



## CERTIFICATE OF CONFORMANCE

Cert ID: 130869

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ANSI C63.5-2006, Radiated Emission Measurements in Electromagnetic Interference (EMI) Control – Calibration of Antennas (9 kHz – 40 GHz).

Environment: Laboratory MTE is maintained in a temperature- controlled environment with ambient conditions from 18 to 28 C, relative humidity less than 90%. The instrument under test has been calibrated in a free space environment temperature conditions ranging from 0 to 40 C which has no known influence on measurement quality.

<b>Manufacturer:</b>	TDK RF Solutions Inc.	<b>Operating Range:</b>	1 GHz – 18 GHz
<b>Model Number:</b>	HRN-0118	<b>Instrument Type:</b>	Horn Antenna
<b>Serial Number:</b>	130869	<b>Alternate ID:</b>	
<b>Date Completed:</b>	01/30/2015	<b>Date Received:</b>	01/09/2015
<b>Test Type:</b>	Calibration		
<b>Calibration Uncertainty:</b>	±2.0 dB		
<b>Test Remarks:</b>	AF & Gain Calibration, Horizontal & Vertical, 1m		
<b>Recall/Interval:</b>	1 yr, Annual Recalibration Recommended by TDK RF Solutions Inc. from:		
	Ship Date: <u>02/20/2015</u>		

### Standards and Equipment Used:

**Make / Model / Name / S/N / Recall Date**

E8362B

PNA Analyzer

MY43021318

07/01/2015

### Other Antennae used in Calibration

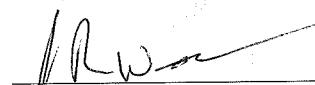
Antenna 1: 130867

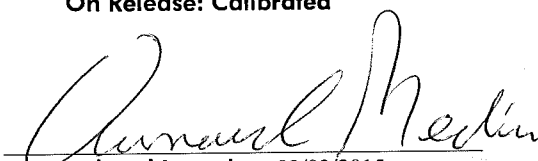
Antenna 2: 130868

### Condition Of Instrument

Upon Receipt: Uncalibrated

On Release: Calibrated

  
**Calibration Completed By:**  
James Wooten

  
**Attested and Issued on 02/03/2015**  
Armando Medina

This document provides traceability of measurements to recognized national standards using controlled processes at the TDK RF Solutions Inc. Calibration Laboratory. Uncertainties listed are derived from the methods described by NIST Tech Note 1297.

Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
1000	24.4	5.8	3.8
1050	24.7	6.0	3.9
1100	25.0	6.0	4.0
1150	25.3	6.2	4.1
1200	25.5	6.2	4.2
1250	25.8	6.3	4.3
1300	25.9	6.6	4.5
1350	26.2	6.7	4.6
1400	26.0	7.2	5.2
1450	25.8	7.6	5.7
1500	25.8	7.9	6.2
1550	25.8	8.3	6.7
1600	25.8	8.5	7.1
1650	25.8	8.7	7.5
1700	26.0	8.8	7.7
1750	26.1	9.0	7.9
1800	26.4	9.0	7.9
1850	26.4	9.2	8.3
1900	26.6	9.2	8.3
1950	26.6	9.4	8.6
2000	26.9	9.4	8.6
2050	27.2	9.2	8.3
2100	27.7	9.0	7.9
2150	28.4	8.4	6.9
2200	29.0	8.0	6.3
2250	29.4	7.9	6.2
2300	29.0	8.4	6.9
2350	28.6	9.1	8.1
2400	28.0	9.8	9.5
2450	27.9	10.1	10.3
2500	27.6	10.5	11.3
2550	27.9	10.5	11.1
2600	27.9	10.6	11.4
2650	28.4	10.3	10.7
2700	28.6	10.3	10.6

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
2750	29.0	10.0	10.0
2800	29.2	10.0	9.9
2850	29.4	9.9	9.8
2900	29.3	10.1	10.3
2950	29.3	10.3	10.8
3000	29.2	10.5	11.3
3050	29.4	10.5	11.3
3100	29.5	10.5	11.3
3150	29.9	10.3	10.7
3200	29.9	10.4	11.1
3250	30.0	10.5	11.1
3300	29.7	10.9	12.2
3350	29.8	10.9	12.4
3400	29.8	11.1	12.8
3450	29.9	11.0	12.7
3500	30.2	10.8	12.1
3550	30.3	10.9	12.2
3600	30.7	10.7	11.6
3650	30.7	10.8	12.0
3700	30.9	10.7	11.8
3750	30.9	10.8	12.0
3800	31.0	10.8	12.0
3850	31.1	10.8	12.1
3900	31.1	11.0	12.5
3950	31.1	11.0	12.6
4000	31.1	11.2	13.1
4050	31.1	11.3	13.5
4100	31.3	11.1	13.0
4150	31.2	11.4	13.9
4200	31.7	11.0	12.6
4250	31.3	11.5	14.1
4300	31.9	11.0	12.5
4350	31.6	11.3	13.6
4400	32.2	10.9	12.2
4450	32.0	11.2	13.1

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
4500	32.3	10.9	12.4
4550	32.1	11.3	13.4
4600	32.3	11.2	13.2
4650	32.0	11.6	14.3
4700	32.3	11.3	13.6
4750	32.1	11.7	14.7
4800	32.6	11.2	13.1
4850	32.4	11.5	14.1
4900	33.1	10.9	12.3
4950	32.9	11.2	13.1
5000	33.3	10.9	12.3
5050	33.3	11.0	12.5
5100	33.4	10.9	12.4
5150	33.5	10.9	12.4
5200	33.4	11.1	12.9
5250	33.4	11.2	13.3
5300	33.3	11.4	13.9
5350	33.4	11.3	13.6
5400	33.6	11.3	13.4
5450	34.0	10.9	12.4
5500	33.9	11.2	13.0
5550	34.4	10.7	11.8
5600	33.7	11.5	14.1
5650	34.5	10.8	12.0
5700	33.4	11.9	15.5
5750	34.6	10.8	12.0
5800	33.6	11.9	15.5
5850	34.9	10.7	11.7
5900	33.9	11.7	14.7
5950	34.9	10.8	11.9
6000	34.2	11.6	14.4
6050	35.1	10.8	12.0
6100	34.4	11.6	14.3
6150	35.2	10.8	11.9
6200	34.5	11.5	14.2

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015



Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
6250	35.5	10.7	11.6
6300	34.8	11.4	13.8
6350	35.7	10.6	11.4
6400	35.2	11.1	13.0
6450	35.6	10.8	11.9
6500	35.4	11.1	12.8
6550	35.4	11.1	13.0
6600	35.3	11.3	13.4
6650	35.1	11.6	14.3
6700	35.2	11.5	14.1
6750	35.1	11.6	14.6
6800	35.4	11.5	14.0
6850	35.4	11.5	14.1
6900	35.9	11.1	13.0
6950	35.9	11.2	13.2
7000	36.6	10.5	11.1
7050	36.4	10.8	12.1
7100	37.4	9.9	9.7
7150	36.6	10.7	11.8
7200	37.4	9.9	9.9
7250	36.4	11.0	12.6
7300	37.1	10.4	11.0
7350	36.4	11.2	13.1
7400	36.9	10.7	11.7
7450	36.7	11.0	12.6
7500	37.1	10.6	11.6
7550	37.0	10.8	12.0
7600	37.2	10.6	11.6
7650	37.0	10.9	12.2
7700	37.2	10.8	11.9
7750	37.0	11.0	12.7
7800	37.2	10.8	12.1
7850	37.1	11.0	12.7
7900	37.3	10.9	12.3
7950	37.1	11.1	12.8

