

*FCC PART 15, SUBPART B and C
TEST REPORT**for*
mDDL**MODEL: 65900**

Prepared for

**AEROVIRONMENT, INC.
900 ENCHANTED WAY
SIMI VALLEY, CALIFORNIA 93065**Prepared by: **KYLE FUJIMOTO**Approved by: **MICHAEL CHRISTENSEN****COMPATIBLE ELECTRONICS INC.
114 OLINDA DRIVE
BREA, CALIFORNIA 92823
(714) 579-0500****DATE: MARCH 8, 2013**

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GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Compatible Electronics Inc., which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Device Tested: mDDL
Model: 65900
S/N: N/A

Product Description: See Expository Statement.

Modifications: The EUT was not modified during the testing.

Manufacturer: AeroVironment, Inc.
900 Enchanted Way
Simi Valley, California 93065

Test Dates: February 5 and 14, 2013; and March 4, 5, and 6, 2013

Test Specifications: EMI requirements
CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.247

Test Procedure: ANSI C63.4 and ANSI C63.10

Test Deviations: The test procedure was not deviated from during the testing.

SUMMARY OF TEST RESULTS

TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions, 150 kHz – 30 MHz	Complies with the Class B limits of CFR Title 47, Part 15 Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.207
2	Spurious Radiated RF Emissions, 10 kHz – 25000 MHz	Complies with the Class B limits of CFR Title 47, Part 15 Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.209
3	Fundamental and Emissions produced by the intentional radiator in non-restricted bands, 10 kHz – 25 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247(d)
4	Emissions produced by the intentional radiator in restricted bands, 10 kHz – 25 GHz	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209, and section 15.247 (d)
5	Peak Power Output	Complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(3)
6	RF Conducted Antenna Test	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.205, 15.209, and section 15.247 (d)
7	Peak Power Spectral Density from the Intentional Radiator to the Antenna	Complies with the relevant requirements of CFR Title 47, Part 15, Subpart C, section 15.247 (e)

1. PURPOSE

This document is a qualification test report based on the emissions tests performed on the mDDL, Model: 65900. The emission measurements were performed according to the measurement procedure described in ANSI C63.4. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the Class B specification limits defined by CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.247.

Note #1: For the unintentional radiator portion of the test, the EUT was within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B.

2. ADMINISTRATIVE DATA

2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California 92823.

2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

2.3 Cognizant Personnel

AeroVironment, Inc.

Gil Michaels	RF & Communications Manager
Steven Chambers	Aero Mechanical Engineering Manager

Compatible Electronics Inc.

Kyle Fujimoto	Test Engineer
Michael Christensen	Lab Manager, Brea Division

2.4 Date Test Sample was Received

The test sample was received prior to the date of testing.

2.5 Disposition of the Test Sample

The test sample has not been returned to AeroVironment, Inc as of the date of this test report.

2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
HP	Hewlett Packard
ITE	Information Technology Equipment
CML	Corrected Meter Limit
LISN	Line Impedance Stabilization Network
N/A	Not Applicable

3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
FCC Title 47, Part 15 Subpart C	FCC Rules - Radio frequency devices (including digital devices) – Intentional Radiators
ANSI C63.4 2009	Methods of measurement of radio-noise emissions from low-voltage electrical and electronic equipment in the range of 9 kHz to 40 GHz
FCC Title 47, Part 15 Subpart B	FCC Rules - Radio frequency devices (including digital devices) – Unintentional Radiators
KDB 558074 D01 Meas Guidance v02	Guidance for Performing Compliance Measurements on Digital Transmissions Systems (DTS) Operating Under 15.247
ANSI C63.10 2009	American National Standard for Testing Unlicensed Wireless Devices

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - Emissions

Monopole Antenna: The mDDL, Model: 65900 (EUT) was connected directly to an mDDL interface board. The mDDL interface board was also connected to a laptop and AC Adapter via its ethernet and power ports, respectively. The laptop was also connected to an AC Adapter via its power port. The EUT was also connected to two monopole antennas via the main and aux ports.

Twin Patch Antenna Mode: The mDDL, Model: 65900 (EUT) was connected directly to an mDDL interface board. The mDDL interface board was also connected to a laptop and AC Adapter via its ethernet and power ports, respectively. The laptop was also connected to an AC Adapter via its power port. The EUT was also connected to the twin patch antenna via the main and aux ports.

The EUT was continuously transmitting and/or receiving continuously throughout the testing. A special program on the laptop allowed the EUT to be programmed for the low, middle, and high channels.

It was determined that the emissions were at their highest level when the EUT was operating in the above configuration. The final emissions data was taken in both modes of operation described above and any cables were maximized. All initial investigations were performed with the measurement receiver in manual mode scanning the frequency range continuously. Photographs of the test setup are in Appendix D of this report.

Please see Appendix E for the data sheets.

4.1.1 Cable Construction and Termination

- Cable 1** This is a 7-meter unshielded cable connecting the mDDL TMB interface board with the laptop. The cable has an RJ-45 connector at each end.
- Cable 2** This is a 1-meter unshielded cable connecting the mDDL TMB interface board to cable #3. The cable has a 2 pin connector at the mDDL TMB interface board end and has two banana plug connectors at the cable #3 end.
- Cable 3** This is a 1-meter unshielded cable connecting cable #2 to the AC Adapter. The cable has two banana jack connectors at the cable #2 end and is hard wired into the AC Adapter.
- Cable 4** **Twin Patch Antenna Mode:**
This is a 15-centimeter cable connecting the EUT's main port to the twin patch antenna. The cable has a UFL connector at each end.
- Cable 5** **Twin Patch Antenna Mode:**
This is a 13-centimeter cable connecting the EUT's aux port to the twin patch antenna. The cable has a UFL connector at each end.
- Cable 6** **Monopole Antenna Mode:**
This is a 20-centimeter cable connecting the EUT's aux port to monopole antenna #1. The cable has a UFL connector at the EUT end and is hard wired into the monopole.
- Cable 7** **Monopole Antenna Mode:**
This is a 4-centimeter cable connecting the EUT's main port to monopole antenna #2. The cable has a UFL connector at the EUT end and is hard wired into the monopole.

5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT**5.1 EUT and Accessory List**

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
mDDL (EUT)	AEROVIRONMENT, INC.	65900	N/A	PZR-68460
LAPTOP	DELL	PP01X	CN-OUY141-48643- 883-1581	QDS-BRCM1022
AC ADAPTER FOR LAPTOP	DELL	PA-1900-02D	CN-09T215-71615- 3C9-096B	N/A
AC ADAPTER FOR EUT	OEM	ADS18A-W 050280	N/A	N/A
mDDL TMB INTERFACE BOARD	N/A	N/A	N/A	N/A
¼ WAVE MONOPOLE ANTENNA	LINX TECHNOLOGIES	ANT-2.4-CW-RH	N/A	N/A
TWIN PATCH ANTENNA	AEROVIRONMENT, INC.	AV P/N: 70958	N/A	N/A

5.2 Emissions Test Equipment

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
GENERAL TEST EQUIPMENT USED FOR ALL RF EMISSIONS TESTS					
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
Spectrum Analyzer – Main Section	Hewlett Packard	8568B	2517A01563	May 30, 2012	May 30, 2013
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A15285	May 30, 2012	May 30, 2013
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	May 30, 2012	May 30, 2013
EMI Receiver	Rohde & Schwarz	ESIB40	100194	November 19, 2012	November 19, 2014
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
Loop Antenna	Com-Power	AL-130	17089	January 29, 2013	January 29, 2015
Biconical Antenna	Com Power	AB-900	43028	May 24, 2012	May 24, 2013
Log Periodic Antenna	Com Power	AL-100	16252	May 24, 2012	May 24, 2013
High Pass Filter	AMTI Microwave Circuits	H3G020G4	481230	June 7, 2012	June 7, 2013

5.3 Emissions Test Equipment (Continued)

EQUIPMENT TYPE	MANU-FACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
RF RADIATED EMISSIONS TEST EQUIPMENT (CONTINUED)					
Horn Antenna	Com-Power	AH-118	071175	February 29, 2012	March 1, 2014
Horn Antenna	Com-Power	AH826	71957	NCR	N/A
Preamplifier	Com-Power	CPPA-102	1017	December 27, 2012	December 27, 2013
Preamplifier	Com-Power	PA-118	181656	December 27, 2012	December 27, 2013
Preamplifier	Com-Power	PA-840	711013	May 17, 2012	May 17, 2013
RF CONDUCTED EMISSIONS TEST EQUIPMENT					
Emissions Program	Compatible Electronics	2.3 (SR19)	N/A	N/A	N/A
LISN	Com Power	LI-215	12078	June 20, 2011	June 20, 2013
LISN	Com Power	LI-215	12082	June 20, 2011	June 20, 2013
Transient Limiter	Com Power	252A910	1	November 7, 2012	November 7, 2013
Power Measuring Analyzer	Boonton Electronics	4500A-01	1282	May 15, 2012	May 15, 2013
Peak Power Sensor	Boonton Electronics	57318	3723	May 15, 2012	May 15, 2013

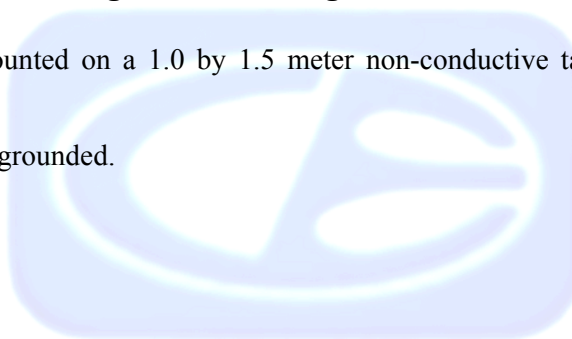
6. TEST SITE DESCRIPTION**6.1 Test Facility Description**

Please refer to section 2.1 of this report for the emissions test location.

