

FCC PART 15.247 & 15.407
EMI MEASUREMENT AND TEST REPORT

For
Communication Machinery Corporation

402 East Gutierrez Street, Santa Barbara, CA 93105

FCC ID: RCX-EE11ABG3

This Report Concerns: ☒ Permissive II Change	Equipment Type: 802.11a/b/g Emulation Engine
	
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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *Communication Machinery Corporation*, FCC ID: *RCX-EE11ABG3*, or the “EUT” as referred to in this report is a 802.11 a/b/g Emulation Engine. The EUT is a composite device of DTS and UNII. For the DTS part (802.11a/b/g), the frequency range is 2412.00 – 2462.00 MHz (for 802.11b/g), & 5745.00 – 5825.00 MHz (for 802.11a). For the UNII part (802.11a), the frequency range is 5180.00 – 5240.00 MHz & 5260.00 – 5320.00 MHz.

** The test data gathered are from production sample, serial number: A000286, provided by the manufacturer.*

Objective

This type approval report is prepared on behalf of *Communication Machinery Corporation* in accordance with Part 2, Subpart J, Part 15, Subparts A, C, and E of the Federal Communication Commissions rules.

This is a Permissive II Change application. The original application was granted on 2004-05-10. In order to meet market demands, Communication Machinery Corporation connectorized antenna with gain of 4.5 to 5.0dBi.

Related Submittal(s)/Grant(s)

This application was originally granted on 2004-05-10. Please refer to CCS test report B40331D2.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratory, Corp.

Test Facility

The Open Area Test site used by BACL Corp. to collect radiated and conducted emission measurement data is located in the back parking lot of the building at 230 Commercial Street, Sunnyvale, California, USA.

Test site at BACL Corp. has been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997 and Article 8 of the VCCI regulations on December 25, 1997. The facility also complies with the test methods and procedures set forth in ANSI C63.4-2003& TIA/EIA-603.

The Federal Communications Commission and Voluntary Control Council for Interference has the reports on file and is listed under FCC file 31040/SIT 1300F2 and VCCI Registration No.: C-1298 and R-1234. The test site has been approved by the FCC and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, BACL is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200167-0). The current scope of accreditations is attached hereinafter and can also be found at <http://ts.nist.gov/ts/htdocs/210/214/scopes/2001670.htm>

SYSTEM TEST CONFIGURATION

Justification

The host system was configured for testing according to ANSI C63.4-2003.

The EUT was tested in the normal (native) operating mode to represent *worst-case* results during the final qualification test.

EUT Exercise Software

The EUT exercise program used during radiated and conducted testing was designed to exercise the system components in a manner similar to a typical use. The test software, provided by the customer, is started the Windows terminal program under the Windows 98/2000/ME/XP operating system.

Once loaded, set the Tx channel to low, mid and high for testing.

Special Accessories

As shown in following test setup block diagram, all interface cables used for compliance testing are shielded.

Schematics / Block Diagram

Please refer to Appendix A.

Equipment Modifications

No modifications were made to the EUT.