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
8000	37.2	11.0	12.7
8050	37.2	11.2	13.1
8100	37.3	11.1	12.8
8150	37.3	11.2	13.1
8200	37.4	11.1	12.9
8250	37.3	11.2	13.2
8300	37.4	11.2	13.2
8350	37.4	11.3	13.4
8400	37.5	11.2	13.3
8450	37.5	11.3	13.4
8500	37.7	11.1	13.0
8550	37.7	11.2	13.1
8600	38.0	10.9	12.2
8650	37.9	11.1	12.8
8700	38.3	10.7	11.8
8750	38.0	11.0	12.6
8800	38.2	10.9	12.3
8850	38.0	11.2	13.1
8900	38.0	11.2	13.3
8950	37.8	11.5	14.0
9000	37.7	11.6	14.5
9050	37.6	11.8	15.0
9100	37.5	11.8	15.3
9150	37.6	11.8	15.3
9200	37.7	11.8	15.0
9250	37.9	11.6	14.6
9300	37.9	11.6	14.6
9350	38.3	11.3	13.6
9400	38.1	11.6	14.4
9450	38.4	11.3	13.5
9500	38.0	11.7	14.9
9550	38.5	11.3	13.5
9600	38.1	11.8	15.1
9650	38.5	11.4	13.8
9700	38.4	11.5	14.3

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
9750	38.8	11.2	13.0
9800	38.7	11.3	13.5
9850	38.9	11.1	13.0
9900	38.7	11.4	13.8
9950	38.8	11.3	13.6
10000	38.6	11.6	14.5
10050	38.7	11.6	14.3
10100	38.5	11.8	15.3
10150	38.6	11.7	14.8
10200	38.5	11.8	15.3
10250	38.6	11.8	15.1
10300	38.9	11.6	14.4
10350	38.8	11.7	14.7
10400	39.3	11.2	13.3
10450	39.0	11.6	14.4
10500	39.5	11.1	12.9
10550	39.2	11.5	14.0
10600	39.6	11.1	13.0
10650	39.3	11.4	13.9
10700	39.5	11.3	13.4
10750	39.3	11.5	14.1
10800	39.5	11.4	13.8
10850	39.4	11.6	14.3
10900	39.7	11.3	13.5
10950	39.6	11.4	13.8
11000	40.2	10.9	12.3
11050	40.0	11.1	12.9
11100	40.4	10.7	11.8
11150	40.3	10.8	12.1
11200	40.4	10.8	12.1
11250	40.4	10.9	12.2
11300	40.0	11.2	13.3
11350	40.4	10.9	12.4
11400	40.0	11.4	13.7
11450	40.3	11.1	12.9

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
11500	40.0	11.4	13.9
11550	40.4	11.1	12.9
11600	40.3	11.2	13.1
11650	40.3	11.2	13.2
11700	40.5	11.1	12.9
11750	40.2	11.4	13.7
11800	40.3	11.4	13.6
11850	40.0	11.7	14.8
11900	39.9	11.8	15.2
11950	39.8	12.0	15.7
12000	39.8	12.0	15.8
12050	39.7	12.1	16.2
12100	39.9	12.0	15.8
12150	39.8	12.1	16.4
12200	40.1	11.9	15.4
12250	39.8	12.2	16.5
12300	40.1	11.9	15.3
12350	40.1	11.9	15.6
12400	40.2	11.8	15.3
12450	40.4	11.7	14.9
12500	40.3	11.8	15.3
12550	40.7	11.5	14.0
12600	40.6	11.7	14.7
12650	40.9	11.3	13.6
12700	41.1	11.2	13.1
12750	41.4	10.9	12.3
12800	41.7	10.6	11.6
12850	41.6	10.8	12.0
12900	42.0	10.4	11.0
12950	42.0	10.5	11.1
13000	42.1	10.4	11.0
13050	42.1	10.4	10.9
13100	42.3	10.3	10.7
13150	42.1	10.5	11.2
13200	42.7	10.0	9.9

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015



Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
13250	41.7	10.9	12.3
13300	42.6	10.0	10.1
13350	41.6	11.2	13.1
13400	42.4	10.3	10.8
13450	41.6	11.2	13.2
13500	42.2	10.6	11.6
13550	41.6	11.3	13.4
13600	41.7	11.1	13.0
13650	41.5	11.4	14.0
13700	41.4	11.5	14.1
13750	41.4	11.6	14.5
13800	41.2	11.8	15.3
13850	41.0	12.0	15.8
13900	40.8	12.2	16.7
13950	40.8	12.3	17.1
14000	40.3	12.8	19.3
14050	40.4	12.8	18.9
14100	40.0	13.2	20.9
14150	39.9	13.3	21.3
14200	39.7	13.5	22.6
14250	39.9	13.4	21.7
14300	39.7	13.6	22.9
14350	39.9	13.5	22.2
14400	39.8	13.6	23.0
14450	39.7	13.7	23.4
14500	39.5	14.0	25.0
14550	39.0	14.4	27.7
14600	39.0	14.5	28.2
14650	38.3	15.2	33.1
14700	38.6	15.0	31.5
14750	38.0	15.6	36.5
14800	38.3	15.3	34.1
14850	38.0	15.6	36.5
14900	38.1	15.6	36.1
14950	38.2	15.5	35.4

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
15000	38.0	15.7	37.1
15050	38.4	15.3	34.3
15100	38.2	15.6	36.2
15150	38.6	15.2	33.4
15200	38.4	15.4	34.8
15250	38.7	15.2	32.9
15300	38.6	15.3	34.2
15350	38.9	15.0	31.6
15400	38.7	15.2	33.3
15450	39.2	14.8	30.3
15500	38.9	15.1	32.5
15550	39.4	14.7	29.4
15600	39.1	15.0	31.5
15650	39.4	14.7	29.4
15700	39.4	14.7	29.6
15750	39.4	14.7	29.6
15800	39.5	14.6	29.1
15850	39.3	14.9	30.8
15900	39.6	14.7	29.2
15950	39.5	14.8	29.9
16000	39.5	14.7	29.8
16050	39.5	14.8	30.5
16100	39.6	14.7	29.6
16150	39.6	14.8	29.9
16200	39.9	14.5	28.1
16250	39.8	14.6	28.7
16300	40.4	14.1	25.6
16350	40.4	14.1	25.8
16400	40.9	13.6	23.0
16450	40.9	13.7	23.2
16500	41.1	13.5	22.2
16550	41.4	13.1	20.6
16600	41.0	13.6	23.1
16650	41.6	13.0	20.1
16700	41.2	13.4	22.0

