



FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac, ANT+ and NFC

MODEL NUMBER : SM-G9280

FCC ID: A3LSMG9280

REPORT NUMBER: 15K21155-E3

ISSUE DATE: JUL 10, 2015

Prepared for
SAMSUNG ELECTRONICS CO., LTD.
129 SAMSUNG-RO, YEONGTONG-GU, SUWON-SI,
GYEONGGI-DO, 443-742, KOREA

Prepared by
UL Korea, Ltd. Suwon Laboratory
218 Maeyeong-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 443-823, Korea
TEL: (031) 337-9902
FAX: (031) 213-5433



Revision History

Rev.	Issue Date	Revisions	Revised By
--	07/10/15	Initial issue	SungGil Park

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION: GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n/ac, ANT+ and NFC
MODEL NUMBER: SM-G9280
SERIAL NUMBER: R38G50LQ6LK(RADIATED); R38G50LQ43J(CONDUCTED)
DATE TESTED: JUN 21 - JUL 10, 2015

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

UL Korea, Ltd. 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 Korea, Ltd. 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 Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. 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 IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Korea, Ltd. By:



CY Choi
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:



SungGil Park
Suwon Lab Engineer
UL Korea, Ltd.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea. Line conducted emissions are measured only at the 218 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.

218 Maeyeong-ro	
☒	Chamber 1
☒	Chamber 2

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <http://www.iasonline.org/PDF/TL/TL-637.pdf>.

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:

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

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	2.32 dB
Radiated Disturbance, Below 1GHz	4.14 dB
Radiated Disturbance, Above 1 GHz	5.97 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+BT/BLE, DTS/UNII a/b/g/n/ac, ANT+ and NFC.
This test report addresses the DSS (BT) operational mode.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range [MHz]	Mode	Power Mode	Output Power [dBm]	Output Power [mW]
2402 - 2480	Basic GFSK	Average	10.53	11.30
		Peak	10.68	11.70
	Enhanced Pi/4-DPSK	Average	6.65	4.63
		Peak	9.03	7.99
	Enhanced 8PSK	Average	6.72	4.70
		Peak	9.39	8.69

Note: GFSK, Pi/4-DQPSK, 8PSK average Power are all investigated, The GFSK & 8PSK Power are the worst case. Testing is based on this mode to showing compliance. For average power data please refer to section 8.6.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -0.3 dBi.

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 and 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
Charger	SAMSUNG	EP-TA20CBC	R37FCPc00R1DK3	N/A
Data Cable	SAMSUNG	EP-DG925UWE	N/A	N/A
Earphone	SAMSUNG	EO-EG920LW	N/A	N/A

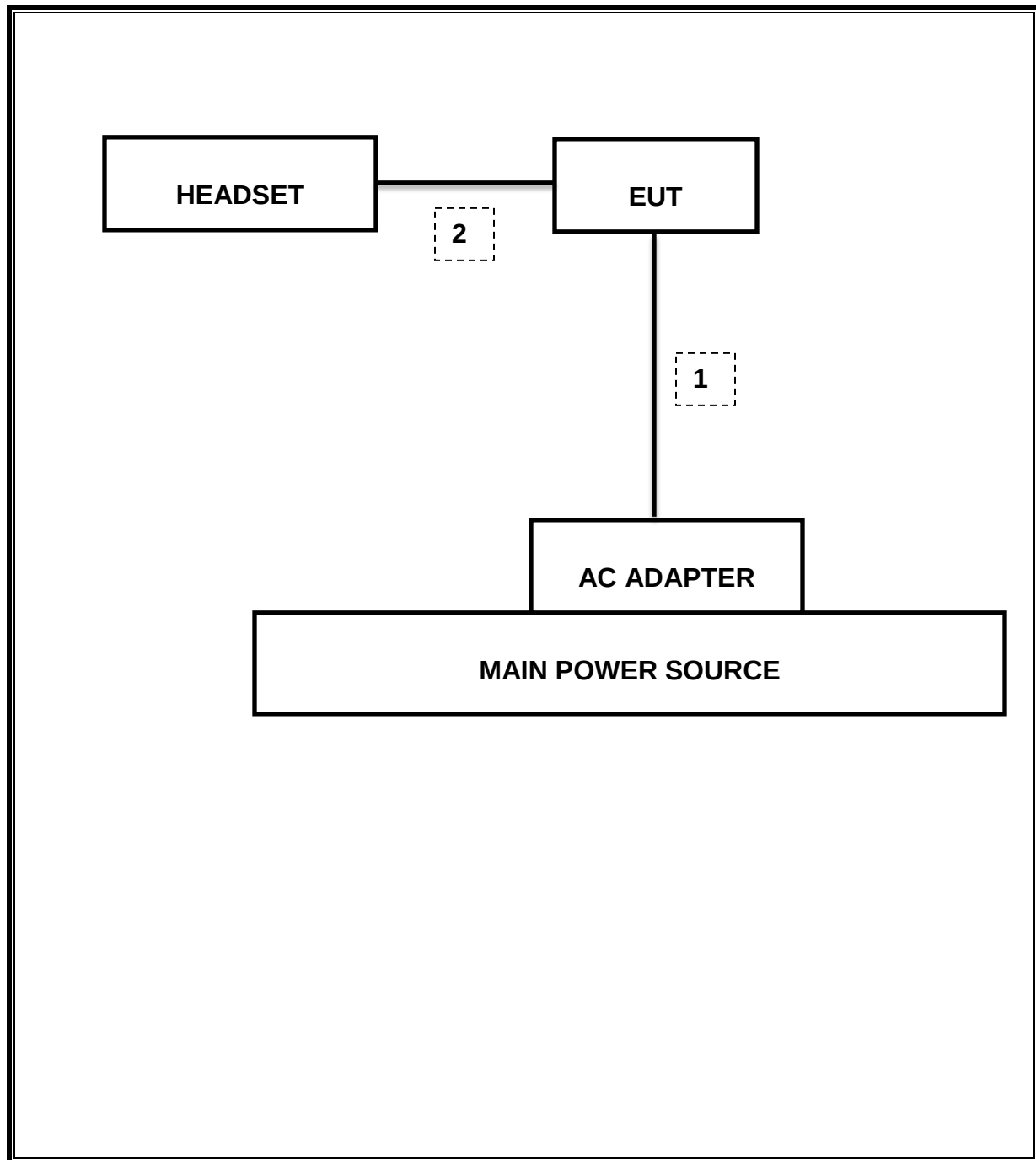
I/O CABLES

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	0.8m	N/A
2	Audio	1	Mini-Jack	Unshielded	1.0m	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 BT communications.

SETUP DIAGRAM FOR TESTS



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	S/N	Cal Due
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	950	11-17-15
Antenna, Horn, 18 GHz	ETS	3115	00167211	09-20-15
Antenna, Horn, 40 GHz	ETS	3116C	00166255	09-23-15
Antenna, Horn, 40 GHz	ETS	3116C-PA	00168841	09-29-15
Preamplifier, 1000 MHz	Sonoma	310N	341282	11-17-15
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	11-18-15
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	09-23-15
Bluetooth Tester	TESCOM	TC-3000C	3000C000546	11-17-15
Average Power Sensor	R&S	NRZ-Z91	102681	11-17-15
Average Power Sensor	Agilent / HP	U2000	MY54270007	09-23-15
EMI Test Receive, 40 GHz	R&S	ESU40	100439	11-17-15
EMI Test Receive, 3 GHz	R&S	ESR3	101832	11-17-15
Attenuator / Switch driver	HP	11713A	3748A04272	N/A
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	009	11-17-15
High Pass Filter 5GHz	Micro-Tronics	HPS17542	009	11-17-15
High Pass Filter 6GHz	Micro-Tronics	HPM17543	010	11-17-15
LISN	R&S	ENV-216	101836	04-09-16
LISN	R&S	ENV-216	101837	04-09-16

7. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result	Worst Case
2.1049	Occupied Band width (99%)	N/A	Conducted	Pass	1.207 MHz
2.1051, 15.247 (d)	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-42.401 dBm
15.247 (b)(1)	TX conducted output power	<21dBm		Pass	10.68 dBm (Peak)
15.247 (a)(1)	Hopping frequency separation	> 25KHz		Pass	1 MHz
15.247 (a)(1)(iii)	Number of Hopping channels	More than 15 non-overlapping channels		Pass	79
15.247 (a)(1)(iii)	Avg Time of Occupancy	< 0.4sec		Pass	0.346 sec
15.207 (a)	AC Power Line conducted emissions	Section 10	Power Line conducted	Pass	42.03 dBuV (QP)
15.205, 15.209	Radiated Spurious Emission	< 54dBuV/m	Radiated	Pass	41.21 dBuV/m (AV)

8. ANTENNA PORT TEST RESULTS

8.1. 20 dB AND 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

DA 00-705: The transmitter output is connected to a spectrum analyzer. The RBW is set to $\geq 1\%$ of the 20 dB bandwidth. The VBW is set to $\geq$ RBW. The sweep time is coupled.

RESULTS

8.1.1. BASIC DATA RATE GFSK MODULATION

Channel	Frequency [MHz]	20 dB Bandwidth [MHz]	99% Bandwidth [MHz]
Low	2402	1.025	0.939
Mid	2441	1.054	0.941
High	2480	1.025	0.932
Worst		1.054	0.941

8.1.2. ENHANCED DATA RATE $\pi/4$ -DQPSK MODULATION

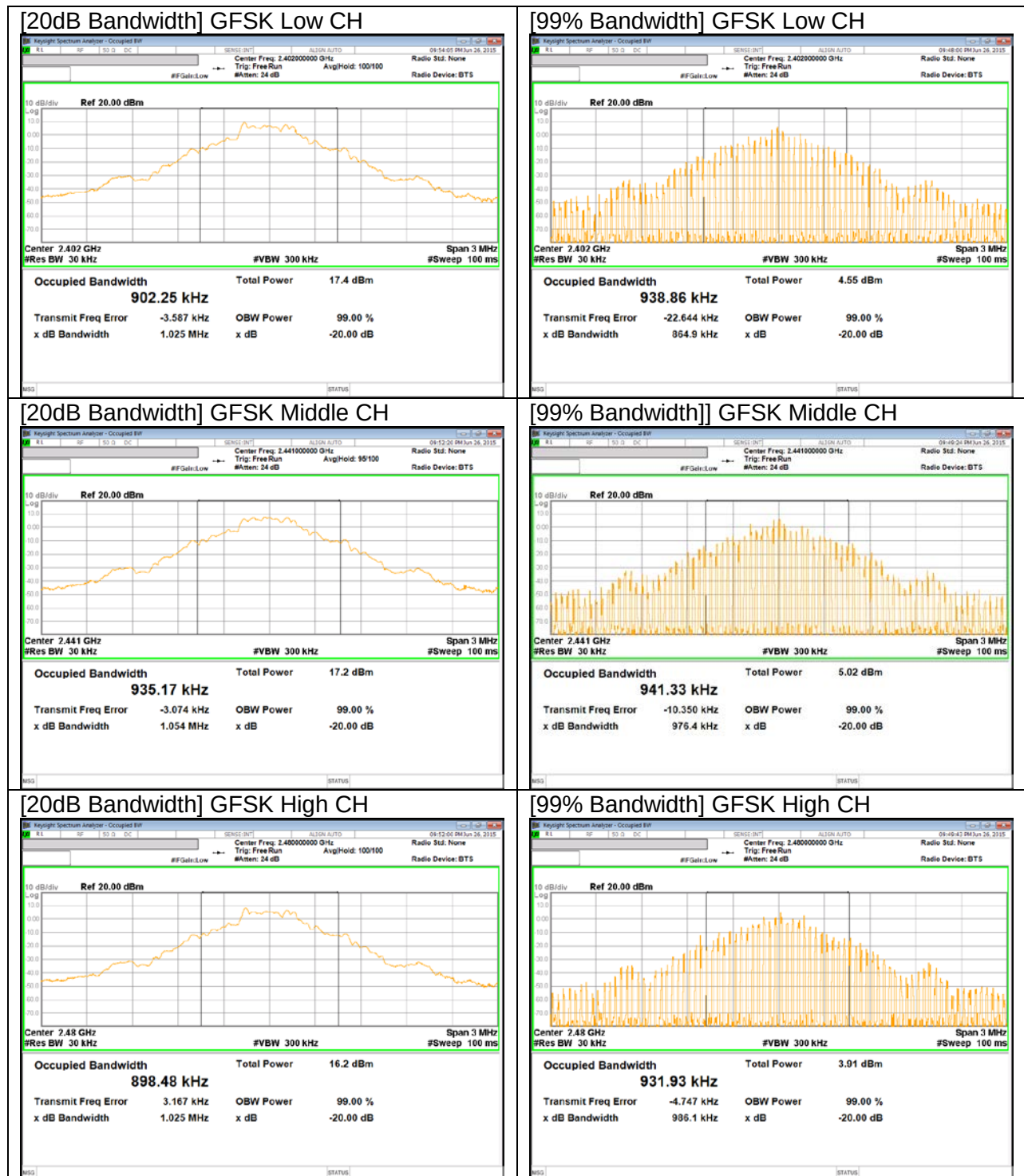
Channel	Frequency [MHz]	20 dB Bandwidth [MHz]	99% Bandwidth [MHz]
Low	2402	1.299	1.162
Mid	2441	1.321	1.206
High	2480	1.303	1.207
Worst		1.321	1.207

8.1.3. ENHANCED DATA RATE 8PSK MODULATION

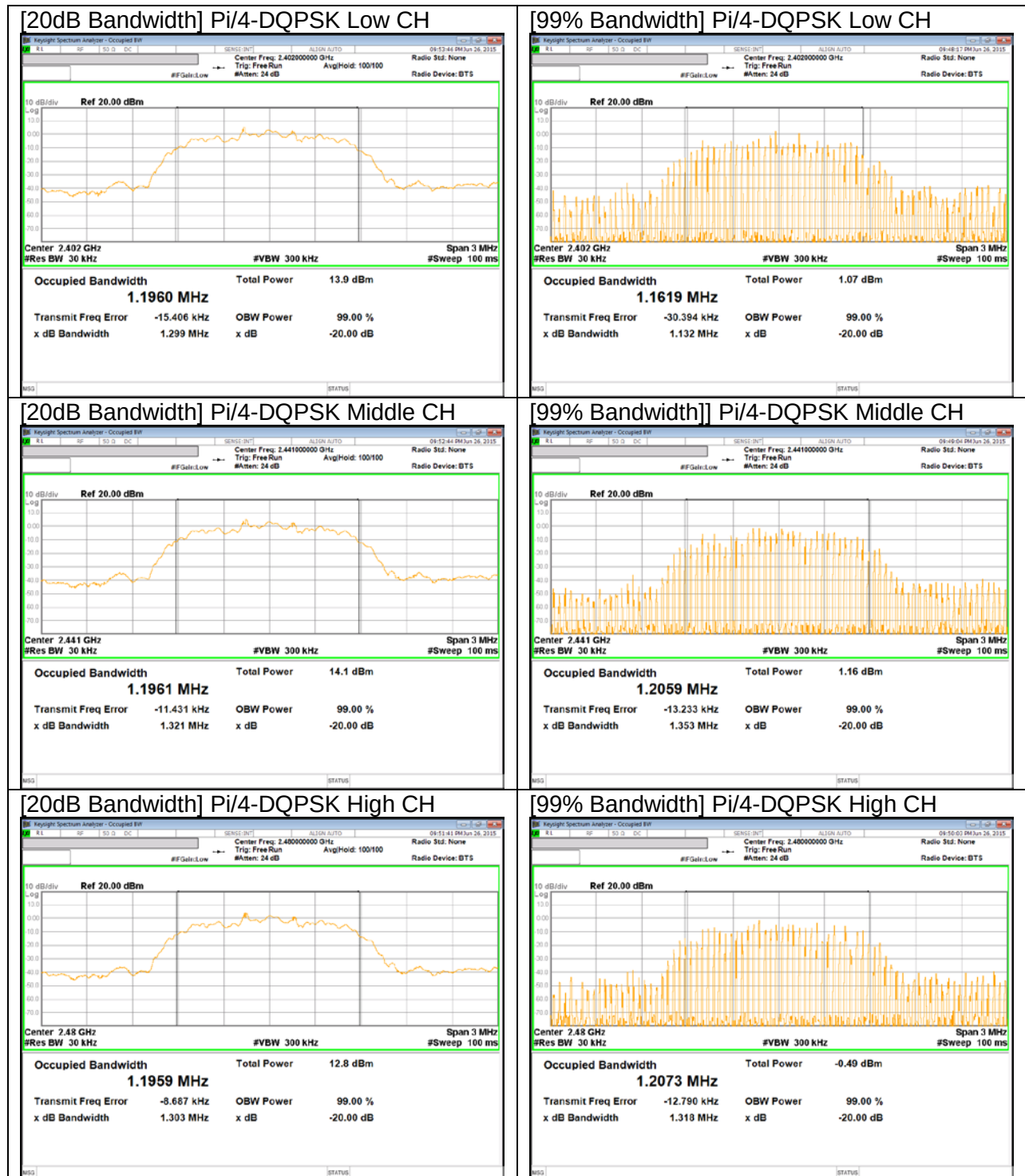
Channel	Frequency [MHz]	20 dB Bandwidth [MHz]	99% Bandwidth [MHz]
Low	2402	1.319	1.201
Mid	2441	1.319	1.199
High	2480	1.322	1.203
Worst		1.322	1.203

8.1.4. 20 dB AND 99% BANDWIDTH PLOTS

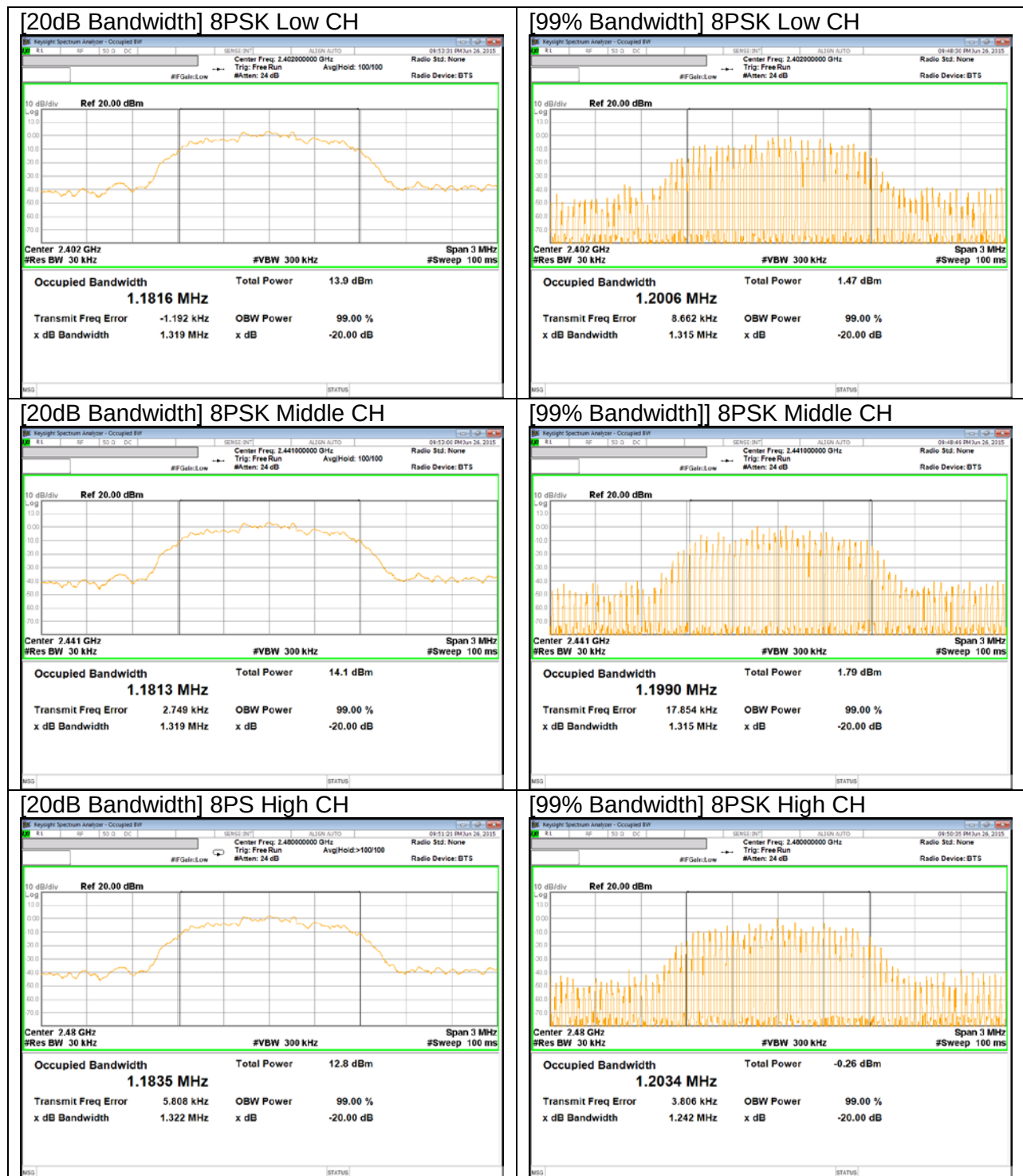
GFSK BANDWIDTH



Pi/4-DQPSK BANDWIDTH



8PSK BANDWIDTH



8.2. HOPPING FREQUENCY SEPARATION

LIMIT

FCC §15.247 (a) (1)

