Testing Tomorrow's Technology

Application for

US Code Title 47, Part 2, Subpart J, Section 2.947, Certification
Per
Part 15, Subpart C, for Intentional Radiators, Section 15.247, Intentional Radiator Operating within the Band 902 MHz to 928 MHz.

And

US Code Title 47, Part 2, Subpart J, Section 2.902, Verification
Per
Part 15, Subpart B, for Unintentional Radiators, section 15.101, 15.107 and 15.109

For the

Base Station 1 / 05-00006

Manufactured by

Innovative Broadband, Inc.

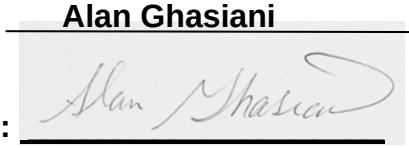
UST Project: 09-0076
Issue Date: June 22, 2009

3505 Francis Circle Alpharetta, GA 30004
PH: 770-740-0717 Fax: 770-740-1508
www.ustech-lab.com

I certify that I am authorized to sign for the test facility and that all of the statements in this report and in the Exhibits attached hereto are true and correct to the best of my knowledge and belief:

US TECH (Agent Responsible For Test):

By: **Alan Ghasiani**



Name: _____

Title: **Consulting Engineer - President**

Date: **June 22, 2009**

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MEASUREMENT/TECHNICAL REPORT

COMPANY NAME: Innovative Broadband Inc.

MODEL: Base Station 1 / 05-00006

FCC ID: XFH-05000006

DATE: June 19, 2008

This report concerns (check one): Original grant X
Class II change_____

Equipment type: **Intentional Radiator Operating within the bands 902-928 MHz**

Deferred grant requested per 47 CFR 0.457(d) (1) (ii)? yes_____ No X

If yes, defer until:_____
date

N.A. agrees to notify the Commission by N.A.
date
of the intended date of announcement of the product so that the grant can be issued on that date.

Report prepared by:

US Tech
3505 Francis Circle
Alpharetta, GA 30004

Phone Number: (770) 740-0717
Fax Number: (770) 740-1508

SUMMARY OF TEST REQUIREMENTS

FCC Requirement	Title	Disposition
15.205	Restricted Bands	Pass
15.207	Intentional Radiator Power Line Conducted Emissions	Pass
15.247(a)(2)	6 dB Bandwidth	Pass
15.247(b)	Fundamental Output Power	Pass
15.209	Intentional Radiator Radiated Emissions	Pass
15.247(l)	Power Spectral density	Pass
15.107	Unintentional Radiator Power Line Conducted Emissions	Pass
15.109	Unintentional Radiator Radiated Emission	Pass

N/A = Not applicable for this unit.

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1 General Information

1.1 Purpose of this Report

This report is prepared as a means of presenting test data to be used by a Telecom Certification Body in determination of whether this product is permitted for unlicensed dissemination to the general public according to the FCC Rules and Regulations for RF Devices Intentional Radiators.

1.2 Product Description

The Base Station is part of a two way wireless system. The other part is the Wireless Microphone. The Wireless Microphone synchronizes addresses by being placed on the Base Station. When removed the Wireless Microphone and Base Station can communicate with one another, The Base Station responds to requests from the Wireless Microphone and provides it with status information from discrete signals it receives through its main connector. This status information is a recording indicator and when the Wireless Mic. polls the Base Station, it reads that status information. When it is in record mode, the Wireless Microphone will start to send PCM audio data to the Base Station. The Base Station will receive this audio data and convert it to analog audio and send it through its main connector to an external device.

1.3 Related Submittal(s)/Grant(s)

1.3.1 The EUT is subject to the following FCC authorizations:

a) Certification under section 15.247 as a transmitter.
b) Verification under 15.101 as a digital device and receiver.

1.3.2 Certification of the Transmitter

Though the Base Station is a Digital Transmission System transceiver, it is certified under CFR 15.247.

1.3.3 Verification of the Digital apparatus

The Verification requirement shares many common report elements with the Certification report. Therefore, though this report is mostly intended to provide data for the Certification process, the Verification authorization report (part 15.107 and 109) for the Base Station is included herewith.

2 Tests and Measurements

2.1 Configuration of Tested System

The sample was setup and tested per ANSI C63.4, *Methods of Measurement from Low-Voltage Electrical and Electronic Equipment in the Frequency Range of 9 kHz to 40 GHz (2003).* Conducted and radiated emissions data were taken with the EMC test receiver (or spectrum analyzer's) resolution bandwidth adjusted to 9 kHz and 120 kHz, respectively. All measurements are peak unless stated otherwise. The video filter associated with the spectrum analyzer was off throughout the evaluation process. A Block diagram of the tested system is shown in Figure 1. A listing of the EUT and its test peripherals is found in Table 1 below. Test configuration photographs for spurious and fundamental emissions measurements are in the attached appendices.

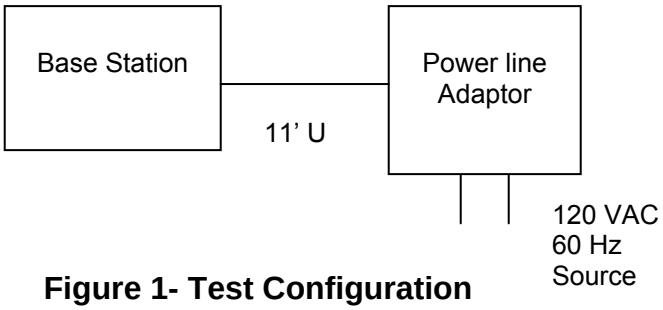


Figure 1- Test Configuration

Table 1- EUT and Peripherals

PERIPHERAL MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID:	CABLES P/D
Innovative Broad Band Inc.	FA83-0015	None	None	6' U Power Cord
AC Power Supply	072-121250-UF	034787	None	120 VAC, 60 Hz Direct Plug-in

2.2 EUT Characterization

The sample used for testing was received by US Tech on June1, 2009 in good operating condition.

2.3 Test Facility

Testing was performed at US Tech's measurement facility at 3505 Francis Circle, Alpharetta, GA. This site has been fully described and registered with the FCC under designation number US5117. Additionally this site has also been fully described and submitted to Industry Canada (IC), and has been approved under file number 2982A-1.

2.4 Test Equipment

Table 2 describes test equipment used to evaluate this product.

Table 2 - Test Instruments used for Evaluation.

TEST INSTRUMENT	MODEL NUMBER	MANUFACTURER	SERIAL NUMBER	DATE OF LAST CALIBRATION
SPECTRUM ANALYZER	8566B	HEWLETT-PACKARD	2332A10055	10/10/08
SPECTRUM ANALYZER	8593E	HEWLETT-PACKARD	3205A00124	9/9/08
RF PREAMP 100 kHz to 1.3 GHz	8447D	HEWLETT-PACKARD	2944A06291	9/12/08
BICONICAL ANTENNA 25 MHz to 200 MHz	3110B	EMCO	9307-1431	1/22/09
LOG PERIODIC 100 MHz to 1000 MHz	3146	EMCO	3110-3236	11/21/07 2 Year
LISN (x 2) 9247-50-TS-50-N	9247	Solar Electronics	955824 & 955826	1/29/09
HORN ANTENNA 1 GHz to 18 GHz	3115	EMCO	9107-3723	11/4/08 2 Year
PREAMP 1 GHz to 26.5 GHz	8449B	HEWLETT-PACKARD	3008A00480	9/2/08
CALCULATION PROGRAM	N/A	N/A	Ver. 6.0	N/A

Note: The calibration interval of the above test instruments is 12 months unless stated otherwise, and all calibrations are traceable to NIST/USA.

2.5 Modifications to EUT

To meet 6 dB bandwidth compliance with FCC Part 15.247, the firmware on the EUT has modified by Innovative Broadband Inc.,

2.6 Measurement Standards (CFR 15.31)

Intentional and unintentional radiators are to use the methods of ANSI C63.4 – 2003. Measurements were made on an Open Area Test Site (OATS) wherever possible. For battery powered equipment, new (or fully charged) batteries are used.

Section 15.31(m) indicates that because the EUT System operates over the 902 MHz to 928 MHz ISM band, measurements must be made near the bottom of the band (around 902 MHz for example) and in the middle of the band (915 MHz) as well as near the top of the band (928 MHz).

2.7 Frequency Range of Radiated Measurements (CFR 15.33)

The frequency range is detailed below for intentional and unintentional radiators.

2.7.1 Frequency Range for Intentional Radiators

The spectrum was investigated from the lowest RF signal generated without going below 9 kHz to the 10^{th} harmonic of the highest fundamental transmitter frequency (9280 MHz maximum).

2.7.2 Frequency Range for Unintentional Radiators

The spectrum was investigated from the lowest RF signal generated without going below the lowest frequency for which an emissions limit is specified (30 MHz) to the 5^{th} harmonic of the highest fundamental frequency of the digital device (5 GHz maximum).

2.7.3 Measurement Detector Function and Bandwidth (CFR 15.35)

On any frequency below 1000 MHz, the limits shown are based upon measuring equipment employing a CISPR quasi-peak detector function and related measurement bandwidths. On frequencies above 1000 MHz, the radiation limits are based upon the use of measuring instrumentation employing an average detector function.

When average detector measurements are specified for use, including emission measurements below 1000 MHz, there is also a corresponding limit for Peak detector measurements having a limit of 20 dB above the corresponding average limit unless a different peak emission limit is specified. Measurements above 1000 MHz utilize a minimum resolution bandwidth of 1 MHz.

When radiated emissions limits are expressed in terms of the average value of the emission and pulsed operation is employed, the measurement field strength is determined by averaging over one complete pulse train (Duty Cycle) including blanking intervals for pulse trains up to 0.1 second in duration. The exact method of calculating the average field strength is included in paragraph 2.11 of this report. Refer to Figures 2 and 3 for duty cycle measurement data.

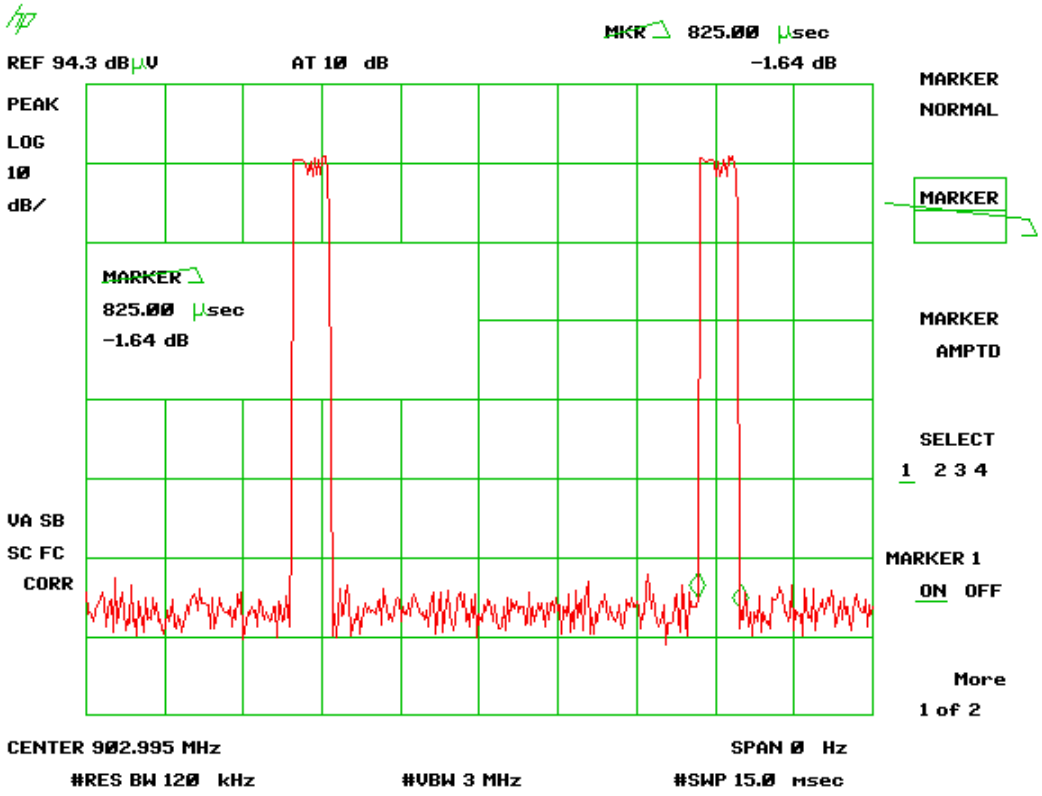
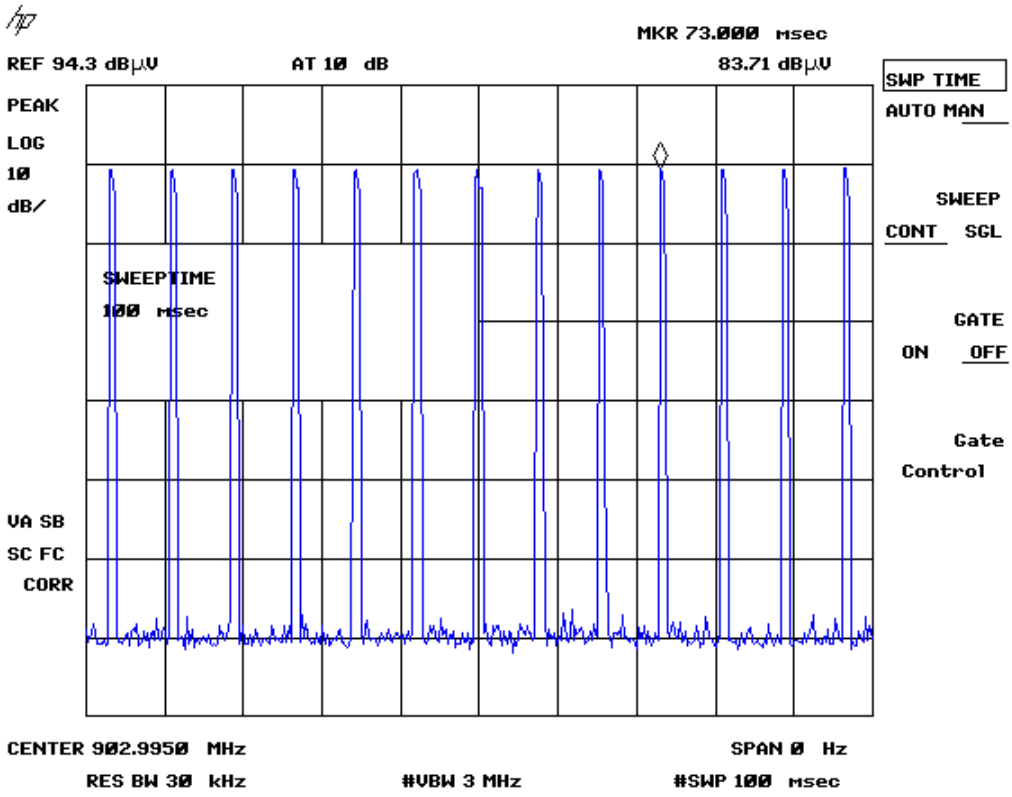


