FCC Licensed Transmitter Test Report

for

S5 series handheld transmitter

S5.5 HDX

Reference Standard 47CFR Part 2, Subpart J: Oct 2007
Manufacturer BBM Electronics Group Ltd
For type of equipment and serial number, refer to section 3
Report Number 12-291/3778/1/08
Report Produced by: -

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1. Contents

2. Summary of Test Results

The S5 series handheld transmitter S5.5 HDX was tested for compliance to the following standard for licensed transmitters: -

47CFR Part 2, Subpart J : Oct 2007
47CFR Part 74, Subpart H : Oct 2007
Class TBF Intentional Radiator

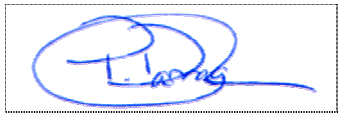
Title	References		Results
1. RF Power Output.	47CFR Part 2, Subpart J	conducted:	PASSED
		radiated:	PASSED
2. Modulation Characteristics.	47CFR Part 2, Subpart J	frequency response:	PASSED
		modulation limiting:	PASSED
3. Occupied Bandwidth	47CFR Part 2, Subpart J		PASSED
4. Spurious Emissions at Antenna Terminals.	47CFR Part 2, Subpart J		PASSED
5. Field Strength of Spurious Radiation.	47CFR Part 2, Subpart J		PASSED
6. Frequency Stability.	47CFR Part 2, Subpart J		PASSED

This report relates to the equipment tested as identified by a unique serial number and at the time it was tested. It does not relate to any other similar equipment and performance of the product before or after the test cannot be guaranteed.

The measurement uncertainty, where stated, is the expanded uncertainty based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

Date of Test: Sep-11 to Oct-20, 2008

Test Engineer: 

Approved By:
Technical Director 

Customer Representative:

3. Information about Equipment Under Test

Applicant	BBM Electronics Group Ltd subsidary of TOA Corporation Japan Kestral House Garth Road Morden Surrey SM4 4LP
Brand name of EUT	Trantec
Model Number(s) of EUTs	S5.5HDX
Serial Numbers of EUTs	E.F Band
FCC ID (if applicable):	F3SS5HX
Date when equipment was received by RN Electronics Limited	Aug-01, 2008
Date of test:	Sep-11 to Oct-20, 2008
Customer order number:	SB White Space
Visual description of EUT:	Small metal cylindrical enclosure with Mic head (audio capsule) on the top. The main body slides, after a twist to open, to reveal an on/off switch, two control buttons and an LCD display. The battery compartment access is located on the reverse side to the LCD.
Main function of the EUT:	Professional Handheld Radio Microphone

EUT Information specification.

Height	245mm
Width	37mm main body diameter
Depth	50mm head diameter
Weight	0.35kg
Voltage	1.5V
Current required from above voltage source	<300mA
Highest Frequencies used / generated	636.1 – 697.9 MHz

EUT Configurations for testing.

Choice of model(s) for type testing	'White space' variant due to FCC restructuring of frequency bands after digital TV switchover.
Method of achieving an unmodulated carrier frequency	No audio applied to Mic input
Audio capsule / test fixture used	Mic audio capsule in place, but disconnected and audio leads (to audio generator) soldered in its place.
Declared power level (dBm)	+20dBm
Declared channel bandwidth (kHz)	200kHz

Description of ancillary equipment connected to the equipment under test, for the purpose of tests, can be found in Section 10. Auxiliary Equipment.

Any modifications made to the EUT, whilst under test, can be found in Section 11. Modifications

This report was printed on: 22 December 2008

4. Specifications

The tests were performed by RN Electronics Engineer Peter Finley who set up the tests, the test equipment, and operated it in accordance with the ***R.N. Electronics Ltd*** procedures manual and the relevant standards listed below.

4.1 Relevant Standards

	Standard Number	Version	Description
4.1.1	47CFR Part 74, Subpart H	Oct 2007	Part 74 - Experimental Radio, Auxiliary, Special Broadcast And Other Program Distributional Services.
4.1.2	47CFR Part 2, Subpart J	Oct 2004	Part 2 - Frequency Allocations And Radio Treaty Matters; General Rules And Regulations.
4.1.3	ITU Rec. SM.329	10 (02/03)	Unwanted emissions in the spurious domain
4.1.4	ANSI/TIA-603-C	2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards

4.2 Deviations Applied

None.

4.3 Measurement Uncertainty

Parameter	**Uncertainty**
RF frequency	<±7 x 10-8
Conducted RF power into 50ohms	<±0.82 dB
Maximum frequency deviation:	<±1 %
Occupied Bandwidth	<±2 %
Radiated emissions (valid up to 26.5 GHz).	<±3.4 dB

4.4 Tests at Extremes of Temperature and Voltage

The following test conditions were used to simulate testing at nominal or extremes.

Voltage Test Conditions	
V nom	1.5V
V min	1.2V
V max	1.5V

☐ A permanent internal RF port was used for testing.
☐ A test fixture was used for testing.
☒ A temporary RF port was created for testing.
☐ The equipment external RF port was used for testing.

5. Tests, Methods and Results

5.1 RF Power Output

5.1.1 Conducted

5.1.1.1 Test Methods

Test Requirements	47CFR Part 2, Subpart J
Test Method:	TIA-603-C, Clause 2.2.1.
Limits:	47CFR Clause §74.861(e)(1)(ii)

5.1.1.2 Configuration of EUT

The EUT was tested on a bench. Tests were made via a soldered lead connected to the RF output point on the PCB.

5.1.1.3 Test Procedure

Tests were made in accordance with the Test Method noted above using the measuring equipment noted in the 'Test Equipment used' Section. The power stated is the maximum power observed from an average power detector.

5.1.1.4 Test results

Ambient conditions.
Temperature: 21°C Relative humidity: 60%

	Low Channel	Middle Channel	High Channel
Power measured (dBm)	10.34	10.32	10.34
Converted to mW	10.8	10.8	10.8

Max power observed	Variation in power observed
10.3 dBm	0.02dB

LIMITS: 250mW (+24dBm)

5.1.1.5 Test Equipment used

CO31, CO32, E324

See Section 9 for more details

5.1.2 Radiated

5.1.2.1 Test Methods

Test Requirements	47CFR Part 2, Subpart J
Test Method:	TIA-603-C, Clause 2.2.17.2.
Limits:	47CFR Clause §74.861(e)(1)(ii)

5.1.2.1.1 Configuration of EUT

The EUT was placed in a vertical position in a shielded anechoic chamber. New batteries were used in the EUT. It was confirmed from rotation in three orthogonal planes that a maximum was found. Measurements were made at 3m distance, then substitution was performed using a known signal generator.

5.1.2.1.2 Test Procedure

Tests were made in accordance with the Test Method noted above using the measuring equipment noted in the 'Test Equipment' Section. The power stated is the maximum power observed using a peak detector. The generator level was offset for loss in cables used. A reference dipole antenna was used, hence no antenna factors are recorded.

5.1.2.2 Test results

Ambient conditions.
Temperature: 15°C Relative humidity: 68%

	Low Channel	Middle Channel	High Channel
Received level (dBm)	-21.6	-22.2	-26.4
LOSS (dB)	30.6	31.0	32.7
E.R.P. (dBm)	+9.0	+8.8	+6.3
Polarisation of antenna	Vertical	Vertical	Vertical

Max power observed	Variation in power observed
9.0 dBm	2.7 dB

LIMITS: 250mW (+24dBm)

5.1.2.3 Test Equipment used

E266, E285, E327, TMS814, E324

See Section 9 for more details

5.2 Modulation Characteristics

5.2.1 Frequency response

5.2.1.1 Test Methods

Test Requirements	47CFR Part 2, Subpart J
Test Method:	47CFR Part 2, Subpart J, §2.1047 ANSI/TIA-603-C, Clause 2.2.6.2.2
Limits:	47CFR Clause §74.861(e)(3)

5.2.1.2 Configuration of EUT

The EUT was tested on the bench and ambient conditions were monitored. The audio input was connected to an audio analyser. The audio gain was set to maximum (level 9).

5.2.1.3 Test Procedure

Tests were made in accordance with the Test Method noted above using the measuring equipment noted in the 'Test Equipment used' Section. The generated audio input was varied from 100Hz to 15kHz whilst the FM deviation was measured relative to that found at 1kHz.

5.2.1.4 Test Results

Ambient conditions.
Temperature: 19°C Relative humidity: 54%

Results for this test are presented graphically, please refer to section6. Graphical Results.

LIMITS: +/- 75kHz Max Deviation

5.2.1.5 Test Equipment used

TMS49, TMS53, E324

See Section 9 for more details

5.2.2 Modulation Limiting

5.2.2.1 Test Methods

Test Requirements	47CFR Part 2, Subpart J
Test Method:	47CFR Part 2, Subpart J, §2.1047
Limits:	none stated

5.2.2.2 Configuration of EUT

The EUT was tested on the bench and ambient conditions were monitored. The audio input was connected to an audio analyser. The audio gain was set to maximum (level 9).

5.2.2.3 Test Procedure

Tests were made in accordance with the Test Method noted above using the measuring equipment noted in the 'Test Equipment used' Section. For each input frequency chosen, the audio input level was varied and the FM deviation measured.

5.2.2.4 Test Results

Ambient conditions.
Temperature: 19°C Relative humidity: 54%

Results for this test are presented graphically, please refer to section6. Graphical Results.

LIMITS: No Limits specified for this test.

5.2.2.5 Test Equipment used

TMS49, TMS53, E324

See Section 9 for more details

5.3 Occupied Bandwidth

5.3.1 Test Methods

Test Requirements:	47CFR Part 2, Subpart J
Test Method:	47CFR Part 2, Subpart J, §2.1049
Limits:	47CFR Clause §74.861(e)(5)

5.3.2 Configuration of EUT

The EUT was tested on the bench and ambient conditions were monitored. The audio input was connected to an audio analyser. The audio gain was set to maximum (level 9).

5.3.3 Test Procedure

Tests were made in accordance with the Test Method noted above, using the measuring equipment noted in the 'Test Equipment used' section.

5.3.4 Test Results

Ambient conditions.
Temperature: 20°C Relative humidity: 54%

	Low Channel	Middle Channel	High Channel
99% Bandwidth measured (kHz)	107	106	106

Results for this test are also presented graphically, please refer to section6. Graphical Results.

LIMITS: 200kHz.

5.3.5 Test Equipment used

TMS53, TMS49, E342, E324

See Section 9 for more details

5.4 Spurious Emissions at Antenna Terminals (Conducted)

5.4.1 Test Methods

Test Requirements	47CFR Part 2, Subpart J
Test Methods:	TIA-603-C, 2.2.13 ITU-R Rec. SM.329
Limits:	47CFR Clause §74.861(e)(6)(iii)

5.4.2 Configuration of EUT

The EUT was tested on the bench. Measurements were made via a soldered lead connected to the RF output point on the PCB.

5.4.3 Test Procedure

Tests were made in accordance with the Test Method noted above using the measuring equipment noted in the 'Test Equipment used' Section. The power stated is the maximum power observed using a peak detector. Bandwidth settings are per FCC / ITU-R rules, not the TIA reference. Where required, band-pass filters are used at frequencies of interest, not a notch filter as stated in the TIA reference.

