



FCC CFR47 PART 15 SUBPART C

Bluetooth

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE Phone + BT/BLE, DTS/UNII a/b/g/n

MODEL NUMBER : SM-C710F/DS

FCC ID: A3LSMC710F

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Revision History

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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

MODEL NUMBER: SM-C710F/DS

SERIAL NUMBER: R38J50E3XNE (RADIATED);
R38J50E4JCW (CONDUCTED)

DATE TESTED: JUL 17, 2017 - JUL 20, 2017

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	
☒	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.
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	8.994	7.932
		Peak	9.362	8.634
	Enhanced Pi/4-DPSK	Average	6.970	4.977
		Peak	8.936	7.827
	Enhanced 8PSK	Average	6.975	4.983
		Peak	9.180	8.279

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an internal antenna, with a maximum gain of -6.5 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 X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X 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.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA50EWE	DK5J311VS/A -E	N/A
Data Cable	SAMSUNG	ECB-DU68WE	N/A	N/A
Earphone	SAMSUNG	EHS61ASFWE	N/A	N/A

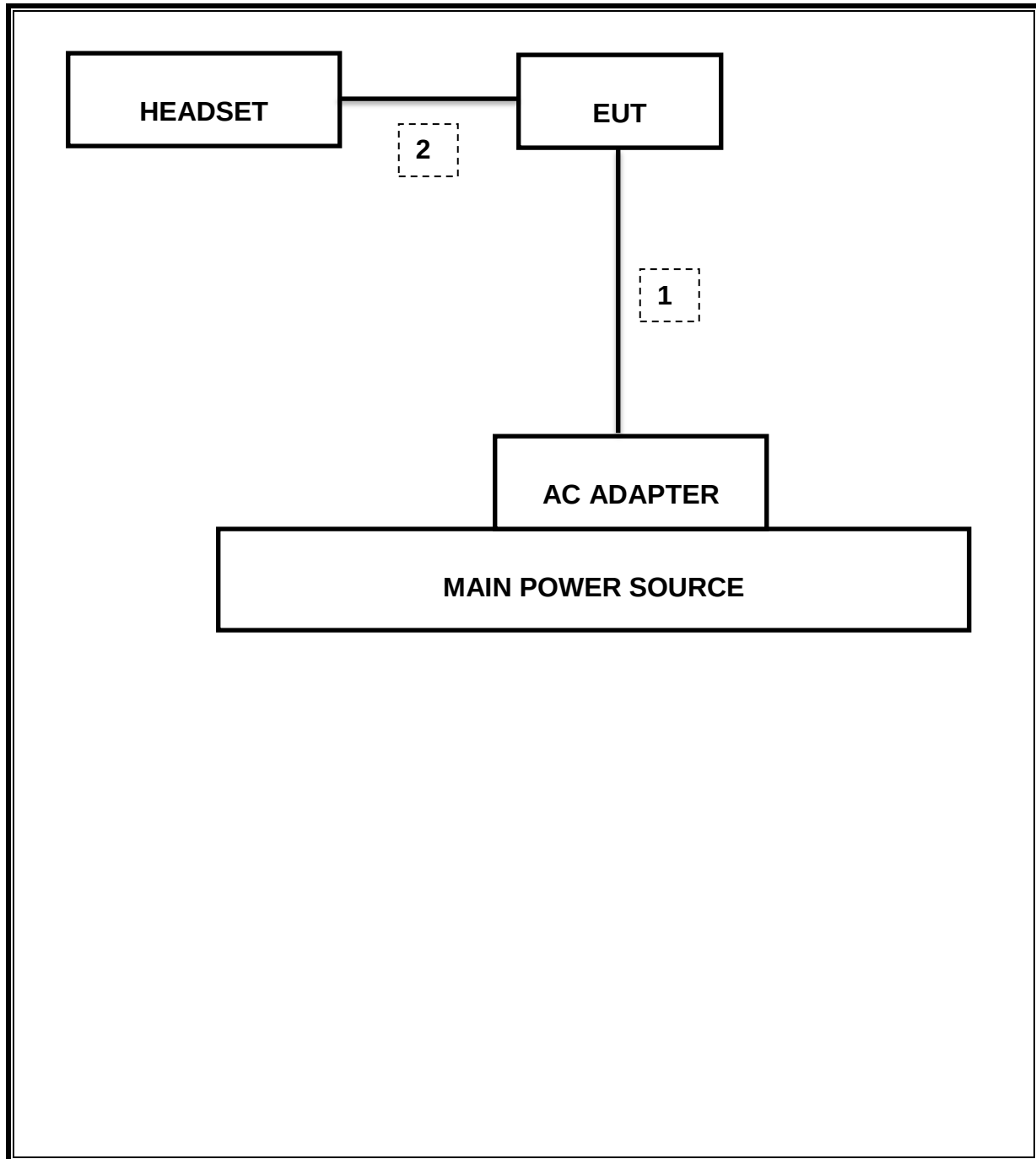
I/O CABLES

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	0.8m	N/A
2	Audio	2	Mini-Jack	Unshielded	1.6m	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	10-14-18
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	04-14-19
