FCC CFR47 PART 15 SUBPART C

**BLUETOOTH LOW ENERGY
CERTIFICATION TEST REPORT**

FOR

GSM/WCDMA/LTE PHONE WITH BT + DTS WLAN b/g/n & NFC

MODEL NUMBER: LGK371, K371, LG-K371

FCC ID: ZNFK371

REPORT NUMBER: 16I22670-E3V2

ISSUE DATE: 2/24/2016

Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2/16/2016	Initial Issue	D. CORONIA
V2	2/24/2016	Updated Section 9	D. CORONIA

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC.

EUT DESCRIPTION: GSM/WCDMA/LTE PHONE WITH BT + DTS WLAN b/g/n & NFC

MODEL: LGK371, K371, LG-K371

SERIAL NUMBER: 512CYFT000387, 512CJZ000388, 510CYPY001168,
                         510CYHE001169, 510CYCV001171, 510CYYQ001170

DATE TESTED: NOVEMBER 25, 2015 – FEBRUARY 10, 2016

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Pass

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revision section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Verification Services Inc. By: Tested By:

DAN CORONIA	KIYA KEDIDA
CONSUMER TECHNOLOGY DIVISION	CONSUMER TECHNOLOGY DIVISION
WiSE PROJECT LEAD	WiSE LAB ENGINEER
UL VERIFICATION SERVICES INC	UL VERIFICATION SERVICES INC

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013 for FCC, FCC CFR 47 Part 2, and FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
☐ Chamber A	☐ Chamber D
☒ Chamber B	☐ Chamber E
☐ Chamber C	☐ Chamber F
	☐ Chamber G
	☐ Chamber H

The above test sites and facilities are covered under FCC Test Firm Registration # 208313.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3.   MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 9KHz to 30 MHz	2.14 dB
Radiated Disturbance, 30 to 1000 MHz	4.98 dB
Radiated Disturbance,1000 to 6000 MHz	3.86 dB
Radiated Disturbance,6000 to 18000 MHz	4.23 dB
Radiated Disturbance,18000 to 26000 MHz	5.30 dB
Radiated Disturbance,26000 to 40000 MHz	5.23 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1.   DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE PHONE WITH BT + DTS WLAN b/g/n & NFC

5.2.   MAXIMUM OUTPUT POWER

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402-2480	BLE	2.13	1.63

5.3.   DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a SUS antenna, with a maximum gain of 0.39dBi.

5.4.   WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X, Y, Z it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

5.5.   DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG	MCS-02WRE	N/A	N/A
Earphone	LG	N/A	N/A	N/A

I/O CABLES

I/O Cable List					
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	Mini-USB	Shielded	1.2m	N/A
2	Audio	1	Mini-Jack	Unshielded	1m	N/A

TEST SETUP

EUT was set in the Hidden menu mode to enable BLE communications.