5.4.4 Test results

Ambient conditions.
Temperature:20°C Relative humidity: 54%

TABLE OF WORST CASE SPURIOUS EMISSIONS

Channel Name	Low (636.0 MHz)
Channel Spacing	200 kHz
Modulation Type	FM
Power Level	Maximum; No alternative settings
Spurious Frequency (MHz)	Measured Spurious Level (dBm)
-	None found within 20 dB of the limit.
Frequency Range	Plot Number
9kHz – 150kHz	J3778/1/001
150kHz – 30	J3778/1/002
30 – 300	J3778/1/003
300 – 630	J3778/1/005
630 – 635.5	J3778/1/006
636.5 – 640	J3778/1/007
640 – 1000	J3778/1/008
1000 – 2900	J3778/1/009
2900 – 6400	J3778/1/010
6400 – 12400	J3778/1/011

TABLE OF OTHER SPURIOUS EMISSIONS PLOTS

Channel	Frequency Range (MHz)	Plot Number
Mid (668.0 MHz)	300 – 1000	J3778/1/012
High (697.9 MHz)	300 – 1000	J3778/1/013

LIMITS: 43+10log10 (mean output power in watts) dB. I.e. -13dBm.

The plots referred to in the above table may be found in section 6. Graphical Results

5.4.5 Test Equipment used

E324, E342

See Section 9 for more details

5.5 Field Strength of Spurious Radiation.

5.5.1 Test Methods

Test Requirements:	47CFR Part 2, Subpart J
Test Methods:	TIA-603-C, 2.2.12 ITU-R Rec. SM.329
Limits:	47CFR Clause §74.861(e)(6)(iii)

5.5.2 Configuration of EUT

The EUT was placed in a vertical position in a shielded anechoic chamber. New batteries were used in the EUT. It was confirmed from rotation in three orthogonal planes that a maximum was found. Measurements were made at 3m distance, then substitution was performed using a known signal generator.

5.5.3 Test Procedure

Tests were made in accordance with the Test Methods noted above using the measuring equipment noted in the 'Test Equipment' Section. Bandwidth settings are per FCC / ITU-R rules, not the TIA reference.

5.5.4 Test Results

Ambient conditions.
Temperature: 16-18°C Relative humidity: 47-64%

Table of spurious emissions within 20dB of limits.

Channel Name	Low
Channel Frequency	636.0 MHz
Channel Spacing	200 kHz
Modulation Type	FM
Power Level	Maximum; No alternative settings

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Antenna Polarisation	EUT Polarisation
-	None Found	-	-

Table of spurious emissions within 20dB of limits.

Channel Name	Low
Channel Frequency	668.0 MHz
Channel Spacing	200 kHz
Modulation Type	FM
Power Level	Maximum; No alternative settings

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Antenna Polarisation	EUT Polarisation
-	None Found	-	-

Table of spurious emissions within 20dB of limits.

Channel Name	Mid
Channel Frequency	697.9 MHz
Channel Spacing	200 kHz
Modulation Type	FM
Power Level	Maximum; No alternative settings

Spurious Frequency (MHz)	Measured Spurious Level (dBm)	Antenna Polarisation	EUT Polarisation
-	None Found	-	-

LIMITS: 43+10log10 (mean output power in watts) dB. I.e. -13dBm.

The plots referred to in the above table may be found in section 6. Graphical Results

5.5.5 Test Equipment Used

E320, E239, E238, N438, E1, E3, TMS82, TMS933, E136, E268, E266, TMS814

See Section 9 for more details

5.6 Frequency Error

5.6.1 Test Methods

Test Requirements: 47CFR Part 2, Subpart J
Test Method: 47CFR Part 2, Subpart J, Clause §2.1055
Limits: Clause §74.861(e)(4)

5.6.2 Configuration of EUT

The EUT was placed in a temperature controlled chamber and thermal balance was achieved at each temperature set before testing commenced. Measurements were made via a soldered lead connected to the RF output point on the PCB.

5.6.3 Test Procedure

Tests were made in accordance with the Test Method noted above using the measuring equipment noted in the 'Test Equipment used' Section. At each temperature extreme, the EUT was switched on in the transmit condition for one minute, after which the tests were conducted.

5.6.4 Test results

Ambient conditions.
Temperature: 20°C Relative humidity: 60%

Radio parameters.
O/P Power: Maximum; No alternative settings Modulation: CW

TABLE OF FREQUENCY ERROR

Temperature	Voltage	Bottom Channel	Middle Channel	Top Channel
-30°C	Nominal	635.988172	667.985448	697.887521
-20°C	Nominal	635.994191	667.994161	697.893092
-10°C	Nominal	635.996567	667.996235	697.896134
0°C	Nominal	635.998969	667.998796	697.898826
+10°C	Nominal	635.999100	667.999110	697.898901
+20°C	Nominal	635.999232	667.999051	697.899164
+20°C	Minimum	635.999245	667.999204	697.899346
+20°C	Maximum	-	-	-
+30°C	Nominal	635.999381	667.999274	697.899360
+40°C	Nominal	635.999593	667.999502	697.899496
+50°C	Nominal	636.000114	668.000239	697.900140

	Bottom Channel	Middle Channel	Top Channel
Variation in Frequency (+/-Hz)	+114/-11828	+239/-14552	+140/-12479
Worst case observed (%)	-0.002		

LIMITS: +/-0.005% (50ppm)

