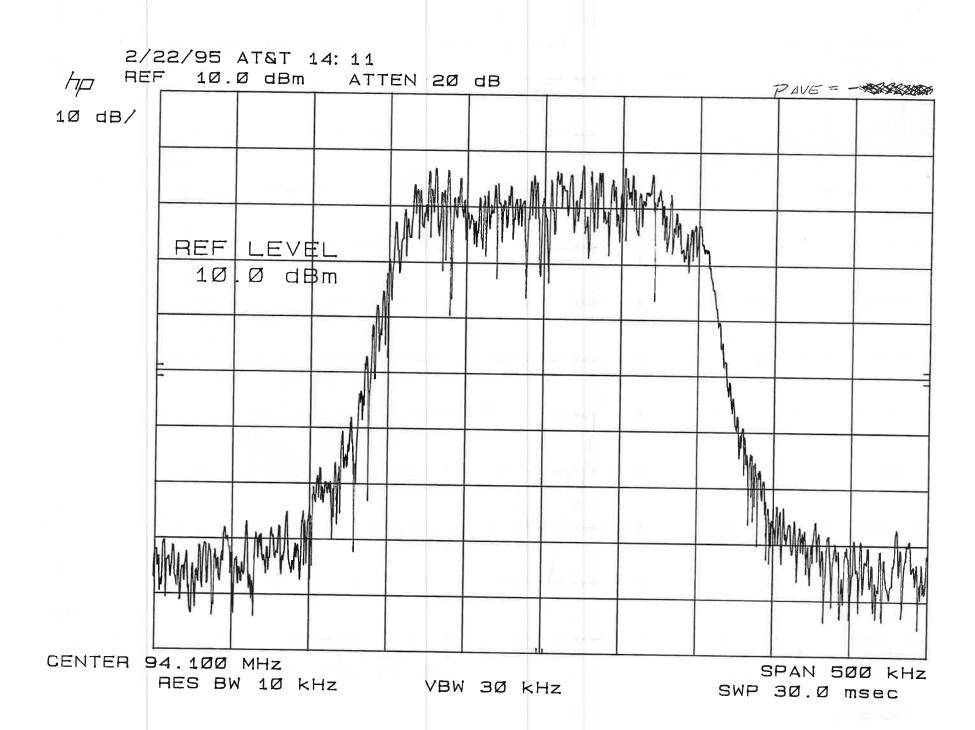
Clipped Pink Noise on interferers

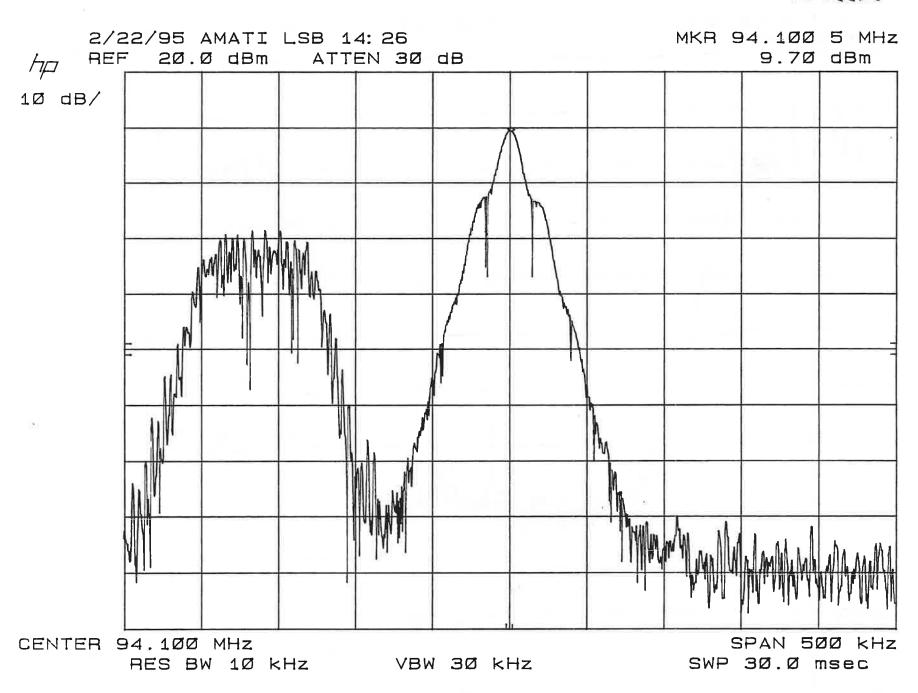
Standard SCA Test Signal yields -20dB on Sony 7010 Input Monitor with Input Gain Set to 2.3 dB

35 dB S/N			F-1	Test F-1 (Weak)			F-1	Test F-1 (Weak)			F-1
			1	35 dB S/N				45 dB S/N			
Receiver #5				Receiver #5				Receiver #5			
FORD				FORD		- 4		FORD			
F4XF	Measurements		d/w in dB	F4XF	Measurements		d/u in dB	F4XF	Measurements		d/u in dB
Analog to Analog	desired	-8.77	24.22	Analog to Analog	desired	-8.77	11.97	Analog to Analog	desired	-8.77	22.97
Reference	Loss	40.71		Reference	Loss	40.71		Reference	Loss	40.71	22.71
	undesired	-41.45			undesired	-31,45			undesired	-41.45	
Desired Signal Level	Loss	21.75		RX Level	Loss	21.75		RX Level	Loss	21.75	
-62,00 dBm	Attn	10.50		-77.00 dBm	Atm	8,25		-77.00 dBm	Attn	9.25	
AT&T	desired	-8.77	23.69	AT&T	desired	-8.77	10.44	AT&T	desired	-8.77	21,69
BAC	Loss	40.71		IBAC	Loss	40.71		IBAC	Loss	40.71	21.09
	undesired	-15.49			undesired	-15.49		i i i i i i i i i i i i i i i i i i i	undesired	-15.49	
RX Level	Loss	47.68		RX Level	Loss	27.68		RX Level	Loss	47.68	
-62.00 dBm	Attn	10.00		-77,00 dBm	Attn	16.75		-77.00 dBm	Attn	8.00	
AT&T Amati	desired	-8,77	23.95	AT&T Amati	desired	-8.77	11.54	AT&T Amati	desired	-8.77	22.04
OSB IBOC	Loss	40.71		DSB IBOC	Loss	40.71		DSB IBOC	Loss	40.71	23.04
	undesired	-8.00		paretre.	undesired	-7.84		D3D IBOC	undesired	-7.84	
XX Level	Loss	47.68		RX Level	Loss	47.68		RX Level			
-62.00 dBm	Attn	17.75		-77.00 dBm	Attn	5.50		-77.00 dBm	Loss	47.68 17.00	
AT&T Amati	desired	-8.77	24.20	AT&T Amati	desired	-8.77	11.70	AT&T Amati	desired	-8.77	22.05
SB IBOC	Loss	40.71		LSB IBOC	Loss	40.71	11.70	LSB IBOC	Loss	- 1	22.95
	undesired	-8.00			undesired	-8.00	100	E3D IBOC	undesired	40.71	
X Level	Loss	47.68		RX Level	Loss	47.68		RX Level	The state of the s	-8.00	
-62.00 dBm	Attn	18.00		-77.00 dBm	Attn	5.50		-77.00 dBm	Loss	47.68	
JSADR FM1	desired	-8.77	23.94	USADR FM1	desired	-8.77	11.69	USADR FM1	Attn	16.75	
BOC	Loss	40.71		IBOC	Loss	40.71		IBOC	desired	-8.77	22.69
	undesired	-9.49			undesired	-9.49	11	IBOC	Loss	40.71	
X Level	Loss	47.68		RX Level	Loss	47.68		RX Level	undesired	-9.49	
-62.00 dBm	Attn	16,25		-77.00 dBm	Attn	4.00		-77.00 dBm	Loss	47.68	
JSADR FM2	desired	-8.77	24.02	USADR FM2	desired	-8.77	11.77		Attn	15.00	
BOC	Loss	40.71		IBOC	Loss	40.71		USADR FM2	desired	-8.77	22.77
	undesired	-6,07			undesired	-6.07		IBOC	Loss	40.71	
XX Level	Loss	47.68		RX Level	Loss	47.68		DVI	undesired	-6.07	
	Afm	19.75		-77.00 dBm	Attn	7.50		RX Level	Loss	47.68	
-62.00 dBm	#678666000000000000000000000000000000000	17.75		-77.00 dBill	PERSONAL CONTROL OF THE PERSON	7.30		-77.00 dBm	Attn	18.50	

DAT File Number	Time Co Start	ođe Stop		Start IDs		Description	Grad	
	SIAIL	orob	1			Description		
DAR40113.DAT			ļļ					
2/17/95			 - -					
			1			AT&T Co-Channel		
			2			Amati LSB Co-Channel		
	•••••••		3		1	Amati DSB Co-Channel	1	
······································			4		1	FM1 Co-Channel		
			5			FM2 Co-Channel		
Disregard	***************************************		6		1		•••••••••••••••••••••••••••••••••••••••	
			7		1	FM2 Urban Slow with Co-Channel		
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	***************************************		8		1	FM1 Urban Slow with Co-Channel		***************************************
			9		·	Amati DSB Urban Slow with Co-Channel	1	
			10			Amati LSB Urban Slow with Co-Channel		
			111		1	AT&T Urban Slow with Co-Channel		
	***************************************		12		1	AT&T Urban Fast with Co-Channel	·	***************************************
	***************************************		13		1	Amati LSB Urban Fast with Co-Channel		
			14			Amati DSB Urban Fast with Co-Channel	·	•••••••
			15			FM1 Urban Fast with Co-Channel		
	***********		16		1	FM2 Urban Fast with Co-Channel		***************************************
	***************************************		††-		1	T	1	
			 		1			
			1					
	***************************************		†****†**				1	
			 		1	T		
			 	·····		T		***************************************
			 		4	1		••••••
			 					
			lt		·····			
			 		+			
			 					
			ļ					

			 - -					
			ļļ					
			ļļ					
			ļļ					
			ļļ					
					1		1	





PAUC = -

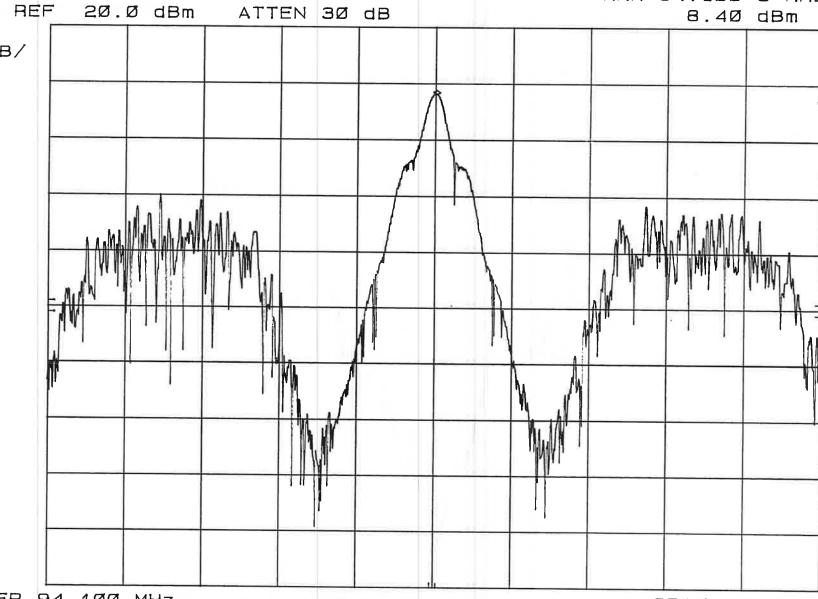
MKR 94.100 5 MHz

8.4Ø dBm

1Ø dB/

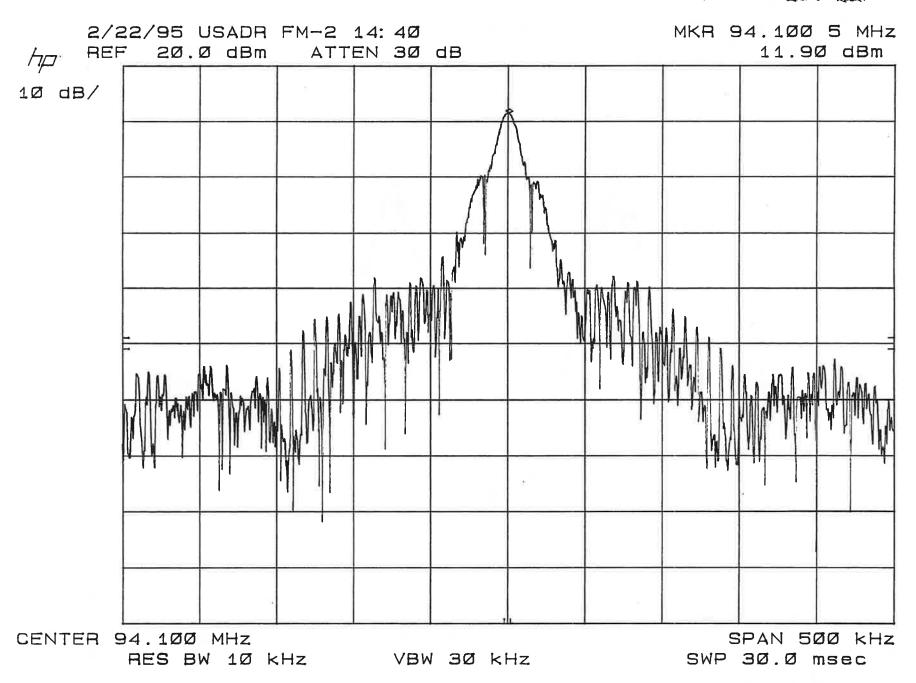
H

2/22/95 USADR FM-1 14:47



CENTER 94.100 MHz RES BW 10 kHz VBW 30 kHz

SPAN 500 KHz SWP 30.0 msec

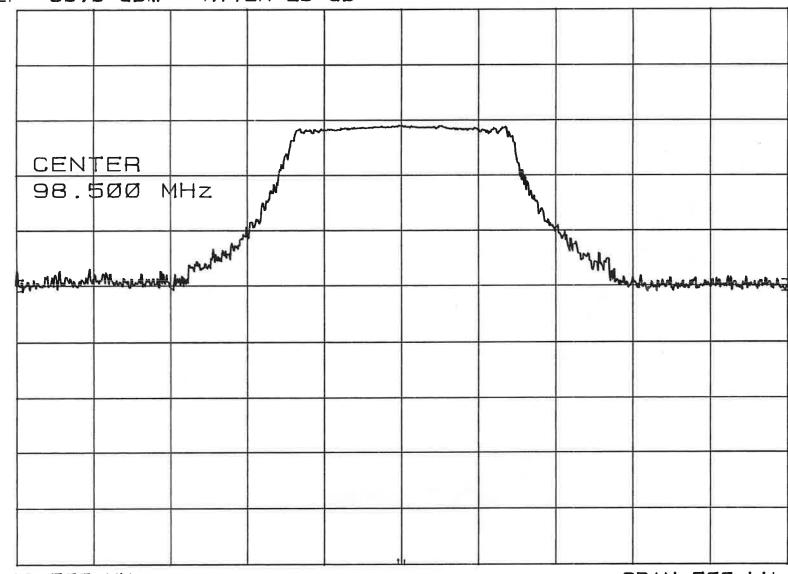


CLIPPED PINK NOISE MODULATED W AND W/O SCA INPUTS 1/17/95 EIA REF 2.1 dBm ATTEN 20 dB 10 dB/ TO THE WAY THE THE PARTY OF THE CENTER 94.100 MHz SPAN 500 KHz RES BW 10 kHz VBW 3Ø kHz SWP 3Ø.Ø msec SCA'S: 67 KHZ @ 10%

92 KHZ 0 10%

LOCAL RADIO STATION 16:21 EIA REF -30.0 dBm ATTEN 20 dB

1Ø dB/



CENTER 98.500 MHz

RES BW 10 kHz VBW 30 kHz

SPAN 500 kHz SWP 30.0 msec

APPENDIX AN

Tests F-2, F-5 and G-2 First-adjacent DAR to Analog

Tests F2, F5 and G2

Receiver

Rx No.: #1

Mfg.: DELCO Model: 16192463 Serial: 1000499

Index

Page	Description
1	Cover sheet
2	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the lower first adjacent frequency
3	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the lower first adjacent frequency
4	Digital Audio Tape recording log of the Lower First Adjacent results
5	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the upper first adjacent frequency
6	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the upper first adjacent frequency
7	Digital Audio Tape recording log of the Upper First Adjacent results
Notes:	
*	Clipped pink point year as the west-lating in 100 days
*	Clipped pink noise used as the modulation signal for the analog channel of the Proponent signal (except AT&T)
*	ABBA used for main channel modulation on the desired analog channel SCA group B included on both desired and undesired (proponent) signals
*	m i i i i i i i i i i i i i i i i i i i
	Receiver audio routed through a 15KHz low pass filter (SCA group level at 20%)
*	Audio measurements made using quasi-peak detection and a CCIR wieghting filter
*	Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver.
*	In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

Test F-2, F-5 and G-2		7	F-2	F-5	G-2 Urban Slow Rayleigh	Urban Fast Rayleigh
45 dB S/N				Lower First Adjacent	Lower First Adjacent	Lower First Adjacent
Receiver #1		1 1		DAR to Analog	DAR to Analog	DAR to Analog
DELCO	ľ	Ì			with Multipath	with Multipath
16192463	Measurements	1	d/u in dB	EO&C	EO&C	EO&C
Analog to Analog	desired	-8.86	4.09	Interferer Mod peaks detected		
Reference	Loss	40.71	1			
	undesired	-21,41	1	1		1
RX Level	Loss	21.75				
-62,00 dBm	Attn	10.50				
AT&T	desired	-8.86	6.77	DAR-> FM more annoying		
IBAC	Loss	40.71		Intense constant static		
	undesired	-15.66				
RX Level	Loss	27.68		S/N eq d/u 29.5 dB		
-62.00 dBm	Atm	13.00		d/u attn= 10.32 dB		
AT&T Amati	desired	-8.86	18.37	DAR-> FM more annoying		
DSB IBOC	Loss	40,71		Hiss with intererer modulation		
	undesired	-8.01		peaks detected		
RX Level	Loss	27.68		S/N eq d/u 31.5 dB		
-62,00 dBm	Attn	32.25		d/u attn= 17.97 dB		
AT&T Amati	desired	-8.86	4.25	DAR->FM same as FM->FM		
LSB IBOC	Loss	40.71				
	undesired	-8.14				
RX Level	Loss	27.68		S/N eq d/u 43 dB		
-62.00 dBm	Attn	18.00		d/u attn= 17.84 dB		
USADR FM1	desired	-8.86	16.12			
IBOC	Loss	40.71				
	undesired	-9.51			1	
RX Level	Loss	27.68		S/N eq d/u 33 dB	l .	
-62.00 dBm	Atm	28.50		d/u attn= 16.47 dB		
USADR FM2	desired	-8.86	4.71			
tBOC	Loss	40.71				
	undesired	-6.10			1	
RX Level	Loss	27.68		S/N eq d/u 43.5 dB	E .	
-62.00 dBm	Attn	20.50		d/u attn= 19.88 dB		
Subcarrier G	roup B on interfe	rers and	desired anal	og		DAT Ref.: DAR40120 DAT

Best Case S/N = 49 dB

Clipped Pink Noise on interferers

Tests conducted February 23, 1995

Standard SCA Test Signal yields -20dB on Sony 7010 Input Monitor with Input Gain Set to -4.0dB

Test F-2			F-2		Effects withou	nt	
35 dB S/N					Digital Modu		
Receiver #1							
DELCO			1	t t	d/u in dB @		d/u in dB @
16192463	Measurements		d/u in dB	Silence	S/N=45dB	Silence	S/N=35dB
Analog to Analog	desired	-8.86	3.34		NA I		-
Reference	Loss	40.71					
	undesired	-21.41		-	1		
Desired Signal Level	Loss	21.75					
-62.00 dBm	Attn	9.75					
AT&T	desired	-8.86	4.97	-8.87	3,23	-8.87	1.73
IBAC	Loss	40.71		40.71		40.71	1.73
	undesired	-15.61	1	-15.38		-15.38	
RX Level	Loss	27.68		27.68		27.68	
-62.00 dBm	Attn	11.25		9.75		8.25	
AT&T Amati	desired	-8.86	6.87		o Difference	0,23	
DSB IBOC	Loss	40.71			to Difference		
	undesired	-8.01					
RX Level	Loss	27,68		1			
-62.00 dBm	Attn	20.75					
AT&T Amati	desired	-8.86	3.50	N	o Difference		
LSB IBOC	Loss	40.71			o Dincience		133
	undesired	-8.14					1.4
RX Level	Loss	27.68					-
-62.00 dBm	Attn	17.25					
USADR FM1	desired	-8.86	5.62	N N	o Difference		
IBOC	Loss	40.71		1	o Dinerence		
	undesired	-9.51					- 1
RX Level	Loss	27.68	- 1				- 2
-62.00 dBm	Attn	18.00					1.0
USADR FM2	desired	-8.86	3.96	N	o Difference	-	
BOC	Loss	40.71		1 "	o Dinerence		
	undesired	-6.10					
RX Level	Loss	27,68					
-62.00 dBm	Attn	19.75					

Notes:

Same as "Lower 45dB"

DAT File	Time Code		Start IDs		t IDs		Grade	
Number	Start	Stop				Description	1	2
DAR40120.DAT								
2/23/95								
							1	1
						LOWER FIRST ADJACENT		
Disregard			1					
Disregard			2					
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			3			AT&T Lower 1st Adjacent		
		ļ	4			Amati DSB Lower 1st Adjacent Amati LSB Lower 1st Adjacent		
			5			Amati LSB Lower 1st Adjacent		
			6			FM1 Lower 1st Adjacent		
			7			FM2 Lower 1st Adjacent		
						WITH MULTIPATH (URBAN SLOW)		
			8			FM2 Urban Slow with Lower 1st Adjacent		
			9			FM1 Urban Slow with Lower 1st Adjacent		
Disregard	,		10					
		11			Amati LSB Urban Slow with Lower 1st Adjacent			
			12			AT&T Urban Slow with Lower 1st Adjacent		
			13			Amati DSB Urban Slow with Lower 1st Adjacent	. 	
						William Control of the Control of th		<u> </u>
						WITH MULTIPATH (URBAN FAST) Amati DSB Urban Fast with Lower 1st Adjacent		
			14					
			***			AT&T Urban Fast with Lower 1st Adjacent		
			16 17			FM1 Urban Fast with Lower 1st Adjacent		
			18			FM2 Urban Fast with Lower 1st Adjacent	4	
			18			Amati LSB Urban Fast with Lower 1st Adjacent		
								4

							4	
			-					
							.]	
							1	

Fest F-2, F-5 and G-2 5 dB S/N		F-2	F-5 Upper First Adjacent		G-2 Urban Slow Rayleigh	Urban Fast Rayleigh
Receiver #1			DAR to Analog		Upper First Adjacent	Upper First Adjacent
DELCO			Di III to i Illalog		DAR to Analog	DAR to Analog
6192463	Measurements	d/u in dB	EO&C		with Multipath EO&C	with Multipath
Analog to Analog		3.82 5.41	Measurement varies betw		EU&C	EO&C
Reference		0.71	43 - 47 dB	CCII		
	35/E0/00-	.44	13 - 17 UD			
X Level		.75				
-62.00 dBm	demonstration and the second	.75				
T&T		8.31				
BAC		.71				
		.66				
X Level		.68	S/N eq d/u 27.	5 dB		
-62.00 dBm	CONCORDED CONTRACTOR OF THE PARTY OF THE PAR	.50		0 dB		
T&T Amati		82 21.37	11.0	O dD		
OSB IBOC	Loss 40	.71				
	undesired -7	.97				
X Level	Loss 27	.68	S/N eq d/u 29	5 dB		1
-62.00 dBm	Attn 35	.25	d/u attn= 19.2			1
T&T Amati	desired -8	.82 21,24				
SB IBOC	Loss 40	.71				
	undesired -8	.09				1
X Level	Loss 27	.68	S/N eq d/u 31.5	5 dB		
-62.00 dBm		.00	d/u attn= 19.13			
SADR FM1	desired -8	82 18.87				
BOC	Loss 40					
	undesired -9	47				
X Level	Loss 27	68	S/N eq d/u 31.75	5 dB		
-62.00 dBm		25	d/u attn= 17.79	dB		
SADR FM2		82 5.96		i i		
BOC	Loss 40					
		06	No.			
X Level	Loss 27		S/N eq d/u 40.5	dB		
-62,00 dBm	Attn 21	75	d/u attn= 21.20	dB		
Subcarrier (roup B on interferers	and desired anale	og			DAT Dec. DARAGIAN DATE
otes: Clipped Pin	k Noise on interferers					DAT Ref.: DAR40140.DAT
Standard SC	A Test Signal yields -	20dB on Sony 70	010 Input Monitor with Inpu	ut Gain Set to -4.0dB		Best Case $S/N = 49 dB$
Tests condu	cted March 8, 1995		•			Desi case $9/N = 49 \text{ GB}$

		F-2		Effects with			
			Digital Modulation				
						d/u in dB @	
Measurements		d/u in dB	Silence	S/N=45dB	Silence	S/N=35dB	
desired	-8.82	4.88		NA			
Loss	40.71						
undesired	-21.41						
Loss	21.75						
Attn	11.25						
desired	-8.82	6.81	-8.82	5.06	-8,82	3.31	
Loss	40.71		40,71		40.71		
undesired	-15.66		-15.66		-15,66		
Loss	27.68		27.68		27,68		
Attn	13.00		11.25		9.50		
desired	-8.82	9,62	1	o Difference			
Loss	40.71						
undesired	-7.97				1		
Loss	27.68						
Attn	23.50				1		
desired	-8.82	9.74	P	o Difference			
Loss	40.71						
undesired	-8.09				1		
Loss	27,68						
Attn	23.50						
desired	-8.82	7.62	1	lo Difference			
Loss	40.71						
undesired	-9.47						
Loss	27.68		1 :		1		
	20.00						
desired	-8.82	4.96	N	o Difference			
Loss	40.71				-		
undesired	-6.06				1		
Loss	27,68						
Attn	20.75						
	desired Loss undesired Loss Attn desired Loss undesired Loss undesired Loss Attn desired Loss undesired Loss undesired Loss undesired Loss Attn desired Loss undesired Loss undesired Loss undesired Loss undesired Loss undesired Loss Attn desired Loss undesired	desired	desired	Measurements d/u in dB Silence	Measurements d/u in dB Silence d/u in dB @ S/N=45dB desired -8.82 4.88 NA Loss 40.71 undesired -21.41 Loss 21.75 Atm 11.25 desired -8.82 6.81 -8.82 5.06 Loss 40.71 40.71 undesired -15.66 Loss 27.68 27.68 27.68 311.25 desired -8.82 9.62 No Difference No Difference Loss 40.71 undesired -7.97 No Difference No Difference Loss 27.68 Atm 23.50 No Difference No Difference Loss 40.71 undesired -8.82 7.62 No Difference Loss 40.71 undesired -9.47 No Difference No Difference Loss 27.68 Atm 20.00 No Difference No Difference Loss 40.71 No Difference No Difference No Difference	Measurements	

File Name: F2_RX1T,XLS Upper 35dB
Page 6 of 7

DAT File	Time Code Start IDs			art II	15		Grade		
Number	Start	Stop					Description	1 1	2
DAR40140.DAT							UPPER FIRST ADJACENT		•
3/8/95		***************************************	1	1	1		OTI DATA DI ADVACENT		
		***************************************	T i	†*****	t		AT&T Amati LSB Upper 1st Adjacent		
			1	·····			711C1 Amati ESB Opper 1st Adjacent	-2	1
		***************************************					WITH MILEN CONTROL OF THE CONTROL OF		
	***************************************		2	ļ			WITH MULTIPATH (URBAN SLOW)		
			1				AT&T Amati LSB Urban Slow with Upper 1st Adjacent	-2	
			 	ļ					
DISREGARD			ļ	ļ			WITH MULTIPATH (URBAN FAST)		***************************************
DISKEGARD			3						***************************************
			4	ļ			AT&T Amati LSB Urban Fast with Upper 1st Adjacent	-2,5	***************************************
									••••••
			1						
			T						***************************************
	1	***************************************	1						
	·····	•••••	†			t			
		***************************************	·						
			+						ATT ATT TO SECOND STATE OF THE SECOND STATE OF THE SECOND
			ļ						***************************************
				1227/200					
	COMPANIO ACCOMPGANA				Ī	-			
			1						
	······································		1	777.000					***************************************
			 						
		***************************************						.07 (1111)	
			ļ						

				I					
				· · · · · ·					
***************************************					*****				
					····· † ···				

Tests F2, F5 and G2

Receiver

Rx No.: #2

Mfg.: DENON Model: TU-380RD Serial: 4056301149

Index

Page	Description
1	Cover sheet
2	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the lower first adjacent frequency
3	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the lower first adjacent frequency
4	Digital Audio Tape recording log of the Lower First Adjacent results
5	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the upper first adjacent frequency
6	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the upper first adjacent frequency
7	Digital Audio Tape recording log of the Upper First Adjacent results
Notes:	
* * * * * *	Clipped pink noise used as the modulation signal for the analog channel of the Proponent signal (except AT&T) ABBA used for main channel modulation on the desired analog channel SCA group B included on both desired and undesired (proponent) signals Total modulation on analog channels: 110% (SCA group level at 20%) Receiver audio routed through a 15KHz low pass filter Audio measurements made using quasi-peak detection and a CCIR wieghting filter
*	Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver. In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

Test F-2, F-5 and G-2		F-2	F-5	G-2 Urban Slow Rayleigh	Urban Fast Rayleigh
45 dB S/N			Lower First Adjacent	Lower First Adjacent	Lower First Adjacent
Receiver #2			DAR to Analog	DAR to Analog	DAR to Analog
DENON				with Multipath	with Multipath
TU-380RD	Measurements	d/u in dB	EO&C	EO&C	EO&C
Analog to Analog	desired -	8.84 23.61	Interferer Mod peaks detected		
Reference		0.71			
	undesired -2	1.41	1	II.	
RX Level	Loss 2	1.75			
-62.00 dBm	Attn 3	0.00			
AT&T	desired -	8,84 31.89	DAR-> FM more annoying		
IBAC	Loss 4	0.71	Intense constant static		
	undesired -1:	5.76			
RX Level	Loss 2	7.68	S/N at d/u 38 dB		
-62.00 dBm	Atm 3	8.00	d/u attn= 29.72 dB		
AT&T Amati	desired -	8.84 29.10	DAR-> FM more annoying		
DSB IBOC	Loss 40	0.71	Hiss with intererer modulation		
	undesired -	7.97	peaks detected		
RX Level	Loss 2	7.68	S/N at d/u 40.5 dB		
-62.00 dBm	Attn 4	3.00	d/u attn= 37.51 dB		
AT&T Amati	desired -	8.84 23.47	DAR->FM same as FM->FM		
LSB IBOC	Loss 40	0.71			
	undesired -	8.09			
RX Level	Loss 2	7.68	S/N at d/u 45 dB		
-62.00 dBm	Attn 3	7.25	d/u attn= 37.39 dB		
USADR FM1	desired -	8.84 27.38			
IBOC	Loss 40	0.71			
	undesired -	9.50			1
RX Level	Loss 2	7.68	S/N at d/u 41.8 dB		1
-62.00 dBm	Atm 39	9.75	d/u attn= 35.98 dB		
USADR FM2	desired -	8.84 23.93			
IBOC	Loss 40	0.71			
	undesired -	5.05			
RX Level		7.68	S/N at d/u 44.7 dB		
-62.00 dBm		9.75	d/u attn= 39.43 dB		
L. C.	Group B on interferers		og		DAT Ref.: DAR40121.DAT
	k Noise on interferer				
Standard SC	CA Test Signal yields	-20dB on Sony 7	010 Input Monitor with Input Gain Set to -4.0dB		Best Case S/N = 51.5 dBr
	cted February 24, 19		- -		

		F-2	Effects with o	ut			
			Digital Modulation				
			d/u in dB		d/u in dE		
Measurements		d/u in dB	Silence S/N=45dB	Silence	S/N=35dB		
desired	-8.84	12.61	NA I				
Loss	40.71						
undesired	-21.41	1					
Loss	21.75						
	19.00						
desired	-8.84	20.64	-8.87 24.76	-8.87	14.01		
Loss	40.71		40.71		1.102		
undesired	-15.76		-15.41				
Loss	27.68						
Attn	26.75						
desired	-8.84	17.60		20.50			
Loss	40,71						
undesired	-7.97		1 1				
Loss	27.68						
Attn	31.50						
desired	-8.84	12.47	No Difference				
Loss	40.71						
undesired	-8.09						
Loss	27,68						
Affra	26,25						
desired	-8.84	16.38	No Difference				
Loss	40.71		, , , , , , , , , , , , , , , , , , ,				
undesired	-9.50						
Loss	27.68						
Attn	28.75						
desired	-8.86	12.91	No Difference				
Loss	40.71		1.0 Difference				
undesired	-6,05						
Loss	27.68						
Attn	28.75						
	desired Loss undesired Loss Atta desired Loss undesired Loss undesired Loss Atta desired Loss undesired	desired	desired	Measurements d/u in dB Silence d/u in dB Silence S/N=45dB	Measurements d/u in dB Silence d/u in dB Silence Silence desired -8.84 12.61 NA NA Loss 40.71 Undesired -21.41 Na Na Loss 21.75 Atm 19.00 40.71 40.71 40.71 40.71 40.71 115.41 -15.		

DAT File	Time Code		Start IDs		IDs	Grad				
Number	Start Stop					Description 1 .				
DAR40121.DAT			no Consult							
2/24/95			100							
					1	LOWER FIRST ADJACENT	·	******************		
DISREGARD			1		- i		1			
DISREGARD			2				1	***************************************		
DISREGARD			3				·	***************************************		
DISREGARD			4				·			
DISREGARD			5		1		T			
DISREGARD			6		1		1	••••••		
DISREGARD			7		1		·			
DISREGARD			8		1		·			
DISREGARD			9		T			••••••		
DISREGARD	***************************************		10		1		·			
		***************************************	11			AMATI DSB	· ·····			
DISREGARD			12			AT&T				
			13			AT&T	·			
			14		11-	AMATI LSB	·			
		·····	15			FM1	·	*************************		
		***************************************	16			FM2	·	•••••		
		·					·····			
					1	WITH MULTIPATH (URBAN SLOW)	ļļ.			
		·····	17			FM2	 			
DISREGARD			18			FM1	 	***************************************		
			19			FM1	 	•••••		
			20		+	AMATILSB	 			
			21		+	AT&T	 			
			22			AMATI DSB	 			
					+	TANALI DOD	 			
			-		+		 			
					+		 			
					+		 			
	***************************************				+		 			
							ļļ.			
							ļ			
							ļļ.			
							ļl.			
										