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
16750	41.8	12.9	19.3
16800	41.5	13.2	20.9
16850	42.2	12.6	18.2
16900	42.2	12.6	18.0
16950	42.4	12.4	17.2
17000	42.6	12.2	16.7
17050	42.8	12.0	16.0
17100	42.8	12.1	16.1
17150	43.1	11.8	15.0
17200	42.9	12.0	16.0
17250	43.5	11.5	14.0
17300	43.3	11.7	14.8
17350	43.7	11.3	13.6
17400	44.3	10.7	11.8
17450	44.6	10.4	11.0
17500	45.7	9.4	8.6
17550	45.8	9.3	8.4
17600	47.2	7.9	6.2
17650	47.2	7.9	6.2
17700	48.9	6.3	4.2
17750	48.5	6.7	4.7
17800	50.0	5.2	3.3
17850	49.4	5.8	3.8
17900	50.5	4.7	3.0
17950	49.1	6.2	4.1
18000	52.1	3.3	2.1

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
1000	24.3	5.9	3.9
1050	24.8	5.9	3.9
1100	24.8	6.2	4.2
1150	25.3	6.2	4.1
1200	25.5	6.3	4.2
1250	25.9	6.3	4.3
1300	26.0	6.5	4.4
1350	26.2	6.6	4.6
1400	26.0	7.1	5.1
1450	25.9	7.5	5.6
1500	25.8	7.9	6.2
1550	25.8	8.2	6.6
1600	25.8	8.5	7.0
1650	26.0	8.6	7.2
1700	26.1	8.7	7.5
1750	26.2	8.9	7.7
1800	26.4	8.9	7.8
1850	26.4	9.1	8.2
1900	26.6	9.1	8.2
1950	26.7	9.3	8.4
2000	27.0	9.3	8.4
2050	27.4	9.1	8.1
2100	27.7	9.0	7.9
2150	28.5	8.4	6.9
2200	29.0	8.1	6.4
2250	29.4	7.8	6.1
2300	29.1	8.4	6.9
2350	28.6	9.0	8.0
2400	28.1	9.7	9.4
2450	27.9	10.1	10.2
2500	27.7	10.5	11.2
2550	27.9	10.4	11.1
2600	27.9	10.6	11.4
2650	28.4	10.3	10.6
2700	28.5	10.3	10.7

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015



Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
2750	29.0	10.0	10.1
2800	29.3	9.9	9.7
2850	29.4	9.9	9.8
2900	29.4	10.1	10.2
2950	29.3	10.3	10.8
3000	29.3	10.5	11.2
3050	29.4	10.5	11.3
3100	29.5	10.6	11.4
3150	29.9	10.3	10.7
3200	29.9	10.4	10.9
3250	30.1	10.4	10.9
3300	29.9	10.7	11.8
3350	29.9	10.8	12.1
3400	29.9	10.9	12.4
3450	30.0	10.9	12.4
3500	30.4	10.7	11.8
3550	30.4	10.8	12.1
3600	30.7	10.6	11.5
3650	30.6	10.8	12.1
3700	30.9	10.7	11.7
3750	30.9	10.8	12.1
3800	31.2	10.7	11.6
3850	31.1	10.8	12.0
3900	31.1	10.9	12.3
3950	31.1	11.0	12.6
4000	31.2	11.1	12.9
4050	31.1	11.3	13.5
4100	31.4	11.0	12.7
4150	31.2	11.4	13.9
4200	31.7	10.9	12.4
4250	31.3	11.5	14.0
4300	32.0	10.9	12.2
4350	31.7	11.3	13.4
4400	32.3	10.8	12.1
4450	32.0	11.1	13.0

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
4500	32.3	10.9	12.4
4550	32.1	11.3	13.5
4600	32.2	11.2	13.3
4650	32.0	11.6	14.4
4700	32.2	11.4	13.8
4750	32.1	11.6	14.6
4800	32.6	11.2	13.3
4850	32.5	11.5	14.0
4900	32.9	11.1	12.8
4950	32.9	11.2	13.2
5000	33.1	11.1	12.8
5050	33.4	10.9	12.2
5100	33.4	10.9	12.4
5150	33.6	10.8	12.1
5200	33.3	11.2	13.2
5250	33.4	11.3	13.3
5300	33.1	11.6	14.3
5350	33.4	11.4	13.8
5400	33.4	11.5	14.0
5450	33.9	11.0	12.6
5500	33.7	11.3	13.5
5550	34.4	10.7	11.6
5600	33.6	11.6	14.3
5650	34.6	10.6	11.6
5700	33.4	11.9	15.4
5750	34.7	10.7	11.7
5800	33.5	11.9	15.6
5850	34.8	10.7	11.8
5900	33.9	11.8	15.0
5950	34.8	10.9	12.2
6000	34.1	11.7	14.6
6050	34.9	11.0	12.4
6100	34.3	11.6	14.5
6150	35.1	10.9	12.4
6200	34.5	11.6	14.4

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
6250	35.3	10.9	12.2
6300	34.8	11.4	13.7
6350	35.4	10.9	12.2
6400	35.3	11.1	12.8
6450	35.4	11.0	12.7
6500	35.5	10.9	12.4
6550	35.2	11.4	13.7
6600	35.5	11.1	13.0
6650	35.0	11.7	14.8
6700	35.3	11.4	13.9
6750	35.0	11.8	15.2
6800	35.4	11.4	13.9
6850	35.3	11.7	14.7
6900	35.9	11.1	12.7
6950	35.7	11.4	13.8
7000	36.8	10.3	10.8
7050	36.2	11.0	12.6
7100	37.6	9.7	9.3
7150	36.4	10.9	12.3
7200	37.6	9.8	9.5
7250	36.3	11.1	12.8
7300	37.1	10.4	10.9
7350	36.4	11.2	13.1
7400	36.9	10.7	11.7
7450	36.6	11.0	12.6
7500	37.1	10.6	11.6
7550	37.0	10.8	12.1
7600	37.2	10.6	11.5
7650	37.0	10.9	12.2
7700	37.1	10.8	12.0
7750	37.0	11.0	12.5
7800	37.1	10.9	12.4
7850	37.1	11.0	12.6
7900	37.1	11.1	12.9
7950	37.1	11.1	12.9

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
8000	37.0	11.2	13.3
8050	37.1	11.2	13.3
8100	37.1	11.3	13.3
8150	37.1	11.3	13.5
8200	37.2	11.2	13.3
8250	37.2	11.3	13.5
8300	37.3	11.3	13.4
8350	37.3	11.3	13.5
8400	37.4	11.3	13.5
8450	37.4	11.3	13.6
8500	37.5	11.3	13.4
8550	37.5	11.3	13.6
8600	37.9	11.0	12.7
8650	37.7	11.3	13.4
8700	38.1	10.9	12.2
8750	37.9	11.2	13.1
8800	38.1	11.0	12.7
8850	37.8	11.3	13.5
8900	37.8	11.4	13.7
8950	37.7	11.5	14.2
9000	37.6	11.6	14.6
9050	37.6	11.8	15.0
9100	37.6	11.8	15.2
9150	37.6	11.8	15.3
9200	37.8	11.7	14.8
9250	37.9	11.6	14.4
9300	38.0	11.5	14.3
9350	38.3	11.3	13.6
9400	38.0	11.6	14.6
9450	38.5	11.2	13.2
9500	38.0	11.8	15.0
9550	38.6	11.2	13.2
9600	38.0	11.9	15.4
9650	38.6	11.3	13.5
9700	38.4	11.5	14.3