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

TEST PROCEDURE

DA 00-705: The transmitter output is connected to a spectrum analyzer. The RBW is set to 300 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

8.3. NUMBER OF HOPPING CHANNELS

LIMIT

FCC §15.247 (a) (1) (iii)

Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

TEST PROCEDURE

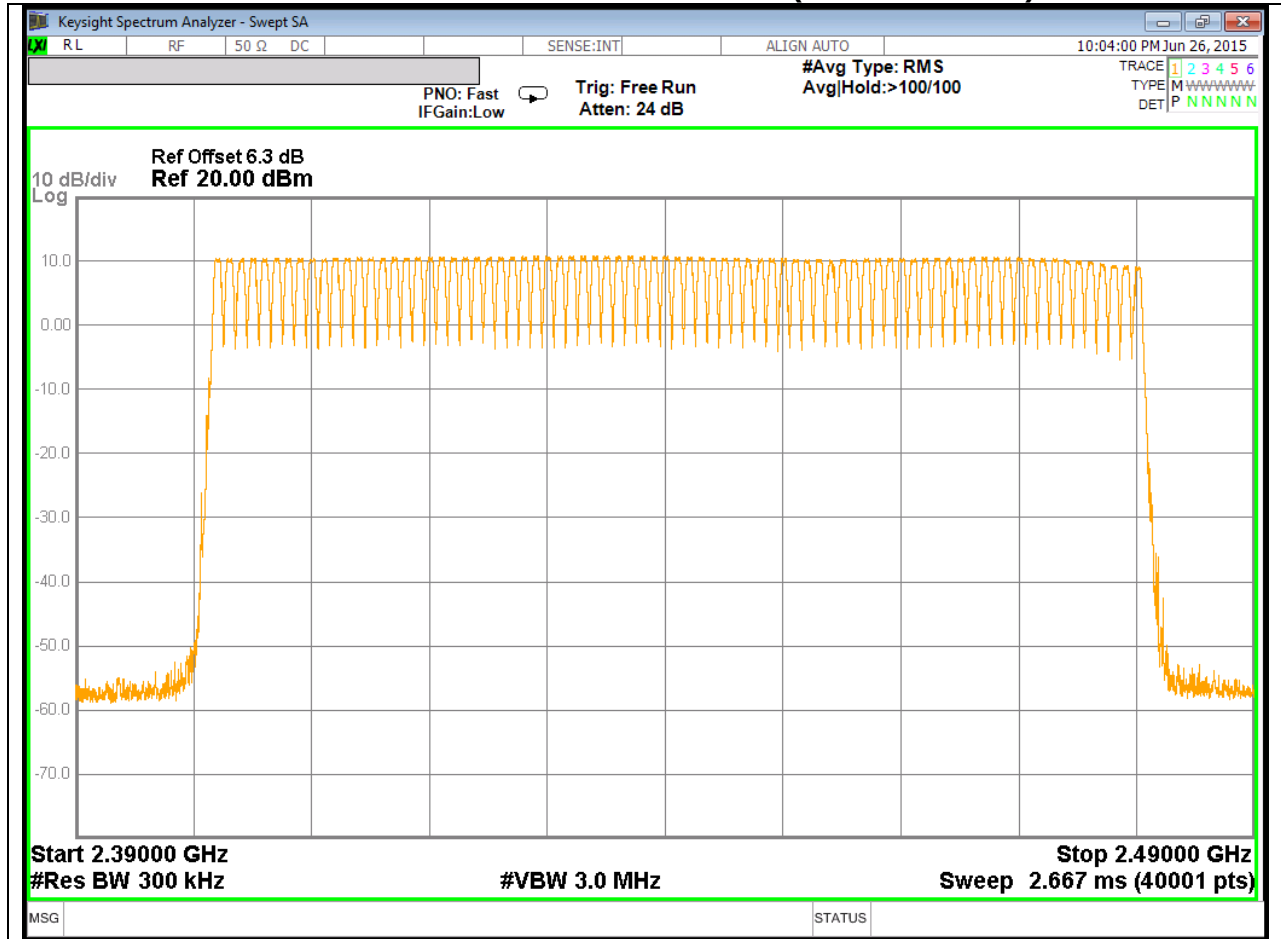
DA 00-705: The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

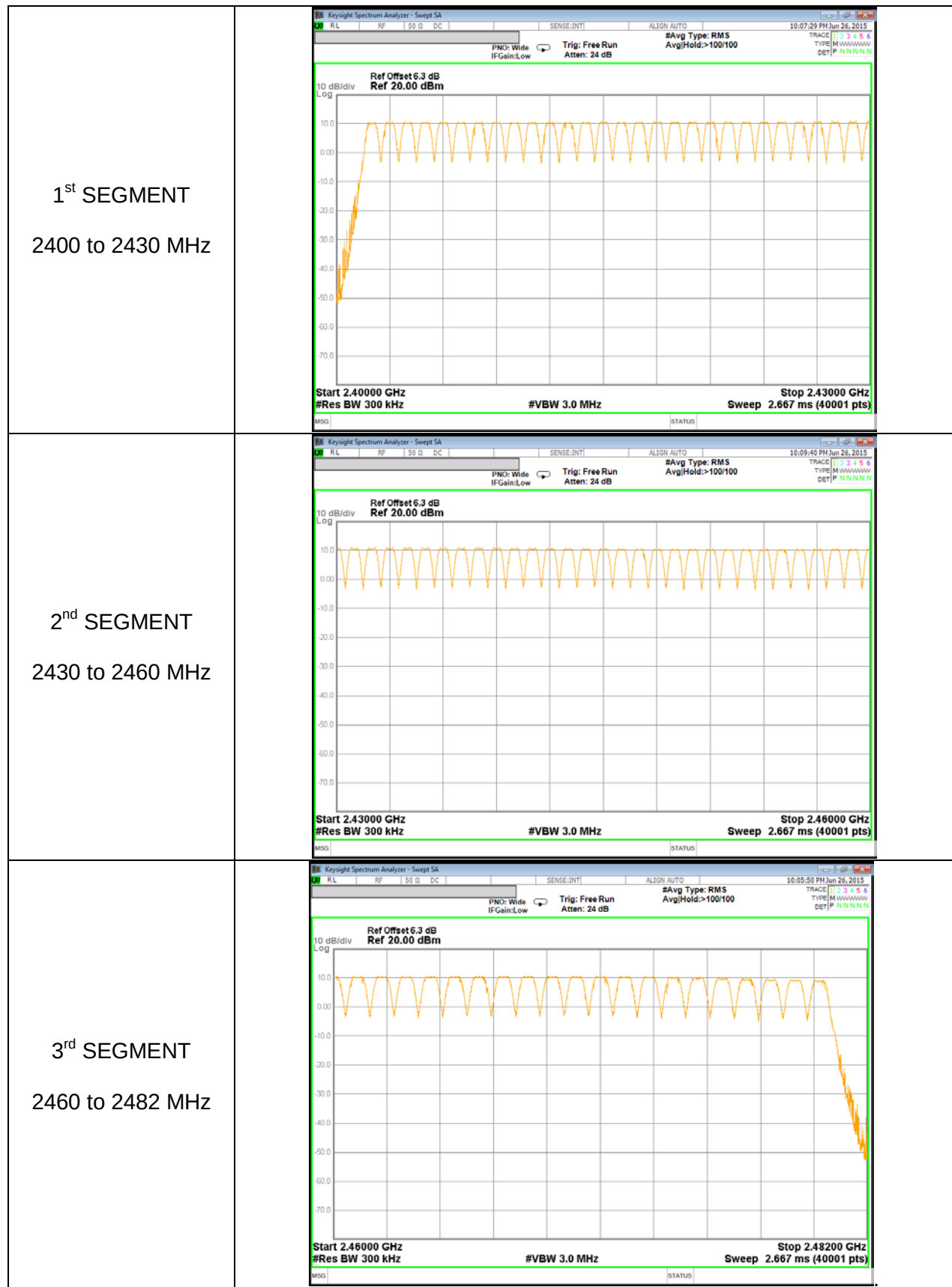
RESULTS

Normal Mode: 79 Channels observed.

NUMBER OF HOPPING CHANNELS PLOTS

NUMBER OF HOPPING CHANNELS (100 MHZ SPAN)





8.4. AVERAGE TIME OF OCCUPANCY

LIMIT

FCC §15.247 (a) (1) (iii)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 3.16 second scan, to enable resolution of each occurrence.

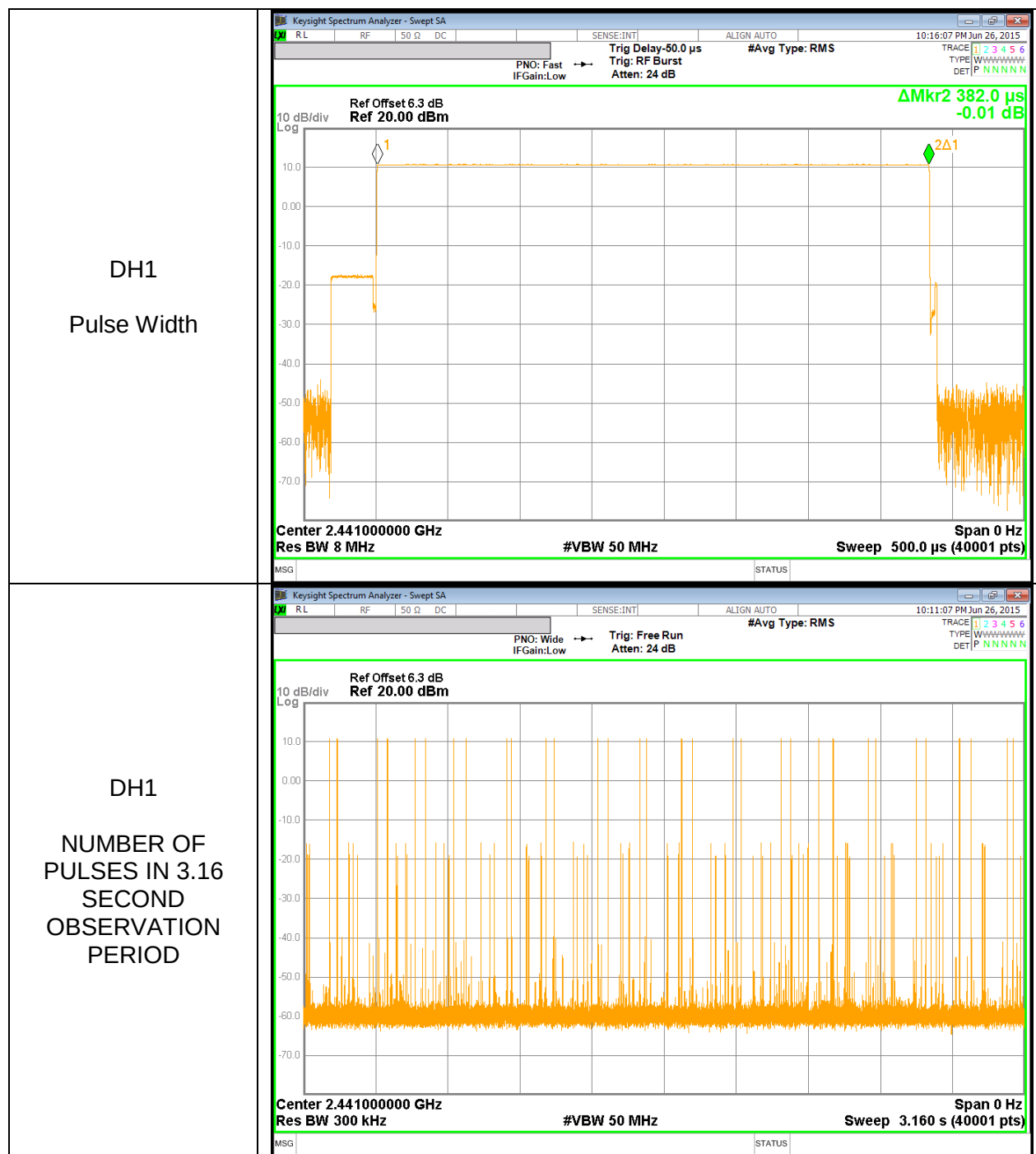
The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{pulse width}$.

For AFH mode, the average time of occupancy in the specified 8 second period (20 channels * 0.4 seconds) is equal to $10 * (\# \text{ of pulses in } 0.8 \text{ s}) * \text{pulse width}$.

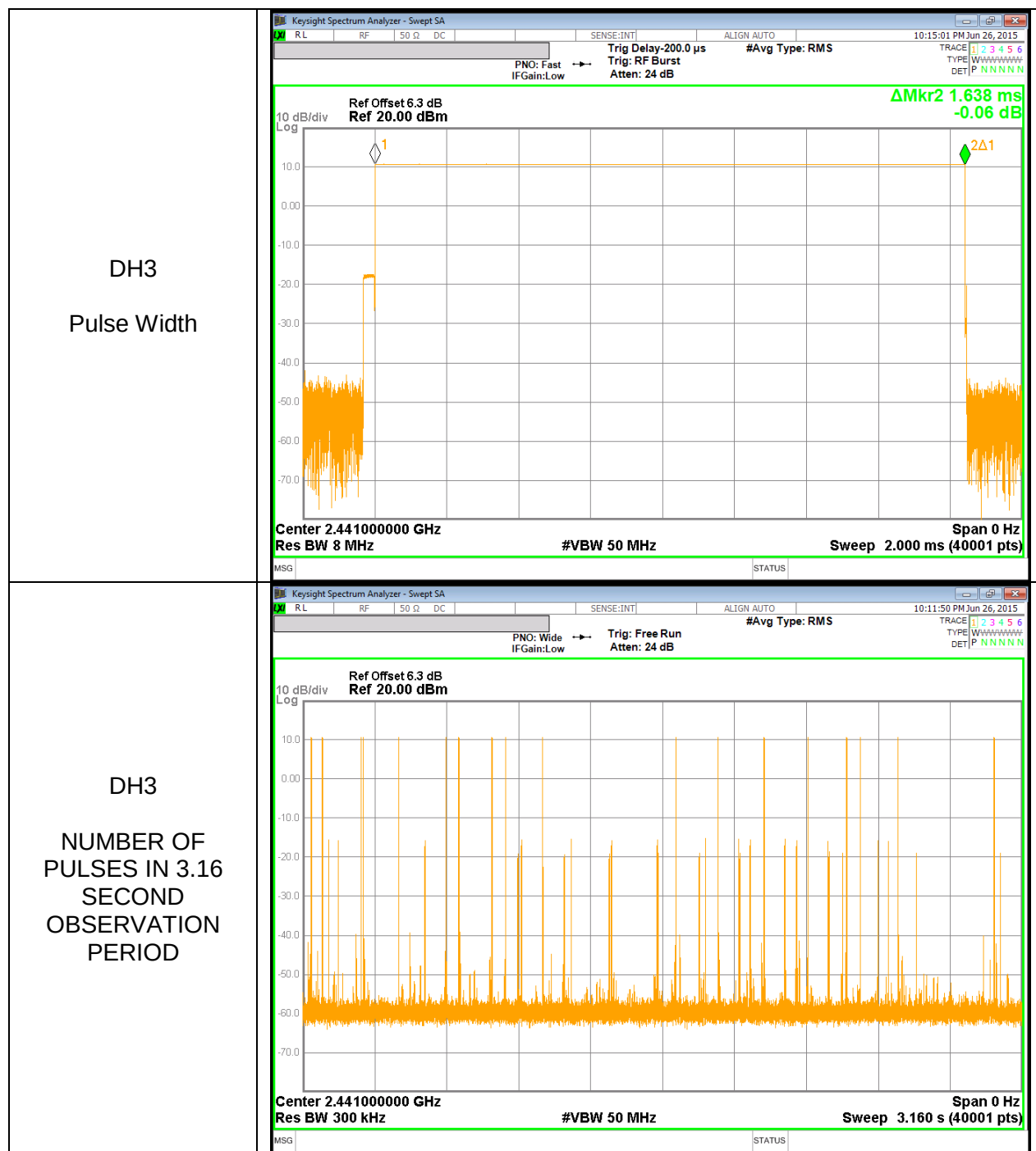
RESULTS

DH Packet	Pulse Width [msec]	Number of Pulses in 3.16 seconds	Average Time of Occupancy [sec]	Limit [sec]	Margin [sec]
GFSK Normal					
DH1	0.382	32	0.122336	0.4	-0.2777
DH3	1.638	18	0.294840	0.4	-0.1052
DH5	2.886	12	0.346320	0.4	-0.0537
DH Packet	Pulse Width [msec]	Number of Pulses in 0.8 seconds	Average Time of Occupancy [sec]	Limit [sec]	Margin [sec]
GFSK AFH					
DH1	0.382	8	0.030584	0.4	-0.36942
DH3	1.638	4.5	0.073710	0.4	-0.32629
DH5	2.886	3	0.086580	0.4	-0.31342

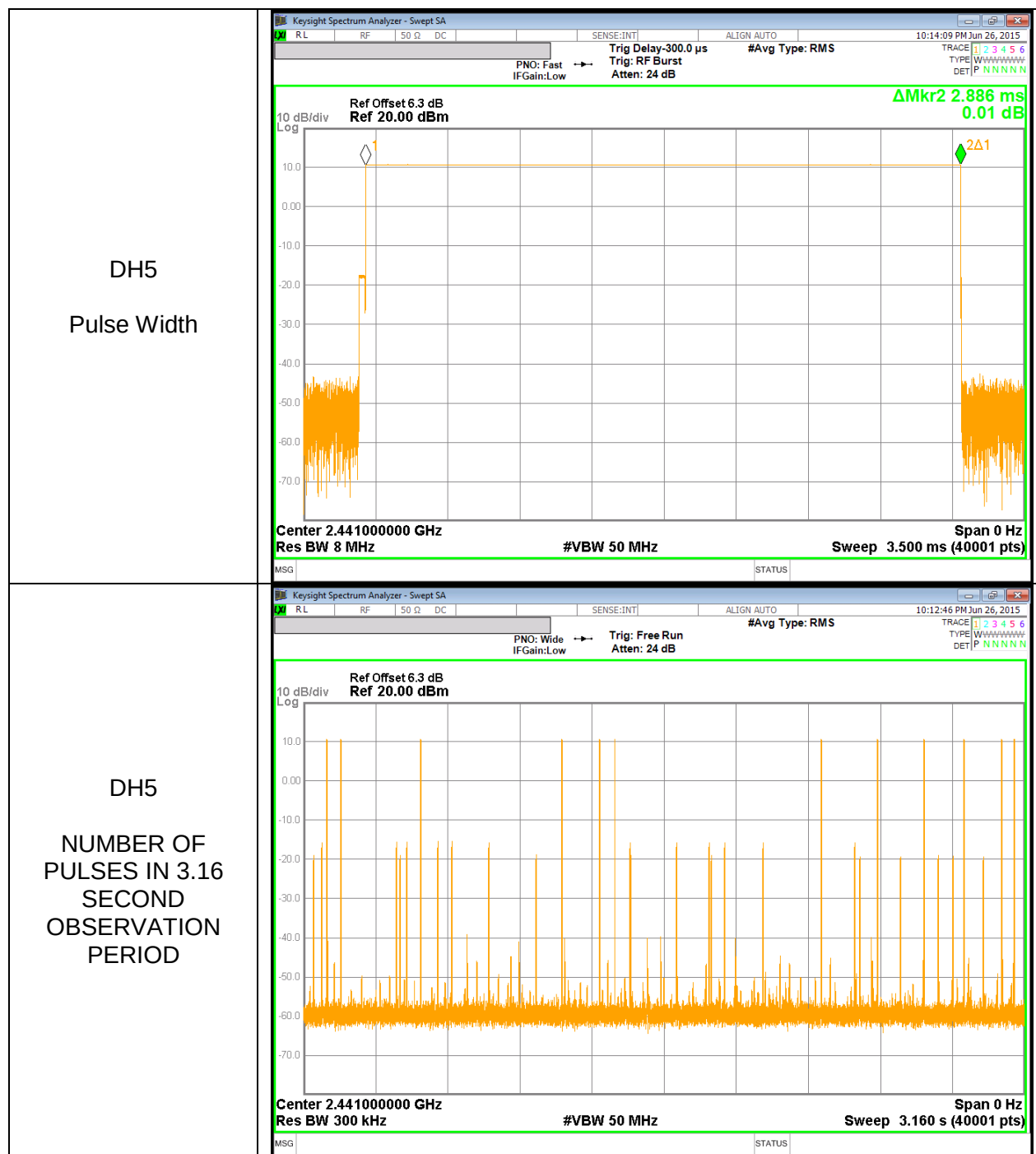
DH1



DH3



DH5



8.5. OUTPUT POWER

LIMIT

§15.247 (b) (1)

The maximum antenna gain is less than 6 dBi, therefore the limit is 21 dBm.