							ļ			
							ļ <u>l</u>			

Test F-2, F-5 and G-2 45 dB S/N		F-2	F-5		G-2 Urban Slow Rayleigh	Urban Fast Rayleigh
		f	Upper First Adjacent		Upper First Adjacent	Upper First Adjacent
Receiver #1			DAR to Analog		DAR to Analog	DAR to Analog
DENON		- 1	1		with Multipath	with Multipath
ΓU-380RD	Measurements	d/u in dB			EO&C	EO&C
Analog to Analog	C	8.77 12.46	Interferer Mod peaks detec	ted		Eotec
Reference		0.71				
	undesired -2	1.44				
RX Level	Loss 2	1.75				
-62.00 dBm	Attn 1	8.75				
T&T	desired	8.77 22.65				
BAC	Loss 4	0.71	1			
	undesired -	5.70				
RX Level		7.68	S/N at d/u 35.7	dB	1	
-62.00 dBm	Attn 2	8.75	d/u attn= 18,56			
AT&T Amati		8.77 26.67	10,50			
OSB IBOC	Loss 4	0.71				
	undesired -	7.97	1			
XX Level	Loss 2	7.68	S/N at d/u 31.9	dB		
-62,00 dBm	Attn 4	0.50	d/u attn= 26.29			1
AT&T Amati	desired -	8.77 26.81	20,27	-		
SB IBOC		0.71				
	undesired -	3.11				1
X Level	Loss 2	7.68	S/N at d/u 31.8	dB.		1
-62,00 dBm		0.50	d/u attn= 26.15			
ISADR FM1		3.77 24.43	20.15	ub		
BOC		71				
		0.48				
X Level	MANAGER PARKS	.68	S/N at d/u 34	dB.		
-62.00 dBm	Taxaban and a constitution of the constitution	5.75	d/u attn= 24.78			
SADR FM2		3.77 13.53	24.78	10		
3OC	No bernaran	0.71				
		.08				
X Level	110 CONTRACTOR OF THE PROPERTY AND ADDRESS OF THE PROPERTY	.68	S/N at d/u 44.1	ND.		
-62.00 dBm	and the second s	.25	d/u attn= 28.18 d			
	roup B on interferers		ng 20.18 (ID		
otes: Clipped Pink	Noise on interferers	degree did	~b			DAT Ref.: DAR40141.DAT
			010 Input Monitor with Input	Gain Satta 1025		
Tests conduc	eted March 8, 1995	/	or o impact monitor with hiput	Jani Set to -4,00B		Best Case $S/N = 51.5 dB$

Test F-2			F-2		Effects with	out	
35 dB S/N	1				Digital Mod	ulation	
Receiver #2	1						
DENON					d/u in dB @		d/u in dB @
TU-380RD	Measurements		d/u in dB	Silence	S/N=45dB	Silence	S/N=35dB
Analog to Analog	desired	-8.77	1.69		NA		
Reference	Loss	40.71					
	undesired	-21.42					
Desired Signal Level	Loss	21.75				i	
-62.00 dBm	Attn	8.00					
AT&T	desired	-8,77	11.65	-8.77	15.10	-8.77	4.85
IBAC	Loss	40.71		40.71		40.71	
	undesired	-15,70		-15,40		-15.40	
RX Level	Loss	27.68		27.68		27.68	
-62.00 dBm	Aitn	17.75		21.50		11.25	
AT&T Amati	desired	-8.77	15.67	1	No Difference		
DSB IBOC	Loss	40.71				1	
	undesired	-7.97					
RX Level	Loss	27.68				1	
-62.00 dBm	Attn	29.50					
AT&T Amati	desired	-8.77	15.81	1	No Difference		
LSB IBOC	Loss	40.71					
	undesired	-8.11					
RX Level	Loss	27.68		1		1	
-62.00 dBm	Attn	29.50					
USADR FMI	desired	-8.77	13.68	I	No Difference		
IBOC	Loss	40.71					
	undesired	-9.48					
RX Level	Loss	27.68		1			
-62.00 dBm	Attn	26.00					
USADR FM2	desired	-8.77	2.78	I	No Difference		
IBOC	Loss	40.71					
	undesired	-6.08					
RX Level	Loss	27.68					
-62,00 dBm	Attn	18.50					
Notes: Same as "Up	per 45dB"						

DAT File Number	Time Cod			Star	t IDs			Grade	
	Start	Stop					Description	1 1	2
DAR40141.DAT							UPPER FIRST ADJACENT		
3/8/95									
						1	T		
DISREGARD		CO-CC-1701 1911 10097 (1/2/60)	1		"	1	AMATI DSB		!
DISREGARD			2		*******	1	AMATI DSB		ļ
	1	***************************************	3			1	AMATI DSB		
		***************************************	4			1	AT&T	-1.5 -1	1 I
		************	5			1	AMATI LSB		
······································		***************************************	6			·	FM1	-1.5	1
			7				FM2	-1.5	1
			 -			ļ	TWIZ	0	0
					-				(POSSERVED CONTRACTOR
***************************************			8			ļ	WITH MULTIPATH (URBAN SLOW)		
			8 9			ļ	FM2	0	0
			·			ļ	FM1		-2
			10			ļ	AMATI LSB		-2
			11				AT&T		-1.5
			12				AMATI DSB		-2
									£

				1100 COSS		0000			***************************************
						1			
515		**********************	1		1				
			 		*******		1		
					+				
	····								
					+				
	***************************************	***************************************	 		+		 		
			-						
***************************************								22000 AND AND AND AND AND AND AND AND AND AND	
					1				
					1			·····	
								-	***************************************
						C032/750			***************************************
			ere bodale Sancosco			645570			•••••••
			Ī	T					
			1		1	********			
					1	••••			
					1	******			

Tests F2, F5 and G2

Receiver

Rx No.: #3

Mfg.: PANASONIC Model: RX-FS430 Serial: GR3J01184

Index

Page	Description
1	Cover sheet
2	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the lower first adjacent frequency
3	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the lower first adjacent frequency
4	Digital Audio Tape recording log of the Lower First Adjacent results
5	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the upper first adjacent frequency
6	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the upper first adjacent frequency
7	Digital Audio Tape recording log of the Upper First Adjacent results
Notes:	Clipped pink noise used as the modulation signal for the analog channel of the Proponent signal (except AT&T)
*	SCA group B included on both desired and undesired (proponent) signals
* * *	Total modulation on analog channels: 110% (SCA group level at 20%) Receiver audio routed through a 15KHz low pass filter Audio measurements made using quasi-peak detection and a CCIR wieghting filter Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver. In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

Test F-2, F-5 and G-2			F-2	F-5	G-2 Urban Slow Rayleigh	Urban Fast Rayleigh
45 dB S/N				Lower First Adjacent	Lower First Adjacent	Lower First Adjacent
Receiver #3				DAR to Analog	DAR to Analog	DAR to Analog
Panasonic		- 1			with Multipath	with Multipath
RX-FS430	Measurements		d/u in dB	EO&C	EO&C	EO&C
Analog to Analog	desired	-8.87	27.33	Interferer Mod peaks detected		
Reference	Loss	40.71				
	undesired	-21.41				
RX Level	Loss	21.75				
-62.00 dBm	Attn	33.75				
AT&T	desired	-8.87	33.20	DAR-> FM more annoying		
IBAC	Loss	40.71				
	undesired	-15.60				
RX Level	Loss	27.68		S/N at d/u 41 dB		
-62.00 dBm	Attn	39.50		d/u attn= 33,63 dB		
AT&T Amati	desired	-8.87	29.87	DAR-> FM more annoying		
DSB IBOC	Loss	40.71		Hiss with intererer modulation		
	undesired	-8.02		peaks detected		
RX Level	Loss	27.68		S/N at d/u 43 dB		
-62.00 dBm	Attn	43.75		d/u attn= 41.21 dB		
AT&T Amati	desired	-8.87	26.19	DAR->FM same as FM->FM		
LSB IBOC	Loss	40.71				
	undesired	-8.09				
RX Level	Loss	27.68		S/N at d/u 45,5 dB		
-62.00 dBm	Attn	40.00		d/u attn= 41.14 dB		
USADR FM1	desired	-8.87	28,82			
IBOC	Loss	40.71			l.	
	undesired	-9.47				
RX Level	Loss	27.68		S/N at d/u 44 dB		
	Aftn	41,25		d/u attn= 39,76 dB		
USADR FM2	desired	-8.87	26.64			
(BOC	Loss	40.71				
	undesired	-6.04				
RX Level	Loss	27.68		S/N at d/u 45.25 dB		
-62,00 dBm	Attn	42.50		d/u attn= 43,19 dB		
Subcarrier Gr	oup B on interfer	rers and	desired analo	og		DAT Ref.: DAR40122.DAT
Notes: Clipped Pink	Noise on interfer	rers				

File Name: F2_RX3T.XLS Lower 45dB

Tests conducted February 24, 1995

Standard SCA Test Signal yields -20dB on Sony 7010 Input Monitor with Input Gain Set to -4,0dB

Best Case S/N = 49 dBr

35 dB S/N Receiver #3			F-2	Effects witho Digital Modu	ut lation	
Panasonic RX-FS430	Measurements		d/u in dB	S/N Silence 45dB		SA
Analog to Analog	desired	-8.87	14.83	1000	Silence	35dB
Reference	Loss	40.71	A 1.00	NA NA		
	undesired	-21.41		1		
Desired Signal Level	Loss	21,75		1		
-62,00 dBm	Attn	21.25		1		
AT&T	desired	-8.87	20.95	-8.87 26.15		
IBAC	Loss	40.71			-8.87	14.90
	undesired	-15.60		40.71	40.71	
RX Level	Loss	27.68		-15.30	-15.30	
-62.00 dBm	Attn	27.25		27.68	27.68	
AT&T Amati	desired	-8.87	17.87	32.75	21.50	
DSB IBOC	Loss	40.71	17.07	No Difference		
	undesired	-8.02				100
RX Level	Loss	27.68		1		
-62.00 dBm	Attn	31.75		1 1		
AT&T Amati	desired	-8.87	14.69			
LSB IBOC	Loss	40.71	14.09	No Difference		
	undesired	771 10	1	1		
CX Level	Loss	-8.09		1 1 1		
-62.00 dBm	Attn	27.68	1			
JSADR FM1	desired	28,50				
BOC	Loss	-8.84	16.85	No Difference		
500	British D. L	40.71				1,840,0
X Level	undesired	-9.47		1		
-62.00 dBm	Loss	27.68				- 1
SADR FM2	Attn	29.25				
BOC	desired	-8.87	14.89	No Difference		
oc .	Loss	40.71		13.5 55.4 (4.5)		
X Level	undesired	-6.04	i			
	Loss	27.68	1	1 1		- 1
-62.00 dBm	Attn	30,75				

File Name: F2_RX3T, XLS Lower 35dB

DAT File Number	Time C Start	ode Stop		S	tart	IDs			Gra	
	Start	Stop		<u> </u>				Description	1	2
DAR40122.DAT				1		1			Severational discount of the contract of the c	
2/24/95				1	ļ	1			1	1
				<u> </u>		1			1	1
						00011011			·	†
		00-200-000		I	1	I	1	LOWER FIRST ADJACENT		
				1	1	1			·	
	***************************************	***************************************	1	†	1	†	1	AMATI DSB		
		·	2	†	†****	†	·····	AT&T		ļ
		•	3	+		 	·····	AMATI LSB		
			4			ļ		FMI		ļ
				ļ		ļ	ļ	FM2		<u> </u>
		ļ	5	ļ	ļ	ļ		ITM2	J	
				ļ		ļ				
		ļ		ļ	ļ	ļ	ļ	WITH MULTIPATH (URBAN SLOW)	1	I
			6	1				FM2		
		<u> </u>	7	l		1	171100	FMI		
			8				-	AMATI LSB		
OCCUPATION OF THE PROPERTY OF THE PARTY OF T			9	1		Ī		AT&T	1	
			10	1	1	1	·····	AT&T AMATI DSB		
			1	1		†******			······	
***************************************	***************************************	·		†*****		†			·····	
	***************************************	***************************************	·	ł		 				
				 		ļ				
				ļ		ļ				
				ļ		ļ				22000000000000000000000000000000000000
				ļ		ļ				la compression de la compression de la compression de la compression de la compression de la compression de la
		http://www.								
		Medical Comments								••••••
		***************************************	1	·····				İ		
			1	·····						
			1	ł						
			·····							
			ļ							
			ļ							

	TOWNSON FRITTED OF STREET		1							***************************************
		111111111111111111111111111111111111111	1		*******	*********				
			1							***************************************
		The second second								

Test F-2, F-5 and G-2 45 dB S/N Receiver #3 Panasonic RX-FS430	Measurements	F-: d/u in	Upper First A DAR to Anal	Adjacent log	G-2 Urban Slow Rayleigh Upper First Adjacent DAR to Analog with Multipath EO&C	Urban Fast Rayleigh Upper First Adjacent DAR to Analog with Multipath
Analog to Analog	desired	-8.78 27.1	9		EO&C	EO&C
Reference	Loss	40.71	1			
	undesired	-21.43				
RX Level	Loss	21.75				11
-62,00 dBm	Attn	33.50				
AT&T	desired	-8.78 30.8	6			
BAC	Loss	40.71				
	undesired	-15.67				
RX Level	Loss	27.68	S/N at d/u	42 dB		
-62.00 dBm	Attn	37.00	d/u attn=	33.33 dB		
AT&T Amati OSB IBOC	desired	-8.78 29.1	7			
28 IBOC	Loss	40.71				
XX Level	undesired	-7.98			1	
	Loss	27.68	S/N at d/u	43.5 dB		
-62.00 dBm	Attn	43.00	d/u attn=	41.02 dB	11	
SB IBOC	desired	-8.78 29.28				
SB IBOC	Loss	40.71	1		i i	
X Level	undesired	-8.09				
-62.00 dBm	Loss Attn	27.68	S/N at d/u	43.5 dB		
ISADR FM1	desired	43.00	d/u attn=	40.91 dB		
BOC	Loss	-8.78 28.44				
	undesired	40.71	1			
X Level	Loss	-9.50	200			
-62.00 dBm	Attn	27.68	S/N at d/u	44.2 dB		
SADR FM2	desired	40.75 -8.78 27.02	d/u attn=	39.50 dB		
BOC	Loss	7	5			
	undesired	40.71 -6.08	1			
X Level	Loss	27.68	0.01			
-62.00 dBm	Attn	42.75	S/N at d/u	45.2 dB		
Subcarrier	Group B on interfer	ere and decired	d/u attn=	42.92 dB		
otes: Clipped Pir	ik Noise on interfer	ere	natog			DAT Ref.: DAR40142.DAT
Standard St	CA Test Signal viel	ds =20dB on So=-	/ 7010 Inc. + 3.5 - 1	or with Input Gain Set to -4.0		DATE NO., DAR40142.DA1
Tests condu	cted March 8, 1995	2000 011 2011	7010 Input Monit	or with Input Gain Set to -4.0	dB	Best Case S/N = 49 dB
		-				G000 O/14 - 43 UD

		F-2		Effects with		
				Digital Mod	ulation	
				d/n in dB ᢙ		4/. 1 m
Measurements		d/u in dB	Silence			d/u in dB @ S/N=35dB
desired	-8.78	15.94			T	3/14-33UB
1.5000	40.71		1			
undesired	-21.43	1	1		1	
Loss	21.75		1			
	22,25		1			
	-8.78	19.61	-8.78	23.82	0.70	12.32
T1.050000	40.71			20.02	1000	12.32
The state of the s	-15.67	- 1				
Loss	27.68	- 1				
Attn	25.75			3		
desired	-8.78	17.92		o Difference	18,73	
Loss	40.71		1	Difference		
undesired	-7.98		- 1			
Loss	27.68					
Attn	31.75					
desired	-8.78	18.03	N/	Difference		
Loss	40.71		1"	Difference		
undesired	-8.09	1		- 1		
Loss	1 7 7 7 7 7 7 7 7	I	2	- 1		
Attn		1				
desired		17.19	No	Difference		
Loss	40.71		I NO	Difference		
undesired			1			
Loss		1	1			1
Attn		1		- 1		
desired		15.77	NI-	Die.		
Loss		10.77	140	Difference		ı
The state of the s		- 1		1		
Loss	27.68	1		1		1
Attn	31,50					1
	desired Loss undesired Loss Attn desired Loss undesired Loss undesired Loss Attn desired Loss undesired Loss undesired Loss undesired Loss undesired Loss undesired Loss undesired Loss Attn desired Loss Attn desired Loss Attn desired Loss undesired Loss Attn	desired	Measurements d/u in dB	Measurements d/u in dB Silence	Measurements d/u in dB Silence S/N=45dB	Measurements

DAT File Number	Time C	ode Stap			Start	IDs -			80000000 000000000000000000000000000000		
DAR40142.DAT	Otall	Step						Description		ade	
		low-		T	T			Description	1	- 1	2
3/8/95			****			········	ļ	UPPER FIRST ADJACENT			**************************************
						<u>[]</u>	<u>. </u>	The state of the s			
			1					AMATI LSB			••••••
		-030			7	i			0		
		***************************************	-						***************************************		
		***************************************						WITH MULTIPATH (URBAN SLOW)			
		***************************************	2					AMATI LSB			*******
				1	T		******		-1	***************************************	
		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		·	·			<u> </u>	·······		
	***************************************			4							
***************************************									erecal)		
<u>l</u>			1	1	T*****	*****	*******		7	·····t	********
	6.000/35/2010/2010/00	***************************************		·							
				ļ	ļl						
			1	1		ľ				1	
			1	Ī				······································	T	******	
			1	·····	···········				***************************************		***********
			ł	ļ	ļļ		1				0005000
					0.000000				2000		********

			l				- 1			1	*********
			333000		·····		·····				
		***********************					<u> </u> -				
		••••••									
									ENTREMONDATION OF THE PROPERTY	T	***********

					·····						**********
	***************************************	***************************************									
									cook.		
						····					
			······								
ALDITOS SANA CESTARAS CATRACAS CALA											
	•••••						. Iî				
					- 1	1	1			1	
	212120.00000000000000000000000000000000	1	-	******				••••••••••••••••••••••••••••••••••	***************************************	··· ·······	
CM70=			·····				Į				
					L					1	
						1				1	**********
			-		····†····		-		1		
					····						
										Topogram was	
		1			1	1	T			T	
	ALIGNATURE STATE OF THE STATE O										
Upparty of Contract									· 		
			[
			200		1	1	1			1	********
		1			*******	·	+		†·····	+	
							4		·	4	
									I	1	-
							_				22110107

Tests F2, F5 and G2

Receiver

Rx No.: #4

Mfg.: PIONEER Model: SX-201 Serial: OA3965843C

Index

Page	Description
1	Cover sheet
2	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the lower first adjacent frequency
3	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the lower first adjacent frequency
4	Digital Audio Tape recording log of the Lower First Adjacent results
5	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the upper first adjacent frequency
6	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the upper first adjacent frequency
7	Digital Audio Tape recording log of the Upper First Adjacent results
Notes:	
* * * * * *	Clipped pink noise used as the modulation signal for the analog channel of the Proponent signal (except AT&T) ABBA used for main channel modulation on the desired analog channel SCA group B included on both desired and undesired (proponent) signals Total modulation on analog channels: 110% (SCA group level at 20%) Receiver audio routed through a 15KHz low pass filter Audio measurements made using quasi-peak detection and a CCIR wieghting filter Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver. In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

Test F-2, F-5 and G-2			F-2	F-5		G-2	Urban Slow Rayleigh	Urban Fast Ra	yleigh
45 dB S/N		- 1		Lower First Adjacent		Lower First		Lower First Adjacent	
Receiver #4				DAR to Analog		DAR to Ana		DAR to Analog	
Pioneer		- 1				with Multipa	ath	with Multipath	
SX-201	Measurements		d/u in dB	EO&C		EO&C		EO&C	
Analog to Analog	desired	-8.87	31.87	Interferer Mod peaks detected	ed				
Reference	Loss	40.71				l		1	
	undesired	-21.45				l			
RX Level	Loss	21.75				1		1	
-62.00 dBm	Attn	38.25							
AT&T	desired	-8.87	35.32	DAR-> FM more annoying					
IBAC	Loss	40.71							
	undesired	-15.72							
RX Level	Loss	27.68		S/N at d/u 42.4					
-62,00 dBm	Attn	41.50		d/u attn= 38.05	dB				
AT&T Amati	desired	-8.87	32.60	DAR-> FM more annoying					
DSB IBOC	Loss	40.71		Hiss with intererer modulati	on				
	undesired	-8.00		peaks detected		l		!	
RX Level	Loss	27.68		S/N at d/u 44.5	dВ	ļ.			
-62.00 dBm	Attn	46.50		d/u attn= 45.77					
AT&T Amati	desired	-8.87	31.44	DAR->FM same as FM->FM	vî.				
LSB IBOC	Loss	40.71				l			
	undesired	-8.09							
RX Level	Loss	27.68		S/N at d/u 45.4	dB	l			
-62,00 dBm	Attn	45.25		d/u attn= 45.68	dB				
USADR FM1	desired	-8,87	32.31						
IBOC	Loss	40.71				1			
	undesired	-9.46				l .			
RX Level	Loss	27.68		S/N at d/u 44.8					
-62,00 dBm	Attn	44.75		d/u attn= 44.31	dB				
USADR FM2	desired	-8.87	31.91						
IBOC	Loss	40.71							
	undesired	-6.06				1			
RX Level	Loss	27.68		S/N at d/u 45	dB				
-62.00 dBm	Attri	47,75		d/u attn= 47.71	dB				
Subcarrier (Group B on interfe	rers and	desired anal-	og				DAT Ref.: DAR40122.DA	Т

Subcarrier Group B on interferers and desired analog

Notes:

Clipped Pink Noise on interferers

Standard SCA Test Signal yields -20dB on Sony 7010 Input Monitor with Input Gain Set to -4.0dB

Tests conducted February 28, 1995

Best Case S/N = 51 dB

			F-2	Effects withou	ıt	
35 dB S/N Receiver #4	1			Digital Modu	lation	
Pioneer						
SX-201	Na	11	1	d/u in dB @		d/u in dB @
	Measurements		d/u in dB	Silence S/N=45dB	Silence	S/N=35dB
Analog to Analog	desired	-8.87	20.62	NA I		
Reference	Loss	40.71				
D	undesired	-21.45				
Desired Signal Level	Loss	21.75				
-62.00 dBm	Attn	27.00				
AT&T	desired	-8.87	23.82	-8.87 29.23	-8.87	17.98
IBAC	Loss	40.71		40.71	40.71	17.50
	undesired	-15.72		-15.38	-15.38	
RX Level	Loss	27.68	1	27.68	27.68	
-62.00 dBm	Attn	30.00		35.75	24.50	
AT&T Amati	desired	-8.87	21.60	No Difference	24.50	
DSB IBOC	Loss	40.71		, so amerence		
Sec.	undesired	-8.00	1	1 1		
RX Level	Loss	27.68	1			
-62,00 dBm	Attn	35.50				
AT&T Amati	desired	-8.87	20.44	No Difference	_	
LSB IBOC	Loss	40.71	1	No Difference		
	undesired	-8.09		1 1		
RX Level	Loss	27.68				
-62.00 dBm	Attn	34.25	- 1			
JSADR FM1	desired	-8.84	21.09	No Difference		
BOC	Loss	40.71	- 1	No Difference		
	undesired	-9.46	ł			
XX Level	Loss	27.68				
-62,00 dBm	Atm	33.50	1			
JSADR FM2	desired	-8.87	20.41	No Difference	_	
BOC	Loss	40.71	2007(62)	140 Difference		11111
	undesired	-6.06				
X Level	Loss	27.68		9 1 1		
O' LCVCI	Attn	36.25				

File Name: F2_RX4T.XLS Lower 35dB

DAT File	Time Co	ode		tart IDs			Grad	ie
Number	Start	Stop	<u> </u>			Description	1 1	2
DAR40123.DAT					<u> </u>			
2/28/95								
***************************************			1 1	"	1			
	***************************************		1 1		1	LOWER FIRST ADJACENT		
			††		·····	 		
			† 		·····	<u> </u>		
			 	···	ļ	AMATI DSB		
			2			AT&T		
			3			Alata		
					ļ	AMATI LSB		
			4			FM1		
			5		ļ	FM2		L
11.00000000000000000000000000000000000	\$400001141100ccc0301141100cc	111111111111111111111111111111111111111				WITH MULTIPATH (URBAN SLOW)		
		Appending to the second	6			AMATI LSB		
			7		1	AT&T		
			8		1	AMATI DSB		
	***************************************		9		1	FM1		***************************************
			10			FM2		
					·	1142		
			·		ļ			***************************************
		ļ	<u> </u>					
					ļ			
					1			
					<u> </u>			
***************************************						110000000000000000000000000000000000000	m14 executional conscional actions on	and oxposing to oxpress or
***************************************			1 1		1			60/00/01/24 (000/00/W/101/
			1		1			
			11		1	<u> </u>	<u> </u>	
			1		·			
			·		1	+		***************************************
					·	 		
			ļļ					
		<u> </u>	<u> </u>					.
			1 1			THE STREET OF THE STREET OF THE STREET STREE		
	***************************************				1			
***************************************	***************************************	1			1			
			1		1	†		T

Test F-2, F-5 and G-2			F-2	F-5		G-2 Ur	ban Slow Rayleigh	Urban Fast Rayleigh
5 dB S/N				Upper First Adja	cent	Upper First Adja	cent	Upper First Adjacent
Receiver #4				DAR to Analog		DAR to Analog		DAR to Analog
Pioneer		- 1				with Multipath		with Multipath
SX-201	Measurements		d/u in dB	EO&C		EO&C		EO&C
nalog to Analog	desired	-8.79	21.22					2000
Reference	Loss	40.71						
	undesired	-21.47						
RX Level	Loss	21.75				1		
-62.00 dBm	Attn	27.50				1		1
T&T	desired	-8,79	29.23					
BAC	Loss	40.71						
	undesired	-15.55		1				ł
XX Level	Loss	27.68		S/N at d/u	38.1 dB			
-62.00 dBm	Attn	35.50		d/u attn=	27.49 dB			
T&T Amati	desired	-8.79	28.65					
OSB IBOC	Loss	40.71				1 -		
	undesired	-7.97		1				
X Level	Loss	27.68		S/N at d/u	38.6 dB	1		
-62,00 dBm	Attn	42,50		d/u attn=	35.07 dB			
T&T Amati	desired	-8.79	28.73					
SB IBOC	Loss	40.71						
	undesired	-8.05						
X Level	Loss	27.68		S/N at d/u	38.6 dB			
-62.00 dBm	Attn	42.50		d/u attn=	34.99 dB			
SADR FM1	desired	-8.79	26.87					
BOC	Loss	40.71						
	undesired	-9.44						
X Level	Loss	27.68		S/N at d/u	40.4 dB			
-62.00 dBm	Attn	39.25		d/u attn=	33.60 dB			
SADR FM2	desired	-8.79	21.48					
BOC	Loss	40.71						
	undesired	-6.05						
X Level	Loss	27.68		S/N at d/u	44.8 dB			
-62.00 dBm	Attn	37.25		d/u attn=	36.99 dB			
Subcarrier G	roup B on interfe	rers and	desired analo	g				DAT Ref.: DAR40143,DAT
otes: Clipped Pink	Noise on interfe	rers						DAT REL. DAR40143,DAT
Standard SC	A Test Signal yie	lds -20dI	3 on Sony 70	10 Input Monitor	with Input Gain	et to -4.0dB		Post Core C/N 54 5 1D
Tests conduc	ted March 9, 199	5	-	•		367.72		Best Case $S/N = 51.5 dB$

Test F-2			F-2	Effects with out
35 dB S/N		7		Digital Modulation
Receiver #4				
Pioneer	l)			d/u in dB @ d/u in dB
SX-201	Measurements		d/u in dB	Silence S/N=45dB Silence S/N=35dB
Analog to Analog	desired	-8.79	10,22	NA NA
Reference	Loss	40.71		
	undesired	-21.47		
Desired Signal Level	Loss	21.75		
-62.00 dBm	Attn	16.50		
AT&T	desired	-8.79	17.98	-8.79 21.25 -8.79 10.75
IBAC	Loss	40.71		40.71 40,71
	undesired	-15.55		-15.32 -15.32
RX Level	Loss	27.68		27.68 27.68
-62,00 dBm	Attn	24,25		27.75 17.25
AT&T Amati	desired	-8.79	17.40	No Difference
DSB IBOC	Loss	40,71		
	undesired	-7.97		
RX Level	Loss	27,68		
-62.00 dBm	Attn	31.25		
AT&T Amati	desired	-8.79	17.48	No Difference
LSB IBOC	Loss	40.71		
	undesired	-8.05		
RX Level	Loss	27.68		
-62,00 dBm	Attn	31.25		
USADR FM1	desired	-8.79	15.62	No Difference
IBOC	Loss	40.71		
	undesired	-9.44		
RX Level	Loss	27.68	1	
-62,00 dBm	Attn	28.00		
USADR FM2	desired	-8.79	10.23	No Difference
IBOC	Loss	40.71		
	undesired	-6.05		
RX Level	Loss	27,68		
-62.00 dBm	Attn	26.00		

File Name: F2_RX4T.XLS Upper 35dB

DAT File	Time Co				tart	IDs			Grade	
Number	Start	Stop						Description	Grade	
DAR40143.DAT			\top	T	Т	T	Т	UPPER FIRST ADJACENT		2
3/9/95					1	†	1	OTTER FIRST ADJACENT		
	***************************************					+				
50000MC0.ml.0000000000000000000000000000000000		***************************************	1		1	+	·	AMATI LSB		
			2	100 100 100		+	·	AT&T	-1	1
·····		***************************************	3			+	·	AMATI DSB	-1	1
***************************************			4	********		+		FM1	-1	i
			5			+			-1	1
		***************************************				ļ	ļ	FM2	0	0
						ļ			 	
				4		ļ	ļ	WITH MULTIPATH (URBAN SLOW)	······	***************************************
			6		ļ	ļ	ļ	IFM2	-0.5	•••••••
			7			I		FM1	-1.5	
			8			1		AMATI DSB	-1.5	
			9			1		AT&T	-1.5 -1 -1.5	
			10		1	1]	AMATI LSB	-1	
				T	1	Ī	l'''''		-1.3	
				1		1		<u> </u>	<u> </u>	
	I	***************************************		1			******	·		
		•	1	†		†*****	•••••		<u></u>	
		***************************************	1	†	·····	t				
				· † ·····	·	 				
				+		ļ			The Section Control Co	
······································	·····			 						
			ļ	ļ						
			ļ	ļ						
······································			ļ	ļ					····	
			ļ	ļ						
			ļ	ļ					 	
			ļ	ļ						••••••
			<u> </u>							
										••••••
	1				73.110.00					
		acamanues cossos na								
				· · · · · · · · · · · · · · · · · · ·	*******		*******			
				i						******************
1										

		***************************************								***************************************

				\Box						

Tests F2, F5 and G2

Receiver

Rx No.: #5 Mfg.: FORD

Model: F4XF-19B132-CB Serial: 281150B010

Index

Page	Description
1	Cover sheet
2	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the lower first adjacent frequency
3	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the lower first adjacent frequency
4	Digital Audio Tape recording log of the Lower First Adjacent results
5	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the upper first adjacent frequency
6	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the upper first adjacent frequency
7	Digital Audio Tape recording log of the Upper First Adjacent results
Notes:	
* * * * * *	Clipped pink noise used as the modulation signal for the analog channel of the Proponent signal (except AT&T) ABBA used for main channel modulation on the desired analog channel SCA group B included on both desired and undesired (proponent) signals Total modulation on analog channels: 110% (SCA group level at 20%) Receiver audio routed through a 15KHz low pass filter Audio measurements made using quasi-peak detection and a CCIR wieghting filter Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver. In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

Test F-2, F-5 and G-2	1	T	F-2	F-5	G-2 Urban Slow Rayleigh	Urban Fast Rayleigh
45 dB S/N		- 1		Lower First Adjacent	Lower First Adjacent	Lower First Adjacent
Receiver #5	1	- 1		DAR to Analog	DAR to Analog	DAR to Analog
Ford Auto	1	- 1			with Multipath	with Multipath
F4XF-19B132-CB	Measurements		d/u in dB	EO&C	EO&C	EO&C
Analog to Analog	desired	-8.87	-6.18	Interferer Mod peaks detected		
Reference	Loss	40.71		-		
	undesired	-1.40				
RX Level	Loss 2	21.75			-	
-62,00 dBm	Atm 2	20.25				
AT&T		-8.87	-13.55	DAR-> FM more annoying		
IBAC		40.71				
		15.60				
RX Level		7.68		S/N at d/u 47.5 dB		
-62.00 dBm		12.75		d/u attn= 20.12 dB		
AT&T Amati	1	-8.87		DAR-> FM more annoying		
DSB IBOC		40.71		Hiss with intererer modulation		
		-7.98		peaks detected		
RX Level		7.68		S/N at d/u 26.8 dB		
-62.00 dBm		53.25		d/u attn= 27.74 dB		
AT&T Amati		-8.87	-5.56	DAR->FM same as FM->FM		
LSB IBOC		40.71				
		-8.09				
RX Level		7.68		S/N at d/u 43.8 dB		
-62.00 dBm		28.25		d/u attn= 27.63 dB		
USADR FM1		-8.87	17.31			
IBOC		40.71				
		-9.46				
RX Level		7.68		S/N at d/u 27.5 dB		
-62,00 dBm		49.75		d/u attn= 26.26 dB		
USADR FM2		-8.87	0.36			
IBOC		40.71				
	1	-6.01		L		
RX Level		7.68		S/N at d/u 38.8 dB		
-62,00 dBm	# C P C C C C C C C C C C C C C C C C C	36.25		d/u attn= 29.71 dB		
Subcarrier G	roup B on interfere	ers and o	desired analo	og		DAT Ref.: DAR40124.DAT

Notes:

Clipped Pink Noise on interferers
Standard SCA Test Signal yields -20dB on Sony 7010 Input Monitor with Input Gain Set to -4.0dB

Tests conducted February 28, 1995

Best Case S/N = 51.5 dB

Test F-2			F-2	Effects with	out	
35 dB S/N				Digital Modu	ılation	
Receiver #5	1					
Ford Auto F4XF-19B132-CB	h.,			d/u in dB @		d/u in dB @
	Measurements		d/u in dB	Silence S/N=45dB	Silence	S/N=35dB
Analog to Analog	desired	-8.87	-16.88	NA		
Reference	Loss	40.71				
	undesired	-1.45				
Desired Signal Level	Loss	21.75				
-62.00 dBm	Attn	9.50				
AT&T	desired	-8.87	-16.05	-8.87 -16.27	-8.87	-18.27
IBAC	Loss	40,71		40.71	40.71	10127
	undesired	-15.60		-15.38	-15.38	
RX Level	Loss	7.68		7.68	7,68	
-62.00 dBm	Attn	10.25		10.25	8.25	
AT&T Amati	desired	-8.87	8.08	No Difference	0,23	
DSB IBOC	Loss	40.71				
	undesired	-7.98				
RX Level	Loss	7.68				
-62.00 dBm	Attn	42.00				
AT&T Amati	desired	-8.87	-16.81	No Difference		
LSB IBOC	Loss	40.71		1.0 Billerence		
	undesired	-8.09	1			
RX Level	Loss	7.68				
-62.00 dBm	Attn	17.00				
USADR FM1	desired	-8.84	6.09	No Difference		
BOC	Loss	40.71		1.0 Difference		
	undesired	-9.46	1			
RX Level	Loss	7.68				
-62.00 dBm	Attn	38.50				
JSADR FM2	desired	-8.87	-11.14	No Difference		
BOC	Loss	40.71		No Difference		
	undesired	-6.01				
RX Level	Loss	7.68				
-62.00 dBm	Attn	24,75				

File Name: F2_RX5T.XLS Lower 35dB

DAT File	Time Code					Grade		
Number	Start	Stop			Description	1	2	
DAR40124.DAT					Lower First Adjacent		United States of the Control of the	
2/28/95								
		(100 - 100 -						
			11		Amati DSB	-3	0.5	
			2		AT&T		-1.5	
			3	<u> </u>	Amati LSB	0	0	
			4	'l''''	USADR FM1	-3	0	
***************************************	***************************************		5	'l''''i'''i''	USADR FM2	-1.5	-0.5	
				''''''''''''''''''''''''				
			-lt		With Multilpath (Urban Slow)			
	***************************************		6	- 	FM2	-1		
	***************************************	***************************************	7	-	[FM1	-3		
			8		AMATI LSB	0		
			9		AT&T	-2		
			10	- -	AMATI DSB	-3		
				-	AWATI DOD	-3		
				-	With Multilpath (Urban Fast)			
			111		Amati DSB	-3		
			12		AT&T			
					Alan	-2.5		
			13		Amati LSB			
			14		USADR FMI	-3 -1		
			15		USADR FM2	-1		
*200221111220200011EH0********************************	All collected contribution of	Description of the second			F		991100000000000000000000000000000000000	
	Sanda Sweet Control							
			I					
			1	T T		t		
······		•••••						
			'l'''''	'l'''''				
			1	1	<u> </u>	······		
***************************************	***************************************		' 	· ····	1			
			··	·				
				·				
				 				

Test F-2, F-5 and G-2		F-2	F-5			G-2 Urban Slow Rayleigh	Urban Fast Rayleigh
5 dB S/N			Upper First Adjac	cent		Upper First Adjacent	Upper First Adjacent
Receiver #5		1	DAR to Analog			DAR to Analog	DAR to Analog
Ford Auto		1				with Multipath	with Multipath
F4XF-19B132-CB	Measurements	d/u in dB	EO&C			EO&C	EO&C
Analog to Analog		8.78 -6.12					2000
Reference		0.71					
	The state of the s	1.37					
RX Level	Loss 2	1,75					
-62,00 dBm		0.25					
AT&T	desired -	8.78 -16.76					
IBAC		0.71					
	undesired -1:	5.55					
RX Level	Loss	7.68	S/N at d/u	50.2 dB			
-62.00 dBm		9,50	d/u attn=	20.14 dB			
AT&T Amati	desired -	3.78 19.39					
OSB IBOC	Loss 40	0.71					
	undesired -	7.95					
RX Level		7.68	S/N at d/u	27.2 dB			
-62.00 dBm	Attn 53	3,25	d/u attn=	27.74 dB			
AT&T Amati	desired -8	3.78 19.74					
LSB IBOC	Loss 40	0.71				11	
	undesired -8	3.05					
RX Level	Loss	.68	S/N at d/u	27.2 dB			
-62.00 dBm	Attn 53	3.50	d/u attn=	27.64 dB			
JSADR FM1	desired -8	17.38					
BOC		0.71					
		.44	1				
XX Level	ALTERIAL PROPERTY AND ADDRESS OF THE	.68	S/N at d/u	26.8 dB			
-62.00 dBm		.75	d/u attn=	26.25 dB			All and the second seco
JSADR FM2		.78 -0.03					
BOC		_71					
		.03					
X Level		.68	S/N at d/u	40 dB			i I
-62,00 dBm	Attn 35	.75	d/u attn=	29.66 dB			
Subcarrier (Froup B on interferers	and desired anal	og	- i		-	DAT Poft DARAGIAA DAT
lotes: Clipped Pin	k Noise on interferers		10.24				DAT Ref.: DAR40144.DAT
Standard SC	A Test Signal yields	-20dB on Sony 7	010 Input Monitor	with Input Gain S	et to -4.0dB		Part Car. 0/14 54 5 15
Tests condu	cted March 9, 1995	•	•				Best Case S/N = 51.5 dB

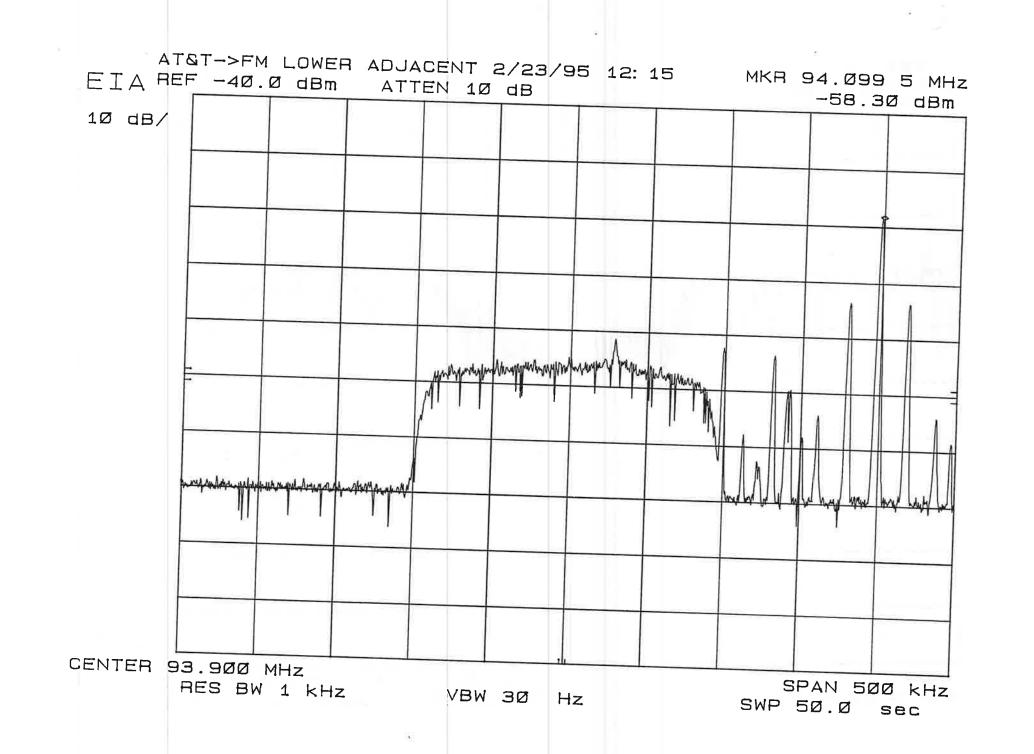
Test F-2 35 dB S/N			F-2	Effects with out Digital Modulation					
Receiver #5					Digital Modul	анол			
Ford Auto					d/u in dB @		d/u in dB		
F4XF-19B132-CB	Measurements		d/u in dB	Silence	S/N=45dB	Silence	S/N=35dB		
Analog to Analog	desired	-8.78	-17.37						
Reference	Loss	40.71							
	undesired	-1.37			1				
Desired Signal Level	Loss	21.75							
-62.00 dBm	Attn	9.00							
AT&T	desired	-8.78	-18.01	-8.78	-4,50	-8.78	-22.50		
IBAC	Loss	40.71	1	40.71		40.71			
	undesired	-15.55		:-15,31		-15.31			
RX Level	Loss	7.68		7.68		7.68			
-62.00 dBm	Atm	8.25		22.00		4.00			
AT&T Amati	desired	-8.78	8.14						
DSB IBOC	Loss	40.71							
	undesired	-7,95							
RX Level	Loss	7.68							
-62,00 dBm	Attn	42,00							
AT&T Amati	desired	-8,78	8.49						
LSB IBOC	Loss	40.71							
	undesired	-8.05							
RX Level	Loss	7.68							
-62,00 dBm	Atm	42.25							
USADR FM1	desired	-8.78	6.13						
IBOC	Loss	40.71							
	undesired	-9.44		1					
RX Level	Loss	7.68							
-62.00 dBm	Attn	38.50							
USADR FM2	desired	-8.78	-12.03						
IBOC	Loss	40.71	1						
	undesired	-6.03							
RX Level	Loss	7.68							
-62.00 dBm	Attn	23.75							

