MEASUREMENT AND TECHNICAL REPORT

DEI HEADQUARTERS, INC.
1 Viper Way
Vista, CA 92083

DATE: 06 November 2006

This Report Concerns:	Original Grant: X	Class II Change:
Equipment Type:	Menu Transmitter, Model 904200	
Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?	Yes: **Defer until:**	No: X
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: X[1]

([1]) FCC Part 15, Paragraph(s) 15.247(a), 15.247(b), 15.247(c), 15.107(a)[2], 15.109(a), and 15.209(a)
([1]) Industry Canada RSS-Gen sections 4 and 7; RSS 210, Annexes 2 and 8.

Report Prepared by:

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

([2]) Pages 59 through 80 reference SC601231 test report. This data was tested in June 2006. Remaining tests were performed in November 2006.

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1.0 GENERAL INFORMATION

15.17 **Product Description**

General Equipment Description

EUT Description: Hand held keyfob transceiver for car alarm and convenience systems.

EUT Name: Menu Transmitter

Model No.: 904200 Serial No.: N/A

EUT Specifications and Requirements

Length: 3.42" Width: 1.58" Height: 0.76" Weight: N/A

Power Requirements:

Voltage: 3.7V Li-Ion (If battery powered, make sure battery life is sufficient to complete testing.)

# of Phases: N/A

Typical Installation and/or Operating Environment: Automotive

EUT Power Cable: Not applicable

EUT Interface Ports and Cables: Not applicable

EUT Software: Not applicable

EUT Operating Modes to be Tested:

1. Continuous modulated transmission
2. The System is a 25 channel frequency hopping design and is intended for use under FCC part 15.247

EUT System Components:

Description	Model #	Serial #	FCC ID #
Keyfob	904200	N/A	EZSDEI904200

Oscillator Frequencies

Frequency	*Derived Frequency*	*Component # / Location*	*Description of Use*
16MHz	909.546MHz to 918.780MHz		Transmitter RF carrier
8MHz			MCU clock
32KHz			For low power polling mode timer

Power Supply

Manufacturer	*Model #*	*Serial #*	*Type*
Semdicar Technology Corporation	TC-FU-USB		☐ Switched-mode: (Frequency)

Power Line Filters: Not applicable

Critical EMI Components (Capacitors, ferrites, etc.) : Not applicable

System Configuration Block Diagram: No connections or setup, just the self contained keyfob

1.2 Related Submittal Grant

None

15.17 Tested System Details

The FCC ID's for all equipment, plus descriptions of all cables used in the tested system are:

None

15.17 Test Methodology

Purpose of Test: To demonstrate compliance with the following tests.

Test Description	Paragraph Number	Pass/Fail
Bandwidth	15.247(a)(1)(i) RSS Gen 4.4.1	Pass
Channel Separation	15.247(a)(1) RSS 210, Annex 8, A8.1	Pass
Time of Occupancy	15.247(a)(1)(i) RSS Gen 4.3	Pass
Number of Hopping Channels	15.247(a)(1)(i) RSS 210, Annex 8, A8.1	Pass
Peak Output Power	15.247(b)(1) RSS Gen 4.6; RSS 210 Annex 8, A8.4	Pass
Bandedge	15.247(c) RSS Gen 4.4.2	Pass
RF Conducted Emissions	15.247(c) RSS Gen 7.2.2	Pass
Radiated Spurious Emissions – Restricted Bands (1GHz to 25GHz)	15.247(c)/15.209(a) RSS Gen 7.2.3.2; RSS 210, Annex 2, A2.9	Pass
Radiated Emissions (30-1000 MHz)	15.109(a) RSS Gen 7.2	Pass
Conducted Emissions	15.107(a) RSS-Gen 7.2	Pass

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

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1.5 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.

2.0 SYSTEM TEST CONFIGURATION

2.5 Justification

The EUT was initially tested for FCC emissions in the following configuration:

See Test Setup Photos Exhibit

2.2 EUT Exercise Software

None

2.3 Special Accessories

None

2.5 Equipment Modifications

None

2.5 Configuration of Test System

See Test Setup Photos Exhibit

3.0 EQUIPMENT/DATA

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
TIME OF OCCUPANCY: FCC Part 15.247(a)(1)(i) and RSS-Gen 4.3
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
RECEIVER SPURIOUS EMISSIONS: FCC Part 15.109(a) – Prescan
CONDUCTED EMISSIONS: FCC Part 15.107(a) (pages 59 through 80 reference SC601231 test report.)

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 Calibrated
E4440A	7500	Spectrum Analyzer	Agilant	MY42510441	01/06
E4440A	6814	Spectrum Analyzer	Agilant	MY42510441	02/06
3110B	6644	Biconical Antenna	EMCO	9508-2134	Verified
3146	6641	Antenna, Log Periodic Dipole	EMCO	106X	07/06
3115	6669	Double Ridge Antenna	EMCO	9412-4364	08/06
ESHS 30	6509	EMI Test Receiver	Rohde & Schwarz	832354/004	10/05*
CAT-20	6714	20 dB Attenuator	Mini-Circuits	--	Verified
FCC-LISN-50-25-2	6837	LISN	Fischer Custom Comm.	5025	09/06

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

(*) Test performed June 2006 (pages 59 through 80)

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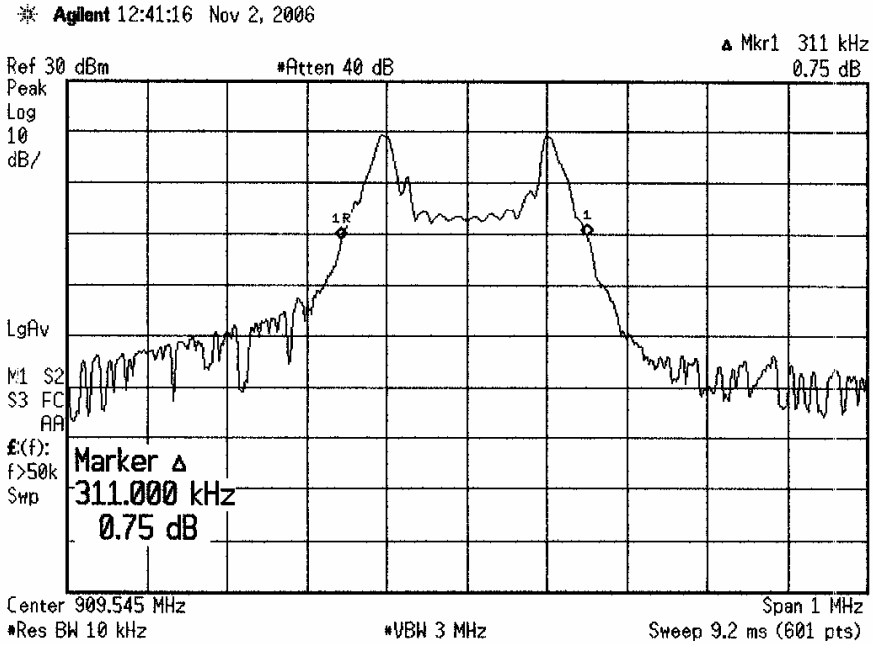
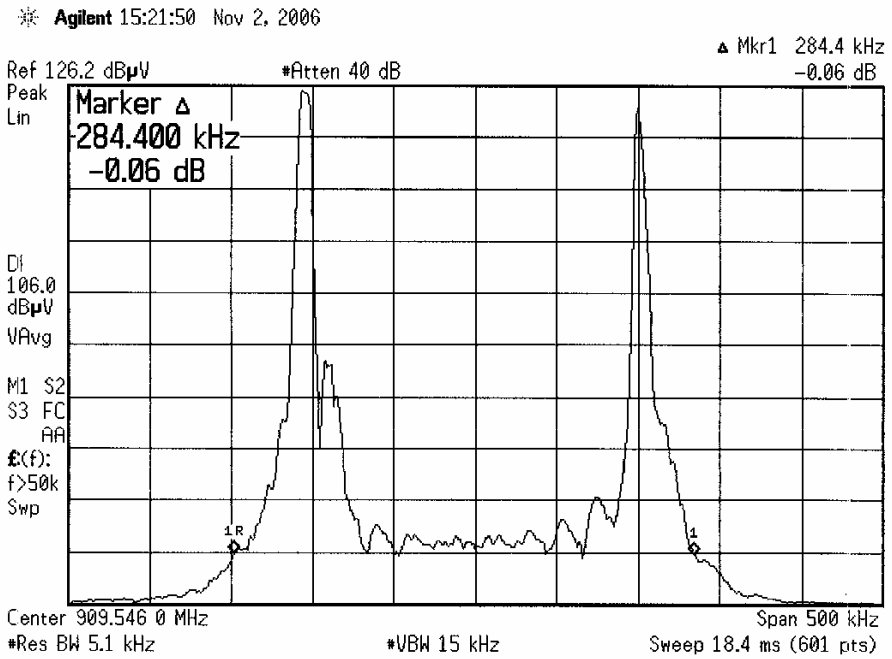
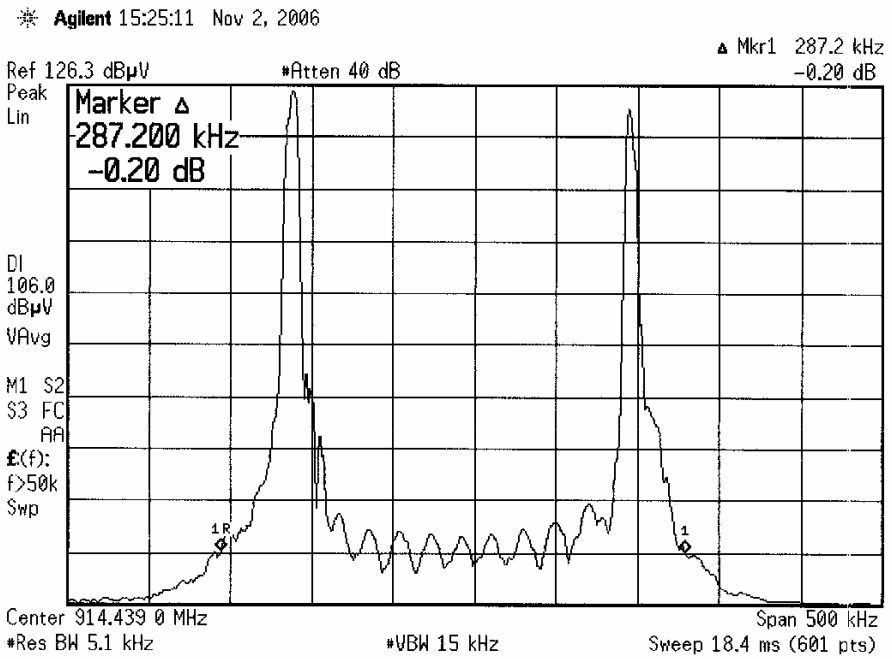
Part 15.247(a)(1)(i), Bandwidth



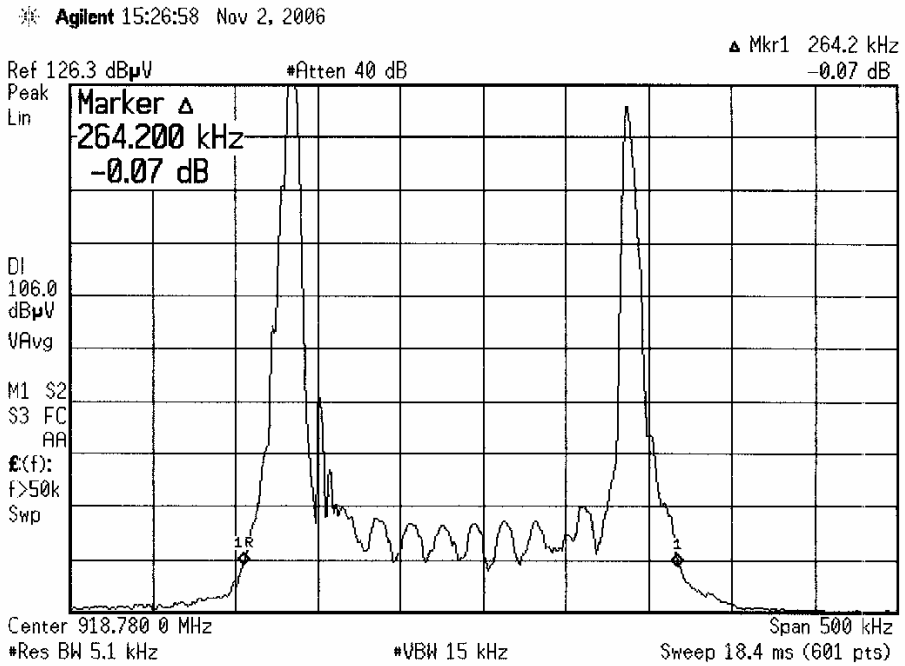
RSS-Gen 4.4.1, Bandwidth, 20 dB, low channel



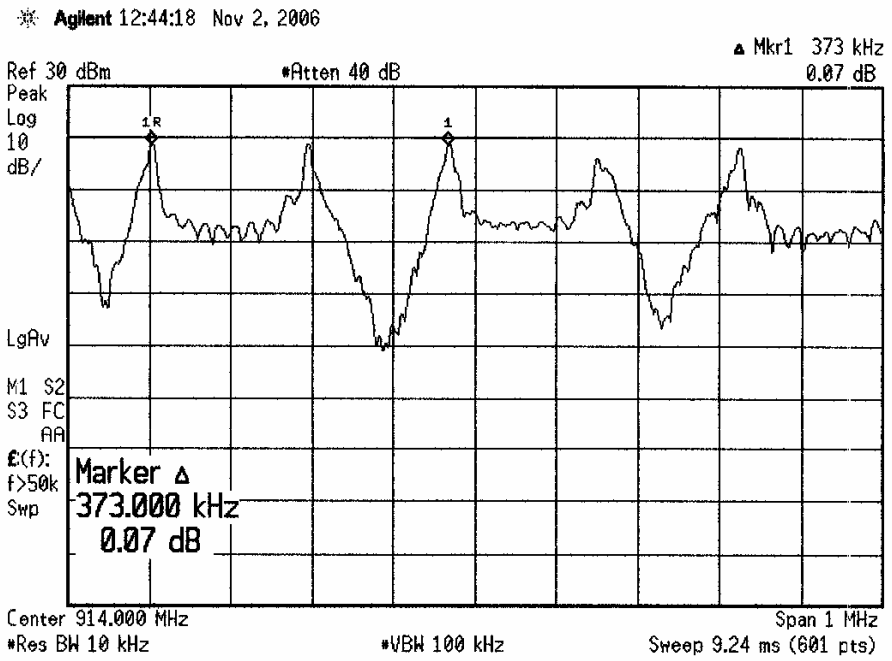
RSS-Gen 4.4.1, Bandwidth, 20 dB, mid channel



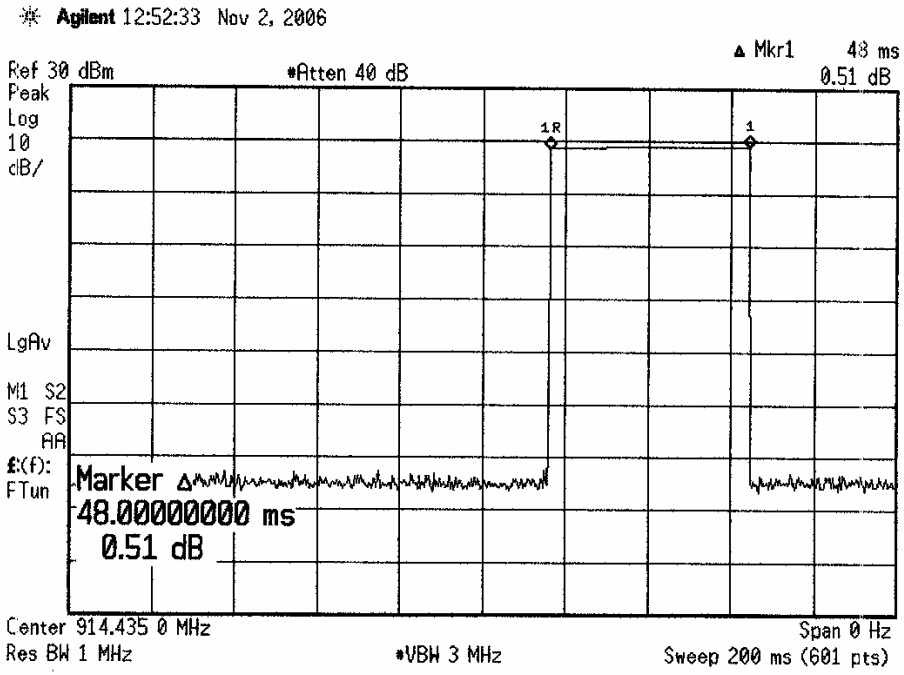
RSS-Gen 4.4.1, Bandwidth, 20 dB, high channel



Part 15.247(a)(1), Channel Separation; RSS 210, Annex 8, A8.1



Part 15.247(a)(1)(i), RSS-Gen 4.3, Time of Occupancy, (Pulse Duration, 48 mS)