Figure 2- Transmitter Pulse Width.



0.825mS x 13 = 0.10725 = 10.725 percent

DC = 20 Log 0.10725 = -19.4 dB

Figure 3– Pulses in a 100 mSec Period.

2.8 Antenna Requirement (CFR 15.203)

The intentional radiator is designed to assure that no antenna other than that furnished by the manufacturer is used with the device. The use of a permanently attached antenna is considered sufficient to comply with this requirement. Below is a table of the permanently attached antenna used with this system and its characteristics. If, in the future, additional antennas are contemplated for use, they must be formally evaluated and approved for suitability to these requirements.

Table 3 - Base Station Antennas.

Manufacturer	Model Number	Antenna Type	Frequency Range	Peak Gain dBi	Impedance Ohms
Antenna Factor	ANT-916-CW-HWR-RPS	Dipole	916	< 2	50
Antenna Factor	ANT-916-MHW-RPS	Dipole	881-951 MHz	< 2	50

2.9 Intentional Radiator, Power Lines Conducted Emissions (CFR 15.207)

The power line conducted voltage emission measurements have been carried out in accordance with CFR 15.207, per ANSI C63.4, Paragraph 7, with a spectrum analyzer connected to an LISN and the EUT placed into a continuous mode of transmission.

The worst-case results for conducted emissions were determined to be produced when the EUT was operating under continuous transmission on the low channel. There were no signals within 5.7 dB of the Average limits. Those results are given in Table 4 below.

Table 4 – Transmitter Power Line Conducted Emissions, Part 15.207

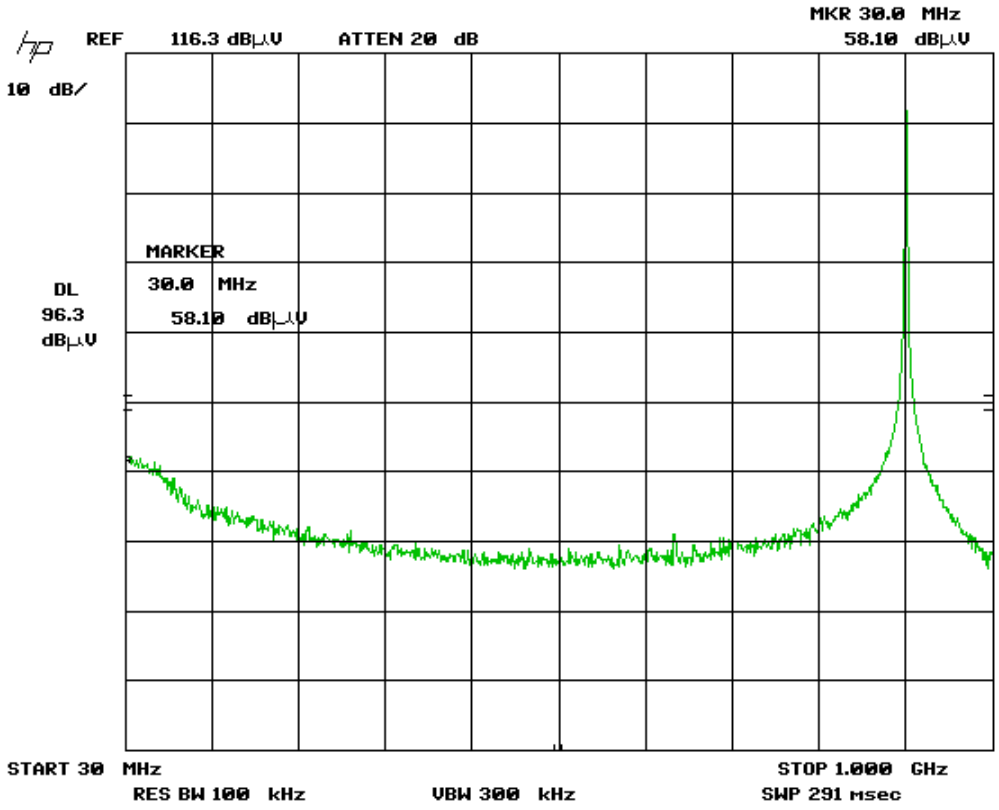
Power Line Conducted Emissions							
Test By: K.M.	**Test:** FCC Power Line Conducted Emissions 150 KHz – 30 MHz , Hot Phase			**Client:** Innovative Broadband Inc.			
	Project: 09-0076	Sect. 15.207 Class: B		**Model:** Base Station			
Frequency (MHz)	**Test Data (dBuV)**	**IL+CL -PA (dB)**	**Results (dBuV)**	**AVG Limits (dBuV)**	**Phase /Neutral**	**Margin (dB)**	**PK / QP**
Hot Line							
0.1500	48.28	-1.51	46.77	56.0	Phase	9.2	**PK**
0.6050	37.85	0.06	37.91	46.0	Phase	8.1	**PK**
1.5000	31.96	-0.09	31.87	46.0	Phase	14.1	**PK**
7.3600	29.53	0.15	29.68	50.0	Phase	20.3	**PK**
15.8300	20.31	0.34	20.65	50.0	Phase	29.4	**PK**
29.8500	19.77	0.50	20.27	50.0	Phase	29.7	**PK**
Neutral Line							
0.1500	51.77	-1.49	50.28	56.0	Neutral	5.7	**PK**
0.6010	38.87	0.10	38.97	46.0	Neutral	7.0	**PK**
1.8000	31.57	-0.06	31.51	46.0	Neutral	14.5	**PK**
7.3200	27.38	0.15	27.53	50.0	Neutral	22.5	**PK**
10.5500	20.62	0.19	20.81	50.0	Neutral	29.2	**PK**
29.9500	20.32	0.56	20.88	50.0	Neutral	29.1	**PK**

Tested from 150 kHz to 30 MHz.
SAMPLE CALCULATIONS: at 0.150 MHz, 48.28 dBuV + (- 1.51) = 46.77 dBuV

Tester Signature:  Name: Keyvan Muvahhid

2.10 Intentional Radiator, Radiated Emissions (CFR 15.209, 15.247(d)) (IC RSS 210, A2.9 (a))

The EUT was put into a continuous-transmit mode of operation and tested per FCC KDB Publication 558074 for conducted out of band emissions emanating from the antenna port over the frequency range of 30 MHz to 10 GHz. A conducted scan was performed on the EUT to identify and record spurious signals that were related to the transmitter. Antenna Conducted Emissions of a significant magnitude that fell within restricted bands were then measured as radiated emissions on the OATS. The conducted emissions graphs are found in figures 4 through 12 below. The limit for antenna conducted power is 1 Watt (30 dBm) per 15.247 (b)(3).



Note: Large signal shown represents Fundamental Frequency

Figure 4 - Antenna Conducted Spurious Emissions – CFR 15.247 (d) - Low Channel, Part 1

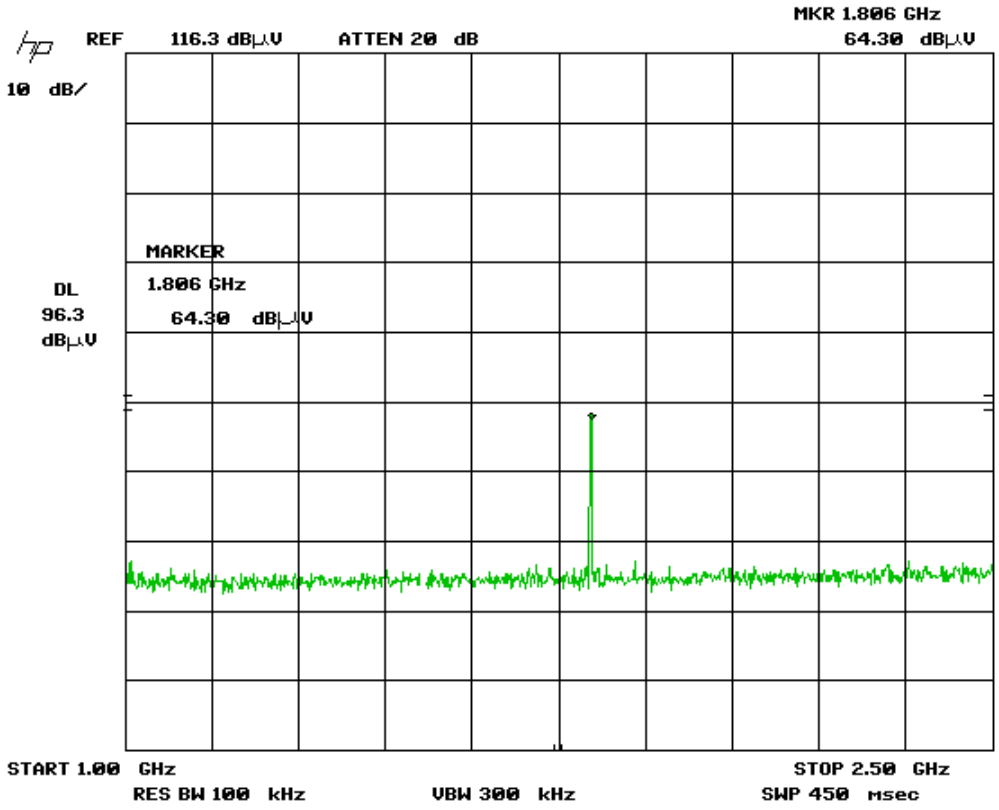


Figure 5 - Antenna Conducted Spurious Emissions – CFR 15.247 (d) - Low Channel, Part 2

