

EMC EMISSIONS - TEST REPORT (Full)

Test Report No. **3129740DEN-001** Issue Date: **Wed 12/Sept/2007**Model / Serial No. **MN: 0066-5370 /SN: NA**Product Type **Wireless data adaptor**Client **Colorado Time Systems**Manufacturer **Colorado Time Systems**License holder **Colorado Time Systems**Address **1551 E 11th St,****Loveland, CO 80537**

Test Criteria Applied

Test Result

Test Project Number

References

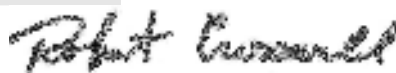
Total Pages

Including

Appendices:



Tested By : Mike Spataro

**FCC CFR47 Part 15.247
IC RSS-210 issue 7****PASS****3129740****45**Title 47 CFR 15: RADIO FREQUENCY
DEVICESLow-power License-exempt Radio
Communication Devices
(All Frequency Bands):
Category I Equipment

Reviewed By : Robert Cresswell

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Lab Code:200264-0

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STATEMENT OF MEASUREMENT UNCERTAINTY

The data and results referenced in this document are true and accurate. The measurement uncertainty for Conducted Emissions in the frequency range of 150kHz – 30MHz is calculated to be $\pm 2.30\text{dB}$ and for Radiated Emissions is calculated to be $\pm 3.60\text{dB}$ in the frequency range of 30MHz – 200MHz and $\pm 3.38\text{dB}$ in the frequency range of 200MHz – 1000MHz.

EUT Received Date: 30-July-2007

Testing Start Date: 30-July-2007

Testing End Date: 20-Aug-2007

The tests were performed according to following regulations :

1. FCC CFR47 Part 15 subpart C
2. FCC CFR47 Part 15 subpart B
3. IC RSS-210e Issue 7 2007
4. IC RSS-GEN Issue 2 2007
5. ICES-003

Emission Test Results:

Conducted Emissions, Powerline 15.207 - NA

Test Result

Minimum limit margin 0.0 dB at 0.0 MHz

Remarks: EUT is battery powered.

Radiated Emissions 15.209/15.109 - PASS

Test Result

Minimum limit margin -2.1 dB at 359.99 MHz

Remarks: _____

6dB Bandwidth 15.247 (a)(2) - PASS

Remarks: _____

Peak Output Power 15.247 (b)(3) - PASS

Test Result

Minimum limit margin -19.5 dB at 903.20 MHz

Remarks: Low Channel

Radiated Emissions 15.205/15.247(d) - PASS

Test Result

Minimum limit margin -6.0 dB at 2778.09 MHz

Remarks: High Channel

Power Spectral Density 15.247 (e) - PASS

Test Result

Minimum limit margin -3.7 dB at 914.47 MHz

Remarks: Mid Channel

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, ETL Semko.

Testing was performed in 3 different orthogonal axis to determine the worst case emissions from the device. The worst case emissions measurements are shown in this report.

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

FCC CFR47 Part 15.35: Measurement Detector Functions and Bandwidths: FCC Part 15.35 was utilized when performing the measurements within this report.

Whenever possible the approved test procedures specified in FCC KDB 558074 for DTS devices was used for testing.

Sample:

☐ Production ☒ Prototype ☐ See RFQ

Modifications required to pass: None

Test Specification Deviations: Additions to or Exclusions from: None

Required Information In Accordance to FCC CFR 47 Part 2.1033:

Rule Part 11, 15 & 18 Devices	Other Rule Part Devices	Description	Comments
2.1033(b)(1)	2.1033(c)(1)	Manu. Contact	See Page 1 of this report
2.1033(b)(2)	2.1033(c)(2)	FCC Identifier	Attached as Exhibit
2.1033(b)(3)	2.1033(c)(3)	Users Manual to include Operating, installation	Attached as Exhibit
	2.1033(c)(4)	Emissions Designator per 2.	Attached as Exhibit
	2.1033(c)(5)	Frequency Range	Not Applicable to Part 15 Devcies
	2.1033(c)(6)	Power range and controls	Not Applicable to Part 15 Devcies
	2.1033(c)(7)	Maximum power ouput rating	Not Applicable to Part 15 Devcies
	2.1033(c)(8)	DC Voltage and Current suplying final RF stages	Not Applicable to Part 15 Devcies
2.1033(b)(3)	2.1033(c)(9)	Tune –up procedure	Please refer to the users manual for applicability
2.1033(b)(4&5)	2.1033(c)(10)	Complete Circuit Diagrams and circuit operation description	Attached as Exhibit
2.1033(b)(7)	2.1033(c)(11)	Photographs/drawings of the identification label & its location on the device	Attached as Exhibit
2.1033(b)(7)	2.1033(c)(12)	Photographs of the external and internal surfaces, and construction	Attached as Exhibit
	2.1033(c)(13)	Digital Modulation	Attached as Exhibit
2.1033(b)(6)	2.1033(c)(14)	Report of Measurement Data Required by 2.1046 – 2.1057	See Data
2.1033(b)(8)		Description of publicly available support equipment used during test	Refer to Appendix B of this report (Client Test Plan)
2.1033(b)(9)		Statement of Autorization to Part 15.37 of CFR47	The equipment herein is being authorized in accordance to 15.37 of the CFR47 Rules.
2.1033(b)(10)		Direct Sequence Spread Spectrum Devices (DSSS)	NA
2.1033(b)(10)		Frequency Hopping Devices	NA
2.1033(b)(11)		Scanning receiver construction	Exhibit stating compliance to construction in accordance to 15.121.
15.31	15.31	Transmitter Supply Voltage	Testing herein was completed in accordance to FCC CFR47 Part 15.31

Test-setup photo(s):
Conducted Emissions

Not Applicable

Test-setup photo(s):

Radiated Emissions: Antenna 1 - ANT-916-CW-HWR-RPS 1/2 wave whip



Test-setup photo(s):

Radiated Emissions: Antenna 1 - ANT-916-CW-HWR-RPS 1/2 wave whip



Test-setup photo(s):

Radiated Emissions: Antenna 2 - ANT-916-CW-RH 1/4 wave whip



Appendix A

Test Data Sheets
and
Test Equipment Used

**Radiated Unintentional Emission
15.209**

And

**Spurious Emission
15.247 (d)**

Radiated Electromagnetic Emissions

Test Report #: **3129740**
 Test Method: FCC Part 15.109/205/209
 EUT Model #: 0066-5370
 EUT Serial #: NA
 Manufacturer: Colorado Time
 EUT Description: Wireless data adaptor

Test Area: Pinewood Site 1 (3m)
 Test Date: 20-Aug-2007
 EUT Power: 3VDC

Temperature: 22 °C
 Relative Humidity: 48 %
 Air Pressure: 102.5 kPa

Notes: This datasheet contains data for both antennas. Antenna 1 is ANT-916-CW-HWR-RPS
 ½ wave whip, antenna 2 is ANT-916-CW-RH ¼ wave whip.

Initial data was taken on 30-July-07 and completed on 20-Aug-07.

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) (dBm) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
Antenna 2						
2036.83	37.4 Av	3.3 / 27.3 / 37.7	30.2	V / 1.0 / 249.0	N/A	-23.8
2356.46	40.1 Av	3.8 / 28.3 / 37.9	34.3	V / 1.0 / 269.0	N/A	-19.7
2358.71	39.5 Av	3.8 / 28.3 / 37.9	33.7	V / 1.0 / 287.0	N/A	-20.3
2389.32	44.8 Av	3.8 / 28.4 / 37.9	39.2	V / 1.0 / 275.0	N/A	-14.8
1110.83	54.0 Av	2.4 / 24.3 / 37.4	43.2	V / 1.0 / 277.0	N/A	-10.8
1146.82	48.0 Av	2.4 / 24.4 / 37.4	37.3	V / 1.0 / 270.0	N/A	-16.7
1147.81	45.8 Av	2.4 / 24.4 / 37.4	35.1	V / 1.0 / 270.0	N/A	-18.9
1188.10	43.2 Av	2.5 / 24.4 / 37.4	32.8	V / 1.0 / 270.0	N/A	-21.2
1218.82	39.9 Av	2.5 / 24.5 / 37.4	29.5	V / 1.0 / 270.0	N/A	-24.5
1219.77	40.0 Av	2.5 / 24.5 / 37.4	29.6	V / 1.0 / 270.0	N/A	-24.4
1230.79	25.2 Pk	2.5 / 24.5 / 37.4	14.8	V / 1.0 / 270.0	N/A	-39.2
1231.79	37.9 Av	2.5 / 24.5 / 37.4	27.6	V / 1.0 / 270.0	N/A	-26.4
1252.07	39.9 Av	2.6 / 24.6 / 37.4	29.6	V / 1.0 / 270.0	N/A	-24.4
1253.05	39.6 Av	2.6 / 24.6 / 37.3	29.4	V / 1.0 / 270.0	N/A	-24.6
1258.67	41.5 Av	2.6 / 24.6 / 37.3	31.3	V / 1.0 / 270.0	N/A	-22.7
1278.80	40.2 Pk	2.6 / 24.6 / 37.3	30.1	V / 1.0 / 270.0	N/A	-23.9
1279.78	35.6 Av	2.6 / 24.6 / 37.3	25.4	V / 1.0 / 270.0	N/A	-28.6
1310.32	48.1 Pk	2.6 / 24.7 / 37.2	38.2	V / 1.0 / 270.0	N/A	-15.8
1311.29	43.1 Av	2.6 / 24.7 / 37.2	33.1	V / 1.0 / 270.0	N/A	-20.9
1314.82	44.0 Av	2.6 / 24.7 / 37.2	34.1	V / 1.0 / 270.0	N/A	-19.9
1315.79	45.1 Av	2.6 / 24.7 / 37.2	35.2	V / 1.0 / 270.0	N/A	-18.8
1380.79	37.4 Av	2.7 / 24.8 / 37.1	27.8	V / 1.0 / 270.0	N/A	-26.2
1381.81	36.8 Av	2.7 / 24.8 / 37.1	27.2	V / 1.0 / 270.0	N/A	-26.8
1430.40	42.2 Av	2.8 / 24.9 / 36.9	33.0	V / 1.0 / 270.0	N/A	-21.0
1432.16	41.9 Av	2.8 / 24.9 / 36.9	32.7	V / 1.0 / 270.0	N/A	-21.3
1893.44	34.9 Av	3.1 / 26.7 / 37.5	27.2	V / 1.0 / 270.0	N/A	-26.8
1895.41	34.6 Av	3.1 / 26.7 / 37.5	27.0	V / 1.0 / 270.0	N/A	-27.0