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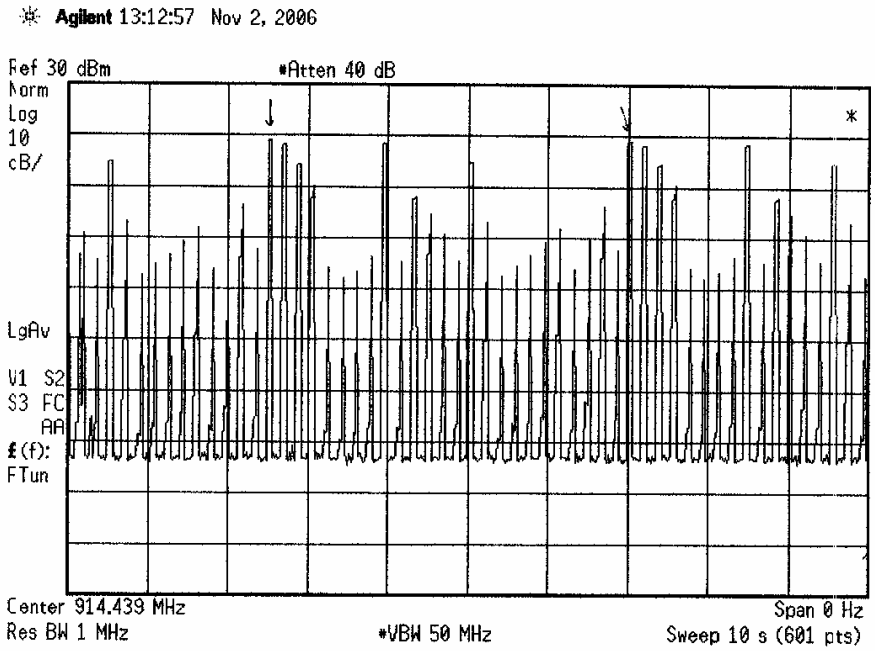
Part 15.247(a)(1)(i), RSS-Gen 4.3, Time of Occupancy (Dwell time equals 2 x 48 mS = 96 mS)
(→on channel transmissions)



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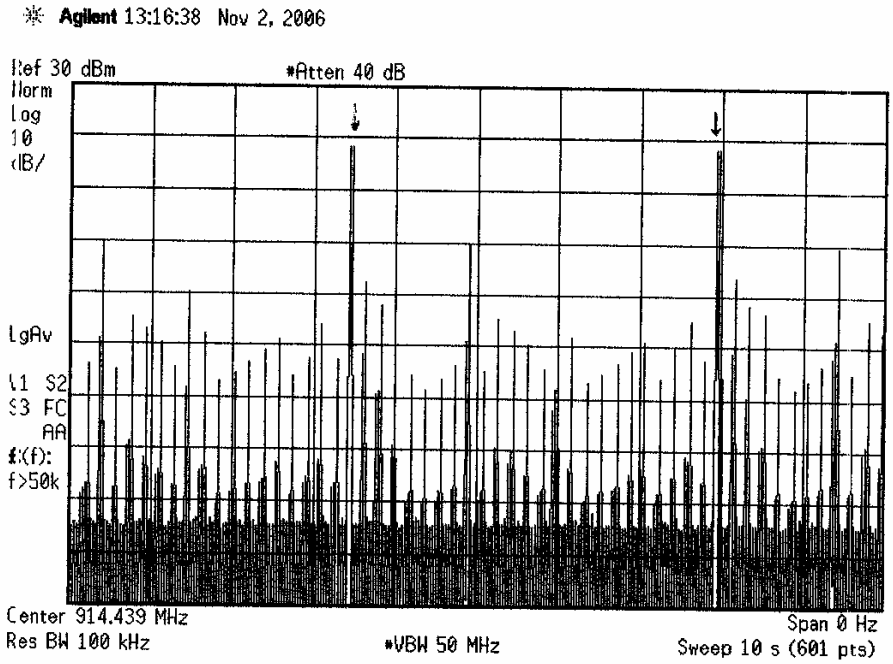
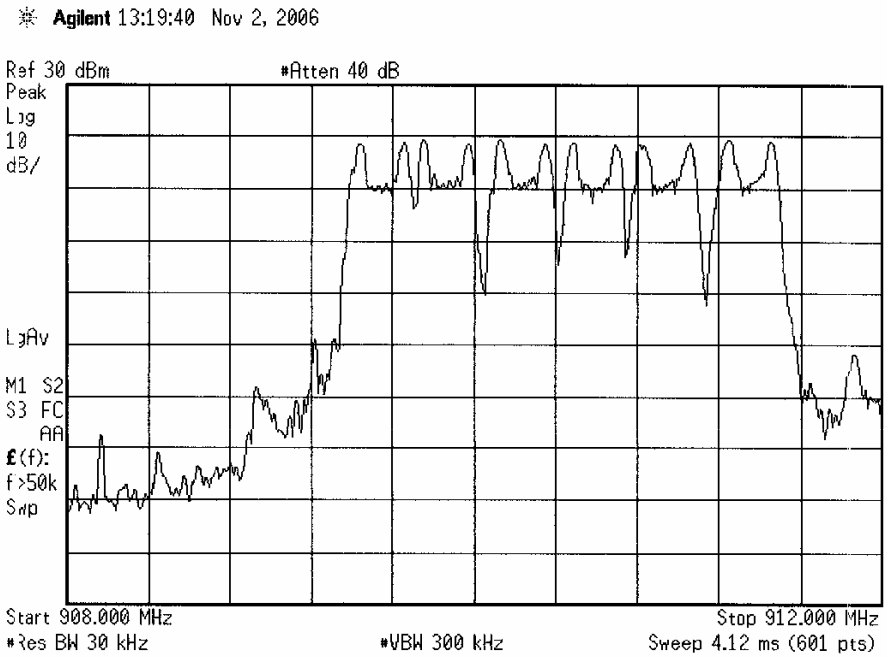
Part 15.247(a)(1)(i), RSS-Gen 4.3, Time of Occupancy (→on channel transmissions)



Part 15.247(a)(1)(i), RSS 210, Annex 8, A8.1, Number of Channels (Number of channels – 6)



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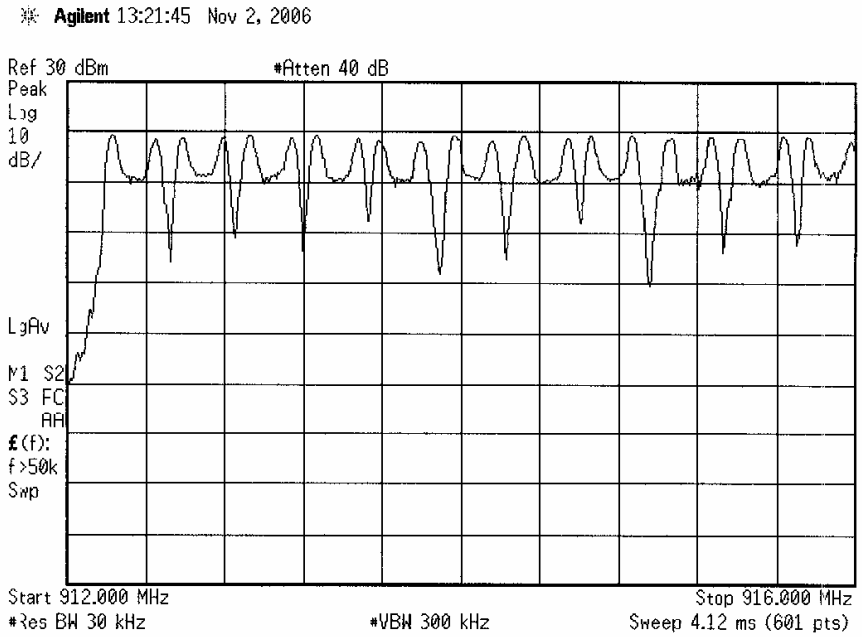
Part 15.247(a)(1)(i), RSS 210, Annex 8, A8.1, Number of Channels (Number of channels – 11)



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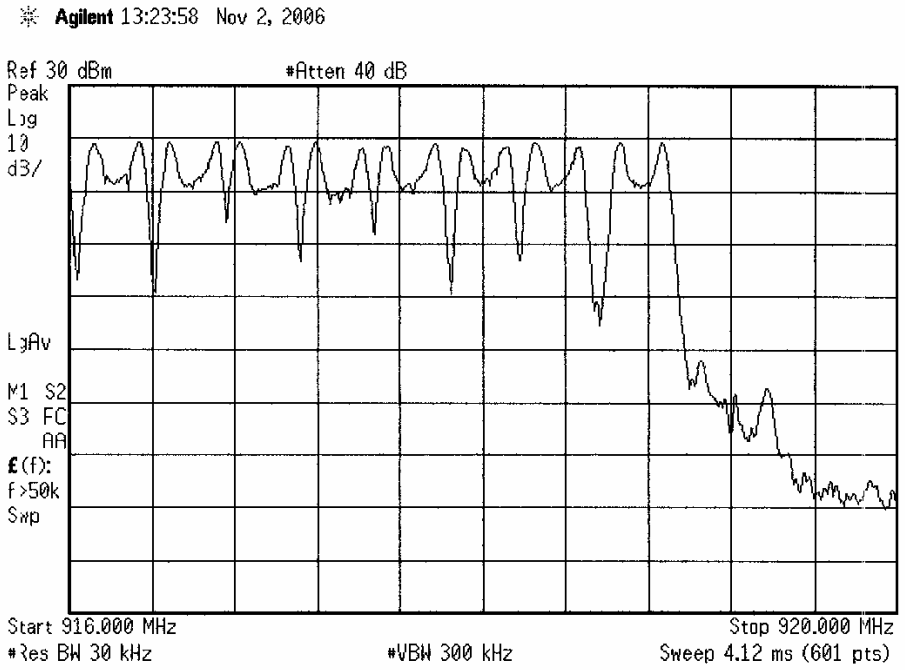
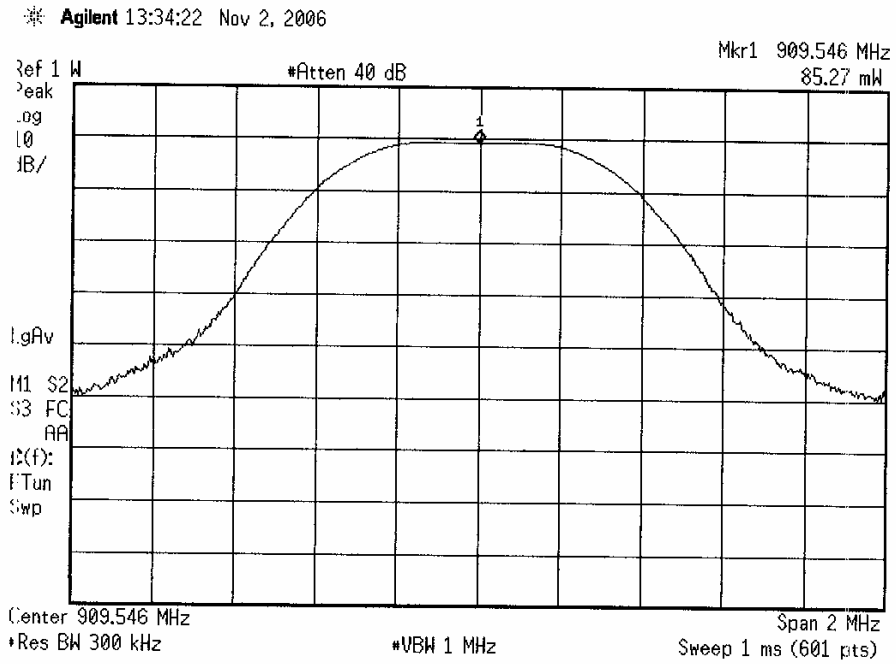
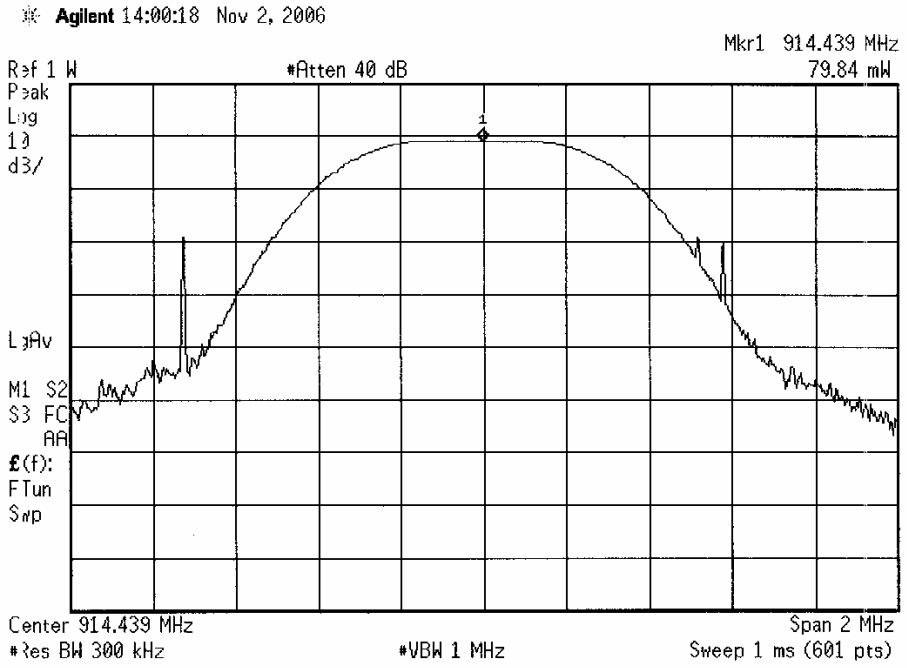
Part 15.247(a)(1)(i), RSS 210, Annex 8, A8.1, Number of Channels (Number of channels – 8)



Part 15.247(b)(1), RSS 210, Annex 8, A8.4, RSS-Gen 4.6, Peak Output Power (Low channel f_o)



Part 15.247(b)(1), RSS 210, Annex 8, A8.4, RSS-Gen 4.6, Peak Output Power (Mid channel f_{12})



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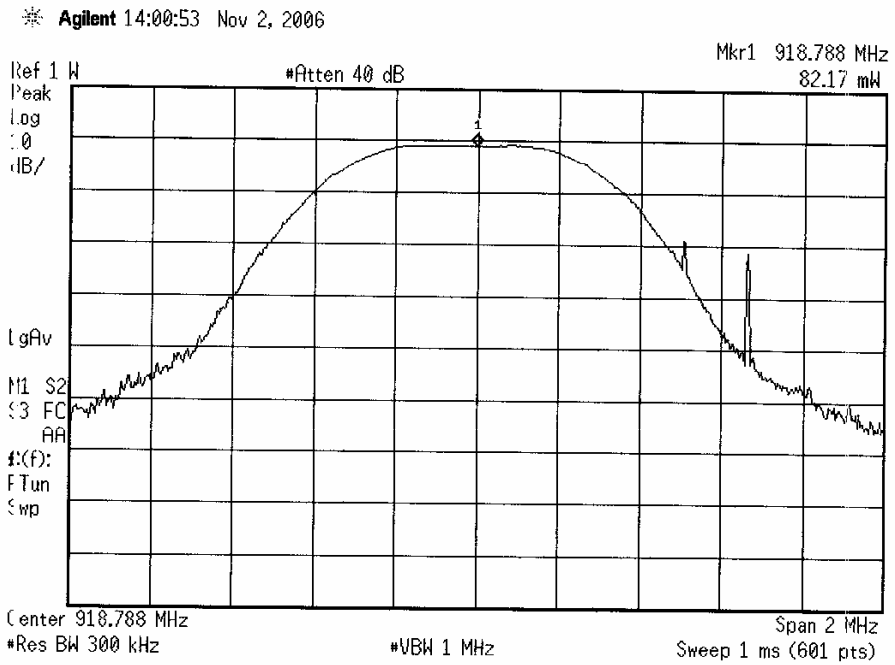
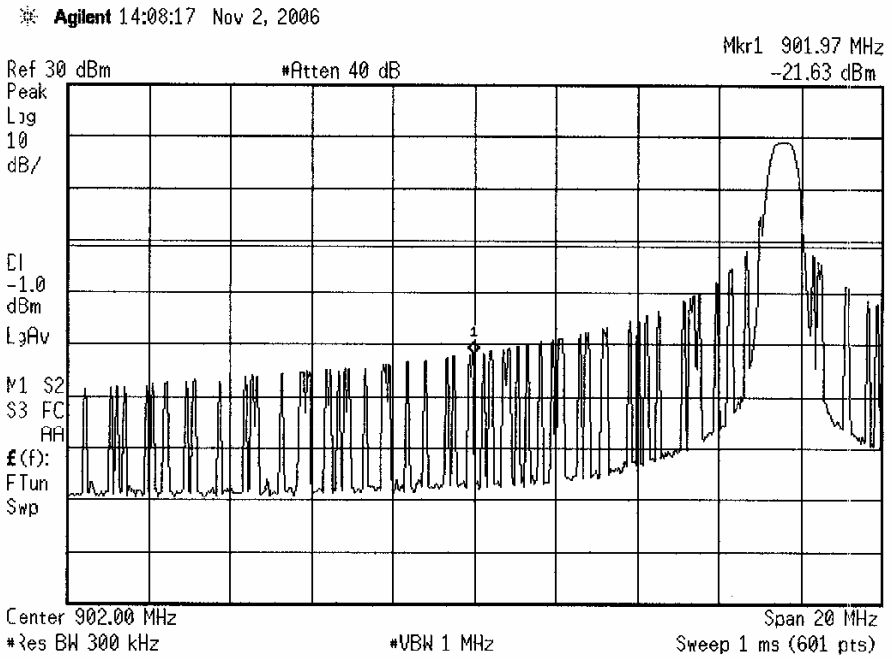
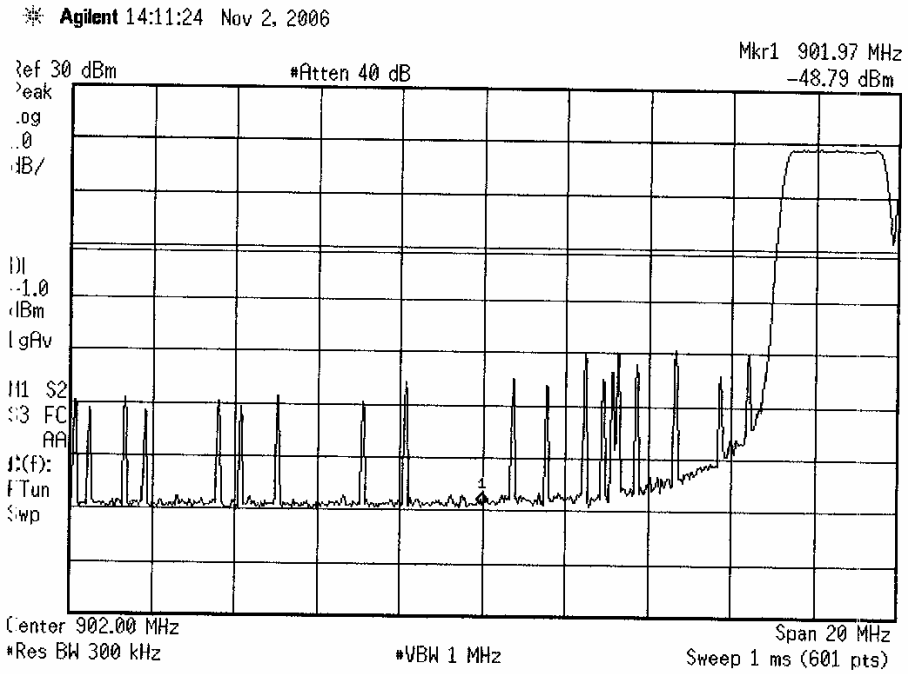
Part 15.247(b)(1), RSS 210, Annex 8, A8.4, RSS-Gen 4.6, Peak Output Power (High channel f_{24})