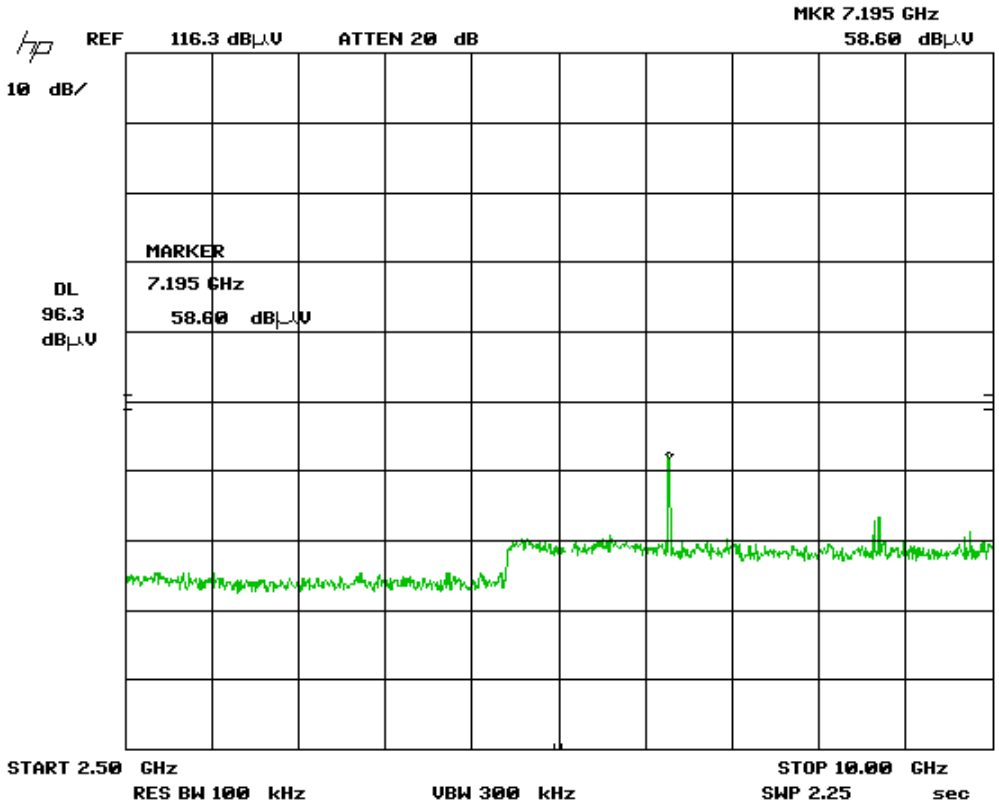
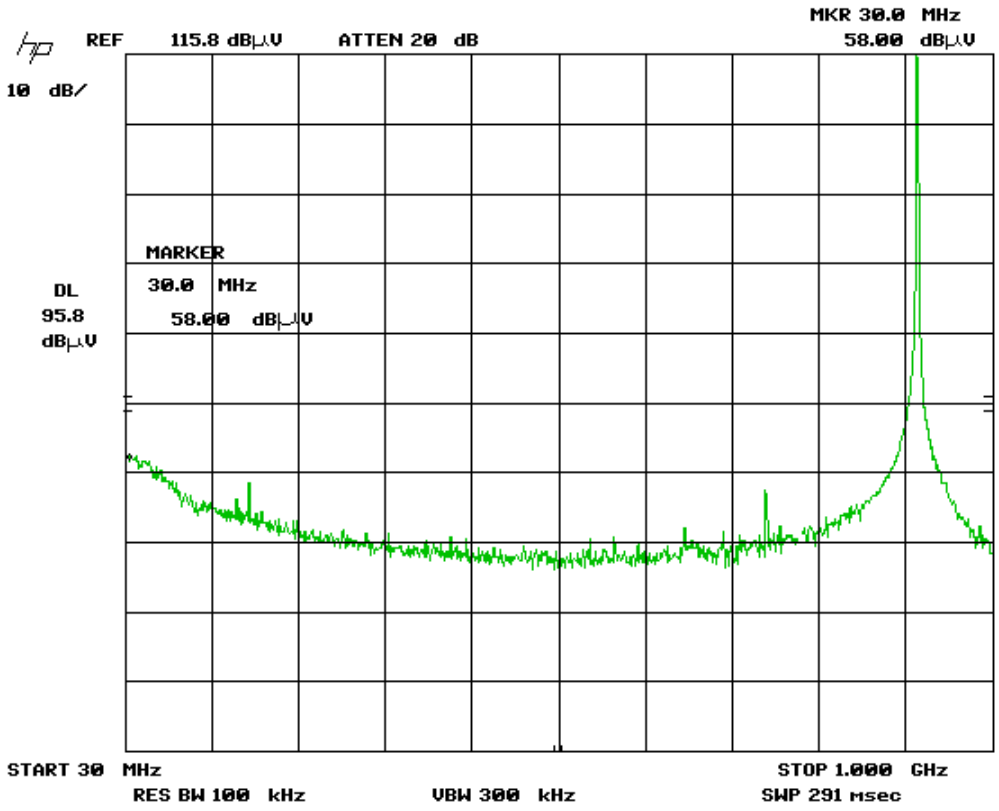


Figure 6 - Antenna Conducted Spurious Emissions – CFR 15.247 (d) - Low Channel, Part 3



Note: large signal shown represents Fundamental Frequency

Figure 7 - Antenna Conducted Spurious Emissions – CFR 15.247 (d) - Mid Channel, Part 1

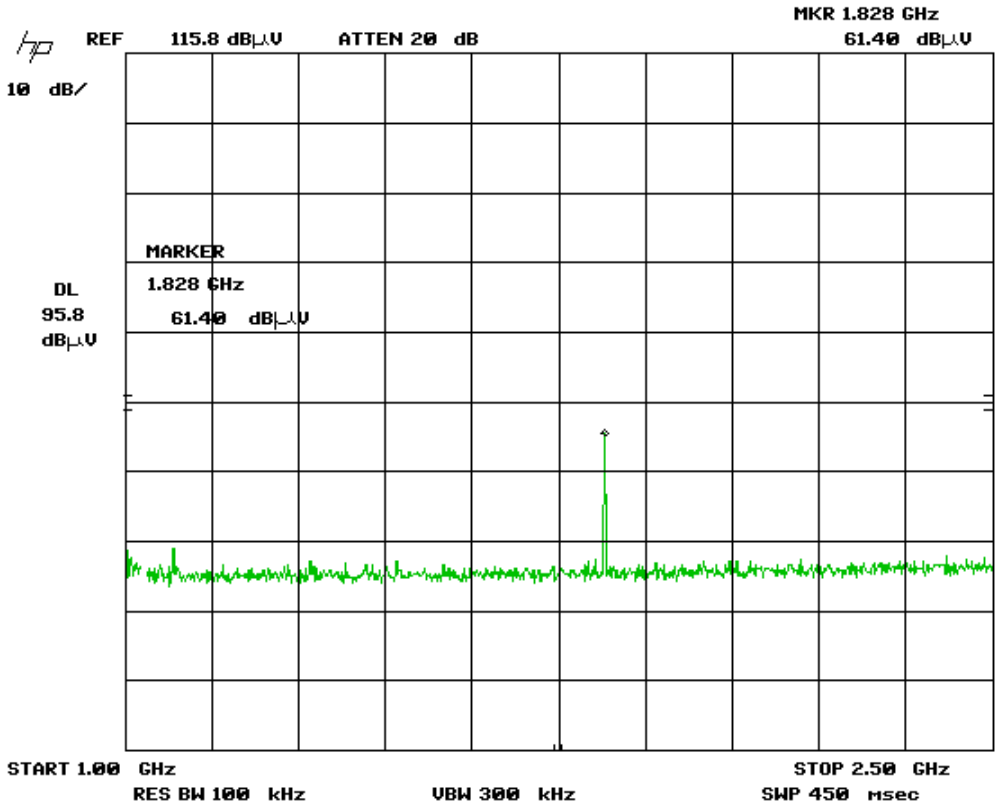


Figure 8 - Antenna Conducted Spurious Emissions – CFR 15.247 (d) - Mid Channel, Part 2

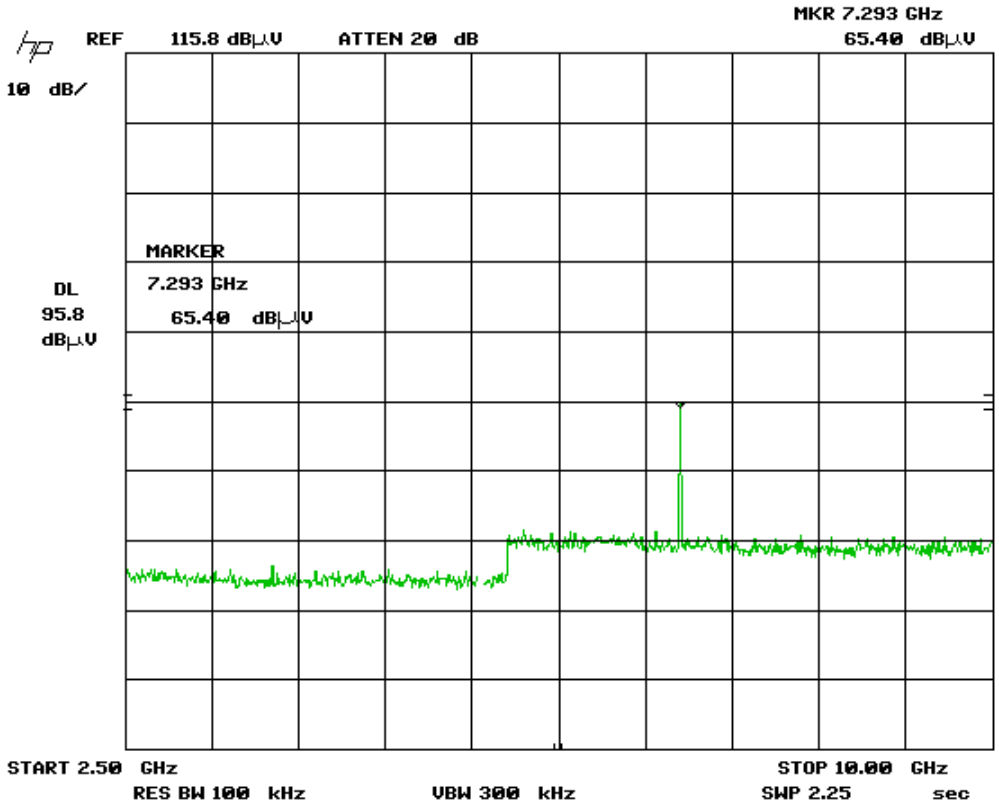
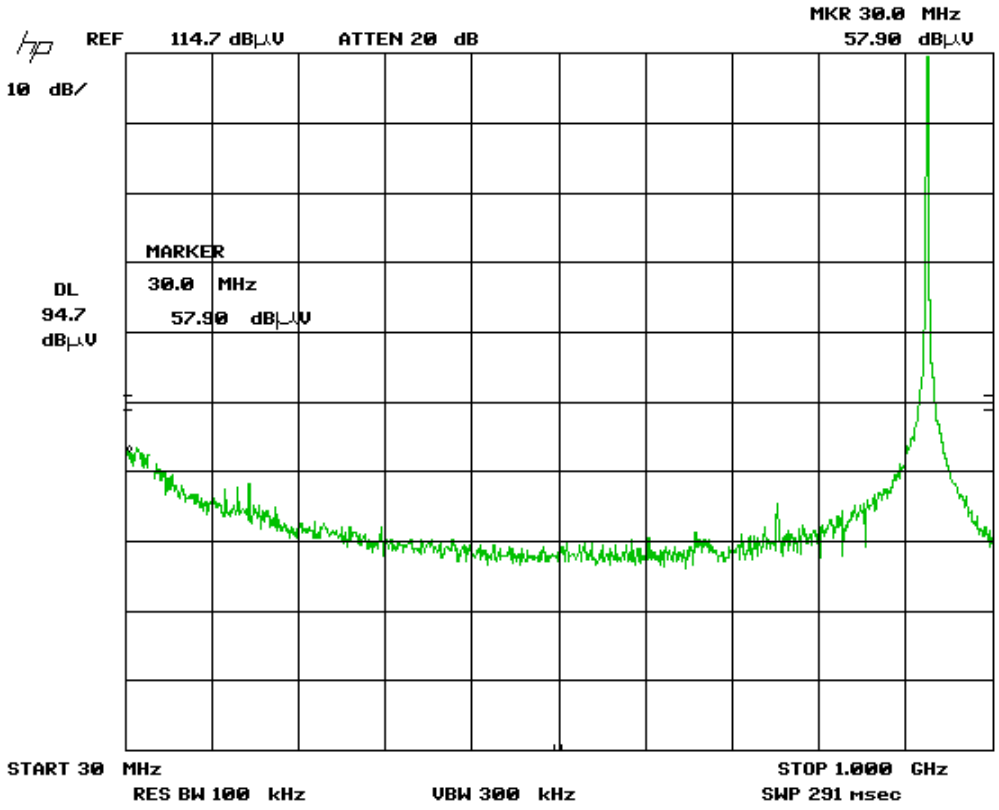


