

MEASUREMENT AND TECHNICAL REPORT

DIRECTED ELECTRONICS INCORPORATED
 1 Viper Way
 Vista, CA 92083

DATE: 13 July 2006

This Report Concerns:	Original Grant:	Class II Change: <input checked="" type="checkbox"/>
Equipment Type:	Responder SST HHU, Models 7701V, 7701P, and 7701X	
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?	Yes: Defer until:	No: <input checked="" type="checkbox"/>
Company Name agrees to notify the Commission by: of the intended date of announcement of the product so that the grant can be issued on that date.	N/A	
Transition Rules Request per 15.37?	Yes:	No: <input checked="" type="checkbox"/>
(*) FCC Part 15, Paragraph(s) 15.247(a), 15.247(b), 15.247(c), 15.109(a), and 15.209(a) and RSS-Gen 4.4.1; 4.4.2; 4.6; 7.2.2; and 7.2.3.2		
Report Prepared by:	TÜV AMERICA, INC 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone: 858 678 1400 Fax: 858 546 0364	

TABLE OF CONTENTS

	Pages
GENERAL INFORMATION	<u>3</u>
SYSTEM TEST CONFIGURATION	<u>3</u>
BANDWIDTH EQUIPMENT/DATA	
CHANNEL SEPARATION EQUIPMENT/DATA	
NUMBER OF HOPPING CHANNELS EQUIPMENT/DATA	
PEAK OUTPUT POWER EQUIPMENT/DATA	
BANDEDGE EQUIPMENT/DATA	
RF CONDUCTED EMISSIONS EQUIPMENT/DATA	
RADIATED SPURIOUS EMISSIONS EQUIPMENT/DATA	<u>4-33</u>
ATTESTATION STATEMENT	<u>34</u>

GENERAL INFORMATION

Testing was performed according to the procedures in FCC/ANSI C63.4 and CSA 108.8-M1983.

Test Facility

The open area test site and conducted measurement data were tested by:

TÜV AMERICA, INC
10040 Mesa Rim Road
San Diego, CA 92121-2912
Phone: 858 678 1400
Fax: 858 546 0364

The Test Site Data and performance comply with ANSI C63.4 and are registered with the FCC, 7435 Oakland Mills Road, Columbia Maryland 21046. All Measurement Data is acquired according to the content of FCC Measurement Procedure and ANSI C63.4, unless supplemented with additional requirements as noted in the test report.

SYSTEM TEST CONFIGURATION

See Test Setup Photos Exhibit

Test Conditions: BANDWIDTH: FCC Part 15.247(a)(1)(i) and RSS-Gen 4.4.1
 CHANNEL SEPARATION: FCC 15.247(a)(1) and RSS-210, Annex 8.1
 NUMBER OF HOPPING CHANNELS: FCC Part 15.247(a)(1)(i) and RSS-210, Annex 8.1
 PEAK OUTPUT POWER: FCC Part 15.247(b)(1) and RSS-Gen 4.6
 BANDEDGE: FCC Part 15.247(c) and RSS-Gen 4.4.2
 RF CONDUCTED EMISSIONS: FCC Part 15.247(c) and RSS-Gen 7.2.2
 RADIATED SPURIOUS EMISSIONS: FCC Part 15.209(a), 15.247(c) and RSS-Gen 7.2.3.2

The following measurements were performed at the San Diego Testing Facility:

- Test not applicable

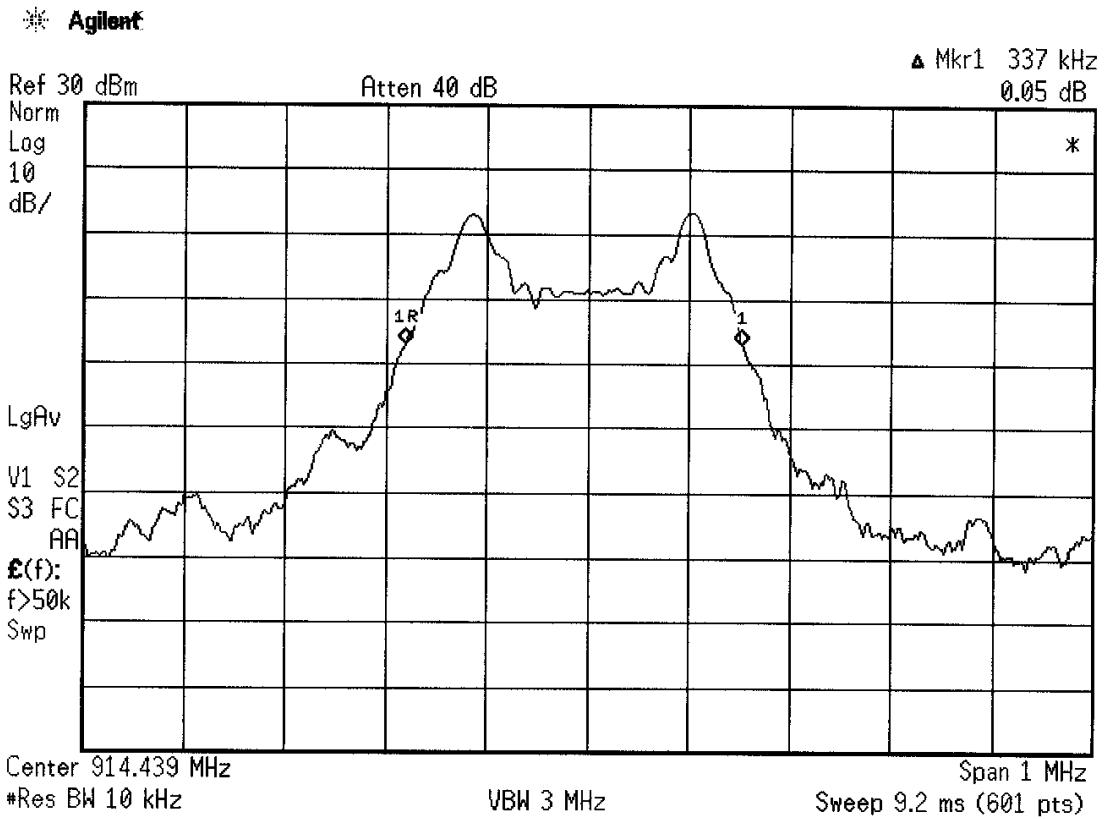
- - SR 3, Shielded Room, 12' x 20' x 8', Metal Chamber
- - Roof (Small Open Area Test Site)

Test Equipment Used:

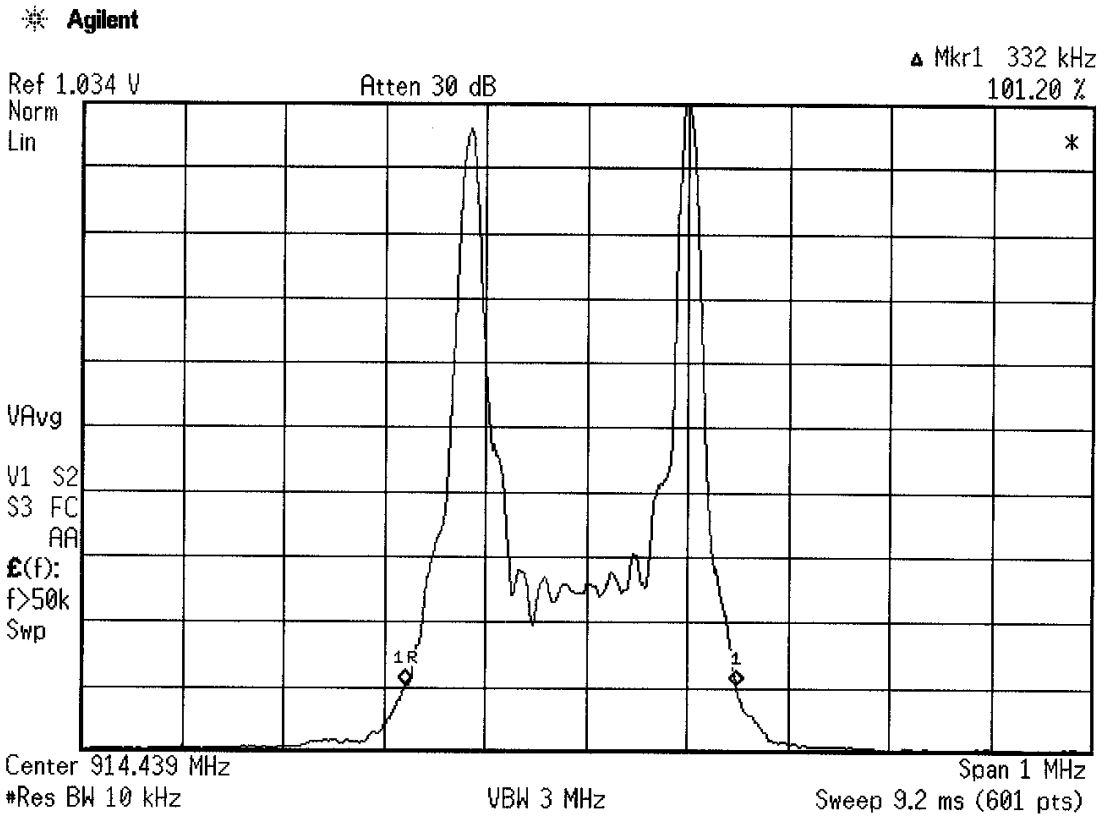
Model No.	Prop. No.	Description	Manufacturer	Serial No.	Date Cal'ed
E4440A	6814	Spectrum Analyzer	Hewlett Packard	MY42510441	02/06
3110B	6644	Biconical Antenna	EMCO	9508-2134	10/05
3146	6641	Antenna, Log Periodic Dipole	EMCO	106X	06/06
3115	6669	Double Ridge Antenna	EMCO	9412-4364	08/05
AMF-5D-010180-35-10P	719	Preamplifier	Miteq	549460	Verified
E4446A	6823	Spectrum Analyzer	Agilent	US44300486	04/06
CBL6111	6527	Bilog Antenna	Chase Electronics	1013	Verified
AA-19030.00.0	7492	30' Coaxial Cable	United Microwave	--	--

Remarks: One year calibration cycle for all test equipment and sites.