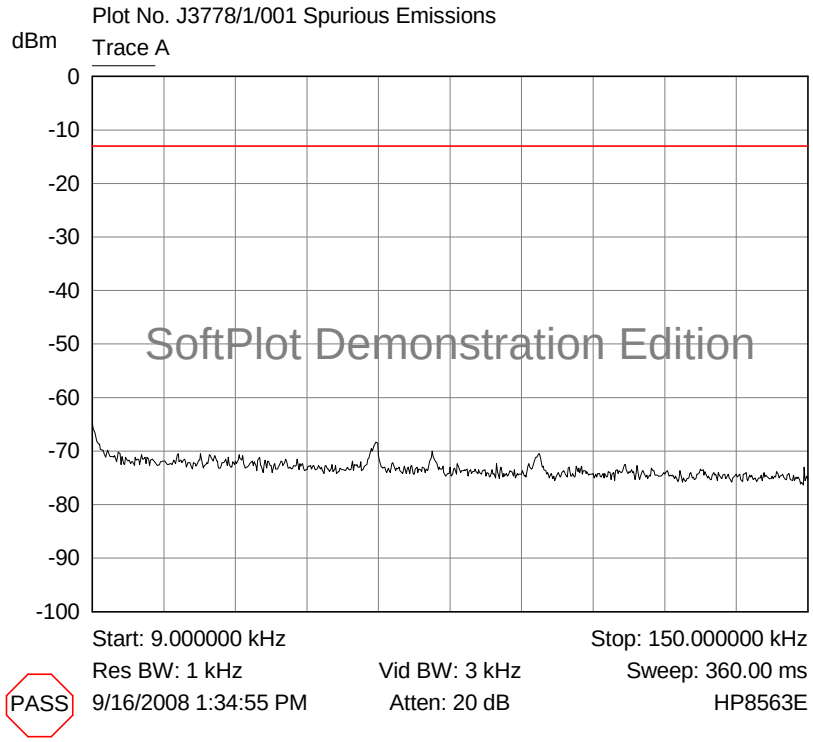
5.6.5 Test Equipment used

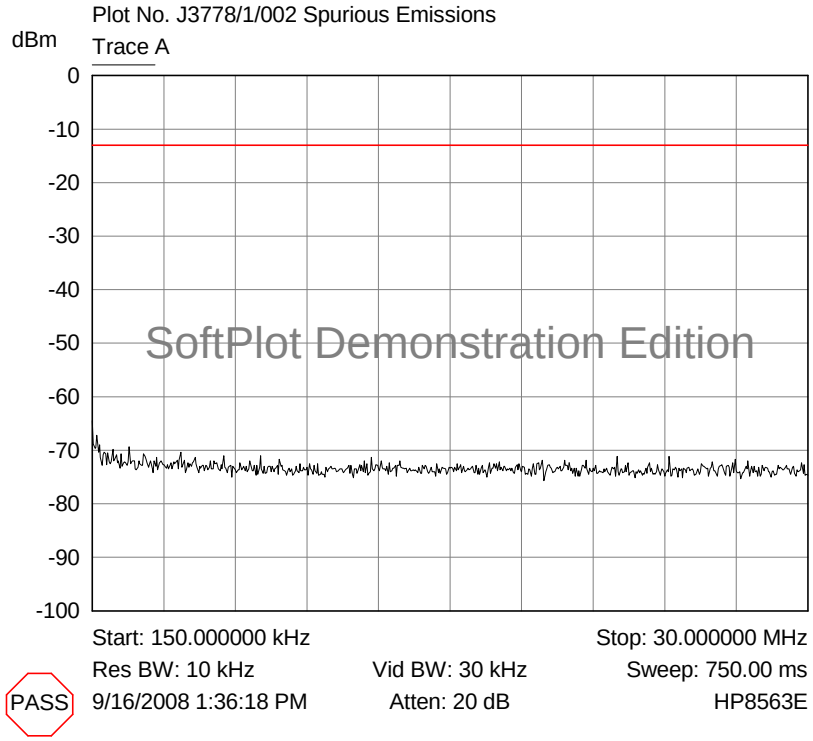
E227, E342, TMS39, TMS73, TMS80

See Section 9 for more details

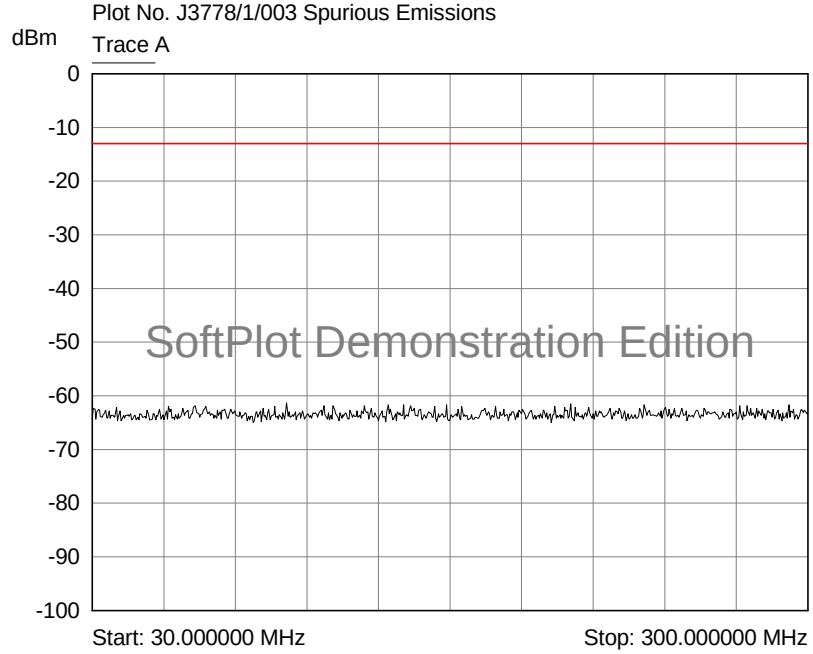
6. Graphical Results

6.1. Conducted spurious emissions



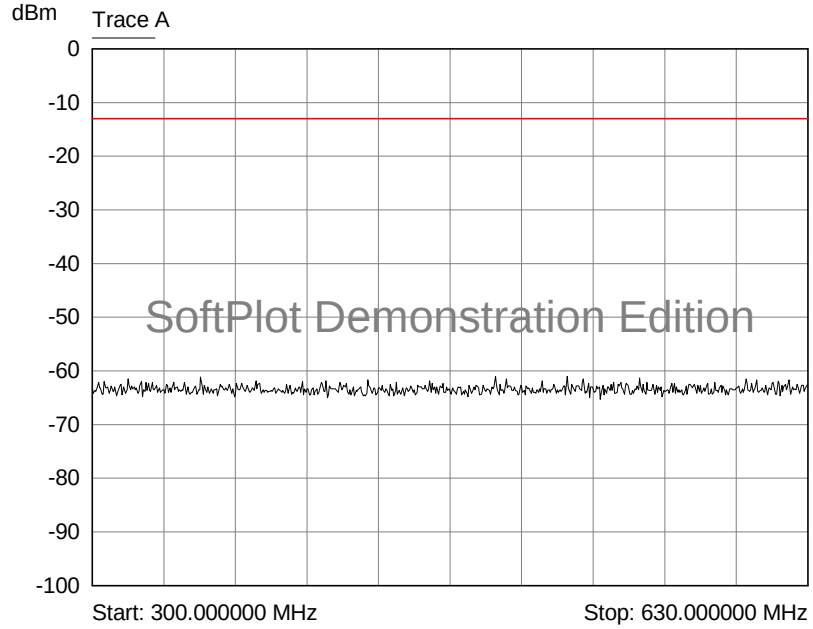


Plot No. J3778/1/003 Spurious Emissions



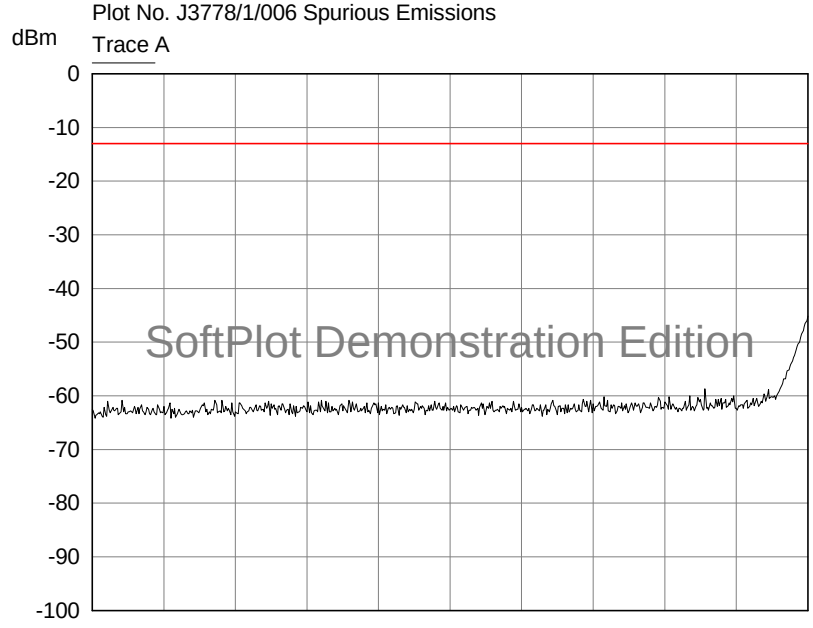
Start: 30.000000 MHz Stop: 300.000000 MHz
Res BW: 100 kHz Vid BW: 300 kHz Sweep: 68.00 ms
PASS 9/16/2008 1:36:51 PM Atten: 20 dB HP8563E

Plot No. J3778/1/005 Spurious Emissions



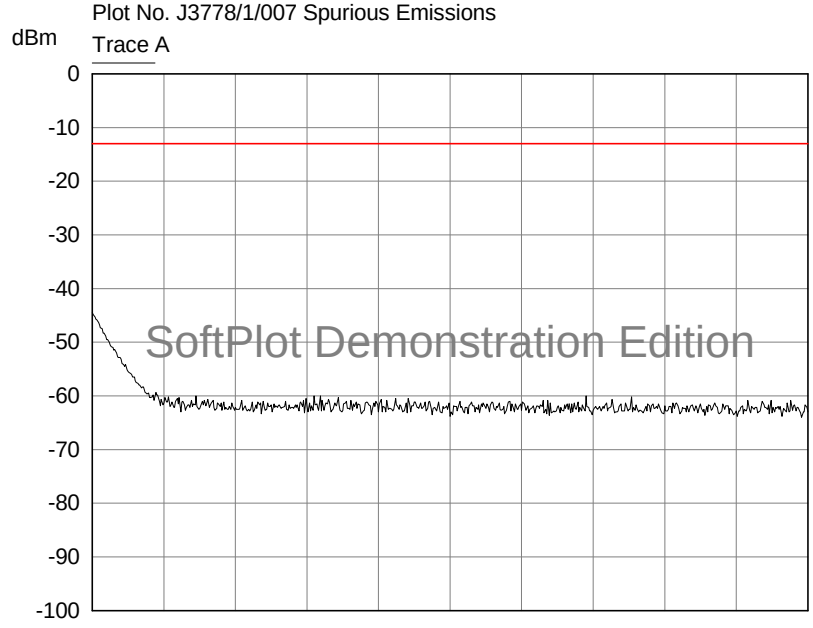
Start: 300.000000 MHz Stop: 630.000000 MHz
Res BW: 100 kHz Vid BW: 300 kHz Sweep: 83.00 ms
PASS 9/16/2008 1:40:29 PM Atten: 20 dB HP8563E

Plot No. J3778/1/006 Spurious Emissions



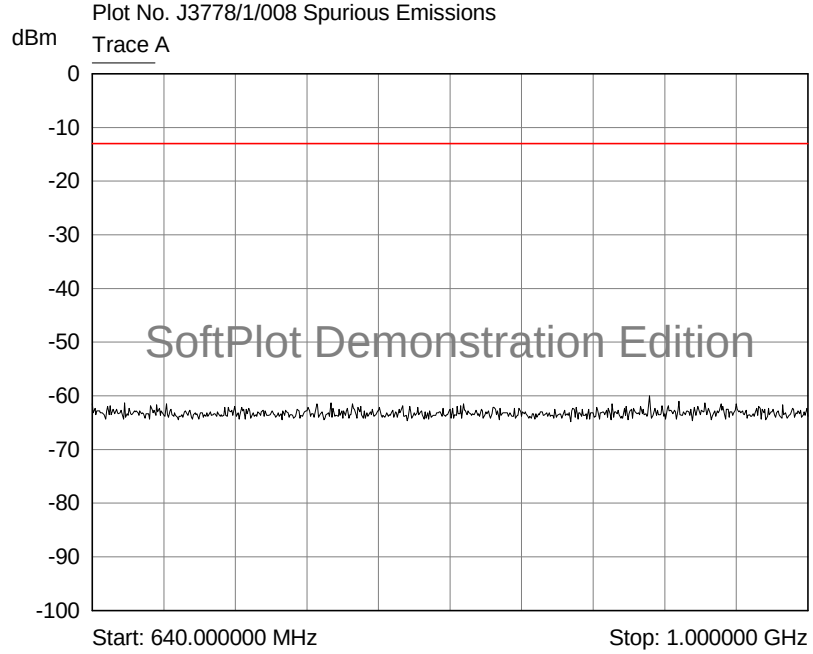
Start: 630.000000 MHz Stop: 635.500000 MHz
Res BW: 100 kHz Vid BW: 300 kHz Sweep: 50.00 ms
PASS 9/16/2008 1:41:19 PM Atten: 20 dB HP8563E

Plot No. J3778/1/007 Spurious Emissions



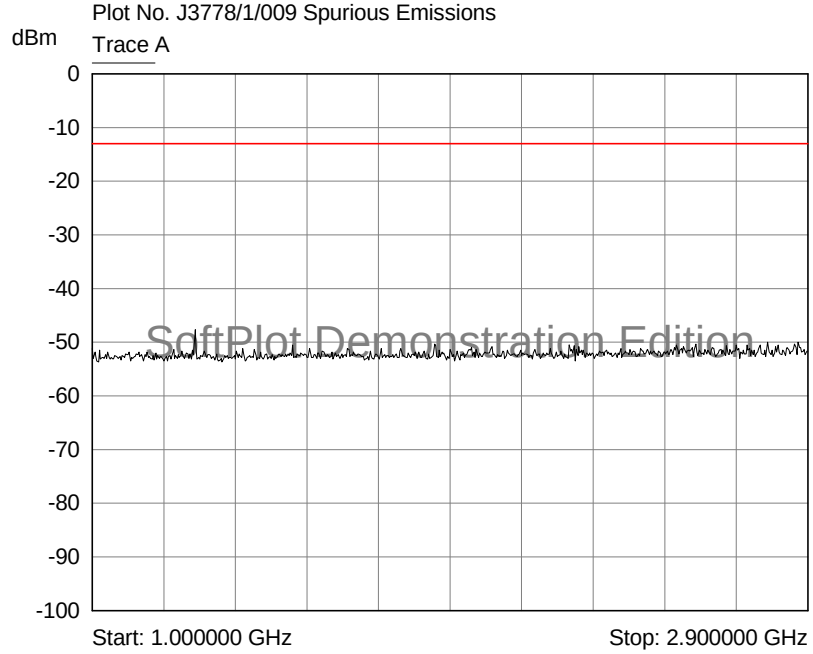
Start: 636.500000 MHz Stop: 640.000000 MHz
Res BW: 100 kHz Vid BW: 300 kHz Sweep: 50.00 ms
PASS 9/16/2008 1:42:07 PM Atten: 20 dB HP8563E

Plot No. J3778/1/008 Spurious Emissions



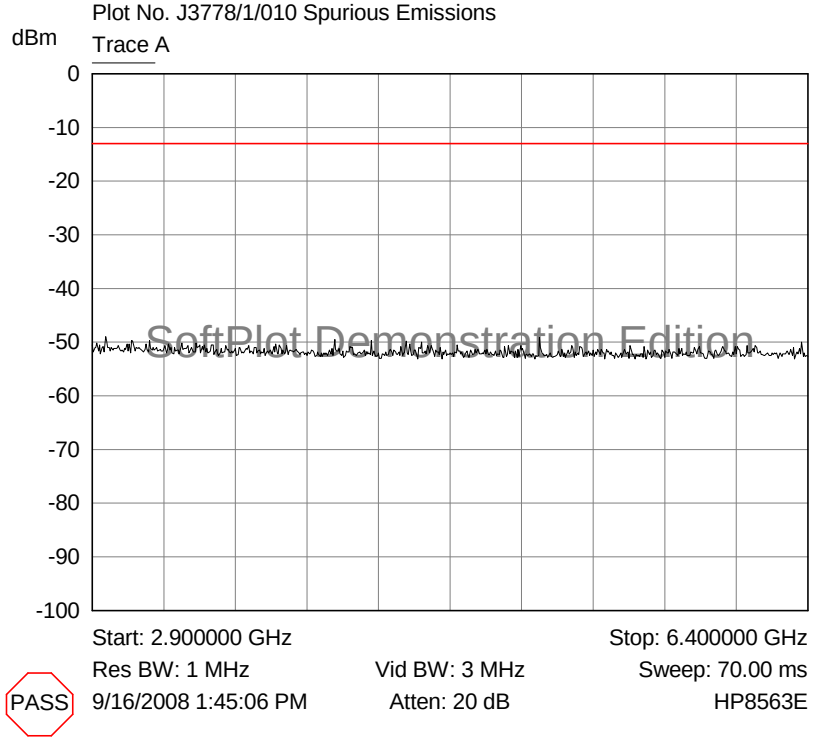
Start: 640.000000 MHz Stop: 1.000000 GHz
Res BW: 100 kHz Vid BW: 300 kHz Sweep: 90.00 ms
PASS 9/16/2008 1:42:45 PM Atten: 20 dB HP8563E

