



FCC CFR47 PART 15 SUBPART C

BLUETOOTH LOW ENERGY

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA Phone + Bluetooth, WLAN 2.4GHz b/g/n & NFC

MODEL NUMBER: SM-G355HN

FCC ID: A3LSMG355HN

REPORT NUMBER: 14I17986-3 REVISION A

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**Prepared for
SAMSUNG ELECTRONICS CO., LTD.
416, MAETAN 3-DONG, YEONGTONG-GU
SUWON-CITY, GYEONGGI-DO 443-742, SOUTH KOREA**

Prepared by
**UL VERIFICATION SERVICES INC.
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888**



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Revision History

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--	6/18/14	Initial issue	P. Zhang
A	6/19/14	Updated statement	P. Zhang

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
416, MAETAN 3-DONG, YEONGTONG-GU
SUWON-CITY, GYEONGGI-DO 443-742, SOUTH KOREA

EUT DESCRIPTION: GSM/WCDMA Phone + Bluetooth, WLAN 2.4GHz b/g/n & NFC

MODEL: SM-G355HN

SERIAL NUMBER: FL-164-C (Radiated), FL-164-D (Conducted)

DATE TESTED: April 25 – June 18, 2014

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 revisions 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:



PENG ZHANG
CONSUMER TECHNOLOGY DIVISION
PROJECT LEAD
UL Verification Services Inc.

STEVEN TRAN
CONSUMER TECHNOLOGY DIVISION
LAB ENGINEER
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15.

2. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

3. CALIBRATION AND UNCERTAINTY

3.1. 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.

3.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

3.3. 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, 30 to 18000 MHz	4.94 dB

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

4. EQUIPMENT UNDER TEST

4.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA Phone + Bluetooth, WLAN 2.4GHz b/g/n & NFC.

The model FCC ID: A3LSMG355HN shares the same enclosure and circuit board as mode FCC ID: A3LSMG355H. The WWAN/WLAN/Bluetooth/WWAN circuitry and layout, are almost identical between the two units. The WLAN/Bluetooth antenna and surrounding circuitry is the same between these two units.

Conducted test results have been re-used for A3LSMG355HN after confirming the performance is the same.

Radiated emissions were fully re-evaluated since Main Antenna pattern have been changed for A3LSMG355HN. Other differences between the two FCC IDs are NFC chipset being added for A3LSMG355HN. NFC has been fully tested for FCC ID: A3LSMG355HN.

4.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402-2480	BLE	9.27	8.45

4.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -1.4 dBi.

4.4. 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.

4.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Samsung	G355H	N/A	N/A
Earphone	Samsung	G355H	N/A	N/A

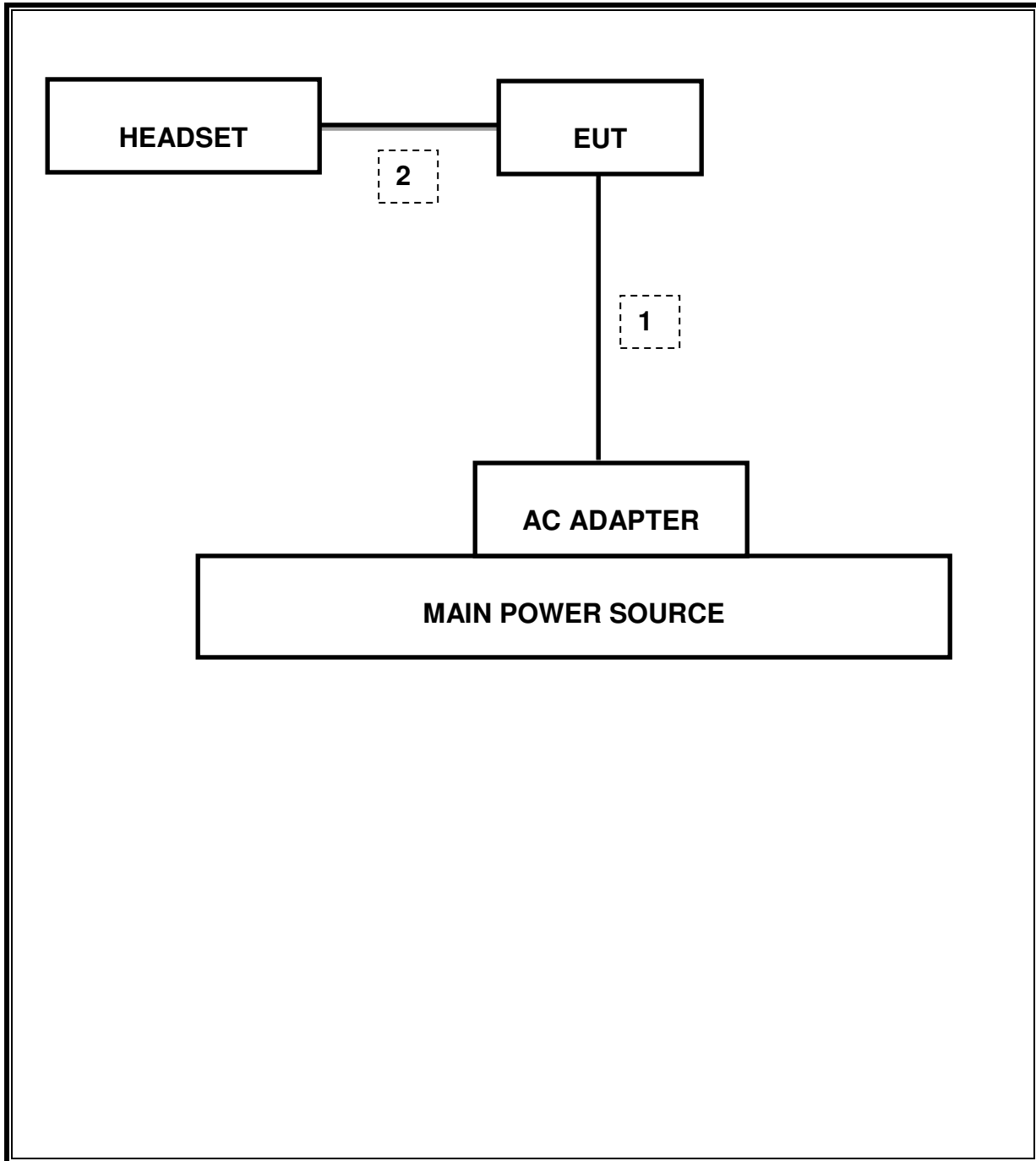
I/O CABLES

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

The EUT is continuously communicating to the Bluetooth tester during the tests. EUT was set in the Hidden menu mode to enable BLE communications.

SETUP DIAGRAM FOR TESTS



5. 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	Asset	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00986	4/1/2015
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01179	2/26/2015
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	8/8/2014
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	5/8/2015
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	10/22/2014
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	N/A	3/6/2015
Antenna, Horn, 18 GHz	ETS	3117	C01022	2/21/2015
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00589	12/17/2014
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/2014
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/2014
LISN, 30 MHz	FCC	50/250-25-2	C00626	1/14/2015

6. SUMMARY

7.

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)(2)	RSS-210 A8.2(a)	Occupied Band width (6dB)	>500KHz	Conducted	Pass	0.763MHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-44.31dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	9.27dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-10.407dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	48.59dBuV
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	51.34dBuV/m

ANTENNA PORT TEST RESULTS

7.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

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

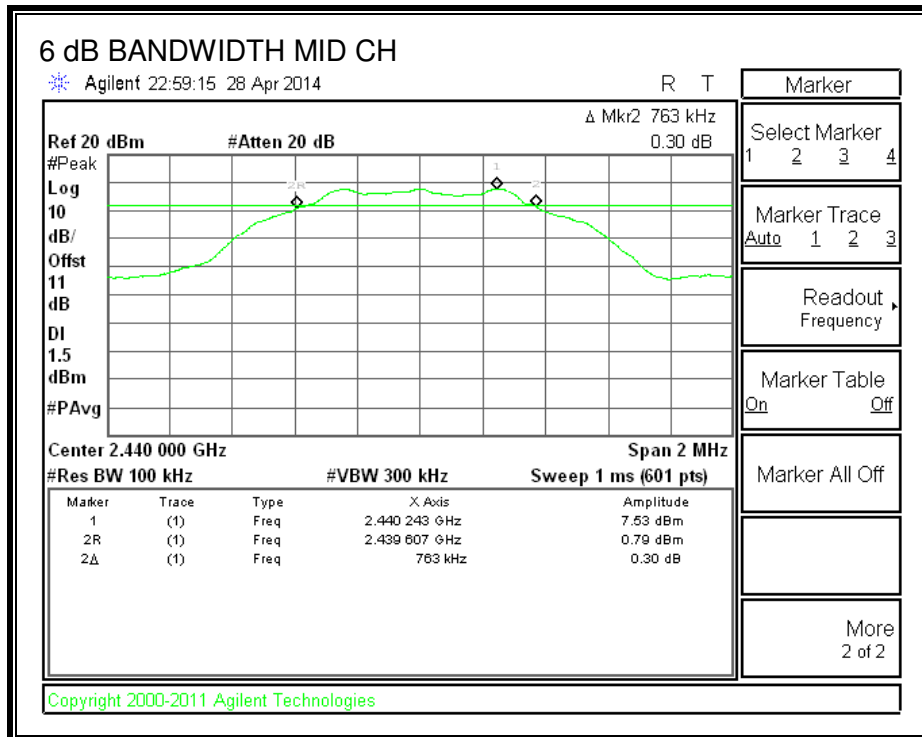
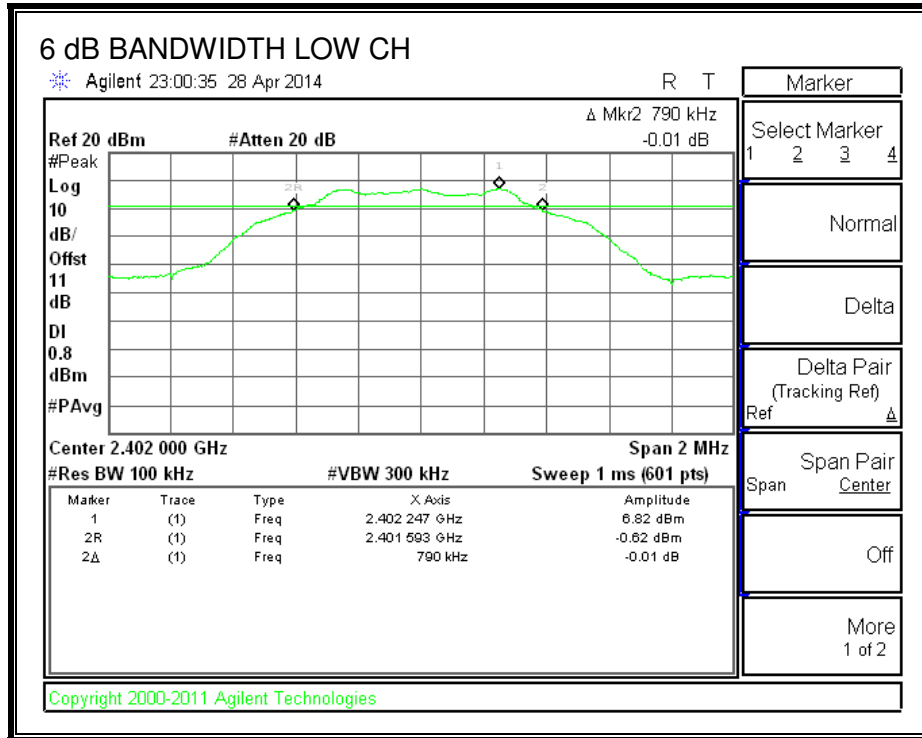
TEST PROCEDURE