Local Support Equipment List and Details

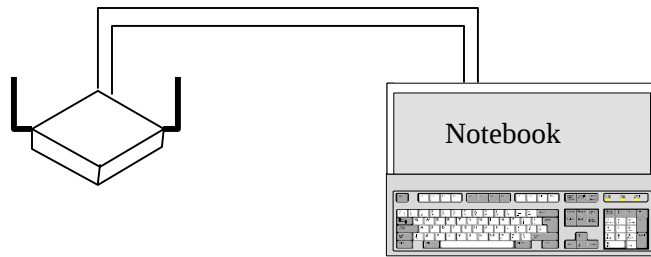
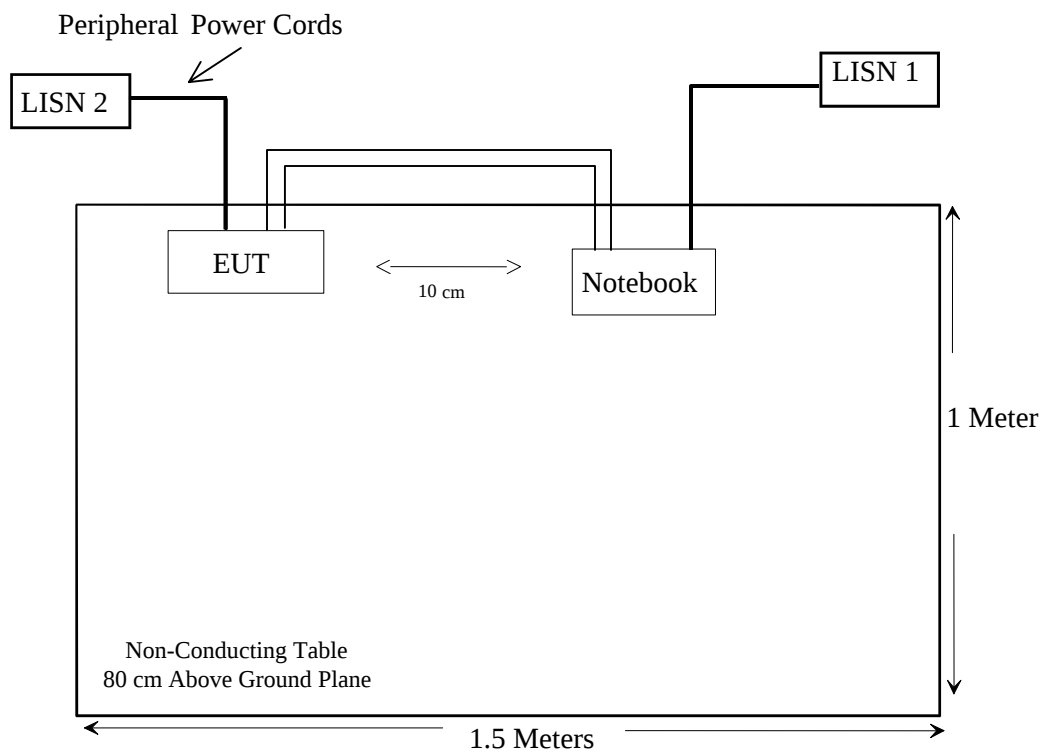
Manufacturer	Description	Model	Serial Number	FCC ID
Dell	Laptop	PR04S	62L1431	DOC

External I/O Cabling List and Details

Cable Description	Length (M)	Port/From	To
Serial Cable	1.5	Serial Port /EUT	Serial Port / Laptop PC
Unshielded RJ45 Cable	1.5	RJ45 Port / EUT	RJ45/Laptop PC

Power Supply Information

Manufacturer	Description	Model	Serial Number	FCC ID
Communication Machinery	Power Supply	AM-121000	None	None

Configuration of Test System**Test Setup Block Diagram**

SUMMARY OF TEST RESULTS

Results reported relate only to the product tested, serial number: A000286.

FCC RULES	DESCRIPTION OF TEST	RESULT
§2.1091, §15.247(b)(4), §15.407 (f)	RF Exposure Requirement	Compliance
§15.203	Antenna Requirement	N/A
§ 15.205, §15.209(a), §15.407(b)(5), §15.407(b)(6)	Restricted Bands, Radiated Emission	Within Measurement Uncertainty
§ 15.207(a)	AC Line Conduction	N/A
§15.247(a)(2), §15.407	6 dB Bandwidth & 26 dB Bandwidth	N/A
§15.247(b)(3), §15.407(a)(2)	RF Output Power	N/A
§ 15.247(c)	100 kHz Bandwidth of Frequency Band Edge	N/A
§15.247(d), §15.407(a)(2)	Peak Power Spectral Density	N/A
§15.407(a)(6)	Peak Excursion	N/A
§15.407(b)	Out of Band Emission	N/A
§15.407(c)	Discontinue Transmitting with Absence of Data or Operational Failure	N/A
§ 15.407(g)	Frequency Stability	N/A

§15.205, §15.209(a), §15.407(b)(5), §15.407(b)(6) - SPURIOUS RADIATED EMISSION

Measurement Uncertainty

All measurements involve certain levels of uncertainties. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at BACL is ± 4.0 dB.