Antenna, Horn, 18 GHz	ETS	3115	00167211	10-14-18
Antenna, Horn, 18 GHz	ETS	3117	00168724	05-31-19
Antenna, Horn, 18 GHz	ETS	3117	00168717	05-31-19
Antenna, Horn, 40 GHz	ETS	3116C	00166155	11-30-17
Antenna, Horn, 40 GHz	ETS	3116C-PA	00168841	12-15-17
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	11-25-17
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-17-17
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-16-17
Preamplifier	ETS	3115-PA	00167475	08-17-17
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-16-17
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	08-17-17
Bluetooth Tester	TESCOM	TC-3000C	3000C000546	08-18-17
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	03-09-18
Average Power Sensor	Agilent / HP	U2000	MY54270007	08-17-17
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-17-17
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-16-17
EMI Test Receive, 3 GHz	R&S	ESR3	101832	08-16-17
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	08-17-17
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	08-16-17
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	08-17-17
High Pass Filter 3GHz	Micro-Tronics	HPM17543	015	08-16-17
High Pass Filter 6GHz	Micro-Tronics	HPM17542	009	08-17-17
High Pass Filter 6GHz	Micro-Tronics	HPM17542	016	08-16-17
Combiner	WEINSCHEL	1575	2152	08-16-17
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 [kHz]	99% Bandwidth [kHz]
Low	2402	946.700	892.050
Mid	2441	946.500	892.210
High	2480	947.600	892.330
Worst		947.600	892.330