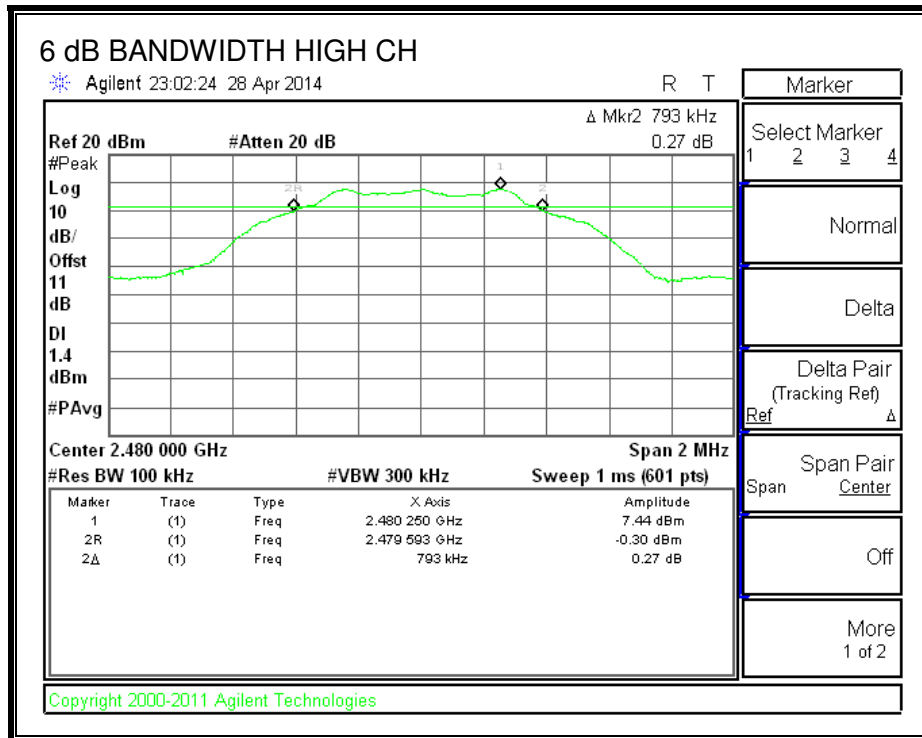
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.790	0.5
Middle	2440	0.763	0.5
High	2480	0.793	0.5

6 dB BANDWIDTH





7.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

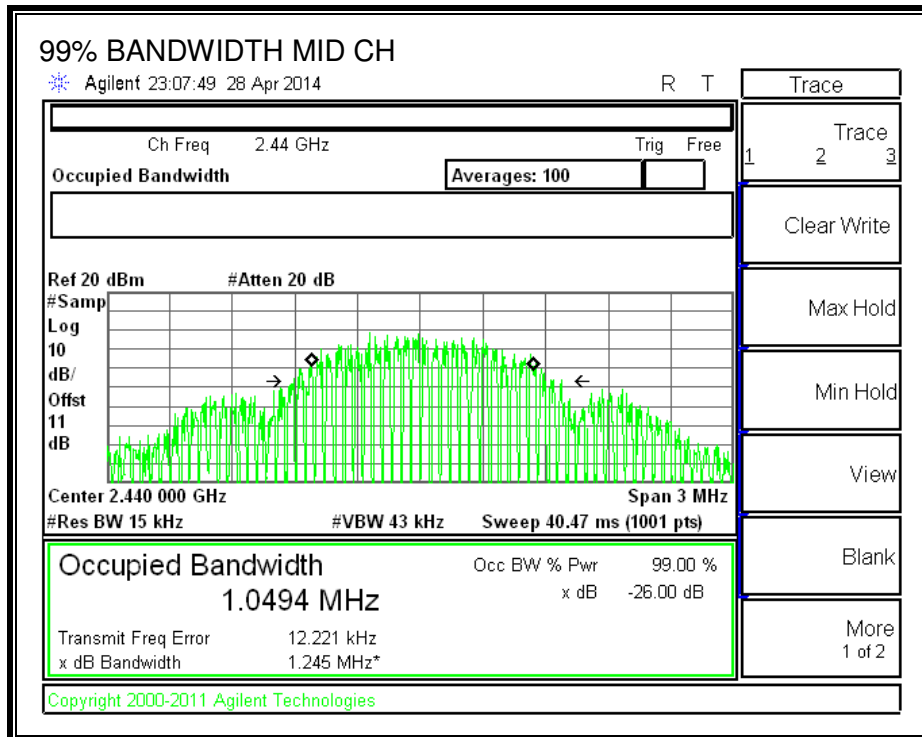
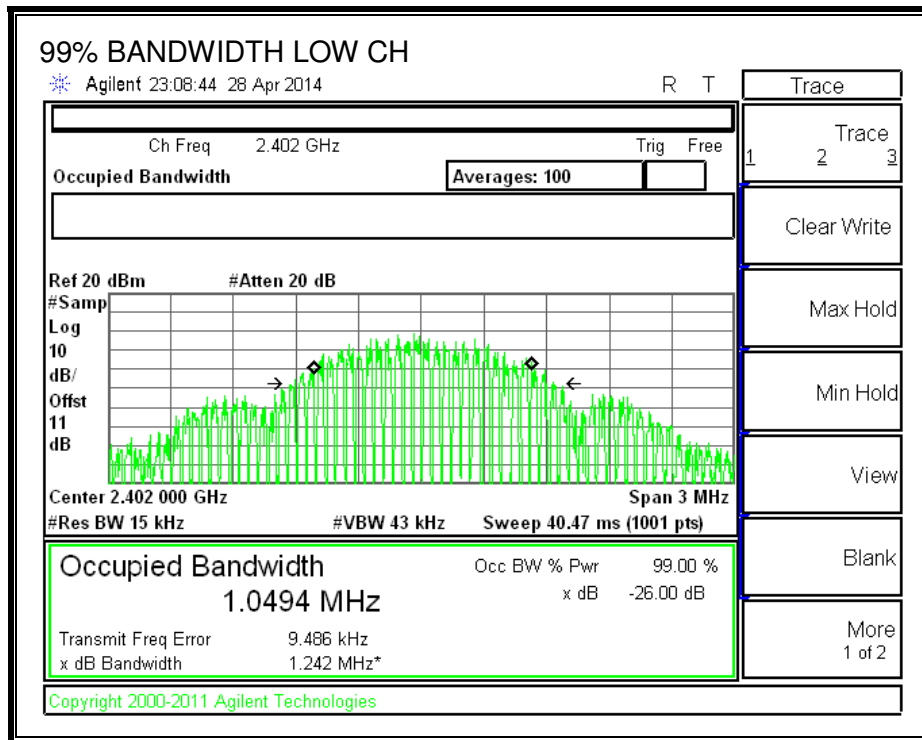
TEST PROCEDURE

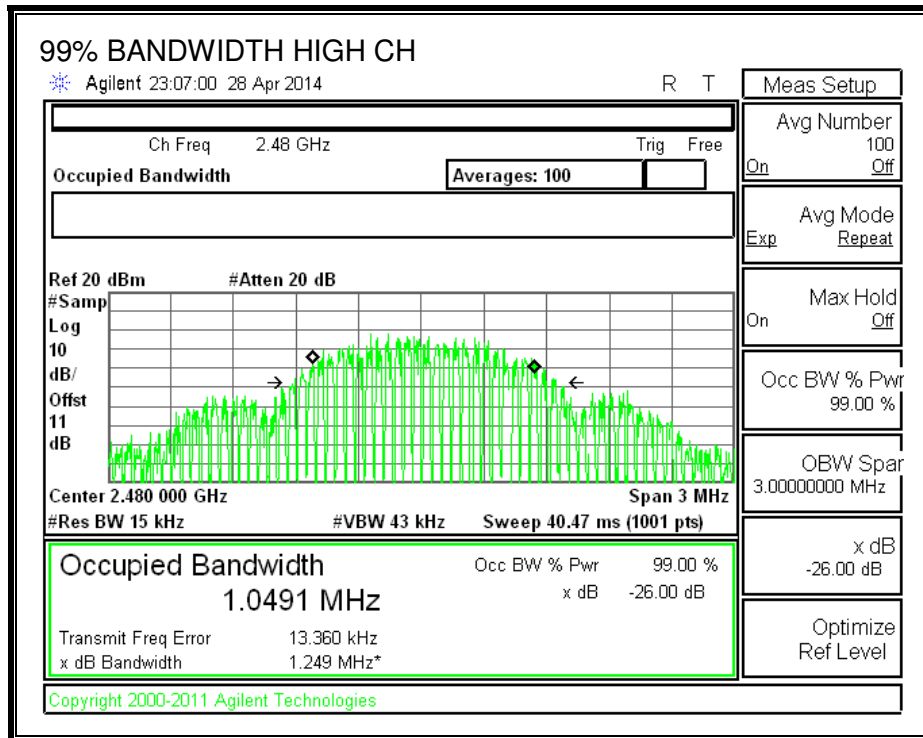
Reference to KDB558074 D01 DTS Meas Guidance v03r01: The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0494
Middle	2440	1.0494
High	2480	1.0491

99% BANDWIDTH





7.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

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

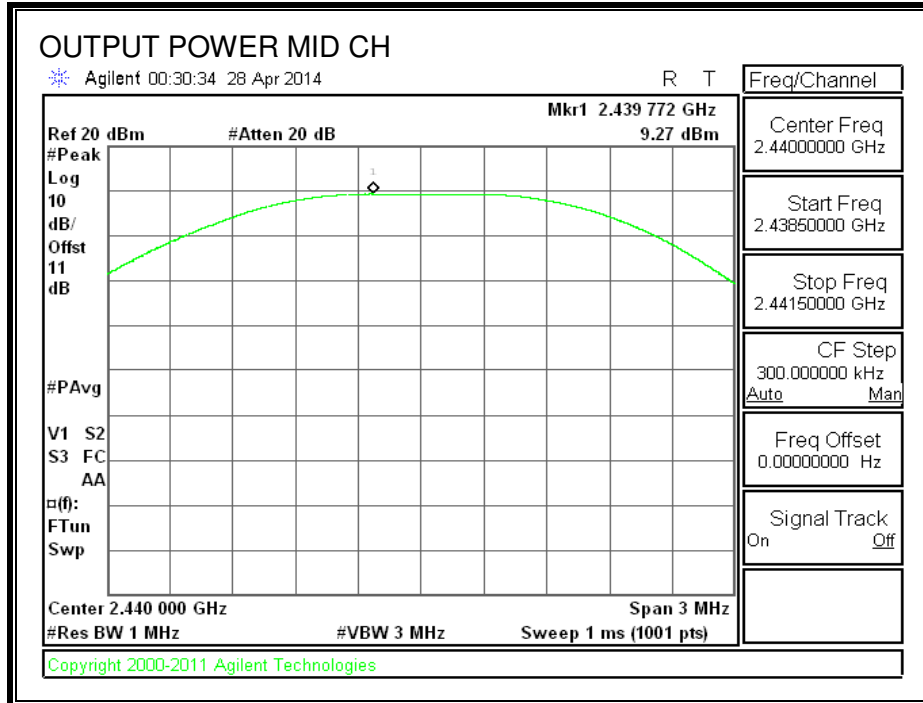
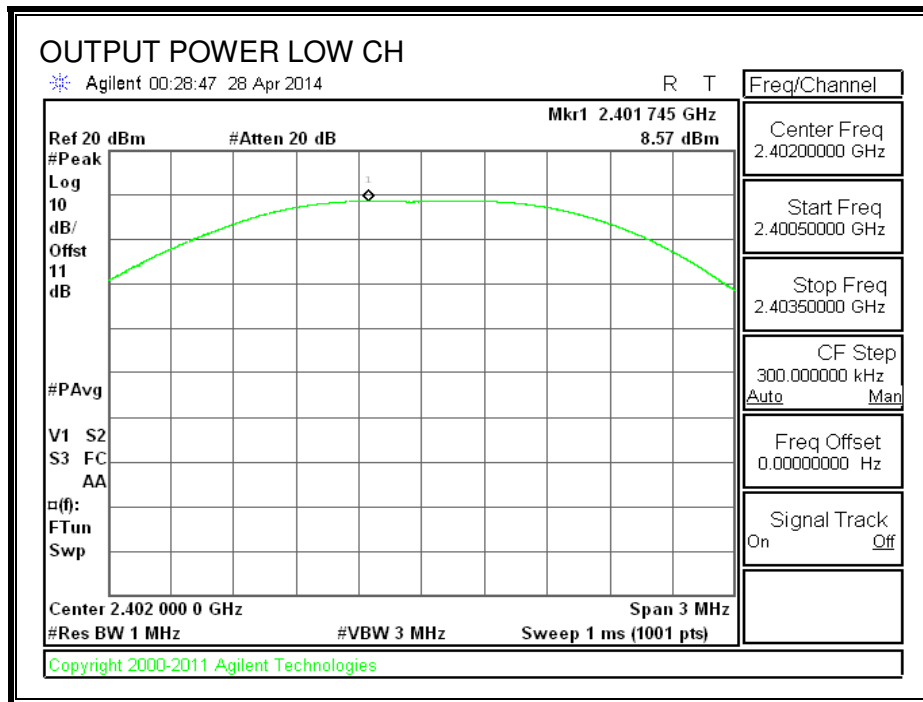
TEST PROCEDURE

