

*FCC PART 15, SUBPART B and C
TEST REPORT*

for

UEI FREESPACE USB DONGLE

MODEL: URC-4501BJ0-R-B

Prepared for

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6101 GATEWAY DRIVE
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DATE: OCTOBER 7, 2009

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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: UEI Freespace USB Dongle
Model: URC-4501BJ0-R-B
S/N: N/A

Product Description: See Expository Statement

Modifications: The EUT was not modified in order to meet the specifications.

Manufacturer: Jett House
19 On Kui Street,
On Lok Tsuen, Fanling,
Hong Kong

Customer: Universal Electronics, Inc.
6101 Gateway Drive
Cypress, California 90630

Test Dates: September 1 and 15, 2009

Test Specifications: EMI requirements
CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.249

Test Procedure: ANSI C63.4: 2003

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 CFR Title 47, Part 15, Subpart C, section 15.207 Highest reading in relation to spec limit: 47.39 dBuV @ 0.202 MHz (*Uc = 0.49 dB)
2	Radiated RF Emissions 10 kHz – 25000 MHz (Transmitter Portion)	Complies with the limits of CFR Title 47, Part 15, Subpart C, sections 15.205, 15.209, and 15.249 Highest reading in relation to spec limit: 93.92 dBuV @ 2401 MHz (*Uc = 3.05 dB)
3	Radiated RF Emissions 10 kHz – 25000 MHz (Digital and Receiver Portion)	Complies with the Class B limits of CFR Title 47, Part 15, Subpart B.

1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the UEI Freespace USB Dongle, Model: URC-4501BJ0-R-B. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4: 2003. 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 15.249.

Note: For the unintentional 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

Universal Electronics, Inc.

Jesse Mendez Senior Electrical Core Engineer

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 was returned to Universal Electronics, Inc. on October 1, 2009.

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 2003	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

4. DESCRIPTION OF TEST CONFIGURATION

4.1 Description of Test Configuration - EMI

The UEI Freespace USB Dongle, Model: URC-4501BJ0-R-B (EUT) was connected directly to the laptop's USB port. The laptop was also connected to a scanner and AC Adapter via its USB and power ports, respectively. The scanner was also connected to an AC Adapter via its power port. The EUT was continuous transmitting and receiving to and from the Cablevision Scepter Freespace Remote Control Model: URC-4501BJ0-R on a continuous basis.

Note: The EUT is powered by the laptop. Conducted emissions were performed on the power supply of the laptop.

It was determined that the emissions were at their highest level when the EUT was operating in the above configurations. The final emissions data was taken in these modes of operation 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.

4.1.1 Cable Construction and Termination

- Cable 1** This is a 2-meter braid shielded cable connecting the laptop to the scanner. The cable has a USB type 'A' connector at the laptop end and a USB type 'B' connector at the scanner end. The cable was bundled to a length of 1 meter. The shield of the cable was grounded to the chassis via the connectors.
- Cable 2** This is a 2-meter unshielded cable connecting the scanner to the AC Adapter. The cable has a 1/8 inch power connector at the scanner end and is hard wired into the AC Adapter. The cable has a molded ferrite at the scanner end.
- Cable 3** This is a 2-meter unshielded cable connecting the laptop to the AC Adapter. The cable has a 1-pin power connector at the laptop end and is hard wired into the AC Adapter. The cable was bundled to a length of 1-meter. The cable has a molded ferrite at the laptop end.

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

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
UEI FREESPACE USB DONGLE (EUT)	UNIVERSAL ELECTRONICS, INC.	URC-4501BJ0-R-B	N/A	MG34501-R-B
SCANNER	MICROTEK	MRS-2400A48U	W3756A12478	N/A
AC ADAPTER (FOR SCANNER)	DVE	DSA-0151A-12	N/A	N/A
LAPTOP	LENOVO	7664-RWU	L3-G7072 08/04	DoC
AC ADAPTER (FOR LAPTOP)	LENOVO	P/N: 42T5282	11S92P1156Z1ZDXN82W92E	N/A
CABLEVISION SCEPTER FREESPACE REMOTE CONTROL	UNIVERSAL ELECTRONICS, INC.	URC-4501BJ0-R	N/A	MG34501-R

5.2 EMI Test Equipment

EQUIPMENT TYPE	MANUFACTURER	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	8566B	3638A08784	May 29, 2009	May 29, 2010
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A14530	May 29, 2009	May 29, 2010
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	May 29, 2009	May 29, 2010
EMI Receiver	Rohde & Schwarz	ESIB40	100194	September 17, 2008	Sept. 17, 2010
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
RF RADIATED EMISSIONS TEST EQUIPMENT					
Biconical Antenna	Com Power	AB-900	15250	February 23, 2009	Feb. 23, 2010
Log Periodic Antenna	Com Power	AL-100	16060	June 15, 2009	June 15, 2010
Preamplifier	Com-Power	PA-102	1017	January 12, 2009	Jan. 12, 2010
Loop Antenna	Com-Power	AL-130	17089	September 29, 2008	Sept. 29, 2009
Horn Antenna	Com-Power	AH-118	071175	June 27, 2008	June 27, 2010
Microwave Preamplifier	Com Power	PA-122	181921	March 12, 2009	March 12, 2010
Horn Antenna	Com-Power	AH826	71957	December 12, 2007	Dec. 12, 2009
Microwave Preamplifier	Com Power	PA-840	711013	March 12, 2009	March 12, 2010
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A
RF CONDCUTED EMISSIONS TEST EQUIPMENT					
Emissions Program	Compatible Electronics	2.3 (SR19)	N/A	N/A	N/A
LISN	Com Power	LI-215	12078	September 29, 2008	Sept. 29, 2009
LISN	Com Power	LI-215	12082	September 29, 2008	Sept. 29, 2009
Transient Limiter	Com Power	252A910	1	September 26, 2008	Sept. 26, 2009

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

Please refer to section 2.1 and 7.1 of this report for EMI 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 grounded to the computer chassis via the connector of the EUT.



7. TEST PROCEDURES

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

7.1 RF Emissions

7.1.1 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: 2003. 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:

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

7.1.2 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 Models: PA-102 and PA-103 were used for frequencies from 30 MHz to 1 GHz and the Com Power Microwave Preamplifier Model: PA-122 was used for frequencies above 1 GHz. The spectrum analyzer and EMI Receiver were 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 1 kHz ($VBW > 1/T$, with $T=1.082164$ mS) and putting the sweep time on AUTO on the EMI Receiver to keep the amplitude reading calibrated.

The fundamental was taken with a 100 kHz RBW for those readings that required a band edge plot to show compliance. This was so that the band edges were properly measured. The readings on the plot were corrected by using a factor of $10\log(1000\text{ kHz}/100\text{ kHz})$ to compensate for the RBW being lowered to 100 kHz from the specified RBW required by ANSI C63.4 of 1 MHz. Please note this causes the fundamental to be worst case when taken in this manner (higher than measuring with a 1 MHz RBW).

The fundamental for those readings where no band edge plots were required were taken with the standard 1 MHz RBW.

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

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

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: 2003. 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. The loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.

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 to obtain the final test data.

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 15.249.

8. CONCLUSIONS

The UEI Freespace USB Dongle Model: URC-4501BJ0-R-B, as tested, meets all of the **Class B** specification limits defined in CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.207, 15.209, and 15.249.





APPENDIX A

LABORATORY 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 RECOGNITIONS

Compatible Electronics has the following agency accreditations:

National Voluntary Laboratory Accreditation Program - Lab Code: 200528-0

Voluntary Control Council for Interference - Registration Numbers: R-983, C-1026, R-984 and C-1027

Bureau of Standards and Metrology Inspection - Reference Number: SL2-IN-E-1031

Conformity Assessment Body for the EMC Directive Under the US/EU MRA Appointed by NIST

Compatible Electronics is recognized or on file with the following agencies:

Federal Communications Commission

Industry Canada



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 15.249 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***

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

ADDITIONAL MODELS COVERED UNDER THIS REPORT

USED FOR THE PRIMARY TEST

UEI Freespace USB Dongle
Model: URC-4501BJ0-R-B
S/N: N/A

No additional models were covered under this report.