TEST PROCEDURE

DA 00-705: The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

RESULTS

8.5.1. BASIC DATA RATE GFSK MODULATION

Channel	Frequency [MHz]	Output Power [dBm]	Limit [dBm]	Margin [dB]
Low	2402	10.337	21	-10.663
Middle	2441	10.681	21	-10.319
High	2480	9.125	21	-11.875
Worst		10.681	21	-10.319

8.5.2. ENHANCED DATA RATE Pi/4-DPSK MODULATION

Channel	Frequency [MHz]	Output Power [dBm]	Limit [dBm]	Margin [dB]
Low	2402	8.829	21	-12.171
Middle	2441	9.027	21	-11.973
High	2480	7.649	21	-13.351
Worst		9.027	21	-11.973

8.5.3. ENHANCED DATA RATE 8PSK MODULATION

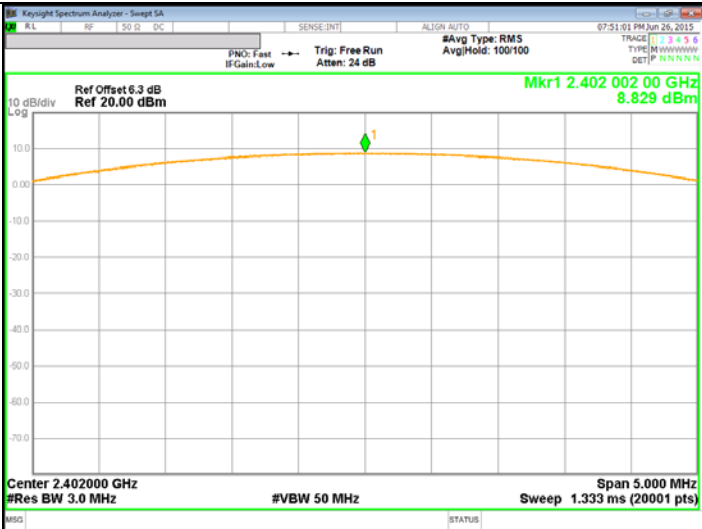
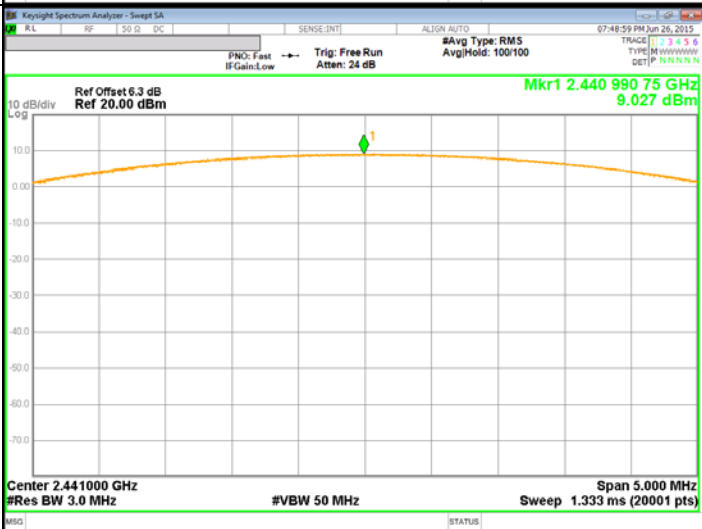
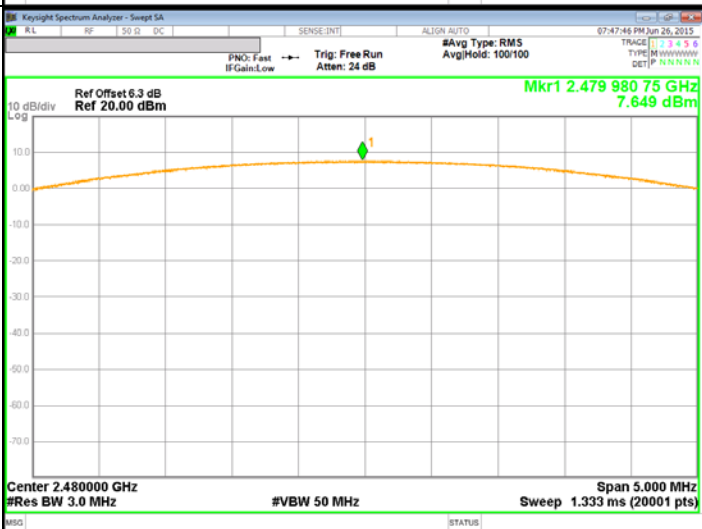
Channel	Frequency [MHz]	Output Power [dBm]	Limit [dBm]	Margin [dB]
Low	2402	9.215	21	-11.785
Middle	2441	9.389	21	-11.611
High	2480	7.993	21	-13.007
Worst		9.389	21	-11.611

8.5.4. OUTPUT POWER PLOTS

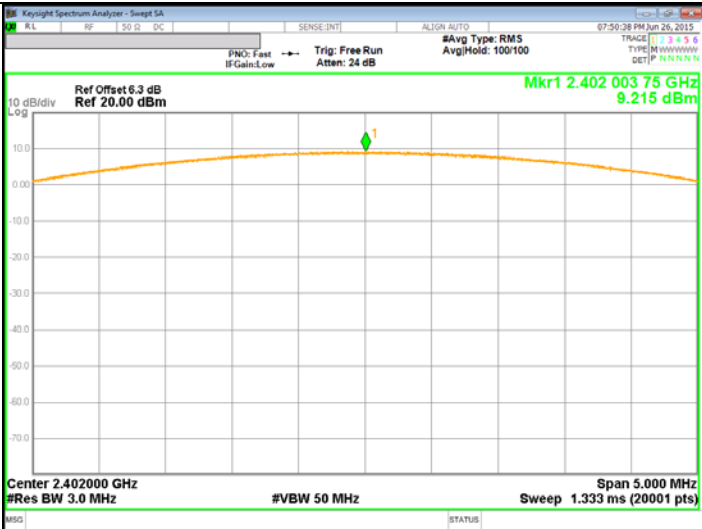
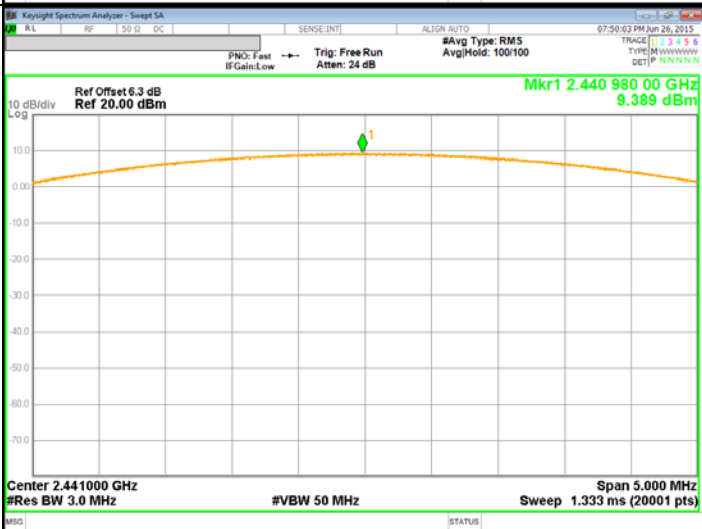
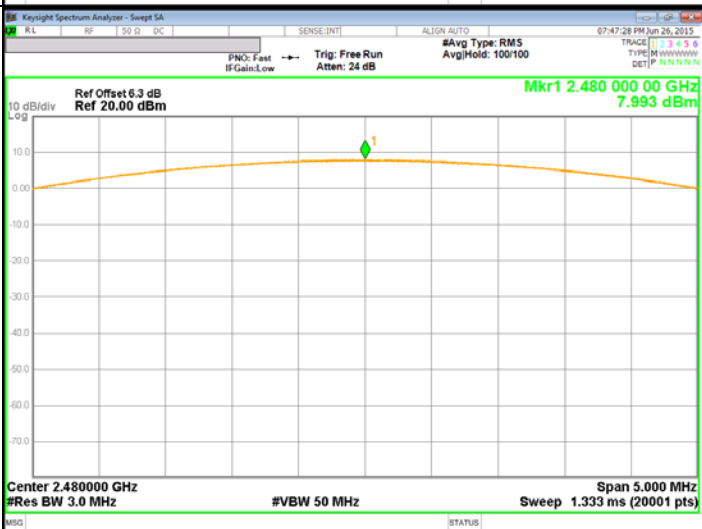
GFSK OUTPUT POWER

GFSK Low CH	 KeySight Spectrum Analyzer - Swept SA RL RF 50 Ω DC SENSE:INT ALIGN: AUTO 07:51:22 PM Jun 26, 2015 PNO: Fast IF Gain: Low Trig: Free Run Atten: 24 dB #Avg Type: RMS Avg/Hold: 100/100 Ref Offset 6.3 dB Ref 20.00 dBm Mkr1 2.401 847 25 GHz 10.337 dBm 10 dB/div Log Center 2.402000 GHz #Res BW 3.0 MHz #VBW 50 MHz Span 5.000 MHz Sweep 1.333 ms (20001 pts) MSG STATUS
GFSK Middle CH	 KeySight Spectrum Analyzer - Swept SA RL RF 50 Ω DC SENSE:INT ALIGN: AUTO 07:48:42 PM Jun 26, 2015 PNO: Fast IF Gain: Low Trig: Free Run Atten: 24 dB #Avg Type: RMS Avg/Hold: 100/100 Ref Offset 6.3 dB Ref 20.00 dBm Mkr1 2.440 858 50 GHz 10.681 dBm 10 dB/div Log Center 2.441000 GHz #Res BW 3.0 MHz #VBW 50 MHz Span 5.000 MHz Sweep 1.333 ms (20001 pts) MSG STATUS
GFSK High CH	 KeySight Spectrum Analyzer - Swept SA RL RF 50 Ω DC SENSE:INT ALIGN: AUTO 07:48:04 PM Jun 26, 2015 PNO: Fast IF Gain: Low Trig: Free Run Atten: 24 dB #Avg Type: RMS Avg/Hold: 100/100 Ref Offset 6.3 dB Ref 20.00 dBm Mkr1 2.479 847 00 GHz 9.125 dBm 10 dB/div Log Center 2.480000 GHz #Res BW 3.0 MHz #VBW 50 MHz Span 5.000 MHz Sweep 1.333 ms (20001 pts) MSG STATUS

Pi/4-DPSK OUTPUT POWER

Pi/4-DPSK Low CH	 Key: Keysight Spectrum Analyzer - Sweep SA Ref Offset: 6.3 dB Ref: 20.00 dBm Mkr1 2.402 002 00 GHz 8.829 dBm Center 2.402000 GHz #Res BW 3.0 MHz #VBW 50 MHz Span 5.000 MHz Sweep 1.333 ms (20001 pts)
Pi/4-DPSK Middle CH	 Key: Keysight Spectrum Analyzer - Sweep SA Ref Offset: 6.3 dB Ref: 20.00 dBm Mkr1 2.440 990 75 GHz 9.027 dBm Center 2.441000 GHz #Res BW 3.0 MHz #VBW 50 MHz Span 5.000 MHz Sweep 1.333 ms (20001 pts)
Pi/4-DPSK High CH	 Key: Keysight Spectrum Analyzer - Sweep SA Ref Offset: 6.3 dB Ref: 20.00 dBm Mkr1 2.479 980 75 GHz 7.649 dBm Center 2.480000 GHz #Res BW 3.0 MHz #VBW 50 MHz Span 5.000 MHz Sweep 1.333 ms (20001 pts)

8PSK OUTPUT POWER

8PSK Low CH	
8PSK Middle CH	
8PSK High CH	

8.6. AVERAGE POWER

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

DA 00-705: The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 10.1 dB (including 10 dB pad and 0.1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

8.6.1. BASIC DATA RATE GFSK MODULATION

Channel	Frequency [MHz]	AV power [dBm]	AV power [mW]
Low	2402	10.21	10.49
Middle	2441	10.53	11.30
High	2480	8.94	7.83

8.6.2. DATA RATE PI/4-DQPSK MODULATION

Channel	Frequency [MHz]	AV power [dBm]	AV power [mW]
Low	2402	6.41	4.38
Middle	2441	6.65	4.63
High	2480	5.30	3.38

8.6.3. ENHANCED DATA RATE 8PSK MODULATION

Channel	Frequency [MHz]	AV power [dBm]	AV power [mW]
Low	2402	6.50	4.47
Middle	2441	6.72	4.70
High	2480	5.39	3.46

8.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

Limit = -20 dBc

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.

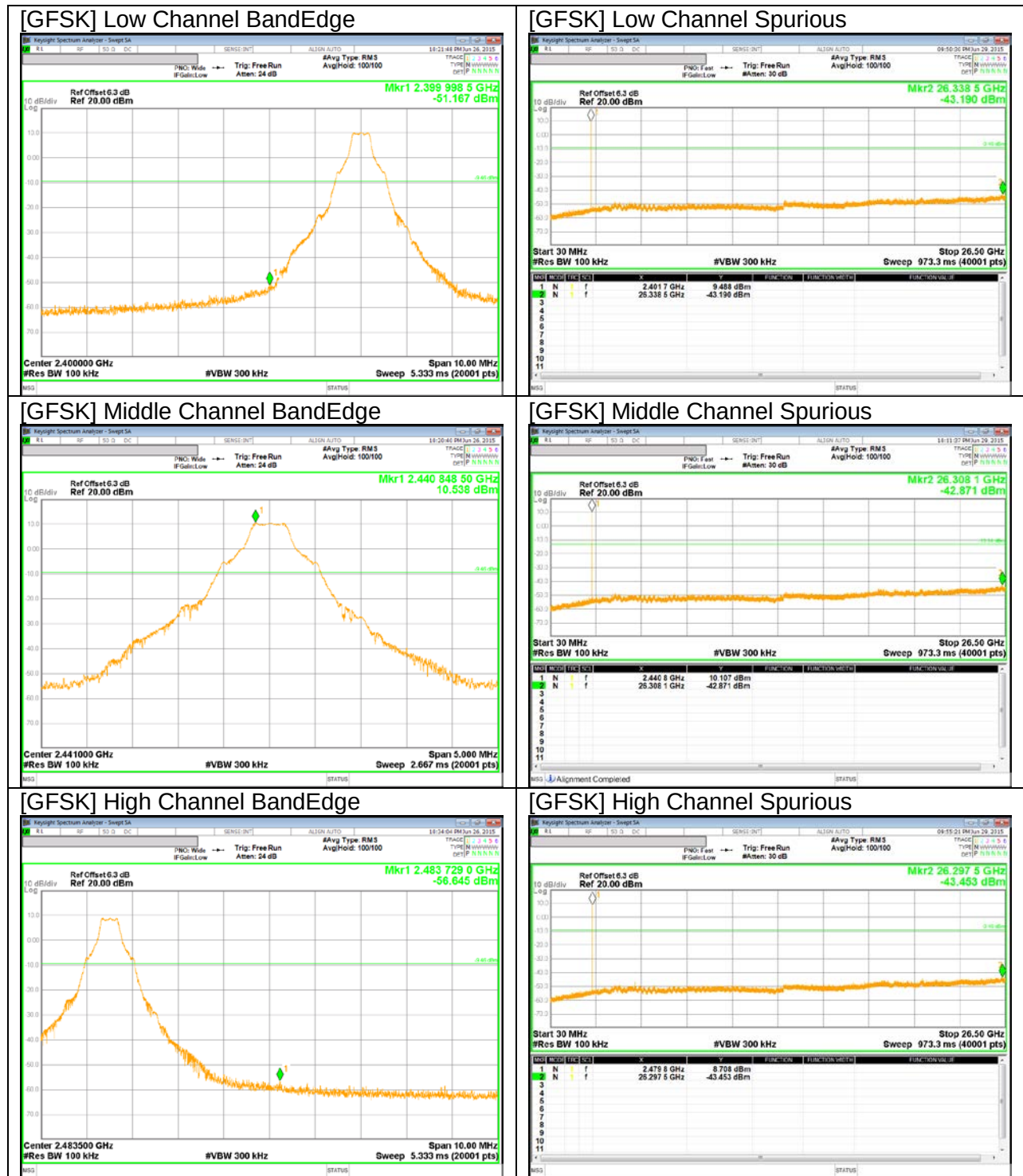
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