According to §15.205, except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
¹ 0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2655 – 2900	22.01 – 23.12
8.41425 – 8.41475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.57725	240 – 285	3345.8 – 3358	36.43 – 36.5
13.36 – 13.41	322 – 335.4	3600 – 4400	(²)

¹ Until February 1, 1999, this restricted band shall be 0.490-0.510MHz

² Above 38.6

Except as provided in paragraph (d) and (e), the filed strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

According to §15.209, the device shall meet radiated emission general requirements.

Except for Class A device, the filed strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (Microvolts/meter)	dB (dBμV/meter)
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

EUT Setup

The radiated emission tests were performed in the open area 3-meter test site, using the setup in accordance with ANSI C63.4-2003. The specification used was the FCC 15 Subpart C limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundle as required.

The notebook was connected with 120Vac/60Hz power source.

Spectrum Analyzer Setup

According to FCC CFR 47, Section 15.31, the EUT was tested to 40GHz.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

<u>Frequency Range</u>	<u>RBW</u>	<u>Video B/W</u>
Below 30MHz	10kHz	10kHz
30 – 1000MHz	100kHz	100kHz
Above 1000MHz	1MHz	1MHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Analyzer, Spectrum	8564E	3943A01781	10/4/2004
Rohde&Schwarz	EMI Test Receiver	ESCI	1166.5950.03	11/01/2004
Sunol Sciences	System Controller	SC99V	122303-1	N/R
Agilent	Amplifier, Pre	8447D	2944A10187	09/23/2004
Agilent	Amplifier, Pre, microwave	8449B	3008A01978	10/05/2004
Sunol Sciences	Antenna	JB1	A013105-3	02/11/2005
A. H. Systems	Antenna, Horn, DRG	SAS-200/571	261	04/20/2005

* **Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Procedure

For the radiated emissions test, the PC system power cord was connected to the AC floor outlet since the power supply used in the EUT did not provide an accessory power outlet.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limits), and are distinguished with a "Qp" in the data table.

For average measurement, the spectrum analyzer was set as RBW = 1MHz, VBW = 10Hz.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Subpart C. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Subpart C Limit}$$

Summary of Test Results

Environmental Conditions

Temperature:	23° C
Relative Humidity:	51%
ATM Pressure:	1021 mbar

The testing was performed by Jerry Wang on 2005-5-27.

According to the data in following tables, the EUT measured -1.97dB margin, within the measurement uncertainty of the *worst* margin reading of ± 4.0 dB:

802.11b, 15.247

-12.80 dB at 4824 MHz in the **Vertical** polarization, Low Channel

-7.86 dB at 7386 MHz in the **Vertical** polarization, High Channel

802.11g, 15.247

-8.5 dB at **4824 MHz** in the **Horizontal** polarization, Low Channel

-12.0 dB at **4924 MHz** in the **Vertical** polarization, High Channel

802.11a, Low Band, 15.407

-5.97 dB at **15540 MHz** in the **Vertical** polarization, Low Channel

-6.37 dB at **15720 MHz** in the **Vertical** polarization, High Channel

802.11a, Mid Band, 15.407

-6.37 dB at **15780 MHz** in the **Vertical** polarization, Low Channel

-6.37 dB at **15900 MHz** in the **Vertical** polarization, High Channel

802.11a, High Band, 15.247

-2.17 dB at **17235 MHz** in the **Horizontal** polarization, Low Channel

-1.97 dB at **17415 MHz** in the **Horizontal** polarization, High Channel

-3.8 dB at **400 MHz** in the **Horizontal** polarization, unintentional emission