APPENDIX D***DIAGRAMS, CHARTS, AND PHOTOS***

FIGURE 1: CONDUCTED EMISSIONS TEST SETUP

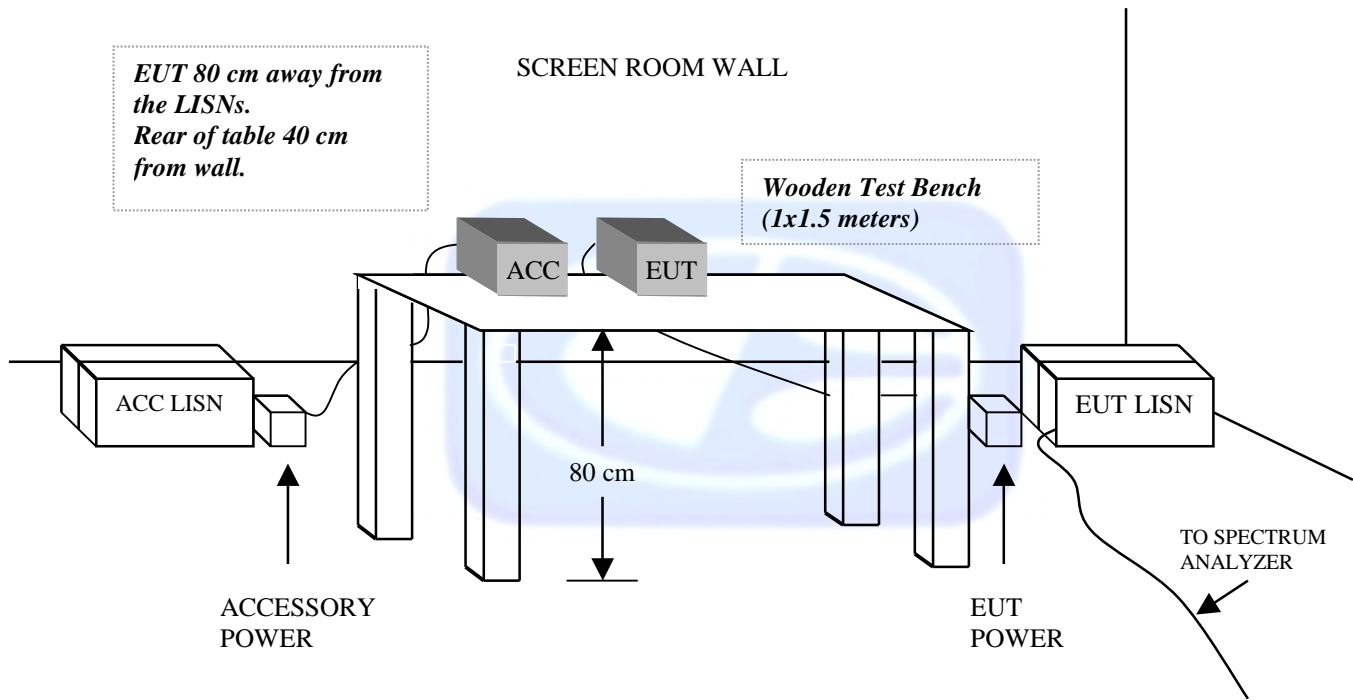
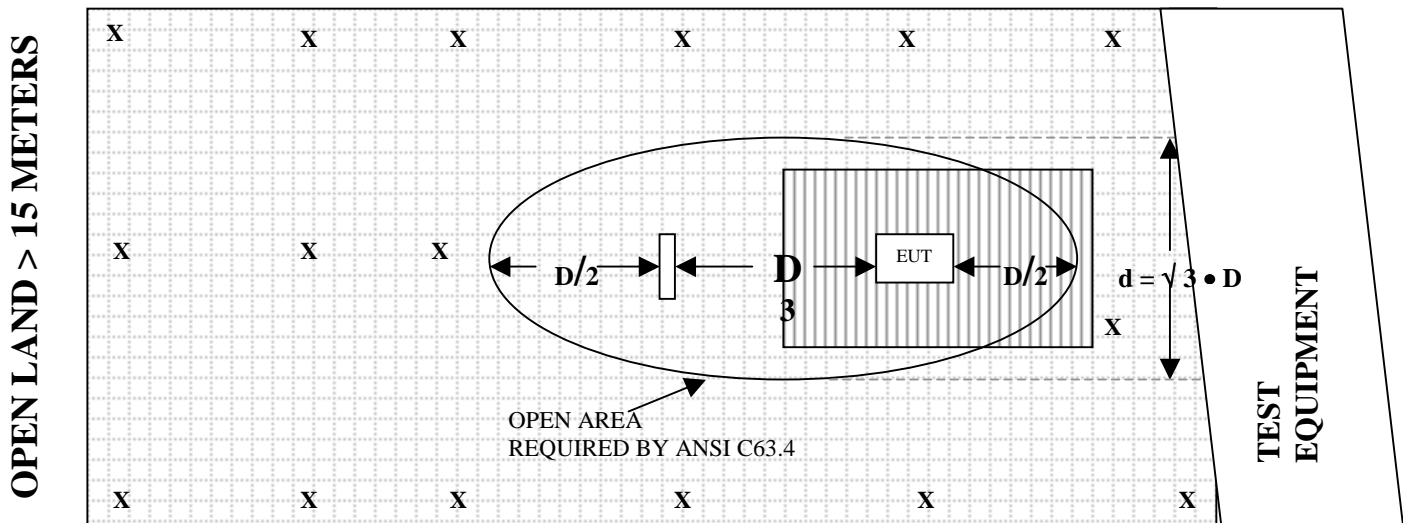


FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE – 3 METERS

OPEN LAND > 15 METERS



OPEN LAND > 15 METERS

- | | | | |
|----------|--------------------------|--|-----------------|
| X | = GROUND RODS | | = GROUND SCREEN |
| D | = TEST DISTANCE (meters) | | = WOOD COVER |

COM-POWER AB-900

BICONICAL ANTENNA

S/N: 15250

CALIBRATION DATE: FEBRUARY 23, 2009

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	13.0	100	11.1
35	11.1	120	13.6
40	10.2	140	12.4
45	11.2	160	12.9
50	11.6	180	16.5
60	9.1	200	17.0
70	8.4	250	16.3
80	6.2	275	18.2
90	8.5	300	17.9

COM-POWER AL-100**LOG PERIODIC ANTENNA**

S/N: 16060

CALIBRATION DATE: JUNE 15, 2009

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
300	14.2	700	20.1
400	15.9	800	21.2
500	17.1	900	21.3
600	18.8	1000	22.3

COM POWER AH-118**HORN ANTENNA**

S/N: 071175

CALIBRATION DATE: JUNE 27, 2008

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.5	10.0	39.4
1.5	25.4	10.5	39.7
2.0	28.3	11.0	39.0
2.5	28.9	11.5	40.0
3.0	29.7	12.0	39.7
3.5	30.8	12.5	41.7
4.0	31.4	13.0	42.7
4.5	32.6	13.5	41.2
5.0	33.7	14.0	41.6
5.5	34.4	14.5	43.2
6.0	34.7	15.0	42.3
6.5	35.4	15.5	39.3
7.0	37.0	16.0	41.7
7.5	37.4	16.5	39.6
8.0	37.6	17.0	43.0
8.5	37.6	17.5	47.1
9.0	38.5	18.0	46.2
9.5	38.6		

COM-POWER PA-102**PREAMPLIFIER**

S/N: 1017

CALIBRATION DATE: JANUARY 12, 2009

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	39.0	300	38.8
40	39.0	350	38.8
50	38.8	400	38.7
60	38.7	450	38.6
70	38.8	500	38.3
80	38.8	550	38.9
90	39.1	600	38.4
100	39.1	650	38.8
125	38.9	700	38.4
150	38.9	750	38.5
175	38.9	800	38.3
200	38.8	850	38.4
225	39.0	900	38.1
250	38.9	950	37.4
275	38.8	1000	38.1

COM-POWER PA-122**PREAMPLIFIER**

S/N: 181921

CALIBRATION DATE: MARCH 12, 2009

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	36.46	10.0	35.06
1.5	35.36	10.5	34.82
2.0	34.76	11.0	33.12
2.5	34.94	11.5	34.33
3.0	34.59	12.0	34.75
3.5	34.55	12.5	33.94
4.0	34.25	13.0	35.50
4.5	33.89	13.5	34.89
5.0	34.22	14.0	36.56
5.5	34.81	14.5	36.06
6.0	35.74	15.0	36.67
6.5	36.51	15.5	36.84
7.0	36.66	16.0	34.31
7.5	35.72	16.5	35.11
8.0	33.28	17.0	35.35
8.5	33.11	17.5	34.11
9.0	34.71	18.0	33.88
9.5	35.50	18.5	32.20