6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was not grounded.



7. CHARACTERISTICS OF THE TRANSMITTER

7.1 Transmitter Power

Transmit power is herein defined as the power delivered to a 50 ohm load at the RF output of the EUT.

Power	Frequency
25.43 dBm	2403 MHz
25.38 dBm	2439 MHz
26.01 dBm	2475 MHz

7.2 Channel Description and Frequencies

The lowest frequency the EUT will use is 2403 MHz and the highest frequency the EUT will use is 2475 MHz. The EUT will be able to be tuned every 0.5 MHz between the lowest frequency and the highest frequency.

7.3 Antenna Gain

The $\frac{1}{4}$ wave monopole antenna has a gain of 0 dBi.
The twin patch antenna has a gain of 9 dBi.

8. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

8.1 RF Emissions

8.1.1 Conducted Emissions Test

The spectrum analyzer was used as a measuring meter. The data was collected with the spectrum analyzer in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A transient limiter was used for the protection of the spectrum analyzer input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the spectrum analyzer. The output of the second LISN was terminated by a 50 ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4: 2009. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics conducted emissions software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

Test Results:

Complies with the **Class B** limits of CFR Title 47, Part 15 Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, section 15.207.

8.1.2 Radiated Emissions (Spurious and Harmonics) Test

The spectrum analyzer and EMI Receiver were used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com Power Preamplifier Model: CPPA-102 was used for frequencies from 30 MHz to 1 GHz, the Com Power Microwave Preamplifier Model: PA-118 was used for frequencies above 1 GHz, and the Com Power Microwave Preamplifier Model: PA-840 was used for frequencies above 18 GHz. The spectrum analyzer was used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps.

The quasi-peak adapter was used only for those readings which are marked accordingly on the data sheets.

The frequencies above 1 GHz were averaged manually by narrowing the video filter down to 10 Hz and putting the sweep time on AUTO on the spectrum analyzer to keep the amplitude reading calibrated.

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 25 GHz	1 MHz	Horn Antenna

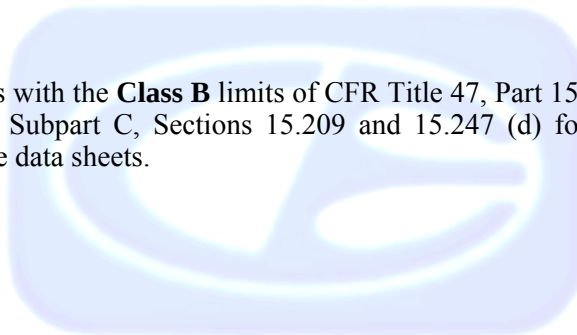
The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4: 2009. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT by the Radiated Emission Manual Test software. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results.

Radiated Emissions (Spurious and Harmonics) Test (con't)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3 meter test distance from 10 kHz to 25 GHz to obtain the final test data and 10-meters from 10 kHz to 30 MHz

Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.247 (d) for radiated emissions. Please see Appendix E for the data sheets.



8.1.3 RF Emissions Test Results

Table 1.0 CONDUCTED EMISSION RESULTS
mDDL, Model: 65900

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
0.641 (BL) (Monopole)	43.08	46.00	-2.92
0.637 (WL) (Monopole)	42.94	46.00	-3.06
0.637 (WL) (Twin Patch)	42.54	46.00	-3.46
0.641 (BL) (Twin Patch)	42.14	46.00	-3.86
3.226 (BL) (Twin Patch)	40.43	46.00	-5.57
3.277 (BL) (Twin Patch)	40.24	46.00	-5.76

Table 2.0 RADIATED EMISSION RESULTS
mDDL, Model: 65900

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
440.075 (H)	42.45	46.00	-3.55
504.049 (V)	42.08 (QP)	46.00	-3.92
504.048 (V)	41.50	46.00	-4.50
520.050 (V)	41.46	46.00	-4.54
480.048 (V)	41.18	46.00	-4.82
480.075 (H)	41.18	46.00	-4.82

Notes:

- * The complete emissions data is given in Appendix E of this report.
- QP Quasi-Peak Reading A Average Reading
- H Horizontal Polarization V Vertical Polarization

8.2 Emissions Bandwidth (EBW)

The 6 dB Bandwidth was measured using the EMI Receiver. The bandwidth was measured using a direct connection from the RF output of the EUT. The following steps were performed for measuring the 6 dB Bandwidth.

1. Set resolution bandwidth (RBW) = 1-5% of the DTS Bandwidth, not to exceed 100 kHz.
2. Set the video bandwidth (VBW) to equal or greater than 3 times the RBW.
3. Detector = Peak.
4. Trace Mode = Max Hold.
5. Sweep = Auto Couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emissions that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (a)(2). The 6 dB bandwidth is greater than 500 kHz. Please see the data sheets located in Appendix E.

8.3 Peak Output Power

The Peak Output Power was taken using the power meter and power sensor. The EUT was directly connected to the power sensor, which was directly connected to the power meter. The Peak Output Power was then taken.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C, section 15.247 (b)(3). Please see the data sheets located in Appendix E.

8.4 RF Antenna Conducted Test

The RF antenna conducted test was performed using the EMI Receiver. The RF antenna conducted test measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The resolution bandwidth was 100 kHz, and the video bandwidth was 300 kHz. The spans were wide enough to include all the harmonics and emissions that were produced by the intentional radiator.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). The emissions are at least 20 dB below the level of the fundamental. Please see the data sheets located in Appendix E.

8.5 RF Band Edges

The RF band edges were taken at 2390 MHz when the EUT was on the low channel and 2483.5 MHz when the EUT was on the high channel using the EMI Receiver. A preamplifier was used to boost the signal level, with the plots being taken at a 3 meter test distance. The radiated emissions test procedure as describe in section 8.2 of this test report was used to maximize the emission.

A plot was also taken at 2400 MHz to show that the band edge at that frequency was 20 dB below the fundamental. The band edge at 2400 MHz was measured using a direct connection from the RF output of the EUT to the RF input of the EMI Receiver.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (d). The RF power at the restricted bands closest to the band edges at 2390 MHz and 2483.5 MHz also meet the limits of section 15.209. Please see the data sheets located in Appendix E.

8.6 Spectral Density Test

The spectrum density output was measured using the EMI Receiver. The spectral density output was measured using a direct connection from the RF out on the EUT into the input of the EMI Receiver. The following steps were performed for measuring the spectral density.

1. Set the analyzer center frequency to DTS channel center frequency .
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW ≥ 3 kHz.
4. Set the VBW $\geq 3 \times$ RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize .
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Test Results:

The EUT complies with the relevant requirements of FCC Title 47, Part 15, Subpart C section 15.247 (e).

9. CONCLUSIONS

The mDDL, Model: 65900 meets all of the specification limits defined in FCC Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.247.

Note: For the unintentional radiator portion of the test, the EUT was within the **Class B** specification limits defined by CFR Title 47, Part 15, Subpart B.



APPENDIX A

LABORATORY ACCREDITATIONS AND RECOGNITIONS

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

LABORATORY ACCREDITATIONS AND RECOGNITIONS

NVLAP LAB CODES 200063-0,
200528-0, 200527-0

For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025. Please follow the link to the NIST/NVLAP site for each of our facilities' NVLAP certificate and scope of accreditation

NVLAP listing links

[Agoura Division](#) / [Brea Division](#) / [Silverado/Lake Forest Division](#)

.Quote from ISO-ILAC-IAF Communiqué on 17025:

"A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems — Requirements."

ANSI listing [CETCB](#)

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA).

US/EU MRA list [NIST MRA site](#)

Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA).

APEC MRA list [NIST MRA site](#)

We are also listed for IT products by the following country/agency:

VCCI Support member: Please visit http://www.vcci.jp/vcci_e/

FCC Listing, from FCC OET site

[FCC test lab search](#) <https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm>

Compatible Electronics IC listing can be found at:

<http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home>

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400

APPENDIX B

MODIFICATIONS TO THE EUT

MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC Subpart B and FCC 15.247 specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modifications were made to the EUT during the testing.



APPENDIX C

***ADDITIONAL MODELS COVERED
UNDER THIS REPORT***

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

mDDL
Model: 65900
S/N: N/A

There were no additional models covered under this report.