15.247(a), 20 dB bandwidth

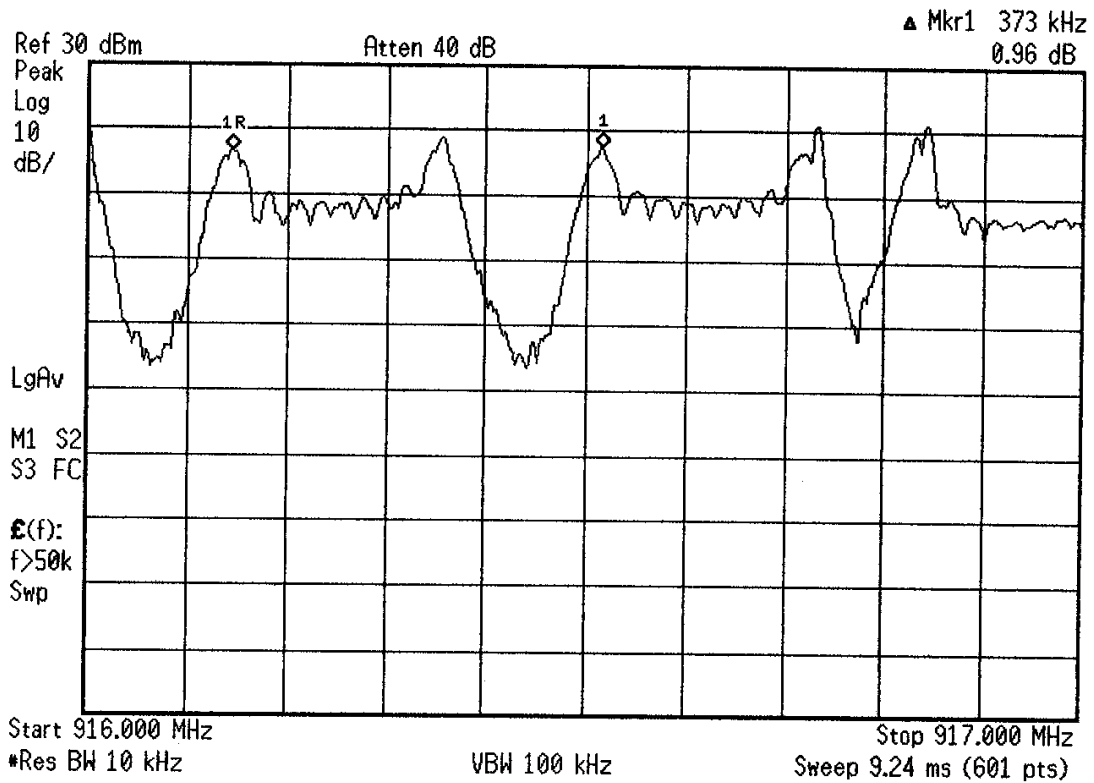


RSS-GEN 4.4.1 20 dB bandwidth



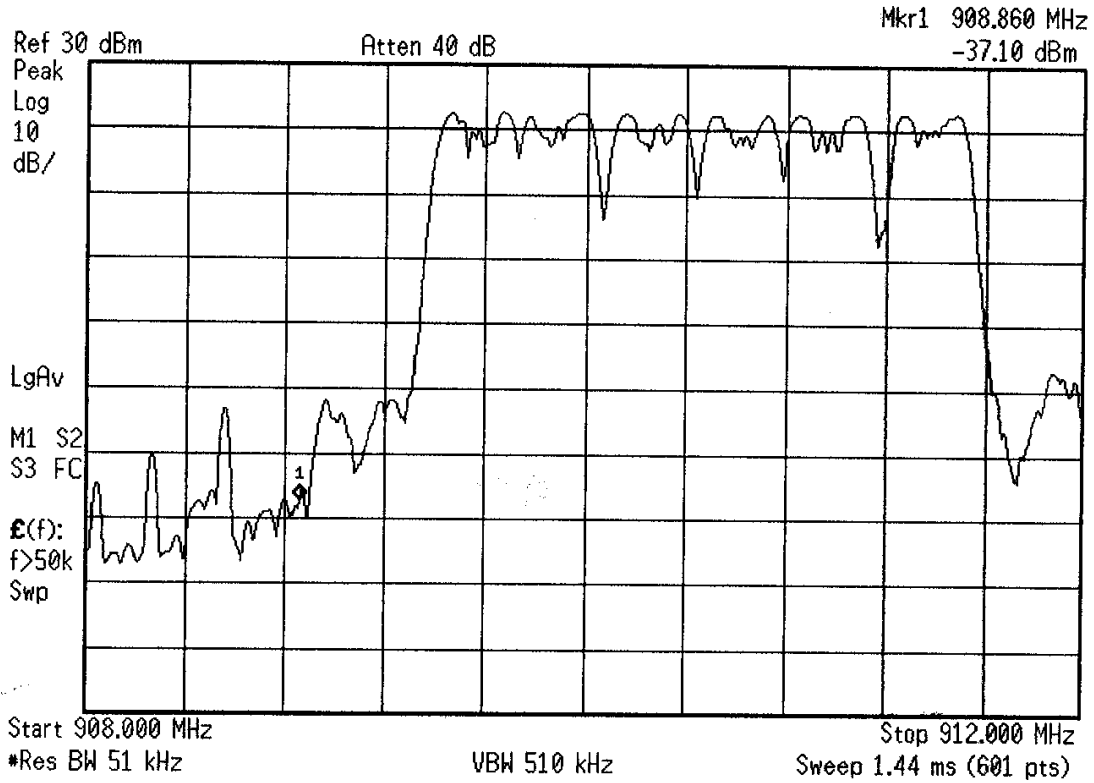
15.247(a) (RSS 210, Annex 8.1) Channel separation

* Agilent



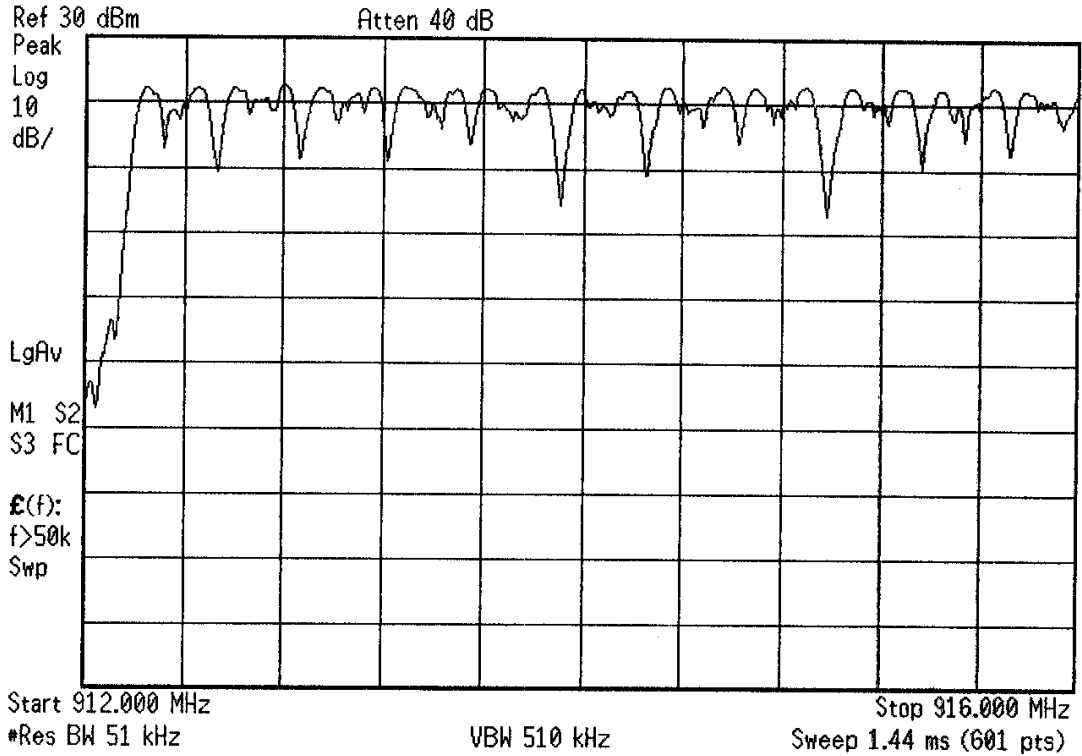
15.247(a) (RSS 210, Annex 8.1) Number of hopping channels (6)

* Agilent



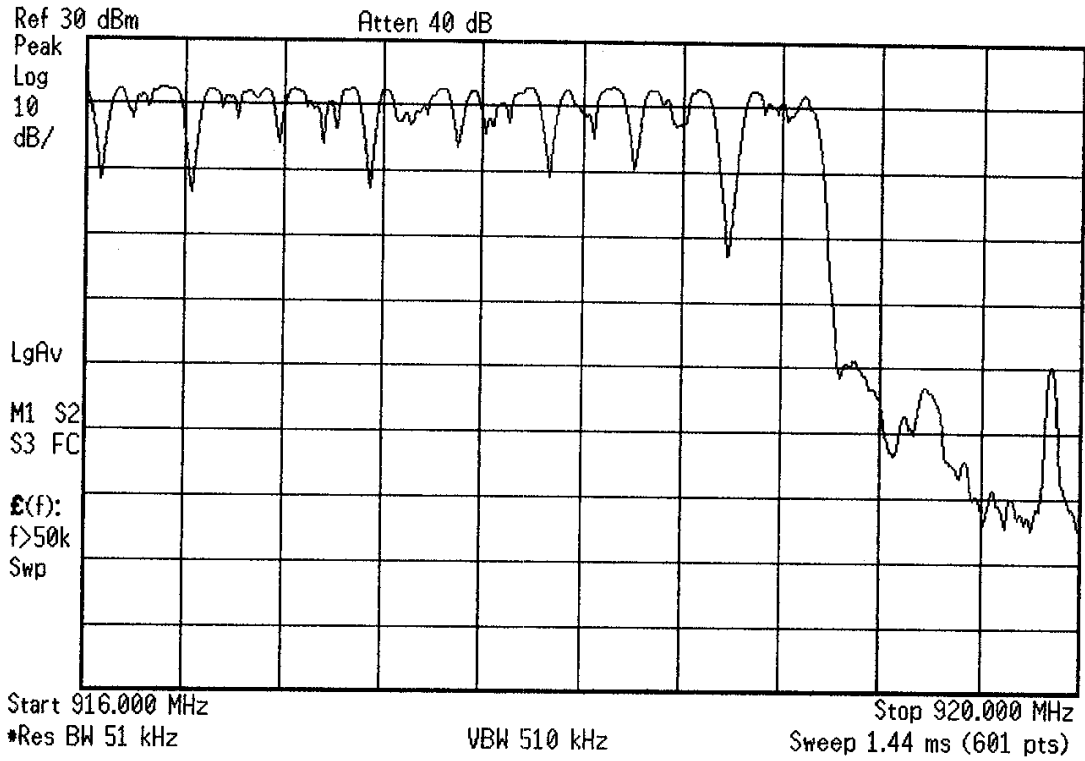
15.247(a) (RSS 210, Annex 8.1) Number of hopping channels (11)

* Agilent

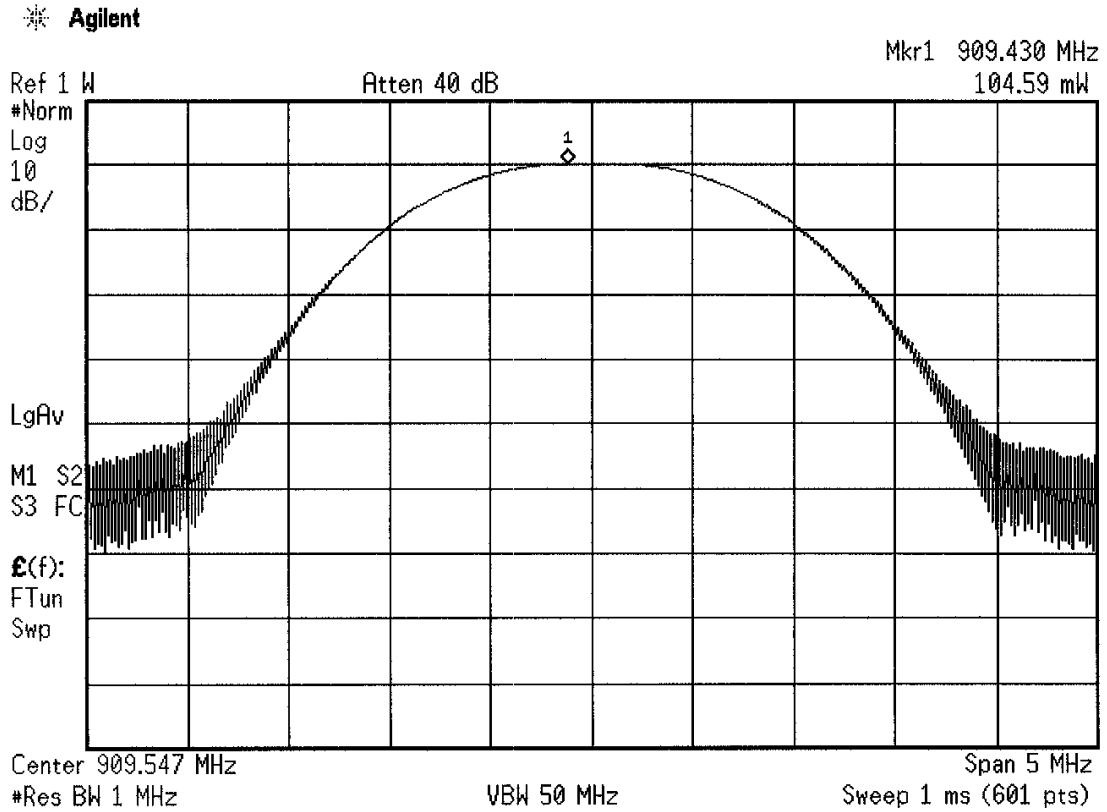


15.247(a) (RSS 210, Annex 8.1) Number of hopping channels (8)