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
1853.05	46.9 Av	3.1 / 26.5 / 37.4	39.2	V / 1.0 / 180.0	N/A	-14.8
1852.06	47.9 Av	3.1 / 26.5 / 37.4	40.1	V / 1.0 / 180.0	N/A	-13.9
The following point was maximized:						
The following point was maximized:						
1110.83	56.0 Pk	2.4 / 24.3 / 37.4	45.2	V / 1.0 / 263.0	N/A	-8.8
1147.81	49.6 Av	2.4 / 24.4 / 37.4	39.0	V / 1.0 / 263.0	N/A	-15.0
1230.79	33.3 Pk	2.5 / 24.5 / 37.4	23.0	V / 1.0 / 263.0	N/A	-31.0
1311.29	43.5 Pk	2.6 / 24.7 / 37.2	33.6	V / 1.0 / 263.0	N/A	-20.4
1314.82	46.2 Pk	2.6 / 24.7 / 37.2	36.3	V / 1.0 / 263.0	N/A	-17.7
1315.79	46.4 Pk	2.6 / 24.7 / 37.2	36.5	V / 1.0 / 263.0	N/A	-17.5
1430.40	47.5 Pk	2.8 / 24.9 / 36.9	38.2	V / 1.0 / 263.0	N/A	-15.8
1432.16	46.1 Pk	2.8 / 24.9 / 36.9	36.8	V / 1.0 / 263.0	N/A	-17.2
1147.81	53.9 Pk	2.4 / 24.4 / 37.4	43.2	V / 1.0 / 263.0	N/A	-10.8
1091.50	41.9 Av	2.3 / 24.2 / 37.4	31.0	H / 1.0 / 180.0	N/A	-23.0
1096.00	41.9 Av	2.3 / 24.3 / 37.4	31.1	H / 1.0 / 180.0	N/A	-22.9
1110.79	42.1 Av	2.4 / 24.3 / 37.4	31.3	H / 1.0 / 180.0	N/A	-22.7
1111.79	40.0 Av	2.4 / 24.3 / 37.4	29.2	H / 1.0 / 180.0	N/A	-24.8
1146.81	44.7 Av	2.4 / 24.4 / 37.4	34.1	H / 1.0 / 180.0	N/A	-19.9
1147.80	44.3 Av	2.4 / 24.4 / 37.4	33.7	H / 1.0 / 180.0	N/A	-20.3
1252.08	41.6 Av	2.6 / 24.6 / 37.4	31.4	H / 1.0 / 180.0	N/A	-22.6
1253.06	41.0 Av	2.6 / 24.6 / 37.3	30.7	H / 1.0 / 180.0	N/A	-23.3
1314.79	34.2 Av	2.6 / 24.7 / 37.2	24.3	H / 1.0 / 180.0	N/A	-29.7
1315.80	34.5 Av	2.6 / 24.7 / 37.2	24.5	H / 1.0 / 180.0	N/A	-29.5
1430.39	40.5 Av	2.8 / 24.9 / 36.9	31.3	H / 1.0 / 180.0	N/A	-22.7
1432.15	40.4 Av	2.8 / 24.9 / 36.9	31.1	H / 1.0 / 180.0	N/A	-22.9
2017.50	34.8 Av	3.2 / 27.2 / 37.7	27.5	H / 1.0 / 180.0	N/A	-26.5
2022.52	34.6 Av	3.2 / 27.2 / 37.7	27.4	H / 1.0 / 180.0	N/A	-26.6
2022.52	35.0 Pk	3.2 / 27.2 / 37.7	27.7	H / 1.0 / 90.0	N/A	-26.3
2022.52	44.2 Pk	3.2 / 27.2 / 37.7	37.0	H / 1.0 / 90.0	N/A	-17.0
2017.54	34.6 Av	3.2 / 27.2 / 37.7	27.3	H / 1.0 / 90.0	N/A	-26.7
1893.42	35.8 Av	3.1 / 26.7 / 37.5	28.1	H / 1.0 / 90.0	N/A	-25.9
1895.44	35.5 Av	3.1 / 26.7 / 37.5	27.9	H / 1.0 / 90.0	N/A	-26.1
1432.16	43.2 Av	2.8 / 24.9 / 36.9	34.0	H / 1.0 / 90.0	N/A	-20.0
1430.39	43.1 Av	2.8 / 24.9 / 36.9	33.8	H / 1.0 / 90.0	N/A	-20.2
1253.06	48.4 Pk	2.6 / 24.6 / 37.3	38.1	H / 1.0 / 90.0	N/A	-15.9
1253.05	44.3 Av	2.6 / 24.6 / 37.3	34.1	H / 1.0 / 90.0	N/A	-19.9
1252.06	44.8 Av	2.6 / 24.6 / 37.4	34.6	H / 1.0 / 90.0	N/A	-19.4
1147.81	48.9 Pk	2.4 / 24.4 / 37.4	38.2	H / 1.0 / 90.0	N/A	-15.8
1146.81	48.1 Av	2.4 / 24.4 / 37.4	37.4	H / 1.0 / 90.0	N/A	-16.6
1111.80	37.9 Av	2.4 / 24.3 / 37.4	27.1	H / 1.0 / 90.0	N/A	-26.9
1110.82	40.6 Av	2.4 / 24.3 / 37.4	29.8	H / 1.0 / 90.0	N/A	-24.2
1095.99	40.2 Av	2.3 / 24.3 / 37.4	29.4	H / 1.0 / 90.0	N/A	-24.6
1091.47	40.4 Av	2.3 / 24.2 / 37.4	29.5	H / 1.0 / 90.0	N/A	-24.5

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
The following point was maximized:						
1146.82	51.6 Av	2.4 / 24.4 / 37.4	41.0	H / 1.1 / 292.0	N/A	-13.0
1111.79	41.6 Av	2.4 / 24.3 / 37.4	30.9	H / 1.1 / 292.0	N/A	-23.1
1893.42	35.8 Av	3.1 / 26.7 / 37.5	28.2	H / 1.1 / 292.0	N/A	-25.8
2356.46	43.0 Av	3.8 / 28.3 / 37.9	37.2	H / 1.1 / 292.0	N/A	-16.8
2356.45	46.1 Av	3.8 / 28.3 / 37.9	40.3	H / 1.0 / 72.0	N/A	-13.7
2022.55	34.1 Av	3.2 / 27.2 / 37.7	26.9	H / 1.0 / 90.0	N/A	-27.1
2017.51	34.6 Av	3.2 / 27.2 / 37.7	27.4	H / 1.0 / 90.0	N/A	-26.6
2218.40	34.5 Av	3.5 / 27.9 / 37.8	28.1	H / 1.0 / 66.0	N/A	-25.9
3 to 4GHz, no points found						
noise floor						
3500.00	34.5 Av	4.8 / 31.5 / 38.0	32.8	H / 1.0 / 66.0	N/A	-21.2
4 to 5GHz, no points found						
noise floor						
4500.00	34.8 Av	6.6 / 32.3 / 40.4	33.3	H / 1.0 / 0.0	N/A	-20.7
5 to 6GHz, no points found						
noise floor						
5500.00	33.3 Av	6.7 / 34.5 / 39.8	34.7	H / 1.0 / 0.0	N/A	-19.3
6 to 7GHz, no points found						
noise floor						
6500.00	35.2 Pk	8.5 / 35.3 / 40.3	38.6	H / 1.0 / 0.0	N/A	-15.4
7 tp 8GHz, no points found						
noise floor						
7500.00	33.0 Av	8.2 / 36.6 / 40.3	37.5	H / 1.0 / 0.0	N/A	-16.5
7500.00	33.9 Av	8.2 / 36.6 / 40.3	38.3	V / 1.0 / 0.0	N/A	-15.7
6GHz to 7GHz, no points found						
noise floor						
6500.00	33.0 Av	8.5 / 35.3 / 40.3	36.4	V / 1.0 / 0.0	N/A	-17.6
5GHz to 6GHz, no points found						
noise floor						
5500.00	33.1 Av	6.7 / 34.5 / 39.8	34.5	V / 1.0 / 0.0	N/A	-19.5
4GHz to 5GHz, no points found						
noise floor						
4500.00	34.6 Av	6.6 / 32.3 / 40.4	33.2	V / 1.0 / 0.0	N/A	-20.8
8GHz to 9GHz, no points found						
noise floor						
8500.00	42.4 Pk	8.5 / 37.1 / 48.0	39.9	H / 1.0 / 0.0	N/A	-14.1
8500.00	42.9 Av	8.5 / 37.1 / 48.0	40.4	H / 1.0 / 0.0	N/A	-13.6
9GHz to 9.5GHz, no points found						
noise floor						

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
9250.00	43.1 Pk	8.9 / 38.2 / 48.8	41.5	H / 1.0 / 0.0	N/A	-12.5
9250.00	43.7 Av	8.9 / 38.2 / 48.8	42.0	V / 1.0 / 0.0	N/A	-12.0
8GHz to 9GHz, no points found						
noise floor						
8500.00	42.8 Av	8.5 / 37.1 / 48.0	40.3	V / 1.0 / 0.0	N/A	-13.7
antenna 1						
8 to 9GHz, no points found						
noise floor						
8500.00	42.8 Av	8.5 / 37.1 / 48.0	40.3	V / 1.0 / 0.0	N/A	-13.7
9 to 9.5GHz, no points found						
noise floor						
9250.00	43.6 Av	8.9 / 38.2 / 48.8	41.9	H / 1.0 / 0.0	N/A	-12.1
8GHz to 9GHz, no points found						
noise floor						
8500.00	42.8 Av	8.5 / 37.1 / 48.0	40.3	H / 1.0 / 0.0	N/A	-13.7
4.5 to 5GHz, no points found						
noise floor						
4750.00	30.9 Pk	7.1 / 32.9 / 40.3	30.6	H / 1.0 / 0.0	N/A	-23.4
5GHz to 5.5GHz, no points found						
noise floor						
4750.00	35.9 Pk	7.1 / 32.9 / 40.3	35.6	H / 1.0 / 0.0	N/A	-18.4
5.5GHz to 6GHz, no points found						
noise floor						
5750.00	33.2 Av	7.2 / 34.8 / 39.6	35.6	H / 1.0 / 0.0	N/A	-18.4
6GHz to 6.5GHz, no points found						
noise floor						
6250.00	35.1 Av	8.1 / 35.2 / 40.2	38.1	H / 1.0 / 0.0	N/A	-15.9
6.5 to 7GHz, no points found						
noise floor						
6750.00	32.9 Av	8.3 / 35.6 / 40.3	36.5	H / 1.0 / 0.0	N/A	-17.5
7GHz to 7.5GHz, no points found						
noise floor						
7750.00	35.4 Av	8.2 / 36.9 / 40.1	40.4	H / 1.0 / 0.0	N/A	-13.6
7.5 to 8GHz, no points found						
7750.00	34.1 Av	8.2 / 36.9 / 40.1	39.2	H / 1.0 / 0.0	N/A	-14.8
noise floor						
7250.00	32.9 Av	8.2 / 36.3 / 40.5	36.8	H / 1.0 / 0.0	N/A	-17.2
7.5GHz to 8GHz, no points found						
noise floor						
7750.00	34.9 Av	8.2 / 36.9 / 40.1	40.0	V / 1.0 / 0.0	N/A	-14.0
7GHz to 7.5GHz, no points found						
noise floor						
7250.00	34.1 Av	8.2 / 36.3 / 40.5	38.1	V / 1.0 / 0.0	N/A	-15.9
6.5GHz to 7GHz, no points found						
noise floor						
6750.00	34.0 Av	8.3 / 35.6 / 40.3	37.7	V / 1.0 / 0.0	N/A	-16.3

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
6GHz to 6.5GHz, no points found						
noise floor						
6033.00	34.5 Av	7.8 / 35.1 / 39.7	37.7	V / 1.0 / 0.0	N/A	-16.3
5GHz to 5.5GHz						
noise floor						
5555.50	35.0 Av	6.8 / 34.6 / 39.8	36.5	V / 1.0 / 0.0	N/A	-17.5
4.5GHz to 5GHz, no points found						
noise floor						
4750.00	35.5 Av	7.1 / 32.9 / 40.3	35.1	V / 1.0 / 0.0	N/A	-18.9
4GHz to 4.5GHz, no points found						
noise floor						
4250.00	36.2 Av	6.2 / 32.3 / 40.4	34.2	V / 1.0 / 0.0	N/A	-19.8
1111.79	47.8 Av	2.4 / 24.3 / 37.4	37.0	V / 1.0 / 0.0	N/A	-17.0
1230.79	35.0 Av	2.5 / 24.5 / 37.4	24.7	V / 1.0 / 0.0	N/A	-29.3
1252.06	45.6 Av	2.6 / 24.6 / 37.4	35.3	V / 1.0 / 0.0	N/A	-18.7
1893.42	36.5 Av	3.1 / 26.7 / 37.5	28.9	V / 1.0 / 0.0	N/A	-25.1
1895.44	36.5 Av	3.1 / 26.7 / 37.5	28.9	V / 1.0 / 0.0	N/A	-25.1
2358.71	41.4 Av	3.8 / 28.3 / 37.9	35.6	V / 1.0 / 0.0	N/A	-18.4
1230.79	34.6 Av	2.5 / 24.5 / 37.4	24.3	V / 1.0 / 180.0	N/A	-29.7
1893.42	36.5 Av	3.1 / 26.7 / 37.5	28.8	V / 1.0 / 180.0	N/A	-25.2
The following point was maximized:						
1111.79	50.7 Av	2.4 / 24.3 / 37.4	39.9	V / 2.2 / 309.0	N/A	-14.1
1893.42	36.4 Av	3.1 / 26.7 / 37.5	28.8	V / 2.2 / 309.0	N/A	-25.2
2358.71	41.1 Av	3.8 / 28.3 / 37.9	35.4	V / 2.2 / 309.0	N/A	-18.6
3500.00	35.0 Av	4.8 / 31.5 / 38.0	33.3	V / 2.2 / 309.0	N/A	-20.7
2358.71	41.8 Av	3.8 / 28.3 / 37.9	36.0	H / 1.0 / 270.0	N/A	-18.0
2017.50	34.4 Av	3.2 / 27.2 / 37.7	27.2	H / 1.0 / 270.0	N/A	-26.8
1895.44	36.6 Av	3.1 / 26.7 / 37.5	28.9	H / 1.0 / 270.0	N/A	-25.1
1381.81	37.4 Av	2.7 / 24.8 / 37.1	27.8	H / 1.0 / 270.0	N/A	-26.2
1279.78	35.9 Av	2.6 / 24.6 / 37.3	25.8	H / 1.0 / 270.0	N/A	-28.2
1258.67	42.5 Av	2.6 / 24.6 / 37.3	32.2	H / 1.0 / 270.0	N/A	-21.8
1219.77	39.6 Av	2.5 / 24.5 / 37.4	29.2	H / 1.0 / 270.0	N/A	-24.8
1218.82	39.7 Av	2.5 / 24.5 / 37.4	29.3	H / 1.0 / 270.0	N/A	-24.7
1111.79	50.6 Av	2.4 / 24.3 / 37.4	39.9	H / 1.0 / 270.0	N/A	-14.1
1110.83	55.7 Av	2.4 / 24.3 / 37.4	44.9	H / 1.0 / 270.0	N/A	-9.1
1230.79	35.1 Av	2.5 / 24.5 / 37.4	24.7	H / 1.0 / 180.0	N/A	-29.3
2036.83	36.6 Av	3.3 / 27.3 / 37.7	29.5	H / 1.0 / 180.0	N/A	-24.5
2358.71	41.2 Av	3.8 / 28.3 / 37.9	35.5	H / 1.0 / 90.0	N/A	-18.5
2017.50	34.0 Av	3.2 / 27.2 / 37.7	26.8	H / 1.0 / 90.0	N/A	-27.2
1895.44	36.2 Av	3.1 / 26.7 / 37.5	28.6	H / 1.0 / 90.0	N/A	-25.4
1893.42	36.3 Av	3.1 / 26.7 / 37.5	28.7	H / 1.0 / 90.0	N/A	-25.3