The bandedges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

RESULTS

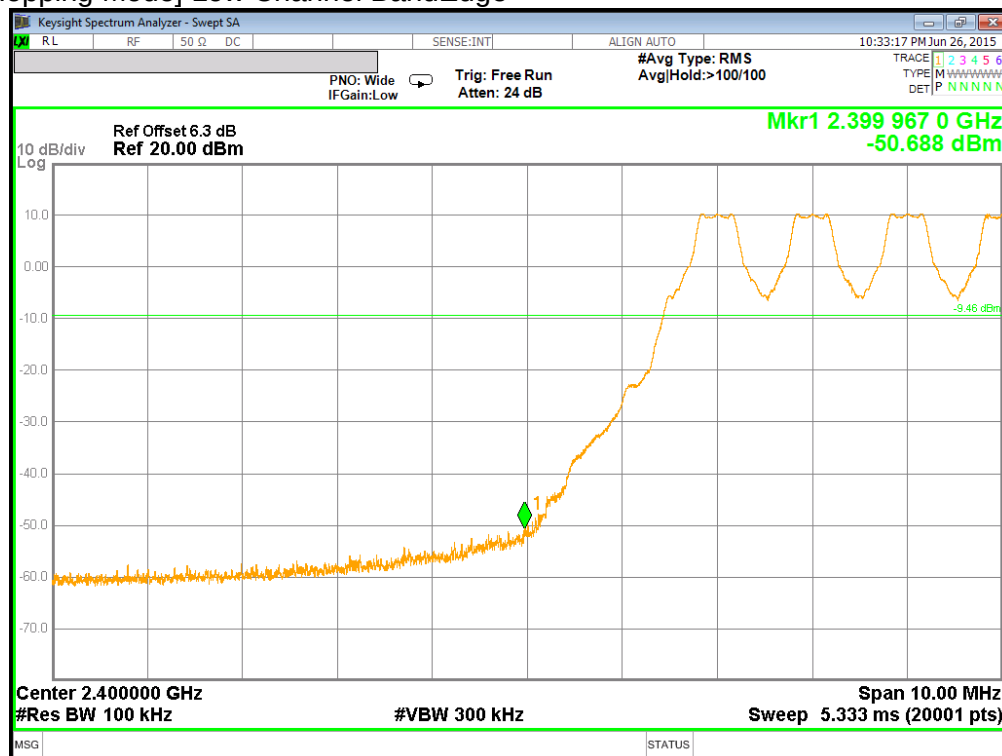
8.7.1. BASIC DATA RATE GFSK MODULATION

GFSK Mode

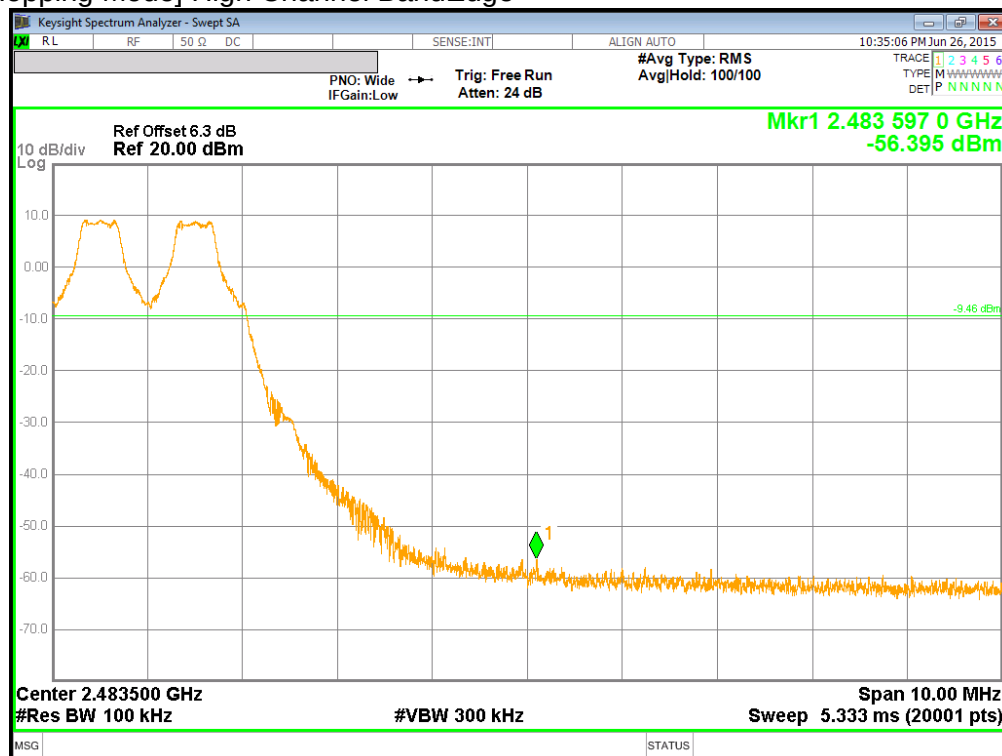


BandEdge Emission at GFSK Hopping Mode

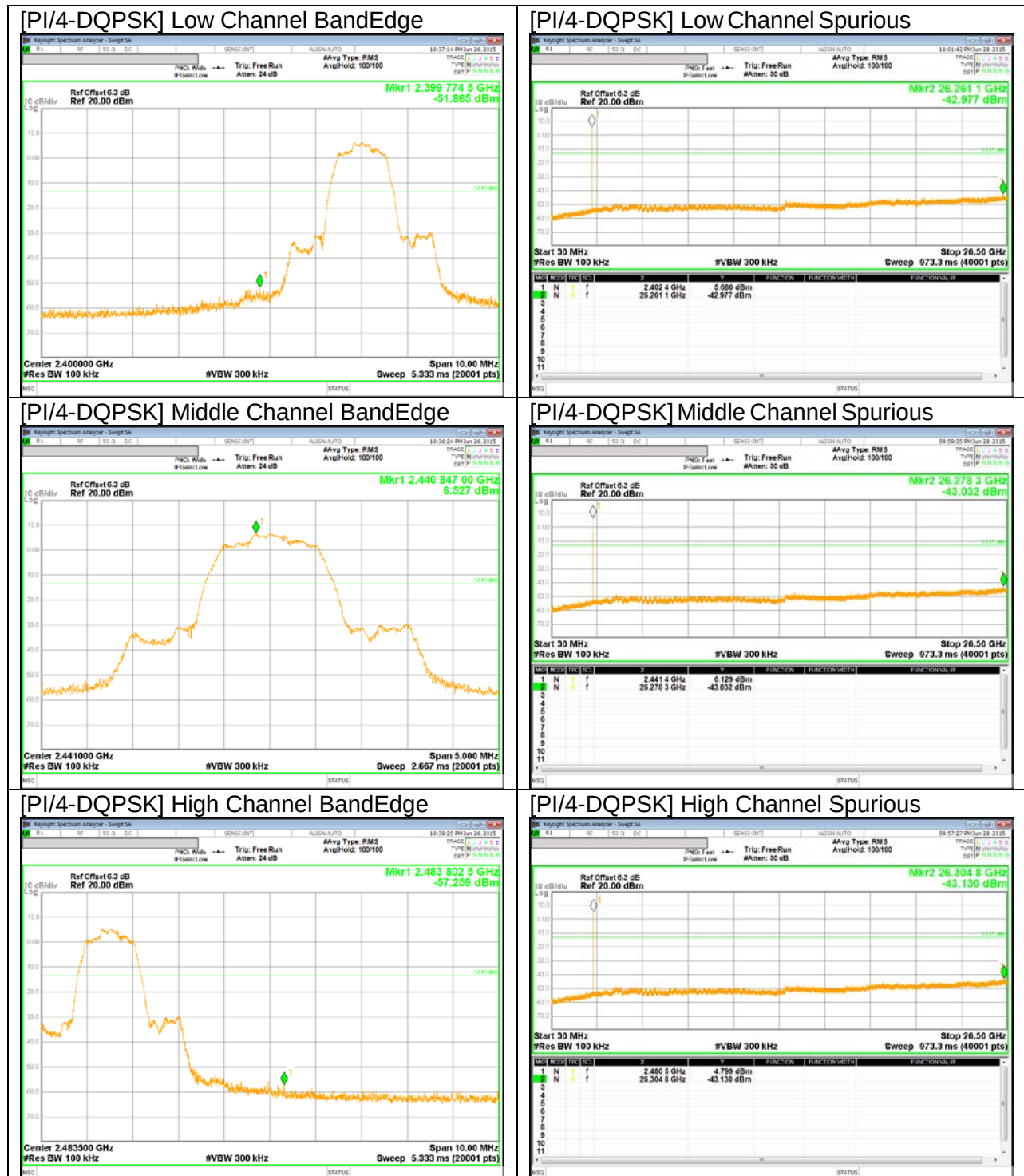
[GFSK Hopping Mode] Low Channel BandEdge



[GFSK Hopping Mode] High Channel BandEdge

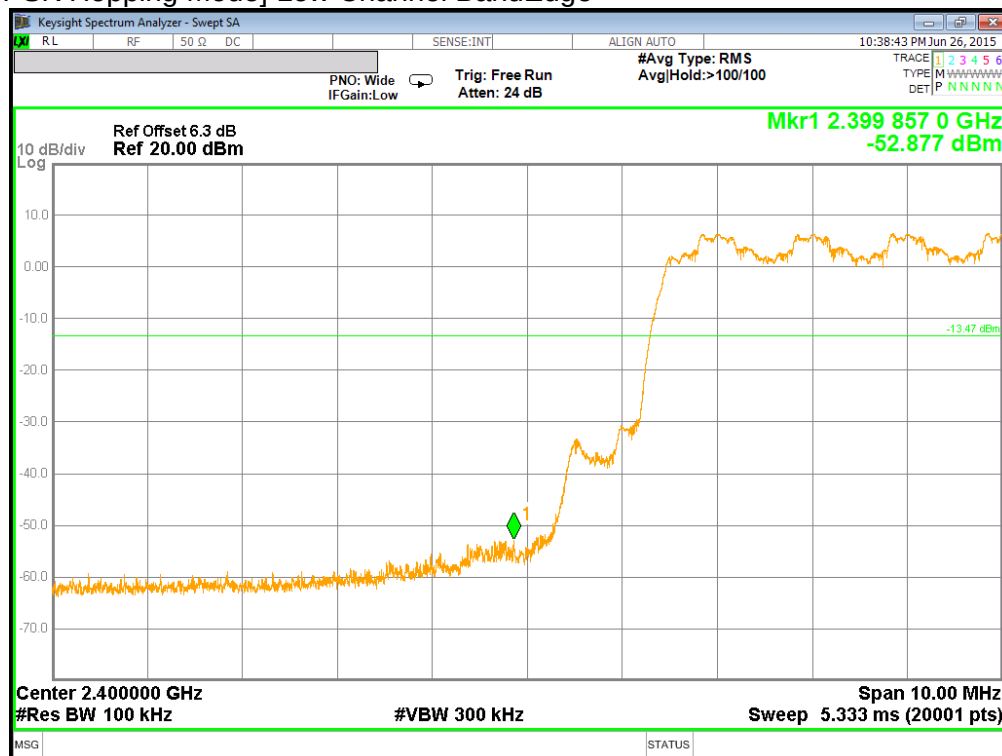


PI/4-DQPSK Mode

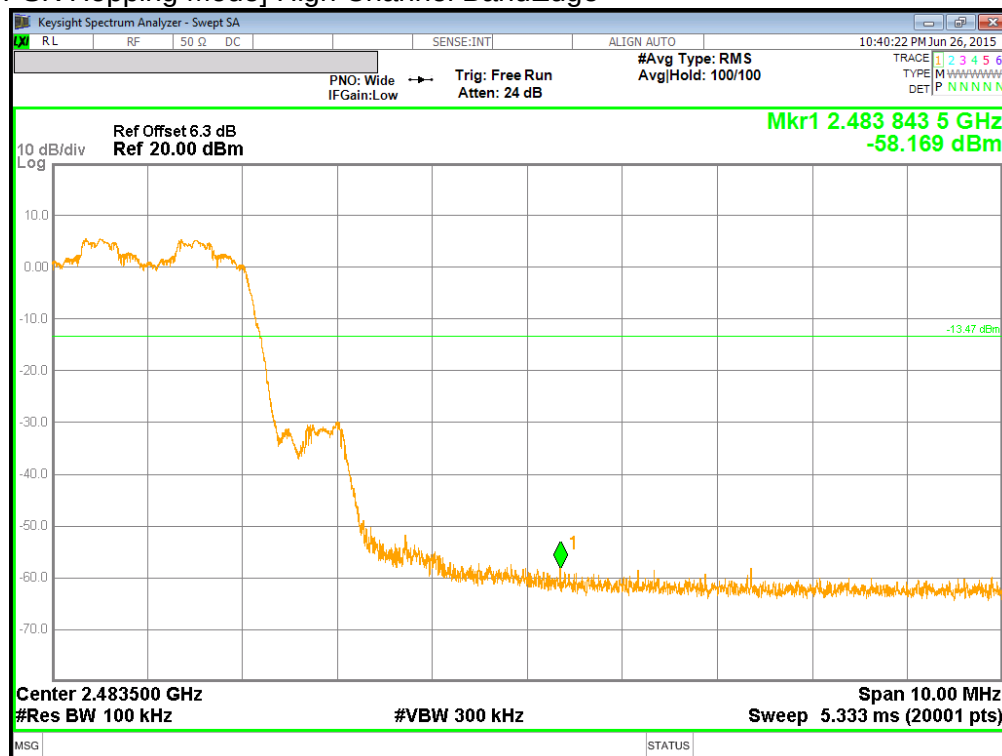


BandEdge Emission at PI/4-DQPSK Hopping Mode

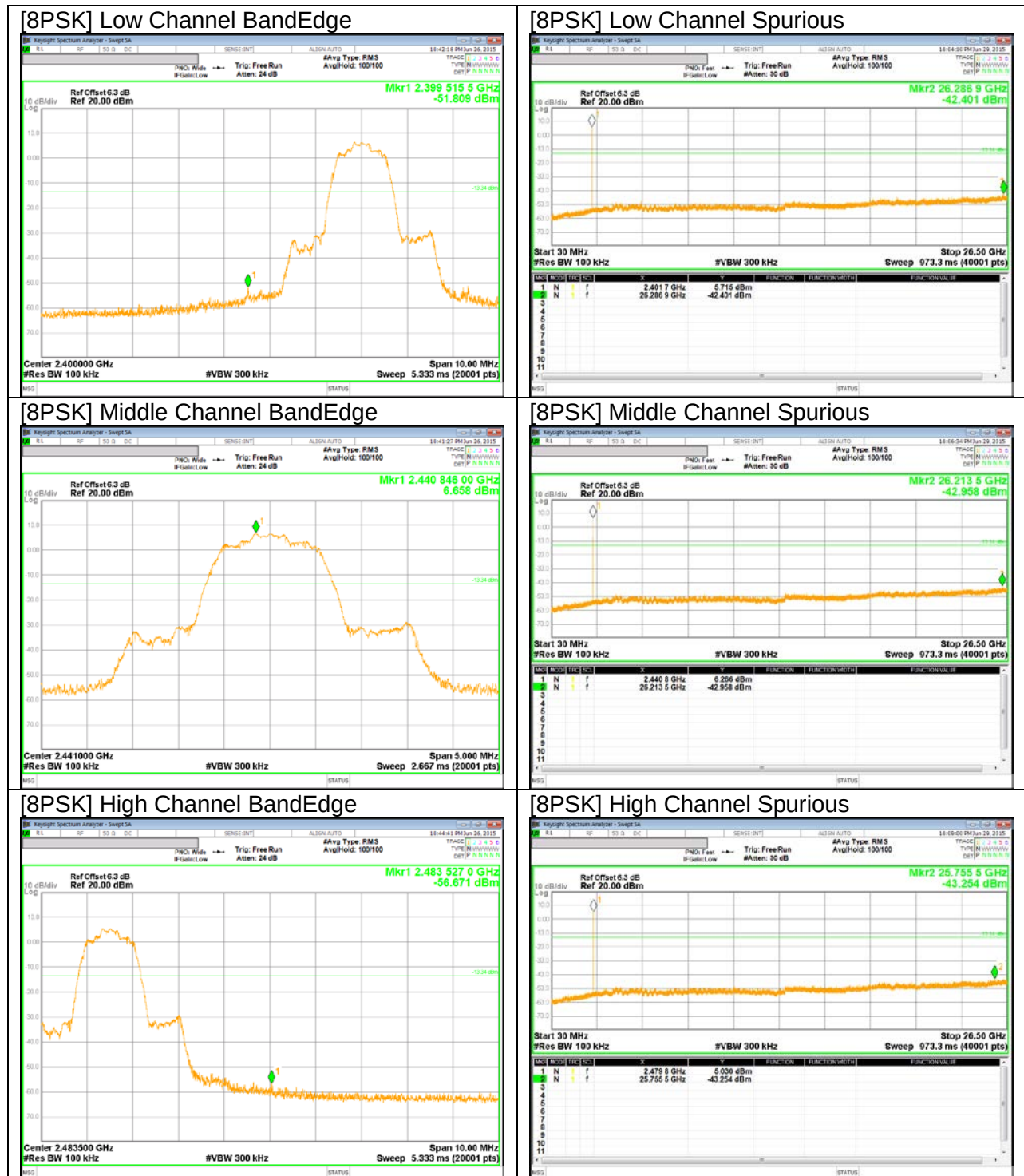
[PI/4-DQPSK Hopping Mode] Low Channel BandEdge



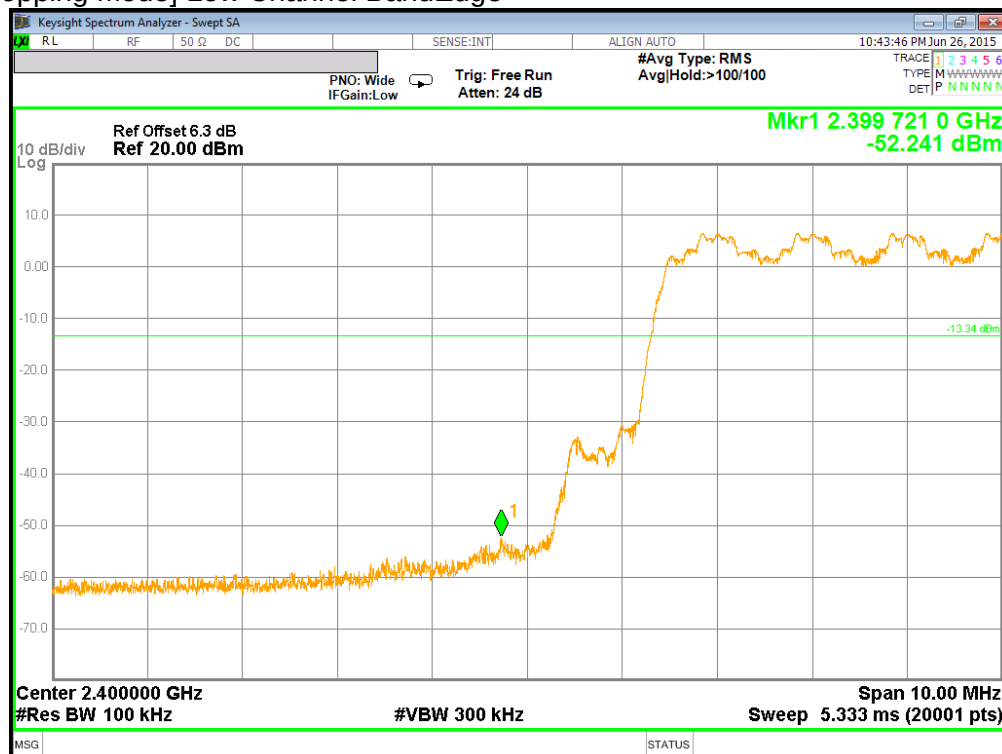
[PI/4-DQPSK Hopping Mode] High Channel BandEdge



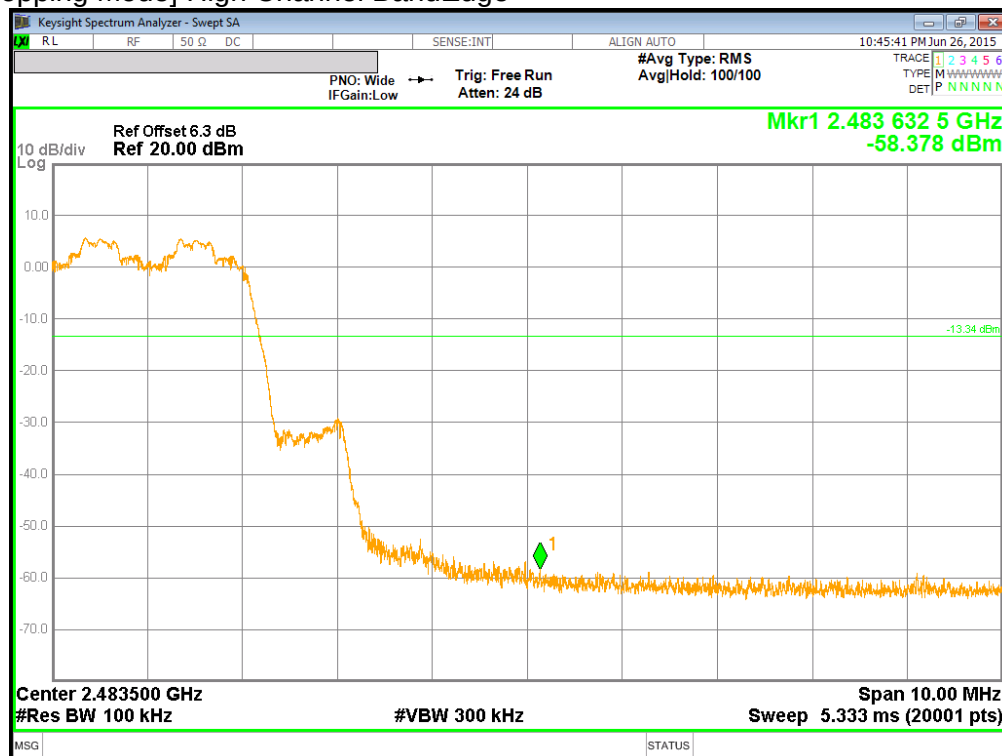
8PSK Mode



[8PSK Hopping Mode] Low Channel BandEdge



[8PSK Hopping Mode] High Channel BandEdge



9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

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. 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 band edge 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 1/T (on time) for average measurement.