Part 15.247(c), RSS-Gen 4.4.2, Bandedge, Lower bandedge, Low channel fixed



Part 15.247(c), RSS-Gen 4.4.2, Bandedge, Lower bandedge, hopping



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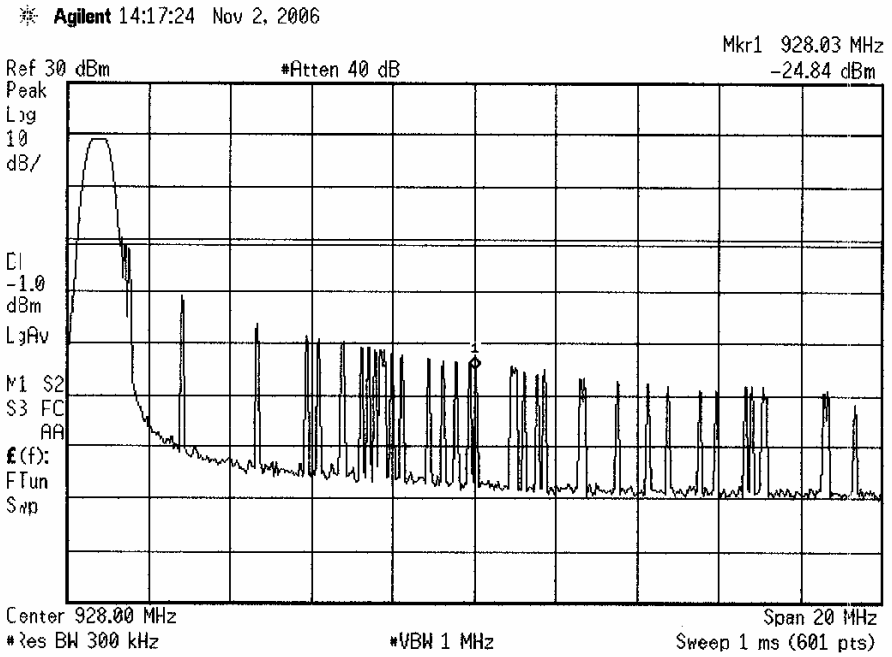
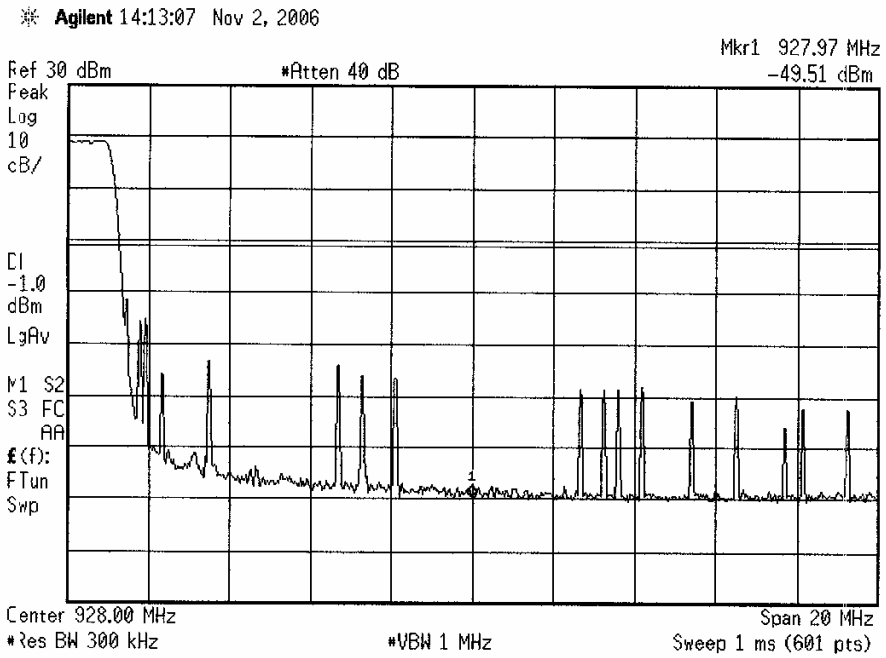
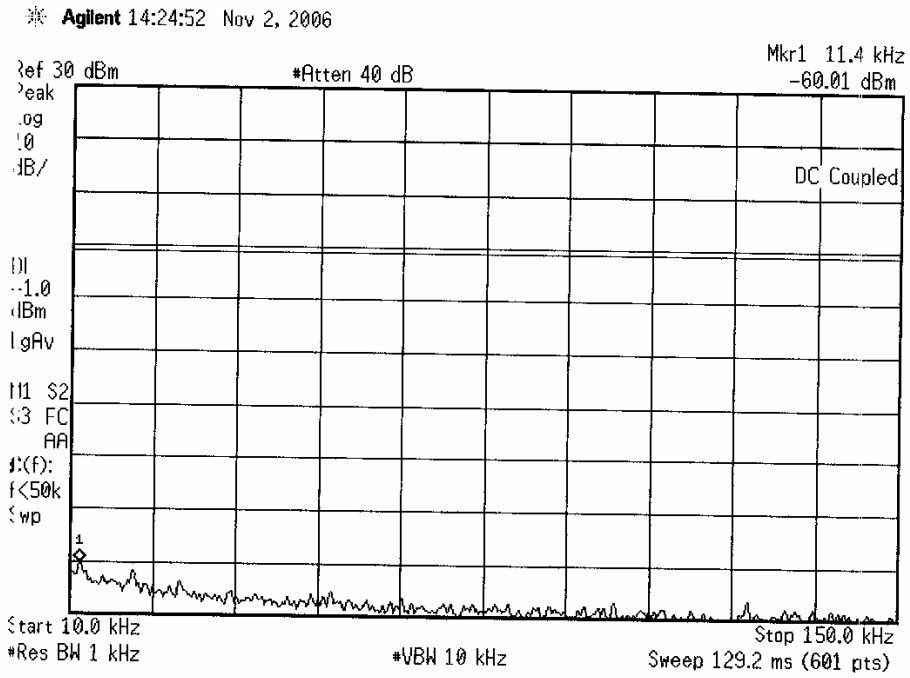
Part 15.247(c), RSS-Gen 4.4.2, Bandedge, Upper bandedge, High channel fixed



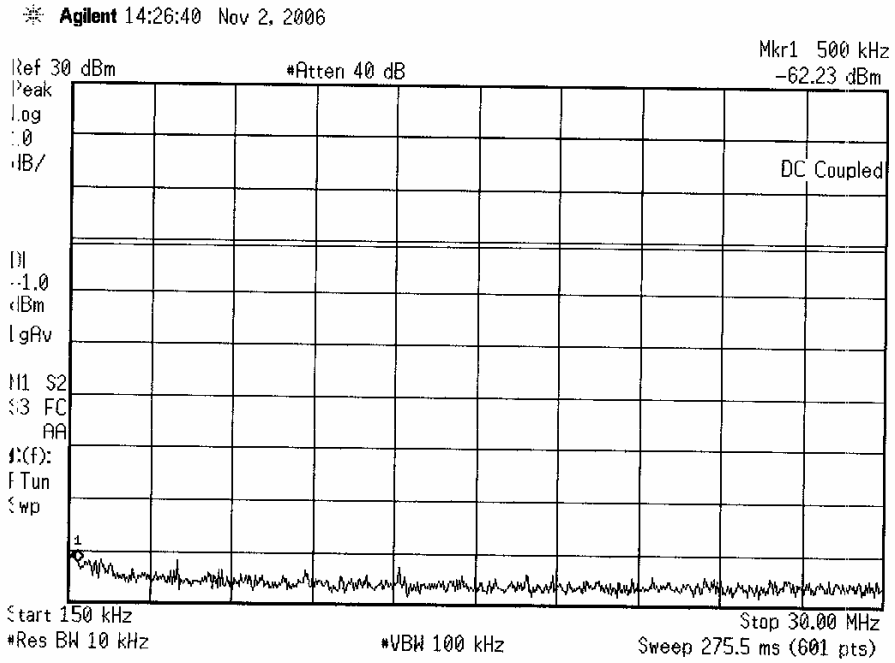
Part 15.247(c), RSS-Gen 4.4.2, Bandedge, Upper bandedge, hopping



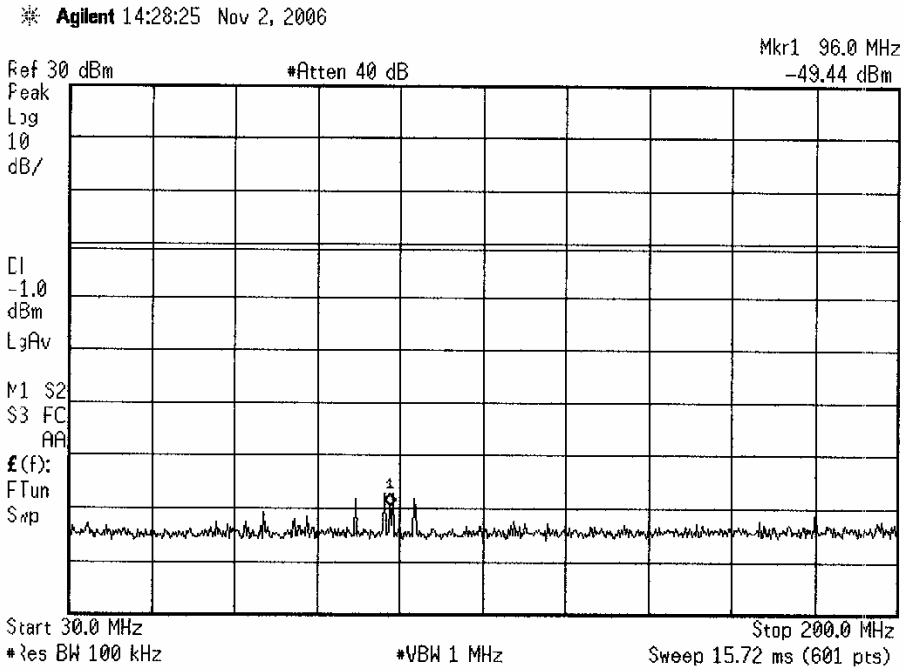
Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Low channel



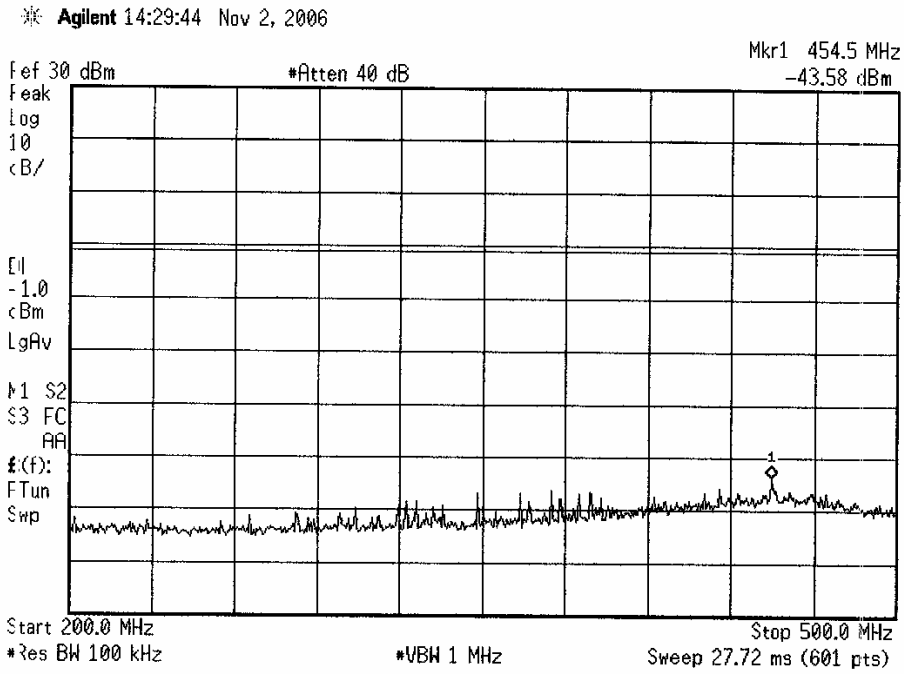
Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Low channel



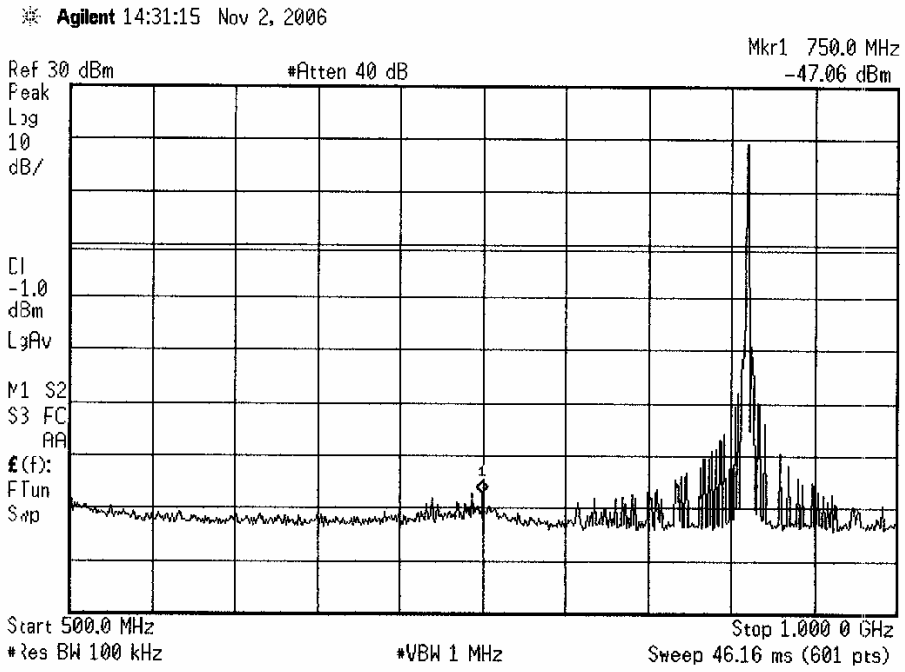
Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Low channel



Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Low channel



Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Low channel



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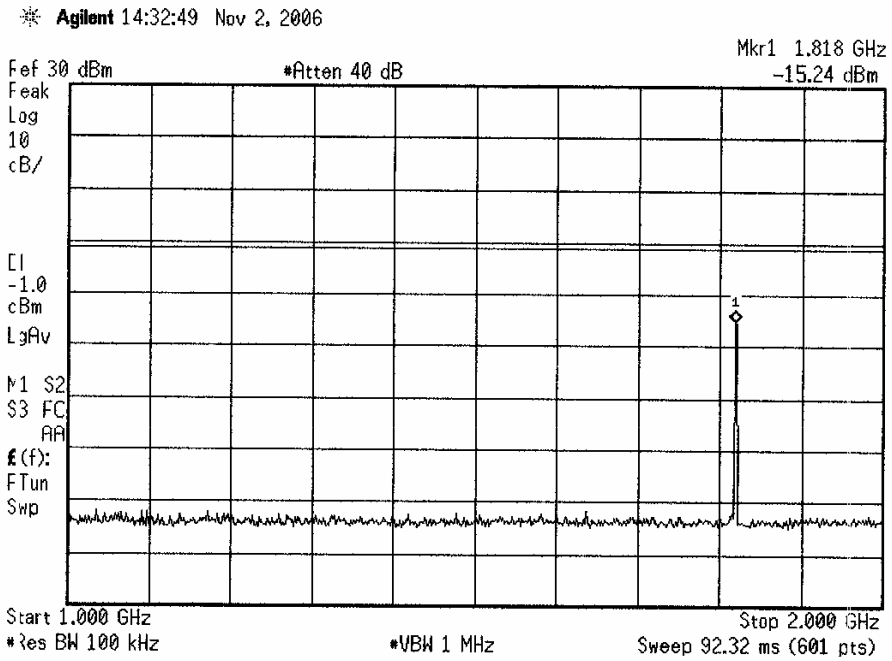
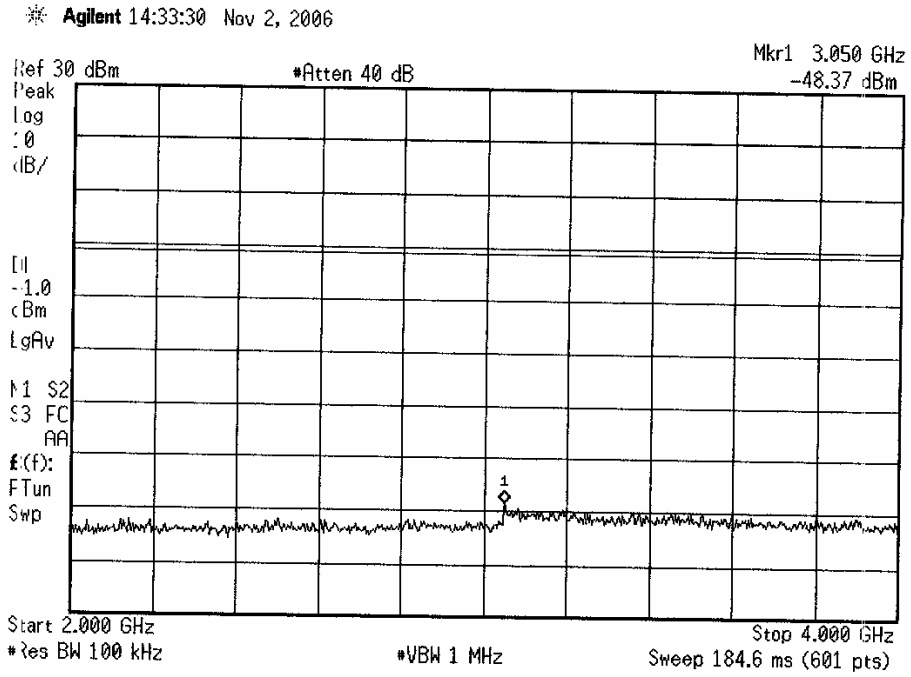
Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Low channel



Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Low channel



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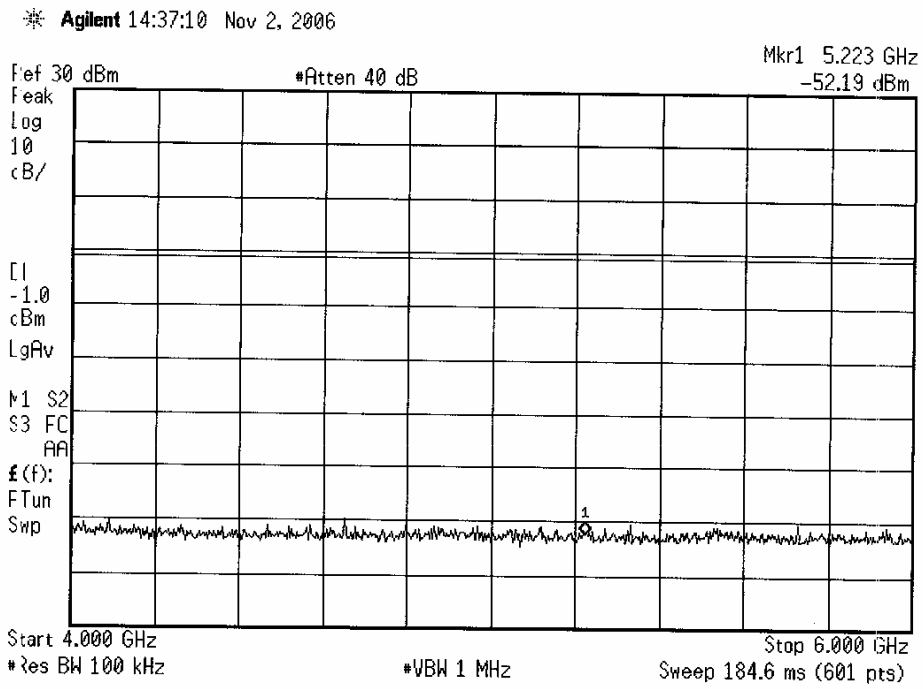
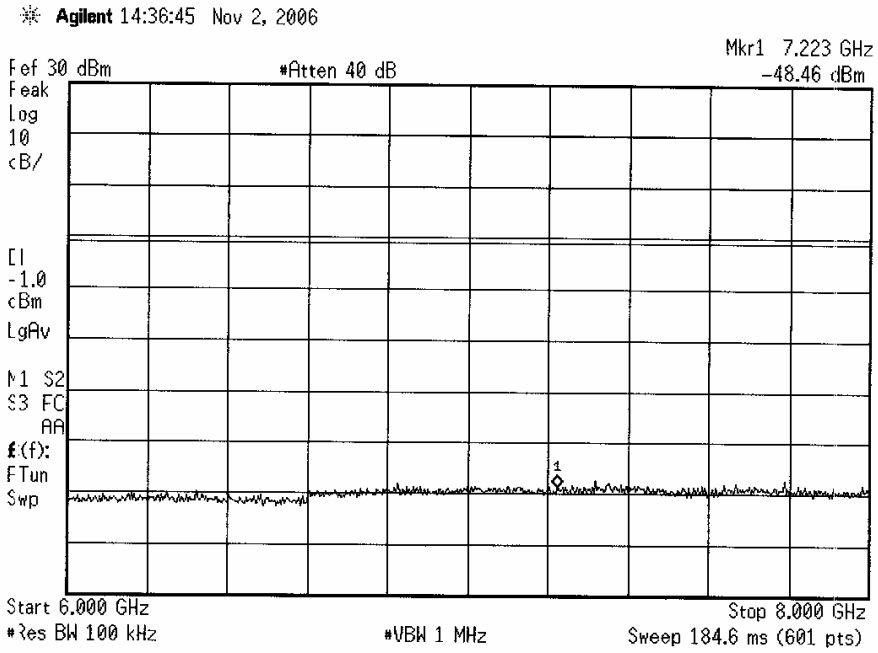
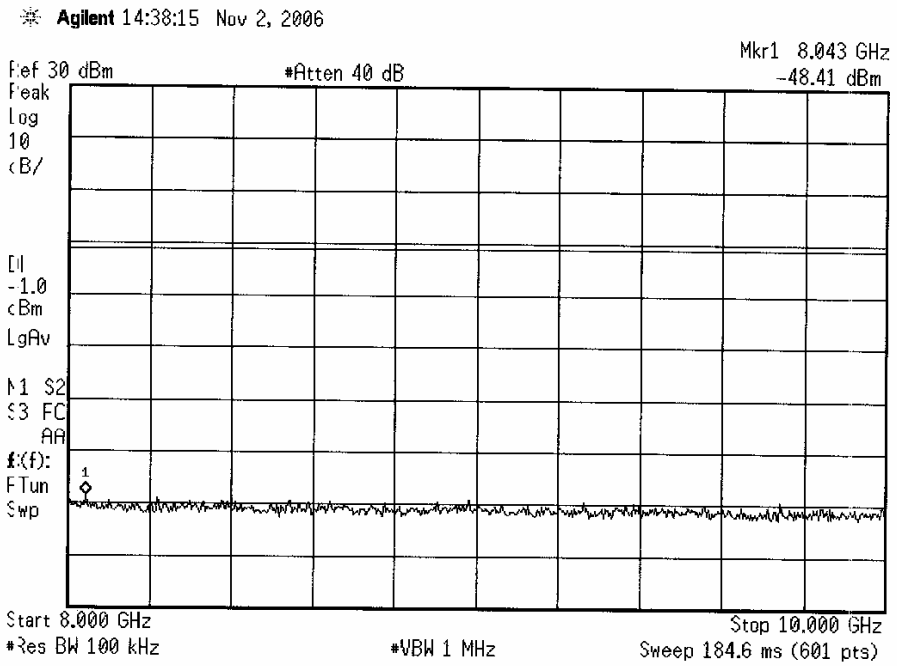
Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Low channel



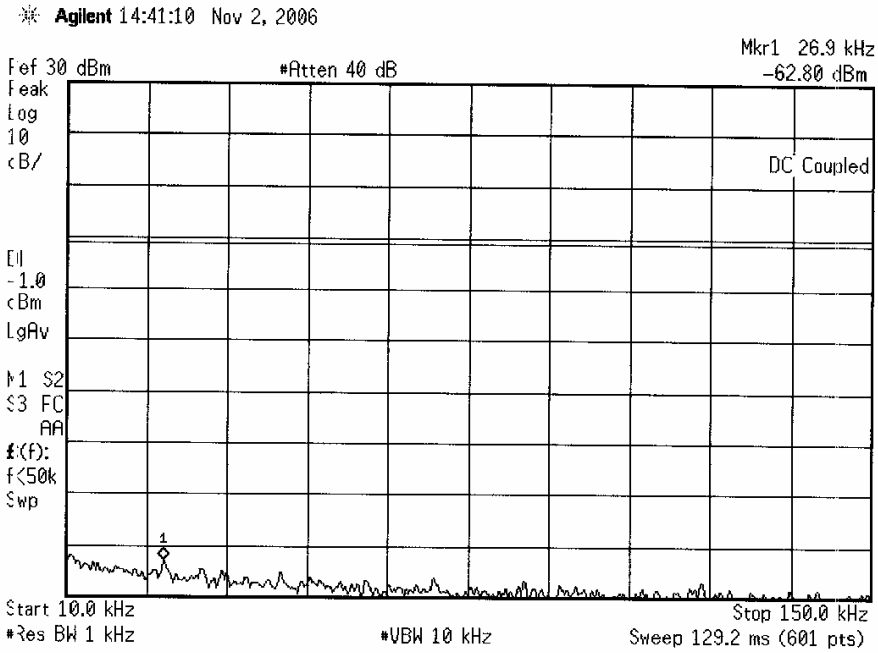
Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Low channel



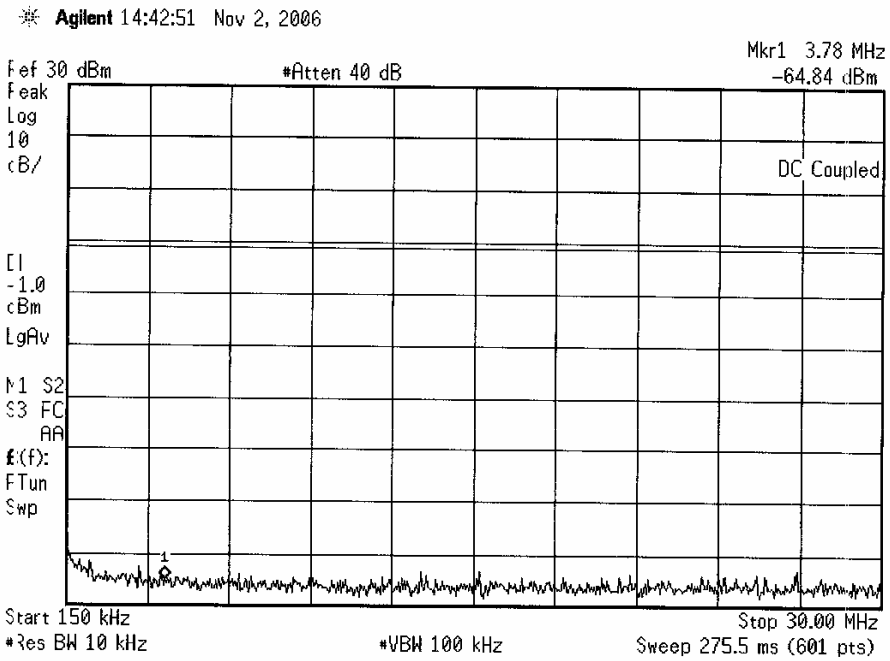
Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Low channel



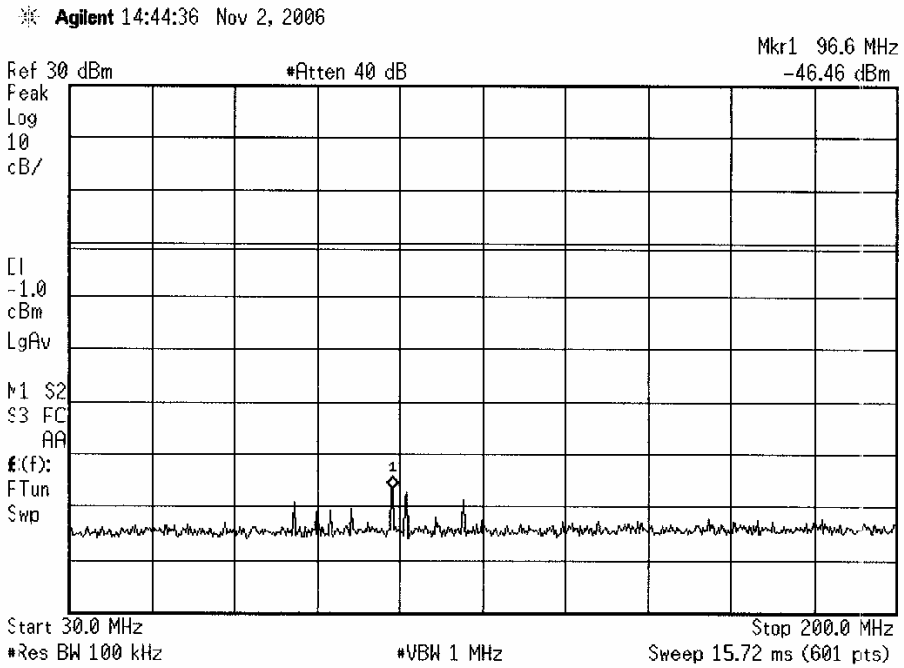
Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Mid channel



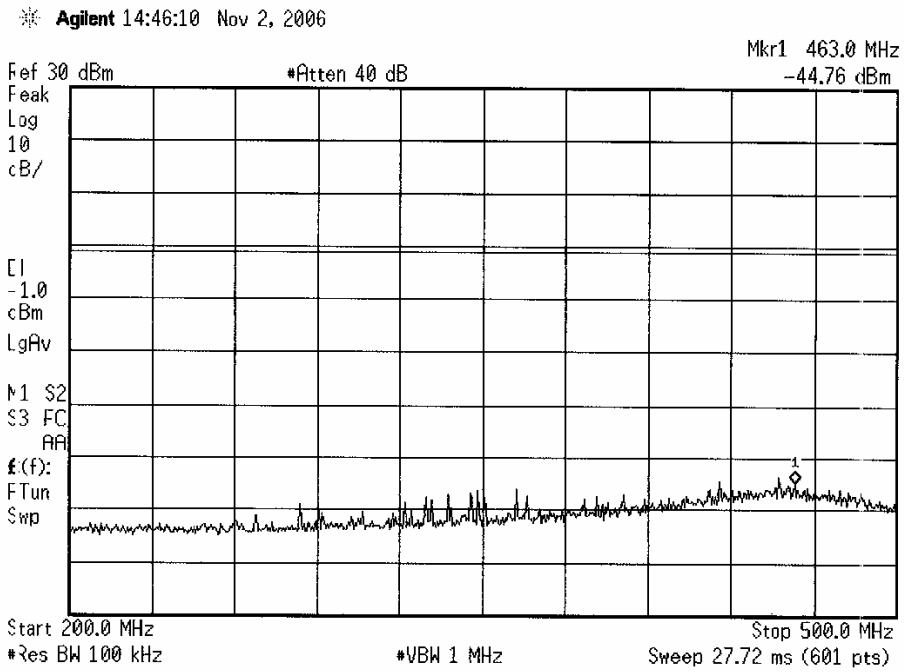
Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Mid channel



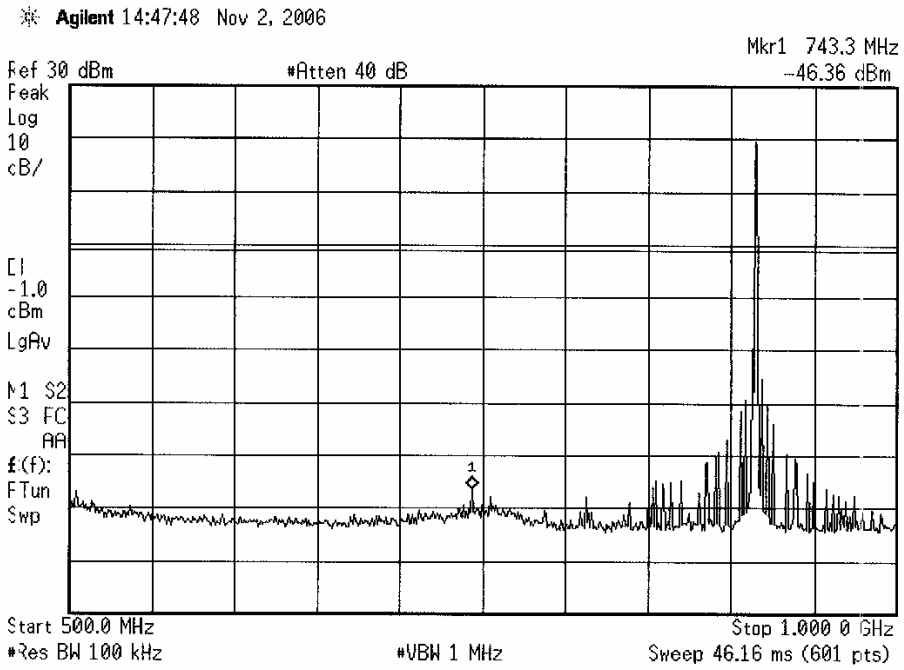
Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Mid channel



Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Mid channel



Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Mid channel



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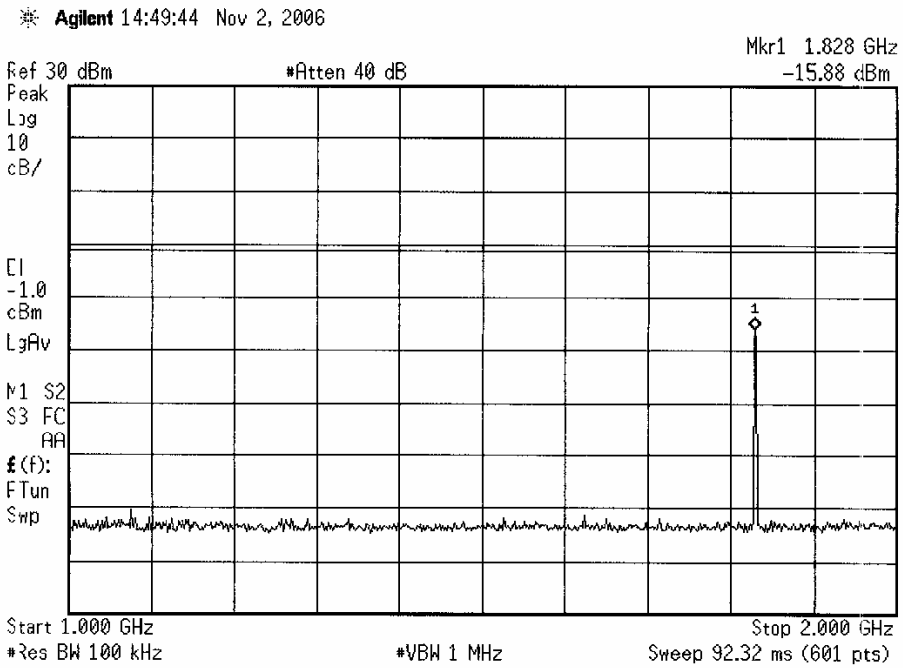
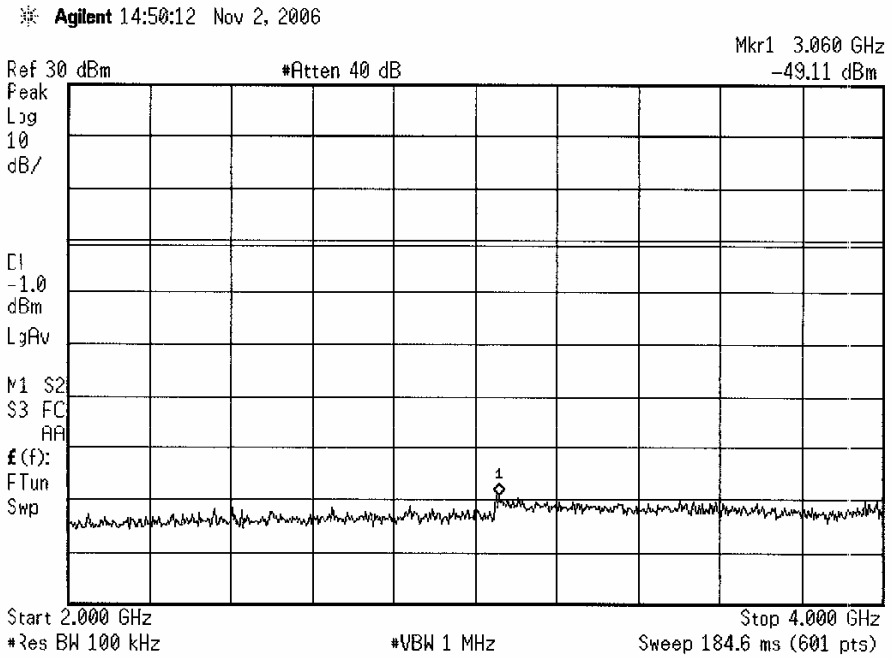
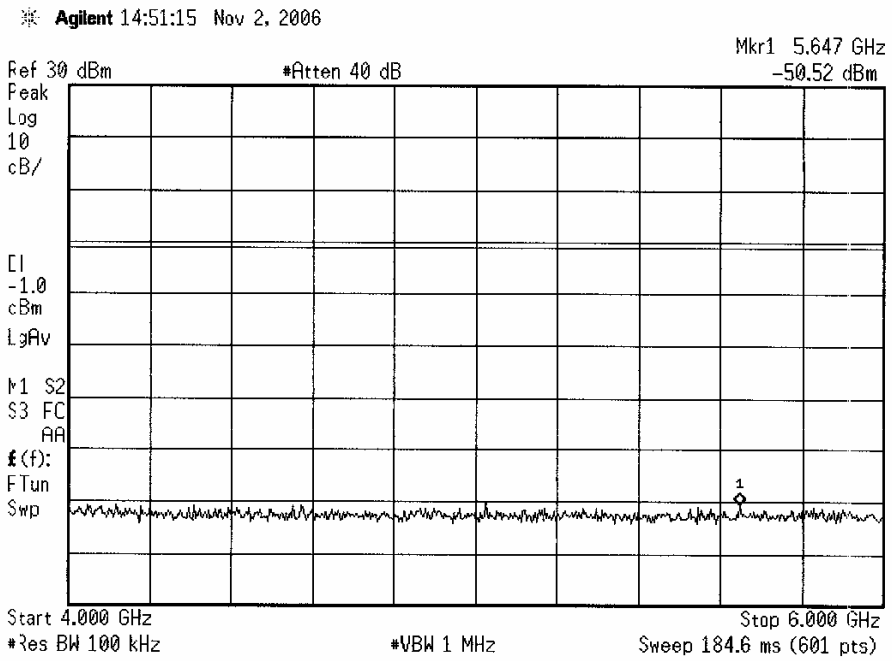
Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Mid channel



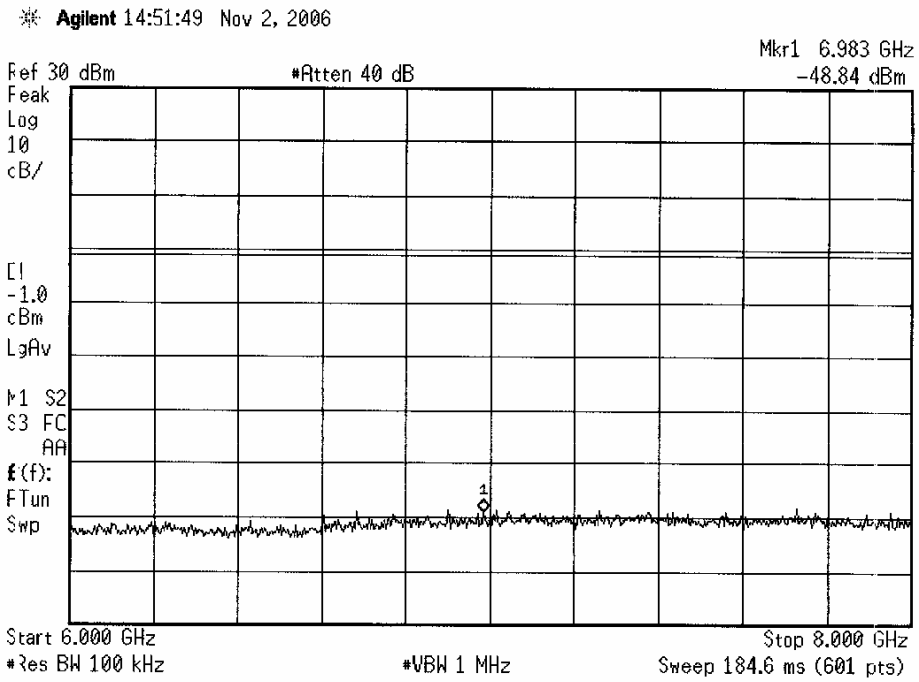
Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Mid channel



Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Mid channel

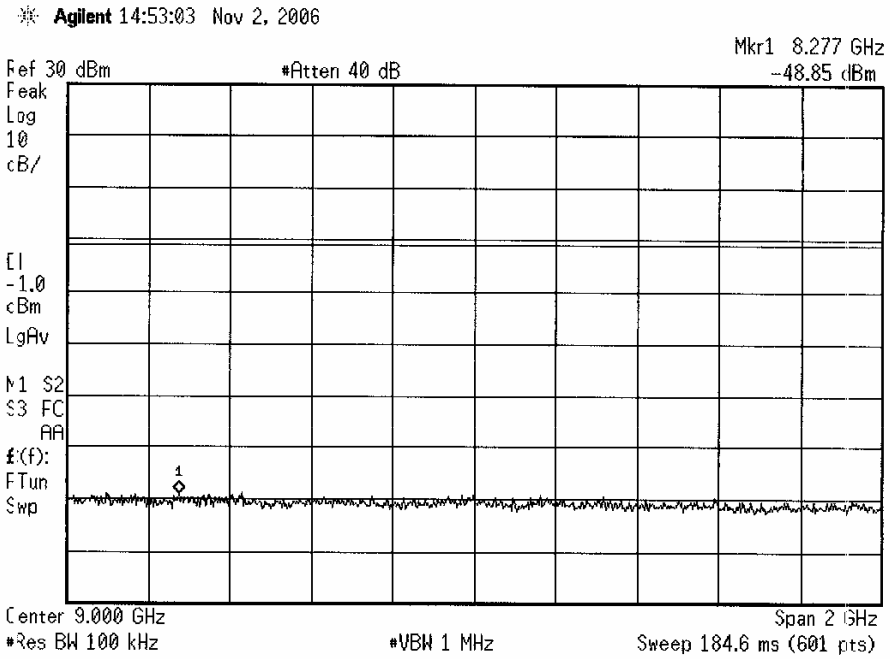


Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Mid channel

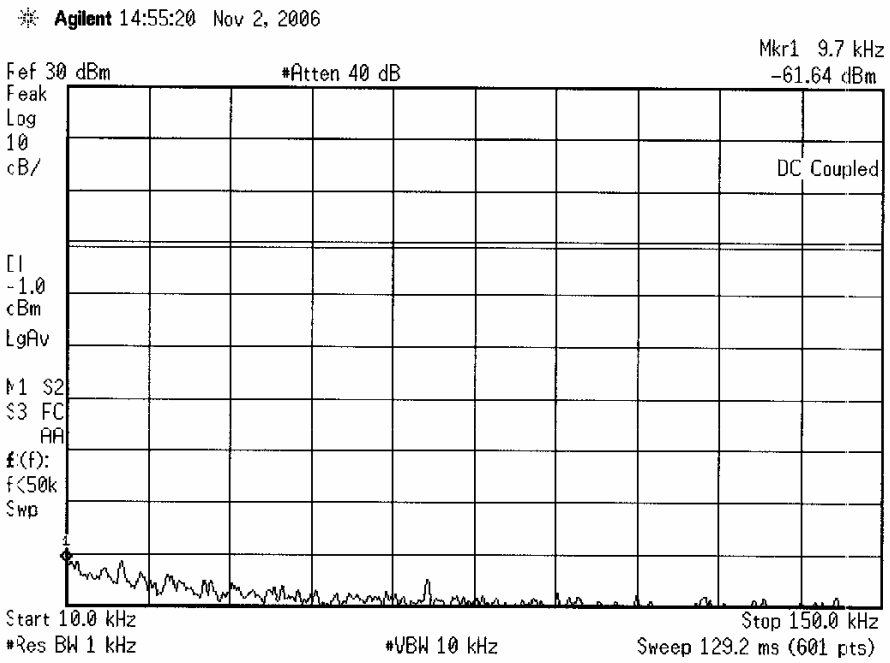


TÜV AMERICA INC 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 678 1400 FAX 858 546 0364

Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, Mid channel



Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, High channel



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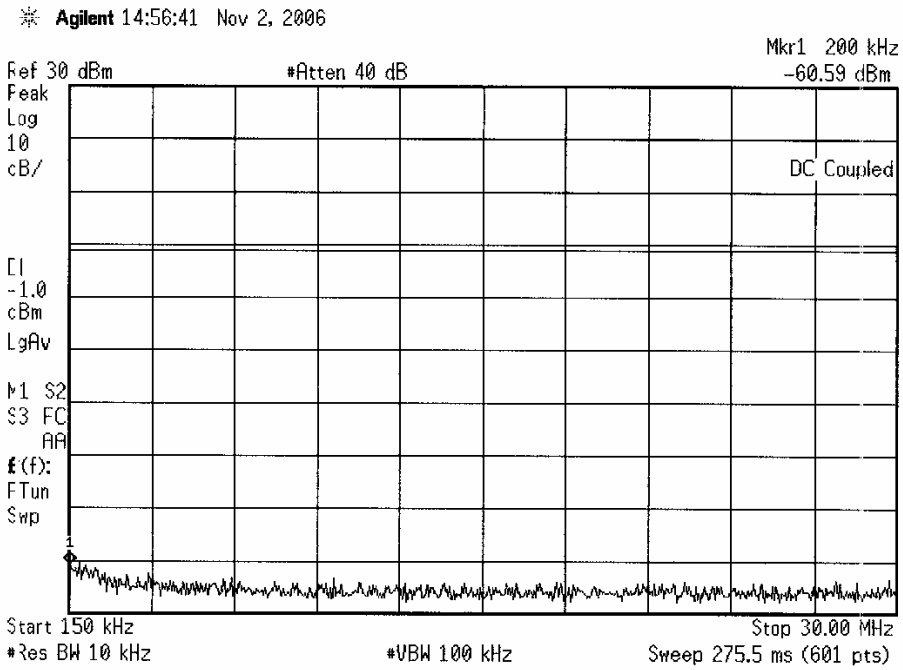
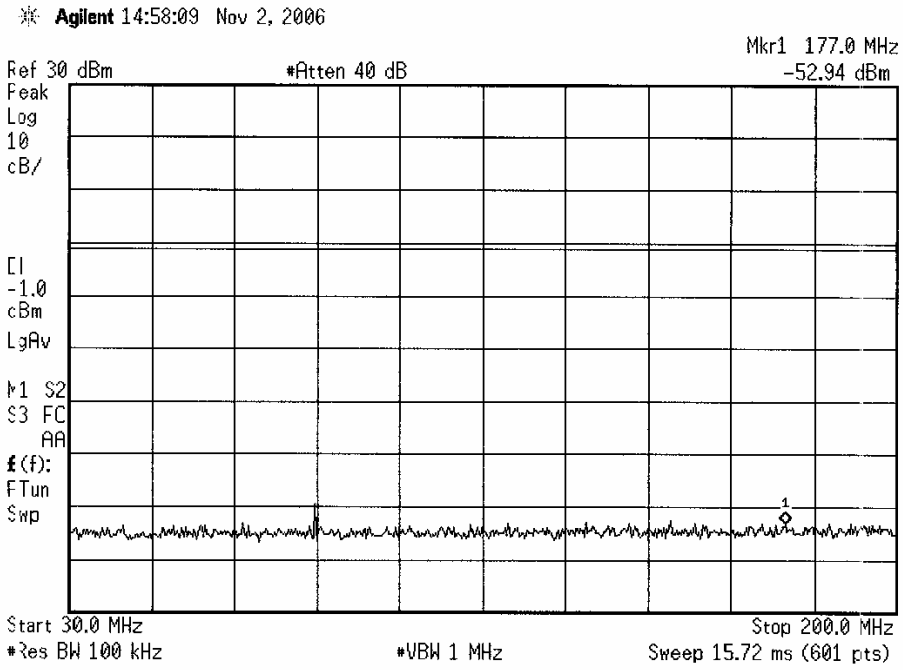
Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, High channel



Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, High channel



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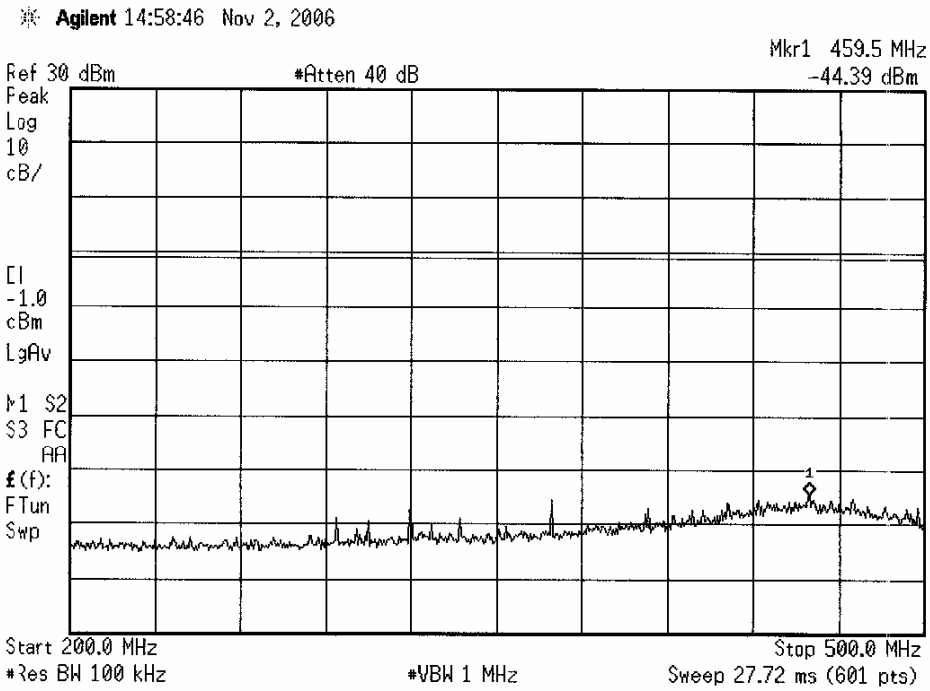
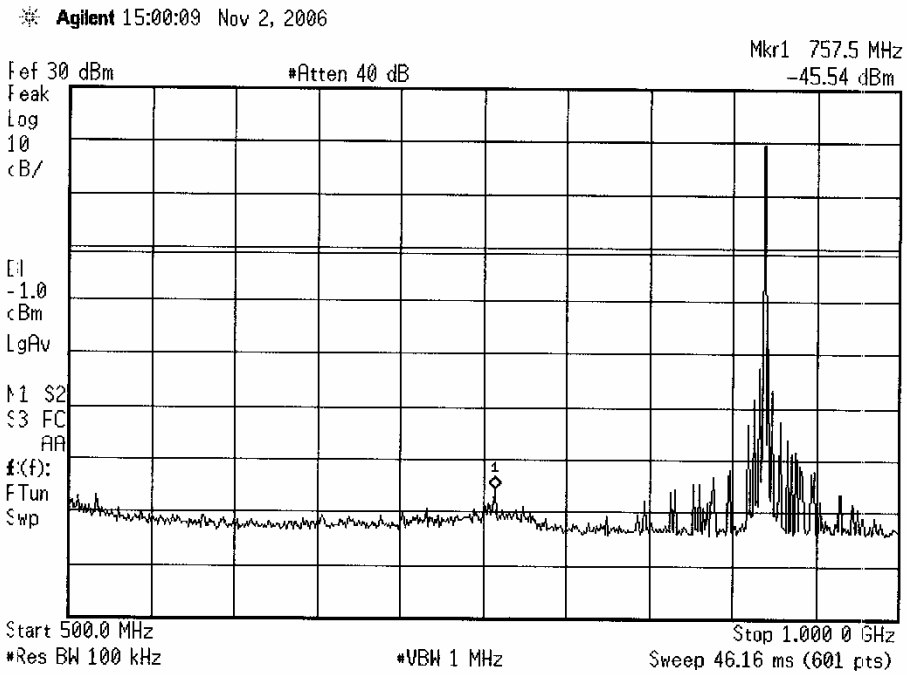
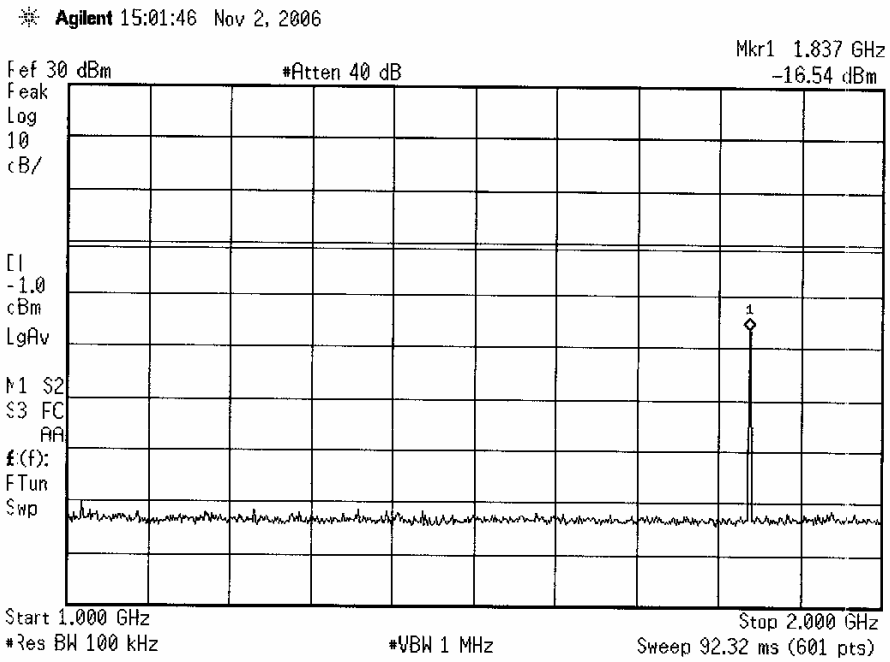
Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, High channel