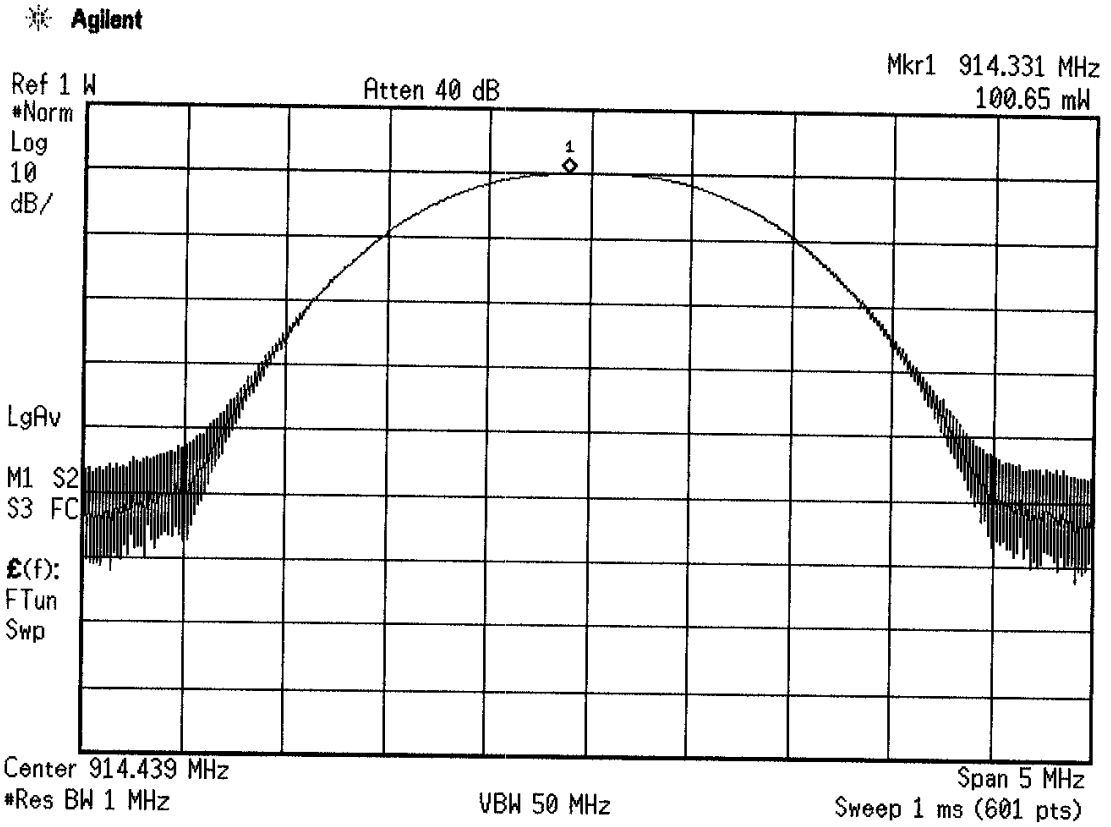
✱ Agilent



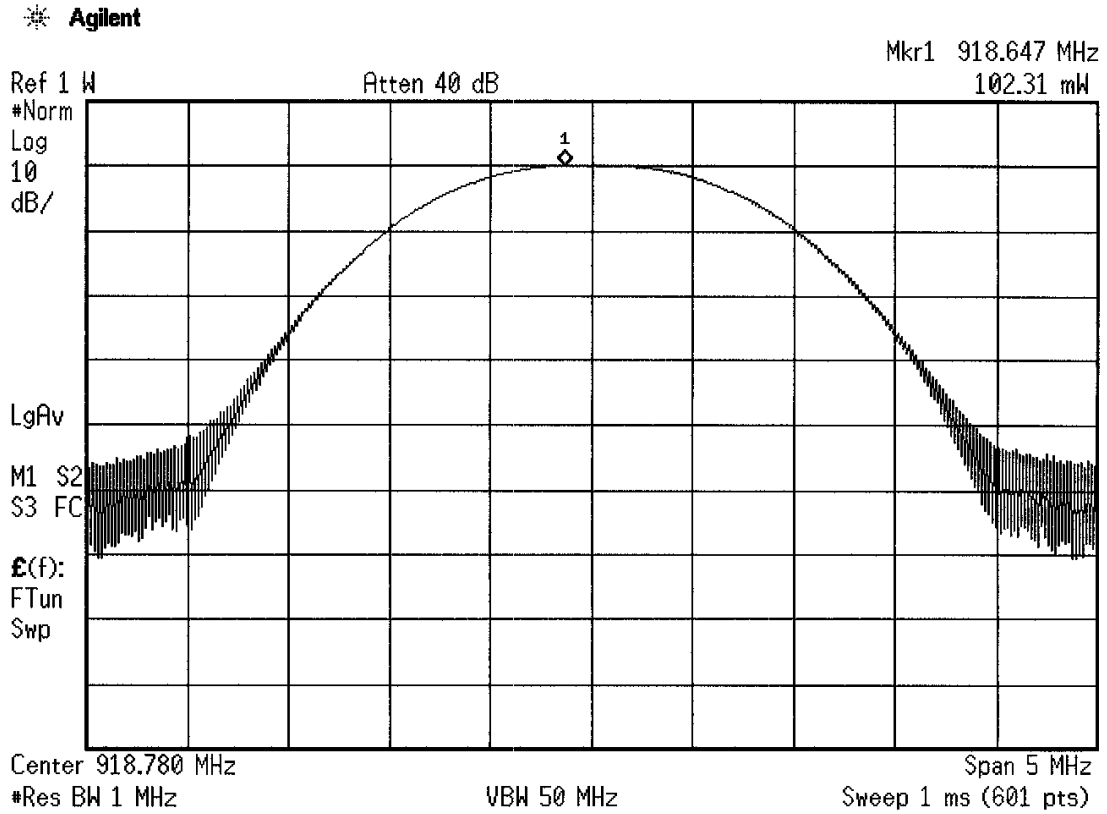
15.247(a) (RSS-Gen 4.6) Peak power output, low channel



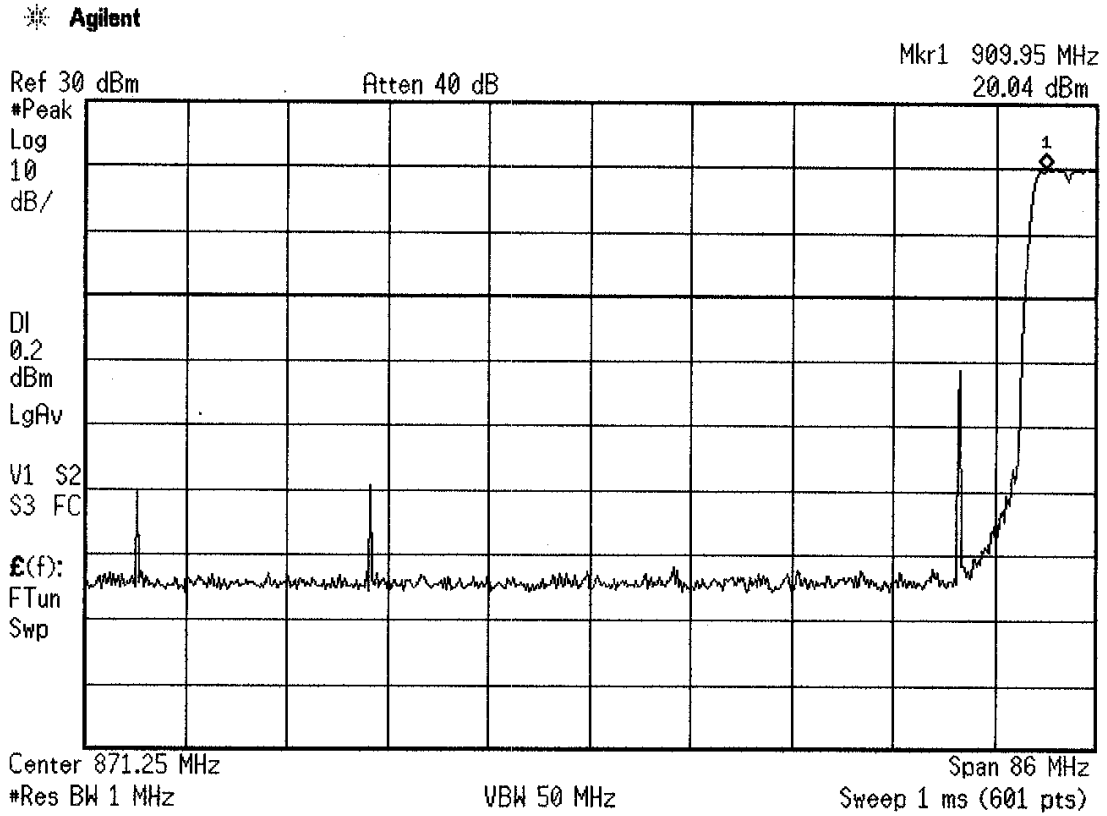
15.247(a) (RSS-Gen 4.6) Peak power output, mid channel