802.11b (15.247, 2412-2462MHz)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15.247	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dB	Cable dB	Amp. dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Low Channel											
2412	113.28	Fund/Peak	45	1.2	h	28.65	2.0	35.83	108.10		
2412	111.70	Fund/Peak	30	1.5	v	28.65	2.0	35.83	106.52		
2412	58.40	Ave	100	1.2	v	28.65	2.0	35.83	53.22		
2412	54.10	Ave	30	1.5	h	28.65	2.0	35.83	48.92		
4824	40.40	Ave	270	1.2	v	32.53	3.1	34.83	41.20	54	-12.80
4824	39.70	Ave	180	1.2	h	32.53	3.1	34.83	40.50	54	-13.50
7236	33.60	Ave	180	1.2	h	36.71	4.3	34.67	39.94	54	-14.06
7236	32.50	Ave	180	1.5	v	36.71	4.3	34.67	38.84	54	-15.16
7236	50.10	Peak	270	1.2	v	36.71	4.3	34.67	56.44	74	-17.56
7236	48.90	Peak	180	1.5	h	36.71	4.3	34.67	55.24	74	-18.76
4824	53.20	Peak	200	1.5	v	32.53	3.1	34.83	54.00	74	-20.00
4824	52.90	Peak	180	1.5	h	32.53	3.1	34.83	53.70	74	-20.30
High Channel											
2462	112.88	Fund/Peak	200	1.2	v	28.65	2.0	35.83	107.70		
2462	110.26	Fund/Peak	180	1.2	h	28.65	2.0	35.83	105.08		
2462	57.30	Ave	180	1.2	v	28.65	2.0	35.83	52.12		
2462	59.20	Ave	180	1.5	h	28.65	2.0	35.83	54.02		
7386	39.80	Ave	270	1.6	v	36.71	4.3	34.67	46.14	54	-7.86
7386	39.20	Ave	180	1.5	h	36.71	4.3	34.67	45.54	54	-8.46
4924	40.80	Ave	180	1.5	h	32.53	3.1	34.83	41.60	54	-12.40
4924	39.70	Ave	300	1.5	v	32.53	3.1	34.83	40.50	54	-13.50
4924	58.90	Peak	180	1.5	h	32.53	3.1	34.83	59.70	74	-14.30
4924	57.20	Peak	270	1.6	v	32.53	3.1	34.83	58.00	74	-16.00
7386	50.20	Peak	270	1.2	v	36.71	4.3	34.67	56.54	74	-17.46
7386	48.42	Peak	180	1.5	h	36.71	4.3	34.67	54.76	74	-19.24

Note:

FUND = Fundamental

AVG = average

802.11g (15.247, 2412-2462MHz)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15.247	
Frequency MHz	Ampl. dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dB	Cable dB	Amp. dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Low Channel											
2412	114.84	Fund/Peak	30	1.5	h	28.65	2.0	35.83	109.66		
2412	61.20	Fund/Peak	30	1.5	v	28.65	2.0	35.83	56.02		
2412	111.65	Ave	100	1.2	v	28.65	2.0	35.83	106.47		
2412	58.30	Ave	30	1.5	h	28.65	2.0	35.83	53.12		
4824	64.70	Peak	180	2.2	h	32.53	3.1	34.83	65.50	74	-8.50
4824	40.70	Ave	180	2.2	h	32.53	3.1	34.83	41.50	54	-12.50
7236	34.60	Ave	200	1.5	v	36.71	4.3	34.67	40.94	54	-13.06
7236	33.90	Ave	200	2.3	h	36.71	4.3	34.67	40.24	54	-13.76
4824	36.20	Ave	270	2.4	v	32.53	3.1	34.83	37.00	54	-17.00
4824	54.90	Peak	300	1.5	v	32.53	3.1	34.83	55.70	74	-18.30
7236	44.30	Peak	300	1.2	v	36.71	4.3	34.67	50.64	74	-23.36
7236	43.20	Peak	200	2.3	h	36.71	4.3	34.67	49.54	74	-24.46
High Channel											
2462	110.90	Fund/Peak	200	1.2	v	28.65	2.0	35.83	105.72		
2462	112.56	Fund/Peak	180	1.2	h	28.65	2.0	35.83	107.38		
2462	58.20	Ave	180	1.2	v	28.65	2.0	35.83	53.02		
2462	60.10	Ave	200	1.5	h	28.65	2.0	35.83	54.92		
4924	41.20	Ave	300	1.5	v	32.53	3.1	34.83	42.00	54	-12.00
4924	40.80	Ave	180	1.5	h	32.53	3.1	34.83	41.60	54	-12.40
4924	60.30	Peak	270	1.6	v	32.53	3.1	34.83	61.10	74	-12.90
7386	34.10	Ave	180	1.5	h	36.71	4.3	34.67	40.44	54	-13.56
4924	58.90	Peak	180	1.5	h	32.53	3.1	34.83	59.70	74	-14.30
7386	32.60	Ave	270	1.6	v	36.71	4.3	34.67	38.94	54	-15.06
7386	45.20	Peak	180	1.5	h	36.71	4.3	34.67	51.54	74	-22.46
7386	43.59	Peak	270	1.2	v	36.71	4.3	34.67	49.93	74	-24.07

Note:

FUND = Fundamental

AVG = average

802.11a, Low Band (15.407, 5180-5240MHz)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15.407	
Frequency	Ampl.	Comments	Angle	Height	Polar	Antenna	Cable	Amp.	Corr. Ampl.	Limit	Margin
MHz	dBμV/ m		Degree	Meter	H/ V	dB	dB	dB	dBμV/m	dBμV/m	dB
Low Channel											
5180	88.70	Fund/Peak	90	1.5	h	33.95	3.2	34.34	91.51		
5180	96.87	Fund/Peak	0	1.5	v	33.95	3.2	34.34	99.68		
5180	47.60	Ave	100	1.2	v	33.95	3.2	34.34	50.41		
5180	39.80	Ave	30	1.5	h	33.95	3.2	34.34	42.61		
15540	32.50	Ave	180	1.5	v	40.36	7.0	31.83	48.03	54	-5.97
15540	31.50	Ave	180	1.2	h	40.36	7.0	31.83	47.03	54	-6.97
15540	50.10	Peak	270	1.2	v	40.36	7.0	31.83	65.63	74	-8.37
15540	48.90	Peak	180	1.5	h	40.36	7.0	31.83	64.43	74	-9.57
10360	34.50	Ave	180	1.2	h	37.99	5.4	33.83	44.06	54	-9.94
10360	32.10	Ave	270	1.2	v	37.99	5.4	33.83	41.66	54	-12.34
10360	51.20	Peak	200	1.5	v	37.99	5.4	33.83	60.76	74	-13.24
10360	50.17	Peak	180	1.5	h	37.99	5.4	33.83	59.73	74	-14.27
High Channel											
5240	95.28	Fund/Peak	200	1.2	v	33.95	3.2	34.34	98.09		
5240	110.26	Fund/Peak	180	1.2	h	33.95	3.2	34.34	113.07		
5240	49.80	Ave	180	1.2	v	33.95	3.2	34.34	52.61		
5240	50.30	Ave	180	1.5	h	33.95	3.2	34.34	53.11		
15720	32.10	Ave	270	1.6	v	40.36	7.0	31.83	47.63	54	-6.37
15720	30.40	Ave	180	1.5	h	40.36	7.0	31.83	45.93	54	-8.07
10480	34.20	Ave	300	1.5	v	37.99	5.4	33.83	43.76	54	-10.24
15720	47.20	Peak	180	1.5	h	40.36	7.0	31.83	62.73	74	-11.27
15720	46.90	Peak	270	1.2	v	40.36	7.0	31.83	62.43	74	-11.57
10480	32.10	Ave	180	1.5	h	37.99	5.4	33.83	41.66	54	-12.34
10480	49.20	Peak	200	1.5	h	37.99	5.4	33.83	58.76	74	-15.24
10480	48.90	Peak	270	1.2	v	37.99	5.4	33.83	58.46	74	-15.54