SETUP DIAGRAM FOR TESTS

```
┌──────────────┐        ┌──────────────┐
│              │        │              │
│   HEADSET    │────────│     EUT      │
│              │  ┌──┐   │              │
└──────────────┘  │ 2│   └──────────────┘
                  └──┘          │
                                │
                             ┌──┐
                             │ 1│
                             └──┘
                                │
                        ┌──────────────┐
                        │              │
                        │  AC ADAPTER  │
                  ┌─────┴──────────────┴─────┐
                  │                          │
                  │    MAIN POWER SOURCE     │
                  │                          │
                  └──────────────────────────┘
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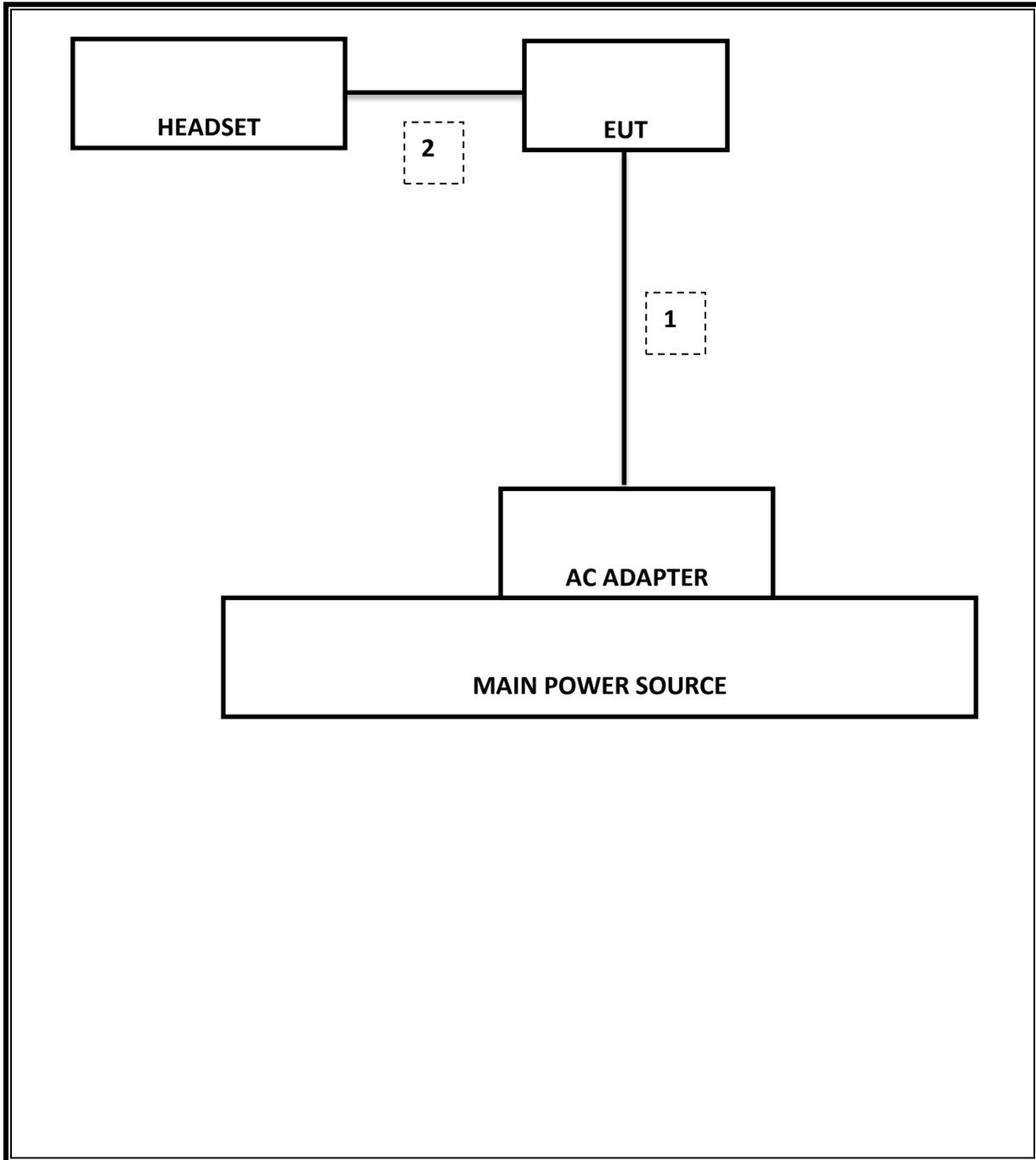
6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List				
Description	**Manufacturer**	**Model**	**T Number**	**Cal Due**
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	130	09/01/16
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	477	06/10/16
Antenna, Horn, 18GHz	EMCO	3115	59	11/18/16
Antenna, Horn, 18GHz	ETS Lindgren	3117	345	03/03/16
Antenna, Horn, 18GHz	ETS Lindgren	3117	136	03/03/16
Antenna, Horn, 18GHz	ETS Lindgren	3117	863	04/10/16
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	447	05/12/16
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	88	04/07/16
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	404	06/29/16
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	123	10/22/16
Spectrum Analyzer, PXA, 3 Hz to 44 GHz	Keysight	N9030A	906	03/03/16
Spectrum Analyzer, PXA, 3 Hz to 44 GHz	Keysight	N9030A	907	06/11/16
EMI Test Receiver, 9 KHz to 7 GHz	Rohde & Schwarz	ECSI7	284	09/10/16
Peak Power Meter	Agilent / HP	N1914A	254	06/08/16
Peak / Average Power Sensor	Keysight	E9327A	117	03/09/16
LISN, 30 MHz	Solar	8012-50-R-24-BNC	28	7/28/2016
Reject Filter, 2.4GHz	Micro-Tronics	BRM50702	160	CNR
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	417	05/04/16
High Pass Filter 6GHz	Micro-Tronics	HPS17542	893	04/25/16
High Pass Filter 3GHz	Micro-Tronics	HPS17543	898	04/25/16