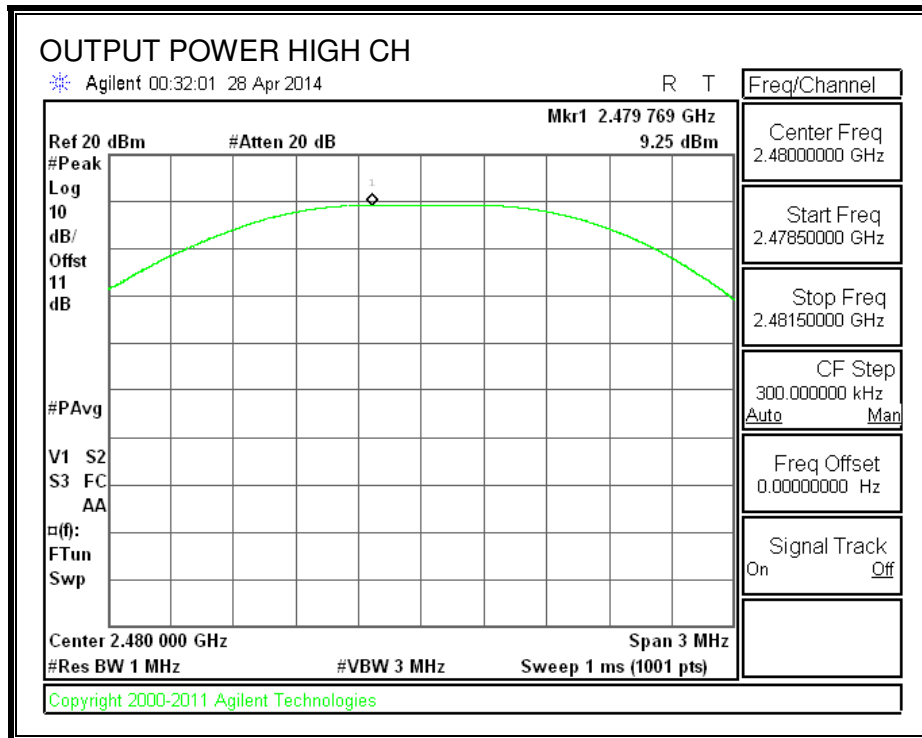
Peak power is measured using KDB558074 D01 DTS Meas Guidance v03r01 April 9, 2013 under section 9.1.1 utilizing spectrum analyzer.

RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	8.57	30	-21.430
Middle	2440	9.27	30	-20.730
High	2480	9.25	30	-20.750

OUTPUT POWER





7.4. 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 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	7.5
Middle	2440	8.5
High	2480	8.3

7.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

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.

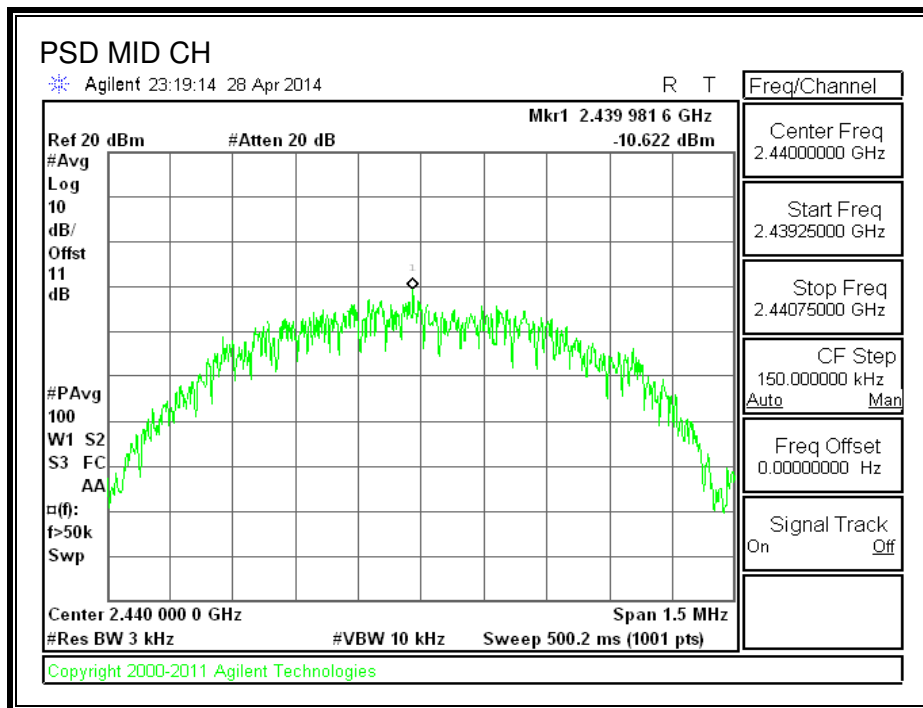
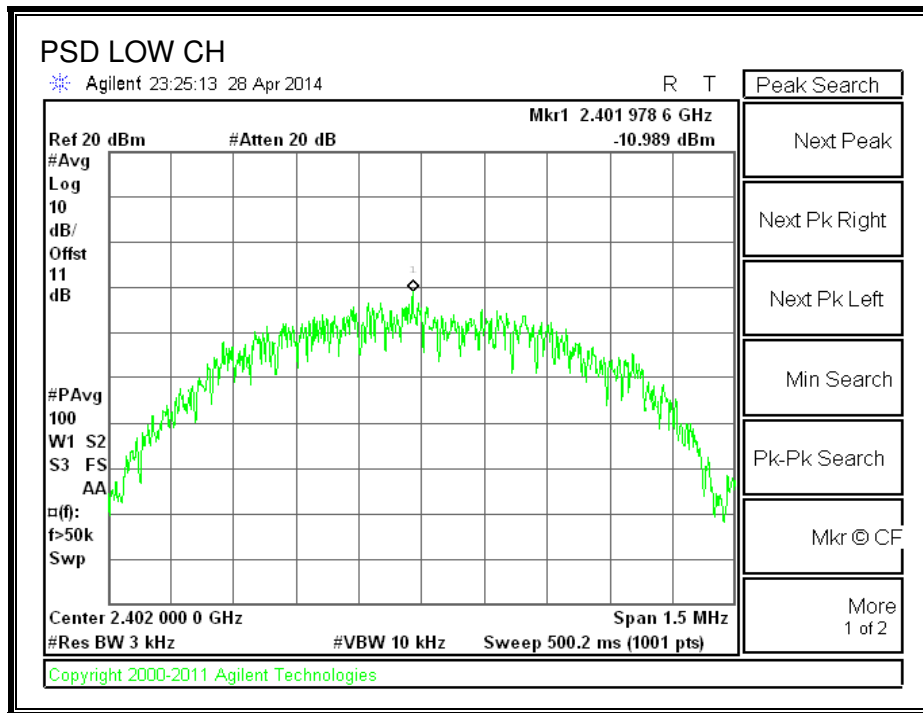
TEST PROCEDURE

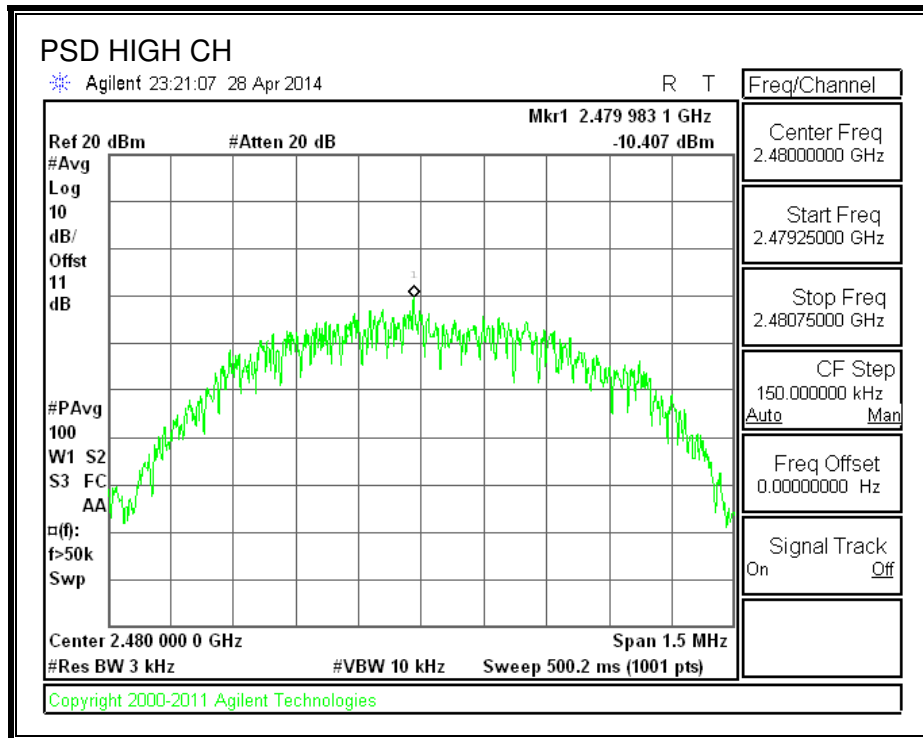
Power Spectral Density was performed utilizing the “Method PKPSD (Peak PSD)” under KDB558074 D01 DTS Meas Guidance v03r01, April 9, 2013

RESULTS

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-10.989	8	-18.99
Middle	2440	-10.622	8	-18.62
High	2480	-10.407	8	-18.41

POWER SPECTRAL DENSITY





7.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

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

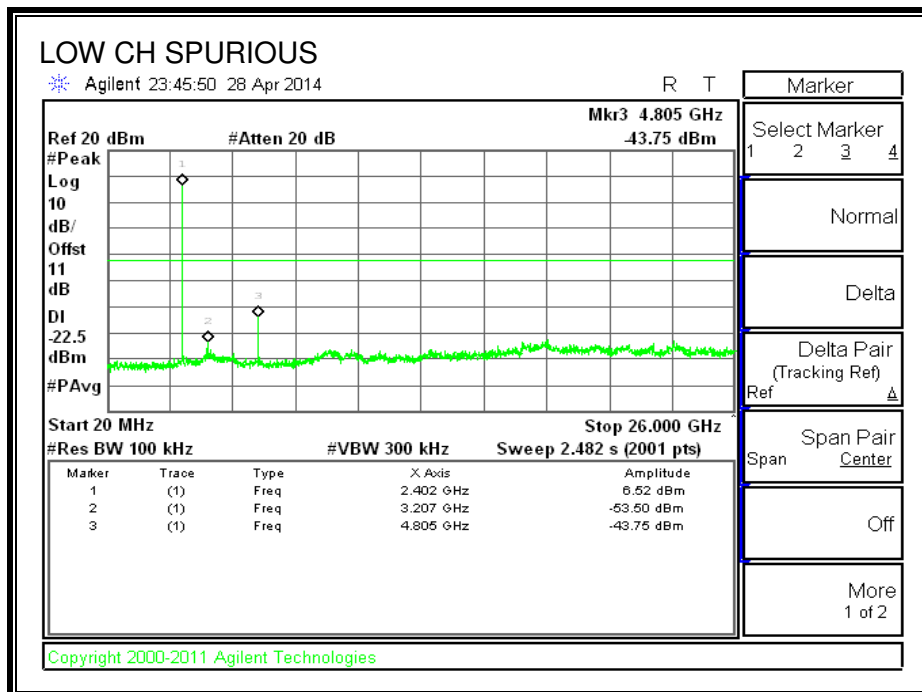
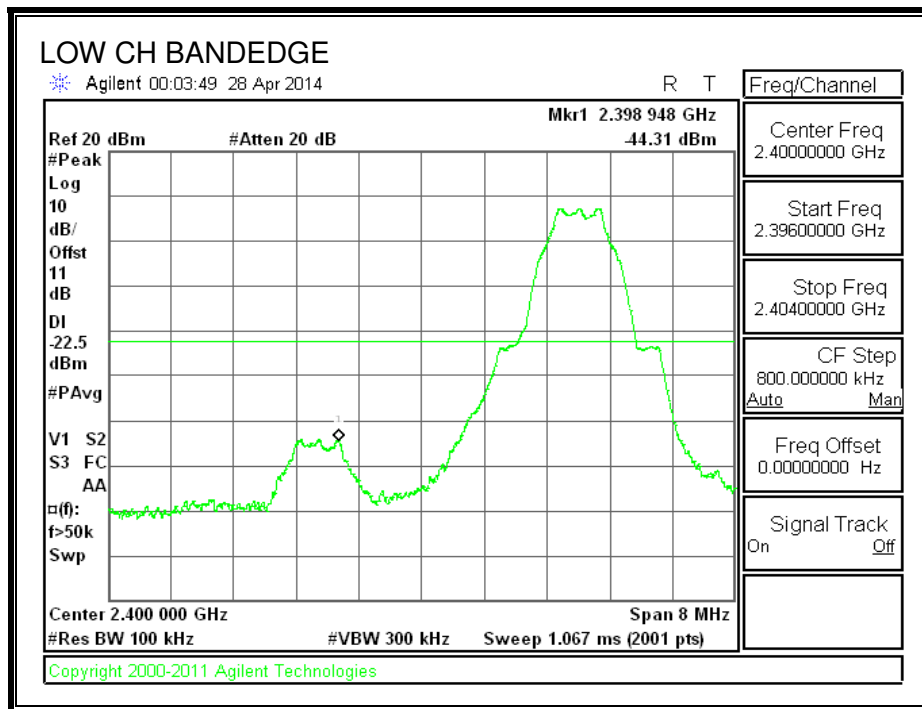
TEST PROCEDURE

