TEST REPORT – EMC Emissions

Report Number: 100036404DEN-001
Project Number: 100036404

Report Issue Date: 02/28/2010

Product Designation: **Model: HB100 Dual Mode FMD (Fixed Monitoring Device)**

Standards: FCC 47 CFR Part 15.249
IC RSS-210e Issue 7: 2007
IC RSS-GEN Issue 2: 2007

Tested by:
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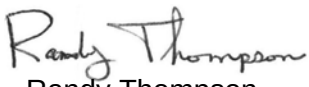
5541 Central Ave Suite 110
Boulder, CO 80305

Emissions Testing Facility
40 Meadow Rd
Pinewood Springs, CO 80540

Client:

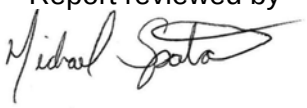
BI Incorporated
6400 Lookout Road, Suite 101
Boulder, CO 80301

Report prepared by



Randy Thompson
Senior EMC Project Engineer

Report reviewed by



Michael Spataro
Engineering Team Leader

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Section **Page**

Product Under Test

HB100 Dual Mode FMD (BI HomeBase)

1 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 3.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, **we have concluded the product tested complies with the requirements of the standard(s) indicated.** The results obtained in this test report pertain only to the item(s) tested.

2 Test Summary

Section	Test full name	Test date	Result
5	Radiated Emissions – Field Strength of the Fundamental & Harmonics of the Fundamental - FCC 249(a) (Covers RSS-210 A2.9(a))	02/08/10	Pass
6	Radiated Emissions – Unintentional & Spurious - FCC 249(d) / 15.205/209 (Covers RSS-210 Tables 1 & 2)	02/08/10	Pass
7	Occupied Bandwidth - RSS-GEN	02/08/10	Pass
8	AC Conducted Emissions – FCC 15.107/RSS-Gen 7.2.2	02/08/10	Pass

General Remarks:

The following remarks are to be considered as “where applicable” and are taken into account while completing any FCC/IC/ETSI Radio tests at Intertek-Boulder.

FCC CFR47 Part 15.31: Measurement Standards: In any case where the device is powered off a battery, a fresh battery was used during testing. In cases where the device is powered of an AC Supply, voltage was varied per Part 15.31 to find worst-case emissions.

FCC CFR Part 15.35: Measurement Detector Functions and Bandwidths: FCC Part 15.35 was utilized when performing measurements within this report.

Notes:

1. Product re-tested due to a Class II Permissive Change. Product currently has the following FCC Grant and IC Certificate – refer to Appendix for details:

    - FCC Identifier: CSQHB100
    - IC Certificate: IC:1499A-HB100

2. Product tested in normal operating axis – flat on table per manufacturer’s explicit specifications.

3 Description of Equipment Under Test

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
HomeBase In-Home RF Transceiver – Dual Mode FMD	BI Inc.	HB100	61000200

Receive Date:	02/08/2010
Received Condition:	Good
Type:	Production Sample

Description of Equipment Under Test (provided by client)

The HB100 Dual Mode FMD (Fixed Monitoring Device) is an in-home RF receiver/ transmitter & communications interface device that communicates with an ankle-worn alcohol monitoring device TAD (Transdermal Alcohol Device).
Intended use of the product is household/office, dry location.
The product receives digital information at 314.2 MHz and 904.082 MHz, and transmits digital information at a single-channel 904.082 MHz, using FSK modulation technique. The product is not normally operated in CW mode. The product utilizes a single internal antenna, ¼ wave and has no RF Conducted port.
Test configuration included (2) telecom landlines and a USB cable.
The product is marketed in the US & Canada.

Equipment Under Test Power Configuration			
Rated Voltage	Rated Current	Rated Frequency	Number of Phases
115 VAC Nominal	< 3 A	60 Hz	1

Operating modes of the EUT:

No.	Descriptions of EUT Exercising
1	Tx - Product set up in transmit mode at full power, highest possible duty cycle
2	Rx – Product set up in receive mode

Clock Frequencies of the EUT:

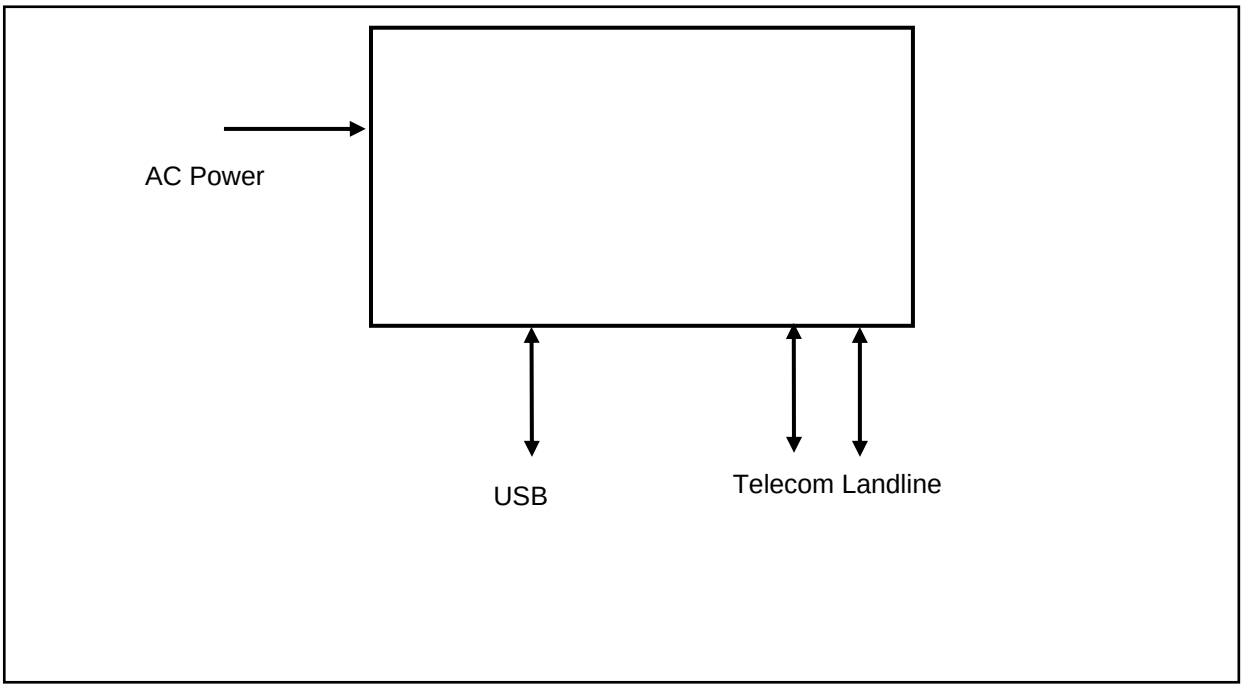
No.	Descriptions of Product Clocks
6	Tx @ 904.08 MHz
7	Lowest Frequency Utilized is 32.768 kHz

4 System setup including cable interconnection details, support equipment and simplified block diagram

4.1 Method:

Record the details of EUT cabling, document the support equipment, and show the interconnections in a block diagram.

4.2 EUT Block Diagram:



4.3 Data:

ID	Cable Description	Length	Shielding	Ferrites
AC	AC Power Cable	3 feet	no	no
Telecom	Telecom Land Lines (2)	unknown	no	no
USB	USB Cable	unknown	no	yes

Support Equipment			
Description	Manufacturer	Model Number	Serial Number
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General notes:
1. Products did not require any support equipment
2.

5 Radiated Emissions – Field Strength of the Fundamental & Harmonics of the Fundamental

The test methods used comply with ANSI C63.4 and CISPR 16. Unless otherwise stated no deviations were made from **FCC CFR47 15.249 & IC RSS-210**.

Intertek Boulder's emissions testing facility is located at 40 Meadow Rd. in Pinewood Springs CO 80540. The emissions testing facility is ISO17025:2005 accredited by NVLAP, our lab code is 200624-0, BSMI lab number is SL2-IN-E-029R, our VCCI registration no. R-1643, our FCC designation no. US5170 and our IC lab no. 2042N.

5.1 Test Equipment Used:

Asset ID:	Description:	Manufacturer:	Model:	Serial:	Cal Date	Cal Due
18882	Spectrum Analyzer (dc-22 GHz)	Hewlett-Packard	8566B	2410A00154	11/12/2009	11/12/2010
18660	Spectrum Analyzer Display Section (set 1)	Hewlett-Packard	85662A	2318A04983	11/12/2009	11/12/2010
18912	9 kHz- 1.3GHz Pre Amp	Hewlett-Packard	8447F	3113A05545	05/12/2009	05/12/2010
18906	Amplifier (1-4 GHz)	Mini-Circuits Lab	ZHL-42	N052792-2	05/12/2009	05/12/2010
18900	RF Pre-Amplifier (4-8 GHz)	Avantek	AFT97-8434-10F	1007	05/12/2009	05/12/2010
18901	RF Pre-Amplifier (8-18 GHz)	Avantek	AWT-18037	1002	05/12/2009	05/12/2010
18808	Log Periodic Antenna	EMCO	3146	9203-3376	11/05/2009	11/05/2010
18737	Doubled Ridged Guide Antenna (1-18 GHz)	EMCO	3105	2076	04/03/2009	04/03/2010

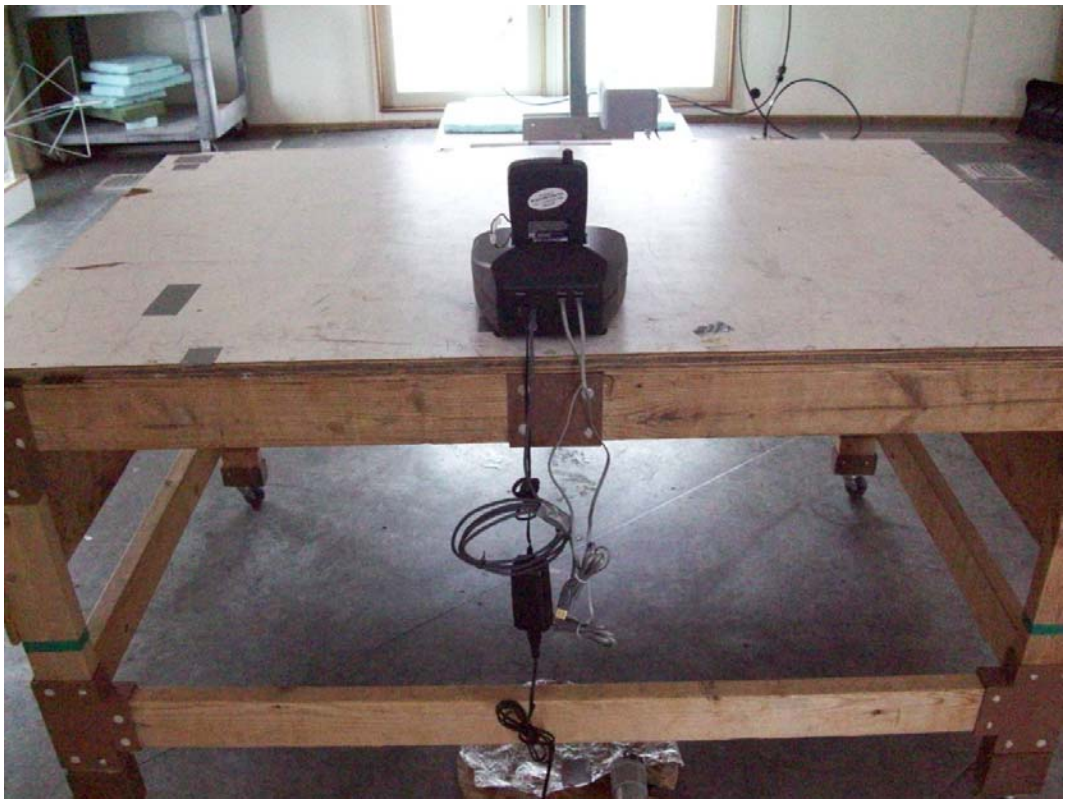
5.2 Results:

The sample tested was found to Comply.