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
1381.81	36.9 Av	2.7 / 24.8 / 37.1	27.4	H / 1.0 / 90.0	N/A	-26.6
1380.79	36.7 Av	2.7 / 24.8 / 37.1	27.2	H / 1.0 / 90.0	N/A	-26.8
1311.29	44.5 Av	2.6 / 24.7 / 37.2	34.6	H / 1.0 / 90.0	N/A	-19.4
1258.67	42.0 Av	2.6 / 24.6 / 37.3	31.7	H / 1.0 / 90.0	N/A	-22.3
1230.79	35.1 Av	2.5 / 24.5 / 37.4	24.7	H / 1.0 / 90.0	N/A	-29.3
1111.79	51.6 Av	2.4 / 24.3 / 37.4	40.8	H / 1.0 / 90.0	N/A	-13.2
1230.79	35.0 Av	2.5 / 24.5 / 37.4	24.7	H / 1.0 / 0.0	N/A	-29.3
2036.83	37.6 Av	3.3 / 27.3 / 37.7	30.5	H / 1.0 / 0.0	N/A	-23.5
The following point was maximized:						
1110.83	56.6 Av	2.4 / 24.3 / 37.4	45.8	H / 1.0 / 316.0	N/A	-8.2
1111.79	53.6 Av	2.4 / 24.3 / 37.4	42.8	H / 1.0 / 316.0	N/A	-11.2
1218.82	39.4 Av	2.5 / 24.5 / 37.4	29.0	H / 1.0 / 316.0	N/A	-25.0
1258.67	41.6 Av	2.6 / 24.6 / 37.3	31.4	H / 1.0 / 316.0	N/A	-22.6
1893.42	36.3 Av	3.1 / 26.7 / 37.5	28.7	H / 1.0 / 316.0	N/A	-25.3
1895.44	36.1 Av	3.1 / 26.7 / 37.5	28.5	H / 1.0 / 316.0	N/A	-25.5
3500.00	35.0 Av	4.8 / 31.5 / 38.0	33.3	H / 1.0 / 316.0	N/A	-20.7
The following point was maximized:						
1111.79	56.6 Av	2.4 / 24.3 / 37.4	45.8	H / 1.0 / 72.0	N/A	-8.2
1258.67	42.4 Av	2.6 / 24.6 / 37.3	32.2	H / 1.0 / 72.0	N/A	-21.8
1311.29	44.6 Av	2.6 / 24.7 / 37.2	34.7	H / 1.0 / 72.0	N/A	-19.3
1893.42	36.4 Av	3.1 / 26.7 / 37.5	28.8	H / 1.0 / 72.0	N/A	-25.2
3500.00	35.0 Av	4.8 / 31.5 / 38.0	33.3	H / 1.0 / 72.0	N/A	-20.7
33.34	32.6 Qp	0.6 / 12.8 / 28.1	17.9	V / 1.0 / 0.0	-22.1	N/A
51.02	34.6 Pk	0.7 / 10.2 / 28.0	17.6	V / 1.0 / 0.0	-22.4	N/A
160.00	42.8 Qp	1.4 / 12.5 / 27.5	29.1	V / 1.0 / 0.0	-14.4	N/A
199.98	46.7 Pk	1.5 / 13.9 / 27.3	34.8	V / 1.0 / 0.0	-8.7	N/A
80.00	34.2 Pk	0.9 / 7.4 / 27.9	14.7	V / 1.0 / 0.0	-25.3	N/A
120.00	34.0 Qp	1.2 / 11.9 / 27.7	19.4	V / 1.0 / 0.0	-24.1	N/A
120.00	44.4 Qp	1.2 / 11.9 / 27.7	29.7	V / 1.0 / 180.0	-13.8	N/A
80.00	37.2 Qp	0.9 / 7.4 / 27.9	17.6	V / 1.0 / 180.0	-22.4	N/A
120.00	43.9 Qp	1.2 / 11.9 / 27.7	29.2	V / 1.0 / 270.0	-14.3	N/A
33.34	33.4 Qp	0.6 / 12.8 / 28.1	18.7	V / 1.0 / 270.0	-21.3	N/A
The following point was maximized:						
160.00	44.2 Qp	1.4 / 12.5 / 27.5	30.6	V / 1.0 / 44.0	-12.9	N/A
The following point was maximized:						
200.00	46.1 Qp	1.5 / 13.9 / 27.3	34.2	V / 1.0 / 44.0	-9.3	N/A
33.34	33.5 Qp	0.6 / 12.8 / 28.1	18.8	V / 1.0 / 44.0	-21.2	N/A
52.81	34.0 Qp	0.7 / 9.9 / 28.0	16.6	H / 1.0 / 270.0	-23.4	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
54.59	32.6 Pk	0.7 / 9.6 / 28.0	14.9	H / 1.0 / 270.0	-25.1	N/A
167.98	30.0 Pk	1.4 / 12.5 / 27.5	16.4	H / 1.0 / 270.0	-27.1	N/A
52.81	34.0 Qp	0.7 / 9.9 / 28.0	16.6	H / 1.0 / 270.0	-23.4	N/A
54.59	35.8 Qp	0.7 / 9.6 / 28.0	18.1	H / 1.0 / 270.0	-21.9	N/A
167.98	32.1 Qp	1.4 / 12.5 / 27.5	18.6	H / 1.0 / 270.0	-24.9	N/A
199.98	48.8 Qp	1.5 / 13.9 / 27.3	36.9	H / 2.0 / 180.0	-6.6	N/A
167.98	36.4 Qp	1.4 / 12.5 / 27.5	22.8	H / 2.0 / 180.0	-20.7	N/A
199.98	49.8 Qp	1.5 / 13.9 / 27.3	37.8	H / 2.0 / 0.0	-5.7	N/A
The following point was maximized:						
199.98	51.1 Qp	1.5 / 13.9 / 27.3	39.2	H / 2.4 / 359.0	-4.3	N/A
167.98	38.1 Qp	1.4 / 12.5 / 27.5	24.5	H / 2.4 / 359.0	-19.0	N/A
320.00	48.4 Qp	2.0 / 15.1 / 27.1	38.3	H / 2.0 / 0.0	-7.7	N/A
400.00	48.8 Qp	2.2 / 16.8 / 27.6	40.2	H / 2.0 / 0.0	-5.8	N/A
440.00	44.6 Qp	2.4 / 17.2 / 27.9	36.3	H / 2.0 / 0.0	-9.7	N/A
480.00	46.8 Qp	2.5 / 18.8 / 28.1	40.0	H / 2.0 / 0.0	-6.0	N/A
520.00	47.0 Qp	2.6 / 19.2 / 28.2	40.6	H / 2.0 / 0.0	-5.4	N/A
560.00	28.4 Qp	2.7 / 18.9 / 28.2	21.8	H / 2.0 / 0.0	-24.2	N/A
600.00	56.1 Qp	2.9 / 19.4 / 28.2	50.3	H / 2.0 / 0.0	4.3 *	N/A
640.00	30.1 Qp	3.0 / 20.0 / 28.1	25.0	H / 2.0 / 0.0	-21.0	N/A
680.00	36.8 Qp	3.2 / 21.0 / 28.1	32.8	H / 2.0 / 0.0	-13.2	N/A
720.00	38.0 Qp	3.2 / 21.4 / 28.1	34.5	H / 2.0 / 0.0	-11.5	N/A
w 900MHz trap						
600.00	55.6 Qp	2.9 / 19.4 / 28.2	49.8	H / 2.0 / 0.0	3.8 *	N/A
680.00	33.1 Qp	3.2 / 21.0 / 28.1	29.1	H / 2.0 / 0.0	-16.9	N/A
640.00	29.2 Qp	3.0 / 20.0 / 28.1	24.0	H / 2.0 / 0.0	-22.0	N/A
240.00	54.8 Qp	1.7 / 11.8 / 27.1	41.1	H / 2.0 / 0.0	-4.9	N/A
280.00	53.2 Qp	1.8 / 13.8 / 27.0	42.0	H / 2.0 / 0.0	-4.0	N/A
maximized:						
280.00	59.3 Qp	1.8 / 13.8 / 27.0	48.0	H / 1.6 / 179.0	2.0 *	N/A
changed to EUT antenna 2						
280.00	54.9 Qp	1.8 / 13.8 / 27.0	43.6	H / 1.6 / 179.0	-2.4	N/A
280.00	56.0 Qp	1.8 / 13.8 / 27.0	44.7	H / 2.9 / 170.0	-1.3	N/A
440.00	46.2 Qp	2.4 / 17.2 / 27.9	38.0	H / 2.9 / 170.0	-8.0	N/A
600.00	55.9 Qp	2.9 / 19.4 / 28.2	50.0	H / 2.9 / 170.0	4.0 *	N/A
640.00	32.7 Qp	3.0 / 20.0 / 28.1	27.6	H / 2.9 / 170.0	-18.4	N/A
maximized:						
240.00	50.9 Qp	1.7 / 11.8 / 27.1	37.1	H / 1.8 / 0.0	-8.9	N/A
240.00	52.2 Qp	1.7 / 11.8 / 27.1	38.5	V / 1.0 / 43.0	-7.5	N/A
440.00	57.6 Qp	2.4 / 17.2 / 27.9	49.4	V / 1.0 / 43.0	3.4 *	N/A
560.00	36.1 Qp	2.7 / 18.9 / 28.2	29.5	V / 1.0 / 43.0	-16.5	N/A
600.00	62.1 Qp	2.9 / 19.4 / 28.2	56.3	V / 1.0 / 43.0	10.3 *	N/A
ferrites added to power leads						
600.00	58.6 Pk	2.9 / 19.4 / 28.2	52.8	V / 1.0 / 43.0	6.8 *	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
440.00	54.2 Qp	2.4 / 17.2 / 27.9	45.9	V / 1.0 / 43.0	-0.1	N/A
320.00	52.4 Qp	2.0 / 15.1 / 27.1	42.3	V / 1.0 / 43.0	-3.7	N/A
240.00	50.5 Qp	1.7 / 11.8 / 27.1	36.7	V / 1.0 / 43.0	-9.3	N/A
480.00	49.6 Qp	2.5 / 18.8 / 28.1	42.8	V / 1.0 / 43.0	-3.2	N/A
640.00	36.4 Qp	3.0 / 20.0 / 28.1	31.3	V / 1.0 / 43.0	-14.7	N/A
maximized:						
440.00	58.0 Qp	2.4 / 17.2 / 27.9	49.7	V / 1.2 / 332.0	3.7 *	N/A
removed antenna and cable						
maximized:						
440.00	47.4 Qp	2.4 / 17.2 / 27.9	39.1	V / 1.3 / 58.0	-6.9	N/A
600.00	60.6 Qp	2.9 / 19.4 / 28.2	54.7	V / 1.0 / 105.0	8.7 *	N/A
640.00	41.0 Qp	3.0 / 20.0 / 28.1	35.8	V / 1.0 / 105.0	-10.2	N/A
680.00	40.6 Pk	3.2 / 21.0 / 28.1	36.7	V / 1.0 / 105.0	-9.3	N/A
The following was maximized.						
200.00	56.6 Qp	1.5 / 11.8 / 27.3	42.5	H / 1.5 / 97.0	-1.0	N/A
August 20						
Board rev p3						
Antenna 1						
239.99	29.4 Qp	1.7 / 11.8 / 27.1	15.7	H / 2.0 / 0.0	-30.3	N/A
279.99	30.8 Qp	1.8 / 13.8 / 27.0	19.5	H / 2.0 / 0.0	-26.5	N/A
319.99	26.3 Qp	2.0 / 15.1 / 27.1	16.2	H / 2.0 / 0.0	-29.8	N/A
359.99	39.4 Qp	2.1 / 15.9 / 27.3	30.1	H / 2.0 / 0.0	-15.9	N/A
439.99	30.1 Qp	2.4 / 17.2 / 27.9	21.8	H / 2.0 / 0.0	-24.2	N/A
519.99	34.6 Qp	2.6 / 19.2 / 28.2	28.2	H / 2.0 / 0.0	-17.8	N/A
559.99	28.4 Qp	2.7 / 18.9 / 28.2	21.8	H / 2.0 / 0.0	-24.2	N/A
680.00	26.1 Qp	3.2 / 21.0 / 28.1	22.1	H / 2.0 / 0.0	-23.9	N/A
239.99	31.2 Qp	1.7 / 11.8 / 27.1	17.5	H / 2.0 / 90.0	-28.5	N/A
319.99	28.6 Qp	2.0 / 15.1 / 27.1	18.6	H / 2.0 / 90.0	-27.4	N/A
519.99	35.0 Qp	2.6 / 19.2 / 28.2	28.6	H / 2.0 / 90.0	-17.4	N/A
680.00	28.2 Qp	3.2 / 21.0 / 28.1	24.3	H / 2.0 / 90.0	-21.7	N/A
440.00	25.6 Qp	2.4 / 17.2 / 27.9	17.3	H / 2.0 / 90.0	-28.7	N/A
600.00	38.4 Qp	2.9 / 19.4 / 28.2	32.5	H / 2.0 / 90.0	-13.5	N/A
279.99	31.7 Qp	1.8 / 13.8 / 27.0	20.4	H / 2.0 / 180.0	-25.6	N/A
359.99	45.7 Qp	2.1 / 15.9 / 27.3	36.4	H / 2.0 / 180.0	-9.6	N/A
439.99	33.0 Qp	2.4 / 17.2 / 27.9	24.8	H / 2.0 / 180.0	-21.2	N/A
519.99	35.0 Qp	2.6 / 19.2 / 28.2	28.7	H / 2.0 / 180.0	-17.3	N/A
559.99	30.9 Qp	2.7 / 18.9 / 28.2	24.2	H / 2.0 / 180.0	-21.8	N/A
680.00	32.4 Qp	3.2 / 21.0 / 28.1	28.4	H / 2.0 / 180.0	-17.6	N/A
639.99	25.8 Qp	3.0 / 20.0 / 28.1	20.6	H / 2.0 / 180.0	-25.4	N/A
279.99	32.9 Qp	1.8 / 13.8 / 27.0	21.6	H / 2.0 / 270.0	-24.4	N/A
319.99	31.1 Qp	2.0 / 15.1 / 27.1	21.0	H / 2.0 / 270.0	-25.0	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
The following were maximized between 200 and 1000 MHz.						
600.00	40.6 Qp	2.9 / 19.4 / 28.2	34.8	H / 1.6 / 104.0	-11.2	N/A
519.99	39.8 Qp	2.6 / 19.2 / 28.2	33.4	H / 1.8 / 36.0	-12.6	N/A
359.99	51.2 Qp	2.1 / 15.9 / 27.3	41.9	H / 1.0 / 24.0	-4.1	N/A
200.00	48.6 Qp	1.5 / 11.8 / 27.3	34.5	V / 1.0 / 0.0	-9.0	N/A
239.99	37.6 Qp	1.7 / 11.8 / 27.1	23.9	V / 1.0 / 0.0	-22.1	N/A
279.99	36.7 Qp	1.8 / 13.8 / 27.0	25.4	V / 1.0 / 0.0	-20.6	N/A
359.99	49.7 Qp	2.1 / 15.9 / 27.3	40.4	V / 1.0 / 0.0	-5.6	N/A
439.99	37.4 Qp	2.4 / 17.2 / 27.9	29.1	V / 1.0 / 0.0	-16.9	N/A
519.99	45.0 Qp	2.6 / 19.2 / 28.2	38.6	V / 1.0 / 0.0	-7.4	N/A
559.99	37.4 Qp	2.7 / 18.9 / 28.2	30.7	V / 1.0 / 0.0	-15.3	N/A
600.00	40.8 Qp	2.9 / 19.4 / 28.2	34.9	V / 1.0 / 0.0	-11.1	N/A
639.99	31.4 Qp	3.0 / 20.0 / 28.1	26.3	V / 1.0 / 0.0	-19.7	N/A
680.00	33.4 Qp	3.2 / 21.0 / 28.1	29.4	V / 1.0 / 0.0	-16.6	N/A
760.00	27.7 Qp	3.2 / 21.2 / 28.1	24.1	V / 1.0 / 0.0	-21.9	N/A
200.00	51.0 Qp	1.5 / 11.8 / 27.3	36.9	V / 1.0 / 90.0	-6.6	N/A
239.99	35.5 Qp	1.7 / 11.8 / 27.1	21.8	V / 1.0 / 90.0	-24.2	N/A
279.99	39.6 Qp	1.8 / 13.8 / 27.0	28.4	V / 1.0 / 90.0	-17.6	N/A
319.99	30.9 Qp	2.0 / 15.1 / 27.1	20.8	V / 1.0 / 90.0	-25.2	N/A
359.99	47.0 Qp	2.1 / 15.9 / 27.3	37.6	V / 1.0 / 90.0	-8.4	N/A
439.99	36.6 Qp	2.4 / 17.2 / 27.9	28.3	V / 1.0 / 90.0	-17.7	N/A
519.99	45.4 Qp	2.6 / 19.2 / 28.2	39.0	V / 1.0 / 90.0	-7.0	N/A
559.99	35.5 Qp	2.7 / 18.9 / 28.2	28.8	V / 1.0 / 90.0	-17.2	N/A
600.00	43.6 Qp	2.9 / 19.4 / 28.2	37.7	V / 1.0 / 90.0	-8.3	N/A
639.99	31.4 Qp	3.0 / 20.0 / 28.1	26.3	V / 1.0 / 90.0	-19.7	N/A
359.99	49.2 Qp	2.1 / 15.9 / 27.3	39.9	V / 1.0 / 180.0	-6.1	N/A
439.99	38.8 Qp	2.4 / 17.2 / 27.9	30.5	V / 1.0 / 180.0	-15.5	N/A
519.99	47.9 Qp	2.6 / 19.2 / 28.2	41.5	V / 1.0 / 180.0	-4.5	N/A
639.99	33.5 Qp	3.0 / 20.0 / 28.1	28.4	V / 1.0 / 180.0	-17.6	N/A
680.00	33.6 Qp	3.2 / 21.0 / 28.1	29.7	V / 1.0 / 180.0	-16.3	N/A
319.99	33.9 Qp	2.0 / 15.1 / 27.1	23.8	V / 1.0 / 270.0	-22.2	N/A
359.99	44.5 Qp	2.1 / 15.9 / 27.3	35.2	V / 1.0 / 270.0	-10.8	N/A
The following were maximized between 200 and 1000 MHz.						
200.00	52.3 Qp	1.5 / 11.8 / 27.3	38.2	V / 1.0 / 125.0	-5.3	N/A
359.99	53.2 Qp	2.1 / 15.9 / 27.3	43.9	V / 1.8 / 20.0	-2.1	N/A
519.99	48.1 Qp	2.6 / 19.2 / 28.2	41.7	V / 1.0 / 177.0	-4.3	N/A
600.00	44.3 Qp	2.9 / 19.4 / 28.2	38.4	V / 1.0 / 74.0	-7.6	N/A
Antenna 2						