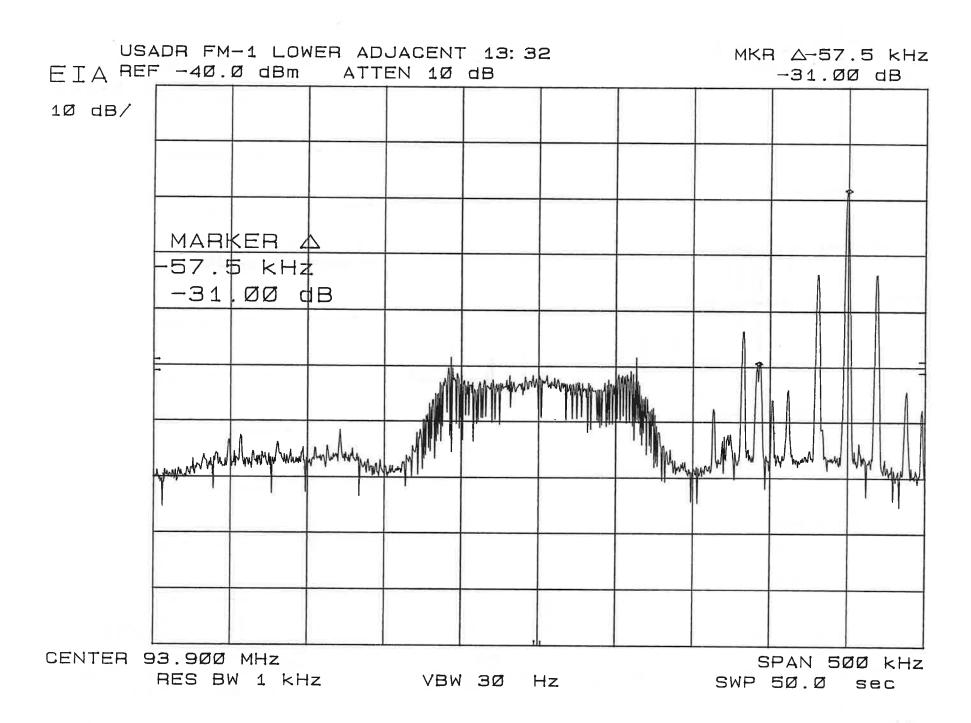
DAT File	Time Co	Start IDs							Grade		
Number	Start Stop							Description		Grade	
DAR40144.DAT			T		TT		LIDDED	FIRST ADJACE	100	1	2
3/9/95	***************************************	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		·····	··•		ULLER	FIRST ADJACE	N1		
			11	·		ATOT					
·····	•••••••••••••••••••••••••••••••••••••••					AT&T				-2	T
			2	ļļ	4	AMATI LSB				-2	1
					1		A.L.I. (11-11-17)	***************************************	***************************************		†
				11			VITH MULT	IPATH (URBAN	SLOW)		•
		000000110110000010000000000000000000000	3			AMATI LSB	•••••			3.5	
		Control to 1	4	i	1 1	AT&T				-2.5	ļ
			-	ii	1					-2	
·····			·	† <u> </u>	+		MITTI MILIT	TDATE CURVES			ļ
·····			5	 	++-	AT&T	VIIH MULI	IPATH (URBAN	FAST)		
										-2	CONTRACTOR OF THE STATE OF THE
			6	ļļ	4	AMATI LSB		***************************************		-2.5	I
			ļ	ļļ	<u>.</u>					1	T
			ļ		1					·····1	t

					I				***************************************		ļ
	Transcoretta innocessaria	ATTENCE OF THE PROPERTY.	1		1		***************************************				
			1		†		••••••				
·····					+				.,		
······································					·						
		••••••									T
					ļļ						
			ļļ		1						
1.								***************************************	••••••		
		ACOUNTY CONTRACTOR	Services September				***************************************				
					1			***************************************			l
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	******************************	11		† <u> </u>	···					
	***************************************	***************************************	······		 	····					
·····-					ł				***************************************		
		••••••			ļļ						
			ļļ		ļļ			***************************************			******************************
					ļļ						
							Land Land				
			7000UCS/			T	***************************************				
		Mercanista de la caractera de estado				<u> </u>	***************************************				
		***************************************	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		***************************************				
		***************************************				···					***************************************

······································	·····										

			U		1000	The second state of the second	and out the second trackers the				

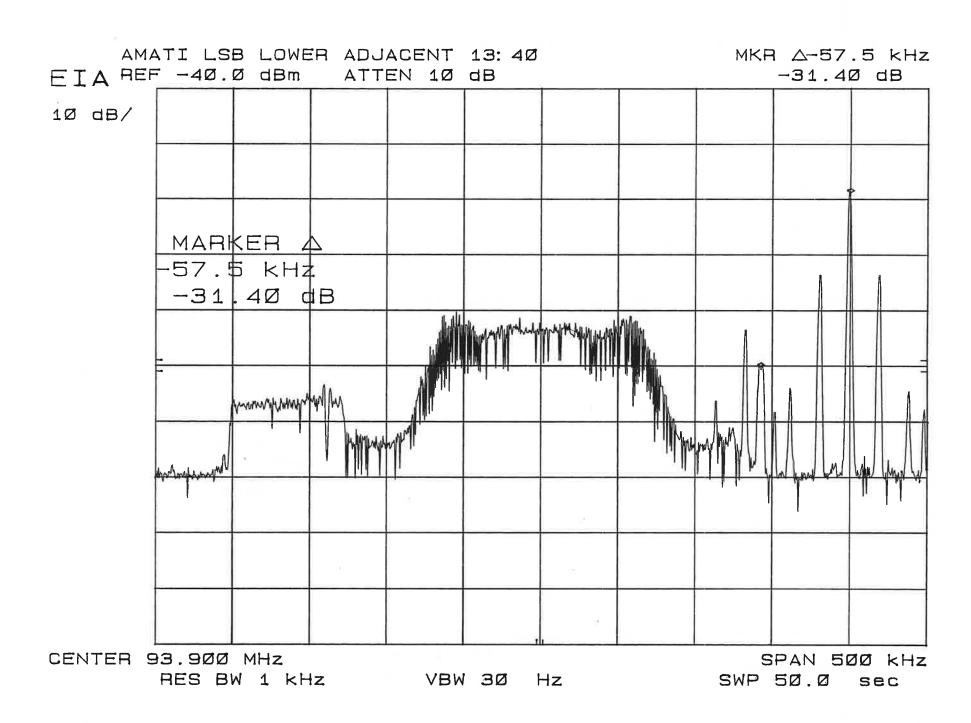


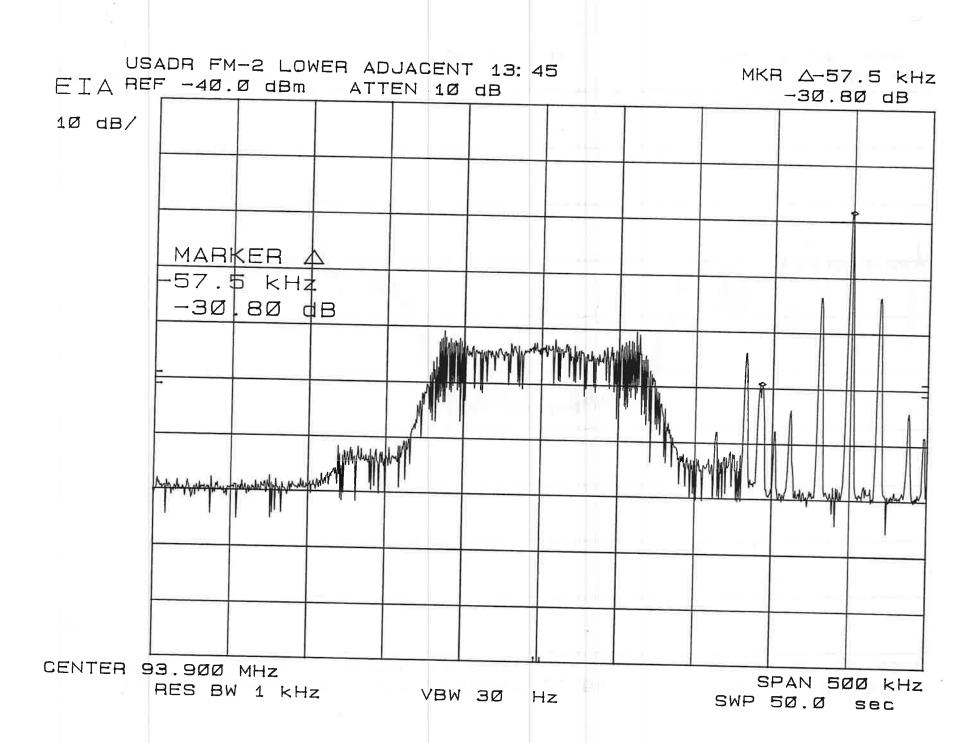


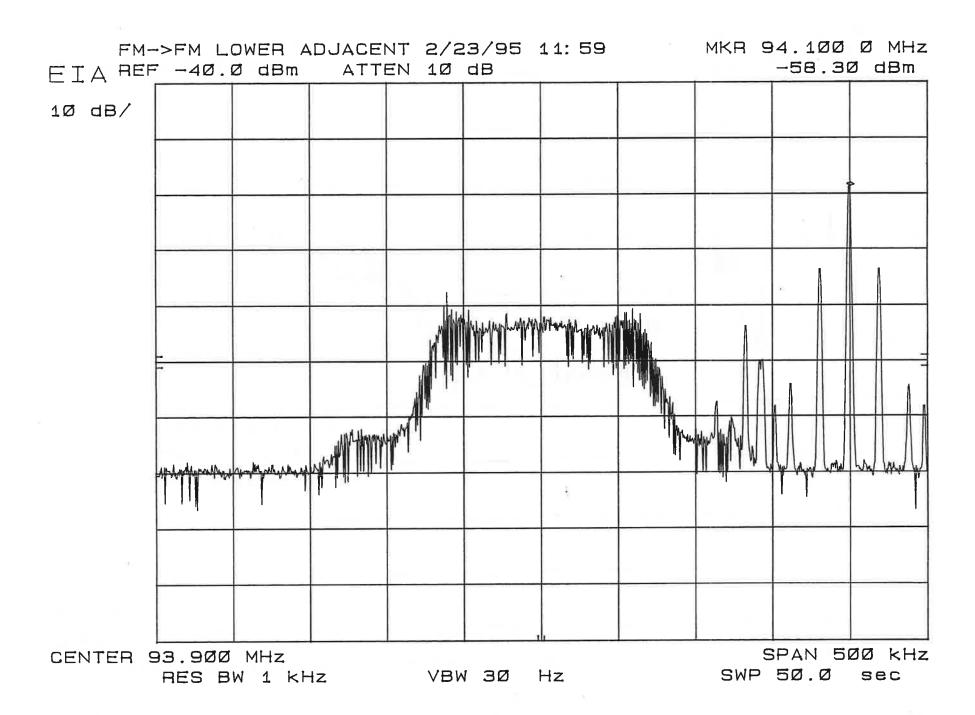
CENTER 93.900 MHz RES BW 1 KHz

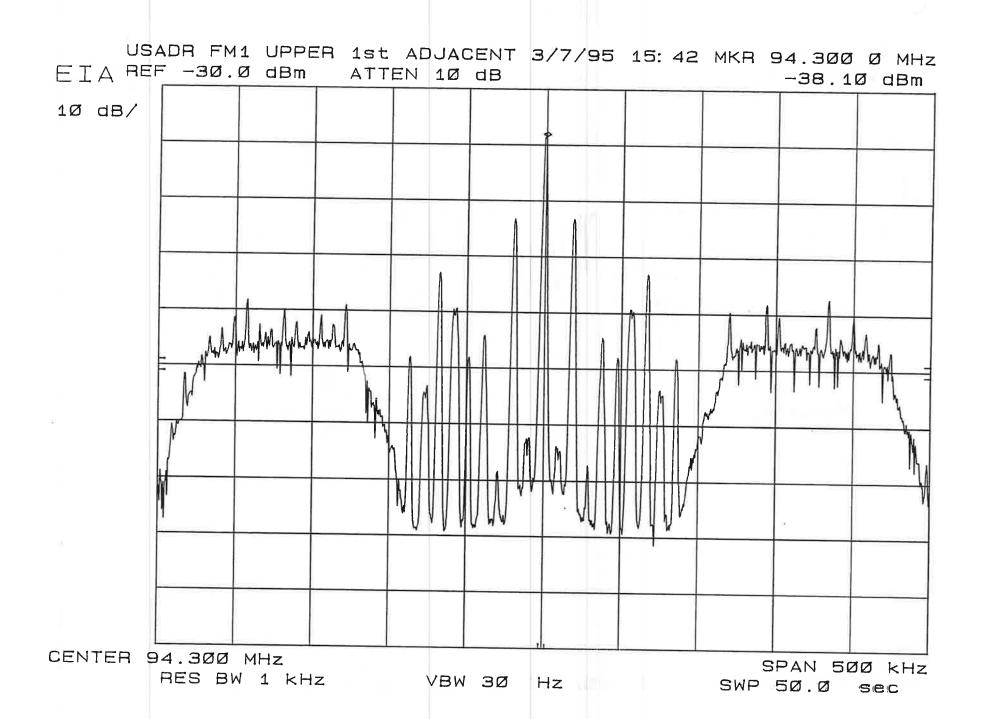
VBW 3Ø Hz

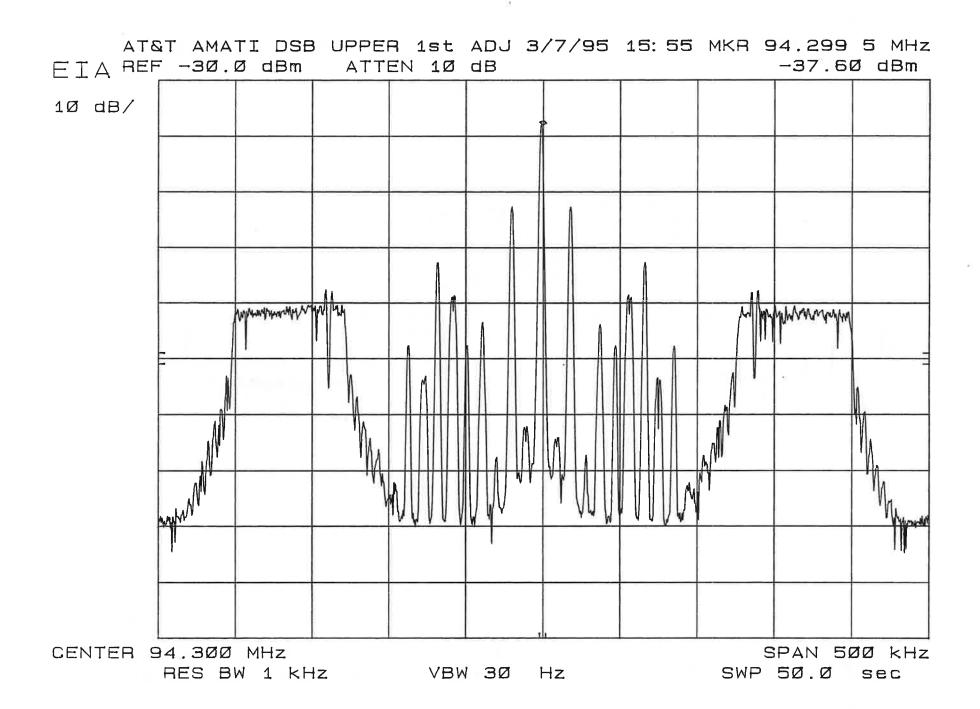
SPAN 500 kHz SWP 50.0 sec

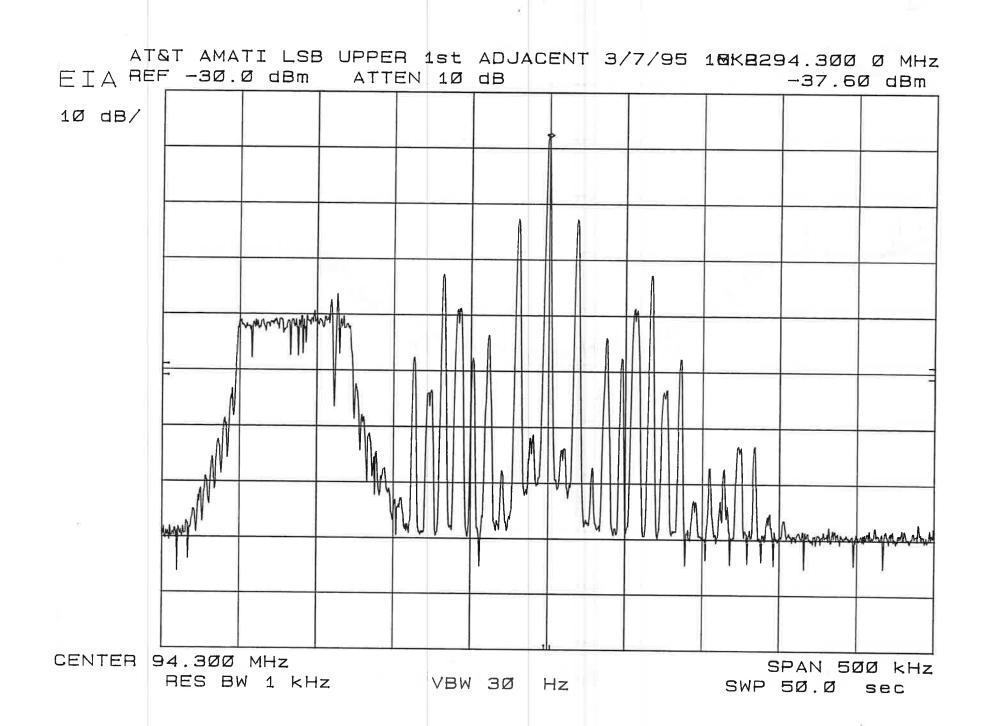


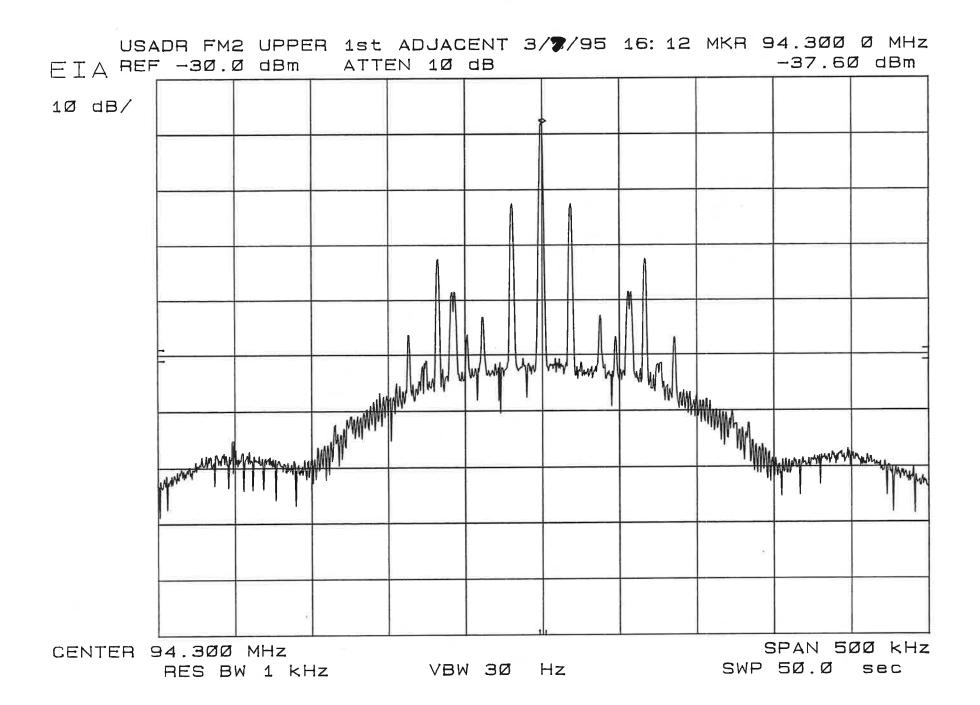


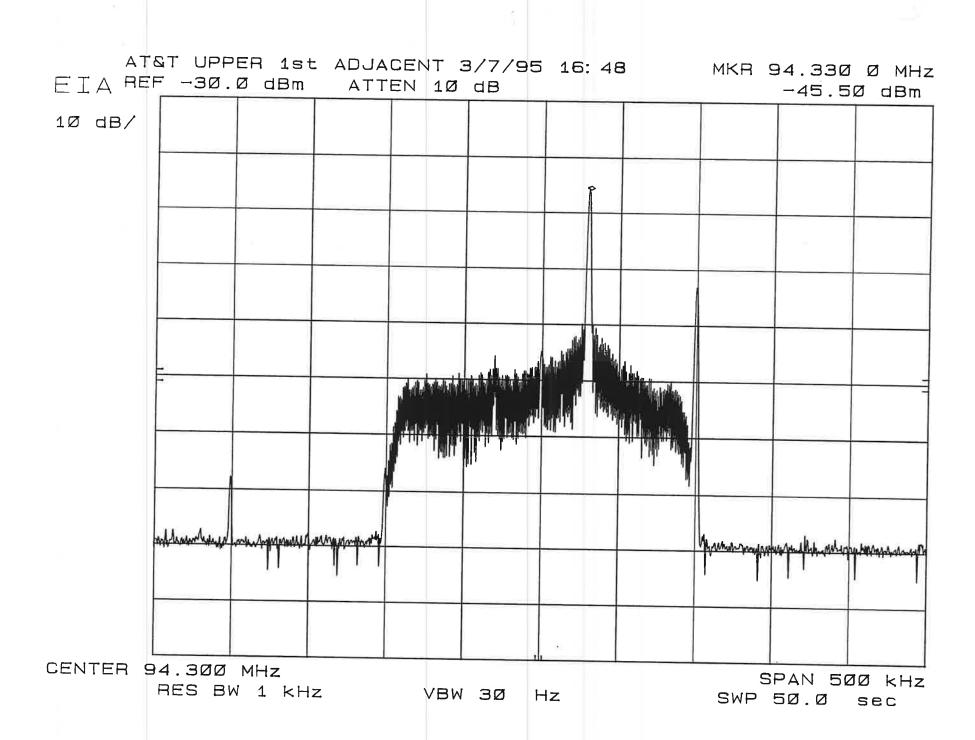












APPENDIX AO

Tests F-3, F-6 and G-3 Second-adjacent DAR to Analog

Tests F3, F6 and G3

Receiver

Rx No.: #1

Mfg.: DELCO Model: 16192463 Serial: 1000499

Index

Page	Description
1	Cover sheet
2	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the lower second adjacent frequency
3	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the lower second adjacent frequency
4	Digital Audio Tape recording log of the Lower Second Adjacent results
5	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the upper second adjacent frequency
6	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the upper second adjacent frequency
7	Digital Audio Tape recording log of the Upper Second Adjacent results
Notes:	
*	Clipped pink noise used as the modulation signal for the analog channel of the Proponent signal (except AT&T)
*	ABBA used for main channel modulation on the desired analog channel
*	SCA group B included on both desired and undesired (proponent) signals
*	Total modulation on analog channels: 110% (SCA group level at 20%)
*	Receiver audio routed through a 15KHz low pass filter
*	Audio measurements made using quasi-peak detection and a CCIR wieghting filter
*	Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver.
*	In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.
	In certain cases portions of the second adjacent test can not be performed due to marrow band characteristics of some receivers.

Test F-3, F-6 and G-3	1		F-3	F-6			G-3 Urban Slow Rayleigh	 G-3 Urban Fast Rayleigh
47 dB S/N	1			Lower Second A	djacent		Lower Second Adjacent	Lower Second Adjacent
Receiver #1	1	1		DAR to Analog			DAR to Analog	DAR to Analog
Delco	1	- 1					with Multipath	with Multipath
16192463	Measurements		d/u in dB	EO&C			EO&C	EO&C
Analog to Analog	desired	-8.78	-24.17				Î	
Reference	Loss	40.71					l.	
	undesired	8.43					1	
RX Level	Loss	11.75					ł	
-62.00 dBm	Attn	22,00						
AT&T	desired	-8,78	-24.14					
IBAC	Loss	40.71					Į.	
	undesired	-15.67					Ĭ.	
RX Level	Loss	7.68		S/N at d/u	43 dB		l .	
-62,00 dBm	Attn	2.00		d/u attn=	1.97 dB		1	
AT&T Amati	desired	-8.78	-24.05					
DSB IBOC	Loss	40.71					1	
	undesired	-8.01					1	
RX Level	Loss	7.68		S/N at d/u	46.6 dB		1	
-62.00 dBm	Atth	9.75		d/u attn=	9.63 dB			
AT&T Amati	desired	-8.78	-24,20					
LSB IBOC	Loss	40.71					Ĭ	
	undesired	-8.11					1	
RX Level	Loss	7.68		S/N at d/u	46,5 dB		1	
-62.00 dBm	Attn	9.50		d/u attn=	9.53 dB			
USADR FM1	desired	-8.78	-24.12					
IBOC	Loss	40.71					l .	
	undesired	-9,44						
RX Level	Loss	7.68		S/N at d/u	45.4 dB		1	
-62.00 dBm	Attn	8.25		d/u attn=	8.20 dB			
USADR FM2	desired	-8.78	-24.28	/				
IBOC	Loss	40.71					1	
	undesired	-6.03						
RX Level	Loss	7.68		S/N at d/u	38.6 dB			
-62.00 dBm	Attn	11.50		d/u attn=	11.61 dB			
Subcarrier (Group B on interfe	erers and	desired anal	og				DAT Ref.: DAR40130.DAT
Notes: Clipped Pin	k Noise on interfe	erers						
Standard SC	CA Test Signal yie	elds -200	iB on Sony 7	010 Input Monitor	with Input Gain Set to -	4.0dB		Best Case $S/N = 49 dB$
	icted March 1, 199				-			
Due to the	narrow band receiv	ver chara	acteristics d/u	at S/N of 45dB n	ot accomplished			

Test F-3			F-3		Effects with o	ut	
35 dB S/N					Digital Modu	lation	
Receiver #1			l 1				
Delco			l I		d/u in dB @		d/ulin dB @
16192463	Measurements		d/u in dB	Silence	S/N=45dB	Silence	S/N=35dB
Analog to Analog	desired	-8.87	NA		NA I		5.11 5545
Reference	Loss	40.71					
	undesired	-1.45			- 1 3		
Desired Signal Level	Loss	11.75					
-62.00 dBm	Atm	9.50			- 1		
AT&T	desired	-8.87	NA	-8.78	-20.93	-8.87	NA
IBAC	Loss	40.71		40.71	- 110	40.71	IVA
	undesired	-15.60	- 1	-15,38		-15.38	
RX Level	Loss	7.68		7.68		7.68	
-62,00 dBm	Attn	10.25		5.50		8.25	
AT&T Amati	desired	-8.87	NA	3.50		8.23	
DSB IBOC	Loss	40.71					
	undesired	-7.98	- 1				
RX Level	Loss	7.68					
-62.00 dBm	Attn	42.00					
AT&T Amati	desired	-8.87	NA				
LSB IBOC	Loss	40.71					
	undesired	-8.09					
RX Level	Loss	7.68					- 6
-62.00 dBm	Attn	17,00					
USADR FM1	desired	-8.84	NA				
IBOC	Loss	40.71					
	undesired	-9.46	1				
RX Level	Loss	7.68	1		1.		
-62.00 dBm	Attn	38,50					
USADR FM2	desired	-8.87	NA				
IBOC	Loss	40.71	110	ii ii			
	undesired	-6.01	i i				
RX Level	Loss	7.68	- 1				
-62.00 dBm	Attn	24.75		1			
	•	21.75					
Notes: Due to the	narrow band receiver	characteri	stics d/u at S/N of	5dB not accomplished	i		

DAT File	Time Co			Start IDs		Grade	
Number	Start	Stop			Description	1 1 2	
DAR40130.DAT		10141001UM-00000111CTT			LOWER SECOND ADJACENT		
3/1/95							
••••							
			1 1		Amati DSB Lower 2nd Adjacent	0	
		100000000000000000000000000000000000000	2		AT&T Lower 2nd Adjacent	-1	
		***************************************	3		Amati LSB Lower 2nd Adjacent	0	
	I	***************************************	4		USADR FM1 Lower 2nd Adjacent	-0.5	
		······································	5		USADR FM2 Lower 2nd Adjacent	-1.5	
		***************************************	1			-1.3	
			1		WITH MULTIPATH (URBAN SLOW)		
	***************************************		6		Amati LSB Urban Slow with Lower 2nd Adjacent		
	·····		77	······	AT&T Urban Slow with Lower 2nd Adjacent	-2	
			8		Amati DSB Urban Slow with Lower 2nd Adjacent	-1	
·····	····		9		USADR FM1 Urban Slow with Lower 2nd Adjacent		
**************************************	·····		10		USADR FM2 Urban Slow with Lower 2nd Adjacent	-1.5	
·····			╁┷╅		COADA FM2 Ofball Slow with Lower 2nd Adjacent	-2.5	
•••••••••••••••••••••••••••••••••••••••			╁┈┈┼		WITH AIL TID OUT A DAY TO CO		
			111		WITH MULTIPATH (URBAN FAST) Amati DSB Urban Fast with Lower 2nd Adjacent		
·····			12		AT&T Urban Fast with Lower 2nd Adjacent AT&T Urban Fast with Lower 2nd Adjacent	0	
			13		Anat I CD I L. E. A. A. A. A. A. A. A. A. A. A. A. A. A.	-2	
			14		Amati LSB Urban Fast with Lower 2nd Adjacent	0	
			15		USADR FM1 Urban Fast with Lower 2nd Adjacent	-0.5	
			13		USADR FM2 Urban Fast with Lower 2nd Adjacent	-2.5	
			ļļ.				
			ļļ.				
			ļļ.				
			ļļ.				
			ļļ.				
			ļļ.				
			ļI.				
14/4/2000/00/00/00/00/00/00/00/00/00/00/00/0							
		•••••			1		
		***************************************			†		
······		***************************************					

Test F-3, F-6 and G-3 47 dB S/N		F-3	F-6	G-3 Urban Slow Rayleigh	G-3 Urban Fast Rayleigh
			Upper Second Adjacent	Upper Second Adjacent	Upper Second Adjacent
Receiver #1			DAR to Analog	DAR to Analog	DAR to Analog
Delco				with Multipath	
16192463	Measurements	d/u in dB	EO&C	EO&C	with Multipath EO&C
Analog to Analog	desired -8.78	-24.17			EO&C
Reference	Loss 40.71				
	undesired 8.43	1			
RX Level	Loss 11.75				
-62.00 dBm	Attn 22.00				
AT&T	desired -8.78	-24.11			
IBAC	Loss 40.71				
	undesired -15.70				
RX Level	Loss 7.68		S/N at d/u 36.7 dB		
-62.00 dBm	Attn 2.00		d/u attn= 1.94 dB		
AT&T Amati	desired -8.78		1.54 dB		
DSB IBOC	Loss 40.71				
	undesired -8.00	l.			
RX Level	Loss 7.68		S/N at d/u 46.4 dB		1
-62,00 dBm	Attn 9.75		d/u attn= 9.64 dB		1
AT&T Amati	desired -8.78		3.07 dB		
SB IBOC	Loss 40.71				
	undesired -8.10				
XX Level	Loss 7.68		S/N at d/u 46,4 dB		1
-62.00 dBm	Atta 9.50		d/u attn= 9.54 dB		
JSADR FM1	desired -8.78	-24.29	7.57 dB		
BOC	Loss 40.71				
	undesired -9.52				
X Level	Loss 7.68		S/N at d/u 45.4 dB		
-62.00 dBm	Atm 8.00		d/u attn= 8.12 dB		
JSADR FM2	desired -8.78	-24.21	5.12 UB		
BOC	Loss 40.71	1000			
	undesired -6.10				
X Level	Loss 7.68		S/N at d/u 37 dB		
-62,00 dBm	Attn 11.50		d/u attn= 11.54 dB		
Subcarrier C	iroup B on interferers and	desired analo	ρ		
otes: Clipped Pinl	Noise on interferers		9		DAT Ref.: DAR40150.DAT
Standard SC	A Test Signal yields -20d	B on Sony 70	10 Input Monitor with Input Gain	LOAD	
Tests conduc	cted March 14, 1995	20, 70	put monitor with input Gain	QUV	Best Case S/N = 49 dB
Due to the n	arrow hand receiver char	atoriation d/v	at S/N of 45dB not accomplished		

Test F-3			F-3		Effects with o		
35 dB S/N	i				Digital Modu	lation	
Receiver #1				(
Delco	1				d/u in dB		d/u in dB (
16192463	Measurements		d/u in dB	Silence	D/N=47dB	Silence	S/N=35dE
Analog to Analog	desired	-8.87	NA		NA		
Reference	Loss	40.71			- 1		
	undesired	-1.45			- 1		
Desired Signal Level	Loss	11.75			- 1		
-62.00 dBm	Attn	9.50					
AT&T	desired	-8,87	NA.	-8.78	-24.18	-8.87	NA
IBAC	Loss	40,71		40.71	- 1	40.71	
	undesired	-15.60	,	-15.38	- 1	-15.38	
RX Level	Loss	7.68		7.68	1	7.68	
-62.00 dBm	Attn	10.25		2.25		8.25	
AT&T Amati	desired	-8.87	NA				
DSB IBOC	Loss	40,71			- 1		
	undesired	-7.98		ľ	- 1		
RX Level	Loss	7.68			- 1		
-62,00 dBm	Attn	42.00					
AT&T Amati	desired	-8.87	NA				
LSB IBOC	Loss	40.71			1		
	undesired	-8.09			1		
RX Level	Loss	7.68	1		i i		
-62,00 dBm	Attn	17.00			- 1		
USADR FM1	desired	-8.84	NA				
IBOC	Loss	40.71			- 1		
	undesired	-9.46			- 1		
RX Level	Loss	7.68			- 1		
-62.00 dBm	Attn	38.50					
USADR FM2	desired	-8,87	NA				
IBOC	Loss	40.71			- 1		
	undesired	-6.01					
RX Level	Loss	7.68					
-62.00 dBm	Attn	24.75					

Notes: Due to the narrow band receiver characteristics d/u at S/N of 35dB not accomplished

DAT File	Time (Code	Start IDs						
Number	Start	Stop					D	Grad	
AR40150.DAT		************	0000000	T T		Ť	Description	1	2
3/14/95				ļļ			UPPER SECOND ADJACENT		
3/14/33				ļļ		. .			†····
						<u> </u>		·····	†
			1				AT&T Upper 2nd Adjacent	-1.5	+
						1			
700000000000000000000000000000000000000			1			T	WITH MULTIPATH (URBAN SLOW)		
			2	· · · · · ·	1	†	AT&T Urban Slow with Upper 2nd Adjacent		ļ
						·	Arrait orban olew with opper 2nd Adjacent	-1.5	
·····									1
	***************************************		3			ļ	WITH MULTIPATH (URBAN FAST)		
							AT&T Urban Fast with Upper 2nd Adjacent	-2	T
			ļ			ļ			**************************************
			ļļ					***************************************	†·····
		•••••							t
							Lamoneus I I I I I I I I I I I I I I I I I I		
			1		1		1		ļ
			1		· † · · · ·	·····	 		ļ
T		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	†*****†						
······		*************	· · · · · · · · · · · · · · · · · · ·						1 (00)
	·····	***************************************	ļ 					THE CONTRACT OF THE PARTY OF TH	
			ļ						Ī
			ļļ						***************************************
			1			<u> </u>			

140,7 (000 10 10 177.) 10 40000000000000000000000000000000000	I				7				
	····		it						
·····	***************************************		-						1000

	·····-								
			ļļ						
					1				
		70.000							
		250;***(215:2000);**(77:422) ***********************************	000.0000	AMOUNT CONTRACT					
					1				
		******************************	·····†		1				
	************************				++				
					+				

	······	***************************************			1				***************************************
					11				
					1 1				

Tests F3, F6 and G3

Receiver

Rx No.: #2

Mfg.: DENON Model: TU-380RD Serial: 4056301149

Index

Page	Description
1	Cover sheet
2	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the lower second adjacent frequency
3	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the lower second adjacent frequency
4	Digital Audio Tape recording log of the Lower Second Adjacent results
5	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the upper second adjacent frequency
6	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the upper second adjacent frequency
7	Digital Audio Tape recording log of the Upper Second Adjacent results
Notes:	
* * *	Clipped pink noise used as the modulation signal for the analog channel of the Proponent signal (except AT&T) ABBA used for main channel modulation on the desired analog channel SCA group B included on both desired and undesired (proponent) signals
* * * *	Total modulation on analog channels: 110% (SCA group level at 20%) Receiver audio routed through a 15KHz low pass filter Audio measurements made using quasi-peak detection and a CCIR wieghting filter Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver. In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

Test F-3, F-6 and G-3		F-3	F-6	G-3 Urban Slow Rayleigh	G-3 Urban Fast Rayleigh
45 dB S/N			Lower Second Adjacent	Lower Second Adjacent	Lower Second Adjacent
Receiver #2		1	DAR to Analog	DAR to Analog	DAR to Analog
Denon		1		with Multipath	with Multipath
TU-380RD	Measurements	d/u in dB	EO&C	EO&C	EO&C
Analog to Analog	desired -8	.78 -24.67			Î
Reference	Loss 40	0.71			
	undesired 8	3.43			1
RX Level		.75			
-62.00 dBm	Attn 21	.50			
AT&T	desired -8	.78 -11.97			
IBAC	Loss 40	0.71	1		
	undesired -15	5.59			
RX Level		.68	S/N at d/u 22,5 dB		
-62.00 dBm	Attn 14	1.25	d/u attn= 1.55 dB		
AT&T Amati		-16.54			
DSB IBOC	THE STATE OF THE S	0.71			
	undesired -8	3.02			1
RX Level		7.68	S/N at d/u 20.75 dB		
-62,00 dBm		7.25	d/u attn= 9.12 dB		
AT&T Amati		-19.71			
LSB IBOC	18.0	0.71			
		3.10			
RX Level	A CONTRACTOR CONTRACTO	7.68	S/N at d/u 28.6 dB		
-62.00 dBm		.00	d/u attn= 9,04 dB		
USADR FM1		3.78 -4.64			
IBOC		0.71	1		
		9.42			
RX Level		7.68	S/N at d/u 20.75 dB		
-62.00 dBm		7.75	d/u attn= 7.72 dB		
USADR FM2	100	3.78 -4.06			
IBOC	1.0	0.71			
		5.00	L		
RX Level	60	7.68	S/N at d/u 24.5 dB		
-62.00 dBm		.75	d/u attn= 11.14 dB		
Subcarrier C	Group B on interferers	and desired ana	0.00		DAT Ref.: DAR40131.DAT

Subcarrier Group B on interferers and desired analog

Notes:

Clipped Pink Noise on interferers

Standard SCA Test Signal yields -20dB on Sony 7010 Input Monitor with Input Gain Set to -4.0dB

Tests conducted March 2, 1995

DAT Ref.: DAR40131.DAT

Best Case S/N = 51.5 dB

Test F-3			F-3			Effects with o	ut	
35 dB S/N						Digital Modu		
Receiver #2								
Denon						d/u in dB @		d/u in dB @
TU-380RD	Measurements		d/u in dB		Silence	S/N=45dB	Silence	S/N=35dB
Analog to Analog	desired	-8.87	NA			NA I		577 5542
Reference	Loss	40.71						
	undesired	-1.45				1		
Desired Signal Level	Loss	11.75						
-62.00 dBm	Atm	9.50						
AT&T	desired	-8.87	NA		-8.78	-14.47	-8.87	NA
IBAC	Loss	40.71	- 1		40.71	**	40.71	142
	undesired	-15.60			-15.34		-15.38	
RX Level	Loss	7.68			7.68		7.68	
-62,00 dBm	Attn	10.25			12.00		8.25	
AT&T Amati	desired	-8.87	NA				0,25	
DSB IBOC	Loss	40.71						
	undesired	-7.98						
RX Level	Loss	7.68						
-62,00 dBm	Atm	42.00						
AT&T Amati	desired	-8.87	NA					
LSB IBOC	Loss	40.71						
	undesired	-8.09	- 1	- 0				
RX Level	Loss	7.68						
-62.00 dBm	Attn	17.00						
USADR FM1	desired	-8.84	NA					
IBOC	Loss	40.71	- 1	- 1				
	undesired	-9.46	- 1	1				
RX Level	Loss	7.68				1		
-62.00 dBm	Attn	38.50						
USADR FM2	desired	-8.87	NA					
IBOC	Loss	40,71						
	undesired	-6.01		- 1				
RX Level	Loss	7.68	1					
-62.00 dBm	Attn	24.75						

File Name: F3_RX2T.XLS Lower 35dB

DAT File	Time Code			Start IDs				Grade	
Number	Start		Stop				Description		
DAR40131.DAT			1	T		T	LOWER SECOND ADJACENT	1	2
3/2/95				ł	·····		LOWER SECOND ADJACENT		***************************************
				ł					
·····			1	†			Amati DSB Lower 2nd Adjacent		
	***************************************		2	†	······		AT&T Lower 2nd Adjacent	-2	<u>1</u>
			3	†*****			Amati I SR I ower 2nd Adjacent		***************************************
***************************************			4	†******			Amati LSB Lower 2nd Adjacent USADR FM1 Lower 2nd Adjacent	-0.5	0.5
····	***************************************	***************************************	5	†			USADR FM2 Lower 2nd Adjacent	-2	1
	***************************************	***************************************	·	t			TOOADK TWZ LOWG Ziid Adjaceiii	-1.5	1
***************************************		***************************************		 			WITH MULTIPATH (URBAN SLOW)		
DISREGARD		***************************************	6	7			WITH MOLITI ATTI (ORBAN SLOW)		
·····			8	····			USADR FM2 Urban Slow with Lower 2nd Adjacent		
·····	***************************************	***************************************	9	·····			USADR FM1 Urban Slow with Lower 2nd Adjacent	-3 -3	
	•••••••••••••••••••••••••••••••••••••••	***************************************	10	· · · · · ·			Amati LSB Urban Slow with Lower 2nd Adjacent		
·····			111				AT&T Urban Slow with Lower 2nd Adjacent	-2.5	
			12				Amati DSB Urban Slow with Lower 2nd Adjacent	-2.5 -2.5	
-			+				Amati D3D Otomi Slow with Lower 2nd Adjacent	-2.5	
-			·						
			 						
······									
·····	·····-		·						
······							- 		
								1	
			ļ				<u> </u>		
			ļ						
								1	
			ļ						
			ļļ						
			ļļ						
								1	
								·····†··	
								tt-	
		version/2010/1919/2000/2019 2015———							
	0.0000000000000000000000000000000000000	MOSCOCCOMO PARA COMO		24/11/22	1		T		

Test F-3, F-6 and G-3			F-3	F-6	G-3 Urban Slow Rayleigh	G-3 Urban Fast Rayleigh
45 dB S/N	1	1		Upper Second Adjacent	Upper Second Adjacent	Upper Second Adjacent
Receiver #2		- 1		DAR to Analog	DAR to Analog	DAR to Analog
Denon					with Multipath	with Multipath
TU-380RD	Measurements		d/u in dB	EO&C	EO&C	EO&C
Analog to Analog	desired	-8.77	-33.18			Boac
Reference	Loss	40.71				
	undesired	8.45				1
RX Level	Loss	11.75				`
-62.00 dBm	Attn	13.00				
AT&T	desired	-8.77	-4.62			
IBAC	Loss	40.71				
	undesired	-15,63				
RX Level	Loss	7.68		S/N at d/u 17 dB		
-62.00 dBm	Atm	31.25		d/u attn= 2.69 dB		
AT&T Amati	desired	-8.77	-21.02			
DSB IBOC	Loss	40.71				
	undesired	-7.98				
RX Level	Loss	7.68		S/N at d/u 15 dB		
-62,00 dBm	Attn	22.50		d/u attn= 10.34 dB		
AT&T Amati	desired	-8.77	-21.89			
LSB IBOC	Loss	40.71				
	undesired	-8.11				
RX Level	Loss	7.68		S/N at d/u 17.4 dB		
-62.00 dBm	Attn	21.50		d/u attn= 10.21 dB		
USADR FM1	desired	-8.77	-15.98			
IBOC		40.71				
	undesired	-9.52				
RX Level	Loss	7.68		S/N at d/u 17.5 dB		
-62.00 dBm		26.00		d/u attn= 8.80 dB		
USADR FM2	desired	-8.77	-5.93			
BOC		40.71				
	undesired	-6.07				
RX Level	Loss	7.68		S/N at d/u 18.5 dB		
-62.00 dBm		39.50		d/u attn= 12.25 dB		
Subcarrier C	roup B on interfere	ers and d	lesired analo	og .		DATE-C. DADGOGE DATE
Notes: Clipped Pinl	Noise on interfere	ers				DAT Ref.: DAR40151.DAT
Standard SC	A Test Signal yield	ls -20dB	on Sony 70	10 Input Monitor with Input Gain Set to -4.00	iB	D O O
Tests condu	ted March 14, 199	5				Best Case $S/N = 51 dB$
2-3 KHz off	in Undesired Analy	og refere	ence center f	requency yields 2-3 dB difference in S/N.		