Figure 9 - Antenna Conducted Spurious Emissions – CFR 15.247 (d) - Mid Channel, Part 3



Note: Large signal shown is Fundamental Frequency

Figure 10 - Antenna Conducted Spurious Emissions – CFR 15.247 (b) - High Channel, Part 1

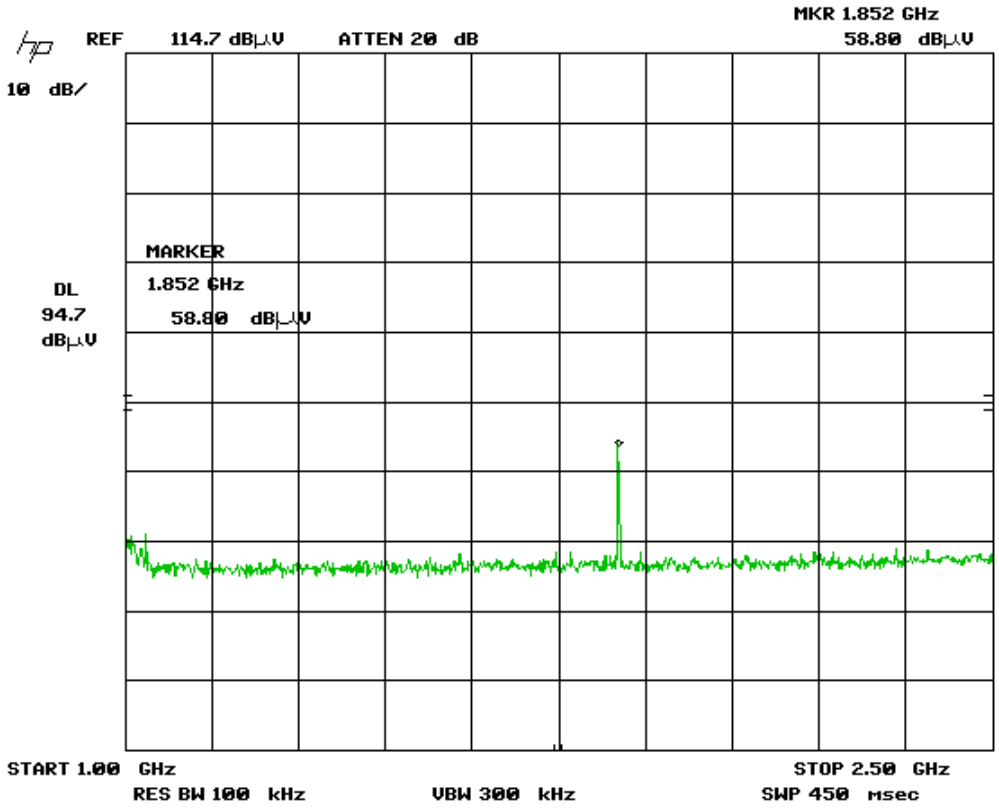


Figure 11 - Antenna Conducted Spurious Emissions - CFR 15.247 (d), High Channel, Part 2

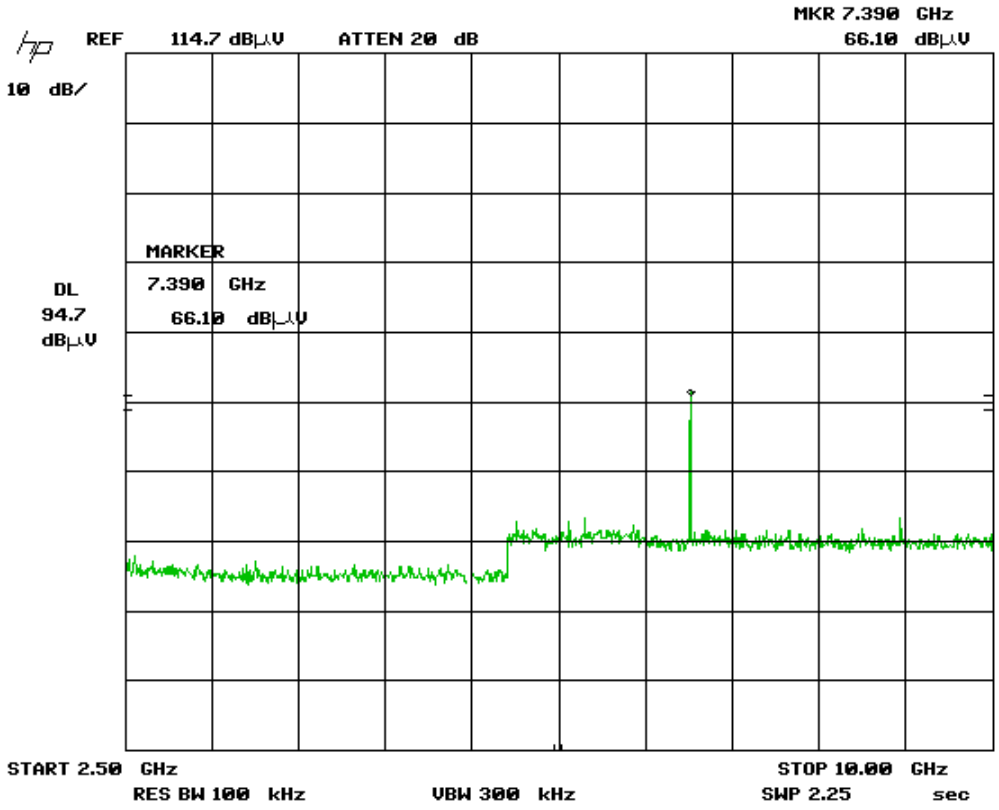


Figure 12 - Antenna Conducted Spurious Emissions - CFR 15.247 (d), High Channel, Part 3

2.11 Restricted Bands of Operation (CFR 15.205)

For radiated measurements, the EUT was set into a continuous transmission mode. Below 1 GHz, the RBW of the measuring instrument was set equal to 120 kHz. Peak measurements above 1 GHz were measured using a RBW = 1 MHz, with a VBW ≥ RBW. The results of peak radiated spurious emissions falling within restricted bands are given in Table 5 through 8 below.

For Average Voltage measurements above 1 GHz, the emissions were measured using RBW = 1 MHz and VBW = 10 Hz. For a pulse-modulated transmitter, the EUT's average emissions are further modified by adding to them the worst-case duty cycle, determined by adding the EUT's total pulse widths (on time) over a 100 ms period and dividing by 100 ms.

For test data, see Tables 5 through 8. Radiated emissions above 2 GHz were measured at a distance of 1 meter. The measured value at 1 meter was then extrapolated to the resultant at 3 meters using an inverse distance extrapolation factor of -20 dB/decade. There were no test failures.

Only radiated harmonics and other spurious signals can be permitted to fall into the restricted bands of 15.205. All signals found in paragraph 2.7 above shall be examined for this requirement. Limits are based upon the limits of paragraph 15.209. Above 1 GHz, the limits are for Average value. See Tables 5 through 8 below for peak and Average measurements. According to CFR 15.35, the peak limits can exceed the average limits by 20 dB.

Table 5- Peak Fundamental and Harmonics, (CFR15.247 (a))

Radiated Fundamental and Harmonics Emissions								
Test By: K.M&G.Y.	**Test:** Fundamental and Harmonics CFR 15.247 (a)				**Client:** Innovative Broad Band Inc.			
	Project: 09-0076		**Class: N/A**		**Model:** Base Station			
Frequency (MHz)	**Test Data (dBuV)**	**DF+FL***	**AF+CL-PA (dB/m)**	**Corrected Results (dBuV/m)**	**Peak Limits (dBuV/m)**	**Distance / Polarity (Meters)**	**Margin (dB)**	**Det PK / QP**
LOW BAND								
902.82	79.52		25.00	104.52	--	3m./VERT	--	**PK**
1805.83	51.45	1.00	-8.14	44.31	74.0	3m./VERT	29.7	**PK**
2710.83	47.09	-8.54	-3.98	34.57	74.0	1m./HORZ	39.4	**PK**
3611.30	47.55	-8.54	-0.19	38.82	74.0	1m./HORZ	35.2	**PK**
4511.90	44.24	-8.54	2.02	37.72	74.0	1m./HORZ	36.3	**PK**
5418.55	50.38	-8.54	4.42	46.26	74.0	1m./VERT	27.7	**PK**
6321.65	45.30	-8.54	5.73	42.49	74.0	1m./VERT	31.5	**PK**
7224.93	51.61	-8.54	8.38	51.45	74.0	1m./VERT	22.6	**PK**
8125.45	48.73	-8.54	9.76	49.95	74.0	1m./HORZ	24.1	**PK**
MID BAND								
914.82	81.37		25.05	106.42	--	3m./VERT	--	**PK**
1830.08	50.38	1.00	-7.95	43.43	74.0	3m./VERT	30.6	**PK**
2742.93	45.77	-8.54	-3.93	33.30	74.0	1m./VERT	40.7	**PK**
3660.33	45.61	-8.54	-0.11	36.96	74.0	1m./VERT	37.0	**PK**
4574.45	45.46	-8.54	2.31	39.23	74.0	1m./VERT	34.8	**PK**
5418.55	50.38	-8.54	4.42	46.26	74.0	1m./VERT	27.7	**PK**
6405.80	46.87	-8.54	5.95	44.28	74.0	1m./HORZ	29.7	**PK**
7320.83	50.17	-8.54	8.67	50.30	74.0	1m./VERT	23.7	**PK**
8237.22	48.74	-8.54	9.79	49.99	74.0	1m./HORZ	24.0	**PK**
HIGH BAND								
926.8200	80.27		25.09	105.36	--	3m./VERT	--	**PK**
1854.0000	48.87	1.00	-7.76	42.11	74.0	3m./VERT	31.9	**PK**
2781.6800	46.39	-8.54	-3.78	34.07	74.0	1m./VERT	39.9	**PK**
3708.3800	47.22	-8.54	0.05	38.73	74.0	1m./VERT	35.3	**PK**
4635.5000	45.70	-8.54	2.51	39.67	74.0	1m./VERT	34.3	**PK**
5561.1000	49.44	-8.54	4.64	45.54	74.0	1m./VERT	28.5	**PK**
6488.0800	47.17	-8.54	6.11	44.74	74.0	1m./HORZ	29.3	**PK**
7416.7800	50.24	-8.54	8.96	50.66	74.0	1m./VERT	23.3	**PK**
8347.4000	48.93	-8.54	9.79	50.18	74.0	1m./VERT	23.8	**PK**

All other emissions were at least 20 db below the limit.