5.3 Setup Photographs:

Test setup – Front View

Test setup – Rear View



5.4 Test Data:

Field Strength Measurements
(Fundamental and Harmonics of the Transmitter)

Test Report #:	100036404	Test Area:	Pinewood Site (3-meter)	Temperature:	22.4	°C
Test Method:	**FCC 15.249**	Test Date:	08-Feb-2010	Relative Humidity:	40.6	%
EUT Model #:	HB100 DM FMD	EUT Power:	110VAC/ 60Hz	Air Pressure:	79	kPa
EUT Serial #:	6100200					
Manufacturer:	BI Inc.					
EUT Description:	In-Home RF Transceiver Base Station					
Notes:	**Receiver/ Transmitter/ Communication device that communicates**					
	with TAD (Transdermal Alcohol Detector) & Host					

Level Key	
Pk – Peak	Nb – Narrow Band
Qp – QuasiPeak	Bb – Broad Band
Av - Average	

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	Duty Cycle Correction	Final Corrected	Limit	DELTA
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
Averaging method for pulsed signals and calculation in accordance to FCC CFR47 Part 15.35 utilized to calculate field strength emissions. **The testing performed in accordance to FCC CFR47 Part 15.205 (restricted bands of operation) and Part 15.249 emissions and delta limits were calculated as follows:** **Final Corrected Peak Measurement – Duty Cycle Correction Factor* = Final Calculated Emission** **The Final Calculated Emission was then compared to the Limits in CFR47 Part 15.209 and Part 15.249 and the emission/limit delta was Calculated.** **The DTCF is calculated as follows: 20*Log$_{10}$ (duty cycle in 100ms) "not to exceed 20 dB"**								
EUT is Flat on the Table as specified by the manufacturer								
Fundamental Tx								
904.08	89.5 Pk	3.6 / 22.5 / 27.6	88	V / 1.0 / 288.0	0.0	88.0	94.0	-6.0
904.08	85.4 Pk	3.6 / 22.5 / 27.6	83.9	H / 2.1 / 48.0	0.0	83.9	94.0	-10.1
Harmonics of the Tx								
1808.16	52.8 Pk	2.8 / 26.0 / 36.7	44.9	V / 1.4 / 354.0	0.0	44.9	54.0	-9.1
1808.16	47.8 Pk	2.8 / 26.0 / 36.7	39.9	H / 1.6 / 349.0	0.0	39.9	54.0	-14.1
2712.24	58.8 Pk	3.5 / 28.2 / 37.2	53.2	V / 1.8 / 12.0	0.0	53.2	54.0	-0.8
2712.24	55.0 Pk	3.5 / 28.2 / 37.2	49.4	H / 2.4 / 349.0	0.0	49.4	54.0	-4.6
3616.32	46.4 Pk	4.5 / 30.9 / 37.5	44.2	V / 1.4 / 12.0	0.0	44.2	54.0	-9.8
3616.32	43.3 Pk	4.5 / 30.9 / 37.5	41.2	H / 1.5 / 349.0	0.0	41.2	54.0	-12.8
4520.4	39.6 Pk	5.3 / 32.2 / 39.8	37.3	H / 1.6 / 349.0	0.0	37.3	54.0	-16.7
4520.4	36.4 Pk	5.3 / 32.2 / 39.8	34	V / 1.2 / 332.0	0.0	34.0	54.0	-20.0
5424.48	43.6 Pk	6.0 / 32.8 / 39.3	43.2	H / 1.2 / 112.0	0.0	43.2	54.0	-10.8
5424.48	48.8 Pk	6.0 / 32.8 / 39.3	48.4	V / 1.4 / 332.0	0.0	48.4	54.0	-5.6
6328.56	34.6 Pk	6.6 / 33.8 / 39.5	35.6	H / 1.2 / 23.0	0.0	35.6	54.0	-18.4
6328.56	34.4 Pk	6.6 / 33.8 / 39.5	35.3	V / 1.4 / 12.0	0.0	35.3	54.0	-18.7
7232.64	36.1 Pk	7.3 / 35.2 / 39.9	38.7	H / 1.2 / 324.0	0.0	38.7	54.0	-15.3
7232.64	34.8 Pk	7.3 / 35.2 / 39.9	37.4	V / 1.7 / 324.0	0.0	37.4	54.0	-16.6

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	Duty Cycle Correction	Final Corrected	Limit	DELTA
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
8136.72	43.2 Pk	7.8 / 36.2 / 46.3	40.9	V / 1.1 / 0.0	0.0	40.9	54.0	-13.1
8136.72	44.4 Pk	7.8 / 36.2 / 46.3	42	H / 1.1 / 0.0	0.0	42.0	54.0	-12.0
9040.8	43.9 Pk	8.4 / 36.8 / 47.6	41.6	V / 1.1 / 0.0	0.0	41.6	54.0	-12.4
9040.8	45.2 Pk	8.4 / 36.8 / 47.6	42.9	H / 1.1 / 0.0	0.0	42.9	54.0	-11.1

Example calculation:

Measured Level	**+**	**Transducer, Cable Loss & Amplifier corrections**	**=**	**Corrected Reading**	**Specification Limit**	**-**	**Corrected Reading**	**=**	**Delta Specification**
(dBμV)		(dB)		(dBμV/m)	(dBμV/m)		(dBμV/m)		
14.0		**14.9**		**28.9**	**40.0**		**28.9**		**-11.1**

Deviations, Additions, or Exclusions: None

6 Radiated Emissions – Unintentional and Spurious

6.1 Method

The test methods used comply with ANSI C63.4 and CISPR 16. Unless otherwise stated no deviations were made from **FCC 15.249, FCC 15.205/15.209 & IC RSS-210.**

Intertek Boulder's emissions testing facility is located at 40 Meadow Rd. in Pinewood Springs CO 80540. The emissions testing facility is ISO17025:2005 accredited by NVLAP, our lab code is 200624-0, BSMI lab number is SL2-IN-E-029R, our VCCI registration no. R-1643, our FCC designation no. US5170 and our IC lab no. 2042N.

6.2 Test Equipment Used:

Asset ID:	Description:	Manufacturer	Model:	Serial:	Cal Due:
Radiated Emissions					
18882	Spectrum Analyzer (dc-22 GHz)	Hewlett-Packard	8566B	2410A00154	11/12/2010
18880	Q.P Adapter	Hewlett-Packard	85650A	2811A01300	11/12/2010
18912	9 kHz- 1.3GHz Pre Amp (9kHz – 1000 MHz)	Hewlett-Packard	8447F	3113A05545	05/12/2010
18906	RF Pre-Amplifier (1-4 GHz)	Mini-Circuits Lab	ZHL-42	N052792-2	05/12/2010
18897	Magnetic loop	EMCO	6502	9205-2738	10/28/2010
18798	Bicon Antenna 30 - 300 MHz	EMCO	3109	9801-3142	02/20/2010
18808	Log Periodic Antenna	EMCO	3146	9203-3376	11/05/2010
18737	Doubled Ridged Guide Antenna (1-18 GHz)	EMCO	3105	2076	04/03/2010
18900	RF Pre-Amplifier (4-8 GHz)	Avantek	AFT97-8434-10F	1007	05/12/2010
18901	RF Pre-Amplifier (8-18 GHz)	Avantek	AWT-18037	1002	05/12/2010

6.3 Results:

The sample tested was found to Comply.

6.4 Setup Photographs:

Test setup – Front View

Test setup – Rear View

6.5 Test Data:

Radiated Electromagnetic Emissions
(Unintentional & Spurious)

Test Report #:	**100036404**	Test Area:	Pinewood Site 1 (3m)	Temperature:	24.3	°C
Test Method:	FCC Part 15.209	Test Date:	08-Feb-2010	Relative Humidity:	38.6	%
EUT Model #:	HB100 DM FMD	EUT Power:	110VAC/60Hz	Air Pressure:	79	kPa
EUT Serial #:	6100200					
Manufacturer:	BI Inc.					
EUT Description:	In-Home RF Transceiver Base Station					
Notes:	Receiver, Transmitter/Communication Device that communicates					
	with TAD (Transdermal Alcohol Detector) & Host					

Level Key	
Pk – Peak	Nb – Narrow Band
Qp – QuasiPeak	Bb – Broad Band
Av - Average	

