Test Report for Unlicensed Low Power Transmitter

FCC Applicable Rule Parts: 15.205, 15.207, 15.209

Applicant: Farpointe Data Inc.
2177 Leghorn Street
Mountain View, CA 94043

FCC ID: T8I-DELTA-A
Model Nos.: Delta3 Multi-Technology
Delta5 Multi-Technology
Delta6.4 Multi-Technology

Description of device:

The DELTA Series Proximity line of OEM proximity readers, cards, and tags are dual frequency, non-contact, identification solutions based upon the latest techniques in radio frequency identification (RFID).

The proximity reader has a receiver circuit, a microprocessor, a 125 kHz pulsed exciter and a 13.56 MHz CW exciter circuit that includes a magnetic coil. The tags and cards that are read by the reader have a highly reliable radio frequency integrated circuit (RFIC), attached to a magnetic coil inside a durable, environmentally secure plastic housing.

The referenced models all use the same RF transmit and receive circuits, the differences among models consist of coil size, non-RF features such as keypads, and form factors. Model Delta5 Multi-Technology has the largest coil and the highest output power at the fundamental frequencies. Model Delta6.4 Multi-Technology is a Delta5 with a digital keypad entry and is worst-case representative for both radiated and line conducted emissions. Model Delta3 Multi-Technology is identical to model Delta5 with a smaller coil and lower radiated emissions at the fundamental.

TEST REQUIREMENTS
The referenced device is subject to certification under Part 2 of FCC Rules. The specific emissions limits and test requirements are found in Part 15 of FCC Rules. In addition to the device specific requirements listed in 15.225 (re-printed below), the following Part 15 requirements are universal to all unlicensed transmitters and would also apply:

15.19 Labeling requirements
15.20 Accessories
15.21 Information to user
15.31 Measurement standards
15.33 Frequency range of measurements
15.35 Measurement detector functions and bandwidths

15.109 Radiated Emissions (unintentional radiators)
15.203 Antenna requirement
15.204 External radio frequency power amplifiers and antenna modifications.
15.205 Restricted bands of operation.
15.207 Conducted limits
15.209 Radiated emission limits, general requirements.
15.225 Operation within the band 13.110 – 14.010 MHz

REVISION INFORMATION AND ATTESTATION OF RESULTS
Report No: 06PR048FCC

REV No.	**Description**	**Revised By:**	**Date**
-	Original Issue	T. Cokenias	3/5/2008

FCC ID: T8I-DELTA-A meets all FCC requirements for a device of this type.

THOMAS N. COKENIAS 5 March 2008

EMC and Radio Regulatory Consultant
Agent for Farpointe Data Inc.

15.205 Restricted bands of operation.

Only spurious emissions are permitted in any of the frequency bands listed below: The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209.

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
10.495 - 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 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	
13.36 - 13.41			

15.209 Radiated emission limits, general requirements.

Except as provided elsewhere in this paragraph the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength uV/m	Measurement distance, m
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F (kHz)	30
1.705 - 30.0	30	30
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz.

15.225 Operation within the band 13.110 – 14.010 MHz.

(a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter (= 84 dBuV/m) at 30 meters.

(b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter (=50.5dBuV/m) at 30 meters.

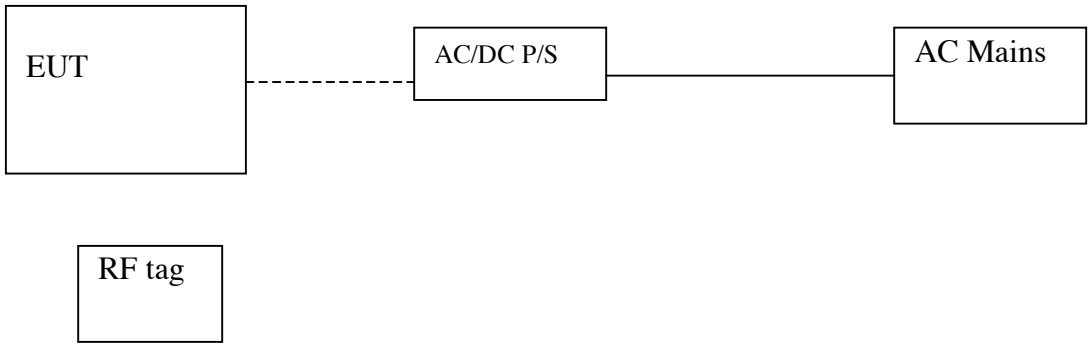
(c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter (=40.5 dBuV/m) at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

(e) The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of –20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

(f) In the case of radio frequency powered tags designed to operate with a device authorized under this section, the tag may be approved with the device or be considered as a separate device subject to its own authorization. Powered tags approved with a device under a single application shall be labeled with the same identification number as the device.

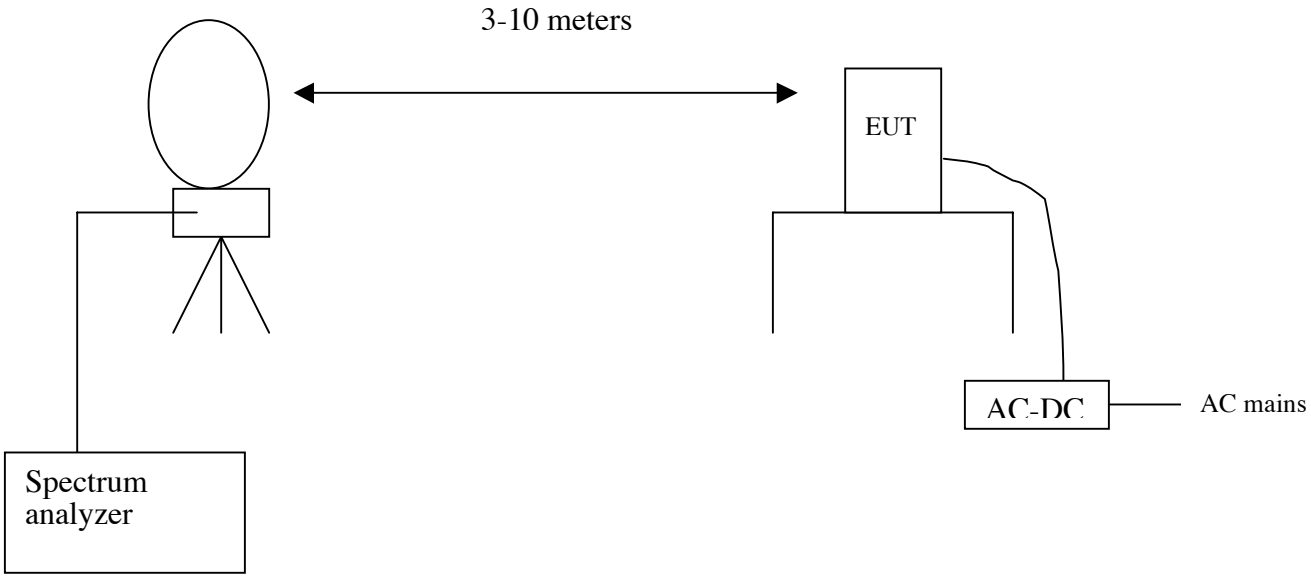
Test Set-up Diagram



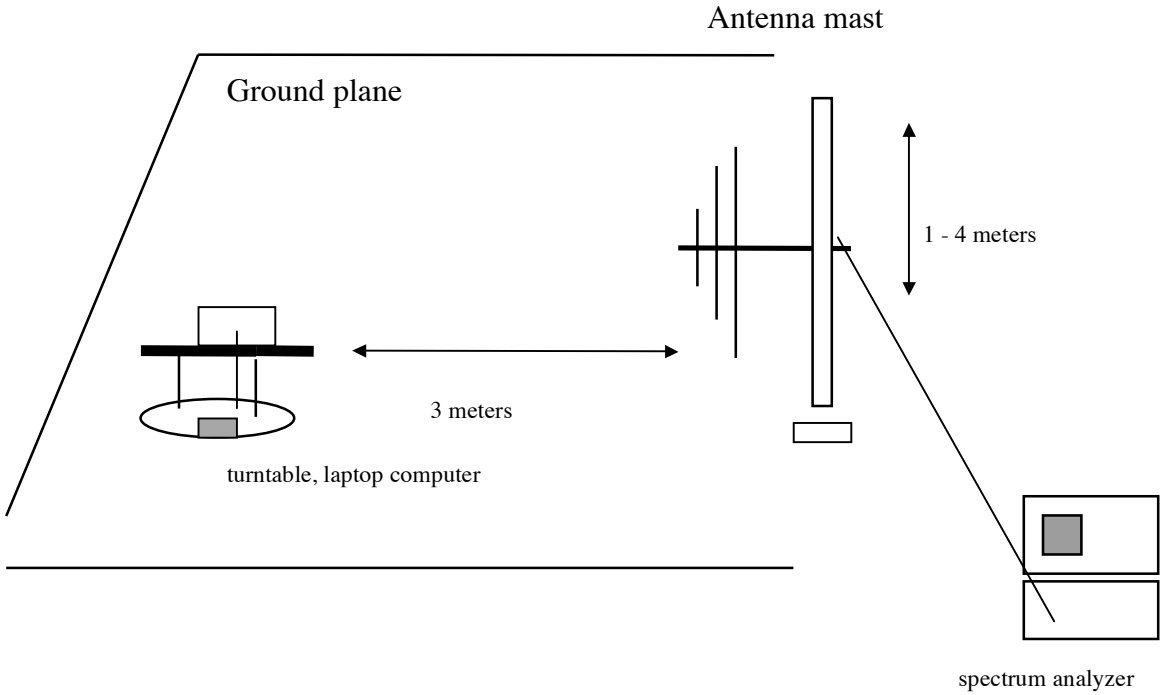
TEST EQUIPMENT

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Serial Number**	**Cal Due**
Antenna, Loop, 30 MHz	EMCO	6502	C00593	10/24/08
RF Filter Section, 2.9 GHz	Agilent / HP	85420E	C00958	06/12/08
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	10/13/08
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	03/18/08
Preamplifier, 1300 MHz	Agilent / HP	8447D	0	05/09/08

15.205 and 15.209 Radiated Emissions
Radiated Test Set-up, 0.125 - 30MHz



15.205 and 15.209 Radiated Emissions
Radiated Test Set-up, 30 - 1000 MHz



Test Procedures, 0.125 – 30 MHz

The EUT was placed on a non-conductive table located on a large open area free of nearby metal obstructions. The loop antenna was placed at a location 10m from the EUT. Radiated emissions were measured with the loop antenna both parallel and perpendicular to the plane of the EUT loop antenna. For low level harmonic and bandedge emissions, antenna distance was decreased to 3m

Test Procedures, 30 -1000 MHz

The EUT was placed on a turntable in a 5m anechoic chamber. The EUT was set to normal operating conditions (constantly transmitting). Radiated emissions from the EUT were measured according to the dictates of ANSI C63.4.