Note:

FUND = Fundamental

AVG = average

802.11a, Mid Band (15.407, 5260-5320MHz)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15.407	
Frequency MHz	Ampl. dBμV/ m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna dB	Cable dB	Amp. dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Low Channel											
5260	94.11	Fund/Peak	90	1.5	h	33.95	3.2	34.34	96.92		
5260	90.60	Fund/Peak	0	1.5	v	33.95	3.2	34.34	93.41		
5260	49.80	Ave	100	1.2	v	33.95	3.2	34.34	52.61		
5260	51.20	Ave	30	1.5	h	33.95	3.2	34.34	54.01		
15780	32.10	Ave	180	1.5	v	40.36	7.0	31.83	47.63	54	-6.37
15780	30.70	Ave	180	1.2	h	40.36	7.0	31.83	46.23	54	-7.77
10520	33.50	Ave	180	1.2	h	38.74	5.4	33.17	44.47	54	-9.53
10520	32.80	Ave	270	1.2	v	38.74	5.4	33.17	43.77	54	-10.23
15780	47.20	Peak	180	1.5	h	40.36	7.0	31.83	62.73	74	-11.27
15780	45.30	Peak	270	1.2	v	40.36	7.0	31.83	60.83	74	-13.17
10520	48.20	Peak	180	1.5	h	38.74	5.4	33.17	59.17	74	-14.83
10520	47.90	Peak	200	1.5	v	38.74	5.4	33.17	58.87	74	-15.13
High Channel											
5300	96.77	Fund/Peak	0	1.2	v	33.95	3.2	34.34	99.58		
5300	88.70	Fund/Peak	200	1.2	h	33.95	3.2	34.34	91.51		
5300	50.60	Ave	180	1.2	v	33.95	3.2	34.34	53.41		
5300	48.90	Ave	180	1.5	h	33.95	3.2	34.34	51.71		
15900	32.10	Ave	270	1.6	v	40.36	7.0	31.83	47.63	54	-6.37
10600	34.60	Ave	300	1.5	v	38.74	5.4	33.17	45.57	54	-8.43
15900	29.80	Ave	180	1.5	h	40.36	7.0	31.83	45.33	54	-8.67
10600	33.50	Ave	180	1.5	h	38.74	5.4	33.17	44.47	54	-9.53
15900	46.90	Peak	270	1.2	v	40.36	7.0	31.83	62.43	74	-11.57
15900	44.50	Peak	180	1.5	h	40.36	7.0	31.83	60.03	74	-13.97
10600	48.70	Peak	270	1.2	v	38.74	5.4	33.17	59.67	74	-14.33
10600	46.70	Peak	180	1.5	h	38.74	5.4	33.17	57.67	74	-16.33

Note:

FUND = Fundamental

AVG = average

802.11a, High Band (15.247, 5745-5825MHz)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15.247	
Frequency	Ampl.	Comments	Angle	Height	Polar	Antenna	Cable	Amp.	Corr. Ampl.	Limit	Margin
MHz	dBμV/ m		Degree	Meter	H/ V	dB	dB	dB	dBμV/m	dBμV/m	dB
Low Channel											
5745	92.80	Fund/Peak	120	1.5	h	34.08	3.4	34.5	95.78		
5745	98.28	Fund/Peak	0	1.5	v	34.08	3.4	34.5	101.26		
5745	50.30	Ave	100	1.2	v	34.08	3.4	34.5	53.28		
5745	49.80	Ave	30	1.5	h	34.08	3.4	34.5	52.78		
17235	32.10	Ave	180	1.2	h	43.63	7.1	31.0	51.83	54	-2.17
17235	51.20	Peak	0	1.2	v	43.63	7.1	31.0	70.93	74	-3.07
17235	31.20	Ave	180	1.5	v	43.63	7.1	31.0	50.93	54	-3.07
17235	50.40	Peak	200	1.5	h	43.63	7.1	31.0	70.13	74	-3.87
11490	33.80	Ave	270	1.2	v	39.29	5.6	33.0	45.69	54	-8.31
11490	33.10	Ave	180	1.2	h	39.29	5.6	33.0	44.99	54	-9.01
11490	50.70	Peak	200	1.5	v	39.29	5.6	33.0	62.59	74	-11.41
11490	49.30	Peak	180	1.5	h	39.29	5.6	33.0	61.19	74	-12.81
High Channel											
5805	96.43	Fund/Peak	180	1.2	v	34.08	3.4	34.50	99.41		
5805	94.90	Fund/Peak	200	1.2	h	34.08	3.4	34.50	97.88		
5805	52.10	Ave	180	1.2	v	34.08	3.4	34.50	55.08		
5805	51.80	Ave	180	1.5	h	34.08	3.4	34.50	54.78		
17415	32.30	Ave	180	1.5	h	43.63	7.1	31.00	52.03	54	-1.97
17415	31.20	Ave	200	1.6	v	43.63	7.1	31.00	50.93	54	-3.07
17415	47.80	Peak	0	1.2	v	43.63	7.1	31.00	67.53	74	-6.47
11610	34.20	Ave	300	1.5	v	39.53	5.4	32.17	46.96	54	-7.04
17415	46.80	Peak	180	1.5	h	43.63	7.1	31.00	66.53	74	-7.47
11610	33.70	Ave	180	1.5	h	39.53	5.4	32.17	46.46	54	-7.54
11610	50.30	Peak	0	1.2	v	39.53	5.4	32.17	63.06	74	-10.94
11610	49.70	Peak	200	1.5	h	39.53	5.4	32.17	62.46	74	-11.54

Note:

FUND = Fundamental

AVG = average

Unintentional Emission

Frequency MHz	Indicated		Table Height Meter	Antenna		Correction Factor			FCC 15 Subpart B	
	Ampl. dB μ V/m	Direction Degree		Polar H/V	Antenna dB	Cable Loss dB	Amp. dB	Corr. Ampl. dB μ V/m	Limit dB μ V/m	Margin dB
400	49.52	200	2.0	H3	16.2	4.6	28.1	42.2	46.0	-3.8
400	48.30	180	1.20	V3	16.2	4.6	28.1	41.0	46.0	-5.0
225	50.70	200	2.0	H3	11.8	3.1	27.6	38.0	46.0	-8.0
125	43.20	200	1.2	V3	14.5	2.3	28.2	31.8	43.5	-11.7
150	43.70	180	2.0	H3	13.0	2.5	28.0	31.2	43.5	-12.3
250	45.30	200	1.2	V3	12.4	3.4	27.4	33.7	46.0	-12.3
125	42.50	180	2.0	H3	14.5	2.3	28.2	31.1	43.5	-12.4
150	43.20	200	1.2	V3	13.0	2.5	28.0	30.7	43.5	-12.8
225	45.70	180	1.2	V3	11.8	3.1	27.6	33.0	46.0	-13.0
250	43.20	180	2.0	H3	12.4	3.4	27.4	31.6	46.0	-14.4
75	41.30	180	1.2	V3	8.6	1.8	28.4	23.3	40.0	-16.7