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015



Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
9750	38.9	11.1	12.9
9800	38.7	11.3	13.5
9850	39.1	11.0	12.7
9900	38.8	11.3	13.5
9950	38.8	11.3	13.6
10000	38.6	11.6	14.6
10050	38.7	11.6	14.5
10100	38.4	11.9	15.6
10150	38.6	11.7	14.8
10200	38.5	11.9	15.4
10250	38.7	11.7	14.9
10300	38.9	11.6	14.4
10350	38.7	11.8	15.0
10400	39.3	11.3	13.4
10450	39.0	11.6	14.6
10500	39.5	11.2	13.1
10550	39.1	11.6	14.4
10600	39.5	11.3	13.3
10650	39.3	11.5	14.1
10700	39.4	11.4	13.9
10750	39.2	11.6	14.4
10800	39.4	11.5	14.1
10850	39.3	11.6	14.5
10900	39.6	11.4	13.8
10950	39.5	11.5	14.1
11000	40.1	11.0	12.5
11050	39.9	11.2	13.2
11100	40.2	10.9	12.3
11150	40.1	11.1	12.8
11200	40.2	11.0	12.7
11250	40.3	10.9	12.3
11300	39.9	11.4	13.8
11350	40.3	11.0	12.6
11400	39.7	11.6	14.5
11450	40.3	11.1	12.9

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
11500	39.9	11.5	14.1
11550	40.2	11.2	13.3
11600	40.3	11.2	13.3
11650	40.3	11.3	13.4
11700	40.5	11.1	12.9
11750	40.1	11.5	14.3
11800	40.3	11.4	13.8
11850	39.9	11.7	14.9
11900	39.9	11.8	15.2
11950	39.8	11.9	15.6
12000	39.9	11.9	15.6
12050	39.6	12.2	16.7
12100	39.8	12.0	15.9
12150	39.4	12.5	17.9
12200	39.8	12.1	16.2
12250	39.4	12.6	18.0
12300	39.8	12.2	16.5
12350	39.6	12.4	17.5
12400	39.8	12.3	16.9
12450	40.0	12.1	16.3
12500	39.9	12.2	16.6
12550	40.2	11.9	15.6
12600	40.2	12.0	15.8
12650	40.5	11.7	14.8
12700	40.9	11.4	13.8
12750	40.9	11.4	13.8
12800	41.4	10.9	12.4
12850	41.3	11.1	12.8
12900	41.9	10.6	11.4
12950	41.7	10.8	12.0
13000	42.0	10.5	11.2
13050	41.9	10.6	11.6
13100	42.2	10.4	10.9
13150	41.9	10.7	11.6
13200	42.4	10.2	10.5

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
13250	41.7	11.0	12.5
13300	42.7	10.0	9.9
13350	41.7	11.0	12.7
13400	42.6	10.1	10.3
13450	41.8	11.0	12.5
13500	42.2	10.6	11.5
13550	41.8	11.1	12.8
13600	41.9	11.0	12.6
13650	41.8	11.2	13.1
13700	41.5	11.5	14.1
13750	41.7	11.3	13.4
13800	41.3	11.7	14.9
13850	41.3	11.7	14.9
13900	40.9	12.2	16.6
13950	40.9	12.2	16.5
14000	40.4	12.7	18.6
14050	40.4	12.8	19.0
14100	40.2	13.0	20.0
14150	40.1	13.1	20.6
14200	39.9	13.3	21.5
14250	39.9	13.4	21.9
14300	39.9	13.4	21.9
14350	39.8	13.6	22.7
14400	40.0	13.4	21.9
14450	39.6	13.8	23.9
14500	39.7	13.8	23.8
14550	38.9	14.5	28.3
14600	39.1	14.4	27.4
14650	38.3	15.2	33.4
14700	38.7	14.9	30.7
14750	38.0	15.6	36.5
14800	38.3	15.3	34.1
14850	38.1	15.6	36.2
14900	38.1	15.6	36.5
14950	38.3	15.4	34.4

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
15000	38.0	15.7	37.4
15050	38.5	15.2	33.5
15100	38.1	15.6	36.7
15150	38.6	15.2	33.1
15200	38.4	15.5	35.4
15250	38.7	15.2	32.8
15300	38.6	15.3	33.9
15350	39.0	14.9	31.1
15400	38.7	15.3	33.6
15450	39.2	14.8	30.1
15500	38.9	15.2	32.8
15550	39.4	14.7	29.4
15600	39.1	14.9	31.2
15650	39.4	14.7	29.6
15700	39.5	14.7	29.3
15750	39.3	14.8	30.5
15800	39.7	14.5	28.1
15850	39.3	14.9	31.1
15900	39.7	14.5	28.2
15950	39.3	15.0	31.3
16000	39.7	14.6	28.7
16050	39.4	14.9	31.1
16100	39.8	14.5	28.4
16150	39.4	14.9	31.1
16200	40.2	14.2	26.3
16250	39.7	14.7	29.6
16300	40.8	13.7	23.4
16350	40.2	14.3	26.6
16400	41.2	13.3	21.3
16450	40.7	13.8	24.0
16500	41.3	13.3	21.2
16550	41.3	13.3	21.3
16600	41.2	13.4	22.0
16650	41.5	13.2	20.7
16700	41.3	13.3	21.5

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015



Model Number: HRN-0118  
1 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
16750	41.5	13.2	20.7
16800	41.7	13.1	20.3
16850	41.7	13.0	20.0
16900	42.3	12.4	17.5
16950	42.2	12.6	18.3
17000	42.8	12.0	15.8
17050	42.5	12.3	17.1
17100	42.9	12.0	15.8
17150	43.0	11.9	15.3
17200	43.1	11.8	15.1
17250	43.5	11.4	13.9
17300	43.5	11.4	13.9
17350	44.0	11.0	12.6
17400	44.5	10.5	11.3
17450	44.7	10.4	10.9
17500	46.2	8.9	7.8
17550	46.0	9.1	8.0
17600	47.5	7.6	5.8
17650	47.0	8.1	6.5
17700	48.8	6.4	4.3
17750	48.6	6.6	4.5
17800	49.3	6.0	3.9
17850	49.1	6.2	4.1
17900	50.2	5.1	3.2
17950	49.2	6.1	4.1
18000	51.2	4.1	2.6

Specification compliance testing factor (1.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
1000	24.1	6.1	4.1
1050	24.7	5.9	3.9
1100	24.9	6.2	4.2
1150	25.2	6.3	4.2
1200	25.3	6.5	4.5
1250	25.5	6.6	4.6
1300	25.8	6.7	4.7
1350	25.8	7.0	5.0
1400	26.0	7.1	5.2
1450	25.7	7.7	5.9
1500	25.5	8.3	6.7
1550	25.5	8.5	7.2
1600	25.5	8.8	7.5
1650	25.6	8.9	7.8
1700	25.8	9.0	8.0
1750	25.9	9.2	8.3
1800	26.0	9.3	8.5
1850	26.2	9.3	8.6
1900	26.3	9.5	9.0
1950	26.5	9.5	9.0
2000	26.6	9.6	9.2
2050	26.8	9.6	9.2
2100	27.4	9.2	8.4
2150	28.0	8.8	7.7
2200	28.8	8.3	6.8
2250	29.0	8.3	6.8
2300	28.8	8.7	7.4
2350	28.3	9.4	8.6
2400	27.9	10.0	9.9
2450	27.6	10.4	11.0
2500	27.5	10.7	11.7
2550	27.5	10.8	12.0
2600	27.7	10.8	12.0
2650	28.0	10.7	11.6
2700	28.3	10.5	11.2