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
Loop Antenna - Perpendicular to EUT						
10.86	21.2 Av	0.2 / 10.8 / 0.0	32.2	V / 1.0 / 0.0	N/A	N/A
13.04	18.1 Av	0.3 / 10.7 / 0.0	29.1	V / 1.0 / 0.0	N/A	N/A
15.01	17.0 Av	0.3 / 10.6 / 0.0	27.9	V / 1.0 / 0.0	N/A	N/A
18.98	21.5 Av	0.4 / 10.6 / 0.0	32.5	V / 1.0 / 0.0	N/A	N/A
23.14	17.0 Av	0.5 / 10.0 / 0.0	27.4	V / 1.0 / 0.0	N/A	N/A
26.56	17.0 Av	0.5 / 9.1 / 0.0	26.6	V / 1.0 / 0.0	N/A	N/A
10.86	28.4 Pk	0.2 / 10.8 / 0.0	39.4	V / 1.0 / 86.0	-30.1	N/A
10.86	19.9 Av	0.2 / 10.8 / 0.0	30.8	V / 1.0 / 86.0	N/A	N/A
13.04	32.9 Pk	0.3 / 10.7 / 0.0	43.8	V / 1.4 / 46.0	-25.7	N/A
13.04	17.0 Av	0.3 / 10.7 / 0.0	28.0	V / 1.4 / 46.0	N/A	N/A
15.01	25.3 Pk	0.3 / 10.6 / 0.0	36.2	V / 1.4 / 46.0	-33.3	N/A
15.01	17.0 Av	0.3 / 10.6 / 0.0	27.9	V / 1.4 / 46.0	N/A	N/A
18.98	31.4 Pk	0.4 / 10.6 / 0.0	42.4	V / 1.3 / 118.0	-27.1	N/A
18.98	18.6 Av	0.4 / 10.6 / 0.0	29.6	V / 1.3 / 118.0	N/A	N/A
23.14	26.9 Pk	0.5 / 10.0 / 0.0	37.3	V / 1.3 / 23.0	-32.2	N/A
23.14	17.0 Av	0.5 / 10.0 / 0.0	27.4	V / 1.3 / 23.0	N/A	N/A
26.56	27.6 Pk	0.5 / 9.1 / 0.0	37.2	V / 1.3 / 23.0	-32.3	N/A
26.56	17.0 Av	0.5 / 9.1 / 0.0	26.6	V / 1.3 / 23.0	N/A	N/A
Loop Antenna - Parallel to EUT						
10.86	29.9 Pk	0.2 / 10.8 / 0.0	40.8	H / 1.2 / 44.0	-28.7	N/A
10.86	24.9 Av	0.2 / 10.8 / 0.0	35.8	H / 1.2 / 44.0	N/A	N/A
15.01	25.4 Pk	0.3 / 10.6 / 0.0	36.4	H / 1.2 / 56.0	-33.1	N/A
15.01	18.1 Av	0.3 / 10.6 / 0.0	29.0	H / 1.2 / 56.0	N/A	N/A
18.98	24.4 Pk	0.4 / 10.6 / 0.0	35.5	H / 1.2 / 56.0	-34.0	N/A
18.98	17.0 Av	0.4 / 10.6 / 0.0	28.0	H / 1.2 / 56.0	N/A	N/A
23.14	26.2 Pk	0.5 / 10.0 / 0.0	36.7	H / 1.2 / 118.0	-32.8	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
26.56	25.6 Pk	0.5 / 9.1 / 0.0	35.2	H / 1.2 / 98.0	-34.3	N/A
1.82	28.4 Pk	0.1 / 10.5 / 0.0	39.0	H / 1.2 / 98.0	-30.5	N/A
3.28	31.8 Pk	0.2 / 10.5 / 0.0	42.5	V / 1.0 / 0.0	-27.0	N/A
3.67	29.4 Pk	0.2 / 10.6 / 0.0	40.1	V / 1.0 / 12.0	-29.4	N/A
3.87	30.2 Pk	0.2 / 10.6 / 0.0	41.0	V / 1.0 / 12.0	-28.5	N/A
6.55	25.2 Pk	0.2 / 10.7 / 0.0	36.1	V / 1.0 / 42.0	-33.4	N/A
30-200MHz Vertical 0 degrees						
30.00	40.0 Qp	0.5 / 13.0 / 28.1	25.3	V / 1.0 / 42.0	-14.7	N/A
40.00	39.2 Qp	0.6 / 11.4 / 28.1	23.2	V / 1.0 / 42.0	-16.8	N/A
50.00	43.0 Qp	0.7 / 10.0 / 28.1	25.6	V / 1.0 / 42.0	-14.4	N/A
60.00	42.0 Qp	0.7 / 8.5 / 28.1	23.1	V / 1.0 / 42.0	-16.9	N/A
70.00	41.0 Qp	0.8 / 8.4 / 28.0	22.2	V / 1.0 / 42.0	-17.8	N/A
80.00	43.0 Qp	0.9 / 6.9 / 28.0	22.8	V / 1.0 / 42.0	-17.2	N/A
110.00	34.8 Qp	1.1 / 10.7 / 27.9	18.7	V / 1.0 / 42.0	-24.8	N/A
120.00	36.0 Qp	1.2 / 11.6 / 27.9	20.8	V / 1.0 / 42.0	-22.7	N/A
35.00	30.4 Qp	0.6 / 12.1 / 28.1	15.0	V / 1.0 / 42.0	-25.0	N/A
52.56	39.2 Qp	0.7 / 9.6 / 28.1	21.5	V / 1.0 / 42.0	-18.5	N/A
148.22	29.6 Qp	1.3 / 12.6 / 27.8	15.8	V / 1.0 / 42.0	-27.7	N/A
169.33	33.7 Qp	1.4 / 12.1 / 27.7	19.6	V / 1.0 / 42.0	-23.9	N/A
185.02	26.4 Qp	1.4 / 12.8 / 27.6	13.1	V / 1.0 / 42.0	-30.4	N/A
197.56	30.1 Qp	1.5 / 13.3 / 27.5	17.3	V / 1.0 / 42.0	-26.2	N/A
200.00	34.4 Qp	1.5 / 13.4 / 27.5	21.7	V / 1.0 / 42.0	-21.8	N/A
52.56	39.6 Qp	0.7 / 9.6 / 28.1	21.9	V / 1.0 / 42.0	-18.1	N/A
30-200 MHz Vertical 90 degrees						
30.00	36.5 Qp	0.5 / 13.0 / 28.1	21.9	V / 1.0 / 90.0	-18.1	N/A
35.00	29.4 Qp	0.6 / 12.1 / 28.1	14.0	V / 1.0 / 90.0	-26.0	N/A
40.00	36.4 Qp	0.6 / 11.4 / 28.1	20.4	V / 1.0 / 90.0	-19.6	N/A
50.00	42.1 Qp	0.7 / 10.0 / 28.1	24.7	V / 1.0 / 90.0	-15.3	N/A
52.56	38.9 Qp	0.7 / 9.6 / 28.1	21.1	V / 1.0 / 90.0	-18.9	N/A
60.00	41.0 Qp	0.7 / 8.5 / 28.1	22.1	V / 1.0 / 90.0	-17.9	N/A
70.00	41.0 Qp	0.8 / 8.4 / 28.0	22.2	V / 1.0 / 90.0	-17.8	N/A
80.00	42.0 Qp	0.9 / 6.9 / 28.0	21.9	V / 1.0 / 90.0	-18.1	N/A
159.99	32.3 Qp	1.4 / 12.3 / 27.7	18.2	V / 1.0 / 90.0	-25.3	N/A
169.33	34.4 Qp	1.4 / 12.1 / 27.7	20.2	V / 1.0 / 90.0	-23.3	N/A
30-200MHz Vertical 180 degrees						
30.00	36.2 Qp	0.5 / 13.0 / 28.1	21.6	V / 1.0 / 180.0	-18.4	N/A
40.00	37.1 Qp	0.6 / 11.4 / 28.1	21.1	V / 1.0 / 180.0	-18.9	N/A
50.00	43.1 Qp	0.7 / 10.0 / 28.1	25.7	V / 1.0 / 180.0	-14.3	N/A
52.56	40.7 Qp	0.7 / 9.6 / 28.1	23.0	V / 1.0 / 180.0	-17.0	N/A
60.00	41.7 Qp	0.7 / 8.5 / 28.1	22.9	V / 1.0 / 180.0	-17.1	N/A
70.00	41.0 Qp	0.8 / 8.4 / 28.0	22.2	V / 1.0 / 180.0	-17.8	N/A
80.00	42.5 Qp	0.9 / 6.9 / 28.0	22.4	V / 1.0 / 180.0	-17.6	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
110.00	36.4 Qp	1.1 / 10.7 / 27.9	20.3	V / 1.0 / 180.0	-23.2	N/A
120.00	33.0 Qp	1.2 / 11.6 / 27.9	17.8	V / 1.0 / 180.0	-25.7	N/A
159.99	31.5 Qp	1.4 / 12.3 / 27.7	17.4	V / 1.0 / 180.0	-26.1	N/A
169.33	35.5 Qp	1.4 / 12.1 / 27.7	21.3	V / 1.0 / 180.0	-22.2	N/A
185.02	26.6 Qp	1.4 / 12.8 / 27.6	13.2	V / 1.0 / 180.0	-30.3	N/A
200.00	34.3 Qp	1.5 / 13.4 / 27.5	21.6	V / 1.0 / 180.0	-21.9	N/A
35.00	29.7 Qp	0.6 / 12.1 / 28.1	14.3	V / 1.0 / 270.0	-25.7	N/A
30-200MHz Vertical 270 degrees						
35.00	30.1 Qp	0.6 / 12.1 / 28.1	14.6	V / 1.0 / 270.0	-25.4	N/A
50.00	42.5 Qp	0.7 / 10.0 / 28.1	25.2	V / 1.0 / 270.0	-14.8	N/A
52.56	40.2 Qp	0.7 / 9.6 / 28.1	22.5	V / 1.0 / 270.0	-17.5	N/A
60.00	41.8 Qp	0.7 / 8.5 / 28.1	23.0	V / 1.0 / 270.0	-17.0	N/A
70.00	40.8 Qp	0.8 / 8.4 / 28.0	22.0	V / 1.0 / 270.0	-18.0	N/A
80.00	42.1 Qp	0.9 / 6.9 / 28.0	22.0	V / 1.0 / 270.0	-18.0	N/A
159.99	32.3 Qp	1.4 / 12.3 / 27.7	18.2	V / 1.0 / 270.0	-25.3	N/A
185.02	26.7 Qp	1.4 / 12.8 / 27.6	13.4	V / 1.0 / 270.0	-30.1	N/A
197.56	29.6 Qp	1.5 / 13.3 / 27.5	16.8	V / 1.0 / 270.0	-26.7	N/A
Following signals maximized between 30 & 200MHz Vertical						
30.00	39.5 Qp	0.5 / 13.0 / 28.1	24.9	V / 1.0 / 12.0	-15.1	N/A
40.00	41.4 Qp	0.6 / 11.4 / 28.1	25.4	V / 1.0 / 164.0	-14.6	N/A
50.00	43.6 Qp	0.7 / 10.0 / 28.1	26.3	V / 1.0 / 124.0	-13.7	N/A
52.56	41.0 Qp	0.7 / 9.6 / 28.1	23.3	V / 1.0 / 168.0	-16.7	N/A
60.00	42.0 Qp	0.7 / 8.5 / 28.1	23.2	V / 1.0 / 268.0	-16.8	N/A
70.00	41.6 Qp	0.8 / 8.4 / 28.0	22.8	V / 1.0 / 292.0	-17.2	N/A
80.00	41.5 Qp	0.9 / 6.9 / 28.0	21.4	V / 1.0 / 136.0	-18.6	N/A
30-200MHz Horizontal 0 degrees						
30.00	25.4 Qp	0.5 / 13.0 / 28.1	10.8	H / 1.6 / 0.0	-29.2	N/A
35.00	25.4 Qp	0.6 / 12.1 / 28.1	9.9	H / 1.6 / 0.0	-30.1	N/A
40.00	26.4 Qp	0.6 / 11.4 / 28.1	10.4	H / 1.6 / 0.0	-29.6	N/A
50.00	29.0 Qp	0.7 / 10.0 / 28.1	11.6	H / 1.6 / 0.0	-28.4	N/A
52.56	26.9 Qp	0.7 / 9.6 / 28.1	9.2	H / 1.6 / 0.0	-30.8	N/A
60.00	29.2 Qp	0.7 / 8.5 / 28.1	10.4	H / 1.6 / 0.0	-29.6	N/A
70.00	27.8 Qp	0.8 / 8.4 / 28.0	8.9	H / 1.6 / 0.0	-31.1	N/A
80.00	34.9 Qp	0.9 / 6.9 / 28.0	14.7	H / 1.6 / 0.0	-25.3	N/A
110.00	27.0 Qp	1.1 / 10.7 / 27.9	10.9	H / 1.6 / 0.0	-32.6	N/A
120.00	28.9 Qp	1.2 / 11.6 / 27.9	13.8	H / 1.6 / 0.0	-29.7	N/A
148.22	29.1 Qp	1.3 / 12.6 / 27.8	15.3	H / 1.6 / 0.0	-28.2	N/A
159.99	28.4 Qp	1.4 / 12.3 / 27.7	14.4	H / 1.6 / 0.0	-29.1	N/A
169.33	27.6 Qp	1.4 / 12.1 / 27.7	13.5	H / 1.6 / 0.0	-30.0	N/A
185.02	26.6 Qp	1.4 / 12.8 / 27.6	13.3	H / 1.6 / 0.0	-30.2	N/A
197.56	25.6 Qp	1.5 / 13.3 / 27.5	12.8	H / 1.6 / 0.0	-30.7	N/A
199.99	41.8 Qp	1.5 / 13.4 / 27.5	29.1	H / 1.6 / 0.0	-14.4	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
30-200MHz Horizontal 90 degrees						
40.00	27.4 Qp	0.6 / 11.4 / 28.1	11.4	H / 1.6 / 90.0	-28.6	N/A
50.00	31.9 Qp	0.7 / 10.0 / 28.1	14.6	H / 1.6 / 90.0	-25.4	N/A
52.56	27.8 Qp	0.7 / 9.6 / 28.1	10.1	H / 1.6 / 90.0	-29.9	N/A
70.00	29.2 Qp	0.8 / 8.4 / 28.0	10.4	H / 1.6 / 90.0	-29.6	N/A
80.00	35.2 Qp	0.9 / 6.9 / 28.0	15.1	H / 1.6 / 90.0	-24.9	N/A
120.00	31.7 Qp	1.2 / 11.6 / 27.9	16.5	H / 1.6 / 90.0	-27.0	N/A
159.99	30.9 Qp	1.4 / 12.3 / 27.7	16.8	H / 1.6 / 90.0	-26.7	N/A
169.33	33.8 Qp	1.4 / 12.1 / 27.7	19.6	H / 1.6 / 90.0	-23.9	N/A
185.02	27.4 Qp	1.4 / 12.8 / 27.6	14.1	H / 1.6 / 90.0	-29.4	N/A
197.56	26.1 Qp	1.5 / 13.3 / 27.5	13.4	H / 1.6 / 90.0	-30.1	N/A
30-200MHz Horizontal 180 degrees						
40.00	26.6 Qp	0.6 / 11.4 / 28.1	10.6	H / 1.6 / 180.0	-29.4	N/A
70.00	27.6 Qp	0.8 / 8.4 / 28.0	8.8	H / 1.6 / 180.0	-31.2	N/A
80.00	34.8 Qp	0.9 / 6.9 / 28.0	14.6	H / 1.6 / 180.0	-25.4	N/A
120.00	29.0 Qp	1.2 / 11.6 / 27.9	13.8	H / 1.6 / 180.0	-29.7	N/A
159.99	28.4 Qp	1.4 / 12.3 / 27.7	14.3	H / 1.6 / 180.0	-29.2	N/A
No higher signals found: 30-200MHz Horizontal 270 degrees						
Following signals maximized between 30 & 200MHz Horizontal						
30.00	30.5 Qp	0.5 / 13.0 / 28.1	15.9	H / 1.2 / 338.0	-24.1	N/A
40.00	35.0 Qp	0.6 / 11.4 / 28.1	19.0	H / 1.2 / 18.0	-21.0	N/A
50.00	31.7 Qp	0.7 / 10.0 / 28.1	14.3	H / 1.2 / 18.0	-25.7	N/A
52.56	28.6 Qp	0.7 / 9.6 / 28.1	10.9	H / 1.2 / 212.0	-29.1	N/A
70.00	30.7 Qp	0.8 / 8.4 / 28.0	11.9	H / 1.2 / 312.0	-28.1	N/A
80.00	36.5 Qp	0.9 / 6.9 / 28.0	16.3	H / 1.2 / 312.0	-23.7	N/A
199.99	41.7 Qp	1.5 / 13.4 / 27.5	29.0	H / 1.2 / 312.0	-14.5	N/A
200-1000MHz Vertical 0 degrees						
219.87	43.7 Qp	1.6 / 11.0 / 27.4	28.8	V / 1.0 / 0.0	-17.2	N/A
224.26	31.4 Qp	1.6 / 11.0 / 27.4	16.6	V / 1.0 / 0.0	-29.4	N/A
234.00	26.9 Qp	1.7 / 11.3 / 27.3	12.5	V / 1.0 / 0.0	-33.5	N/A
250.00	33.8 Qp	1.7 / 11.9 / 27.3	20.2	V / 1.0 / 0.0	-25.8	N/A
254.30	28.3 Qp	1.8 / 12.2 / 27.2	15.0	V / 1.0 / 0.0	-31.0	N/A
278.92	24.0 Qp	1.8 / 13.7 / 27.1	12.4	V / 1.0 / 0.0	-33.6	N/A
290.19	23.1 Qp	1.9 / 14.8 / 27.1	12.8	V / 1.0 / 0.0	-33.2	N/A
299.82	29.1 Qp	1.9 / 14.8 / 27.2	18.7	V / 1.0 / 0.0	-27.3	N/A
313.61	37.0 Qp	1.9 / 14.8 / 27.2	26.5	V / 1.0 / 0.0	-19.5	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
329.84	30.2 Qp	2.0 / 14.4 / 27.3	19.3	V / 1.0 / 0.0	-26.7	N/A
338.67	31.4 Qp	2.0 / 14.4 / 27.4	20.4	V / 1.0 / 0.0	-25.6	N/A
339.81	40.1 Qp	2.0 / 14.4 / 27.4	29.2	V / 1.0 / 0.0	-16.8	N/A
359.81	26.9 Qp	2.1 / 14.6 / 27.5	16.0	V / 1.0 / 0.0	-30.0	N/A
408.26	30.1 Qp	2.2 / 15.6 / 27.9	20.0	V / 1.0 / 0.0	-26.0	N/A
620.91	28.1 Qp	2.9 / 19.1 / 28.4	21.9	V / 1.0 / 0.0	-24.1	N/A
790.25	26.1 Qp	3.3 / 21.1 / 28.0	22.5	V / 1.0 / 0.0	-23.5	N/A
818.47	34.4 Qp	3.3 / 21.4 / 27.9	31.3	V / 1.0 / 0.0	-14.7	N/A
846.70	32.0 Qp	3.4 / 21.9 / 27.8	29.5	V / 1.0 / 0.0	-16.5	N/A
959.59	28.8 Qp	3.7 / 23.0 / 27.5	27.9	V / 1.0 / 0.0	-18.1	N/A
959.98	27.6 Qp	3.7 / 23.0 / 27.5	26.8	V / 1.0 / 0.0	-19.2	N/A
220.00	42.5 Qp	1.6 / 11.0 / 27.4	27.6	V / 1.0 / 0.0	-18.4	N/A
240.00	30.4 Qp	1.7 / 11.3 / 27.3	16.0	V / 1.0 / 0.0	-30.0	N/A
260.00	31.5 Qp	1.8 / 12.5 / 27.2	18.6	V / 1.0 / 0.0	-27.4	N/A
380.01	28.2 Qp	2.1 / 14.9 / 27.7	17.6	V / 1.0 / 0.0	-28.4	N/A
400.01	27.8 Qp	2.2 / 15.4 / 27.8	17.6	V / 1.0 / 0.0	-28.4	N/A
489.88	41.6 Qp	2.6 / 17.8 / 28.3	33.7	V / 1.0 / 0.0	-12.3	N/A
510.04	39.9 Qp	2.6 / 18.9 / 28.3	33.0	V / 1.0 / 0.0	-13.0	N/A
514.07	41.2 Qp	2.6 / 18.5 / 28.4	34.0	V / 1.0 / 0.0	-12.0	N/A
518.10	40.4 Qp	2.6 / 18.2 / 28.4	32.8	V / 1.0 / 0.0	-13.2	N/A
520.11	36.1 Qp	2.6 / 18.0 / 28.4	28.4	V / 1.0 / 0.0	-17.6	N/A
522.14	39.3 Qp	2.6 / 17.8 / 28.4	31.4	V / 1.0 / 0.0	-14.6	N/A
534.23	38.8 Qp	2.6 / 17.9 / 28.4	30.9	V / 1.0 / 0.0	-15.1	N/A
538.26	39.3 Qp	2.6 / 17.9 / 28.4	31.5	V / 1.0 / 0.0	-14.5	N/A
542.29	39.6 Qp	2.6 / 18.0 / 28.4	31.8	V / 1.0 / 0.0	-14.2	N/A
546.32	37.0 Qp	2.6 / 18.0 / 28.4	29.2	V / 1.0 / 0.0	-16.8	N/A
550.36	34.8 Qp	2.6 / 18.1 / 28.4	27.1	V / 1.0 / 0.0	-18.9	N/A
558.42	37.5 Qp	2.7 / 18.2 / 28.4	29.9	V / 1.0 / 0.0	-16.1	N/A
610.84	33.2 Qp	2.9 / 18.9 / 28.4	26.8	V / 1.0 / 0.0	-19.2	N/A
625.76	34.1 Qp	3.0 / 19.2 / 28.4	28.0	V / 1.0 / 0.0	-18.0	N/A
635.03	39.0 Qp	3.0 / 19.4 / 28.4	33.0	V / 1.0 / 0.0	-13.0	N/A
651.15	37.3 Qp	3.0 / 20.0 / 28.4	31.9	V / 1.0 / 0.0	-14.1	N/A
675.34	33.0 Qp	3.1 / 20.9 / 28.3	28.7	V / 1.0 / 0.0	-17.3	N/A
711.63	32.8 Qp	3.2 / 20.8 / 28.2	28.7	V / 1.0 / 0.0	-17.3	N/A
846.70	31.9 Qp	3.4 / 21.9 / 27.8	29.4	V / 1.0 / 0.0	-16.6	N/A
897.11	30.6 Qp	3.6 / 22.5 / 27.7	29.1	V / 1.0 / 0.0	-16.9	N/A
200.00	39.7 Qp	1.5 / 11.2 / 27.5	24.9	V / 1.0 / 0.0	-18.6	N/A
200-1000MHz Vertical 90 degrees						
200.00	39.5 Qp	1.5 / 11.2 / 27.5	24.7	V / 1.0 / 90.0	-18.8	N/A
219.87	39.2 Qp	1.6 / 11.0 / 27.4	24.4	V / 1.0 / 90.0	-21.6	N/A
220.00	35.1 Qp	1.6 / 11.0 / 27.4	20.2	V / 1.0 / 90.0	-25.8	N/A
239.89	32.1 Qp	1.7 / 11.3 / 27.3	17.8	V / 1.0 / 90.0	-28.2	N/A
250.00	33.0 Qp	1.7 / 11.9 / 27.3	19.4	V / 1.0 / 90.0	-26.6	N/A
254.02	35.6 Qp	1.8 / 12.2 / 27.2	22.3	V / 1.0 / 90.0	-23.7	N/A
313.54	36.4 Qp	1.9 / 14.8 / 27.2	25.9	V / 1.0 / 90.0	-20.1	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
379.81	29.6 Qp	2.1 / 14.9 / 27.7	19.0	V / 1.0 / 90.0	-27.0	N/A
550.36	34.2 Qp	2.6 / 18.1 / 28.4	26.5	V / 1.0 / 90.0	-19.5	N/A
620.91	29.3 Qp	2.9 / 19.1 / 28.4	23.0	V / 1.0 / 90.0	-23.0	N/A
635.03	40.9 Qp	3.0 / 19.4 / 28.4	34.9	V / 1.0 / 90.0	-11.1	N/A
651.15	38.9 Qp	3.0 / 20.0 / 28.4	33.5	V / 1.0 / 90.0	-12.5	N/A
818.47	33.6 Qp	3.3 / 21.4 / 27.9	30.5	V / 1.0 / 90.0	-15.5	N/A
846.70	31.9 Qp	3.4 / 21.9 / 27.8	29.4	V / 1.0 / 90.0	-16.6	N/A
959.59	29.9 Qp	3.7 / 23.0 / 27.5	29.1	V / 1.0 / 90.0	-16.9	N/A
959.98	27.2 Qp	3.7 / 23.0 / 27.5	26.4	V / 1.0 / 90.0	-19.6	N/A
200-1000MHz Vertical 180 degrees						
219.87	39.1 Qp	1.6 / 11.0 / 27.4	24.2	V / 1.0 / 180.0	-21.8	N/A
313.54	36.7 Qp	1.9 / 14.8 / 27.2	26.2	V / 1.0 / 180.0	-19.8	N/A
379.81	31.0 Qp	2.1 / 14.9 / 27.7	20.4	V / 1.0 / 180.0	-25.6	N/A
379.88	30.3 Qp	2.1 / 14.9 / 27.7	19.7	V / 1.0 / 180.0	-26.3	N/A
538.26	39.2 Qp	2.6 / 17.9 / 28.4	31.4	V / 1.0 / 180.0	-14.6	N/A
610.84	34.4 Qp	2.9 / 18.9 / 28.4	27.9	V / 1.0 / 180.0	-18.1	N/A
711.63	34.5 Qp	3.2 / 20.8 / 28.2	30.4	V / 1.0 / 180.0	-15.6	N/A
200-1000MHz Vertical 270 degrees						
219.87	36.7 Qp	1.6 / 11.0 / 27.4	21.8	V / 1.0 / 270.0	-24.2	N/A
313.54	36.5 Qp	1.9 / 14.8 / 27.2	26.0	V / 1.0 / 270.0	-20.0	N/A
489.88	42.8 Qp	2.6 / 17.8 / 28.3	34.9	V / 1.0 / 270.0	-11.1	N/A
510.04	40.9 Qp	2.6 / 18.9 / 28.3	34.0	V / 1.0 / 270.0	-12.0	N/A
514.07	42.8 Qp	2.6 / 18.5 / 28.4	35.5	V / 1.0 / 270.0	-10.5	N/A
518.10	44.1 Qp	2.6 / 18.2 / 28.4	36.6	V / 1.0 / 270.0	-9.4	N/A
520.11	41.8 Qp	2.6 / 18.0 / 28.4	34.0	V / 1.0 / 270.0	-12.0	N/A
522.14	45.6 Qp	2.6 / 17.8 / 28.4	37.7	V / 1.0 / 270.0	-8.3	N/A
534.23	47.4 Qp	2.6 / 17.9 / 28.4	39.5	V / 1.0 / 270.0	-6.5	N/A
538.26	48.4 Qp	2.6 / 17.9 / 28.4	40.5	V / 1.0 / 270.0	-5.5	N/A
542.29	46.9 Qp	2.6 / 18.0 / 28.4	39.1	V / 1.0 / 270.0	-6.9	N/A
546.32	44.3 Qp	2.6 / 18.0 / 28.4	36.5	V / 1.0 / 270.0	-9.5	N/A
546.32	44.3 Qp	2.6 / 18.0 / 28.4	36.5	V / 1.0 / 270.0	-9.5	N/A
550.36	44.0 Qp	2.6 / 18.1 / 28.4	36.3	V / 1.0 / 270.0	-9.7	N/A
558.42	44.2 Qp	2.7 / 18.2 / 28.4	36.6	V / 1.0 / 270.0	-9.4	N/A
959.59	31.1 Qp	3.7 / 23.0 / 27.5	30.2	V / 1.0 / 270.0	-15.8	N/A
Following signals maximized between 200 & 1000MHz Vertical						
219.87	45.5 Qp	1.6 / 11.0 / 27.4	30.6	V / 1.0 / 26.0	-15.4	N/A
250.00	33.9 Qp	1.7 / 11.9 / 27.3	20.3	V / 1.0 / 312.0	-25.7	N/A
514.07	44.2 Qp	2.6 / 18.5 / 28.4	37.0	V / 2.2 / 94.0	-9.0	N/A
518.10	43.6 Qp	2.6 / 18.2 / 28.4	36.0	V / 2.2 / 324.0	-10.0	N/A
522.14	42.5 Qp	2.6 / 17.8 / 28.4	34.6	V / 1.8 / 312.0	-11.4	N/A
534.23	40.7 Qp	2.6 / 17.9 / 28.4	32.8	V / 1.8 / 272.0	-13.2	N/A
538.26	48.5 Qp	2.6 / 17.9 / 28.4	40.7	V / 1.2 / 278.0	-5.3	N/A
534.23	47.4 Qp	2.6 / 17.9 / 28.4	39.5	V / 1.2 / 278.0	-6.5	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
542.29	47.1 Qp	2.6 / 18.0 / 28.4	39.3	V / 1.2 / 278.0	-6.7	N/A
546.32	44.5 Qp	2.6 / 18.0 / 28.4	36.7	V / 1.2 / 268.0	-9.3	N/A
550.36	44.4 Qp	2.6 / 18.1 / 28.4	36.7	V / 1.2 / 268.0	-9.3	N/A
558.42	44.8 Qp	2.7 / 18.2 / 28.4	37.2	V / 1.2 / 304.0	-8.8	N/A
635.03	40.9 Qp	3.0 / 19.4 / 28.4	34.8	V / 1.2 / 298.0	-11.2	N/A
200-1000MHz Horizontal 0 degrees						
219.87	37.7 Qp	1.6 / 11.0 / 27.4	22.8	H / 1.6 / 0.0	-23.2	N/A
220.00	35.9 Qp	1.6 / 11.0 / 27.4	21.0	H / 1.6 / 0.0	-25.0	N/A
224.26	29.1 Qp	1.6 / 11.0 / 27.4	14.3	H / 1.6 / 0.0	-31.7	N/A
239.89	31.4 Qp	1.7 / 11.3 / 27.3	17.1	H / 1.6 / 0.0	-28.9	N/A
254.02	28.4 Qp	1.8 / 12.2 / 27.2	15.1	H / 1.6 / 0.0	-30.9	N/A
259.86	37.1 Qp	1.8 / 12.5 / 27.2	24.2	H / 1.6 / 0.0	-21.8	N/A
299.82	29.7 Qp	1.9 / 14.8 / 27.2	19.2	H / 1.6 / 0.0	-26.8	N/A
313.56	29.9 Qp	1.9 / 14.8 / 27.2	19.4	H / 1.6 / 0.0	-26.6	N/A
489.88	35.5 Qp	2.6 / 17.8 / 28.3	27.6	H / 1.6 / 0.0	-18.4	N/A
510.04	35.0 Qp	2.6 / 18.9 / 28.3	28.1	H / 1.6 / 0.0	-17.9	N/A
514.07	38.0 Qp	2.6 / 18.5 / 28.4	30.7	H / 1.6 / 0.0	-15.3	N/A
518.10	36.1 Qp	2.6 / 18.2 / 28.4	28.5	H / 1.6 / 0.0	-17.5	N/A
520.11	31.8 Qp	2.6 / 18.0 / 28.4	24.1	H / 1.6 / 0.0	-21.9	N/A
522.14	34.5 Qp	2.6 / 17.8 / 28.4	26.6	H / 1.6 / 0.0	-19.4	N/A
534.23	34.7 Qp	2.6 / 17.9 / 28.4	26.8	H / 1.6 / 0.0	-19.2	N/A
538.26	35.2 Qp	2.6 / 17.9 / 28.4	27.4	H / 1.6 / 0.0	-18.6	N/A
542.29	34.6 Qp	2.6 / 18.0 / 28.4	26.8	H / 1.6 / 0.0	-19.2	N/A
546.32	33.6 Qp	2.6 / 18.0 / 28.4	25.9	H / 1.6 / 0.0	-20.1	N/A
550.36	35.1 Qp	2.6 / 18.1 / 28.4	27.5	H / 1.6 / 0.0	-18.5	N/A
558.42	35.0 Qp	2.7 / 18.2 / 28.4	27.4	H / 1.6 / 0.0	-18.6	N/A
610.84	29.7 Qp	2.9 / 18.9 / 28.4	23.2	H / 1.6 / 0.0	-22.8	N/A
620.91	28.1 Qp	2.9 / 19.1 / 28.4	21.9	H / 1.6 / 0.0	-24.1	N/A
635.03	38.5 Qp	3.0 / 19.4 / 28.4	32.4	H / 1.6 / 0.0	-13.6	N/A
651.15	33.8 Qp	3.0 / 20.0 / 28.4	28.4	H / 1.6 / 0.0	-17.6	N/A
675.26	29.8 Qp	3.1 / 20.9 / 28.3	25.5	H / 1.6 / 0.0	-20.5	N/A
711.63	30.9 Qp	3.2 / 20.8 / 28.2	26.8	H / 1.6 / 0.0	-19.2	N/A
818.47	27.1 Qp	3.3 / 21.4 / 27.9	24.0	H / 1.6 / 0.0	-22.0	N/A
846.70	27.6 Qp	3.4 / 21.9 / 27.8	25.1	H / 1.6 / 0.0	-20.9	N/A
897.11	26.9 Qp	3.6 / 22.5 / 27.7	25.4	H / 1.6 / 0.0	-20.6	N/A
959.59	25.6 Qp	3.7 / 23.0 / 27.5	24.8	H / 1.6 / 0.0	-21.2	N/A
200-1000MHz Horizontal 90 degrees						
219.87	43.1 Qp	1.6 / 11.0 / 27.4	28.3	H / 1.6 / 90.0	-17.7	N/A
220.00	41.8 Qp	1.6 / 11.0 / 27.4	26.9	H / 1.6 / 90.0	-19.1	N/A
224.26	31.6 Qp	1.6 / 11.0 / 27.4	16.9	H / 1.6 / 90.0	-29.1	N/A
239.89	39.9 Qp	1.7 / 11.3 / 27.3	25.6	H / 1.6 / 90.0	-20.4	N/A
240.00	37.4 Qp	1.7 / 11.3 / 27.3	23.0	H / 1.6 / 90.0	-23.0	N/A
254.02	32.8 Qp	1.8 / 12.2 / 27.2	19.4	H / 1.6 / 90.0	-26.6	N/A
259.86	42.7 Qp	1.8 / 12.5 / 27.2	29.8	H / 1.6 / 90.0	-16.2	N/A
489.88	40.6 Qp	2.6 / 17.8 / 28.3	32.7	H / 1.6 / 90.0	-13.3	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
518.10	37.0 Qp	2.6 / 18.2 / 28.4	29.4	H / 1.6 / 90.0	-16.6	N/A
520.11	35.0 Qp	2.6 / 18.0 / 28.4	27.2	H / 1.6 / 90.0	-18.8	N/A
522.14	38.6 Qp	2.6 / 17.8 / 28.4	30.7	H / 1.6 / 90.0	-15.3	N/A
534.23	44.0 Qp	2.6 / 17.9 / 28.4	36.2	H / 1.6 / 90.0	-9.8	N/A
538.26	44.5 Qp	2.6 / 17.9 / 28.4	36.7	H / 1.6 / 90.0	-9.3	N/A
542.29	41.5 Qp	2.6 / 18.0 / 28.4	33.7	H / 1.6 / 90.0	-12.3	N/A
546.32	36.8 Qp	2.6 / 18.0 / 28.4	29.0	H / 1.6 / 90.0	-17.0	N/A
550.36	39.0 Qp	2.6 / 18.1 / 28.4	31.3	H / 1.6 / 90.0	-14.7	N/A
558.42	42.2 Qp	2.7 / 18.2 / 28.4	34.7	H / 1.6 / 90.0	-11.3	N/A
635.03	40.0 Qp	3.0 / 19.4 / 28.4	33.9	H / 1.6 / 90.0	-12.1	N/A
651.15	37.4 Qp	3.0 / 20.0 / 28.4	32.0	H / 1.6 / 90.0	-14.0	N/A
675.34	33.0 Qp	3.1 / 20.9 / 28.3	28.7	H / 1.6 / 90.0	-17.3	N/A
711.63	34.1 Qp	3.2 / 20.8 / 28.2	30.1	H / 1.6 / 90.0	-15.9	N/A
200-1000MHz Horizontal 180 degrees						
259.86	37.5 Qp	1.8 / 12.5 / 27.2	24.5	H / 1.6 / 180.0	-21.5	N/A
510.04	37.7 Qp	2.6 / 18.9 / 28.3	30.8	H / 1.6 / 180.0	-15.2	N/A
514.07	39.0 Qp	2.6 / 18.5 / 28.4	31.7	H / 1.6 / 180.0	-14.3	N/A
518.10	39.1 Qp	2.6 / 18.2 / 28.4	31.6	H / 1.6 / 180.0	-14.4	N/A
522.14	40.0 Qp	2.6 / 17.8 / 28.4	32.0	H / 1.6 / 180.0	-14.0	N/A
534.23	41.8 Qp	2.6 / 17.9 / 28.4	33.9	H / 1.6 / 180.0	-12.1	N/A
546.32	39.5 Qp	2.6 / 18.0 / 28.4	31.7	H / 1.6 / 180.0	-14.3	N/A
550.36	40.9 Qp	2.6 / 18.1 / 28.4	33.2	H / 1.6 / 180.0	-12.8	N/A
558.42	40.0 Qp	2.7 / 18.2 / 28.4	32.5	H / 1.6 / 180.0	-13.5	N/A
635.03	34.9 Qp	3.0 / 19.4 / 28.4	28.9	H / 1.6 / 180.0	-17.1	N/A
675.34	29.8 Qp	3.1 / 20.9 / 28.3	25.5	H / 1.6 / 180.0	-20.5	N/A
818.47	26.6 Qp	3.3 / 21.4 / 27.9	23.5	H / 1.6 / 180.0	-22.5	N/A
200-1000MHz Horizontal 270 degrees						
219.87	42.0 Qp	1.6 / 11.0 / 27.4	27.2	H / 1.6 / 270.0	-18.8	N/A
220.00	39.8 Qp	1.6 / 11.0 / 27.4	24.9	H / 1.6 / 270.0	-21.1	N/A
224.26	31.6 Qp	1.6 / 11.0 / 27.4	16.8	H / 1.6 / 270.0	-29.2	N/A
239.89	39.4 Qp	1.7 / 11.3 / 27.3	25.1	H / 1.6 / 270.0	-20.9	N/A
254.02	32.8 Qp	1.8 / 12.2 / 27.2	19.5	H / 1.6 / 270.0	-26.5	N/A
259.87	31.9 Qp	1.8 / 12.5 / 27.2	18.9	H / 1.6 / 270.0	-27.1	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
299.82	34.3 Qp	1.9 / 14.8 / 27.2	23.8	H / 1.6 / 270.0	-22.2	N/A
339.81	36.5 Qp	2.0 / 14.4 / 27.4	25.6	H / 1.6 / 270.0	-20.4	N/A
489.88	40.9 Qp	2.6 / 17.8 / 28.3	33.0	H / 1.6 / 270.0	-13.0	N/A
510.04	39.7 Qp	2.6 / 18.9 / 28.3	32.8	H / 1.6 / 270.0	-13.2	N/A
514.07	42.8 Qp	2.6 / 18.5 / 28.4	35.6	H / 1.6 / 270.0	-10.4	N/A
518.10	44.5 Qp	2.6 / 18.2 / 28.4	36.9	H / 1.6 / 270.0	-9.1	N/A
520.11	41.5 Qp	2.6 / 18.0 / 28.4	33.7	H / 1.6 / 270.0	-12.3	N/A
522.14	45.6 Qp	2.6 / 17.8 / 28.4	37.7	H / 1.6 / 270.0	-8.3	N/A
534.23	49.4 Qp	2.6 / 17.9 / 28.4	41.5	H / 1.6 / 270.0	-4.5	N/A
538.26	50.0 Qp	2.6 / 17.9 / 28.4	42.1	H / 1.6 / 270.0	-3.9	N/A
542.29	48.2 Qp	2.6 / 18.0 / 28.4	40.4	H / 1.6 / 270.0	-5.6	N/A
546.32	46.2 Qp	2.6 / 18.0 / 28.4	38.4	H / 1.6 / 270.0	-7.6	N/A
550.36	46.6 Qp	2.6 / 18.1 / 28.4	38.9	H / 1.6 / 270.0	-7.1	N/A
558.42	47.2 Qp	2.7 / 18.2 / 28.4	39.6	H / 1.6 / 270.0	-6.4	N/A
620.91	30.1 Qp	2.9 / 19.1 / 28.4	23.8	H / 1.6 / 270.0	-22.2	N/A
635.03	40.5 Qp	3.0 / 19.4 / 28.4	34.4	H / 1.6 / 270.0	-11.6	N/A
651.15	40.5 Qp	3.0 / 20.0 / 28.4	35.2	H / 1.6 / 270.0	-10.8	N/A
675.26	30.6 Qp	3.1 / 20.9 / 28.3	26.3	H / 1.6 / 270.0	-19.7	N/A
711.63	36.2 Qp	3.2 / 20.8 / 28.2	32.1	H / 1.6 / 270.0	-13.9	N/A
959.59	30.4 Qp	3.7 / 23.0 / 27.5	29.6	H / 1.6 / 270.0	-16.4	N/A
Following signals maximized between 200 & 1000MHz Horizontal						
259.86	44.4 Qp	1.8 / 12.5 / 27.2	31.5	H / 1.2 / 58.0	-14.5	N/A
514.07	42.5 Qp	2.6 / 18.5 / 28.4	35.3	H / 1.4 / 286.0	-10.7	N/A
518.10	44.2 Qp	2.6 / 18.2 / 28.4	36.7	H / 1.4 / 286.0	-9.3	N/A
522.14	45.5 Qp	2.6 / 17.8 / 28.4	37.6	H / 1.4 / 249.0	-8.4	N/A
534.23	49.5 Qp	2.6 / 17.9 / 28.4	41.6	H / 1.3 / 284.0	-4.4	N/A
538.26	50.1 Qp	2.6 / 17.9 / 28.4	42.3	H / 1.3 / 284.0	-3.7	N/A
542.29	48.6 Qp	2.6 / 18.0 / 28.4	40.8	H / 1.3 / 284.0	-5.2	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
546.32	46.4 Qp	2.6 / 18.0 / 28.4	38.6	H / 1.3 / 284.0	-7.4	N/A
550.36	46.8 Qp	2.6 / 18.1 / 28.4	39.1	H / 1.2 / 242.0	-6.9	N/A
558.42	47.7 Qp	2.7 / 18.2 / 28.4	40.1	H / 1.2 / 288.0	-5.9	N/A
1-4GHz Vertical 0 degrees						
1000.00	35.3 Av	3.7 / 23.8 / 37.0	25.8	V / 1.0 / 0.0	N/A	-28.2
1128.93	37.5 Av	2.1 / 24.1 / 37.1	26.7	V / 1.0 / 0.0	N/A	-27.3
1185.37	36.9 Av	2.2 / 24.3 / 37.0	26.3	V / 1.0 / 0.0	N/A	-27.7
1213.61	35.5 Av	2.2 / 24.3 / 36.9	25.1	V / 1.0 / 0.0	N/A	-28.9
1241.83	37.4 Av	2.2 / 24.4 / 36.9	27.1	V / 1.0 / 0.0	N/A	-26.9
1298.27	35.4 Av	2.3 / 24.6 / 36.8	25.5	V / 1.0 / 0.0	N/A	-28.5
1354.71	35.5 Av	2.4 / 24.7 / 36.7	25.8	V / 1.0 / 0.0	N/A	-28.2
1580.50	34.1 Av	2.6 / 25.3 / 36.4	25.6	V / 1.0 / 0.0	N/A	-28.4
1608.72	35.1 Av	2.6 / 25.4 / 36.5	26.7	V / 1.0 / 0.0	N/A	-27.3
1636.95	34.5 Av	2.6 / 25.5 / 36.5	26.1	V / 1.0 / 0.0	N/A	-27.9
1665.17	34.6 Av	2.7 / 25.6 / 36.5	26.3	V / 1.0 / 0.0	N/A	-27.7
1693.40	35.1 Av	2.7 / 25.6 / 36.6	26.9	V / 1.0 / 0.0	N/A	-27.1
1749.84	34.6 Av	2.7 / 25.8 / 36.6	26.5	V / 1.0 / 0.0	N/A	-27.5
1806.30	34.5 Av	2.8 / 26.0 / 36.7	26.6	V / 1.0 / 0.0	N/A	-27.4
1807.96	34.4 Av	2.8 / 26.0 / 36.7	26.4	V / 1.0 / 0.0	N/A	-27.6
2124.50	33.5 Av	3.1 / 26.9 / 37.0	26.4	V / 1.0 / 0.0	N/A	-27.6
2333.45	33.3 Av	3.2 / 27.4 / 37.3	26.6	V / 1.0 / 0.0	N/A	-27.4
2344.01	34.5 Av	3.2 / 27.4 / 37.3	27.8	V / 1.0 / 0.0	N/A	-26.2
2427.99	33.1 Av	3.2 / 27.6 / 37.4	26.6	V / 1.0 / 0.0	N/A	-27.4
2731.49	35.4 Av	3.5 / 28.2 / 37.2	29.9	V / 1.0 / 0.0	N/A	-24.1
1016.05	36.0 Av	2.0 / 23.9 / 37.0	24.8	V / 1.0 / 0.0	N/A	-29.2
1044.27	35.6 Av	2.0 / 23.9 / 37.1	24.5	V / 1.0 / 0.0	N/A	-29.5
1072.48	36.4 Av	2.1 / 24.0 / 37.1	25.3	V / 1.0 / 0.0	N/A	-28.7
1193.44	35.8 Av	2.2 / 24.3 / 37.0	25.3	V / 1.0 / 0.0	N/A	-28.7
1221.67	35.5 Av	2.2 / 24.4 / 36.9	25.2	V / 1.0 / 0.0	N/A	-28.8
1225.70	36.0 Av	2.2 / 24.4 / 36.9	25.7	V / 1.0 / 0.0	N/A	-28.3
1229.72	36.2 Av	2.2 / 24.4 / 36.9	26.0	V / 1.0 / 0.0	N/A	-28.0
1233.76	36.1 Av	2.2 / 24.4 / 36.9	25.9	V / 1.0 / 0.0	N/A	-28.1
1245.86	36.4 Av	2.2 / 24.4 / 36.9	26.2	V / 1.0 / 0.0	N/A	-27.8
1249.89	36.5 Av	2.2 / 24.4 / 36.9	26.3	V / 1.0 / 0.0	N/A	-27.7
1253.93	36.2 Av	2.3 / 24.4 / 36.9	26.1	V / 1.0 / 0.0	N/A	-27.9
1262.00	36.2 Av	2.3 / 24.5 / 36.9	26.1	V / 1.0 / 0.0	N/A	-27.9
1270.05	37.0 Av	2.3 / 24.5 / 36.8	26.9	V / 1.0 / 0.0	N/A	-27.1
1278.13	36.0 Av	2.3 / 24.5 / 36.8	26.0	V / 1.0 / 0.0	N/A	-28.0
2335.28	36.1 Av	3.2 / 27.4 / 37.3	29.4	V / 1.0 / 0.0	N/A	-24.6
2342.36	36.4 Av	3.2 / 27.4 / 37.3	29.7	V / 1.0 / 0.0	N/A	-24.3
3988.14	34.0 Av	4.7 / 31.8 / 36.7	34.0	V / 1.0 / 0.0	N/A	-20.0
1-4GHz Vertical 90 degrees						