COM-POWER PA-840**MICROWAVE PREAMPLIFIER**

S/N: 711013

CALIBRATION DATE: MARCH 12, 2009

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	25.72	29.5	27.11
18.5	25.46	30.0	27.19
19.0	25.19	30.5	27.12
19.5	24.58	31.0	26.76
20.0	23.94	31.5	26.52
20.5	23.48	32.0	26.11
21.0	23.22	32.5	26.35
21.5	23.34	33.0	26.15
22.0	23.62	33.5	26.14
22.5	23.74	34.0	25.47
23.0	24.40	34.5	25.39
23.5	24.60	35.0	25.05
24.0	25.15	35.5	25.18
24.5	25.38	36.0	24.63
25.0	26.00	36.5	25.22
25.5	25.92	37.0	26.20
26.0	26.47	37.5	26.46
26.5	27.19	38.0	25.44
27.0	27.60	38.5	24.71
27.5	26.51	39.0	23.50
28.0	26.46	39.5	23.46
28.5	26.36	40.0	22.37
29.0	26.72		

COM-POWER AH826**HORN ANTENNA**

S/N: 71957

CALIBRATION DATE: DECEMBER 12, 2007

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 AL-130**LOOP ANTENNA**

S/N: 17089

CALIBRATION DATE: SEPTEMBER 29, 2008

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.57	9.93
0.01	-42.06	9.44
0.02	-42.43	9.07
0.05	-42.50	9.00
0.07	-42.10	9.40
0.1	-42.03	9.47
0.2	-44.50	7.00
0.3	-41.93	9.57
0.5	-41.90	9.60
0.7	-41.73	9.77
1	-41.23	10.27
2	-40.90	10.60
3	-41.20	10.30
4	-41.30	10.20
5	-40.70	10.80
10	-41.10	10.40
15	-42.17	9.33
20	-42.00	9.50
25	-42.20	9.30
30	-43.10	8.40



FRONT VIEW

UNIVERSAL ELECTRONICS, INC.
UEI FREESPACE USB DONGLE
MODEL: URC-4501BJ0-R-B
FCC SUBPART B AND C – RADIATED EMISSIONS

**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



REAR VIEW

UNIVERSAL ELECTRONICS, INC.
UEI FREESPACE USB DONGLE
MODEL: URC-4501BJ0-R-B
FCC SUBPART B AND C – RADIATED EMISSIONS

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



FRONT VIEW

UNIVERSAL ELECTRONICS, INC.
UEI FREESPACE USB DONGLE
MODEL: URC-4501BJ0-R-B
FCC SUBPART B AND C – CONDUCTED EMISSIONS

**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



REAR VIEW

UNIVERSAL ELECTRONICS, INC.
UEI FREESPACE USB DONGLE
MODEL: URC-4501BJ0-R-B
FCC SUBPART B AND C – CONDUCTED EMISSIONS

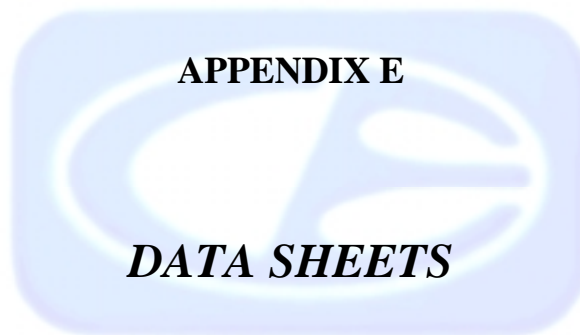
**PHOTOGRAPH SHOWING THE EUT CONFIGURATION
FOR MAXIMUM EMISSIONS**

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

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

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

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



RADIATED EMISIONS

DATA SHEETS

FCC 15.249

Universal Electronics, Inc.
 UEI Freespace USB Dongle
 Model: URC-4501BJ0-R-B

Date: 09/01/09
 Lab: B
 Tested By: Kyle Fujimoto

X-Axis - Low Channel

Transmit Mode - No Emissions Detected Above the 5th Harmonic

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2401	89.04	V	94	-4.96	Peak	1.25	135	
2401	87.74	V	94	-6.26	Avg	1.25	135	
4802	48.77	V	74	-25.23	Peak	1.35	150	
4802	45.53	V	54	-8.47	Avg	1.35	150	
7203	49.63	V	74	-24.37	Peak	1.25	135	
7203	33.67	V	54	-20.33	Avg	1.25	135	
9604	42.24	V	74	-31.76	Peak	1.35	125	
9604	31.98	V	54	-22.02	Avg	1.35	125	
12005	49.17	V	74	-24.83	Peak	1.35	150	
12005	38.47	V	54	-15.53	Avg	1.35	150	
2401	100.01	H	94	6.01	Peak	1.28	180	
2401	93.92	H	94	-0.08	Avg	1.28	180	
4802	49.51	H	74	-24.49	Peak	1.35	155	
4802	43.15	H	54	-10.85	Avg	1.35	155	
7203	47.71	H	74	-26.29	Peak	1.25	315	
7203	35.56	H	54	-18.44	Avg	1.25	315	
9604	48.28	H	74	-25.72	Peak	1.35	355	
9604	35.26	H	54	-18.74	Avg	1.35	355	
12005	50.61	H	74	-23.39	Peak	1.25	155	
12005	40.44	H	54	-13.56	Avg	1.25	155	

FCC 15.249

Universal Electronics, Inc.
 UEI Freespace USB Dongle
 Model: URC-4501BJ0-R-B

Date: 09/01/09
 Lab: B
 Tested By: Kyle Fujimoto

Z-Axis - Low Channel

Transmit Mode - No Emissions Detected Above the 5th Harmonic

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2401	99.07	V	94	5.07	Peak	1.35	225	
2401	93.45	V	94	-0.55	Avg	1.35	225	
4802	49.21	V	74	-24.79	Peak	1.25	135	
4802	45.31	V	54	-8.69	Avg	1.25	135	
7203	49.62	V	74	-24.38	Peak	1.35	150	
7203	34.41	V	54	-19.59	Avg	1.35	150	
9604	42.77	V	74	-31.23	Peak	1.25	155	
9604	30.45	V	54	-23.55	Avg	1.25	155	
12005	49.51	V	74	-24.49	Peak	1.25	135	
12005	38.67	V	54	-15.33	Avg	1.25	135	
2401	88.61	H	94	-5.39	Peak	1.35	150	
2401	87.65	H	94	-6.35	Avg	1.35	150	
4802	45.85	H	74	-28.15	Peak	1.25	135	
4802	39.64	H	54	-14.36	Avg	1.25	135	
7203	47.97	H	74	-26.03	Peak	1.58	135	
7203	35.56	H	54	-18.44	Avg	1.58	135	
9604	46.96	H	74	-27.04	Peak	1.26	150	
9604	35.72	H	54	-18.28	Avg	1.26	150	
12005	50.81	H	74	-23.19	Peak	1.26	135	
12005	40.73	H	54	-13.27	Avg	1.26	135	

FCC 15.249

Universal Electronics, Inc.
 UEI Freespace USB Dongle
 Model: URC-4501BJ0-R-B

Date: 09/01/09
 Lab: B
 Tested By: Kyle Fujimoto

X-Axis - Middle Channel

Transmit Mode - No Emissions Detected Above the 5th Harmonic

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2441	84.81	V	94	-9.19	Peak	1.25	135	
2441	82.95	V	94	-11.05	Avg	1.25	135	
4882	49.17	V	74	-24.83	Peak	1.35	150	
4882	43.64	V	54	-10.36	Avg	1.35	150	
7323	47.12	V	74	-26.88	Peak	1.25	175	
7323	35.94	V	54	-18.06	Avg	1.25	175	
9764	49.63	V	74	-24.37	Peak	1.35	150	
9764	36.18	V	54	-17.82	Avg	1.35	150	
12205	54.47	V	74	-19.53	Peak	1.85	135	
12205	41.77	V	54	-12.23	Avg	1.85	135	
2441	89.31	H	94	-4.69	Peak	1.25	135	
2441	88.24	H	94	-5.76	Avg	1.25	135	
4882	49.79	H	74	-24.21	Peak	1.35	125	
4882	44.44	H	54	-9.56	Avg	1.35	125	
7323	46.68	H	74	-27.32	Peak	1.25	135	
7323	35.93	H	54	-18.07	Avg	1.25	135	
9764	46.29	H	74	-27.71	Peak	1.35	125	
9764	36.01	H	54	-17.99	Avg	1.35	125	
12205	52.51	H	74	-21.49	Peak	1.45	150	
12205	42.07	H	54	-11.93	Avg	1.45	150	