Test Results

The EUT emissions are below the limits in 15.209.

Radiated Emissions, 0.125 – 30 MHz

Delta3 Multi-Technology

FCC Part 15, Subpart B & C **3 Meter Distance Measurement At Open Field**

Company: Farpointe
Project #: 07U11442
Model #: Delta 3
Tester: Tom Chen
Date: 02-06-2008

Frequency (MHz)	PK (dBu/V)	QP (dBu/V)	AV (dBuV)	AF dB/m	Distance Correction (dB)	PK Corrected Reading (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Notes
Loop Antenna Face On:									3m
0.125	57.57			10.481	-80.00	-11.95	25.67	-37.6	
0.25	32.3			10.388	-80.00	-37.31	19.65	-57.0	
0.375	33.2			10.294	-80.00	-36.51	16.12	-52.6	
0.5	31.32			10.2	-40.00	1.52	33.62	-32.1	
0.625	29.52			10.225	-40.00	-0.26	31.69	-31.9	
0.75	28			10.25	-40.00	-1.75	30.10	-31.9	
0.875	29.51			10.275	-40.00	-0.21	28.76	-29.0	
1	26.85			10.3	-40.00	-2.85	27.60	-30.5	
1.125	24.82			10.294	-40.00	-4.89	26.58	-31.5	
Loop Antenna Face Off:									
0.125	51.1			10.481	-80.00	-18.42	25.67	-44.1	
0.25	30.41			10.388	-80.00	-39.20	19.65	-58.8	
0.375	35.78			10.294	-80.00	-33.93	16.12	-50.0	
0.5	28.89			10.2	-40.00	-0.91	33.62	-34.5	
0.625	27.83			10.225	-40.00	-1.95	31.69	-33.6	
0.75	40.1			10.25	-40.00	10.35	30.10	-19.8	
0.875	25.97			10.275	-40.00	-3.76	28.76	-32.5	
1	25.41			10.3	-40.00	-4.29	27.60	-31.9	
1.125	25.22			10.294	-40.00	-4.49	26.58	-31.1	

* No more emissions were found up to 30MHz

Note: The emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz and above 10000Mhz. Radiated emission limits in these three bands are based on measurements employing an average detector

P.K. = Peak
Q.P. = Quasi Peak Readings — Below 150kHz => RBW=VBW=200 or 300Hz
A.F. = Antenna factor — Above 150kHz =>RBW=VBW=9 or 10kHz (Average => VBW=10Hz)

Delta5 Multi-Technology

FCC Part 15, Subpart B & C **10 Meter Distance Measurement At Open Field**

Company: Farpointe
Project #: 07U11442
Model #: Delta 5
Tester: Tom Chen
Date: 02-06-2008

Frequency (MHz)	PK (dBu/V)	QP (dBu/V)	AV (dBuV)	AF dB/m	Distance Correction (dB)	PK Corrected Reading (dBuV/m)	Ave Limit (dBuV/m)	Margin (dB)	Notes
Loop Antenna Face On:									10m
0.125	52.41			10.481	-59.08	3.81	25.67	-21.9	
0.25	34.63			10.388	-59.08	-14.07	19.65	-33.7	
0.375	33.45			10.294	-59.08	-15.34	16.12	-31.5	
0.5	35.87			10.2	-19.08	26.99	33.62	-6.6	
0.625	35.56			10.225	-19.08	26.70	31.69	-5.0	
0.75	30.67			10.25	-19.08	21.84	30.10	-8.3	
0.875	33.45			10.275	-19.08	24.64	28.76	-4.1	
1	33.55			10.3	-19.08	24.77	27.60	-2.8	
1.125				10.294	-19.08	-8.79	26.58	-35.4	
Loop Antenna Face Off:									
0.125	47.12			10.481	-59.08	-1.48	25.67	-27.1	
0.25	35.67			10.388	-59.08	-13.03	19.65	-32.7	
0.375	34.31			10.294	-59.08	-14.48	16.12	-30.6	
0.5	31.34			10.2	-19.08	22.46	33.62	-11.2	
0.625	27.32			10.225	-19.08	18.46	31.69	-13.2	
0.75	26.21			10.25	-19.08	17.38	30.10	-12.7	
0.875	28.76			10.275	-19.08	19.95	28.76	-8.8	
1	28.97			10.3	-19.08	20.19	27.60	-7.4	
1.125	26.77			10.294	-19.08	17.98	26.58	-8.6	

* No more emissions were found up to 30MHz

Note: The emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz and above 10000Mhz. Radiated emission limits in these three bands are based on measurements employing an average detecto

P.K. = Peak
Q.P. = Quasi Peak Readings — Below 150kHz => RBW=VBW=200 or 300Hz
A.F. = Antenna factor — Above 150kHz =>RBW=VBW=9 or 10kHz (Average => VBW=10Hz)

Delta6.4 Multi-Technology

FCC Part 15, Subpart B & C **10 Meter Distance Measurement At Open Field**

Company: Farpointe
Project #: 07U11442
Model #: Delta 6.4
Tester: Tom Chen
Date: 02-06-2008

Frequency (MHz)	PK (dBu/V)	QP (dBu/V)	AV (dBuV)	AF dB/m	Distance Correction (dB)	PK Corrected Reading (dBuV/m)	AV Limit (dBuV/m)	PK Margin (dB)	Notes
Loop Antenna Face On:									3m
0.125	44.67			10.481	-80.00	-24.85	25.67	-50.5	
0.25	37.89			10.388	-80.00	-31.72	19.65	-51.4	
0.375	37.64			10.294	-80.00	-32.07	16.12	-48.2	
0.5	33.65			10.2	-40.00	3.85	33.62	-29.8	
0.625	31.51			10.225	-40.00	1.74	31.69	-30.0	
0.75	30.74			10.25	-40.00	0.99	30.10	-29.1	
0.875	29.41			10.275	-40.00	-0.31	28.76	-29.1	
1	27.95			10.3	-40.00	-1.75	27.60	-29.4	
1.125	26.65			10.294	-40.00	-3.06	26.58	-29.6	
Loop Antenna Face Off:									
0.125	43.56			10.481	-59.08	-5.04	25.67	-30.7	
0.25	35.98			10.388	-59.08	-12.72	19.65	-32.4	
0.375	31.89			10.294	-59.08	-16.90	16.12	-33.0	
0.5	30.78			10.2	-19.08	21.90	33.62	-11.7	
0.625	27.43			10.225	-19.08	18.57	31.69	-13.1	
0.75	33.15			10.25	-19.08	24.32	30.10	-5.8	
0.875	27.9			10.275	-19.08	19.09	28.76	-9.7	
1	26.9			10.3	-19.08	18.12	27.60	-9.5	
1.125	25.47			10.294	-19.08	16.68	26.58	-9.9	

* No more emissions were found up to 30MHz

Note: The emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz and above 10000Mhz. Radiated emission limits in these three bands are based on measurements employing an average detector

P.K. = Peak
Q.P. = Quasi Peak Readings — Below 150kHz => RBW=VBW=200 or 300Hz
A.F. = Antenna factor — Above 150kHz =>RBW=VBW=9 or 10kHz (Average => VBW=10Hz)

Radiated Emissions, 13.56 – 30 MHz

Delta3 Multi-Technology

FCC Part 15, Subpart B & C **3 Meter Distance Measurement At Open Field**

Company: Farpointe
Project #: 07U11442
Model #: Delta 3
Tester: Tom Chen
Date: 2/6/08

Frequency (MHz)	PK (dBu/V)	QP (dBu/V)	AF dB/m	Distance Correction (dB)	PK Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Notes
Loop Antenna Face On:								
13.56	45.56		10.556	-40.00	16.12	84.00	-67.9	Fundamental @ 3m Dist
13.41	25.23		10.541	-40.00	-4.23	50.48	-54.7	13.41-13.553MHz Sprious @ 3m
13.553	29.43		10.555	-40.00	-0.01	50.48	-50.5	13.41-13.553MHz Sprious @ 3m
13.567	27.54		10.557	-40.00	-1.90	50.48	-52.4	13.567-13.710MHz Spurious @ 3m
13.71	23.87		10.571	-40.00	-5.56	50.48	-56.0	13.567-13.710MHz Spurious @ 3m
13.11	23.76		10.511	-40.00	-5.73	40.51	-46.2	13.110-13.410MHz Spurious @ 3m
13.41	25.23		10.541	-40.00	-4.23	40.51	-44.7	13.110-13.410MHz Spurious @ 3m
13.71	23.87		10.571	-40.00	-5.56	40.51	-46.1	13.710-14.010MHz Spurious @ 3m
14.01	26.13		10.601	-40.00	-3.27	40.51	-43.8	13.710-14.010MHz Spurious @ 3m
27.145	21.43		9.0426	-40.00	-9.53	29.54	-39.1	14.010-30MHz Spurious @ 10m
Loop Antenna Face Off:								
13.56	35.17		10.556	-40.00	5.73	84.00	-78.3	Fundamental @ 3m Dist
13.41	24.52		10.541	-40.00	-4.94	50.48	-55.4	13.41-13.553MHz Sprious @ 3m
13.553	25.84		10.555	-40.00	-3.60	50.48	-54.1	13.41-13.553MHz Sprious @ 3m
13.567	27		10.557	-40.00	-2.44	50.48	-52.9	13.567-13.710MHz Spurious @ 3m
13.71	24.04		10.571	-40.00	-5.39	50.48	-55.9	13.567-13.710MHz Spurious @ 3m
13.11	25.01		10.511	-40.00	-4.48	40.51	-45.0	13.110-13.410MHz Spurious @ 3m
13.41	23.93		10.541	-40.00	-5.53	40.51	-46.0	13.110-13.410MHz Spurious @ 3m
13.71	24.04		10.571	-40.00	-5.39	40.51	-45.9	13.710-14.010MHz Spurious @ 3m
14.01	24.39		10.601	-40.00	-5.01	40.51	-45.5	13.710-14.010MHz Spurious @ 3m
27.145	19.63		9.0426	-40.00	-11.33	29.54	-40.9	14.010-30MHz Spurious @ 10m

* No more emissions were found up to 30MHz

Note: The emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 10000Mhz. Radiated emission limits in these three bands are based on measurements employing an average detector.