Test F-3			F-3			Effects with o	ut	
35 dB S/N						Digital Modu	lation	
Receiver #2				1				
Denon						d/u in dB @		d/u in dB @
TU-380RD	Measurements		d/u in dB		Silence	S/N=45dB	Silence	S/N=35dB
Analog to Analog	desired	-8.77	-36.68					
Reference	Loss	40.71						
	undesired	8.45		i i		1		
Desired Signal Level	Loss	11,75				T T		
-62.00 dBm	Attn	9.50						
AT&T	desired	-8.77	-16.37		-8.77	-5.93	-8.77	-17.93
IBAC	Loss	40.71			40.71		40.71	
	undesired	-15.63			-15.32		-15.32	
RX Level	Loss	7.68			7.68		7.68	
-62.00 dBm	Attn	19.50			30.25		18.25	
AT&T Amati	desired	-8.77	-25.27					
DSB IBOC	Loss	40.71						
	undesired	-7.98				1		
RX Level	Loss	7.68						
-62,00 dBm	Attn	18.25				- 1		
AT&T Amati	desired	-8.77	-26.14					
LSB IBOC	Loss	40.71)
	undesired	-8.11						
RX Level	Loss	7.68		1				
-62.00 dBm	Attn	17.25						
USADR FM1	desired	-8.77	-24,73					
IBOC	Loss	40.71				1		
	undesired	-9.52						
RX Level	Loss	7.68		1				
-62.00 dBm	Attn	17.25						
USADR FM2	desired	-8.77	-16.68					
IBOC	Loss	40.71						
	undesired	-6.07				1		
RX Level	Loss	7.68				- 1		
-62.00 dBm	Attn	28,75						
Notes:				×				

DAT File Number	Time Code Start Stop	Start IDs	Description	Grade	
DAR40151.DAT		† 1 1 1 1	UPPER GEODINA DA GENERA	1	2
3/14/95			UPPER SECOND ADJACENT		
3/14/75					
			Amati DSB	-2	1
			AT&T	-2.5	0
		3	Amati LSB	-2	1
		4	USADR FM1	-2 -2	i i
		5	USADR FM2	-2	1
				t	
			WITH MULTIPATH (URBAN SLOW)	 	***************************************
DISREGARD		6			***************************************
		7	FM2	-2	
DISREGARD		8		- -2	
cocmetes (550001 700000011000011000000000000000000		9	FM1	-2	
		10	AMATI LSB		
		TII	AT&T	-1.5	
· · · · · · · · · · · · · · · · · · ·	***************************************	12	AMATI DSB	-2.5	•
	·····		11.12 (11.00)	-1.5	,
***************************************		······			
		· 			
·····					
					
		· 			
		· ····· ··· ··· ··· ··· ···			
		-		I	***************************************
		.			***************************************
		<u> </u>			***************************************
		<u> </u>			
		<u> </u>		····	***************************************

					.,,

1					
		 	1		
		1			

Tests F3, F6 and G3

Receiver

Rx No.: #3

Mfg.: PANASONIC Model: RX-FS430 Serial: GR3J01184

Index

Page	Description
1	Cover sheet
2	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the lower second adjacent frequency
3	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the lower second adjacent frequency
4	Digital Audio Tape recording log of the Lower Second Adjacent results
5	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the upper second adjacent frequency
6	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the upper second adjacent frequency
7	Digital Audio Tape recording log of the Upper Second Adjacent results
Notes:	
* * * *	Clipped pink noise used as the modulation signal for the analog channel of the Proponent signal (except AT&T) ABBA used for main channel modulation on the desired analog channel SCA group B included on both desired and undesired (proponent) signals Total modulation on analog channels: 110% (SCA group level at 20%) Receiver audio routed through a 15KHz low pass filter
* *	Audio measurements made using quasi-peak detection and a CCIR wieghting filter Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

Test F-3, F-6 and G-3			F-3	F-6	G-3 Urban Slow Rayleigh	G-3 Urban Fast Rayleigh
45 dB S/N		- 1		Lower Second Adjacent	Lower Second Adjacent	Lower Second Adjacent
Receiver #3		- 1		DAR to Analog	DAR to Analog	DAR to Analog
Panasonic		- 1			with Multipath	with Multipath
RX-FS430	Measurements		d/u in dB	EO&C	EO&C	EO&C
Analog to Analog	desired	-8.78	-22.41			
Reference	Loss	40.71				
	undesired	8.42				
RX Level	Loss	11.75				1
-62,00 dBm	Attn	23.75				
AT&T	desired	-8.78	-12.94			
IBAC	Loss	40.71				
		-15.62				
RX Level	Loss	7.68		S/N at d/u 30 dB		N
-62.00 dBm	Attn	13.25		d/u attn= 3.78 dB		
AT&T Amati	desired	-8.78	-14.81			
DSB IBOC	Loss	40.71				
	undesired	-8.00				
RX Level	Loss	7.68		S/N at d/u 36.2 dB		
-62.00 dBm	Attn	19,00		d/u attn= 11.40 dB		
AT&T Amati	desired	-8.78	-20.45			
LSB IBOC	Loss	40.71				
	undesired	-8.11				
RX Level	Loss	7.68		S/N at d/u 42.8 dB		
-62.00 dBm	Attn	13.25		d/u attn= 11.29 dB		
USADR FM1	desired	-8.78	-4.39			
IBOC	Loss	40.71				
	undesired	-9.42				
RX Level	Loss	7.68		S/N at d/u 28 dB		
-62.00 dBm	Attn	28.00		d/u attn= 9.98 dB		
USADR FM2	desired	-8.78	-5.81			
IBOC	Loss	40.71				
	undesired	-6.00		20.0 17		
RX Level	Loss	7,68		S/N at d/u 29.2 dB		
-62,00 dBm	Attn	30.00		d/u attn= 13.40 dB		1
Subcarrier C	iroup B on interfe	rers and	desired anal	og		DAT Ref.: DAR40132.DAT

Notes:

Clipped Pink Noise on interferers

Standard SCA Test Signal yields -20dB on Sony 7010 Input Monitor with Input Gain Set to -4,0dB

Tests conducted March 3, 1995

Best Case S/N = 51 dB

35 dB S/N			F-3		Effects with o		
Receiver #3					Digital Modu	lation	
Panasonic	1				1/ 1/ 10 0		
RX-FS430	Measurements		d/u in dB	Silence	d/u in dB @	G 11	d/u in dB @
Analog to Analog	desired	-8.78	-26.16	Silence	S/N≔45dB	Silence	S/N=35dB
Reference	Loss	40.71	-20.10		NA		
interested to	undesired	8.42					
Desired Signal Level	Loss	11.75					
-62.00 dBm	Atm	20.00					
AT&T	desired	-8.78	-21.44	0.70			
IBAC	Loss	40.71	-21.44	-8.78	-15.97	-8.78	-22.22
12.10	undesired	-15.62		40.71		40.71	
RX Level	Loss	7.68		-15.34		-15.34	
-62.00 dBm	Atm	4.75		7.68		7.68	
AT&T Amati	desired	-8.78	-22.56	10.50	T Dies	4.25	
DSB IBOC	Loss	40.71	-22.30	1	o Difference		
	undesired	-8.00					
RX Level	Loss	7.68					
-62.00 dBm	Attn	11.25		1	1		
AT&T Amati	desired	-8.78	-25,20	N	o Difference		
LSB IBOC	Loss	40.71		, ,	o Dinerence		
	undesired	-8.11					
RX Level	Loss	7.68					
-62.00 dBm	Attn	8.50					
USADR FM1	desired	-8.78	-15.64	N	o Difference		_
IBOC	Loss	40.71					
	undesired	-9.42					
RX Level	Loss	7.68					
-62.00 dBm	Attn	16.75					
USADR FM2	desired	-8.78	-16.83	N	o Difference		
IBOC	Loss	40.71					
	undesired	-5.98					- 1
	Loss	7.68					
RX Level -62.00 dBm	Atm	19.00		1			

DAT File Number	Time Co			Star	t IDs		Description	Grade 1	2
	Start	Stop							
DAR40132.DAT						ļ	LOWER SECOND ADJACENT		
3/3/95						ļ			
				2		ļ	Amati LSB Lower 2nd Adjacent	0.00	1.00
			3	4		ļ	AT&T Lower 2nd Adjacent	-2.00	1.00
			5			ļ	Amati DSB Lower 2nd Adjacent	-1.50	1.00
	***************************************		6	······		ļ	USADR FM1 Lower 2nd Adjacent	-2.00	1.00
			7	 -		ļ	USADR FM2 Lower 2nd Adjacent	-2.00	1.00
				ł		ļ	OSADK I WZ LOWG Ziid Adjacciit	-2.00	
							WITH MULTIPATH (URBAN SLOW)		
			8				USADR FM2 Urban Slow with Lower 2nd Adjacent	-3.00	
			9	-		 	USADR FM1 Urban Slow with Lower 2nd Adjacent	-3.00	
			10	111		·····	Amati DSB Urban Slow with Lower 2nd Adjacent	-3.00	
			12				AT&T Urban Slow with Lower 2nd Adjacent	-3.00	
			13			·····	Amati LSB Urban Slow with Lower 2nd Adjacent	-1.00	
			1.2	·		· · · · · ·	- I I I I I I I I I I I I I I I I I I I		
				·····					
			+						
					****	·····			
			1	·		· · · · · ·			
				ii	···				
			1						
			7,770						
			-			· · · · · ·			
			1			İ		·····	***************
			1	ii-		†*****			
						!			
						····			
						T			
			1		···†	ļ		<u> </u>	
						Ì			
			-		···				
						!		******	
			1			1		<u> </u>	
		***************************************	1		<u>†</u>	l			

						!			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
						l			
			1	·		·····		t	

45 dB S/N Receiver #3 Panasonic RX-FS430 Measure Analog to Analog Reference Loss undesired Loss	-8.77 40.71	0.27	S/N at d/u 4 d/u attn= 28 S/N at d/u 4	46,4 dB 8,39 dB		G-3 Urban Slow I Upper Second Adjacent DAR to Analog with Multipath EO&C	G-3 Urban Fast Rayleigh Upper Second Adjacent DAR to Analog with Multipath EO&C	
Panasonic RX-FS430 Analog to Analog Reference RX Level -62.00 dBm AT&T BAC -62.00 dBm AT&T Amati DSB IBOC RX Level -62.00 dBm AT&T Amati AT&T Amati Loss AT&T Amati Loss	-8.77 40.71 -11.39 11.75 28.50 -8.77 40.71 -15.57 7.68 26.50 -8.77 40.71 -7.97 7.68 39.00	0.27	S/N at d/u 4/u attn= 28	8.39 dB		DAR to Analog with Multipath	DAR to Analog with Multipath	
AT&T desired Loss undesired Loss und	-8.77 40.71 -11.39 11.75 28.50 -8.77 40.71 -15.57 7.68 26.50 -8.77 40.71 -7.97 7.68 39.00	0.27	S/N at d/u 4 d/u attn= 28 S/N at d/u 4	8.39 dB		with Multipath	with Multipath	
Analog to Analog Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Reference Loss	-8.77 40.71 -11.39 11.75 28.50 -8.77 40.71 -15.57 7.68 26.50 -8.77 40.71 -7.97 7.68 39.00	0.27	S/N at d/u 4 d/u attn= 28 S/N at d/u 4	8.39 dB				
Reference Loss undesired Loss Carlo dBm Attin AT&T desired Loss undesired Loss Loss desired Loss Undesired Loss undesired Loss undesired Loss undesired Loss undesired Loss Attin AT&T Amati desired Loss attin LSB IBOC Loss undesired	40.71 -11.39 11.75 28.50 -8.77 40.71 -15.57 7.68 26.50 -8.77 40.71 -7.97 7.68 39.00	0.27 5.17	d/u attn= 28 S/N at d/u 4	8.39 dB				
RX Level Loss -62.00 dBm Attn AT&T desired Loss undesired	-11.39 11.75 28.50 -8.77 40.71 -15.57 7.68 26.50 -8.77 40.71 -7.97 7.68 39.00	0.27 5.17	d/u attn= 28 S/N at d/u 4	8.39 dB				
RX Level Loss -62.00 dBm Attn AT&T desired Loss undesired Loss -62.00 dBm Attn AT&T Level Loss -62.00 dBm Attn AT&T Amati desired Loss undesired Loss Loss undesired Loss Loss undesired Loss undesired Loss undesired Loss Loss AT&T Amati desired Loss undesired	11.75 28.50 -8.77 40.71 -15.57 7.68 26.50 -8.77 40.71 -7.97 7.68 39.00	0.27 5.17	d/u attn= 28 S/N at d/u 4	8.39 dB				
-62,00 dBm Attin AT&T desired Loss undesired Loss -62,00 dBm Attin AT&T Amati desired Loss undesired Loss AT&T Amati desired Loss undesired	28.50 -8.77 40.71 -15.57 7.68 26.50 -8.77 40.71 -7.97 7.68 39.00	0.27 5.17	d/u attn= 28 S/N at d/u 4	8.39 dB				-
AT&T IBAC Loss undesired Loss -62.00 dBm AT&T Amati DSB IBOC RX Level -62.00 dBm AT&T Amati Loss undesired Loss undesired Loss undesired Loss Loss undesired Loss Loss AT&T Amati Loss AT&T Amati Loss Loss Loss Undesired Loss Undesired Loss Undesired Loss Undesired Loss Undesired Loss Undesired Loss Undesired Loss Undesired Loss Undesired Loss Undesired Loss Undesired Loss Undesired Loss Undesired Loss Undesired Loss	-8,77 40,71 -15,57 7,68 26,50 -8,77 40,71 -7,97 7,68 39,00	5.17	d/u attn= 28 S/N at d/u 4	8.39 dB				
RX Level Loss -62.00 dBm Atts AT&T Amati DSB IBOC Loss RX Level Loss -62.00 dBm Atts AT&T Amati Loss Loss undesired Loss undesired Loss Loss undesired Loss Loss undesired Loss AT&T Amati Loss AT&T Amati Loss Loss undesired Loss Loss Loss Loss undesired Loss Loss Loss undesired Loss undesired Loss undesired Loss undesired Loss undesired Loss	40.71 -15.57 7.68 26.50 -8.77 40.71 -7.97 7.68 39.00	5.17	d/u attn= 28 S/N at d/u 4	8.39 dB				
undesired Loss Atts AT&T Amati OSB IBOC Loss undesired Loss undesired Loss undesired Loss undesired Loss undesired Loss undesired Loss undesired Loss undesired Loss Undesired Loss Undesired Loss undesired Loss undesired Loss undesired Loss undesired Loss undesired Loss	-15.57 7.68 26.50 -8.77 40.71 -7.97 7.68 39.00	5.17	d/u attn= 28 S/N at d/u 4	8.39 dB				
AT&T Amati AT&T Amati DSB IBOC AT&T Amati CX Level -62.00 dBm ATM ATM ATM ATM ATM ATM ATM AT	7.68 26.50 -8.77 40.71 -7.97 7.68 39.00	5.17	d/u attn= 28 S/N at d/u 4	8.39 dB				
-62.00 dBm Atts AT&T Amati desired DSB IBOC Loss undesired Loss -62.00 dBm Atts AT&T Amati desired Loss Loss AT&T Amati desired Loss undesired Loss undesired Loss Loss undesired Loss	26.50 -8.77 40.71 -7.97 7.68 39.00	5.17	d/u attn= 28 S/N at d/u 4	8.39 dB				
AT&T Amati desired DSB IBOC Loss undesired Loss Loss 478 AT&T Amati desired Loss AT&T Amati desired Loss Undesired Loss	-8.77 40.71 -7.97 7.68 39.00	5.17	S/N at d/u 4					
DSB IBOC Loss undesired Loss CAT Amati Loss Loss Undesired Loss Attributed Loss Loss Undesired L	40.71 -7.97 7.68 39.00			42,4 dB				_
undesired Loss AT&T Amati LSB IBOC Loss undesired Loss undesired Loss Loss Loss Loss Loss	-7.97 7.68 39.00			42,4 dB				
AT&T Amati desired LOSS ATB. AT&T Amati desired LOSS Undesired LOSS LOSS LOSS LOSS LOSS LOSS LOSS LOSS	7,68 39.00			42.4 dB			1	
-62.00 dBm Affi. AT&T Amati desired Loss undesired XX Level Loss	39.00			42.4 dB	1		1	
AT&T Amati desired Loss undesired Loss Loss Loss								
Loss undesired Loss	-8,77			5.99 dB				
undesired Loss		5.24					 	
RX Level Loss	40.71							
CANDADA COLORO C	-8.04							
CO OO ID	7.68		S/N at d/u 4	12.6 dB				
-62,00 dBm Attn	39.00			5.92 dB				
JSADR FM1 desired	-8.77	8.68					 	
BOC Loss	40.71							
undesired	-9.48							
RX Level Loss	7.68		S/N at d/u 3	19.5 dB	Į			
-62.00 dBm Atm	41.00			1.48 dB				
JSADR FM2 desired	-8.77	3.04					 	
BOC Loss	40.71							
undesired	-6.09							
XX Level Loss	7.68		S/N at d/u 4	4.2 dB				
-62.00 dBm Attri	38.75		d/u attn= 37	'.87 dB			L	
Subcarrier Group B on	iterferers and	desired analo	og .				DAT Post DADAGASS SAT	
lotes: Clipped Pink Noise on	terferers		DEV 17.				DAT Ref.: DAR40152.DAT	
Standard SCA Test Sign	al yields -20d	B on Sony 70	10 Input Monitor with I	nput Gain S	et to -4.0dB		B C C/N 54 IB	
Tests conducted March	5, 1995	-					Best Case $S/N = 51 dB$	

Test F-3	ř – – – – – – – – – – – – – – – – – – –		F-3			Effects with o	out	
35 dB S/N						Digital Modu	lation	
Receiver #3						9		
Panasonic				1		d/u in dB @		d/u in dB @
RX-FS430	Measurements		d/u in dB		Silence	S/N=45dB	Silence	S/N=35dB
Analog to Analog	desired	-8.77	-9.09			NA		
Reference	Loss	40.71						
	undesired	-11.39	1					
Desired Signal Level	Loss	11.75				- 1		
-62.00 dBm	Attn	17.25						
AT&T	desired	-8.77	-11.23		-8.77	-4.51	-8.77	-15.76
IBAC	Loss	40.71		1 1	40.71		40.71	
	undesired	-15.57			-15.29		-15.29	
RX Level	Loss	7.68			7.68		7.68	
-62.00 dBm	Attn	15.00			22.00		10.75	
AT&T Amati	desired	-8.77	-4.83		1	No Difference		
DSB IBOC	Loss	40.71						
	undesired	-7.97						
RX Level	Loss	7.68						
-62.00 dBm	Attn	29.00						
AT&T Amati	desired	-8.77	-6.01		1	No Difference		
LSB IBOC	Loss	40.71		1		1		
	undesired	-8.04		1				
RX Level	Loss	7.68						
-62,00 dBm	Atto	27.75						
USADR FM1	desired	-8.77	-2.57		1	No Difference		
IBOC	Loss	40.71		1				
	undesired	-9.48						
RX Level	Loss	7.68	1					
-62.00 dBm	Attn	29.75						
USADR FM2	desired	-8.77	-7.96		1	No Difference		
IBOC	Loss	40.71						
	undesired	-6.09						
RX Level	Loss	7.68				- 1		
-62.00 dBm	Attn	27.75						
Notes:								

File Name: F3_RX3T_XLS Upper 35dB

DAT File	Time Co	ode		Start II)9		Grade	
Number	Start	Stop				Description	1	2
DAR40152.DAT			T	TT	T	UPPER SECOND ADJACENT	•	*
3/14/95		***************************************	11	·····		CITEROBCOND ADDREENT		
		•	1	······				
			11			DSB		
			2			AT&T	-0.5	0
		***************************************	3			LSB	0	0
			4	 -		FM1	-0.5	0
			5			FM2	-1	-0.5
					·····	1 1912		0
·····			++			WITH MILL TIBATIL (UDDANC) OND		
······			6			WITH MULTIPATH (URBAN SLOW) FM2 Urban Slow		
			7			FM1 Urban Slow	0	
			8			LSB Urban Slow	-1	
			9			AT&T Urban Slow		
			10				-1.5	
			1,01			DSB Urban Slow	-1 1	000000000000000000000000000000000000000
			 					WINDS TO SELECT
			ļļ			<u> </u>		
·····			 					CONTRACTOR
······								
			. .					
			 					MATERIA MILES ON SOUTH
							0.000	
			ļļ.					
			ļļ.					•••••
			ļļ.				""" "	***************************************
			ļļ.					
			L					ALLERTA
							<u></u>	

			<u> </u>				····1	***************************************
							<u></u>	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
		***************************************					 	***************************************

				I				•••••••
						La La companya de la companya de la companya de la companya de la companya de la companya de la companya de la		
mena more all'a sastagai terrenonazione								

Tests F3, F6 and G3

Receiver

Rx No.: #4

Mfg.: PIONEER Model: SX-201 Serial: OA3965843C

Index

Description
Cover sheet
DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the lower second adjacent frequency
DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the lower second adjacent frequency
Digital Audio Tape recording log of the Lower Second Adjacent results
DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the upper second adjacent frequency
DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the upper second adjacent frequency
Digital Audio Tape recording log of the Upper Second Adjacent results
Clipped pink noise used as the modulation signal for the analog channel of the Proponent signal (except AT&T) ABBA used for main channel modulation on the desired analog channel SCA group B included on both desired and undesired (proponent) signals Total modulation on analog channels: 110% (SCA group level at 20%) Receiver audio routed through a 15KHz low pass filter Audio measurements made using quasi-peak detection and a CCIR wieghting filter Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver. In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

Test F-3, F-6 and G-3	1		F-3	F-6	G-3 Urban Slow Rayleigh	G-3 Urban Fast Rayleigh
45 dB S/N	1	- 1	r-3	Lower Second Adjacent	G-3 Urban Slow Rayleigh Lower Second Adjacent	
1		- 1	1		,	Lower Second Adjacent
Receiver #4	1	- 4	41	DAR to Analog	DAR to Analog	DAR to Analog
Pioneer SX-201	Measurements		d/u in dB	EO&C	with Multipath EO&C	with Multipath
		0.50		EU&C	EO&C	EO&C
Analog to Analog		-8.78	-15.16			
Reference		40.71				
	undesired	8.42			1	1
RX Level		11.75				
-62.00 dBm		31.00				
AT&T		-8.78	-10.19			
IBAC		40.71				
		15.62				
RX Level	Loss	7,68		S/N at d/u 40.8 dB		1
-62.00 dBm		16.00		d/u attn= 11.03 dB		
AT&T Amati		-8,78	1.95			
DSB IBOC		40.71			is a second of the second of t	
	undesired	-8.01			1	
RX Level	Loss	7.68		S/N at d/u 29 dB	i i	
-62.00 dBm	Attn	35.75		d/u attn= 18.64 dB		
AT&T Amati	(2)	-8,78	-14.72			
LSB IBOC	Loss	40.71				
	undesired	-8,09				
RX Level	Loss	7.68		S/N at d/u 44.5 dB	1	
-62.00 dBm	Attn	19,00		d/u attn= 18.56 dB		
USADR FM1	desired	-8.78	9.86			
IBOC	Loss	40.71			1	1
	undesired	-9.42				
RX Level	Loss	7.68		S/N at d/u 18.6 dB		
-62.00 dBm	Atm	42.25		d/u attn= 17.23 dB		
USADR FM2	desired	-8.78	-2.06			
IBOC	Loss	40.71				
	undesired	-6.00				
RX Level	Loss	7.68		S/N at d/u 33 dB		
-62.00 dBm		33.75		d/u attn= 20.65 dB		
	Group B on interfere		desired anal			DAT Ref: DAR40133 DAT

Subcarrier Group B on interferers and desired analog

Notes:

Clipped Pink Noise on interferers

Standard SCA Test Signal yields -20dB on Sony 7010 Input Monitor with Input Gain Set to -4,0dB

Tests conducted March 3, 1995

DAT Ref.: DAR40133.DAT

Best Case S/N = 51 dB

		F-3	Effects with	out	
			8,12		
			d/u in dB @		d/u in dB @
Measurements		d/u in dB		Silence	S/N=35dB
desired	-8.78	-25.66	NA NA		
Loss	40.71				
undesired	8.42				
Loss	11.75			1	
Attn	20.50				
desired	-8.78	-21.44	-8.78 -13.73	-8.78	-24.48
Loss	40.71		40,71		F 10
undesired	-15.62		-15.33		
Loss	7.68		7.68		
Attn	4.75		12.75		
desired	-8.78	-9.05			
Loss	40.71				
undesired	-8.01		1 7		
Loss	7.68				
Attn	24.75				
desired	-8.78	-24.72	No Difference		
Loss	40,71		l to 2 mil tale		
undesired	-8.09				
Loss	7.68				
Attn	9.00				
desired	-8.78	1.36	No Difference		
Loss	40.71				
undesired	-9.42	ľ			
Loss	7.68				
Attn	33,75	1			
desired	-8.78	-13.06	No Difference		
Loss	40.71		1 to Difference		
undesired	-6.00				
Loss	7.68	1			
Attn	22.75				
	Loss undesired Loss Attn desired Loss undesired Loss Attn desired Loss Attn desired Loss undesired Loss undesired Loss undesired Loss undesired Loss undesired Loss undesired Loss	desired	desired	Measurements d/u in dB Silence d/u in dB @ Silence S/N=45dB	desired

DAT File Number	Time Co Start	de Stop		Start IDs	Description	Grade 1	2
DAR40133.DAT	Jane .				LOWER SECOND ADJACENT		1
3/3/95					DOWER SECOND ADJACENT		-
313173					-		ļ
DISREGARD			1	······································			ļ
DISREGARD			2				ł
DIGITEGARD			3	······	Amati LSB Lower 2nd Adjacent	-0.5	-0.5
			4	-	AT&T Lower 2nd Adjacent	-1.5	0.5
			5	-	Amati DSB Lower 2nd Adjacent		1 0.5
			6	···········	USADR FM1 Lower 2nd Adjacent	-1 -2	0
			7	······································	USADR FM2 Lower 2nd Adjacent	-2	t
					OSADKT M2 LOWER Zild Adjacent		
			-		WITH MULTIPATH (URBAN SLOW)		ļ
DISREGARD		•••••••	8	-			
		***************************************	9	-	USADR FM2 Urban Slow with Lower 2nd Adjacent	-2	
			10		USADR FM1 Urban Slow with Lower 2nd Adjacent	-3	†
			111		Amati DSB Urban Slow with Lower 2nd Adjacent	-3	
······			12		AT&T Urban Slow with Lower 2nd Adjacent	-1.5	
······			13		Amati LSB Urban Slow with Lower 2nd Adjacent	0	***************************************
			-	······································		 	†······
							
			-				
·····		***************************************		-			
			1				†
		•					†
		***************************************					†
·····			1				†
<u>-</u>							†
	***************************************		1				†
		••••••					t
							
			1				†
			1	-			†
			++		···		t
		••••••					†
			-				
			1				
							
						·······	†
							

Test F-3, F-6 and G-3		F-3	F-6	G-3 Urban Slow Rayleigh	G-3 Urban Fast Rayleigh
5 dB S/N			Upper Second Adjacent	Upper Second Adjacent	Upper Second Adjacent
Receiver #4			DAR to Analog	DAR to Analog	
Pioneer Pioneer				with Multipath	DAR to Analog
SX-201	Measurements	d∕u in dB	EO&C	EO&C	with Multipath EO&C
nalog to Analog	desired -8.76	-14.92			E0&C
Reference	Loss 40.7				
	undesired 8.4:	5			
X Level	Loss 11.7:	5			
-62.00 dBm	Attn 31.25				
Т&Т	desired -8.76				
BAC	Loss 40.71				
	undesired -15.65				1
X Level	Loss 7.68		S/N at d/u 36.2 dB		
-62,00 dBm	Attn 21,50		d/u attn= 11.22 dB		1
T&T Amati	desired -8.78				
SB IBOC	Loss 40.71				
	undesired -7.98				
X Level	Loss 7.68		S/N at d/u 39.8 dB		
-62.00 dBm	Attn 25.00		d/u attn= 18.91 dB		
T&T Amati	desired -8.78				
SB IBOC	Loss 40.71				
	undesired -8,09				
X Level	Loss 7.68		S/N at d/u 39.5 dB		
-62.00 dBm	Attn 25.25		d/u attn= 18.80 dB		
SADR FM1	desired -8.78				
BOC	Loss 40.71				
	undesired -9.47	1			
X Level	Loss 7.68		S/N at d/u 32.3 dB		
-62.00 dBm	Attn 31,25		d/u attn= 17.42 dB		
SADR FM2	desired -8.78				
BOC	Loss 40.71				
	undesired -6.08				
X Level	Loss 7.68		S/N at d/u 34.4 dB		
-62.00 dBm	Attn 32,25		d/u attn= 20.81 dB		
Subcarrier C	roup B on interferers and	desired analo	g		DAT Ref.: DAR40153.DAT
	Noise on interferers		- i		DAT MEL. DARHO 133.DA
Standard SC	A Test Signal yields -20	dB on Sony 70	10 Input Monitor with Input Gain	Set to -4.0dB	Best Case S/N = 51 dB
Tests condu	cted March 14, 1995				Dest Case 3/M = 21 0B

Test F-3			F-3			Effects with o	ut	
35 dB S/N						Digital Modu	lation	
Receiver #4								
Pioneer						d/u in dB @		d/u in dB@
SX-201	Measurements		d/u in dB		Silence	S/N=45dB	Silence	S/N=35dB
Analog to Analog	desired	-8.76	-25.67			NA		
Reference	Loss	40.71						
	undesired	8.45				1		
Desired Signal Level	Loss	11.75						
-62.00 dBm	Attn	20.50						
AT&T	desired	-8.76	-16.14		-8.76	-6.18	-8.76	-17.68
IBAC	Loss	40.71			40.71		40.71	
	undesired	-15.65			-15.36		-15.36	
RX Level	Loss	7.68			7.68	.	7.68	
-62,00 dBm	Attn	10.00			20.25		8.75	
AT&T Amati	desired	-8.78	-19.83			No Difference		
DSB IBOC	Loss	40.71		1		1		
	undesired	-7.98						
RX Level	Loss	7.68				1		
-62.00 dBm	Attn	14.00						
AT&T Amati	desired	-8.78	-19.72			No Difference		
LSB IBOC	Loss	40,71		l i		- 1		
	undesired	-8.09		1		- 1		
RX Level	Loss	7.68				1		
-62,00 dBm	Aftn	14.00						
USADR FM1	desired	-8.78	-12.09			No Difference		
IBOC	Loss	40.71	1	1				
	undesired	-9.47						
RX Level	Loss	7.68						
-62.00 dBm	Attn	20,25						
USADR FM2	desired	-8.78	-14.48			No Difference		
IBOC	Loss	40.71				- 1		
	undesired	-6.08						
RX Level	Loss	7.68				1		
-62.00 dBm	Atin	21.25						
Notes:								

File Name: F3_RX4T;XLS Upper 35dB

DAT File	Time Code			tart IDs		***************************************	
Number	Start	Stop				Grade	
DAR40153.DAT				TT	Description	1	2
3/14/95	······		······	· -	UPPER SECOND ADJACENT	20 contractive	
	······	***************************************	······	 -		······································	
			1		Amati LSB		
			2		AT&T	-1 -1.5	0.5
			3		Amati DSB	***************************************	-0.5
			4		USADR FM1	-1 -1	0.5
			5		USADR FM2	-1	0.5
			······			-1	0
		***************************************			TAXADIX A COL		***************************************
				······································	WITH MULTIPATH (URBAN SLOW)		
	·····		6		no i stranovane di la caracteria della constanti di la constanti di la caracteria di la car		
	·····		7		FM2	-1.5	
					FMI	-1.5	
			8		AMATI DSB		
			9		AT&T	-1 -2	
			10		AMATI LSB	-2	
L.					T	-1	
<u>l</u>					<u> </u>		
		1			·		***************************************
		······		·····			***************************************
	***************************************			·····			***************************************
	·····			·····			
						······································	
				ancolores		<u>I</u> .	

			1	·····			
	27 perfection				<u> </u>		**************************************
v. topomino i							***************************************
	·····						
							•••••
······	***************************************						
······	·····-						
	<u> </u>						
-							
			I				
			7				

Tests F3, F6 and G3

Receiver

Rx No.: #5 Mfg.: FORD

Model: F4XF-19B132-CB Serial: 281150B010

Index

Page	Description
1	Cover sheet
2	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the lower second adjacent frequency
3	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the lower second adjacent frequency
4	DAR -> Analog interference at a 45dB signal to noise ratio. Digital Proponent on the upper second adjacent frequency
5	DAR -> Analog interference at a 35dB signal to noise ratio. Digital Proponent on the upper second adjacent frequency

Notes:

- Due to narrow-band receiver characteristics, unable to get 45dB S/N ratio with interference. Results are at a 49dB S/N ratio w/interference as a demonstration onl Clipped pink noise used as the modulation signal for the analog channel of the Proponent signal (except AT&T) ABBA used for main channel modulation on the desired analog channel SCA group B included on both desired and undesired (proponent) signals Total modulation on analog channels: 110% (SCA group level at 20%) Receiver audio routed through a 15KHz low pass filter Audio measurements made using quasi-peak detection and a CCIR wieghting filter
- Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver.
- In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.
- In certain cases portions of the second adjacent test can not be performed due to narrow band characteristics of some receivers.

Test F-3, F-6 and G-3	T	F-3	F-6	G-3	Urban Slow Rayleigh	G-3 Urban Fast Rayleigh
49 dB S/N	CAUTION		Lower Second Adjacent	Lower Sec	cond Adjacent	Lower Second Adjacent
Receiver #5		1	DAR to Analog	DAR to A	nalog	DAR to Analog
Ford		1		with Mult	tipath	with Multipath
F4XF-19B132-CB	Measurements	d/u in dB	EO&C	EO&C		EO&C
Analog to Analog	desired -	8.78 -43.16				
Reference	Loss 4	0.71				
	undesired	8.42		1		
RX Level	Loss 1	1.75		1		
-62.00 dBm	Attn	3.00				
AT&T		8.78 -26.19				
IBAC		0.71		1		
		5.62				
RX Level		7.68	S/N at d/u 30 dB			
-62.00 dBm		0,00	d/u attn= -16.97 dB			
AT&T Amati		8.78 -33.81				
DSB IBOC		0.71				
		8.00				1
RX Level		7.68	S/N at d/u 36.2 dB			1
-62.00 dBm		0.00	d/u attn= -9.35 dB			
AT&T Amati	desired -	8.78 -33.70				
LSB IBOC	Loss 4	0.71				
	undesired -	8.11		1		
RX Level	Loss	7.68	S/N at d/u 42,8 dB	1		
-62.00 dBm	Attn	0.00	d/u attn= -9.46 dB			
USADR FM1	desired -	8.78 -32.39				
IBOC	Loss 4	0.71				
	undesired -	9.42				
RX Level		7.68	S/N at d/u 28 dB	1		
-62,00 dBm	Attn	0.00	d/u attn= -10.77 dB			
USADR FM2	desired -	8.78 -35.81				
IBOC	Loss 4	0.71	1	1		
	undesired -	6.00				
RX Level	Loss	7.68	S/N at d/u 29.2 dB	1		
-62.00 dBm	Attn	0.00	d/u attn= -7.35 dB			
Notes: Subcarrier	Group B on interferer	rs and desired and	alog			DAT Ref.: None

Clipped Pink Noise on interferers

Standard SCA Test Signal yields -20dB on Sony 7010 Input Monitor with Input Gain Set to -4.0dB

Best Case S/N = 51.75 dB

Due to narrow-band receiver characteristics, unable to get 45dB S/N ratio with interference. Results are at a 49dB S/N ratio w/interference as a demonstration only.