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
2750	28.6	10.4	10.9
2800	28.9	10.3	10.6
2850	29.0	10.3	10.8
2900	28.9	10.5	11.3
2950	28.9	10.7	11.8
3000	28.8	11.0	12.4
3050	28.9	11.0	12.6
3100	28.9	11.1	13.0
3150	29.3	10.9	12.4
3200	29.4	11.0	12.5
3250	29.3	11.2	13.0
3300	29.3	11.3	13.5
3350	29.1	11.6	14.5
3400	29.1	11.8	15.0
3450	29.4	11.5	14.2
3500	29.5	11.6	14.3
3550	29.8	11.4	13.8
3600	30.0	11.3	13.5
3650	30.0	11.5	14.0
3700	30.2	11.4	13.9
3750	30.3	11.4	13.7
3800	30.3	11.5	14.1
3850	30.5	11.4	13.9
3900	30.5	11.6	14.4
3950	30.4	11.8	15.0
4000	30.5	11.7	14.9
4050	30.5	11.9	15.4
4100	30.6	11.9	15.4
4150	30.7	11.9	15.5
4200	30.8	11.9	15.5
4250	30.9	11.9	15.4
4300	31.1	11.8	15.2
4350	31.2	11.8	15.0
4400	31.3	11.8	15.2
4450	31.4	11.8	15.1

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
4500	31.5	11.8	15.1
4550	31.5	11.9	15.4
4600	31.5	11.9	15.6
4650	31.4	12.1	16.3
4700	31.4	12.2	16.6
4750	31.5	12.2	16.6
4800	31.8	12.0	16.0
4850	31.9	12.0	15.8
4900	32.2	11.9	15.3
4950	32.2	11.9	15.4
5000	32.3	11.9	15.4
5050	32.3	11.9	15.6
5100	32.4	11.9	15.7
5150	32.5	12.0	15.8
5200	32.5	12.0	15.8
5250	32.4	12.3	16.8
5300	32.2	12.5	17.7
5350	32.3	12.5	17.6
5400	32.6	12.3	17.0
5450	32.8	12.1	16.3
5500	33.0	12.0	15.8
5550	33.2	11.9	15.6
5600	33.2	12.0	15.9
5650	33.1	12.2	16.5
5700	33.1	12.3	16.9
5750	33.1	12.3	16.9
5800	33.3	12.2	16.6
5850	33.5	12.0	15.9
5900	33.7	12.0	15.7
5950	33.7	12.0	15.9
6000	33.7	12.1	16.2
6050	33.7	12.1	16.2
6100	33.8	12.1	16.3
6150	33.9	12.1	16.1
6200	34.0	12.0	16.0

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015



Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
6250	34.3	11.9	15.4
6300	34.3	11.9	15.6
6350	34.3	12.0	15.8
6400	34.4	12.0	15.8
6450	34.4	12.0	15.8
6500	34.7	11.8	15.0
6550	34.6	11.9	15.6
6600	34.6	12.0	15.7
6650	34.4	12.2	16.8
6700	34.4	12.3	17.1
6750	34.3	12.5	17.6
6800	34.5	12.4	17.4
6850	34.6	12.3	17.0
6900	34.9	12.1	16.3
6950	35.0	12.0	15.9
7000	35.3	11.8	15.3
7050	35.4	11.7	14.9
7100	35.8	11.5	14.0
7150	36.1	11.2	13.3
7200	36.2	11.2	13.1
7250	36.1	11.3	13.4
7300	36.0	11.5	14.0
7350	35.9	11.7	14.7
7400	35.8	11.8	15.1
7450	36.0	11.7	14.7
7500	36.1	11.6	14.5
7550	36.3	11.5	14.2
7600	36.2	11.6	14.5
7650	36.3	11.5	14.3
7700	36.2	11.8	15.0
7750	36.3	11.7	14.7
7800	36.3	11.7	14.9
7850	36.5	11.6	14.4
7900	36.5	11.7	14.7
7950	36.7	11.5	14.2

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
8000	36.8	11.5	14.2
8050	36.5	11.8	15.1
8100	36.6	11.8	15.2
8150	36.6	11.8	15.2
8200	36.7	11.8	15.0
8250	36.6	11.9	15.5
8300	36.7	11.9	15.6
8350	36.7	12.0	15.8
8400	36.6	12.1	16.2
8450	36.6	12.1	16.4
8500	36.7	12.1	16.3
8550	36.8	12.1	16.1
8600	37.0	11.9	15.6
8650	37.3	11.7	14.7
8700	37.6	11.4	13.9
8750	37.7	11.3	13.6
8800	37.7	11.4	13.7
8850	37.7	11.5	14.0
8900	37.6	11.6	14.6
8950	37.4	11.9	15.4
9000	37.3	12.0	15.7
9050	37.2	12.2	16.5
9100	37.0	12.4	17.3
9150	36.9	12.6	18.0
9200	37.0	12.5	17.9
9250	36.9	12.6	18.3
9300	37.1	12.5	17.8
9350	37.2	12.4	17.5
9400	37.2	12.5	17.6
9450	37.2	12.5	17.7
9500	37.3	12.4	17.5
9550	37.3	12.5	18.0
9600	37.2	12.7	18.4
9650	37.3	12.6	18.0
9700	37.4	12.5	17.9

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
9750	37.6	12.4	17.2
9800	37.7	12.3	17.0
9850	37.7	12.3	17.2
9900	37.8	12.3	17.2
9950	37.9	12.3	16.9
10000	37.7	12.5	17.9
10050	37.6	12.6	18.2
10100	37.5	12.8	18.8
10150	37.5	12.8	19.1
10200	37.5	12.8	19.2
10250	37.6	12.8	19.2
10300	37.8	12.6	18.4
10350	37.9	12.6	18.0
10400	38.1	12.5	17.7
10450	38.3	12.3	17.0
10500	38.5	12.2	16.4
10550	38.5	12.2	16.4
10600	38.6	12.1	16.2
10650	38.7	12.1	16.2
10700	38.9	11.9	15.5
10750	38.7	12.1	16.2
10800	38.7	12.2	16.5
10850	38.8	12.2	16.4
10900	39.0	12.0	15.8
10950	39.0	12.0	15.8
11000	39.1	12.0	15.7
11050	39.2	11.8	15.3
11100	39.4	11.7	14.9
11150	39.6	11.5	14.2
11200	39.8	11.4	13.7
11250	39.8	11.4	13.9
11300	40.1	11.2	13.2
11350	40.1	11.2	13.3
11400	39.9	11.4	13.9
11450	40.0	11.4	13.7