P.K. = Peak
Q.P. = Quasi Peak Readings
A.F. = Antenna factor

Delta5 Multi-Technology

FCC Part 15, Subpart B & C **3 and 10 Meter Distance Measurement At Open Field**

Company: Farpointe
Project #: 07U11442
Model #: Delta 5
Tester: Tom Chen
Date: 2/6/08

Frequency (MHz)	PK (dBu/V)	QP (dBu/V)	AF dB/m	Distance Correction (dB)	PK Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Notes
Loop Antenna Face On:								
13.56	68.41		10.556	-40.00	38.97	84.00	-45.0	Fundamental @ 3m Dist
13.41	41.31		10.541	-40.00	11.85	50.48	-38.6	13.41-13.553MHz Sprious @ 3m
13.553	56.69		10.555	-40.00	27.25	50.48	-23.2	13.41-13.553MHz Sprious @ 3m
13.567	59.86		10.557	-40.00	30.42	50.48	-20.1	13.567-13.710MHz Spurious @ 3m
13.71	39.62		10.571	-40.00	10.19	50.48	-40.3	13.567-13.710MHz Spurious @ 3m
13.11	27.91		10.511	-40.00	-1.58	40.51	-42.1	13.110-13.410MHz Spurious @ 3m
13.41	41.31		10.541	-40.00	11.85	40.51	-28.7	13.110-13.410MHz Spurious @ 3m
13.71	39.62		10.571	-40.00	10.19	40.51	-30.3	13.710-14.010MHz Spurious @ 3m
14.01	28.78		10.601	-40.00	-0.62	40.51	-41.1	13.710-14.010MHz Spurious @ 3m
27.145	23.35		9.0426	-19.08	13.31	29.54	-16.2	14.010-30MHz Spurious @ 10m
Loop Antenna Face Off:								
13.56	71.41		10.556	-40.00	41.97	84.00	-42.0	Fundamental @ 3m Dist
13.41	45.37		10.541	-40.00	15.91	50.48	-34.6	13.41-13.553MHz Sprious @ 3m
13.553	56.98		10.555	-40.00	27.54	50.48	-22.9	13.41-13.553MHz Sprious @ 3m
13.567	74.43		10.557	-40.00	44.99	50.48	-5.5	13.567-13.710MHz Spurious @ 3m
13.71	48.51		10.571	-40.00	19.08	50.48	-31.4	13.567-13.710MHz Spurious @ 3m
13.11	27.5		10.511	-40.00	-1.99	40.51	-42.5	13.110-13.410MHz Spurious @ 3m
13.41	45.37		10.541	-40.00	15.91	40.51	-24.6	13.110-13.410MHz Spurious @ 3m
13.71	46.51		10.571	-40.00	17.08	40.51	-23.4	13.710-14.010MHz Spurious @ 3m
14.01	30.1		10.601	-40.00	0.70	40.51	-39.8	13.710-14.010MHz Spurious @ 3m
27.145	18.7		9.0426	-19.08	8.66	29.54	-20.9	14.010-30MHz Spurious @ 10m

* No more emissions were found up to 30MHz

Note: The emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 10000Mhz. Radiated emission limits in these three bands are based on measurements employing an average detector.

P.K. = Peak
Q.P. = Quasi Peak Readings
A.F. = Antenna factor

Delta6.4 Multi-Technology

FCC Part 15, Subpart B & C **3 Meter Distance Measurement At Open Field**

Company: Farpointe
Project #: 07U11442
Model #: Delta 6.4
Tester: Tom Chen
Date: 2/6/08

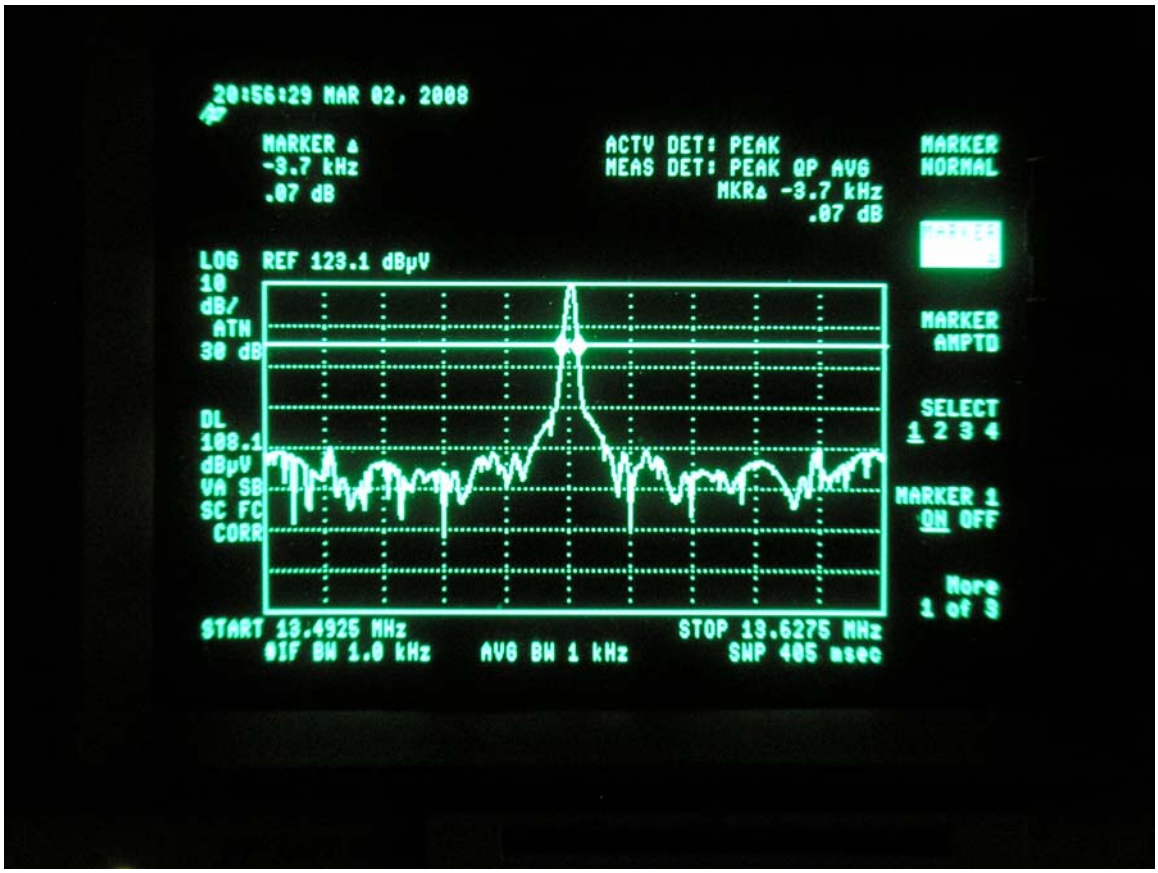
Frequency (MHz)	PK (dBu/V)	QP (dBu/V)	AV (dBuV)	AF dB/m	Distance Correction (dB)	PK Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Notes
Loop Antenna Face On:									
13.56	49.9		N/A	10.556	-40.00	20.46	84.00	-63.5	Fundamental @ 3m Dist
13.41	26.33		N/A	10.541	-40.00	-3.13	50.48	-53.6	13.41-13.553MHz Sprious @ 3m
13.553	36.54		N/A	10.555	-40.00	7.10	50.48	-43.4	13.41-13.553MHz Sprious @ 3m
13.567	34.65		N/A	10.557	-40.00	5.21	50.48	-45.3	13.567-13.710MHz Spurious @ 3m
13.71	34.65		N/A	10.571	-40.00	5.22	50.48	-45.3	13.567-13.710MHz Spurious @ 3m
13.11	25.78		N/A	10.511	-40.00	-3.71	40.51	-44.2	13.110-13.410MHz Spurious @ 3m
13.41	26.33		N/A	10.541	-40.00	-3.13	40.51	-43.6	13.110-13.410MHz Spurious @ 3m
13.71	34.65		N/A	10.571	-40.00	5.22	40.51	-35.3	13.710-14.010MHz Spurious @ 3m
14.01	26.82		N/A	10.601	-40.00	-2.58	40.51	-43.1	13.710-14.010MHz Spurious @ 3m
27.145	22.74		N/A	9.0426	-40.00	-8.22	29.54	-37.8	14.010-30MHz Spurious @ 3m
Loop Antenna Face Off:									
13.56	41.74		N/A	10.556	-40.00	12.30	84.00	-71.7	Fundamental @ 3m Dist
13.41	26.64		N/A	10.541	-40.00	-2.82	50.48	-53.3	13.41-13.553MHz Sprious @ 3m
13.553	35.92		N/A	10.555	-40.00	6.48	50.48	-44.0	13.41-13.553MHz Sprious @ 3m
13.567	41.6		N/A	10.557	-40.00	12.16	50.48	-38.3	13.567-13.710MHz Spurious @ 3m
13.71	24.73		N/A	10.571	-40.00	-4.70	50.48	-55.2	13.567-13.710MHz Spurious @ 3m
13.11	24.67		N/A	10.511	-40.00	-4.82	40.51	-45.3	13.110-13.410MHz Spurious @ 3m
13.41	26.64		N/A	10.541	-40.00	-2.82	40.51	-43.3	13.110-13.410MHz Spurious @ 3m
13.71	24.73		N/A	10.571	-40.00	-4.70	40.51	-45.2	13.710-14.010MHz Spurious @ 3m
14.01	23.72		N/A	10.601	-40.00	-5.68	40.51	-46.2	13.710-14.010MHz Spurious @ 3m
27.145	20.77		N/A	9.0426	-40.00	-10.19	29.54	-39.7	14.010-30MHz Spurious @ 10m

* No more emissions were found up to 30MHz

Note: The emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 10000Mhz. Radiated emission limits in these three bands are based on measurements employing an average detector.