Test Software List			
Description	**Manufacturer**	**Model**	**Version**
Radiated Software	UL	UL EMC	Ver 9.5, June 24, 2015
Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015
CLT Software	UL	UL RF	Ver 1.0, Feb 2, 2015
Antenna Port Software	UL	UL RF	Ver 3.7, Nov 12, 2015

7. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result
15.247 (a)(2)	RSS-247 5.2.1	Occupied Bandwidth (6dB)	>500KHz	Conducted	Pass
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass
15.247	RSS-247 5.4.4	TX conducted output power	<30dBm		Pass
15.247	RSS-247 5.2.2	PSD	<8dBm		Pass
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10	Radiated	Pass
15.205, 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m		Pass

8. ANTENNA PORT TEST RESULTS

8.1.   ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
BLE	0.408	0.625	0.653	65.26%	1.85	2.451

BLE Mid Ch
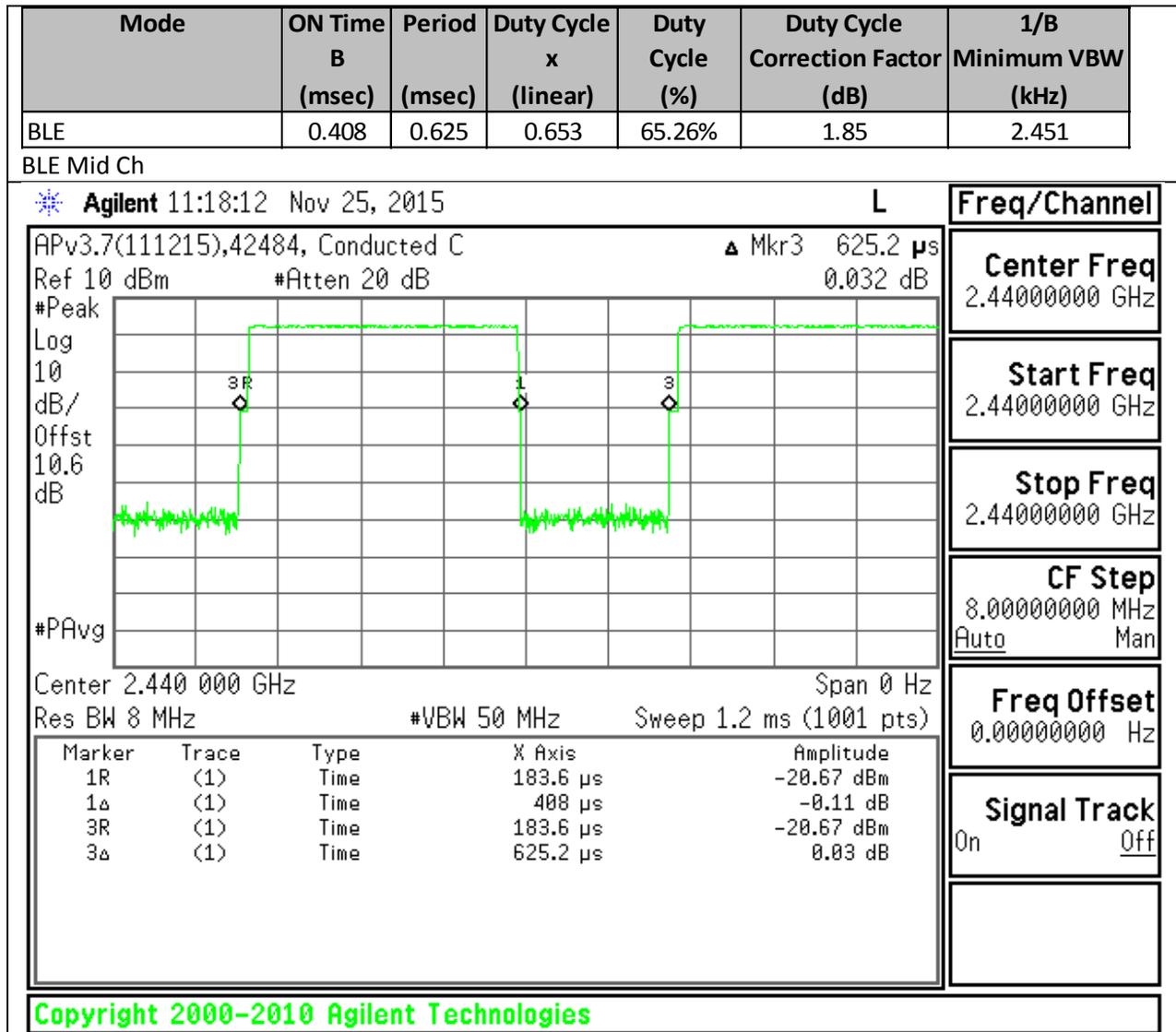
8.2.   6 dB BANDWIDH

LIMITS

FCC §15.247 (a) (2)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

8.2.1. 6 dB BANDWIDTH PLOTS AND TABLE

	TEST RESULT TABLE		LOW CHANNEL

TEST RESULT TABLE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
Low	2402	0.654
Middle	2440	0.645
High	2480	0.674

MID CHANNEL

HIGH CHANNEL
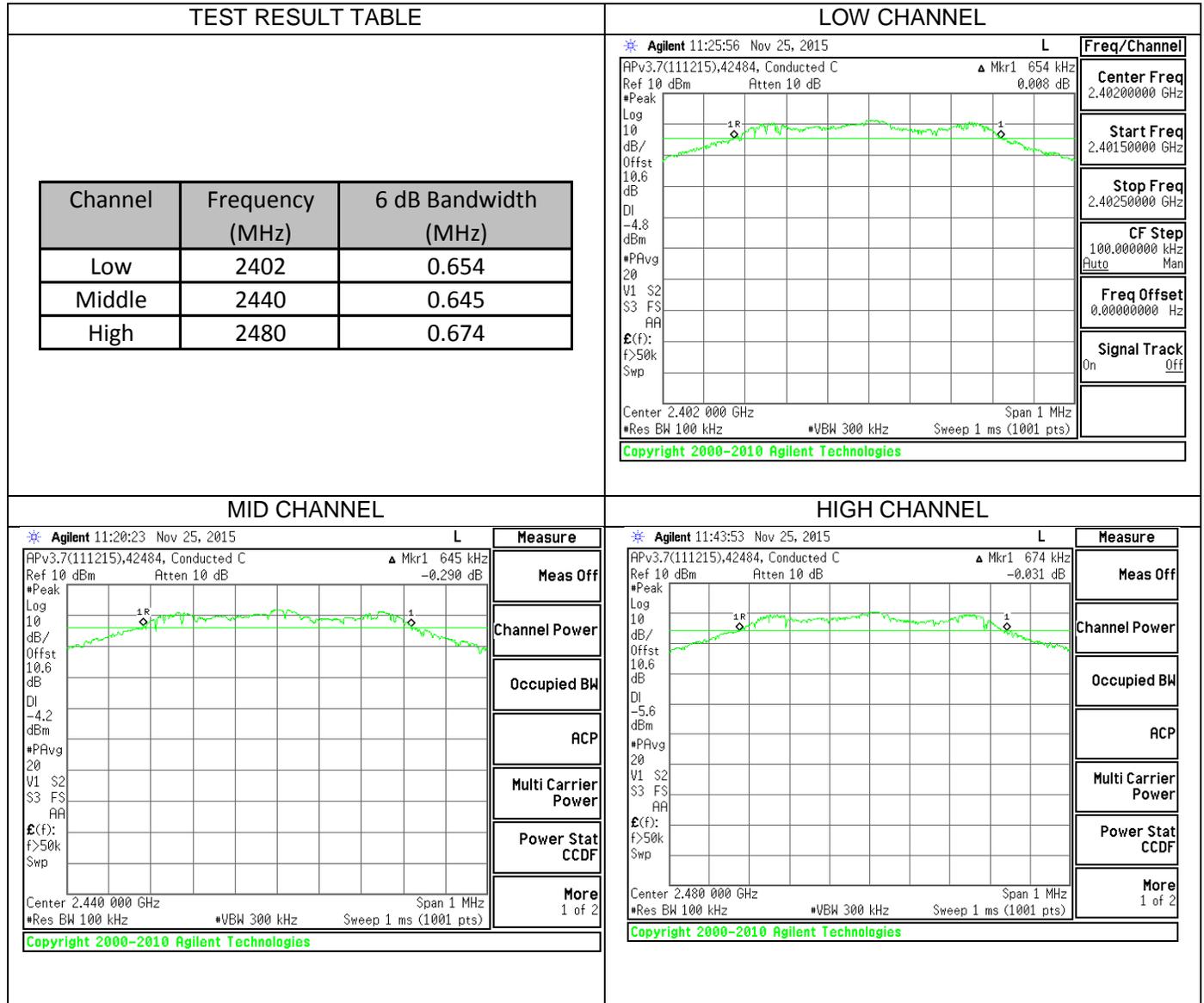
8.3.   99% BANDWIDH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Reference to KDB558074 D01 DTS Meas Guidance v03r04: The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

8.3.1. 99% BANDWIDTH PLOTS AND TABLE

TEST RESULT TABLE			LOW CHANNEL			

TEST RESULT TABLE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.055
Middle	2440	1.059
High	2480	1.056

LOW CHANNEL

MID CHANNEL

HIGH CHANNEL

8.4.   OUTPUT POWER

LIMITS

FCC §15.247 (b)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

Peak power is measured using KDB558074 D01 DTS Meas Guidance v03r04 spectrum analyzer.

RESULTS

8.4.1. OUTPUT POWER PLOTS

TEST RESULT TABLE					LOW CHANNEL

TEST RESULT TABLE

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	1.54	30	-28.46
Middle	2440	2.13	30	-27.87
High	2480	0.75	30	-29.25

LOW CHANNEL

MID CHANNEL

HIGH CHANNEL

NOTE:
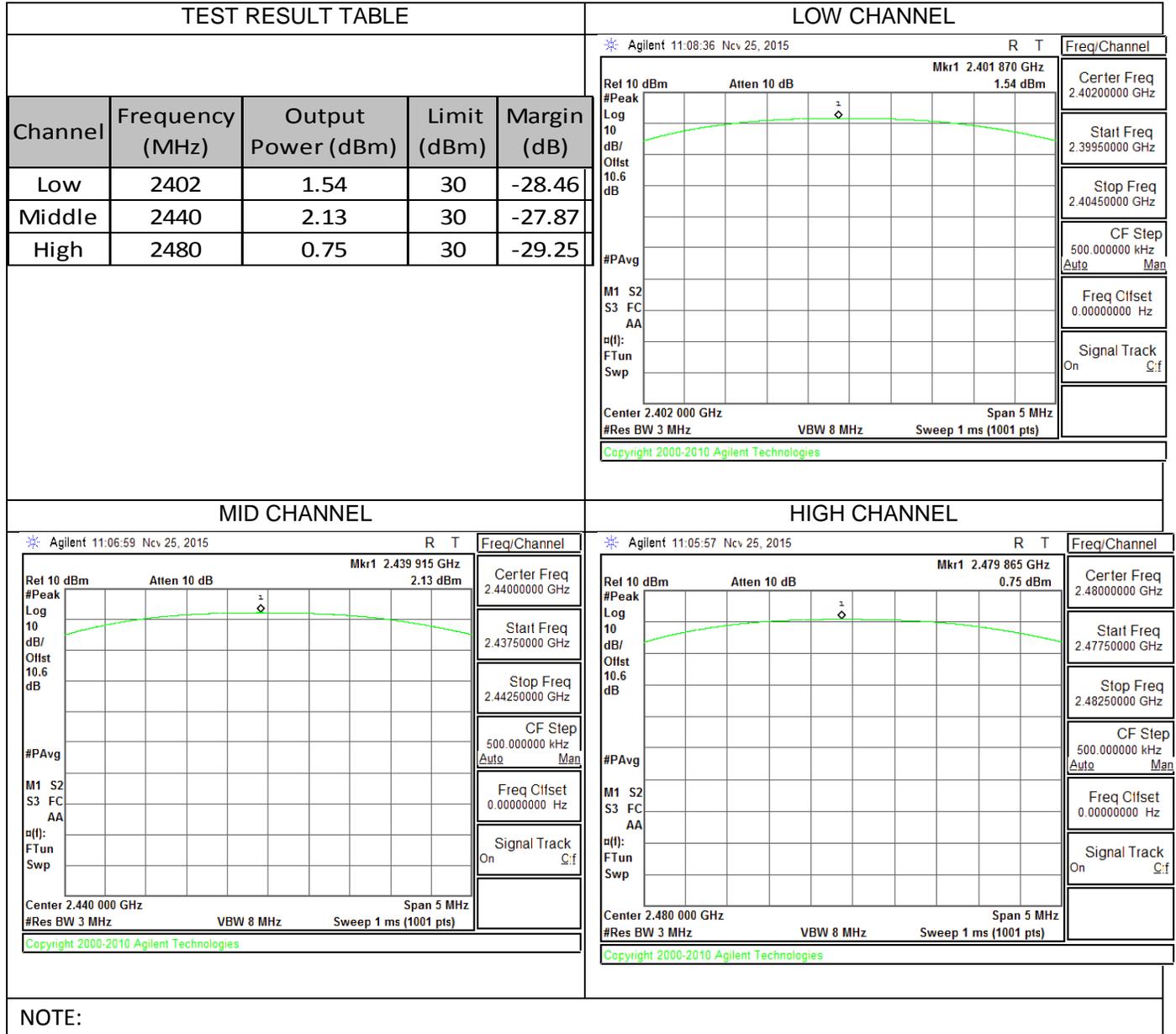
8.5.   AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 10.7 dB (including 10 dB pad and 0.7 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	-1.3