APPENDIX D

DIAGRAMS, CHARTS, AND PHOTOS

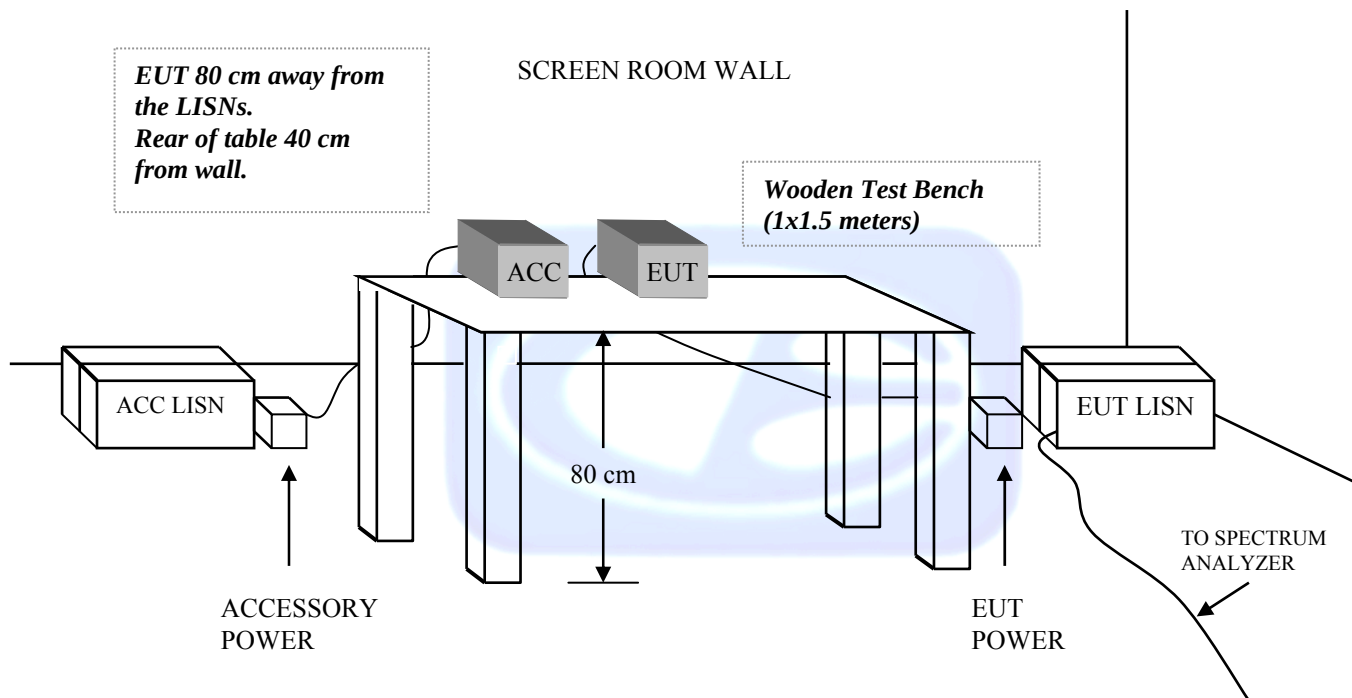
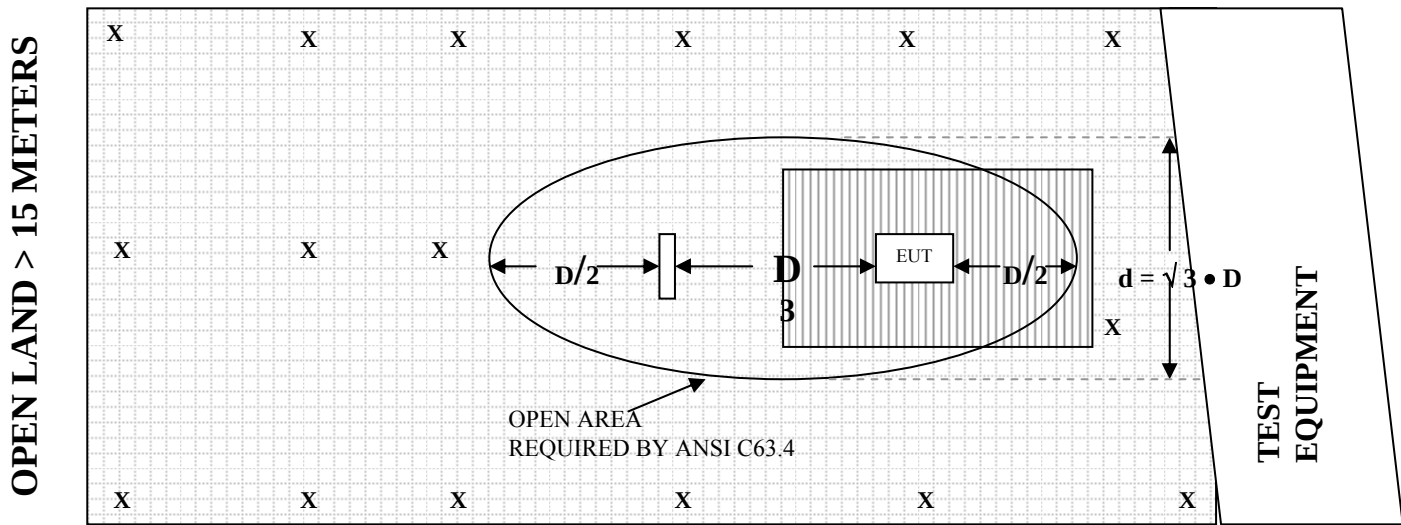
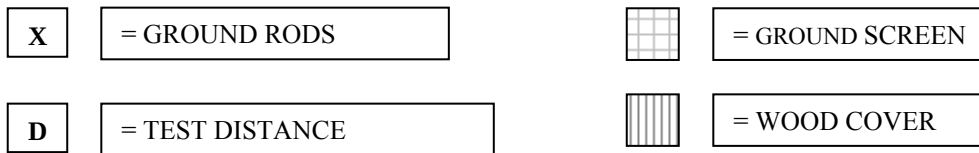
FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE – 3 METERS

OPEN LAND > 15 METERS



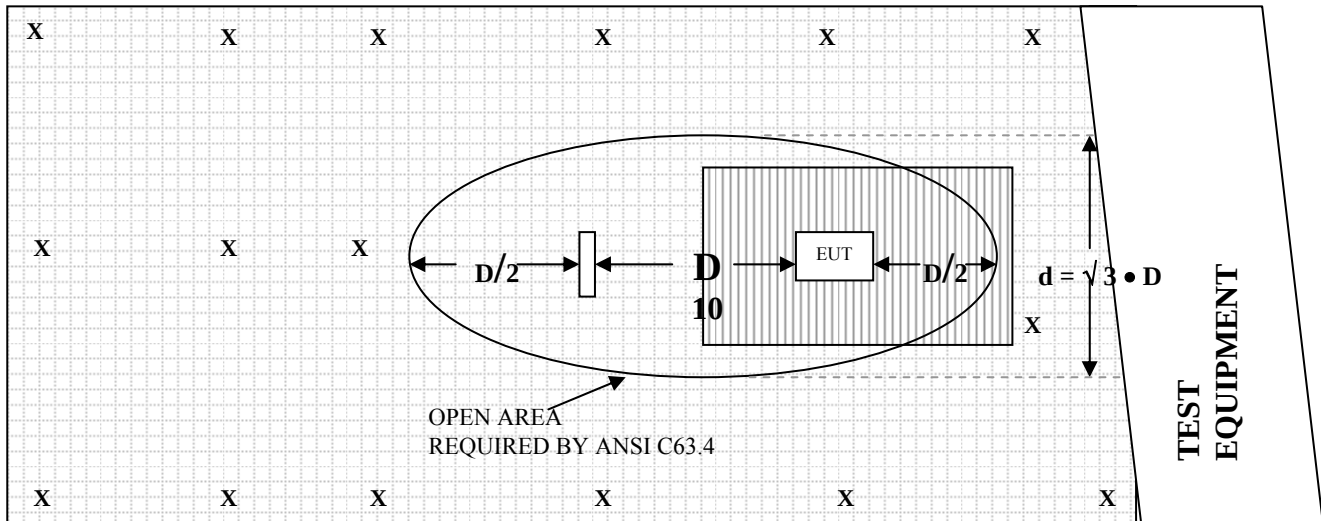
OPEN LAND > 15 METERS



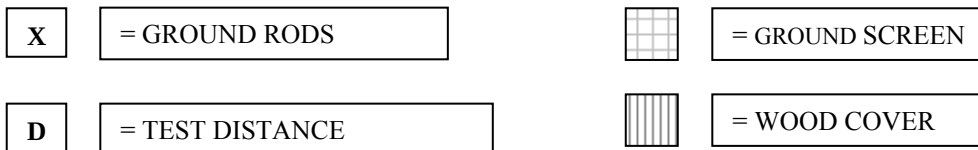
**FIGURE 3: PLOT MAP AND LAYOUT OF RADIATED SITE –
10 METERS**

OPEN LAND > 15 METERS

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS



COM-POWER AL-130**LOOP ANTENNA**

S/N: 17089

CALIBRATION DATE: JANUARY 29, 2013

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-42.5	9
0.01	-42.3	9.2
0.02	-42.1	9.4
0.03	-41.4	10.1
0.04	-41.8	9.7
0.05	-42.4	9.1
0.06	-42.3	9.2
0.07	-42.5	9
0.08	-42.4	9.1
0.09	-42.5	9
0.1	-42.5	9
0.2	-42.7	8.8
0.3	-42.6	8.9
0.4	-42.5	9
0.5	-42.7	8.8
0.6	-42.7	8.8
0.7	-42.5	9
0.8	-42.3	9.2
0.9	-42.2	9.3
1	-42.2	9.3
2	-41.8	9.7
3	-41.7	9.8
4	-41.7	9.8
5	-41.5	10
6	-41.6	9.9
7	-41.4	10.1
8	-41	10.5
9	-40.8	10.7
10	-41.3	10.2
15	-41.4	10.1
20	-41.2	10.3
25	-42.6	8.9
30	-41.7	9.8