Plot No. J3778/1/009 Spurious Emissions



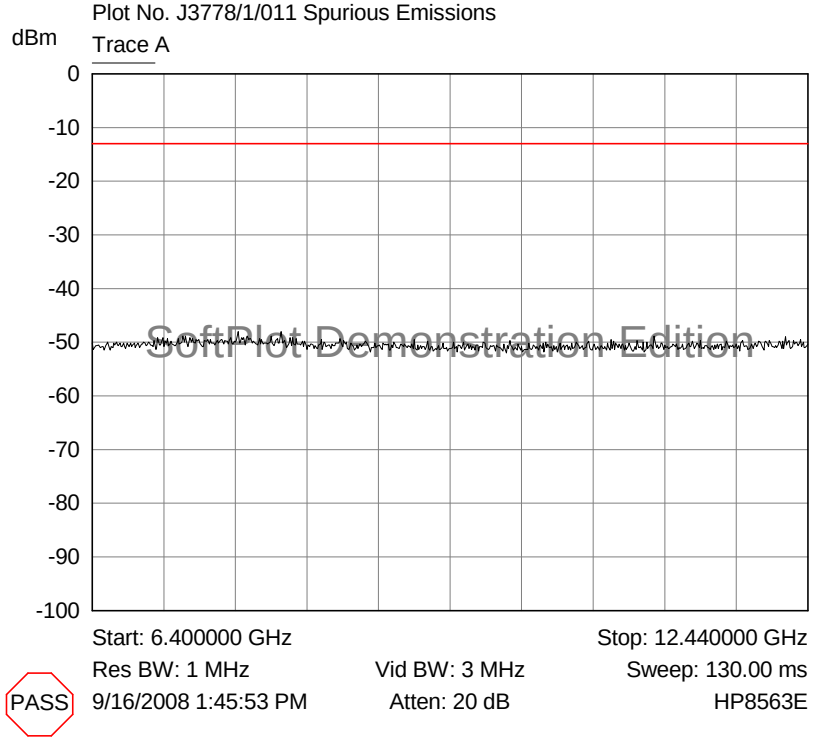
Start: 1.000000 GHz Stop: 2.900000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 50.00 ms
PASS 9/16/2008 1:43:31 PM Atten: 20 dB HP8563E

Plot No. J3778/1/010 Spurious Emissions



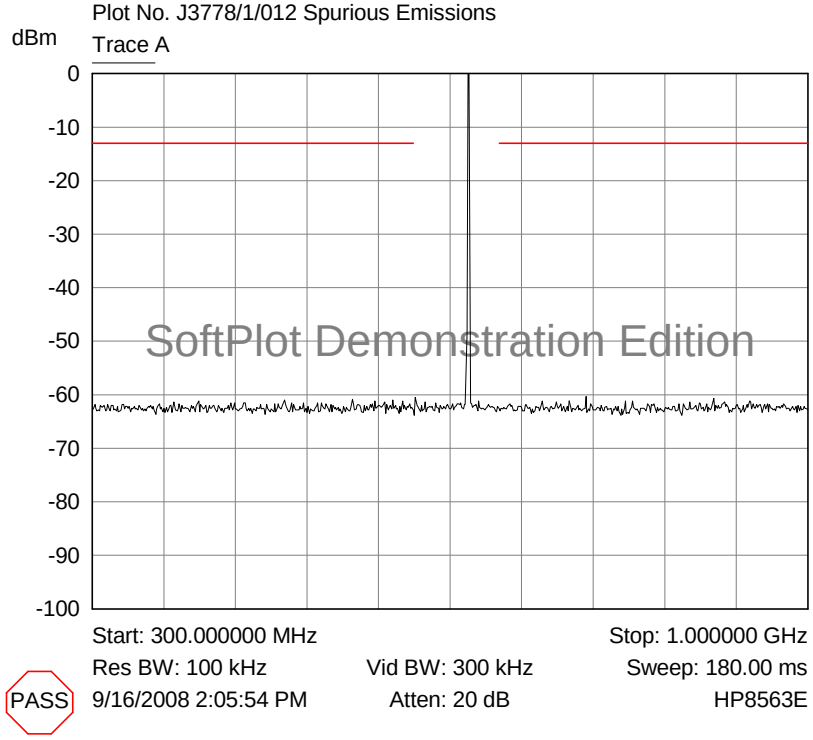
Start: 2.900000 GHz Stop: 6.400000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 70.00 ms
PASS 9/16/2008 1:45:06 PM Atten: 20 dB HP8563E

Plot No. J3778/1/011 Spurious Emissions



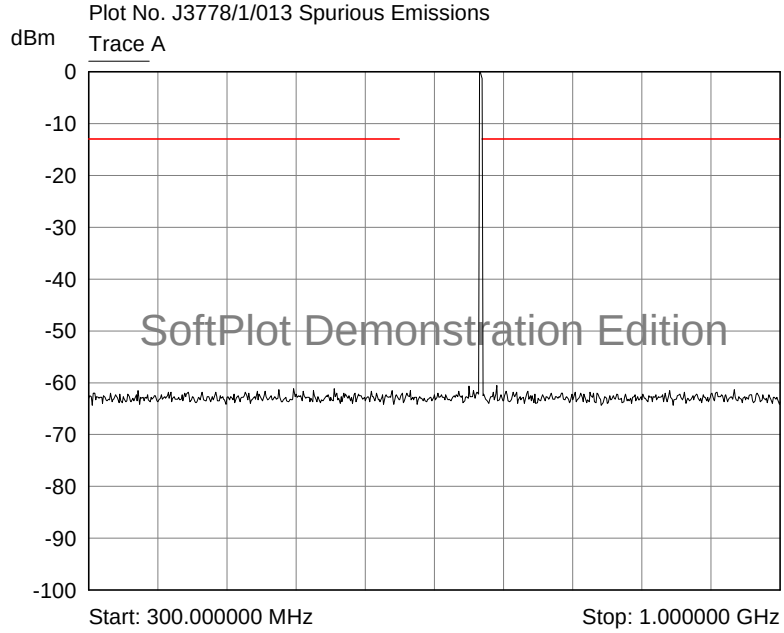
Start: 6.400000 GHz Stop: 12.440000 GHz
Res BW: 1 MHz Vid BW: 3 MHz Sweep: 130.00 ms
PASS 9/16/2008 1:45:53 PM Atten: 20 dB HP8563E

Plot No. J3778/1/012 Spurious Emissions



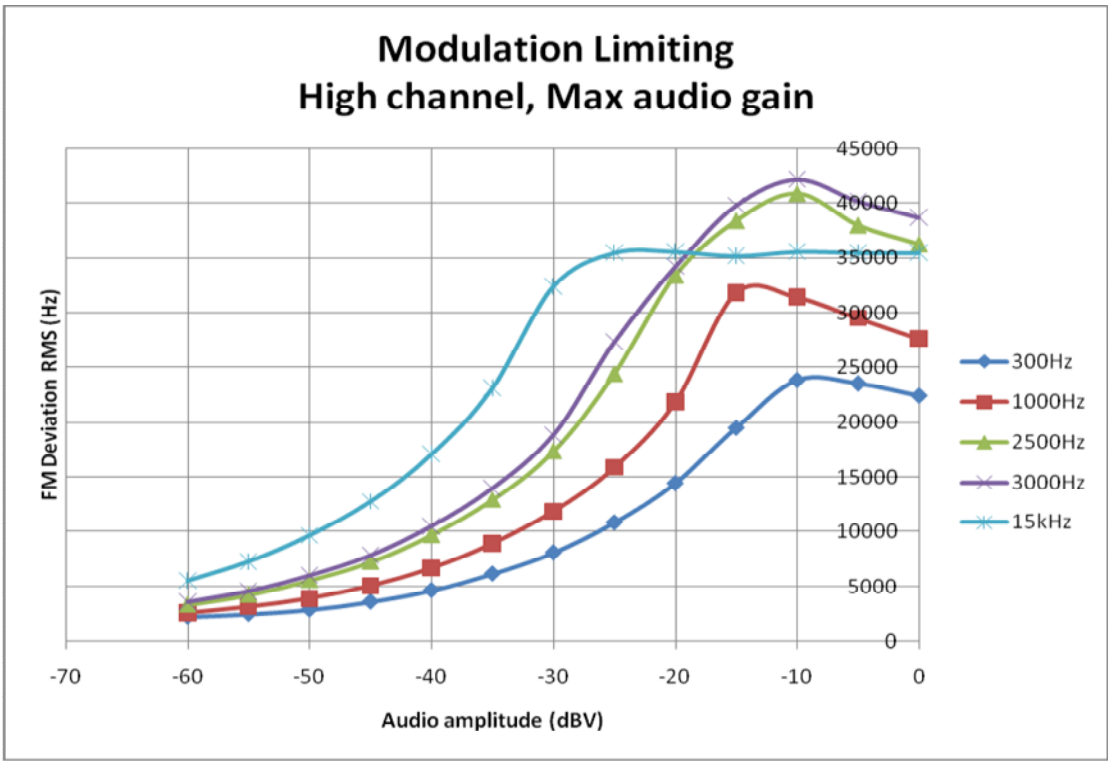
Start: 300.000000 MHz Stop: 1.000000 GHz
Res BW: 100 kHz Vid BW: 300 kHz Sweep: 180.00 ms
PASS 9/16/2008 2:05:54 PM Atten: 20 dB HP8563E