Tests conducted March 3, 1995

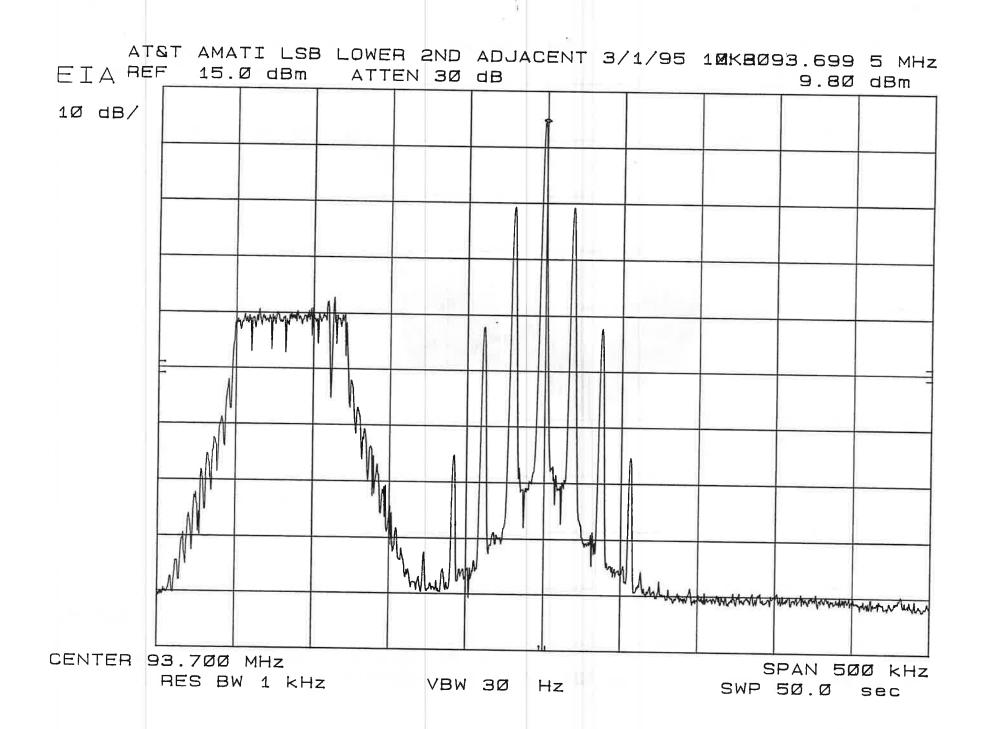
Test F-3	1		F-3		Effects with o	ut	
35 dB S/N				1	Digital Modu	ation	
Receiver #5					9		
Ford					d/u in dB @		d/u in dB @
F4XF-19B132-CB	Measurements		d/u in dB	Silence	S/N=45dB	Silence	S/N=35dB
Analog to Analog	desired	-8.78					
Reference	Loss	40.71	NA		NA.		
	undesired	8.42		1			
Desired Signal Level	Loss	11,75					
-62.00 dBm	Attn						
AT&T	desired	-8,78		-8.78		-8.78	
IBAC	Loss	40.71	NA	40,71		40.71	NA
	undesired	-15.62		-15.34		-15.34	1124
RX Level	Loss	7.68		7.68		7.68	
-62.00 dBm	Attn					, 00	
AT&T Amati	desired	-8.78					
DSB IBOC	Loss	40.71	NA	1	1 1		
	undesired	-8.00		- 1			
RX Level	Loss	7.68		1			
-62,00 dBm	Attn						
AT&T Amati	desired	-8.78	1				_
LSB IBOC	Loss	40,71	NA				
	undesired	-8.11			1 1		
RX Level	Loss	7.68					
-62,00 dBm	Attn		1		1		
USADR FM1	desired	-8.78					
IBOC	Loss	40.71	NA				
	undesired	-9.42					
RX Level	Loss	7.68		6			
-62,00 dBm	Attn			1			
USADR FM2	desired	-8.78					_
IBOC	Loss	40.71	NA				
	undesired	-5.98					
RX Level	Loss	7.68					
-62.00 dBm	Attn						

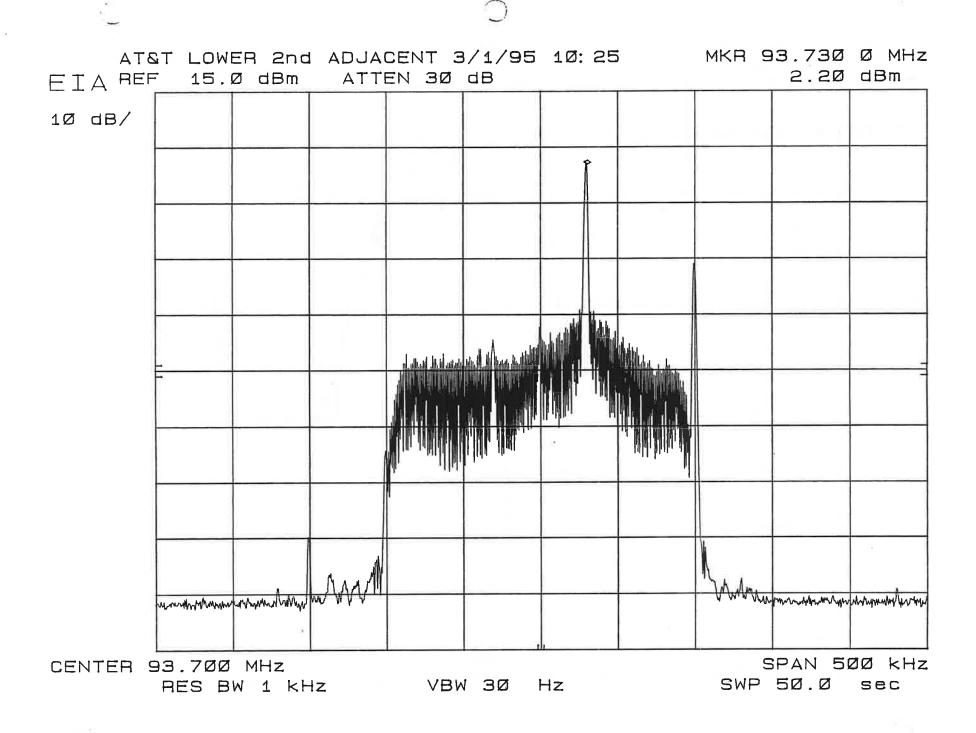
Could not achieve target S/N on second adj. test

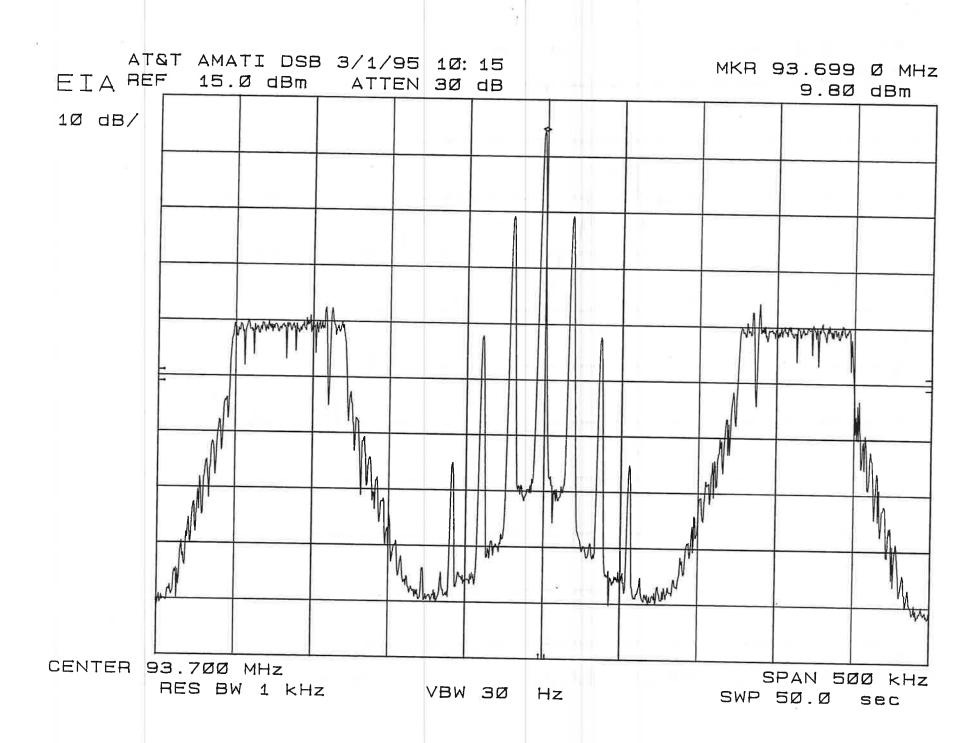
Test F-3, F-6 and G-3	F		F-3	F-6	G-3 Urban Slow Rayleigh	G-3 Urban Fast Rayleigh
48 dB S/N	CAUTION			Upper Second Adjacent	Upper Second Adjacent	Upper Second Adjacent
Receiver #5		- 1			DAR to Analog	DAR to Analog
Ford				S	with Multipath	with Multipath
F4XF-19B132-CB	Measurements	d/u	u in dB	EO&C	EO&C	EO&C
Analog to Analog	desired	-8.77 -4	46.18			
Reference	Loss	40.71				
1	undesired	8.45				
RX Level	Loss	11.75				
-62,00 dBm	Attn	0.00				
AT&T	desired	-8.77 -	-8.17			
IBAC	Loss	40.71				
	undesired -	15.63				
RX Level	Loss	7.68				
-62.00 dBm	*******************************	18.00				
AT&T Amati	1	4.5	26.05			
DSB IBOC		40.71				
	1	-8.00				
RX Level	Loss	7.68				
-62.00 dBm	Attn	7.75				
AT&T Amati	155		25.93			
LSB IBOC		40.71				
1	(1)	-8.12	1			
RX Level	Loss	7.68				
-62.00 dBm	Attn	7.75				
USADR FM1			20.79			
IBOC		40.71				
1	177	-9.51				
RX Level	Loss	7.68				
-62,00 dBm		11,50				
USADR FM2			-9.71			
IBOC		40.71				
		-6.09				
RX Level	Loss	7.68				
-62.00 dBm	TAXABLE CONTRACTOR CON	26.00				
	roup B on interfere		ired analo	g		DAT Ref.: None
	Noise on interfere					
11			-	10 Input Monitor with Input Gain Set to -4.0dB		Best Case S/N = 51.75 dB
	hieve target S/N		adj. test			
Tests conduc	ted March 14, 199	05				

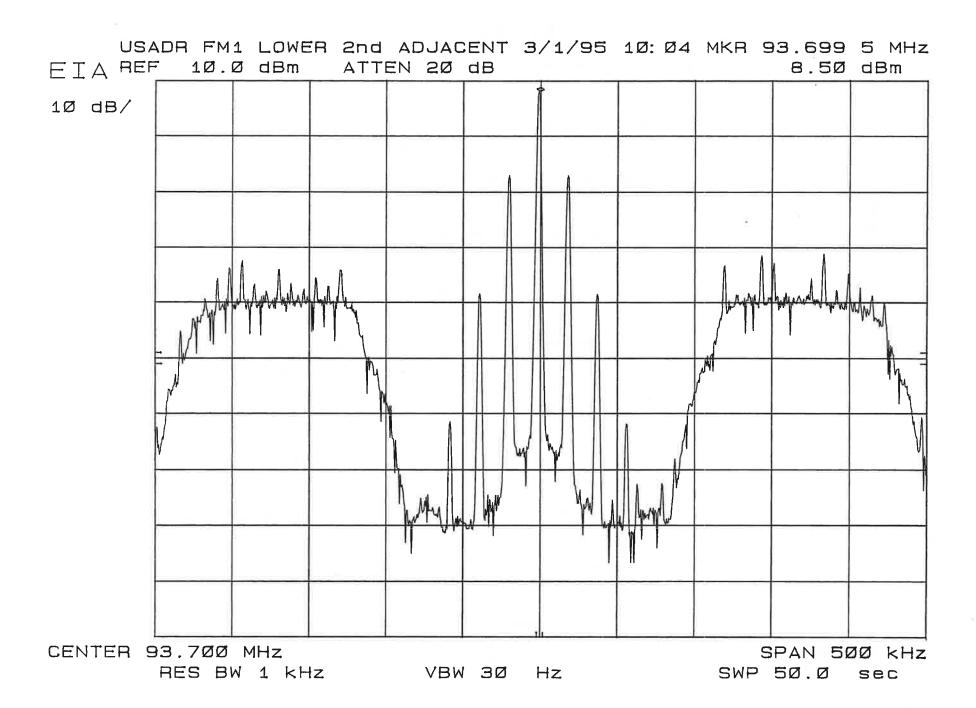
File Name: F3_RX5T,XLS Upper 45dB

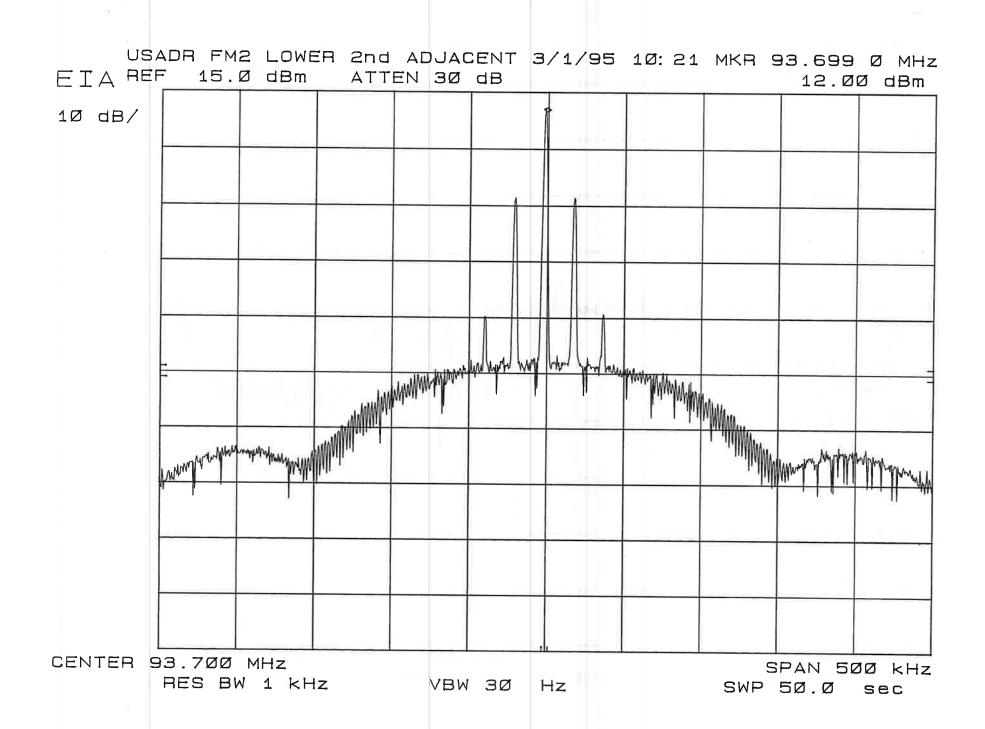
Test F-3			F-3			Effects with	out	
35 dB S/N						Digital Modu	lation	
Receiver #5						-		
Ford						d/u in dB		d/u in dB @
F4XF-19B132-CB	Measurements		d∕u in dB		Silence	D/N=47dB	Silence	S/N=35dB
Analog to Analog	desired	-8.87	NA			NA I		
Reference	Loss	40:71						
	undesired	-1,45						
Desired Signal Level	Loss	11.75						
-62.00 dBm	Attn							
AT&T	desired	-8.87	NA		-8.78	NA	-8.87	NA
IBAC	Loss	40.71		1 1	40.71		40.71	
NAME OF THE PARTY	undesired	-15.60		1	-15.38		-15.38	
RX Level	Loss	7.68		1	7.68		7.68	
-62.00 dBm	Attn				2.25		8.25	
AT&T Amati	desired	-8.87	NA					
DSB IBOC	Loss	40.71		1 1				
	undesired	-7.98		1 1				
RX Level	Loss	7.68		1 1				
-62.00 dBm	Atta							
AT&T Amati	desired	-8,87	NA					
LSB IBOC	Loss	40.71						
	undesired	-8.09		1				
RX Level	Loss	7.68						
-62.00 dBm	Afm							
USADR FM1	desired	-8.84	NA					
IBOC	Loss	40.71	- 1					
	undesired	-9.46	- 1					
RX Level	Loss	7.68	- 1			1 4		
-62.00 dBm	Attn							
USADR FM2	desired	-8.87	NA					
IBOC	Loss	40,71				1 1		
	undesired	-6.01	- 1			1		
RX Level	Loss	7.68	- 1					
-62.00 dBm	Attn							
Notes:	A CAMPIE TO A CAMP							
Could not a	chieve target S/N on	second ad	lj. test					
				**				

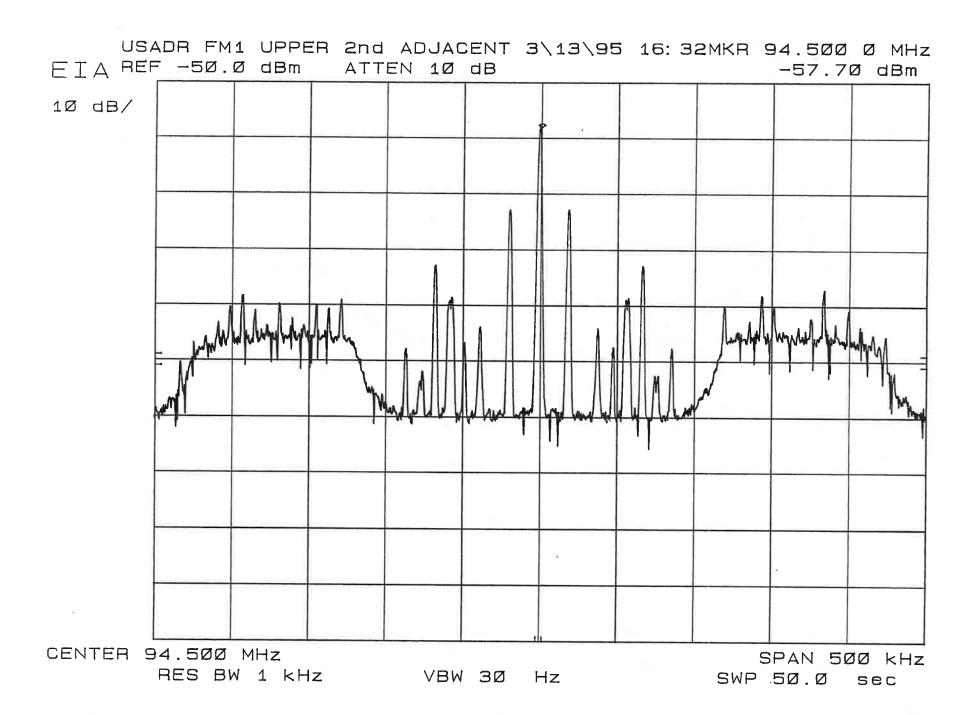


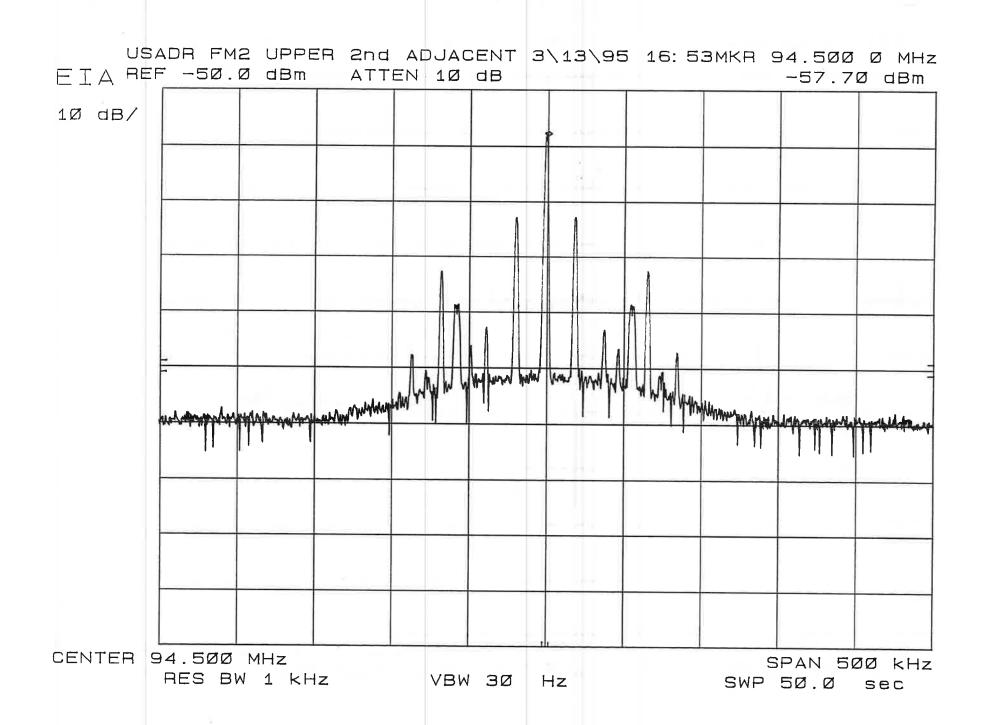


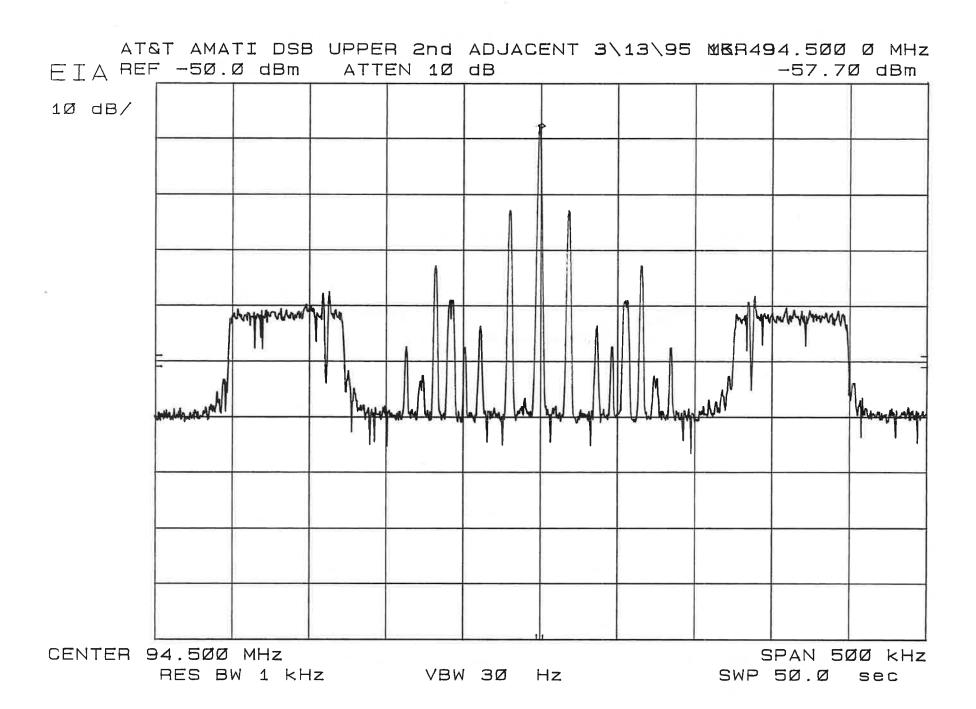


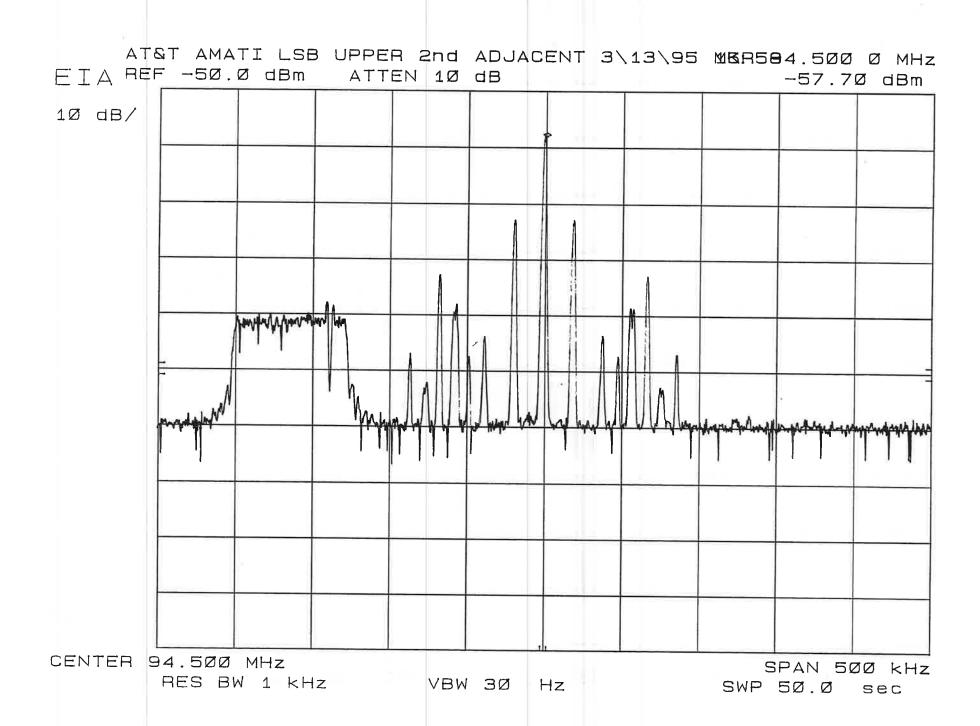


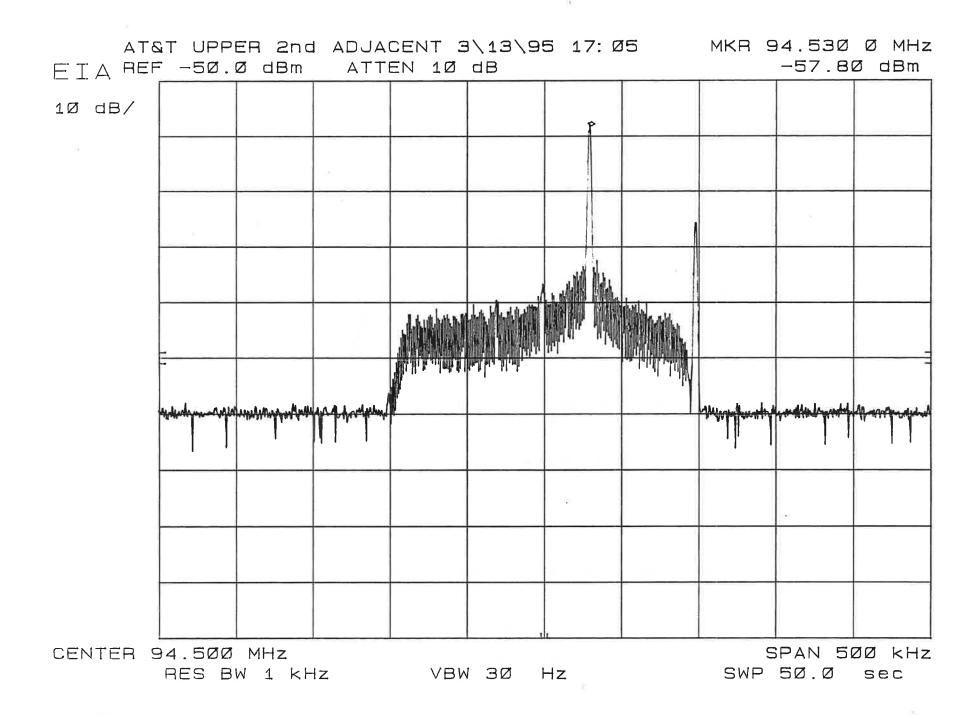












APPENDIX AP

Tests H and I Analog to DAR

Tests H & I, Sections 1-5

Proponent: USADR FM1

Index	
Page	Description
1	Cover sheet
2	Analog -> DAR interference tests H and I (with multipath) including: 1) Co-Channel 2) Lower first adjacent or upper first adjacent tests 3) Simultaneous lower and upper first adjacent tests 4) Lower second adjacent or upper second adjacent tests
	5) Simultaneous lower and upper second adjacent tests
3	4) Lower second adjacent or upper second adjacent tests 5) Simultaneous lower and upper second adjacent tests Digital Audio Tape recording log of H & I tests where applicable
	Dla
Notes:	10000
*	Clipped pink noise used as the modulation signal on the analog interfering signal
*	ABBA used as modulation on the IBOC host analog channel (100% mod. lev.)
*	When required, SCA groups A or B included on undesired signal. Only group A used in test I (Multipath)
*	Total modulation on analog channels: 100% without SCA's, 110% with SCA's (SCA group level at 20%)
*	In the H series only, additional paths in the multipath simulator were turned on to provide a higher undesired signal level when required. The simulator paths were used for gain only, no multipath events were running. "2P" indicates 2 paths for a 6dB increase. "3P" indicates 3 paths for a 9 dB increase in undesired signal.
*	Multipath setup includes nine paths for the desired signal and three paths for the undesired signal
•	In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

internalized

EIA Digital Audio Radio Test Laboratory

H and I Series					ше	T	4-		I Series Tests					
JSADR FM1	D IL	-7.4 40.7		Gro	SCAs	Grou	рВ	Co, 1st and 2nd->DAR	Attn	D/U	Analog -> DAR w/multipath Group A SCA's Urban Slow Rayleigh	Attn		Analog -> DAR w/multipath Group A SCA's Urban Fast Rayleigh
1/3/95	U	-7.7	7								Medium	47.00		Medium
	巾	11.2									TOA occurs with no added noise	34.00	4.80	
	TOA At					26.50	-2.70				Weak			Weak
Co-Channel	POF At	tn 11.0	-18.2	0 21.25	-7.95	22.50	-6.70				TOA occurs with no added noise	1		TOA occurs with no added noise
Boonton												-		Medium
/3/95	U	-7.7									Medium	1 1		Medium
e ř	TOA At	11.2 tn 24.2		5 23.75	24,55	23.75	24 55	No Change with SCAs			TOA occurs with no added noise	49,00	49.80	
Lower 1st Adj						19.50		30 dB pad in interfering path			TOA Occurs with no added noise	34.00	34.80	
Boonton	FOF AL	19.0	15.0	17.50	20.50	17.50	20.00	50 tab pat in interioring patri			1			
1/4/95	U	-7.7	4	+							Medium	1 1		Medium
	IL	11.2												
2 Γ	TOA At			7							NA			NA
Upper 1st Adj	POF At	tn 18.5	19.2	7										
Boonton														<u> </u>
	U										Medium			Medium
	止										4	_		27.4
3	TOA A							NA			NA			NA
Lower+Upper	POF At	tn	-				-		_		-{	-		
lst Adj	U	-7,7	4	_		-			-		Medium	1		Medium
4/4/95	III	11.2			2P		2D-	added I north			Medium	1 1		viedram
a î	TOA A			8 8.75		6,50	-28.73	added 2 path to unclesived signal to addien TOA, OF	_		TOA occurs with no added noise	30.00	0.77	
Lower 2nd Adi						3.00	-32.23	to unclesime signer			Torr decars with no access noise	10.00		
Harris	101 11	1.7		1.00	- Oliza	0100		1 Prom TOAIR			1			
	U	-7,7	4					to acho			Medium	1		Medium
	II.	11.2										1		
4 [TOA A			8				added 2 hs			¬na			NA
Upper 2nd Adj	POF At	tn 0.0	-38.2	3				- adula Daths						
Boonton								, , , , , , , , , , , , , , , , , , ,						
4/4/95	U	-7.8									Medium			Medium
_	II.	11.2						Hook Occurs			4			
5 [TOA A					19.50	-15.65				TOA occurs with no added noise	32.00	2.86	
Lower+Upper	POF A	tn 15.0	0 -20.	5 15.00	-20.15	14.00	-21.15				4	20.00	-9.15	
2nd Adj											I	1 1		

"Hook" refers to a non-linear condition caused by wideband AGC affecting results due to the unusually high level of second adjacent interfering signal required for TOA.

Other related terms are hysterisis or foldback. This is an unstable condition that will cause variability in the test results.

Page 2 of 3

File Name: DA40180T.XLS USADR FM1

ABBA on IBOC Host

W/SCA's: Clipped Pink Noise at 90% SCA Groups A or B at 20%

EIA DAR Test Lab DAT Recording Log

DAT File	Time C	Start IDs						ATTEN	
Number	Start						Description	SET. (d	
DAR40180.DAT			T	T	П			·	1 00000
3/14/95	***************************************			†		†			
		ļ		†		i		INTERFERING SIGNAL WITH GROUP A SCA's	
			ī	2	3	t====		H5 Lower & Upper 2nd TOA	12.50
			4	5	6	†*****	·····	I5 (Urban Slow) TOA	63.75
11.11.11.11.11.11.11.11.11.11.11.11.11.	***************************************		7	8	9			I5 (Urban Fast) TOA	45.00
	***************************************		10	11	12	İ'''''	l'''''	H4 Lower 2nd TOA	4.00
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	***************************************		13	14	15	.	·····	I4 (Urban Fast) TOA	25.00
·	***************************************		16	17	18	.		H4 Upper 2nd TOA	5.25
			19	20	21	i		H2 Lower 1st TOA	24.50
			22	23	24			H1 Co-Chan TOA	15.75
LINE COMMENTER LINE OF THE CONTRACTOR OF THE CON			25	26	27			II (Urban Fast)	39.00
	***************************************	·		1		·		INTERFERING SIGNAL WITH NO SCA's	
4/3/95			28	29	30	31	32	H1 Co-Chan	18.00
		werre	33	34	35	36	37	H1 Co-Chan TOA	17.75
DISREGARD			38				*******		
			39	40		42		H2 Lower 1st TOA	24.25
4/4/95			43	44	45			H4 Lower 2nd TOA	4.25
DISREGARD			46	47	48				
			49	50	51		*******	H5 Lower & Upper 2nd TOA	6.75
			1				******		

			00 000				******		

		WOLDS IN THE STREET							

					1				
					1		15112550		

Tests H & I, Sections 1-5

Proponent: AT&T Amati DSB

Index	
Page	Description
1	Cover sheet
2	Analog -> DAR interference tests H and I (with multipath) including: 1) Co-Channel 2) Lower first adjacent or upper first adjacent tests 3) Simultaneous lower and upper first adjacent tests 4) Lower second adjacent or upper second adjacent tests 5) Simultaneous lower and upper second adjacent tests
3	Digital Audio Tape recording log of H & I tests where applicable
Notes:	
* * * * *	Clipped pink noise used as the modulation signal on the analog interfering signal ABBA used as modulation on the IBOC host analog channel (100% mod. lev.) When required, SCA groups A or B included on undesired signal. Only group A used in test I (Multipath) Total modulation on analog channels: 100% without SCA's, 110% with SCA's (SCA group level at 20%) In the H series only, additional paths in the multipath simulator were turned on to provide a higher undesired signal level when required. The simulator paths were used for gain only, no multipath events were running. "2P" indicates 2 paths for a 6dB increase. "3P" indicates 3 paths for a 9 dB increase in undesired signal. Multipath setup includes nine paths for the desired signal and three paths for the undesired signal In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

H and I Series						*** **	• 750					* 0			
	1						eries T	ests		I Series Tests					
AT&T Amati DSB		D	-7,50			SCAs						Analog -> DAR w/multipath			Analog -> DAR w/multipath
	I	T	40.77	None	Grou		Grou		Co, 1st and 2nd->DAR			Group A SCA's			Group A SCA's
				D/U	Attn	D/U	Attn	D/U	EO&C	Attn	D/U	Urban Slow Rayleigh	Attn	D/U	Urban Fast Rayleigh
3/30/95	T	Ū	-7.77							49.00	19.77	Medium	42.00	12.77	Medium
	I	டி	11.27							39.00	9.77		34.00	4.77	
1	TOA	Attn	10.75	-18.48	25.25	-3.98	21.25	-7.98	1			Weak			Weak
Co-Channel	POF	Attn	8.50	-20.73	22,75	-6.48	18.00	-11.23				Impairment between TOA and POF			TOA without impairment
Boonton															
3/31/95	Ţ	U	-7.77									Medium			Medium
	I	L	11.27												
2 [TOA	Attn	22.00	22,77	22.00	22.77	22.00	22.77	No Change with SCAs	52.00	52.77		38.00	38.77	
Lower 1st Adj	POF A	Attn	20.00	20.77	20.00	20.77	20.00	20.77		34.00	34.77		31.00	31,77	
Boonton									1						
	Ţ	U	-7.77									Medium			Medium
	lı	ட	11.27		-										
2	TOA	Attn	22.25						Symmetrical Characteristics			NA			NA
Upper 1st Adj	POF A	Attn	20.50												
Boonton															
												Medium			Medium
3	TOA								NA			NA			NA
Lower+Upper	POF														
lst Adj									1						
3/31/95	ī	U	-7.77									Medium			Medium
		L	11.27	3P		3P		3P							
4	TOA	Attn	2.00	-36.23	5.75	-32.48	3.25	-34.98		25.00	-4.23	P	14.00	-15.23	
Lower 2nd Adj	POF A	Attn	0.00	-38.23	4.00	-34.23	1.00	-37.23	POF could just be achieved	13.00	-16.23		8.00	-21.23	
Boonton															
	Ţ	U	-7.77									Medium			Medium
	I	L	11.27	3P					1						
4	TOA		0.00	-38.23					TOA could just be achieved						
Upper 2nd Adj	POF A	Attn]						
Boonton															
3/31/95	T	U	-7.85									Medium			Medium
0.2		IL.	11.27			3P		3P]						
5	TOA		3.75	-34.41	8.25	-29.91	5.00	-33.16		26.00	-3.16		16.00	-13.16	
Lower+Upper	POF	Attn	2,50	-35.66	6.25	-31.91	3.50	-34.66	l	15.00	-14.16		8.00	-21.16	
2nd Adi									1						

W/SCA's: Clipped Pink Noise at 90% SCA Groups A or B at 20% ABBA on IBOC Host

3P indicates 3 Paths for a 9 dB increase in power

Multipath Tests Conducted 4/5/95

EIA DAR Test Lab DAT Recording Log

DAT File Number	Time C Start	ode Stop		St	art I	Ðs			ATTEN	
DAR40181.DAT	Statt	зюр		**************************************				Description	SET. (dB	
3/31/95						ļ	ļ			
3/31/93				ļ	ļ	ļ				
						ļ		INTERFERING SIGNAL WITH NO SCA's		
DISREGARD			1.	5	3 6			H2 Lower 1st TOA	22.00	
DISREGARD			4	5	6	7	8			
DISKEGARD			9				ļ			
			*********		12	********		I2 Lower 1st (Urban Slow) TOA	49.00	
			14	15		17		I2 Lower 1st (Urban Fast) TOA	37.00	
			18	19	20			H4 Lower 2nd TOA	2.00	
			21	22	23			I4 Lower 2nd (Urban Fast) TOA	12.00	
		ļ	24	25	26			I4 Lower 2nd (Urban Slow) TOA	22.00	
			27	28	29			H3 Lower & Upper 2nd TOA	3.75	
			30	31	32			15 Lower & Upper 2nd (Urban Slow) TOA	23.00	
			33	34		36		15 Lower & Upper 2nd (Urban Fast) TOA	14.00	
DISREGARD			37	38	39	40	41	NOTE: TO SELECTION OF THE PROPERTY OF THE PROP		
	arauxidest terrocedittitist		42	43	44			H1 Co-Chan TOA	10.75	
							*******		10.75	
		<u> </u>			********		******			
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		1							
	***************************************	······	1							
	***************************************						•••••			
			1				******			
		***************************************					•••••			

		•••••	1							
		***************************************	·		∤		•••••			
			 							
			 							
		ļ	ļļ		ļ					
			ļļ							
			ļļ							
			ļļ							
			ļļ		ļ					
			ļļ						<u> </u>	

Tests H & I, Sections 1-5

Proponent: AT&T Amati LSB

Index		
Page	Description	
1	Cover sheet	
2	Analog -> DAR interference tests H and I (with multipath) including: 1) Co-Channel 2) Lower first adjacent or upper first adjacent tests 3) Simultaneous lower and upper first adjacent tests 4) Lower second adjacent or upper second adjacent tests 5) Simultaneous lower and upper second adjacent tests	
3	Digital Audio Tape recording log of H & I tests where applicable	
Notes:		
ivotes:		
*	Clipped pink noise used as the modulation signal on the analog interfering signal	
*	ABBA used as modulation on the IBOC host analog channel (100% mod. lev.)	
*	When required, SCA groups A or B included on undesired signal. Only group A	used in test I (Multipath)
*	Total modulation on analog channels: 100% without SCA's, 110% with SCA's	(SCA group level at 20%)
	In the H series only, additional paths in the multipath simulator were turned on to The simulator paths were used for gain only, no multipath events were running. "2P" indicates 2 paths for a 6dB increase. "3P" indicates 3 paths for a 9 dB increase.	
*	Multipath setup includes nine paths for the desired signal and three paths for the u	ndesired signal
*	In areas where EO&C or grade evaluation does not appear, subjective evaluator co	omments will be used.