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.

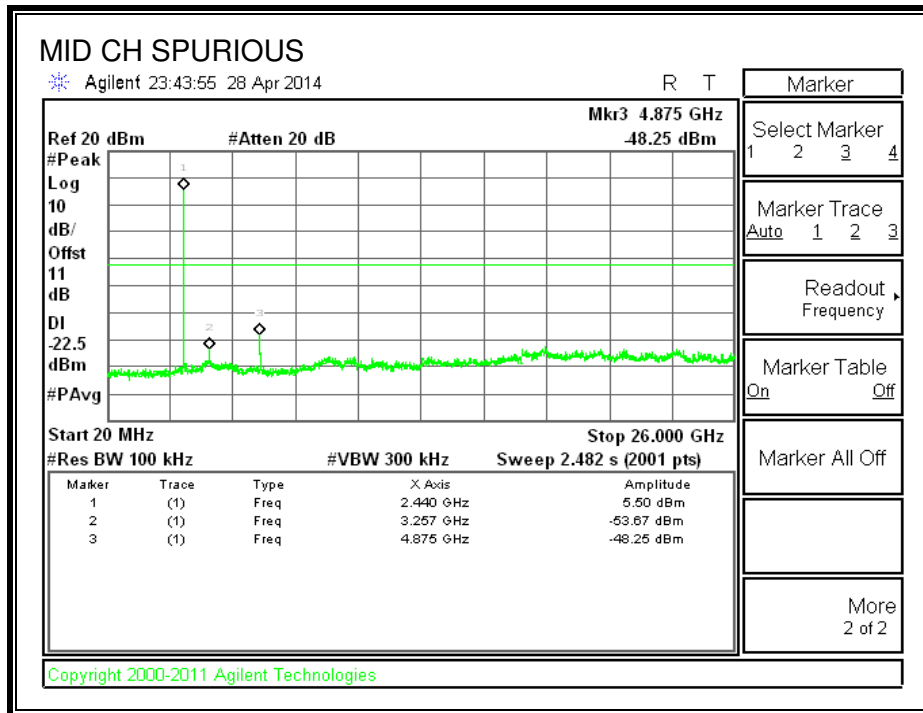
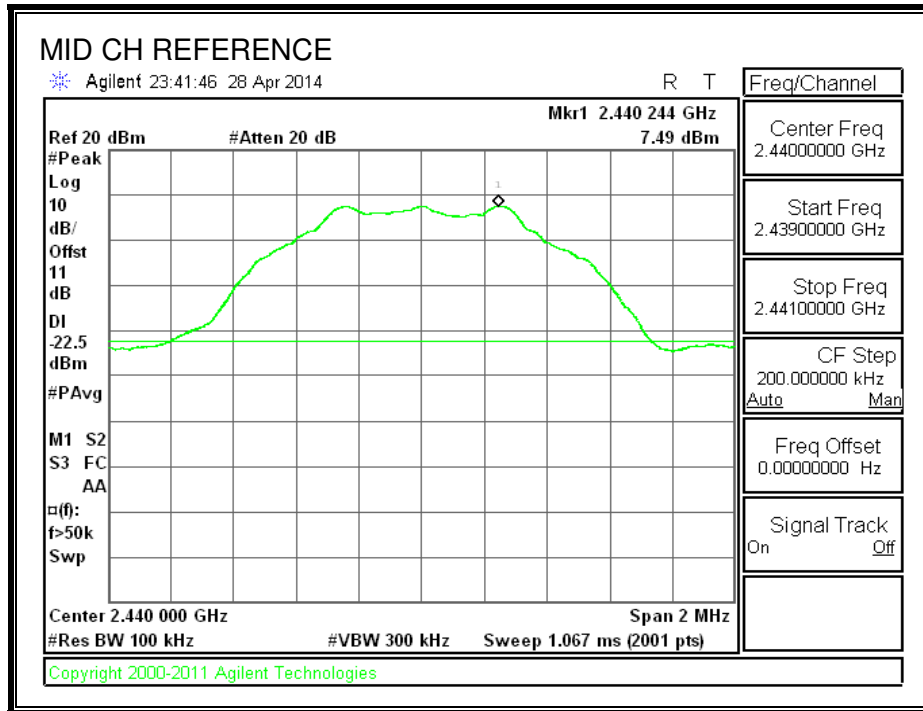
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

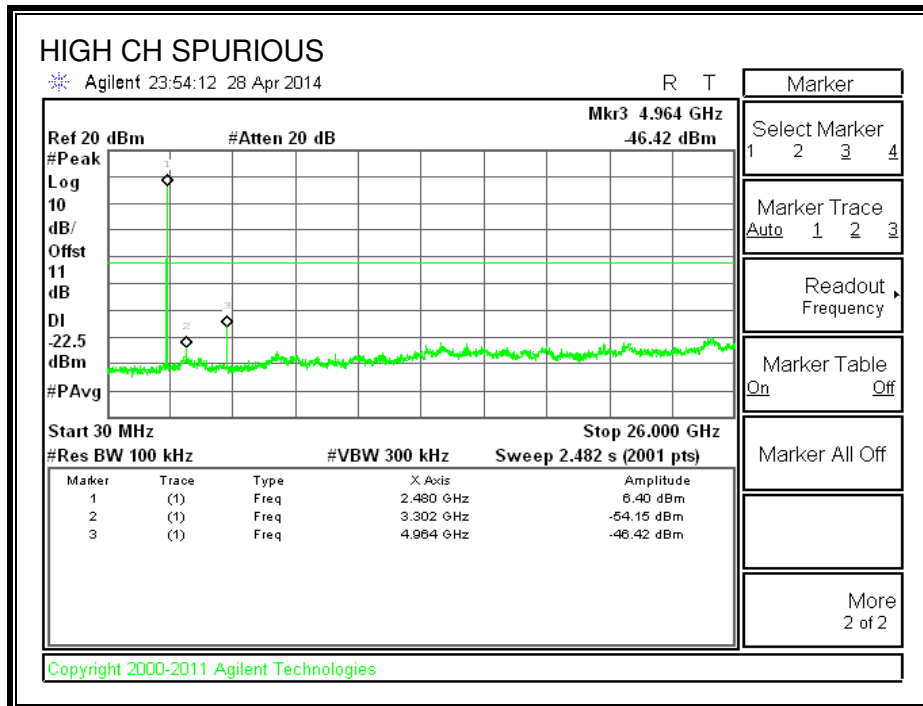
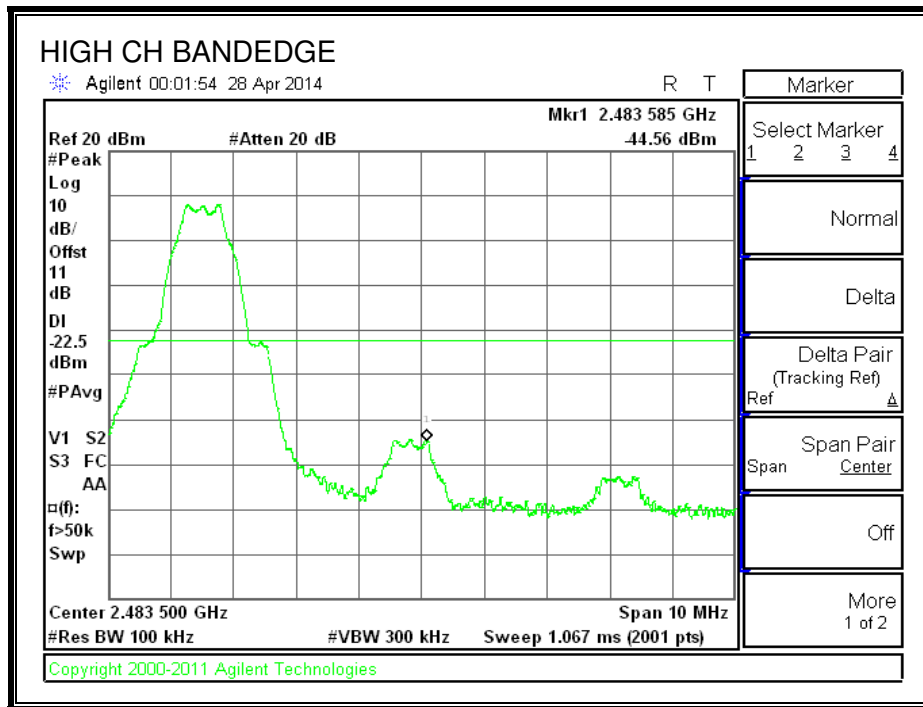
SPURIOUS EMISSIONS, LOW CHANNEL



SPURIOUS EMISSIONS, MID CHANNEL



SPURIOUS EMISSIONS, HIGH CHANNEL



8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

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. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4 - 2009. 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 1 MHz for peak measurements and add duty cycle factor for average measurements. Duty cycle factor = $10 \log(1/x)$. For this sample: DCF = 2.2dB

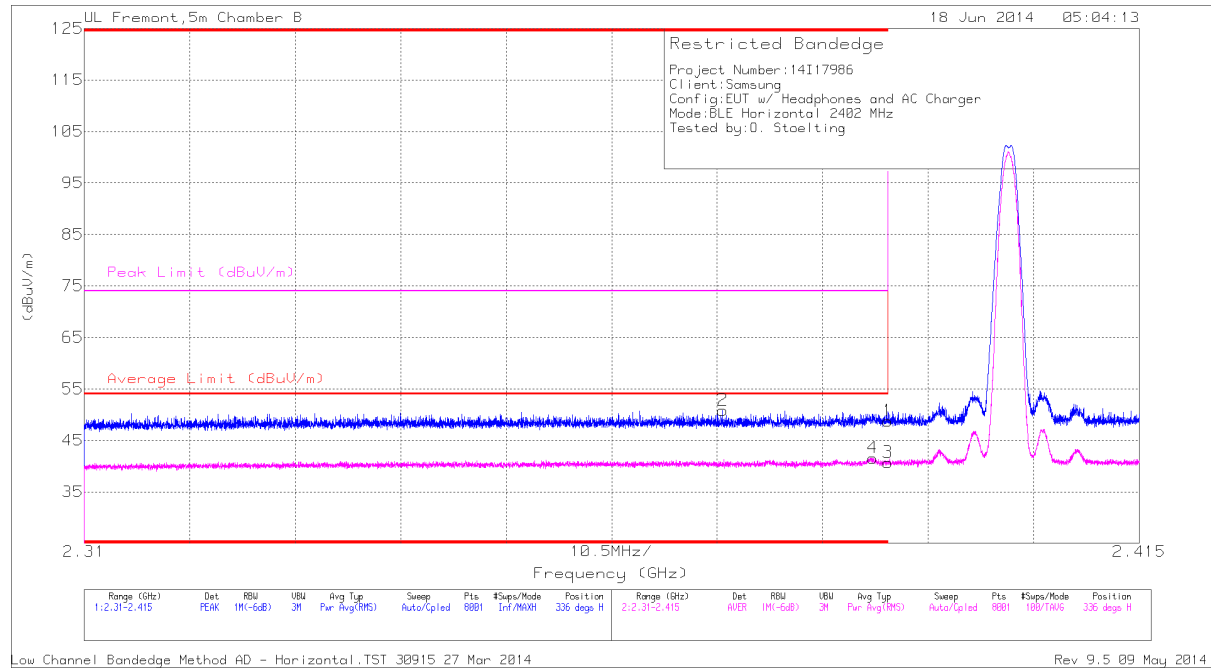
For spurious emission measurement refer to MAV1 - KDB558074 Option 1 Maximum RMS Average

The spectrum from 1GHz 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.