15.247(a) (RSS-Gen 4.6) Peak power output, high channel

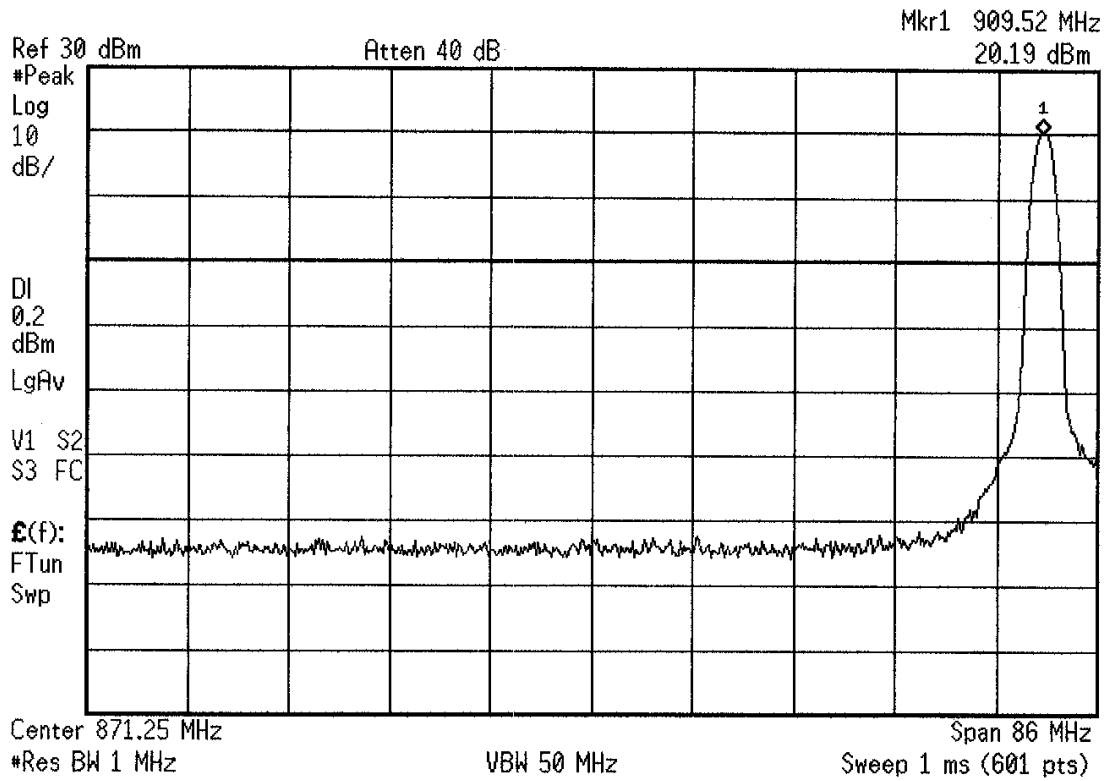


15.247(a) (RSS-Gen 7.2.2) RF conducted modulated, lower band edge



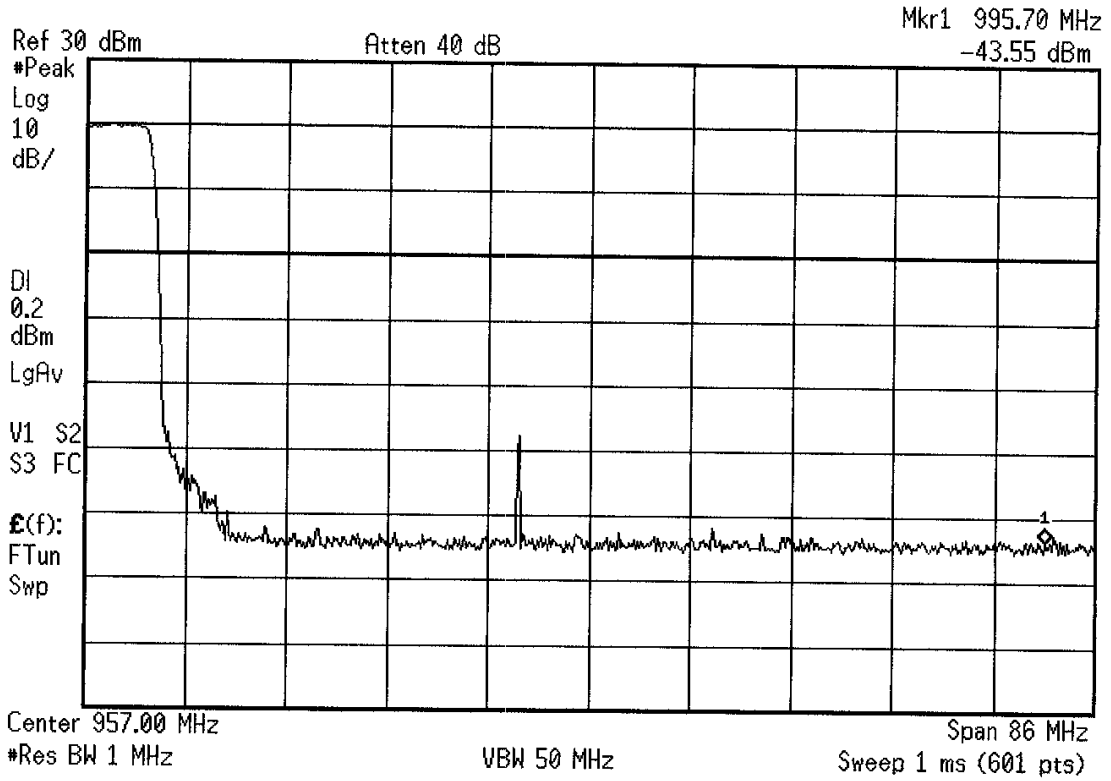
15.247(a) (RSS-Gen 7.2.2) RF conducted unmodulated, lower band edge

* Agilent



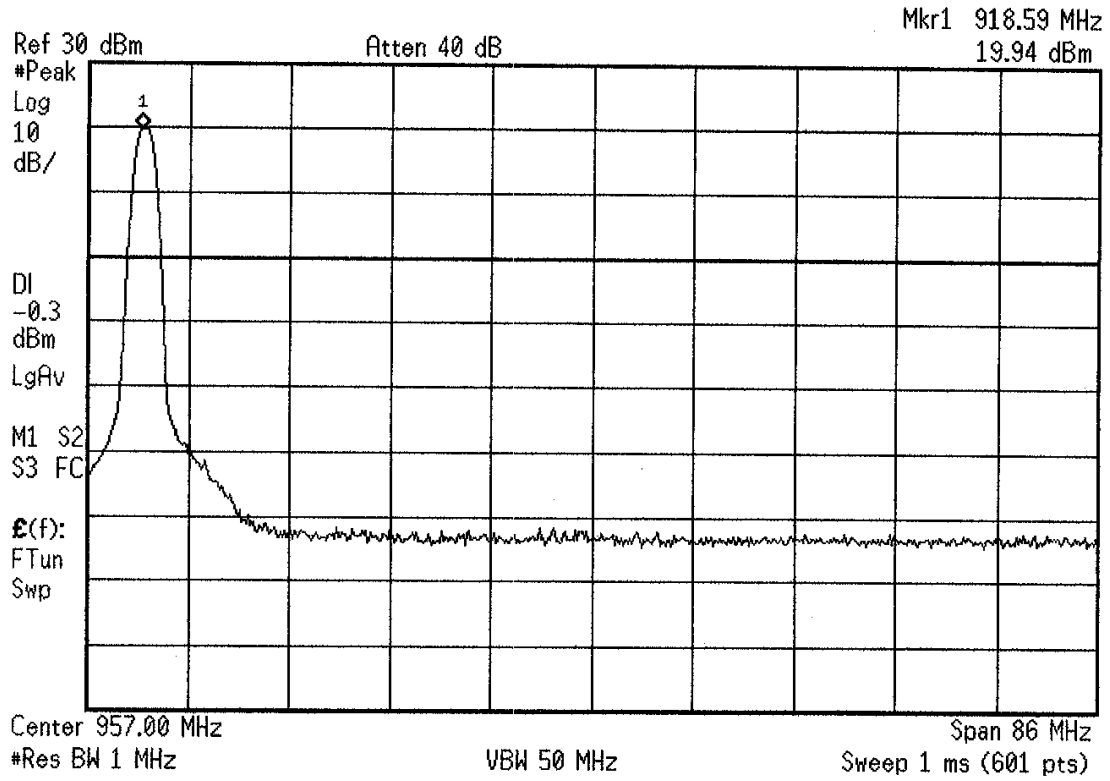
15.247(a) (RSS-Gen 7.2.2) RF conducted modulated, upper band edge