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

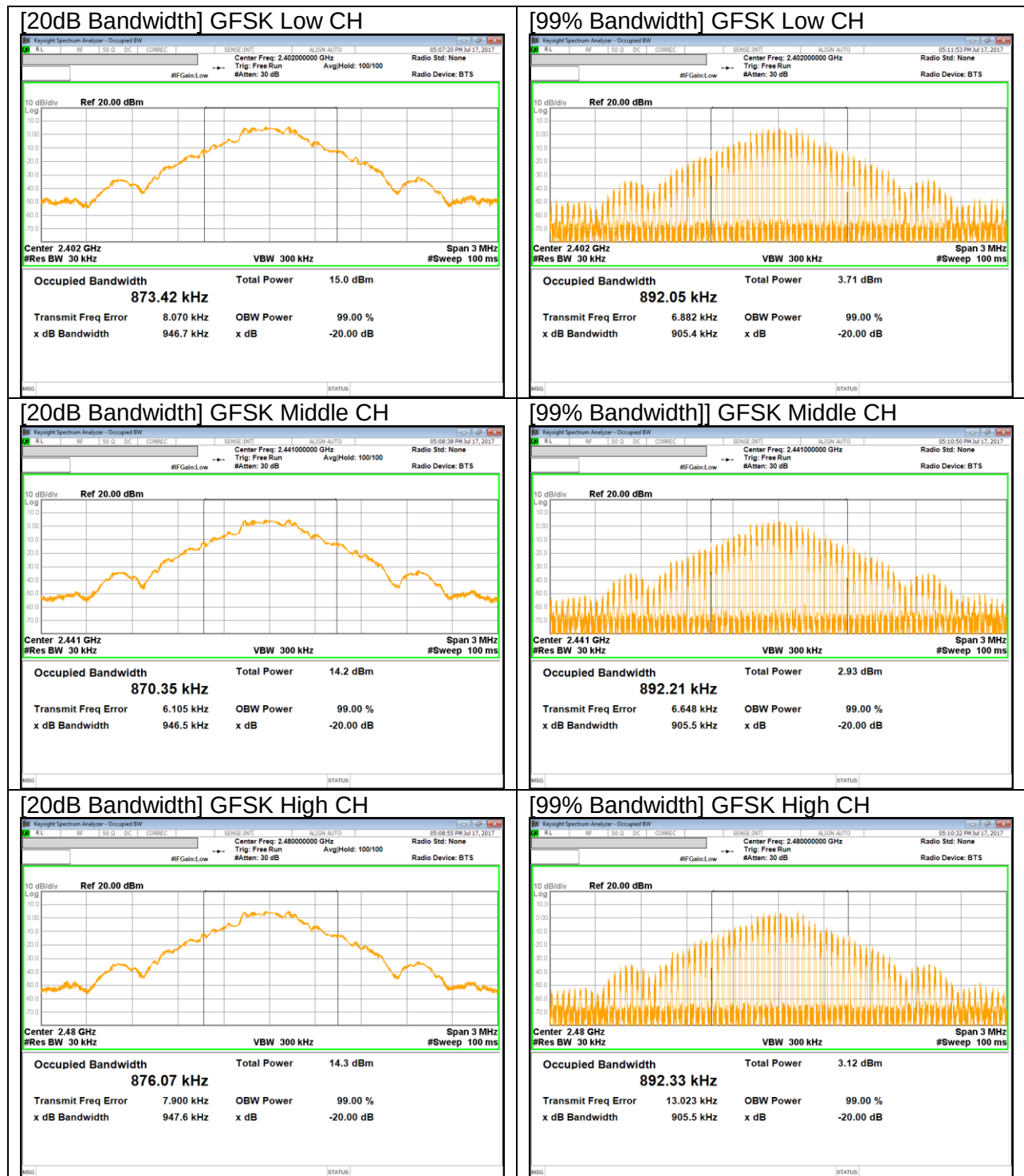
Channel	Frequency [MHz]	20 dB Bandwidth [MHz]	99% Bandwidth [MHz]
Low	2402	1.285	1.165
Mid	2441	1.277	1.162
High	2480	1.286	1.162
Worst		1.286	1.165