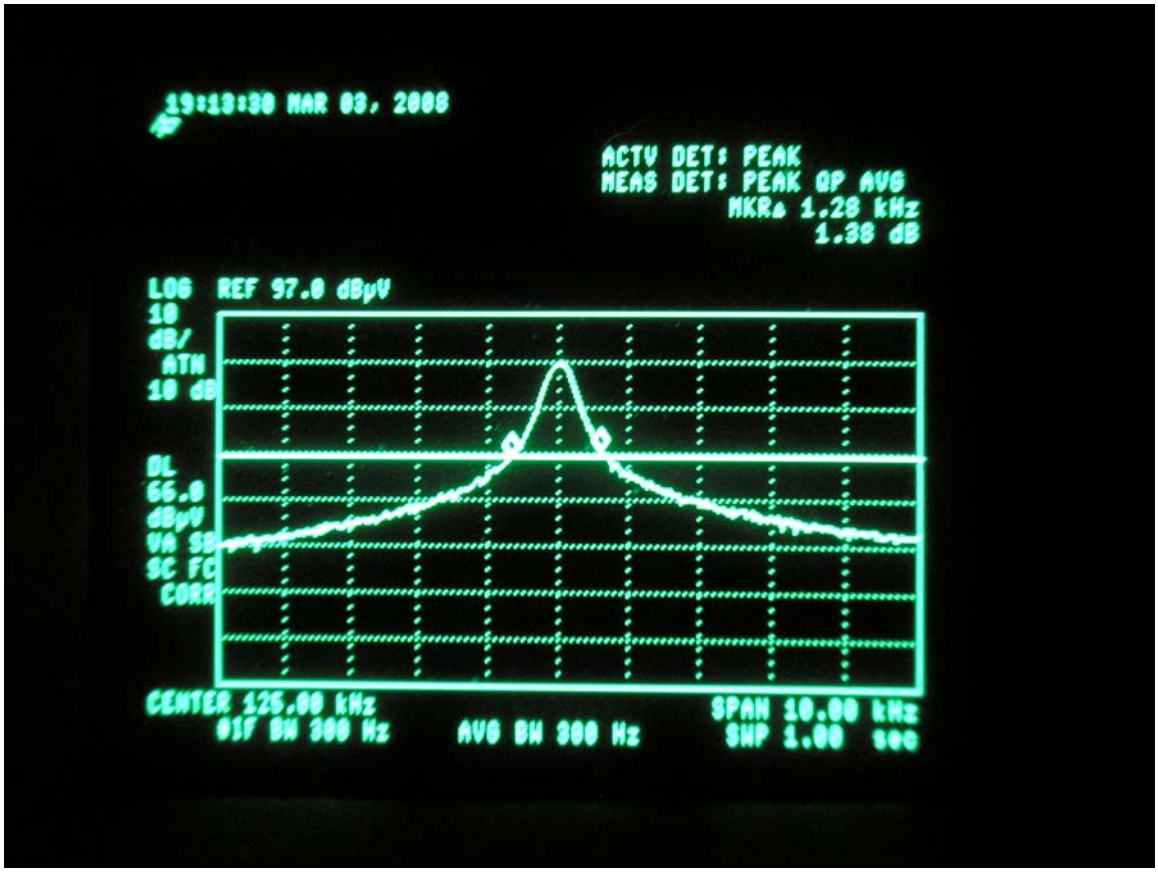
P.K. = Peak
Q.P. = Quasi Peak Readings
A.F. = Antenna factor

Emission Bandwidth Plot, 13.56 MHz (all models)



Note: 13.56 MHz signal is CW, 125 kHz is pulsed on and off.

Emission Bandwidth Plot, 125 kHz MHz (all models)



Delta 3: Out of Band emissions: 30-1000 MHz, Horizontal

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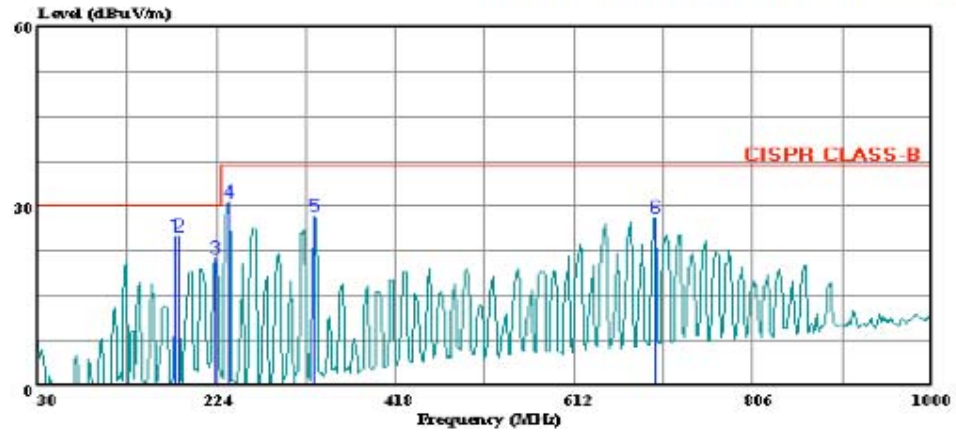
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 18 File#: 07U11442Chamber II.EMI
Date: 01-18-2008 Time: 11:43:40



Trace: 17 Ref Trace:

Condition: CISPR CLASS-B HORIZONTAL
Test Operator:: Doug Anderson
Project #: : 07U11442
Company: : Farpointe
Model: : Delta 3
Description: : RFID Card Reader
Configuration:: EUT/12VDC Supply
Mode : : Continuous Tx (125kHz and 13.56MHz)
Target: : CISPR Class B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	179.380	44.81	-19.90	24.92	30.00	-5.09	Peak
2	182.290	44.82	-19.92	24.90	30.00	-5.10	Peak
3	223.030	41.50	-20.18	21.32	30.00	-8.68	Peak
4	237.580	50.56	-19.84	30.72	37.00	-6.28	Peak
5	329.730	45.04	-16.85	28.19	37.00	-8.81	Peak
6	701.240	39.45	-11.39	28.06	37.00	-8.94	Peak

Delta3 Multi-Technology: Out of Band emissions: 30-1000 MHz, Vertical

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Tel: (510) 771-1000
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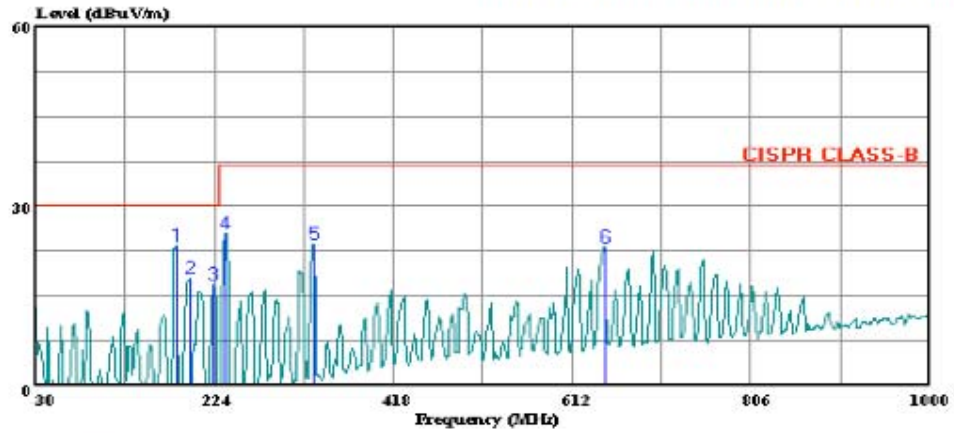
Data#: 20 File#: 07U11442Chamber II.EMI
Date: 01-18-2008 Time: 11:52:10



Trace: 19 Ref Trace:

Condition: CISPR CLASS-B VERTICAL
Test Operator:: Doug Anderson
Project #: : 07U11442
Company: : Farpointe
Model: : Delta 3
Description: : RFID Card Reader
Configuration:: EUT/12VDC Supply
Mode : : Continuous Tx (125kHz and 13.56MHz)
Target: : CISPR Class B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	182.290	43.21	-19.92	23.29	30.00	-6.71	Peak
2	196.840	36.82	-19.01	17.81	30.00	-12.19	Peak
3	223.030	37.03	-20.18	16.85	30.00	-13.15	Peak
4	235.640	45.42	-19.84	25.58	37.00	-11.42	Peak
5	332.640	40.70	-16.97	23.73	37.00	-13.27	Peak
6	647.890	35.24	-12.06	23.18	37.00	-13.82	Peak