Agilent

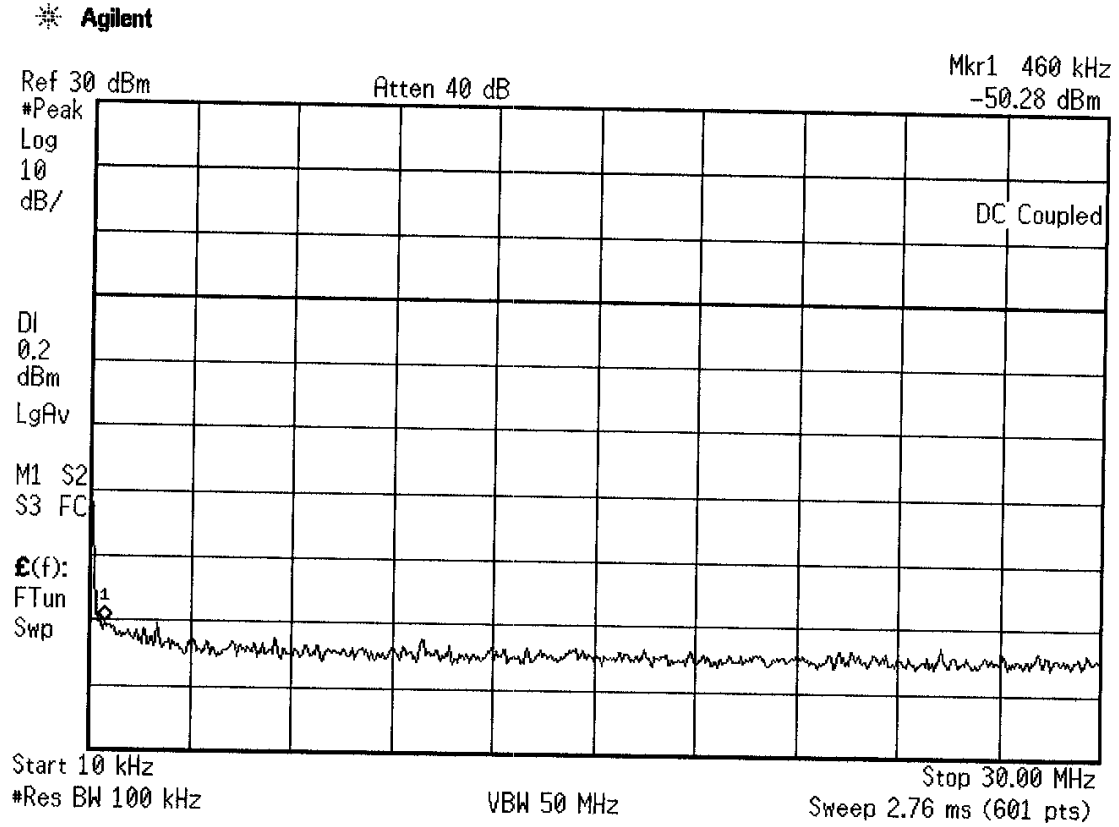


15.247(a) (RSS-Gen 7.2.2) RF conducted unmodulated, upper band edge

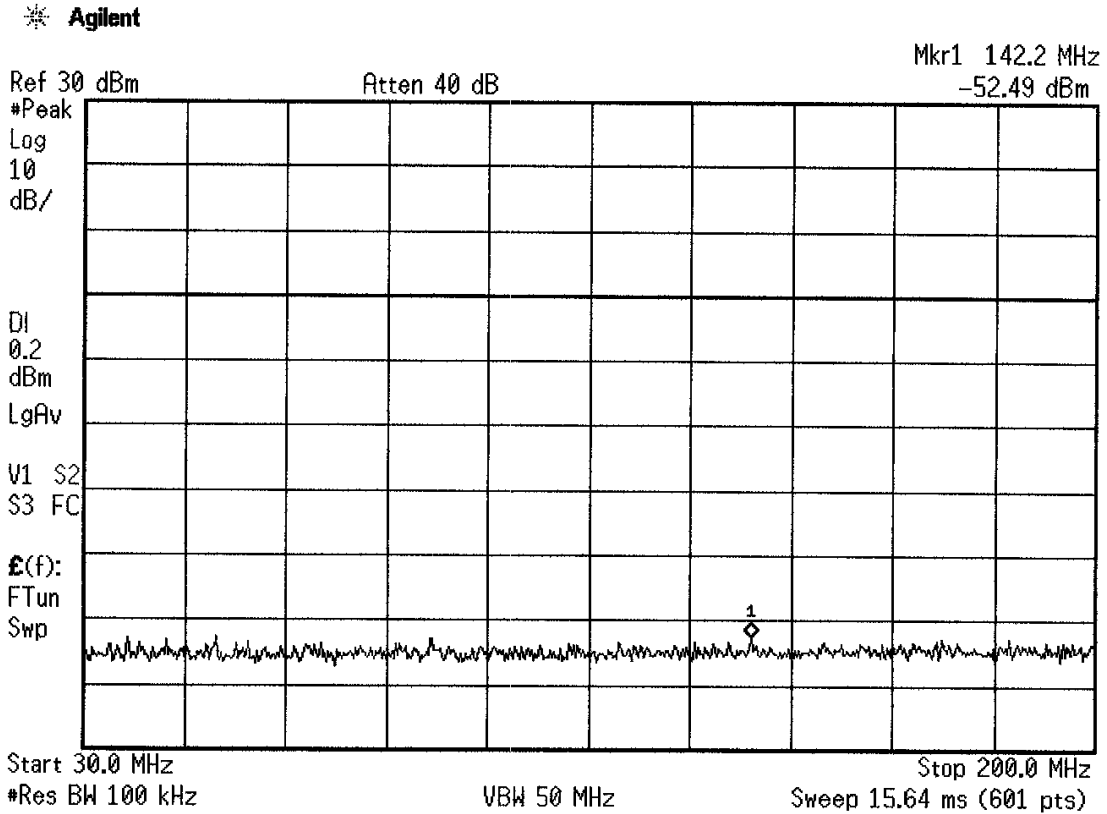
Agilent



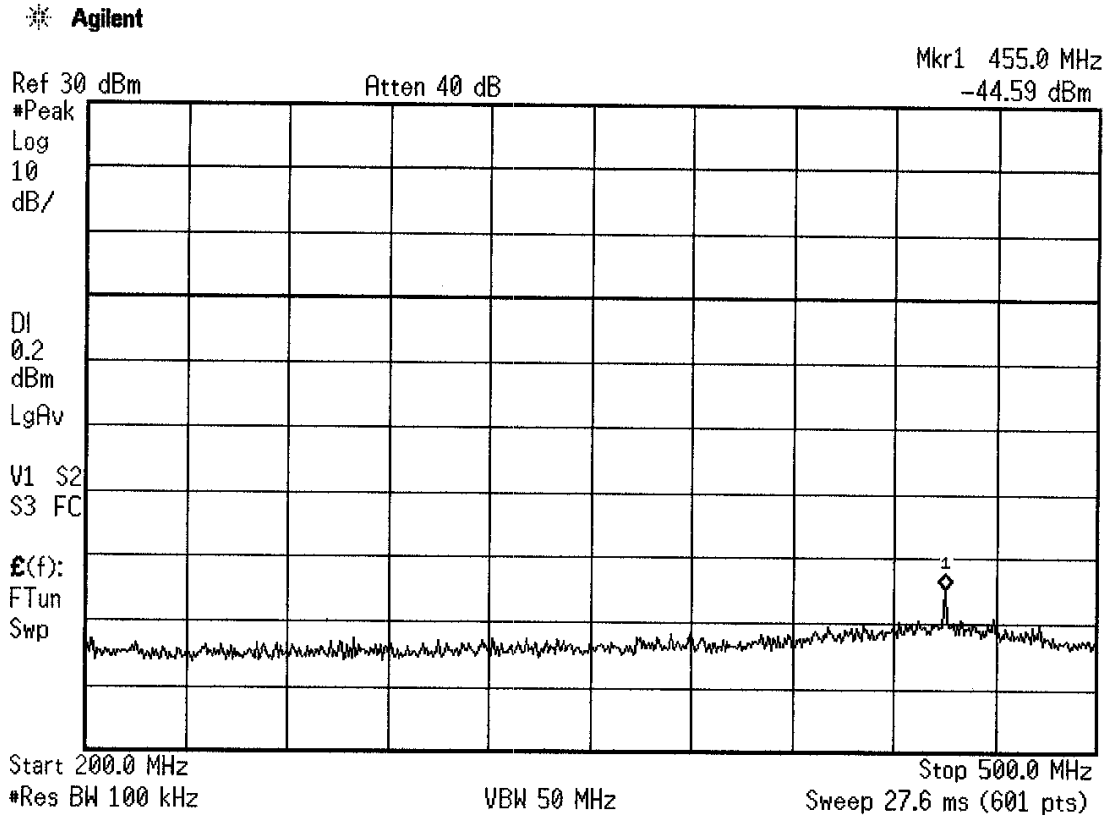
15.247(a) (RSS-Gen 7.2.2) RF conducted, low channel



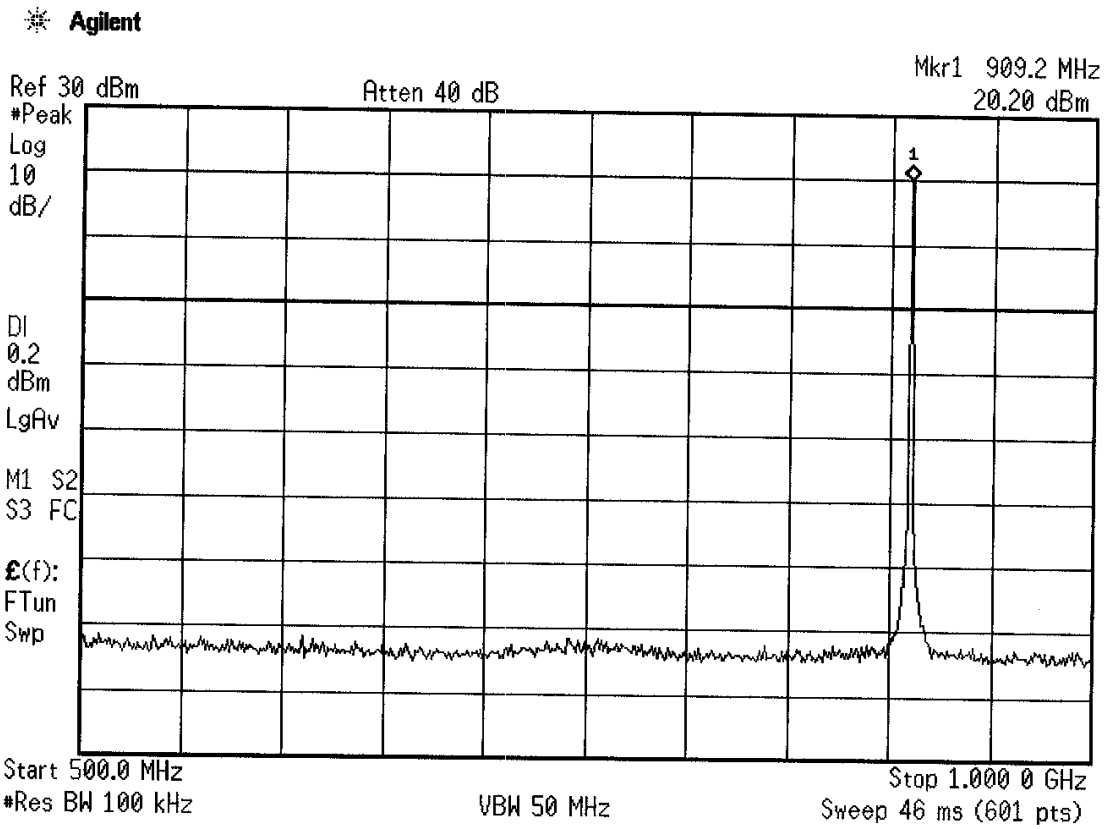
15.247(a) (RSS-Gen 7.2.2) RF conducted, low channel



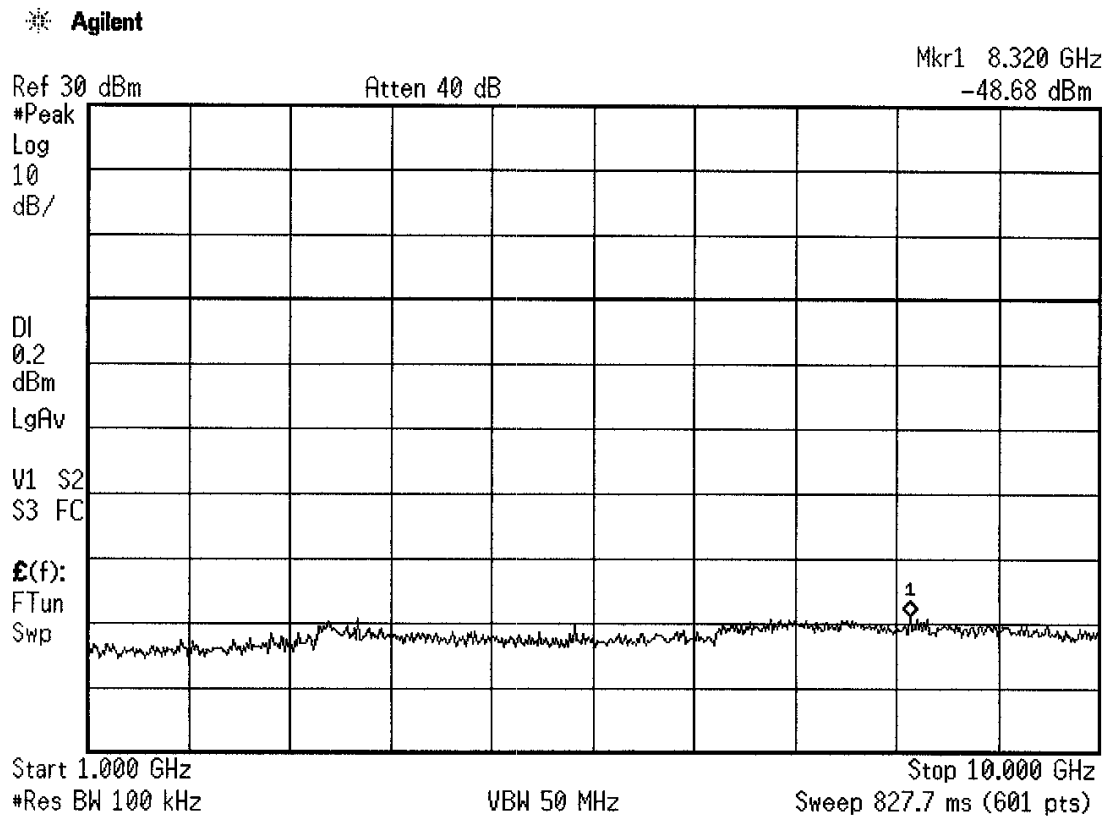
15.247(a) (RSS-Gen 7.2.2) RF conducted, low channel