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
200.00	52.0 Qp	1.5 / 11.8 / 27.3	37.9	V / 1.0 / 0.0	-5.6	N/A
239.99	36.5 Qp	1.7 / 11.8 / 27.1	22.8	V / 1.0 / 0.0	-23.2	N/A
279.99	36.4 Qp	1.8 / 13.8 / 27.0	25.1	V / 1.0 / 0.0	-20.9	N/A
359.99	37.6 Qp	2.1 / 15.9 / 27.3	28.3	V / 1.0 / 0.0	-17.7	N/A
439.99	39.1 Qp	2.4 / 17.2 / 27.9	30.9	V / 1.0 / 0.0	-15.1	N/A
519.99	38.7 Qp	2.6 / 19.2 / 28.2	32.3	V / 1.0 / 0.0	-13.7	N/A
559.99	36.6 Qp	2.7 / 18.9 / 28.2	30.0	V / 1.0 / 0.0	-16.0	N/A
600.00	44.5 Qp	2.9 / 19.4 / 28.2	38.7	V / 1.0 / 0.0	-7.3	N/A
639.99	34.5 Qp	3.0 / 20.0 / 28.1	29.4	V / 1.0 / 0.0	-16.6	N/A
680.00	39.7 Qp	3.2 / 21.0 / 28.1	35.7	V / 1.0 / 0.0	-10.3	N/A
760.00	24.9 Qp	3.2 / 21.2 / 28.1	21.3	V / 1.0 / 0.0	-24.7	N/A
200.00	54.9 Qp	1.5 / 11.8 / 27.3	40.8	V / 1.0 / 90.0	-2.7	N/A
439.99	37.5 Qp	2.4 / 17.2 / 27.9	29.2	V / 1.0 / 90.0	-16.8	N/A
519.99	43.1 Qp	2.6 / 19.2 / 28.2	36.8	V / 1.0 / 90.0	-9.2	N/A
559.99	34.2 Qp	2.7 / 18.9 / 28.2	27.6	V / 1.0 / 90.0	-18.4	N/A
600.00	41.1 Qp	2.9 / 19.4 / 28.2	35.2	V / 1.0 / 90.0	-10.8	N/A
639.99	33.1 Qp	3.0 / 20.0 / 28.1	28.0	V / 1.0 / 90.0	-18.0	N/A
680.00	37.9 Qp	3.2 / 21.0 / 28.1	33.9	V / 1.0 / 90.0	-12.1	N/A
200.00	51.5 Qp	1.5 / 11.8 / 27.3	37.4	V / 1.0 / 180.0	-6.1	N/A
359.99	40.5 Qp	2.1 / 15.9 / 27.3	31.2	V / 1.0 / 180.0	-14.8	N/A
439.99	40.4 Qp	2.4 / 17.2 / 27.9	32.1	V / 1.0 / 180.0	-13.9	N/A
519.99	45.3 Qp	2.6 / 19.2 / 28.2	38.9	V / 1.0 / 180.0	-7.1	N/A
559.99	34.4 Qp	2.7 / 18.9 / 28.2	27.8	V / 1.0 / 180.0	-18.2	N/A
600.00	44.4 Qp	2.9 / 19.4 / 28.2	38.5	V / 1.0 / 180.0	-7.5	N/A
639.99	35.3 Qp	3.0 / 20.0 / 28.1	30.2	V / 1.0 / 180.0	-15.8	N/A
680.00	35.5 Qp	3.2 / 21.0 / 28.1	31.6	V / 1.0 / 180.0	-14.4	N/A
200.00	48.0 Qp	1.5 / 11.8 / 27.3	33.9	V / 1.0 / 270.0	-9.6	N/A
239.99	35.8 Qp	1.7 / 11.8 / 27.1	22.1	V / 1.0 / 270.0	-23.9	N/A
279.99	36.8 Qp	1.8 / 13.8 / 27.0	25.5	V / 1.0 / 270.0	-20.5	N/A
519.99	38.4 Qp	2.6 / 19.2 / 28.2	32.0	V / 1.0 / 270.0	-14.0	N/A
559.99	34.8 Qp	2.7 / 18.9 / 28.2	28.2	V / 1.0 / 270.0	-17.8	N/A
600.00	41.9 Qp	2.9 / 19.4 / 28.2	36.0	V / 1.0 / 270.0	-10.0	N/A
680.00	37.4 Qp	3.2 / 21.0 / 28.1	33.4	V / 1.0 / 270.0	-12.6	N/A
The following were maximized between 200 and 1000 MHz.						
600.00	44.8 Qp	2.9 / 19.4 / 28.2	38.9	V / 1.0 / 355.0	-7.1	N/A
519.99	46.1 Qp	2.6 / 19.2 / 28.2	39.8	V / 1.0 / 199.0	-6.2	N/A
200.00	55.4 Qp	1.5 / 11.8 / 27.3	41.3	V / 1.0 / 106.0	-2.2	N/A
200.00	46.2 Qp	1.5 / 11.8 / 27.3	32.1	H / 2.0 / 0.0	-11.4	N/A
279.99	29.4 Qp	1.8 / 13.8 / 27.0	18.1	H / 2.0 / 0.0	-27.9	N/A
439.99	31.1 Qp	2.4 / 17.2 / 27.9	22.8	H / 2.0 / 0.0	-23.2	N/A
519.99	32.5 Qp	2.6 / 19.2 / 28.2	26.2	H / 2.0 / 0.0	-19.8	N/A