FCC 15.249

Universal Electronics, Inc.
 UEI Freespace USB Dongle
 Model: URC-4501BJ0-R-B

Date: 09/01/09
 Lab: B
 Tested By: Kyle Fujimoto

Z-Axis - Middle Channel

Transmit Mode - No Emissions Detected Above the 5th Harmonic

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2441	87.18	V	94	-6.82	Peak	1.25	135	
2441	85.91	V	94	-8.09	Avg	1.25	135	
4882	48.81	V	74	-25.19	Peak	1.35	125	
4882	41.62	V	54	-12.38	Avg	1.35	125	
7323	47.03	V	74	-26.97	Peak	1.25	150	
7323	36.32	V	54	-17.68	Avg	1.25	150	
9764	46.62	V	74	-27.38	Peak	1.35	160	
9764	36.25	V	54	-17.75	Avg	1.35	160	
12205	53.82	V	74	-20.18	Peak	1.26	175	
12205	42.27	V	54	-11.73	Avg	1.26	175	
2441	85.53	H	94	-8.47	Peak	1.25	135	
2441	85.57	H	94	-8.43	Avg	1.25	135	
4882	46.41	H	74	-27.59	Peak	1.35	150	
4882	35.71	H	54	-18.29	Avg	1.35	150	
7323	47.26	H	74	-26.74	Peak	1.25	175	
7323	35.78	H	54	-18.22	Avg	1.25	175	
9764	47.43	H	74	-26.57	Peak	1.35	150	
9764	36.27	H	54	-17.73	Avg	1.35	150	
12205	52.67	H	74	-21.33	Peak	1.45	175	
12205	42.06	H	54	-11.94	Avg	1.45	175	

FCC 15.249

Universal Electronics, Inc.
 UEI Freespace USB Dongle
 Model: URC-4501BJ0-R-B

Date: 09/01/09
 Lab: B
 Tested By: Kyle Fujimoto

X-Axis - High Channel

Transmit Mode - No Emissions Detected Above the 5th Harmonic

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2482	85.96	V	94	-8.04	Peak	1.25	135	
2482	80.42	V	94	-13.58	Avg	1.25	135	
4964	48.67	V	74	-25.33	Peak	1.35	155	
4964	44.11	V	54	-9.89	Avg	1.35	155	
7446	43.77	V	74	-30.23	Peak	1.28	175	
7446	33.09	V	54	-20.91	Avg	1.28	175	
9928	44.21	V	74	-29.79	Peak	1.35	185	
9928	33.11	V	54	-20.89	Avg	1.35	185	
12410	53.95	V	74	-20.05	Peak	1.58	125	
12410	42.14	V	54	-11.86	Avg	1.58	125	
2482	87.12	H	94	-6.88	Peak	2.05	45	
2482	81.84	H	94	-12.16	Avg	2.05	45	
4964	45.97	H	74	-28.03	Peak	1.25	135	
4964	38.17	H	54	-15.83	Avg	1.25	135	
7446	44.48	H	74	-29.52	Peak	1.35	125	
7446	33.29	H	54	-20.71	Avg	1.35	125	
9928	44.55	H	74	-29.45	Peak	1.25	150	
9928	33.05	H	54	-20.95	Avg	1.25	150	
12410	55.32	H	74	-18.68	Peak	1.35	180	
12410	42.98	H	54	-11.02	Avg	1.35	180	

FCC 15.249

Universal Electronics, Inc.
 UEI Freespace USB Dongle
 Model: URC-4501BJ0-R-B

Date: 09/01/09
 Lab: B
 Tested By: Kyle Fujimoto

Z-Axis - High Channel

Transmit Mode - No Emissions Detected Above the 5th Harmonic

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2482	96.17	V	94	2.17	Peak	1.25	225	
2482	90.89	V	94	-3.11	Avg	1.25	225	
4964	44.73	V	74	-29.27	Peak	1.25	155	
4964	36.29	V	54	-17.71	Avg	1.25	155	
7446	44.76	V	74	-29.24	Peak	1.35	160	
7446	33.08	V	54	-20.92	Avg	1.35	160	
9928	44.93	V	74	-29.07	Peak	1.25	155	
9928	33.06	V	54	-20.94	Avg	1.25	155	
12410	54.03	V	74	-19.97	Peak	1.25	125	
12410	42.16	V	54	-11.84	Avg	1.25	125	
2482	96.49	H	94	2.49	Peak	1.25	225	
2482	90.63	H	94	-3.37	Avg	1.25	225	
4964	45.03	H	74	-28.97	Peak	1.35	152	
4964	37.88	H	54	-16.12	Avg	1.35	152	
7446	44.24	H	74	-29.76	Peak	1.25	150	
7446	33.31	H	54	-20.69	Avg	1.25	150	
9928	44.54	H	74	-29.46	Peak	1.25	175	
9928	33.35	H	54	-20.65	Avg	1.25	175	
12410	55.07	H	74	-18.93	Peak	1.35	155	
12410	42.63	H	54	-11.37	Avg	1.35	155	

FCC Class B and RSS-210Universal Electronics, Inc.
UEI Freespace USB Dongle
Model: URC-4501BJ0-R-BDate: 09/01/09
Lab: B
Tested By: Kyle Fujimoto**X-Axis and Z-Axis
Receive Mode**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions Found in Receive Mode for the EUT from 10 kHz to 25 GHz
								Tested in Both Vertical and Horizontal Polarizations
								Both X-Axis and Z-Axis Investigated

FCC Class B and FCC 15.249

Universal Electronics, Inc.
 UEI Freespace USB Dongle
 Model: URC-4501BJ0-R-B

Date: 09/01/09
 Lab: B
 Tested By: Kyle Fujimoto

**X-Axis and Z-Axis
 Non-Harmonic Emissions of the TX and Digital Portion**

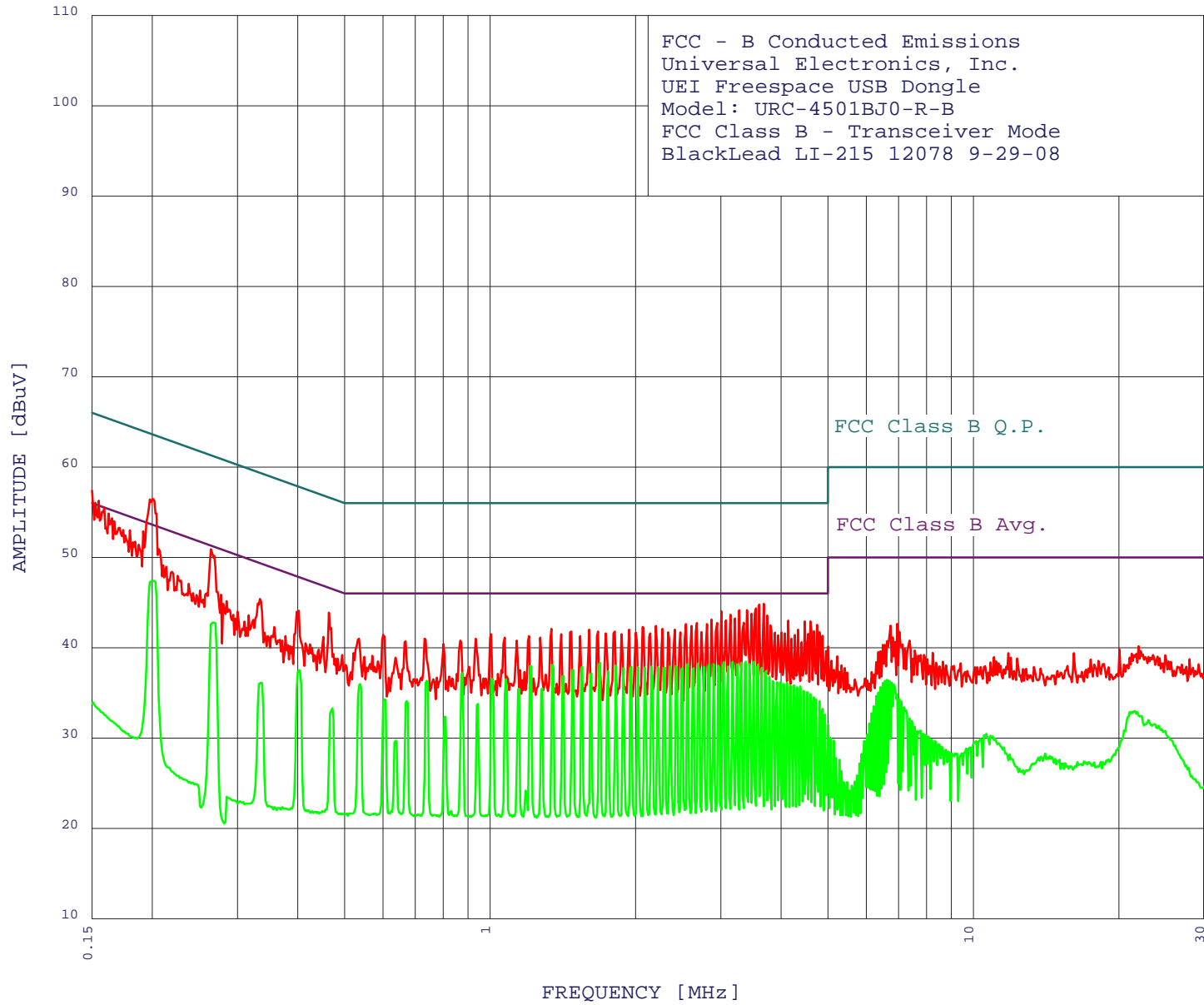
Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
								No Emissions Found
								for the Digital Portion
								from the EUT from 10 kHz
								to 25 GHz
								No Emissions Found for the
								non-Harmonic Tx Emissions
								from the EUT from 10 kHz
								to 25 GHz
								Tested in Both Vertical
								and Horizontal Polarizations
								Both X-Axis and Z-Axis
								Investigated