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
11500	40.2	11.2	13.3
11550	40.3	11.2	13.1
11600	40.3	11.2	13.0
11650	40.6	11.0	12.5
11700	40.3	11.3	13.4
11750	40.6	11.0	12.6
11800	40.5	11.2	13.0
11850	40.3	11.4	13.8
11900	40.3	11.4	13.7
11950	40.1	11.7	14.8
12000	40.1	11.7	14.7
12050	40.3	11.5	14.1
12100	40.0	11.9	15.5
12150	40.0	11.9	15.6
12200	40.0	12.0	15.7
12250	39.8	12.1	16.3
12300	40.0	12.0	15.9
12350	40.0	12.0	15.9
12400	40.0	12.1	16.3
12450	40.0	12.1	16.4
12500	39.9	12.3	16.9
12550	39.9	12.3	16.9
12600	40.1	12.1	16.3
12650	40.4	11.8	15.2
12700	40.3	12.0	15.8
12750	40.6	11.8	15.0
12800	41.0	11.4	13.7
12850	40.9	11.5	14.2
12900	41.3	11.1	12.9
12950	41.3	11.1	13.0
13000	41.4	11.1	12.8
13050	41.6	10.9	12.4
13100	41.5	11.0	12.7
13150	41.5	11.1	12.8
13200	41.8	10.9	12.2

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015



Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
13250	41.6	11.1	12.8
13300	42.0	10.7	11.6
13350	42.1	10.6	11.5
13400	42.3	10.5	11.1
13450	42.4	10.4	11.0
13500	42.0	10.8	12.0
13550	41.9	11.0	12.5
13600	42.0	10.9	12.3
13650	41.7	11.2	13.2
13700	41.9	11.0	12.6
13750	41.9	11.1	13.0
13800	41.3	11.7	14.7
13850	41.5	11.6	14.3
13900	41.5	11.5	14.2
13950	41.5	11.6	14.5
14000	41.3	11.8	15.1
14050	41.0	12.2	16.6
14100	41.0	12.2	16.6
14150	40.7	12.5	17.9
14200	40.6	12.6	18.2
14250	40.4	12.9	19.3
14300	40.5	12.8	19.1
14350	40.4	13.0	19.8
14400	40.6	12.7	18.8
14450	40.4	13.0	19.8
14500	40.2	13.3	21.2
14550	39.8	13.6	23.1
14600	39.4	14.1	25.8
14650	38.9	14.7	29.3
14700	38.7	14.8	30.4
14750	38.7	14.9	30.8
14800	38.4	15.2	32.9
14850	38.5	15.2	32.9
14900	38.2	15.5	35.5
14950	38.0	15.7	37.2

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
15000	37.9	15.9	38.7
15050	37.9	15.8	38.2
15100	38.0	15.8	37.9
15150	38.2	15.6	36.2
15200	38.2	15.7	37.0
15250	38.2	15.6	36.7
15300	38.1	15.8	38.0
15350	38.1	15.8	38.0
15400	38.1	15.8	38.2
15450	38.2	15.8	37.7
15500	38.5	15.6	36.0
15550	38.5	15.5	35.6
15600	38.5	15.5	35.9
15650	38.5	15.6	36.4
15700	38.5	15.6	36.1
15750	38.5	15.7	36.8
15800	38.5	15.7	37.1
15850	38.6	15.6	36.7
15900	38.8	15.4	35.0
15950	38.8	15.5	35.5
16000	38.5	15.8	37.6
16050	38.5	15.9	38.5
16100	38.5	15.9	38.6
16150	38.6	15.7	37.5
16200	38.9	15.5	35.2
16250	39.0	15.5	35.2
16300	39.0	15.4	34.8
16350	39.1	15.4	34.6
16400	39.3	15.2	33.3
16450	39.5	15.1	32.2
16500	39.6	15.0	31.4
16550	39.9	14.6	29.1
16600	40.1	14.5	28.5
16650	40.2	14.4	27.5
16700	40.2	14.5	28.0

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Horizontal Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
16750	40.2	14.5	28.3
16800	40.7	14.1	25.4
16850	40.7	14.0	25.2
16900	41.2	13.6	22.9
16950	41.0	13.8	24.0
17000	41.3	13.5	22.3
17050	41.8	13.0	20.1
17100	42.1	12.8	19.1
17150	42.6	12.3	17.1
17200	43.2	11.7	14.8
17250	42.9	12.0	16.0
17300	43.1	11.9	15.4
17350	43.5	11.5	14.2
17400	43.8	11.2	13.3
17450	44.0	11.0	12.6
17500	44.4	10.7	11.8
17550	45.3	9.8	9.5
17600	45.6	9.5	9.0
17650	46.5	8.6	7.3
17700	47.0	8.2	6.6
17750	48.9	6.3	4.3
17800	48.2	7.0	5.1
17850	47.2	8.0	6.3
17900	47.4	7.9	6.1
17950	46.5	8.8	7.6
18000	46.0	9.3	8.5

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
1000	24.2	6.1	4.0
1050	24.6	6.0	4.0
1100	24.8	6.2	4.2
1150	25.1	6.4	4.3
1200	25.4	6.4	4.4
1250	25.6	6.6	4.6
1300	25.8	6.7	4.7
1350	26.0	6.8	4.8
1400	25.8	7.3	5.4
1450	25.8	7.6	5.7
1500	25.7	8.1	6.4
1550	25.5	8.5	7.1
1600	25.5	8.8	7.6
1650	25.7	8.8	7.7
1700	25.8	9.0	8.0
1750	26.0	9.1	8.1
1800	26.1	9.2	8.4
1850	26.2	9.4	8.6
1900	26.3	9.5	8.9
1950	26.5	9.5	9.0
2000	26.6	9.6	9.1
2050	27.0	9.5	8.8
2100	27.5	9.1	8.2
2150	28.1	8.7	7.4
2200	28.7	8.3	6.8
2250	29.0	8.3	6.7
2300	28.9	8.5	7.1
2350	28.4	9.2	8.4
2400	28.0	9.8	9.5
2450	27.7	10.3	10.6
2500	27.6	10.5	11.3
2550	27.7	10.7	11.7
2600	27.9	10.6	11.5
2650	28.0	10.6	11.6
2700	28.4	10.4	11.1

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015



Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
2750	28.8	10.2	10.5
2800	29.1	10.1	10.1
2850	29.1	10.2	10.4
2900	29.1	10.3	10.8
2950	28.9	10.7	11.8
3000	28.8	10.9	12.3
3050	29.0	10.9	12.3
3100	29.1	10.9	12.3
3150	29.3	10.9	12.2
3200	29.5	10.9	12.2
3250	29.5	10.9	12.4
3300	29.4	11.2	13.1
3350	29.3	11.4	13.7
3400	29.4	11.4	13.9
3450	29.5	11.4	13.9
3500	29.7	11.4	13.7
3550	30.0	11.3	13.4
3600	30.0	11.4	13.7
3650	30.0	11.4	13.9
3700	30.1	11.4	13.9
3750	30.3	11.4	13.9
3800	30.4	11.4	13.9
3850	30.5	11.4	13.8
3900	30.4	11.6	14.6
3950	30.4	11.7	14.9
4000	30.4	11.8	15.3
4050	30.4	12.0	15.7
4100	30.6	11.9	15.4
4150	30.7	11.9	15.5
4200	30.8	11.9	15.5
4250	30.9	11.8	15.3
4300	31.1	11.8	15.0
4350	31.2	11.8	15.1
4400	31.3	11.7	14.9
4450	31.4	11.7	14.9