8.2. TRANSMITTER ABOVE 1 GHz

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



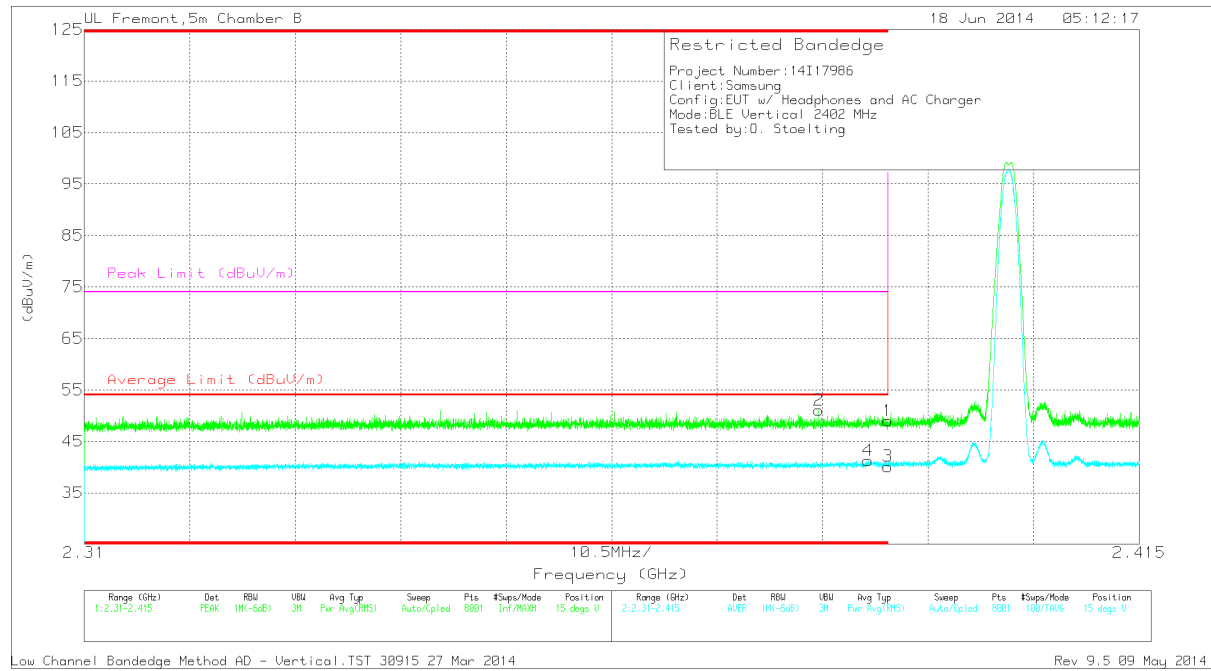
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.374	41.75	PK	32	-22.9	0	50.85	-	-	74	-23.15	336	283	H
4	* 2.388	30.09	RMS	32.1	-22.8	2.2	41.59	54	-12.41	-	-	336	283	H
1	* 2.39	39.5	PK	32.1	-22.8	0	48.8	-	-	74	-25.2	336	283	H
3	* 2.39	29.22	RMS	32.1	-22.8	2.2	40.72	54	-13.28	-	-	336	283	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEGE (LOW CHANNEL, VERTICAL)



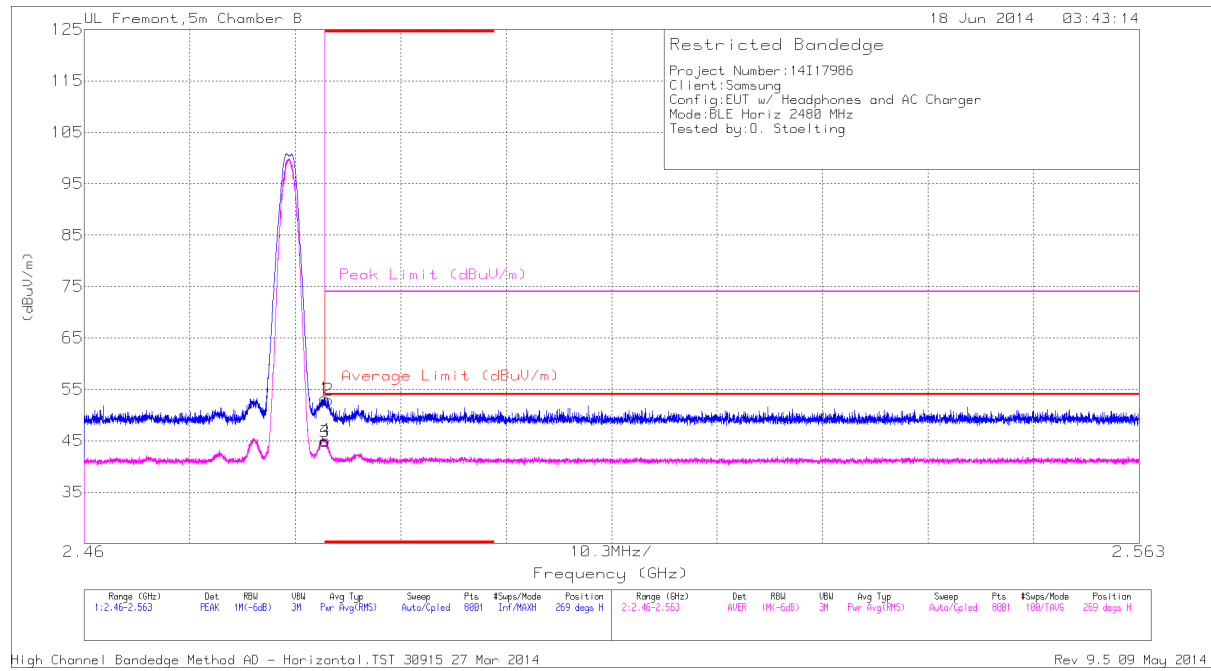
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.383	41.85	PK	32.1	-22.9	0	51.05	-	-	74	-22.95	15	292	V
4	* 2.388	29.76	RMS	32.1	-22.8	2.2	41.26	54	-12.74	-	-	15	292	V
1	* 2.39	39.68	PK	32.1	-22.8	0	48.98	-	-	74	-25.02	15	292	V
3	* 2.39	28.62	RMS	32.1	-22.8	2.2	40.12	54	-13.88	-	-	15	292	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



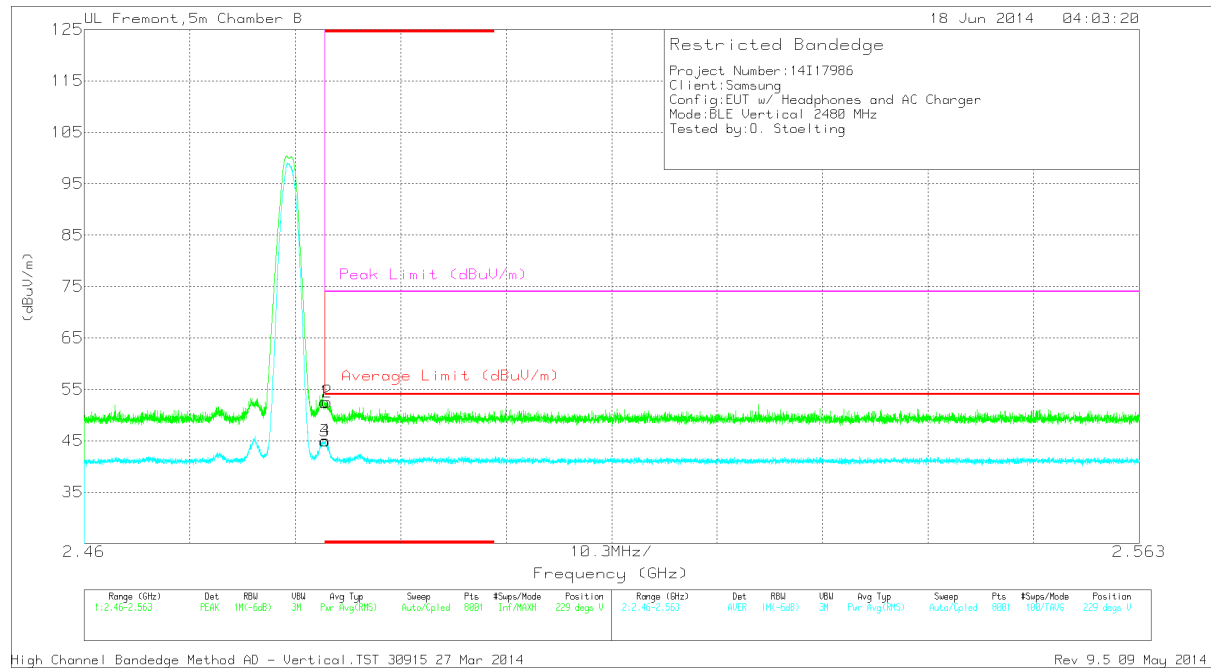
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Pt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	43.51	PK	32.4	-22.7	0	53.21	-	-	74	-20.79	269	278	H
2	* 2.484	43.21	PK	32.4	-22.7	0	52.91	-	-	74	-21.09	269	278	H
3	* 2.484	32.9	RMS	32.4	-22.7	2.2	44.8	54	-9.2	-	-	269	278	H
4	* 2.484	33.21	RMS	32.4	-22.7	2.2	45.11	54	-8.89	-	-	269	278	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEGE (HIGH CHANNEL, VERTICAL)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/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	42.79	PK	32.4	-22.7	0	52.49	-	-	74	-21.51	229	346	V
2	* 2.484	42.85	PK	32.4	-22.7	0	52.55	-	-	74	-21.45	229	346	V
3	* 2.484	33.03	RMS	32.4	-22.7	2.2	44.93	54	-9.07	-	-	229	346	V
4	* 2.484	33.13	RMS	32.4	-22.7	2.2	45.03	54	-8.97	-	-	229	346	V