CONDUCTED EMISSIONS

DATA SHEETS

EMISSION LEVEL [dBuV] PEAK
Graph for Peak & Average

9/15/2009 12:16:21



COMPATIBLE
ELECTRONICS



9/15/2009

12:16:21

FCC - B Conducted Emissions
 Universal Electronics, Inc.
 UEI Freespace USB Dongle
 Model: URC-4501BJ0-R-B
 FCC Class B - Transceiver Mode
 BlackLead LI-215 12078 9-29-08
 TEST ENGINEER : Kyle Fujimoto

 50 highest peaks above -50.00 dB of FCC Class B Avg. limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.201	56.49	53.58	2.91**
2	0.155	56.28	55.73	0.55**
3	0.152	56.03	55.86	0.17**
4	0.159	55.49	55.51	-0.03**
5	0.265	50.89	51.29	-0.40**
6	0.162	54.84	55.34	-0.49**
7	0.192	52.87	53.97	-1.10**
8	0.167	54.00	55.11	-1.11**
9	3.683	44.86	46.00	-1.14**
10	3.605	44.76	46.00	-1.24**
11	0.180	52.98	54.50	-1.51**
12	3.547	44.36	46.00	-1.64**
13	3.401	44.15	46.00	-1.85**
14	3.277	44.14	46.00	-1.86**
15	3.011	44.03	46.00	-1.97**
16	3.474	43.75	46.00	-2.25**
17	3.141	43.64	46.00	-2.36**
18	3.741	43.57	46.00	-2.43**
19	0.184	51.74	54.28	-2.54**
20	0.187	51.41	54.15	-2.74**
21	0.464	43.88	46.62	-2.74**
22	3.209	43.24	46.00	-2.76**
23	2.870	43.12	46.00	-2.88**
24	3.075	43.03	46.00	-2.97**
25	4.137	42.99	46.00	-3.01**
26	4.600	42.91	46.00	-3.09**
27	4.480	42.90	46.00	-3.10**
28	3.346	42.75	46.00	-3.25**
29	2.948	42.73	46.00	-3.27**
30	2.679	42.71	46.00	-3.29**
31	2.811	42.62	46.00	-3.38**
32	2.540	42.61	46.00	-3.39**
33	4.748	42.52	46.00	-3.48**
34	3.800	42.47	46.00	-3.53**
35	2.610	42.41	46.00	-3.59**
36	2.201	42.39	46.00	-3.61**
37	2.066	42.28	46.00	-3.72**
38	0.402	44.08	47.81	-3.73**
39	2.274	42.09	46.00	-3.91**
40	1.338	42.09	46.00	-3.91**
41	0.334	45.37	49.35	-3.98**
42	2.410	42.00	46.00	-4.00**
43	4.339	42.00	46.00	-4.00**
44	1.603	41.99	46.00	-4.01**
45	1.939	41.98	46.00	-4.02**
46	0.214	48.96	53.05	-4.09**
47	0.211	49.09	53.18	-4.09**
48	4.672	41.81	46.00	-4.19**
49	1.472	41.79	46.00	-4.21**
50	1.671	41.79	46.00	-4.21**



9/15/2009

12:16:21

FCC - B Conducted Emissions
 Universal Electronics, Inc.
 UEI Freespace USB Dongle
 Model: URC-4501BJ0-R-B
 FCC Class B - Transceiver Mode
 BlackLead LI-215 12078 9-29-08
 TEST ENGINEER : Kyle Fujimoto

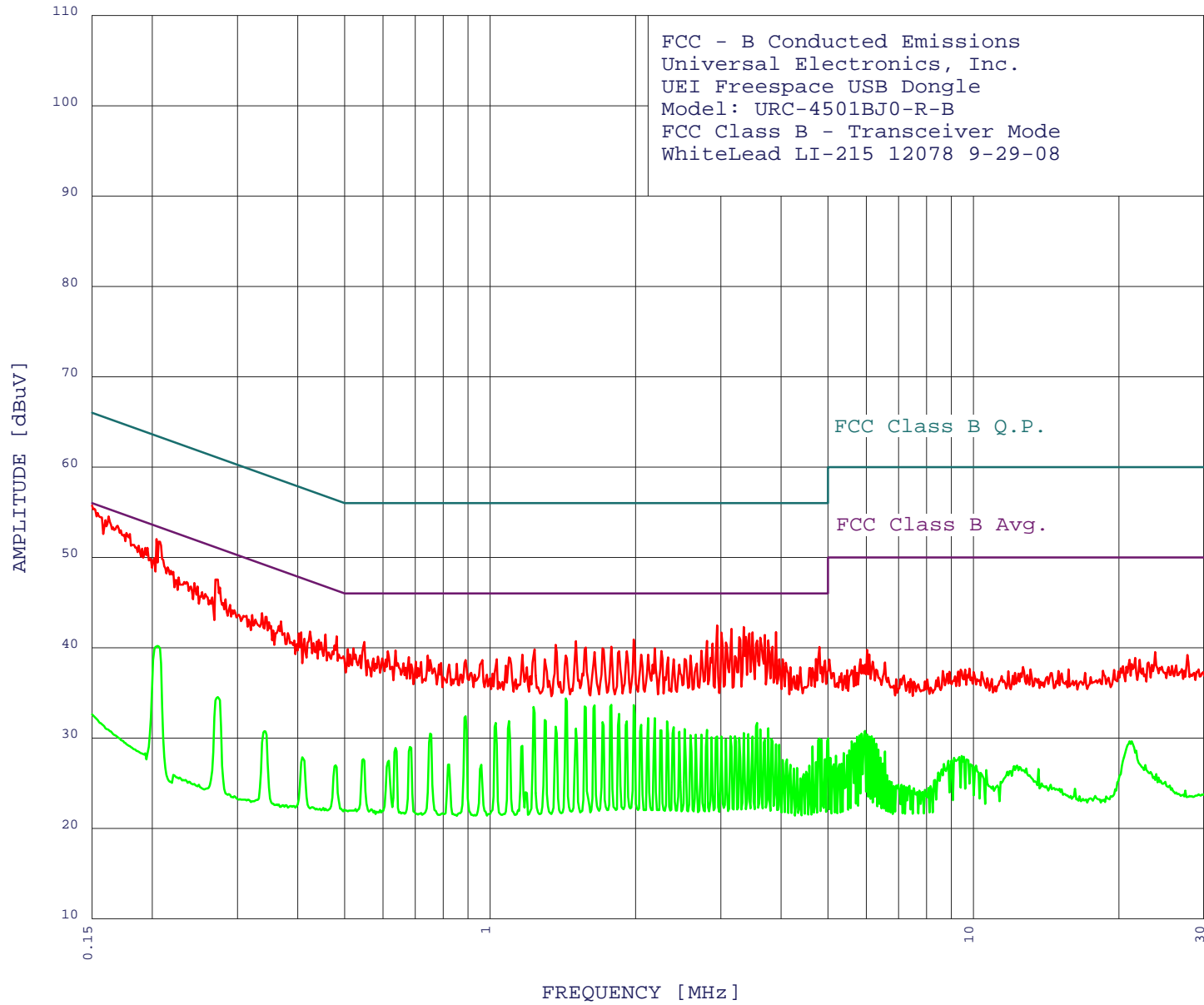
 50 highest peaks above -50.00 dB of FCC Class B Avg. limit line