I and I Series						не	eries To	ete		I Series Tests					
AT&T Amati LSB		T D	-7.54 40.77	None D/U	Grou	SCAs	Grou Attn	рΒ	Co, 1st and 2nd->DAR	Attn	D/U	Analog -> DAR w/multipath Group A SCA's Urban Slow Rayleigh	Attn		Analog -> DAR w/multipath Group A SCA's Urban Fast Rayleigh
4/5/95	-	J	-7.77	2.0								Medium	54.00	24.73	Medium
473773		ī. I	11.27	- 1								TOA with no added interference	42.00	12.73	
1 [TOA		18.75	-10.52	32.25	2.98	30.25	0.98				Weak			Weak
Co-Channel			15.50	-13.77	29.75	0.48	25.25	-4.02				POF with no added interference			POF with no added noise
Boonton															
4/5/95		U	-7.77									Medium			Medium
		L	11.27												
2	TOA	Attn	29.75	30.48	30.25	30.98	30.25	30.98				TOA occurs with no added noise	53.00	53.73	
Lower 1st Adj	POF	Attn	28.00	28.73	28.50	29.23	28.25	28.98					42.00	42.73	
Boonton															
4/5/95		U	-7.77									Medium			Medium
-		IL	11.27									4			
2	TOA	Attn	10.50	-18.77	10.50	-18.77	10,75	-18.52				TOA occurs with no added noise	35.00	5.73	
Upper 1st Adj	POF.	Attn	8.50	-20.77	8.25	-21.02	8,25	-21.02				_1	28.00	-1.27	l
Boonton															
4/5/95	- 1	U	-7.77								1	Medium			Medium
		L	11.27						1			- l			
3	TOA								NA			NA			NA
Lower+Upper	POF	Attn							1		_	4	\vdash		
1st Adj												Medium	+		Medium
4/4/95	- 1	U	-7.77							1	1	Medium	1 1		Median
2		IL .	11.27		6.00	22.52	2.75	-25,52	ł	-	_	TOA occurs with no added noise	27.00	-2.27	1
4	TOA		2.50	-26.77	6,75 4,00	-22.52 -25.27	3.75 1.25	-25.52	•			10A occurs with no added noise	19.00	-10.27	ti)
Lower 2nd Adj	POF	Attn	0.00	-29.27	4,00	-25,27	1.23	-20,02	1		-	-	17.00	-10,21	
Harris	_	п	-7.77									Medium			Medium
	- 1	IL.	11.27	3P		3P	1	3P	1			1			
4	TOA		2.00	-36.27	1.50		1.50	-36,77	1			TOA occurs with no added noise	18.00	-11.27	1
Upper 2nd Adj			0,25	-38.02	0.00		0.00	-38.27			8	1	10.00	-19.27	
Boonton	ror	Au	0,23	-30,02	0.00	-30.27	0.00	-30.27	1			1	11.74		1
4/4/95		U	-7.84									Medium			Medium
11.11.20	- 1	IL	11.27						1						
5	TOA		2.75	-26.45	6.75	-22,45	4.00	-25.20	1			TOA occurs with no added noise	29.00	-0.20	1
Lower+Upper			0.50	-28.70	4.25			-27.95	1				18,00	-11.20	
2nd Adj	101		5,50	20.70	,,,,,,				1			1			
	Clipped	Pink	Noise onl	y at 100%					1					DAT Ref.:	DAR40182,DAT
					0% SCA	Groups A	or B at 2)%							
			OC Hast												

Page 2 of 3

ABBA on IBOC Host

Tests conducted 4/5/95

3P indicates 3 Paths for a 9 dB increase in power

EIA DAR Test Lab DAT Recording Log

DAT File	Time C	ode		St	art l	Ðs			ATTEN
Number	Start	Stop						Description	SET. (dE
DAR40182.DAT	Me-aponto-servicas				П		Т		
4/5/95			1		1	† · · · ·	1		····
				T	l	i	1	INTERFERING SIGNAL WITH NO SCA's	
		``	1	2	3	İ	1	HI Co-Chan. TOA	18.25
			4	5	6	7	8	H2 Lower 1st	30.00
		<u> </u>	9		11	i	1	H2 Lower 1st TOA	29.75
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	***************************************	"	12	10 13	14	·	1	H2 Upper 1st TOA	10.50
	***************************************			16	17			H4 Upper 2nd (w/group A SCA's) TOA	1.50
	***************************************		18	19	20			H4 Upper 2nd TOA H4 Lower 2nd TOA H5 Lower & Upper 2nd TOA	2.00
	***************************************		21	22	23 26		ļ	H4 Lower 2nd TOA	2.50
	***************************************		24	25	26	27	i	H5 Lower & Upper 2nd TOA	
XXX 1.1.1.000 M 0.1.1.000 M 0.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1		1					h		2.75
	***************************************		1	*******					
	***************************************	T	1						
		***************************************	1	*******					
	***************************************				*******	••••••	·····		
		·[·····			***************************************				
······	•••••••	·	1						
			+						
				22000	30220				
			+						
		·····	-						
	······								
•••••••••••••••••••••••••••••••••••••••			ł						
	***************************************		ļ						
			ļļ						
			ļļ						1
			 						
			ļļ						
			ļļ						1
			ļļ						
			ļļ						1
			ļļ						
		ļ							T
									1

Tests H & I, Sections 1-5

Proponent: AT&T

Index	
Page	Description
1	Cover sheet
2	Analog -> DAR interference tests H and I (with multipath) including:
	1) Co-Channel
	2) Lower first adjacent or upper first adjacent tests
	3) Simultaneous lower and upper first adjacent tests
	4) Lower second adjacent or upper second adjacent tests 5) Simultaneous lower and upper second adjacent tests
	3) Simultaneous lower and upper second adjacent tests
3	Digital Audio Tape recording log of H & I tests where applicable
	C Printed appricable
Notes:	
Notes.	
*	Clipped pink noise used as the modulation signal on the analog interfering signal
*	ABBA used as modulation on the IBOC host analog channel (100% mod. lev.)
*	When required, SCA groups A or B included on undesired signal. Only group A used in test I (Multipath)
*	Total modulation on analog channels: 100% without SCA's, 110% with SCA's (SCA group level at 20%)
*	In the H series only, additional paths in the multipath simulator were turned on to provide a higher undesired signal level when required
	The simulator paths were used for gain only, no multipath events were running.
*	"2P" indicates 2 paths for a 6dB increase. "3P" indicates 3 paths for a 9 dB increase in undesired signal.
*	Multipath setup includes nine paths for the desired signal and three paths for the undesired signal
- 4	In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

H and I Series					нѕ	eries T	ests				I	Series Te	sts	
т&т	D IL	-15.20 40.77	None D/U	Grou	SCAs	Grou Attn	рВ	Co, 1st and 2nd->DAR EO&C	Attn	D/U	Analog -> DAR w/multipath Group A SCA's Urban Slow Rayleigh	Attn		Analog -> DAR w/multipath Group A SCA's Urban Fast Rayleigh
			D/U	Attn	DIO	Attir	DIO	EO&C				42.00		Medium
1/7/95	U	-7.77							40.00		Medium		25.07	Medium
7.2	IL	11.27							33.00		TOA occurs with no added noise	32.00		997
1	TOA Attn	19.25	12.32	19.00	12.07	19.25	12.32		42.00		Weak			Weak
Co-Channel	POF Attn	18.25	11.32	18.25	11.32	18.25	11.32		34.00	27.07		-	_	TOA with no added impairmen
Boonton														
1/10/95	U	-7.77									Medium			Medium
72	1	11.27												
2	TOA Attn	16.75	-20.18	20.75	-16.18	22.50	-14.43		39.00	2.07		40.00	3.07	
Lower 1st Adj	POF Attn	14.25	-22.68	19.25	-17.68	20.25	-16,68		31.00	-5.93		30.00	-6.93	
Boonton														
4/10/95	U	-7.77									Medium			Medium
	止	11.27									1			
2	TOA Attn	16,50	-20.43	21.00	-15.93			Symmetrical characteristics			NA			NA
Upper 1st Adj	POF Attn	14.00	-22.93	19.25	-17.68						į,			
Boonton						i — —Ņ								
4/10/95	U	-7.88		-							Medium			Medium
	l _{IL}	11.27												
3 [TOA Attn	19.75	-17.07	23.00	-13.82	25.25	-11,57	1	44.00	7.18		43.00	6.18	
Lower+Upper	POF Attn	17.75	-19.07	22.00	-14.82		-13.57		36.00	-0.82		35.00	-1.82	
lst Adj	101							1			1			
4/10/95	II	-7.83						POF not achievable with maximum			Medium			Medium
,,,,,,,,	II.	2.27	3P		3P		3P	RF level on undesired signal.				1		l
4 [TOA Attn	0.75	-45.12	0,50	-45,37	0.25		d/u = -45.87 dB	9.00	-27.87	1	8.00	-28.87	
Lower 2nd Adj		0.75	10.112	0.50	10,07	0.20		Recovered audio not quite POF	2.00	-34.87		2.00	-34.87	Į.
Boonton	TOP Attn	+			-						1			1
Doniton	II	-7.83						TOA not achievable with maximum			Medium			Medium
	Π.	2.27	3P		3P		3P	RF level on undesired signal.						
	TOA Attn	2.21	J1		31		- Ja	d/u = -45.87 dB	7.00	-29.87	1	9.00	-27.87	1
Upper 2nd Adj		1						Recovered audio clean no audible	2.00	-34.87		2.00	-34.87	l
	FOFIAIII	-		_				defects	2.00	2	1			1
Boonton 4/4/95	177	-7.87		·				ucicolo			Medium			Medium
4/4/93	In		2D		3P		3P	1				1 1		
	IL TOALAH	2.27		4,50		4.75	-41,08	1	10.00	-26.83	1	10.00	-26.83	1
>	TOA Attn	4.25							3.00	-33.83		3,00	-33.83	1
Lower+Upper	POFIAttn	2,50	-43.33	2.75	-43.08	3,00	-42.83	L L	3.00	-33.03	4	3.50	-55.00	4

Notes: Clipped Pink Noise only at 100% W/SCA's: Clipped Pink Noise at 90% SCA Groups A or B at 20%

ABBA on IBOC Host

3P indicates 3 Paths for a 9 dB increase in power

EIA DAR Test Lab DAT Recording Log

DAT File	Time C			St	art l	Ds			ATTEN
Number	Start	Stop						Description	SET. (dB
DAR40183.DAT			T		Г				T
4/7/95				i'''''		·			
					11101111		0110000		
			1	2	3	4	5	H1 Co-Chan	19.50
	•		6	7				HI Co-Chan TOA H2 Lower 1st TOA H2 Upper 1st H2 Upper 1st TOA	19.25
			8	9	10	11	12	H2 Lower 1st TOA	16.75
				14	15	16	17	H2 Upper 1st	16.75
			18	19	20			H2 Upper 1st TOA	16.50
			21	22	20 23 26			H4 Lower 2nd TOA	0.75
DISREGARD		<u> </u>	24	25	26	27	28		·
DISREGARD			1 47						1
	***************************************	A C I PARK CONSTRUCTION OF THE PARK CONTROL OF	32	33	34	35	36	H5 Lower & Upper 2nd TOA H3 Lower & Upper 1st	4.25
***************************************			37	38	39	40	41	H3 Lower & Upper 1st	20.00
			42	43	44	45		H3 Lower & Upper 1st TOA	19.75
									1
									·
		l							T
									·
									·
					10000000				
	***************************************								1
									1
									1
									·
									1
									1
									·
									-
	***************************************								1
		LEAT							1
					I				†
		274356			Ī				†·····
reen in the ed lift is 5000 contention of 11 000 001					Ī		1		†

Tests H & I, Sections 1-5

Proponent: USADR FM2

Index	
Page	Description
1	Cover sheet
2	Analog -> DAR interference tests H and I (with multipath) including 1) Co-Channel 2) Lower first adjacent or upper first adjacent tests 3) Simultaneous lower and upper first adjacent tests 4) Lower second adjacent or upper second adjacent tests
	5) Simultaneous lower and upper second adjacent tests

Notes:

3

* Clipped pink noise used as the modulation signal on the analog interfering signal

Digital Audio Tape recording log of H & I tests where applicable

- * ABBA used as modulation on the IBOC host analog channel (100% mod. lev.)
- * When required, SCA groups A or B included on undesired signal. Only group A used in test I (Multipath)
- * Total modulation on analog channels: 100% without SCA's, 110% with SCA's (SCA group level at 20%)
- * In the H series only, additional paths in the multipath simulator were turned on to provide a higher undesired signal level when required.

The simulator paths were used for gain only, no multipath events were running.

- "2P" indicates 2 paths for a 6dB increase. "3P" indicates 3 paths for a 9 dB increase in undesired signal.
- * Multipath setup includes nine paths for the desired signal and three paths for the undesired signal
- * In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

EIA DAR Test Laboratory

H and I Series	1 ests					ня	eries Te	ete					IO. * mr. ·		
USADR FM2		D IL	-7.42 40.76	None D/U	Grou	SCAs	Group Attn	в	Co, 1st and 2nd->DAR EO&C	Attn	D/U	Analog -> DAR w/multipath Group A SCA's Urban Slow Rayleigh	I Series Tests	Analog -> DAR w/multipath Group A SCA's	
5/23/95		U	-7.95							1	270	Medium	Atui	D/U Urban Fast Rayleigh Medium	
42		L	11.36									No recovered Audio.	1 1	No recovered Audio	
1	TOA	Attn	43.00	44.13	43,25	44.38	42.75	43.88	Small chirp or shattering.		_	Weak		Weak	
Co-Channel	POF	Attn	37.50	38.63	37.50	38.63	37.50		High cut, warbling and occasional	1		NA			
Boonton									mute.		-	INA .		NA	
5/23/95		U	-7.95						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-					
	- 1	n.	11.36							1 1		1			
2 1	TOA		31.00	32.13	31.75	32.88	31.25	37 20	Small warble.	-	_	-l			
Lower 1st Adj			24.75	25.88		25.88	25.00					NA		NA	
Boonton	101	, ALLII	24.13	23.00	24.73	43.00	23.00		High cut, warbling and occasional			-			
4/4/95	\rightarrow	U	-7.95	_	-				mute.	-					
M. T. C. A.		п	11.36												
, 1	TOA	Attn	31.25	32.38											
Upper 1st Adj												NA		NA	
	POF	Attn	25.50	26.63	-							1			
Boonton	_														
		U		- 1											
·		IL													
	TOA				00				NA			NA		NA	
Lower+Upper	POF	Attn													
1st Adj															
5/24/95	- 1	U	-7.99												
		IL	11.36										1 1		
	TOA		24.00	25.17	24.25	25.42	24.00	25.17	Small warble.		_	NA	-	NA	
Lower 2nd Adj	POF	Attn	17.00	18.17	17.00	18.17	17.75	18.92	High cut, warbling and occasional			1	1 1	ina.	
Boonton									mute.			1			
34843		U	-7.99								_				
22		IL	11.36		- 1								1 1		
ŧ [TOA	Attn	25.25	26.42							_	NA		—	
Upper 2nd Adj	POF	Attn	17.75	18.92	- 1									NA	
Boonton										+ +					
5/24/95		U	-7.95							-	_				
		n. I	11.36			- 1			88 Small warble				1 1		
: Г	TOA	Attn	27.50	28,63	27.50	28.63	27.75	29 90			_	4	\vdash	- Sant	
Lower+Upper			23.25	24.38	23.00	24.13	23.00					NA		NA	
2nd Adi	. 01	Ketti	43,43	44.30	23.00	44.13	23.00		High cut, warbling and occasional			4			
	Tinned	Dinle N	Toise only	-4 1009/					mute.						
						Groups A o							DAT	Ref.: DAR40184.DAT	

ABBA on IBOC Host

EIA DAR Test Lab DAT Recording Log

DAT File	Time C	ode		St	art l	Ds			ATTEN.
Number	Start	Stop						Description	SET. (dB
DAR40184.DAT									
5/23/95									
		1	**********						
	***************************************		I	2 7	3	4	5	H1 Co-Chan TOA H2 Lower 1st TOA H4 Lower 2nd TOA	42.75
			6	7	8	9	10	H2 Lower 1st TOA	31.00 24.00
		1	11	12	13	14	15	H4 Lower 2nd TOA	24.00
		·					******		
	***************************************			· · · · · ·	*******				
		• •••••							
				·····		·			
••••••				ł		·····	·····		
				·····	,				
		ļ							
				ļ					
				ļ		ļ	ļ		
				ļ		ļ	ļ		
				ļ		ļ	ļ		
				ļ		ļ			
				ļ		ļ	ļ		
				ļ	ļ	ļ			
				ļ	ļ	ļ			
				ļ		ļ			
	<u> </u>			ļ		ļ	ļ		
				<u> </u>	ļ	<u> </u>	ļ		
				<u> </u>	<u> </u>	<u> </u>	<u> </u>		
AUGUSTA VIOLOGIA DI ANTONIO AN	DOGGOGGOODER BERNAMAN	- 1.1444444							
	1	1		1	1	T			
	1	1			l''''				
••••••		·		T	l	1	1		
***************************************	 	1		†	l'''''	1	1		
	·	· ·····		T	1	İ	1		
	 			†	·····	†*****	1		
	.			†	·····	·	1		·····
				†	····	t	†		······
				+	ļ	 		 	

APPENDIX AQ

Test L

Tests L2, L3 & L4

Receiver

Rx No.: #1

Mfg.: DELCO Model: 16192463 Serial: 1000499

Index

Page	Description
1	Cover sheet
2	DAR -> Analog Host interference at both strong and weak signal levels.
3	Digital Audio Tape recording log of test L2
4	DAR -> Analog Host interference at both strong and weak signal levels under Urban Slow multipath conditions.
5	DAR -> Analog Host interference at both strong and weak signal levels under Urban Fast multipath conditions.
6	Digital Audio Tape recording log of test L4

Notes:

- Total modulation on analog channels: 100% when no SCA's are included. 110% with SCA's (SCA group level at 20%)
- * Signal/Noise Ratio measurement 0dB taken with 1KHz at 91%, Pilot at 9%, noSCA's. With SCA groups included, 0dB is accordingly re-adjusted to accommodate the reduced main channel modulation.
- * Automobile receivers operated into a four ohm load at the standard output level of 1 Watt
- * Receiver audio routed through a 15KHz low pass filter
- Weighted audio measurements made using quasi-peak detection and a CCIR weighting filter
- * Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver.
- * In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

- CCIR 468-4 recommendation

EIA Digital Audio Radio Test Laboratory

Test(s) L-2 & L3 DAR -> Analog	Date:	3/21/95 DML/RMc						
Strong & Weak Signal	Engineers.	DIVIDITATIO	TEST L-	-2	Radio Audio Quality	TEST L-3		
Receiver : DELCO		SCA	S/N Ratio Measu	rement (dB)				
		GROUP	RMS	Weighted	GRADE	EO&C		
ANALOG		None	60.0	50.5	NA NA			
TRANSMITTER		A		50.5				
ONLY		В		50.4				
		None	60.7	50,5	0			
AT&T / Amati DSB	dBm)	A		50,5	NA			
DAR -> HOST	47 dE	В		50,4	NA			
		None	60.7	50,5	0			
AT&T / Amati LSB	5	A	1	50,5	NA			
	Strong Signal Level (-47	В		50.4	NA			
	S Sig	None	60.3	50.5	0			
USADR FM1		A		50.5	NA NA			
	\Sigma	В		50.3	NA			
		None	57.0	48.8	0			
USADR FM2		A		48.6 48.3	NA NA			
		В		46,3	NA			
ANALOG		None	54,8	47.0	NA			
TRANSMITTER		A		46.9	1 (
ONLY		В	54.2	46.6 47.0	0			
AT&T / Amati DSB		None A	34.2	47.0				
A L&L / Aman DSB	î	B		46.6	1 1			
	[-7]	None	54.3	47.0	0			
AT&T / Amati LSB	s, e	A	1	47.0				
	Weak Signal Level (-77 dBm)	В		46.7				
	Sign	None	54.0	47,1	0			
USADR FM1	\frac{\pi}{2}	A		47.0				
	%	В		46.7				
		None	53.3	46.2	0			
USADR FM2		A		46.2				
		В		45.7				
NOTES: * S/N Patio 0dB l	7.0 11.1	1771 E O	2104 dulati - 4-1	1-4 (2) 00(2) 2 (2)	lla l	DAT REF No. DAR40160.DAT	_	

NOTES: * S/N Ratio 0dB Reference with 1KHz audio @ 91% modulation (pilot @ 9%) no SCA's

* External 15KHz low pass filter used for all audio measurements

* Audio measurements are either RMS unweighted or Qpeak detetected with CCIR weighting filter as indicated

* Test L-3 Grading Scale: 0: No difference from Analog Reference -1: Worse than Analog Reference

DAT REF No. DAR40160.DAT

Audio program material: Harp, ABBA, Female voice

-2: Much Worse than Analog Reference

DAT File	Time Co	ode		Start IDs	
Number	Start	Stop			Description Attn
DAR40160.DAT			T		Description Attn
3/23/95					
***************************************	0:03	1:07	" "I" "		AMATI LSB (STRONG)
	1:12	2:15	2	··· -	AMATI LSB (WEAK)
DISREGARD	2:20	2:47	3		FMI (STRONG)
	2:52	3:55	4		FMI (STRONG)
DISREGARD	4:00	4:16	5		FMI (WEAK)
	4:22	5:25	6		FMI (WEAK)
	5:29	6:31	7		FM2 (STRONG)
	6:36	7:37	8		FM2 (WEAK)
DISREGARD	7:42	8:36	9		AMATI DSB (STRONG)
	8:40	9:42	10	···	AMATI DSB (STRONG)
DISREGARD	9:46	10:27	11		AMATI DSB (WEAK)
	10:30	11:32	12		AMATI DSB (WEAK)
0110.000000.00110.00000.00000.00000.00000.00000.00000.0000		***************************************			
	No.		1		
				"l""	
X 0.00 SHILLE WAS TO BE SHOULD					
			[
			I		
			I		
	(na adricecessaria	L		
			I		
		VI. I I I I I I I I I I I I I I I I I I			
	to reserve to the second secon	AE1560.00 VIII ON ON ON ON ON ON ON ON ON ON ON ON ON			
1					
				1	

AR -> Analog	Engineers	: DML/RMc	lle v 4 1	io Quality TEST L-4 Multipath Type: Urban Slow Rayleigh
ith Multipath		SCA	Radio Aud	10 Quality 1 EST L-4 Multipaul Type, Orban Slow Rayleigh
rong & Weak Signal Receiver: DELCO		GROUP	GRADE	Subjective EO&C
NALOG		None	NA	Fades are slightly noticable
RANSMITTER		ll.		
NLY		В		Interference from SCA's not detected
		None	0 -1	Might be slightly worse
T&T / Amati DSB	ਿੰਦ	None		
OAR -> HOST	Ą	В	0 -1	
TOT / A I DD	vel (None	0 -1	
T&T / Amati LSB	Le	В	-1	
	gnal			
	Strong Signal Level (47 dBm)	None	0 -1	
USADR FM1	tron	В	-1	Noticed slightly more break-up during fades with SCA's added
	S	В В	-1	Induced Stignity more break-up during rades with BCA's added
		None	-1	Fades are more hissy
JSADR FM2				
		В	-1	
ANALOG		None	NA	Could detect radio in "blend" (mono) mode
TRANSMITTER				
ONLY		В		Interference from SCA's not detected
		None	0	
AT&T / Amati DSB	Ê	В	0	
	GB GB			
	(-77	None	0	
AT&T / Amati LSB	yvel	В	0	
	1	В	U	
	Weak Signal Level (-77 dBm)	None	0	
USADR FM1	ak S			
	⊗	В	0	
		None	0	
USADR FM2		110110		
3300000		В	0	
Norma + so + ·	L	J	_l	DAT REF No. DAR40170.DAT
NOTES: * SCA group A	not used for mu	iupain tests		Audio program material: Harp, ABBA, Female voice
*				
* Test L-3 Grad	ding Scale:	0: No differer	ice from Ana	log Reference -1: Worse than Analog Reference -2: Much Worse than Analog Reference

With Multipath			Radio Au	dio Quality	TEST L-4	Multipath Type: Urban Fast Rayleigh
Strong & Weak Signal Receiver : DELCO		SCA GROUP	GRADE		Subjective EO&C	Managani Type, Orban Past Rayleigh
ANALOG TRANSMITTER DNLY		None B	NA			
T&T / Amati DSB AR -> HOST	dBm)	None B	-1	More frequent events which take on l		
T&T / Amati LSB	Strong Signal Level (-47	None B	0			
JSADR FM1	Strong Sign	None B	-1 -1	More frequent events which take on l No additional contribution to noise fr		
ISADR FM2		None B	-l -l	Noisier		
NALOG RANSMITTER ONLY		None B	NA			
T&T / Amati DSB	Bm)	None B	0			
T&T / Amati LSB	Level (-77 d	None B	0			
SADR FM1	Weak Signal Level (-77 dBm)	None B	0			
SADR FM2		None B	0			
NOTES: * SCA group A not	used for multi	path tests	J		Audio	DAT REF No. DAR40170.DAT program material: Harp, ABBA, Female voice

0:04 1: 1:12 2: 2:20 3: 3:28 4: 4:34 5: 5:41 6: 6:48 7: 7:57 8: 9:05 10 10:14 11 11:21 12	14 21 29 36 43 51 59	1 2 3 4 5 6 6 7 8 8	STRONG SIGNAL W/MULTIPATH (URBAN SLOW) AMATI DSB AMATI DSB W/SCA GRP B FM1 FM1 W/SCA GRP B FM2 FM2 FM2 W/SCA GRP B AMATI LSB AMATI LSB AMATI LSB W/SCA GRP B	Attn
1:12 2:20 2:20 3:3:28 4:34 5:5:41 6:48 7:7:57 8: 9:05 10:14 11 11:21 12	14 21 29 36 43 51 59	2 3 4 5 6 7	AMATI DSB AMATI DSB W/SCA GRP B FM1 FM1 W/SCA GRP B FM2 FM2 W/SCA GRP B AMATI LSB	
1:12 2:20 2:20 3:3:28 4:34 5:5:41 6:48 7:7:57 8: 9:05 10:14 11 11:21 12	14 21 29 36 43 51 59	2 3 4 5 6 7	AMATI DSB W/SCA GRP B FM1 FM1 W/SCA GRP B FM2 FM2 W/SCA GRP B AMATI LSB	
2:20 3: 3:28 4: 4:34 5: 5:41 6: 6:48 7: 7:57 8: 9:05 10 10:14 11 11:21 12	21 29 36 43 51 59	3 4 5 6 7	FM1 FM1 W/SCA GRP B FM2 FM2 W/SCA GRP B AMATI LSB	
2:20 3: 3:28 4: 4:34 5: 5:41 6: 6:48 7: 7:57 8: 9:05 10 10:14 11 11:21 12	21 29 36 43 51 59	4 5 6 7	FMI W/SCA GRP B FM2 FM2 W/SCA GRP B AMATI LSB	
4:34 5: 5:41 6: 6:48 7: 7:57 8: 9:05 10 10:14 11 11:21 12	36 43 51 59	5 6 7	FM2 FM2 W/SCA GRP B AMATI LSB	
5:41 6: 6:48 7: 7:57 8: 9:05 10 10:14 11 11:21 12	43 51 59	7	FM2 W/SCA GRP B AMATI LSB	
6:48 7: 7:57 8: 9:05 10 10:14 11 11:21 12	51 59	7	AMATI LSB	
7:57 8: 9:05 10 10:14 11 11:21 12	59			
9:05 10 10:14 11 11:21 12		8	AMATI LSB W/SCA GRP B	
10:14 11 11:21 12	:09		The same of the sa	
10:14 11 11:21 12	:09		WEAK SIGNAL W/MULTIPATH (URBAN SLOW)	
11:21 12		9	AMATI LSB	
	:16	10	AMATI LSB W/SCA GRP B	
	:23	11	FM1	940000000000000000000000000000000000000
12:29 13	:30	12	FM1 W/SCA GRP B	
13:36 14	:39	13	FM2	
		14	FM2 W/SCA GRP B	
15:53 16		15	AMATI DSB	
17:01 18	:03	16	AMATI DSB W/SCA GRP B	
			STRONG SIGNAL W/MULTIPATH (URBAN FAST)	
18:09 19	:11	17	AMATI DSB	I
19:17 20):19	18	AMATI DSB W/SCA GRP B	
20:25 21	:27	19	FM1	
21:33 22	2:34	20	FM1 W/SCA GRP B	
22:40 23	:41	21	FM2	***************************************
24:45 24	:49 2	22	FM2 W/SCA GRP B	
24:54 25	:57	23	AMATI LSB	
	:05	24	AMATI LSB W/SCA GRP B	
			WEAK SIGNAL W/MULTIPATH (URBAN FAST)	
27:12 28	:15	25	AMATI LSB	
	*****************		AMATI LSB W/SCA GRP B	1
			FM1	
			FM1 W/SCA GRP B	
			FM2	
			AMATI DSB W/SCA GRP B	
1920 222 222 222 223 333 333 333	9:17 20 5:25 21 1:33 22 2:40 23 4:45 24 4:54 25 6:03 27 7:12 28 8:20 25 9:28 30 0:35 31 1:42 32 2:50 33 3:58 34	9:17 20:19 9:25 21:27 1:33 22:34 2:40 23:41 4:45 24:49 4:54 25:57 6:03 27:05 7:12 28:15 8:20 29:23 9:28 30:30 0:35 31:37 1:42 32:44 2:50 33:52 3:58 34:59	9:17 20:19 18 9:25 21:27 19 1:33 22:34 20 2:40 23:41 21 4:45 24:49 22 4:54 25:57 23 6:03 27:05 24 7:12 28:15 25 8:20 29:23 26 9:28 30:30 27 9:35 31:37 28 1:42 32:44 29 2:50 33:52 30 3:58 34:59 31	AMATI DSB

Tests L2, L3 & L4

Receiver

Rx No.: #2

Mfg.: DENON Model: TU-380RD Serial: 4056301149

Index

Page	Description
1	Cover sheet
2	DAR -> Analog Host interference at both strong and weak signal levels.
3	Digital Audio Tape recording log of test L2
4	DAR -> Analog Host interference at both strong and weak signal levels under Urban Slow multipath conditions.
5	Digital Audio Tape recording log of test L4

Notes:

- Total modulation on analog channels: 100% when no SCA's are included. 110% with SCA's (SCA group level at 20%) Signal/Noise Ratio measurement 0dB taken with 1KHz at 91%, Pilot at 9%, noSCA's. With SCA groups included, 0dB is accordingly re-adjusted
 - to accomodate the reduced main channel modulation.
- Receiver audio routed through a 15KHz low pass filter
- Weighted audio measurements made using quasi-peak detection and a CCIR weighting filter
- Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver.
 - In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

OAR -> Analog Strong & Weak Signal	Engineers		TEST L-	2	Radio Audio Quality	TEST L-3	
Receiver : DENON		SCA	S/N Ratio Measu		Tanada a tan	THUS DV	
		GROUP	RMS	Weighted	GRADE	EO&C	
NALOG	fi	None	68.0	62.3	NA		
RANSMITTER	1 1	A	550	57.4			
NLY	1 1	В		60.3			
1121		_		00.5			
		None	50,0	40.2	-2		
T&T / Amati DSB	EΙ	A		39,9	NA		
AR -> HOST	dBm)	В		40.0	NA		
 	— ₹	None	50.7	41.0	-2		
TeT / Amati I CD	l e	A	30,7	40.7	NA NA		
T&T / Amati LSB	2	В					
	gnal	В		40.8	NA		
	Strong Signal Level (47	None	44.9	33.2	-2		
JSADR FM1	lu _o	A		33.2	NA		
Str	Str	В		33.2	NA		
		None	53.4	42.5	-1		
SADR FM2	11 1	A	1	42.3	NA		
CONDICTIVE	1	В		42.3	NA NA		
				12.3	NA		
NALOG		None	50.0	38.9	NA		
RANSMITTER		Α		38.9			
NLY		В		38.9			
		None	47.0	36.5	-1		
AT&T / Amati DSB		Α		36.3	1 1		
	Signal Level (-77 dBm)	В	1	36.3			
		None	47.2	36.3	-1		
T&T / Amati LSB		A		36.2			
Title 177 mileti EBB	e e	В	1	36.2			
	al L			30,2			
	Sign	None	43.1	31.4	-2		
JSADR FM1	설	A		31.4			
	Weak	В		31,4			
		None	48,5	37.2	0		
ISADR FM2		A	10,5	36.9	ľ		
DUIDICI IVIZ		В		36.8			
NOTES: * S/N Ratio 0dB Re				ot @ 9%) no SCA's	S	DAT REF No. DAR40161.DAT	
* External 15KHz l						Audio program material: Harp, ABBA, Female v	oice
 * Audio measureme 	ents are either F	MS unweighte	d or Opeak detetecte	ed with CCIP weigh	rhting filter on indicated		

DAT File	Time Co	ıde		Start II)s		
Number	Start	Stop				Description	
DAR40161.DAT			T	TT	T	энэстрин	Attn
3/22/95		***************************************	-ht				
***************************************	***************************************		171			AMATI LSB (STRONG)	
***************************************			2				
************************************			13			AMATI LSB (WEAK)	
			4			FM1 (STRONG)	
			5			FM1 (WEAK)	
••••••			6			FM2 (STRONG)	
			7			FM2 (WEAK)	
DISREGARD			8			AMATI DSB (STRONG)	
DISITEO/IND		***************************************				AMATI DSB (WEAK)	
			9			AMATI DSB (WEAK)	
			 				
			ļļ.				I
			ļļ.				
			<u> </u>				
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					••••••
			200000000000000000000000000000000000000				
		ALIMOMITATION AND AND AND AND AND AND AND AND AND AN	I	T T			······ ··········
					····		
							······
100000000000000000000000000000000000000		***************************************	 				
COMPANY			 	 		<u> </u>	
			 	-			

			·····				
			 			+	
			······				
							250 12 250 03500 1740 1840 1840
							····1

OAR -> Analog	Engineers:	3/24/95 DML/RMc				
Vith Multipath		804	Radio Aud	o Quality	TEST L-4	Multipath Type: Urban Slow Rayleigh
trong & Weak Signal Receiver: DENON		SCA GROUP	GRADE		Subjective EO&C	
NALOG		None	NA	Clean audio		
RANSMITTER NLY		В				
ments don		None	0			
.T&T / Amati DSB AR -> HOST	Strong Signal Level (47 dBm)	В	0			
mam// distance		None	0			
AT&T / Amati LSB	gnal Lev	В	0			£
ICADD EM	ng Si	None	0			
JSADR FM1	Strol	В	0			
		None	0			
JSADR FM2		В	0			
NALOG		None	NA	Birdies		
TRANSMITTER ONLY		В				
		None	0			
AT&T / Amati DSB	dBm)	В	0			
	(-77	None	0			
AT&T / Amati LSB	Weak Signal Level (-77 dBm)	В	0			
	Sign	None	0			
JSADR FM1	Weak	В	0			
		None	0		1.7	
JSADR FM2		В	0			
NOTES: * SCA group A r	ot used for mult	ipath tests			A	DAT REF No. DAR40171.DAT Audio program material: Harp, ABBA, Female voice
*	ng Scale:		ce from Ana		n Analog Reference	-2: Much Worse than Analog Reference

DAT File	Time Co	ide	Start IDs			
Number	Start	Stop			Description	Attn
DAR40171.DAT	ELECTRONIC PROPERTY OF				STRONG SIGNAL W/MULTIPATH (URBAN SLOW)	
3/24/95			1		AMATI DSB	······
		***************************************	2		AMATI DSB W/SCA GRP B	·····
DISREGARD	011110000000000000000000000000000000000		3	- 1	FMI	······
			4		FM1	
			5		FM1 W/SCA GRP B	
		KOMBIJO SE KOMBO MA OD	6		FM2	
			7		FM2 W/SCA GRP B	······
DISREGARD			8		AMATI LSB	······································
			9	"" ! ""	AMATI LSB	
			10		AMATI LSB W/SCA GRP B	
	VII DE RECONSTRUCTOR DE LA CONTRACTOR DE	***************************************	1 1	'''	WEAK SIGNAL W/MULTIPATH (URBAN SLOW)	
		***************************************	11		AMATI LSB	······································
		***************************************	12		AMATI LSB W/SCA GRP B	············
		***************************************	13		FM1	
CONTRACTOR OF THE CONTRACTOR O			14		FM1 W/SCA GRP B	
		***************************************	15		FM2	
		***************************************	16		FM2 W/SCA GRP B	
	***************************************		17		AMATI DSB	
DISREGARD		***************************************	18	1-1-1	AMATI DSB W/SCA GRP B	
Storus Hessacawa as rather squeeye			19		AMATI DSB W/SCA GRP B	