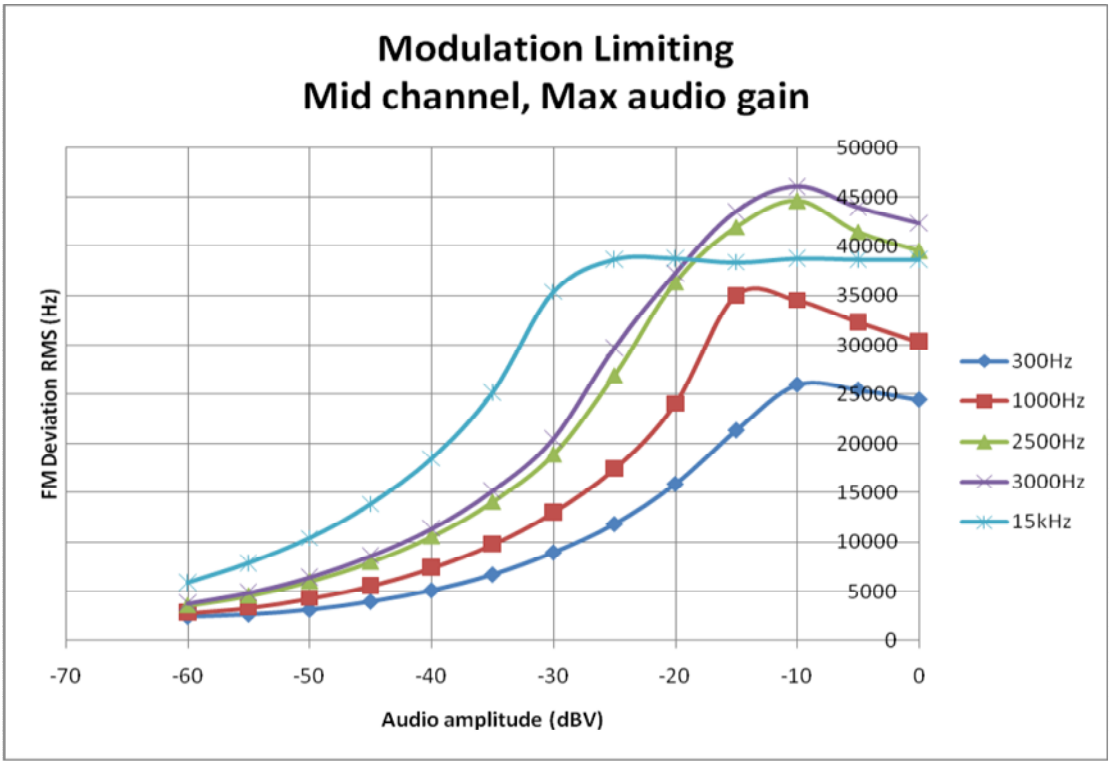
Plot No. J3778/1/013 Spurious Emissions

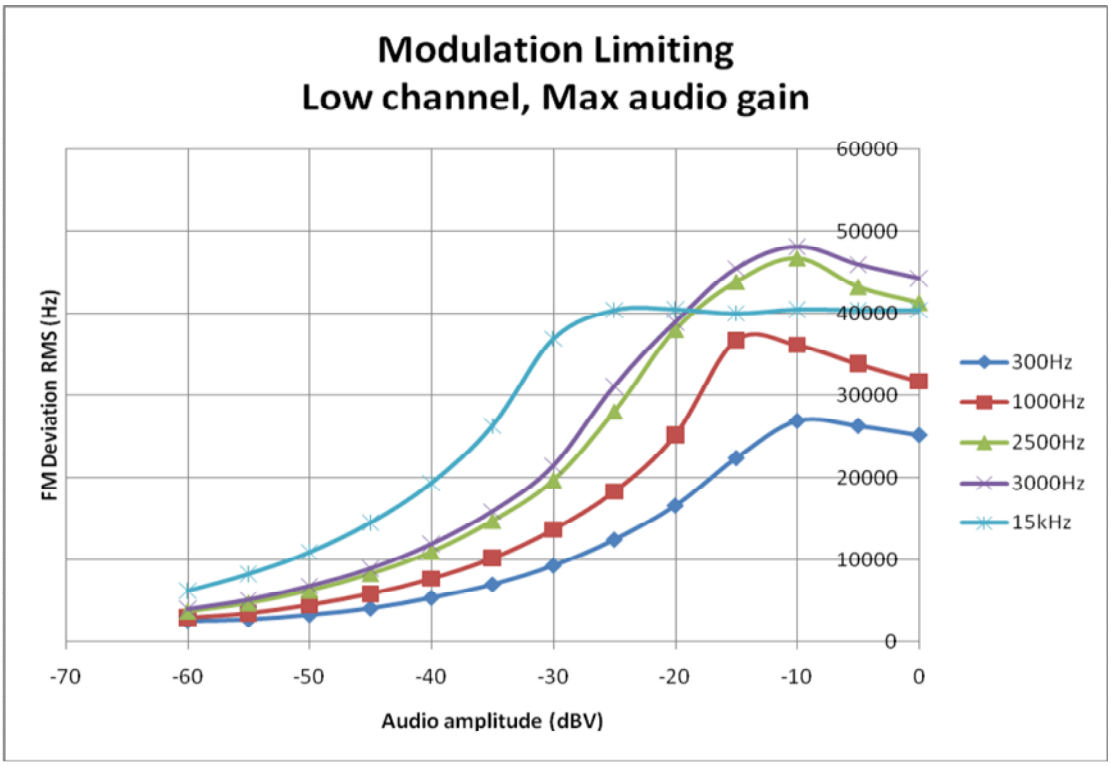


Start: 300.000000 MHz Stop: 1.000000 GHz
Res BW: 100 kHz Vid BW: 300 kHz Sweep: 180.00 ms
PASS 9/16/2008 2:07:04 PM Atten: 20 dB HP8563E