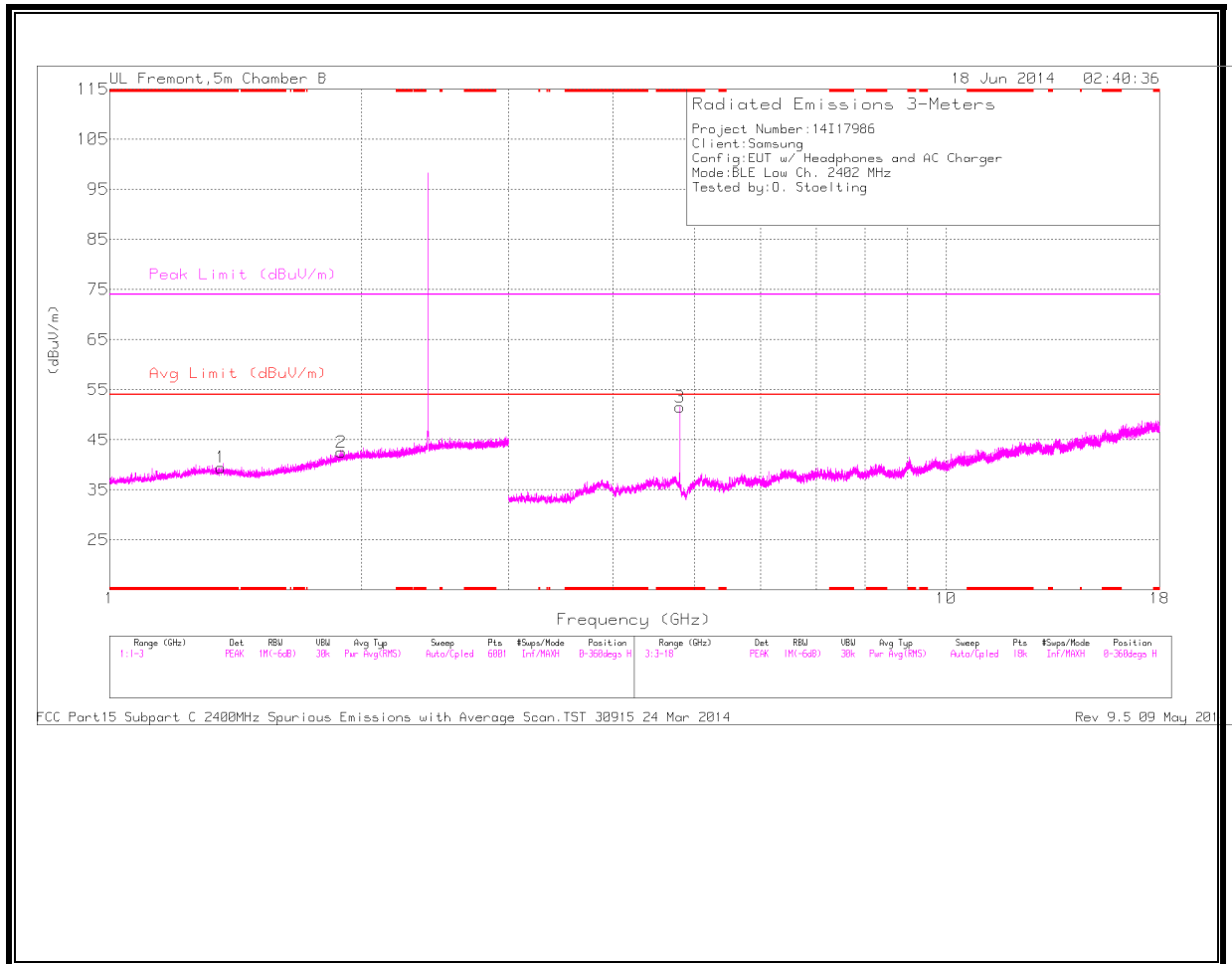
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

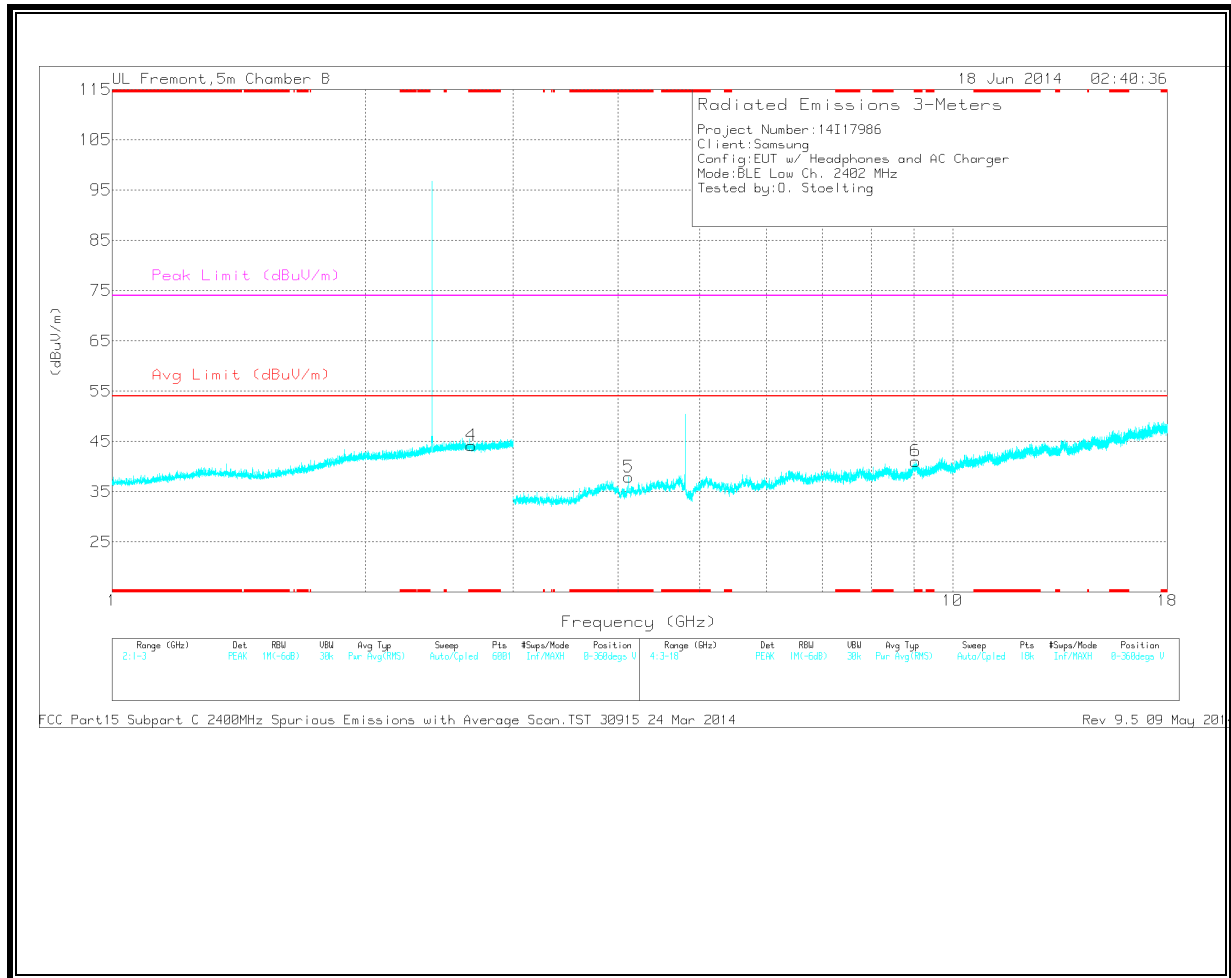
RMS - RMS detection

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.



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

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb1/Fitr /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	* 1.359	35.17	PK	28.7	-24.4	0	39.47	-	-	74	-34.53	0-360	201	H
4	* 2.675	34.3	PK	32.3	-22.4	0	44.2	-	-	74	-29.8	0-360	201	V
5	* 4.118	34.46	PK	33.6	-30.1	0	37.96	-	-	74	-36.04	0-360	201	V
3	* 4.804	46.7	PK	34.2	-29.4	0	51.5	-	-	74	-22.5	0-360	201	H
6	* 9.032	28.69	PK	36.2	-23.8	0	41.09	-	-	74	-32.91	0-360	101	V
2	1.893	34.91	PK	31	-23.4	0	42.51	-	-	-	-	0-360	201	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Radiated Emissions

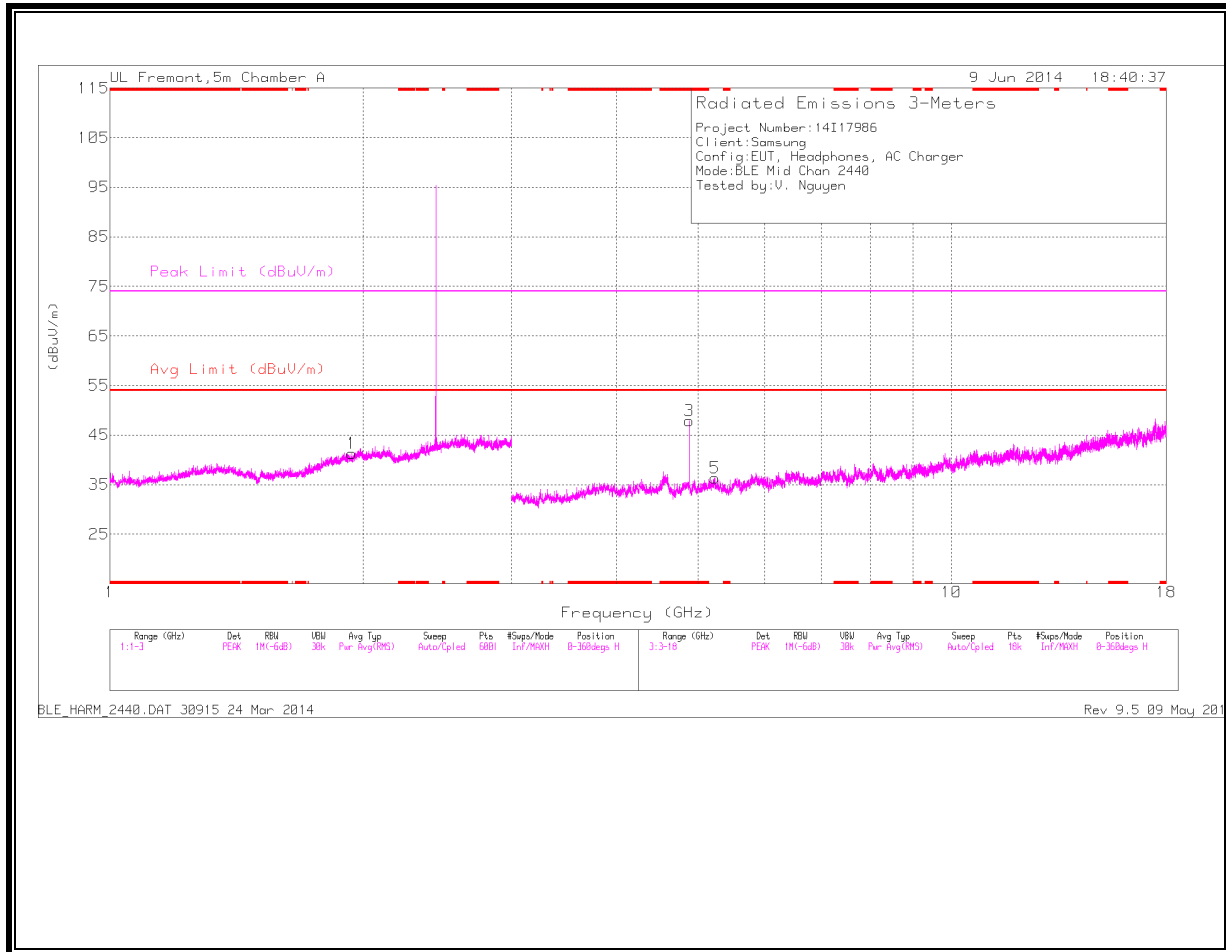
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb1/Fitr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.804	49.1	PK2	34.2	-29.4	0	53.9	-	-	74	-20.1	313	203	H
* 4.804	42.93	MAV1	34.2	-29.4	2.1	49.83	54	-4.17	-	-	313	203	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