Peak criteria : 0.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.202	47.39	53.53	-6.14
2	3.383	38.45	46.00	-7.55
3	3.511	38.42	46.00	-7.58
4	3.175	38.41	46.00	-7.59
5	3.043	38.39	46.00	-7.61
6	1.690	38.35	46.00	-7.65
7	3.311	38.35	46.00	-7.65
8	2.693	38.21	46.00	-7.79
9	2.568	38.21	46.00	-7.79
10	3.438	38.19	46.00	-7.81
11	2.900	38.19	46.00	-7.81
12	3.243	38.18	46.00	-7.82
13	2.840	38.15	46.00	-7.85
14	3.585	38.12	46.00	-7.88
15	1.345	38.10	46.00	-7.90
16	2.963	38.02	46.00	-7.98
17	1.820	38.00	46.00	-8.00
18	2.423	37.96	46.00	-8.04
19	1.210	37.94	46.00	-8.06
20	3.107	37.92	46.00	-8.08
21	2.358	37.91	46.00	-8.09
22	2.766	37.90	46.00	-8.10
23	1.960	37.89	46.00	-8.11
24	1.552	37.88	46.00	-8.12
25	2.156	37.88	46.00	-8.12
26	2.023	37.87	46.00	-8.13
27	2.226	37.84	46.00	-8.16
28	2.089	37.80	46.00	-8.20
29	2.298	37.78	46.00	-8.22
30	3.644	37.77	46.00	-8.23
31	2.501	37.76	46.00	-8.24
32	1.889	37.73	46.00	-8.27
33	2.637	37.73	46.00	-8.27
34	0.267	42.79	51.20	-8.41
35	1.480	37.55	46.00	-8.45
36	1.754	37.39	46.00	-8.61
37	3.722	37.38	46.00	-8.62
38	0.876	37.19	46.00	-8.81
39	1.620	37.16	46.00	-8.84
40	1.419	36.90	46.00	-9.10
41	3.781	36.80	46.00	-9.20
42	1.011	36.55	46.00	-9.45
43	1.077	36.50	46.00	-9.50
44	0.739	36.33	46.00	-9.67
45	3.841	36.29	46.00	-9.71
46	3.987	36.19	46.00	-9.81
47	3.924	36.19	46.00	-9.81
48	4.114	36.12	46.00	-9.88
49	0.538	35.98	46.00	-10.02
50	4.050	35.97	46.00	-10.03

EMISSION LEVEL [dBuV] PEAK
Graph for Peak & Average

9/15/2009 13:41:09



FCC - B Conducted Emissions
Universal Electronics, Inc.
UEI Freespace USB Dongle
Model: URC-4501BJ0-R-B
FCC Class B - Transceiver Mode
WhiteLead LI-215 12078 9-29-08

FCC Class B Q.P.

FCC Class B Avg.



COMPATIBLE
ELECTRONICS



9/15/2009

13:41:09

FCC - B Conducted Emissions
 Universal Electronics, Inc.
 UEI Freespace USB Dongle
 Model: URC-4501BJ0-R-B
 FCC Class B - Transceiver Mode
 WhiteLead LI-215 12078 9-29-08
 TEST ENGINEER : Kyle Fujimoto

 49 highest peaks above -50.00 dB of FCC Class B Avg. limit line

Peak criteria : 1.00 dB, Curve : Peak

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	0.162	54.52	55.34	-0.82**
2	0.204	52.03	53.44	-1.41**
3	0.206	51.73	53.35	-1.63**
4	0.194	51.06	53.88	-2.83**
5	2.948	42.46	46.00	-3.54**
6	0.270	47.55	51.11	-3.56**
7	0.202	49.94	53.53	-3.59**
8	3.346	42.28	46.00	-3.72**
9	3.158	42.07	46.00	-3.93**
10	3.903	41.71	46.00	-4.29**
11	3.492	41.69	46.00	-4.31**
12	3.011	41.66	46.00	-4.34**
13	3.438	41.59	46.00	-4.41**
14	3.702	41.40	46.00	-4.60**
15	0.227	47.78	52.57	-4.79**
16	0.244	47.16	51.95	-4.79**
17	3.383	41.18	46.00	-4.82**
18	3.277	41.18	46.00	-4.82**
19	3.624	41.10	46.00	-4.90**
20	0.481	41.25	46.32	-5.06**
21	1.981	40.91	46.00	-5.09**
22	3.761	40.81	46.00	-5.19**
23	3.565	40.79	46.00	-5.21**
24	2.811	40.75	46.00	-5.25**
25	1.504	40.71	46.00	-5.29**
26	0.457	41.46	46.76	-5.29**
27	0.283	45.34	50.72	-5.37**
28	0.550	40.62	46.00	-5.38**
29	3.075	40.57	46.00	-5.43**
30	0.338	43.82	49.26	-5.45**
31	0.254	46.15	51.64	-5.48**
32	2.885	40.46	46.00	-5.54**
33	0.424	41.78	47.37	-5.59**
34	0.369	42.90	48.52	-5.61**
35	1.367	40.32	46.00	-5.68**
36	0.343	43.41	49.13	-5.72**
37	0.290	44.74	50.54	-5.80**
38	1.781	40.11	46.00	-5.89**
39	3.841	40.11	46.00	-5.89**
40	4.799	40.06	46.00	-5.94**
41	1.577	40.01	46.00	-5.99**
42	0.406	41.69	47.72	-6.04**
43	0.322	43.62	49.66	-6.04**
44	0.521	39.93	46.00	-6.07**
45	2.190	39.92	46.00	-6.08**
46	1.708	39.91	46.00	-6.09**
47	0.442	40.87	47.02	-6.15**
48	0.508	39.84	46.00	-6.16**
49	1.236	39.82	46.00	-6.18**

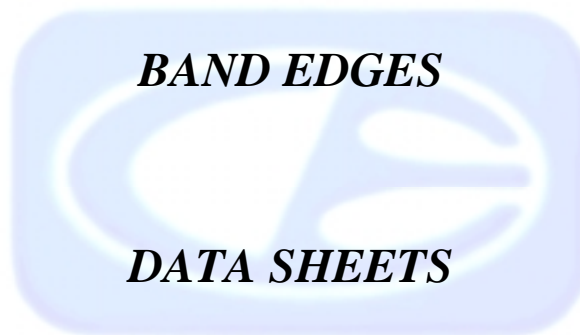


FCC - B Conducted Emissions
 Universal Electronics, Inc.
 UEI Freespace USB Dongle
 Model: URC-4501BJ0-R-B
 FCC Class B - Transceiver Mode
 WhiteLead LI-215 12078 9-29-08
 TEST ENGINEER : Kyle Fujimoto

 49 highest peaks above -50.00 dB of FCC Class B Avg. limit line

Peak criteria : 0.00 dB, Curve : Average

Peak#	Freq(MHz)	Amp(dBuV)	Limit(dB)	Delta(dB)
1	1.434	34.38	46.00	-11.62
2	1.781	33.68	46.00	-12.32
3	1.981	33.64	46.00	-12.36
4	1.646	33.61	46.00	-12.39
5	1.569	33.50	46.00	-12.50
6	1.230	33.44	46.00	-12.56
7	0.205	40.18	53.40	-13.22
8	1.849	32.66	46.00	-13.34
9	0.890	32.41	46.00	-13.59
10	2.190	32.20	46.00	-13.80
11	2.123	32.20	46.00	-13.80
12	1.297	31.98	46.00	-14.02
13	1.094	31.86	46.00	-14.14
14	1.918	31.85	46.00	-14.15
15	2.322	31.84	46.00	-14.16
16	1.708	31.74	46.00	-14.26
17	3.565	31.67	46.00	-14.33
18	1.027	31.66	46.00	-14.34
19	2.055	31.45	46.00	-14.55
20	1.367	31.25	46.00	-14.75
21	2.397	31.20	46.00	-14.80
22	3.761	31.09	46.00	-14.91
23	1.504	31.05	46.00	-14.95
24	2.527	30.99	46.00	-15.01
25	3.624	30.95	46.00	-15.05
26	2.811	30.90	46.00	-15.10
27	2.262	30.84	46.00	-15.16
28	2.462	30.69	46.00	-15.31
29	3.346	30.55	46.00	-15.45
30	0.751	30.49	46.00	-15.51
31	3.419	30.42	46.00	-15.58
32	2.736	30.38	46.00	-15.62
33	2.665	30.38	46.00	-15.62
34	2.596	30.30	46.00	-15.70
35	3.209	30.21	46.00	-15.79
36	3.141	30.20	46.00	-15.80
37	3.011	30.15	46.00	-15.85
38	2.948	30.15	46.00	-15.85
39	3.492	30.15	46.00	-15.85
40	2.870	30.08	46.00	-15.92
41	3.277	30.03	46.00	-15.97
42	4.799	29.94	46.00	-16.06
43	3.820	29.89	46.00	-16.11
44	3.075	29.85	46.00	-16.15
45	3.702	29.80	46.00	-16.20
46	4.851	29.80	46.00	-16.20
47	0.273	34.52	51.02	-16.51
48	3.903	29.29	46.00	-16.71
49	3.966	29.26	46.00	-16.74