COM-POWER AB-900

BICONICAL ANTENNA

S/N: 43028

CALIBRATION DATE: MAY 24, 2012

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	11.80	120	13.20
35	11.20	125	13.30
40	11.90	140	11.60
45	10.70	150	11.80
50	11.40	160	12.70
60	10.30	175	14.80
70	7.60	180	15.70
80	5.70	200	15.80
90	7.90	250	14.80
100	10.7	300	19.80

COM-POWER AL-100

LOG PERIODIC ANTENNA

S/N: 16252

CALIBRATION DATE: MAY 24, 2012

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	13.00	700	20.30
350	13.20	750	20.80
400	14.50	800	21.00
450	15.40	850	23.70
500	15.80	900	21.70
550	16.60	950	24.20
600	18.90	1000	24.30
650	19.10		

COM POWER AH-118

HORN ANTENNA

S/N: 071175

CALIBRATION DATE: FEBRUARY 29, 2012

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	23.6	10.0	37.7
1.5	22.0	10.5	38.4
2.0	28.7	11.0	38.0
2.5	29.3	11.5	38.2
3.0	30.6	12.0	39.0
3.5	30.4	12.5	42.4
4.0	31.1	13.0	40.8
4.5	33.4	13.5	40.0
5.0	35.3	14.0	39.7
5.5	35.1	14.5	43.5
6.0	36.9	15.0	42.7
6.5	37.4	15.5	39.7
7.0	37.6	16.0	39.2
7.5	36.2	16.5	39.7
8.0	38.4	17.0	42.2
8.5	39.3	17.5	47.6
9.0	37.4	18.0	51.2
9.5	38.0		

COM-POWER AH826**HORN ANTENNA**

S/N: 71957

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	33.5	22.5	35.5
18.5	33.5	23.0	35.9
19.0	34.0	23.5	35.7
19.5	34.0	24.0	35.6
20.0	34.3	24.5	36.0
20.5	34.9	25.0	36.2
21.0	34.7	25.5	36.1
21.5	35.0	26.0	36.2
22.0	35.0	26.5	35.7

COM-POWER PA-840**PREAMPLIFIER****S/N: 711013****CALIBRATION DATE: MAY 17, 2012**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	25.81	31.0	25.77
19.0	24.57	31.5	25.36
20.0	23.46	32.0	25.15
21.0	22.51	32.5	25.13
22.0	23.85	33.0	25.52
23.0	23.31	33.5	25.24
24.0	24.44	34.0	25.08
25.0	25.42	34.5	25.27
26.0	25.71	35.0	23.99
26.5	25.66	35.5	24.67
27.0	25.84	36.5	24.80
27.5	25.29	37.0	26.27
28.0	25.46	37.5	24.86
28.5	25.58	38.0	24.64
29.0	26.16	38.5	23.46
29.5	26.14	39.0	21.29
30.0	26.01	39.5	20.83
30.5	25.67	40.0	19.96

COM-POWER CPPA-102**PREAMPLIFIER**

S/N: 1017

CALIBRATION DATE: DECEMEBER 27, 2012

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
1	36.9	225	38.14
3	38.1	250	38.15
5	38.1	275	38.14
8	38.2	300	38.18
10	38.3	350	38.22
20	38.2	400	38.26
30	38.3	450	37.53
40	38.2	500	38.24
50	38.5	550	38.53
60	38.5	600	38.69
70	38.4	650	38.66
80	38.4	700	38.58
90	38.5	750	38.37
100	38.4	800	38.23
125	38.6	850	37.68
150	38.4	900	37.38
175	38.5	950	36.82
200	38.5	1000	36.14

COM-POWER PA-118**PREAMPLIFIER****S/N: 181656****CALIBRATION DATE: DECEMBER 27, 2012**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.68	6.0	25.75
1.1	25.08	6.5	25.28
1.2	25.70	7.0	24.83
1.3	25.98	7.5	24.49
1.4	26.11	8.0	24.38
1.5	26.23	8.5	25.06
1.6	26.34	9.0	25.55
1.7	26.39	9.5	25.32
1.8	26.44	10.0	25.25
1.9	26.45	11.0	24.99
2.0	26.48	12.0	25.08
2.5	26.59	13.0	24.44
3.0	26.67	14.0	25.02
3.5	26.66	15.0	26.12
4.0	26.82	16.0	25.67
4.5	26.46	17.0	24.33
5.0	26.22	18.0	26.75
5.5	25.98		



FRONT VIEW

AEROVIRONMENT, INC.

mDDL

MODEL: 65900

FCC SUBPART B AND C – RADIATED EMISSIONS – MONOPOLE ANTENNA

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

AEROVIRONMENT, INC.

mDDL

MODEL: 65900

FCC SUBPART B AND C – RADIATED EMISSIONS – MONOPOLE ANTENNA

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

Brea Division
114 Olinda Drive
Brea, CA 92823
(714) 579-0500

Agoura Division
2337 Troutdale Drive
Agoura, CA 91301
(818) 597-0600

Silverado Division
19121 El Toro Road
Silverado, CA 92676
(949) 589-0700

Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



FRONT VIEW

AEROVIRONMENT, INC.
mDDL

MODEL: 65900

FCC SUBPART B AND C – RADIATED EMISSIONS – TWIN PATCH ANTENNA

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**



REAR VIEW

AEROVIRONMENT, INC.

mDDL

MODEL: 65900

FCC SUBPART B AND C – RADIATED EMISSIONS – TWIN PATCH ANTENNA

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

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Lake Forest Division
20621 Pascal Way
Lake Forest, CA 92630
(949) 587-0400



FRONT VIEW

AEROVIRONMENT, INC.

mDDL

MODEL: 65900

FCC SUBPART B AND C – CONDUCTED EMISSIONS – MONOPOLE ANTENNA

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FOR MAXIMUM EMISSIONS**

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REAR VIEW

AEROVIRONMENT, INC.

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FCC SUBPART B AND C – CONDUCTED EMISSIONS – MONOPOLE ANTENNA

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FRONT VIEW

AEROVIRONMENT, INC.

mDDL

MODEL: 65900

FCC SUBPART B AND C – CONDUCTED EMISSIONS – TWIN PATCH ANTENNA

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

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REAR VIEW

AEROVIRONMENT, INC.

mDDL

MODEL: 65900

FCC SUBPART B AND C – CONDUCTED EMISSIONS – TWIN PATCH ANTENNA

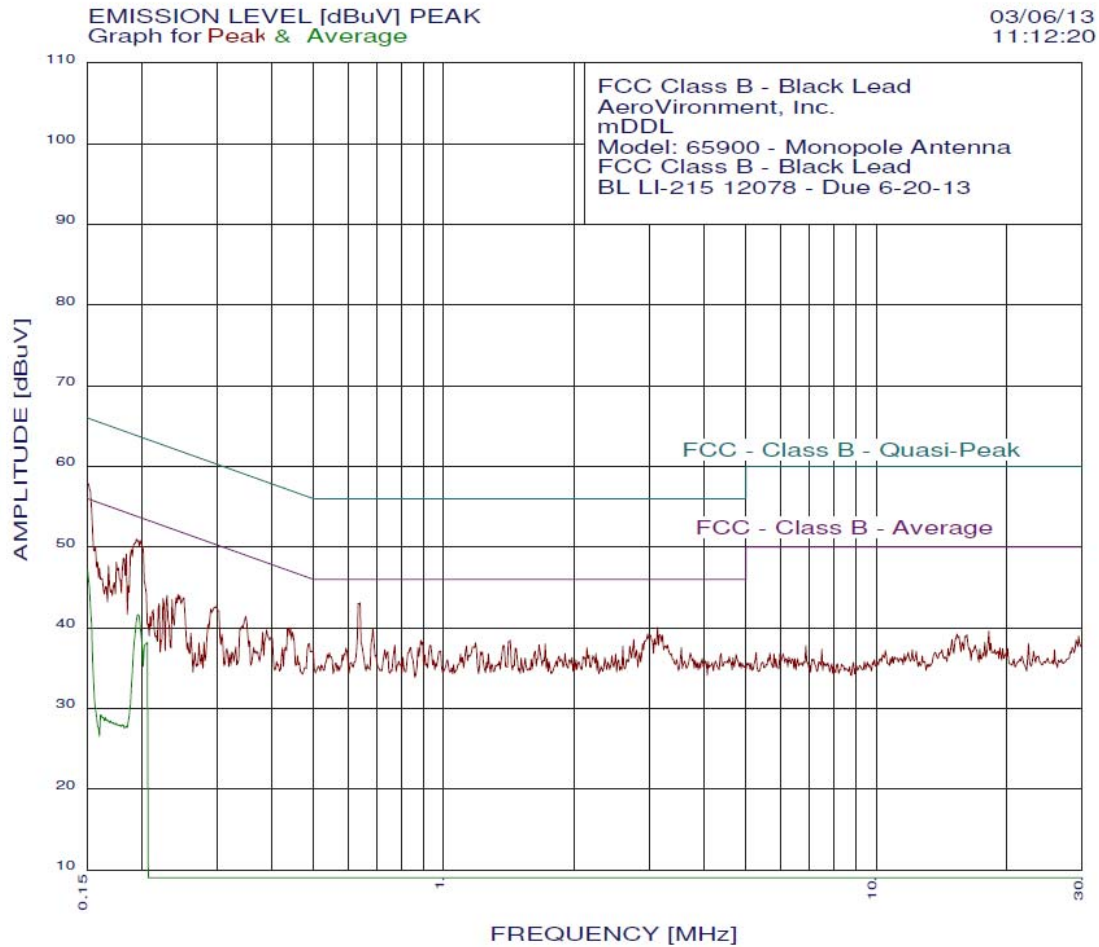
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