*Correction factor for distance (DF) = -9.54 dB, and data corrected by 1.0 dB for loss of high pass filter (FL), except for fundamental

SAMPLE CALCULATION: at 902.82 MHz, = 79.52 dBuV+ 25.00 dB/m = 104.52 dBuV/m @ 3m

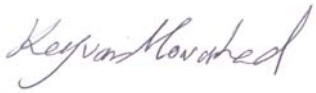
Tester
Signature:  Name: Keyvan Muvahhid

Table 6 – Fund. and Harmonics Average limits, (CFR 15.35(b), 15.247(a))

Radiated Fundamental and Harmonics Emissions								
Test By: K.M&G.Y.	**Test:** Fundamental and Harmonics CFR 15.247 (a)			**Client:** Innovative Broad Band Inc.				
	Project: 09-00076	**Class: N/A**		**Model:** Base Station				
Frequency (MHz)	**Test Data (dBuV)**	**DF+FL**	**AF+CL-PA+DC (dB/m)**	**Corrected Results (dBuV/m)**	**Limits (dBuV/m)**	**Distance / Polarity (Meters)**	**Margin (dB)**	**Det PK / QP**
LOW BAND								
902.82	79.52		5.60	85.12	--	3m./VERT	--	**PK**
1805.83	51.45	1.00	-27.54	24.91	54.0	3m./VERT	29.1	**PK**
2710.83	47.09	-8.54	-23.38	15.17	54.0	1m./HORZ	38.8	**PK**
3611.30	47.55	-8.54	-19.59	19.42	54.0	1m./HORZ	34.6	**PK**
4511.90	44.24	-8.54	-17.38	18.32	54.0	1m./HORZ	35.7	**PK**
5418.55	50.38	-8.54	-14.98	26.86	54.0	1m./VERT	27.1	**PK**
6321.65	45.30	-8.54	-13.67	23.09	54.0	1m./VERT	30.9	**PK**
7224.93	51.61	-8.54	-11.02	32.05	54.0	1m./VERT	22.0	**PK**
8125.45	48.73	-8.54	-9.64	30.55	54.0	1m./HORZ	23.5	**PK**
MID BAND								
914.82	81.37		5.65	87.02	--	3m./VERT	--	**PK**
1830.08	50.38	1.00	-27.35	24.03	54.0	3m./VERT	30.0	**PK**
2742.93	45.77	-8.54	-23.33	13.90	54.0	1m./VERT	40.1	**PK**
3660.33	45.61	-8.54	-19.51	17.56	54.0	1m./VERT	36.4	**PK**
4574.45	45.46	-8.54	-17.09	19.83	54.0	1m./VERT	34.2	**PK**
5418.55	50.38	-8.54	-14.98	26.86	54.0	1m./VERT	27.1	**PK**
6405.80	46.87	-8.54	-13.45	24.88	54.0	1m./HORZ	29.1	**PK**
7320.83	50.17	-8.54	-10.73	30.90	54.0	1m./VERT	23.1	**PK**
8237.22	48.74	-8.54	-9.61	30.59	54.0	1m./HORZ	23.4	**PK**
HIGH BAND								
926.82	80.27		5.69	85.96	--	3m./VERT	--	**PK**
1854.00	48.87	1.00	-27.16	22.71	54.0	3m./VERT	31.3	**PK**
2781.68	46.39	-8.54	-23.18	14.67	54.0	1m./VERT	39.3	**PK**
3708.38	47.22	-8.54	-19.35	19.33	54.0	1m./VERT	34.7	**PK**
4635.50	45.70	-8.54	-16.89	20.27	54.0	1m./VERT	33.7	**PK**
5561.10	49.44	-8.54	-14.76	26.14	54.0	1m./VERT	27.9	**PK**
6488.08	47.17	-8.54	-13.29	25.34	54.0	1m./HORZ	28.7	**PK**
7416.78	50.24	-8.54	-10.44	31.26	54.0	1m./VERT	22.7	**PK**
8347.40	48.93	-8.54	-9.61	30.78	54.0	1m./VERT	23.2	**PK**

Correction factor for distance (DF) = -9.54 dB, and data corrected by 1.0 dB for loss of high pass filter (FL), except for fundamental

SAMPLE CALCULATION: at 902.82 MHz, = 79.52 dBuV+ 5.60 dB/m = 85.12 dBuV/m @ 3m

Tester Signature:  Name: Keyvan Muvahhid

Table 7 - Peak Fund. and Harmonics, (CFR 15.35(b), 15.247(a)) (2nd ANT)

Radiated Fundamental and Harmonics Emissions								
Test By: K.M&G.Y.	**Test:** Fundamental and Harmonics CFR 15.247 (a)				**Client:** Innovative Broad Band Inc.			
	Project: 09-00076		**Class: N/A**		**Model:** Base Station			
Frequency (MHz)	**Test Data (dBuV)**	**DF+FL***	**AF+CL-PA (dB/m)**	**Corrected Results (dBuV/m)**	**Peak Limits (dBuV/m)**	**Distance / Polarity (Meters)**	**Margin (dB)**	**Det PK / QP**
LOW BAND								
902.82	78.94		25.68	104.62	--	3m./HORZ	--	**PK**
1805.83	55.25	1.00	-8.14	48.11	74.0	3m./VERT	25.9	**PK**
2710.83	46.20	-8.45	-4.00	33.75	74.0	1m./HORZ	40.3	**PK**
3611.30	47.34	-8.45	-0.26	38.63	74.0	1m./VERT	35.4	**PK**
4511.90	43.58	-8.45	2.02	37.15	74.0	1m./HORZ	36.9	**PK**
5418.55	49.14	-8.45	4.42	45.11	74.0	1m./VERT	28.9	**PK**
6321.65	43.40	-8.45	5.72	40.67	74.0	1m./VERT	33.3	**PK**
7224.93	47.92	-8.45	8.38	47.85	74.0	1m./VERT	26.1	**PK**
MID BAND								
914.82	78.50		25.75	104.25	--	3m./HORZ	--	**PK**
1830.08	51.25	1.00	-7.95	44.30	74.0	3m./VERT	29.7	**PK**
2742.93	44.48	-8.45	-3.84	32.19	74.0	1m./HORZ	41.8	**PK**
3660.33	47.17	-8.45	-0.11	38.61	74.0	1m./VERT	35.4	**PK**
4574.45	43.63	-8.45	2.31	37.49	74.0	1m./VERT	36.5	**PK**
5418.55	47.75	-8.45	4.42	43.72	74.0	1m./VERT	30.3	**PK**
6405.80	44.77	-8.45	5.95	42.27	74.0	1m./HORZ	31.7	**PK**
7320.83	47.41	-8.45	8.66	47.62	74.0	1m./VERT	26.4	**PK**
HIGH BAND								
926.82	77.65		25.09	102.74	--	3m./VERT	--	**PK**
1854.00	51.09	1.00	-7.76	44.33	74.0	3m./VERT	29.7	**PK**
2781.68	46.23	-8.45	-3.78	34.00	74.0	1m./VERT	40.0	**PK**
3708.38	46.33	-8.45	0.11	37.99	74.0	1m./HORZ	36.0	**PK**
4635.50	45.64	-8.45	2.51	39.70	74.0	1m./VERT	34.3	**PK**
5561.10	48.72	-8.45	4.64	44.91	74.0	1m./VERT	29.1	**PK**
6488.08	48.61	-8.45	6.12	46.28	74.0	1m./HORZ	27.7	**PK**
7416.78	47.81	-8.45	8.95	48.31	74.0	1m./VERT	25.7	**PK**

*Correction factor for distance (DF) = -9.54 dB, and data corrected by 1.0 dB for loss of high pass filter (FL) , except for fundamental
SAMPLE CALCULATION: at 1805.83 MHz, = 55.25 dBuV+1 = 48.11 dBuV/m @ 3m

Tester Signature: 

Name: Keyvan Muvahhid

Table 8 - Fund. and Harmonics, Average limits (CFR 15.35(b), 15.247(a))(2nd ANT)

Radiated Fundamental and Harmonics Emissions								
Test By: K.M&G.Y.	**Test:** Fundamental and Harmonics CFR 15.247 (a)				**Client:** Innovative Broad Band Inc.			
	Project: 09-00076		**Class: N/A**		**Model:** Base Station			
Frequency (MHz)	**Test Data (dBuV)**	**DF+FL**	**AF+CL-PA+DC (dB/m)**	**Corrected Results (dBuV/m)**	**Limits (dBuV/m)**	**Distance / Polarity (Meters)**	**Margin (dB)**	**Det PK /QP**
LOW BAND								
902.82	78.94		6.28	85.22	--	3m./HORZ	--	**PK**
1805.53	55.25	1.00	-27.54	28.71	54.0	3m./VERT	25.3	**PK**
2705.25	46.20	-8.45	-23.40	14.35	54.0	1m./HORZ	39.7	**PK**
3612.43	47.34	-8.45	-19.66	19.23	54.0	1m./VERT	34.8	**PK**
4512.45	43.58	-8.45	-17.38	17.75	54.0	1m./HORZ	36.3	**PK**
5417.15	49.14	-8.45	-14.98	25.71	54.0	1m./VERT	28.3	**PK**
6320.02	43.40	-8.45	-13.68	21.27	54.0	1m./VERT	32.7	**PK**
7225.73	47.92	-8.45	-11.02	28.45	54.0	1m./VERT	25.5	**PK**
MID BAND								
914.85	78.50		6.35	84.85	--	3m./HORZ	--	**PK**
1830.28	51.25	1.00	-27.35	24.90	54.0	3m./VERT	29.1	**PK**
2741.30	44.48	-8.45	-23.24	12.79	54.0	1m./HORZ	41.2	**PK**
3660.53	47.17	-8.45	-19.51	19.21	54.0	1m./VERT	34.8	**PK**
4574.45	43.63	-8.45	-17.09	18.09	54.0	1m./VERT	35.9	**PK**
5418.55	47.75	-8.45	-14.98	24.32	54.0	1m./VERT	29.7	**PK**
6405.80	44.77	-8.45	-13.45	22.87	54.0	1m./HORZ	31.1	**PK**
7318.90	47.41	-8.45	-10.74	28.22	54.0	1m./VERT	25.8	**PK**
HIGH BAND								
926.85	77.65		5.69	83.34	--	3m./VERT	--	**PK**
1854.23	51.09	1.00	-27.16	24.93	54.0	3m./VERT	29.1	**PK**
2781.68	46.23	-8.45	-23.18	14.60	54.0	1m./VERT	39.4	**PK**
3708.38	46.33	-8.45	-19.29	18.59	54.0	1m./HORZ	35.4	**PK**
4635.75	45.64	-8.45	-16.89	20.30	54.0	1m./VERT	33.7	**PK**
5561.05	48.72	-8.45	-14.76	25.51	54.0	1m./VERT	28.5	**PK**
6489.93	48.61	-8.45	-13.28	26.88	54.0	1m./HORZ	27.1	**PK**
7414.83	47.81	-8.45	-10.45	28.91	54.0	1m./VERT	25.1	**PK**

*Correction factor for distance (DF) = -9.54 dB and data corrected by 1.0 dB for loss of high pass filter (FL), except for fundamental

SAMPLE CALCULATION: at 902.82 MHz, = 78.94 dBuV+ 6.28 dB/m= 85.22 dBuV/m @ 3m

Tester Signature:  Name: Keyvan Muvahhid

2.12 Six (6) dB Bandwidth per CFR 15.247(a)(2), (IC RSS 210, A8.2(a))

The EUT antenna port was connected to a spectrum analyzer having a 50 Ω input impedance. Measurements were performed similar to the method of FCC DA 00-705 for a bandwidth of 6 dB. The RBW was set to approximately 1/100 of the manufacturers claimed RBW and with the VBW ≥ RBW. The results of this test are given in Table 9 and Figures 13 through 15.

Table 9 – Six (6) dB Bandwidth

Frequency (MHz)	6 dB Bandwidth (KHz)	Minimum FCC Bandwidth (KHz)
902	550	500
915	555	500
927	550	500