Delta5 Multi-Technology: Out of Band emissions: 30-1000 MHz, Horizontal

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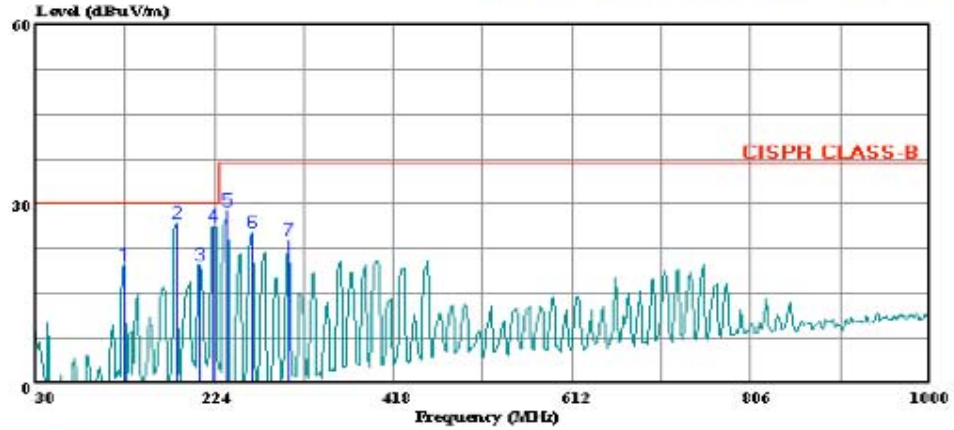
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 10 File#: 07U11442Chamber II.EMI
Date: 01-18-2008 Time: 11:07:04



Trace: 9 Ref Trace:

Condition: CISPR CLASS-B HORIZONTAL
Test Operator:: Doug Anderson
Project #: : 07U11442
Company: : Farpointe
Model: : Delta 5
Description: : RFID Card Reader
Configuration:: EUT/12VDC Supply
Mode : : Continuous Tx (125kHz and 13.56MHz)
Target: : CISPR Class B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	126.030	37.37	-17.61	19.76	30.00	-10.24	Peak
2	182.290	46.73	-19.92	26.81	30.00	-3.19	Peak
3	207.510	39.40	-19.64	19.76	30.00	-10.24	Peak
4	223.030	46.38	-20.18	26.20	30.00	-3.80	Peak
5	237.580	48.55	-19.84	28.71	37.00	-8.29	Peak
6	264.740	44.07	-18.97	25.10	37.00	-11.90	Peak
7	305.480	41.39	-17.38	24.01	37.00	-12.99	Peak

Delta5 Multi-Technology: Out of Band emissions: 30-1000 MHz, Vertical

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Tel: (510) 771-1000
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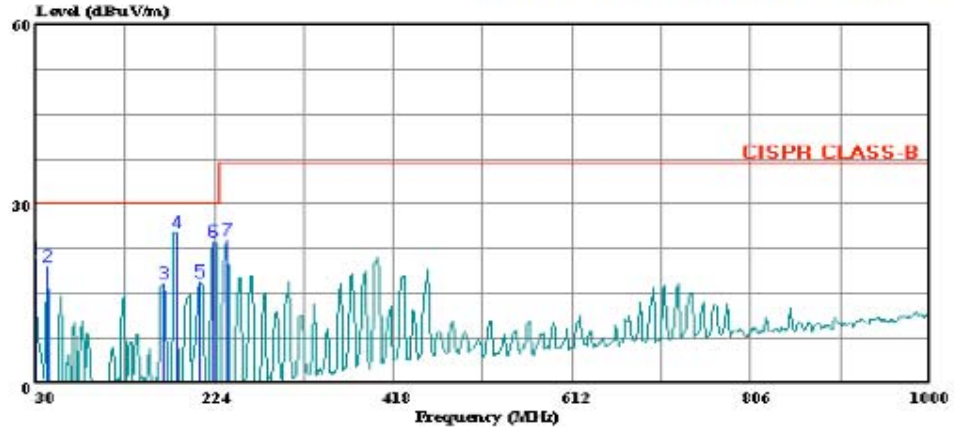
Data#: 12 File#: 07U11442Chamber II.EMI
Date: 01-18-2008 Time: 11:15:25



Trace: 11 Ref Trace:

Condition: CISPR CLASS-B VERTICAL
Test Operator:: Doug Anderson
Project #: : 07U11442
Company: : Farpointe
Model: : Delta 5
Description: : RFID Card Reader
Configuration:: EUT/12VDC Supply
Mode : : Continuous Tx (125kHz and 13.56MHz)
Target: : CISPR Class B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	30.000	30.50	-9.75	20.75	30.00	-9.25	Peak
2	43.580	38.24	-18.86	19.38	30.00	-10.62	Peak
3	167.740	35.96	-19.34	16.62	30.00	-13.38	Peak
4	182.290	45.22	-19.92	25.30	30.00	-4.70	Peak
5	208.480	36.82	-19.95	16.87	30.00	-13.13	Peak
6	223.030	43.80	-20.18	23.62	30.00	-6.38	Peak
7	237.580	43.70	-19.84	23.86	37.00	-13.14	Peak

Delta6.4 Multi-Technology: Out of Band emissions: 30-1000 MHz, Horizontal

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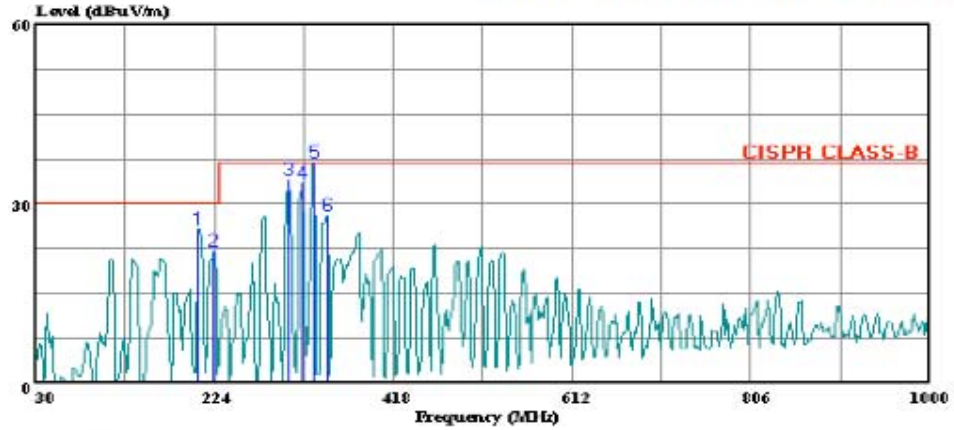
Fax: (510) 661-0888

Data#: 80 File#: 07U11442Chamber II.EMI
Date: 01-25-2008 Time: 16:16:31



Trace: 79 Ref Trace:

Condition: CISPR CLASS-B HORIZONTAL
Test Operator:: William Zhuang
Project #: : 07U11442
Company: : Farpointe
Model: : Delta 6.4
Description: : RFID Card Reader
Configuration:: EUT/New 12VDC Supply
: UNPOTTED
: 2700 ohm L3&L2&L4
: Cap on Tx1
Mode : : Continuous Tx,
Target: : CISPR Class B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	206.540	45.30	-19.46	25.84	30.00	-4.16	Peak
2	223.030	42.23	-20.18	22.05	30.00	-7.95	Peak
3	305.480	51.54	-17.38	34.16	37.00	-2.84	Peak
4	320.030	50.68	-17.27	33.41	37.00	-3.59	Peak
5	332.640	53.77	-16.97	36.80	37.00	-0.20	Peak

Delta6.4 Multi-Technology : Out of Band emissions: 30-1000 MHz, Vertical

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Tel: (510) 771-1000
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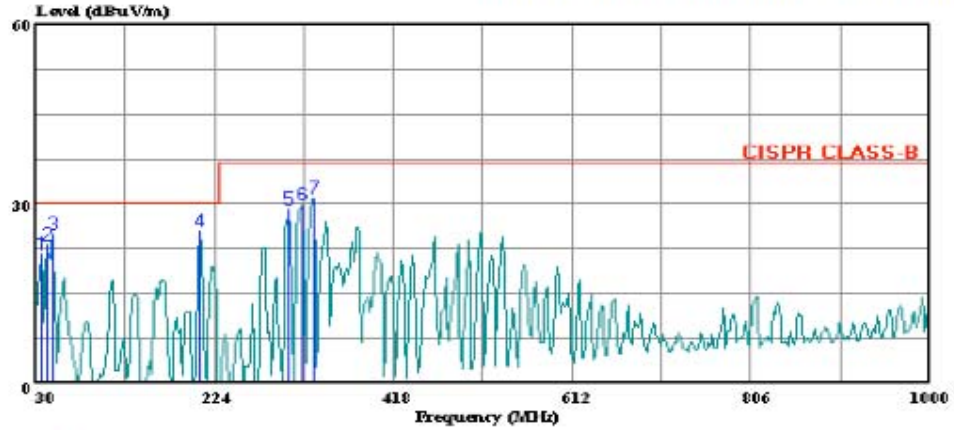
Data#: 82 File#: 07U11442Chamber II.EMI
Date: 01-25-2008 Time: 16:21:29



Trace: 81 Ref Trace:

Condition: CISPR CLASS-B VERTICAL
Test Operator:: William Zhuang
Project #: : 07U11442
Company: : Farpointe
Model: : Delta 6.4
Description: : RFID Card Reader
Configuration:: EUT/New 12VDC Supply
: UNPOTTED
: 2700 ohm L3&L2&L4
: Cap on Tx1
Mode : : Continuous Tx,
Target: : CISPR Class B

Page: 1

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	
1	36.790	35.85	-14.17	21.68	30.00	-8.32	Peak
2	41.640	40.01	-16.85	23.17	30.00	-6.83	Peak
3	48.430	46.69	-21.88	24.81	30.00	-5.19	Peak
4	208.480	45.44	-19.95	25.49	30.00	-4.51	Peak
5	305.480	46.52	-17.38	29.14	37.00	-7.86	Peak