FCC 15.249

Universal Electronics, Inc.
 UEI Freespace USB Dongle
 Model: URC-4501BJ0-R-B

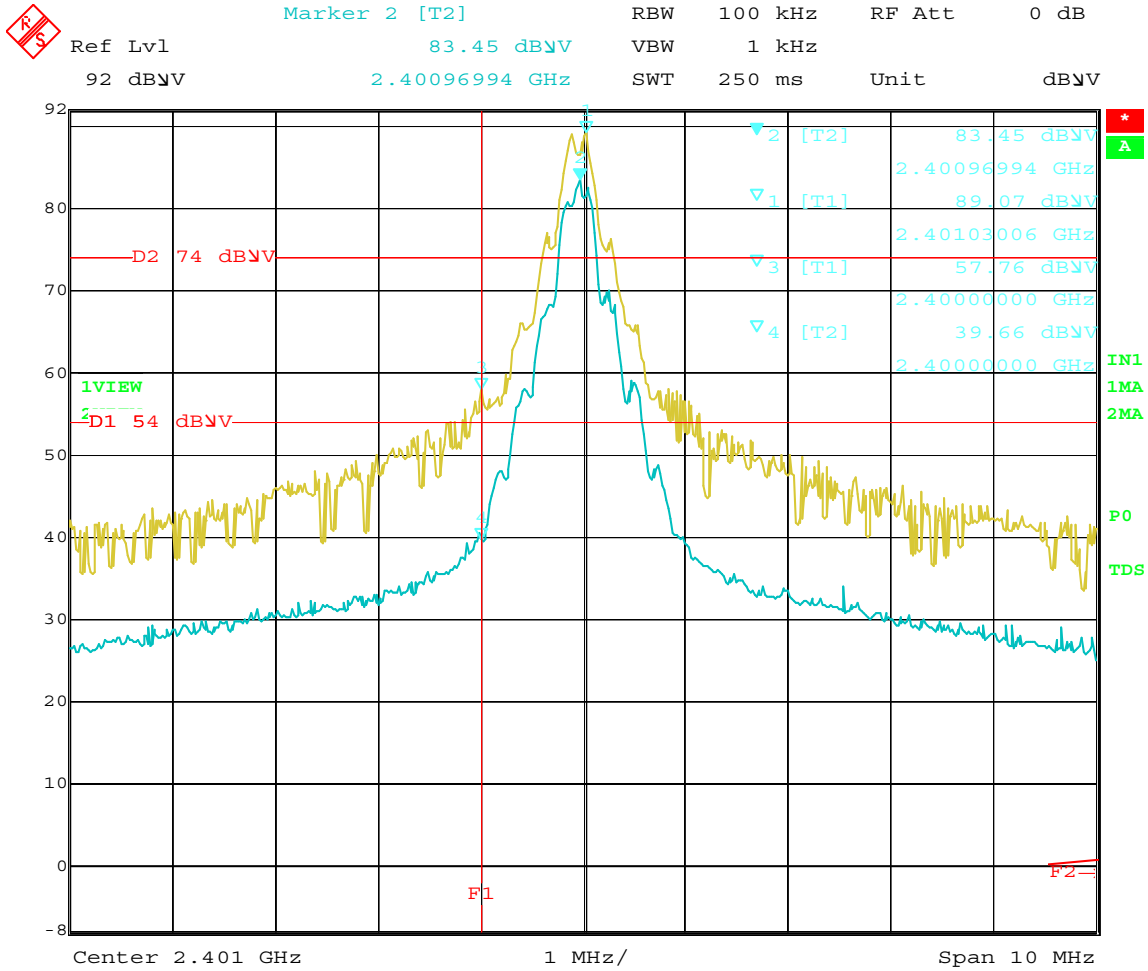
Date: 09/01/09
 Lab: B
 Tested By: Kyle Fujimoto

Band Edges

Correction Factor = 10 log (RBW Specification / RBW Tested)

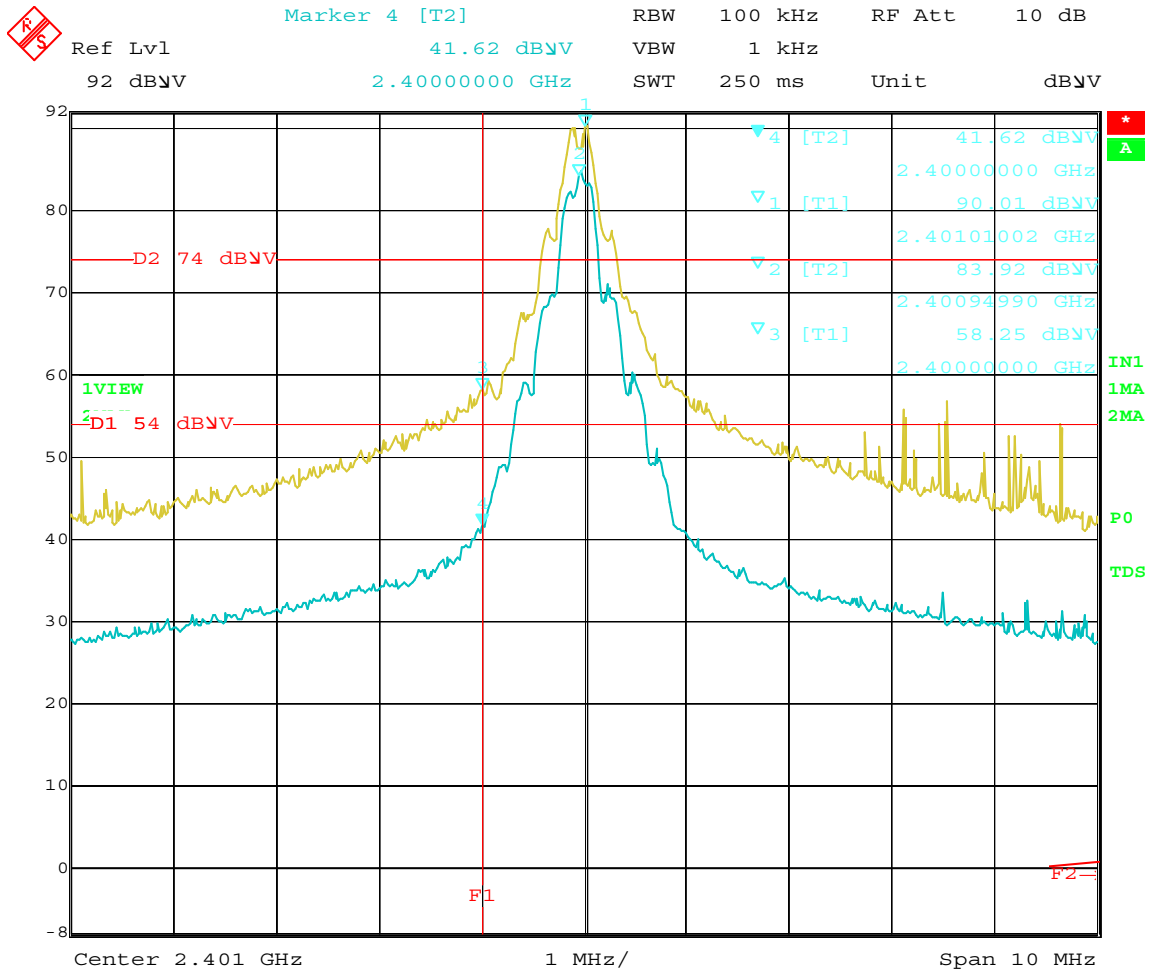
Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2401	99.07	V	94	5.07	Peak	1.35	225	Fundamental - (Z-Axis)
2401	93.45	V	94	-0.55	Avg	1.35	225	Low Channel - Worst Case
2400	67.76	V	74	-6.24	Peak	1.25	135	Band Edge - (Z-Axis)
2400	49.66	V	54	-4.34	Avg	1.25	135	Low Channel - Worst Case
2401	100.01	H	94	6.01	Peak	1.28	180	Fundamental - (X-Axis)
2401	93.92	H	94	-0.08	Avg	1.28	180	Low Channel - Worst Case
2400	68.25	H	74	-5.75	Peak	1.35	180	Band Edge - (X-Axis)
2400	51.62	H	54	-2.38	Avg	1.35	180	Low Channel - Worst Case
2482	96.17	V	94	2.17	Peak	1.25	225	Fundamental - (Z-Axis)
2482	90.89	V	94	-3.11	Avg	1.25	225	High Channel - Worst Case
2483.5	57.84	V	74	-16.16	Peak	1.25	225	Band Edge - (Z-Axis)
2483.5	41.31	V	54	-12.69	Avg	1.25	225	High Channel - Worst Case
2482	96.49	H	94	2.49	Peak	1.25	225	Fundamental - (Z-Axis)
2482	90.63	H	94	-3.37	Avg	1.25	225	High Channel - Worst Case
2483.5	58.16	H	74	-15.84	Peak	2.05	45	Band Edge - (Z-Axis)
2483.5	41.25	H	54	-12.75	Avg	2.05	45	High Channel - Worst Case