Test Date: August 18, 2009

Tested By
Signature: Keyvan Muvahhid Name: Keyvan Muvahhid

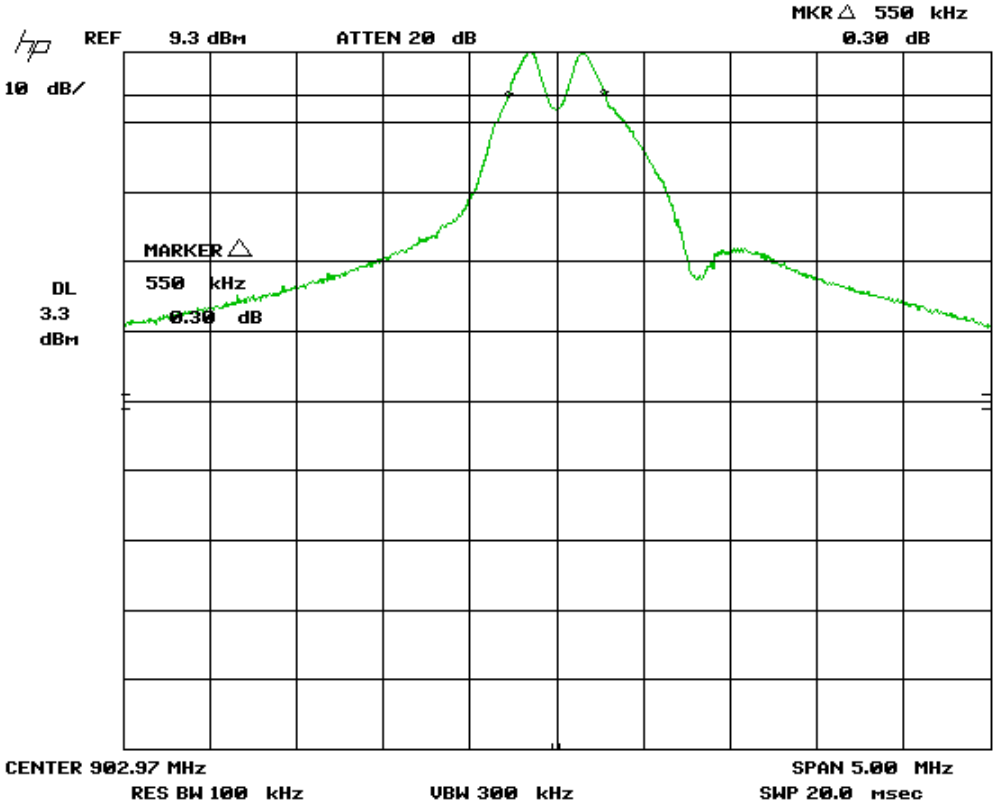


Figure 13- Six (6) dB Bandwidth - 15.247 (a) (2) - Low Channel

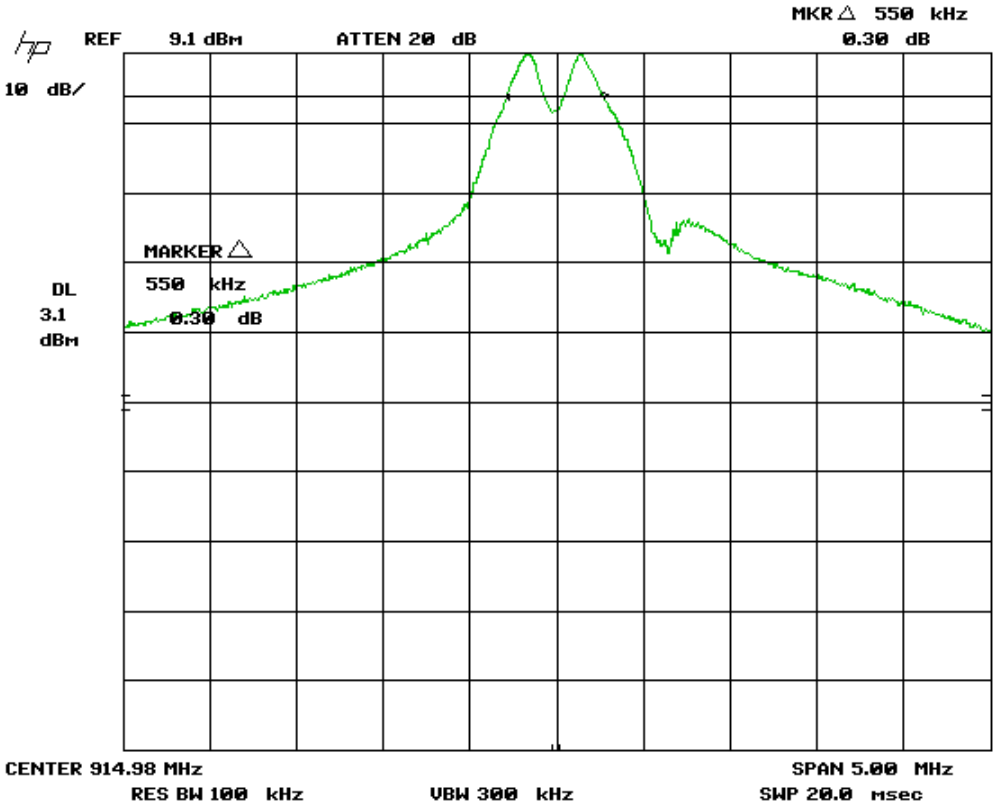


Figure 14 – Six dB Bandwidth - 15.247 (a) (2) - Mid Channel

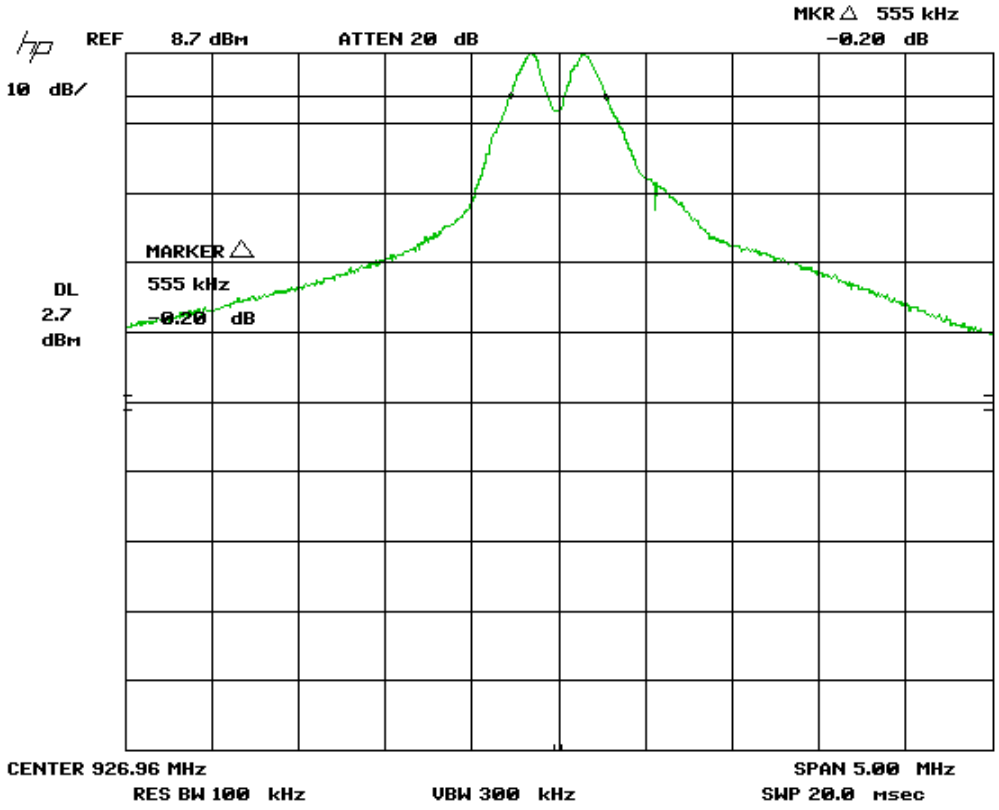


Figure 15 - Six dB Bandwidth - 15.247 (a) (2) - High Channel

2.13 Maximum Peak Conducted Output Power (CFR 15.247 (b) (3))

The transmitter was programmed to operate at a maximum of +10 dBm across the bandwidth.

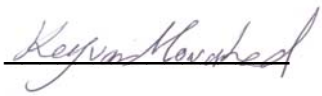
Peak power within the band 902 MHz to 928 MHz was measured per FCC KDB Publication 558074 as an Antenna Conducted test with a spectrum analyzer by connecting the spectrum analyzer directly, via a short RF cable, to the antenna output terminals on the EUT. The spectrum analyzer was set for a 50 Ω impedance with the RBW set greater than the 6 dB bandwidth of the EUT, and the VBW ≥ RBW. The loss of the short cable is 0.2 dB, and the final corrected measurements were determined by adding 0.2 dB to the raw data measured values of Figures 16 through 17. Peak antenna conducted output power is tabulated in Table 9 below.

Antenna Conducted Output Power was measured at Low Channel, Mid Channel and High Channel frequencies. See Figures 16 through 18 below the 0.2 dB loss for the RF wire is taken into consideration here (Corrected Measurement column).

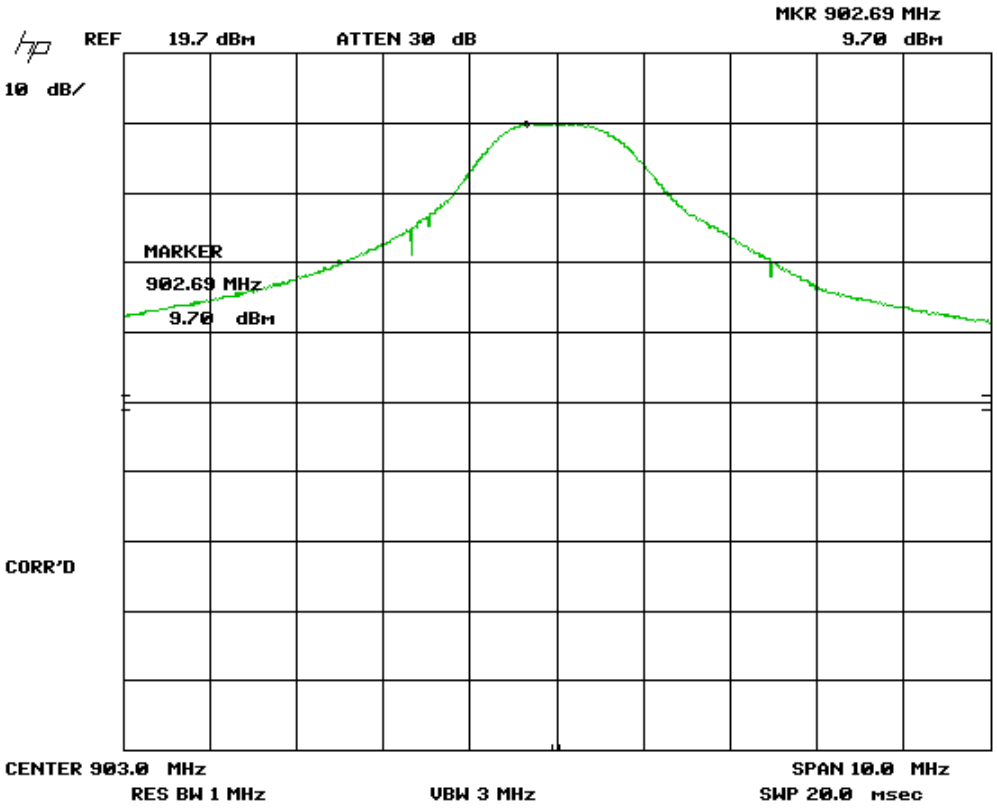
Table 10 - Peak Antenna Conducted Output Power per Part 15.247 (b) (3)

Frequency of Fundamental (MHz)	Raw Test Data dBm	Corrected Measurement (dBm)	(mW)	FCC Limit (mW Maximum)
Low Band	9.70	9.90	9.77	1000
Mid Band	9.30	9.50	8.91	1000
High Band	9.00	9.20	9.31	1000

Test Date: August 18, 2009

Tested By
Signature:  Name: Keyvan Muvahhid

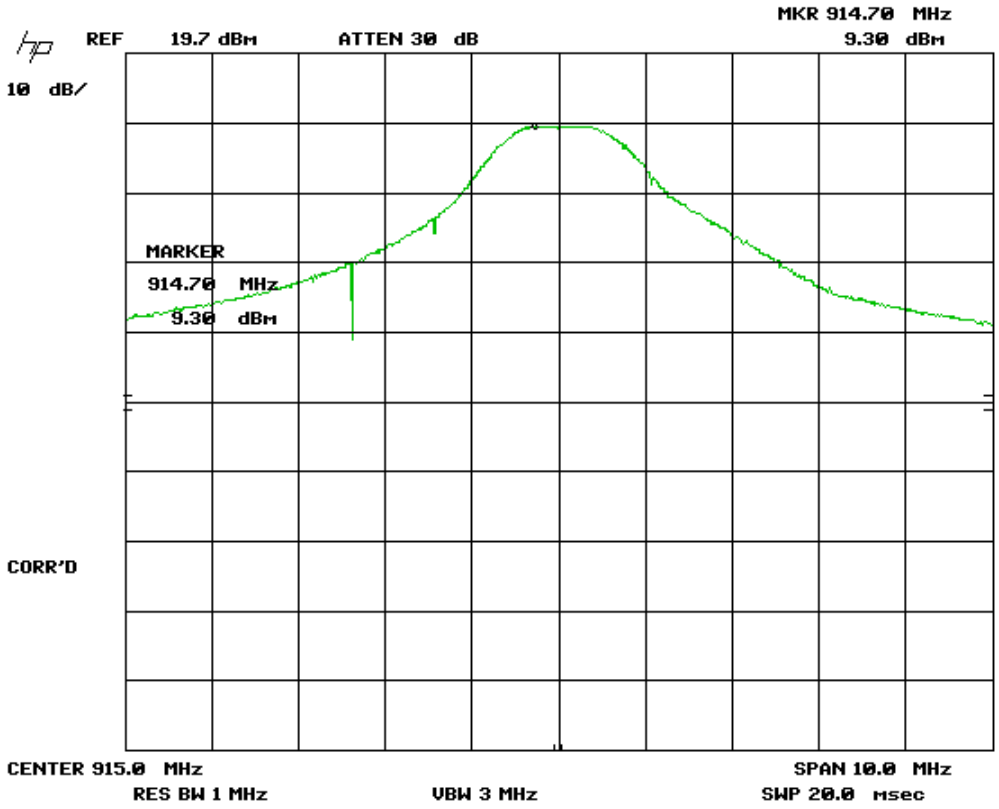
2.13.1 Peak Power Output (CFR 15.247 (b)(3))-low channel