AC Line Conducted Emissions
Test Requirement: 15.107, 15.207

Test Set-up

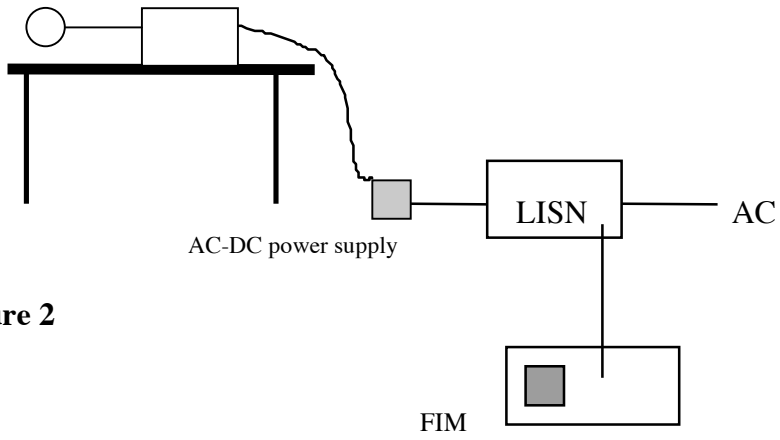


Figure 2

Test Procedure

1. The EUT was placed on a wooden table 40 cm from a vertical ground plane and approximately 80 cm above the horizontal ground plane on the floor. The EUT was set to transmit in normally.
2. Line conducted data was recorded for both NEUTRAL and HOT lines.

Test Results

PASS. Refer to data plots below.

Delta3 Multi-Technology Line 1

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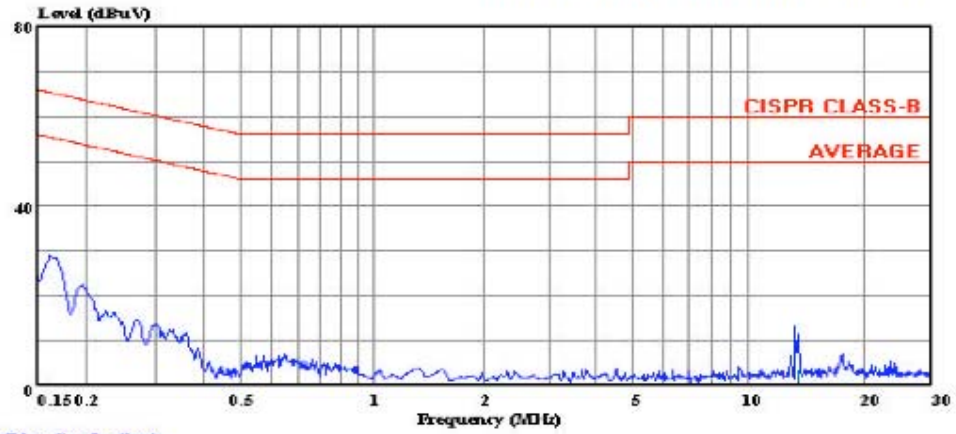
Data#: 7 File#: 07U11442_LC (Delta3).EMI
Date: 01-22-2008 Time: 13:37:44



(Line Conduction)

Trace: 5 Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Tom Chen
Project #: : 07U11442
Company: : Farpointe
Configuration:: EUT only (Delta 3)
Mode: : Contunine Tx
Target: : FCC Class B
Voltage: : 115VAC / 60Hz
: Line 1: Peak (Blue), Average (Green)

Delta3 Multi-Technology Line 2

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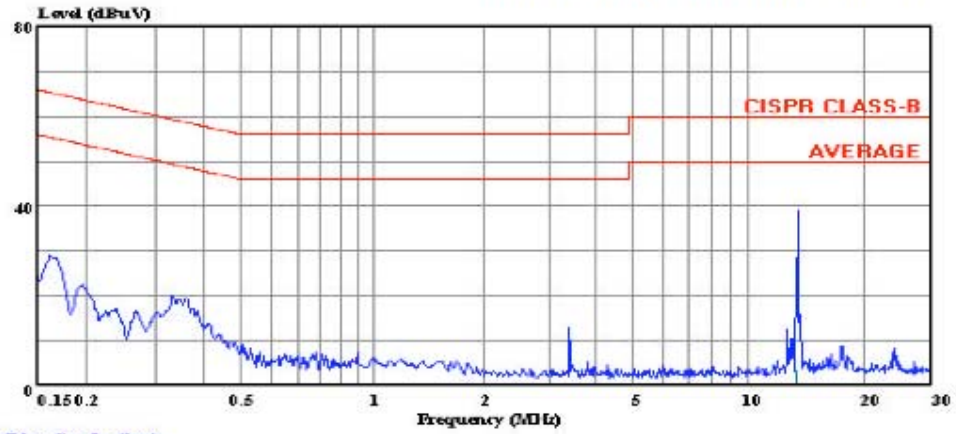
Data#: 11 File#: 07U11442_LC (Delta3).EMI
Date: 01-22-2008 Time: 13:37:44



(Line Conduction)

Trace: 4 Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Tom Chen
Project #: : 07U11442
Company: : Farpointe
Configuration:: EUT only (Delta 3)
Mode: : Contunine Tx
Target: : FCC Class B
Voltage: : 115VAC / 60Hz
: Line 2: Peak (Blue), Average (Green)

Delta5 Multi-Technology Line 1

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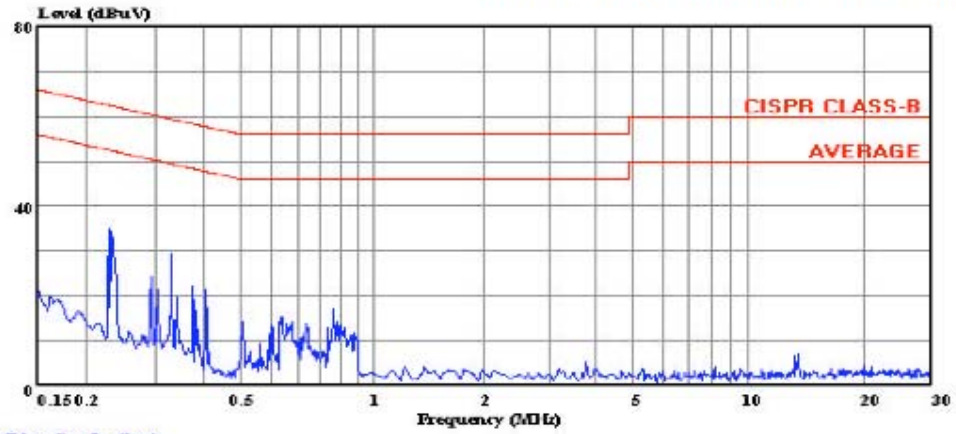
Data#: 46 File#: 07U11442_LC (Delta3).EMI
Date: 01-22-2008 Time: 15:44:40



Trace: 44 Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Tom Chen
Project #: : 07U11442
Company: : Farpointe
Configuration:: EUT only (Delta 5)
Mode: : Contunine Tx
Target: : FCC Class B
Voltage: : 115VAC / 60Hz
: Line 1: Peak (Blue), Average (Green)

Delta5 Multi-Technology Line 2

Compliance Certification Services
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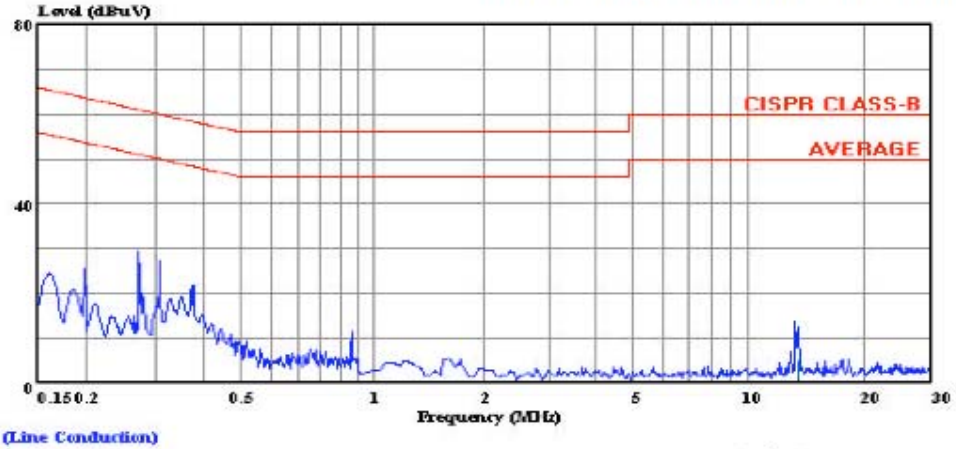
Fax: (510) 661-0888

Data#: 53 File#: 07U11442_LC (Delta3).EMI
Date: 01-22-2008 Time: 15:51:46



(Line Conduction)

Trace: 51 Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Tom Chen
Project #: : 07U11442
Company: : Farpointe
Configuration:: EUT only (Delta 5)
Mode: : Contunine Tx
Target: : FCC Class B
Voltage: : 115VAC / 60Hz
: Line 2: Peak (Blue), Average (Green)