$$\text{GFSK} = 1/T = 1 / 0.0029\text{S} = 350\text{Hz}.$$

The spectrum from 1GHzHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

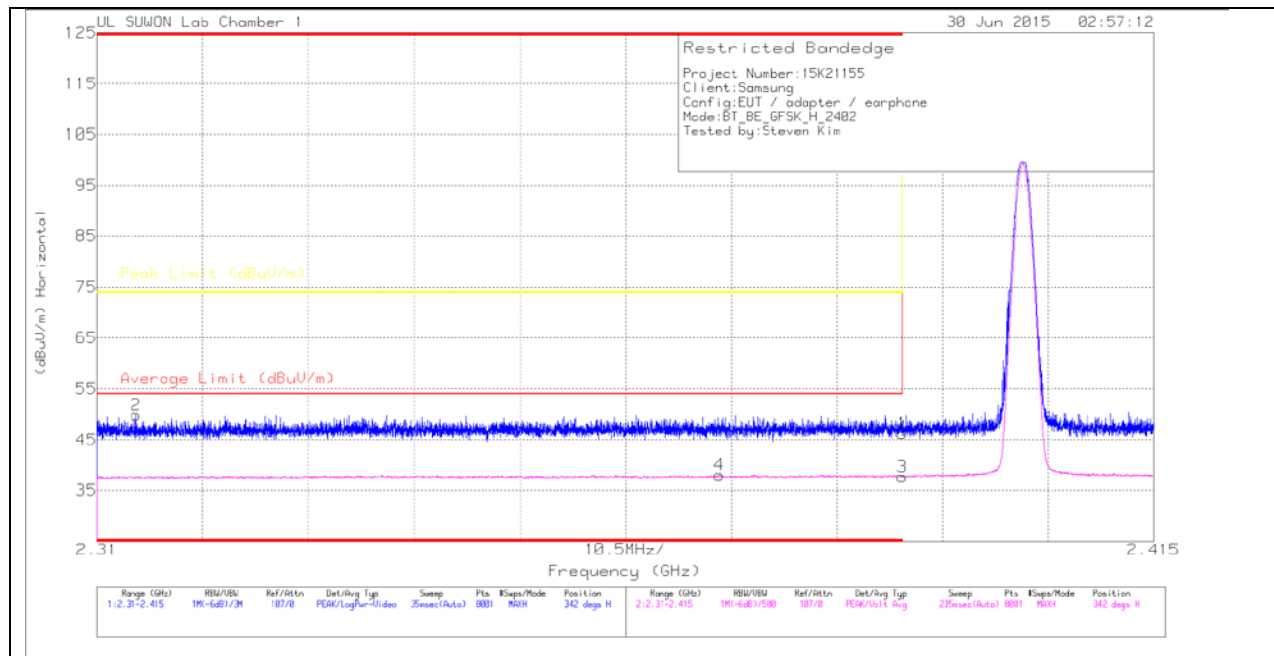
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

9.2. TRANSMITTER ABOVE 1 GHz

9.2.1. BASIC DATA RATE GFSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

TRACE MARKERS

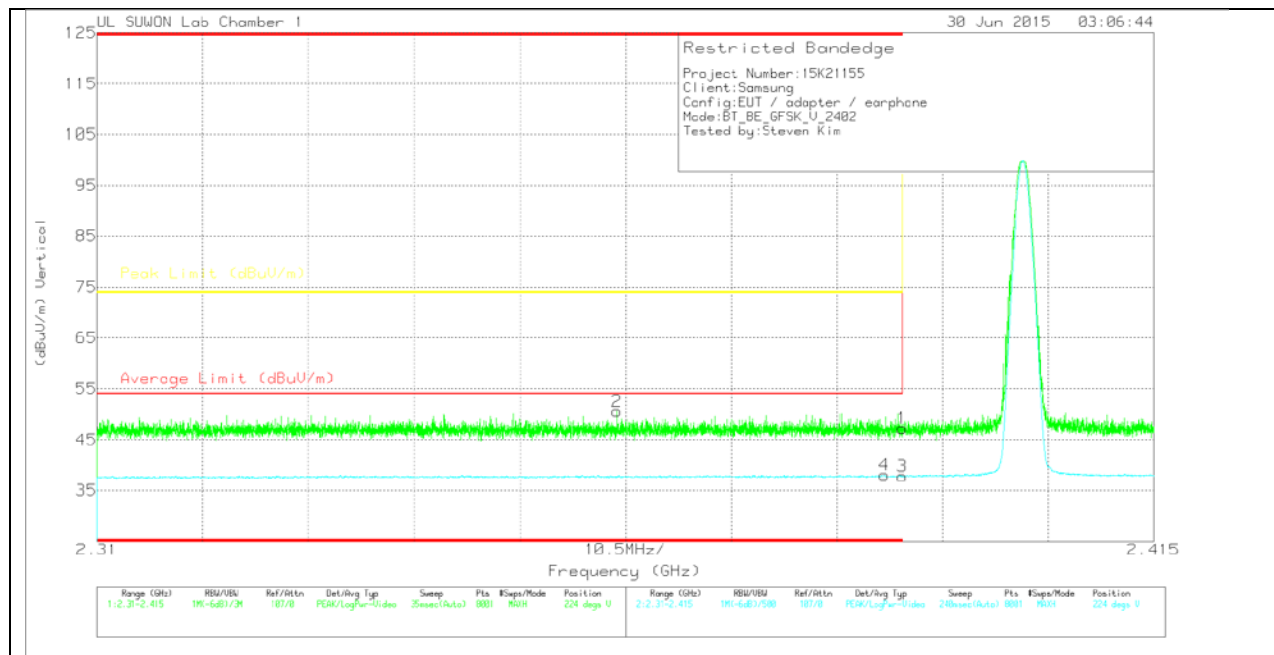
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8717)_150 619	Path_2_10 dB	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	37.29	Pk	31.8	-22.8	46.29	-	-	74	-27.71	342	102	H
2	* 2.314	41.06	Pk	31.7	-22.9	49.86	-	-	74	-24.14	342	102	H
3	* 2.39	28.73	VB1T	31.8	-22.8	37.73	54	-16.27	-	-	342	102	H
4	* 2.372	29.11	VB1T	31.8	-22.8	38.11	54	-15.89	-	-	342	102	H

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

Pk - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

TRACE MARKERS

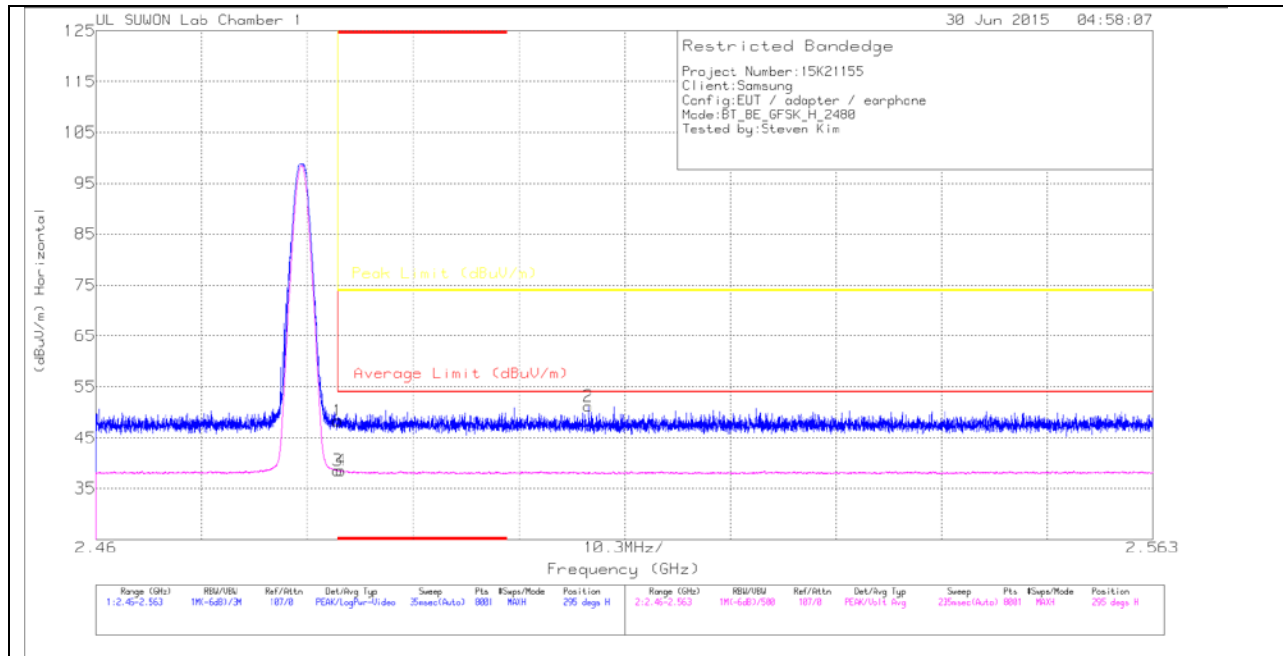
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8717)_150 619	Path_2_10 dB	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.2	Pk	31.8	-22.8	47.2	-	-	74	-26.8	224	314	V
2	* 2.362	41.67	Pk	31.7	-22.8	50.57	-	-	74	-23.43	224	314	V
3	* 2.39	28.88	VB1T	31.8	-22.8	37.88	54	-16.12	-	-	224	314	V
4	* 2.388	29.03	VB1T	31.8	-22.8	38.03	54	-15.97	-	-	224	314	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted BandPk - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

TRACE MARKERS

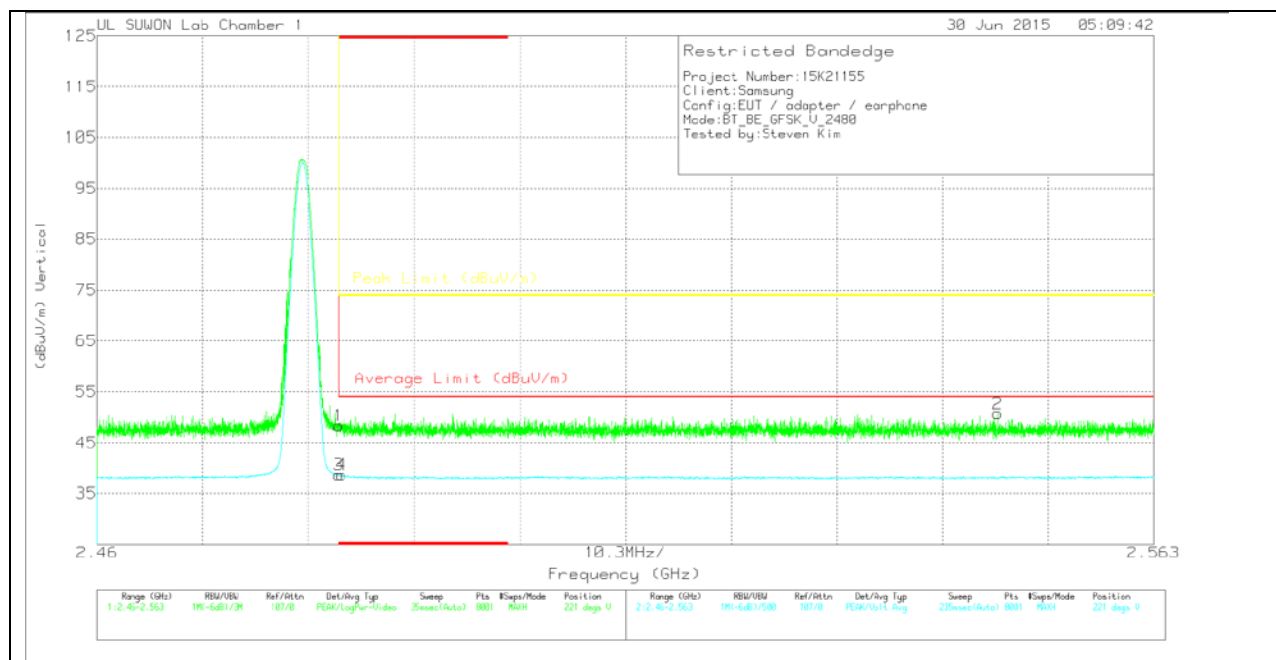
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8717)_150 619	Path_2_10 dB	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	38.92	Pk	32	-22.6	48.32	-	-	74	-25.68	295	101	H
2	2.508	41.83	Pk	32	-22.6	51.23	-	-	74	-22.77	295	101	H
3	* 2.484	29.12	VB1T	32	-22.6	38.52	54	-15.48	-	-	295	101	H
4	* 2.484	29.19	VB1T	32	-22.6	38.59	54	-15.41	-	-	295	101	H

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

Pk - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8717)_150 619	Path_2_10 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	38.95	Pk	32	-22.6	48.35	-	-	74	-25.65	221	366	V
2	2.548	41.33	Pk	32	-22.6	50.73	-	-	74	-23.27	221	366	V
3	* 2.484	29.27	VB1T	32	-22.6	38.67	54	-15.33	-	-	221	366	V
4	* 2.484	29.26	VB1T	32	-22.6	38.66	54	-15.34	-	-	221	366	V

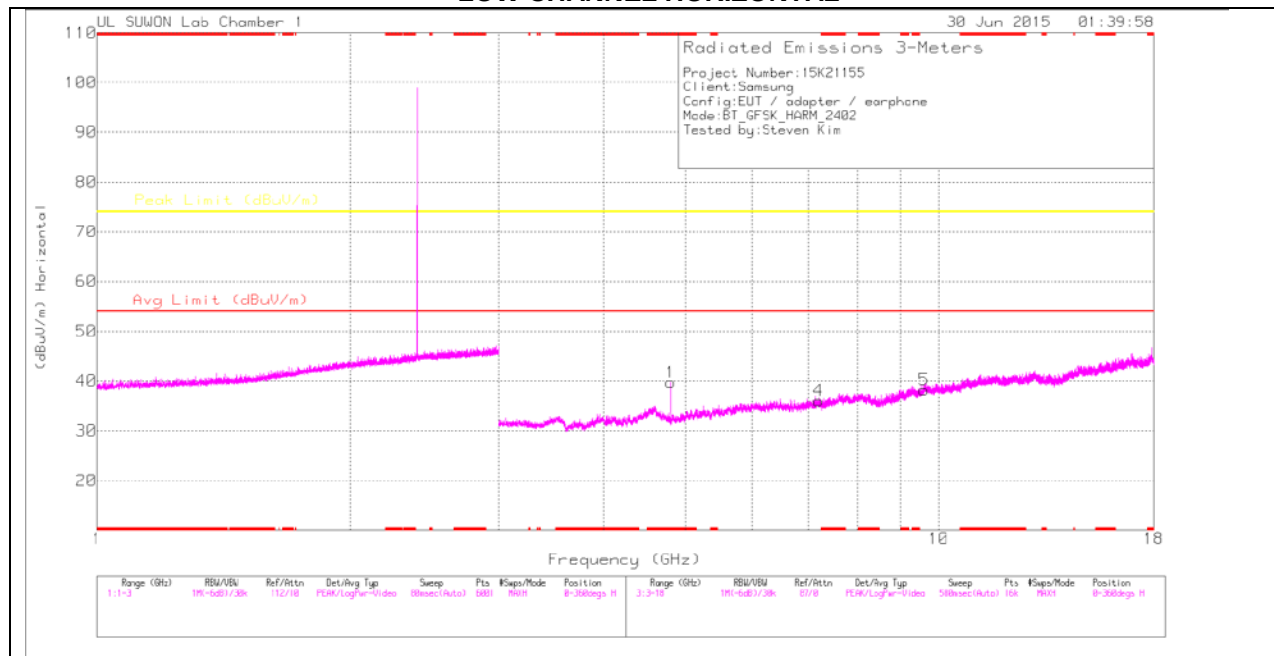
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

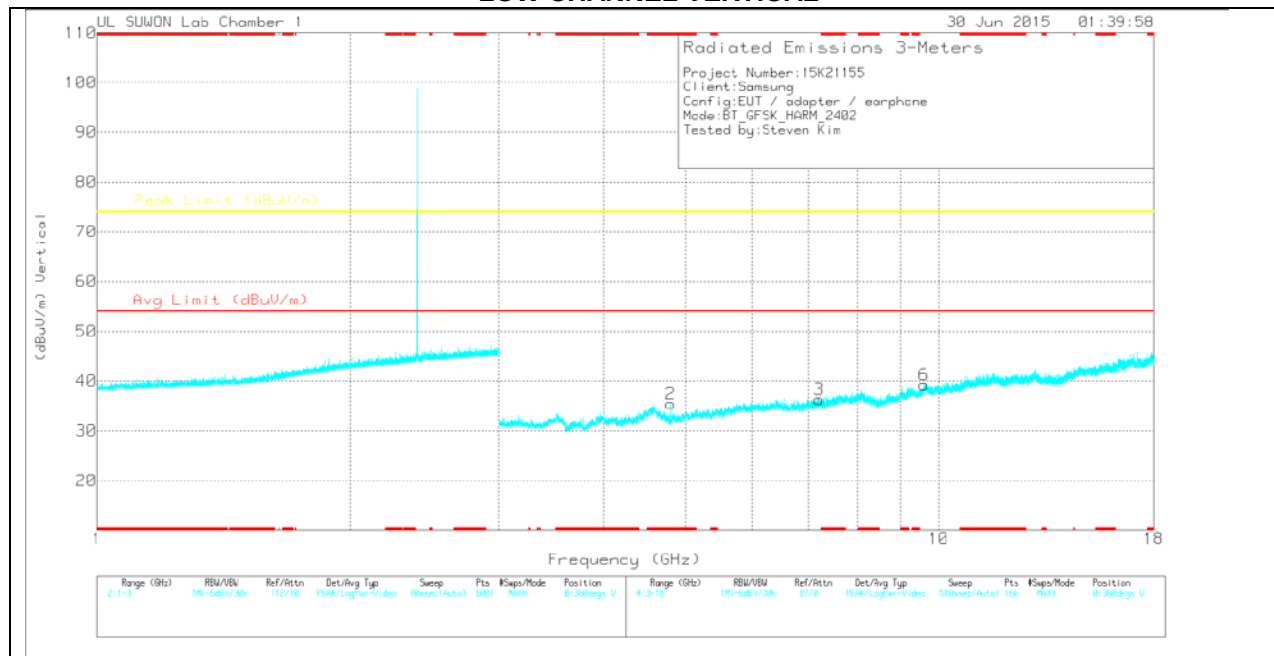
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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	3117(00168 717)_15061 9	Path_3_3 GHP	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.804	35.57	PK	34	-29.8	39.77	-	-	74	-34.23	0-360	100	H
4	7.203	25.71	PK	35.7	-25.4	36.01	-	-	-	-	0-360	100	H
5	9.608	22.22	PK	37	-21	38.22	-	-	-	-	0-360	200	H
2	* 4.804	31.22	PK	34	-29.8	35.42	-	-	74	-38.58	0-360	200	V
3	7.206	26.03	PK	35.7	-25.4	36.33	-	-	-	-	0-360	100	V
6	9.608	23.19	PK	37	-21	39.19	-	-	-	-	0-360	200	V