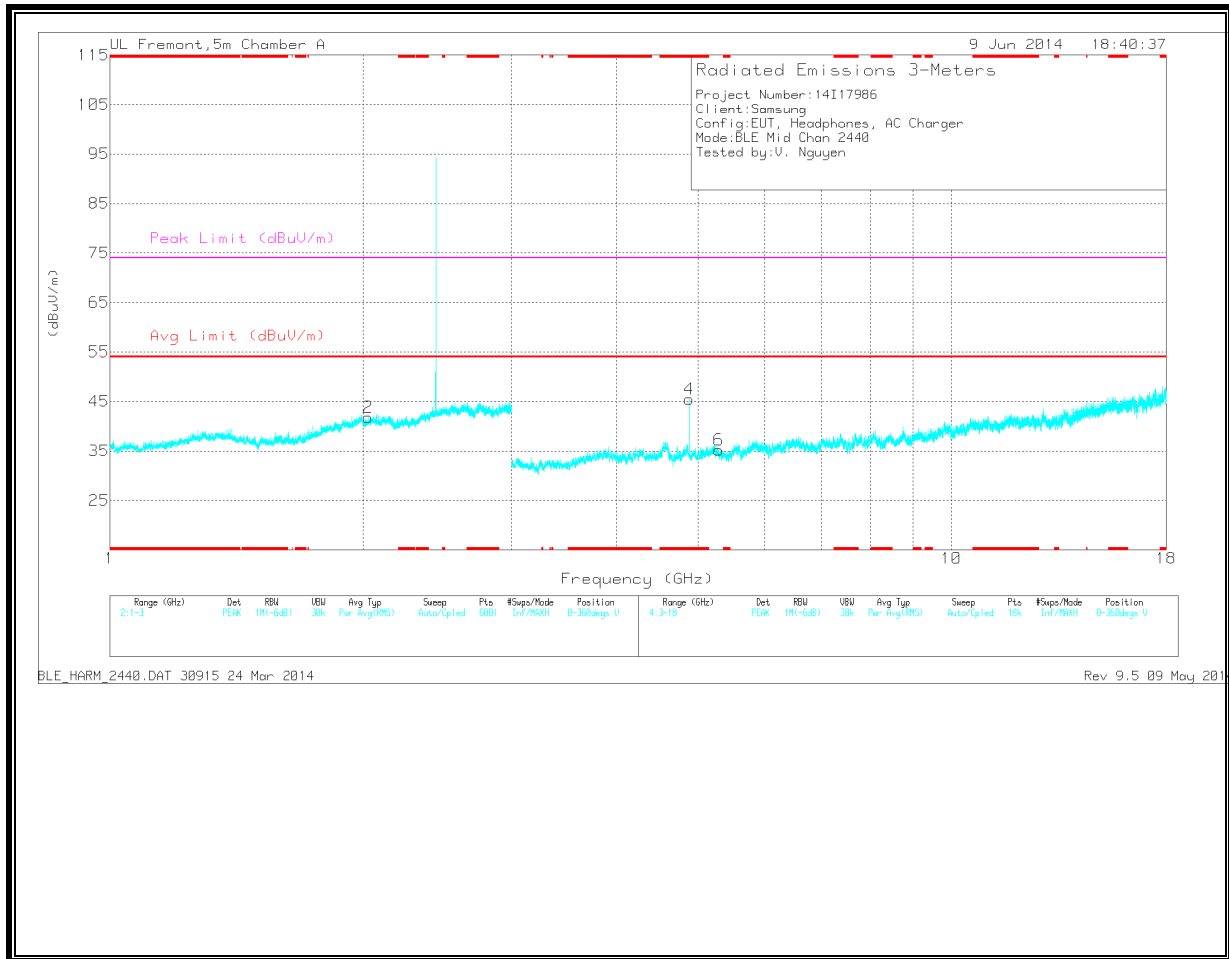
MID CHANNEL

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.

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

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Ftr /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
3	* 4.88	42.1	PK	34	-28.2	0	47.9	-	-	74	-26.1	0-360	201	H
4	* 4.879	39.71	PK	34	-28.2	0	45.51	-	-	74	-28.49	0-360	200	V
1	1.939	34.92	PK	31.8	-25.4	0	41.32	-	-	-	-	0-360	100	H
2	2.028	34.65	PK	32	-24.9	0	41.75	-	-	-	-	0-360	200	V
5	5.238	30.78	PK	34.2	-28.7	0	36.28	-	-	-	-	0-360	201	H
6	5.293	30.46	PK	34.3	-29.6	0	35.16	-	-	-	-	0-360	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

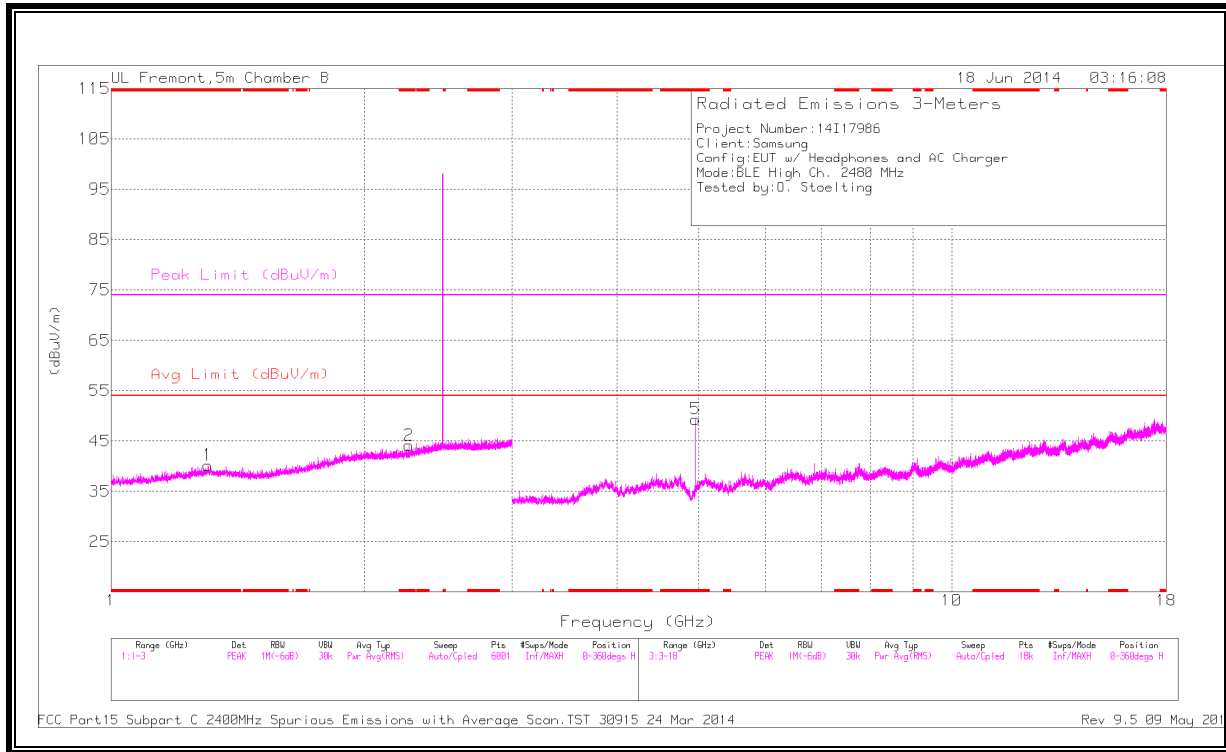
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cb/Ftr /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
* 4.88	47.58	PK2	34	-28.2	0	53.38	-	-	74	-20.62	35	110	H
* 4.88	41.44	MAv1	34	-28.2	2.1	49.34	54	-4.66	-	-	35	110	H
* 4.88	47.37	PK2	34	-28.2	0	53.17	-	-	74	-20.83	343	267	V
* 4.88	41.69	MAv1	34	-28.2	2.1	49.59	54	-4.41	-	-	343	267	V

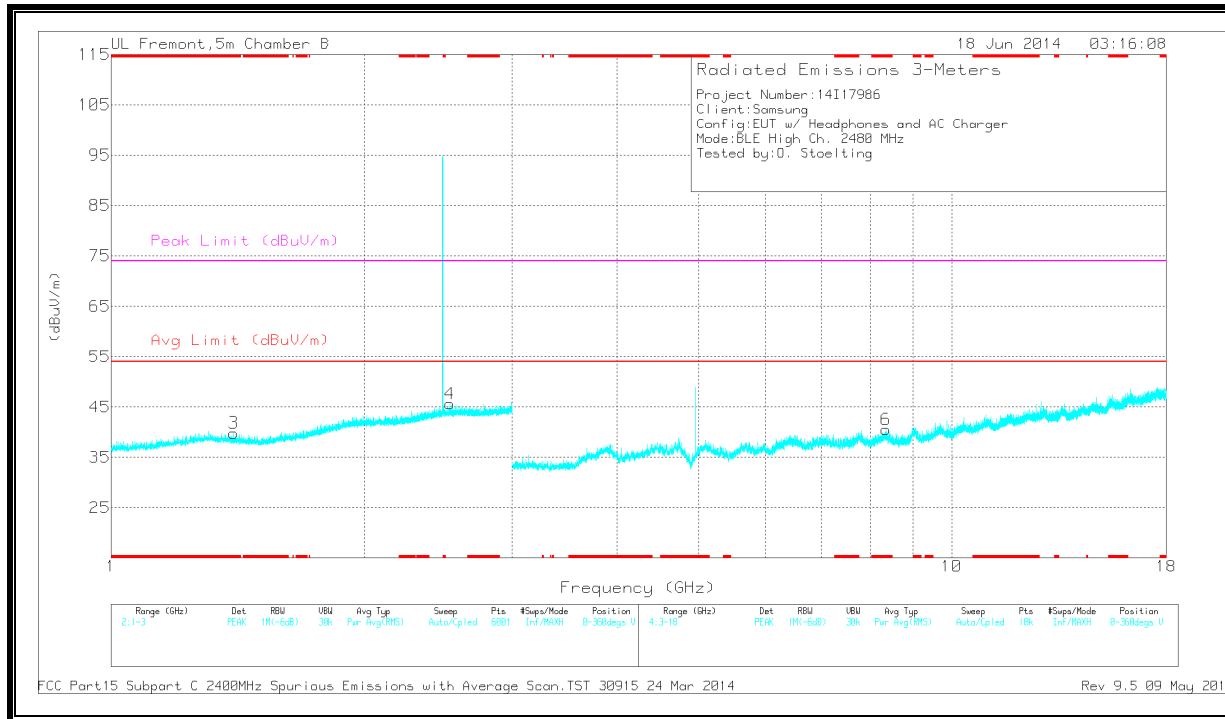
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK2 - KDB558074 Method: Maximum Peak



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

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.

HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/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	* 1.305	35.89	PK	28.8	-24.5	0	40.19	-	-	74	-33.81	0-360	101	H
2	* 2.261	35.75	PK	31.5	-23.1	0	44.15	-	-	74	-29.85	0-360	203	H
3	* 1.399	35.73	PK	28.5	-24.4	0	39.83	-	-	74	-34.17	0-360	101	V
5	* 4.959	45.54	PK	34.2	-30.4	0	49.34	-	-	74	-24.66	0-360	101	H
6	* 8.349	30.14	PK	35.7	-25.3	0	40.54	-	-	74	-33.46	0-360	101	V
4	2.528	35.75	PK	32.5	-22.6	0	45.65	-	-	-	-	0-360	201	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Radiated Emissions

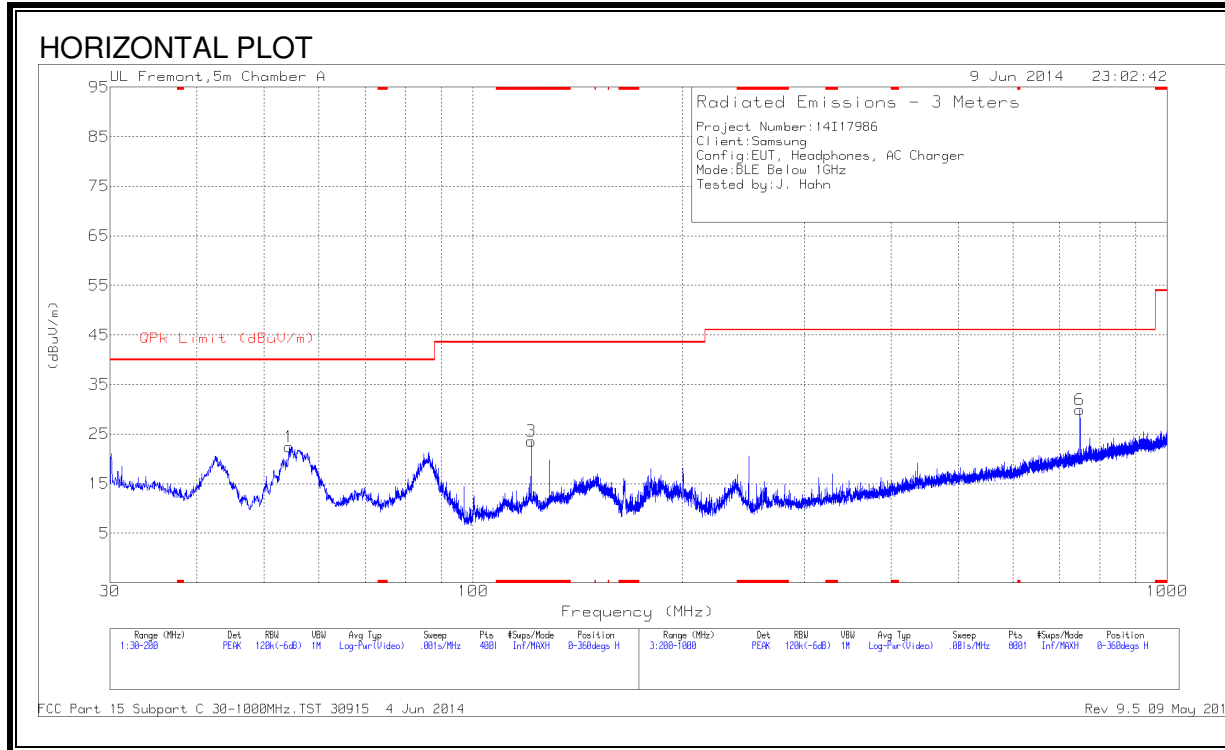
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.959	51.36	PK2	34.2	-30.4	0	55.16	-	-	74	-18.84	264	239	H
* 4.96	45.44	MAV1	34.2	-30.4	2.1	51.34	54	-2.66	-	-	264	239	H
* 4.96	51.62	PK2	34.2	-30.4	0	55.42	-	-	74	-18.58	264	239	H
* 4.96	45.36	MAV1	34.2	-30.4	2.1	51.26	54	-2.74	-	-	264	239	H