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
4500	31.5	11.8	15.0
4550	31.7	11.7	14.8
4600	31.6	11.9	15.4
4650	31.5	12.0	16.0
4700	31.6	12.1	16.2
4750	31.7	12.1	16.1
4800	31.9	12.0	15.7
4850	32.0	11.9	15.4
4900	32.2	11.8	15.2
4950	32.2	11.9	15.6
5000	32.3	11.9	15.6
5050	32.3	11.9	15.6
5100	32.6	11.8	15.2
5150	32.6	11.9	15.3
5200	32.5	12.0	15.8
5250	32.4	12.2	16.7
5300	32.2	12.5	17.8
5350	32.2	12.6	18.2
5400	32.4	12.5	17.7
5450	32.6	12.3	17.2
5500	32.8	12.2	16.7
5550	33.0	12.1	16.3
5600	33.0	12.2	16.6
5650	32.8	12.4	17.4
5700	32.7	12.6	18.2
5750	32.8	12.6	18.0
5800	32.9	12.5	18.0
5850	33.2	12.4	17.3
5900	33.3	12.3	17.2
5950	33.4	12.3	17.0
6000	33.5	12.3	16.9
6050	33.5	12.3	17.2
6100	33.7	12.2	16.8
6150	33.8	12.2	16.4
6200	34.0	12.1	16.2

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
6250	34.1	12.1	16.1
6300	34.2	12.0	15.9
6350	34.2	12.1	16.2
6400	34.2	12.1	16.3
6450	34.4	12.0	16.0
6500	34.6	11.9	15.4
6550	34.6	12.0	15.7
6600	34.6	12.0	15.8
6650	34.5	12.2	16.6
6700	34.4	12.4	17.3
6750	34.3	12.5	17.8
6800	34.5	12.4	17.3
6850	34.6	12.3	17.0
6900	34.8	12.2	16.6
6950	35.0	12.0	15.9
7000	35.2	11.9	15.5
7050	35.5	11.6	14.6
7100	35.7	11.5	14.1
7150	35.9	11.4	13.7
7200	36.1	11.3	13.4
7250	36.0	11.4	13.9
7300	35.9	11.5	14.2
7350	35.8	11.7	14.8
7400	35.8	11.8	15.1
7450	35.8	11.8	15.2
7500	36.0	11.7	14.9
7550	36.1	11.6	14.6
7600	36.2	11.7	14.6
7650	36.1	11.8	15.0
7700	36.2	11.8	15.0
7750	36.2	11.8	15.2
7800	36.3	11.8	15.1
7850	36.3	11.8	15.0
7900	36.5	11.7	14.7
7950	36.5	11.7	14.8

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
8000	36.3	11.9	15.6
8050	36.5	11.8	15.2
8100	36.5	11.9	15.4
8150	36.5	11.9	15.5
8200	36.6	11.9	15.5
8250	36.5	12.0	15.9
8300	36.5	12.1	16.1
8350	36.6	12.1	16.1
8400	36.6	12.1	16.2
8450	36.6	12.1	16.3
8500	36.6	12.2	16.7
8550	36.7	12.1	16.3
8600	36.9	12.0	15.9
8650	37.1	11.8	15.2
8700	37.4	11.6	14.6
8750	37.4	11.6	14.5
8800	37.6	11.5	14.1
8850	37.6	11.6	14.3
8900	37.6	11.6	14.3
8950	37.5	11.7	14.9
9000	37.4	11.9	15.5
9050	37.2	12.1	16.3
9100	37.2	12.2	16.4
9150	37.1	12.3	17.1
9200	37.2	12.3	17.0
9250	37.2	12.3	17.1
9300	37.2	12.4	17.2
9350	37.4	12.2	16.6
9400	37.5	12.2	16.5
9450	37.4	12.4	17.2
9500	37.5	12.3	17.0
9550	37.4	12.4	17.4
9600	37.4	12.4	17.5
9650	37.4	12.5	17.8
9700	37.5	12.5	17.6

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015



Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
9750	37.7	12.3	16.9
9800	37.7	12.3	17.0
9850	37.9	12.1	16.4
9900	38.0	12.1	16.4
9950	37.8	12.4	17.2
10000	37.8	12.4	17.3
10050	37.7	12.6	18.1
10100	37.8	12.5	17.9
10150	37.7	12.7	18.5
10200	37.8	12.6	18.0
10250	37.9	12.5	17.9
10300	37.9	12.6	18.1
10350	38.1	12.4	17.5
10400	38.2	12.3	17.1
10450	38.3	12.3	16.9
10500	38.5	12.2	16.5
10550	38.4	12.2	16.7
10600	38.7	12.0	16.0
10650	38.8	12.0	15.8
10700	38.8	12.0	16.0
10750	38.7	12.1	16.2
10800	38.7	12.2	16.6
10850	38.8	12.1	16.2
10900	39.0	12.0	15.7
10950	39.1	11.9	15.4
11000	39.2	11.9	15.4
11050	39.3	11.8	15.2
11100	39.3	11.8	15.1
11150	39.7	11.4	13.9
11200	39.8	11.4	13.7
11250	39.8	11.4	13.8
11300	39.9	11.4	13.8
11350	39.9	11.4	13.9
11400	40.0	11.3	13.6
11450	39.6	11.8	15.0

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
11500	39.9	11.5	14.1
11550	39.9	11.5	14.2
11600	40.2	11.3	13.5
11650	40.2	11.3	13.6
11700	40.4	11.1	13.0
11750	40.6	11.0	12.5
11800	40.0	11.6	14.6
11850	40.1	11.5	14.3
11900	40.2	11.5	14.2
11950	40.1	11.7	14.7
12000	39.9	11.9	15.4
12050	40.2	11.7	14.7
12100	40.0	11.8	15.3
12150	40.2	11.7	14.8
12200	39.7	12.2	16.7
12250	40.1	11.9	15.4
12300	40.1	11.9	15.4
12350	40.1	12.0	15.8
12400	40.1	11.9	15.7
12450	40.2	11.9	15.6
12500	40.4	11.8	15.1
12550	40.3	11.9	15.3
12600	40.4	11.8	15.1
12650	40.6	11.6	14.5
12700	40.6	11.7	14.6
12750	40.6	11.7	14.8
12800	41.1	11.3	13.5
12850	41.1	11.3	13.4
12900	41.3	11.1	12.9
12950	41.5	11.0	12.6
13000	41.3	11.2	13.1
13050	41.5	11.0	12.6
13100	42.1	10.5	11.1
13150	42.1	10.5	11.2
13200	41.8	10.8	12.0