must Add 0.2 dB loss for cable attenuation

Figure 16 - Peak Antenna Conducted Output Power, Low Channel

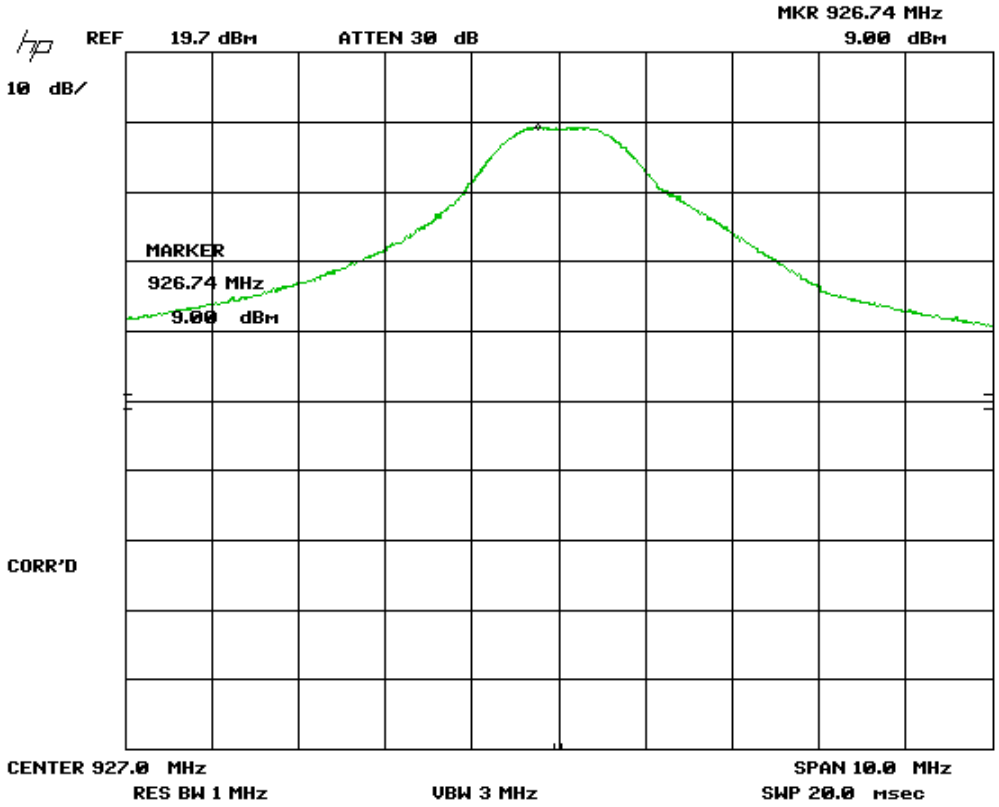
2.13.2 Peak Power Output (CFR 15.247 (b)(3))-Mid Channel



Must Add 0.2 dB loss for cable assembly

Figure 17 - Peak Antenna Conducted Output Power, Mid Channel

2.13.3 Peak Power Output (CFR 15.247 (b)(3))-high Channel



Must Add 0.2 dB loss for cable assembly.

Figure 18 - Peak Antenna Conducted Output Power, High Channel

2.14 Power Spectral Density (CFR 15.247(e)) (IC RSS 210 A8.5)

The transmitter was placed into a continuous mode of operation at all applicable frequencies. The measurements were performed per the procedures of FCC KDB Procedure 558074. The RBW was set to 3 kHz and the Video Bandwidth was set to ≥ RBW. The trace capture time was set to (Span/3 kHz).

In accordance with 15.247 (e), the power spectral density shall be no greater than +8 dBm per any 3 kHz band.

Results are shown in table 11 and figures 19 through 21 below. Results are corrected by adding 0.2 dB to the measured value to account for the cable loss. All are less than +8 dBm per 3 kHz band.

Table 11 - Power Spectral Density for Low, Mid and High Bands

Frequency (MHz)	Test Data (dBm/3 KHz)	Results (dBm/3 kHz)	FCC Limit (dBm/3 kHz)
Low-903	+3.5	+3.7	+8.0
Mid-915	+3.2	+3.4	+8.0
High- 927	+2.8	+3.0	+8.0

Test Date: August 18, 2009
Tested By
Signature: Keyvan Muvahhid Name: Keyvan Muvahhid

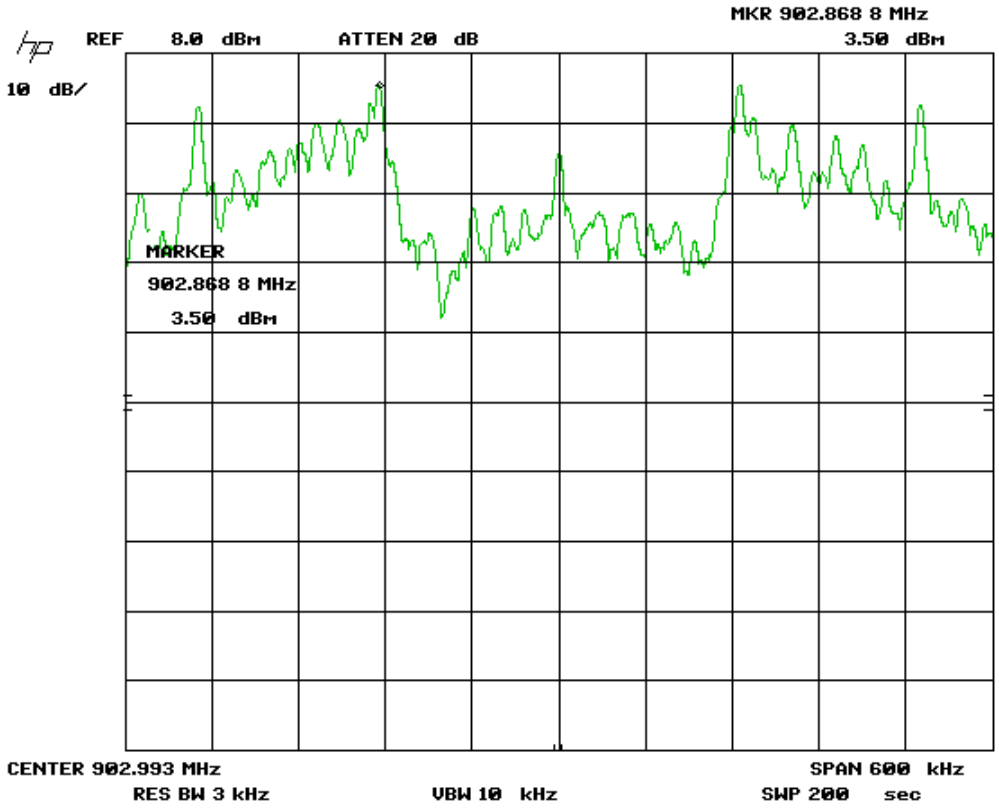


Figure 19 - Peak Power Spectral Density - Part 15.247 (e) - Low Channel

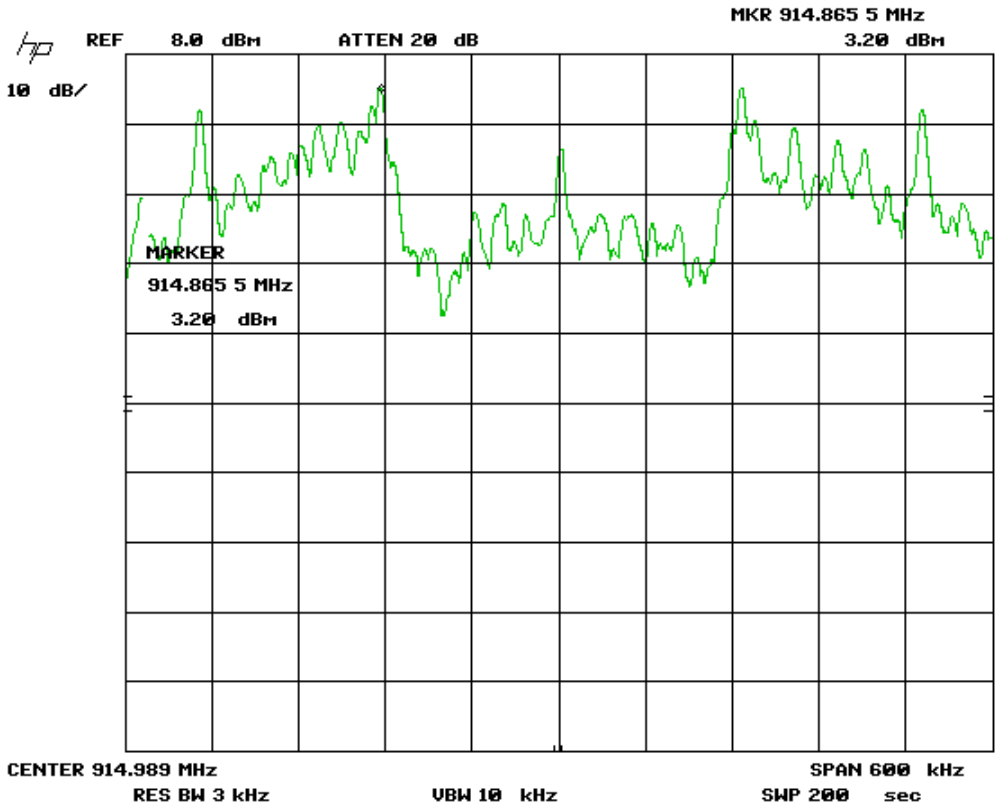


Figure 20 - Power Spectral Density - Part 15.247 (e) - Mid Channel

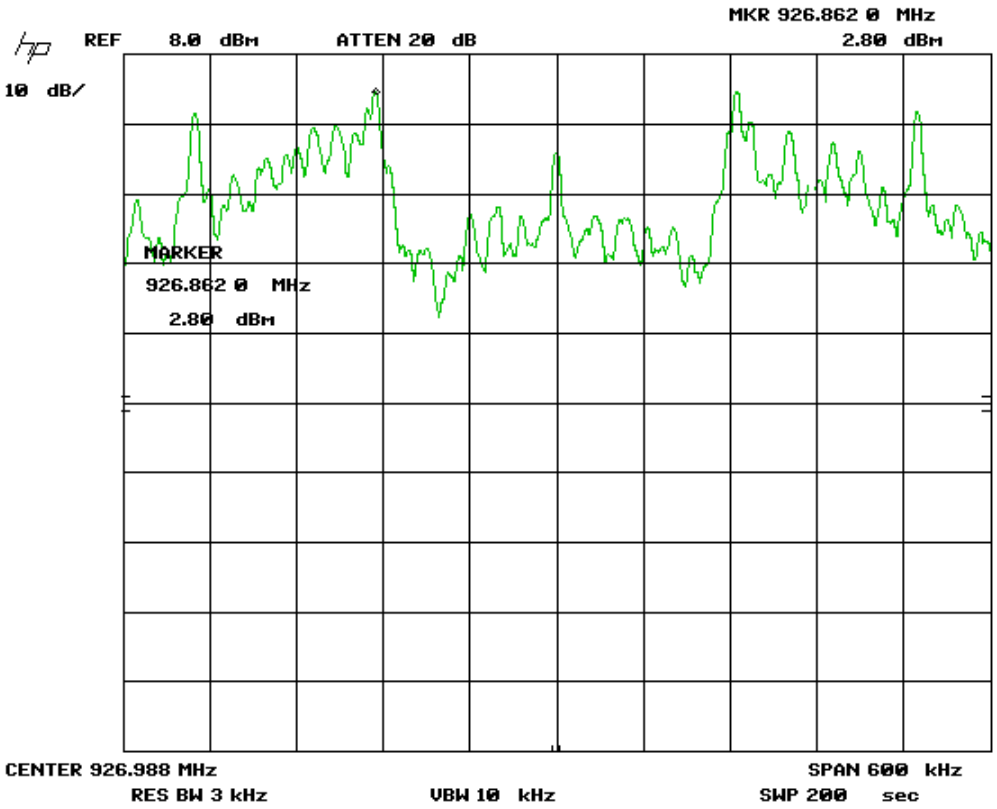


Figure 21 - Peak Power Spectral Density - Part 15.247 (e) - High Channel

2.15 Band Edge Measurements (CFR15.247 (d))

Band Edge measurements were made at a Low Channel and High Channel peak at highest EUT related emission outside the upper and lower occupied bandwidth. A measurement was made of the fundamental and the emission was measured using a Max peak setting. A Resolution Bandwidth of > 1% of the emission bandwidth was used. This procedure was repeated for the high channel.