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	DELTA1 (dB)	DELTA2 (dB)
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	15.209 <1GHz	15.209 >1GHz
200.00	46.5 Qp	1.5 / 11.8 / 27.3	32.5	H / 2.0 / 90.0	-11.0	N/A
359.99	37.9 Qp	2.1 / 15.9 / 27.3	28.6	H / 2.0 / 90.0	-17.4	N/A
200.00	48.9 Qp	1.5 / 11.8 / 27.3	34.8	H / 2.0 / 180.0	-8.7	N/A
279.99	40.3 Qp	1.8 / 13.8 / 27.0	29.0	H / 2.0 / 180.0	-17.0	N/A
239.99	30.7 Qp	1.7 / 11.8 / 27.1	17.0	H / 2.0 / 270.0	-29.0	N/A
279.99	31.6 Qp	1.8 / 13.8 / 27.0	20.3	H / 2.0 / 270.0	-25.7	N/A
319.99	32.5 Qp	2.0 / 15.1 / 27.1	22.4	H / 2.0 / 270.0	-23.6	N/A
359.99	32.9 Qp	2.1 / 15.9 / 27.3	23.5	H / 2.0 / 270.0	-22.5	N/A
439.99	31.8 Qp	2.4 / 17.2 / 27.9	23.5	H / 2.0 / 270.0	-22.5	N/A
The following were maximized between 200 and 1000 MHz.						
200.00	50.9 Qp	1.5 / 11.8 / 27.3	36.8	H / 1.6 / 145.0	-6.7	N/A
279.99	42.9 Qp	1.8 / 13.8 / 27.0	31.6	H / 1.3 / 187.0	-14.4	N/A
33.34	33.0 Qp	0.6 / 12.8 / 28.1	18.3	V / 1.0 / 0.0	-21.7	N/A
52.81	34.5 Qp	0.7 / 9.9 / 28.0	17.1	V / 1.0 / 0.0	-22.9	N/A
54.59	35.9 Qp	0.7 / 9.6 / 28.0	18.2	V / 1.0 / 0.0	-21.8	N/A
160.00	34.5 Qp	1.4 / 12.5 / 27.5	20.8	V / 1.0 / 0.0	-22.7	N/A
52.81	33.8 Qp	0.7 / 9.9 / 28.0	16.5	V / 1.0 / 90.0	-23.5	N/A
160.00	38.0 Qp	1.4 / 12.5 / 27.5	24.4	V / 1.0 / 90.0	-19.1	N/A
33.34	34.5 Qp	0.6 / 12.8 / 28.1	19.9	V / 1.0 / 180.0	-20.1	N/A
No higher emissions found: 270Deg, Vertical.						
The following was maximized between 30 and 200 MHz.						
160.00	38.5 Qp	1.4 / 12.5 / 27.5	24.9	V / 1.0 / 125.0	-18.6	N/A
No higher emissions found: Horizontal 30 to 200 MHz.						
Noise floor.						
30.00	29.1 Qp	0.5 / 13.4 / 28.1	14.9	H / 1.0 / 270.0	-25.1	N/A
190.00	25.1 Qp	1.4 / 13.4 / 27.4	12.5	H / 1.0 / 270.0	-31.0	N/A
Antenna 1						
160.00	35.4 Qp	1.4 / 12.5 / 27.5	21.7	H / 1.0 / 180.0	-21.8	N/A
No higher emission found: Horizontal 30 to 200 MHz.						
The following was maximized.						
160.00	37.6 Qp	1.4 / 12.5 / 27.5	24.0	H / 2.0 / 205.0	-19.5	N/A
160.00	35.2 Qp	1.4 / 12.5 / 27.5	21.6	V / 1.0 / 0.0	-21.9	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
160.00	39.6 Qp	1.4 / 12.5 / 27.5	26.0	V / 1.0 / 90.0	-17.5	N/A
No higher emissions found: 30 to 200 MHz.						
The following was maximized between 30 and 200 MHz.						
160.00	40.5 Qp	1.4 / 12.5 / 27.5	26.9	V / 1.0 / 121.0	-16.6	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
***** Measurement Summary *****						
359.99	53.2 Qp	2.1 / 15.9 / 27.3	43.9	V / 1.8 / 20.0	-2.1	N/A
519.99	48.1 Qp	2.6 / 19.2 / 28.2	41.7	V / 1.0 / 177.0	-4.3	N/A
200.00	50.9 Qp	1.5 / 11.8 / 27.3	36.8	H / 1.6 / 145.0	-6.7	N/A
600.00	44.8 Qp	2.9 / 19.4 / 28.2	38.9	V / 1.0 / 355.0	-7.1	N/A
1110.83	56.6 Av	2.4 / 24.3 / 37.4	45.8	H / 1.0 / 316.0	N/A	-8.2
1111.79	56.6 Av	2.4 / 24.3 / 37.4	45.8	H / 1.0 / 72.0	N/A	-8.2
680.00	39.7 Qp	3.2 / 21.0 / 28.1	35.7	V / 1.0 / 0.0	-10.3	N/A
1147.81	53.9 Pk	2.4 / 24.4 / 37.4	43.2	V / 1.0 / 263.0	N/A	-10.8
9250.00	43.7 Av	8.9 / 38.2 / 48.8	42.0	V / 1.0 / 0.0	N/A	-12.0
160.00	44.2 Qp	1.4 / 12.5 / 27.5	30.6	V / 1.0 / 44.0	-12.9	N/A
1146.82	51.6 Av	2.4 / 24.4 / 37.4	41.0	H / 1.1 / 292.0	N/A	-13.0
7750.00	35.4 Av	8.2 / 36.9 / 40.1	40.4	H / 1.0 / 0.0	N/A	-13.6
8500.00	42.9 Av	8.5 / 37.1 / 48.0	40.4	H / 1.0 / 0.0	N/A	-13.6
2356.45	46.1 Av	3.8 / 28.3 / 37.9	40.3	H / 1.0 / 72.0	N/A	-13.7
120.00	44.4 Qp	1.2 / 11.9 / 27.7	29.7	V / 1.0 / 180.0	-13.8	N/A
439.99	40.4 Qp	2.4 / 17.2 / 27.9	32.1	V / 1.0 / 180.0	-13.9	N/A
279.99	42.9 Qp	1.8 / 13.8 / 27.0	31.6	H / 1.3 / 187.0	-14.4	N/A
2389.32	44.8 Av	3.8 / 28.4 / 37.9	39.2	V / 1.0 / 275.0	N/A	-14.8
559.99	37.4 Qp	2.7 / 18.9 / 28.2	30.7	V / 1.0 / 0.0	-15.3	N/A
6500.00	35.2 Pk	8.5 / 35.3 / 40.3	38.6	H / 1.0 / 0.0	N/A	-15.4
7500.00	33.9 Av	8.2 / 36.6 / 40.3	38.3	V / 1.0 / 0.0	N/A	-15.7
639.99	35.3 Qp	3.0 / 20.0 / 28.1	30.2	V / 1.0 / 180.0	-15.8	N/A
1310.32	48.1 Pk	2.6 / 24.7 / 37.2	38.2	V / 1.0 / 270.0	N/A	-15.8
1430.40	47.5 Pk	2.8 / 24.9 / 36.9	38.2	V / 1.0 / 263.0	N/A	-15.8
1253.06	48.4 Pk	2.6 / 24.6 / 37.3	38.1	H / 1.0 / 90.0	N/A	-15.9
6250.00	35.1 Av	8.1 / 35.2 / 40.2	38.1	H / 1.0 / 0.0	N/A	-15.9
7250.00	34.1 Av	8.2 / 36.3 / 40.5	38.1	V / 1.0 / 0.0	N/A	-15.9
6033.00	34.5 Av	7.8 / 35.1 / 39.7	37.7	V / 1.0 / 0.0	N/A	-16.3
6750.00	34.0 Av	8.3 / 35.6 / 40.3	37.7	V / 1.0 / 0.0	N/A	-16.3
2022.52	44.2 Pk	3.2 / 27.2 / 37.7	37.0	H / 1.0 / 90.0	N/A	-17.0
1432.16	46.1 Pk	2.8 / 24.9 / 36.9	36.8	V / 1.0 / 263.0	N/A	-17.2
1315.79	46.4 Pk	2.6 / 24.7 / 37.2	36.5	V / 1.0 / 263.0	N/A	-17.5
5555.50	35.0 Av	6.8 / 34.6 / 39.8	36.5	V / 1.0 / 0.0	N/A	-17.5
1314.82	46.2 Pk	2.6 / 24.7 / 37.2	36.3	V / 1.0 / 263.0	N/A	-17.7
2358.71	41.8 Av	3.8 / 28.3 / 37.9	36.0	H / 1.0 / 270.0	N/A	-18.0
4750.00	35.9 Pk	7.1 / 32.9 / 40.3	35.6	H / 1.0 / 0.0	N/A	-18.4
5750.00	33.2 Av	7.2 / 34.8 / 39.6	35.6	H / 1.0 / 0.0	N/A	-18.4
1252.06	45.6 Av	2.6 / 24.6 / 37.4	35.3	V / 1.0 / 0.0	N/A	-18.7
1311.29	44.6 Av	2.6 / 24.7 / 37.2	34.7	H / 1.0 / 72.0	N/A	-19.3
5500.00	33.3 Av	6.7 / 34.5 / 39.8	34.7	H / 1.0 / 0.0	N/A	-19.3
4250.00	36.2 Av	6.2 / 32.3 / 40.4	34.2	V / 1.0 / 0.0	N/A	-19.8
33.34	34.5 Qp	0.6 / 12.8 / 28.1	19.9	V / 1.0 / 180.0	-20.1	N/A
3500.00	35.0 Av	4.8 / 31.5 / 38.0	33.3	H / 1.0 / 72.0	N/A	-20.7
4500.00	34.8 Av	6.6 / 32.3 / 40.4	33.3	H / 1.0 / 0.0	N/A	-20.7

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
1188.10	43.2 Av	2.5 / 24.4 / 37.4	32.8	V / 1.0 / 270.0	N/A	-21.2
54.59	35.9 Qp	0.7 / 9.6 / 28.0	18.2	V / 1.0 / 0.0	-21.8	N/A
1258.67	42.4 Av	2.6 / 24.6 / 37.3	32.2	H / 1.0 / 72.0	N/A	-21.8
760.00	27.7 Qp	3.2 / 21.2 / 28.1	24.1	V / 1.0 / 0.0	-21.9	N/A
239.99	37.6 Qp	1.7 / 11.8 / 27.1	23.9	V / 1.0 / 0.0	-22.1	N/A
319.99	33.9 Qp	2.0 / 15.1 / 27.1	23.8	V / 1.0 / 270.0	-22.2	N/A
51.02	34.6 Pk	0.7 / 10.2 / 28.0	17.6	V / 1.0 / 0.0	-22.4	N/A
80.00	37.2 Qp	0.9 / 7.4 / 27.9	17.6	V / 1.0 / 180.0	-22.4	N/A
52.81	34.5 Qp	0.7 / 9.9 / 28.0	17.1	V / 1.0 / 0.0	-22.9	N/A
1096.00	41.9 Av	2.3 / 24.3 / 37.4	31.1	H / 1.0 / 180.0	N/A	-22.9
1091.50	41.9 Av	2.3 / 24.2 / 37.4	31.0	H / 1.0 / 180.0	N/A	-23.0
2036.83	37.6 Av	3.3 / 27.3 / 37.7	30.5	H / 1.0 / 0.0	N/A	-23.5
1278.80	40.2 Pk	2.6 / 24.6 / 37.3	30.1	V / 1.0 / 270.0	N/A	-23.9
1219.77	40.0 Av	2.5 / 24.5 / 37.4	29.6	V / 1.0 / 270.0	N/A	-24.4
1218.82	39.9 Av	2.5 / 24.5 / 37.4	29.5	V / 1.0 / 270.0	N/A	-24.5
30.00	29.1 Qp	0.5 / 13.4 / 28.1	14.9	H / 1.0 / 270.0	-25.1	N/A
1893.42	36.5 Av	3.1 / 26.7 / 37.5	28.9	V / 1.0 / 0.0	N/A	-25.1
1895.44	36.6 Av	3.1 / 26.7 / 37.5	28.9	H / 1.0 / 270.0	N/A	-25.1
2218.40	34.5 Av	3.5 / 27.9 / 37.8	28.1	H / 1.0 / 66.0	N/A	-25.9
1380.79	37.4 Av	2.7 / 24.8 / 37.1	27.8	V / 1.0 / 270.0	N/A	-26.2
1381.81	37.4 Av	2.7 / 24.8 / 37.1	27.8	H / 1.0 / 270.0	N/A	-26.2
1231.79	37.9 Av	2.5 / 24.5 / 37.4	27.6	V / 1.0 / 270.0	N/A	-26.4
2017.50	34.8 Av	3.2 / 27.2 / 37.7	27.5	H / 1.0 / 180.0	N/A	-26.5
1279.78	35.9 Av	2.6 / 24.6 / 37.3	25.8	H / 1.0 / 270.0	N/A	-28.2
1230.79	35.0 Av	2.5 / 24.5 / 37.4	24.7	H / 1.0 / 0.0	N/A	-29.3
190.00	25.1 Qp	1.4 / 13.4 / 27.4	12.5	H / 1.0 / 270.0	-31.0	N/A

6dB Bandwidth

15.247 (a)(2)

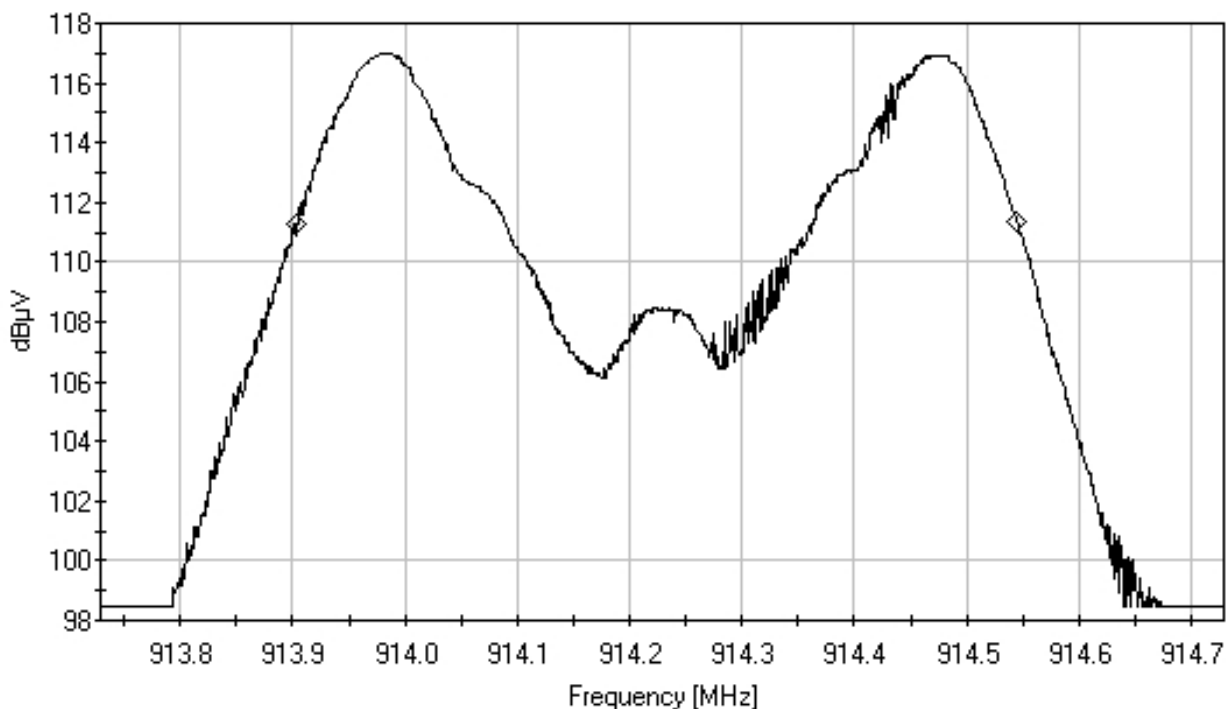
Bandwidth

Test Report #:	3129740	Test Area:	PW1
Test Method:	FCC Part 15.247	Test Date:	20-Aug-2007
EUT Model #:	0066-5370	EUT Power:	3VDC
EUT Serial #:	NA		
Manufacturer:	Colorado Time		
EUT Description:	Wireless data adaptor		
Notes:	Conducted port measurement.		