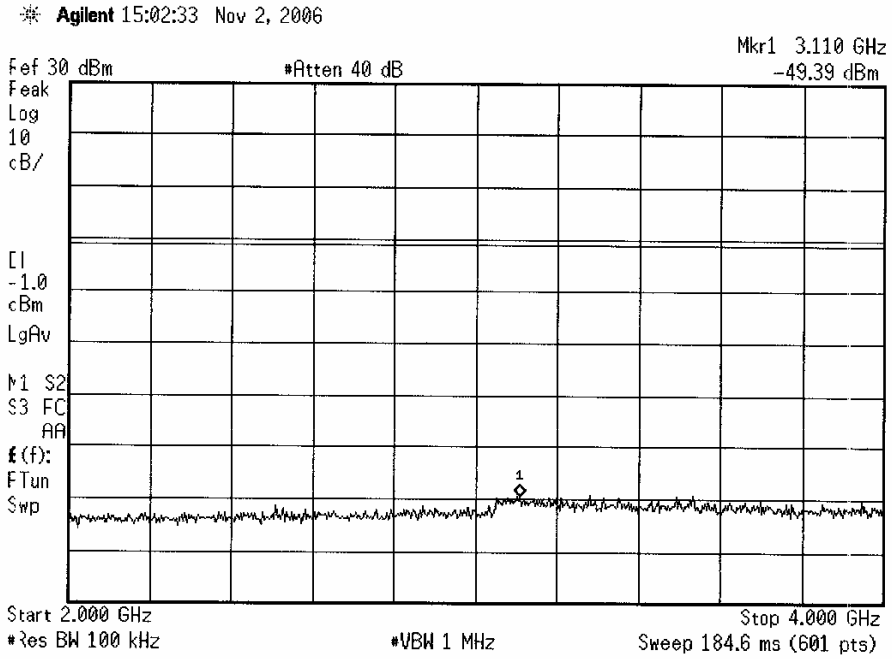
Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, High channel



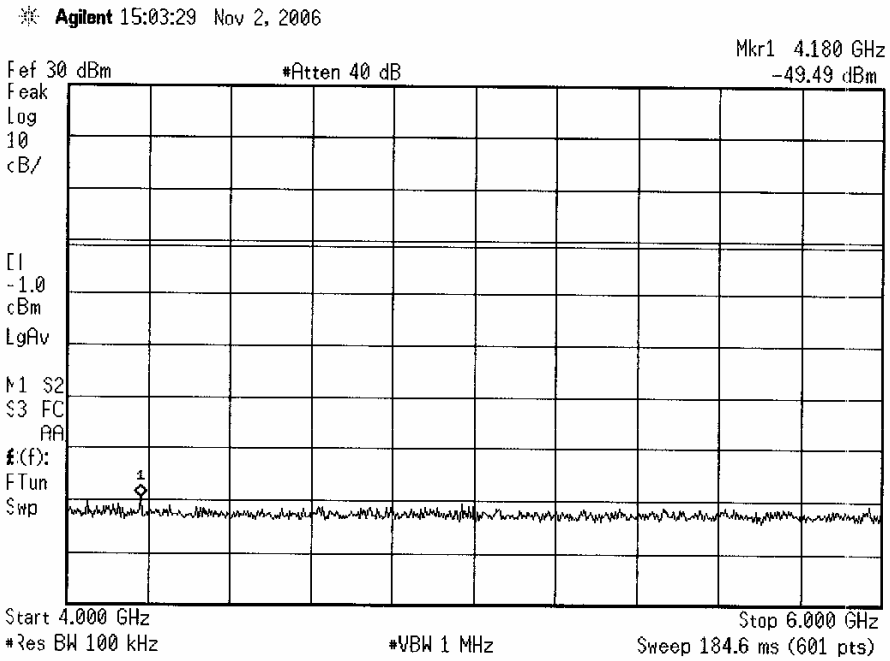
Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, High channel



Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, High channel

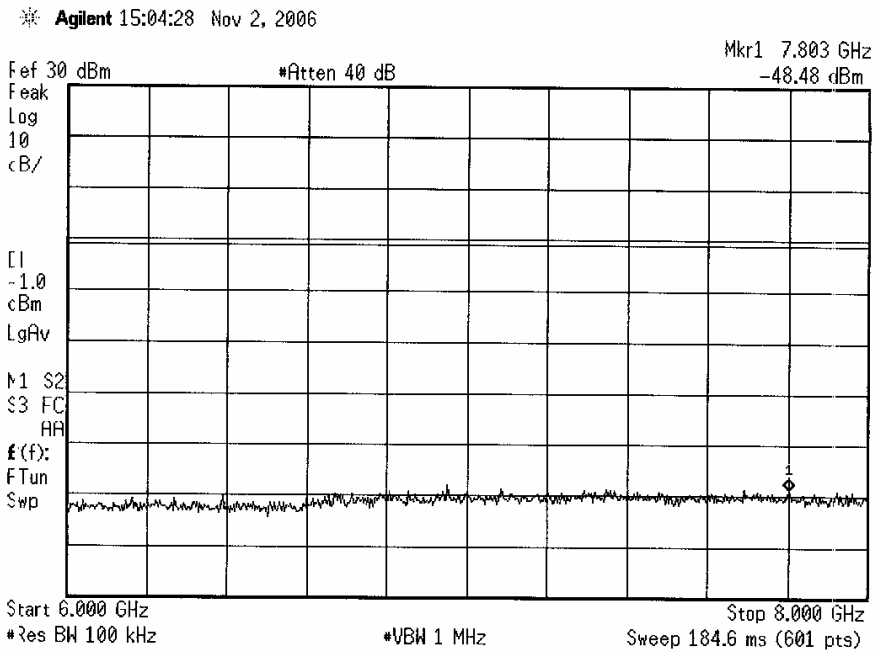


Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, High channel



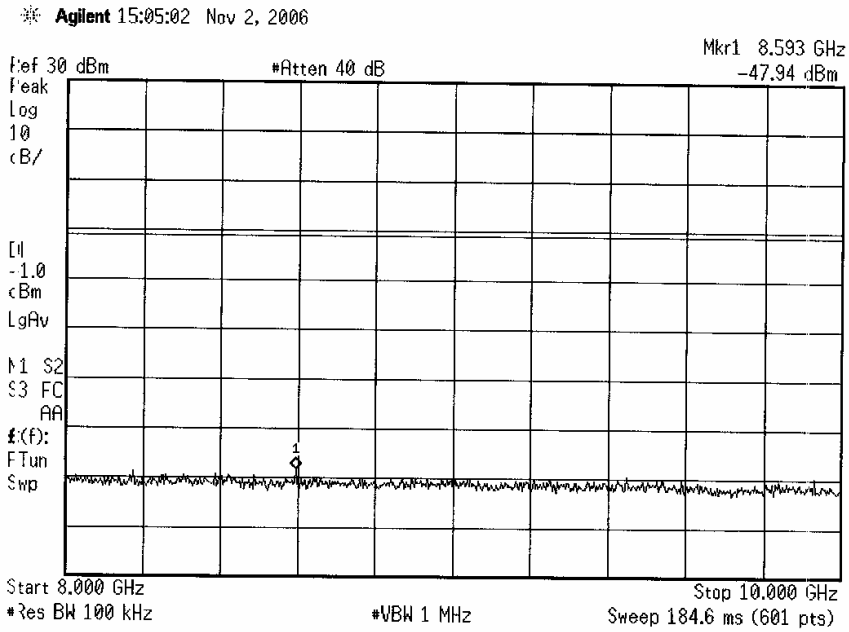
TÜV AMERICA INC 10040 Mesa Rim Road San Diego, CA 92121-2912 Phone 858 678 1400 FAX 858 546 0364

Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, High channel



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

Part 15.247(c), RSS-Gen 7.2.2, Spurious RF Conducted, High channel



REPORT No: SC606222 TESTER: David Gray SPEC: FCC Part 15 para 15.209(a) 15.247(C)
RSS210 ANNEX 2, A2.9

CUSTOMER: DI Headquarters Inc. TEST DIST: 3 Meters

E U T: Model 904200 Remote Key Fob TEST SITE: Roof

EUT MODE: normal BICONICAL: 491

DATE: November 3, 2006 LOG: 243

NOTES: OTHER: 453

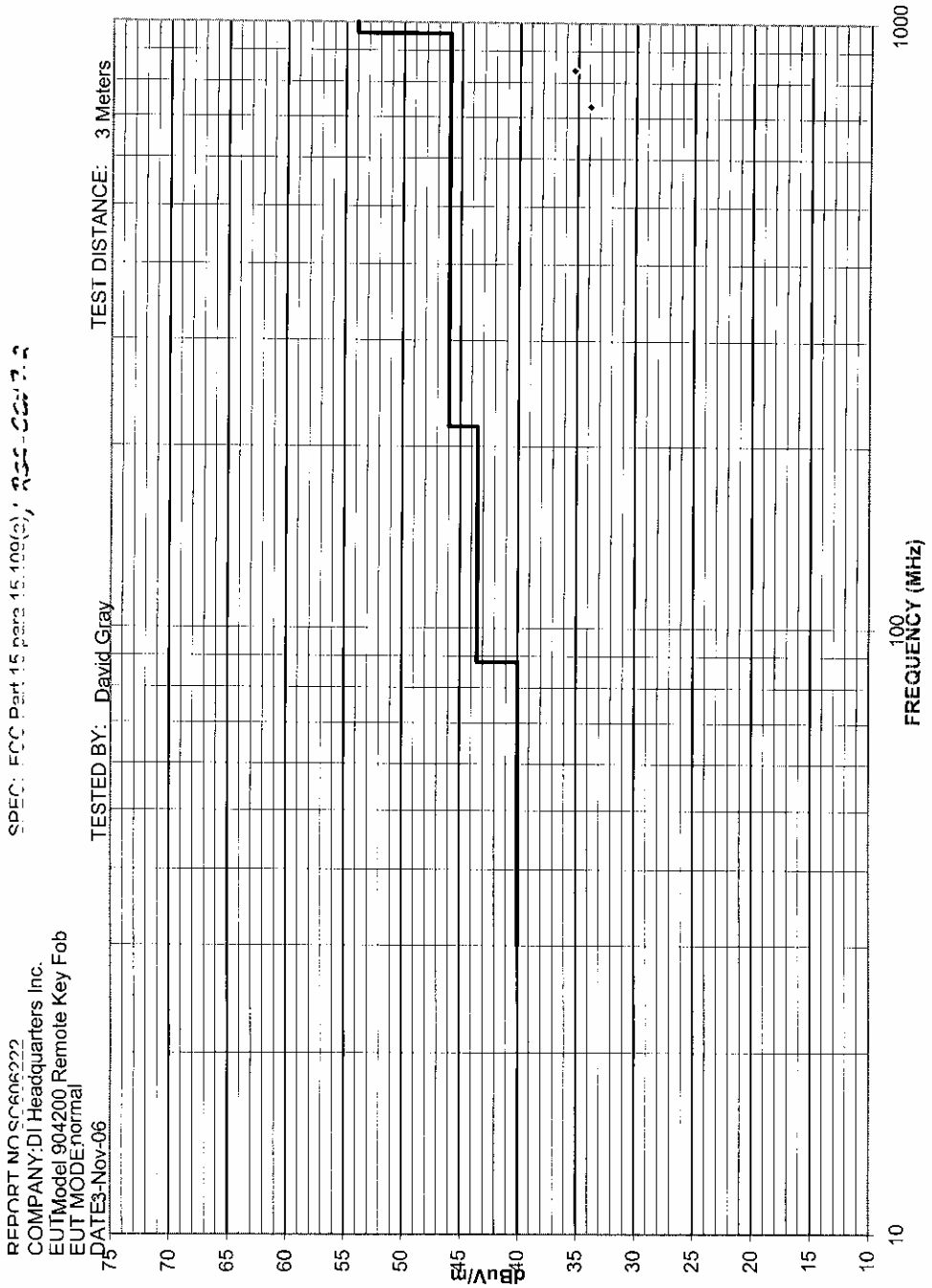
above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

below 1GHz: RBW & VBW 100 kHz for Pk; RBW 100kHz and VBW 10Hz for AVG

CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss

v.beta1a

FREQ (MHz)	VERTICAL (dBuv) pk	VERTICAL (dBuv) av	HORIZONTAL (dBuv) pk	HORIZONTAL (dBuv) av	CF (dB/m)	MAX LEVEL (dBuV/m) pk	MAX LEVEL (dBuV/m) av	SPEC LIMIT (dBuV/m) pk	SPEC LIMIT (dBuV/m) av	MARGIN (dB) pk	MARGIN (dB) av	EUT Rotation	Antenna Height	Notes
2728.63	50.9	44.9	51.7	45.8	-1.12822	**50.57**	**44.7**	74	54	-23.4	-9.33	180	1.7	
2743.32	51.6	47.8	44.7	38	-1.04008	**50.56**	**46.8**	74	54	-23.4	-7.24	0	1.1	
2756.34	51.6	47.6	49.1	45.3	-0.96196	**50.64**	**46.6**	74	54	-23.4	-7.36	180	1.1	
3638.18	23.8	13.8	24	13.8	2.68036	**26.68**	**16.5**	74	54	-47.3	-37.5	0	1	noise
3657.76	24.7	13.9	23.2	14	2.76259	**27.46**	**16.8**	74	54	-46.5	-37.2	0	1	
3675.12	23.9	14.2	24	14.2	2.8355	**26.84**	**17**	74	54	-47.2	-37	0	1	
4547.73	23.2	13.1	21.9	13.1	3.13865	**26.34**	**16.2**	74	54	-47.7	-37.8	0	1	noise
4572.2	22.5	13.2	23.3	13.2	3.261	**26.56**	**16.5**	74	54	-47.4	-37.5	0	1	
4593.9	23.5	13.5	25.6	13.5	3.3695	**28.97**	**16.9**	74	54	-45	-37.1	0	1	
5457.28	23.5	12.9	23.2	12.9	5.85728	**29.36**	**18.8**	74	54	-44.6	-35.2	0	1	noise
5486.63	23.9	13.1	21.7	13.1	5.88663	**29.79**	**19**	74	54	-44.2	-35	0	1	
5512.68	25.6	13.3	23.8	13.3	5.96847	**31.57**	**19.3**	74	54	-42.4	-34.7	0	1	
7276.37	24.5	15.2	26.5	15.2	10.2527	**36.75**	**25.5**	74	54	-37.2	-28.5	0	1	noise
7315.51	24.1	15.4	27.1	15.4	10.331	**37.43**	**25.7**	74	54	-36.6	-28.3	0	1	
7350.24	24.9	15.5	26.4	15.5	10.4005	**36.8**	**25.9**	74	54	-37.2	-28.1	0	1	
8185.91	24.6	14.5	25.8	14.5	11.709	**37.51**	**26.2**	74	54	-36.5	-27.8	0	1	noise
8229.95	26.5	14.6	24.1	14.6	11.8059	**38.31**	**26.4**	74	54	-35.7	-27.6	0	1	
8269.02	27	14.8	23.8	14.8	11.8918	**38.89**	**26.7**	74	54	-35.1	-27.3	0	1	
9095.46	23.9	14.1	23.2	14.1	14.1327	**38.03**	**28.2**	74	54	-36	-25.8	0	1	noise
9144.39	24.8	14	26.2	14	13.9957	**40.2**	**28**	74	54	-33.8	-26	0	1	
9187.8	25.1	14.5	25.6	14.5	13.8742	**39.47**	**28.4**	74	54	-34.5	-25.6	0	1	


REPORT NO:SC606222
COMPANY:DI Headquarters Inc.
EUT:Model 904200 Remote Key Fob
EUT MODE:normal
DATE:3-Nov-06
TESTED BY: David Gray
TEST DISTANCE: 3 Meters
dBuV/m
FREQUENCY (MHz)
75
70
65
60
55
50
45
40
35
30
25
20
15
10
10
100
1000