Middle	2440	-1.3
High	2480	-1.4
Worst		-1.3

NOTE: --

8.6. POWER SPECTRAL DENSITY
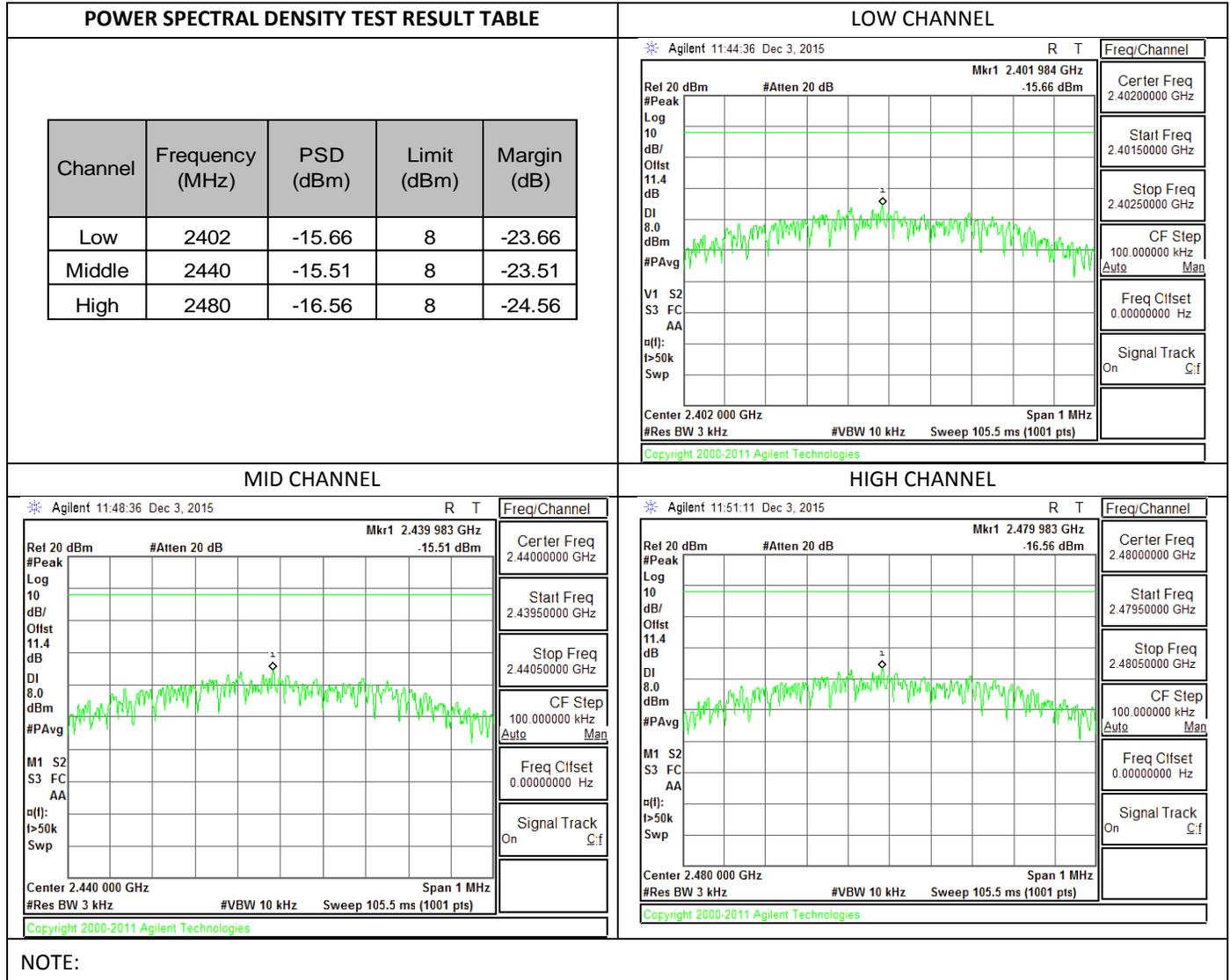
LIMITS

FCC §15.247 (e)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

Power Spectral Density was performed utilizing the "Method PKPSD (Peak PSD)" under KDB558074 D01 DTS Meas Guidance v03r04.

RESULTS

8.6.1. POWER SPECTRAL DENSITY PLOTS AND TABLE

POWER SPECTRAL DENSITY TEST RESULT TABLE					LOW CHANNEL

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-15.66	8	-23.66
Middle	2440	-15.51	8	-23.51
High	2480	-16.56	8	-24.56

LOW CHANNEL

MID CHANNEL

HIGH CHANNEL

NOTE:

8.7.   CONDUCTED SPURIOUS EMISSIONS

<u>LIMITS</u>

FCC §15.247 (d)

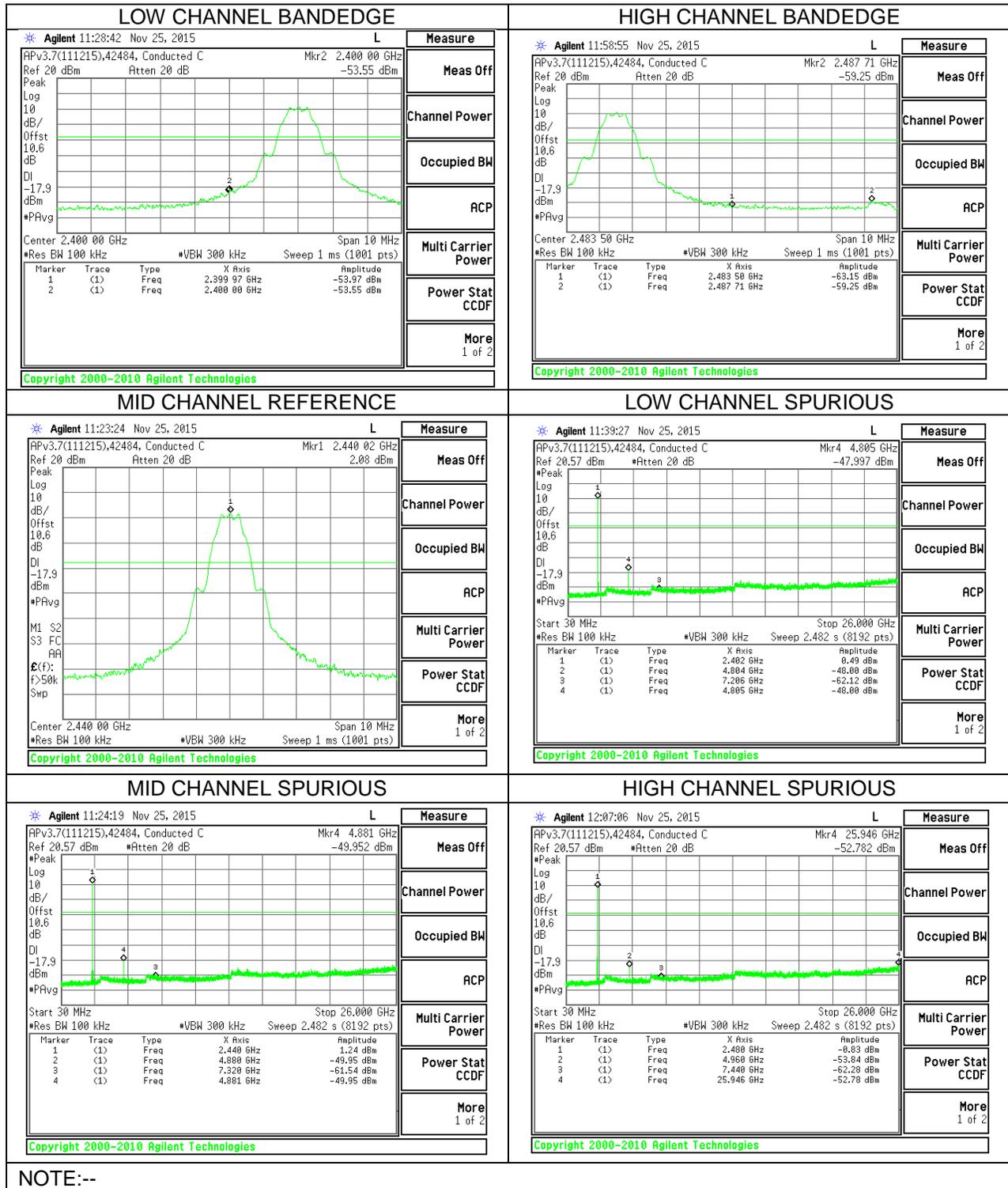Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

<u>TEST PROCEDURE</u>

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

<u>RESULTS</u>

8.7.1. BANDEDGE AND SPURIOUS EMISSIONS PLOTS

LOW CHANNEL BANDEDGE	HIGH CHANNEL BANDEDGE

MID CHANNEL REFERENCE	LOW CHANNEL SPURIOUS

MID CHANNEL SPURIOUS	HIGH CHANNEL SPURIOUS

NOTE:--

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9. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150cm for above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements. Duty cycle factor = 10 log (1/x

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

9.1. TRANSMITTER ABOVE 1 GHz
RESTRICTED BANDEDGE (LOW CHANNEL)

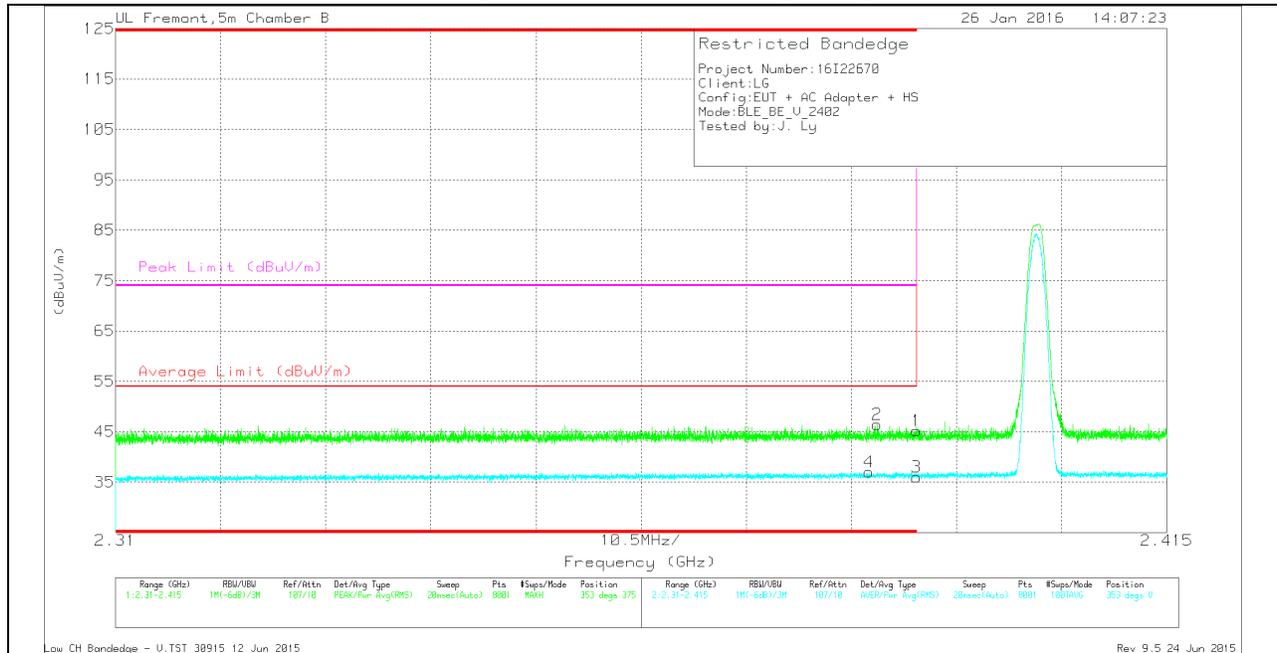### HORIZONTAL PEAK AND AVERAGE PLOT
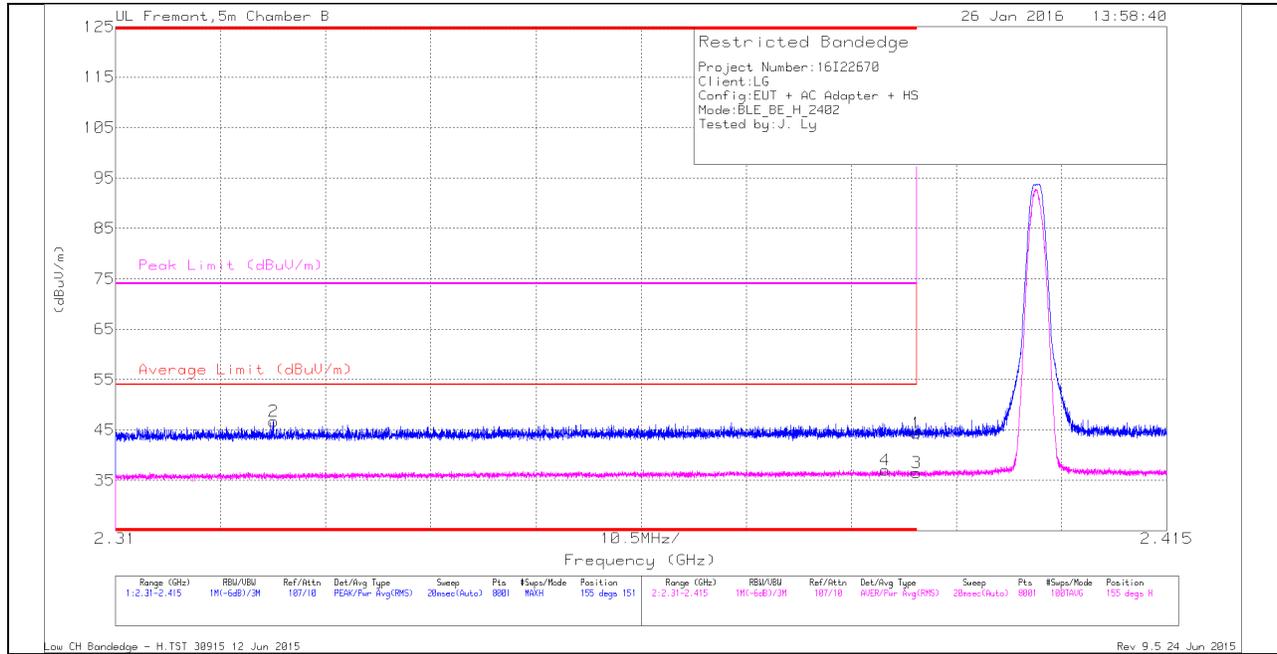
HORIZONTAL DATA

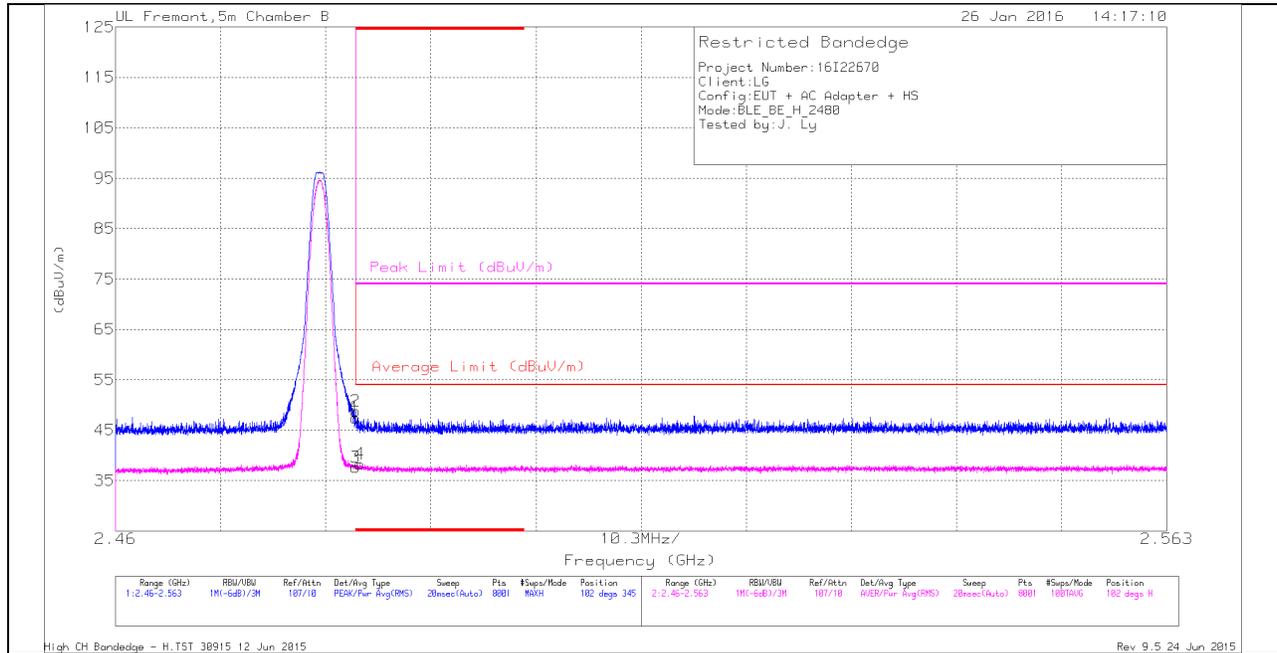| Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	34.18	Pk	32	-21.9	0	44.28	-	-	74	-29.72	155	151	H
2	* 2.326	36.91	Pk	31.7	-21.9	0	46.71	-	-	74	-27.29	155	151	H
3	* 2.39	24.32	RMS	32	-21.9	1.85	36.27	54	-17.73	-	-	155	151	H
4	* 2.387	24.86	RMS	32	-21.9	1.85	36.81	54	-17.19	-	-	155	151	H

* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection
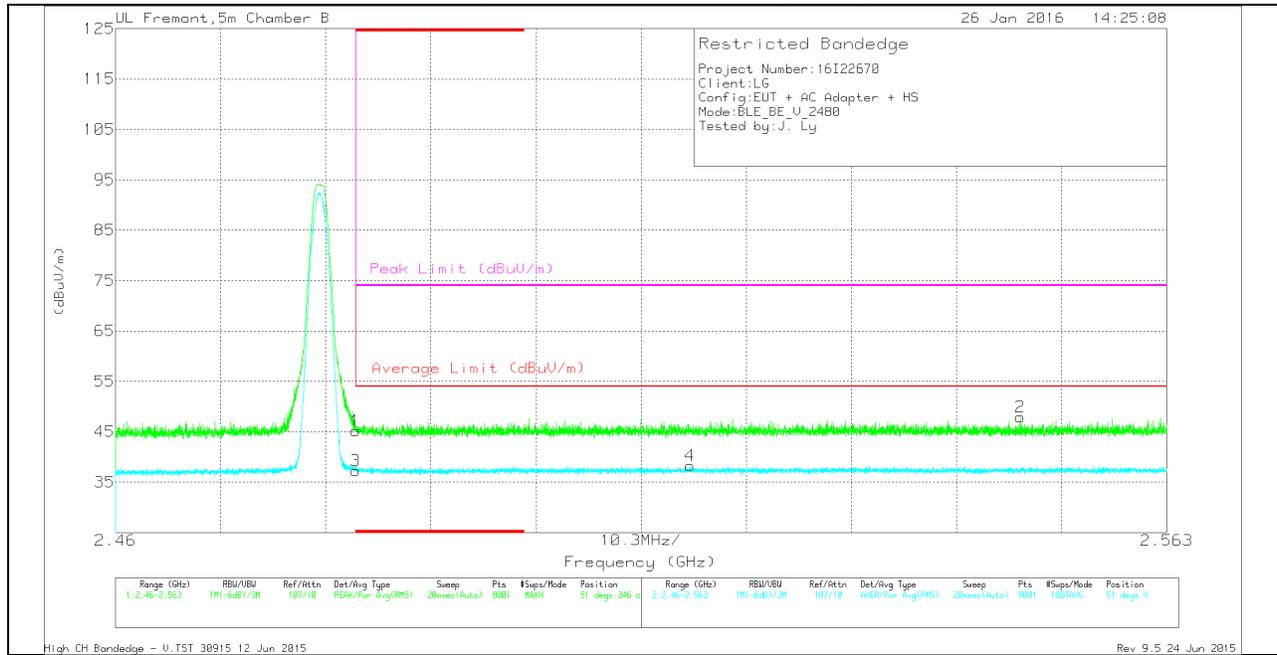
VERTICAL PEAK AND AVERAGE PLOT

VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.385	24.84	RMS	32	-21.9	1.85	36.79	54	-17.21	-	-	353	375	V
2	* 2.386	36.32	Pk	32	-21.9	0	46.42	-	-	74	-27.58	353	375	V