APPENDIX E

DATA SHEETS

CONDUCTED EMISIONS

DATA SHEETS



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03/06/13 11:12:20

FCC Class B - Black Lead
AeroVironment, Inc.
mDDL
Model: 65900 - Monopole Antenna
FCC Class B - Black Lead
BL LI-215 12078 - Due 6-20-13
Test Engineer : Kyle Fujimoto

42 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.195	51.00	53.84	-2.84**
2	0.641	43.08	46.00	-2.92
3	0.184	49.10	54.28	-5.18**
4	0.182	48.60	54.41	-5.81**
5	3.124	40.04	46.00	-5.96
6	0.686	39.86	46.00	-6.14
7	0.175	48.10	54.72	-6.62**
8	2.963	39.23	46.00	-6.77
9	3.158	39.14	46.00	-6.86
10	0.442	40.02	47.02	-7.00
11	0.168	47.70	55.07	-7.37**
12	2.751	38.53	46.00	-7.47
13	1.426	38.44	46.00	-7.56
14	0.885	38.42	46.00	-7.58
15	0.348	41.40	49.00	-7.60
16	0.297	42.60	50.32	-7.72
17	1.184	38.12	46.00	-7.88
18	0.243	44.10	52.00	-7.90
19	1.717	37.97	46.00	-8.03
20	0.160	47.41	55.47	-8.07**
21	1.663	37.87	46.00	-8.13
22	0.771	37.85	46.00	-8.15
23	1.374	37.84	46.00	-8.16
24	0.929	37.81	46.00	-8.19
25	0.486	38.01	46.23	-8.22
26	2.693	37.72	46.00	-8.28
27	2.596	37.72	46.00	-8.28
28	1.130	37.71	46.00	-8.29
29	0.389	39.72	48.08	-8.36
30	3.547	37.55	46.00	-8.45
31	0.839	37.53	46.00	-8.47
32	0.872	37.53	46.00	-8.47
33	0.229	44.00	52.48	-8.48
34	2.145	37.50	46.00	-8.50
35	0.595	37.49	46.00	-8.51
36	1.472	37.45	46.00	-8.55
37	0.731	37.25	46.00	-8.75
38	0.235	43.50	52.25	-8.75
39	2.796	37.23	46.00	-8.77
40	0.381	39.41	48.25	-8.84
41	0.979	37.10	46.00	-8.90
42	1.629	37.06	46.00	-8.94

**Please See the Average Readings on the Next Page and on the Plot

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03/06/13 11:12:20

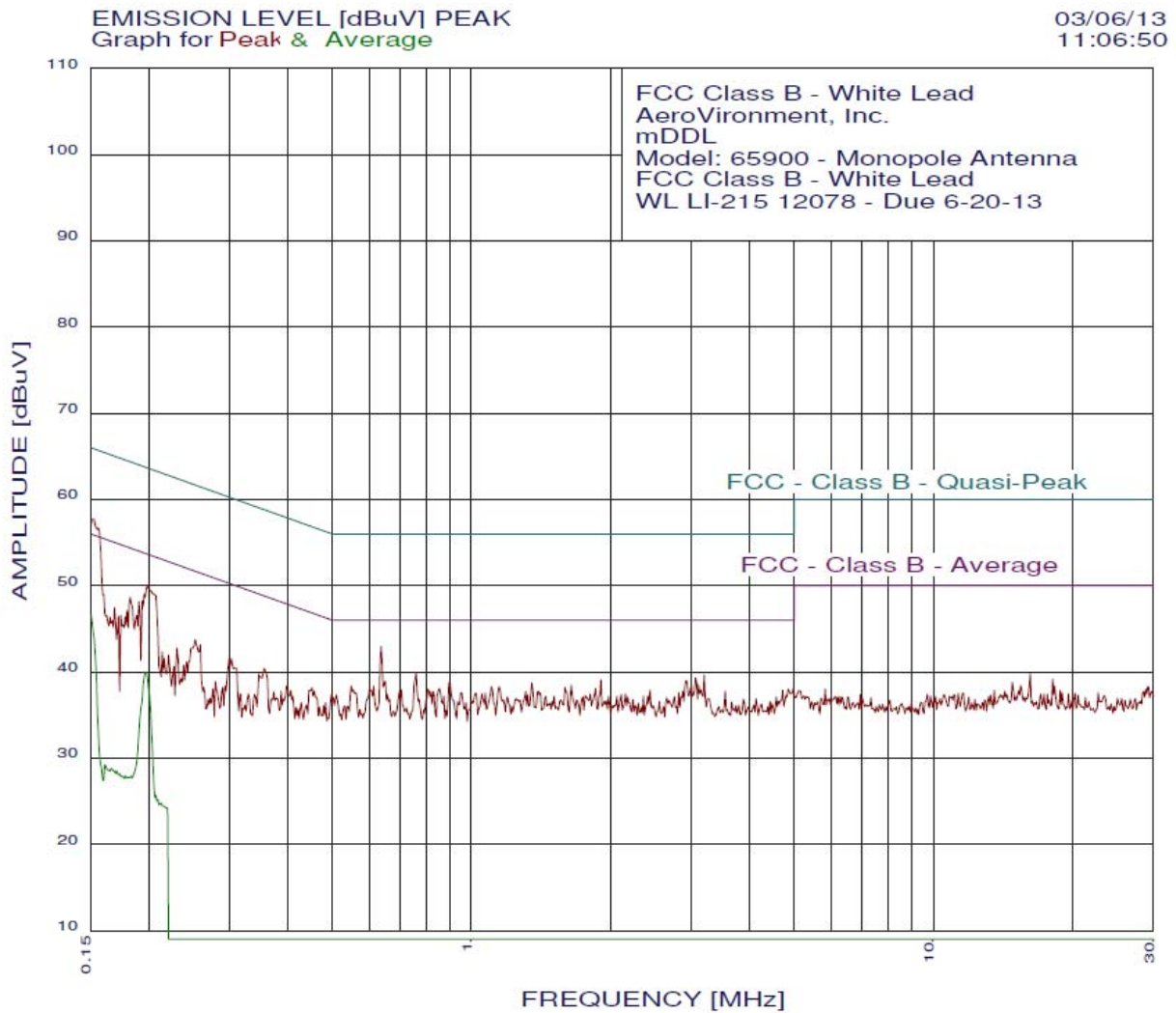
FCC Class B - Black Lead
AeroVironment, Inc.
mDDL
Model: 65900 - Monopole Antenna
FCC Class B - Black Lead
BL LI-215 12078 - Due 6-20-13
Test Engineer : Kyle Fujimoto

11 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 0.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.197	41.59	53.75	-12.16
2	0.206	38.17	53.35	-15.18
3	0.161	29.20	55.43	-26.22
4	0.165	28.83	55.20	-26.37
5	0.182	27.96	54.41	-26.45
6	0.184	27.79	54.28	-26.49
7	0.170	28.45	54.98	-26.53
8	0.167	28.53	55.11	-26.58
9	0.175	28.13	54.72	-26.59
10	0.172	28.25	54.86	-26.61
11	0.179	27.92	54.54	-26.62





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03/06/13 11:06:50

FCC Class B - White Lead
AeroVironment, Inc.
mDDL
Model: 65900 - Monopole Antenna
FCC Class B - White Lead
WL LI-215 12078 - Due 6-20-13
Test Engineer : Kyle Fujimoto