REPORT No: SC606222 SPEC: FCC Part 15 para 15.109(a)
RSS-GEN 7.2

CUSTOMER: DI Headquarters Inc. TEST DIST: 3 Meters

E U T: Model 904200 Remote Key Fob TEST SITE: 3

EUT MODE: normal BICONICAL: 491

DATE: 3-Nov-06 TESTED BY: David Gray LOG PERIODIC: 243

NOTES: Quasi-Peak with 120 KHz measurement bandwidth. RCVR: 7500

Temperature: 20 Relative Humidity: 30

EUT MARGIN -10.7 dB at 837 MHz ver 1.9

FREQUENCY (MHz)	VERTICAL measured (dBuv)	HORIZONTAL measured (dBuV)	CORRECTION FACTOR (dB/m)	MAXIMUM CORRECTED (dBuV/m)	SPECIFIED LIMIT (dBuV/m)	EUT MARGIN (dB)	EUT ROTATION (degrees)	ANTENNA HEIGHT (meters)
730.00	8.2	8.2	25.7	**33.9**	46	-12.1	0	1
837.00	8.3	8.3	27.0	**35.3**	46	-10.7	0	1

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

CONDUCTED EMISSIONS: FCC Part 15.107(a)

TUV America
Conducted Emissions

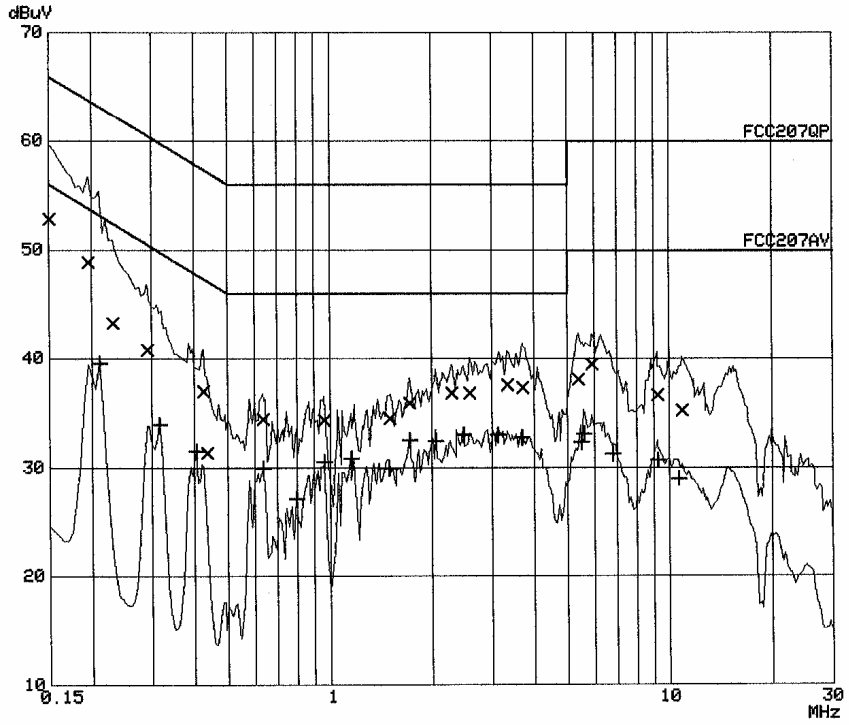
EUT: Directed Electronics
Manuf: 904200 HHR w/Dell USB Host power
Op Cond: Receive
Operator: Jim Owen
Test Spec: FCC 15.107(a)
Comment: 115 VAC 60Hz Line
SC601231
Date: 05. Jun 06 11:01

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	1M	5k	10k	PK+AV	100ms	AUTO	LN OFF	60dB
1M	30M	5k	10k	PK+AV	2ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
6	10k	30M	20dBLISN

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 20dB



PAGE 1

CONDUCTED EMISSIONS: FCC Part 15.107(a)

TUV America
Conducted Emissions

EUT: Directed Electronics
Manuf: 904200 HHR w/Dell USB Host power
Op Cond: Receive
Operator: Jim Owen
Test Spec: FCC 15.107(a)
Comment: 115 VAC 60Hz Line
SC601231
Date: 05. Jun 06 11:01

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.15000	52.8	66.0
0.19500	48.9	63.9
0.23000	43.2	62.4
0.29000	40.8	60.6
0.42500	37.0	57.4
0.43500	31.4	57.2
0.63500	34.4	56.0
0.96000	34.3	56.0
1.50000	34.5	56.0
1.71500	35.9	56.0
2.28000	36.8	56.0
2.58000	36.8	56.0
3.33500	37.5	56.0
3.70000	37.3	56.0
5.38500	38.0	60.0
5.92500	39.5	60.0
9.20000	36.6	60.0
10.87000	35.2	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.21000	39.5	53.2
0.31500	33.9	49.8
0.40500	31.5	47.8
0.63500	29.9	46.0
0.79500	27.1	46.0
0.96000	30.6	46.0
1.15000	30.8	46.0
1.49000	30.0	46.0
1.71500	32.6	46.0
2.04000	32.4	46.0
2.47000	33.0	46.0
3.12000	33.0	46.0
3.67000	32.8	46.0
5.50000	32.4	50.0
5.60500	33.1	50.0
6.81500	31.3	50.0
9.20000	30.7	50.0
10.62000	29.0	50.0

* limit exceeded

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

CONDUCTED EMISSIONS: FCC Part 15.107(a)

TUV America
Conducted Emissions

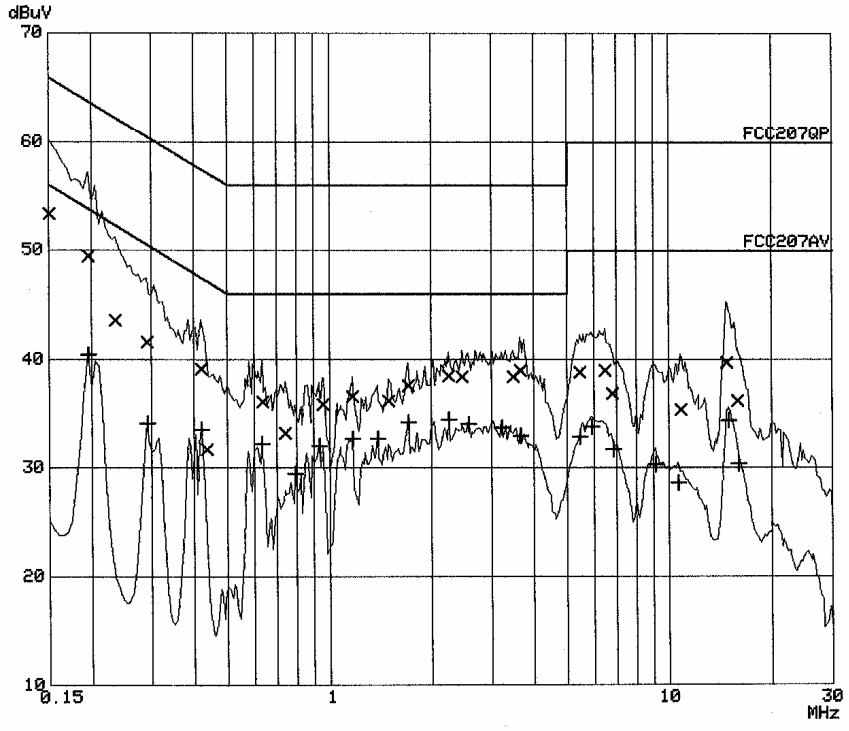
EUT:	Directed Electronics
Manuf:	904200 HHR w/Dell USB Host power
Op Cond:	Receive
Operator:	Jim Owen
Test Spec:	FCC 15.107(a)
Comment:	115 VAC 60Hz Neutral
	SC601231
Date:	05. Jun 06 10:52

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	1M	5k	10k	PK+AV	100ms	AUTO	LN OFF	60dB
1M	30M	5k	10k	PK+AV	2ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
6	10k	30M	20dBLISN

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 20dB



PAGE 1

CONDUCTED EMISSIONS: FCC Part 15.107(a)

TUV America
Conducted Emissions

EUT: Directed Electronics
Manuf: 904200 HHR w/Dell USB Host power
Op Cond: Receive
Operator: Jim Owen
Test Spec: FCC 15.107(a)
Comment: 115 VAC 60Hz Neutral
SC601231
Date: 05. Jun 06 10:52

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.15000	53.3	66.0
0.19500	49.4	63.9
0.23500	43.6	62.3
0.29000	41.6	60.6
0.42000	39.1	57.5
0.43500	31.7	57.2
0.63500	36.1	56.0
0.74000	33.2	56.0
0.95500	35.8	56.0
1.17000	36.6	56.0
1.49000	36.2	56.0
1.70500	37.6	56.0
2.24000	38.5	56.0
2.45500	38.4	56.0
3.48000	38.4	56.0
3.65000	38.9	56.0
5.47000	38.8	60.0
6.45500	39.0	60.0
6.81500	36.8	60.0
10.81000	35.4	60.0
14.73500	39.7	60.0
15.91000	36.1	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.19500	40.4	53.9
0.29000	34.1	50.6
0.42000	33.5	47.5
0.63000	32.2	46.0
0.79000	29.4	46.0
0.93000	32.0	46.0
1.17000	32.7	46.0
1.38500	32.7	46.0
1.70500	34.2	46.0
2.24500	34.4	46.0
2.55500	34.0	46.0
3.20500	33.7	46.0
3.64500	32.9	46.0
5.47000	32.9	50.0
5.91500	33.8	50.0
6.84500	31.7	50.0

PAGE 2

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CONDUCTED EMISSIONS: FCC Part 15.107(a)

Date: 05. Jun 06 10:52

9.10500	30.3	50.0
10.62000	28.6	50.0
14.94000	34.4	50.0
15.97000	30.4	50.0

* limit exceeded

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

CONDUCTED EMISSIONS: FCC Part 15.107(a)

TUV America
Conducted Emissions

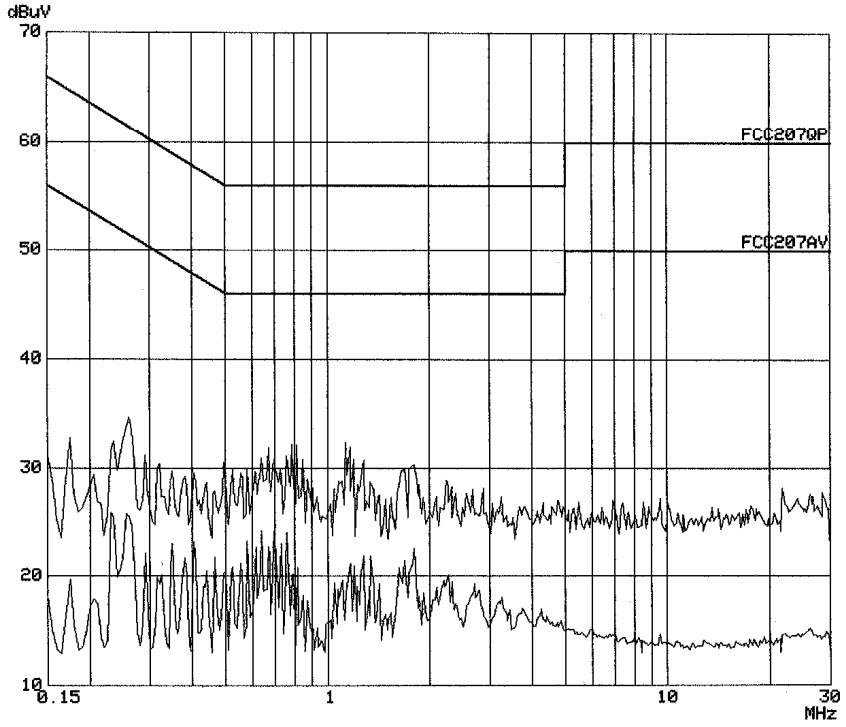
EUT:	Directed Electronics
Manuf:	904200 HHR w/TC-FC-USB
Op Cond:	Receive
Operator:	Jim Owen
Test Spec:	FCC 15.107(a)
Comment:	115 VAC 60Hz Line
	SC601231
Date:	05. Jun 06 10:18

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	1M	5k	10k	PK+AV	100ms	AUTO	LN OFF	60dB
1M	30M	5k	10k	PK+AV	2ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
6	10k	30M	20dBLISN

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 20dB



PAGE 1

CONDUCTED EMISSIONS: FCC Part 15.107(a)

TUV America
Conducted Emissions

EUT:	Directed Electronics
Manuf:	904200 HHR w/TC-FC-USB
Op Cond:	Receive
Operator:	Jim Owen
Test Spec:	FCC 15.107(a)
Comment:	115 VAC 60Hz Line
	SC601231
Date:	05. Jun 06 10:18

Final Measurement Results:

no Results

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

CONDUCTED EMISSIONS: FCC Part 15.107(a)

TUV America
Conducted Emissions

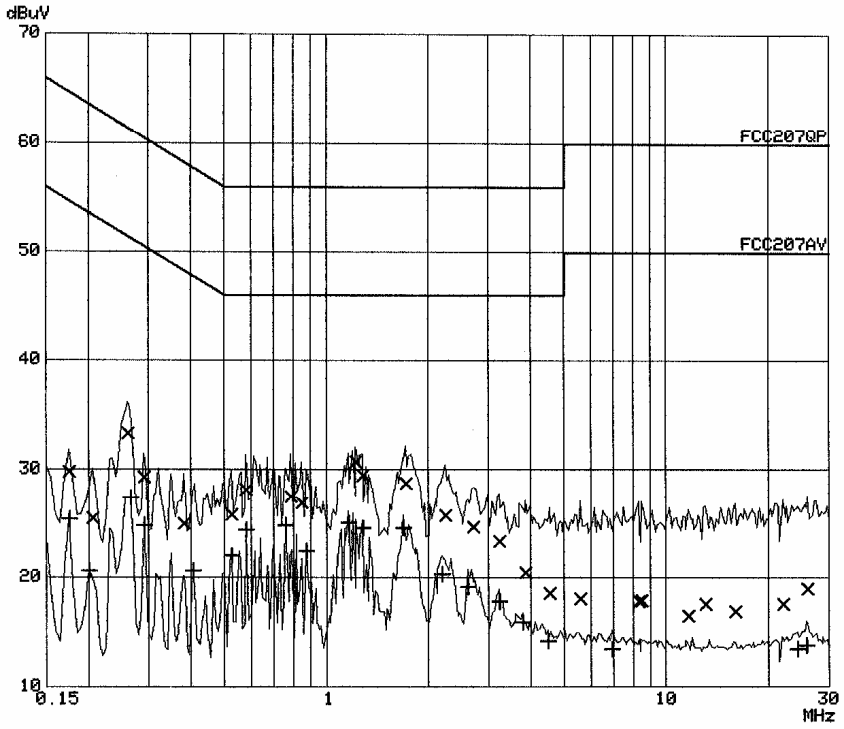
EUT:	Directed Electronics
Manuf:	904200 HHR w/TC-FC-USB
Op Cond:	Receive
Operator:	Jim Owen
Test Spec:	FCC 15.107(a)
Comment:	115 VAC 60Hz Neutral
	SC601231
Date:	05. Jun 06 10:08

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	1M	5k	10k	PK+AV	100ms	AUTO	LN OFF	60dB
1M	30M	5k	10k	PK+AV	2ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
6	10k	30M	20dBLISN

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 35dB



PAGE 1

CONDUCTED EMISSIONS: FCC Part 15.107(a)

TUV America
Conducted Emissions

EUT: Directed Electronics
Manuf: 904200 HHR w/TC-FC-USB
Op Cond: Receive
Operator: Jim Owen
Test Spec: FCC 15.107(a)
Comment: 115 VAC 60Hz Neutral
SC601231
Date: 05. Jun 06 10:08

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.17500	29.8	64.7
0.20500	25.5	63.4
0.26000	33.4	61.4
0.29000	29.3	60.6
0.38000	25.0	58.3
0.52500	25.8	56.0
0.58000	28.1	56.0
0.78500	27.5	56.0
0.84500	26.9	56.0
1.22000	30.7	56.0
1.28000	29.4	56.0
1.71500	28.7	56.0
2.23500	25.8	56.0
2.70000	24.7	56.0
3.22500	23.3	56.0
3.86500	20.4	56.0
4.54000	18.6	56.0
5.59000	18.1	60.0
8.30000	17.8	60.0
8.46000	17.9	60.0
11.60500	16.5	60.0
13.05000	17.6	60.0
15.92000	16.9	60.0
22.09500	17.6	60.0
25.99000	19.0	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.17500	25.5	54.7
0.20000	20.6	53.6
0.26500	27.4	51.3
0.29000	24.9	50.6
0.40500	20.6	47.8
0.52500	22.0	46.0
0.58000	24.4	46.0
0.75500	24.9	46.0
0.87000	22.4	46.0
1.16000	25.1	46.0
1.28000	24.6	46.0
1.68500	24.6	46.0
2.18500	20.3	46.0

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

CONDUCTED EMISSIONS: FCC Part 15.107(a)

Date: 05. Jun 06 10:08

2.61500	19.2	46.0
3.22500	17.8	46.0
3.77500	16.0	46.0
4.48000	14.2	46.0
6.91000	13.5	50.0
24.26000	13.5	50.0
25.81500	13.8	50.0

* limit exceeded

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

CONDUCTED EMISSIONS: FCC Part 15.107(a)

TUV America
Conducted Emissions

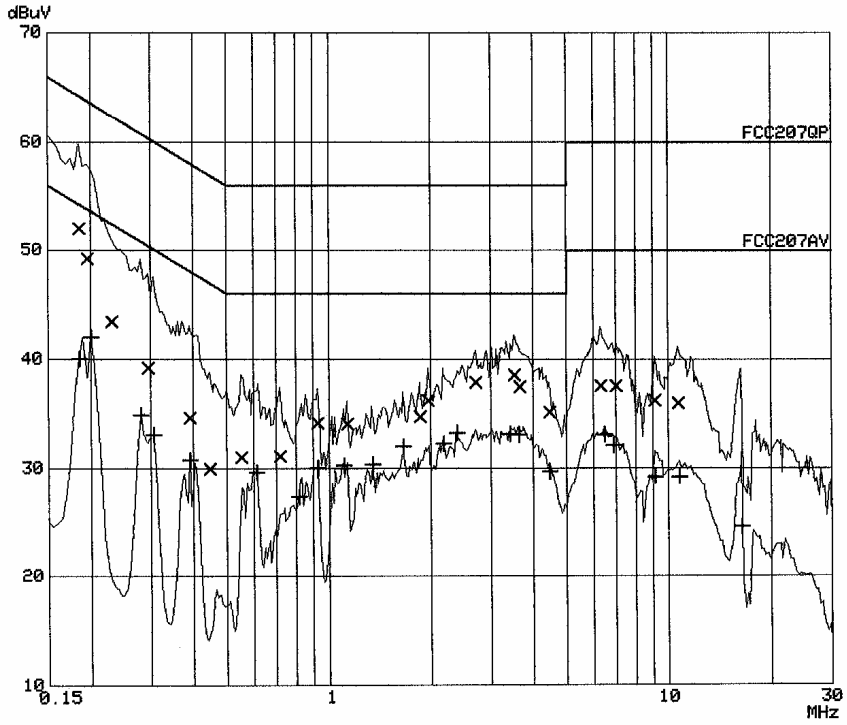
EUT:	Directed Electronics
Manuf:	904200 HHR w/Dell USB Host power
Op Cond:	Transmit
Operator:	Jim Owen
Test Spec:	FCC 15.207
Comment:	115 VAC 60Hz Line
	SC601231
Date:	05. Jun 06 10:31