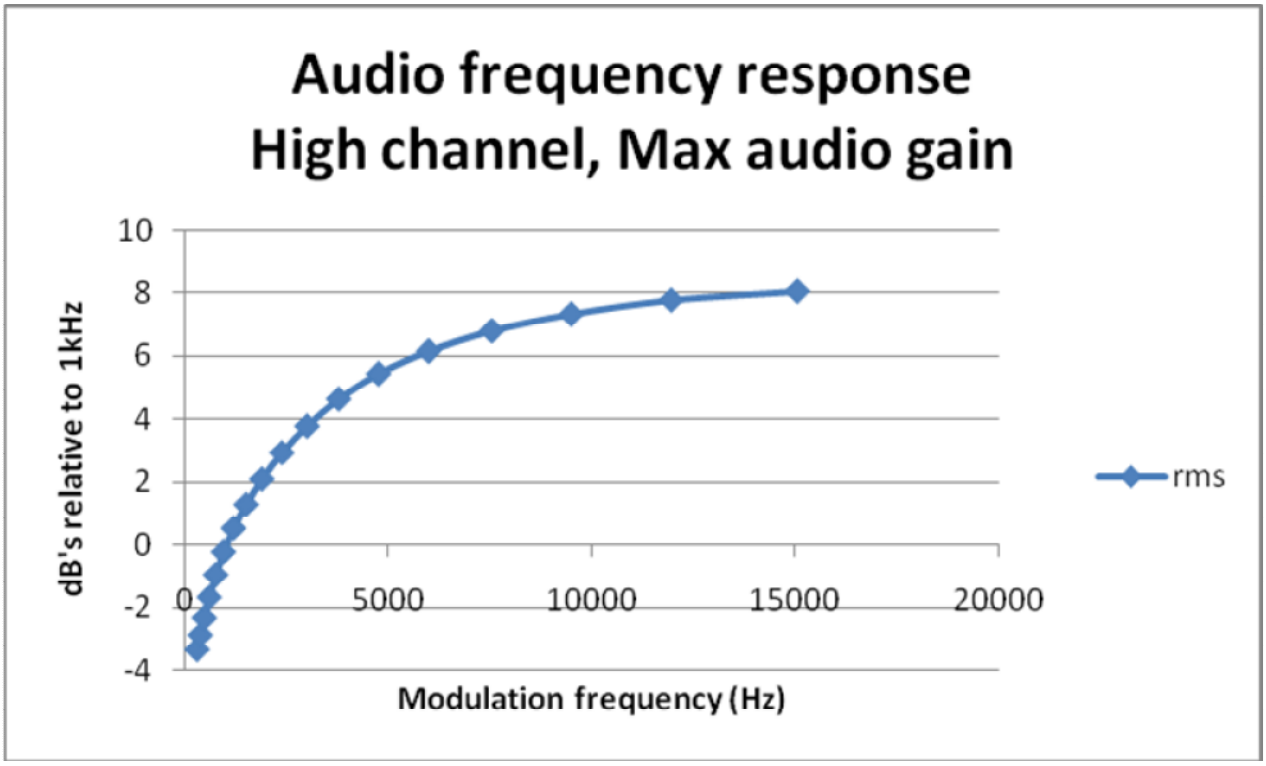
6.2 Modulation limiting

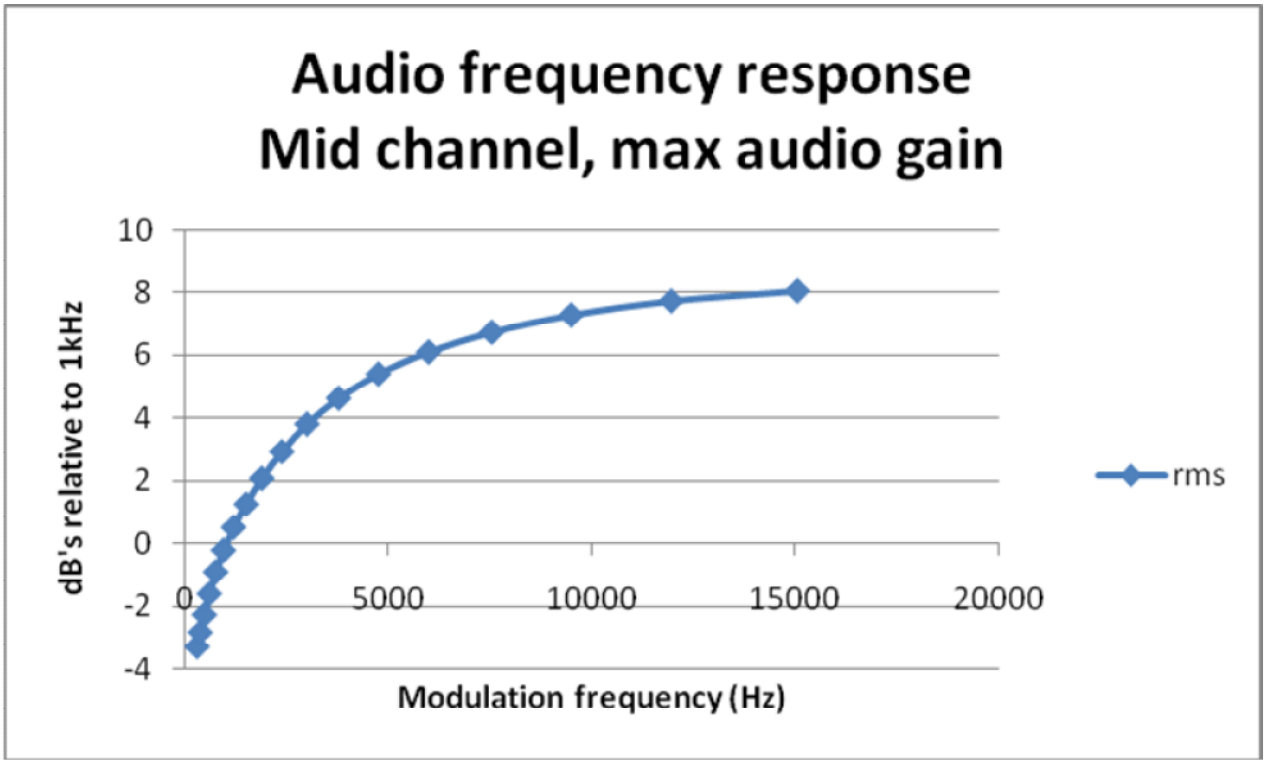


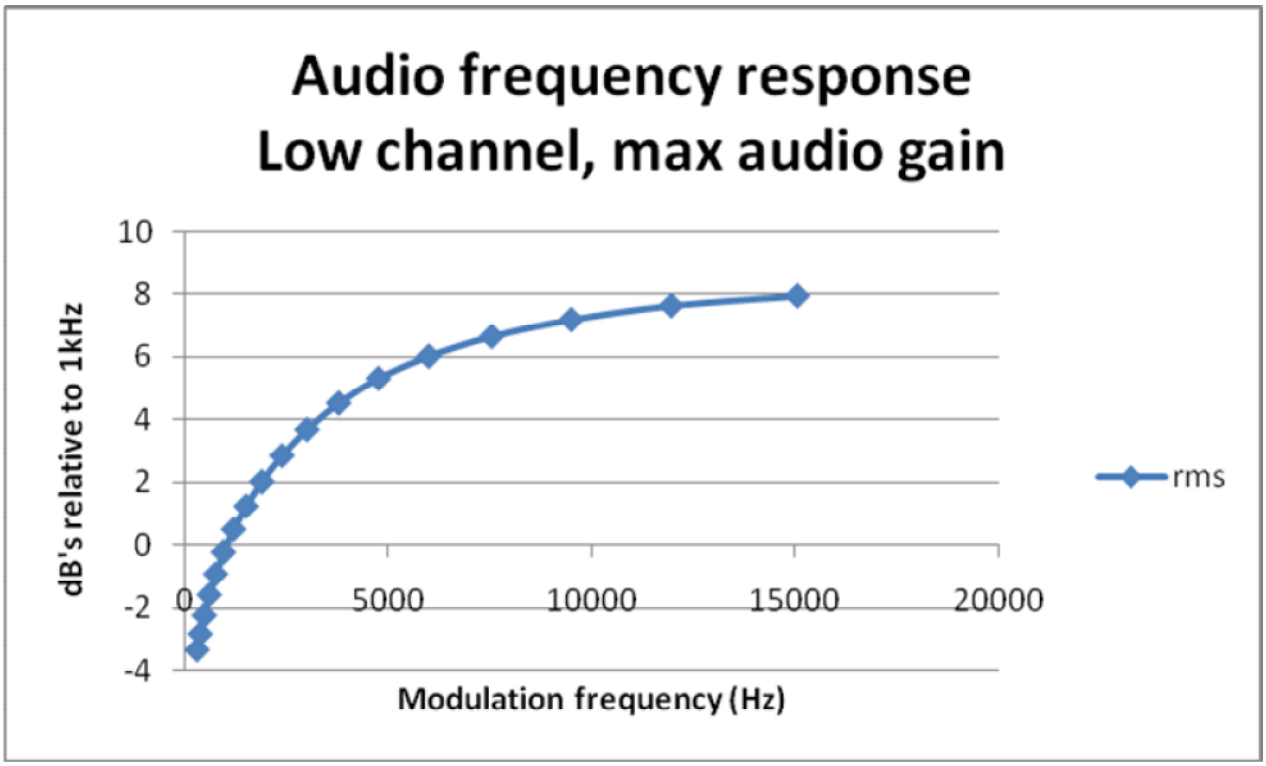




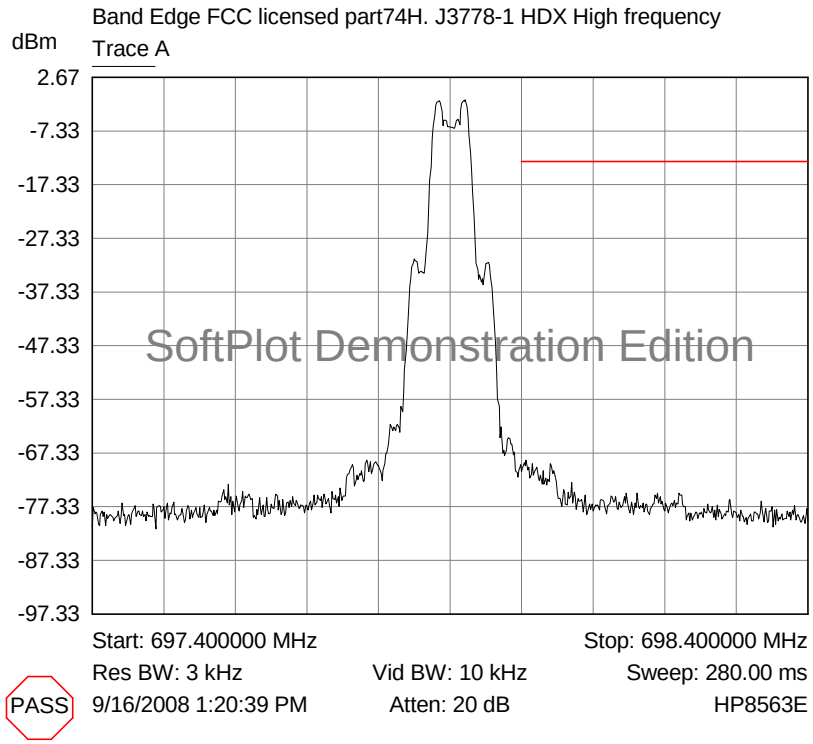
6.3 Audio response

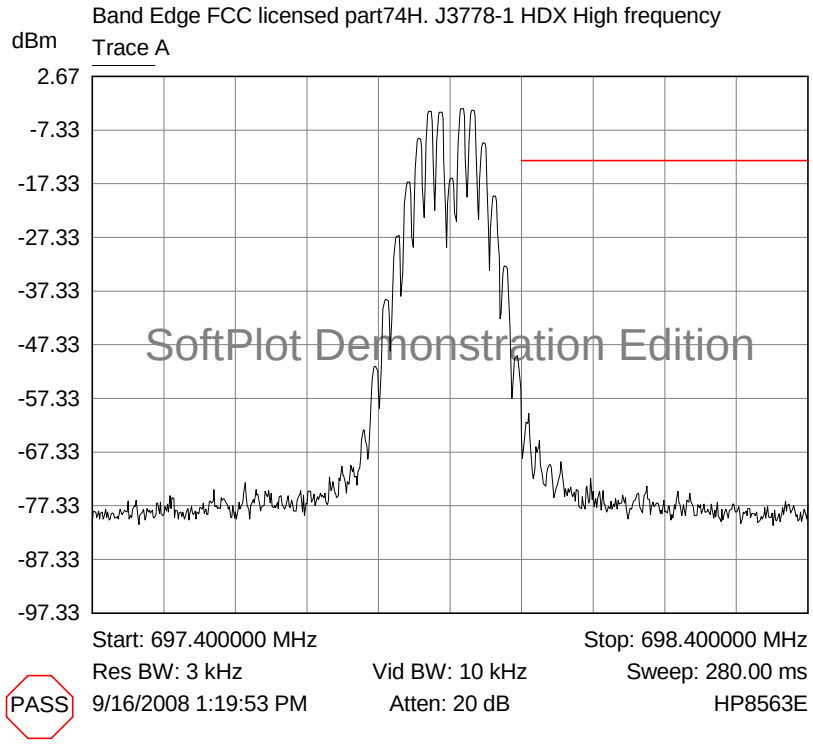


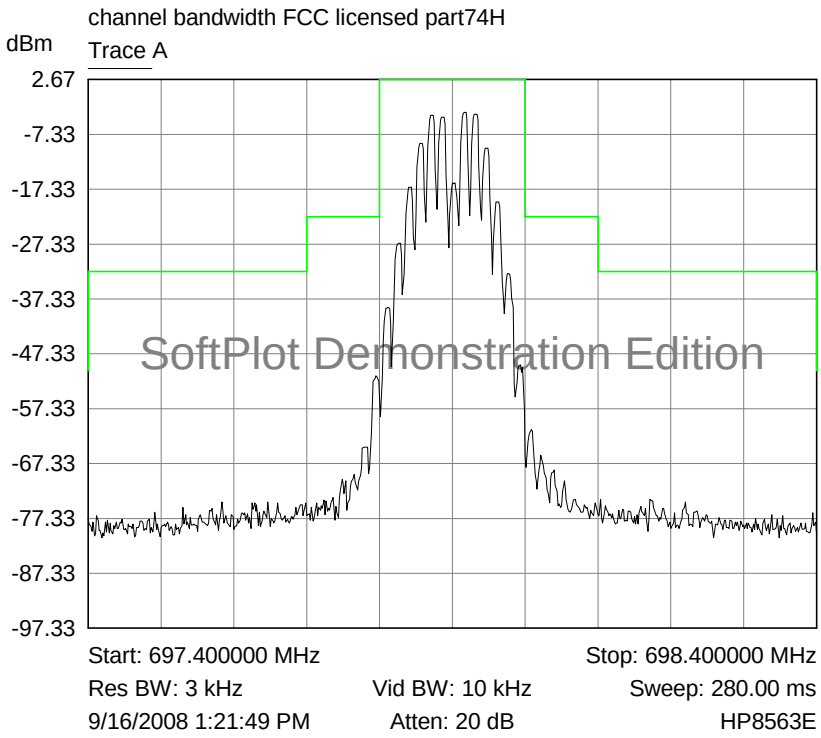


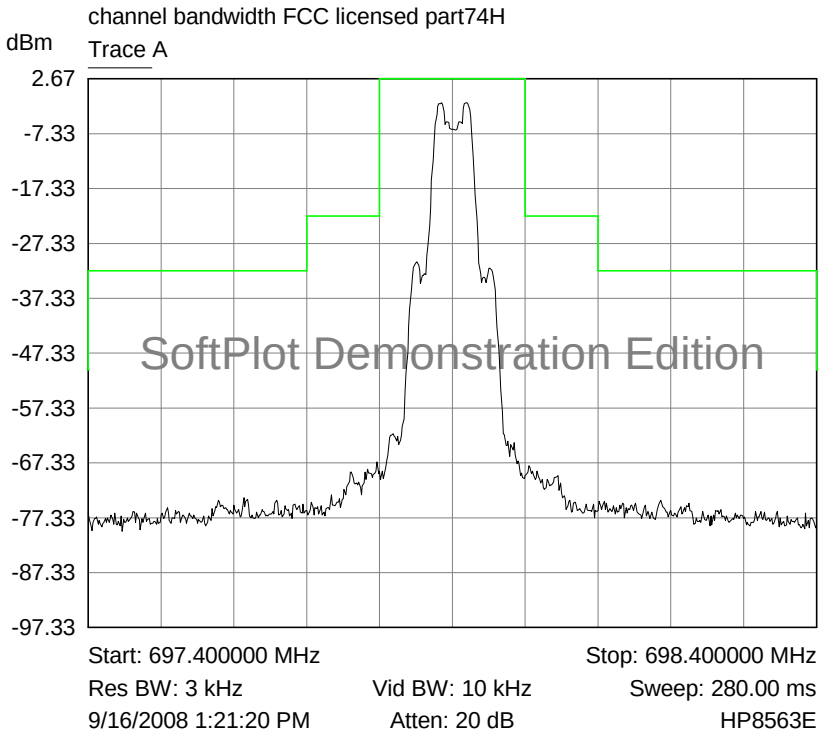


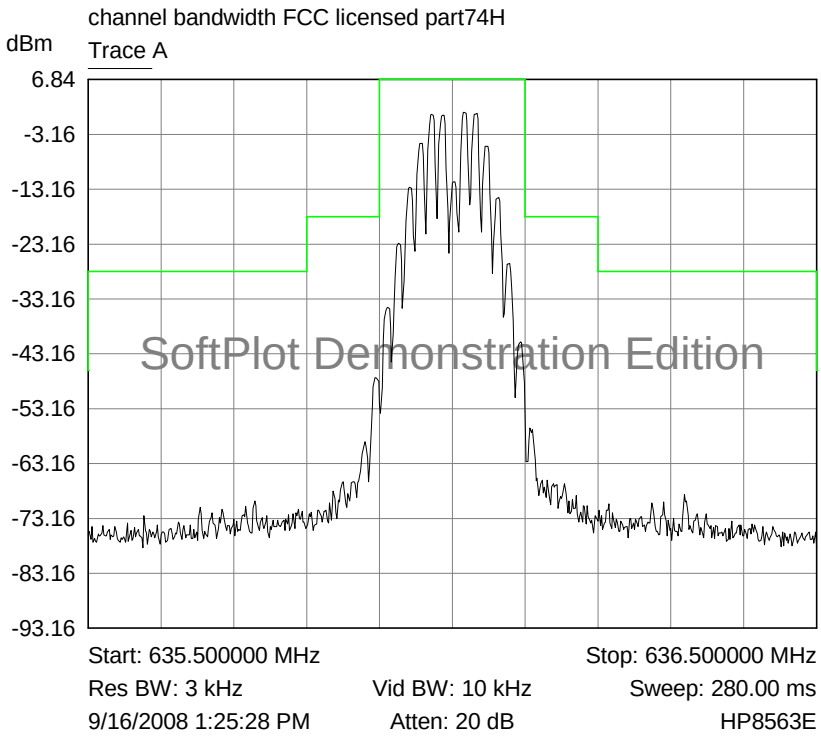
6.4 Channel bandwidth / band-edge plots

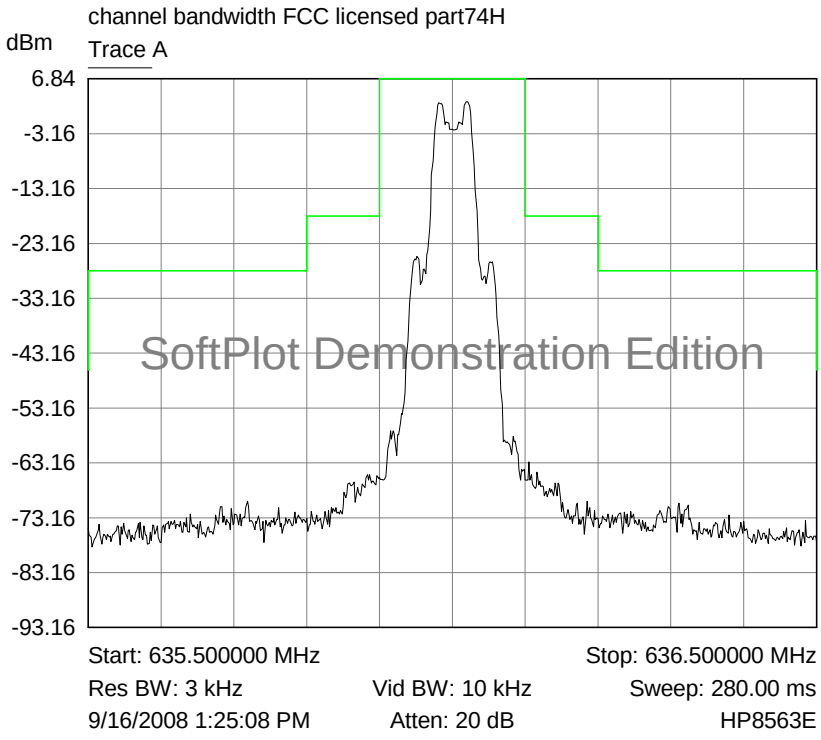


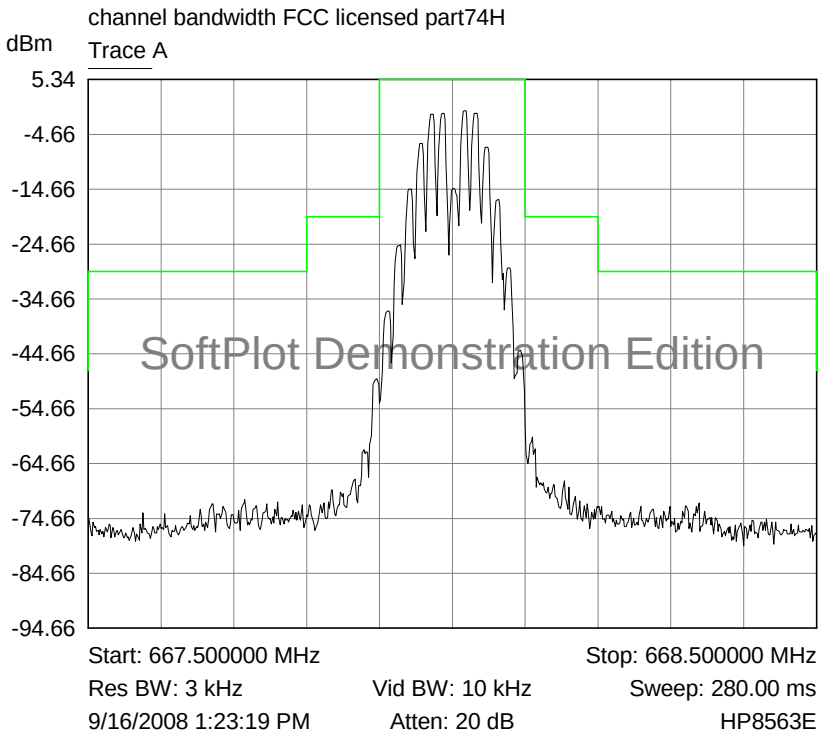


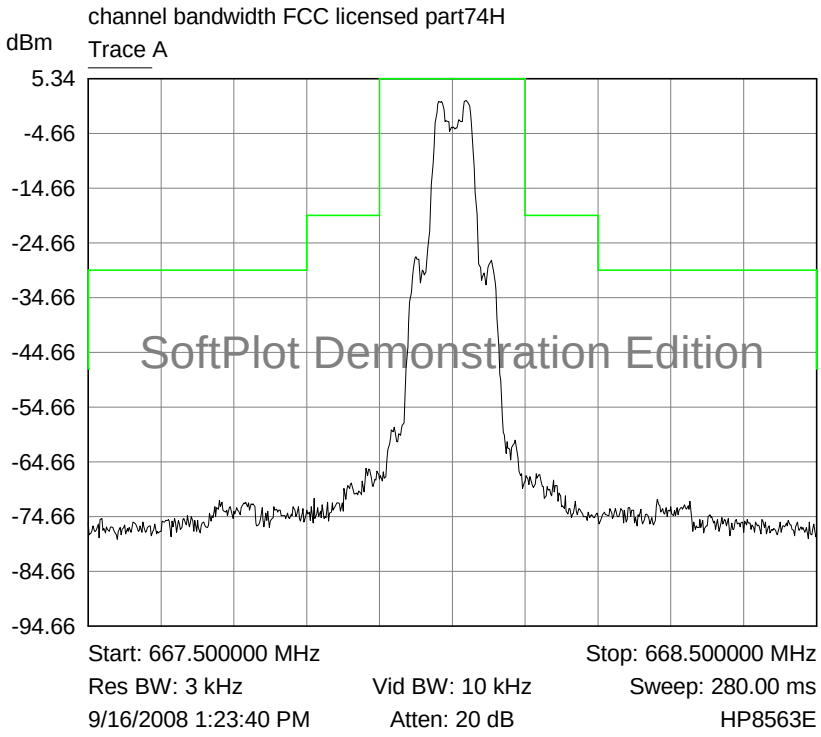








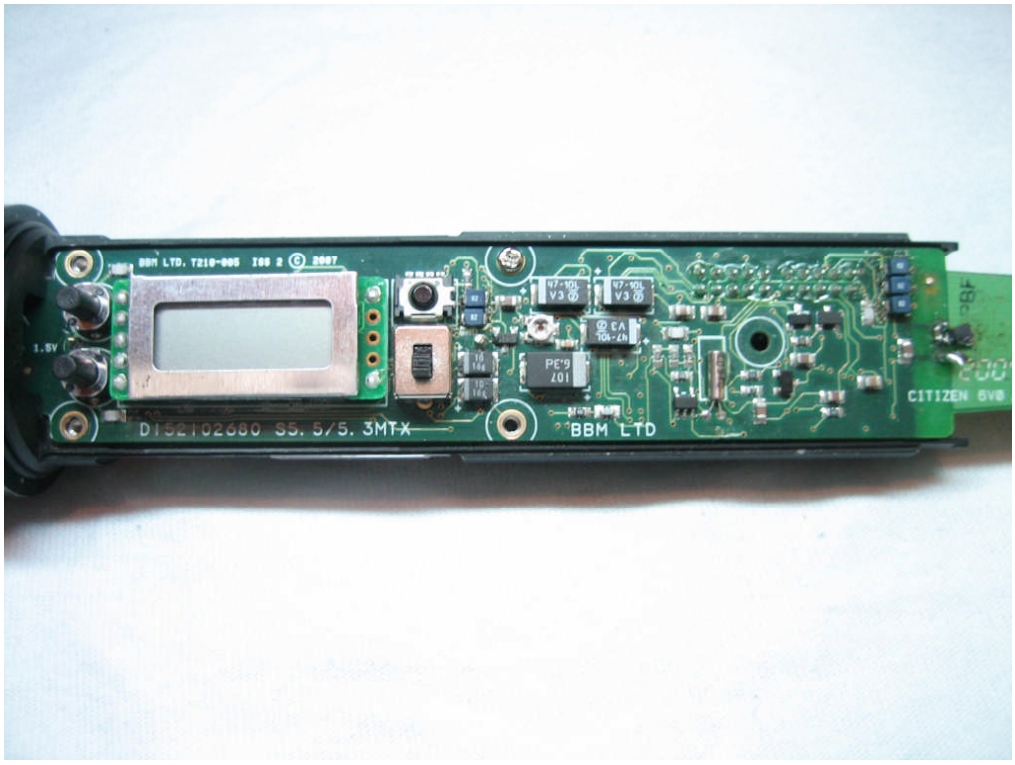


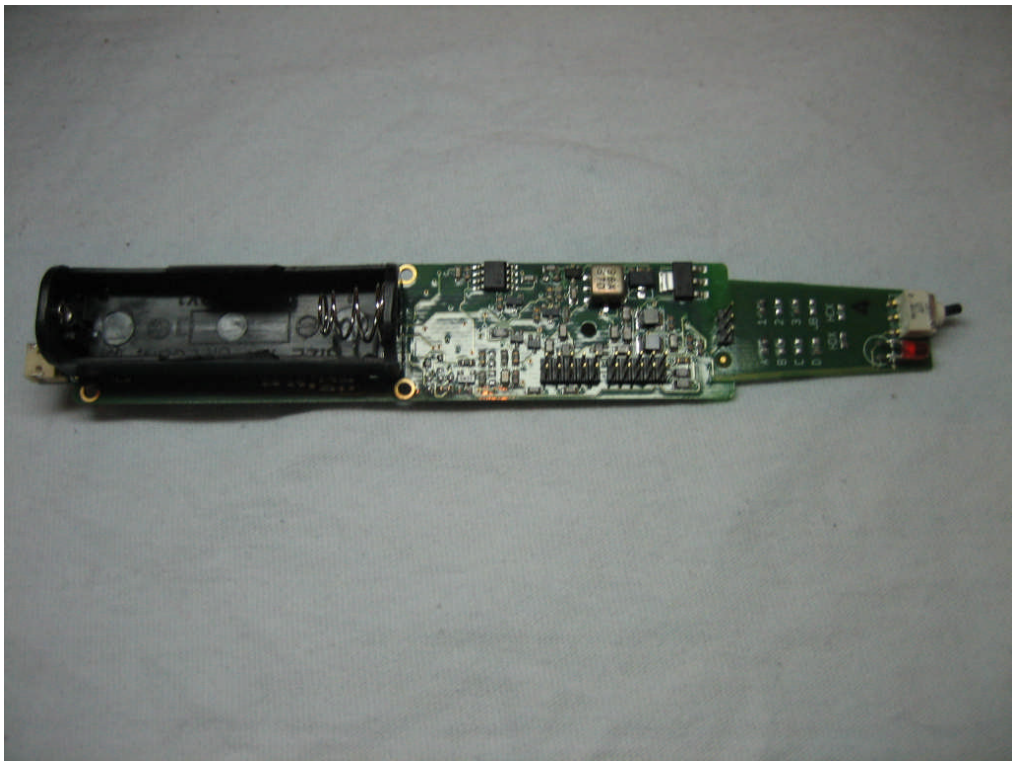


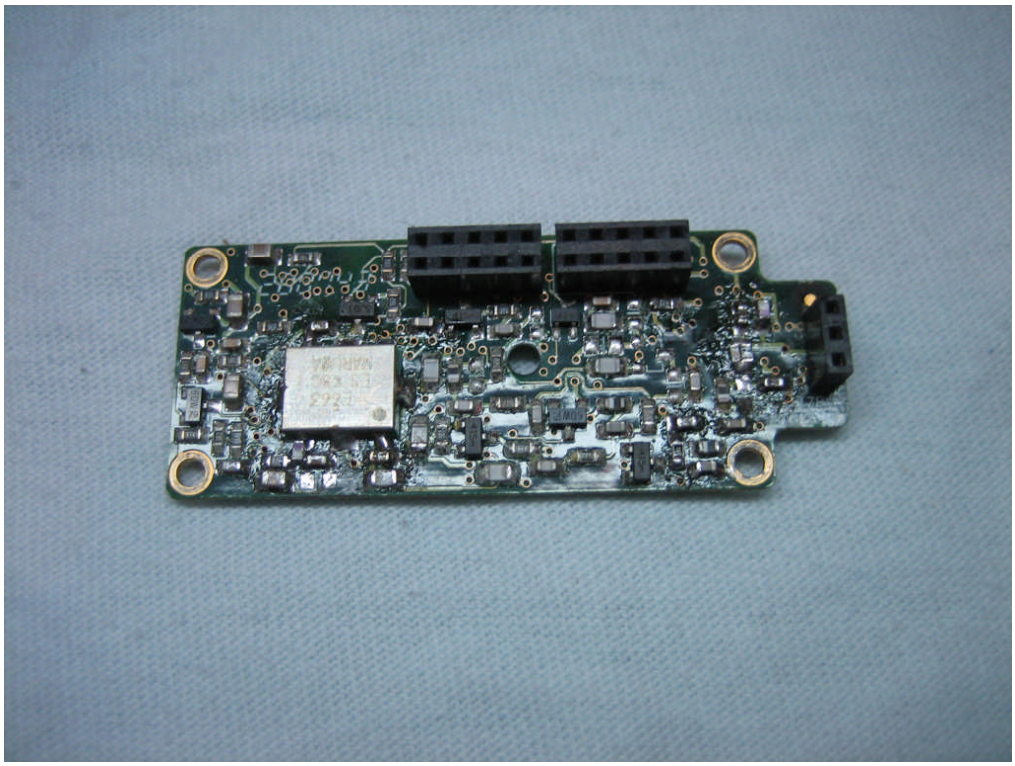
7. Photographs

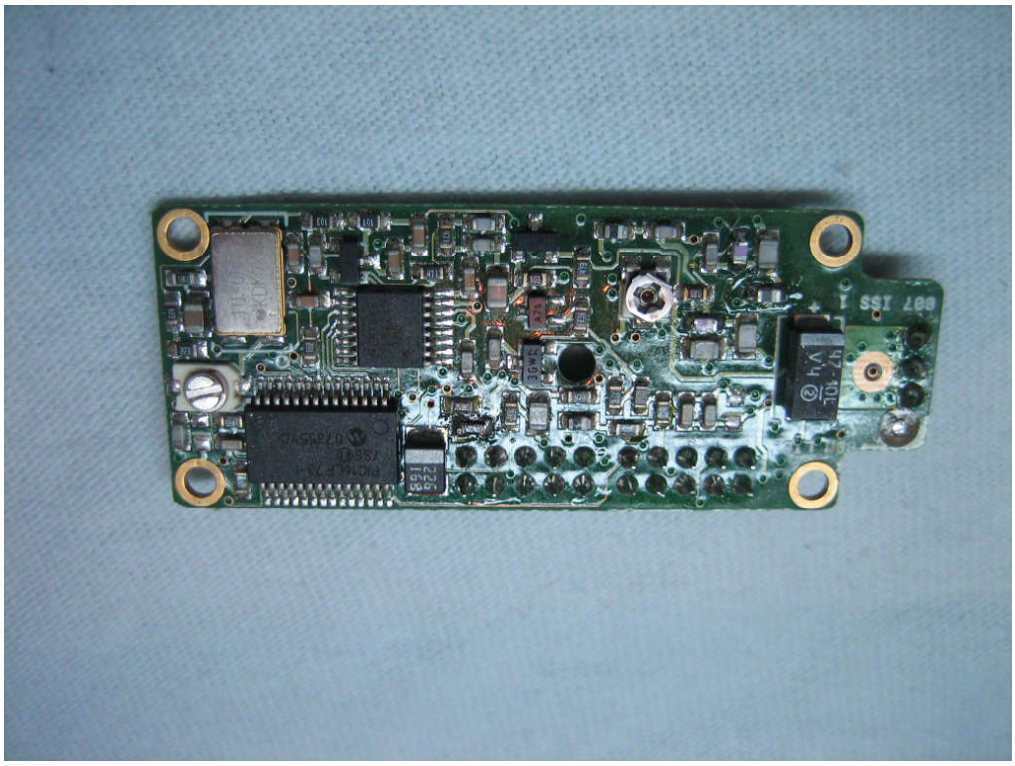
7.1 EUT Front View

7.2 EUT Internal Construction









7.4 Test set-up, spurious emissions

8. Signal Leads

Port Name	Cable Type
None	-

9. Test Equipment Calibration list

The Following is a list of the test equipment currently in use at ***R.N. Electronics Ltd.*** EMC test facility. In line with our quality procedures, the equipment used will be within calibration for the period during which testing was carried out.

RNNo	Model	Description	Manufacturer	Date Calibrated	Period
CO31	437B	Power Meter	Hewlett Packard	19-Oct-07	12
CO32	8482A	Power Sensor	Hewlett Packard	23-Oct-07	12
E1	HP8542E	EMI Receiver & RF Filter	Hewlett Packard	13-Nov-07	12
E3	HP8593E	Spectrum Analyser	Hewlett Packard	20-Sep-06	24
E3	HP8593E	Spectrum Analyser	Hewlett Packard	10-Oct-08	24