42 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.637	42.94	46.00	-3.06
2	0.199	49.93	53.67	-3.74**
3	0.183	48.64	54.37	-5.73**
4	0.190	48.13	54.01	-5.88**
5	0.759	39.91	46.00	-6.09
6	3.192	39.62	46.00	-6.38
7	3.059	39.30	46.00	-6.70
8	1.908	39.06	46.00	-6.94
9	2.916	38.99	46.00	-7.01
10	0.899	38.86	46.00	-7.14
11	1.352	38.73	46.00	-7.27
12	0.180	47.14	54.50	-7.36**
13	3.107	38.51	46.00	-7.49
14	2.995	38.49	46.00	-7.51
15	1.646	38.46	46.00	-7.54
16	0.188	46.53	54.10	-7.57**
17	0.169	47.44	55.03	-7.59**
18	0.614	38.35	46.00	-7.65
19	0.550	38.32	46.00	-7.68
20	1.148	38.28	46.00	-7.72
21	1.106	38.27	46.00	-7.73
22	1.594	38.16	46.00	-7.84
23	4.980	38.09	46.00	-7.91
24	0.853	38.08	46.00	-7.92
25	0.252	43.76	51.68	-7.93
26	1.859	38.06	46.00	-7.94
27	0.805	38.00	46.00	-8.00
28	0.705	37.93	46.00	-8.07
29	2.436	37.88	46.00	-8.12
30	4.722	37.88	46.00	-8.12
31	0.178	46.44	54.59	-8.15**
32	2.870	37.79	46.00	-8.21
33	3.547	37.78	46.00	-8.22
34	0.174	46.54	54.77	-8.23**
35	1.397	37.74	46.00	-8.26
36	1.311	37.72	46.00	-8.28
37	0.826	37.69	46.00	-8.31
38	0.698	37.63	46.00	-8.37
39	2.811	37.59	46.00	-8.41
40	0.172	46.44	54.86	-8.42**
41	1.072	37.56	46.00	-8.44
42	0.948	37.55	46.00	-8.45

**Please See the Average Readings on the Next Page and on the Plot

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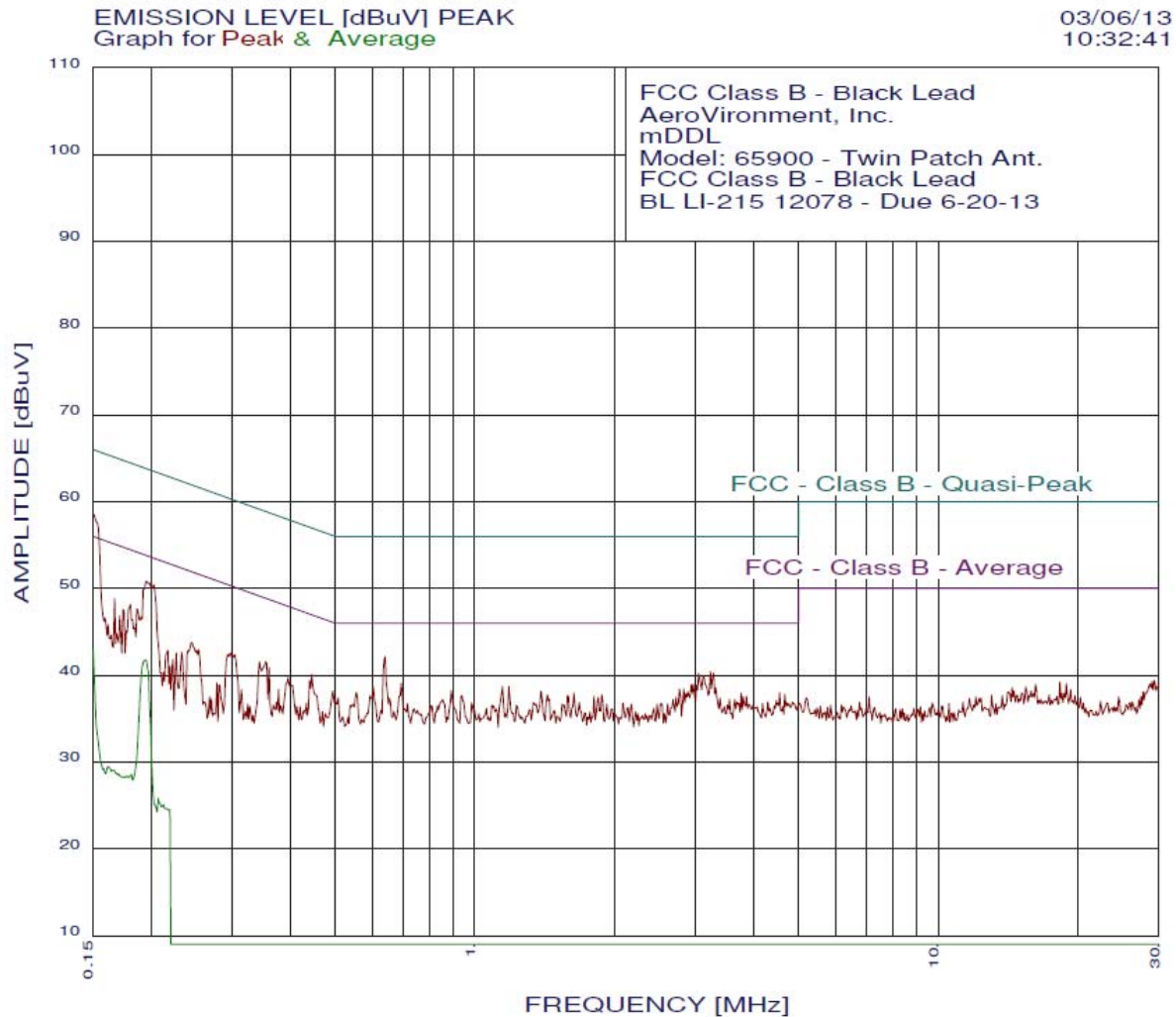
03/06/13 11:06:50

FCC Class B - White Lead
AeroVironment, Inc.
mDDL
Model: 65900 - Monopole Antenna
FCC Class B - White Lead
WL LI-215 12078 - Due 6-20-13
Test Engineer : Kyle Fujimoto

13 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 0.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.198	39.98	53.71	-13.73
2	0.161	29.18	55.43	-26.25
3	0.166	28.81	55.16	-26.35
4	0.170	28.51	54.94	-26.43
5	0.183	27.89	54.33	-26.44
6	0.178	27.97	54.59	-26.62
7	0.173	28.18	54.81	-26.63
8	0.180	27.80	54.50	-26.70
9	0.207	25.65	53.31	-27.66
10	0.210	25.20	53.23	-28.03
11	0.213	24.79	53.09	-28.31
12	0.215	24.47	53.00	-28.53
13	0.220	24.22	52.83	-28.60



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03/06/13 10:32:41

FCC Class B - Black Lead
AeroVironment, Inc.
mDDL
Model: 65900 - Twin Patch Ant.
FCC Class B - Black Lead
BL LI-215 12078 - Due 6-20-13
Test Engineer : Kyle Fujimoto

42 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.196	50.83	53.80	-2.97**
2	0.641	42.14	46.00	-3.86
3	3.226	40.43	46.00	-5.57
4	3.277	40.24	46.00	-5.76
5	3.043	40.20	46.00	-5.80
6	3.124	39.91	46.00	-6.09
7	0.167	48.83	55.11	-6.28**
8	0.181	48.14	54.46	-6.32**
9	0.186	47.63	54.19	-6.56**
10	0.445	40.07	46.98	-6.90
11	0.694	39.03	46.00	-6.97
12	2.963	38.99	46.00	-7.01
13	0.174	47.54	54.77	-7.23**
14	1.184	38.69	46.00	-7.31
15	0.354	41.56	48.87	-7.31
16	1.148	38.68	46.00	-7.32
17	0.605	38.55	46.00	-7.45
18	0.343	41.56	49.13	-7.58
19	2.826	38.39	46.00	-7.61
20	2.766	38.39	46.00	-7.61
21	0.890	38.26	46.00	-7.74
22	0.297	42.56	50.32	-7.77
23	1.389	38.14	46.00	-7.86
24	0.360	40.86	48.73	-7.88
25	0.494	38.20	46.09	-7.90
26	0.555	38.03	46.00	-7.97
27	4.552	37.98	46.00	-8.02
28	1.637	37.96	46.00	-8.04
29	0.171	46.84	54.90	-8.06**
30	3.761	37.92	46.00	-8.08
31	0.246	43.76	51.90	-8.15
32	0.396	39.75	47.95	-8.19
33	4.672	37.78	46.00	-8.22
34	1.879	37.76	46.00	-8.24
35	1.434	37.75	46.00	-8.25
36	1.586	37.66	46.00	-8.34
37	0.939	37.65	46.00	-8.35
38	1.810	37.56	46.00	-8.44
39	3.862	37.53	46.00	-8.47
40	3.800	37.52	46.00	-8.48
41	2.722	37.49	46.00	-8.51
42	1.849	37.46	46.00	-8.54