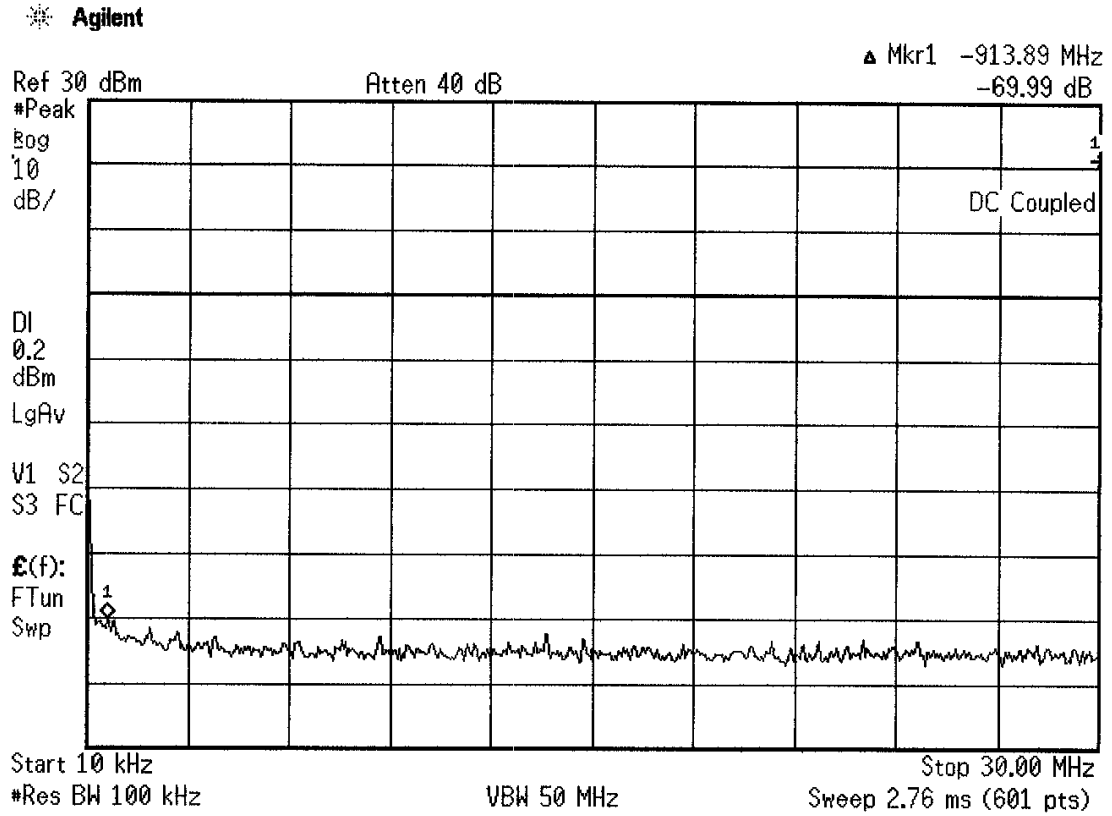
15.247(a) (RSS-Gen 7.2.2) RF conducted, low channel



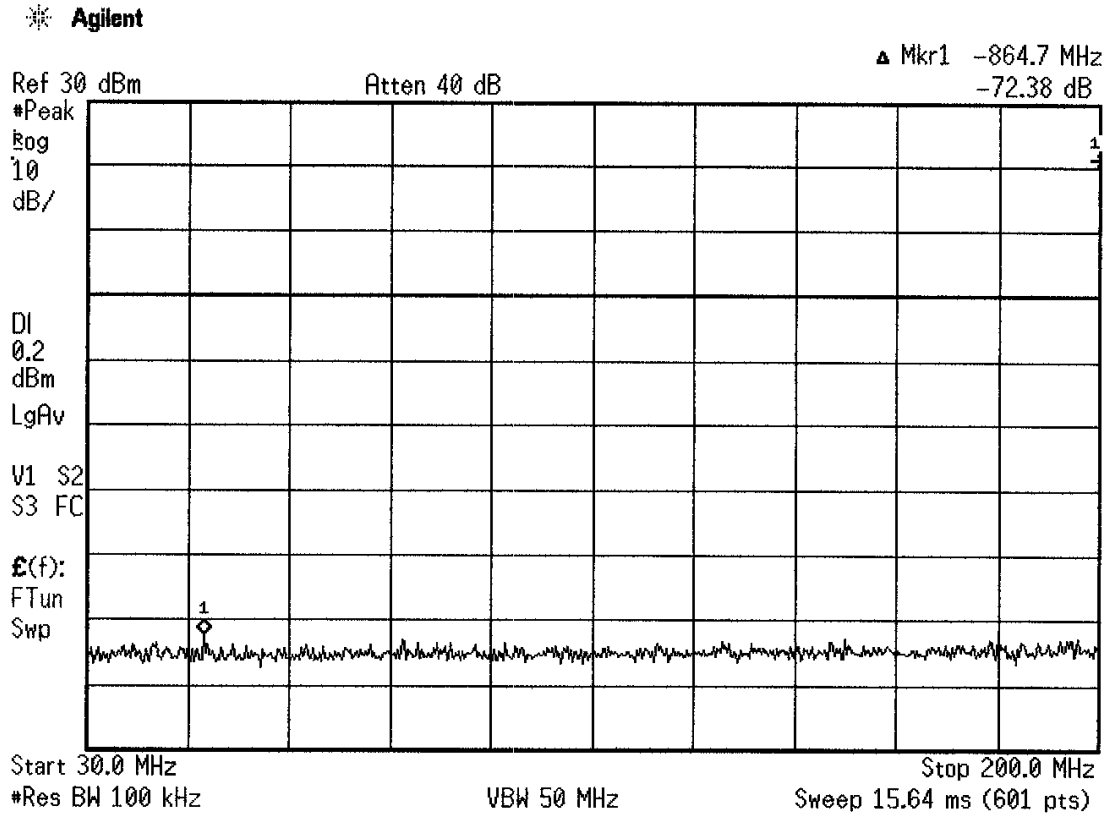
15.247(a) (RSS-Gen 7.2.2) RF conducted, low channel



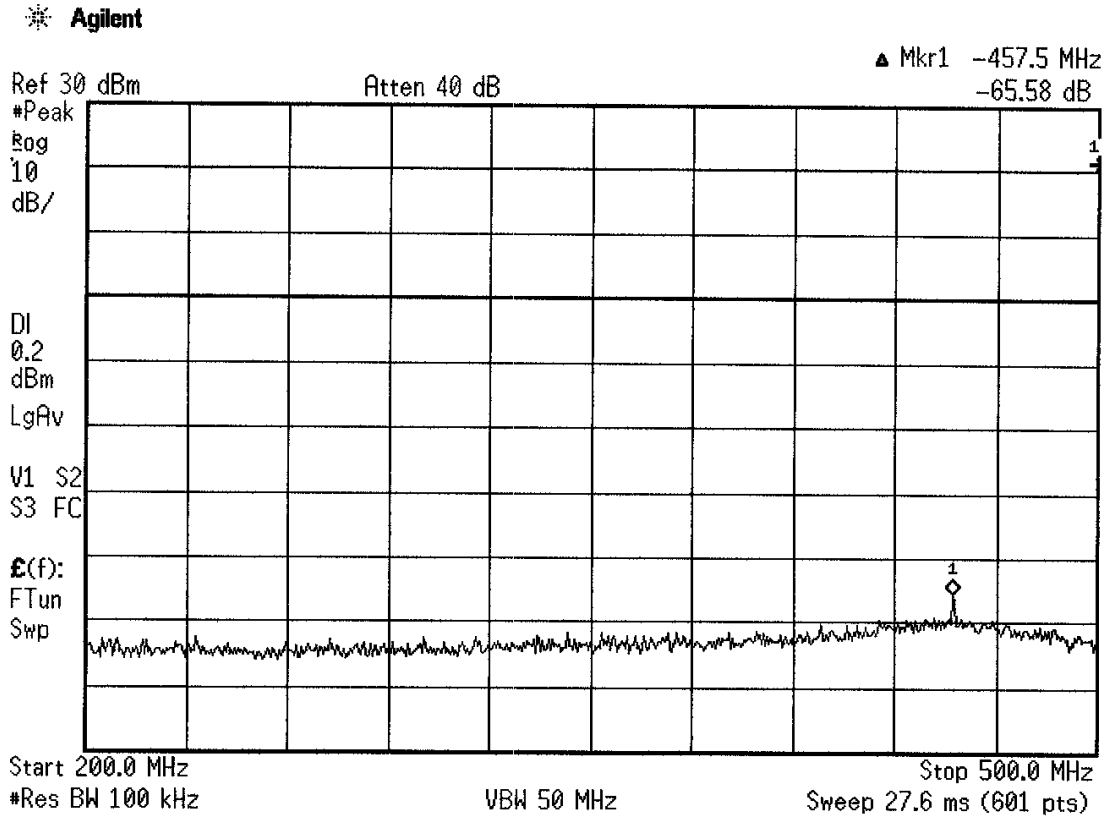
15.247(a) (RSS-Gen 7.2.2) RF conducted, mid channel



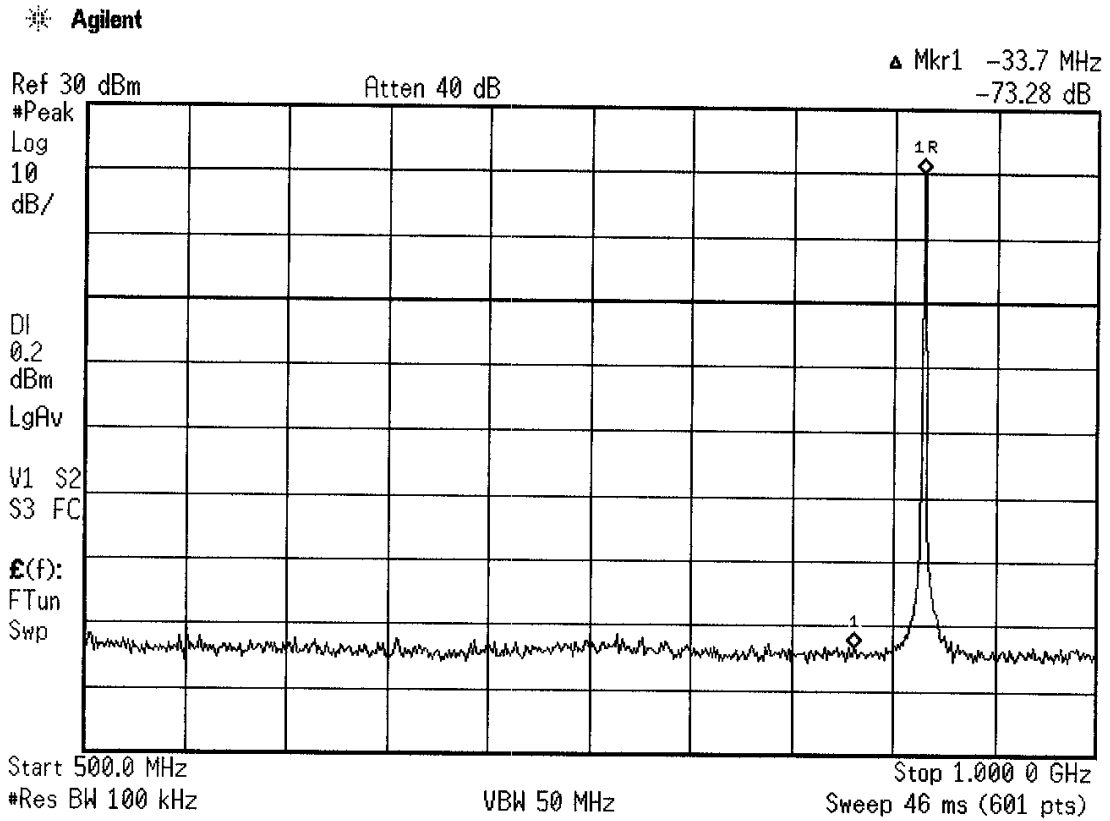
15.247(a) (RSS-Gen 7.2.2) RF conducted, mid channel