E136	3105	Horn Antenna	EMCO	N/A	N/A
E227	6632A	System DC Power Supply	Hewlett Packard	7-Nov-07	12
E238	FC5343A	2.7 - 5.0 GHz BPF	IFR	N/A	N/A
E239	H-34-2720-01	2.0 - 2.9 GHz BPF	Marconi	N/A	N/A
E266	2032	5.4GHz Signal Generator	Marconi Instruments	27-Mar-08	24
E268	BHA 9118	1-18 GHz Horn Antenna	Schaffner	26-May-06	60
E285	8546A	EMI Receiver	Hewlett Packard	24-Sep-08	12
E285	8546A	EMI Receiver	Hewlett Packard	07-Sep-07	12
E320	8430A	Bandpass Filter 800 MHz - 2.0 GHz	HP	N/A	N/A
E324	BARO	Barometer	TFA	16-May-08	6
E327	CBL6141A	Bi-log Antenna	Schaffner	08-Mar-07	24
E342	8563E	Spectrum Analyser	Hewlett Packard	15-Feb-07	24
N438	3513 172 1208	3.9 - 7.5 GHz BPF	MEL	N/A	N/A
TMS39	VMT04/16	Environmental Oven	Heraeus Votsch	N/A	N/A
TMS49	8901B	Modulation Analyser	Hewlett Packard	02-Jun-08	24
TMS55	8903B	Audio Analyser	Hewlett Packard	18-Dec-07	24
TMS73	0.083333333	Off Air Standard	Quartzlock	N/A	N/A
TMS80	206-3722	Digital Thermometer & K Probe	RS Components Ltd	07-Jun-08	12
TMS814	MP627A	Doublet Antenna 200-1700 MHz	Anritsu Electric Co Ltd	08-Feb-05	60
TMS82	8449B	Pre Amplifier 1 - 26 GHz	Agilent	26-Oct-07	12
TMS933	CBL6141A	Bilog Antenna 30MHz - 2GHz	York EMC	10-Sep-07	36

10. Auxiliary Equipment

10.1 Supplied by BBM Electronics

Auxiliary equipment used for the purpose of test supplied by the above has been listed below

None.

10.2 Supplied by RN Electronics Limited

Auxiliary equipment used for the purpose of test supplied by the above has been listed below

None.

11. Modifications