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
1016.05	36.8 Av	2.0 / 23.9 / 37.0	25.6	V / 1.0 / 90.0	N/A	-28.4
1044.27	36.1 Av	2.0 / 23.9 / 37.1	25.0	V / 1.0 / 90.0	N/A	-29.0
1072.48	36.5 Av	2.1 / 24.0 / 37.1	25.4	V / 1.0 / 90.0	N/A	-28.6
1185.37	36.3 Av	2.2 / 24.3 / 37.0	25.8	V / 1.0 / 90.0	N/A	-28.2
1245.86	35.8 Av	2.2 / 24.4 / 36.9	25.5	V / 1.0 / 90.0	N/A	-28.5
1270.05	36.5 Av	2.3 / 24.5 / 36.8	26.4	V / 1.0 / 90.0	N/A	-27.6
1-4GHz Vertical 180 degrees						
1072.48	34.6 Av	2.1 / 24.0 / 37.1	23.6	V / 1.0 / 180.0	N/A	-30.4
1354.71	35.2 Av	2.4 / 24.7 / 36.7	25.6	V / 1.0 / 180.0	N/A	-28.4
1-4GHz Vertical 270 degrees						
1016.05	35.7 Av	2.0 / 23.9 / 37.0	24.5	V / 1.0 / 270.0	N/A	-29.5
Following signals maximized between 1 & 4 GHz Vertical						
1241.83	33.2 Av	2.2 / 24.4 / 36.9	23.0	V / 1.0 / 12.0	N/A	-31.0
1-4GHz Horizontal 0 degrees						
1016.05	35.0 Av	2.0 / 23.9 / 37.0	23.8	H / 1.3 / 0.0	N/A	-30.2
1044.27	35.0 Av	2.0 / 23.9 / 37.1	23.9	H / 1.3 / 0.0	N/A	-30.1
1072.48	35.4 Av	2.1 / 24.0 / 37.1	24.3	H / 1.3 / 0.0	N/A	-29.7
1128.93	36.1 Av	2.1 / 24.1 / 37.1	25.3	H / 1.3 / 0.0	N/A	-28.7
1185.37	27.1 Av	2.2 / 24.3 / 37.0	16.6	H / 1.3 / 0.0	N/A	-37.4
1193.44	35.1 Av	2.2 / 24.3 / 37.0	24.6	H / 1.3 / 0.0	N/A	-29.4
1241.83	35.3 Av	2.2 / 24.4 / 36.9	25.1	H / 1.3 / 0.0	N/A	-28.9
Following signals maximized between 1 & 4 GHz Horizontal						
1016.05	33.1 Av	2.0 / 23.9 / 37.0	22.0	H / 1.1 / 10.0	N/A	-32.0
1128.93	39.4 Av	2.1 / 24.1 / 37.1	28.6	H / 1.3 / 312.0	N/A	-25.4
1185.37	37.9 Av	2.2 / 24.3 / 37.0	27.4	H / 1.3 / 312.0	N/A	-26.6
1354.71	36.6 Av	2.4 / 24.7 / 36.7	27.0	H / 1.3 / 312.0	N/A	-27.0
No signals found: 4-10 GHz - Noisefloor						
4-10 GHz Vertical						
4087.37	33.1 Av	4.8 / 32.1 / 39.3	30.7	V / 1.0 / 0.0	N/A	-23.3
5903.97	31.6 Av	5.7 / 32.1 / 39.4	29.9	V / 1.0 / 0.0	N/A	-24.1