Delta6.4 Multi-Technology Line 1

Compliance Certification Services
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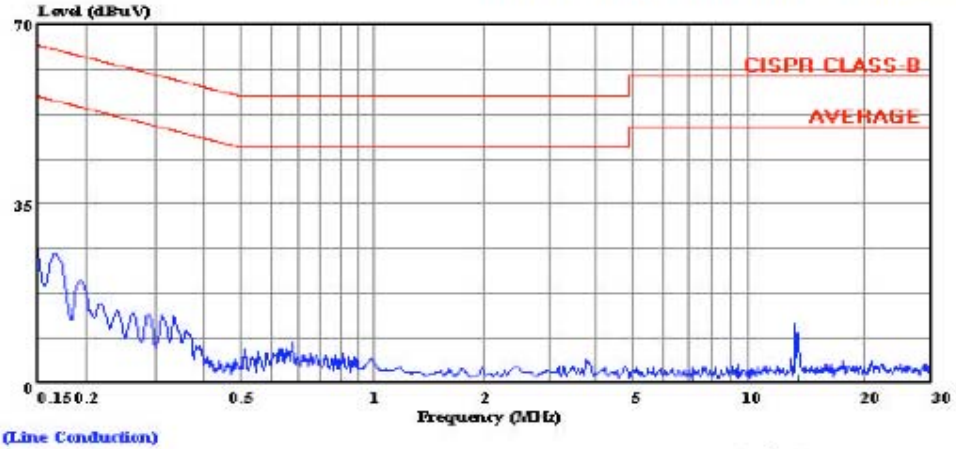
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 60 File#: 07U11442_LC (Delta3).EMI
Date: 01-22-2008 Time: 16:00:25



(Line Conduction)

Trace: 58 Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Tom Chen
Project #: : 07U11442
Company: : Farpointe
Configuration:: EUT only (Delta 6.4)
Mode: : Contunine Tx
Target: : FCC Class B
Voltage: : 115VAC / 60Hz
: Line 1: Peak (Blue), Average (Green)

Delta6.4 Multi-Technology Line 2

Compliance Certification Services
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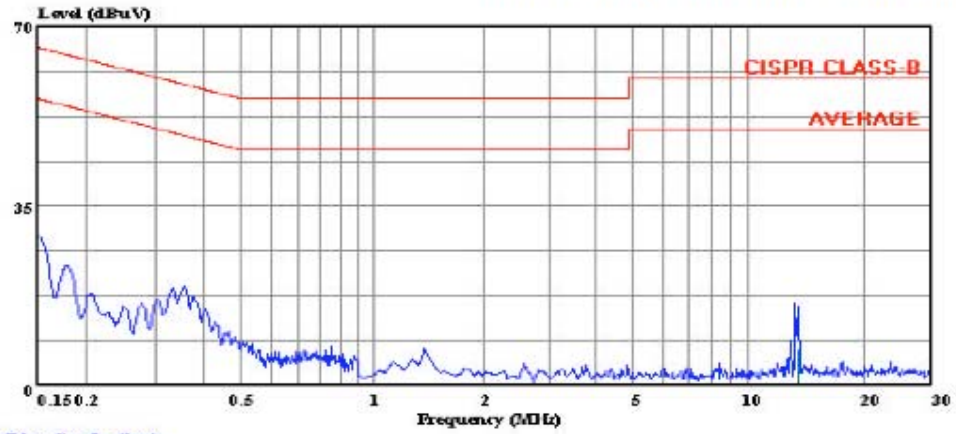
Tel: (510) 771-1000
Fax: (510) 661-0888

Data#: 67 File#: 07U11442_LC (Delta3).EMI
Date: 01-22-2008 Time: 16:06:50



(Line Conduction)

Trace: 65 Ref Trace:

Condition: CISPR CLASS-B
Test Operator:: Tom Chen
Project #: : 07U11442
Company: : Farpointe
Configuration:: EUT only (Delta 6.4)
Mode: : Contunine Tx
Target: : FCC Class B
Voltage: : 115VAC / 60Hz
: Line 2: Peak (Blue), Average (Green)

Frequency Stability
Test Requirement 15.255(d)

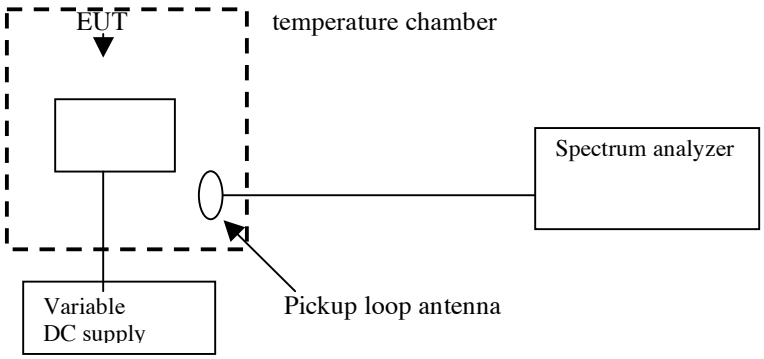
Test Limits

Within +/- 0.01% of fundamental from -20C to +50C.
Within +/- 0.01% of fundamental at 20C for supply voltage 85% and 115% of nominal

0.01% of 13.560 MHz = 1356 Hz maximum variation allowed

Allowed frequency variation: 13.558644MHz – 13.561356 MHz

Test Set-up



Test Procedures

1. Spectrum analyzer center frequency was set to 13.56 MHz operating frequency. Frequency was measured at +25C using spectrum analyzer marker function.
2. The transmitter was allowed to stabilize at every 10 degrees C from –20C to +50C and measurements were recorded at each temperature.

Test Results

Refer to table below. Frequency remains within 0.01% (100ppm) throughout all required temperature and supply voltage variations.

EUT: Delta 5

Reference Frequency: EUT Channel 13.56MHz @ 20*C Limit: ± 100 ppm = 135.601 KHz				
Power Supply (Vdc)	Environment Temperature (*C	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
16.10	55	13.5600750	0.000	± 100
4.25	55	13.5600000	0.055	± 100
12.00	50	13.5600500	0.018	± 100
12.00	40	13.5600500	0.018	± 100
12.00	30	13.5600500	0.018	± 100
12.00	***22***	***13.5600750***	0.000	***± 100***
12.00	20	13.5600750	0.000	± 100
12.00	10	13.5600750	0.000	± 100
12.00	0	13.5600750	0.000	± 100
12.00	-10	13.5600750	0.000	± 100
16.10	-20	13.5605000	-0.313	± 100
4.25	-20	13.5599500	0.092	± 100

Reference Frequency: EUT Channel 125KHz @ 20*C Limit: ± 100 ppm = 1250.750 KHz				
Power Supply (Vdc)	Environment Temperature (*C	Frequency Deviation Measureed with Time Elapse (KHz)	Delta (ppm)	Limit (ppm)
16.10	55	125.0750000	0.000	± 100
4.25	55	125.0750000	0.000	± 100
12.00	50	125.0750000	0.000	± 100
12.00	40	125.0750000	0.000	± 100
12.00	30	125.0750000	0.000	± 100
12.00	***22***	***125.0750000***	0.000	***± 100***
12.00	20	125.0750000	0.000	± 100
12.00	10	125.0750000	0.000	± 100
12.00	0	125.0750000	0.000	± 100
12.00	-10	125.0750000	0.000	± 100
16.10	-20	125.0750000	0.000	± 100
4.25	-20	125.0750000	0.000	± 100

Data applicable to Models Delta3 Multi-Technology
Delta5 Multi-Technology
Delta6.4 Multi-Technology

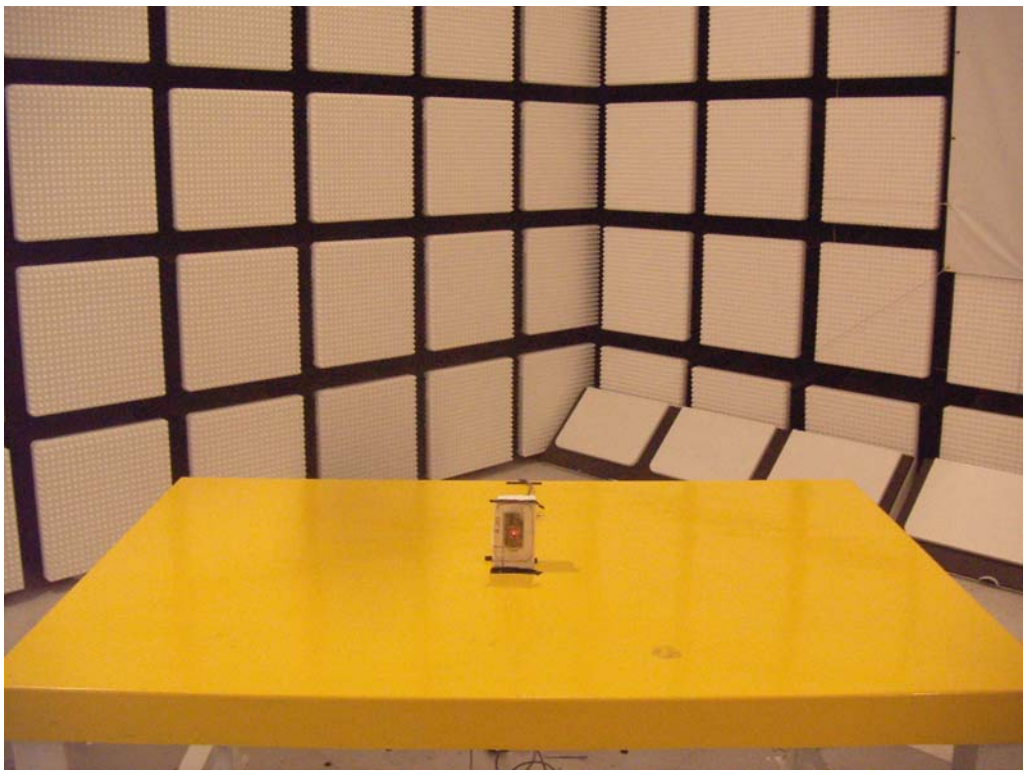
All three models use the same radio circuit board with identical layout and frequency determining circuitry.