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

PK – Peak detector

Radiated Emissions

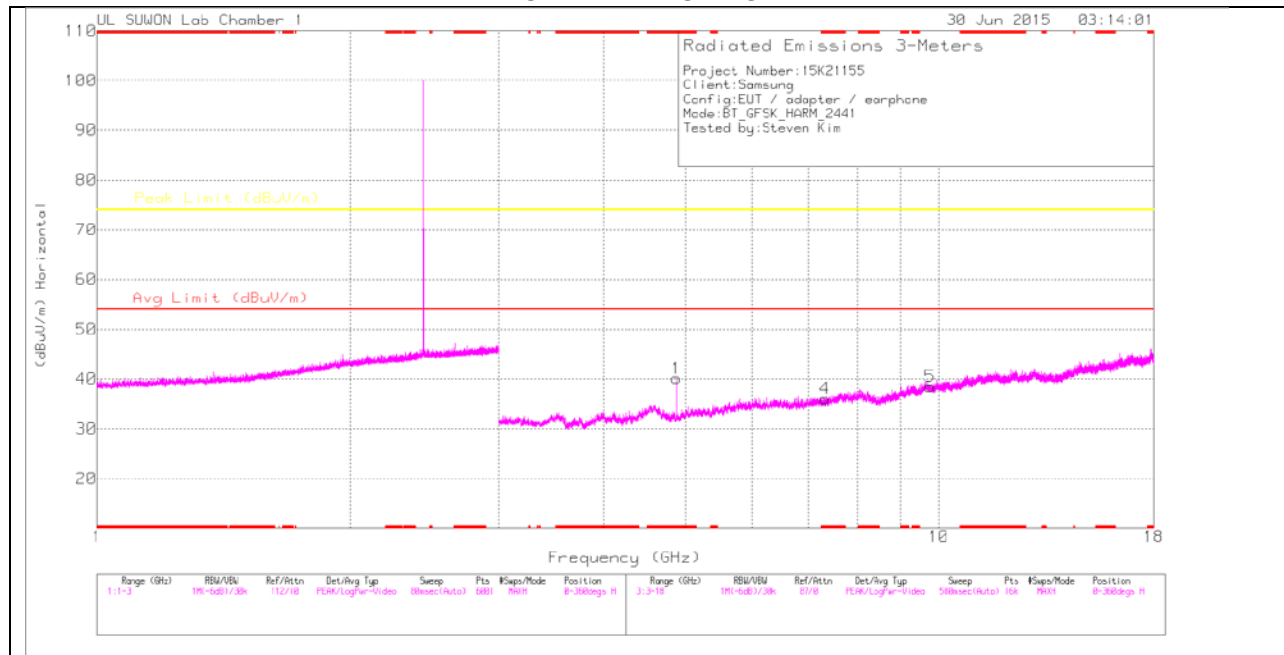
Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8717)_150 619	Path_3_3G HP	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.804	43.23	PK3	34	-29.8	47.43	-	-	74	-26.57	329	111	H
* 4.804	35.9	VB1T	34	-29.8	40.1	54	-13.9	-	-	329	111	H
* 4.803	39.88	PK3	34	-29.8	44.08	-	-	74	-29.92	54	206	V
* 4.803	25.07	VB1T	34	-29.8	29.27	54	-24.73	-	-	54	206	V

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

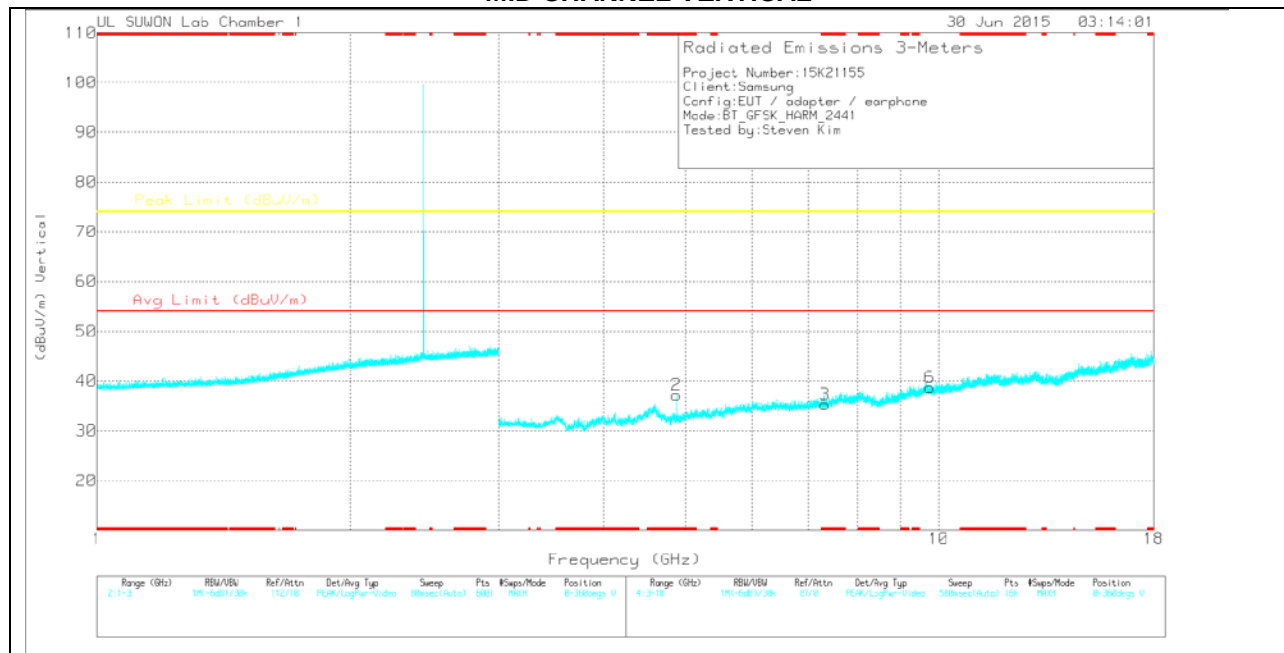
PK3 - FHSS Method: Maximum Peak

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

MID CHANNEL HORIZONTAL



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	3117(00168 717)_15061 9	Path_3_3 GHP	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.881	35.24	PK	34	-29.1	40.14	-	-	74	-33.86	0-360	100	H
4	* 7.324	25.91	PK	35.8	-25.6	36.11	-	-	74	-37.89	0-360	100	H
5	9.766	23.31	PK	37.2	-22.1	38.41	-	-	-	-	0-360	100	H
2	* 4.881	32.32	PK	34	-29.1	37.22	-	-	74	-36.78	0-360	200	V
3	* 7.323	25.1	PK	35.8	-25.6	35.3	-	-	74	-38.7	0-360	100	V
6	9.765	23.49	PK	37.2	-22	38.69	-	-	-	-	0-360	100	V

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

PK – Peak detector

Radiated Emissions

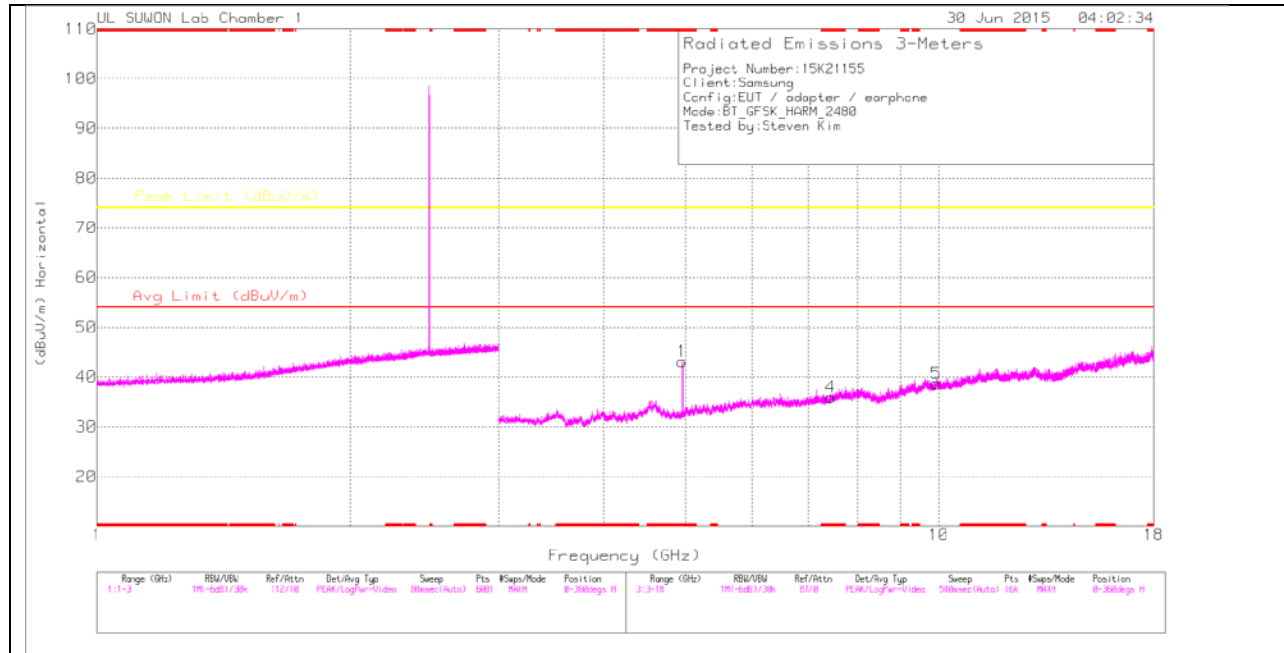
Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8717)_150 619	Path_3_3G HP	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.882	42.03	PK3	34	-29.1	46.93	-	-	74	-27.07	323	104	H
* 4.882	34.76	VB1T	34	-29.1	39.66	54	-14.34	-	-	323	104	H
* 4.879	33.84	PK3	34	-29.1	38.74	-	-	74	-35.26	323	200	V
* 4.881	24.55	VB1T	34	-29.1	29.45	54	-24.55	-	-	323	200	V

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

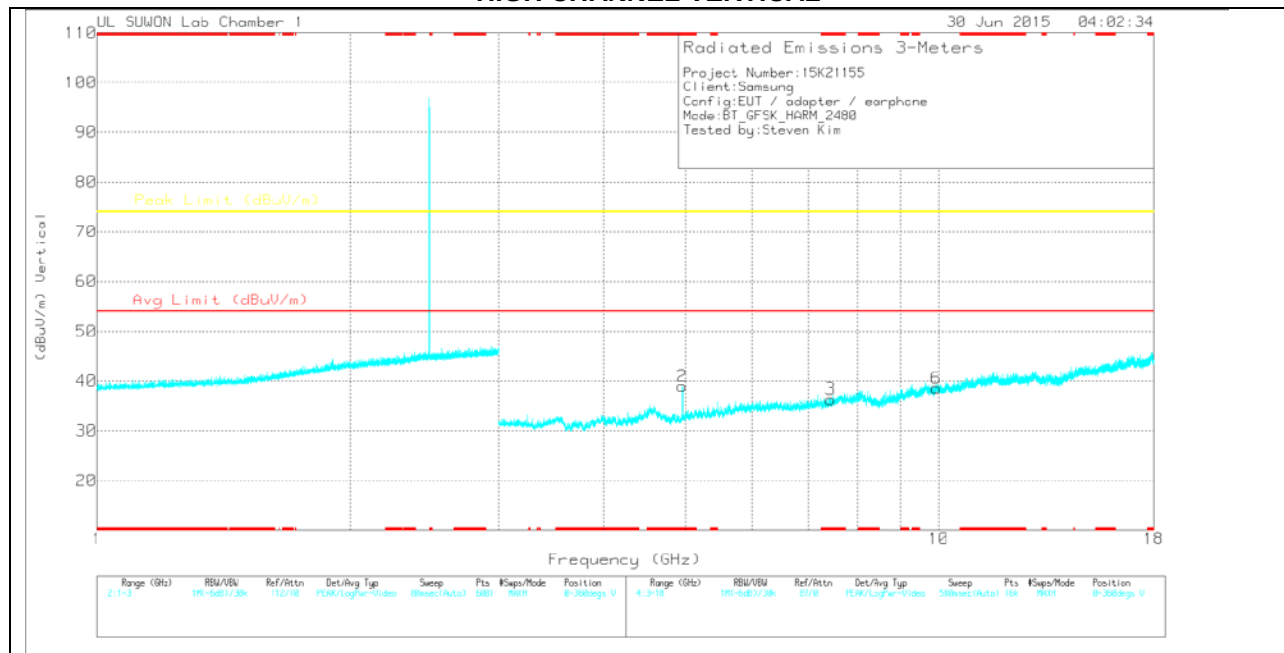
PK3 - FHSS Method: Maximum Peak

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

HIGH CHANNEL HORIZONTAL



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.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168 717)_15061 9	Path_3_3 GHP	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.959	38	PK	34	-28.9	43.1	-	-	74	-30.9	0-360	100	H
4	* 7.437	24.93	PK	35.8	-24.8	35.93	-	-	74	-38.07	0-360	100	H
5	9.919	21.67	PK	37.4	-20.4	38.67	-	-	-	-	0-360	200	H
2	* 4.959	33.86	PK	34	-28.9	38.96	-	-	74	-35.04	0-360	200	V
3	* 7.441	25.38	PK	35.8	-24.8	36.38	-	-	74	-37.62	0-360	100	V
6	9.923	21.56	PK	37.4	-20.4	38.56	-	-	-	-	0-360	200	V

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

PK – Peak detector

Radiated Emissions

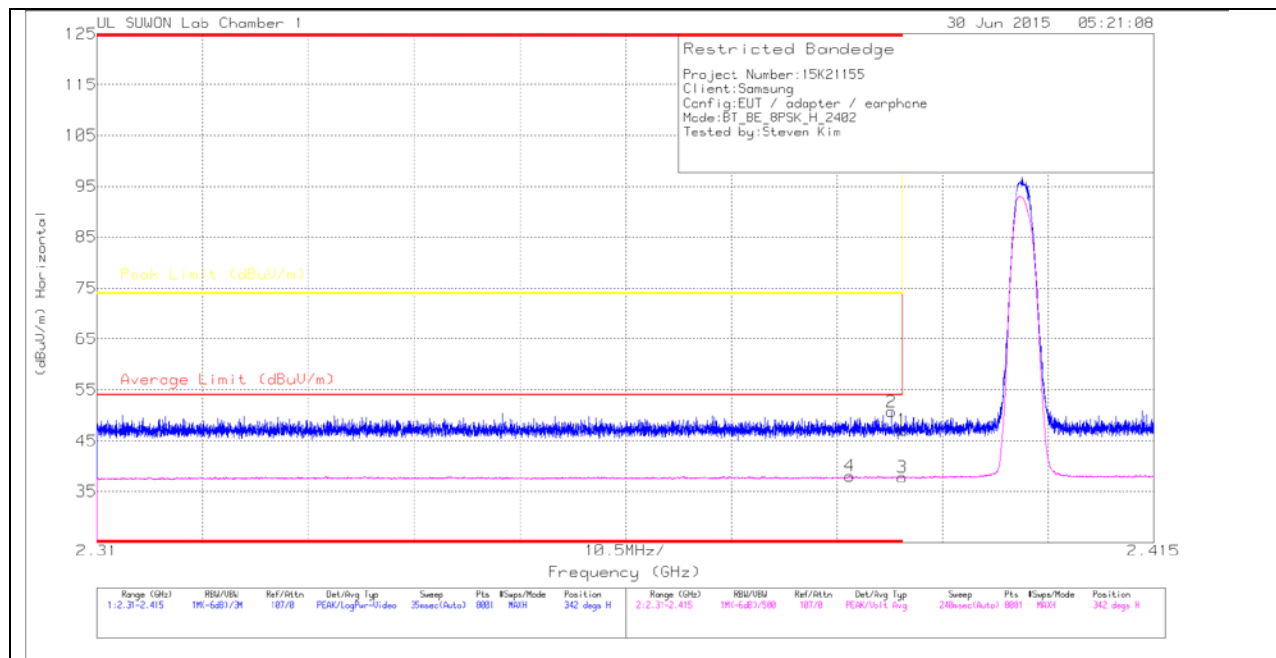
Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8717)_150 619	Path_3_3G HP	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.96	40.09	PK3	34	-28.9	45.19	-	-	74	-28.81	335	336	H
* 4.96	32.4	VB1T	34	-28.9	37.5	54	-16.5	-	-	335	336	H
* 4.96	41.76	PK3	34	-28.9	46.86	-	-	74	-27.14	262	335	V
* 4.96	36.11	VB1T	34	-28.9	41.21	54	-12.79	-	-	262	335	V

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

PK3 - FHSS Method: Maximum Peak

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

9.2.2. ENHANCED DATA RATE 8PSK MODULATION RESTRICTED BANDEDGE (LOW CHANNEL)



HORIZONTAL DATA

TRACE MARKERS

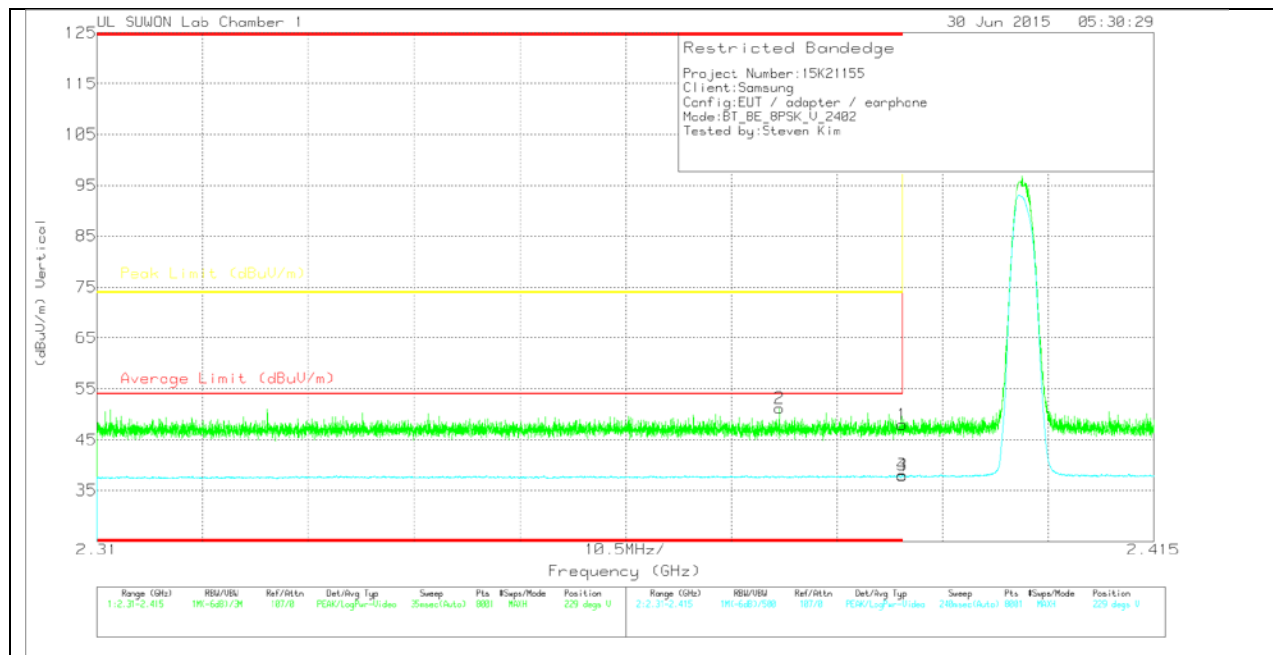
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117/0016 8717_150 619	Path_2_10 dB	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.14	Pk		-22.8	47.14	-	-	74	-26.86	342	100	H
2	* 2.389	41.71	Pk		-22.8	50.71	-	-	74	-23.29	342	100	H
3	* 2.39	28.82	VB1T		-22.8	37.82	54	-16.18	-	-	342	100	H
4	* 2.385	29.08	VB1T		-22.8	38.08	54	-15.92	-	-	342	100	H