1	* 2.39	35.11	Pk	32	-21.9	0	45.21	-	-	74	-28.79	353	375	V
3	* 2.39	23.93	RMS	32	-21.9	1.85	35.88	54	-18.12	-	-	353	375	V

* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT

HORIZONTAL DATA

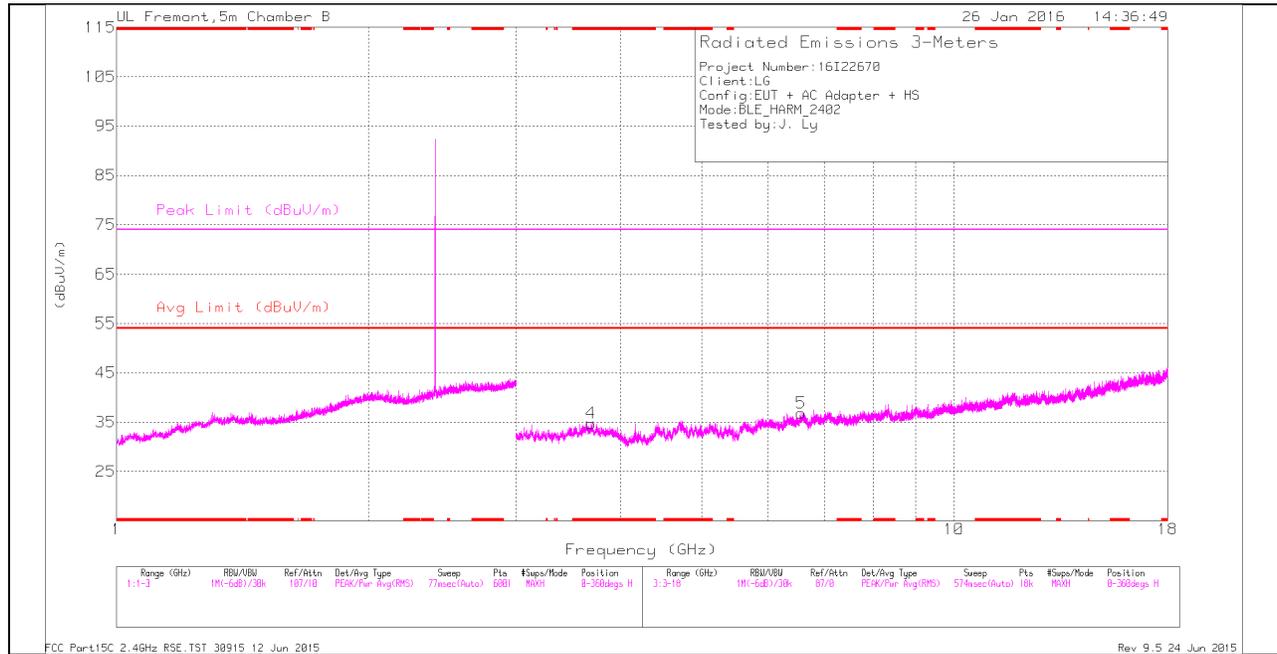| Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	36.76	Pk	32.5	-21.8	0	47.46	-	-	74	-26.54	102	345	H
2	* 2.484	38.09	Pk	32.5	-21.8	0	48.79	-	-	74	-25.21	102	345	H
3	* 2.484	24.87	RMS	32.5	-21.8	1.85	37.42	54	-16.58	-	-	102	345	H
4	* 2.484	25.57	RMS	32.5	-21.8	1.85	38.12	54	-15.88	-	-	102	345	H

* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT

VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	34.55	Pk	32.5	-21.8	0	45.25	-	-	74	-28.75	51	346	V
3	* 2.484	24.47	RMS	32.5	-21.8	1.85	37.02	54	-16.98	-	-	51	346	V
4	2.516	25.36	RMS	32.6	-21.8	1.85	38.01	54	-15.99	-	-	51	346	V
2	2.549	37.14	Pk	32.6	-21.8	0	47.94	-	-	74	-26.06	51	346	V

* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL VERTICAL
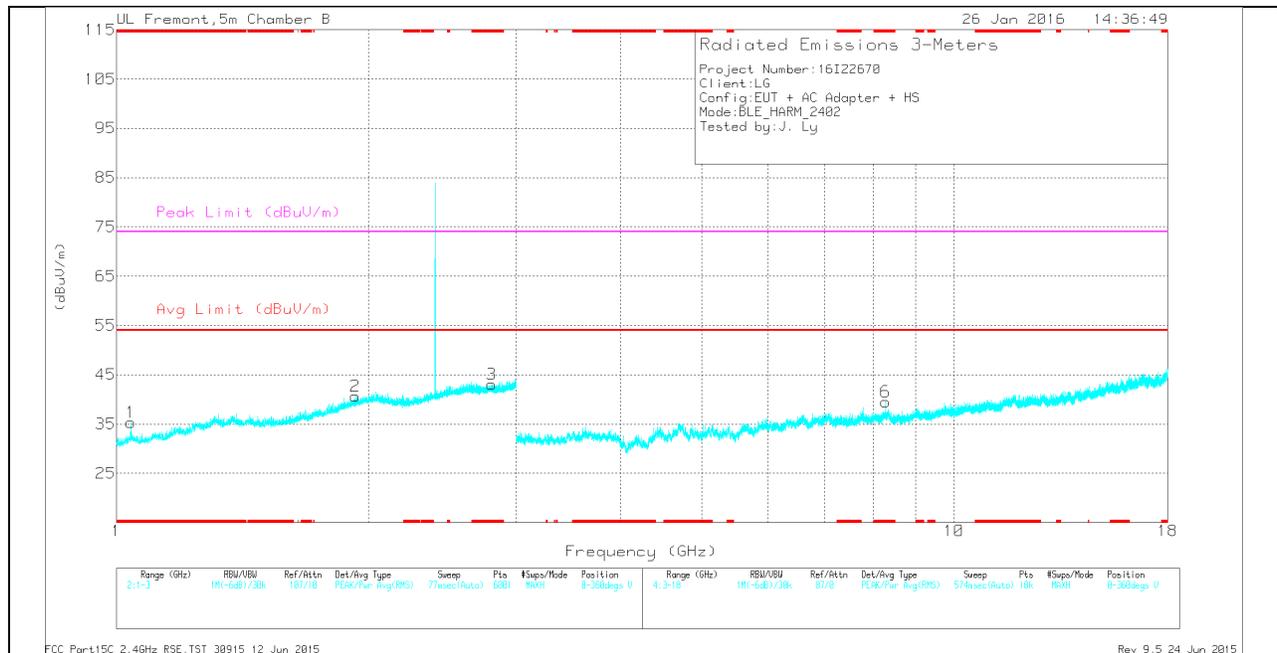
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.
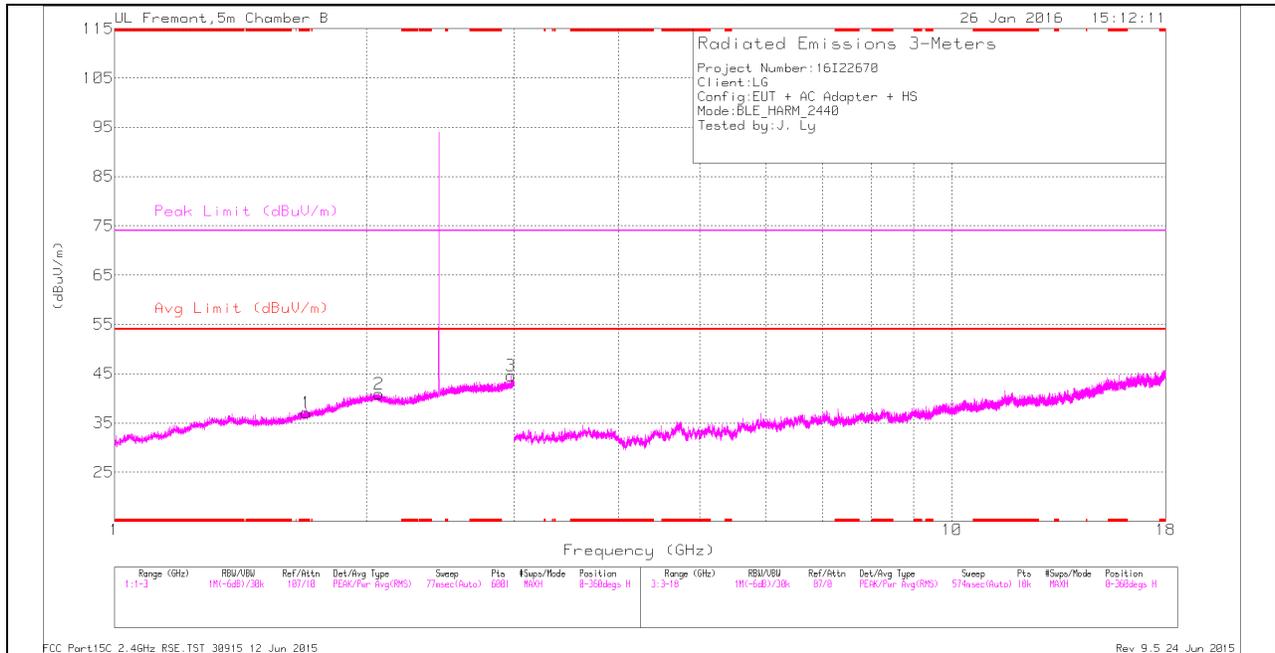
LOW CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.041	31.78	Pk	27.4	-23.9	0	35.28	-	-	74	-38.72	0-360	101	V
3	* 2.803	31.51	Pk	32.6	-21.1	0	43.01	-	-	74	-30.99	0-360	101	V
4	* 3.689	33.95	Pk	33.6	-32.8	0	34.75	-	-	74	-39.25	0-360	101	H
6	* 8.288	31.25	Pk	35.7	-27.5	0	39.45	-	-	74	-34.55	0-360	101	V
2	1.929	30.37	Pk	32	-21.7	0	40.67	-	-	74	-33.33	0-360	101	V
5	6.575	31.33	Pk	35.9	-30.4	0	36.83	-	-	74	-37.17	0-360	199	H

* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.041	37.43	PK2	27.4	-23.8	0	41.03	-	-	74	-32.97	185	398	V
* 1.039	25.16	MAv1	27.4	-24	1.85	30.41	54	-23.59	-	-	185	398	V
* 2.803	38.23	PK2	32.6	-21.1	0	49.73	-	-	74	-24.27	185	398	V
* 2.803	26.6	MAv1	32.6	-21.1	1.85	39.95	54	-14.05	-	-	185	398	V
* 3.69	42.1	PK2	33.6	-32.8	0	42.9	-	-	74	-31.1	185	398	H
* 3.689	31.04	MAv1	33.6	-32.8	1.85	33.69	54	-20.31	-	-	185	398	H
* 8.287	37.44	PK2	35.7	-27.5	0	45.64	-	-	74	-28.36	315	365	V
* 8.287	25.93	MAv1	35.7	-27.5	1.85	35.98	54	-18.02	-	-	315	365	V
1.927	25.8	MAv1	32	-21.8	1.85	37.85	54	-16.15	-	-	185	398	V
1.93	37.66	PK2	32	-21.7	0	47.96	-	-	74	-26.04	185	398	V