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
********** Measurement Summary **********						
538.26	50.1 Qp	2.6 / 17.9 / 28.4	42.3	H / 1.3 / 284.0	-3.7	N/A
534.23	49.5 Qp	2.6 / 17.9 / 28.4	41.6	H / 1.3 / 284.0	-4.4	N/A
542.29	48.6 Qp	2.6 / 18.0 / 28.4	40.8	H / 1.3 / 284.0	-5.2	N/A
558.42	47.7 Qp	2.7 / 18.2 / 28.4	40.1	H / 1.2 / 288.0	-5.9	N/A
550.36	46.8 Qp	2.6 / 18.1 / 28.4	39.1	H / 1.2 / 242.0	-6.9	N/A
546.32	46.4 Qp	2.6 / 18.0 / 28.4	38.6	H / 1.3 / 284.0	-7.4	N/A
522.14	45.6 Qp	2.6 / 17.8 / 28.4	37.7	V / 1.0 / 270.0	-8.3	N/A
514.07	44.2 Qp	2.6 / 18.5 / 28.4	37.0	V / 2.2 / 94.0	-9.0	N/A
518.10	44.5 Qp	2.6 / 18.2 / 28.4	36.9	H / 1.6 / 270.0	-9.1	N/A
651.15	40.5 Qp	3.0 / 20.0 / 28.4	35.2	H / 1.6 / 270.0	-10.8	N/A
489.88	42.8 Qp	2.6 / 17.8 / 28.3	34.9	V / 1.0 / 270.0	-11.1	N/A
635.03	40.9 Qp	3.0 / 19.4 / 28.4	34.9	V / 1.0 / 90.0	-11.1	N/A
510.04	40.9 Qp	2.6 / 18.9 / 28.3	34.0	V / 1.0 / 270.0	-12.0	N/A
520.11	41.8 Qp	2.6 / 18.0 / 28.4	34.0	V / 1.0 / 270.0	-12.0	N/A
50.00	43.6 Qp	0.7 / 10.0 / 28.1	26.3	V / 1.0 / 124.0	-13.7	N/A
711.63	36.2 Qp	3.2 / 20.8 / 28.2	32.1	H / 1.6 / 270.0	-13.9	N/A
199.99	41.8 Qp	1.5 / 13.4 / 27.5	29.1	H / 1.6 / 0.0	-14.4	N/A
259.86	44.4 Qp	1.8 / 12.5 / 27.2	31.5	H / 1.2 / 58.0	-14.5	N/A
40.00	41.4 Qp	0.6 / 11.4 / 28.1	25.4	V / 1.0 / 164.0	-14.6	N/A
30.00	40.0 Qp	0.5 / 13.0 / 28.1	25.3	V / 1.0 / 42.0	-14.7	N/A
818.47	34.4 Qp	3.3 / 21.4 / 27.9	31.3	V / 1.0 / 0.0	-14.7	N/A
219.87	45.5 Qp	1.6 / 11.0 / 27.4	30.6	V / 1.0 / 26.0	-15.4	N/A
959.59	31.1 Qp	3.7 / 23.0 / 27.5	30.2	V / 1.0 / 270.0	-15.8	N/A
846.70	32.0 Qp	3.4 / 21.9 / 27.8	29.5	V / 1.0 / 0.0	-16.5	N/A
52.56	41.0 Qp	0.7 / 9.6 / 28.1	23.3	V / 1.0 / 168.0	-16.7	N/A
60.00	42.0 Qp	0.7 / 8.5 / 28.1	23.2	V / 1.0 / 268.0	-16.8	N/A
339.81	40.1 Qp	2.0 / 14.4 / 27.4	29.2	V / 1.0 / 0.0	-16.8	N/A
897.11	30.6 Qp	3.6 / 22.5 / 27.7	29.1	V / 1.0 / 0.0	-16.9	N/A
70.00	41.6 Qp	0.8 / 8.4 / 28.0	22.8	V / 1.0 / 292.0	-17.2	N/A
80.00	43.0 Qp	0.9 / 6.9 / 28.0	22.8	V / 1.0 / 42.0	-17.2	N/A
675.34	33.0 Qp	3.1 / 20.9 / 28.3	28.7	V / 1.0 / 0.0	-17.3	N/A
610.84	34.4 Qp	2.9 / 18.9 / 28.4	27.9	V / 1.0 / 180.0	-18.1	N/A
220.00	42.5 Qp	1.6 / 11.0 / 27.4	27.6	V / 1.0 / 0.0	-18.4	N/A
959.98	27.6 Qp	3.7 / 23.0 / 27.5	26.8	V / 1.0 / 0.0	-19.2	N/A
313.61	37.0 Qp	1.9 / 14.8 / 27.2	26.5	V / 1.0 / 0.0	-19.5	N/A
675.26	30.6 Qp	3.1 / 20.9 / 28.3	26.3	H / 1.6 / 270.0	-19.7	N/A
313.54	36.7 Qp	1.9 / 14.8 / 27.2	26.2	V / 1.0 / 180.0	-19.8	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
3988.14	34.0 Av	4.7 / 31.8 / 36.7	34.0	V / 1.0 / 0.0	N/A	-20.0
239.89	39.9 Qp	1.7 / 11.3 / 27.3	25.6	H / 1.6 / 90.0	-20.4	N/A
169.33	35.5 Qp	1.4 / 12.1 / 27.7	21.3	V / 1.0 / 180.0	-22.2	N/A
299.82	34.3 Qp	1.9 / 14.8 / 27.2	23.8	H / 1.6 / 270.0	-22.2	N/A
620.91	30.1 Qp	2.9 / 19.1 / 28.4	23.8	H / 1.6 / 270.0	-22.2	N/A
120.00	36.0 Qp	1.2 / 11.6 / 27.9	20.8	V / 1.0 / 42.0	-22.7	N/A
240.00	37.4 Qp	1.7 / 11.3 / 27.3	23.0	H / 1.6 / 90.0	-23.0	N/A
110.00	36.4 Qp	1.1 / 10.7 / 27.9	20.3	V / 1.0 / 180.0	-23.2	N/A
4087.37	33.1 Av	4.8 / 32.1 / 39.3	30.7	V / 1.0 / 0.0	N/A	-23.3
790.25	26.1 Qp	3.3 / 21.1 / 28.0	22.5	V / 1.0 / 0.0	-23.5	N/A
254.02	35.6 Qp	1.8 / 12.2 / 27.2	22.3	V / 1.0 / 90.0	-23.7	N/A
2731.49	35.4 Av	3.5 / 28.2 / 37.2	29.9	V / 1.0 / 0.0	N/A	-24.1
5903.97	31.6 Pk	5.7 / 32.1 / 39.4	29.9	V / 1.0 / 0.0	N/A	-24.1
2342.36	36.4 Av	3.2 / 27.4 / 37.3	29.7	V / 1.0 / 0.0	N/A	-24.3
2335.28	36.1 Av	3.2 / 27.4 / 37.3	29.4	V / 1.0 / 0.0	N/A	-24.6
35.00	30.4 Qp	0.6 / 12.1 / 28.1	15.0	V / 1.0 / 42.0	-25.0	N/A
159.99	32.3 Qp	1.4 / 12.3 / 27.7	18.2	V / 1.0 / 90.0	-25.3	N/A
1128.93	39.4 Av	2.1 / 24.1 / 37.1	28.6	H / 1.3 / 312.0	N/A	-25.4
338.67	31.4 Qp	2.0 / 14.4 / 27.4	20.4	V / 1.0 / 0.0	-25.6	N/A
379.81	31.0 Qp	2.1 / 14.9 / 27.7	20.4	V / 1.0 / 180.0	-25.6	N/A
13.04	32.9 Pk	0.3 / 10.7 / 0.0	43.8	V / 1.4 / 46.0	-25.7	N/A
250.00	33.9 Qp	1.7 / 11.9 / 27.3	20.3	V / 1.0 / 312.0	-25.7	N/A
408.26	30.1 Qp	2.2 / 15.6 / 27.9	20.0	V / 1.0 / 0.0	-26.0	N/A
197.56	30.1 Qp	1.5 / 13.3 / 27.5	17.3	V / 1.0 / 42.0	-26.2	N/A
2344.01	34.5 Av	3.2 / 27.4 / 37.3	27.8	V / 1.0 / 0.0	N/A	-26.2
379.88	30.3 Qp	2.1 / 14.9 / 27.7	19.7	V / 1.0 / 180.0	-26.3	N/A
1185.37	37.9 Av	2.2 / 24.3 / 37.0	27.4	H / 1.3 / 312.0	N/A	-26.6
329.84	30.2 Qp	2.0 / 14.4 / 27.3	19.3	V / 1.0 / 0.0	-26.7	N/A
1241.83	37.4 Av	2.2 / 24.4 / 36.9	27.1	V / 1.0 / 0.0	N/A	-26.9
3.28	31.8 Pk	0.2 / 10.5 / 0.0	42.5	V / 1.0 / 0.0	-27.0	N/A
1354.71	36.6 Av	2.4 / 24.7 / 36.7	27.0	H / 1.3 / 312.0	N/A	-27.0
18.98	31.4 Pk	0.4 / 10.6 / 0.0	42.4	V / 1.3 / 118.0	-27.1	N/A
1270.05	37.0 Av	2.3 / 24.5 / 36.8	26.9	V / 1.0 / 0.0	N/A	-27.1
1693.40	35.1 Av	2.7 / 25.6 / 36.6	26.9	V / 1.0 / 0.0	N/A	-27.1
1608.72	35.1 Av	2.6 / 25.4 / 36.5	26.7	V / 1.0 / 0.0	N/A	-27.3
260.00	31.5 Qp	1.8 / 12.5 / 27.2	18.6	V / 1.0 / 0.0	-27.4	N/A
1806.30	34.5 Av	2.8 / 26.0 / 36.7	26.6	V / 1.0 / 0.0	N/A	-27.4
2333.45	33.3 Av	3.2 / 27.4 / 37.3	26.6	V / 1.0 / 0.0	N/A	-27.4
2427.99	33.1 Av	3.2 / 27.6 / 37.4	26.6	V / 1.0 / 0.0	N/A	-27.4
1749.84	34.6 Av	2.7 / 25.8 / 36.6	26.5	V / 1.0 / 0.0	N/A	-27.5
1807.96	34.4 Av	2.8 / 26.0 / 36.7	26.4	V / 1.0 / 0.0	N/A	-27.6
2124.50	33.5 Av	3.1 / 26.9 / 37.0	26.4	V / 1.0 / 0.0	N/A	-27.6