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

Pk - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8717)_150 619	Path_2_10 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	39.03	Pk	31.8	-22.8	48.03	-	-	74	-25.97	229	316	V
2	* 2.378	42.17	Pk	31.8	-22.8	51.17	-	-	74	-22.83	229	316	V
3	* 2.39	29.05	VB1T	31.8	-22.8	38.05	54	-15.95	-	-	229	316	V
4	* 2.39	29.02	VB1T	31.8	-22.8	38.02	54	-15.98	-	-	229	316	V

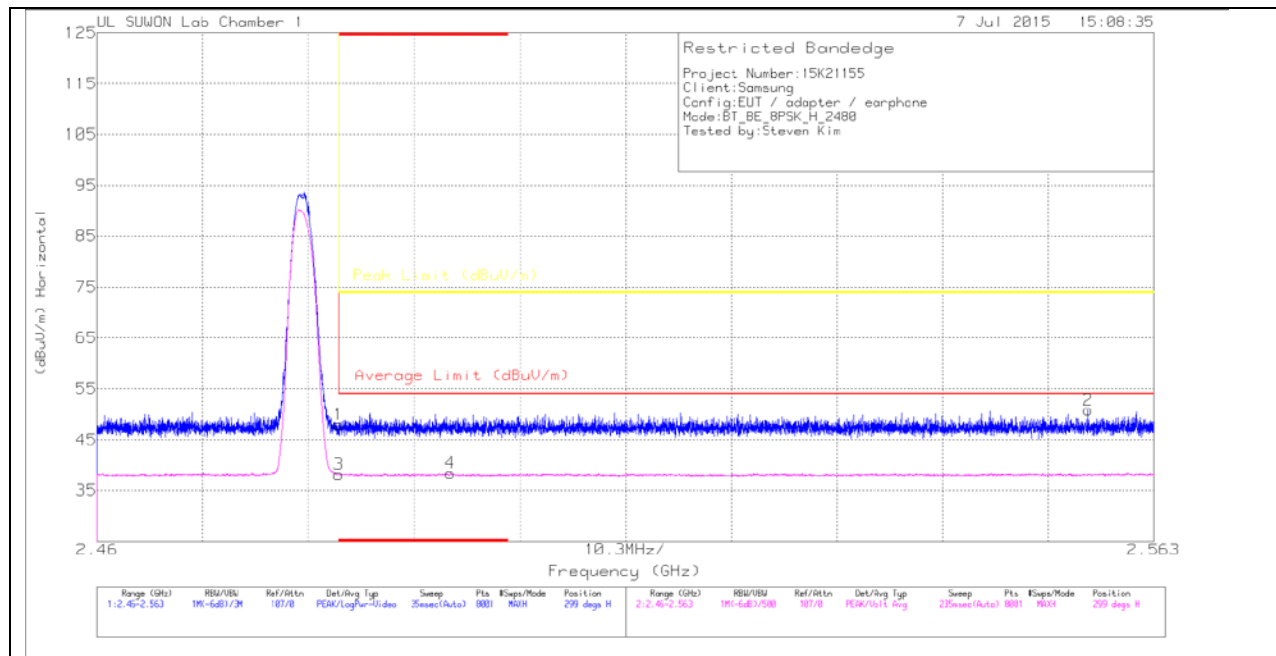
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

TRACE MARKERS

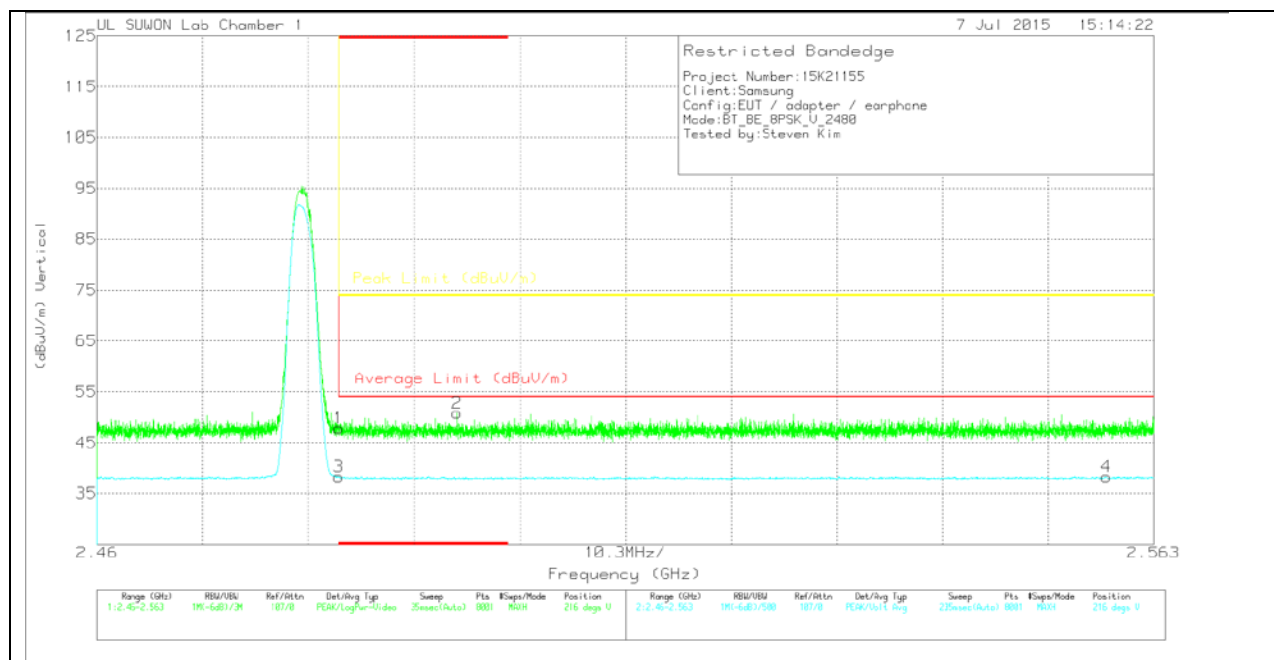
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8717)_150 619	Path_2_10 dB	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	38.55	Pk	32	-22.6	47.95	-	-	74	-26.05	299	102	H
2	2.557	41.4	Pk	32	-22.6	50.8	-	-	74	-23.2	299	102	H
3	* 2.484	28.76	VB1T	32	-22.6	38.16	54	-15.84	-	-	299	102	H
4	* 2.494	29.06	VB1T	32	-22.6	38.46	54	-15.54	-	-	299	102	H

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

Pk - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8717)_150 619	Path_2_10 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	38.41	Pk	32	-22.6	47.81	-	-	74	-26.19	216	363	V
2	* 2.495	41.45	Pk	32	-22.6	50.85	-	-	74	-23.15	216	363	V
3	* 2.484	28.88	VB1T	32	-22.6	38.28	54	-15.72	-	-	216	363	V
4	2.558	28.97	VB1T	32	-22.6	38.37	54	-15.63	-	-	216	363	V

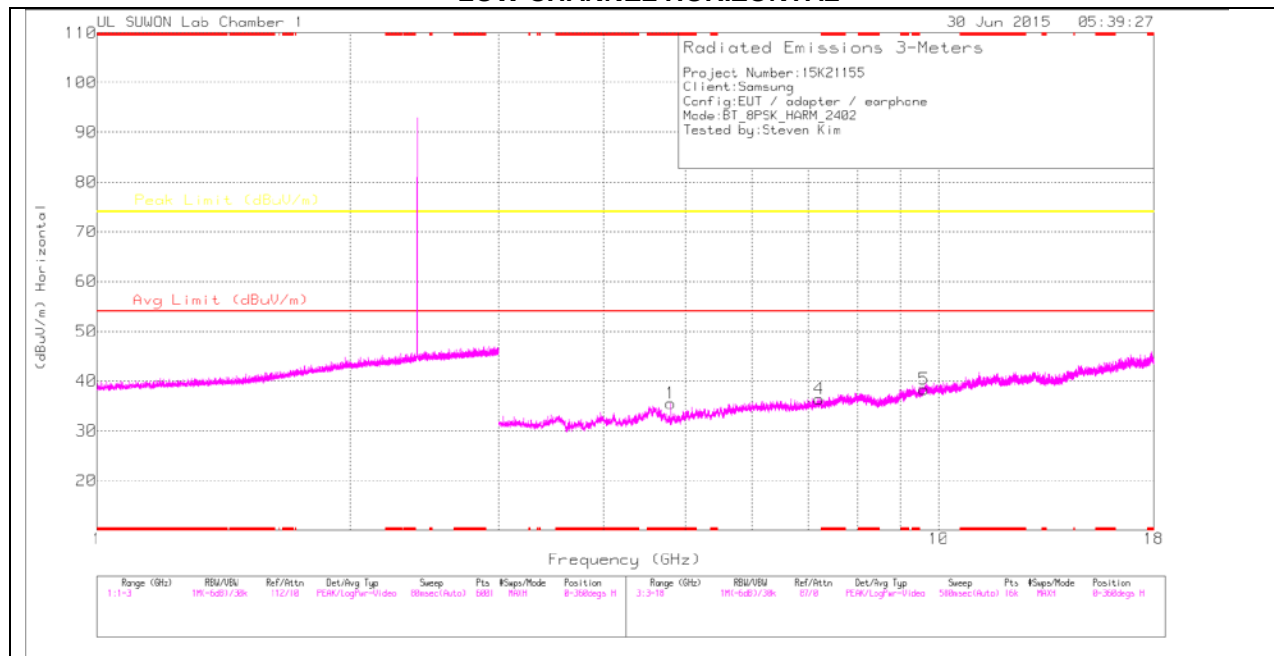
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

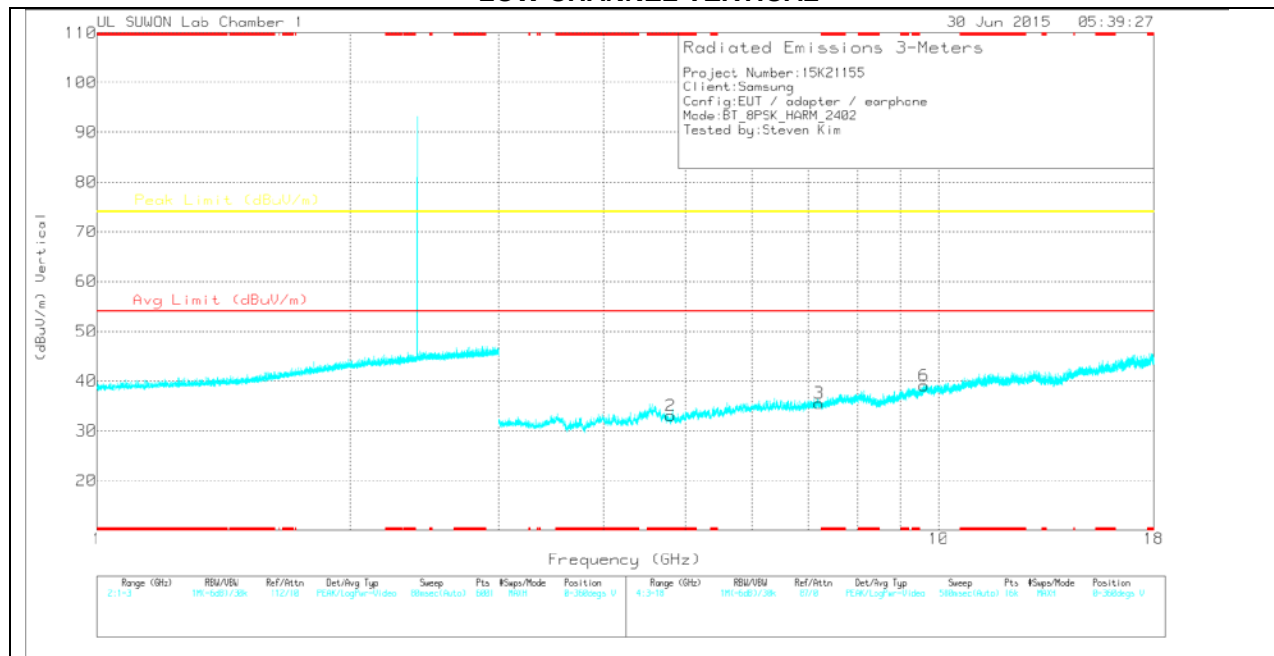
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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	3117(00168 717)_15061 9	Path_3_3 GHP	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.803	31.37	PK	34	-29.8	35.57	-	-	74	-38.43	0-360	100	H
4	7.207	26.11	PK	35.7	-25.4	36.41	-	-	-	-	0-360	100	H
5	9.61	22.31	PK	37	-21	38.31	-	-	-	-	0-360	200	H
2	* 4.807	28.88	PK	34	-29.8	33.08	-	-	74	-40.92	0-360	200	V
3	7.207	25.27	PK	35.7	-25.4	35.57	-	-	-	-	0-360	200	V
6	9.611	23.08	PK	37	-21	39.08	-	-	-	-	0-360	100	V

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

PK – Peak detector

Radiated Emissions

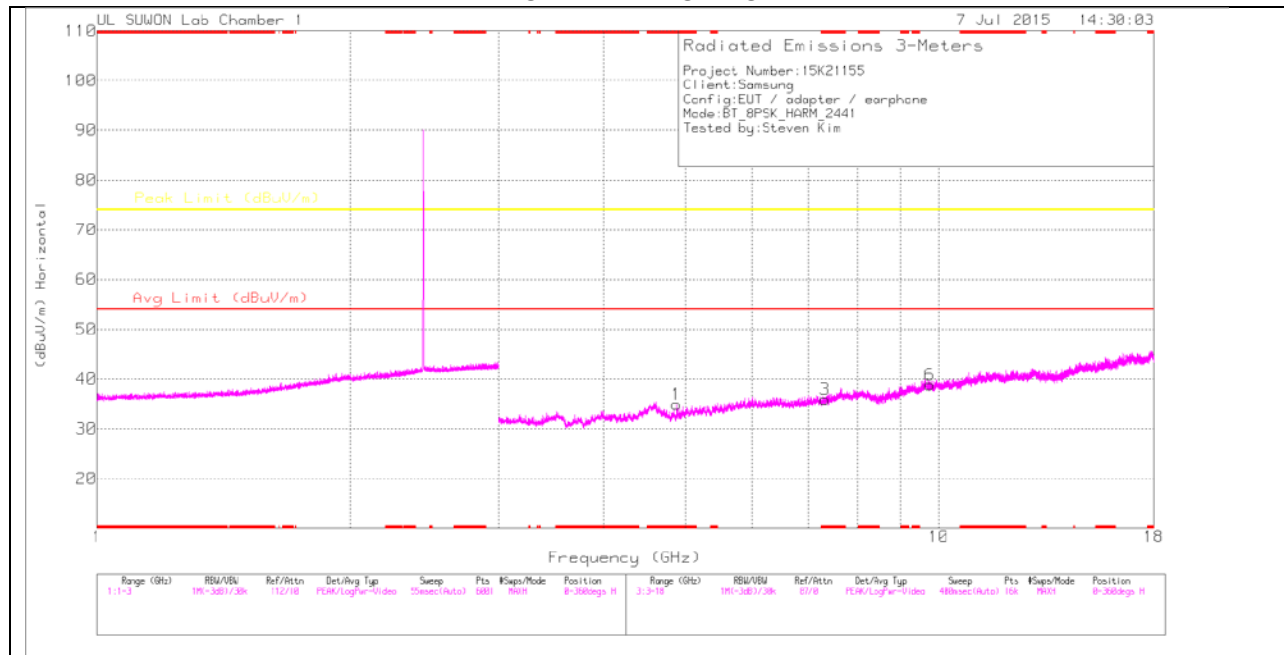
Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8717)_150 619	Path_3_3G HP	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.803	41.67	PK3	34	-29.8	45.87	-	-	74	-28.13	328	103	H
* 4.804	30.48	VB1T	34	-29.8	34.68	54	-19.32	-	-	328	103	H

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

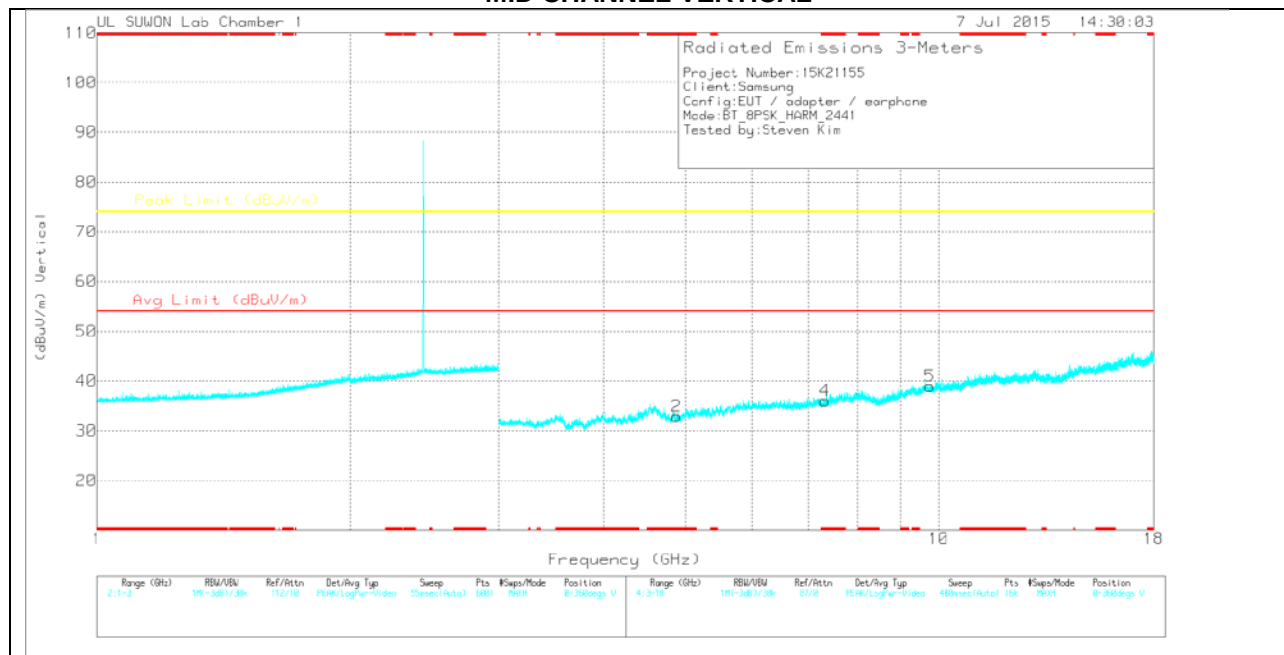
PK3 - FHSS Method: Maximum Peak

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

MID CHANNEL HORIZONTAL



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

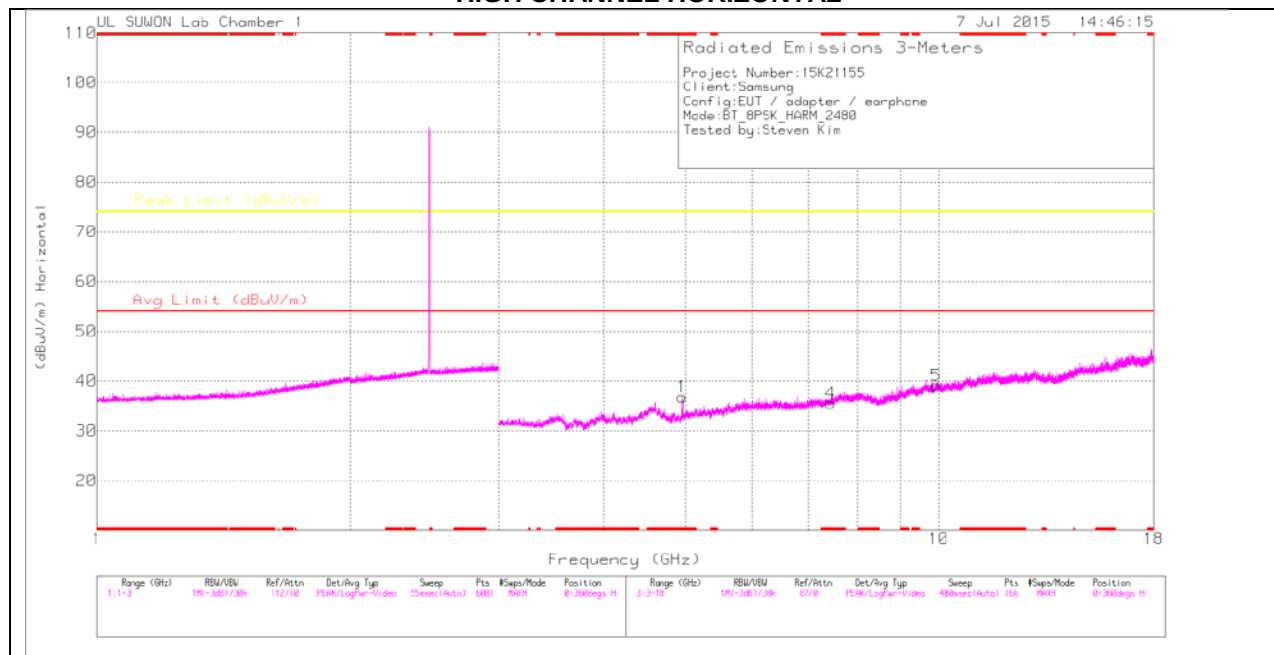
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168 717)_15061 9	Path_3_3 GHP	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.881	30.04	PK	34	-29.1	34.94	-	-	74	-39.06	0-360	200	H
3	* 7.323	25.71	PK	35.8	-25.6	35.91	-	-	74	-38.09	0-360	100	H
6	9.762	23.67	PK	37.2	-22	38.87	-	-	74	-35.13	0-360	100	H
2	* 4.882	28.01	PK	34	-29.1	32.91	-	-	74	-41.09	0-360	100	V
4	* 7.323	25.9	PK	35.8	-25.6	36.1	-	-	74	-37.9	0-360	200	V
5	9.763	23.76	PK	37.2	-22	38.96	-	-	74	-35.04	0-360	100	V