6.573	37.23	PK2	35.9	-30.4	0	42.73	-	-	74	-31.27	168	291	H
6.577	26.45	MAv1	35.9	-30.4	1.85	33.8	54	-20.20	-	-	168	291	H

* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band
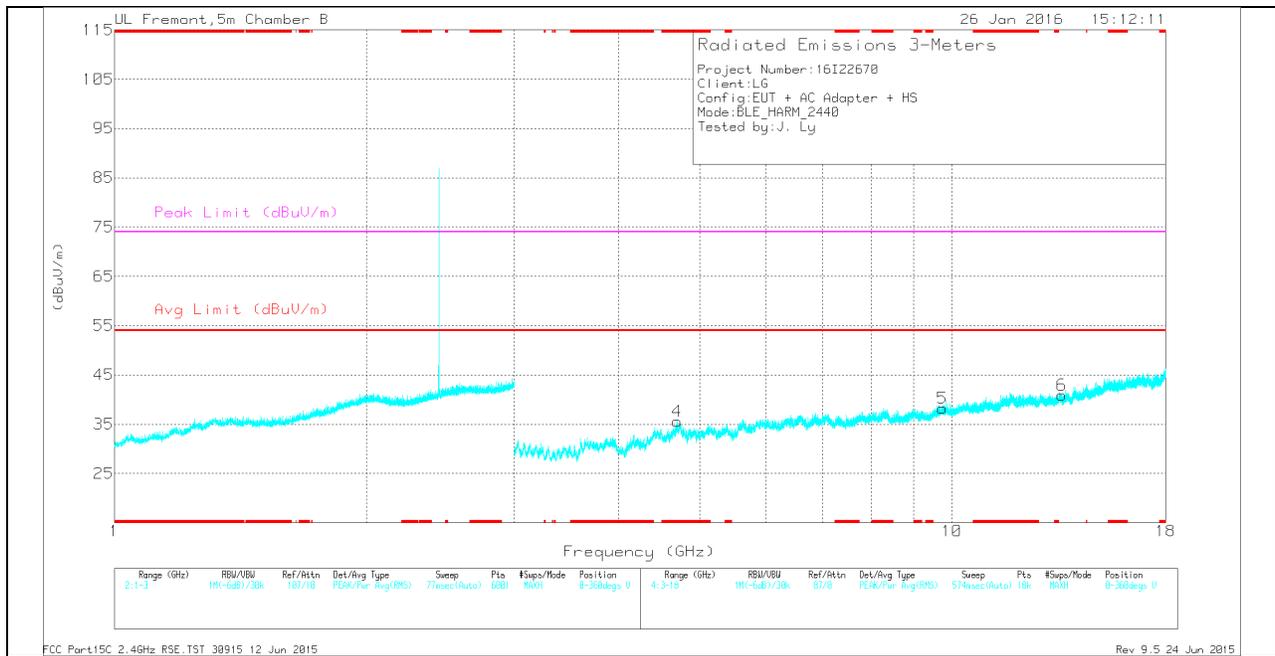
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL HORIZONTAL

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL VERTICAL

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

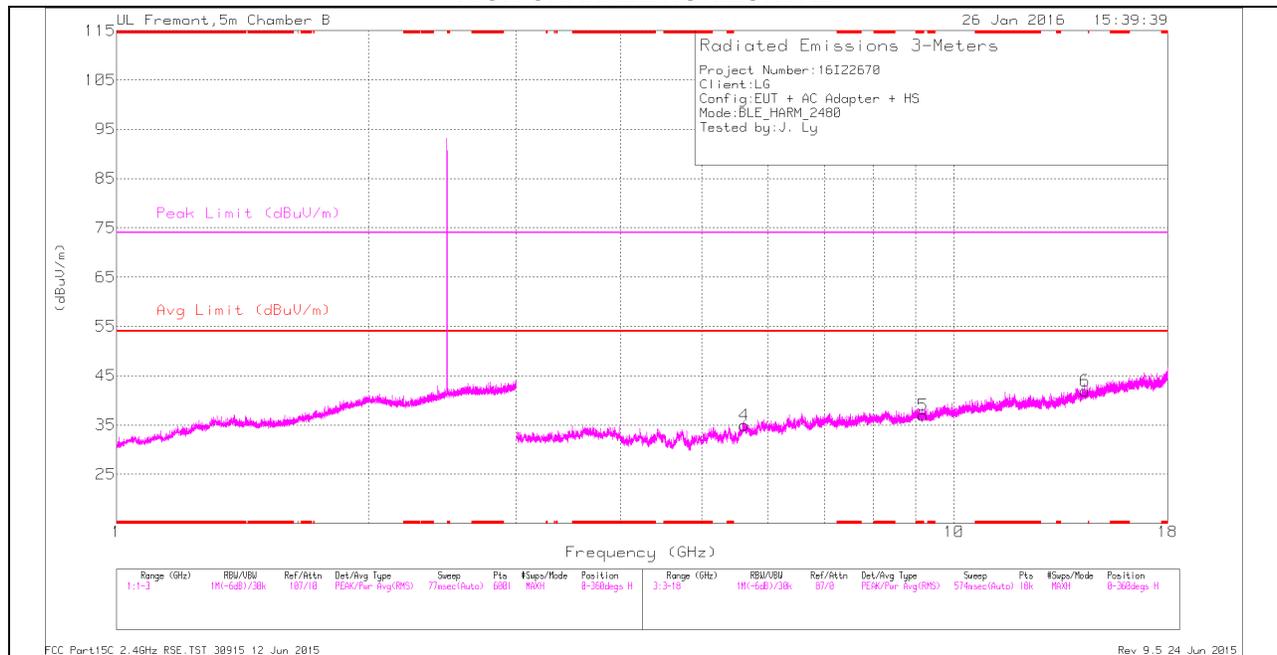**MID CHANNEL DATA**

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.695	29.31	Pk	29.7	-21.9	0	37.11	-	-	74	-36.89	0-360	101	H
4	* 4.695	32.93	Pk	34.2	-31.6	0	35.53	-	-	74	-38.47	0-360	199	V
2	2.068	30.56	Pk	32	-21.7	0	40.86	-	-	74	-33.14	0-360	199	H
3	2.973	32.72	Pk	32.6	-20.7	0	44.62	-	-	74	-29.38	0-360	101	H
5	9.742	27.64	Pk	36.9	-26.3	0	38.24	-	-	74	-35.76	0-360	199	V
6	13.525	26.51	Pk	38.9	-24.5	0	40.91	-	-	74	-33.09	0-360	102	V

* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.695	36.6	PK2	29.7	-21.9	0	44.4	-	-	74	-29.6	360	102	H
* 1.695	25.2	MAv1	29.7	-21.9	1.85	34.85	54	-19.15	-	-	360	102	H
* 4.695	39	PK2	34.2	-31.6	0	41.6	-	-	74	-32.4	360	102	V
* 4.694	27.9	MAv1	34.2	-31.7	1.85	32.25	54	-21.75	-	-	360	102	V
2.067	25.97	MAv1	32	-21.7	1.85	38.12	54	-15.88	-	-	360	102	H
2.069	37.33	PK2	32	-21.7	0	47.63	-	-	74	-26.37	360	102	H
2.972	37.87	PK2	32.6	-20.7	0	49.77	-	-	74	-24.23	360	102	H
2.973	26.57	MAv1	32.6	-20.7	1.85	40.32	54	-13.68	-	-	360	102	H
9.74	35.73	PK2	36.9	-26.3	0	46.33	-	-	74	-27.67	360	102	V
9.741	24.83	MAv1	36.9	-26.3	1.85	37.28	54	-16.72	-	-	360	102	V
13.525	34.78	PK2	38.9	-24.5	0	49.18	-	-	74	-24.82	360	102	V
13.525	23.03	MAv1	38.9	-24.4	1.85	39.38	54	-14.62	-	-	360	102	V

* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band
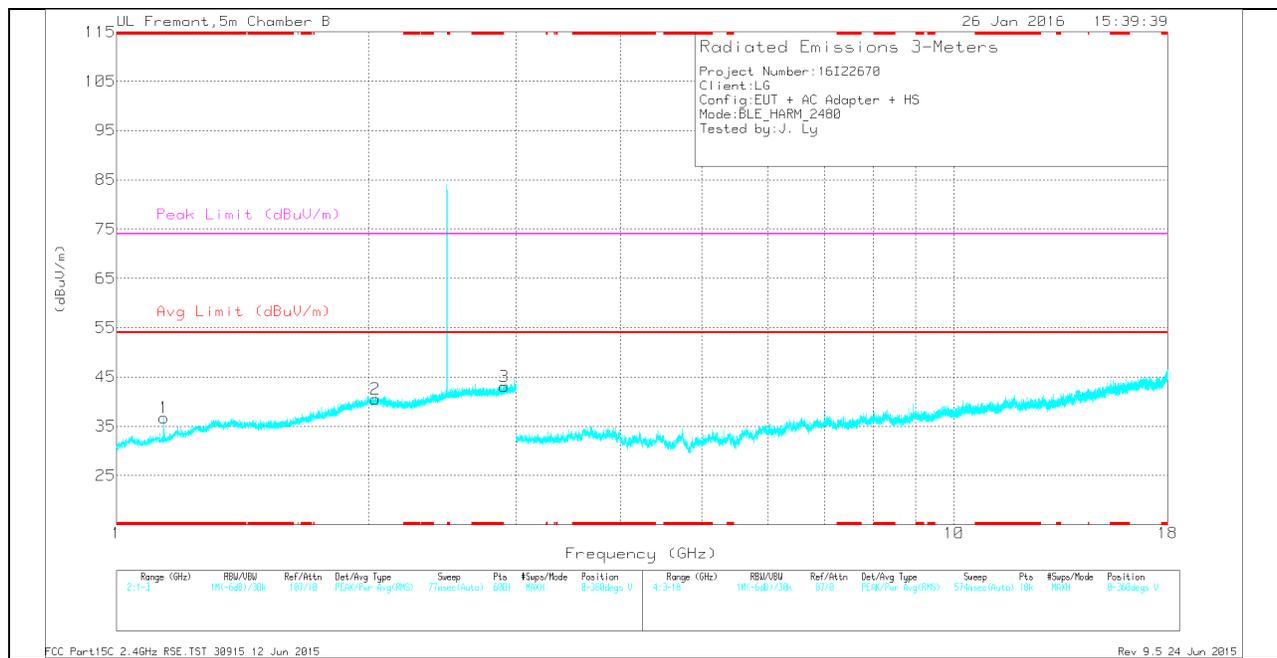
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL HORIZONTAL

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL VERTICAL

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

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HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.139	32.13	Pk	28	-23.4	0	36.73	-	-	74	-37.27	0-360	199	V
5	* 9.184	27.62	Pk	36.1	-26.7	0	37.02	-	-	74	-36.98	0-360	101	H
2	2.036	30.07	Pk	32.1	-21.7	0	40.47	-	-	74	-33.53	0-360	199	V