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
13250	42.1	10.6	11.4
13300	41.9	10.8	12.0
13350	42.4	10.4	10.8
13400	42.1	10.6	11.5
13450	41.7	11.1	12.9
13500	42.2	10.6	11.5
13550	42.3	10.5	11.3
13600	42.1	10.8	12.0
13650	41.7	11.2	13.2
13700	41.9	11.0	12.7
13750	41.9	11.1	12.9
13800	41.8	11.2	13.3
13850	41.5	11.6	14.3
13900	41.4	11.7	14.7
13950	41.4	11.7	14.8
14000	41.5	11.7	14.7
14050	41.2	11.9	15.6
14100	40.7	12.5	17.7
14150	40.7	12.5	17.9
14200	40.7	12.6	18.1
14250	40.4	12.9	19.3
14300	40.5	12.8	19.1
14350	40.6	12.7	18.7
14400	40.7	12.7	18.7
14450	41.0	12.5	17.6
14500	40.6	12.9	19.4
14550	39.9	13.6	22.7
14600	39.6	13.9	24.6
14650	39.2	14.3	27.1
14700	38.9	14.7	29.2
14750	38.7	14.9	31.1
14800	38.5	15.1	32.6
14850	38.3	15.3	33.8
14900	38.4	15.2	33.3
14950	38.4	15.3	34.2

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
15000	38.4	15.3	34.2
15050	38.4	15.4	34.5
15100	38.3	15.4	35.0
15150	38.3	15.5	35.4
15200	38.3	15.6	36.0
15250	38.3	15.6	36.0
15300	38.2	15.7	37.3
15350	38.3	15.6	36.5
15400	38.3	15.7	36.7
15450	38.3	15.7	37.0
15500	38.5	15.5	35.8
15550	38.6	15.4	35.0
15600	38.6	15.5	35.2
15650	38.7	15.4	34.7
15700	38.7	15.4	34.7
15750	38.9	15.3	33.7
15800	38.9	15.3	33.8
15850	38.8	15.4	34.9
15900	38.9	15.3	34.3
15950	38.9	15.3	34.2
16000	38.8	15.5	35.7
16050	38.8	15.5	35.8
16100	38.8	15.5	35.8
16150	38.9	15.5	35.6
16200	39.1	15.3	34.2
16250	39.1	15.3	34.2
16300	39.2	15.3	33.8
16350	39.4	15.1	32.6
16400	39.7	14.8	30.2
16450	39.6	14.9	31.1
16500	39.9	14.6	28.9
16550	40.1	14.5	28.0
16600	40.0	14.6	28.9
16650	39.7	14.9	31.1
16700	40.2	14.5	28.3

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015



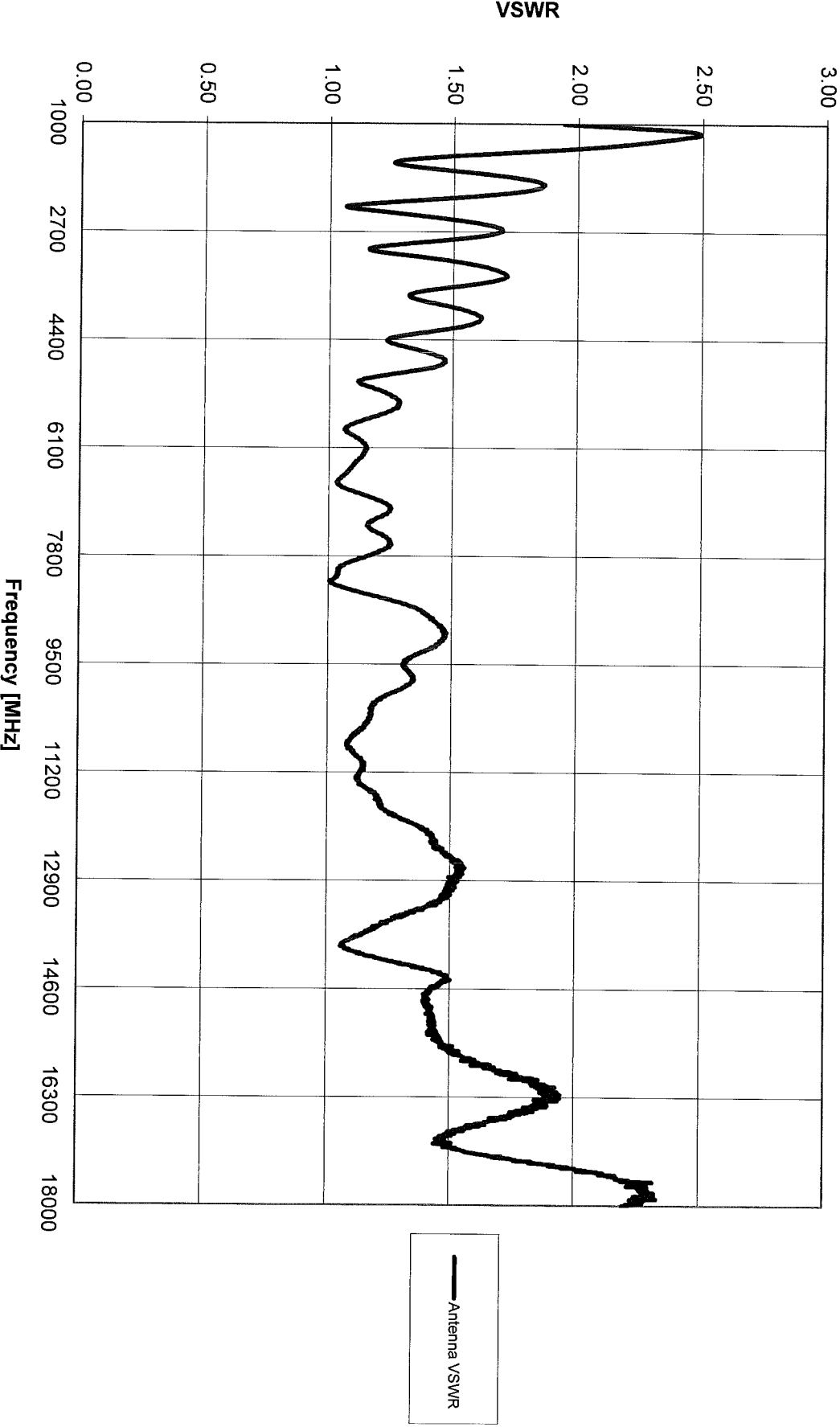
Model Number: HRN-0118  
3 m Calibration

Serial Number: 130869  
Vertical Polarization

Frequency (MHz)	Antenna Factor (dB)	Gain dBi	Gain Numeric
16750	40.3	14.4	27.7
16800	40.3	14.4	27.7
16850	40.2	14.5	28.4
16900	40.7	14.1	25.5
16950	40.7	14.1	25.9
17000	41.1	13.7	23.4
17050	41.4	13.4	22.0
17100	41.9	13.0	19.9
17150	42.2	12.7	18.6
17200	42.4	12.5	17.9
17250	42.5	12.5	17.7
17300	43.1	11.8	15.3
17350	43.5	11.5	14.2
17400	43.8	11.3	13.4
17450	44.5	10.5	11.3
17500	44.6	10.5	11.1
17550	46.2	8.9	7.7
17600	47.3	7.8	6.0
17650	47.7	7.4	5.6
17700	47.0	8.1	6.5
17750	47.2	8.0	6.3
17800	47.2	8.0	6.3
17850	48.1	7.2	5.2
17900	47.0	8.3	6.7
17950	47.3	8.0	6.3
18000	46.0	9.3	8.5

Specification compliance testing factor (3.0 meter spacing) to be added to receiver meter reading in dBuV to convert to field intensity in dBuV/meter. Calibrated per ANSI C63.5-2006 on January 30, 2015

SN [130869] VSWR -H



# SN [130869] VSWR - V