7.1.3. ENHANCED DATA RATE 8PSK MODULATION

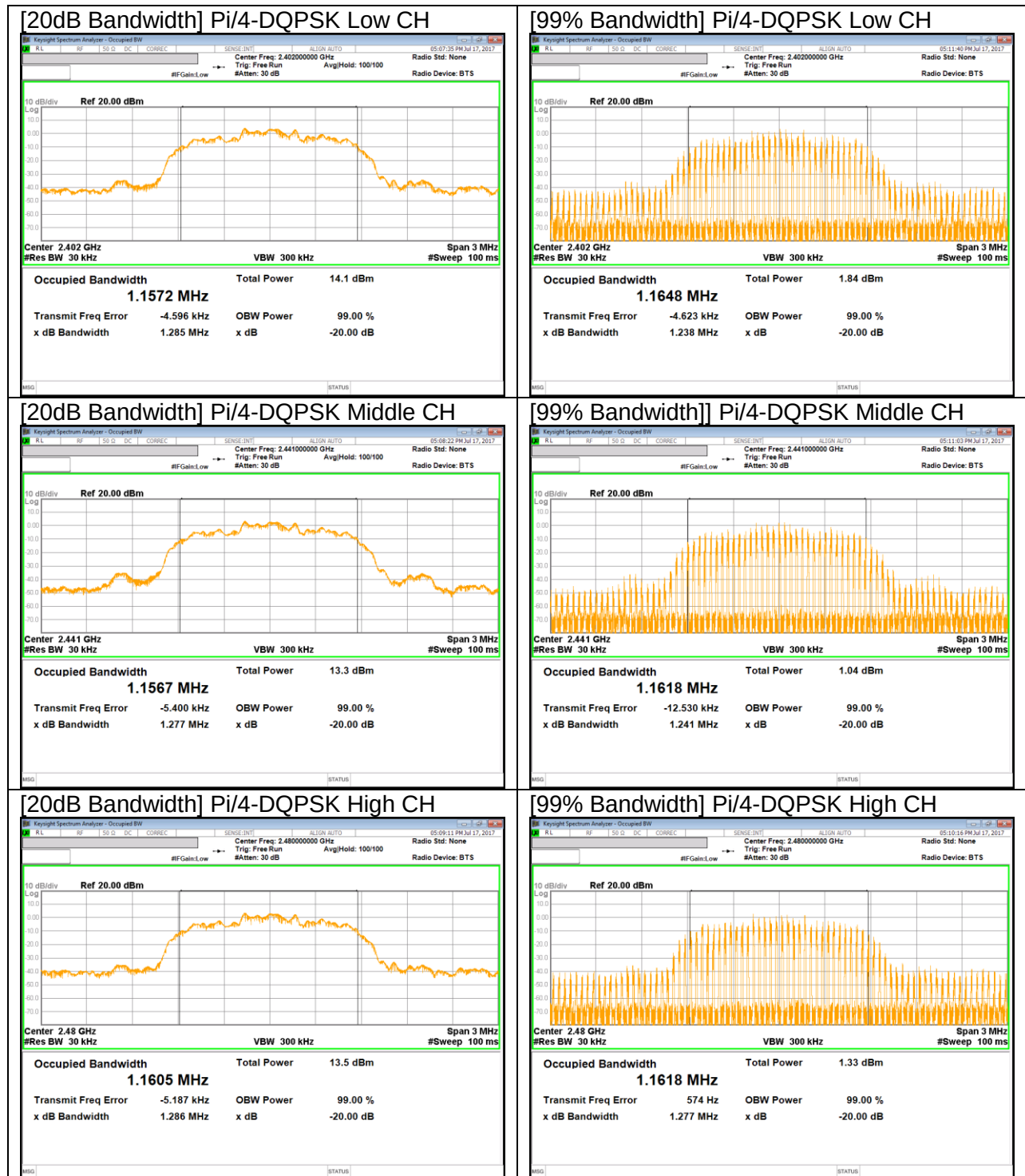
Channel	Frequency [MHz]	20 dB Bandwidth [MHz]	99% Bandwidth [MHz]
Low	2402	1.261	1.163
Mid	2441	1.258	1.163
High	2480	1.261	1.163
Worst		1.261	1.163