Temperature:	23.5	°C
Relative Humidity:	20.6	%
Air Pressure:	101	kPa

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

6dB Bandwidth 15.247(a)(2)
 Ref Level 118.5 dBµV ATTN 20 dB OFFSET: 1.5dB
 RES BW: 100.0kHz VID BW: 1.0MHz SWP: 1.13sec
 Marker 1: 913.904MHz 111.32 dBµV Marker 2: 914.545MHz 111.38 dBµV Delta: 641.0kHz



**Fundamental field strength
And
Harmonics of the Fundamental
15.247 (b)(3), (d)/15.205**

Conducted Port Measurements Fundamental and Non Restricted Band Harmonics

Test Report #:	3129740	Test Area:	Pinewood Site 1 (3m)	Temperature:	_____ °C
Test Method:	FCC Part 15.247	Test Date:	30-Jul-2007	Relative Humidity:	_____ %
EUT Model #:	0066-5370	EUT Power:	3VDC	Air Pressure:	_____ kPa
EUT Serial #:	NA				
Manufacturer:	Colorado Time Systems				
EUT Description:	Wireless data adaptor				
Notes:	All corrections were added to the spectrum analyzer as an offset.				
	Conducted port data.				

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

FREQ (MHz)	LEVEL (dBm)	CABLE / ANT / PREAMP (dB) (dB\m) (dB)	FINAL (dBm)	POL / HGT / AZ (m) (DEG)	Limit (dBm) 15.247(b)(3)/(d)	DELTA (dB)
Low channel						
903.20	10.5 Pk	0.0 / 0.0 / 0.0	10.5	V / 1.0 / 0.0	30	-19.5
1806.42	-49.9 Pk	0.0 / 0.0 / 0.0	-49.9	V / 1.0 / 0.0	-9.5	-40.4
6322.77	-77.9 Pk	0.0 / 0.0 / 0.0	-77.9	V / 1.0 / 0.0	-9.5	-68.4
No other harmonics found.						
Mid Channel						
913.94	9.8 Pk	0.0 / 0.0 / 0.0	9.8	V / 1.0 / 0.0	30	-20.2
1828.98	-50.1 Pk	0.0 / 0.0 / 0.0	-50.1	V / 1.0 / 0.0	-10.2	-39.9
5486.96	-69.2 Pk	0.0 / 0.0 / 0.0	-69.2	V / 1.0 / 0.0	-10.2	-59.0
6398.00	-79.3 Pk	0.0 / 0.0 / 0.0	-79.3	V / 1.0 / 0.0	-10.2	-69.1
No other harmonics found.						
High Channel						
926.01	10.0 Pk	0.0 / 0.0 / 0.0	10.0	V / 1.0 / 0.0	30	-20
1852.99	-45.8 Pk	0.0 / 0.0 / 0.0	-45.8	V / 1.0 / 0.0	-10	-35.8
5559.11	-70.8 Pk	0.0 / 0.0 / 0.0	-70.8	V / 1.0 / 0.0	-10	-60.8
6485.69	-80.2 Pk	0.0 / 0.0 / 0.0	-80.2	V / 1.0 / 0.0	-10	-70.2
No other harmonics found.						

Field Strength Measurements

Fundamental and Spurious of the Transmitter

Test Report #:	3129740	Test Area:	Pinewood Site 1 (3m)	Temperature:	22.2	°C								
Test Method:	FCC part 15.247	Test Date:	20-July-2007	Relative Humidity:	35.5	%								
EUT Model #:	066-5370	EUT Power:	3VDC Battery	Air Pressure:	101	kPa								
EUT Serial #:	NA	Page:												
Manufacturer:	Colorado Time Systems	<table border="1"> <thead> <tr> <th colspan="2">Level Key</th> </tr> </thead> <tbody> <tr> <td>Pk – Peak</td> <td>Nb – Narrow Band</td> </tr> <tr> <td>Qp – QuasiPeak</td> <td>Bb – Broad Band</td> </tr> <tr> <td>Av - Average</td> <td></td> </tr> </tbody> </table>					Level Key		Pk – Peak	Nb – Narrow Band	Qp – QuasiPeak	Bb – Broad Band	Av - Average	
Level Key														
Pk – Peak	Nb – Narrow Band													
Qp – QuasiPeak	Bb – Broad Band													
Av - Average														
EUT Description:	Wireless data adaptor													
Notes:	This datasheet contains only harmonics of the fundamental. This datasheet contains data for both antennas. Antenna 1 is ANT-916-CW-HWR-RPS $\frac{1}{2}$ wave whip, antenna 2 is ANT-916-CW-RH $\frac{1}{4}$ wave whip.													

FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	Duty Cycle Correction	Final Corrected	Limit	DELTA
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
The following duty cycle was declared by the manufacturer.								
17.3%								
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 15.247 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 15.247 and the emission/limit delta was calculated. The DTCF is calculated as follows $20 \cdot \log_{10}(\text{duty cycle in 100ms})$ "not to exceed 20dB"								
Antenna 1								
Mid Channel								
Axis 1								
2742.01	57.4 Pk	4.3 / 29.8 / 37.9	53.6	H / 1.9 / 339.0	-15.7	37.9	54	-16.1
2742.02	55.2 Pk	4.3 / 29.8 / 37.9	51.4	H / 1.9 / 339.0	-15.7	35.7	54	-18.3
Axis 2								
2742.01	56.2 Pk	4.3 / 29.8 / 37.9	52.4	H / 1.0 / 216.0	-15.7	36.7	54	-17.3
2742.01	60.4 Pk	4.3 / 29.8 / 37.9	56.5	V / 1.0 / 64.0	-15.7	40.8	54	-13.2
Axis 3								
2742.01	57.9 Pk	4.3 / 29.8 / 37.9	54.1	V / 1.0 / 268.0	-15.7	38.4	54	-15.6
2742.01	56.4 Pk	4.3 / 29.8 / 37.9	52.6	H / 1.0 / 109.0	-15.7	36.9	54	-17.1
Axis 2 is worst case, all harmonics will be measured in this axis.								
3656.1	41.5 Pk	5.1 / 31.8 / 38.5	39.8	H / 1.0 / 109.0	-15.7	24.1	54	-29.9
3656.1	37.5 Pk	5.1 / 31.8 / 38.5	35.8	V / 1.0 / 109.0	-15.7	20.1	54	-33.9
4570.04	39.2 Pk	6.7 / 32.4 / 40.3	38	H / 1.0 / 194.0	-15.7	22.3	54	-31.7
4570.04	38.9 Pk	6.7 / 32.4 / 40.3	37.7	V / 1.0 / 213.0	-15.7	22	54	-32.0
No higher harmonics found on this channel with this antenna.								
High channel								
2778.09	60.4 Pk	4.3 / 30.0 / 37.9	56.8	H / 1.5 / 52.0	-15.7	41.1	54	-12.9
2778.11	58.5 Pk	4.3 / 30.0 / 37.9	54.9	V / 1.0 / 304.0	-15.7	39.2	54	-14.8
3704.09	46.2 Pk	5.2 / 31.8 / 38.5	44.8	V / 2.1 / 275.0	-15.7	29.1	54	-24.9
3704.09	46.5 Pk	5.2 / 31.8 / 38.5	45	H / 1.5 / 212.0	-15.7	29.3	54	-24.7
4632.61	42.9 Pk	6.9 / 32.6 / 40.3	42	H / 1.4 / 308.0	-15.7	26.3	54	-27.7
4632.66	42.1 Pk	6.9 / 32.6 / 40.3	41.2	V / 1.4 / 307.0	-15.7	25.5	54	-28.5