3	2.903	31.36	Pk	32.6	-20.9	0	43.06	-	-	74	-30.94	0-360	199	V
4	5.617	31.37	Pk	34.8	-31.2	0	34.97	-	-	74	-39.03	0-360	101	H
6	14.341	26.03	Pk	39.5	-23.6	0	41.93	-	-	74	-32.07	0-360	199	H

* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

Pk - Peak detector

Radiated Emissions

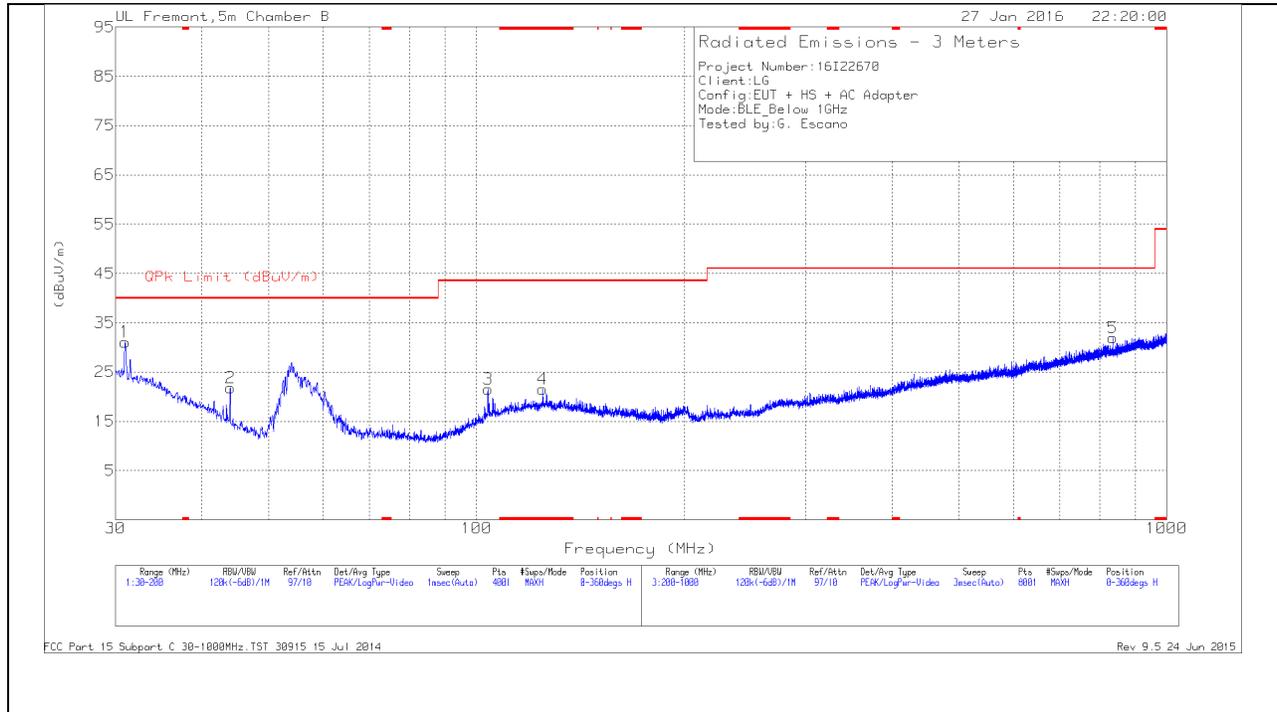| Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.139	36.45	PK2	28	-23.5	0	40.95	-	-	74	-33.05	296	273	V
* 1.137	24.24	MAv1	27.9	-23.4	1.85	30.59	54	-23.41	-	-	296	273	V
* 9.182	36.43	PK2	36.1	-26.7	0	45.83	-	-	74	-28.17	296	273	H
* 9.184	25.02	MAv1	36.1	-26.7	1.85	36.27	54	-17.73	-	-	296	273	H
2.035	25.85	MAv1	32.2	-21.7	1.85	38.20	54	-15.80	-	-	296	273	V
2.038	37.47	PK2	32.1	-21.6	0	47.97	-	-	74	-26.03	296	273	V
2.902	26.54	MAv1	32.6	-20.9	1.85	40.09	54	-13.91	-	-	296	273	V
2.905	38.61	PK2	32.6	-20.9	0	50.31	-	-	74	-23.69	296	273	V
5.618	40.08	PK2	34.8	-31.1	0	43.78	-	-	74	-30.22	296	273	H
5.618	28.19	MAv1	34.8	-31.1	1.85	33.74	54	-20.26	-	-	296	273	H
14.342	22.87	MAv1	39.5	-23.6	1.85	40.62	54	-13.38	-	-	296	273	H
14.343	34.02	PK2	39.5	-23.5	0	50.02	-	-	74	-23.98	296	273	H

* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band
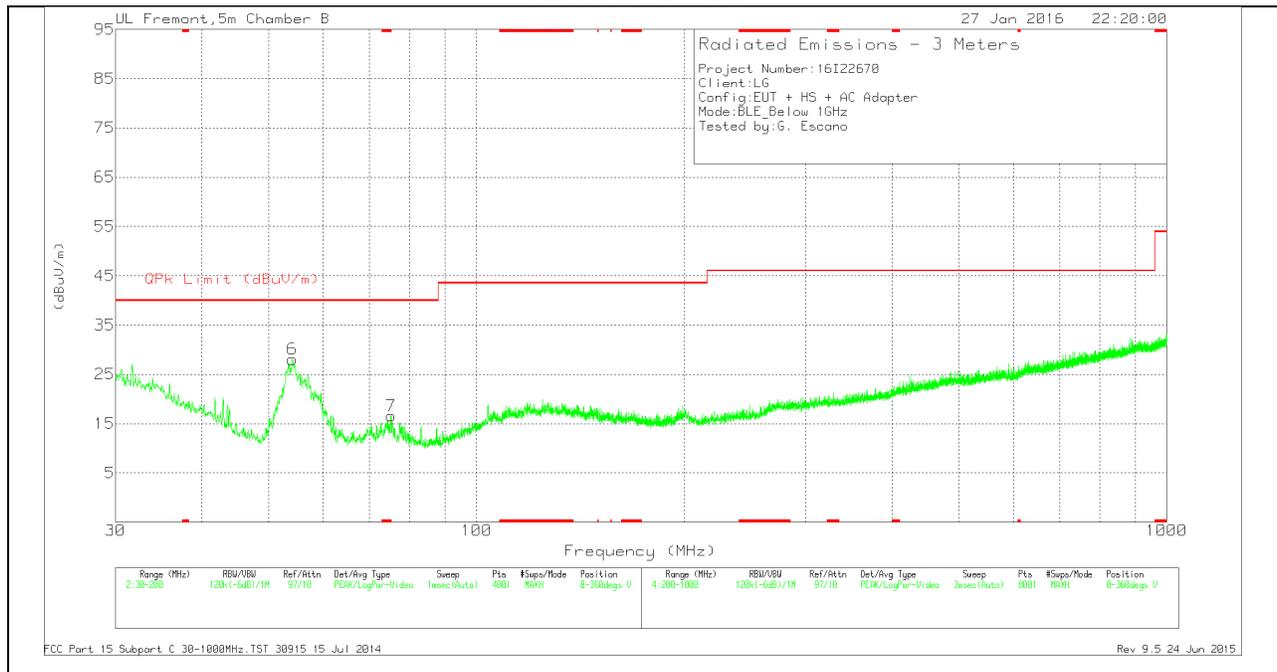
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

9.2.   WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)

HORIZONTAL PLOT

VERTICAL PLOT

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BELOW 1 GHz TABLE

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 124.69	31.53	Pk	17.8	-27.8	21.53	43.52	-21.99	0-360	199	H
7	* 75.1775	32.92	Pk	11.9	-28.2	16.62	40	-23.38	0-360	101	V
1	30.9775	35.52	Pk	24.4	-28.8	31.12	40	-8.88	0-360	199	H
2	43.9825	35.75	Pk	14.9	-28.8	21.85	40	-18.15	0-360	299	H
6	54.1188	45.58	Pk	11	-28.5	28.08	40	-11.92	0-360	101	V
3	103.9075	34.1	Pk	15.5	-28.1	21.5	43.52	-22.02	0-360	299	H
5	835.2	30.64	Pk	25.6	-24.3	31.94	46.02	-14.08	0-360	399	H

* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

Pk - Peak detector

10.   AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56	56 to 46
0.5 - 5	56	46
5 - 30	60	50

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.
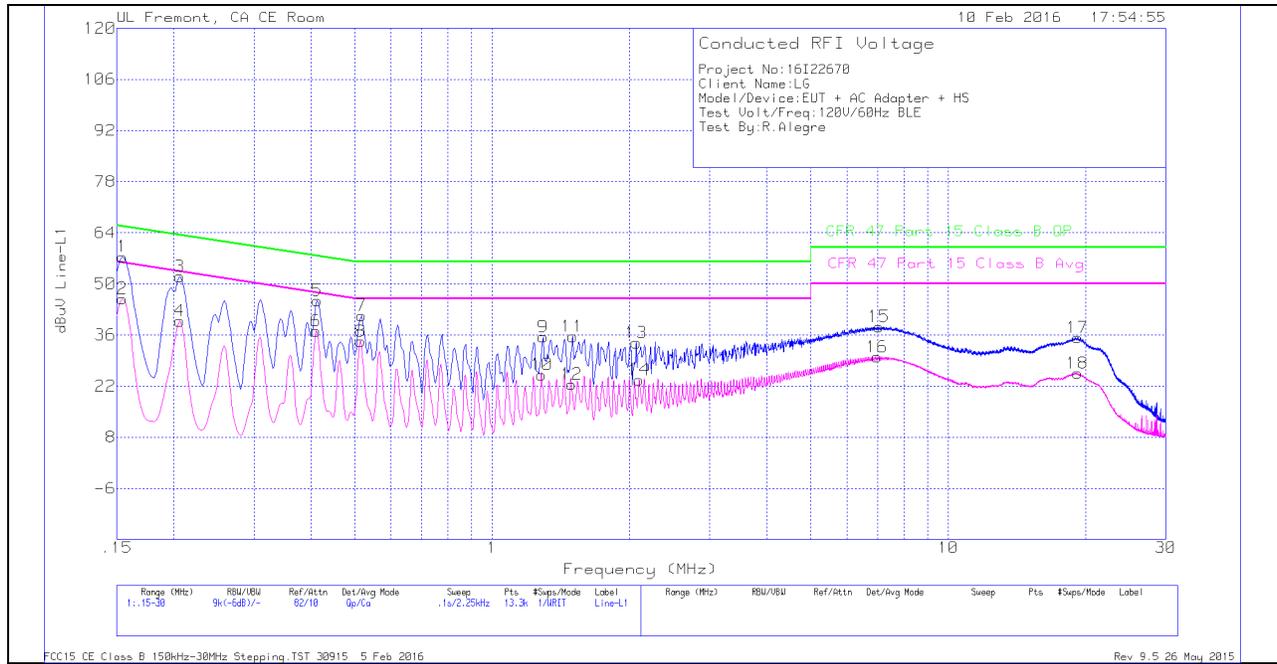
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT