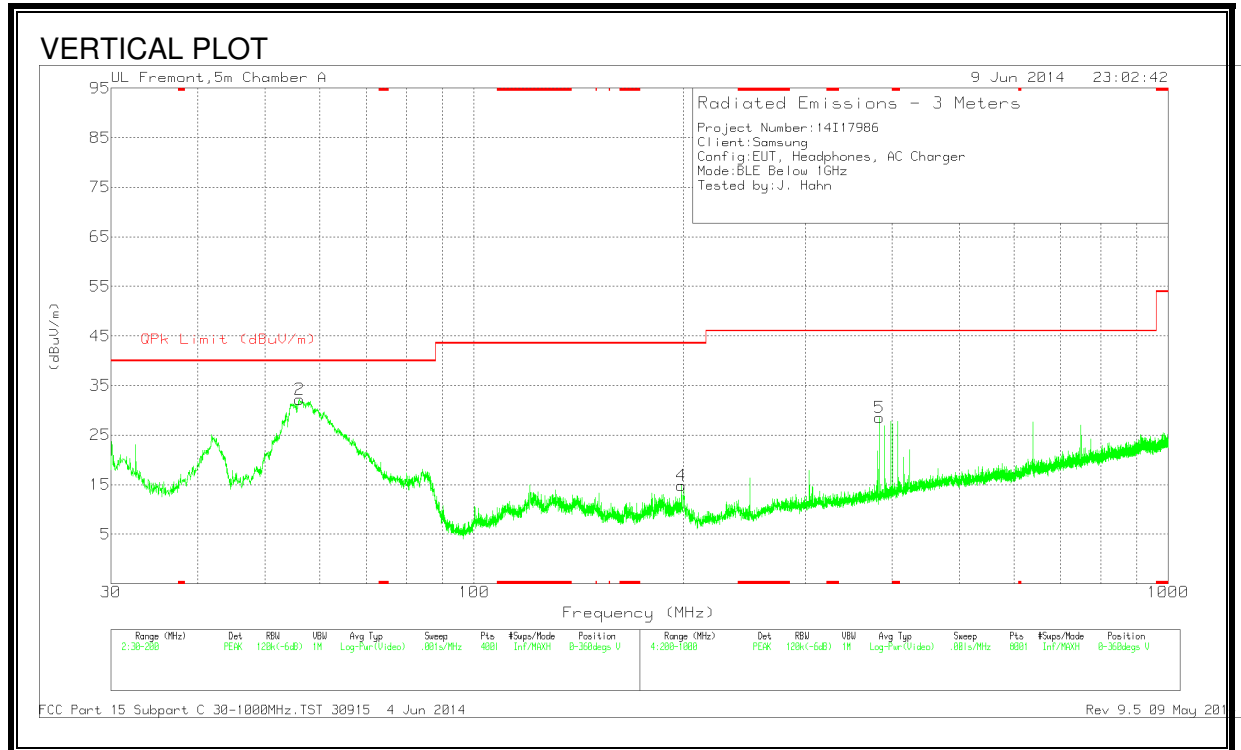
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

8.3. WORST-CASE BELOW 1 GHz

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





TRACE DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 121.375	40.05	PK	13.9	-30.4	0	23.55	43.52	-19.97	0-360	300	H
1	54.31	45.92	PK	7.3	-30.8	0	22.42	40	-17.58	0-360	400	H
2	56.095	55.78	PK	7.3	-30.9	0	32.18	40	-7.82	0-360	101	V
4	199.0225	32.12	PK	12.6	-29.9	0	14.82	43.52	-28.7	0-360	101	V
5	383.7	42.32	PK	15.1	-28.9	0	28.52	46.02	-17.5	0-360	200	V
6	748.8	37.38	PK	20.7	-28.2	0	29.88	46.02	-16.14	0-360	200	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

9. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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

^{*} Decreases with the logarithm of the frequency.

TEST PROCEDURE

ANSI C63.4 - 2009

RESULTS

6 WORST EMISSIONS

Line-L1 .15 - 30MHz

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
1	.1725	46.7	PK	1.2	0	47.9	64.8	-16.9	-	-
2	.1725	26.04	Av	1.2	0	27.24	-	-	54.8	-27.56
3	.312	39.92	PK	.5	0	40.42	59.9	-19.48	-	-
4	.312	19.89	Av	.5	0	20.39	-	-	49.9	-29.51
5	.501	33.98	PK	.3	0	34.28	56	-21.72	-	-
6	.501	22.91	Av	.3	0	23.21	-	-	46	-22.79
7	.564	40	PK	.3	0	40.3	56	-15.7	-	-
8	.564	34.55	Av	.3	0	34.85	-	-	46	-11.15
9	1.194	29.85	PK	.2	.1	30.15	56	-25.85	-	-
10	1.194	23.27	Av	.2	.1	23.57	-	-	46	-22.43
11	5.514	26.73	PK	.2	.1	27.03	60	-32.97	-	-
12	5.514	10.55	Av	.2	.1	10.85	-	-	50	-39.15
13	8.8485	26.85	PK	.2	.1	27.15	60	-32.85	-	-
14	8.8485	9.96	Av	.2	.1	10.26	-	-	50	-39.74
15	17.9295	25.75	PK	.3	.2	26.25	60	-33.75	-	-
16	17.9295	21.3	Av	.3	.2	21.8	-	-	50	-28.2
17	29.958	28.37	PK	.3	.3	28.97	60	-31.03	-	-
18	29.958	14.25	Av	.3	.3	14.85	-	-	50	-35.15

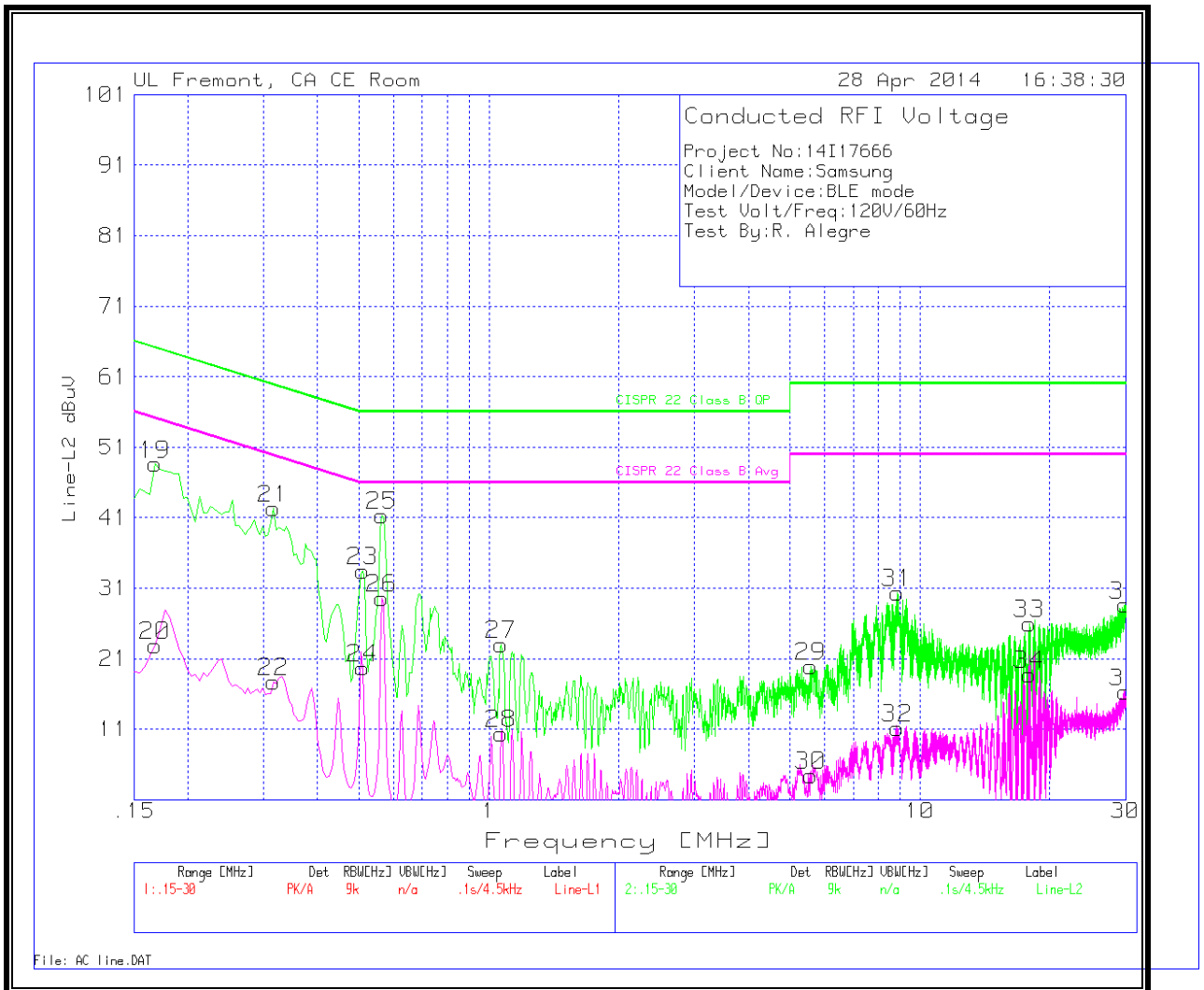
Line-L2 .15 - 30MHz

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
19	.168	47.29	PK	1.3	0	48.59	65.1	-16.51	-	-
20	.168	21.59	Av	1.3	0	22.89	-	-	55.1	-32.21
21	.3165	41.68	PK	.6	0	42.28	59.8	-17.52	-	-
22	.3165	17.17	Av	.6	0	17.77	-	-	49.8	-32.03
23	.51	33.04	PK	.4	0	33.44	56	-22.56	-	-
24	.51	19.31	Av	.4	0	19.71	-	-	46	-26.29
25	.564	41.02	PK	.3	0	41.32	56	-14.68	-	-
26	.564	29.22	Av	.3	0	29.52	-	-	46	-16.48
27	1.068	22.55	PK	.3	.1	22.95	56	-33.05	-	-
28	1.068	9.95	Av	.3	.1	10.35	-	-	46	-35.65
29	5.5815	19.66	PK	.2	.1	19.96	60	-40.04	-	-
30	5.5815	4.13	Av	.2	.1	4.43	-	-	50	-45.57
31	8.8395	30	PK	.2	.1	30.3	60	-29.7	-	-
32	8.8395	10.83	Av	.2	.1	11.13	-	-	50	-38.87
33	17.9385	25.44	PK	.3	.2	25.94	60	-34.06	-	-
34	17.9385	18.29	Av	.3	.2	18.79	-	-	50	-31.21
35	29.913	28.01	PK	.3	.3	28.61	60	-31.39	-	-
36	29.913	15.64	Av	.3	.3	16.24	-	-	50	-33.76

PK - Peak detector
 Av - average detection

LINE 1 RESULTS



LINE 2 RESULTS