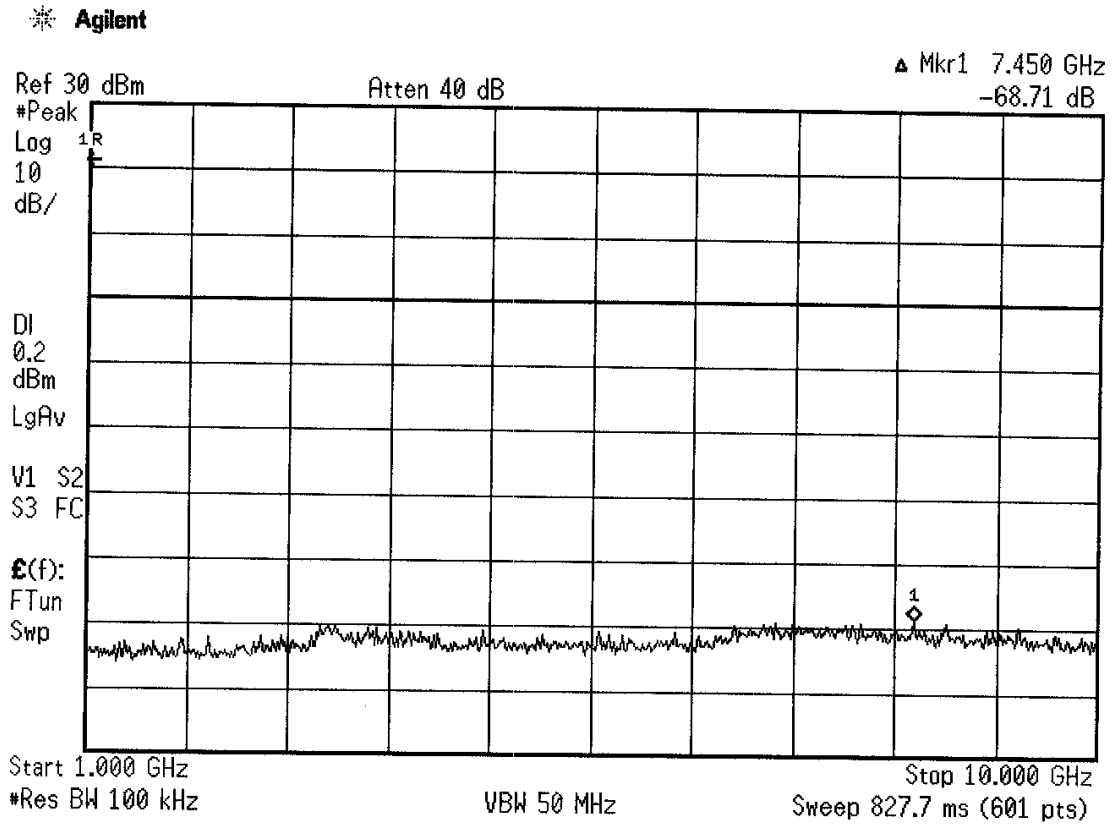
15.247(a) (RSS-Gen 7.2.2) RF conducted, mid channel



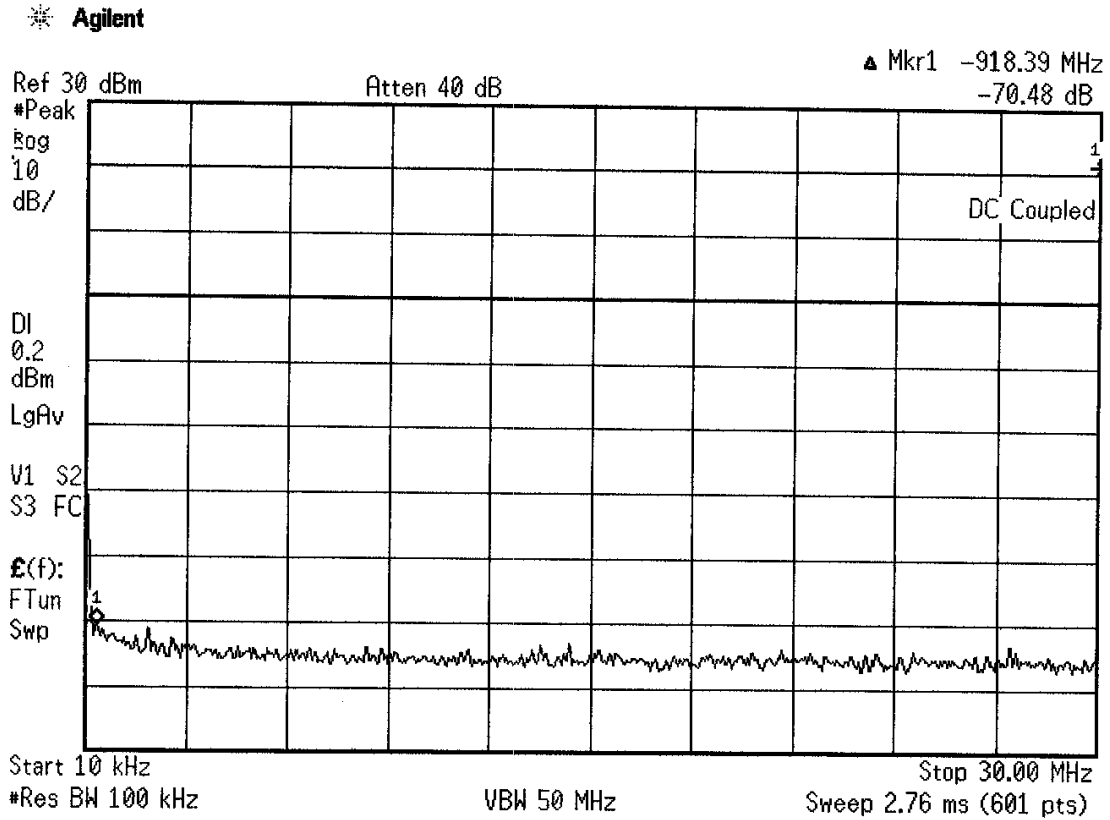
15.247(a) (RSS-Gen 7.2.2) RF conducted, mid channel



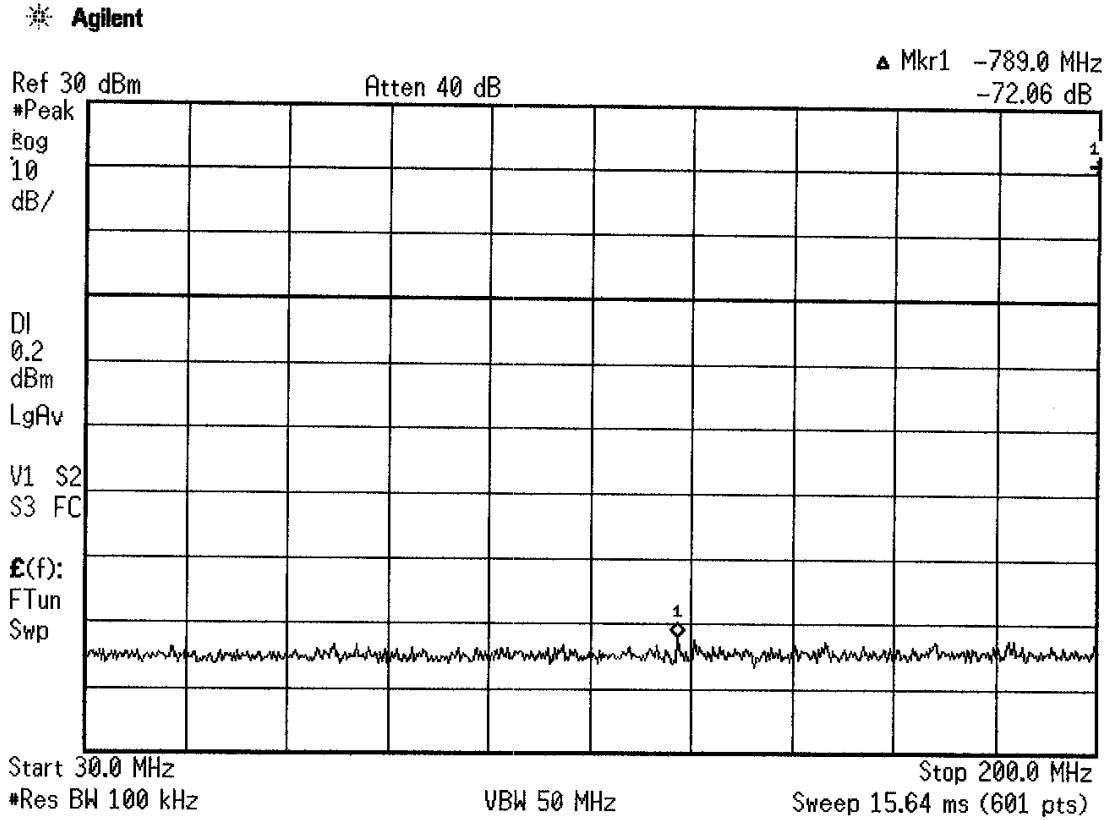
15.247(a) (RSS-Gen 7.2.2) RF conducted, mid channel



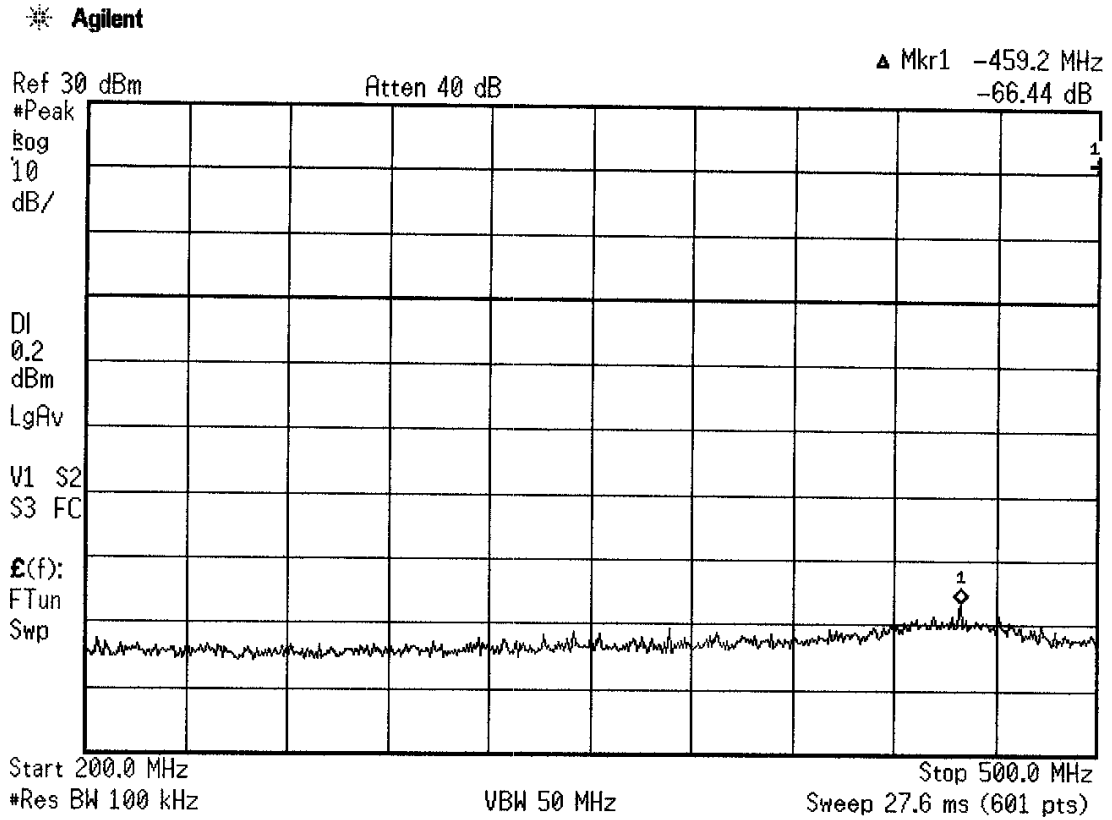
15.247(a) (RSS-Gen 7.2.2) RF conducted, high channel