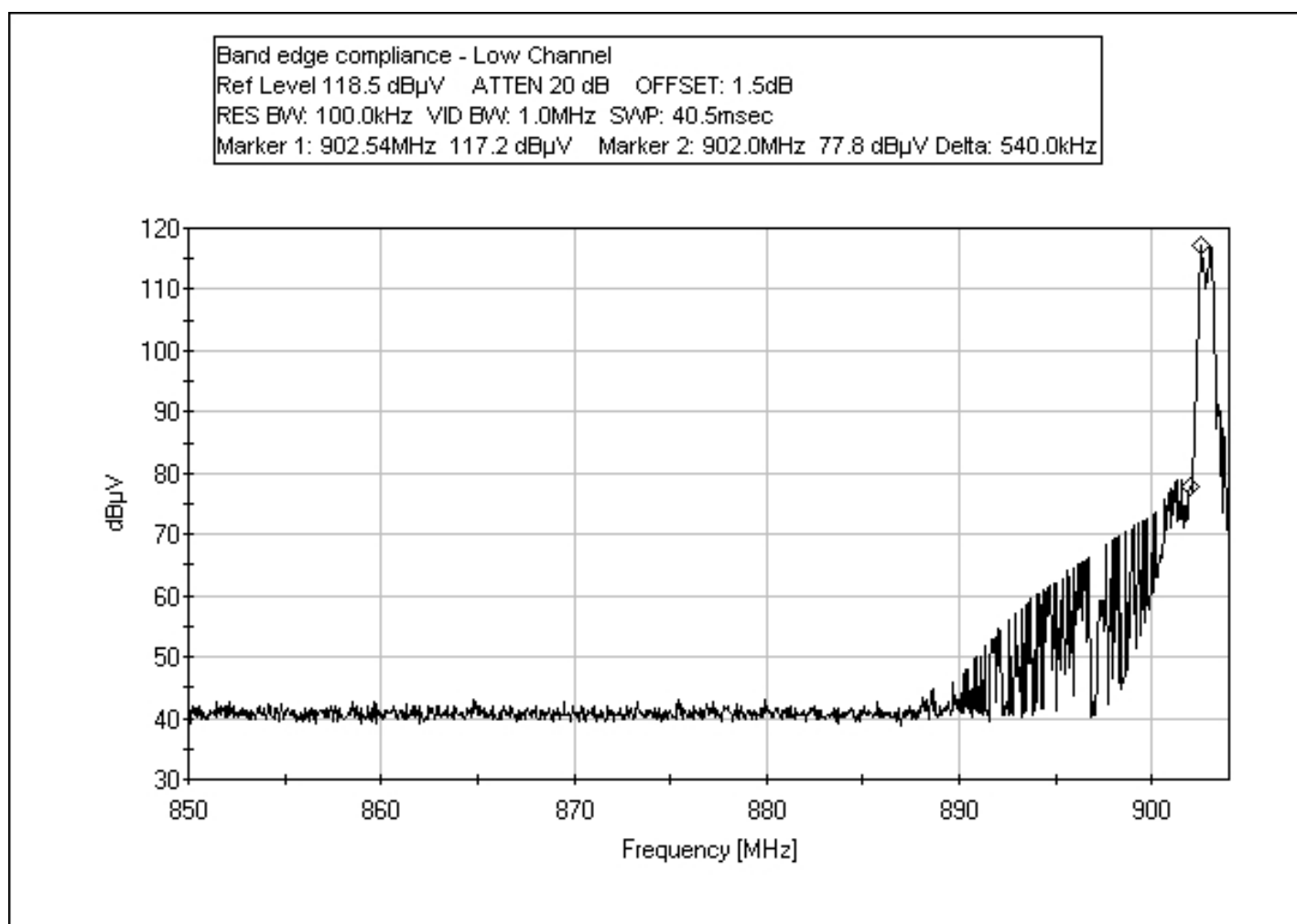
FREQ	LEVEL	CABLE / ANT / PREAMP	FINAL	POL / HGT / AZ	Duty Cycle Correction	Final Corrected	Limit	DELTA
(MHz)	(dBuV)	(dB) (dBm) (dB)	(dBuV)	(m) (DEG)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
No higher harmonics found on this channel with this antenna.								
Low channel								
2708.22	53.1 Pk	4.2 / 29.7 / 38.0	49.1	V / 1.0 / 75.0	-15.7	33.4	54	-20.6
2708.24	54.0 Pk	4.2 / 29.7 / 38.0	49.9	H / 1.2 / 115.0	-15.7	34.2	54	-19.8
3610.96	43.5 Pk	5.0 / 31.7 / 38.4	41.7	V / 1.0 / 243.0	-15.7	26	54	-28.0
3610.99	42.8 Pk	5.0 / 31.7 / 38.4	41	H / 1.3 / 304.0	-15.7	25.3	54	-28.7
4513.73	44.2 Pk	6.6 / 32.3 / 40.3	42.8	V / 1.1 / 146.0	-15.7	27.1	54	-26.9
4513.76	44.0 Pk	6.6 / 32.3 / 40.3	42.5	H / 1.0 / 177.0	-15.7	26.8	54	-27.2
5416.73	37.1 Pk	6.8 / 34.3 / 39.9	38.4	H / 1.0 / 35.0	-15.7	22.7	54	-31.3
5417.21	34.8 Pk	6.8 / 34.3 / 39.9	36	V / 1.1 / 146.0	-15.7	20.3	54	-33.7
No higher harmonics found on this channel with this antenna.								
Antenna 2								
Low channel								
2708.21	63.0 Pk	4.2 / 29.7 / 38.0	59	V / 1.0 / 95.0	-15.7	43.3	54	-10.7
2708.24	51.2 Pk	4.2 / 29.7 / 38.0	47.2	H / 1.0 / 127.0	-15.7	31.5	54	-22.5
3610.96	43.1 Pk	5.0 / 31.7 / 38.4	41.4	H / 1.0 / 232.0	-15.7	25.7	54	-28.3
3610.96	43.6 Pk	5.0 / 31.7 / 38.4	41.9	V / 1.0 / 313.0	-15.7	26.2	54	-27.8
4513.69	43.0 Pk	6.6 / 32.3 / 40.3	41.5	H / 1.7 / 318.0	-15.7	25.8	54	-28.2
4513.69	43.1 Pk	6.6 / 32.3 / 40.3	41.7	V / 1.7 / 182.0	-15.7	26	54	-28.0
No higher harmonics found on this channel with this antenna.								
Mid channel								
2742.01	62.6 Pk	4.3 / 29.8 / 37.9	58.8	V / 1.0 / 149.0	-15.7	43.1	54	-10.9
2742.01	50.1 Pk	4.3 / 29.8 / 37.9	46.3	H / 1.0 / 133.0	-15.7	30.6	54	-23.4
3610.96	34.9 Pk	5.0 / 31.7 / 38.4	33.1	H / 1.0 / 133.0	-15.7	17.4	54	-36.6
3656.01	42.9 Pk	5.1 / 31.8 / 38.5	41.2	V / 1.0 / 218.0	-15.7	25.5	54	-28.5
4570.04	37.7 Pk	6.7 / 32.4 / 40.3	36.5	V / 1.0 / 166.0	-15.7	20.8	54	-33.2
4570.04	35.6 Pk	6.7 / 32.4 / 40.3	34.4	H / 1.0 / 0.0	-15.7	18.7	54	-35.3
No higher harmonics found on this channel with this antenna.								
High channel								
2778.09	50.1 Pk	4.3 / 30.0 / 37.9	46.5	H / 1.0 / 132.0	-15.7	30.8	54	-23.2
2778.09	67.3 Pk	4.3 / 30.0 / 37.9	63.7	V / 1.0 / 140.0	-15.7	48	54	-6.0
3704.09	37.6 Pk	5.2 / 31.8 / 38.5	36.2	H / 1.0 / 0.0	-15.7	20.5	54	-33.5
3704.11	45.7 Pk	5.2 / 31.8 / 38.5	44.2	V / 1.0 / 145.0	-15.7	28.5	54	-25.5
4632.61	37.1 Pk	6.9 / 32.6 / 40.3	36.3	V / 1.0 / 0.0	-15.7	20.6	54	-33.4
4632.61	36.3 Pk	6.9 / 32.6 / 40.3	35.4	H / 1.0 / 0.0	-15.7	19.7	54	-34.3
No higher harmonics found on this channel with this antenna.								

Band-edge

Test Report #:	3129740	Test Area:	PW1
Test Method:	FCC Part 15.247	Test Date:	20-Aug-2007
EUT Model #:	0066-5370	EUT Power:	3VDC
EUT Serial #:	NA		
Manufacturer:	Colorado Time		
EUT Description:	Wireless data adaptor		
Notes:	Conducted port measurement.		

Temperature:	23.5	°C
Relative Humidity:	20.6	%
Air Pressure:	101	kPa

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

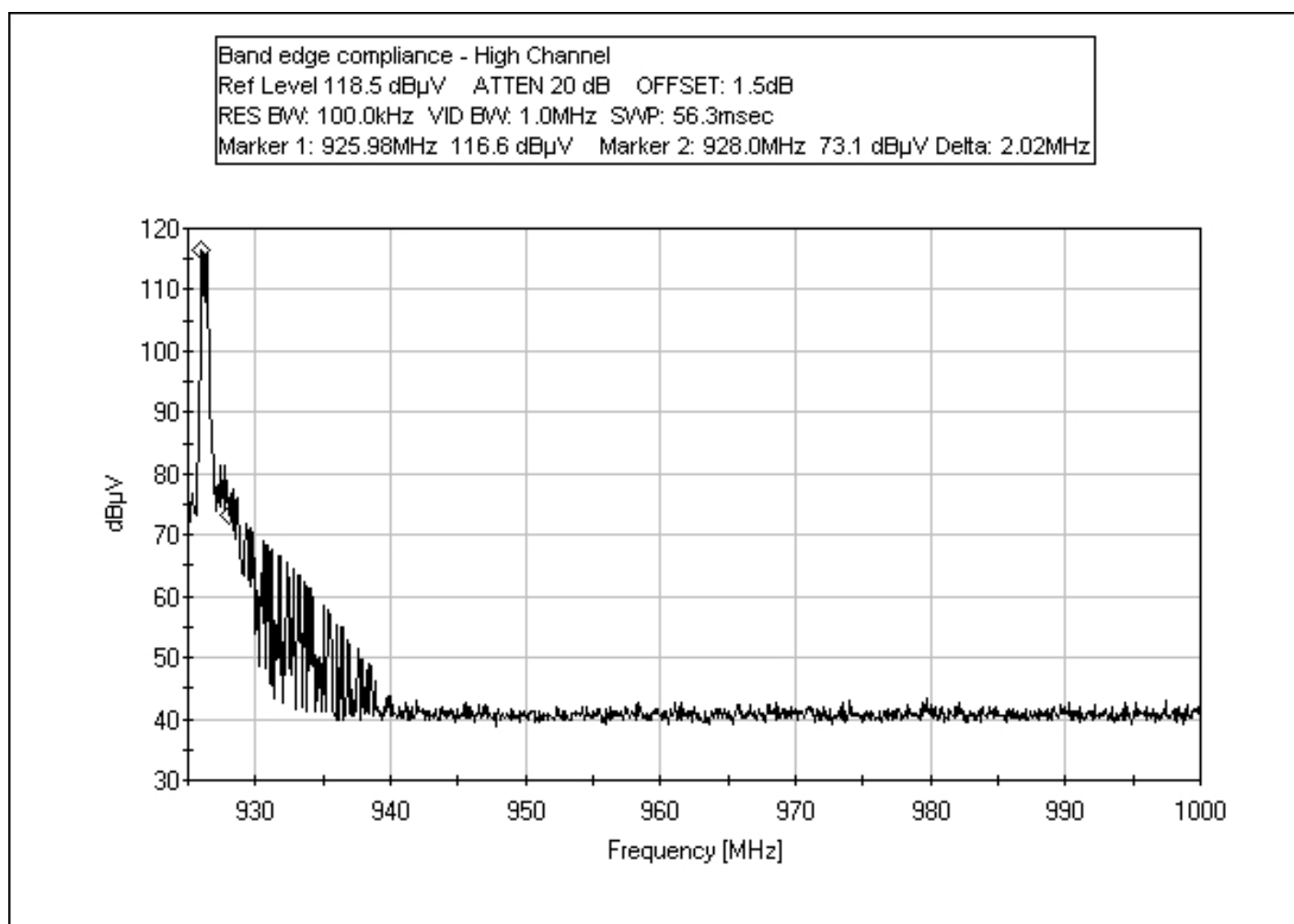


Band-edge

Test Report #:	3129740	Test Area:	PW1
Test Method:	FCC Part 15.247	Test Date:	20-Aug-2007
EUT Model #:	0066-5370	EUT Power:	3VDC
EUT Serial #:	NA		
Manufacturer:	Colorado Time		
EUT Description:	Wireless data adaptor		
Notes:	Conducted port measurement.		

Temperature:	23.5	°C
Relative Humidity:	20.6	%
Air Pressure:	101	kPa

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



Power Spectral Density

15.247 (e)

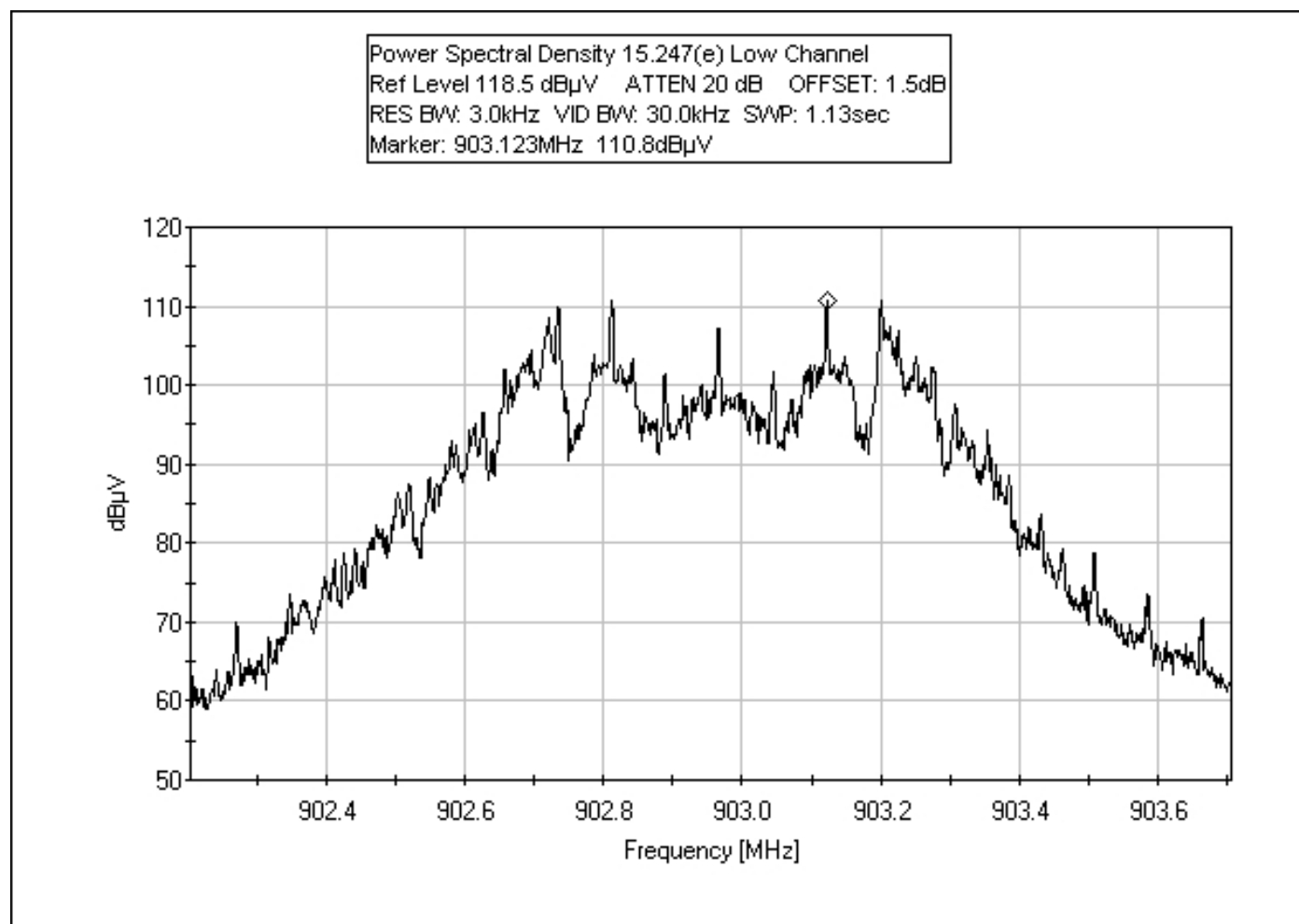
Power Spectral Density



Test Report #:	3129740	Test Area:	PW1
Test Method:	FCC Part 15.247	Test Date:	20-Aug-2007
EUT Model #:	0066-5370	EUT Power:	3VDC
EUT Serial #:	NA		
Manufacturer:	Colorado Time		
EUT Description:	Wireless data adaptor		
Notes:	Conducted port measurement.		