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dB\m) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
148.22	29.6 Qp	1.3 / 12.6 / 27.8	15.8	V / 1.0 / 42.0	-27.7	N/A
1249.89	36.5 Av	2.2 / 24.4 / 36.9	26.3	V / 1.0 / 0.0	N/A	-27.7
1665.17	34.6 Av	2.7 / 25.6 / 36.5	26.3	V / 1.0 / 0.0	N/A	-27.7
1245.86	36.4 Av	2.2 / 24.4 / 36.9	26.2	V / 1.0 / 0.0	N/A	-27.8
1253.93	36.2 Av	2.3 / 24.4 / 36.9	26.1	V / 1.0 / 0.0	N/A	-27.9
1262.00	36.2 Av	2.3 / 24.5 / 36.9	26.1	V / 1.0 / 0.0	N/A	-27.9
1636.95	34.5 Av	2.6 / 25.5 / 36.5	26.1	V / 1.0 / 0.0	N/A	-27.9
1229.72	36.2 Av	2.2 / 24.4 / 36.9	26.0	V / 1.0 / 0.0	N/A	-28.0
1278.13	36.0 Av	2.3 / 24.5 / 36.8	26.0	V / 1.0 / 0.0	N/A	-28.0
1233.76	36.1 Av	2.2 / 24.4 / 36.9	25.9	V / 1.0 / 0.0	N/A	-28.1
1000.00	35.3 Av	3.7 / 23.8 / 37.0	25.8	V / 1.0 / 0.0	N/A	-28.2
1225.70	36.0 Av	2.2 / 24.4 / 36.9	25.7	V / 1.0 / 0.0	N/A	-28.3
380.01	28.2 Qp	2.1 / 14.9 / 27.7	17.6	V / 1.0 / 0.0	-28.4	N/A
400.01	27.8 Qp	2.2 / 15.4 / 27.8	17.6	V / 1.0 / 0.0	-28.4	N/A
1016.05	36.8 Av	2.0 / 23.9 / 37.0	25.6	V / 1.0 / 90.0	N/A	-28.4
1580.50	34.1 Av	2.6 / 25.3 / 36.4	25.6	V / 1.0 / 0.0	N/A	-28.4
3.87	30.2 Pk	0.2 / 10.6 / 0.0	41.0	V / 1.0 / 12.0	-28.5	N/A
1298.27	35.4 Av	2.3 / 24.6 / 36.8	25.5	V / 1.0 / 0.0	N/A	-28.5
1072.48	36.5 Av	2.1 / 24.0 / 37.1	25.4	V / 1.0 / 90.0	N/A	-28.6
10.86	29.9 Pk	0.2 / 10.8 / 0.0	40.8	H / 1.2 / 44.0	-28.7	N/A
1193.44	35.8 Av	2.2 / 24.3 / 37.0	25.3	V / 1.0 / 0.0	N/A	-28.7
1221.67	35.5 Av	2.2 / 24.4 / 36.9	25.2	V / 1.0 / 0.0	N/A	-28.8
1213.61	35.5 Av	2.2 / 24.3 / 36.9	25.1	V / 1.0 / 0.0	N/A	-28.9
1044.27	36.1 Av	2.0 / 23.9 / 37.1	25.0	V / 1.0 / 90.0	N/A	-29.0
224.26	31.6 Qp	1.6 / 11.0 / 27.4	16.9	H / 1.6 / 90.0	-29.1	N/A
3.67	29.4 Pk	0.2 / 10.6 / 0.0	40.1	V / 1.0 / 12.0	-29.4	N/A
185.02	27.4 Qp	1.4 / 12.8 / 27.6	14.1	H / 1.6 / 90.0	-29.4	N/A
359.81	26.9 Qp	2.1 / 14.6 / 27.5	16.0	V / 1.0 / 0.0	-30.0	N/A
1.82	28.4 Pk	0.1 / 10.5 / 0.0	39.0	H / 1.2 / 98.0	-30.5	N/A
254.30	28.3 Qp	1.8 / 12.2 / 27.2	15.0	V / 1.0 / 0.0	-31.0	N/A
23.14	26.9 Pk	0.5 / 10.0 / 0.0	37.3	V / 1.3 / 23.0	-32.2	N/A
26.56	27.6 Pk	0.5 / 9.1 / 0.0	37.2	V / 1.3 / 23.0	-32.3	N/A
15.01	25.4 Pk	0.3 / 10.6 / 0.0	36.4	H / 1.2 / 56.0	-33.1	N/A
290.19	23.1 Qp	1.9 / 14.8 / 27.1	12.8	V / 1.0 / 0.0	-33.2	N/A
6.55	25.2 Pk	0.2 / 10.7 / 0.0	36.1	V / 1.0 / 42.0	-33.4	N/A
234.00	26.9 Qp	1.7 / 11.3 / 27.3	12.5	V / 1.0 / 0.0	-33.5	N/A
278.92	24.0 Qp	1.8 / 13.7 / 27.1	12.4	V / 1.0 / 0.0	-33.6	N/A

Example calculation:

Measured Level	**+**	**Transducer, Cable Loss & Amplifier corrections**	**=**	**Corrected Reading**	**Specification Limit**	**-**	**Corrected Reading**	**=**	**Delta Specification**

(dBµV)		(dB)		(dBµV/m)	(dBµV/m)		(dBµV/m)		
14.0		**14.9**		**28.9**	**40.0**		**28.9**		**-11.1**

Deviations, Additions, or Exclusions: None

7 Occupied Bandwidth

7.1 Method

The test methods used comply with ANSI C63.4 and CISPR 16. Unless otherwise stated no deviations were made from **IC RSS-GEN.**

Intertek Boulder's emissions testing facility is located at 40 Meadow Rd. in Pinewood Springs CO 80540. The emissions testing facility is ISO17025:2005 accredited by NVLAP, our lab code is 200624-0, BSMI lab number is SL2-IN-E-029R, our VCCI registration no. R-1643, our FCC designation no. US5170 and our IC lab no. 2042N.

7.2 Test Equipment Used:

Asset ID:	Description:	Manufacturer	Model:	Serial:	Cal Due:
18882	Spectrum Analyzer (dc-22 GHz)	Hewlett-Packard	8566B	2410A00154	11/12/2010
18912	9 kHz- 1.3GHz Pre Amp (9kHz – 1000 MHz)	Hewlett-Packard	8447F	3113A05545	05/12/2010
18808	Log Periodic Antenna	EMCO	3146	9203-3376	11/05/2010

7.3 Results:

The sample tested was found to Comply.