In order for the EUT to produce the results shown within this report the following modifications, if any, were implemented.

None.

RN Electronics
EMC & RADIO TEST SERVICES

Certificate of Test

The equipment noted below has been tested by ***R.N. Electronics Limited*** and conforms with the relevant subpart of chapter 47 of the Code of Federal Regulations tested per 47CFR2 subpart J.

This certificate relates to the equipment, as identified by unique serial number(s) and further detailed in the referenced report, in the condition(s) at the time it was tested. It does not relate to any other similar equipment and performance of the product before or after the test cannot be guaranteed. Furthermore, this is a certificate of test only and should not be confused with an equipment authorisation.

Equipment:	Trantec S5 series handheld transmitter S5.5HDX
FCC ID (if applicable):	F3SS5HX
Manufacturer:	BBM Electronics Group Ltd
Customer Purchase Order Number:	SB White Space
R.N. Electronics Limited Report Number:	12-291/3778/1/08
Test Standards:	47CFR Part 2, Subpart J: Oct 2007 ↳ 47CFR Part 74, Subpart H: Oct 2007 Class TBF Intentional Radiator
Date:	Sep-11 to Oct-20, 2008

The measurement uncertainty gives a 95% confidence that the equipment meets the limits specified in the standards

For and on behalf of
R.N. Electronics Limited

Signature: Paul Darragh

Digitally signed by: Paul Darragh
DN: CN = Paul Darragh
Date: 2009.01.27 13:28:36 Z

Technical Director

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