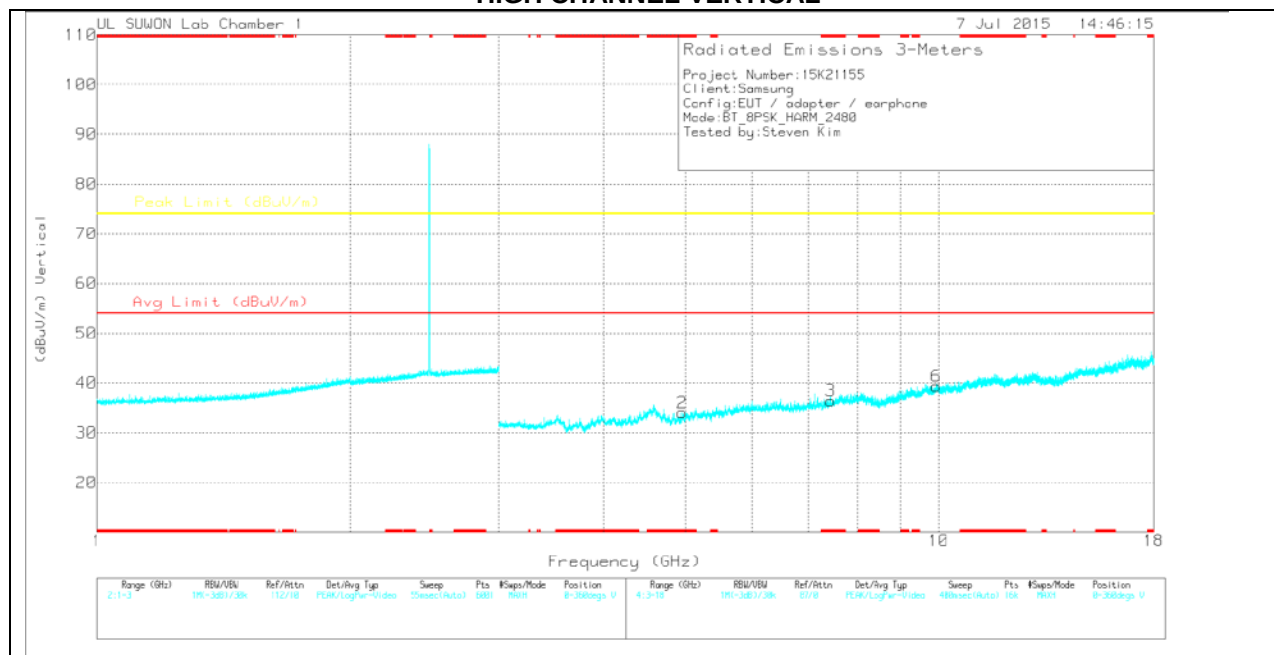
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK – Peak detector

HIGH CHANNEL HORIZONTAL



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.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8717)_150 619	Path_3_3 GHP	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.959	31.68	PK	34	-28.9	36.78	-	-	74	-37.22	0-360	100	H
4	* 7.441	24.53	PK	35.8	-24.8	35.53	-	-	74	-38.47	0-360	200	H
5	9.92	22.1	PK	37.4	-20.4	39.1	-	-	74	-34.9	0-360	200	H
2	* 4.959	28.97	PK	34	-28.9	34.07	-	-	74	-39.93	0-360	200	V
3	* 7.441	25.46	PK	35.8	-24.8	36.46	-	-	74	-37.54	0-360	200	V
6	9.923	22.32	PK	37.4	-20.4	39.32	-	-	74	-34.68	0-360	200	V

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

PK – Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8717)_150 619	Path_3_3G HP	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.959	39.96	PK3	34	-28.9	45.06	-	-	74	-28.94	316	308	H
* 4.96	27.39	VB1T	34	-28.9	32.49	54	-21.51	-	-	316	308	H

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

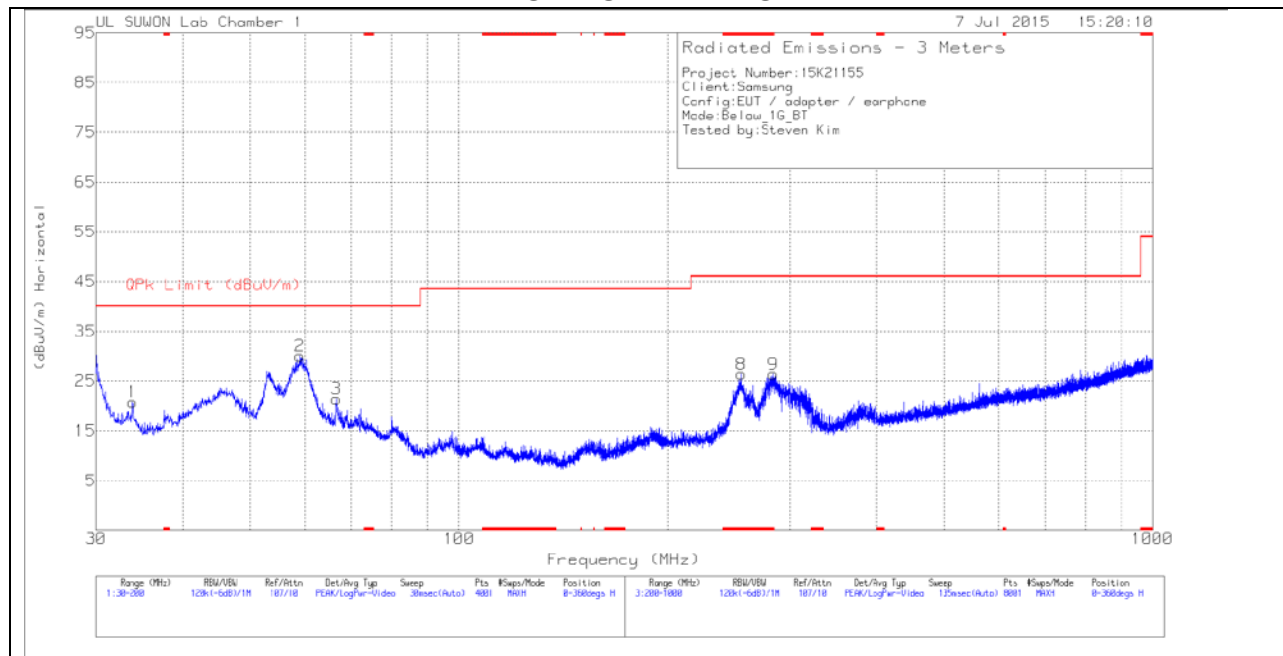
PK3 - FHSS Method: Maximum Peak

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

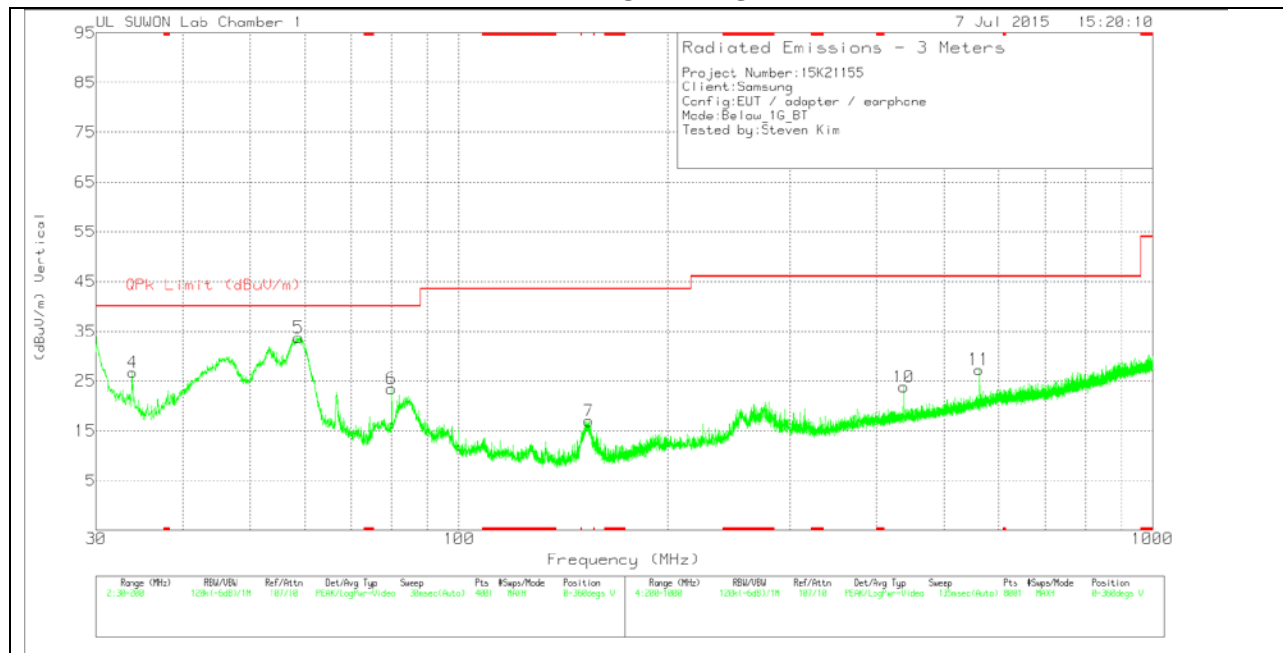
9.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



BELOW 1 GHz TABLE

TRACE MARKERS

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163-750	Bi-Log	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	33.8675	40.9	Pk	10.4	-30.5	20.8	40	-19.2	0-360	200	H
2	58.9	47.14	Pk	12.8	-29.9	30.04	40	-9.96	0-360	400	H
3	66.55	40.51	Pk	10.7	-29.8	21.41	40	-18.59	0-360	400	H
4	33.825	46.8	Pk	10.4	-30.5	26.7	40	-13.3	0-360	100	V
5	58.73	50.87	Pk	12.8	-29.9	33.77	40	-6.23	0-360	200	V
6	79.98	46.13	Pk	6.9	-29.6	23.43	40	-16.57	0-360	200	V

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

* Decreases with the logarithm of the frequency.

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.

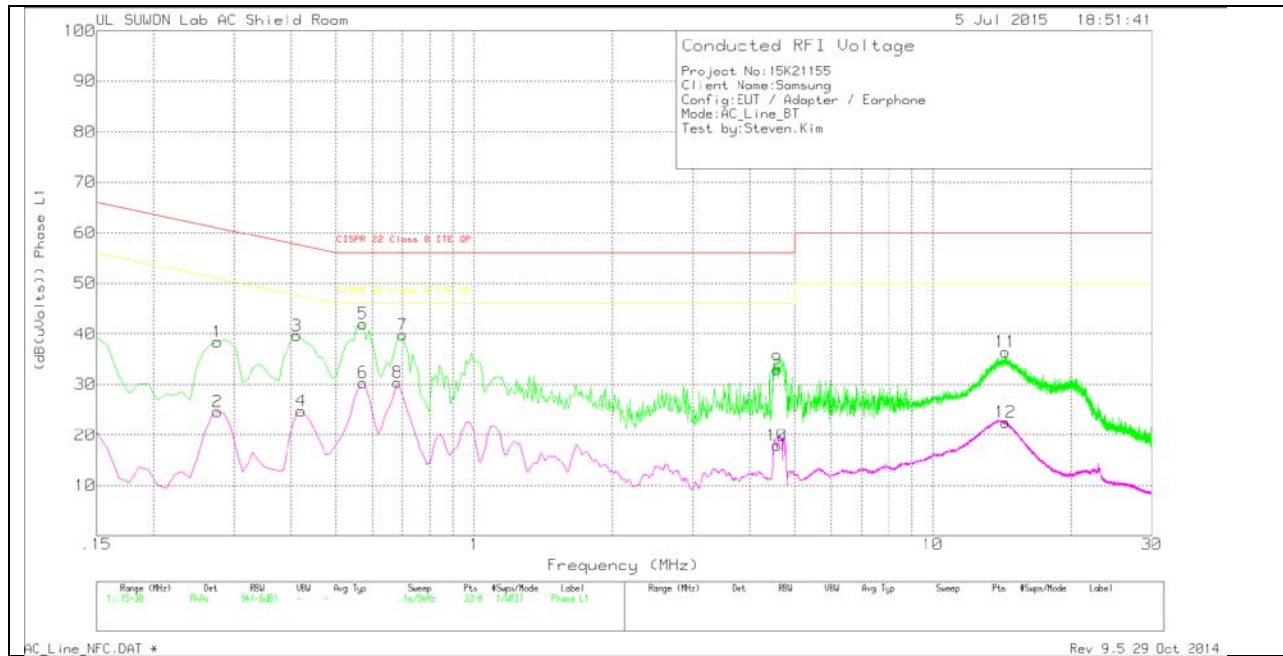
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULTS

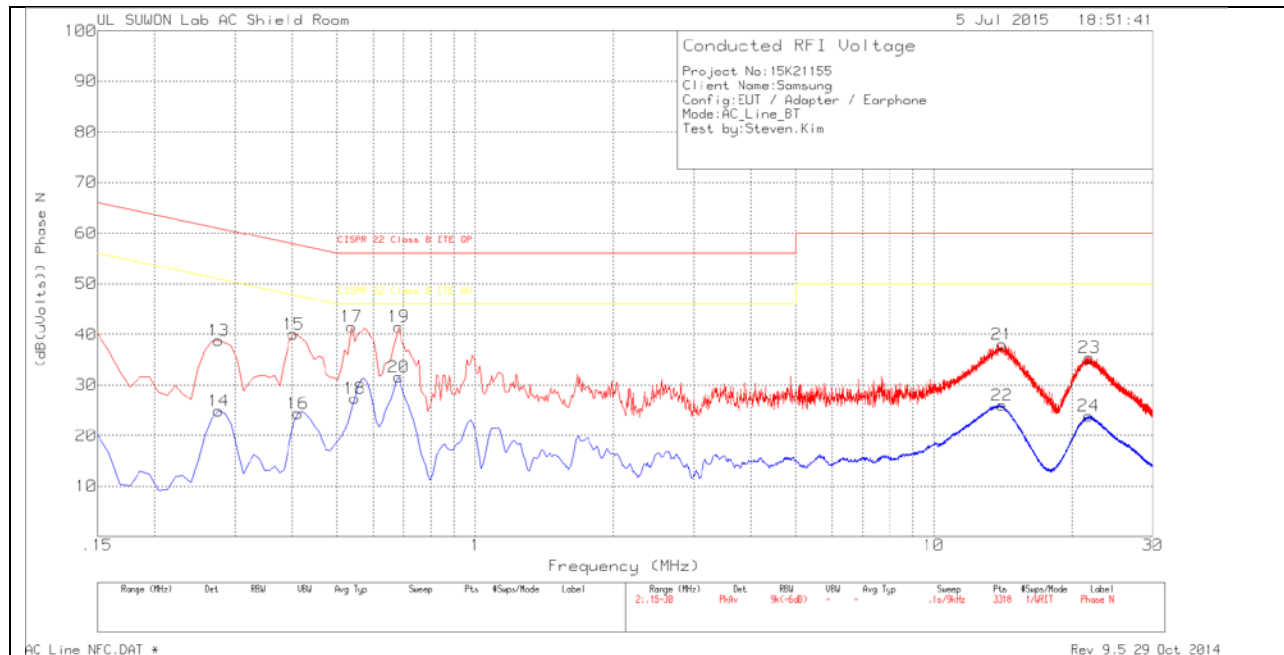
Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_w ith ex-cord_L1	CE Shield Room	Corrected Reading (dB(uVolts))	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
1	.276	28.57	Pk	9.8	0	38.37	60.94	-22.57	-	-
2	.276	14.86	Av	9.8	0	24.66	-	-	50.94	-26.28
3	.411	29.52	Pk	10.1	0	39.62	57.63	-18.01	-	-
4	.42	14.69	Av	10.1	0	24.79	-	-	47.45	-22.66
5	.573	31.93	Pk	10.1	0	42.03	56	-13.97	-	-
6	.573	20.22	Av	10.1	0	30.32	-	-	46	-15.68
7	.699	29.73	Pk	10.1	0	39.83	56	-16.17	-	-
8	.681	20.31	Av	10.1	0	30.41	-	-	46	-15.59
9	4.569	23.06	Pk	9.8	.1	32.96	56	-23.04	-	-
10	4.569	8.06	Av	9.8	.1	17.96	-	-	46	-28.04
11	14.388	26.18	Pk	10.1	.2	36.48	60	-23.52	-	-
12	14.397	12.26	Av	10.1	.2	22.56	-	-	50	-27.44

Pk - Peak detector

Av - Average detection

LINE 2 PLOT



LINE 2 RESULTS

Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_w ith ex-cord_N	CE Shield Room	Corrected Reading (dB(uVolts))	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
13	.276	28.98	Pk	9.8	0	38.78	60.94	-22.16	-	-
14	.276	15.07	Av	9.8	0	24.87	-	-	50.94	-26.07
15	.402	29.91	Pk	10.1	0	40.01	57.81	-17.8	-	-
16	.411	14.23	Av	10.1	0	24.33	-	-	47.63	-23.3
17	.537	31.4	Pk	10.1	0	41.5	56	-14.5	-	-
18	.546	17.28	Av	10.1	0	27.38	-	-	46	-18.62
19	.681	31.55	Pk	10	0	41.55	56	-14.45	-	-
20	.681	21.64	Av	10	0	31.64	-	-	46	-14.36
21	14.064	27.53	Pk	10.3	.2	38.03	60	-21.97	-	-
22	14.073	15.45	Av	10.3	.2	25.95	-	-	50	-24.05
23	21.84	24.55	Pk	10.7	.2	35.45	60	-24.55	-	-
24	21.777	12.94	Av	10.7	.2	23.84	-	-	50	-26.16

Pk - Peak detector

Av - Average detection