7.4 Setup Photographs:

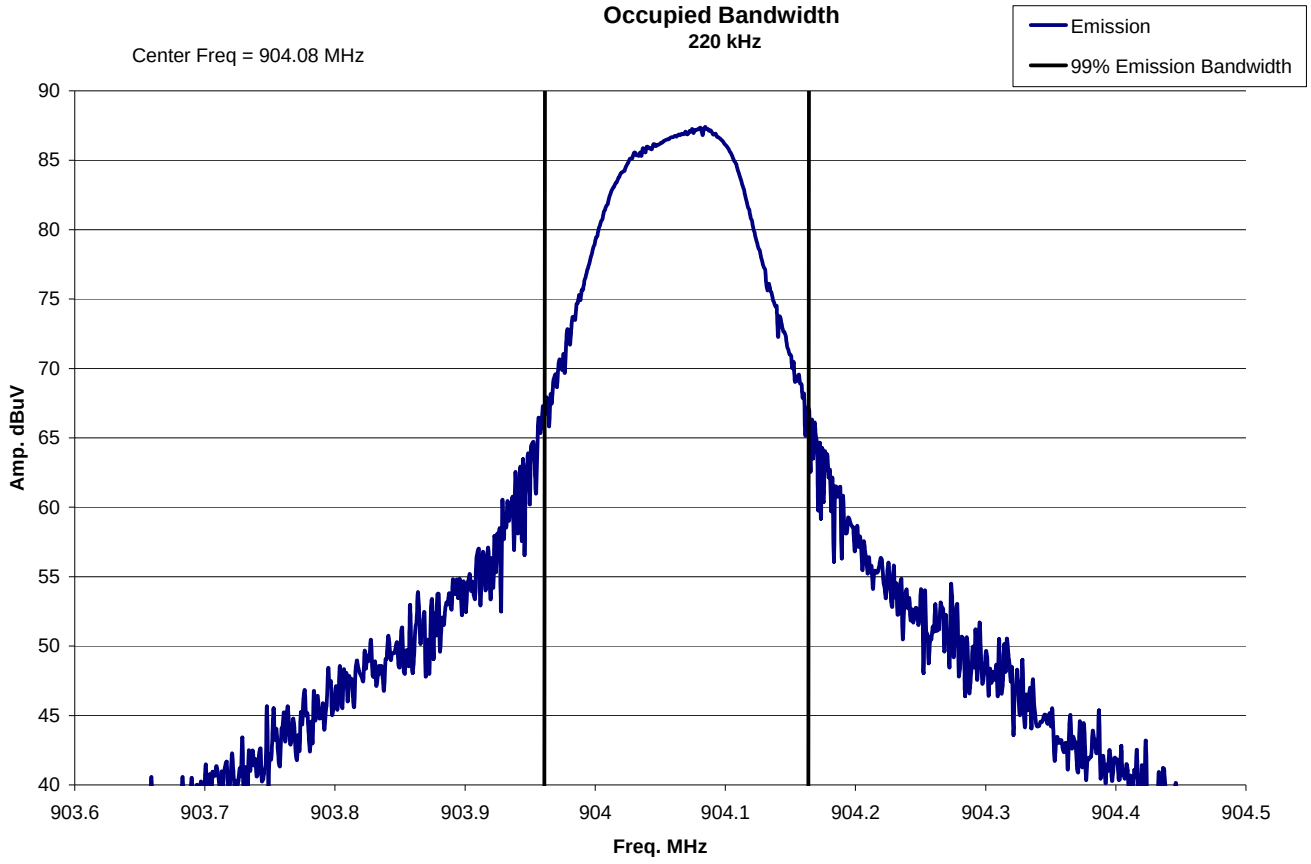
Test Setup

7.5 Test Data:

Occupied Bandwidth

Test Report #:	**2-8-10 Run 01**	Test Area:	Pinewood Site 1 (3m)	Temperature:	22.4	°C
Test Method:	Occupied Bandwidth	Test Date:	08-Feb-2010	Relative Humidity:	40.6	%
EUT Model #:	HB100 DMFMD	EUT Power:	110VAC/60Hz	Air Pressure:	79	kPa
EUT Serial #:	6100200					
Manufacturer:	BI Inc.					
EUT Description:	In-Home RF Transceiver Base Station					
Notes:	Receiver/Transmitter/Comm Device that communicates with TAD & Host					

Level Key	
Pk – Peak	Nb – Narrow Band
Qp – QuasiPeak	Bb – Broad Band
Av - Average	



8 AC Conducted Emissions

8.1 Method

The test methods used comply with ANSI C63.4 and CISPR 16. Unless otherwise stated no deviations were made from **FCC 15.207.**

Intertek Boulder's emissions testing facility is located at 40 Meadow Rd. in Pinewood Springs CO 80540. The emissions testing facility is ISO17025:2005 accredited by NVLAP, our lab code is 200624-0, BSMI lab number is SL2-IN-E-029R, our VCCI registration no. R-1643, our FCC designation no. US5170 and our IC lab no. 2042N.

8.2 Test Equipment Used:

Asset ID:	Description:	Manufacturer	Model:	Serial:	Cal Due:
Conducted Emissions					
18914	Single Phase LISN	EMCO	3816/NM	9408-1003	04/16/2010
18729	Transient Limiter	Hewlett-Packard	11947A	3107A01975	04/14/2010
18909	EMI Test Receiver	RHODE & SCHWARZ	ESHS 30	842806/001	04/08/2010

8.3 Results:

The sample tested was found to Comply.

8.4 Setup Photographs:

Test setup – Front View

Test setup – Side View

8.5 Test Data:

Conducted Electromagnetic Emissions

Test Report #:	**100036404**	Test Area:	Pinewood Site 1 Cond	Temperature:	25.4	°C
Test Method:	FCC Part 15.107 Class B	Test Date:	08-Feb-2010	Relative Humidity:	36.8	%
EUT Model #:	HB100 DMFMD	EUT Power:	110VAC/60Hz	Air Pressure:	79	kPa
EUT Serial #:	6100200					
Manufacturer:	BI Inc.					
EUT Description:	In-Home RF Transceiver Base Station					
Notes:	Receiver/Transmitter/Comm Device that communicates					
	with TAD (Transdermal Alcohol Detector) & Host					

Level Key	
Pk – Peak	Nb – Narrow Band
Qp – QuasiPeak	Bb – Broad Band
Av - Average	

FREQ	LEVEL	CABLE / LISN / ATTEN	FINAL	TEST POINT	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB)	(dBuV)		AV15.107B	QP15.107B
********** Measurement Summary **********						
0.460	29.5 Qp	0.1 / 0.3 / -9.7	39.6	Line 1	N/A	-17.1
0.430	28.1 Qp	0.1 / 0.3 / -9.7	38.2	Line 1	N/A	-19.1
17.85	15.0 Av	0.9 / 0.8 / -9.7	26.4	Line 1	-23.6	N/A
0.580	18.7 Qp	0.1 / 0.3 / -9.7	28.8	Line 1	N/A	-27.2
1.34	16.8 Qp	0.2 / 0.3 / -9.7	27.0	Line 1	N/A	-29.0
0.150	26.6 Qp	0.1 / 0.3 / -9.7	36.7	Line 1	N/A	-29.3
0.760	6.5 Av	0.2 / 0.3 / -9.7	16.7	Line 1	-29.3	N/A
15.00	8.0 Av	0.8 / 0.5 / -9.7	19.0	Line 1	-31.0	N/A
1.44	14.5 Qp	0.2 / 0.3 / -9.7	24.7	Line 1	N/A	-31.3
0.190	22.4 Qp	0.1 / 0.3 / -9.7	32.5	Line 1	N/A	-31.5
1.80	14.0 Qp	0.3 / 0.3 / -9.7	24.3	Line 1	N/A	-31.7
0.230	19.8 Qp	0.1 / 0.3 / -9.7	29.9	Line 1	N/A	-32.5
20.00	5.4 Av	1.0 / 1.2 / -9.7	17.4	Line 1	-32.6	N/A
1.51	12.9 Qp	0.3 / 0.3 / -9.7	23.2	Line 1	N/A	-32.8
2.07	12.9 Qp	0.3 / 0.3 / -9.7	23.2	Line 1	N/A	-32.8
0.310	16.8 Qp	0.1 / 0.3 / -9.7	26.9	Line 1	N/A	-33.1
4.80	12.2 Qp	0.4 / 0.3 / -9.7	22.6	Line 1	N/A	-33.4
29.99	-0.3 Av	1.2 / 2.4 / -9.7	13.0	Line 1	-37.0	N/A

Example calculation:

Measured Level	+	Transducer, Cable Loss & Amplifier corrections	=	Corrected Reading	Specification Limit	-	Corrected Reading	=	Delta Specification
(dBμV)		(dB)		(dBμV/m)	(dBμV/m)		(dBμV/m)		
14.0		**14.9**		**28.9**	**40.0**		**28.9**		**-11.1**

Deviations, Additions, or Exclusions: None

9 Measurement Uncertainty

The measured value related to the corresponding limit will be used to decide whether the equipment meets the requirements.

The measurement uncertainty figures were calculated and correspond to a coverage factor of k = 2, providing a confidence level of respectively 95.45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian).

Measurement uncertainty Table

Parameter	Uncertainty ±	Notes
Radiated emissions, 10kHz to 1000 MHz	4.8 dB	
Radiated emissions, 1 to 18 GHz	4.9 dB	
AC mains Conducted emissions, 150kHz to 30 MHz	3.14 dB	

10 Revision History

Revision Level	Date	Report Number	Notes
0	02/28/2010	100036404DEN-001	Original Issue

11 Appendix – FCC Grant & IC Certificate - HomeBase Model: HB100

Intertek Testing Services NA, Inc.
70 Codman Hill Road
Boxborough, MA 01719

Date of Grant: 04/30/2009
Application Dated: 04/30/2009

BI Incorporated
6400 Lookout Road
Boulder, CO 80301

Attention: Bobby Clevenger , Vice-President of Internal Operations

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER: CSQHB100
Name of Grantee: BI Incorporated
Equipment Class: Part 15 Low Power Transceiver, Rx Verified
Notes: The HomeBase

Grant Notes	FCC Rule Parts	Frequency Range (MHZ)	Output Watts	Frequency Tolerance	Emission Designator
68	15C	904.7 - 904.7			

68: This grant does not pertain to equipment approval requirements under Part 68.

Intertek ETL SEMKO

Certification Body • Organisme de certification

Date: May 22, 2009

Intertek File: 3166782
Submission No. 51772

BI, Inc.
6400 Lookout Road
Boulder, CO 80301
USA

Attention: Shirley Tanaka

Dear Sir/Madam;

This is in reply to your application for certification.

We have reviewed the related documents, and are pleased to advise that this device meets Industry Canada procedural and specification requirements for certification.

Certificate(s) are attached for the following model(s): HB100

Intertek ETL SEMKO **Certification Body • Organisme de certification**

No. ▶ 51772

RADIO APPARATUS CERTIFICATE / LE CERTIFICAT D'APPAREIL DE RADIO

CERTIFICATION No.	▶	IC:1499A-HB100 No. DE CERTIFICATION
ISSUED TO/ DÉLIVRÉ A ADDRESS/ADRESSE POSTALE	▶	BI, Inc. 6400 Lookout Road Boulder, CO 80301
TYPE OF EQUIPMENT GENRE DE MATÉRIEL	▶	Alcohol Monitoring System
TRADE NAME AND MODEL MARQUE ET MODELE	▶	HB-100
FREQUENCY RANGE GAMME DE FRÉQUENCES	▶	904.08 MHz
EMISSION DESIGNATION DESIGNATION D'ÉMISSION	▶	45K0F1D
CONDUCTED RF POWER/ERP/EIRP OR FIELD STRENGTH PUISSANCE RF TRANSMISE PAR CONDUCTION/PAR/PIRE OU INTENSITÉ DE CHAMP	▶	92.3 dBuV at 3 meters
ANTENNA INFORMATION RENSEIGNEMENTS SUR L'ANTENNA	▶	Internal
CERTIFIED TO SPECIFICATION CERTIFIÉ SELON LE SPECIFICATION CAHIER DES CHARGES	▶	RSS 210 ISSUE 7 DATE June, 2007 RSS Gen ISSUE 2 DATE June, 2007 CS03 ISSUE 9 DATE October, 2006 ÉDITION DATE
PUISSANCE RF TRANSMISE PAR CONDUCTION/PAR/PIRE OU INTENSITÉ DE CHAMP	▶	
ANTENNA INFORMATION RENSEIGNEMENTS SUR L'ANTENNA	▶	Internal
CERTIFIED TO SPECIFICATION CERTIFIÉ SELON LE SPECIFICATION CAHIER DES CHARGES	▶	RSS 210 ISSUE 7 DATE June, 2007 RSS Gen ISSUE 2 DATE June, 2007 CS03 ISSUE 9 DATE October, 2006 ÉDITION DATE
TEST LABORATORY **LABORATOIRE D'ESSAIS** ADDRESS/ADRESSE POSTALE E-MAIL/COURRIER ÉLECTRONIQUE TELEPHONE/TÉLÉPHONE FAX/TÉLÉCOPIER CN IF AVAILABLE/NC SI DISPONIBLE	▶	NAME/NOM Intertek 5541 Central Ave., Suite 100 Boulder, CO 80301 1-303-786-7999 1-303-449-6160
NOTES INFORMATION	▶	Radio and Terminal Registration

Certification of equipment means only that the equipment has met the requirements of the above noted specification. License applications, where applicable to use certified equipment, are acted on accordingly to the issuing office and will depend on the existing radio environment, service and location of operation.

This certificate is issued on condition that the holder complies and will continue to comply with the requirements of the radio standards specifications and procedures issued by Industry Canada.

La certification du matériel signifie seulement que le matériel a satisfait aux exigences de la spécification indiqée ci-dessus. Les demandes de licences nécessaires pour utiliser du matériel certifié sont traitées en conséquence par le bureau de délivrance et dépendront de l'environement radio existant, du service et du lieu d'exploitation.

Le présent certificat est délivré à condition que le titulaire satisfasse et continue de satisfaire aux exigences et aux procédures d'Industrie Canada.

DATE **May 22, 2009**

BY Yuriy Litvinov

Yuriy Litvinov

Authorized Certification Reviewer

Intertek ETL SEMKO **Intertek Testing Services NA, Inc.**