15.247(a) (RSS-Gen 7.2.2) RF conducted, high channel

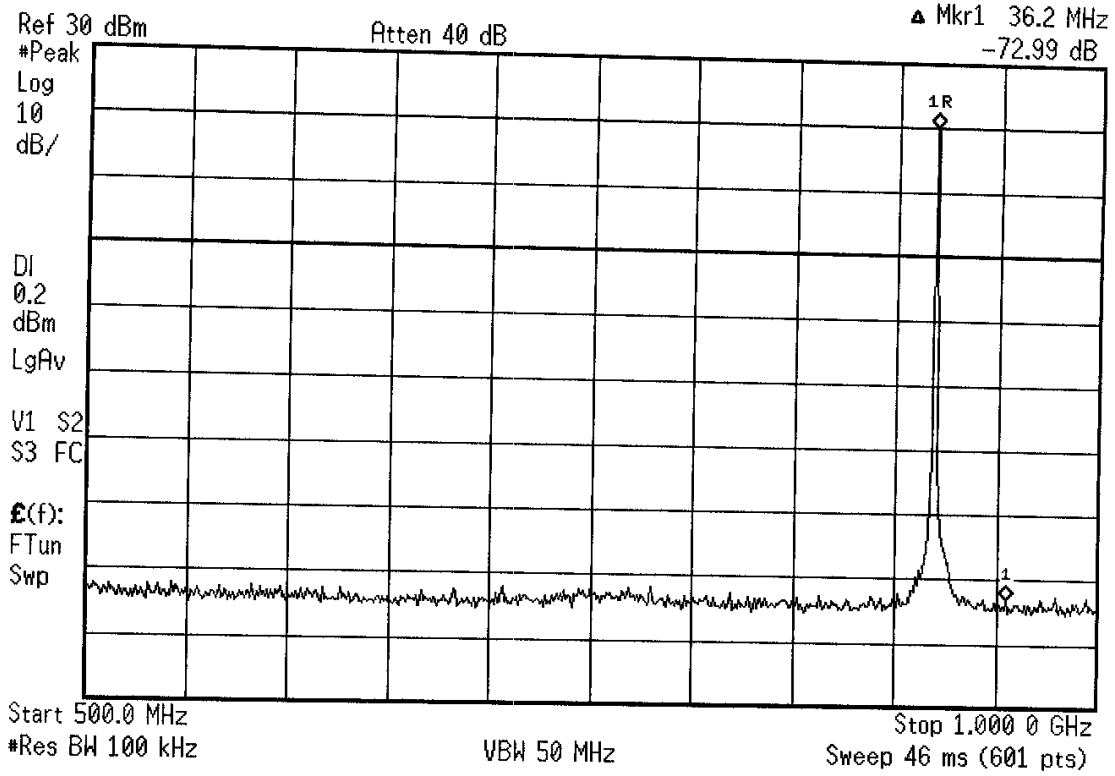


15.247(a) (RSS-Gen 7.2.2) RF conducted, high channel

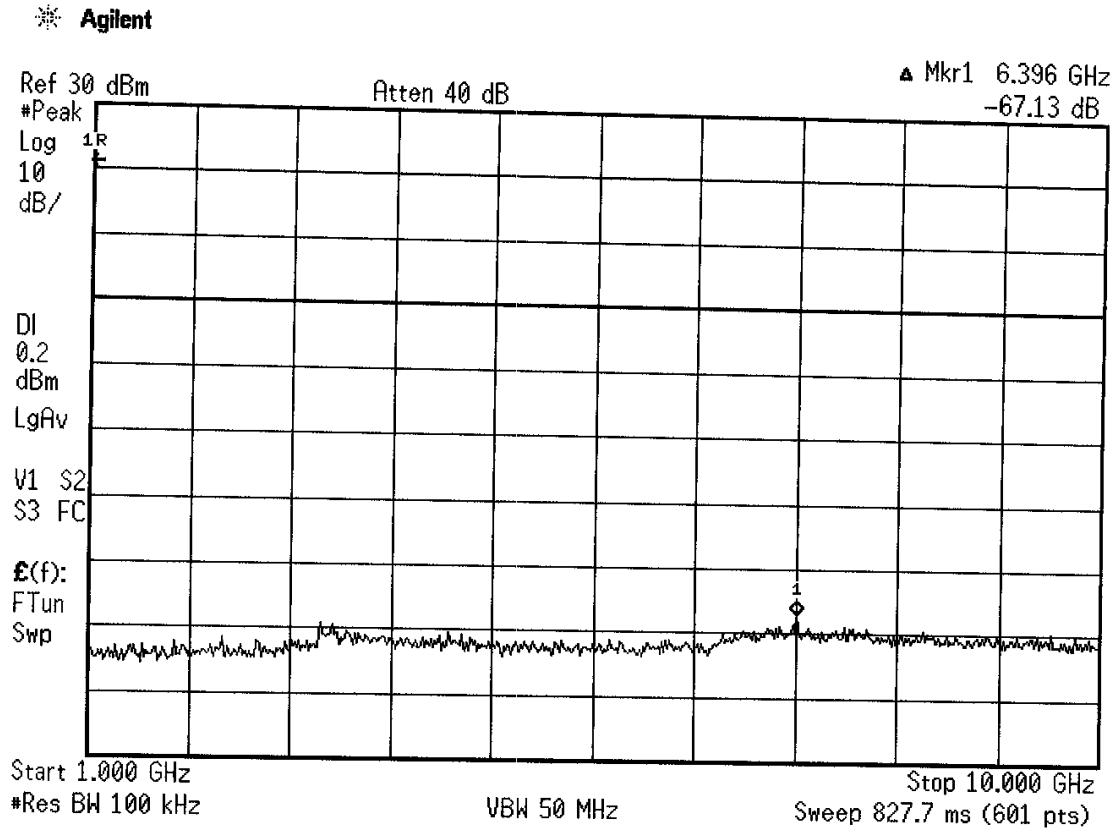


15.247(a) (RSS-Gen 7.2.2) RF conducted, high channel

* Agilent



15.247(a) (RSS-Gen 7.2.2) RF conducted, high channel



REPORT No: SC604005 TESTER: Jim Owen SPEC: FCC Part 15 para 15.203(a)
 CUSTOMER: Directed Electronics TEST DIST: 3 Meters
 E U T: 900MHz Responder HHU TEST SITE: Roof
 EUT MODE: Transmitting BICONICAL: N/A
 DATE: June 30, 2006 LOG: N/A

NOTES: *** Duty Cycle Correction = 6dB *** OTHER: 453
 above 1GHz, RBW & VBW 1 MHz for PK; RBW 1MHz and VBW 10Hz for AVG
 below 1GHz, RBW & VBW 100 kHz for PK; RBW 100kHz and VBW 10Hz for AVG
 CF = Antenna Factor + Cable Loss - Preamp/Filter Gain + Presselector Loss

FREQ (MHz)	VERTICAL (dBuv)		HORIZONTAL (dBuv)		CF (dBm)	MAX LEVEL (dBuV/m)		SPEC LIMIT (dBuV/m)		MARGIN (dB)		EUT Rotation	Antenna Height	Notes
	pk	av	pk	av		pk	av	pk	av	pk	av			
909.546														
2728.638	60	57.6	55		-4.08244	55.92	53.5	74	54	-18.1	-6.48	256	1	Low Channel
3638.184	46.4	34.6			-0.30654	46.09	34.3	74	54	-27.9	-25.7			ambient
4547.73	48.8	39.4			-1.38399	47.41	38	74	54	-26.6	-22	257	1	ambient
5457.276	46.2	35.8			3.61802	49.82	39.4	74	54	-24.2	-20.6			ambient
7276.368	49.7	37			7.73164	57.43	44.7	74	54	-16.6	-15.3	276	1.4	ambient
8185.914	50.9	37.9			8.78591	59.69	46.7	74	54	-14.3	-13.7	262	1.55	ambient
9095.46	46	33.7			10.0709	56.07	43.8	74	54	-17.9	-16.2			ambient
914.439														
2743.317	58.3	55	53.9	49.6	-3.99143	54.31	51	74	54	-19.7	-8.99	288	1	Mid Channel
3657.756	47.7	34.3	48		-0.27914	47.42	34	74	54	-26.6	-26			ambient
4572.195	51.7	44	49.8	40.1	-1.28234	50.42	42.7	74	54	-23.6	-17.3	234	1	ambient
7315.512	48.7	36.3			7.77961	56.48	44.1	74	54	-17.5	-15.9	283	1.46	
8229.951	51.4	38.3			8.82995	60.23	47.1	74	54	-13.8	-12.9	274	1.6	
9144.39	46.2	33.3	46.6		9.95346	56.55	43.3	74	54	-17.4	-16.7			ambient
918.78														
2756.34	59.9	57.3	54.4	50.45	-3.91069	55.99	53.4	74	54	-18	-6.61	255	1	High Channel
3675.12	47.1	35	47		-0.25483	46.85	34.7	74	54	-27.2	-25.3			ambient
4593.9	51.1	43	51.4	43.1	-1.18684	50.21	41.9	74	54	-23.8	-18.1	234	1	ambient
7350.24	49.7	38	46	33.5	7.82029	57.52	45.8	74	54	-16.5	-14.2	295	1.64	
8269.02	52	36			8.66902	60.87	44.9	74	54	-13.1	-15.1	247	1.45	ambient
9187.8	46.4	33.2			9.84928	56.25	43	74	54	-17.8	-17			ambient

4.0 ATTESTATION STATEMENT

GENERAL REMARKS:

SUMMARY:

All tests were performed per: CFR 47, Part(s) 15.247(a), 15.247(b), 15.247(c), 15.109(a), and 15.209(a)
RSS-Gen 4.4.1; 4.4.2; 4.6; 7.2.2; and 7.2.3.2

■ - **Performed**

The Equipment Under Test

■ - **Fulfills** the requirements of: CFR 47, Part(s) 15.247(a), 15.247(b), 15.247(c), 15.109(a), and 15.209(a)
RSS-Gen 4.4.1; 4.4.2; 4.6; 7.2.2; and 7.2.3.2

Testing Start Date: 06 July 2006

Testing End Date: 06 July 2006

- TÜV AMERICA, INC. -

Reviewing Engineer:



Chuck Rickard
(EMC Engineer)

Test Engineer:



David Gray
(EMC Engineer In Charge)