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	1M	5k	10k	PK+AV	100ms	AUTO	LN OFF	60dB
1M	30M	5k	10k	PK+AV	2ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
6	10k	30M	20dBLISN

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 20dB



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CONDUCTED EMISSIONS: FCC Part 15.107(a)

TUV America
Conducted Emissions

EUT: Directed Electronics
Manuf: 904200 HHR w/Dell USB Host power
Op Cond: Transmit
Operator: Jim Owen
Test Spec: FCC 15.207
Comment: 115 VAC 60Hz Line
SC601231
Date: 05. Jun 06 10:31

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.18500	52.0	64.3
0.19500	49.2	63.9
0.23000	43.4	62.4
0.29500	39.2	60.3
0.39000	34.7	58.0
0.44500	30.0	56.9
0.55000	31.0	56.0
0.71500	31.2	56.0
0.92500	34.2	56.0
1.13500	34.1	56.0
1.85500	34.8	56.0
1.96000	36.2	56.0
2.70000	37.9	56.0
3.52500	38.5	56.0
3.64000	37.4	56.0
4.47500	35.1	56.0
6.33500	37.6	60.0
7.00500	37.6	60.0
9.10500	36.3	60.0
10.65000	36.0	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.18500	40.0	54.3
0.20000	42.0	53.6
0.28000	34.9	50.8
0.30500	33.1	50.1
0.39000	30.8	48.0
0.61000	29.6	46.0
0.81500	27.3	46.0
0.92500	30.0	46.0
1.10500	30.3	46.0
1.34000	30.4	46.0
1.65000	32.0	46.0
2.17000	32.3	46.0
2.38000	33.2	46.0
3.42000	33.2	46.0
3.62500	33.1	46.0
4.47500	29.7	46.0
6.47500	33.1	50.0
6.87000	32.1	50.0

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CONDUCTED EMISSIONS: FCC Part 15.107(a)

Date: 05. Jun 06 10:31

9.10500	29.2	50.0
10.76500	29.2	50.0
16.31500	24.6	50.0

* limit exceeded

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CONDUCTED EMISSIONS: FCC Part 15.107(a)

TUV America
Conducted Emissions

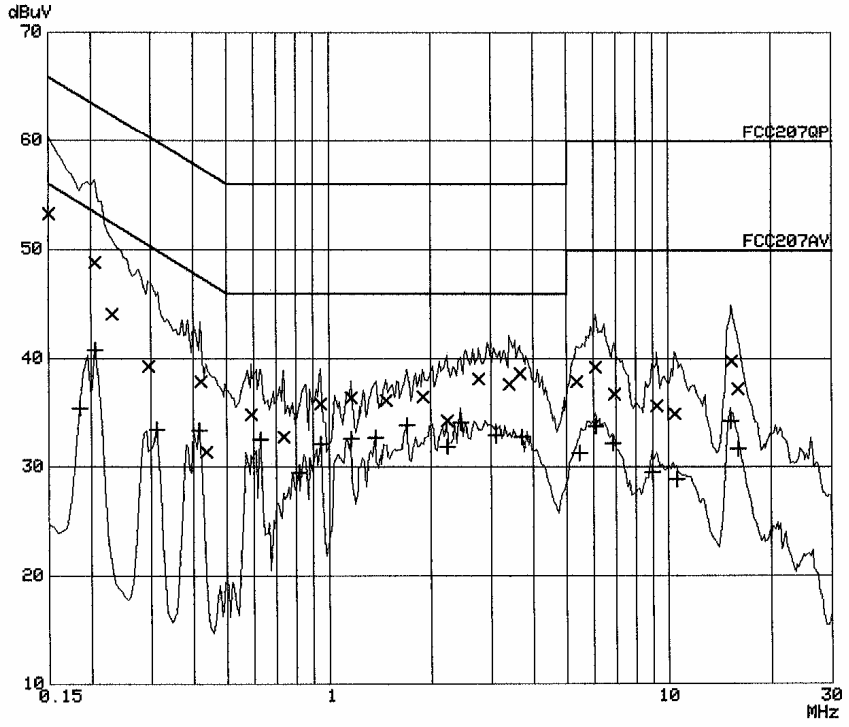
EUT:	Directed Electronics
Manuf:	904200 HHR w/Dell USB Host power
Op Cond:	Transmit
Operator:	Jim Owen
Test Spec:	FCC 15.207
Comment:	115 VAC 60Hz Neutral
	SC601231
Date:	05. Jun 06 10:43

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	1M	5k	10k	PK+AV	100ms	AUTO	LN OFF	60dB
1M	30M	5k	10k	PK+AV	2ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
6	10k	30M	20dBLISN

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 20dB



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CONDUCTED EMISSIONS: FCC Part 15.1 07(a)

TUV America
Conducted Emissions

EUT: Directed Electronics
Manuf: 904200 HHR w/Dell USB Host power
Op Cond: Transmit
Operator: Jim Owen
Test Spec: FCC 15.207
Comment: 115 VAC 60Hz Neutral
SC601231
Date: 05. Jun 06 10:43

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.15000	53.3	66.0
0.20500	48.8	63.4
0.23000	44.1	62.4
0.29500	39.3	60.3
0.42000	37.9	57.5
0.43500	31.4	57.2
0.59000	34.8	56.0
0.73500	32.8	56.0
0.94500	35.8	56.0
1.16000	36.4	56.0
1.47500	36.2	56.0
1.89500	36.5	56.0
2.22500	34.3	56.0
2.76500	38.1	56.0
3.40000	37.7	56.0
3.64500	38.6	56.0
5.36500	37.9	60.0
6.08000	39.2	60.0
6.91000	36.8	60.0
9.24500	35.7	60.0
10.41000	34.9	60.0
15.34000	39.8	60.0
15.95500	37.2	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.18500	35.4	54.3
0.20500	40.8	53.4
0.31000	33.4	50.0
0.41500	33.4	47.6
0.62500	32.6	46.0
0.81500	29.5	46.0
0.94500	32.1	46.0
1.16000	32.6	46.0
1.37000	32.7	46.0
1.69000	33.8	46.0
2.22500	31.8	46.0
2.43500	34.1	46.0
3.09500	32.9	46.0
3.70500	32.8	46.0
5.44500	31.3	50.0

PAGE 2

CONDUCTED EMISSIONS: FCC Part 15.107(a)

Date: 05. Jun 06 10:43

6.08000	33.8	50.0
6.82000	32.2	50.0
8.96000	29.6	50.0
10.55500	28.9	50.0
15.20000	34.3	50.0
15.93000	31.7	50.0

* limit exceeded

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

CONDUCTED EMISSIONS: FCC Part 15.107(a)

TUV America
Conducted Emissions

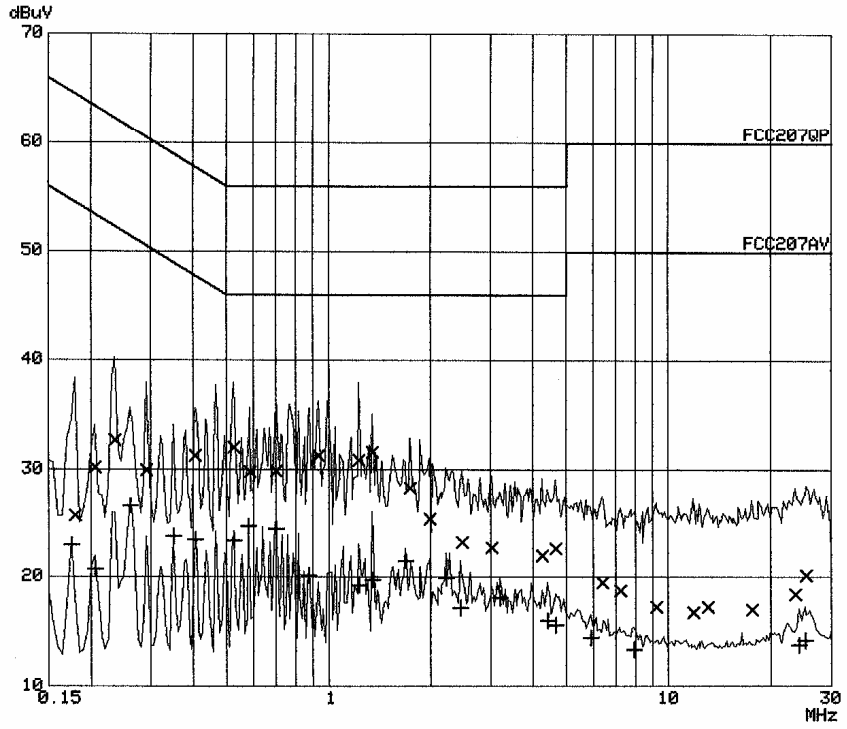
EUT:	Directed Electronics
Manuf:	904200 HHR w/TC-FC-USB
Op Cond:	Transmit
Operator:	Jim Owen
Test Spec:	FCC 15.207
Comment:	115 VAC 650Hz Line
	SC601231
Date:	05. Jun 06 09:36

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	1M	5k	10k	PK+AV	100ms	AUTO	LN OFF	60dB
1M	30M	5k	10k	PK+AV	2ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
6	10k	30M	20dBLISN

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 35dB



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CONDUCTED EMISSIONS: FCC Part 15.107(a)

TUV America
Conducted Emissions

EUT: Directed Electronics
Manuf: 904200 HHR w/TC-FC-USB
Op Cond: Transmit
Operator: Jim Owen
Test Spec: FCC 15.207
Comment: 115 VAC 650Hz Line
SC601231
Date: 05. Jun 06 09:36

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.18000	25.6	64.5
0.20500	30.2	63.4
0.23500	32.7	62.3
0.29000	30.0	60.6
0.40500	31.3	57.8
0.52500	32.0	56.0
0.58500	29.8	56.0
0.70000	29.9	56.0
0.93000	31.3	56.0
1.22500	30.9	56.0
1.34000	31.6	56.0
1.74000	28.3	56.0
1.98500	25.3	56.0
2.46500	23.2	56.0
3.02500	22.7	56.0
4.25500	22.0	56.0
4.65500	22.6	56.0
6.41000	19.5	60.0
7.23000	18.8	60.0
9.21500	17.3	60.0
11.83000	16.8	60.0
13.02500	17.2	60.0
17.63000	17.0	60.0
23.63500	18.5	60.0
25.35000	20.1	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.17500	22.9	54.7
0.20500	20.7	53.4
0.26000	26.6	51.4
0.35000	23.8	49.0
0.40500	23.4	47.8
0.52500	23.4	46.0
0.58000	24.7	46.0
0.70000	24.4	46.0
0.87000	20.2	46.0
1.22500	19.3	46.0
1.34000	19.8	46.0
1.68500	21.5	46.0
2.21000	19.9	46.0

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CONDUCTED EMISSIONS: FCC Part 15.107(a)

Date: 05. Jun 06 09:36

2.44000	17.2	46.0
3.20000	18.1	46.0
4.42000	16.0	46.0
4.65500	15.6	46.0
5.89500	14.4	50.0
7.90000	13.4	50.0
24.13000	13.8	50.0
25.21500	14.2	50.0

* limit exceeded

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CONDUCTED EMISSIONS: FCC Part 15.107(a)

TUV America
Conducted Emissions

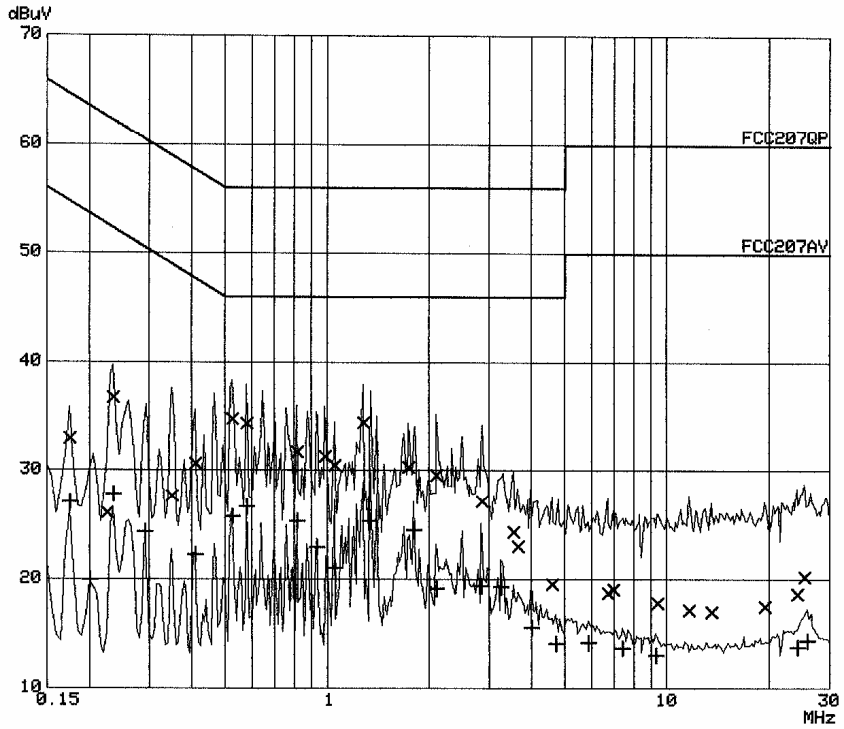
EUT:	Directed Electronics
Manuf:	904200 HHR w/TC-FC-USB
Op Cond:	Transmit
Operator:	Jim Owen
Test Spec:	FCC 15.207
Comment:	115 VAC 650Hz Neutral
	SC601231
Date:	05. Jun 06 09:50

Scan Settings (2 Ranges)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150k	1M	5k	10k	PK+AV	100ms	AUTO	LN OFF	60dB
1M	30M	5k	10k	PK+AV	2ms	AUTO	LN OFF	60dB

Transducer No.	Start	Stop	Name
6	10k	30M	20dBLISN

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 35dB



PAGE 1

CONDUCTED EMISSIONS: FCC Part 15.107(a)

TUV America
Conducted Emissions

EUT:	Directed Electronics
Manuf:	904200 HHR w/TC-FC-USB
Op Cond:	Transmit
Operator:	Jim Owen
Test Spec:	FCC 15.207
Comment:	115 VAC 650Hz Neutral
	SC601231
Date:	05. Jun 06 09:50

Final Measurement Results:

Frequency MHz	QP Level dBuV	QP Limit dBuV
0.17500	32.9	64.7
0.22500	26.1	62.7
0.23500	36.7	62.3
0.35000	27.7	59.0
0.41000	30.7	57.7
0.52500	34.7	56.0
0.58000	34.4	56.0
0.81500	31.7	56.0
0.98500	31.3	56.0
1.05000	30.5	56.0
1.28000	34.4	56.0
1.74000	30.3	56.0
2.10000	29.5	56.0
2.85500	27.2	56.0
3.55000	24.4	56.0
3.65000	23.0	56.0
4.60500	19.6	56.0
6.70000	18.8	60.0
6.98000	19.0	60.0
9.41000	17.8	60.0
11.62000	17.2	60.0
13.52000	17.0	60.0
19.41000	17.5	60.0
24.09000	18.6	60.0
25.43000	20.2	60.0

Frequency MHz	AV Level dBuV	AV Limit dBuV
0.17500	27.1	54.7
0.20000	20.0	53.6
0.23500	27.8	52.3
0.29000	24.3	50.6
0.41000	22.3	47.7
0.52500	25.8	46.0
0.58000	26.7	46.0
0.81500	25.3	46.0
0.93000	22.9	46.0
1.05000	21.0	46.0
1.33500	25.4	46.0
1.80000	24.5	46.0
2.10000	19.2	46.0

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

CONDUCTED EMISSIONS: FCC Part 15.107(a)

Date: 05. Jun 06 09:50

2.85000	19.4	46.0
3.25500	19.3	46.0
4.00500	15.6	46.0
4.72000	14.2	46.0
5.87000	14.2	50.0
7.39000	13.7	50.0
9.30000	13.1	50.0
24.16500	13.8	50.0
25.81000	14.4	50.0

* limit exceeded

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4.0 ATTESTATION STATEMENT

GENERAL REMARKS:

(*) Pages 59 through 80 reference SC601231 test report. This data was tested in June 2006.

SUMMARY:

All tests were performed per: CFR 47, Part 15, Paragraph(s) 15.247(a), 15.247(b), 15.247(c), 15.107(a)*, 15.109(a), and 15.209(a) and Industry Canada RSS-Gen sections 4 and 7; RSS 210, Annexes 2 and 8.

■ - **Performed**

The Equipment Under Test

■ - **Fulfills** the requirements of: CFR 47, Part 15, Paragraph(s) 15.247(a), 15.247(b), 15.247(c), 15.107(a)*, 15.109(a), and 15.209(a) and Industry Canada RSS-Gen sections 4 and 7; RSS 210, Annexes 2 and 8.

Testing Start Date: 06 June 2006

Testing End Date: 03 November 2006

- TÜV AMERICA, INC. -

Reviewing Engineer:

Ron Brewer
(EMC Manager)

Test Engineer:

David Gray
(EMC Engineer)

Test Engineer:

Jim Owen
(EMC Engineer)

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