	····	••••••	ii	1 1		······
	·····		lt	1		
						
·····	·····i		 			
	***************************************		lt			
	***************************************	***************************************	lt			
			····			
***************************************		***************************************	 			
******************************		***************************************		1		
		••••••	·····	-		
	······································	***************************************				
			·····			
			·····			
			 			

Tests L2, L3 & L4

Receiver

Rx No.: #3

Mfg.: PANASONIC Model: RX-FS430 Serial: GR3J01184

Index

Page	Description
1	Cover sheet
2	DAR -> Analog Host interference at both strong and weak signal levels.
3	Digital Audio Tape recording log of test L2
4	DAR -> Analog Host interference at both strong and weak signal levels under Urban Slow multipath conditions.
5	Digital Audio Tape recording log of test L4

Notes:

- Total modulation on analog channels: 100% when no SCA's are included. 110% with SCA's (SCA group level at 20%)
- Signal/Noise Ratio measurement 0dB taken with 1KHz at 91%, Pilot at 9%, noSCA's. With SCA groups included, 0dB is accordingly re-adjusted to accomodate the reduced main channel modulation.
- Receiver audio routed through a 15KHz low pass filter
- Weighted audio measurements made using quasi-peak detection and a CCIR weighting filter
- Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver.
- In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

rong & Weak Signal Receiver: PANASONIC NALOG RANSMITTER NLY T&T / Amati DSB DAR -> HOST		SCA GROUP None	S/N Ratio Measu RMS	rement (dR)		
RANSMITTER NLY T&T / Amati DSB			DMC	iomonic (ab)		
RANSMITTER NLY T&T / Amati DSB		None	KIVIS	Weighted	GRADE	EO&C
NLY T&T / Amati DSB			67.5	57.1	NA	
T&T / Amati DSB	1 11	A		54.5		
		В		55.5		
	i	None	44.2	33.6	-2	
AR -> HOST	фВш)	A		33.6	NA NA	
	17 dB	В		33,6	NA	
	7 <u>.</u> [e]	None	51.2	41.0	-1	
T&T / Amati LSB	č	A		40.8	NA NA	
	Strong Signal Level (-47	В		40.8	NA	
	ig Si	None	42.0	29.7	-2	,
USADR FM1	tror	A	1	29.7 29.7	NA NA	
	Ň	В			NA	
		None	51.0	40.0 39.8	-1 NA	
USADR FM2	1	A B	1	39.8	NA NA	
		В		39.0	NA .	
NALOG		None	49.2	38.3 38.3	NA	
RANSMITTER DNLY	1 1	A B		38.3	1 1	
JNL1	1 1	None	43.0	32,3	-1	
AT&T / Amati DSB	1	A		32.2	NA	
	dBm)	В		32.2	NA	
	(-17)	None	47.0	36.2	-1	
AT&T / Amati LSB	l ve	A		36.2	NA NA	
	Weak Signal Level (-77	В		36,2	NA	
		None	41.4	29,2	-1	
JSADR FM1	ak i	A		29.2	NA	
	We	В		29.2	NA	
	1 1	None	47.1	36.1	0	
JSADR FM2		A B		36.0 36.0	NA NA	

* External 15KHz low pass filter used for all audio measurements

* Audio measurements are either RMS unweighted or Qpeak detetected with CCIR weighting filter as indicated

0: No difference from Analog Reference * Test L-3 Grading Scale:

-1: Worse than Analog Reference

-2: Much Worse than Analog Reference

Audio program material: Harp, ABBA, Female voice

DAT File	Time Co			S	tart l	Ds			
Number	Start	Stop						Description	
DAR40162.DAT			T	T	T	T	T	Postquia	Attn
3/22/95	•••••		-	+	1	 	·	AMATI DSB (STRONG)	<u> </u>
***************************************		***************************************	2	+	·····	 		IAMATI DOD (STRONG)	
	••••••	***************************************	3	+	·	ļ		AMATI DSB (WEAK)	
			********	·				FMI (STRONG) FMI (WEAK)	Total Company
			4	ļ			ļ	FM1 (WEAK)	00/100/01/01/01/01
			5	ļ	ļ	ļ	ļ	FM2 (STRONG)	1
			6	1	<u> </u>		<u></u>	FM2 (WEAK)	†*****************************
			7	1				AMATI LSB (STRONG)	†
			8				1	AMATI LSB (WEAK)	
				I			1		·····
			1	T	·		1	<u> </u>	
		***************************************	1	İ	l		····	<u> </u>	
		***************************************		†			·····		<u> </u>
***************************************			·	ł			ļ		
				ļ					1,000-1,100 princesses
			ļ	ļ	,				V.A.C. CO. V.C.A. C. C. C. V. C. C. C. C. C. C. C. C. C. C. C. C. C.
				ļ			ļ		
							l		İ
			<u> </u>	1					
		ALGONIZA SERBERGULU UN COMP		ANGIESS	***************************************				***************************************
	, w		T		- I				
		//////////////////////////////////////	1	Ī		******			
			Y		········ †				
····	***************************************	*************************							
	***************************************		ļ					-	
			ļ						

						C001883			
		Trooped Constant Mark			Ī		******		***************************************
					1	*****	•••••		
			.,,,,,,,,	*******					
		.,							

]			***************************************
				1100000					

l'est L-4		3/24/95		
AR -> Analog /ith Multipath	Engineers:	DML/RMc	Radio Audio	Quality TEST L-4 Multipath Type: Urban Slow Rayleigh
trong & Weak Signal Receiver: PANASONIC		SCA GROUP	GRADE	Subjective EO&C
NALOG		None	NA	
RANSMITTER NLY		В	С	ould detect a low level tone or beat note from the addition of SCA's
Tet / A Dep		None	-2 N	oticeable increase in noise floor
AT&T / Amati DSB DAR -> HOST	Strong Signal Level (-47 dBm)	В	-2 N	o additional contribution to noise from SCA's
T&T / Amati LSB	7) le	None	-1 S	ight increase in audio noise floor
(T&T / Amati LSB	gnal Le	В	-1 N	o additional contribution to noise from SCA's
JSADR FM1	ng Sig	None	-2 N	oticeable increase in noise floor with the addition of tone or beat note
JSADK FMI	Stro	В	-2 N	o additional contribution to noise from SCA's
JSADR FM2		None	-2 Ir	crease in noise floor with the addition of tone or beat note
JSADK FM2	SADK FWZ		-2 N	o additional contribution to noise from SCA's
ANALOG		None	NA	
TRANSMITTER ONLY		В		
AT&T / Amati DSB		None	-1	
Tree 1 / Times Bob	Weak Signal Level (-77 dBm)	В	-1	
AT&T / Amati LSB	L (-77	None	0	
Tree / Amail ESE	al Leve	В	0	
ICADD EM1	Sign	None	0	
JSADR FM1	Weak	В	0	
ICADD EMO		None	0	
JSADR FM2		В	0	
NOTES: * SCA group A not	used for multi	path tests		DAT REF No. DAR40172.DAT Audio program material: Harp, ABBA, Female voice
* * Test L-3 Grading S	Panla:	O. N 4:66	ce from Analog	

DAT File	Time Code	Start IDs		
Number	Start Stop		Description	Attn
DAR40172.DAT			STRONG SIGNAL W/MULTIPATH (URBAN SLOW)	
3/24/95		1	AMATI DSB	
		2	AMATI DSB W/SCA GRP B	•••••
		3	FM1	•
		4	FMI W/SCA GRP B	····
		5	FM2	
		6	FM2 W/SCA GRP B	
		7	AMATI LSB	
		8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	AMATI LSB W/SCA GRP B	····
		····	WEAK SIGNAL W/MULTIPATH (URBAN SLOW)	
		9	AMATI LSB	
		10	AMATI LSB W/SCA GRP B	
	***************************************		FM1	
		12	FMI W/SCA GRP B	
	***************************************	13	FM2	
***************************************		14	FM2 W/SCA GRP B	
DISREGARD		15	AMATI DSB	
		16	AMATI DSB	
		17	AMATI DSB W/SCA GRP B	
	***************************************		TAMENT DOD WISCH CIRC	
	······································			
·		···		
······		···		
•				
	·····			
***************************************	······································			
				
				T
		.		1
				1

Tests L2, L3 & L4

Receiver

Rx No.: #4

Mfg.: PIONEER Model: SX-201 Serial: OA3965843C

Index

Page	Description
1	Cover sheet
2	DAR -> Analog Host interference at both strong and weak signal levels.
3	Digital Audio Tape recording log of test L2
4	DAR -> Analog Host interference at both strong and weak signal levels under Urban Slow multipath conditions.
5	Digital Audio Tape recording log of test L4
Notes:	
	Total modulation on analog channels: 100% when no SCA's are included. 110% with SCA's (SCA group level at 20%)
*	Signal/Noise Ratio measurement 0dB taken with 1KHz at 91%, Pilot at 9%, noSCA's. With SCA groups included, 0dB is accordingly re-adjusted
	to accommodate the reduced main channel modulation.
	Receiver audio routed through a 15KHz low pass filter
	Weighted audio measurements made using quasi-peak detection and a CCIR weighting filter
*	Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver. In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

AR -> Analog trong & Weak Signal	_	ſ	TEST L-	-2	Radio Aud	dio Quality TEST L-3			
Receiver : PIONEER		SCA	S/N Ratio Measu	rement (dB)					
		GROUP	RMS	Weighted	GRADE	EO&C			
NALOG		None	66.0	61.0	NA				
RANSMITTER		A		53.2	1.				
NLY		В		54.8					
		None	40.0	29.6	-2	Noticeable increase in noise floor			
T&T / Amati DSB	dBm)	A	1	29.6		No additional contribution to noise from SCA's			
AR -> HOST	17 dE	В		29.6		No additional contribution to noise from SCA's			
	Level (-47	None	40.2	29.9	-2	Noticeable increase in noise floor			
T&T / Amati LSB	<u>5</u>	A		29.8	1	No additional contribution to noise from SCA's			
	Signal	В		29,8		No additional contribution to noise from SCA's			
	S. S.	None	39.2	27.5	-2	Noticeable increase in noise floor			
JSADR FM1	Strong 5	A		27.5	1	No additional contribution to noise from SCA's			
	\s \	В		27.5		No additional contribution to noise from SCA's			
		None	57.0	45.6	-1	Some increase in noise floor			
JSADR FM2	1	A		44.8	-1	Slight contribution to noise level with SCA's			
		В		44.9	-1	Slight contribution to noise level with SCA's			
NALOG		None	52.3	41.5	NA				
TRANSMITTER ONLY		A B		41.3 41.3					
NC1		None	39.7	29.2	-1				
T&T / Amati DSB		A	ii .	29.2					
	dBm)	В		29.2					
	-77-)	None	39.8	29.5	-1				
T&T / Amati LSB	l se	A	I	29.4	1				
	Weak Signal Level	В		29.4		10.			
	Sign	None	38.9	27.2	-2				
ISADR FM1	ak	A		27.2	1				
	Me Me	В		27.2					
		None	50.9	39.8	0				
SADR FM2		A		39.5					
		В		39.5	1	Y .			

* External 15KHz low pass filter used for all audio measurements

* Audio measurements are either RMS unweighted or Qpeak detetected with CCIR weighting filter as indicated

0: No difference from Analog Reference * Test L-3 Grading Scale:

-1: Worse than Analog Reference

-2: Much Worse than Analog Reference

Audio program material: Harp, ABBA, Female voice

DAT File	Time C			Start IDs	
Number	Start	Stop			Description Attn
DAR40163.DAT			T	TT	Description Attn
3/22/95			ī	····	AMATI DSB (STRONG)
			2		AMATI DSB (WEAK)
	AND THE PROPERTY OF THE PROPER		3		AMATI DSB (WEAK) FMI (STRONG)
			4		FMI (WEAK)
			5		FM2 (STRONG)
			6		FM2 (WEAK)
			7		AMATI LSB (STRONG)
ALLED AND THE STATE OF THE STAT			8		AMATI LSB (WEAK)
			9		FM2 (STRONG)
			10		FM2 (STRONG) FM2 (STRONG) W/SCA GROUP A
DISREGARD		***************************************	11		FM2 (STRONG) W/SCA GROUP B
		***************************************	12		FM2 (STRONG) W/SCA GROUP B
		***************************************	†***** <u>†**</u>		13.22 (OTRORG) WISCA GROOF B
***************************************	*************************	***************************************			
***************************************	***************************************	***************************************	-		

	***************************************	***************************************	·····		
·····		•••••	ļ		
	***************************************		 		<u> </u>
			····		
			 		
			 		
		••••••			
		•••••			
			<u>ļ</u>		
	CONTRACTOR CONTRACTOR				
			1	"	<u> </u>

AR -> Analog /ith Multipath	Engineers:		Radio Aud	tio Quality TEST L-4 Multipath Type: Urban Slow Rayleigh
rong & Weak Signal Receiver: PIONEER		SCA GROUP	GRADE	Subjective EO&C
NALOG RANSMITTER NLY		None B	NA	
		None	-2	Noticeable increase in noise floor
T&T / Amati DSB AR -> HOST	Strong Signal Level (-47 dBm)	В	-2	No additional contribution to noise from SCA's
		None	-2	Noticeable increase in noise floor
T&T / Amati LSB	gnal Le	В	-2	No additional contribution to noise from SCA's
ICADD EMI	ng Sig	None	-2	Noticeable increase in noise floor
ISADR FM1	Stro	В	-2	No additional contribution to noise from SCA's
SADR FM2		None	-1	Slight increase in noise floor
DSADR FM2		В	:-1	No additional contribution to noise from SCA's
NALOG TRANSMITTER		None	NA	
ONLY		B None	0	
AT&T / Amati DSB	IBm)	В	0	
	(-7)	None	0	
AT&T / Amati LSB	Weak Signal Level (-77 dBm)	В	0	
	Sign	None	0	
JSADR FM1	Weak	В	0	
ICADD EMO		None	0	
JSADR FM2		В	0	
NOTES: * SCA group A not	used for mult	ipath tests		DAT REF No. DAR40173.DAT Audio program material: Harp, ABBA, Female voice

Page 4 of 5

DAT File	Time Code		Start IDs		Ds						
Number	Start	Stop				Description					
DAR40173.DAT	31.000 XXXXXX II DOXXXX XXXXX	COTTON OF COMMUNICATION	T		ПТ	STRONG SIGNAL W/MULTIPATH (URBAN SLOW)					
3/24/95		***************************************			T	AMATI DSB					
	•••••••••••••••••••••••••••••••••••••••		2		1	AMATI DSB W/SCA GRP B					
		1	3		† † -	FM1					
			4		†***** **	FM1 W/SCA GRP B					
		***************************************	5		i	FM2					
	***************************************	***************************************	6		†*****	FM2 W/SCA GRP B					
	***************************************		7		† †	AMATI LSB					
	***************************************		8		·	AMATI LSB W/SCA GRP B					
	·····		†***†		 -	WEAK SIGNAL W/MULTIPATH (URBAN SLOW)					
	***************************************		9		 -	AMATI LSB					
	***************************************	***************************************	10		-	AMATI LSB W/SCA GRP B					
	***************************************		111			FM1					
	***************************************		12			FMI W/SCA GRP B					
	***************************************		13		····	FM2					
	••••••		14			FM2 W/SCA GRP B					
		**************	15			AMATI DSB					
			16		·····	AMATI DSB W/SCA GRP B					
		***************************************	† · · · · · · · · · · · · · · · · · · ·		·····	AWATI DSB W/SCA GRP B					
			·								
·····			 -								
		************************	-								

			 -								
			 								
			·								
			 								
			ļļ								
			ļļ								
			ļļ								
			ļļ								
			ļļ								
			ļļ								
			ļļ				1				
			ļļ								

Tests L2, L3 & L4

Receiver

Rx No.: #5 Mfg.: FORD

Model: F4XF-19B132-CB Serial: 281150B010

Index

Page	Description
1	Cover sheet
2	DAR -> Analog Host interference at both strong and weak signal levels.
3	Digital Audio Tape recording log of test L2
4	DAR -> Analog Host interference at both strong and weak signal levels under Urban Slow multipath conditions.
5	DAR -> Analog Host interference at both strong and weak signal levels under Urban Fast multipath conditions.
6	Digital Audio Tape recording log of test L4

Notes:

- Total modulation on analog channels: 100% when no SCA's are included. 110% with SCA's (SCA group level at 20%)
- Signal/Noise Ratio measurement 0dB taken with 1KHz at 91%, Pilot at 9%, noSCA's. With SCA groups included, 0dB is accordingly re-adjusted to accomodate the reduced main channel modulation.
- Automobile receivers operated into a four ohm load at the standard output level of 1 Watt
- Receiver audio routed through a 15KHz low pass filter
- Weighted audio measurements made using quasi-peak detection and a CCIR weighting filter
- Recording gain adjusted to yield the same recording levels to make up for the "0dB" level differences from receiver to receiver.
- In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

	Linginical	: DML/RMc/TB	K			
trong & Weak Signal			TEST L	-2	Radio Au	dio Quality TEST L-3
Receiver: FORD		SCA	S/N Ratio Meası	rement (dB)		
		GROUP	RMS	Weighted	GRADE	EO&C
NALOG		None	65.2	55.7	NA	
RANSMITTER		A		51.9	1	
NLY		В		52.5		
TR T / A (* DOD		None	64.0	54.0	0	
T&T / Amati DSB	dBm)	A	1	52.3	0	
AR -> HOST	47 dE	В		52.9	0	
T&T / Amati LSB	Strong Signal Level (-47	None	64.0	55.0	0	
10c1 / Amaii LSB	[e]	A	1	52.0	0	
	gnal	В		52,5	0	
USADR FM1	ng Si	None A	62.7	52.2	0	
SADRIMI	l E	B		52,1 52,8	0	Very slight contribution to noise floor
	O 1	В		32,8	0	Very slight contribution to noise floor
SADR FM2		None	59,3	48.9	-1	Slight inrease in noise floor
SADR FM2	1	A B		46.9	-1	
		В		47.0	-1	
NALOG RANSMITTER		None	64.0	53.3	NA	
	1	A		53.7		
NLY		В	(2.2	53.7		
T&T / Amati DSB	1	None	63,3	53,1	0	
TWEET / ARRING DOD	Ê	A B		53.5	1	
	Weak Signal Level (-77 dBm)	В		53,5		
TOTAL STOR	(-7	None	63.5	53.1	0	
T&T / Amati LSB	skel	A		53.5		
	al Le	В		53.5		
2.722	Sign	None	63.0	52.8	0	
SADR FM1	äk	A		53,5		
	We	В		53,5		
0 i DD D1 to		None	62.8	52,9	0	
SADR FM2		A		53.4		
	1	В		53.4	1	

NOTES: * S/N Ratio 0dB Reference with 1KHz audio @ 91% modulation (pilot @ 9%) no SCA's

* External 15KHz low pass filter used for all audio measurements

* Audio measurements are either RMS unweighted or Qpeak detetected with CCIR weighting filter as indicated

* Test L-3 Grading Scale: 0: No difference from Analog Reference

-1: Worse than Analog Reference

DAT REF No. DAR40164.DAT
Audio program material: Harp, ABBA, Female voice

-2: Much Worse than Analog Reference

DAT File	Time Code			Start IDs			
Number	Start	Stop				Description	
DAR40164.DAT		T	TT	T	Description	Attı	
3/23/95			ı	†		AMATI DSB (STRONG)	
	***************************************	***************************************	2	· · · · · · · · · · · · · · · · · · ·	··†······	AMATI DSB (WEAK)	
			3	·····		AMATI DSB W/SCA GRP A (STRONG)	
		***************************************	4	†	1	AMATI DSB W/SCA GRP B (STRONG)	
			5	·····	+	FMI (STRONG)	
construction and the company of the company		••••••	6	·····	1	FM1 (WEAK)	
		•••••••	7		†****	FM1 W/SCA GRP A (STRONG)	
			8		·†	FMI W/SCA GRP B (STRONG)	
DISREGARD			9		·†·····	FM2 (STRONG)	
			10		1	FM2 (STRONG)	
		Versioner and the	11		†	FM2 (WEAK)	
		***************************************	12		+	FM2 W/SCA GRP A (STRONG)	
		***************************************	13		†***	FM2 W/SCA GRP B (STRONG)	
		***************************************	14		†	AMATI LSB (STRONG)	
		***************************************	15		t	AMATI LSB (WEAK)	
		***************************************	16	******	†****	AMATI LSB W/SCA GRP A (STRONG)	
		••••••	17	******	†	AMATI LSB W/SCA GRP B (STRONG)	
			'l''''†	*******	†	THATTESD WASCA ORP B (STRONG)	
	1		11		†		
		••••••••	1		ł		
			1		†*****†**		
		***************************************	1		t		
Torrespond to the second second second second second second second second second second second second second se		***************************************	1				
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1t				
			†****†	******		<u> </u>	
		•••••••	1		····		
		••••••••	1				
	•••••••••••••••••••••••••••••••••••••••	********************************	 				
			 				
			lt-		·····		
		***************************************	 -				
		***************************************	·				
		***************************************	·······				
	······································		 				
			·····			<u> </u>	
·····	***************************************						

OAR -> Analog With Multipath	2.16.1.0010	DML/RMc	Radio Aud	fio Quality TEST L-4 Multipath Type: Urban Slow Rayleigh						
trong & Weak Signal Receiver: FORD		SCA GROUP	GRADE							
NALOG		None	NA	Multipath fade events slightly noticeable as noise increase with slight tone or beat note						
RANSMITTER ONLY		В								
T&T / Amati DSB		None	0	Multipath fade events slightly noticeable						
OAR -> HOST	7 dBm	В	0	No additional contribution to noise from SCA's						
T&T / Amati LSB	wel (4	None	0	Multipath fade events slightly noticeable						
Tiet / Amati Lob	mal Le	В	0	No additional contribution to noise from SCA's						
JSADR FM1	Strong Signal Level (47 dBm)	None	-1							
SOMBRIMI	Stro	В	-i	No additional contribution to noise from SCA's						
SADR FM2		None	-2							
		В	-2	No additional contribution to noise from SCA's						
ANALOG TRANSMITTER		None	NA							
ONLY		В								
2200		None	0							
AT&T / Amati DSB	dBm)	В	0							
AT&T / Amati LSB	l (-77 e	None	0							
Al&1 / Aman Lob	l Leve	В	0							
JSADR FM1	Weak Signal Level (-77 dBm)	None	0							
NATURAL PROPERTY.	Weak	В	0							
JSADR FM2		None	0							
JGCUJA I WZ		В	0							
NOTES: * SCA group A	not used for mult	ipath tests		DAT REF No. DAR40174.DAT Audio program material: Harp, ABBA, Female voice						
*				Audio program materiae. Alaip, ADDA, Felhale voice						

Test L-4 DAR -> Analog		3/23/95							
With Multipath Strong & Weak Signal	Engineers	DML/RMc SCA	Radio Audio	Quality		TEST L-4		Multipath Type: Urban Fast Raylei	
Receiver: FORD		GROUP	GRADE			Subjective EO&C			
ANALOG TRANSMITTER ONLY		None B	NA I	Multipath events are	very noticeable	Dayletine Boate			
AT&T / Amati DSB DAR -> HOST	17 dBm)	None B	0						
AT&T / Amati LSB	Strong Signal Level (47 dBm)	None B	0						
JSADR FM1	Strong Sig	None B	0						
JSADR FM2		None B	-1 -1 N	lo additional contribu	ution to noise from SCA'	s			
ANALOG FRANSMITTER ONLY		None	NA						
AT&T / Amati DSB	Bm)	B None B	0 0						
T&T / Amati LSB	Level (-77 d	None B	0 0						
SADR FMI	Weak Signal Level (-77 dBm)	None B	0 0						
SADR FM2		None B	0						
NOTES: * SCA group A no	ot used for multip	ath tests					DAT REF N Audio program materi	Jo. DAR40174.DAT al: Harp, ABBA, Female voice	
* Test L-3 Gradin	g Scale:	D: No difference	from Analog	Reference	-1: Worse t	han Analog Reference		h Worse than Analog Reference	

DAT Fife	Time Co	de	Start IDs			
Number	Start	Stop			Description	Attn
DAR40174.DAT					STRONG SIGNAL W/MULTIPATH (URBAN SLOW)	
3/23/95			i		AMATI DSB	
DISREGARD	***************************************		2		AMATI DSB W/SCA GRP B	
***************************************	***************************************		3	i	AMATI DSB W/SCA GRP B	·····
			4	††-	FM1	······
***************************************	***************************************		5	·	FM1 W/SCA GRP B	
			6		FM2	***************************************
			7	· · · · · ·	FM2 W/SCA GRP B	
			8	· · · · · ·	AMATI LSB W/SCA GRP B	
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			9	· · · · · ·	AMATI LSB	
				· · · · · · · · · · · · · · · · · · ·	WEAK SIGNAL W/MULTIPATH (URBAN SLOW)	
		••••••	10		AMATI LSB	
DISREGARD			111	· · · · · · · · · · · · · · · · · · ·	AMATI LSB W/SCA GRP B	
			12		AMATI LSB W/SCA GRP B	
			13	· · · · · ·	FM1	
DISREGARD			14		FM1 W/SCA GRP B	
			15	······	FM1 W/SCA GRP B	
			16	· · · · · · · · · · · · · · · · · · ·	FM2	<u> </u>
		******************	17	ii-	FM2 W/SCA GRP B	
			18		AMATI DSB	
			19		AMATI DSB W/SCA GRP B	
			1	· · · · ·	STRONG SIGNAL W/MULTIPATH (URBAN FAST)	·····
		***************************************	20	††-	AMATI DSB	
			21	†	AMATI DSB W/SCA GRP B	
		***************************************	22		FM!	
			23		FM1 W/SCA GRP B	
			24	· · · · ·	FM2	·····
		***************************************	25	tt-	FM2 W/SCA GRP B	·····
			26	·········	AMATI LSB	
			27		AMATI LSB W/SCA GRP B	
			\- 		WEAK SIGNAL W/MULTIPATH (URBAN FAST)	
		*************************	28		AMATI LSB	
			29		AMATI LSB W/SCA GRP B	
			30	·····	FMI	
			31	·····	FM1 W/SCA GRP B	
			32		FM2	
			33	·····	FM2 W/SCA GRP B	
			34	 -	AMATI DSB	
			35	·····		
			35		AMATI DSB W/SCA GRP B	

Tests L2, L3 & L4 Subcarrier specific

Index	
Page	Description
1	Cover sheet
2	L-2 and L3, DAR -> Analog Host Subcarrier interference at both strong and weak signal levels.
3	L-4, DAR -> Analog Host interference at both strong and weak signal levels under multipath conditions. Including both Urban slow and Urban fast scenarios
Notes:	
*	Total modulation on analog channel: 110% with SCA's (SCA group level at 20%)
*	Main channel program material: ABBA
*	SCA receivers used:
	57KHz RDS: Denon TU-380RD modified to provide clock and data signals for use by the RDS Checkup software utility.
	66.6KHz Seiko: Seiko RPA (Receptor Protocal Analyzer) receiver & software utility.
	67KHZ Analog: Compol SCA receiver, Unit No. 1 67KHz/94.1MHz
	92KHz Analog: Compol SCA receiver, Unit No. 2 92KHz/94.1MHz
	92KHz Digital: Mainstream Data, Intelligent Data Receiver

Flec lays 1

Composite Subcarrier Group B

S/N (dB)

45.3

41

43

41

RMS

57KHz RBDS 10%

ERRORS

MAX:(%)

0

0

0

0

EIA Digital Audio Radio Test Laboratory

92KHz Analog 8.5%

S/N (dB)

46

20

27

20

Composite Subcarrier Group A

66.5 KHz HS Data 8.5%

ERRORS

Tog BER

-6

-5.95

10

10

10

-5

Group D 67KHz Analog 10% 92KHz Digital 10%_ Colodo W. \$S # FEC1 SQ. #UNC #FEC2 210 170 0 0 0 209 92-130 1290 4558 455 209 76-130 1310 4272 475 209 58-109 1350 6199 288

USADR FM2		0	-5.3	32.5	0	43.2	210 0	0	167 0
FM		0	NA	22.4	0	35.4	113 NA	NA	0 NA
AT&T / Amati DSB	dBm)	0	NA	16	0	34		NA	
AT&T / Amati LSB	al Level (-77	0	NA	18	0	34,5		NA	
USADR FMI	Weak Signal	0	NA	16	0	33.5		NA	
USADR FM2		0	NA	19,9	0	34,6		NA	
NOTES: * Digital * 57KHz	SCA's g	graded as the number of observed er error = Percentage of maximum bloo	rors within a five minute period. ck errors indicated by MAX:(%) in t	he RDS CHECKUP utility	Jt.	* Main channel modulat * NA = RF level too low		peration	

Page 2 of 3

Test

FM

Subcarriers

DAR -> Host SC

AT&T / Amati DSB

AT&T / Amati LSB

USADR FM1

L-2 & L-3

Strong Signal Level (-47 dBm)

57 KHz RBDS 3%

ERRORS

MAX:(%)

0

0

0

0

^{* 66,5}KHZ Seiko: Error = Average log BER observed on the Seiko RPA utility with a print-out of a typical 20 sec. segment

^{* 92}KHz Mainstream: Error = # FEC1, # FEC2, # Blocks Uncorrected(#UNC) figures, as indicated on the Mainstream receiver. Failure considered as > 5 first layer errors (# FEC1) in a five minute period.

Test L-4 Subcarriers			Composite Subcarrier Group	Δ	Composite Sul-	wien Cue D			
DAR -> Host SC Moderate Signal Level		57 KHz RBDS 3% ERRORS	66.5 KHz HS Data 8.5%	92KHz Analog 8.5% EO&C	Composite Subcar 57KHz RBDS 10% ERRORS	67KHz Analog 10% EO&C		Group D KHz Digita ERRORS	l 10%
	1,000						# FEC1	# FEC2	# UNC
FM		2	-5.5 O	Good audio. medium noise and some main chan. audio noise detected during fades	0	Good audio with mild noise during fades. Weak main ch. audio noise heard during fades	110	142	3
AT&T / Amati DSB	gh	4	-5.2	Poor audio (raspy) with main chan, audio noise heard at all times - worse during fades Unusable audio	2	Good audio with mild main channel audio noise heard during the fades Usable audio	1274	4608	524
AT&T / Amati LSB	Urban Slow Rayleigh	4	-4.8	Fair audio quality with main channel audio noise heard in background most of the time Usability: Marginal	3	Good audio with mild main channel audio heard during the fades Usable audio	1334	1325	219
USADR FM1	Urban	3	-4,5	Poor audio (raspy) with main chan, audio noise heard at all times - worse during fades Unusable audio	3	Fair audio with mild main channel audio at all times - more during fades Usable audio	1333	5494	626
USADR FM2		2	-3_8	Fair audio - noisy (hiss) most of the time - worse during fades usable audio	(1)	Good audio with mild noise during fades Usable audio	965	1023	106
FM		11	-2.6	Good audio with medium multipath type spits Usable audio	8	Good audio with mild multipath type spits Usable audio	271	527	245
AT&T / Amati DSB	çh	12	-2.3	Poor raspy audio with severe tearing sounds. Main chan, audio noise heard at all times Unusable audio	9	Fair audio with medium multipath type spits Usable audio	318	684	300
AT&T / Amati LSB	Urban Fast Rayleigh	12	-2.4	Fair audio quality - noisy with some main channel audio noise Usabilty: Marginal	11	Fair audio with medium multipath type spits Usable audio	273	644	249
USADR FM1	Urbar	13	-2,1	Poor raspy audio with severe tearing sounds. Main chan, audio noise heard at all times Unusable audio	9	Fair audio with medium to heavy spitting or tearing noise Usability: Marginal	294	716	257
USADR FM2		1	-1.9	Fair audio quality -noisy with faint whine in background	0	Good audio with medium multipath type spits	254	405	238
		aded as the number of observed er		Usable audio		Usable audio			

NOTES: * Digital SCA's graded as the number of observed errors within a five minute period.

* 66.5KHZ Seiko: Error = Average log BER observed on the Seiko RPA utility with a print-out of a typical 20 sec. segment

* Mainstream data not valid - Rx not in lock

* 92KHz Mainstream: Error = # FEC1, # FEC2, # Blocks Uncorrected(#UNC) figures, as indicated on the Mainstream receiver. Failure considered as > 5first layer errors (# FEC1) in affive minute period

^{* 57}KHz RDS: Error = Percentage of maximum block errors indicated by MAX:(%) in the RDS CHECKUP utility

^{*} Analog SCA quality: EO&C of 1KHz audio quality

^{*} Main channel modulation : Abba

^{*} Mainstream data not valid - Rx not in lock during multipath

APPENDIX AR

Test M

Tests M1 & M2

Analog to IBOC Host Interference

Index	
Page	Description
1	Cover sheet
2	Overhead data used for calculations in tests M1. These numbers are required for calculating the C0/N0 figures and include: Signal level, Noise level, Digital Signal band width, Noise filter bandwidth and Testbed Path loss.
3	M1 test results.
4	AT&T Amati LSB DAT log of M1 tests
5	AT&T Amati DSB DAT log of M1 tests
6	USADR FM1 DAT log of M1 tests
7	USADR FM2 DAT log of M1 tests
8	Overhead data used for making calculations in tests M2.
9	M2 test results with Urban Slow Rayleigh multipath events
10	M2 test results with Urban Fast Rayleigh multipath events
11	M2 test results with Rural Fast Rayleigh multipath events
12	M2 test results with Terain Obstructed Rayleigh multipath events
13	M2 test results with Urban Slow Doppler multipath events
14	M2 test results with Urban Fast Doppler multipath events
15	M2 test results with Rural Fast Doppler multipath events
16	M2 test results with Terain Obstructed Doppler multipath events
Notes:	Clipped pink noise used as the FM modulation signal on the analog signal When required, SCA groups A, B, and D included on analog signal.
*	Total modulation on analog channels: 100% without SCA's, 110% with SCA's In areas where EO&C or grade evaluation does not appear, subjective evaluator comments will be used.

M-1 OVERHEAD DATA SHEET

Keypoint data used by (linked to) M1 test sheet for calculations

Test	M-1	Digital BW Hz	Noise dBm	Signal dBm	Path Loss dB	Noise Filter BW Hz	Date
AT&T Amati Digital only	DSB	1.47E+05	-40.78	-7.40 -20.59	40.79	6.45E+06	15-May-95
AT&T Amati Digital only	LSB	7.35E+04	-40.77	-7.53 -23.39	40.79	6.45E+06	15-May-95
USADR FM1 Digital only		2.00E+05	-40.84	-7.45 - 21.97	40.79	6.45E+06	12-May-95
USADR FM2 Digital only		3.00E+05	-40.75	-7.38 -26.88	40.79	6.45E+06	16-May-95 TK,DL,RM

Sub-camit graps.