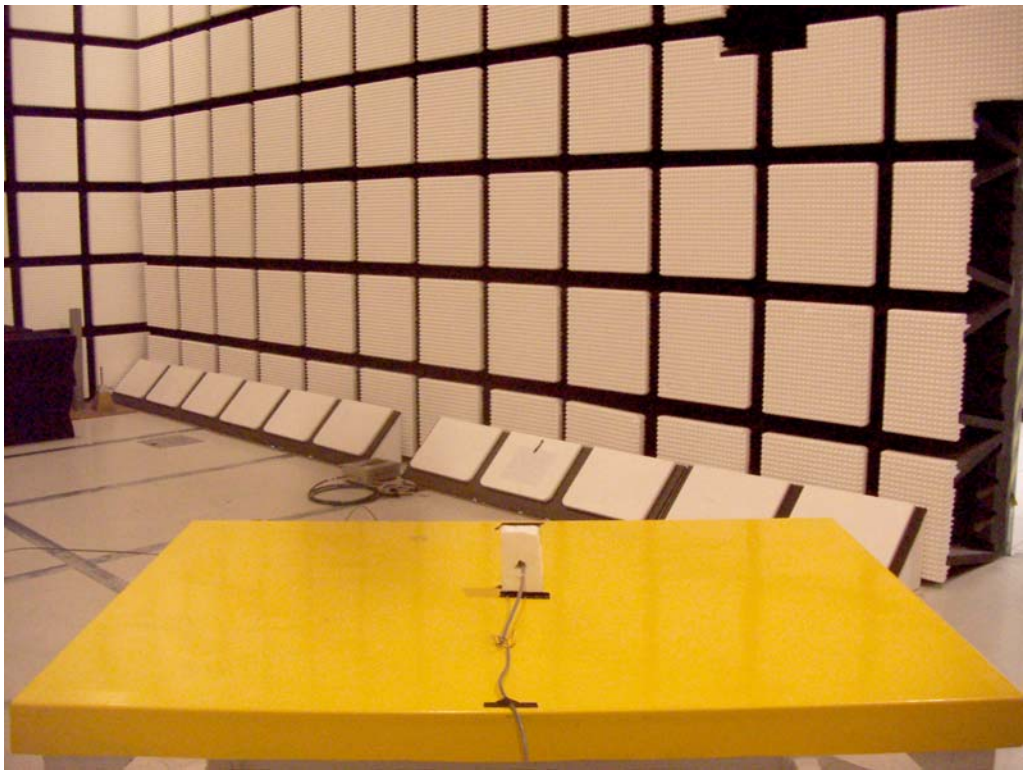
Test Set-Up Photographs

Radiated emissions below 30 MHz, 10m separation

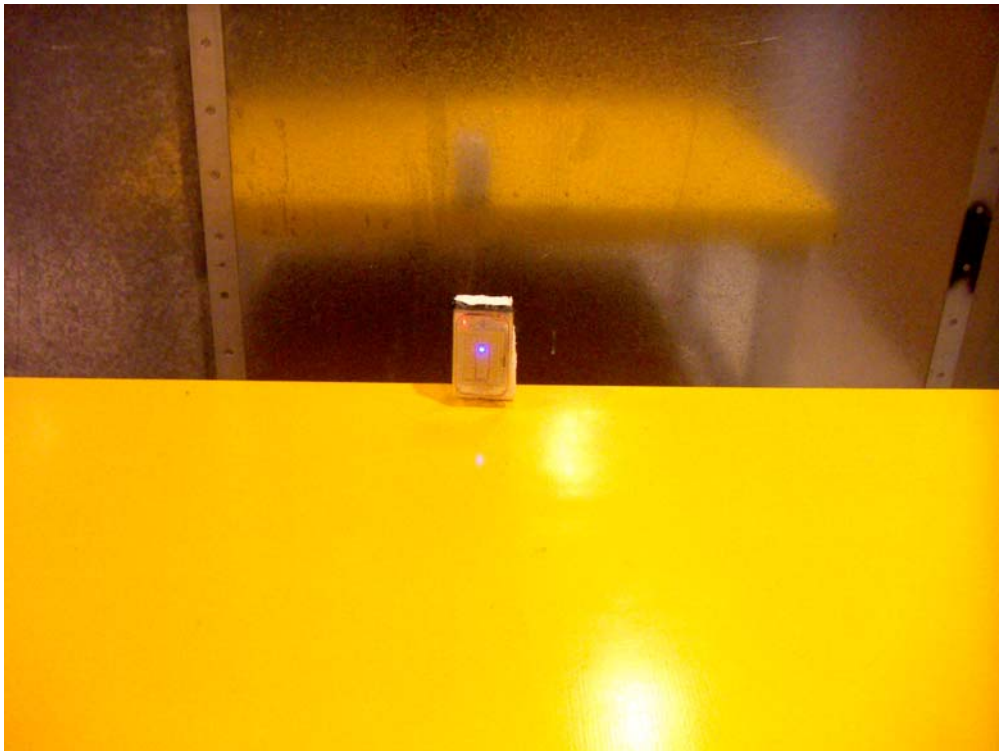
Radiated Emissions Below 30 MHz, 3m separation

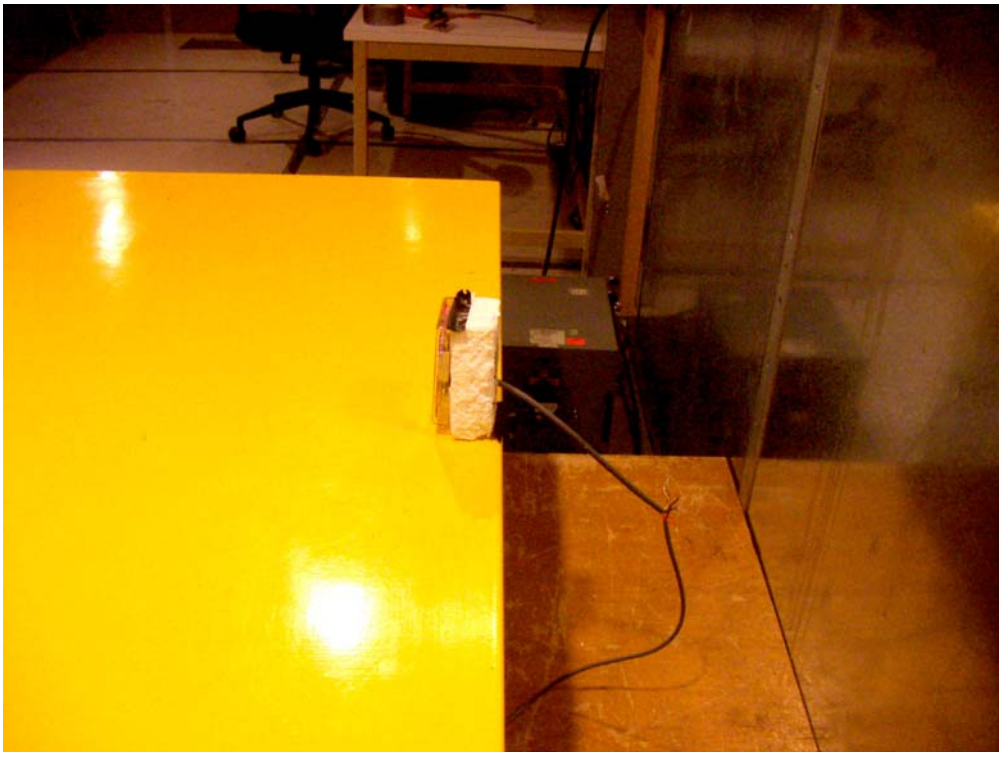
Radiated Emissions, 30 – 1000 MHz, Front View



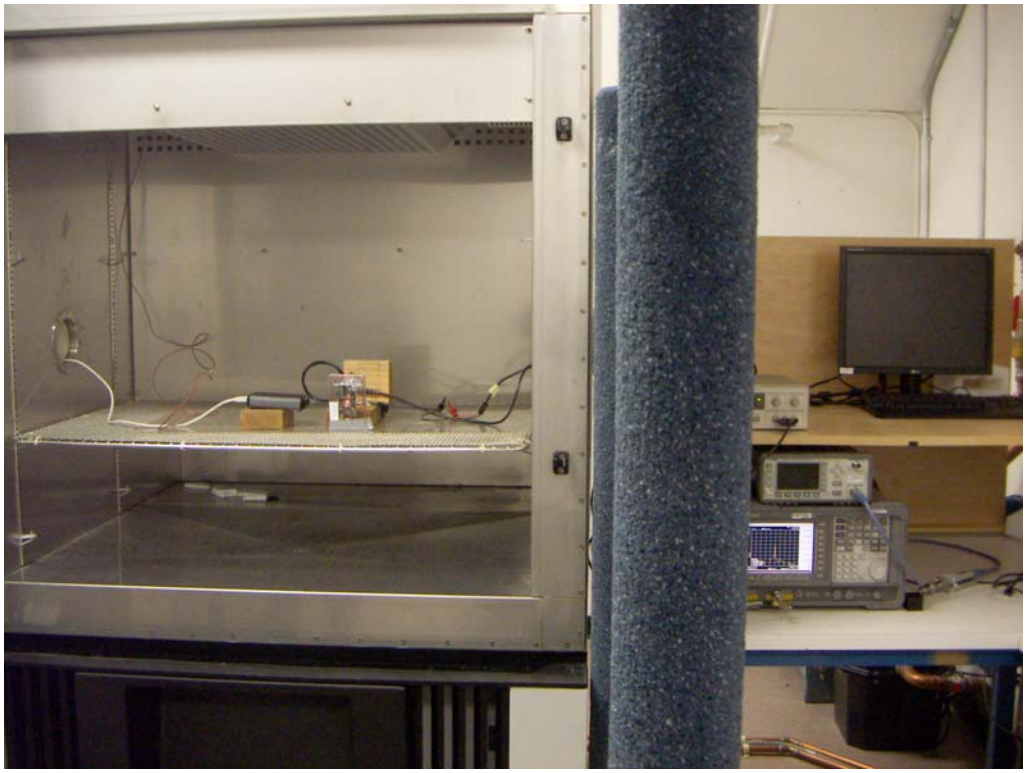


AC Line Conducted Emissions





Frequency Stability



END OF REPORT