**Please See the Average Readings on the Next Page and on the Plot

page 1/1

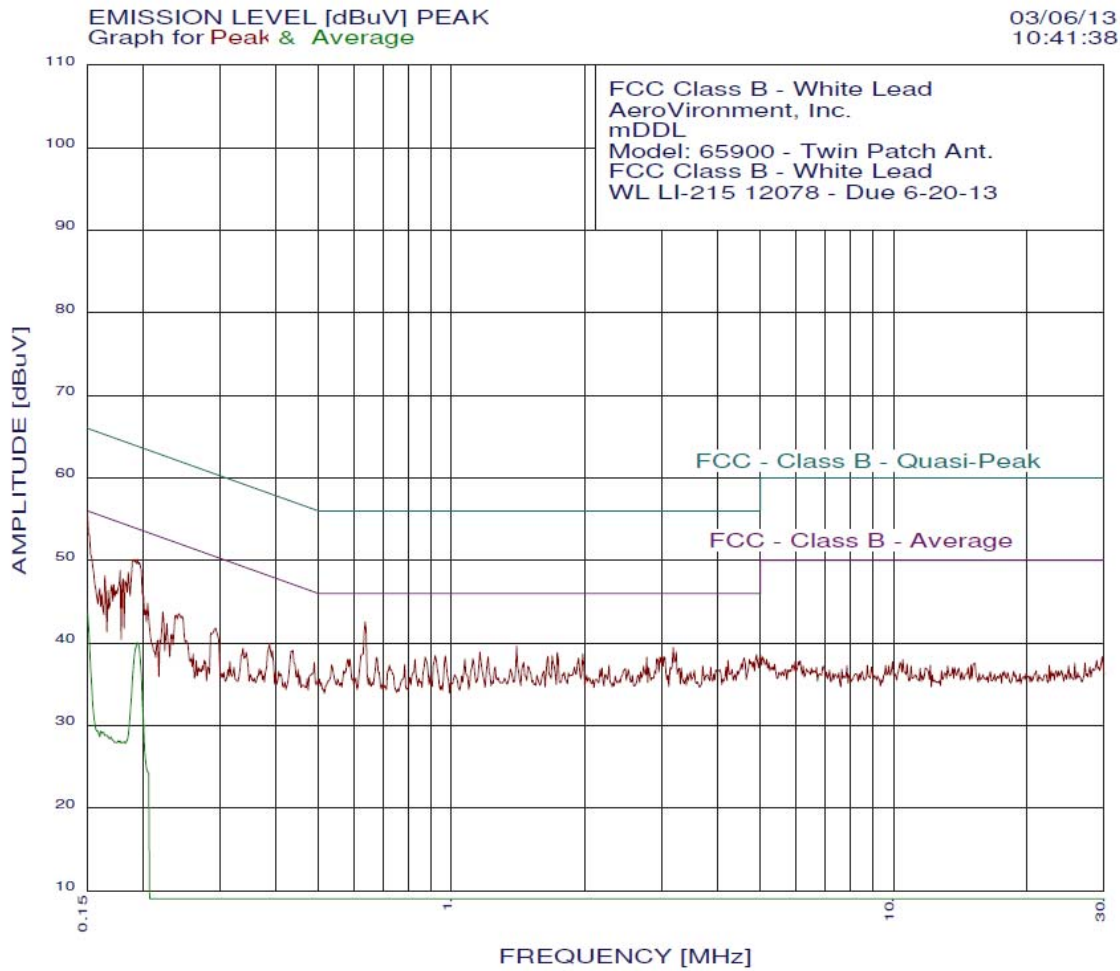
03/06/13 10:32:41

FCC Class B - Black Lead
AeroVironment, Inc.
mDDL
Model: 65900 - Twin Patch Ant.
FCC Class B - Black Lead
BL LI-215 12078 - Due 6-20-13
Test Engineer : Kyle Fujimoto

13 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 0.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.195	41.76	53.84	-12.08
2	0.182	28.55	54.41	-25.87
3	0.162	29.47	55.38	-25.91
4	0.166	29.04	55.16	-26.12
5	0.177	28.35	54.63	-26.28
6	0.170	28.63	54.94	-26.31
7	0.169	28.71	55.03	-26.32
8	0.158	29.22	55.56	-26.34
9	0.175	28.27	54.72	-26.45
10	0.207	25.81	53.31	-27.50
11	0.213	25.09	53.09	-28.01
12	0.220	24.47	52.83	-28.35
13	0.216	24.60	52.96	-28.36



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03/06/13 10:41:38

FCC Class B - White Lead
AeroVironment, Inc.
mDDL
Model: 65900 - Twin Patch Ant.
FCC Class B - White Lead
WL LI-215 12078 - Due 6-20-13
Test Engineer : Kyle Fujimoto

42 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.637	42.54	46.00	-3.46
2	0.192	50.13	53.97	-3.84**
3	0.185	48.53	54.24	-5.70**
4	0.178	48.74	54.59	-5.85**
5	1.404	39.64	46.00	-6.36
6	3.175	39.42	46.00	-6.58
7	0.181	47.74	54.46	-6.72**
8	0.183	47.54	54.37	-6.83**
9	3.226	38.93	46.00	-7.07
10	1.160	38.89	46.00	-7.11
11	0.164	48.13	55.25	-7.12**
12	1.735	38.86	46.00	-7.14
13	1.981	38.66	46.00	-7.34
14	4.902	38.59	46.00	-7.41
15	2.995	38.49	46.00	-7.51
16	1.690	38.46	46.00	-7.54
17	0.919	38.45	46.00	-7.55
18	0.969	38.44	46.00	-7.56
19	1.654	38.36	46.00	-7.64
20	1.210	38.30	46.00	-7.70
21	3.027	38.30	46.00	-7.70
22	2.766	38.29	46.00	-7.71
23	0.872	38.27	46.00	-7.73
24	0.676	38.23	46.00	-7.77
25	0.172	47.04	54.86	-7.82**
26	4.600	38.18	46.00	-7.82
27	1.939	38.16	46.00	-7.84
28	0.170	47.04	54.94	-7.90**
29	2.916	38.09	46.00	-7.91
30	1.118	38.07	46.00	-7.93
31	1.072	38.06	46.00	-7.94
32	0.589	38.04	46.00	-7.96
33	0.826	37.99	46.00	-8.01
34	4.722	37.98	46.00	-8.02
35	0.438	39.07	47.11	-8.04
36	4.227	37.86	46.00	-8.14
37	0.387	39.85	48.12	-8.27
38	1.456	37.65	46.00	-8.35
39	0.242	43.56	52.04	-8.48
40	0.205	44.83	53.40	-8.57**
41	0.489	37.59	46.18	-8.59
42	0.783	37.40	46.00	-8.60

**Please See the Average Readings on the Next Page and on the Plot

page 1/1

03/06/13 10:41:38

FCC Class B - White Lead
AeroVironment, Inc.
mDDL
Model: 65900 - Twin Patch Ant.
FCC Class B - White Lead
WL LI-215 12078 - Due 6-20-13
Test Engineer : Kyle Fujimoto

9 highest peaks above -50.00 dB of FCC - Class B - Average limit line

Peak criteria : 0.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.195	40.02	53.84	-13.82
2	0.161	29.32	55.43	-26.11
3	0.162	29.18	55.34	-26.16
4	0.158	29.30	55.56	-26.26
5	0.166	28.81	55.16	-26.35
6	0.182	28.06	54.41	-26.36
7	0.170	28.59	54.98	-26.40
8	0.178	28.14	54.59	-26.45
9	0.176	28.14	54.68	-26.54



RADIATED EMISSIONS

DATA SHEETS

FCC 15.247

AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013

Lab: B

Tested By: Kyle Fujimoto

Low Channel
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403								N/A
2403								DONE VIA CONDCUTED
4806	50.5	V	74	-23.5	Peak	1.25	135	
4806	40.11	V	54	-13.89	Avg	1.25	135	
7209	51.31	V	74	-22.69	Peak	1.35	145	
7209	42.19	V	54	-11.81	Avg	1.35	145	
9612								No Emission Detected
12015								No Emission Detected
14418								No Emission Detected
16821								No Emission Detected
19224								No Emission Detected
21627								No Emission Detected
24030								No Emission Detected

FCC 15.247
AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013
Lab: B
Tested By: Kyle Fujimoto

Low Channel
Transmit Mode - X-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403								N/A
2403								DONE VIA CONDCUTED
4806	42.7	H	74	-31.3	Peak	1.25	135	
4806	33.65	H	54	-20.35	Avg	1.25	135	
7209	52.21	H	74	-21.79	Peak	1.35	175	
7209	42.37	H	54	-11.63	Avg	1.35	175	
9612								No Emission Detected
12015								No Emission Detected
14418								No Emission Detected
16821								No Emission Detected
19224								No Emission Detected
21627								No Emission Detected
24030								No Emission Detected

FCC 15.247

AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013
Lab: B
Tested By: Kyle Fujimoto

**Low Channel
Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403								N/A
2403								DONE VIA CONDCUTED
4806	41.71	V	74	-32.29	Peak	1.25	155	
4806	28.98	V	54	-25.02	Avg	1.25	155	
7209	46.13	V	74	-27.87	Peak	1.35	165	
7209	33.91	V	54	-20.09	Avg	1.35	165	
9612								No Emission Detected
12015								No Emission Detected
14418								No Emission Detected
16821								No Emission Detected
19224								No Emission Detected
21627								No Emission Detected
24030								No Emission Detected

FCC 15.247

AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013

Lab: B

Tested By: Kyle Fujimoto

Low Channel
Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403								N/A
2403								DONE VIA CONDCUTED
4806	40.88	H	74	-33.12	Peak	1.25	155	
4806	28.91	H	54	-25.09	Avg	1.25	155	
7209	45.69	H	74	-28.31	Peak	1.35	175	
7209	33.93	H	54	-20.07	Avg	1.35	175	
9612								No Emission Detected
12015								No Emission Detected
14418								No Emission Detected
16821								No Emission Detected
19224								No Emission Detected
21627								No Emission Detected
24030								No Emission Detected