LINE 2 PLOTS

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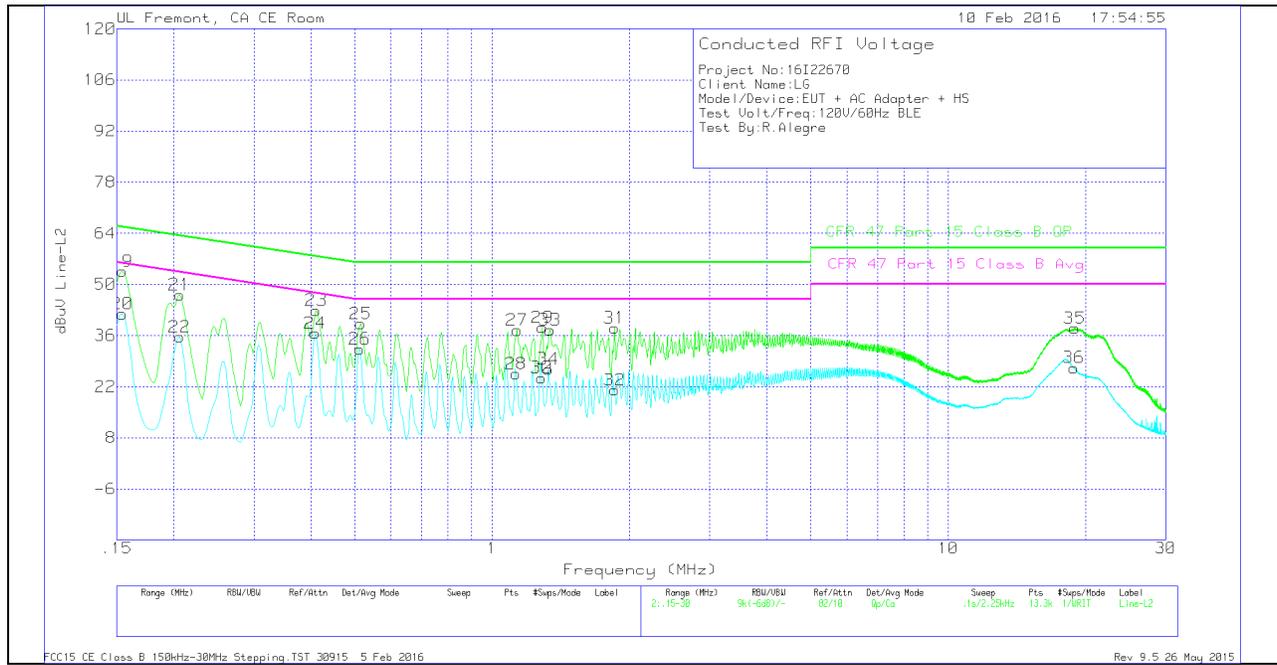
LINE 1 & LINE 2 RESULTS

Trace Markers

Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T1310 IL L1	LC Cables 1&3	10dB Pad	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
1	.1545	47.44	Qp	0	0	10	57.44	65.75	-8.31	-	-
2	.1545	35.94	Ca	0	0	10	45.94	-	-	55.75	-9.81
3	.20625	41.99	Qp	0	0	10	51.99	63.35	-11.36	-	-
4	.20625	29.85	Ca	0	0	10	39.85	-	-	53.35	-13.5
5	.41325	35.45	Qp	0	0	10	45.45	57.58	-12.13	-	-
6	.411	27.13	Ca	0	0	10	37.13	-	-	47.63	-10.5
7	.51675	31.35	Qp	0	0	10	41.35	56	-14.65	-	-
8	.5145	24.28	Ca	0	0	10	34.28	-	-	46	-11.72
9	1.293	25.38	Qp	0	.1	10	35.48	56	-20.52	-	-
10	1.284	15.01	Ca	0	.1	10	25.11	-	-	46	-20.89
11	1.5	25.48	Qp	0	.1	10	35.58	56	-20.42	-	-
12	1.491	12.39	Ca	0	.1	10	22.49	-	-	46	-23.51
13	2.06925	23.78	Qp	0	.1	10	33.88	56	-22.12	-	-
14	2.10075	13.63	Ca	0	.1	10	23.73	-	-	46	-22.27
15	7.0485	28.16	Qp	0	.1	10	38.26	60	-21.74	-	-
16	6.97875	19.87	Ca	0	.1	10	29.97	-	-	50	-20.03
17	19.20075	25.11	Qp	0	.2	10	35.31	60	-24.69	-	-
18	19.1985	15.32	Ca	0	.2	10	25.52	-	-	50	-24.48

Qp - Quasi-Peak detector

Ca - CISPR average detection

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T1310 IL L2	LC Cables 2&3	10dB Pad	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
19	.1545	43.59	Qp	0	0	10	53.59	65.75	-12.16	-	-
20	.1545	31.9	Ca	0	0	10	41.9	-	-	55.75	-13.85
21	.20625	37.16	Qp	0	0	10	47.16	63.35	-16.19	-	-
22	.20625	25.6	Ca	0	0	10	35.6	-	-	53.35	-17.75
23	.411	32.87	Qp	0	0	10	42.87	57.63	-14.76	-	-
24	.40875	26.68	Ca	0	0	10	36.68	-	-	47.67	-10.99
25	.5145	29.25	Qp	0	0	10	39.25	56	-16.75	-	-
26	.51225	22.27	Ca	0	0	10	32.27	-	-	46	-13.73
27	1.13325	27.35	Qp	0	.1	10	37.45	56	-18.55	-	-
28	1.1265	15.42	Ca	0	.1	10	25.52	-	-	46	-20.48
29	1.2885	28.12	Qp	0	.1	10	38.22	56	-17.78	-	-
30	1.284	14.3	Ca	0	.1	10	24.4	-	-	46	-21.6
31	1.8555	27.97	Qp	0	.1	10	38.07	56	-17.93	-	-
32	1.8555	11.01	Ca	0	.1	10	21.11	-	-	46	-24.89
33	1.338	27.45	Qp	0	.1	10	37.55	56	-18.45	-	-
34	1.32675	16.69	Ca	0	.1	10	26.79	-	-	46	-19.21
35	18.94875	27.82	Qp	0	.2	10	38.02	60	-21.98	-	-
36	18.87225	16.97	Ca	0	.2	10	27.17	-	-	50	-22.83

Qp - Quasi-Peak detector

Ca - CISPR average detection