TOA	Medium		V	Veak	FM w/		Medium		Weak	
		70.0			FIVI W/	Medium		Weak		
	EO&C	TOA Co/No (dB)	EO&C	;	SCA GRP	TOA Co/No (dB)	EO&C	TOA Co/No (dB)	EO&C	
14.50 Co/No	Small drop out	14.50 Co/No	Small	drop out	A	15.25 11.07	Small Drop out	11.57	Small Drop out	
Attn		Attn			В	15.25	Small Drop out		Small Drop out	
Co/No 10.32	Small drop out	*******************************	Small	drop out	D	15.50 11.32	Small drop out	15.25	Small drop out	
21.25 Co/No	Small drop out		Small	drop out	A	63.65 59.67	With no added noise TOA level of impairment.	63.75	With no added noise TOA level of impairment,	
Attn		18.52 Attn			В	24.75 20.77	Small drop out	27,75	Small drop out.	
	Small drop out		Small o	drop out	D	63.75 59.77	With no added noise TOA level of impairment.	63.75	With no added noise TOA level of impairment.	
N-12100111-510	Small warble.		Small v	varble.	A	19:50 12.66	Wind Chime effect/ signal shattering.		Shattering and warbles.	
Attn		Attn			В		Shattering.		Warble or chirp.	
Co/No S 11.41	Small warble.	18 75 Co/No 11.91	Small v	varble,	D	19.25	Warble or Chirp.	20.00	Warble and shattering.	
36.50 Co/No S	Small warble	Co/No	Level o	f impairment	A	39.25 25.6 5	Small warble.	63.75	NA	
Attn		Attn			В	25.65	Small warble.	50.15	NA	
	Small warble	Co/No I	Level o	f impairment	D		Small warble.	50.15	NA	
TOTAL STREET, POSTOR I POSTORUM I POSTORUM I POSTORUM I POSTORUM I POSTORUM II POSTORUM II POSTORUM II POSTORUM II POSTORUM II POSTORUM III POSTORUM	Co/No 10.32 Attn 14.50 Co/No 10.32 Attn 21.25 Co/No 17.27 Attn 31.25 Co/No 17.27 Attn 18.25 Co/No 11.41 Attn 18.25 Co/No 11.41 Attn 36.50 Co/No 22.90 Attn 39.25 Co/No 25.65	14 50	14.50	14.50	14.50	A A A A A A A A A A	14.50	14.50 Co/No Co/No 10.32 Co/No 11.07 Small drop out 11.07 Small Drop out 11.0	Attn	

File Name: M_SERIES,XLS M1 TESTS

DAT File	Time Co	ode	7	P	rogra	ım			
Number	Start	Stop			ID#			Description	Attn
DAR40203.DAT									
15-May-95		ļ ,	1	2	3	4	5	AT&T Amati LSB CPN@ 100%	21.25
		Medium Signal Strength -62 dBm						Small drop out #5.	
		Ŭ Ē							
		Si.	6	7	8			AT&T Amati LSB CPN@ 100% Group D @10%	21.25
		gna	ļ		ļ			Larger more frequent drop outs and flutter (Beyond POF).	
		1 St	9	10	11		******	AT&T A4/1 CD CDN/Q 000/ C D Q200/	3135
		reg .	9	10				AT&T Amati LSB CPN@ 90% Group B @20% More freguent drop outs and flutter.	21.25
		E E	}	ļ	 			More freguent drop outs and futter.	
		-62	12	13	14			AT&T Amati LSB CPN@ 90% Group A @20%	21.25
		∄ 8	1					Larger more frequent drop outs and flutter.	21.23
		<u> </u>						Enger more request and patterns.	
		<u> </u>	15	16	17			AT&T Amati LSB CPN@ 100%	22.50
		[≲						Small drop outs #16.	
		[≌							
		Sig	18	19	20			AT&T Amati LSB CPN@ 100% Group D @10%	22.50
		nal	 		ļ			More frequent drop outs and flutter.	
		Weak Signal Strength -77 dBm	21	22	23			AT&T Amati LSB CPN@ 90% Group B @20%	22.50
		i gh	1					More frequent drop outs and flutter,	
		-73							
		I è	24	25	26			AT&T Amati LSB CPN@ 90% Group A @20%	22.50
		ř	ļ					More frequent drop outs and flutter.	
		<u> </u>							
		<u> </u>			ļ				
		İ							
		ļ							
					ļ				
					ļ				
		<u> </u>			ļ			Impairment:	
		·						FM, SCA and Gaussian Noise	

DAT File Number	Time Co Start	ode Stop		P	rogram ID#		
DAR40202.DAT	Start	Биф	10#			Description	Attn
15-May-95			17	2	3	AT&T Amati DSB CDM 1009/	
	••••••••	ĭ	1	†		AT&T Amati DSB CPN@ 100% Small drop outs.	14.50
	***************************************	diu	H		 	Ontair Grop Outs.	
	***************************************	Medium Signal Strength -62 dBm	4	5	6	AT&T Amati DSB CPN@ 90% Group A @20%	14.50
	••••••	Sign	1	·	1	More frequent drop outs and flutter.	14.30
		lal s	1		<u> </u>	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
		Stre	7	8	9	AT&T Amati DSB CPN@ 90% Group B @20%	14.50
		ngt		ļ		More freguent drop outs and flutter.	14.50
		-					······
		12 d	-41	-8	41	AT&T Amati DSB CPN@ 100% Group D @10%	14.50
		Bm	<u> </u>	-23		Larger more frequent drop outs and flutter.	······
		L	4	ļ	ļļ		
			13	14	15	AT&T Amati DSB CPN@ 100%	14.75
		€				Small drop outs.	
) ak					
		Sig	16	17	18	AT&T Amati DSB CPN@ 100% Group D @10%	14.75
		nal	ļ		<u> </u>	More frequent drop outs and flutter.	·····
		Weak Signal Strength -77 dBm	10				
		engr	19	20	21	AT&T Amati DSB CPN@ 90% Group B @20%	14.75
		5 人	 			More freguent drop outs and flutter.	
		77 (22	23	24	AT&T A - 4 DDD CMIC 2004 C	
		IBn	122	23	24	AT&T Amati DSB CPN@ 90% Group A @20% More freguent drop outs and flutter.	14.75
	***************************************		H			Wore reguent drop outs and flutter.	
		l	4	••••••			
	***************************************		†				
		***************************************	·	********			

		•••••					
			-				
			I			Impairment:	
						FM, SCA and Gaussian Noise	

DAT File	Time C	941 (1500) (1			ogra			Description	Attn
Number	Start	Stop		ID#				Description	Atti
DAR40201.DAT		<u></u>						TO DE THE OWN OF THE ANALYSIS OF THE OWN OWN OF THE OWN OWN OF THE OWN OF THE OWN OWN OWN OWN OWN OWN OWN OWN OWN OWN	18.25
12-May-95			1	2	3	4	5	USADR FM1 CPN@100% #4 at end of 1st arpeggio	10.23
		Medium Signal Strength -62 dBm	6		8			USADR FM1 CPN@90@ Group A @ 20%	18.25
		- ₽	0	7				With the addition of SCAs high cut in addition to more	
	ļ	Sig	ļ					warbles were heard.	
		- mai	·					Waldes were notice.	
		.↓ Str	9	10	11			USADR FM1 CPN@90% Group B @ 20%	18.25
		reng	ļ					With the addition of SCAs high cut, shattering and warbles	
		- ∰ - ∰	}				·	were detected	
		-63	H					1	
		-	12	13	14			USADR FM1 CPN@100% Group D @ 10%	18.25
	·	-∯ B	1				·····	Increase in warbles and error indicator frequency detected.	
	• • • • • • • • • • • • • • • • • • • •	·			······	······	!		
		·h	15	16	17	18	19	USADR FM1 CPN@100% #16 end of 1st arpeggio	18.75
		-	1		i		i		
		- eal	20	21	22	İ	·····	USADR FM1 CPN@100% Group D @ 10%	18.75
		· Si	1			·		Increase in warbles, high cut and error light frequency.	
	1	Weak Signal Strength -77 dBm	1						
		1 S1	23	24	25			USADR FM1 CPN@90% Group B @ 20%	18.75
		ren						Increase in warbles, high cut and error light frequency.	
	-	gth	0.00000						
		-7.	26	27	28			USADR FM1 CPN@90@ Group A @ 20%	18.75
		7 a						Buzz mute increase in warbles and error light detected.	
•••••		T F							
						<u> </u>	<u> </u>		
		1				<u> </u>	ļ		
				<u> </u>	ļ	ļ	ļ		
				ļ	ļ	ļ			
				ļ					
				ļ			ļ		
				ļ					
						ļ			
								Tennalimant	
								Impairment: FM, SCA and Gaussian Noise	······
					_	_	1_	FIVE, SOA and Gaussian Proise	

DAT File	Time Co	ode		F	rogr	am		
Number	Start	Stop		_	ID#		Description	
DAR40204.DAT			Ť				Description .	Attn
16-May-95		-	1	2	3	li	USADR FM2 CPN @ 100%	20.25
		Medium Signal Strength -62 dBm		1	1		Shattering and warbles.	39.25
	A CONTRACTOR OF THE CONTRACTOR	liur		1				
		n S	4	5	6		USADR FM2 CPN @ 100% Group D @10%	39.25
		ign						39.23
		al S						
		tre					USADR FM2 CPN @ 90% Group A @ 20%	39.25
		1gtl	1				No Difference detected.	39.23
		-6	ļ					
		2 di	ļ				USADR FM2 CPN @ 90% Group B @ 20%	39.25
		Bm		ļ			USADR FM2 CPN @ 90% Group B @ 20% No difference detected.	
	4		1					
								······
			7	8	9		USADR FM2 CPN @ 100%	63.75
		₩e	ļ	ļ			Insufficient receiver sensitivity.	
		K (S	ļ	ļ			Level of impairment between TOA and POF.	····-
		Weak Signal Strength -77 dBm	 					······································
		lai s	 		ļļ			
		Stre	 		ļ			
		ngt	 		ļļ			
		77 c	 		-			
		lBn			······			
		_	ļ					
	·····			•••••				
	····							
	''''''''''''''''''''''''''''''	***************************************	1			*****		
	·····	***************************************	·					
		111102.007701141000000000			I			
	I						Impairment:	
	Z1870 00/30/20000000000000000000000000000000	COLUMN TO THE STATE OF THE STAT					FM, SCA and Gaussian Noise	

M-2 OVERHEAD DATA SHEET

Keypoint data used by (linked to) M2 test sheet for calculations

Test	M-2	Digital BW Hz	Noise dBm	Signal dBm	Path Loss dB	Noise Filter BW Hz	Date
AT&T Amati Digital only	DSB	1.47E+05	-40.71	-7.42 -20.60	40.79	6.45E+06	18-May-95
AT&T Amati Digital only	LSB	7.35E+04	-40.65	-7.55 -23.38	40.79	6.45E+06	19-May-95
USADR FM1 Digital only		2.00E+05	-40.60	-7.41 -21.93	40.79	6.45E+06	22-May-95
USADR FM2 Digital only		3.00E+05	-40.64	-7.40 -26.90	40.79	6.45E+06	23-May-95

Test	M-2			Slow Rayleigh				Urba	n Slow Rayleigh	
Signal Stren Impairment			Medium Multipath + Noise		Weak Multipath + Noise	FM w/	Mu	Medium ltipath + Noise + SCA		Weak Itipath + Noise + SCA
	Mod	TOA Co/No (dB)	EO&C	TOA Co/No (dB)	EO&C	SCA GRP	TOA	EO&C	TOA Co/No (dB)	
АТ&Т	cw	Attn 38.00 Co/No 33.74	Small drop out	Attn 63 75 Co/No	Excessive muting POF	A	41.00 Co/No 36.74	Medium drop out	63.75 Co/No 59.49	NA
Amati DSB		Attn 38.00		59,49 Attn	level of impairment.	В	42.00 Co/No 37.74	Small drop out	63.75 Co/No 59.49	NA
	FM	Co/No 33.74	Small drop out	63 75 Co/No 59.49	Excessive muting POF level of impairment.	D	41.00 Co/No 36.74	Small drop out	63.75 Co/No 59,49	NA
T&T	cw	Attn 63.75 Co/No 59,66	Level of impairment consistent with POF.	Attn 0 00 Co/No -4.09	NA (NO COUNTAS)	A	0.00 Co/No -4.09	NA	0.00 Co/No -4.09	NA
Amati LSB		Atm 63.75	Level of impairment	Attn	(meaninger)	В	0:00 Co/No -4.09	NA	0.00 Co/No -4.09	NA
	FM	Co/No 59.66	consistent with POF.	0.00 Co/No -4.09	NA (Macount date)	D	0.00 Co/No -4.09	NA	0.00 Co/No -4.09	NA
USADR	cw	Atm 63.75 Co/No 56.71	High cut and warbles level of impairment Between TOA and POF closer to TOA.	Attn 0.00 Co/No -7.04	NA	A	0.00 Co/No -7.04	NA	0.00 Co/No -7.04	NA
FM1		Attn 0.00	erose to TOX.	Atm 0.00		В	0.00 Co/No -7.04	NA	-7.04	NA
	FM	Co/No - 7.04	NA	Co/No -7.04	NA	D	0.00 Co/No -7.04	NA	0.00 Co/No -7.04	NA
JSADR	cw	63 75 Co/No	Long mutes with brief periods of recovered audio with warbles and high cut, beyond POF.	Attn 0.00 Co/No -13.73	NA	A	0.00 Co/No -13.73	NA	0.00 Co/No -13.73	NA
FM2		Attn 0.00		Attn 0.00		В	-13.73	NA	-13.73	NA
Note	FM	120200000000000000000000000000000000000	NA		NA	D	0.00 Co/No -13.73	NA	0.00 Co/No -13.73	NA
1400		Testers:	DML,RMc				gnal Strength= gnal Strength=	-62 dBm -77 dBm		

File Name: M_SERIES XLS M2 Urb. Slow Ray.

Γest	M-2		Urban	Fast Rayleigh					Fast Rayleigh		
ignal Strengt	th		Medium		Weak			Medium	Weak		
mpairment			Multipath + Noise		Multipath + Noise	FM w/		ipath + Noise + SCA		tipath + Noise + SCA	
	Mod	TOA Co/No (dB)	EO&C	TOA Co/No (dB)	EO&C	SCA GRP	TOA Co/No (dB)	EO&C	TOA Co/No (dB)	EO&C	
	CW	Attn 28 00 Co/No	Small flutter	Attn 63.75 Co/No	Small drop out. TOA level of impairment	A	28.00 Co/No 23.74	Small flutter,	63.75 Co/No 59.49	NA	
T&T .mati SB		23.74 Attn		59.49 Attn	without added noise.	В	28 00 Co/No 23.74	Small flutter.	63.75 Co/No 59.49	NA	
	FM	28.00 Co/No 23.74	Small drop out.	63 75 Co/No 59,49	Small drop out, TOA level of impairment without added noise.	D	29 00 Co/No 24.74	Small drop out,	63.75 Co/No 59.49	NA	
	cw	Attn 39.00 Co/No	Small flutter	Attn 63.75 Co/No	Without added noise worse than POF level	A	63.75 Co/No 59.66	Level of impairment between TOA and POF closer to TOA.	0.00 Co/No -4.09	NA	
AT&T Amati LSB		34.91 Attn		59.66 Attn	of impairment.	В	63.75 Co/No 59.66	Level of impairment between TOA and POF closer to TOA.	0.00 Co/No -4.09	NA	
	FM	40.00 Co/No 35.91	Small drop out	63.75 Co/No 59.66	Without added noise worse than POF level of impairment.	D	63.75 Co/No 59.66	Level of impairment between TOA and POF closer to TOA.	0.00 Co/No -4.09	NA	
	cw	Attn 37 00 Co/No	Slight high cut.	Attn 63.75 Co/No	High cut and warbles Impairment level between TOA and POF	A	63.75 Co/No 56.71	Small chirp	63.75 Co/No 56.71	High Cut and background noise	
JSADR M1		29.96 Attn		56.71 Ann	closer to POF. High cut, warbles and	В	63.75 Co/No 56.71	Small chirp	63.75 Co/No 56.71	High Cut and background noise	
	FM	41.00 Co/No 33.96	Small chirp	63.75 Co/No 56.71	slight mute impairment level between TOA and POF	D	63.75 Co/No 56.71	Small chirp	63.75 Co/No 56.71	High Cut and background noise	
	cw	Attn 63.75 Co/No	Virtually no recovered audio, beyond a POF level of impairment.	Attri 0.00 Co/No	NA	A	0.00 Co/No -13.73	NA	0.00 Co/No -13.73	NA	
USADR FM2		50.02 Attn		-13.73 Attn		В	0.00 Co/No -13.73	NA	0.00 Co/No -13.73	NA	
	FM	0:00 Co/No -13.73	NA	0.00 Co/No -13.73	NA	D	6.00 Co/No -13.73	NA	0.00 Co/No -13.73	NA	
Note	es:		DML,RMc	-13,73	L		Gignal Strength=		-13.73		

File Name: M_SERIES.XLS M2 Urb. Fast Ray.

Test Signal Stren	M-2 ength			Fast Rayleigh				Rural	Fast Rayleigh	
mpairment	gın		Medium Multipath + Noise		Weak Multipath + Noise	FM w/	Mu	Medium Itipath + Noise + SCA		Weak tipath + Noise + SCA
	Mod	TOA Co/No (dB)	EO&C		EO&C	SCA GRP	TOA Co/No (dB)	EO&C	TOA	EO&C
AT&T	CW	Attn 32 00 Co/No 27.74	Small drop out.	Attn 63.75 Co/No 59,49	Many flutters and mutes. Level of impairment between TOA and POF, closer to POF.	A	32.00 Co/No 27.74 32.00	Small flutter.	0.00 Co/No -4.26 0.00	NA
DSB FN	FM	Attn 32.00 Co/No 27.74	Small drop out.	Attn 63 75 Co/No 59.49	Many flutters and mutes. Level of impairment between TOA and POF, closer to POF.	D B	Co/No 27.74 32.00 Co/No 27.74	Medium drop out. Small drop out.	Co/No -4.26 0:00 Co/No -4.26	NA NA
AT&T	cw	Attn 59.00 Co/No 54.91	Small flutter.	Atin 63.75 Co/No	No recovered Audio.	A	63.75 Co/No 59.66	Level of impairment between TOA and POF closer to POF	0.00 Co/No -4.09	NA
Amati LSB		Atm 59.00	Small flutter,	59.66 Attn 63.75	NY	В	63.75 Co/No 59.66	Level of impairment between TOA and POF closer to POF.	0.00 Co/No -4.09	NA
	FM	Co/No 54.91 TOA level of		Co/No 59.66	No recovered Audio.	D	63.75 Co/No 59.66	Level of impairment between TOA and POF closer to POF.	0.00 Co/No -4.09	NA
JSADR	CW	63 75 Co/No 56.71	impairment. Occasional chirp.	Attn 0.00 Co/No -7,04	NA	A	0.00 Co/No -7.04 0.00	NA	0.00 Co/No -7.04	NA
MI		Attn 0.00		Attn 0.00		В		NA	0.00 Co/No -7.04	NA
_	FM	Co/No -7.04	NA Virtually no recovered	Co/No -7.04	NA	D	Co/No -7.04	NA	Co/No -7.04	NA
SADR	CW	63.75 Co/No 50.02	audio. Beyond a POF level of impairment.	Atm 0.00 Co/No -13.73	NA	A	0.00 Co/No -13.73 0.00	NA	0.00 Co/No -13.73	NA
M2	FM	Atm 0.00 Co/No	NA	Attn 0.00		В	Co/No -13.73 0.00	NA		NA
Note	10000	-13.73	INA	Co/No -13.73	NA	D	Co/No -13.73	NA	Co/No -13.73	NA
		Testers:	DML,RMc				gnal Strength= gnal Strength=	-62 dBm -77 dBm		

Test	M-2		Terrain Ob	structed Rayleigh			Terrain Obstructed Rayleigh				
Signal Strengt	th		Medium Multipath + Noise		Weak Multipath + Noise	FM w/	Mul	Medium tipath + Noise + SCA		Weak tipath + Noise + SCA	
	Mod	TOA Co/No (dB)	EO&C	TOA Co/No (dB)	EO&C	SCA GRP	TOA Co/No (dB)	EO&C	TOA Co/No (dB)	EO&C	
	cw	Attn 30.00 Co/No	Small drop out,	Attn 63.75 Co/No	Many drop outs. Without added noise Level of impairment	32,00 Co/No 27.74	Small drop out,	0.00 Co/No -4.26	NA		
AT&T Amati OSB	-	25.74 Attn		59.49 Atm	between TOA and POF. Many drop outs.	В	31 00 Co/No 26.74	Medium drop out.	0.00 Co/No -4.26	NA	
	FM	31.00 Co/No 26.74	Small drop out	63.75 Co/No 59.49	Without added noise Level of impairment between TOA and POF.	D	32.00 Co/No 27.74	Small drop out.	0:00 Co/No -4.26	NA	
	cw	Atto 63.75 Co/No	Level of impairment between TOA and POF	Attn 63 75 Co/No	NA	A	0.00 Co/No -4.09	NA	0:00 Co/No -4.09	NA	
AT&T Amati LSB		59.66 Atm	Closer ro TOA.	59.66 Attn		В	0.00 Co/No -4.09	NA	0.00 Co/No -4.09	NA	
	FM	63 75 Co/No 59.66	Level of impairment between TOA and POF Closer ro TOA	63.75 Co/No 59.66	NA	D	0.00 Co/No -4.09	NA	0.00 Co/No -4.09	NA	
	cw	Attn 63.75 Co/No	POF level of imairment. High cut, warbles and	Attn 0.00 Co/No	NA	A	6.00 Co/No - 7.04	NA	0.00 Co/No -7.04	NA	
USADR FM1		56.71 Attn	occasional mutes.	-7.04 Attn		В	0.00 Co/No -7.04	NA	0.00 Co/No -7.04	NA	
	FM	0.00 Co/No -7.04	NA	0.00 Co/No -7.04	NA	D	0.00 Co/No -7.04	NA	0.00 Co/No -7.04	NA	
	cw	Attn 63.75 Co/No	No recovered audio. Beyond a POF level	Attr 0.00 Co/No	NA	A	0.00 Co/No -13.73	NA	0.00 Co/No -13.73	NA	
USADR FM2		50.02 Attn	of impairment.	-13.73 Attn		В	0.00 Co/No -13.73	NA	0.00 Co/No -13.73	NA	
	FM	0.00 Co/No -13.73	NA	0.00 Co/No -13.73	NA	D	0.00 Co/No -13.73	NA	0.00 Co/No -13.73	NA	

Testers: DML,RMc

Medium Signal Strength= Weak Signal Strength=

-62 dBm

-77 dBm

Test Signal Stren	M-2		Urban S	Slow Doppler				Urba	n Slow Doppler	
mpairment			Medium Multipath + Noise		Weak Multipath + Noise	FM w/	Mul	Medium tipath + Noise + SCA		Weak tipath + Noise + SCA
	Mod	TOA Co/No (dB)	EO&C	TOA Co/No (dB)	EO&C	SCA GRP	TOA Co/No (dB)		TOA	EO&C
AT&T	CW	Attn 63.75 Co/No 59.49	Static Pop and mute. Level of impairment between TOA and POF, closer to TOA.	Attn 0:00 Co/No -4.26	Medium duration mute, Level of impairment between TOA and POF, closer to POF.	A	0.00 Co/No -4.26 0.00	NA	0.00 Co/No -4.26	NA NA
Amati OSB	FM	Attn 63.75 Co/No	Flutter and mute. Level of impairment	Attn 0.00	Long duration mute. Level of impairment	В	Co/No -4.26 0.00	NA	0.00 Co/No -4.26 0.00	NA
	FIVE		between TOA and POF, closer to TOA. With no added noise	***************************************	between TOA and POF, closer to POF.	D	Co/No -4.26	NA	Co/No -4.26	NA
AT&T	cw	63.75 Co/No	recovered audio is consistent with POF at deepest mp fades.	Attn 0.00 Co/No -4.09	NA	A	0.00 Co/No -4.09	NA	0.00 Co/No -4.09	NA
Amati LSB		Attn	With no added noise recovered audio is	-4.09 Attn 0.00		В	0.00 Co/No -4.09	NA	0.00 Co/No -4.09	NA
	FM	Co/No 59.66	consistent with POF at deepest mp fades.	Co/No -4.09	NA	D	0.80 Co/No -4.09	NA	0 00 Co/No -4.09	NA
JSADR	cw	Atm 0 00 Co/No -7.04		0.00 Co/No -7.04		A	0.00 Co/No -7.04 0.00		0:00 Co/No -7.04	
FM1		Attn 0.00		Attn 0.00		В	Co/No -7.04 0.00	<u> </u>	0.00 Co/No -7.04 0.00	
	FM	Co/No -7.04 Attn		Co/No -7.04		D	Co/No -7.04		Co/No -7.04	
SADR	CW	0.00 Co/No -13.73		0.00 Co/No -13.73		A	0.00 Co/No -13.73		0.00 Co/No -13.73	
M2		Attn 0.00		Attn 0.00		В	0.00 Co/No -13.73		0.00 Co/No -13.73	
	FM	Co/No -13.73		Co/No -13.73		D	0.00 Co/No -13.73		0.00 Co/No -13.73	
Note	es:	Testers:	DML,RMc				gnal Strength= gnal Strength=	-62 dBm -77 dBm	11 200.00	

File Name: M_SERIES,XLS M2 Urb. Slow Dop.

DELETE MIS 16, (2/30 pg. 14-16)

Cest	M-2	Urban Fast Doppler							Urban Fast Doppler		
ignal Strengt	th		Medium		Weak	FM w/		Medium		Weak	
npairment			Multipath + Noise		Multipath + Noise		Multipath + Noise + SCA			tipath + Noise + SCA	
	l., .	TOA	FORG	TOA	208.0	SCA GRP	TOA Co/No (dB)	EO&C	TOA Co/No (dB)	FORC	
	Mod	Co/No (dB)	EO&C	Co/No (dB)	EU&C	GRP		EU&C		EU&C	
		Attn		Attn	Small flutter.		0.00 Co/No	NA	0.00 Co/No	NA	
	CW	21.00	Small flutter.	22.00	Small flutter,	A	-4.26	INA	-4.26	INA .	
T 0 T		Co/No 16,74		Co/No 17.74			0.00		0.00		
T&T mati		16.74		17.74		В		NA	Co/No	NA	
SB		Attn		Attn		- "	-4.26	NA.	-4.26		
SD		22.00	Small flutter,	22.00	Small flutters		0.00		0.00		
	FM	Co/No	Dinan Nation	Co/No	Silian Transcolo	l p f		NA	Co/No	NA	
	I W	17.74	1	17.74			-4.26		-4.26		
	+	Attn		Attn			0.00		0.00		
	cw	0.00		0.00		l A i	Co/No		Co/No		
	10	Co/No	1	Co/No			-4.09		-4.09		
AT&T	1	-4.09		-4.09			0.00		0.00		
Amati						В	Co/No	1	Co/No	1	
LSB		Attn		Attn			-4.09		-4.09		
		0.00		0,00			0,00		0.00		
	FM	Co/No		Co/No		D	Co/No		Co/No		
		-4.09		-4.09			-4.09		-4.09		
		Attn		Atm			0.00		0.00		
	CW	0.00		0.00		A	Co/No		Co/No		
		Co/No		Co/No			-7.04 0.00		-7.04 0.00		
USADR		-7.04		-7.04		— в	Co/No		Co/No		
FM1		Attn		Atm		— °	-7.04		-7.04		
		0.00		0.00			0.00		0.00		
	FM	Co/No	4	Co/No		D	Co/No		Co/No	1	
	I IVI	-7.04		-7.04			-7.04		-7.04		
	+	Attn		Attn			0.00		0.00		
	CW	0.00		0.00		A	Co/No	1	Co/No	1	
	10	Co/No	1	Co/No			-13.73		-13.73		
USADR		-13.73		-13.73			0.00		0.00		
FM2						В	Co/No	1	Co/No	T	
		Attn		Attn			-13.73		-13.73		
		0.00		0.00			0.00		00,00		
	FM	Co/No		Co/No		D	Co/No		Co/No		
	1	-13.73		-13.73			-13.73	L	-13.73		

File Name: M_SERIES.XLS M2 Urb. Fast Dop.

Test				Rural Fast Doppler				
Signal Streng	gth	Medium	Weak		Medium		Weak	
mpairment		Multipath + Noise TOA	Multipath + Noise	FM w/	Multipath + Noise + SCA	Mu	Itipath + Noise + SCA	
	Mod		TOA	SCA	TOA	TOA		
	IVIOU	Co/No (dB) EO&C	Co/No (dB) EO&C	GRP	Co/No (dB) EO&C	Co/No (dB)	EO&C	
	CW	Attn 18.00 Small drop out and	Attn		0.00	0.00		
	CW		18:00 Small drop out.	A	Co/No NA	Co/No	NA	
АТ&Т		Co/No flutter.	Co/No		-4.26	-4.26	10.125	
Amati		13.74	13.74		0.00	0.00		
DSB				В В	Co/No NA	Co/No	NA	
JSB		Attn 19:00 Small flutter	Atin		-4.26	-4.26		
	rae		18 00 Small flutter		0.00	0.00		
	FM	Co/No 14.74	Co/No	D	Co/No NA	Co/No	NA	
	_		13.74		-4.26	-4.26	HOWE:	
	CVV	Attn	Atin		9.00	0.00		
	CW	0.00	0.00	A	Co/No	Co/No	1	
Т&Т		Co/No	Co/No		-4.09	-4.09		
		-4.09	-4.09		0.00	0.00		
Amati LSB		Attn		В	Co/No	Co/No	1	
		0.00	Attn		-4.09	-4.09		
	FM	Co/No	0.00		0.00	0.00		
	ENA	-4,09	Co/No	D	Co/No	Co/No	1	
_	_	Attn	-4.09		-4.09	-4.09		
	cw	0.00	Attn		0.00	0.00		
	CIV	Co/No	0.00	A	Co/No	Co/No	1	
JSADR		-7.04	Co/No		-7.04	-7.04		
MI		-7.04	-7.04		0.00	0.00		
	-	Attn		В	Co/No	Co/No		
		0.00	Attn 0.00		-7.04	-7.04		
	FM	Co/No	Co/No	_	0.00	0.00		
		-7.04	-7.04	D	Co/No	Co/No		
	_	Attn	Attn		-7.04	-7.04		
	CW	0.00	0.00	. I . E	0.00	0.00		
		Co/No	Co/No	A	Co/No	Co/No		
SADR		-13.73	-13.73	-	-13.73	-13.73		
M2			-13,73	—— I " F	0.00 C-01	0.00		
		Attn	Attn	B	Co/No	Co/No		
		0.00	0.00		-13.73 0.00	-13.73		
	FM	Co/No	Co/No	D	Co/No	0.00		
		-13.73	-13.73	"	-13.73	Co/No		
Notes	s:	•			-13.73	-13.73		
		Testers: DML,RMc			gnal Strength= -62 dBm gnal Strength= -77 dBm			

Test	M-2			structed Doppler				Terrain Obst	ructed Doppler	
Signal Strengt	th		ledium	1	Weak	m		Medium		Weak
Impairment			oath + Noise		Aultipath + Noise	FM w/	TOA	tipath + Noise + SCA	TOA	tipath + Noise + SCA
	Mod	TOA Co/No (dB) EO&	C	TOA Co/No (dB)	EO&C	SCA GRP	Co/No (dB)	EO&C	Co/No (dB)	EO&C
	CW	Attn	l drop out.	Attn	Small drop out,	A	0.00 Co/No -4.26	NA	0,00 Co/No -4.26	NA
AT&T Amati DSB		20.74 Attn		19.74 Attn		В	0.00 Co/No - 4.26	NA	0.00 Co/No -4.26	NA
	FM	24.00 Smal Co/No 19.74	l drop out	Co/No 19.74	Small flutter	D	0.00 Co/No -4.26	NA	0.00 Co/No -4.26	NA
	CW	Attn 0.00 Co/No		Attn 0.00 Co/No		A	0.00 Co/No -4.09		0.00 Co/No -4.09	
AT&T Amati LSB		-4.09 Atm		-4.09 Atm		В	0.00 Co/No -4.09		0.00 Co/No -4.09	
	FM	0.00 Co/No -4.09		0.00 Co/No -4.09		D	0.00 Co/No -4.09		0.60 Co/No -4.09	
	CW	Attri 0 00 Co/No		Attn 0.00 Co/No		A	0.00 Co/No -7.04		0.00 Co/No -7.04 0.00	
USADR FM1		-7.04 Attn		-7.04 Atm 0.00		В	0.00 Co/No -7.04 0.00		Co/No -7.04	
	FM	0.00 Co/No -7.04		Co/No -7.04		D	Co/No -7.04		Co/No -7.04	
	CW	Attn 0.00 Co/No		Attn 0.00 Co/No		A	0.00 Co/No -13.73		Co/No -13.73	
USADR FM2		-13.73		-13.73		В	0.00 Co/No -13.73		Co/No -13.73	
	FM	0.00 Co/No -13.73		0.00 Co/No 13.17		D	0.00 Co/No -13.73		0.00 Co/No -13.73	
Note	es:	Testers: DML	L,RMc	1			Signal Strength= Signal Strength=			

APPENDIX AS

Test O

Test: O

DAR -> Analog Subcarrier Interference, Part F

Date: 8/11/95

Index

Page	Description	
Ĭ	Cover sheet	
2	DAR -> Analog subcarrier interference with the Digital Proponent on the desired frequency (Co-channel).	(F1)
3	DAR -> Analog subcarrier interference with the Digital Proponent on the lower first adjacent channel.	(F2)
4	DAR -> Analog subcarrier interference with the Digital Proponent on the lower second adjacent channel.	(F3)
5	Conceptual block diagram of the signal set up.	
6	Conceptual block diagram of the receiver and measurement set up.	

Notes:

- Clipped pink noise used as modulation of the analog channel of the undesired (Proponent) signal.
- * 1KHz tone at 81% (9% pilot, 20% group SCA) used for main channel 0dB signal reference.
- * 400Hz at 10KHz baseband deviation used as SCA 0dB signal reference.
- SCA group C (67KHz and 92KHz analog) included on both desired and undesired signals
- * Total modulation on analog channels: 110% (SCA
 - (SCA group level at 20%)
- * Main channel audio measurements made using quasi-peak detection and a CCIR weighting filter
- SCA audio measurements made as RMS unweighted.
- * Receivers tested at medium signal strength (-62dBm)
- * "Analog Ref. D/U" column indicates test performed at a constant D / U. (Proponent RF lev. = Analog Ref. RF lev.)
- * "D/U @ Eq. S/N" column indicates test performed at a constant main channel signal to noise ratio. (45dB)
- F3 main channel target signal to noise ratio is 47dB due to receiver characteristics.

EIA Digital Audio K. ...o Test Laboratory

- and sized signal (Isoc) level varied to establish target 5/N ratio

	ate: 8/11/95 eers: DML/RMc	Target S/N ratio f	or "D / U @ Eq. S/N"	is 45dB			
	DML/RMc						
				67KHz l			Receiver
RECEIVER: DELCO	SCA GROUP	Analog Ref. D/U	F! D/U @ Eq. S/N	S/N/ RATIO dB	THD %	S/N/ RATIO dB	THD %
DESIRED TRANSMITTER ONLY	С	NA	NA	40.00	1,47	48.50	2.44
INTERFERERS							
ANALOG TRANSMITTER	С	36.00		38.80	1,58	45.60	2.48
AT&T	С	36,00		39.50	1,55	39.80	2.63
			36.00	39.50	1.55	39.80	2.63
AT&T / Amati DSB	С	36.00	***************************************	38.75	1.58	45,50	2.48
			36.75	39.00	1.55	46.00	2,45
USADR FM1	С	36.00	***************************************	39.80	1.48	48.40	2.45
			35.50	39.70	1.48	48.30	2.46
		,					

NOTES: * S/N Ratio (Auto Radio cross check only) 0dB Reference with 1KHz audio @ 81% modulation (pilot @ 9%) Group C SCAs

- * S/N Ratio (SCA Receivers) 0dB reference with 400Hz audio at 10KHz deviation (Baseband)
- * SCA S/N ratio measurements are RMS unweighted
- * Boonton (desired signal) modulation: 110% with SCAs
- * Undesired (analog) modulation: 110% with SCAs
- * SCA injection levels measured at 10% each

	Pate: 8/11/95 eers: DML/RMc	Target S/N ratio f	or "D / U @ Eq. S/N'	' is 45dB			
	DML/RMc						
RECEIVER: DELCO	SCA I	L Applea Def	F2	67KHz I			Receiver
RECEIVER: DELCO	GROUP	Analog Ref. D / U	D/U @ Eq. S/N	S/N/ RATIO dB	THD %	S/N/ RATIO dB	THD %
DESIRED TRANSMITTER ONLY	С	NA	NA	40.00	1.47	48.50	2.45
INTERFERERS							
ANALOG TRANSMITTER	С	4.00	NA	36.00	2.00	26.60	5.50
AT&T	С	4.00		40.00	1.50	15.00	22,00
			6.75	40.00	1=50	19,00	11,50
AT&T / Amati DSB	С	4.00		30.00	10.00	25,00	5,90
			18.50	39.50	1.50	39.00	2,65
USADR FM1	С	4.00	***************************************	32.00	8.00	25.00	6,60
5			16.00	39.50	1,58	36,50	2.90
NOTES, * CAl Potio (Auto Podio aron							

NOTES: * S/N Ratio (Auto Radio cross check only) 0dB Reference with 1KHz audio @ 81% modulation (pilot @ 9%) Group C SCAs

^{*} S/N Ratio (SCA Receivers) 0dB reference with 400Hz audio at 10KHz deviation (Baseband)

^{*} SCA S/N ratio measurements are RMS unweighted

^{*} Boonton (desired signal) modulation: 110% with SCAs

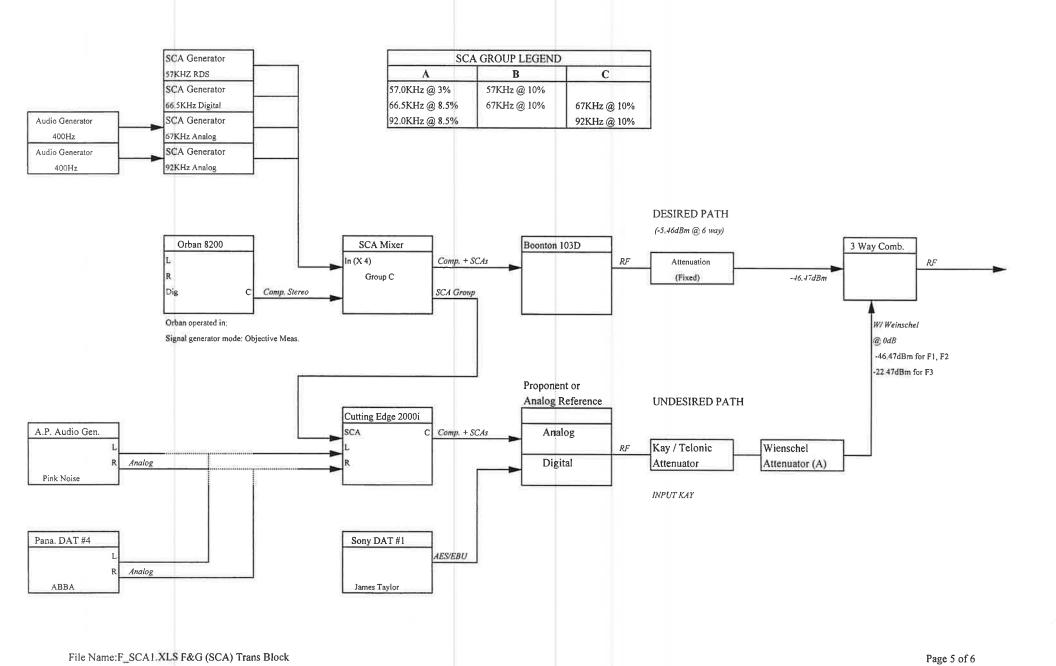
^{*} Undesired (analog) modulation: 110% with SCAs

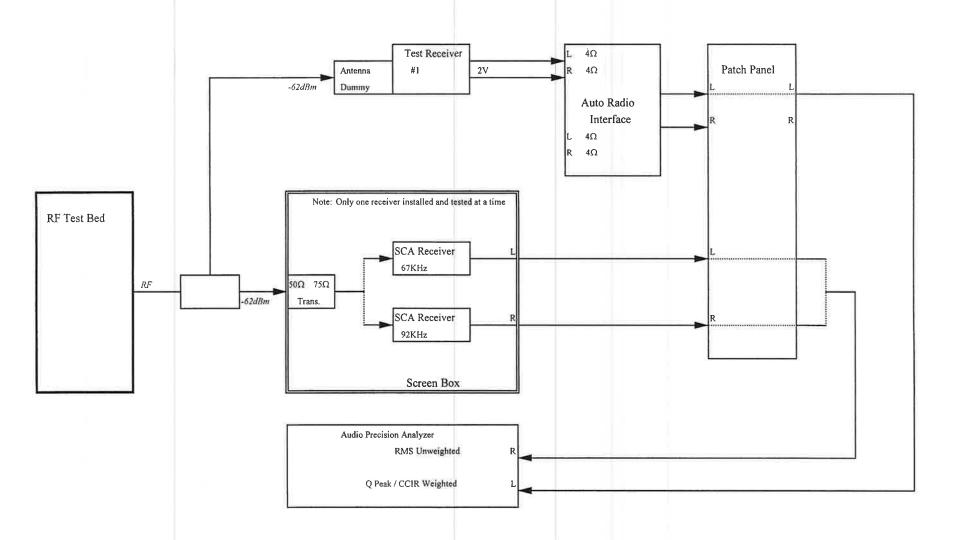
^{*} SCA injection levels measured at 10% each

Test O,F3 DAR -> Analog (SCAs) Lower 2nd adjacent	Date : 8/11/95 Engineers: DML/RMc	Target S/N ratio for	or "D / U @ Eq. S/N"	' is 47dB				
	DML/RMc					· ·		
Receiver: DELCO	SCA GROUP	Analog Ref. D/U	F3 D/U @ Eq. S/N	S/N/ RATIO dB	THD %	S/N/ RATIO dB	Receiver THD %	
DESIRED TRANSMITTER	С	NA	NA	40.00	1.47	48.50	2.45	
INTERFERERS								
ANALOG TRANSMITTER	С	-24.00		41.00	1.45	28,00	5.00	
AT&T	С	-24.00						
			-24.00	33.70	4.50	26.00	6.00	
AT&T / Amati DSB	С	-24.00						
			-24.00	11.00	45.00	7.00	85.00	
USADR FM1	С	-24.00						
			-24.00	8,00	55.00	7.00	90.00	

NOTES: * S/N Ratio (Auto Radio cross check only) 0dB Reference with 1KHz audio @ 81% modulation (pilot @ 9%) Group C SCAs

- * S/N Ratio (SCA Receivers) 0dB reference with 400Hz audio at 10KHz deviation (Baseband)
- * SCA S/N ratio measurements are RMS unweighted
- * Boonton (desired signal) modulation: 110% with SCAs
- * Undesired (analog) modulation: 110% with SCAs
- * SCA injection levels measured at 10% each





NRSC-R58

NRSC Document Improvement Proposal

If in the review or use of this document a potential change appears needed for safety, health or technical reasons, please fill in the appropriate information below and email, mail or fax to:

National Radio Systems Committee c/o Consumer Electronics Association Technology & Standards Department 1919 S. Eads St. Arlington, VA 22202

FAX: 703-907-4190

Email: standards@ce.org

DOCUMENT NO.	DOCUMENT TITLE:	
SUBMITTER'S NAME:		Tel:
COMPANY:		FAX:
		EMAIL:
Address:		
URGENCY OF CHANGE:		
URGENCI OF CHANGE.		
Immediate		At next revision
		
PROBLEM AREA (ATTACH ADDIT	TIONAL SHEETS IF NECESSARY)	:
`	,	

NRSC-R58

a. Clause Number and/or Drawing:	
b. Recommended Changes:	
c. Reason/Rationale for Recommendation	n:
ADDITIONAL REMARKS:	
SIGNATURE:	DATE:
FOI	R NRSC USE ONLY
Date forwarded to NAB Technology:	
Responsible Committee:	
Co-chairmen:	
Date forwarded to co-chairmen:	