FCC 15.247

AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013

Lab: B

Tested By: Kyle Fujimoto

Low Channel
Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403								N/A
2403								DONE VIA CONDCUTED
4806	42.29	V	74	-31.71	Peak	1.25	155	
4806	29.47	V	54	-24.53	Avg	1.25	155	
7209	46.27	V	74	-27.73	Peak	1.35	145	
7209	34.11	V	54	-19.89	Avg	1.35	145	
9612								No Emission Detected
12015								No Emission Detected
14418								No Emission Detected
16821								No Emission Detected
19224								No Emission Detected
21627								No Emission Detected
24030								No Emission Detected

FCC 15.247

AeroVironment

mDDL

Model: 65900

Antenna: Monopole

Date: 03/04/2013

Lab: B

Tested By: Kyle Fujimoto

Low Channel

Transmit Mode - Z-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2403								N/A
2403								DONE VIA CONDCUTED
4806	41.23	H	74	-32.77	Peak	1.25	155	
4806	29.17	H	54	-24.83	Avg	1.25	155	
7209	48.5	H	74	-25.5	Peak	1.35	145	
7209	39.47	H	54	-14.53	Avg	1.35	145	
9612								No Emission
9612								Detected
12015								No Emission
12015								Detected
14418								No Emission
14418								Detected
16821								No Emission
16821								Detected
19224								No Emission
19224								Detected
21627								No Emission
21627								Detected
24030								No Emission
24030								Detected

FCC 15.247

AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013
Lab: B
Tested By: Kyle Fujimoto

**Middle Channel
Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2439								N/A
2439								DONE VIA CONDCUTED
4878	41.91	V	74	-32.09	Peak	1.25	155	
4878	28.86	V	54	-25.14	Avg	1.25	155	
7317	45.23	V	74	-28.77	Peak	1.35	165	
7317	33.73	V	54	-20.27	Avg	1.35	165	
9756								No Emission
9756								Detected
12195								No Emission
12195								Detected
14634								No Emission
14634								Detected
17073								No Emission
17073								Detected
19512								No Emission
19512								Detected
21951								No Emission
21951								Detected
24390								No Emission
24390								Detected

FCC 15.247

AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013
Lab: B
Tested By: Kyle Fujimoto

**Middle Channel
Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2439								N/A
2439								DONE VIA CONDCUTED
4878	45.69	H	74	-28.31	Peak	1.25	155	
4878	32.57	H	54	-21.43	Avg	1.25	155	
7317	46.09	H	74	-27.91	Peak	1.35	165	
7317	35.28	H	54	-18.72	Avg	1.35	165	
9756								No Emission Detected
12195								No Emission Detected
14634								No Emission Detected
17073								No Emission Detected
19512								No Emission Detected
21951								No Emission Detected
24390								No Emission Detected

FCC 15.247

AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013

Lab: B

Tested By: Kyle Fujimoto

Middle Channel

Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2439								N/A
2439								DONE VIA CONDCUTED
4878	45.29	V	74	-28.71	Peak	1.25	165	
4878	30.58	V	54	-23.42	Avg	1.25	165	
7317	46.15	V	74	-27.85	Peak	1.15	175	
7317	34.82	V	54	-19.18	Avg	1.15	175	
9756								No Emission
9756								Detected
12195								No Emission
12195								Detected
14634								No Emission
14634								Detected
17073								No Emission
17073								Detected
19512								No Emission
19512								Detected
21951								No Emission
21951								Detected
24390								No Emission
24390								Detected

FCC 15.247

AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013
Lab: B
Tested By: Kyle Fujimoto

Middle Channel

Transmit Mode - Y-Axis

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2439								N/A
2439								DONE VIA CONDCUTED
4878	43.91	H	74	-30.09	Peak	1.25	165	
4878	33.73	H	54	-20.27	Avg	1.25	165	
7317	46.89	H	74	-27.11	Peak	1.45	175	
7317	33.59	H	54	-20.41	Avg	1.45	175	
9756								No Emission
9756								Detected
12195								No Emission
12195								Detected
14634								No Emission
14634								Detected
17073								No Emission
17073								Detected
19512								No Emission
19512								Detected
21951								No Emission
21951								Detected
24390								No Emission
24390								Detected

FCC 15.247

AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013
Lab: B
Tested By: Kyle Fujimoto

**Middle Channel
Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2439								N/A
2439								DONE VIA CONDCUTED
4878	42.11	V	74	-31.89	Peak	1.25	165	
4878	29.77	V	54	-24.23	Avg	1.25	165	
7317	45.36	V	74	-28.64	Peak	1.35	175	
7317	33.77	V	54	-20.23	Avg	1.35	175	
9756								No Emission Detected
12195								No Emission Detected
14634								No Emission Detected
17073								No Emission Detected
19512								No Emission Detected
21951								No Emission Detected
24390								No Emission Detected

FCC 15.247

AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013
Lab: B
Tested By: Kyle Fujimoto

**Middle Channel
Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2439								N/A
2439								DONE VIA CONDCUTED
4878	43.45	H	74	-30.55	Peak	1.25	145	
4878	29.91	H	54	-24.09	Avg	1.25	145	
7317	46.25	H	74	-27.75	Peak	1.15	155	
7317	34.59	H	54	-19.41	Avg	1.15	155	
9756								No Emission
9756								Detected
12195								No Emission
12195								Detected
14634								No Emission
14634								Detected
17073								No Emission
17073								Detected
19512								No Emission
19512								Detected
21951								No Emission
21951								Detected
24390								No Emission
24390								Detected

FCC 15.247

AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013
Lab: B
Tested By: Kyle Fujimoto

**High Channel
Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475								N/A
2475								DONE VIA CONDCUTED
4950	42.07	V	74	-31.93	Peak	1.25	225	
4950	29.94	V	54	-24.06	Avg	1.25	225	
7425	45.75	V	74	-28.25	Peak	1.35	275	
7425	33.86	V	54	-20.14	Avg	1.35	275	
9900								No Emission
9900								Detected
12375								No Emission
12375								Detected
14850								No Emission
14850								Detected
17325								No Emission
17325								Detected
19800								No Emission
19800								Detected
22275								No Emission
22275								Detected
24750								No Emission
24750								Detected

FCC 15.247

AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013
Lab: B
Tested By: Kyle Fujimoto

**High Channel
Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475								N/A
2475								DONE VIA CONDCUTED
4950	43.24	H	74	-30.76	Peak	1.25	155	
4950	29.93	H	54	-24.07	Avg	1.25	155	
7425	45.13	H	74	-28.87	Peak	1.35	165	
7425	33.96	H	54	-20.04	Avg	1.35	165	
9900								No Emission Detected
12375								No Emission Detected
14850								No Emission Detected
17325								No Emission Detected
19800								No Emission Detected
22275								No Emission Detected
24750								No Emission Detected

FCC 15.247

AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013
Lab: B
Tested By: Kyle Fujimoto

**High Channel
Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475								N/A
2475								DONE VIA CONDCUTED
4950	42.06	V	74	-31.94	Peak	1.35	145	
4950	29.85	V	54	-24.15	Avg	1.35	145	
7425	45.89	V	74	-28.11	Peak	1.25	155	
7425	33.96	V	54	-20.04	Avg	1.25	155	
9900								No Emission Detected
12375								No Emission Detected
14850								No Emission Detected
17325								No Emission Detected
19800								No Emission Detected
22275								No Emission Detected
24750								No Emission Detected

FCC 15.247

AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013
Lab: B
Tested By: Kyle Fujimoto

**High Channel
Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475								N/A
2475								DONE VIA CONDCUTED
4950	41.81	H	74	-32.19	Peak	1.25	155	
4950	29.85	H	54	-24.15	Avg	1.25	155	
7425	45.17	H	74	-28.83	Peak	1.35	145	
7425	33.88	H	54	-20.12	Avg	1.35	145	
9900								No Emission Detected
12375								No Emission Detected
14850								No Emission Detected
17325								No Emission Detected
19800								No Emission Detected
22275								No Emission Detected
24750								No Emission Detected

FCC 15.247

AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013
Lab: B
Tested By: Kyle Fujimoto

**High Channel
Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475								N/A
2475								DONE VIA CONDCUTED
4950	51.7	V	74	-22.3	Peak	1.35	145	
4950	40.67	V	54	-13.33	Avg	1.35	145	
7425	43.2	V	74	-30.8	Peak	1.45	155	
7425	33.32	V	54	-20.68	Avg	1.45	155	
9900								No Emission
9900								Detected
12375								No Emission
12375								Detected
14850								No Emission
14850								Detected
17325								No Emission
17325								Detected
19800								No Emission
19800								Detected
22275								No Emission
22275								Detected
24750								No Emission
24750								Detected

FCC 15.247

AeroVironment
mDDL
Model: 65900
Antenna: Monopole

Date: 03/04/2013
Lab: B
Tested By: Kyle Fujimoto

**High Channel
Transmit Mode - Z-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2475								N/A
2475								DONE VIA CONDCUTED
4950	41.91	H	74	-32.09	Peak	1.25	155	
4950	30.11	H	54	-23.89	Avg	1.25	155	
7425	44.79	H	74	-29.21	Peak	1.35	165	
7425	33.92	H	54	-20.08	Avg	1.35	165	
9900								No Emission Detected
12375								No Emission Detected
14850								No Emission Detected
17325								No Emission Detected
19800								No Emission Detected
22275								No Emission Detected
24750								No Emission Detected