The limit per section 15.247(d) in any 100 kHz bandwidth outside the frequency band is 20 dB below the fundamental frequency.

Results are shown in figures 22 through 23 below.

2.15.1 High Band Edge

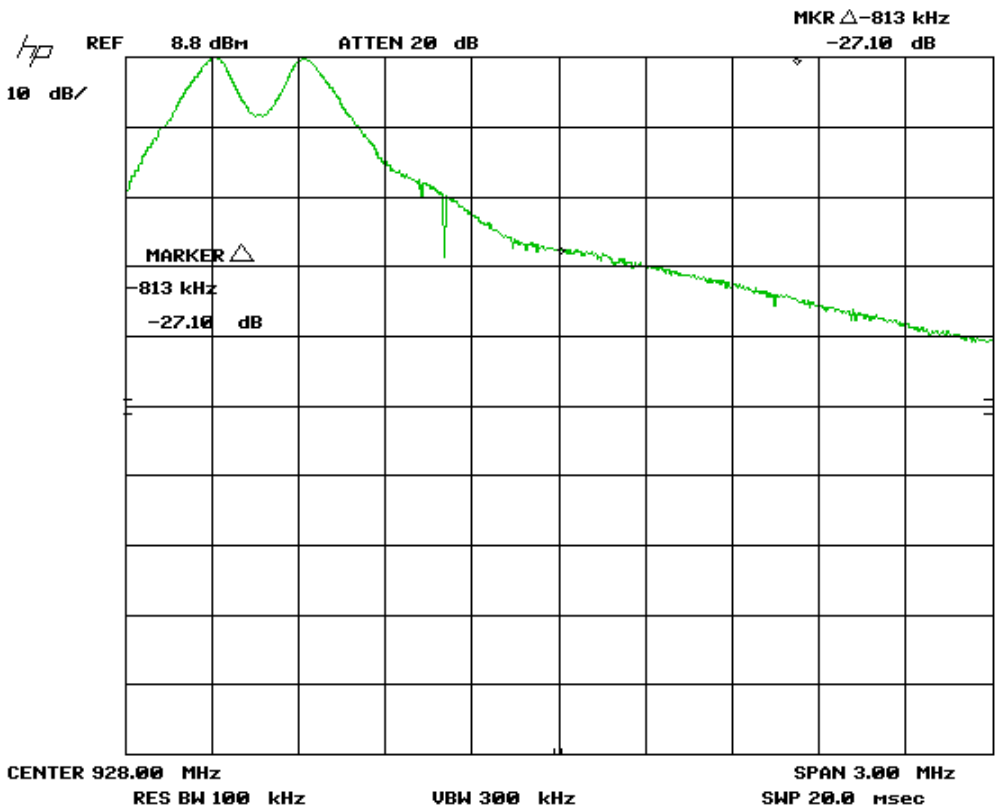


Figure 22- Conducted Band Edge Compliance – High Channel Delta - PK

2.15.2 Low Band Edge

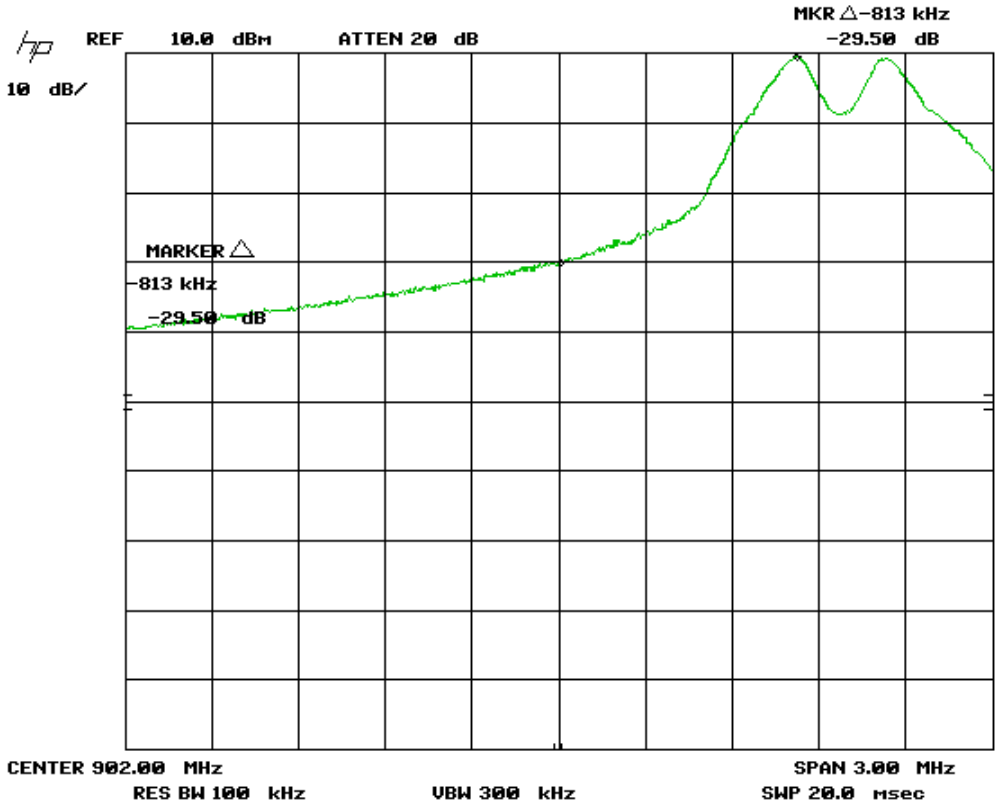


Figure 23 - Conducted Band Edge Compliance – Low Channel Delta – PK

2.16 Maximum Public Exposure to RF (MPE) CFR 15.247 (i)

The maximum exposure level to the public from the RF power of the EUT shall not exceed a power density, **S**, of 1 mW/cm^2 at a distance, d, of 20 cm from the EUT.

Therefore, for:

Peak Power (Watts) = 0.00977 (from Table 10, herein)
Gain of Transmit Antenna <= 2.0 dB_i <= 1.58, numeric (from Table 3, herein)
d = Distance = 20 cm = 0.2 m

S = (PG/ $4\pi d^2$) = EIRP/4A = 0.00977 (1.58)/4*π*0.2*0.2 = 0.0154366/0.502 = 0.0307 w/m^2
= (W/m^2) (1m^2/W) x (0.1 mW/cm^2)
= 0.003 mW/cm^2

Which is << less than 1 mW/cm^2

2.17 Unintentional Radiator, Power Conducted Emissions (CFR 15.107)

The unit was set-up and measured for conducted power line emissions. The measurement setup and test procedures were in accordance with ANSI C63.4, paragraph 7. The unit was connected to its power adapter (Motorola model FMP5202A AC power Supply) for measurement. By design, the EUT operating state is such that it is restricted to the battery charge mode only and does not transmit (or receive) while connected to AC power.

Measurements were made over the 150 kHz to 30 MHz frequency range for the unit. The measurement receiver was connected to the RF (receiver) Port on the LISN and each power lead was individually measured. Test results are shown on Table 12 for the unit.

Table 12– Power line Conducted Emissions Data, Class B.

Power Line Conducted Emissions							
Test By: K.M.	**Test:** FCC Power Line Conducted Emissions 150 KHz – 30 MHz , Hot Phase			**Client:** Innovative Broadband Inc.			
	Project: 09-0076	Sect. 15.107 Class: B		**Model:** Base Station			
Frequency (MHz)	**Test Data (dBuV)**	**IL+CL -PA (dB)**	**Results (dBuV)**	**AVG Limits (dBuV)**	**Phase /Neutral**	**Margin (dB)**	**PK / QP**
Hot Line							
0.1500	48.28	-1.51	46.77	56.0	Phase	9.2	**PK**
0.6050	37.85	0.06	37.91	46.0	Phase	8.1	**PK**
1.5000	31.96	-0.09	31.87	46.0	Phase	14.1	**PK**
7.3600	29.53	0.15	29.68	50.0	Phase	20.3	**PK**
15.8300	20.31	0.34	20.65	50.0	Phase	29.4	**PK**
29.8500	19.77	0.50	20.27	50.0	Phase	29.7	**PK**
Neutral Line							
0.1500	51.77	-1.49	50.28	56.0	Neutral	5.7	**PK**
0.6010	38.87	0.10	38.97	46.0	Neutral	7.0	**PK**
1.8000	31.57	-0.06	31.51	46.0	Neutral	14.5	**PK**
7.3200	27.38	0.15	27.53	50.0	Neutral	22.5	**PK**
10.5500	20.62	0.19	20.81	50.0	Neutral	29.2	**PK**
29.9500	20.32	0.56	20.88	50.0	Neutral	29.1	**PK**

Tested from 150 kHz to 30 MHz.
SAMPLE CALCULATIONS: at 0.150 MHz, 48.28 dBuV + (- 1.51) = 46.77 dBuV

Tester Signature:  Name: Keyvan Muvahhid

2.18 Unintentional Radiator, Radiated Emissions (CFR 15.109)

Radiated emissions within the band 30 MHz to 25 GHz were measured with a spectrum analyzer via a pre-amplifier by connecting the spectrum analyzer to a receiving antenna spaced three (3) meters from the EUT. The spectrum analyzer was set for a 50 Ω input impedance with the VBW set to ≥ the RBW bandwidth. The antenna was raised and lowered over a span of 4 meters in order to maximize the signal coming from the EUT. Similarly, the turntable was rotated through 360 degrees in the same maximizing effort. Also the EUT was scanned for a maxima when placed in each of the three mutually exclusive orthogonal planes. The results of the measurements are given in Table 13.

Table 13- Unintentional Radiator, Peak Radiated Emissions (CFR 15.109).

Peak Radiated Emissions, Digital Device and Receiver							
Test By: K.M	**Test:** Radiated Emissions- 30 MHz to 10 GHz			**Client:** Innovative BroadBand Inc.			
	Project: 09-0076	**Requirement** 15.109, Class: B		**Model:** Base Station			
Frequency (MHz)	**Test Data (dBuV)**	**AF+CL-PA (dB)**	**Results (dBuV/m)**	**Peak Limits (dBuV/m)**	**Distance / Polarity (meters)**	**Margin (dB)**	**Detector PK / QP**
37.3000	19.16	12.30	31.46	40.0	3m./VERT	8.5	**QP**
224.0000	17.77	14.24	32.01	46.0	3m./VERT	14.0	**PK**
227.0000	12.48	14.61	27.09	46.0	3m./VERT	18.9	**PK**
231.0000	11.94	14.64	26.58	46.0	3m./VERT	19.4	**PK**
247.0000	13.00	15.63	28.63	46.0	3m./VERT	17.4	**PK**
310.0000	12.32	18.67	30.99	46.0	3m./VERT	15.0	**PK**
361.0000	13.94	18.51	32.45	46.0	3m./VERT	13.5	**PK**
365.0000	13.70	18.77	32.47	46.0	3m./VERT	13.5	**PK**
388.0000	20.28	19.24	39.52	46.0	3m./VERT	6.5	**QP**
397.0000	12.10	19.19	31.29	46.0	3m./VERT	14.7	**QP**
627.0000	21.30	24.40	45.70	46.0	3m./VERT	.3	**QP**

Tested from 30 MHz to 10 GHz.

SAMPLE CALCULATION:
RESULTS at 37.3 MHz, = 19.16 dBuV + (12.3) dB = 31.46 dBuV/m

Tester Signature: Keyvan Movahhed Name: Keyvan Muvahhid

2.19 Measurement Uncertainty

2.19.1 Conducted Emissions Measurement Uncertainty:

Measurement Uncertainty (within a 95% confidence level) for this test is ±2.8 dB.

The data listed in this test report has sufficient margin to negate the effects of uncertainty. This measurement unconditionally passes.

2.19.2 Radiated Emissions Measurement Uncertainty:

For a measurement distance of 3 m the measurement uncertainty (with a 95% confidence level) for this test using a Biconical Antenna (30 MHz to 200 MHz) is ±5.3 dB. This value includes all elements of measurement.

The measurement uncertainty (with a 95% confidence level) for this test using a Log Periodic Antenna (200 MHz to 1000 MHz) is ±5.1 dB.

The measurement uncertainty (with a 95% confidence level) for this test using a Horn Antenna is ±5.1 dB.

The data listed in this test report does not have sufficient margin to negate the effects of uncertainty, (more than the measurement uncertainty value at 627 MHz). Therefore, this test is conditionally acceptable.