The Readings Reflect a 10 dB Increase from the Plots to compensate for the 100 kHz RBW used instead of 1 MHz RBW



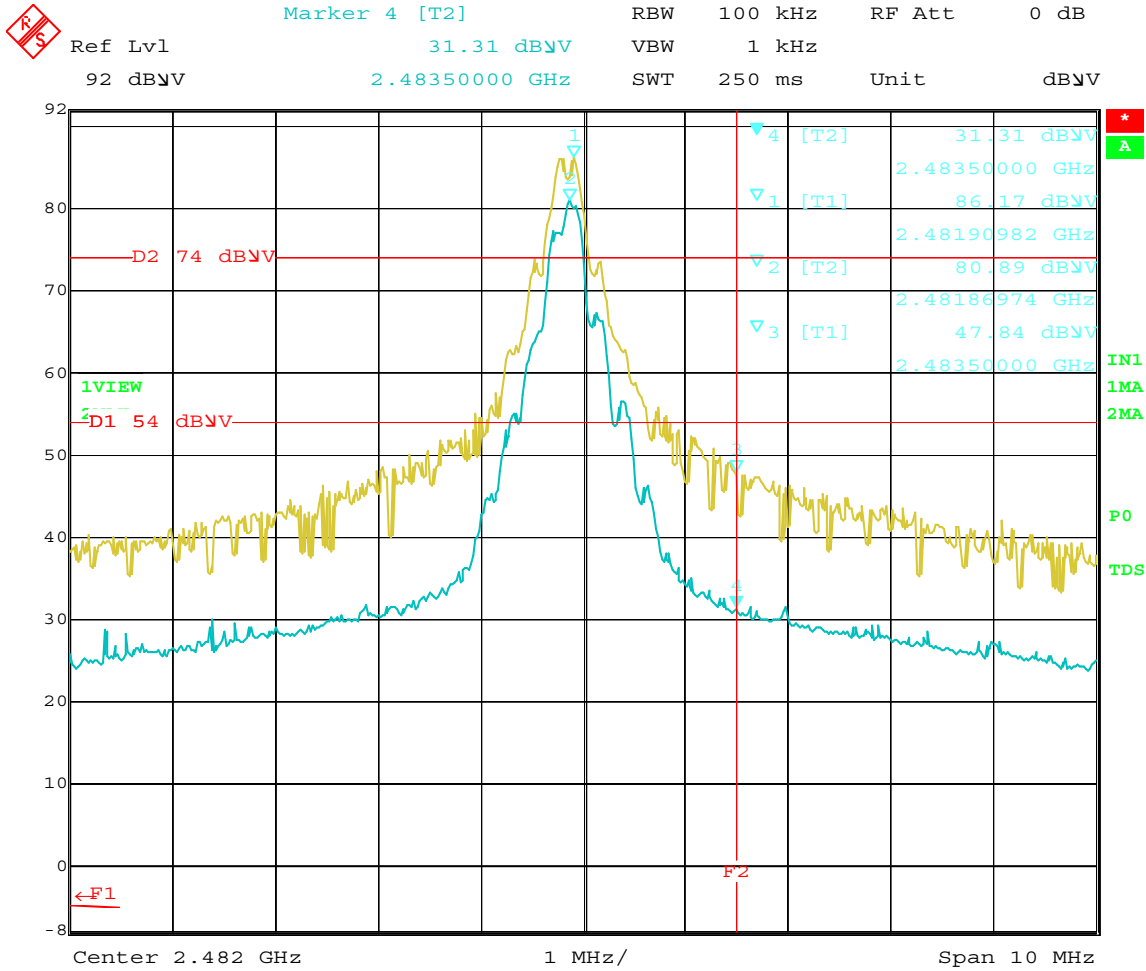
Date: 1.SEP.2009 13:45:24

Band Edge – Low Channel – Vertical Polarization – Z-Axis (Worst Case)



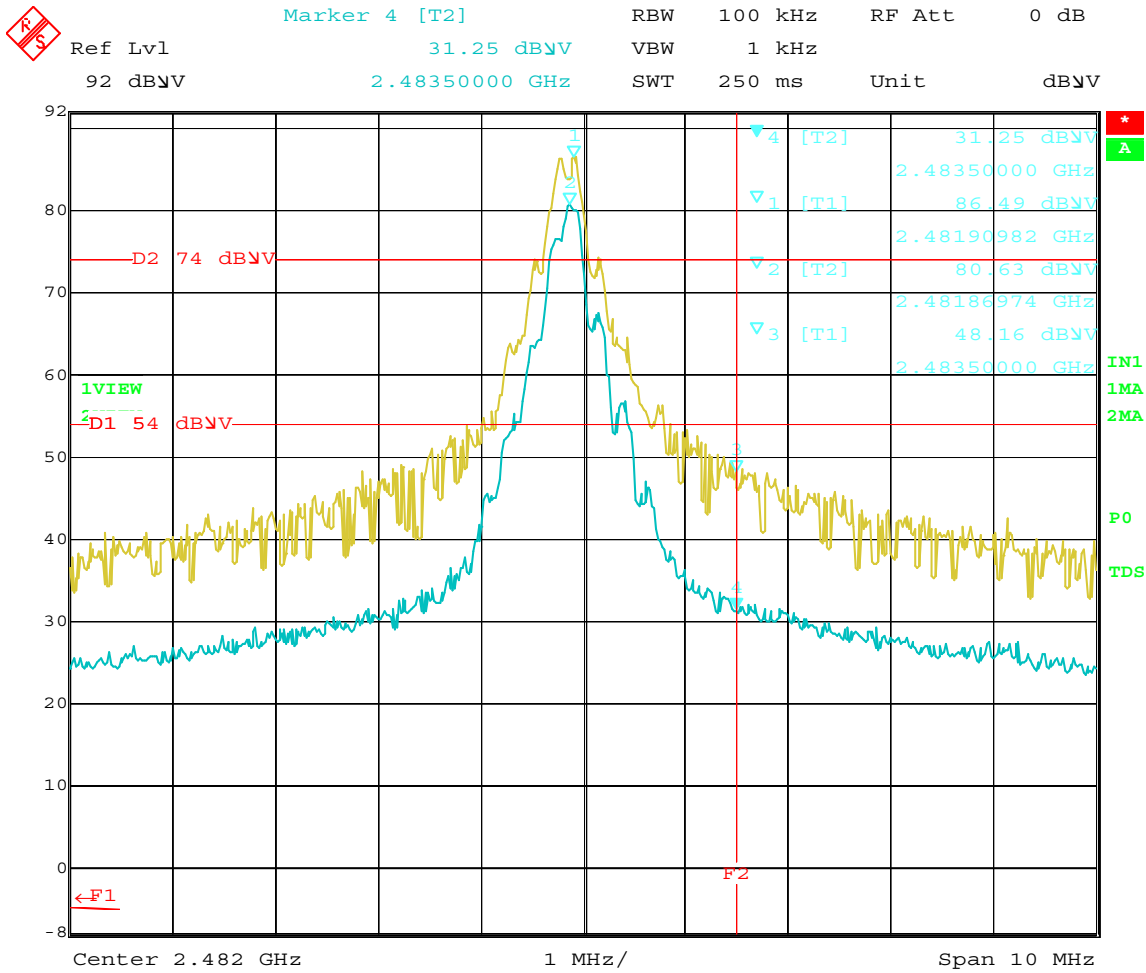
Date: 1.SEP.2009 14:20:20

Band Edge – Low Channel – Horizontal Polarization – X-Axis (Worst Case)



Date: 1.SEP.2009 13:30:20

Band Edge – High Channel – Vertical Polarization – Z-Axis (Worst Case)



Date: 1.SEP.2009 12:55:52

Band Edge – High Channel – Horizontal Polarization – Z-Axis (Worst Case)