Temperature:	23.5	°C
Relative Humidity:	20.6	%
Air Pressure:	101	kPa

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

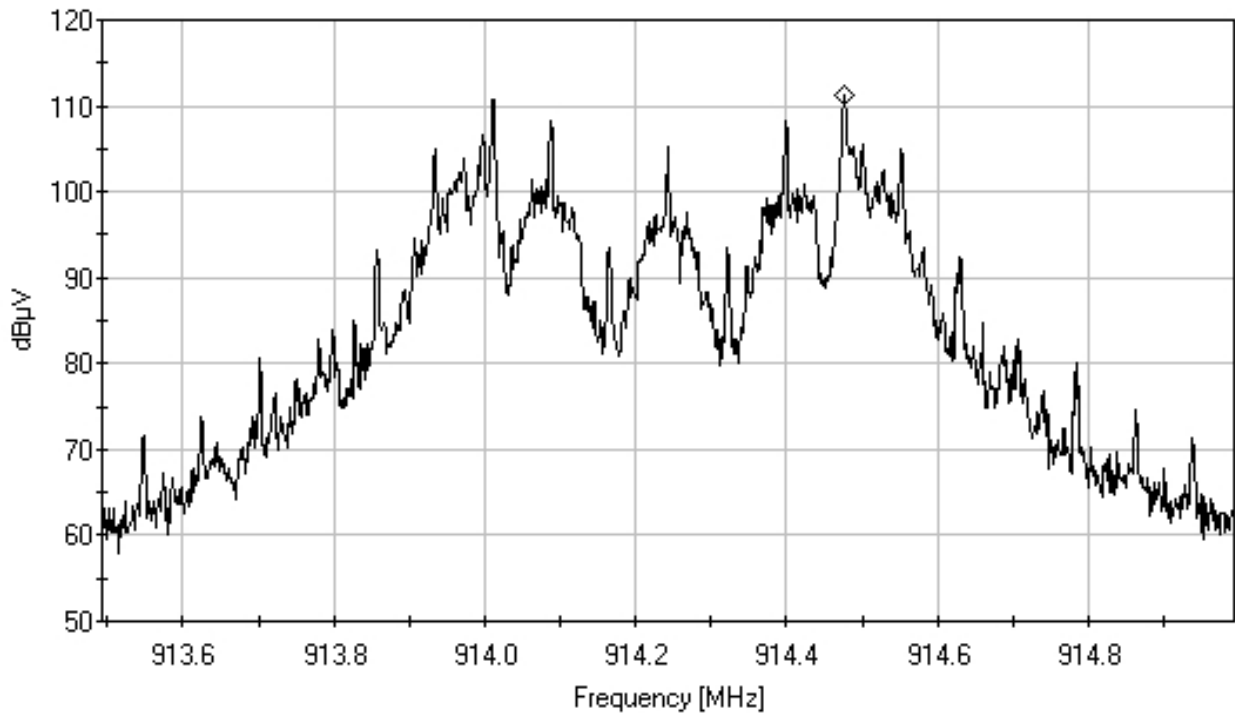


Power Spectral Density

Test Report #:	3129740	Test Area:	PW1	Temperature:	23.5	°C
Test Method:	FCC Part 15.247	Test Date:	20-Aug-2007	Relative Humidity:	20.6	%
EUT Model #:	0066-5370	EUT Power:	3VDC	Air Pressure:	101	kPa
EUT Serial #:	NA					
Manufacturer:	Colorado Time					
EUT Description:	Wireless data adaptor					
Notes:	Conducted port measurement.					

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

Power spectral Density 15.247(e) Mid Channel
Ref Level 118.5 dBµV ATTEN 20 dB OFFSET: 1.5dB
RES BW: 3.0kHz VID BW: 30.0kHz SWP: 1.13sec
Marker: 914.477MHz 111.3dBµV

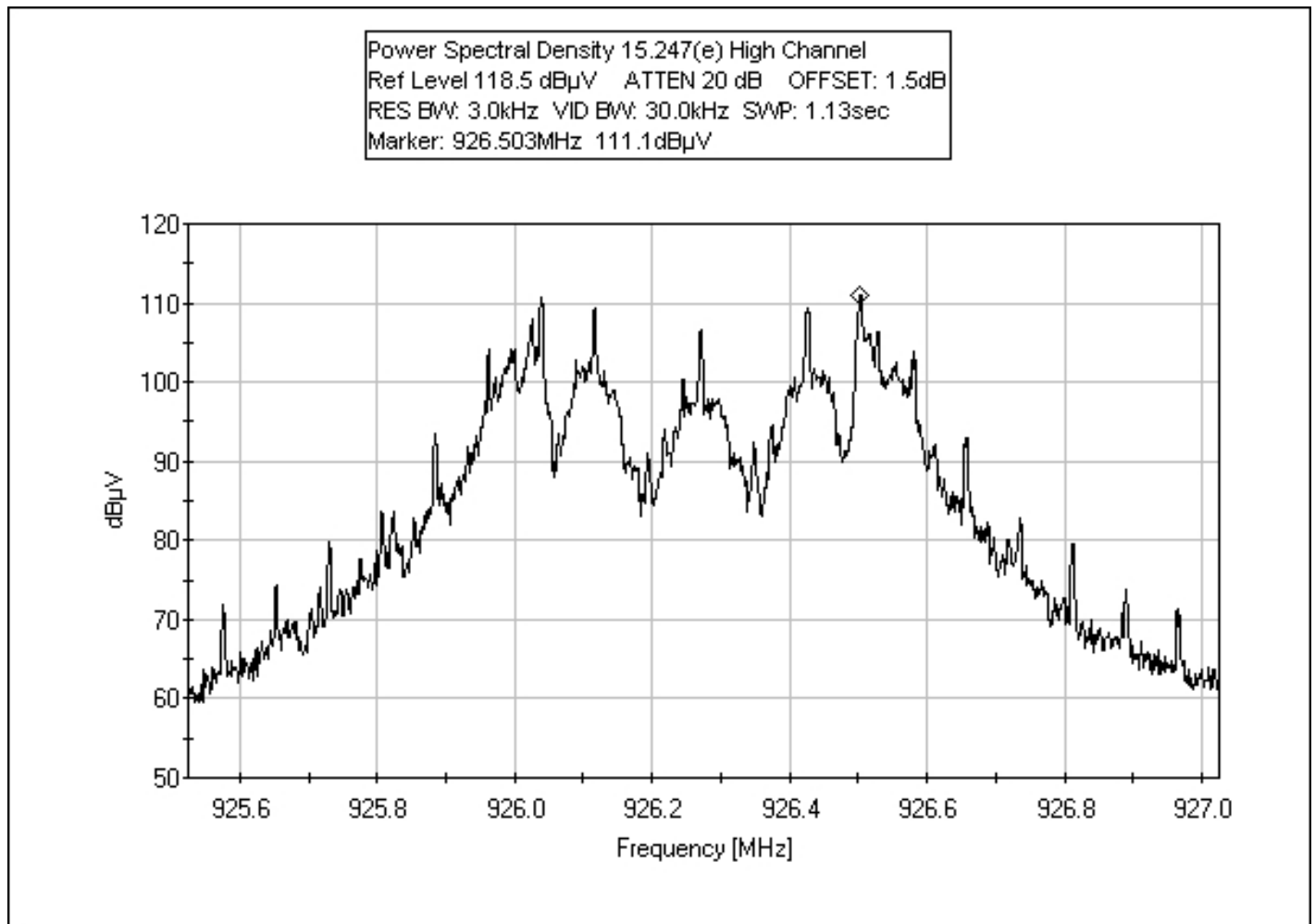


Power Spectral Density

Test Report #:	3129740	Test Area:	PW1
Test Method:	FCC Part 15.247	Test Date:	20-Aug-2007
EUT Model #:	0066-5370	EUT Power:	3VDC
EUT Serial #:	NA		
Manufacturer:	Colorado Time		
EUT Description:	Wireless data adaptor		
Notes:	Conducted port measurement.		

Temperature:	23.5	°C
Relative Humidity:	20.6	%
Air Pressure:	101	kPa

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



List of Equipment Utilized for Final Test

Project Report

Begin Date: 7/30/07 **End Date:** 8/20/2007

Technician Mike Spataro

Project 3129740

Capital Asset ID	Manufacturer	Model #	Serial #	Description	Test Performed	Service Type	Service Date	Service Due
18880	Hewlett-Packard	85650A	2811A01300	Q.P Adapter	R Radiated Emissions	For Cal	2/16/2007	2/16/2008
18882	Hewlett-Packard	8566B	2410A00154	Spectrum Analyzer (dc-22 GHz)	R Radiated Emissions	For Cal	12/7/2006	12/7/2007
18887	EMCO	3115	9205-3886	Horn Antenna 1-18GHz	R Radiated Emissions	For Cal	3/6/2007	3/6/2008
18888	EMCO	3146	9402-3775	Log Periodic Antenna (200-1000MHz)	R Radiated Emissions	For Cal	10/31/2006	10/31/2007
18889	EMC TEST SYSTEMS	3109	3142	Biconical Antenna 30-300MHz	R Radiated Emissions	For Cal	10/31/2006	10/31/2007
18897	EMCO	6502	9205-2738	Magnetic loop	R Radiated Emissions	For Cal	8/27/2007	8/27/2008
18900	Avantek	AFT97-8434-10F	1007	RF Pre-Amplifier (4-8 GHz)	R Radiated Emissions	For Ver	5/1/2007	5/1/2008
18901	Avantek	AWT-18037	1002	RF Pre-Amplifier (8-18 GHz)	R Radiated Emissions	For Ver	5/1/2007	5/1/2008
18906	Mini-Circuits Lab	ZHL-42	N052792-2	Amplifier	R Radiated Emissions	For Ver	5/1/2007	5/1/2008
18912	Hewlett-Packard	8447F	3113A05545	9 kHz- 1.3GHz Pre Amp	R Radiated Emissions	For Ver	5/1/2007	5/1/2008
18913	Hewlett-Packard	E7405A	My44211889	Spectrum Analyzer	R Radiated Emissions	For Cal	2/23/2007	2/23/2008

Appendix B

Test Plan
and
Constructional Data Form

To be supplied by the customer

Appendix C

Measurement Protocol

And

Test Procedures

MEASUREMENT PROTOCOL

GENERAL INFORMATION

Test Methodology

Conducted and radiated emission testing is performed according to the procedures in ANSI C63.4 & CNS13438.

Justification

The Equipment Under Test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral into its characteristic impedance or left unterminated. When appropriate, the cables are manually manipulated with respect to each other to obtain maximum emissions from the unit.

CONDUCTED EMISSIONS

The final level, expressed in dB μ V, is arrived at by taking the reading directly from the EMI receiver. This level is compared directly to the applicable limit.

To convert between dB μ V and μ V, the following conversions apply:

- $\text{dB}\mu\text{V} = 20(\log \mu\text{V})$
- $\mu\text{V} = \text{Inverse log}(\text{dB}\mu\text{V}/20)$

RADIATED EMISSIONS

The final level, expressed in dB μ V/m, is arrived at by taking the reading from the spectrum analyzer (Level dB μ V) and adding the antenna correction factor and cable loss factor (Factor dB) to it. This result then has the applicable limit subtracted from it to provide the Delta which gives the tabular data as shown in the data sheets in Attachment B. The amplifier gain is automatically accounted for by using an analyzer offset.

Example: At a Test Frequency of 30 MHz, with a peak reading on the spectrum analyzer or measuring receiver of 14 dB μ V:

Measured Level	+	Transducer & Cable Loss factor	=	Corrected Reading	Specification Limit	-	Corrected Reading	=	Delta Specification
(dB μ V)		(dB)		(dB μ V/m)	(dB μ V/m)		(dB μ V/m)		
14.0		14.9		28.9	40.0		28.9		-11.1

DETAILS OF TEST PROCEDURES

General Standard Information

The test methods used comply with ANSI C63.4-2003 - "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz."

Conducted Emissions

Conducted emissions on the 50 Hz and/or 60 Hz power interface of the EUT are measured in the frequency range of 150 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth and quasi-peak detection, and a Line Impedance Stabilization Network (LISN), with 50 Ω /50 μ H (CISPR 16) characteristics. Table top equipment is placed on a non-conducting table 80 centimeters above the floor and is positioned 40 centimeters from the vertical ground plane (wall) of the screen room. In some cases, a pre-scan using a spectrum analyzer is initially performed on the units comprising the system under test to locate the highest emissions. If the minimum passing margin appears to be less than 20 dB with a peak mode measurement, the emissions are re-measured using a tuned receiver or spectrum analyzer with quasi-peak and average detection and recorded on the data sheets.

Radiated Emissions

Radiated emissions from the EUT are measured in the frequency range of 30 to 22GHz using a spectrum analyzer and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection and measurements above 1000 MHz are made with a 1 MHz/6 dB bandwidth and peak detection. Table top equipment is placed on a 1.0 X 1.5 meter non-conducting table 80 centimeters above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Interface cables that are closer than 40 centimeters to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimeters from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna is positioned 3, 10 or 30 meters horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, measurement scans are made with both horizontal and vertical antenna polarizations and the EUT are rotated 360 degrees.

Radiated Emissions Diagram:

