



FCC CFR47 PART 15 SUBPART C

Bluetooth

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Phone + BT/BLE, DTS b/g/n and ANT+

MODEL NUMBER : SM-G611MT/DS

FCC ID: A3LSMG611MT

REPORT NUMBER: 4788312331-E3V3

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Prepared for

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ACCREDITED*

Testing
Laboratory

TL-637

Revision History

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V1	02/09/18	Initial issue	Junwhan Lee
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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION: GSM/WCDMA/LTE Phone + BT/BLE, DTS b/g/n and ANT+
MODEL NUMBER: SM-G611MT/DS
SERIAL NUMBER: R38K102WFSP (RADIATED);
R38K102WTZW (CONDUCTED)
DATE TESTED: JAN 22, 2018 - JAN 30, 2018

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:

Tested By:



SungGil Park
Suwon Lab Engineer
UL Korea, Ltd.



Junwhan Lee
Suwon Lab Engineer
UL Korea, Ltd.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with following methods.

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 15.
3. FCC DA 00-705 Filling and measurement guidelines for FHSS systems
4. ANSI C63.10-2013.

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, 16675, 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	
<input checked="" type="checkbox"/>	Chamber 1
<input type="checkbox"/>	Chamber 2
<input type="checkbox"/>	Chamber 3

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	3.86 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 b/g/n and ANT+. 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	9.144	8.211
		Peak	9.766	9.475
	Enhanced Pi/4-DPSK	Average	5.709	3.723
		Peak	8.116	6.480
	Enhanced 8PSK	Average	5.713	3.726
		Peak	8.431	6.968

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an internal antenna, with a maximum gain of -2.1 dBi.

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission below 1GHz and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Radiated emission above 1GHz was performed with the EUT set to transmit low/mid/high channels.

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

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 9.5.

All radiated and power line conducted tests were performed connected with earphone and charger for evaluation of worst case mode.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA50BWB	DK1J511VS/A- E	N/A
Data Cable	SAMSUNG	ECB-DU68WE	N/A	N/A
Earphone	SAMSUNG	EHS61ASFWE	N/A	N/A

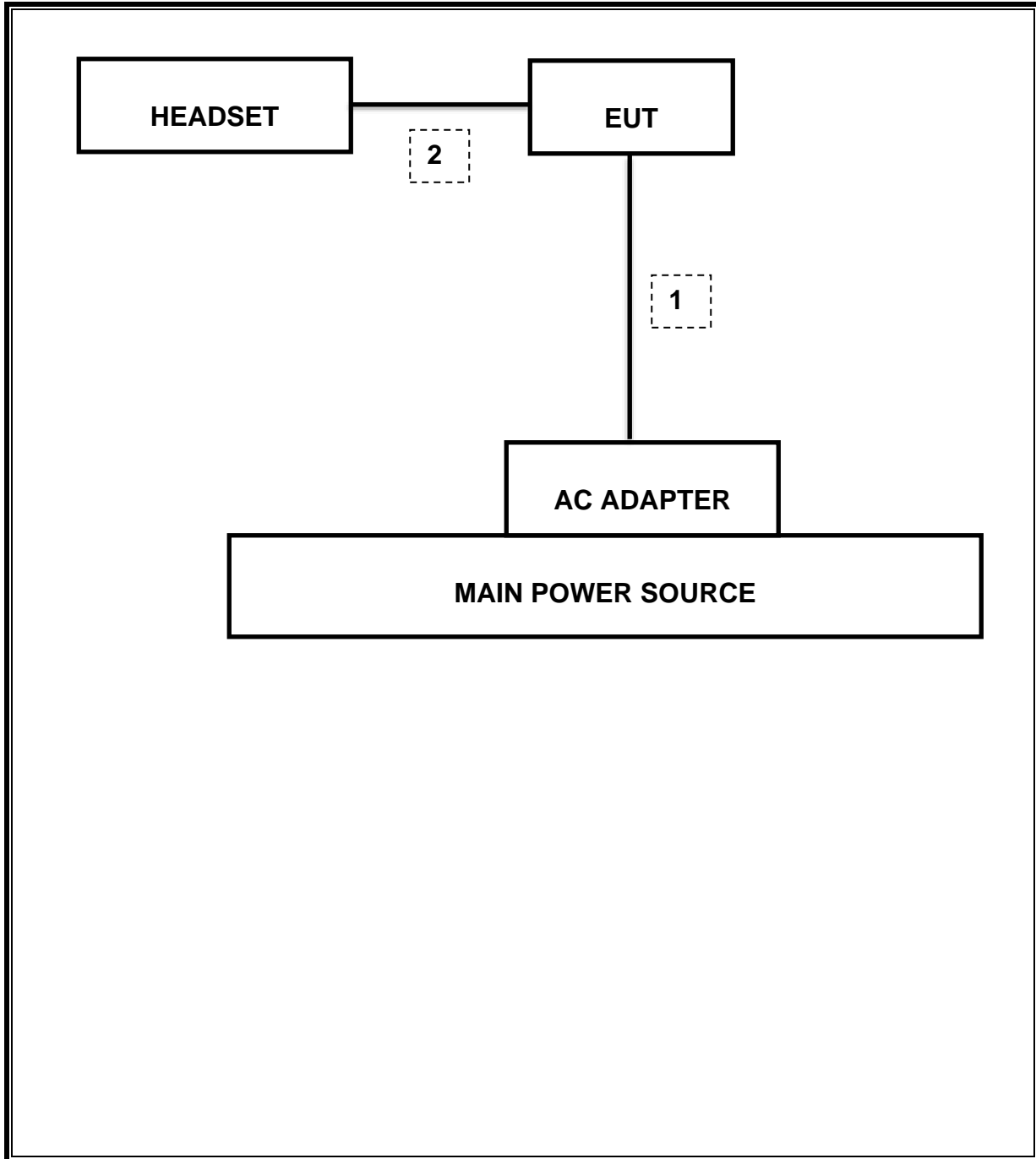
I/O CABLES

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	2	Mini-Jack	Unshielded	1.2m	N/A

TEST SETUP

The EUT is continuously communicating to the Bluetooth tester during the tests.
 Test software 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	750	08-31-19
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	04-14-19
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	08-31-19
Antenna, Horn, 18 GHz	ETS	3115	00167211	10-14-18
Antenna, Horn, 18 GHz	ETS	3115	00161451	03-10-19
Antenna, Horn, 18 GHz	ETS	3117	00168724	05-31-19
Antenna, Horn, 18 GHz	ETS	3117	00168717	11-29-18
Antenna, Horn, 18 GHz	ETS	3117	00205959	05-31-19
Antenna, Horn, 40 GHz	ETS	3116C	00166155	12-04-19
Antenna, Horn, 40 GHz	ETS	3116C	00168645	12-04-19
Antenna, Horn, 40 GHz	ETS	3116C-PA	00168841	11-13-19
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-09-18
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-07-18
Preamplifier, 1000 MHz	Sonoma	310N	370599	08-10-18
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	08-08-18
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-08-18
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	08-11-18
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	08-08-18
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	08-08-18
Average Power Sensor	Agilent / HP	U2000	MY54270007	08-08-18
Bluetooth Tester	TESCOM	TC-3000C	3000C000546	08-08-18
Combiner	WEINCHEL	1575	2152	08-08-18
Attenuator	PASTERNAK	PE7087-10	A001	08-08-18
Attenuator	PASTERNAK	PE7087-10	A008	08-08-18
Attenuator	PASTERNAK	PE7087-10	2	08-10-18
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-08-18
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-08-18
EMI Test Receive, 44 GHz	R&S	ESW44	101590	08-09-18
EMI Test Receive, 3 GHz	R&S	ESR3	101832	08-07-18
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	08-08-18
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	08-08-18
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	020	08-11-18
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	08-08-18
High Pass Filter 3GHz	Micro-Tronics	HPM17543	015	08-08-18
High Pass Filter 3GHz	Micro-Tronics	HPM17543	020	08-11-18
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	08-08-18
High Pass Filter 6GHz	Micro-Tronics	HPS17542	016	08-08-18
High Pass Filter 6GHz	Micro-Tronics	HPS17542	021	08-11-18
LISN	R&S	ENV-216	101837	08-09-18
UL Software				
Description	Manufacturer	Model	Version	
Radiated software	UL	UL EMC	Ver 9.5	
AC Line Conducted software	UL	UL EMC	Ver 9.5	

7. REFERENCE MEASUREMENT RESULTS

7.1. 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

7.1.1. BASIC DATA RATE GFSK MODULATION

Channel	Frequency [MHz]	20 dB Bandwidth [MHz]	99% Bandwidth [kHz]
Low	2402	1.050	903.700
Mid	2441	1.032	900.260
High	2480	1.052	902.790
Worst		1.052	903.700

7.1.2. ENHANCED DATA RATE Pi/4-DQPSK MODULATION

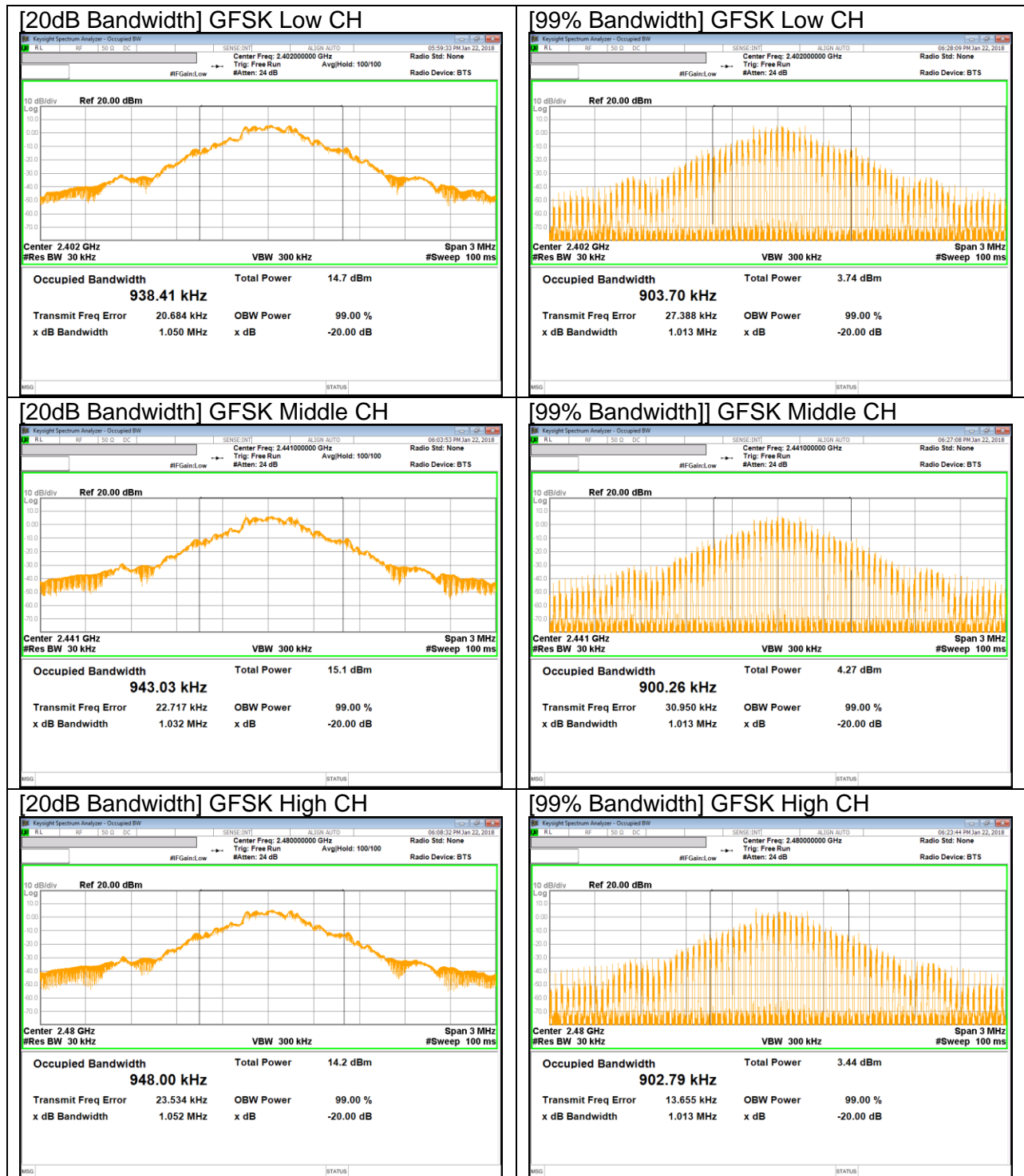
Channel	Frequency [MHz]	20 dB Bandwidth [MHz]	99% Bandwidth [MHz]
Low	2402	1.352	1.199
Mid	2441	1.319	1.168
High	2480	1.297	1.202
Worst		1.352	1.202

7.1.3. ENHANCED DATA RATE 8PSK MODULATION

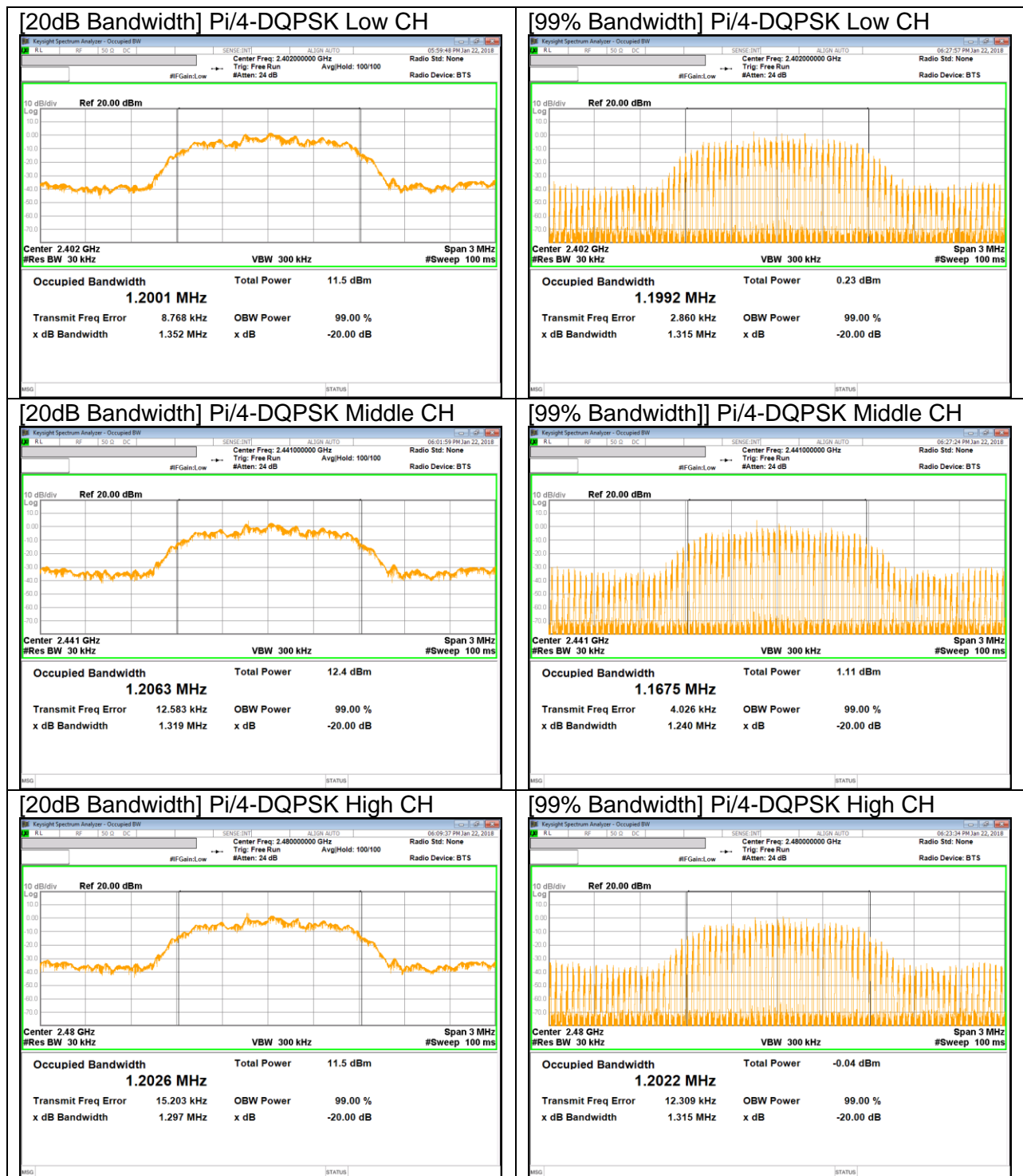
Channel	Frequency [MHz]	20 dB Bandwidth [MHz]	99% Bandwidth [MHz]
Low	2402	1.317	1.196
Mid	2441	1.337	1.199
High	2480	1.338	1.169
Worst		1.338	1.199

7.1.4. 20 dB AND 99% BANDWIDTH PLOTS

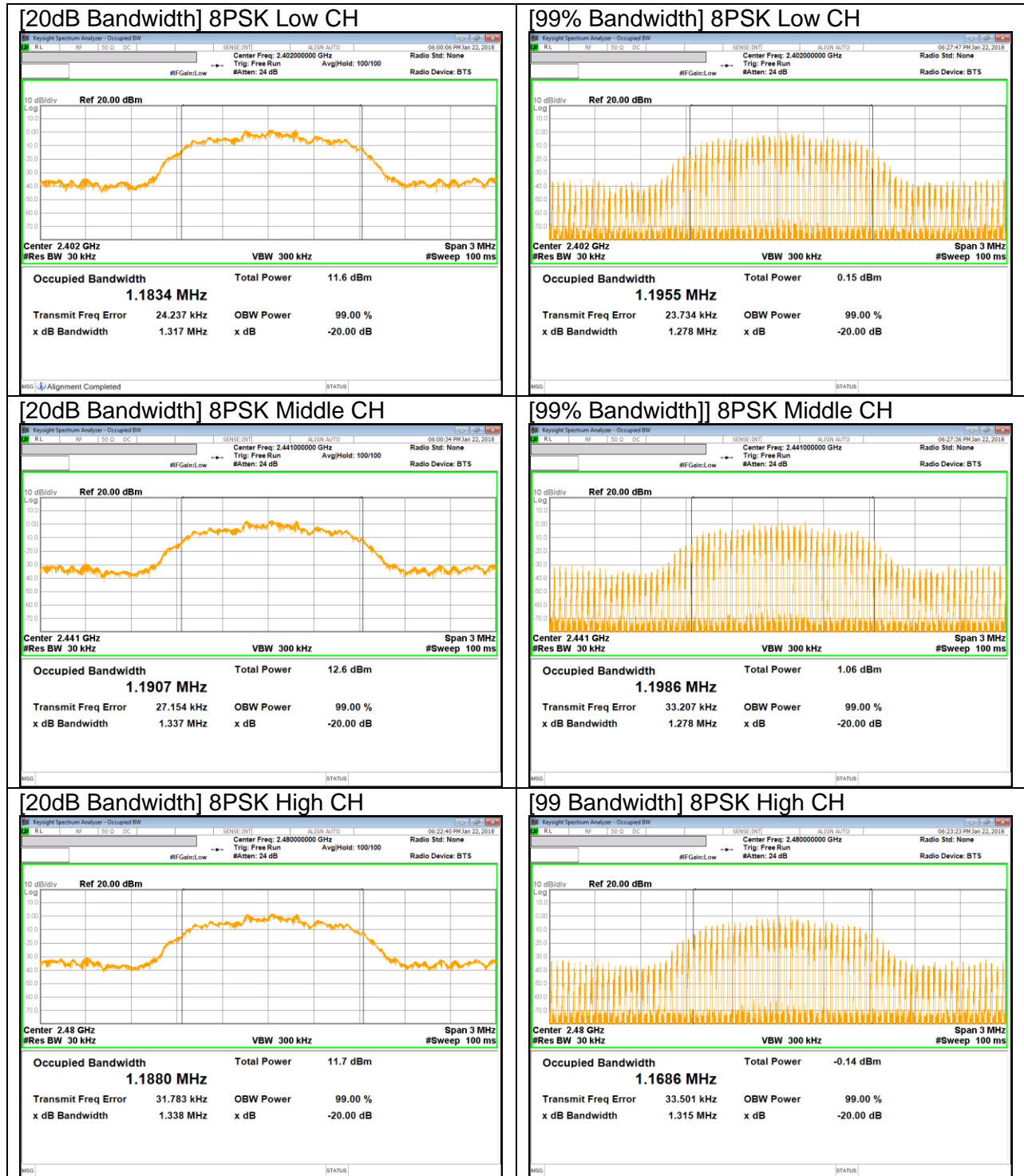
GFSK BANDWIDTH



Pi/4-DQPSK BANDWIDTH



8PSK BANDWIDTH



8. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result	Worst Case
2.1051, 15.247 (d)	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-35.9 dBm
15.247 (b)(1)	TX conducted output power	<21dBm		Pass	9.766 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	0.34632 sec
15.207 (a)	AC Power Line conducted emissions	Section 10	Power Line conducted	Pass	41.08 dBuV (Qp)
15.205, 15.209	Radiated Spurious Emission	< 54dBuV/m	Radiated	Pass	42.99 dBuV/m (Av)

9. ANTENNA PORT TEST RESULTS

9.1. 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.

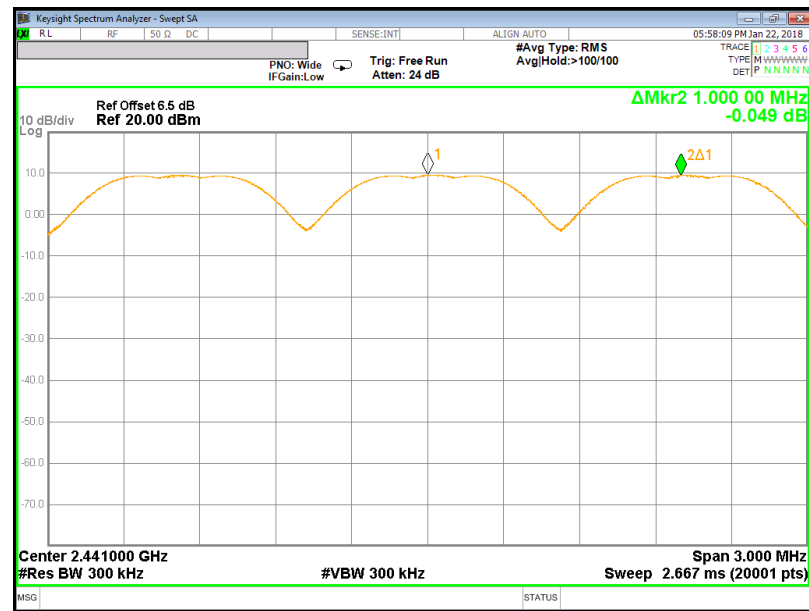
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than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

HOPPING FREQUENCY SEPARATION PLOT



9.2. 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

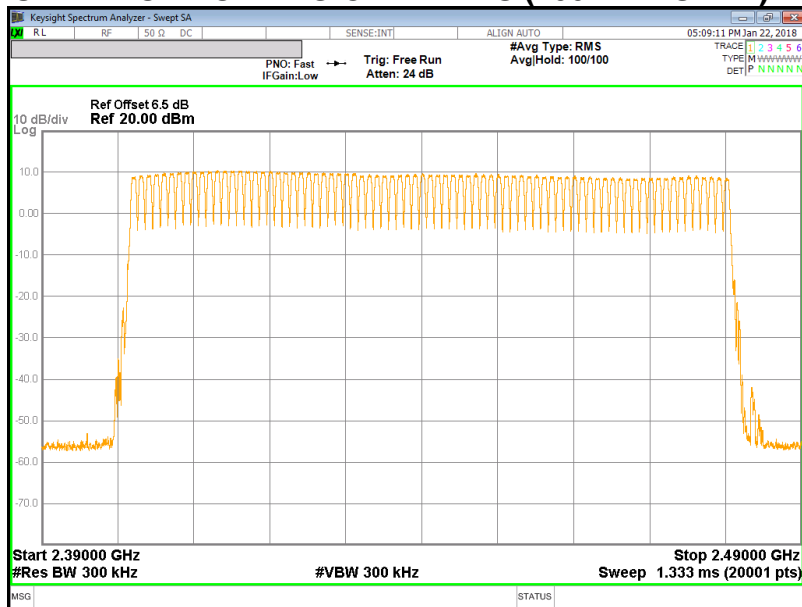
DA 00-705: The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

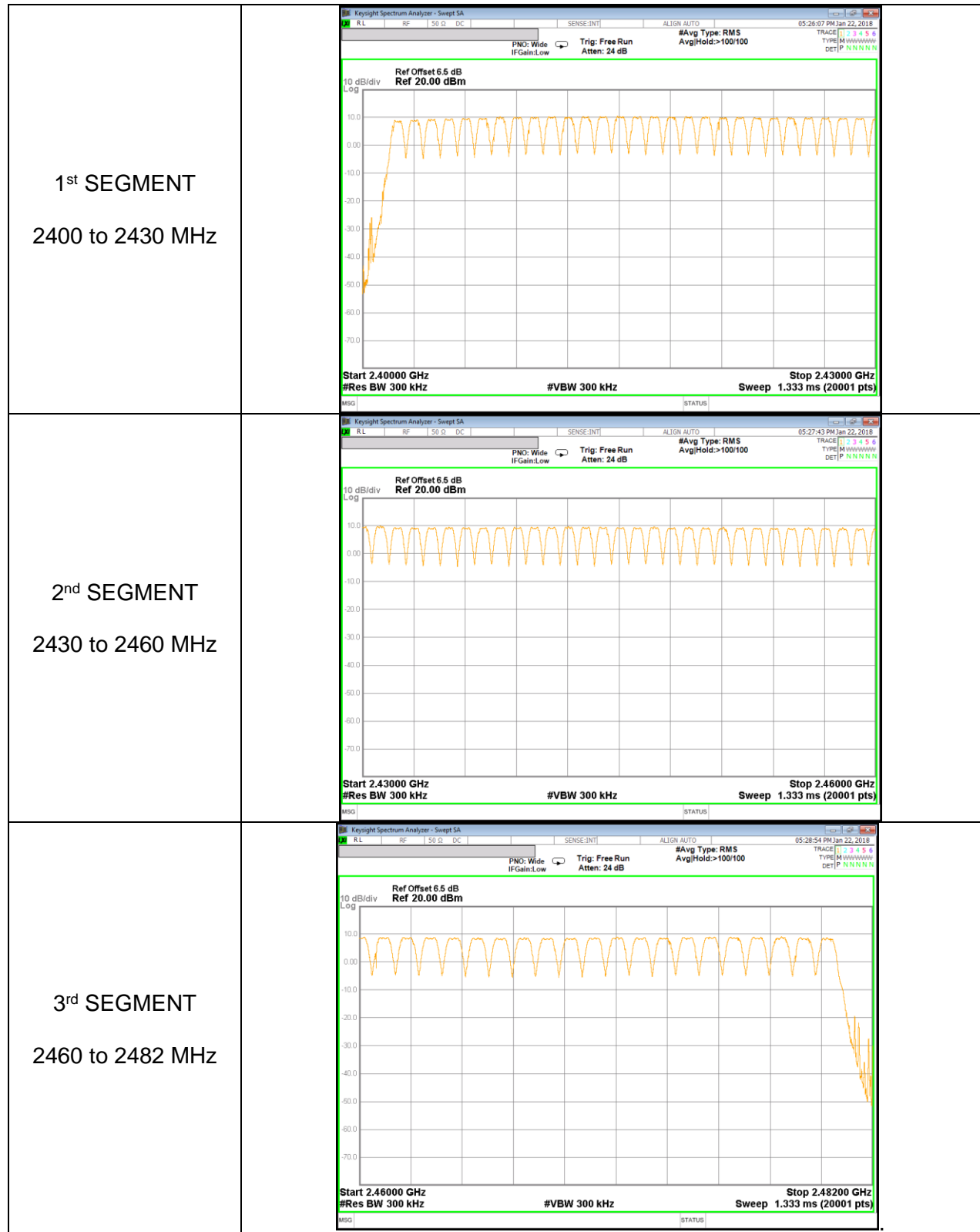
RESULTS

Normal Mode: 79 Channels observed.

NUMBER OF HOPPING CHANNELS PLOTS

NUMBER OF HOPPING CHANNELS (100 MHz SPAN)





9.3. 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.

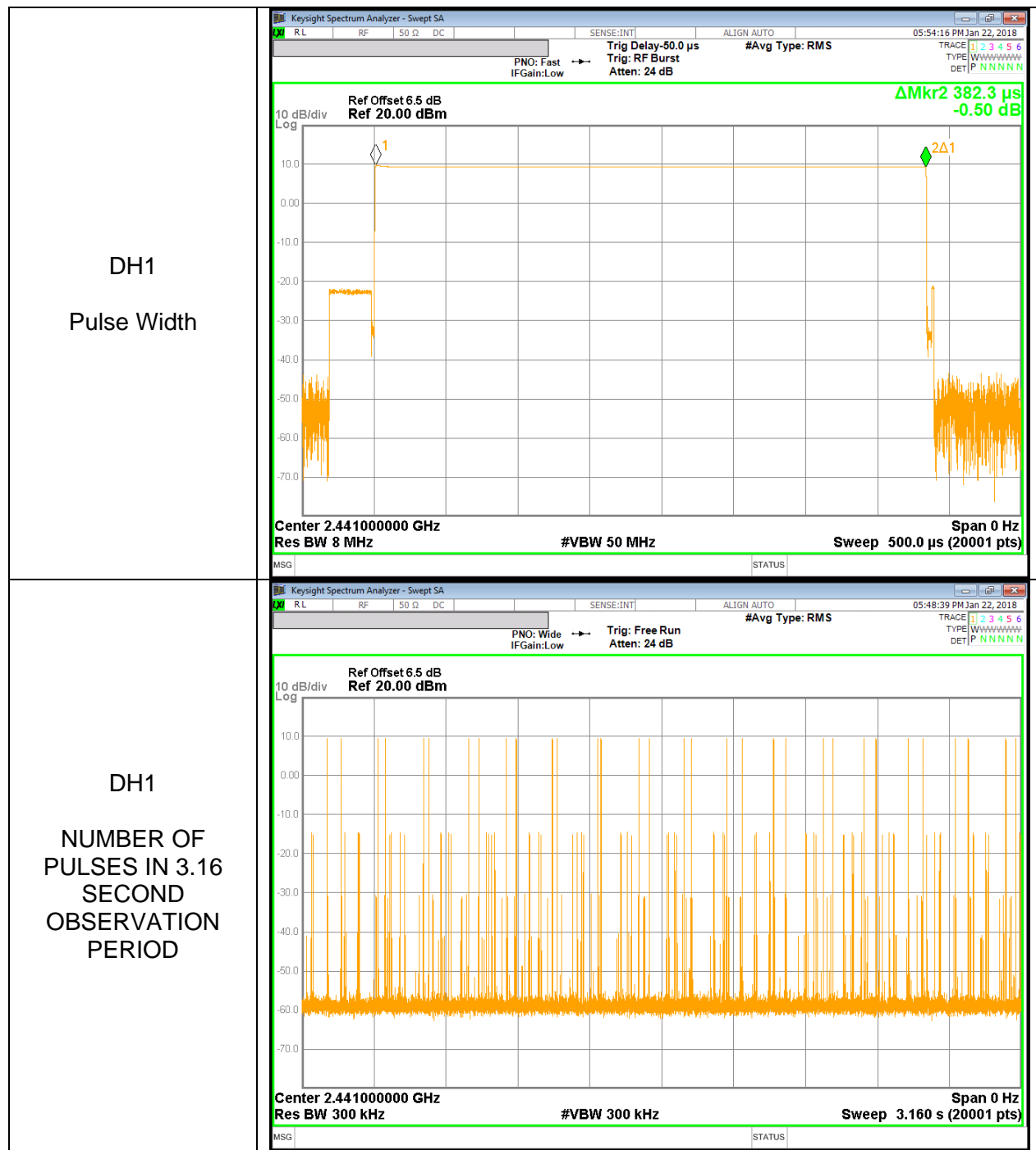
The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{ pulse width}$.

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

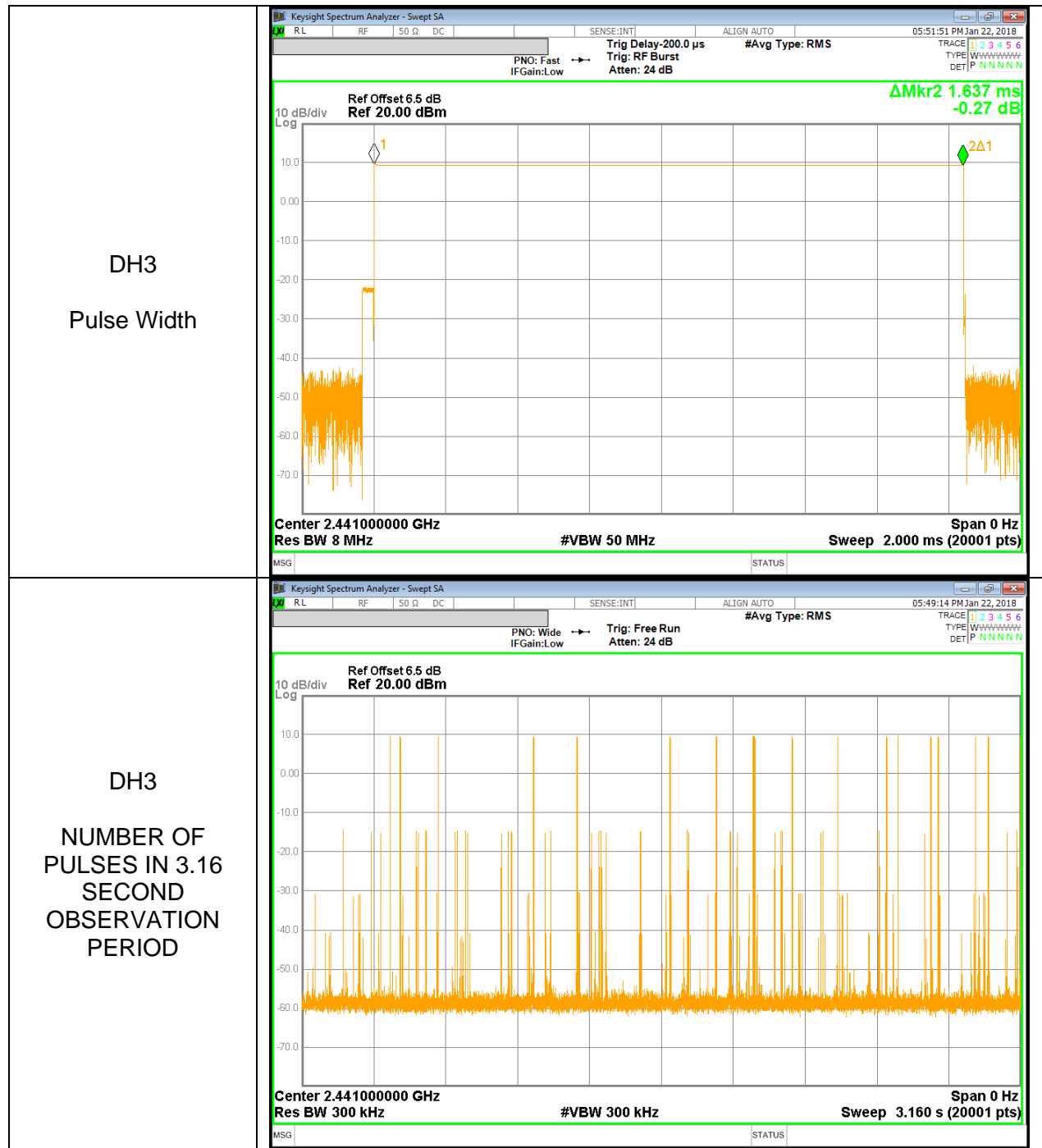
RESULTS[GFSK]

	Width [msec]	Pulses in 3.16 seconds	of Occupancy [sec]	[sec]	[sec]
GFSK Normal					
DH1	0.382	32	0.122336	0.4	-0.2777
DH3	1.637	16	0.261920	0.4	-0.1381
DH5	2.886	12	0.346320	0.4	-0.0537
GFSK AFH					
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	1.637	4	0.065480	0.4	-0.33452
DH5	2.886	3	0.086580	0.4	-0.31342

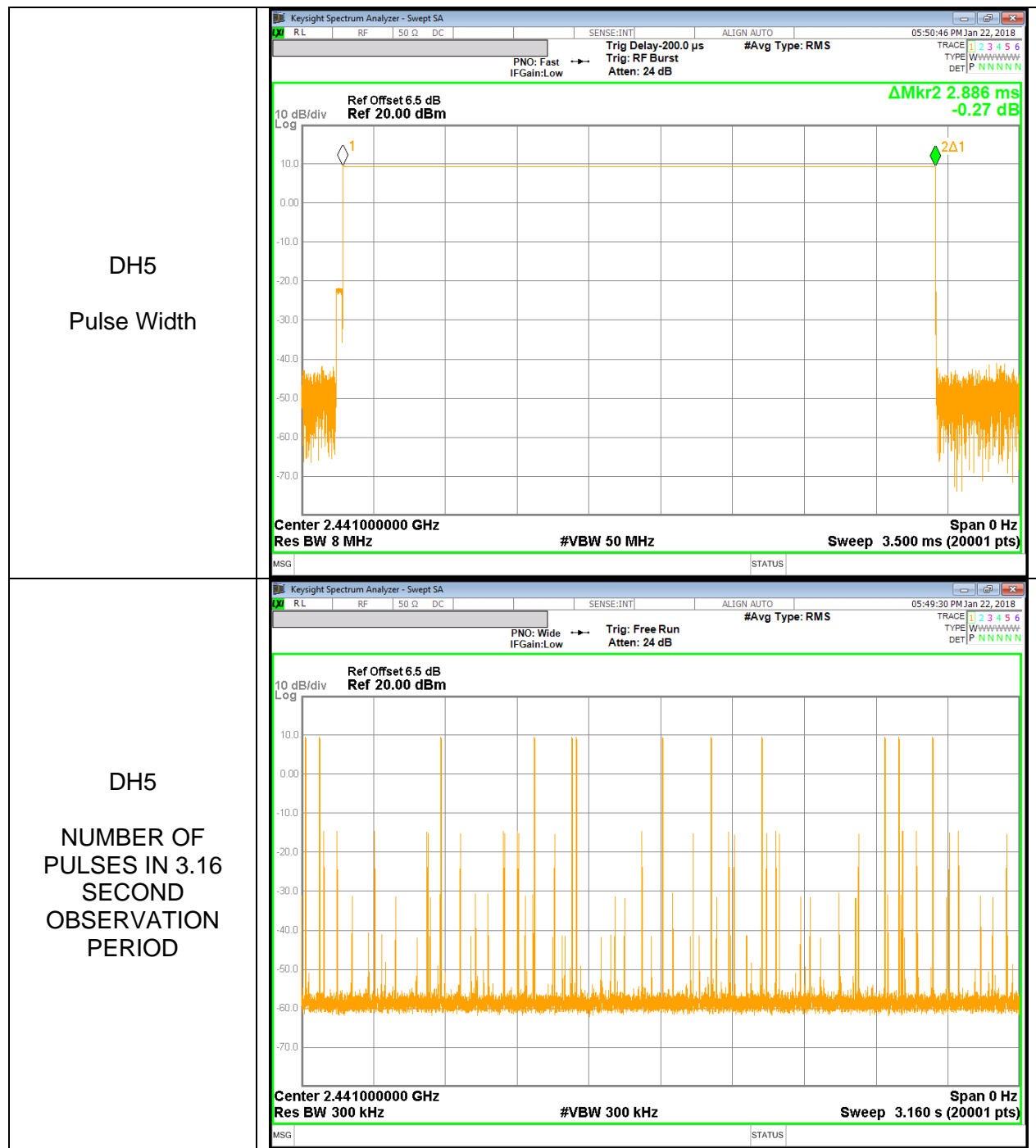
DH1



DH3



DH5



9.4. 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

9.4.1. BASIC DATA RATE GFSK MODULATION

Channel	Frequency [MHz]	Output Power [dBm]	Limit [dBm]	Margin [dB]
Low	2402	9.119	21	-11.881
Middle	2441	9.766	21	-11.234
High	2480	8.799	21	-12.201
Worst		9.766	21	-11.234

9.4.2. ENHANCED DATA RATE Pi/4-DPSK MODULATION

Channel	Frequency [MHz]	Output Power [dBm]	Limit [dBm]	Margin [dB]
Low	2402	7.267	21	-13.733
Middle	2441	8.116	21	-12.884
High	2480	7.073	21	-13.927
Worst		8.116	21	-12.884

9.4.3. ENHANCED DATA RATE 8PSK MODULATION

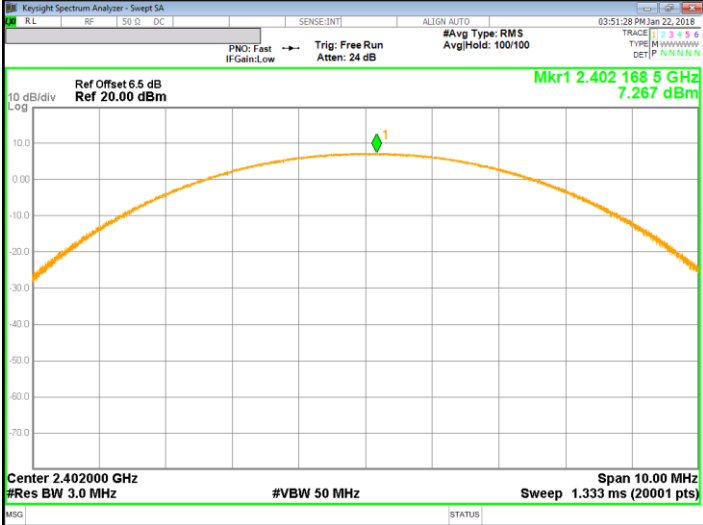
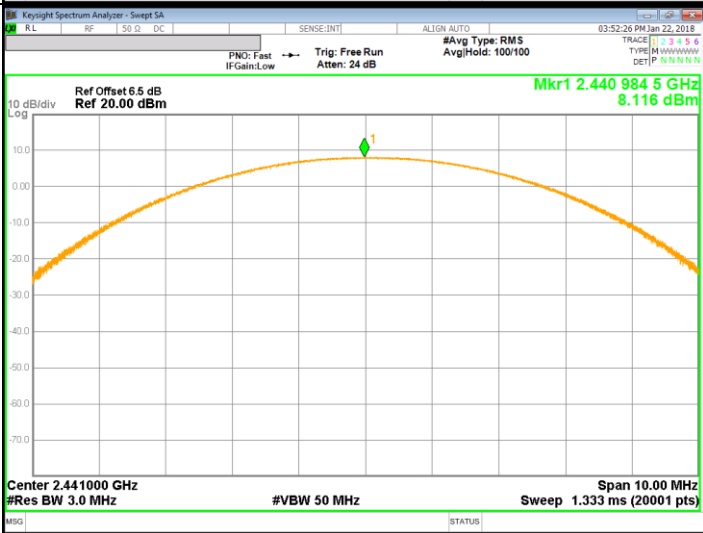
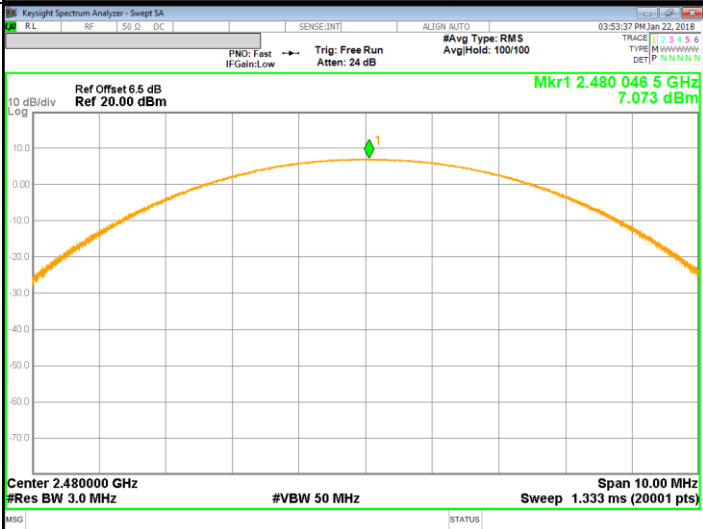
Channel	Frequency [MHz]	Output Power [dBm]	Limit [dBm]	Margin [dB]
Low	2402	7.673	21	-13.327
Middle	2441	8.431	21	-12.569
High	2480	7.402	21	-13.598
Worst		8.431	21	-12.569

9.4.4. OUTPUT POWER PLOTS

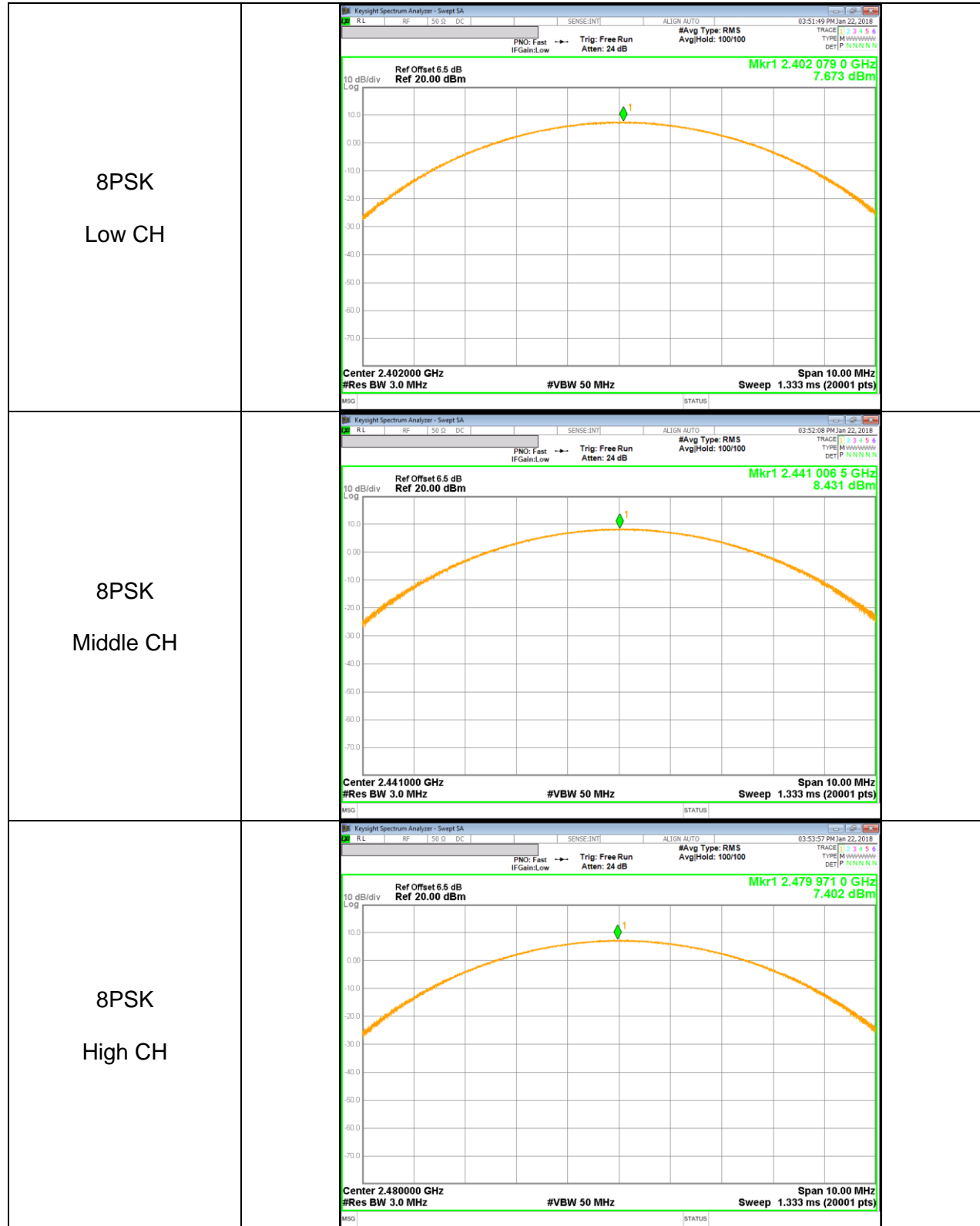
GFSK OUTPUT POWER

<p>GFSK Low CH</p>	
<p>GFSK Middle CH</p>	
<p>GFSK High CH</p>	

Pi/4-DPSK OUTPUT POWER

<p>Pi/4-DPSK Low CH</p>	
<p>Pi/4-DPSK Middle CH</p>	
<p>Pi/4-DPSK High CH</p>	

8PSK OUTPUT POWER



9.5. 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 was entered as an offset in the power meter to allow for direct reading of power.

9.5.1. BASIC DATA RATE GFSK MODULATION

Channel	Frequency [MHz]	AV power [dBm]	AV power [mW]
Low	2402	8.634	7.30
Middle	2441	8.144	6.52
High	2480	8.153	6.54

9.5.2. DATA RATE PI/4-DQPSK MODULATION

Channel	Frequency [MHz]	AV power [dBm]	AV power [mW]
Low	2402	4.728	2.97
Middle	2441	5.709	3.72
High	2480	4.695	2.95

9.5.3. ENHANCED DATA RATE 8PSK MODULATION

Channel	Frequency [MHz]	AV power [dBm]	AV power [mW]
Low	2402	4.749	2.98
Middle	2441	5.713	3.73
High	2480	4.733	2.97

9.6. 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.

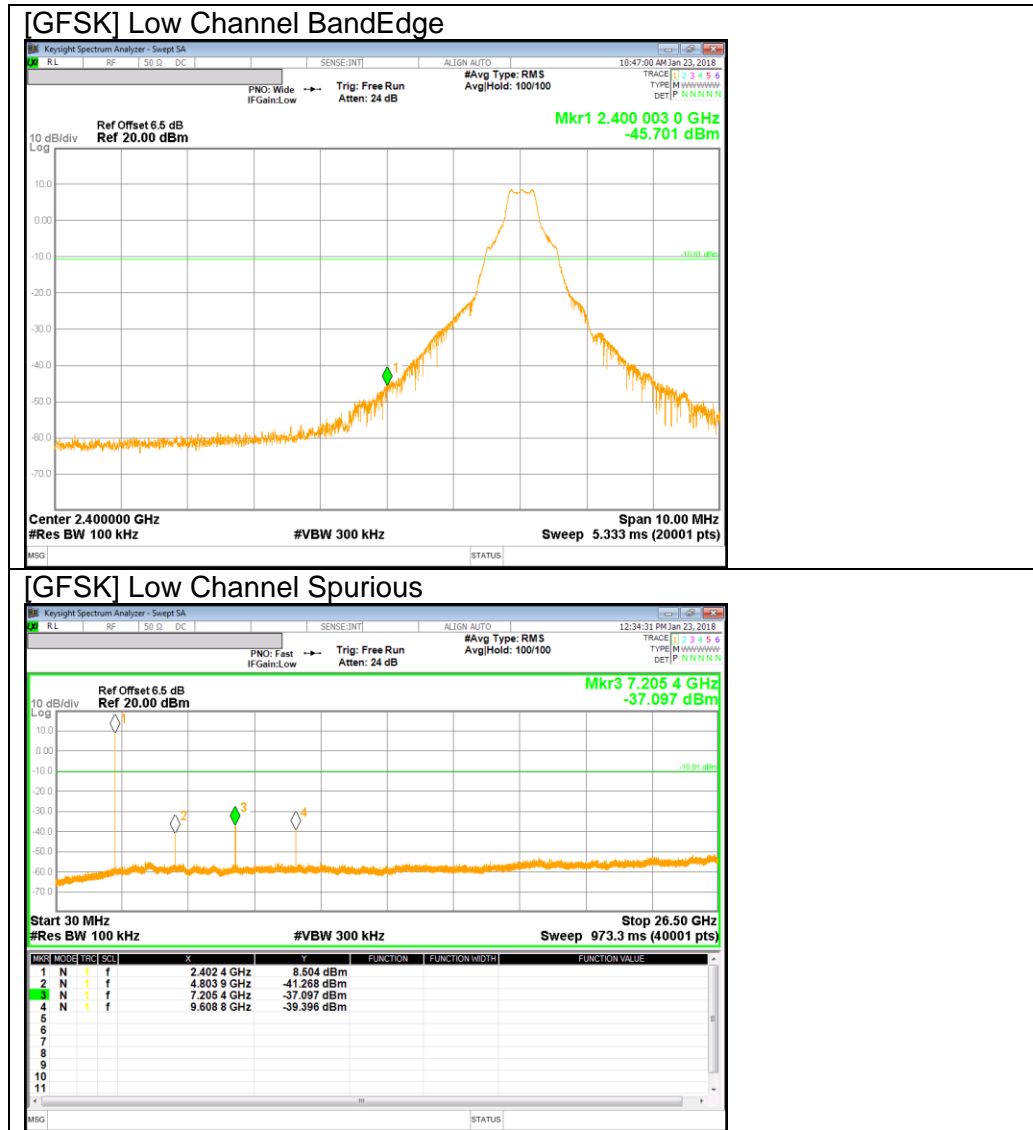
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

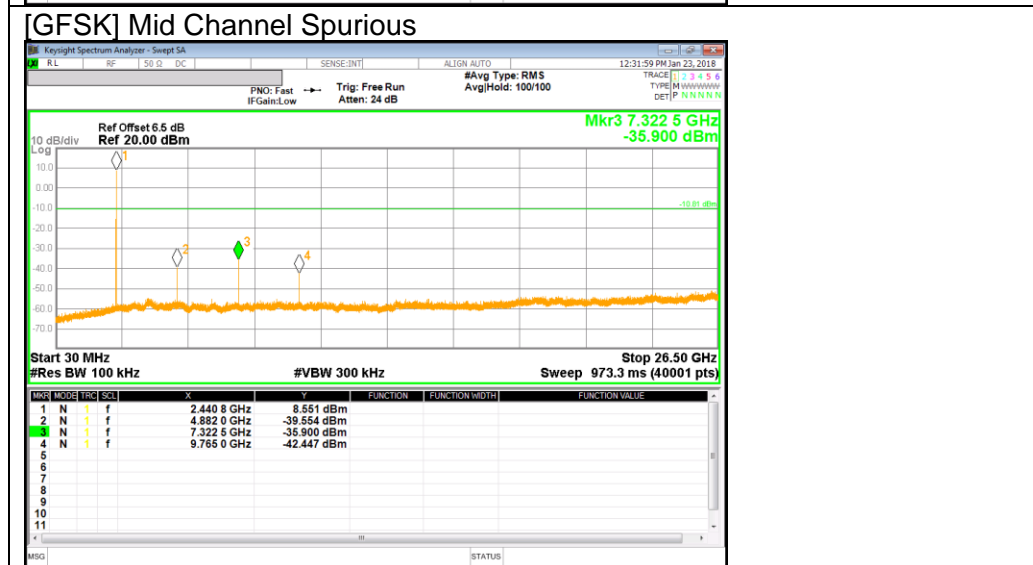
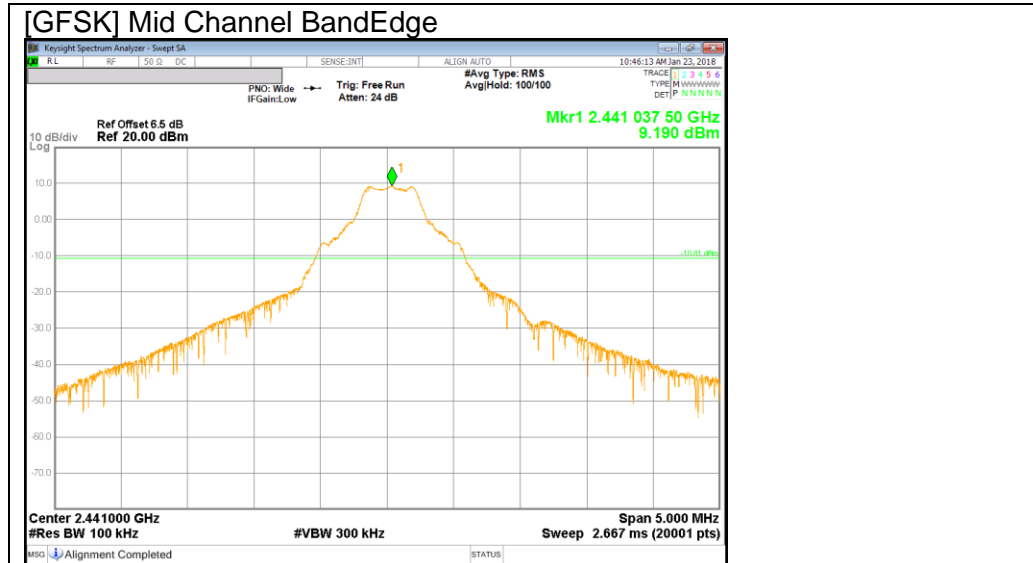
The bandedges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

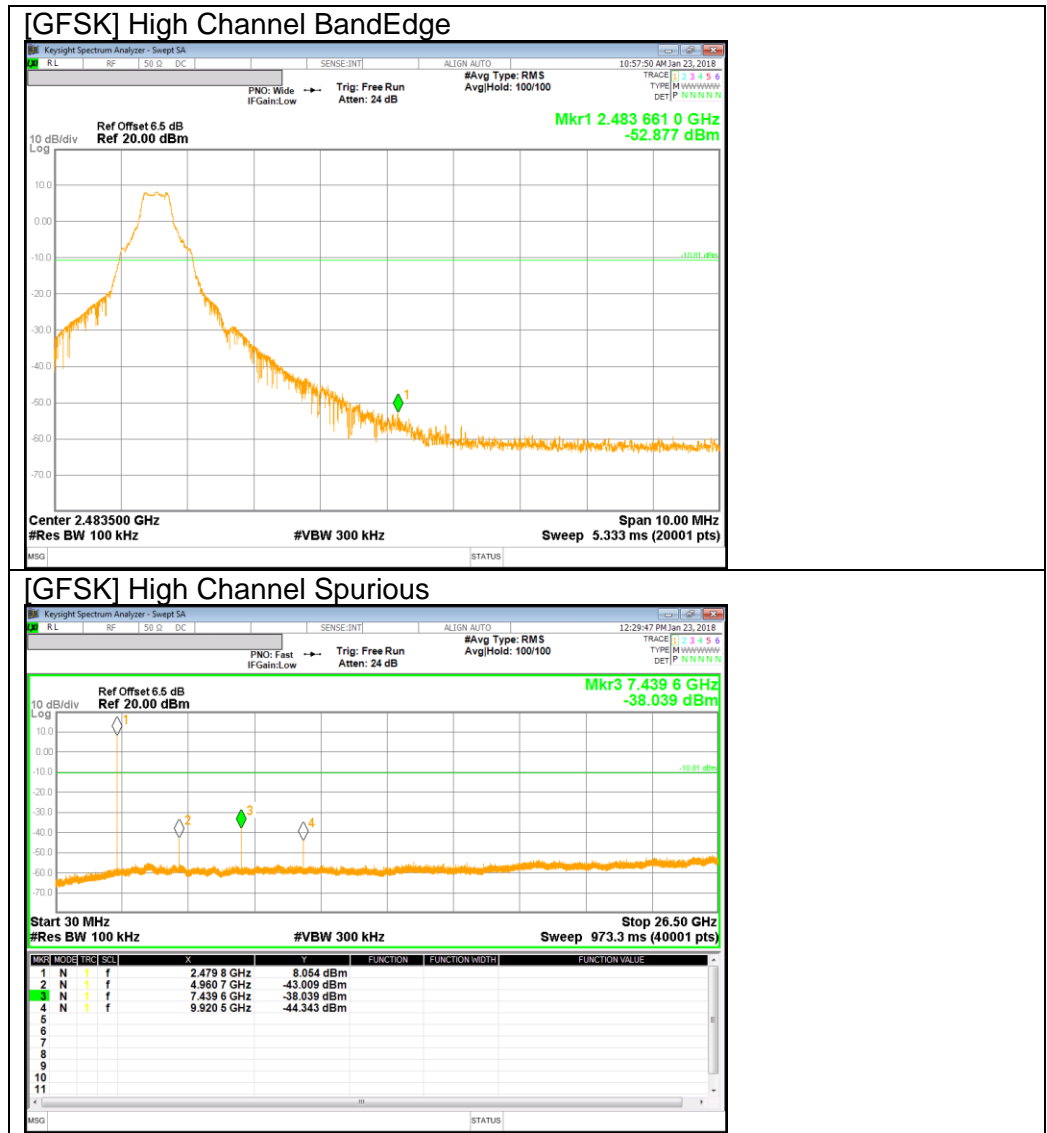
RESULTS

9.6.1. BASIC DATA RATE GFSK MODULATION

GFSK Mode

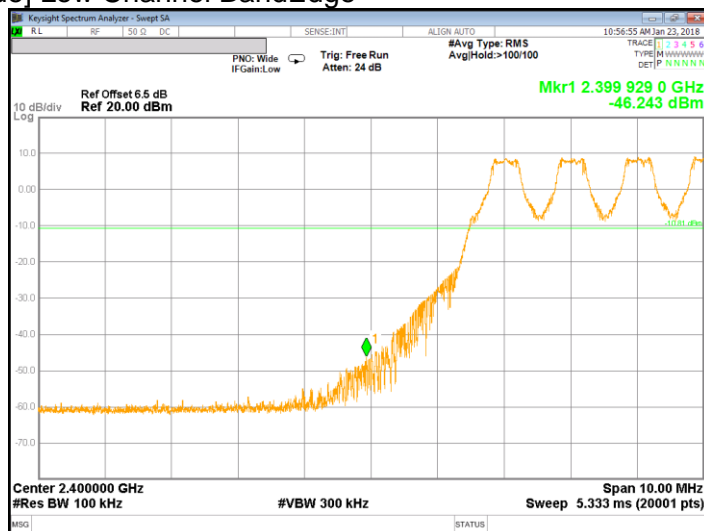




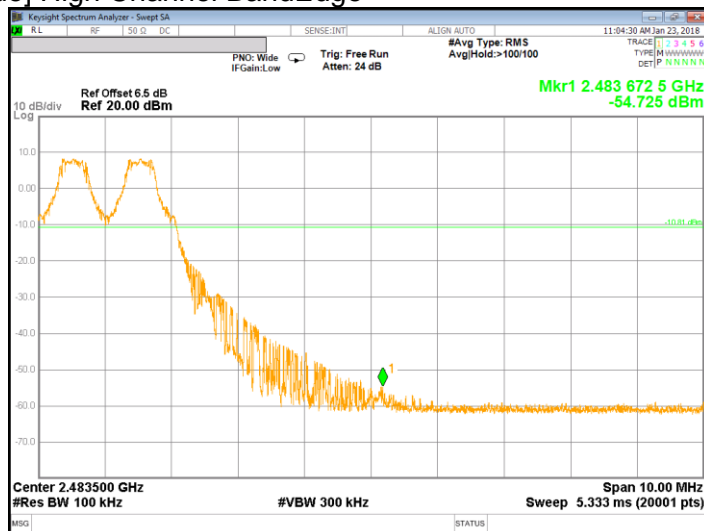


BandEdge Emission at GFSK Hopping Mode

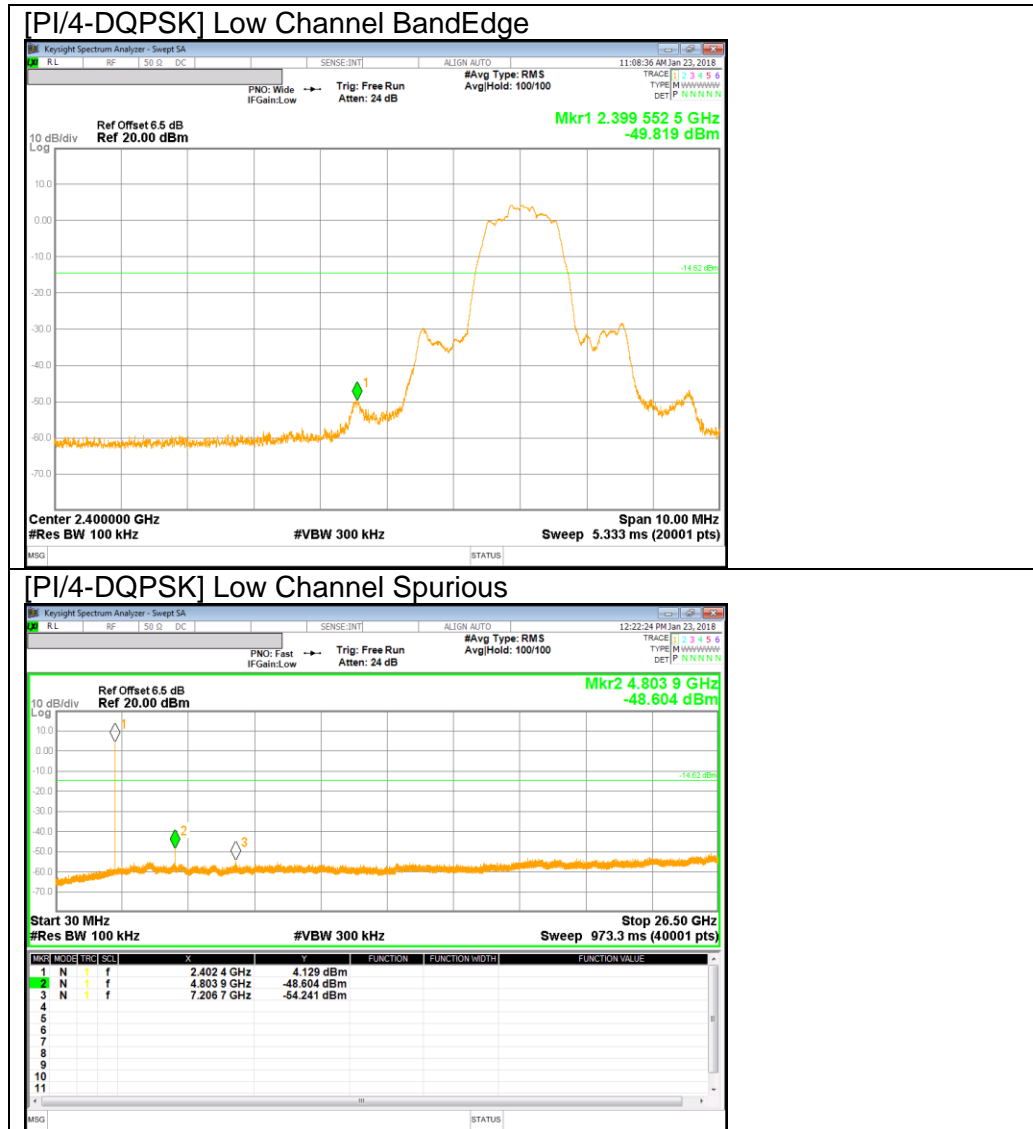
[GFSK Hopping Mode] Low Channel BandEdge

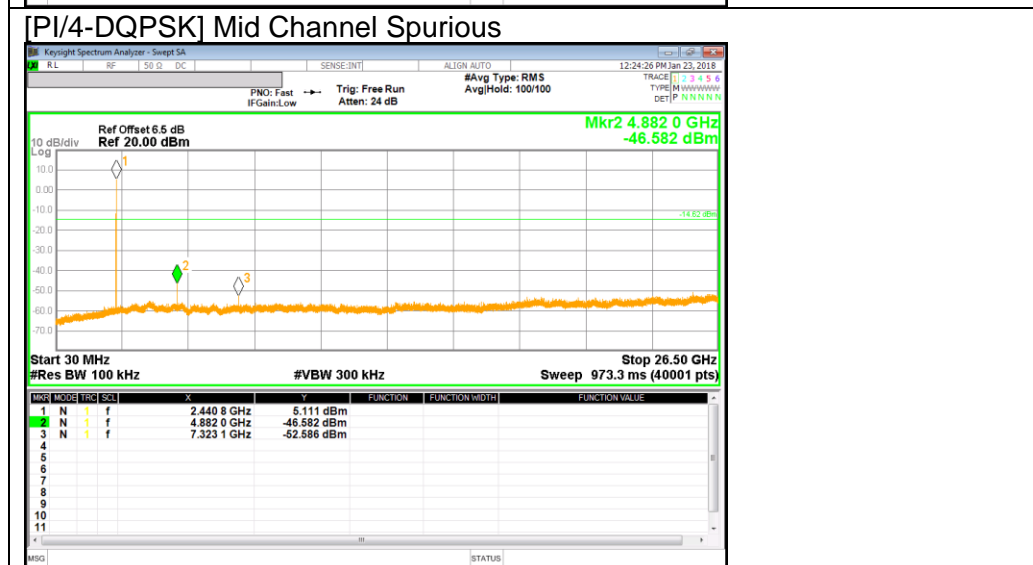
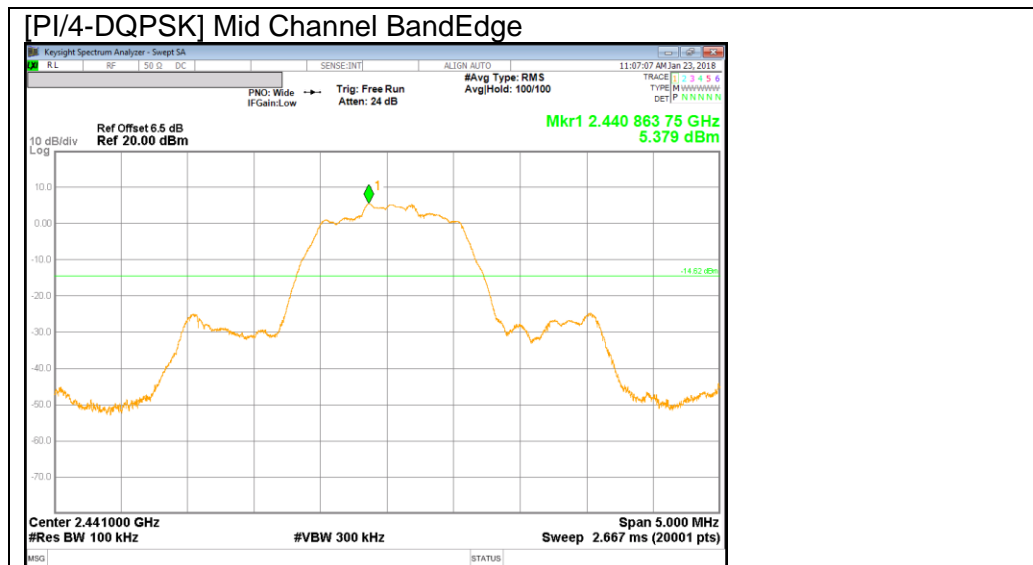


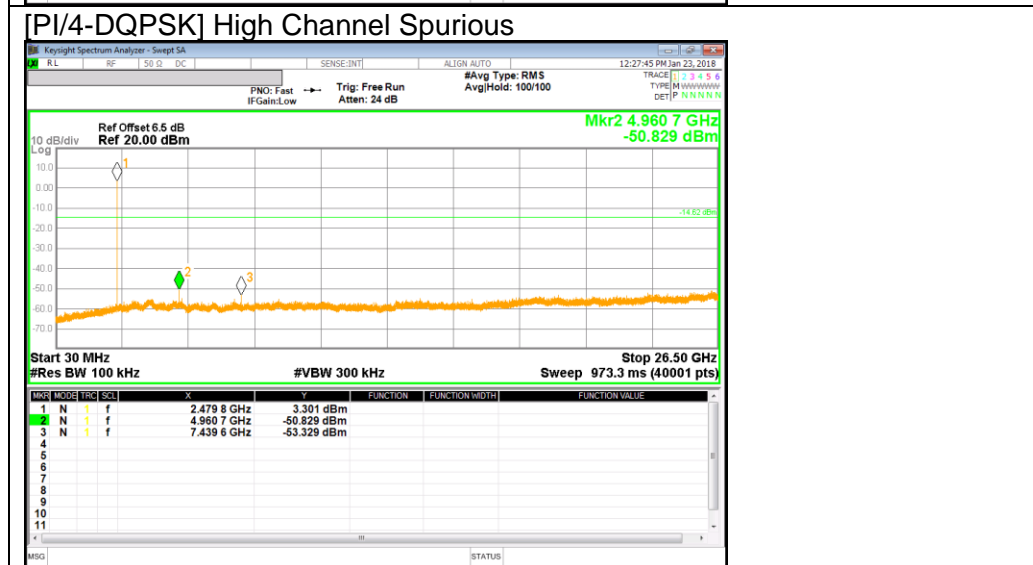
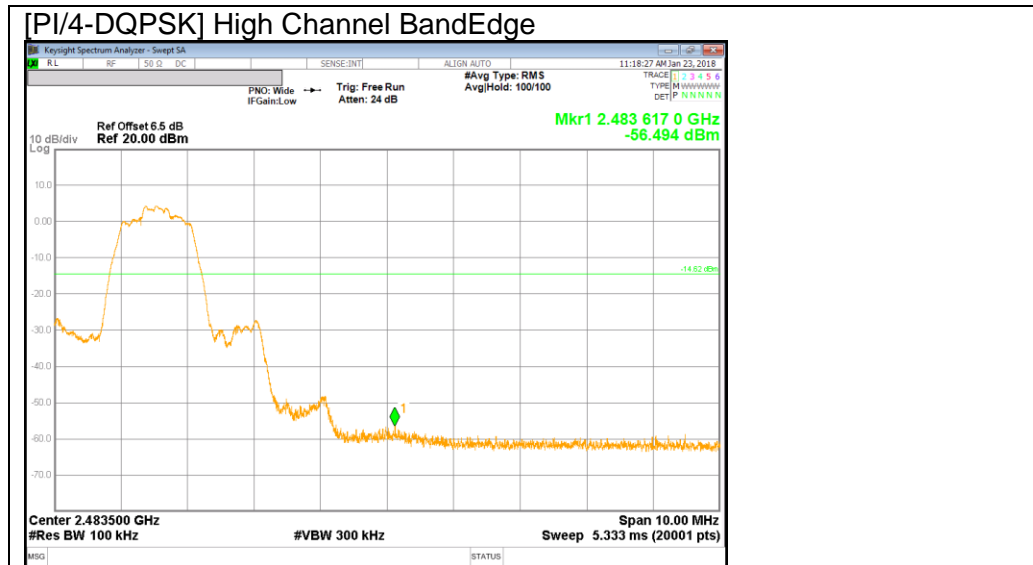
[GFSK Hopping Mode] High Channel BandEdge



PI/4-DQPSK Mode







BandEdge Emission at PI/4-DQPSK Hopping Mode

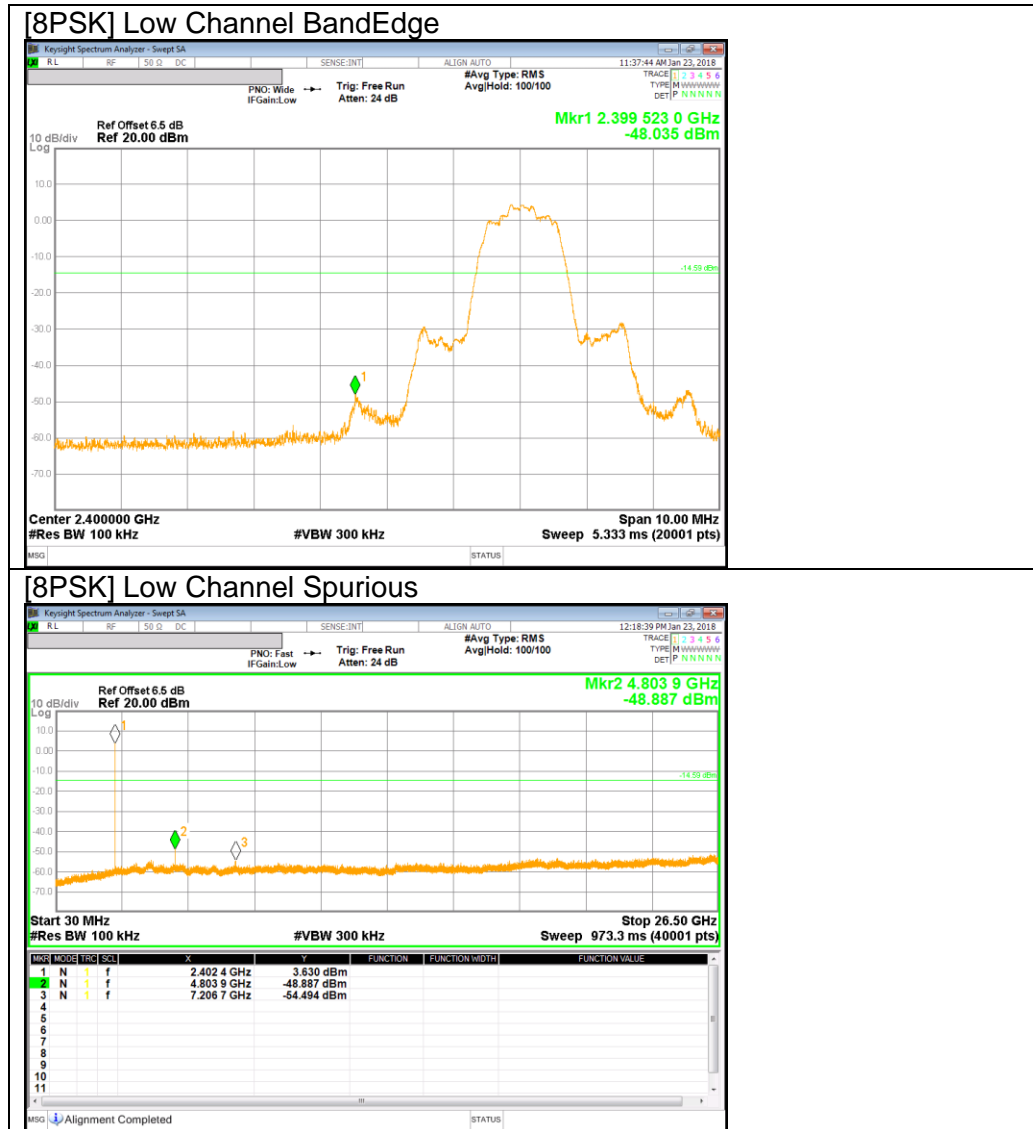
[PI/4-DQPSK Hopping Mode] Low Channel BandEdge

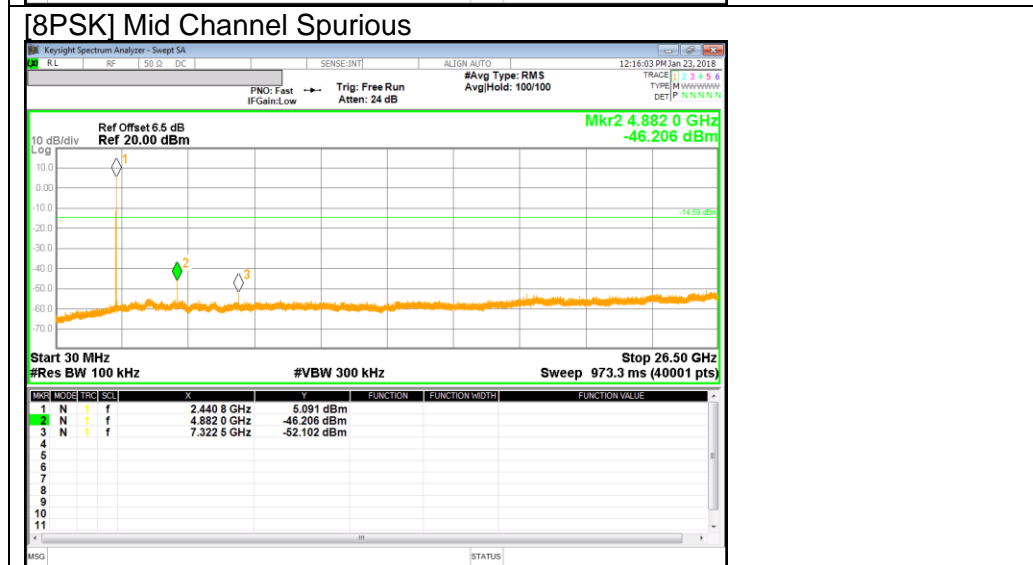
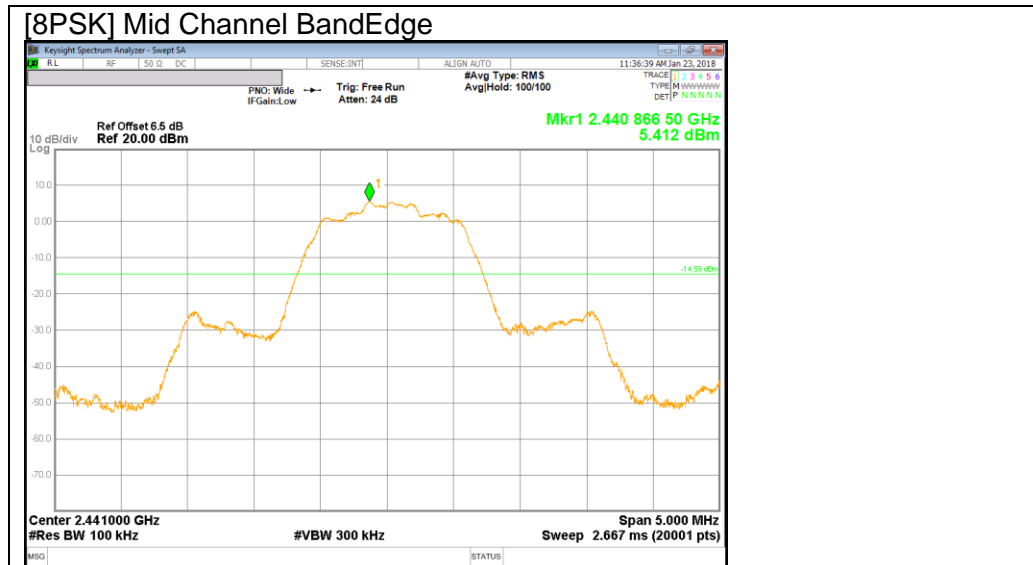


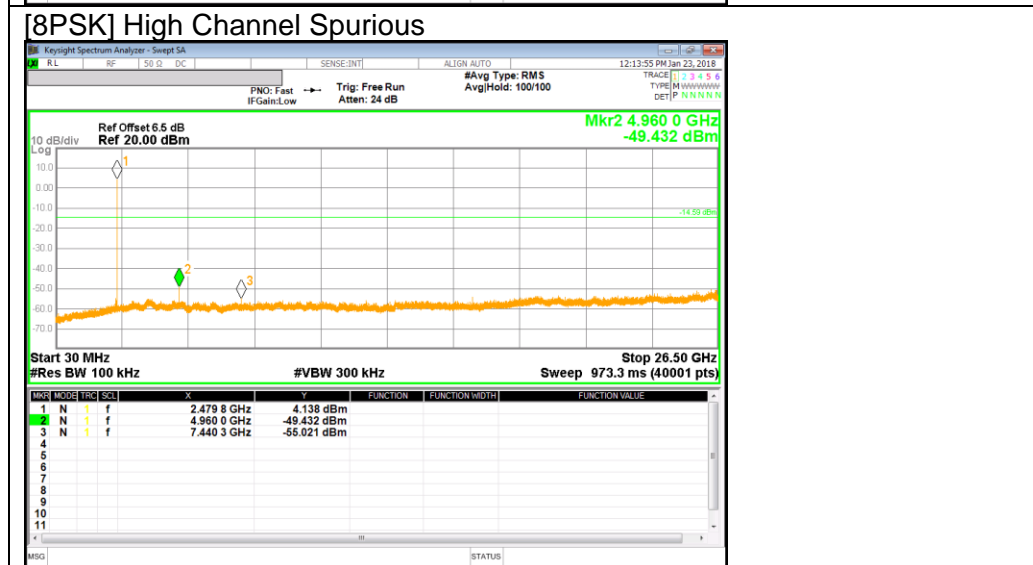
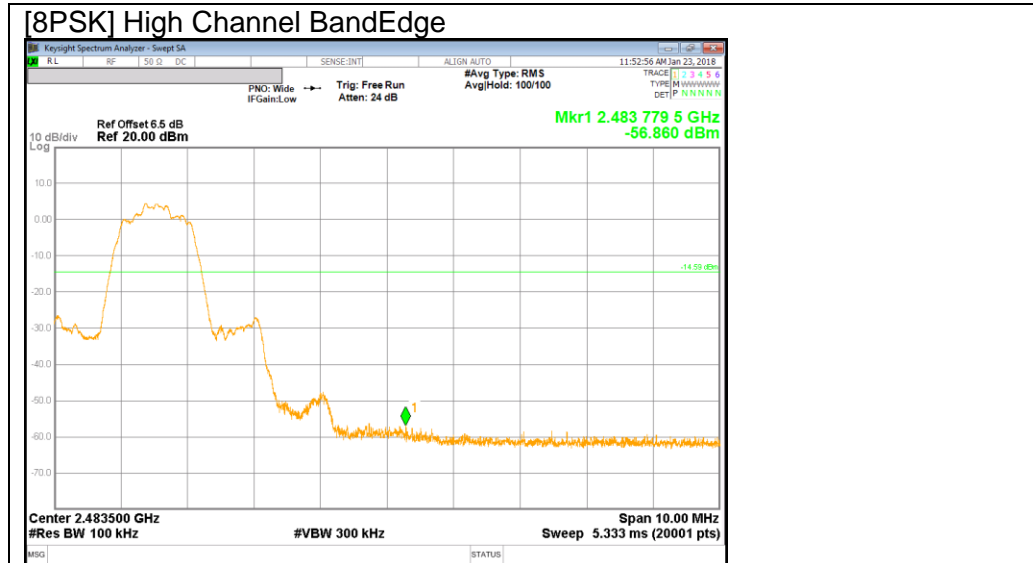
[PI/4-DQPSK Hopping Mode] High Channel BandEdge



8PSK Mode

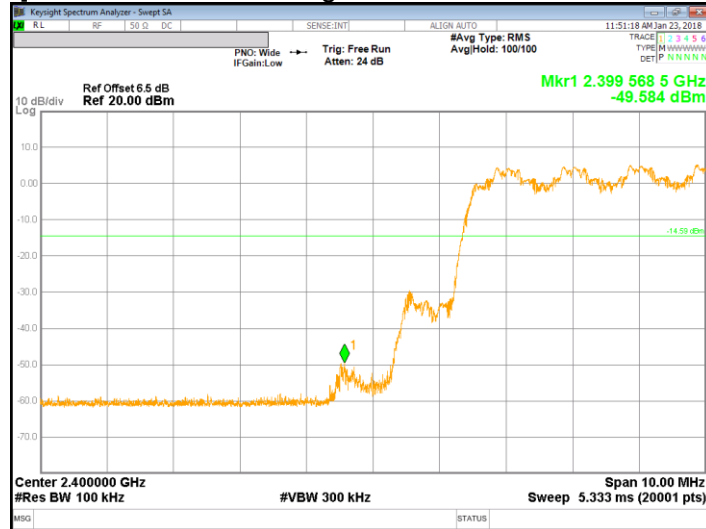






BandEdge Emission at 8PSK Hopping Mode

[8PSK Hopping Mode] Low Channel BandEdge



[8PSK Hopping Mode] High Channel BandEdge



10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (µV/m)	Measurement Distance (m)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 – 88	100**	3
88 - 216	150**	3
216 – 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150 cm for above 1GHz. 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; the video bandwidth is set to 3 MHz for peak measurements.(Pre-scans to detect harmonic and spurious emissions, the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.)

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

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

The minimum VBW was 350Hz, but test receiver(ESU40) couldn't set value 350Hz. Due to this reason, testing VBW was set to 500Hz(Worst cases).

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.
(From 30MHz to 1GHz, test was performed with the EUT set to transmit at the channel with highest output power)

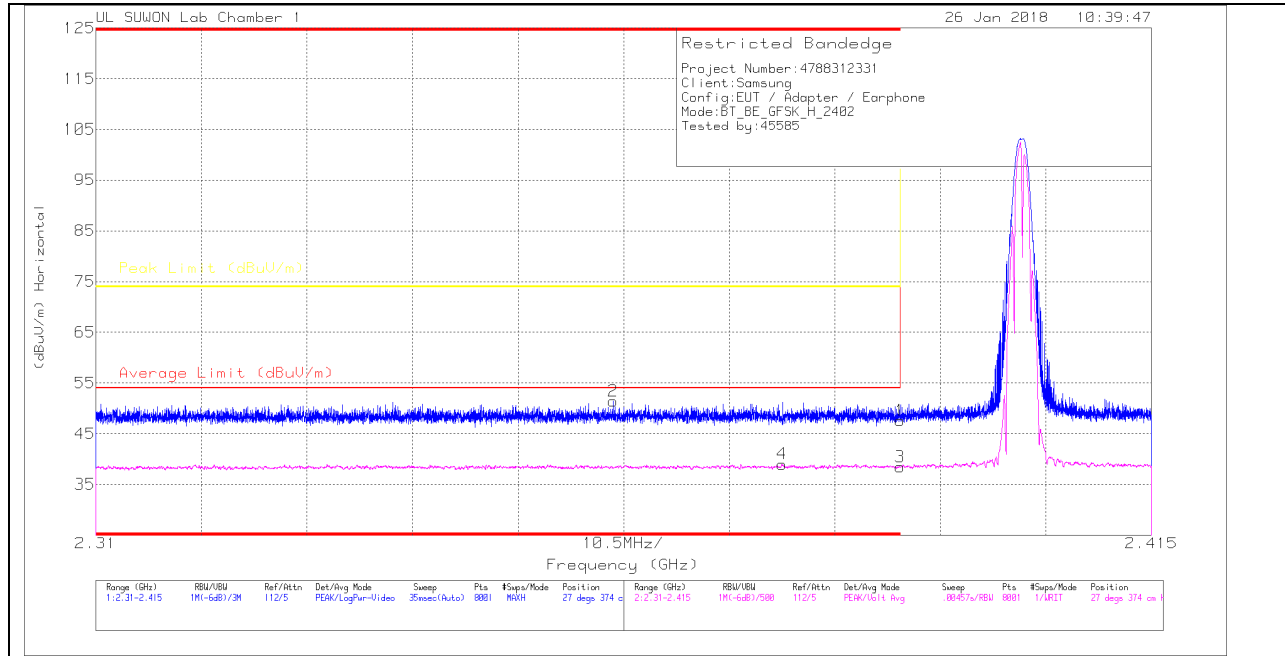
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

10.2. TRANSMITTER ABOVE 1 GHz

10.2.1. BASIC DATA RATE GFSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

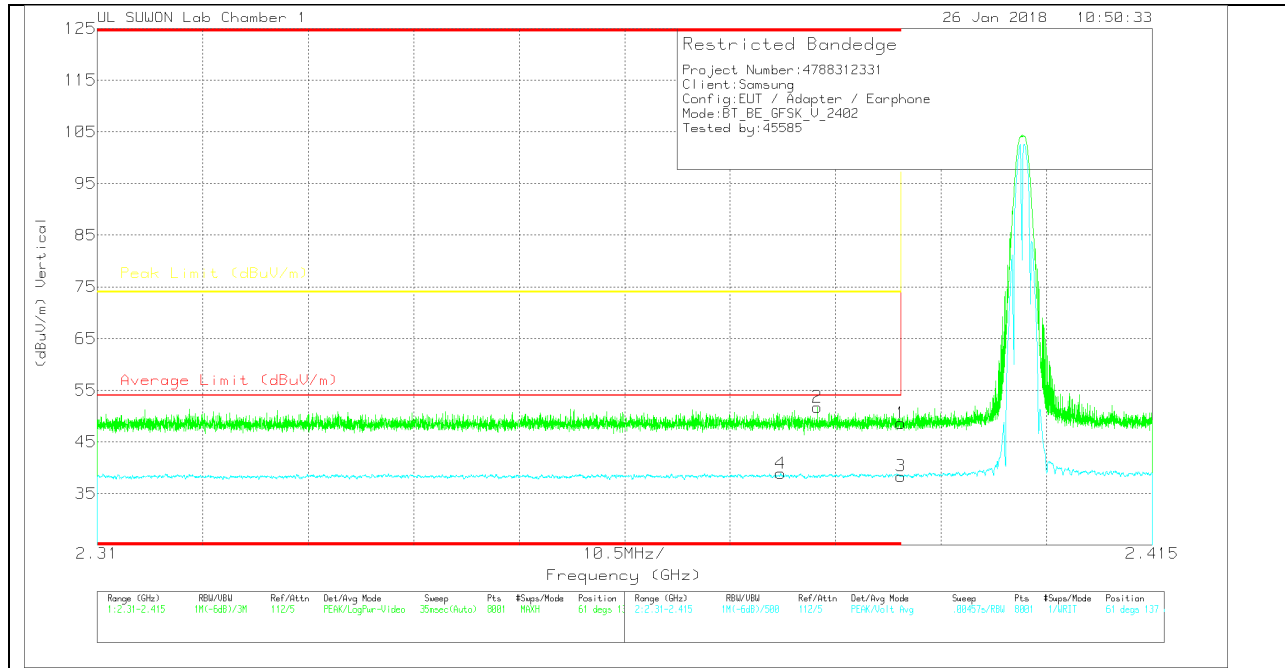
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	20170531_3117_00168717	10dB_ATT(dB)_170809	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	42.02	Pk	31.3	-25.7	47.62	-	-	74	-26.38	27	374	H
2	* 2.361	45.99	Pk	31.2	-25.8	51.39	-	-	74	-22.61	27	374	H
3	* 2.39	32.87	VA1T	31.3	-25.7	38.47	54	-15.53	-	-	27	374	H
4	* 2.378	33.41	VA1T	31.3	-25.7	39.01	54	-14.99	-	-	27	374	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

VA1T - FHSS: Linear Voltage Average $V_B=1/T_{on}$ where: T_{on} is transmit duration

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	20170531_3117_00168717	10dB_ATT(dB)_17_0809	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	43.01	Pk	31.3	-25.7	48.61	-	-	74	-25.39	61	137	V
2	* 2.382	46.25	Pk	31.3	-25.8	51.75	-	-	74	-22.25	61	137	V
3	* 2.39	32.77	VA1T	31.3	-25.7	38.37	54	-15.63	-	-	61	137	V
4	* 2.378	33.29	VA1T	31.3	-25.7	38.89	54	-15.11	-	-	61	137	V

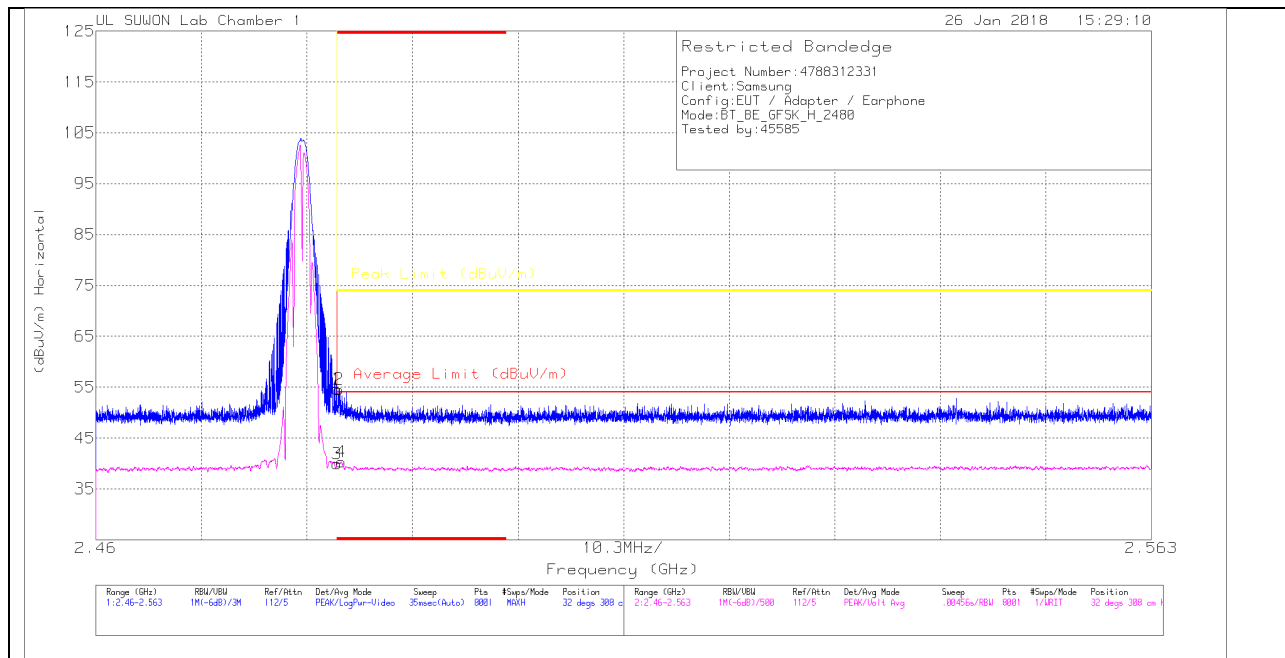
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

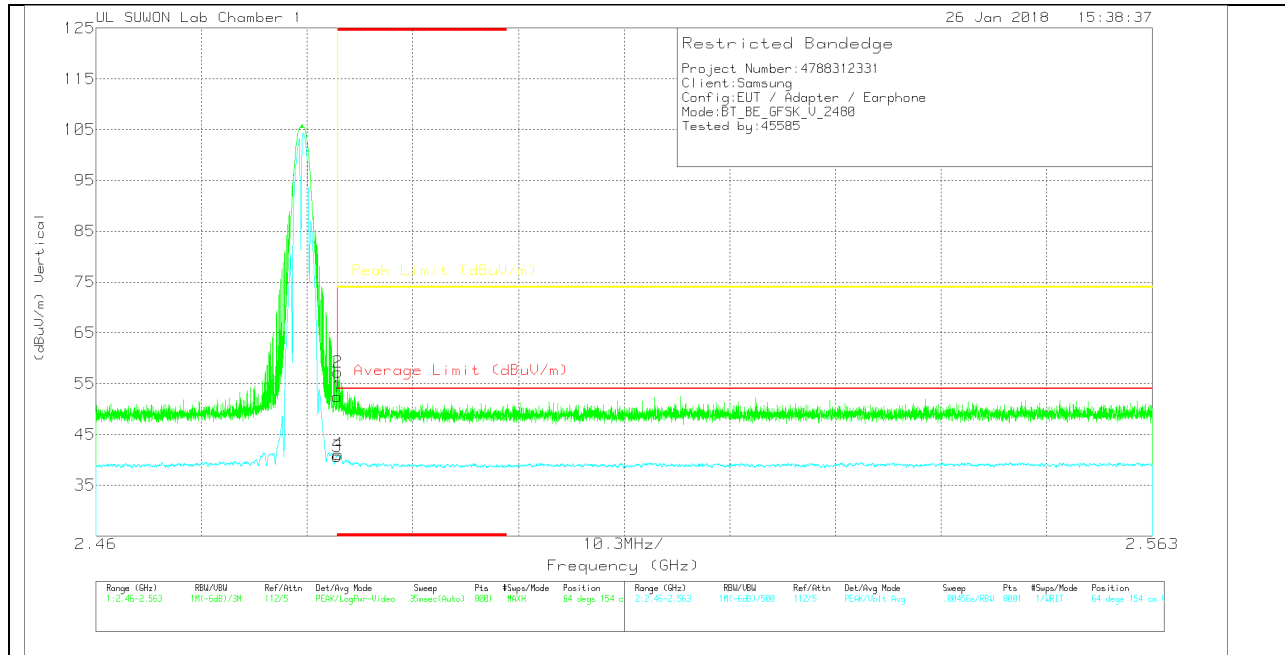
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	20170531_3117_00168717	10dB_ATT(dB)_17 0809	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	48.54	Pk		-25.5	54.64	-	-	74	-19.36	32	308	H
2	* 2.484	48.49	Pk		-25.5	54.59	-	-	74	-19.41	32	308	H
3	* 2.484	33.8	VA1T		-25.5	39.9	54	-14.1	-	-	32	308	H
4	* 2.484	34.16	VA1T		-25.5	40.26	54	-13.74	-	-	32	308	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	20170531_3117_00168717	10dB_ATT(dB)_170809	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	46.33	Pk	31.6	-25.5	52.43	-	-	74	-21.57	64	154	V
2	* 2.484	51.17	Pk	31.6	-25.5	57.27	-	-	74	-16.73	64	154	V
3	* 2.484	34.6	VA1T	31.6	-25.5	40.7	54	-13.3	-	-	64	154	V
4	* 2.484	35.01	VA1T	31.6	-25.5	41.11	54	-12.89	-	-	64	154	V

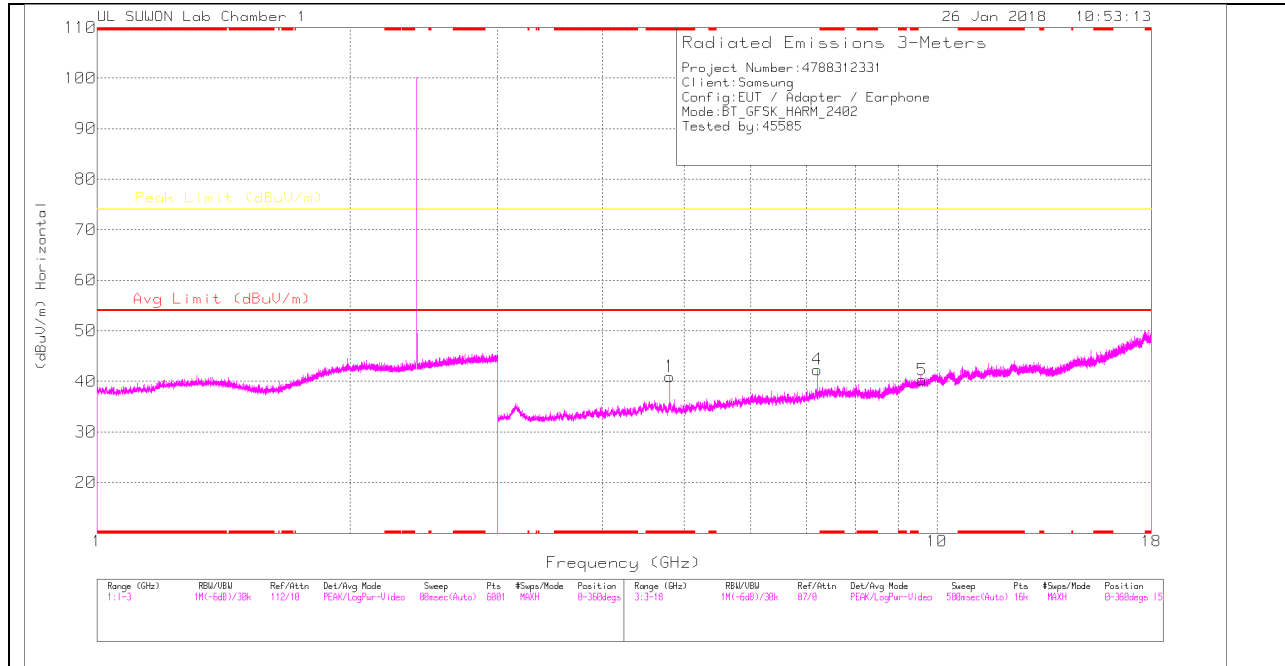
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

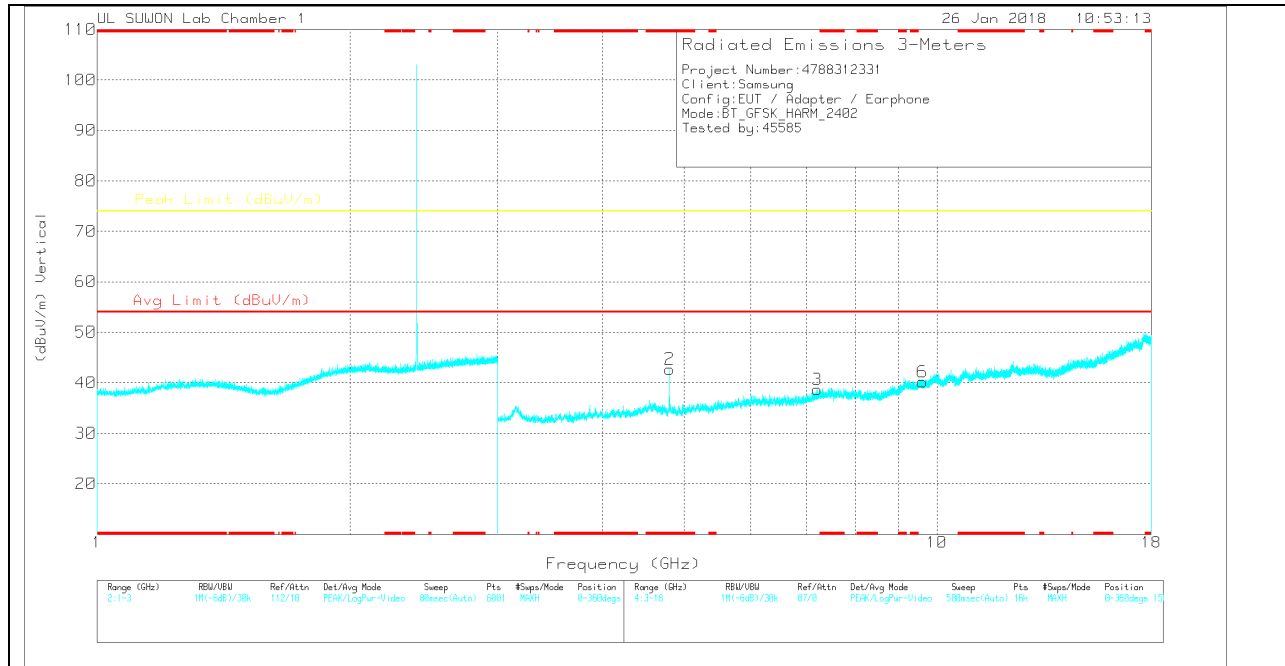
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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	20170531_3117_0 0168717	3GHz_HP(dB)_170 809	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.804	38.85	PK	33.8	-31.7	40.95	-	-	74	-33.05	0-360	250	H
4	7.205	34.55	PK	35.9	-28.1	42.35	-	-	74	-31.65	0-360	150	H
5	9.607	27.1	PK	36.7	-23.5	40.3	-	-	74	-33.7	0-360	150	H
2	* 4.805	40.5	PK	33.8	-31.6	42.7	-	-	74	-31.3	0-360	150	V
3	7.206	30.87	PK	35.9	-28.1	38.67	-	-	74	-35.33	0-360	251	V
6	9.609	26.96	PK	36.7	-23.5	40.16	-	-	74	-33.84	0-360	251	V

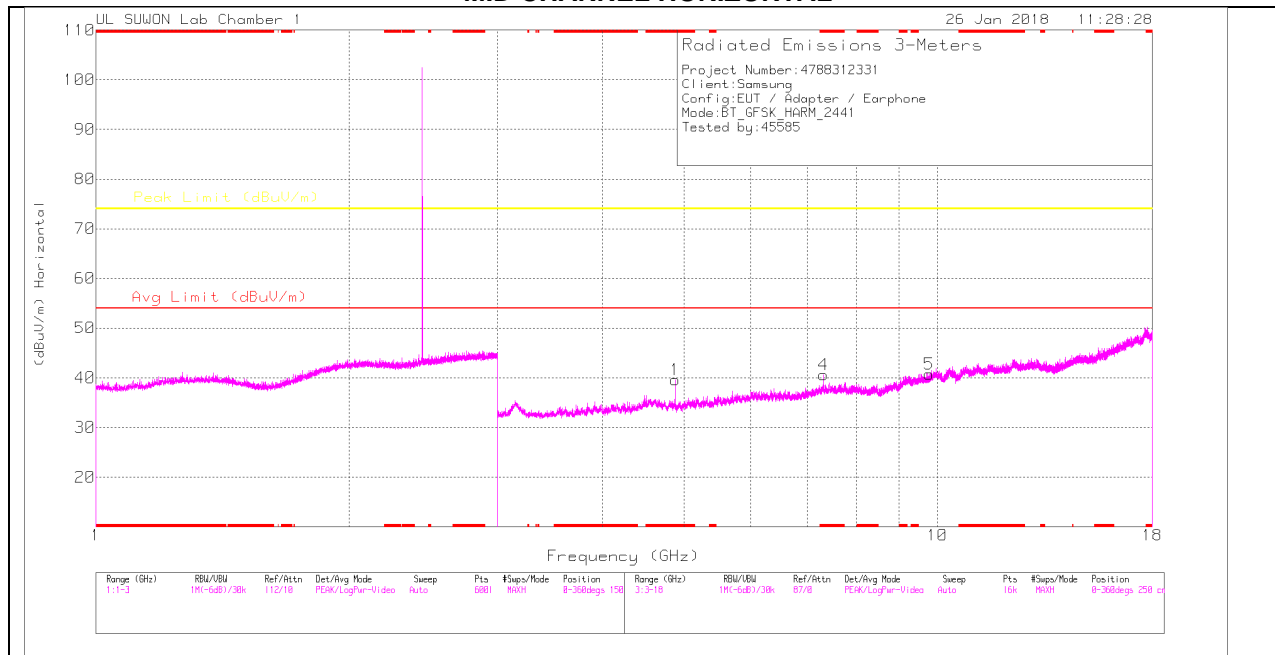
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK – Peak Detector

Radiated Emissions

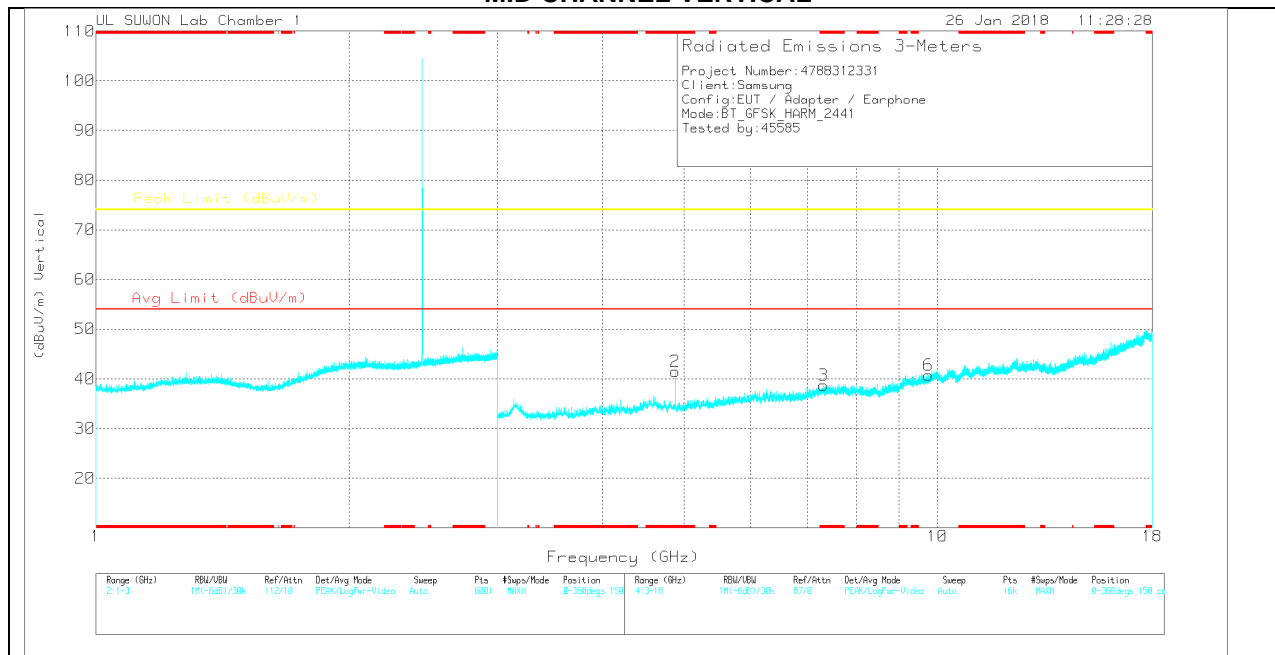
Frequency (GHz)	Meter Reading (dBuV)	Det	20170531_3117_ 00168717	3GHz_HP(dB)_17 0809	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.804	45.35	PKFH	33.8	-31.6	47.55	-	-	74	-26.45	106	256	H
* 4.804	38.61	VA1T	33.8	-31.6	40.81	54	-13.19	-	-	106	256	H
* 4.804	46.19	PKFH	33.8	-31.6	48.39	-	-	74	-25.61	289	196	V
* 4.804	40.89	VA1T	33.8	-31.7	42.99	54	-11.01	-	-	289	196	V
7.206	37.99	PKFH	35.9	-28.1	45.79	-	-	74	-28.21	232	122	V
7.206	38.07	PKFH	35.9	-28.1	45.87	-	-	74	-28.13	261	116	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PKFH - FHSS: RB=100k/1MHz VB=3 x RB, Peak
 VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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	20170531_3117_0 0168717	3GHz_HP(dB)_170 809	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.882	37.47	PK	33.8	-31.7	39.57	-	-	74	-34.43	0-360	250	H
4	* 7.323	32.27	PK	35.9	-27.6	40.57	-	-	74	-33.43	0-360	150	H
5	9.769	27.99	PK	36.9	-24.2	40.69	-	-	74	-33.31	0-360	250	H
2	* 4.882	39.43	PK	33.8	-31.7	41.53	-	-	74	-32.47	0-360	150	V
3	* 7.323	30.44	PK	35.9	-27.6	38.74	-	-	74	-35.26	0-360	150	V
6	9.762	28.04	PK	36.9	-24.2	40.74	-	-	74	-33.26	0-360	150	V

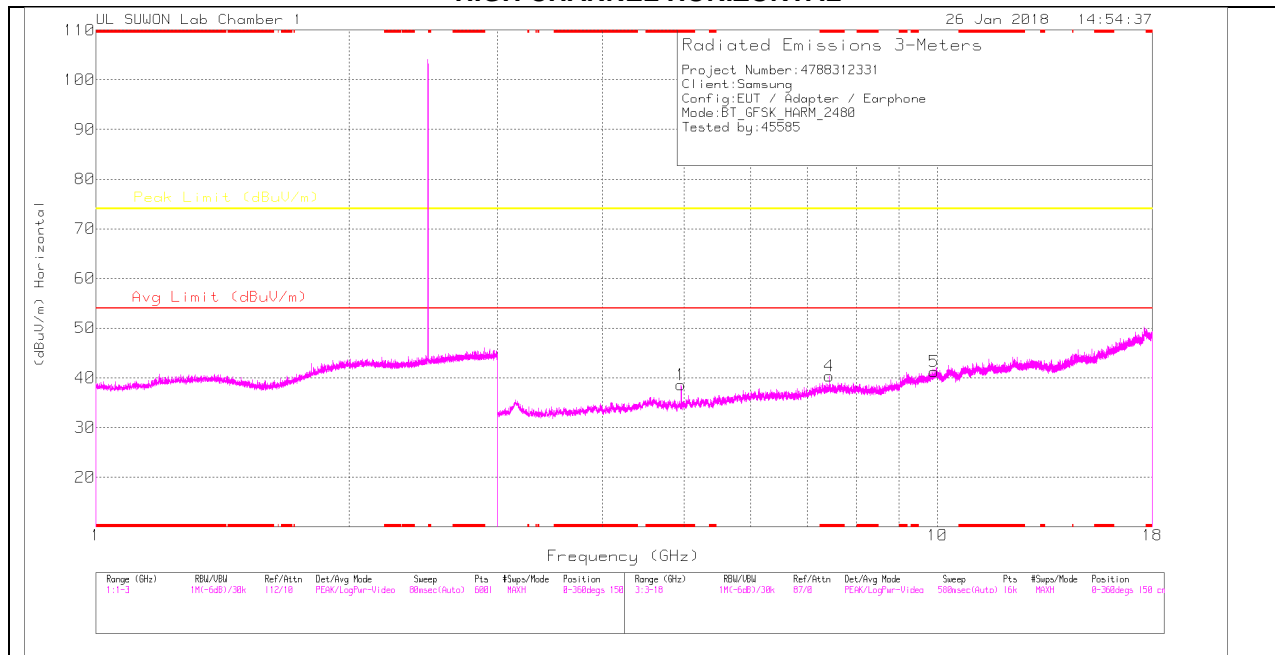
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK – Peak Detector

Radiated Emissions

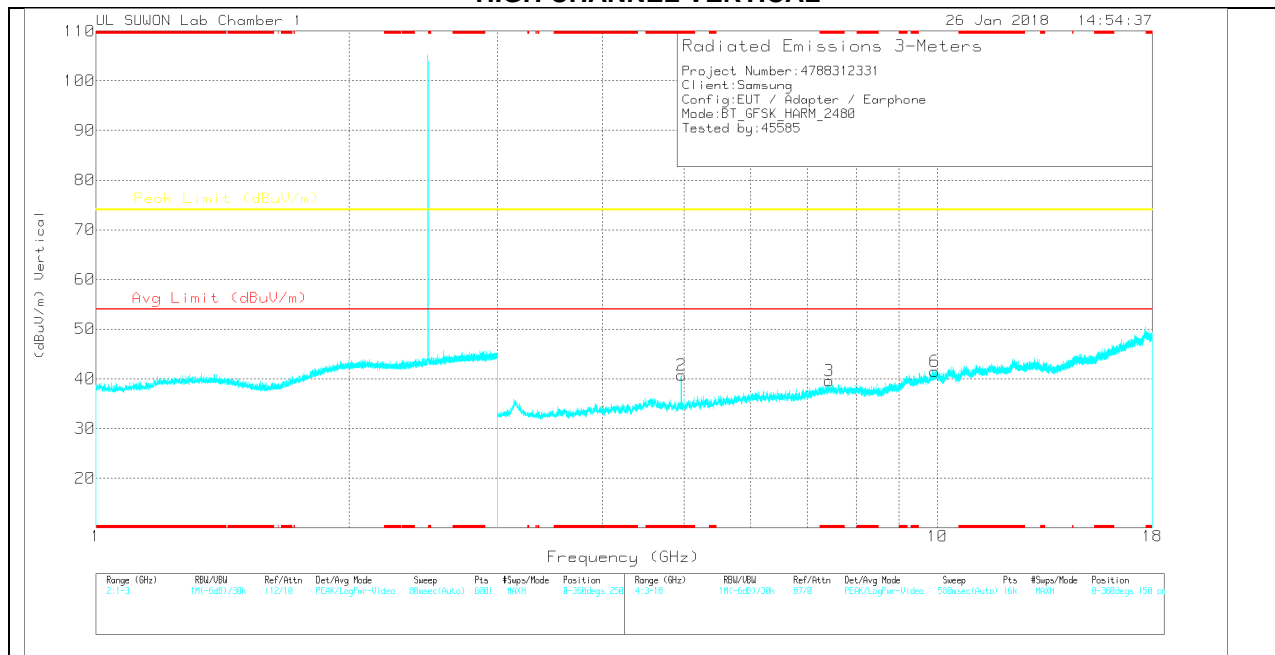
Frequency (GHz)	Meter Reading (dBuV)	Det	20170531_3117_ 00168717	3GHz_HP(dB)_17 0809	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.882	44.44	PKFH	33.8	-31.7	46.54	-	-	74	-27.46	54	318	H
* 4.882	38.23	VA1T	33.8	-31.7	40.33	54	-13.67	-	-	54	318	H
* 4.883	45.19	PKFH	33.8	-31.7	47.29	-	-	74	-26.71	294	231	V
* 4.882	39.16	VA1T	33.8	-31.7	41.26	54	-12.74	-	-	294	231	V
* 7.323	38.78	PKFH	35.9	-27.6	47.08	-	-	74	-26.92	230	115	V
* 7.323	29.15	VA1T	35.9	-27.6	37.45	54	-16.55	-	-	230	115	V
* 7.324	39.13	PKFH	35.9	-27.6	47.43	-	-	74	-26.57	242	257	H
* 7.323	29.86	VA1T	35.9	-27.6	38.16	54	-15.84	-	-	242	257	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PKFH - FHSS: RB=100k/1MHz VB=3 x RB, Peak
 VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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	20170531_3117_0 0168717	3GHz_HP(dB)_170 809	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.959	36.46	PK	33.8	-31.7	38.56	-	-	74	-35.44	0-360	250	H
4	* 7.441	31.68	PK	35.9	-27.2	40.38	-	-	74	-33.62	0-360	250	H
5	9.916	26.56	PK	37.1	-22.4	41.26	-	-	74	-32.74	0-360	250	H
2	* 4.96	38.58	PK	33.8	-31.6	40.78	-	-	74	-33.22	0-360	250	V
3	* 7.441	30.87	PK	35.9	-27.2	39.57	-	-	74	-34.43	0-360	150	V
6	9.92	26.72	PK	37.1	-22.3	41.52	-	-	74	-32.48	0-360	250	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK – Peak Detector

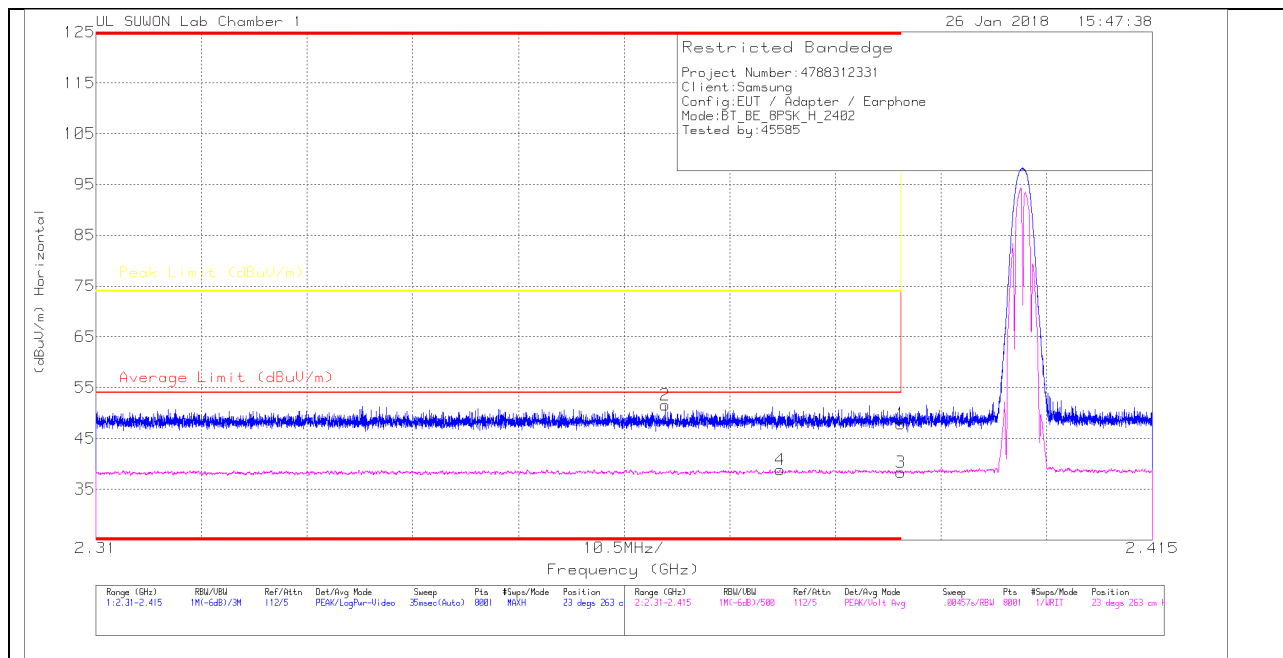
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	20170531_3117_ 00168717	3GHz_HP(dB)_17 0809	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.96	42.5	PKFH	33.8	-31.6	44.7	-	-	74	-29.3	55	379	H
* 4.96	36.01	VA1T	33.8	-31.6	38.21	54	-15.79	-	-	55	379	H
* 4.96	43.51	PKFH	33.8	-31.7	45.61	-	-	74	-28.39	277	190	V
* 4.96	35.73	VA1T	33.8	-31.6	37.93	54	-16.07	-	-	277	190	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PKFH - FHSS: RB=100k/1MHz VB=3 x RB, Peak
 VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

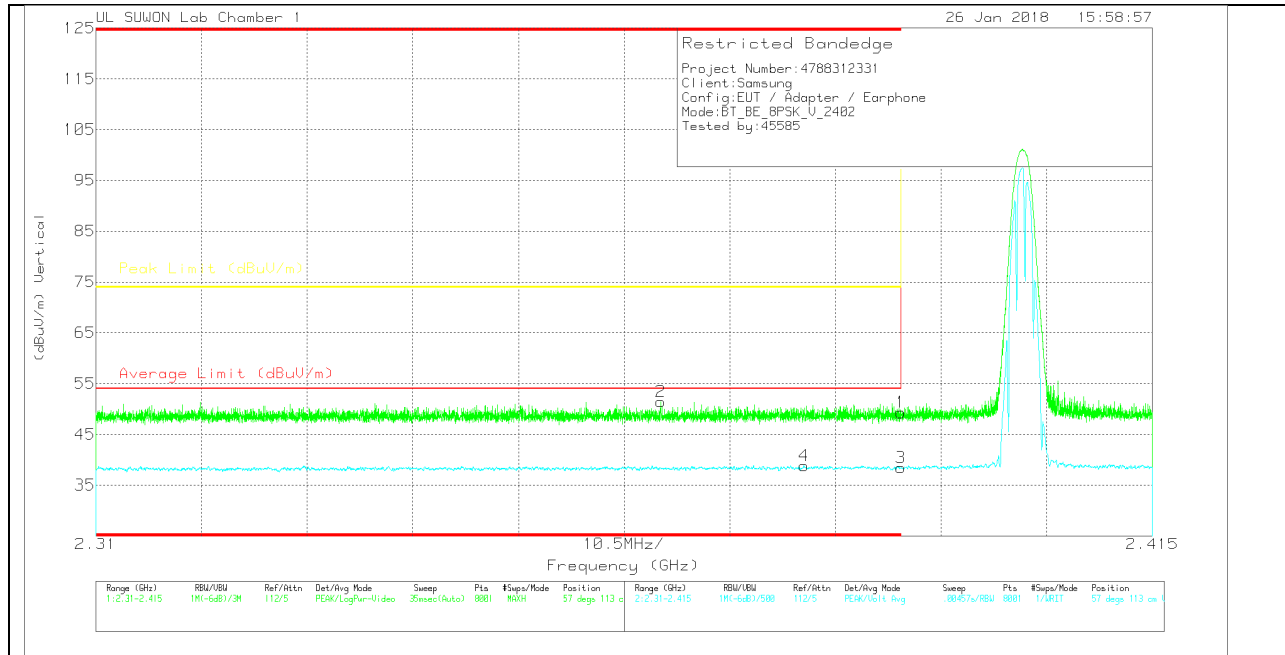
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	20170531_3117_00168717	10dB_ATT(dB)_170809	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	42.31	Pk			47.91	-	-	74	-26.09	23	263	H
2	* 2.367	46.15	PK			51.55	-	-	74	-22.45	23	263	H
3	* 2.39	32.7	VA1T			38.3	54	-15.7	-	-	23	263	H
4	* 2.378	33.23	VA1T			38.83	54	-15.17	-	-	23	263	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	20170531_3117_00168717	10dB_ATT(dB)_170809	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	43.68	Pk	31.3	-25.7	49.28	-	-	74	-24.72	57	113	V
2	* 2.366	46.07	Pk	31.2	-25.8	51.47	-	-	74	-22.53	57	113	V
3	* 2.39	32.81	VA1T	31.3	-25.7	38.41	54	-15.59	-	-	57	113	V
4	* 2.38	33.36	VA1T	31.3	-25.8	38.86	54	-15.14	-	-	57	113	V

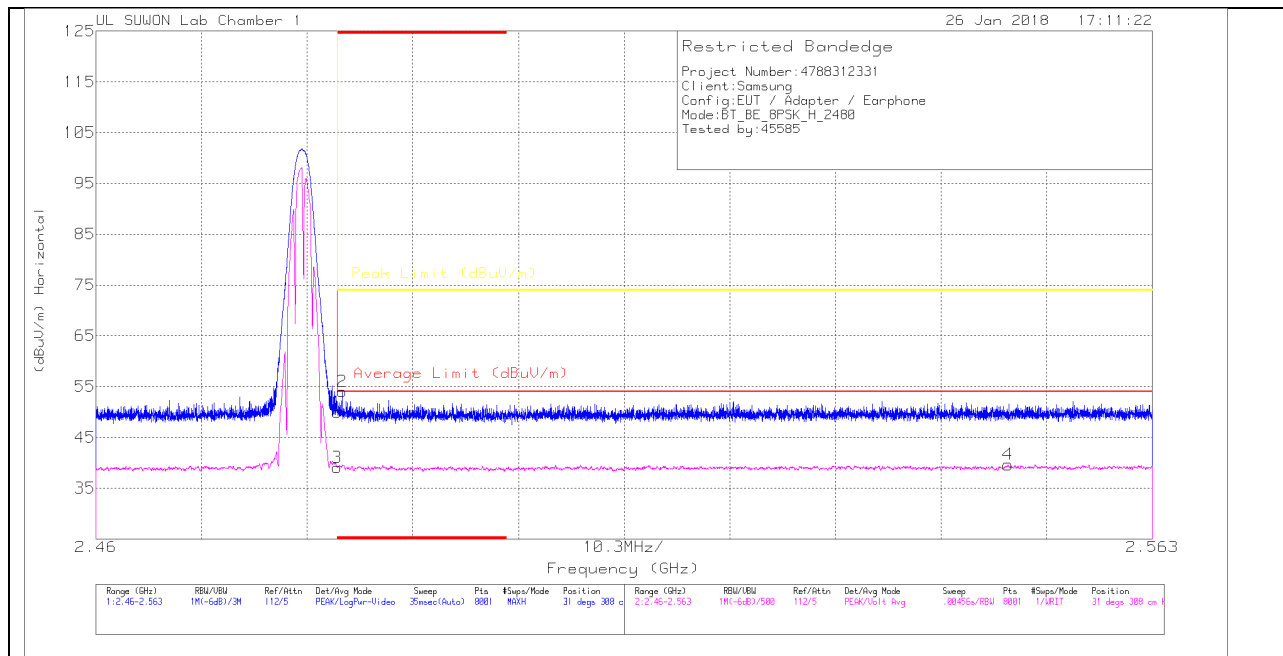
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

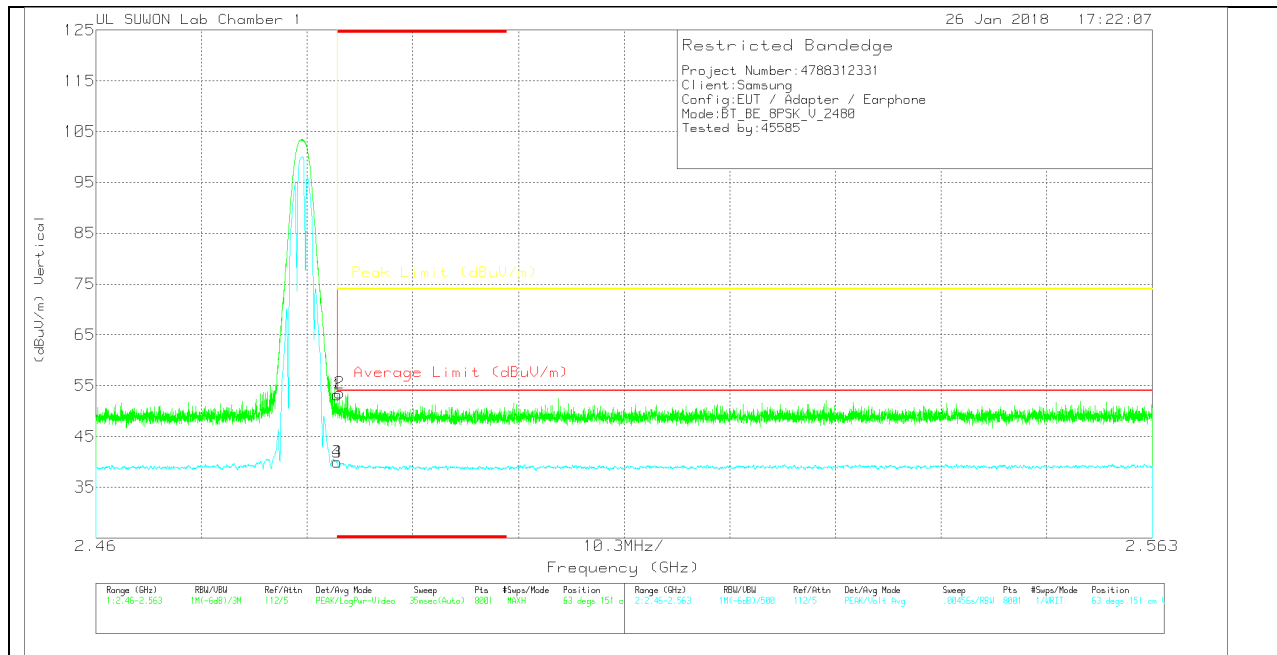
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	20170531_3117_00168717	10dB_ATT(dB)_17_0809	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	43.88	Pk		-25.5	49.98	-	-	74	-24.02	31	308	H
2	* 2.484	47.95	Pk		-25.5	54.05	-	-	74	-19.95	31	308	H
3	* 2.484	32.96	VA1T		-25.5	39.06	54	-14.94	-	-	31	308	H
4	2.549	33.23	VA1T		-25.3	39.63	54	-14.37	-	-	31	308	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

VA1T - FHSS: Linear Voltage Average $V_B=1/T_{on}$ where: T_{on} is transmit duration

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	20170531_3117_00168717	10dB_ATT(dB)_170809	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	47.05	Pk	31.6	-25.5	53.15	-	-	74	-20.85	63	151	V
2	* 2.484	47.4	Pk	31.6	-25.5	53.5	-	-	74	-20.5	63	151	V
3	* 2.484	33.84	VA1T	31.6	-25.5	39.94	54	-14.06	-	-	63	151	V
4	* 2.484	33.86	VA1T	31.6	-25.5	39.96	54	-14.04	-	-	63	151	V

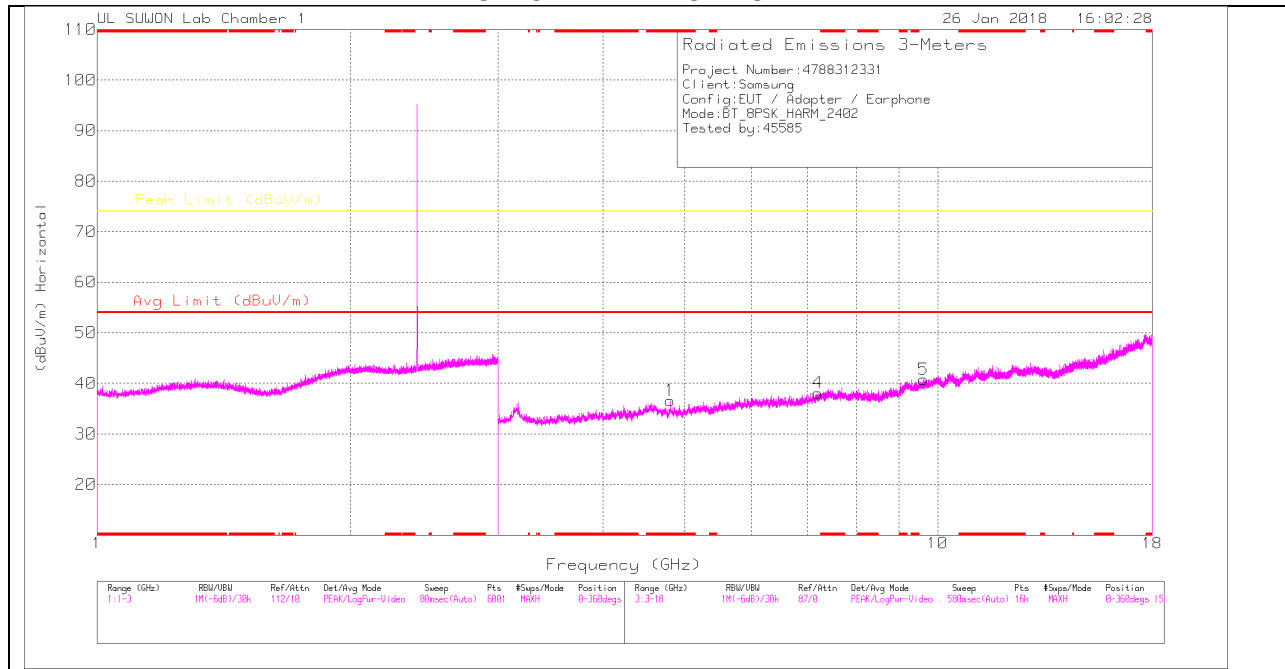
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

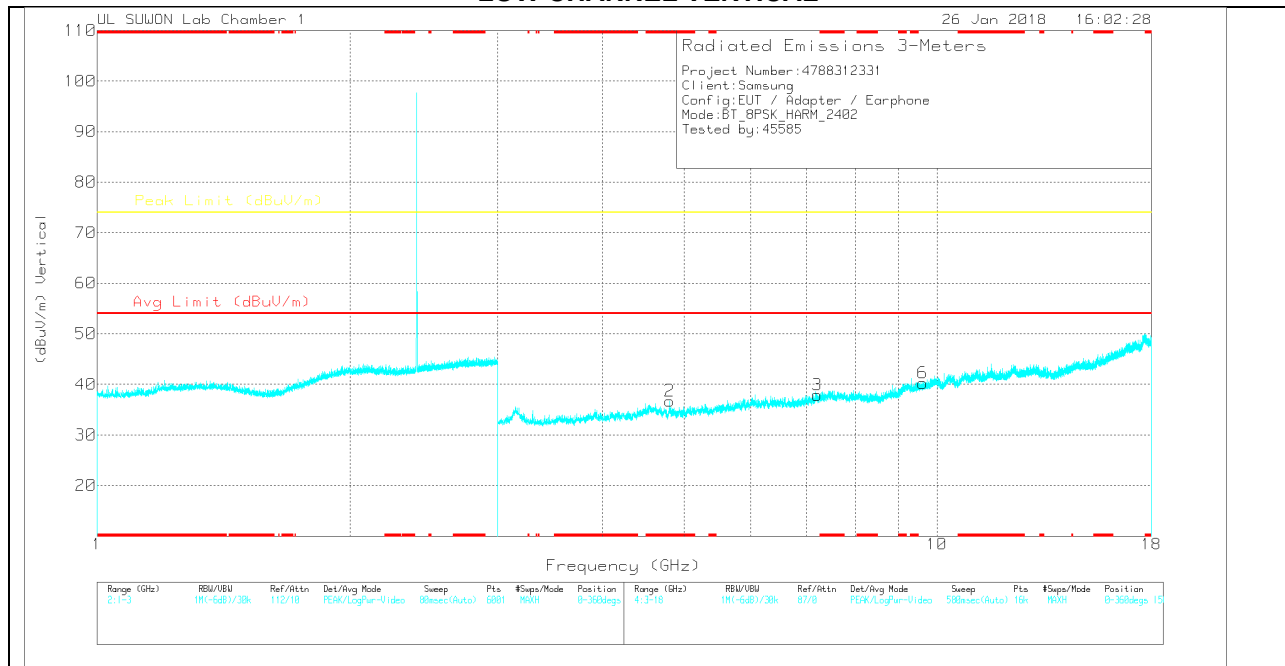
VA1T - FHSS: Linear Voltage Average $VB=1/Ton$ where: Ton is transmit duration

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

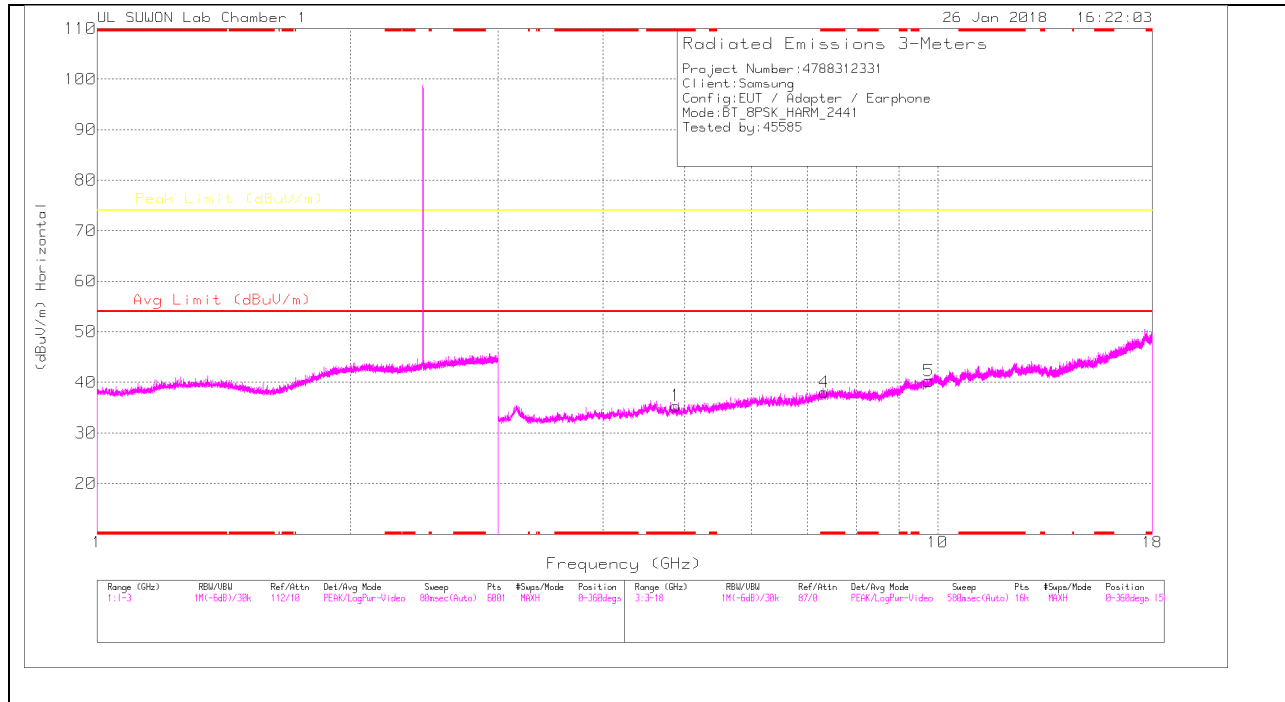
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	20170531_3117_0 0168717	3GHz_HP(dB)_170 809	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.804	34.5	PK	33.8	-31.7	36.6	-	-	74	-37.4	0-360	250	H
4	7.205	30.32	PK	35.9	-28.1	38.12	-	-	74	-35.88	0-360	250	H
5	9.613	27.7	PK	36.7	-23.6	40.8	-	-	74	-33.2	0-360	150	H
2	* 4.805	34.51	PK	33.8	-31.6	36.71	-	-	74	-37.29	0-360	250	V
3	7.203	30.09	PK	35.9	-28.1	37.89	-	-	74	-36.11	0-360	150	V
6	9.615	27.05	PK	36.7	-23.5	40.25	-	-	74	-33.75	0-360	250	V

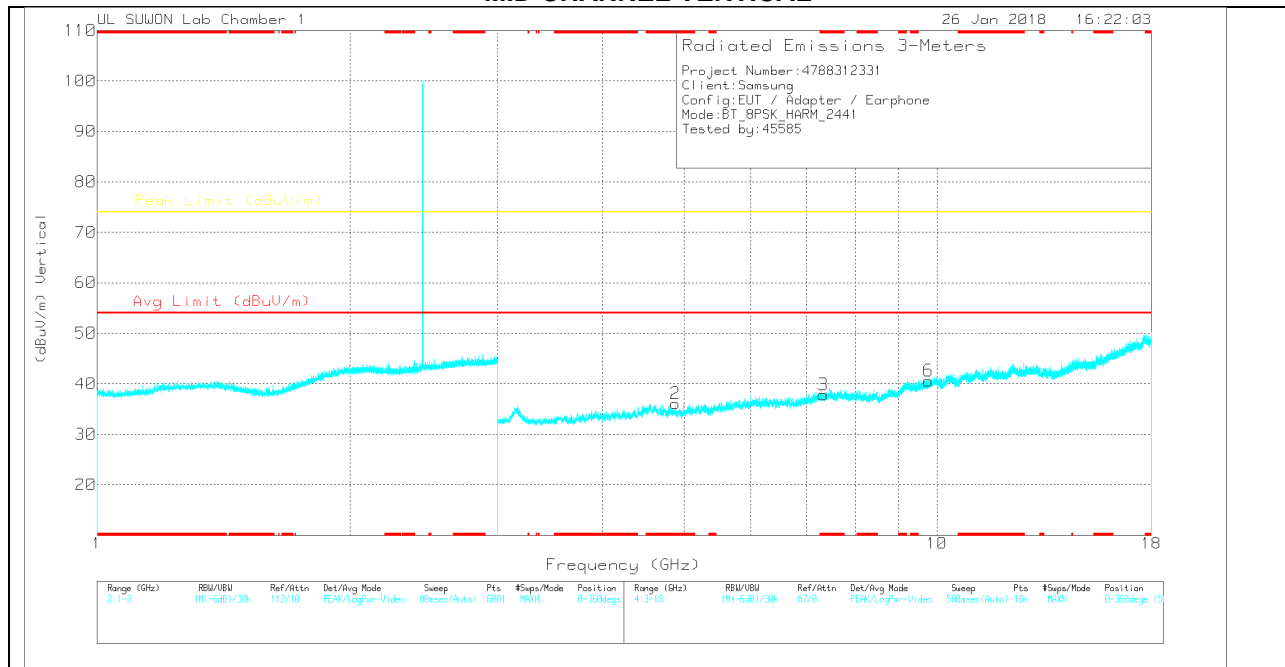
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK – Peak Detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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

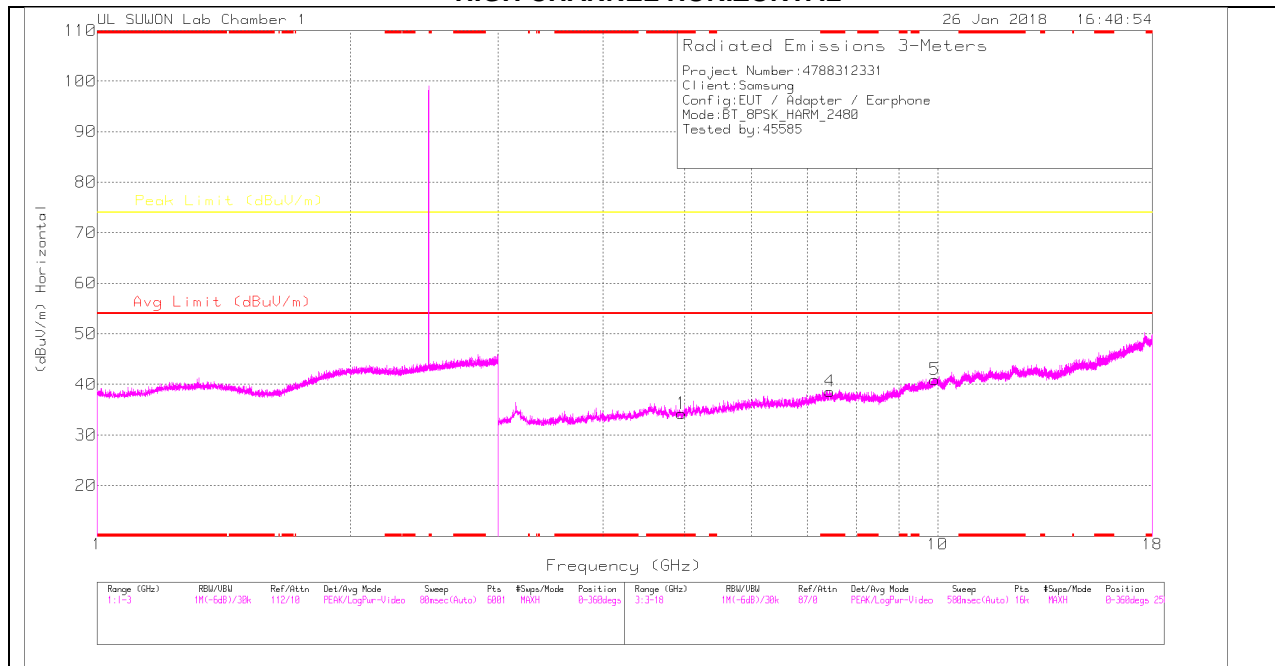
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	20170531_3117_0 0168717	3GHz_HP(dB)_170 809	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.881	33.26	PK	33.8	-31.7	35.36	-	-	74	-38.64	0-360	250	H
4	* 7.33	29.66	PK	35.9	-27.5	38.06	-	-	74	-35.94	0-360	250	H
5	9.76	27.55	PK	36.9	-24.2	40.25	-	-	74	-33.75	0-360	150	H
2	* 4.881	33.98	PK	33.8	-31.7	36.08	-	-	74	-37.92	0-360	250	V
3	* 7.322	29.53	PK	35.9	-27.6	37.83	-	-	74	-36.17	0-360	150	V
6	9.766	27.88	PK	36.9	-24.2	40.58	-	-	74	-33.42	0-360	250	V

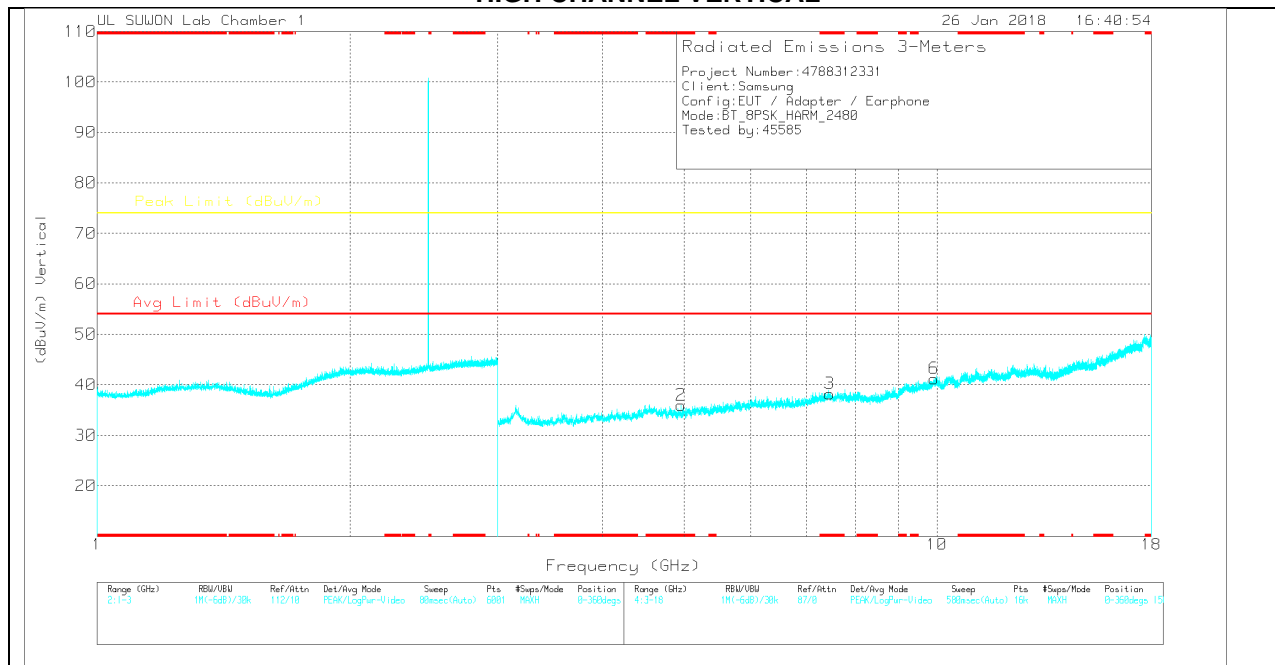
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK – Peak Detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

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	20170531_3117_0 0168717	3GHz_HP(dB)_170 809	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.959	32.14	PK	33.8	-31.7	34.24	-	-	74	-39.76	0-360	250	H
4	* 7.44	29.91	PK	35.9	-27.2	38.61	-	-	74	-35.39	0-360	250	H
5	9.918	26.25	PK	37.1	-22.4	40.95	-	-	74	-33.05	0-360	250	H
2	* 4.96	33.77	PK	33.8	-31.6	35.97	-	-	74	-38.03	0-360	250	V
3	* 7.45	29.54	PK	35.9	-27.2	38.24	-	-	74	-35.76	0-360	150	V
6	9.924	26.33	PK	37.1	-22.2	41.23	-	-	74	-32.77	0-360	250	V

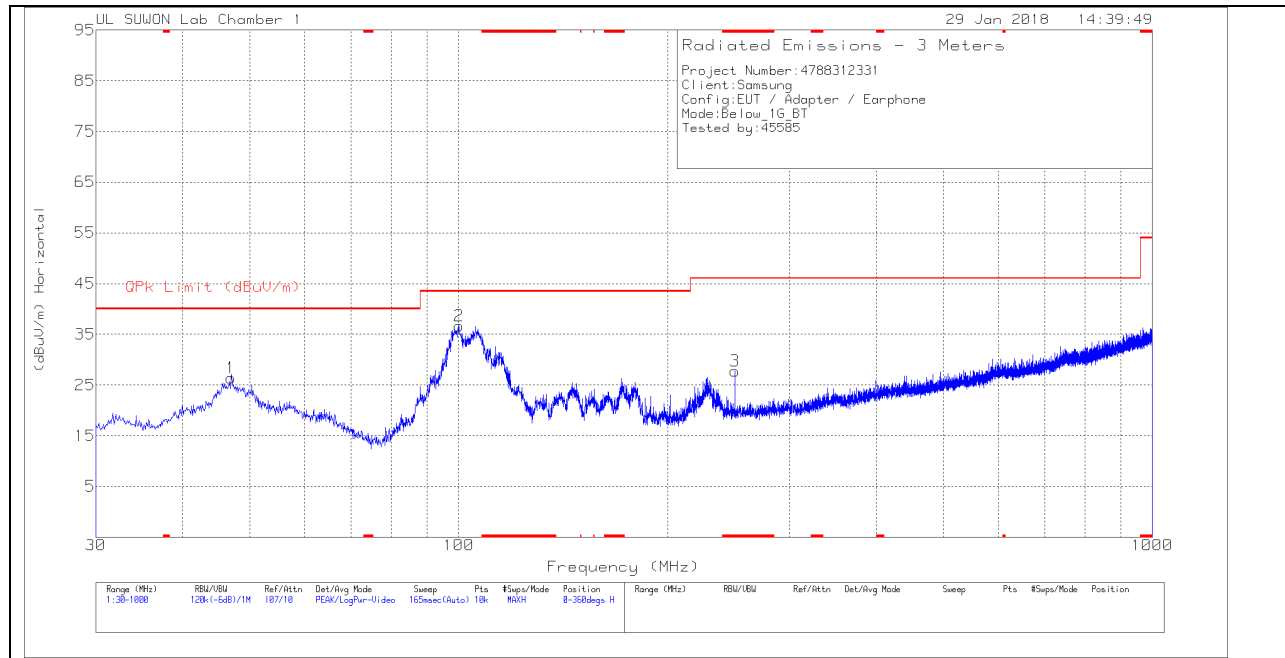
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK – Peak Detector

Note: Only peak measurement was performed. Because peak measurement result of unwanted emission is less than average limit (54dBuV/m).

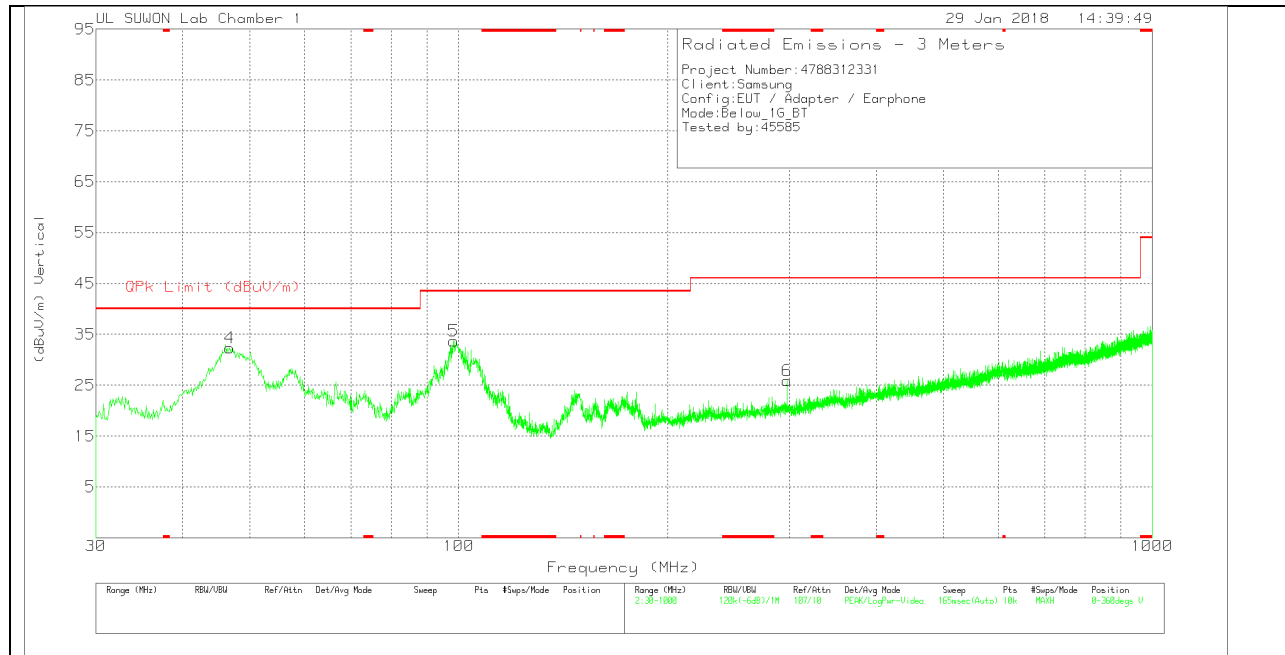
10.3. WORST-CASE BELOW 1 GHz

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	750_20170831	30-1000MHz[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	46.975	36.14	Pk	19.8	-29.5	0	26.44	40	-13.56	0-360	400	H
2	100.131	47.74	Pk	17.4	-28.5	0	36.64	43.52	-6.88	0-360	300	H
3	* 250.19	36.76	Pk	18.4	-27.4	0	27.76	46.02	-18.26	0-360	100	H
4	46.781	41.9	Pk	19.8	-29.4	0	32.3	40	-7.7	0-360	100	V
5	98.385	44.99	Pk	17.2	-28.5	0	33.69	43.52	-9.83	0-360	100	V
6	297.429	33.64	Pk	19.2	-27	0	25.84	46.02	-20.18	0-360	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

11. 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.

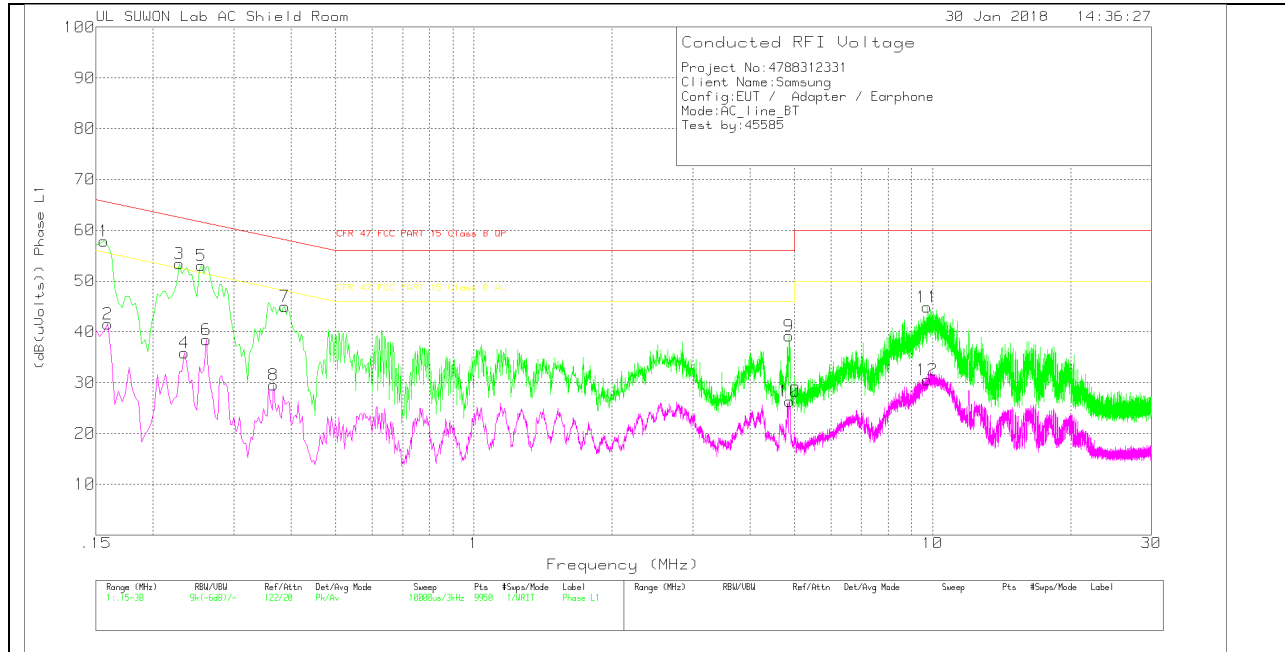
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULTS

Trace Markers

Range 1: Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_L1_with extension	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
1	.156	47.73	Pk	10	.1	57.83	65.67	-7.84	-	-
2	.159	31.38	Av	10	.1	41.48	-	-	55.52	-14.04
3	.228	43.64	Pk	9.6	.2	53.44	62.52	-9.08	-	-
4	.234	26	Av	9.6	.2	35.8	-	-	52.31	-16.51
5	.255	43.38	Pk	9.5	.2	53.08	61.59	-8.51	-	-
6	.261	28.69	Av	9.5	.2	38.39	-	-	51.4	-13.01
7	.387	35.08	Pk	9.7	.2	44.98	58.13	-13.15	-	-
8	.366	19.59	Av	9.7	.2	29.49	-	-	48.59	-19.1
9	4.866	29.13	Pk	9.7	.3	39.13	56	-16.87	-	-
10	4.881	16.35	Av	9.7	.3	26.35	-	-	46	-19.65
11	9.729	34.71	Pk	9.8	.4	44.91	60	-15.09	-	-
12	9.72	20.31	Av	9.8	.4	30.51	-	-	50	-19.49

Pk - Peak detector

Av - Average detection

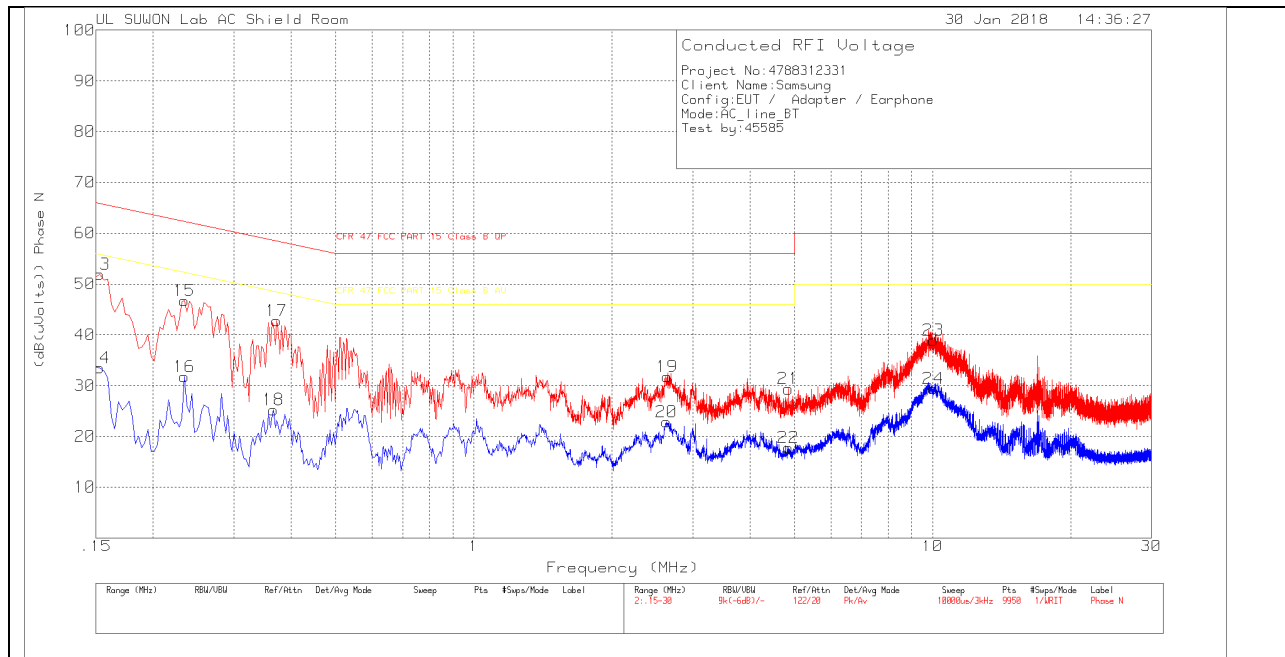
Quasi-Peak Emissions

Range 1: Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101837_L1_with extension	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
.15615	33.76	Qp	10	.1	43.86	65.67	-21.81	-	-
.15825	33.72	Qp	10	.1	43.82	65.56	-21.74	-	-
.22815	29.66	Qp	9.6	.2	39.46	62.52	-23.06	-	-
.23325	29.34	Qp	9.6	.2	39.14	62.33	-23.19	-	-
.25515	31.38	Qp	9.5	.2	41.08	61.59	-20.51	-	-
.26175	31.07	Qp	9.5	.2	40.77	61.38	-20.61	-	-

Qp - Quasi-Peak detector

LINE 2 PLOT



LINE 2 RESULTS

Trace Markers

Range 2: Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_N_with extension	CABLELOSS(dB)	Corrected Reading (dB(uVolts))	CFR 47 FCC PART 15 Class B QP	Margin (dB)	CFR 47 FCC PART 15 Class B AV	Margin (dB)
13	.153	41.84	Pk	10	.1	51.94	65.84	-13.9	-	-
14	.153	23.37	Av	10	.1	33.47	-	-	55.84	-22.37
15	.234	36.77	Pk	9.7	.2	46.67	62.31	-15.64	-	-
16	.234	21.84	Av	9.7	.2	31.74	-	-	52.31	-20.57
17	.372	32.74	Pk	9.8	.2	42.74	58.46	-15.72	-	-
18	.366	15.26	Av	9.8	.2	25.26	-	-	48.59	-23.33
19	2.637	21.52	Pk	9.9	.3	31.72	56	-24.28	-	-
20	2.634	12.63	Av	9.9	.3	22.83	-	-	46	-23.17
21	4.851	19.25	Pk	9.8	.3	29.35	56	-26.65	-	-
22	4.845	7.64	Av	9.8	.3	17.74	-	-	46	-28.26
23	10.041	28.71	Pk	9.8	.4	38.91	60	-21.09	-	-
24	10.038	19.2	Av	9.8	.4	29.4	-	-	50	-20.6

Pk - Peak detector

Av - Average detection