7.1.4. 20 dB AND 99% BANDWIDTH PLOTS

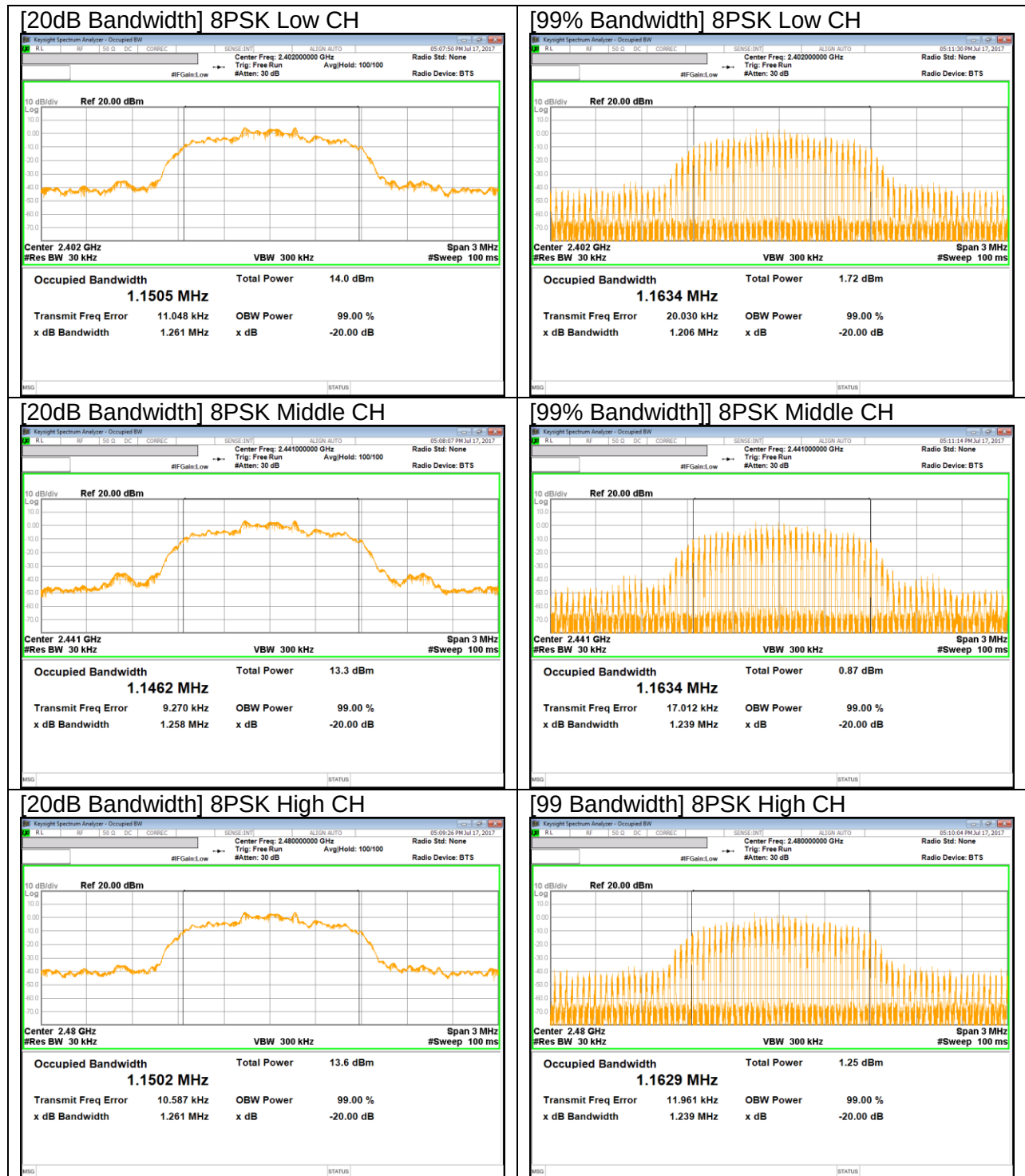
GFSK BANDWIDTH



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	-39.512 dBm
15.247 (b)(1)	TX conducted output power	<21dBm		Pass	9.362 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	0.34464 sec
15.207 (a)	AC Power Line conducted emissions	Section 10	Power Line conducted	Pass	44.39 dBuV (Pk)
15.205, 15.209	Radiated Spurious Emission	< 54dBuV/m	Radiated	Pass	44.75 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.

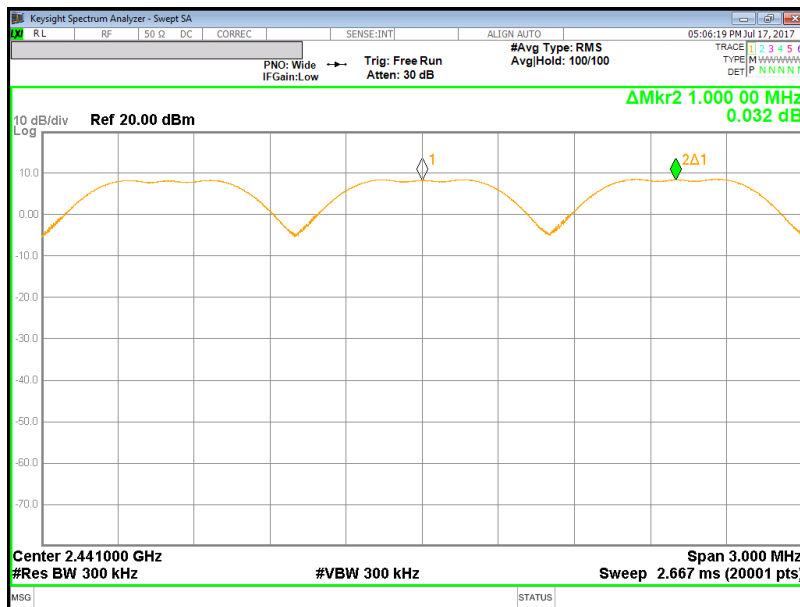
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than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

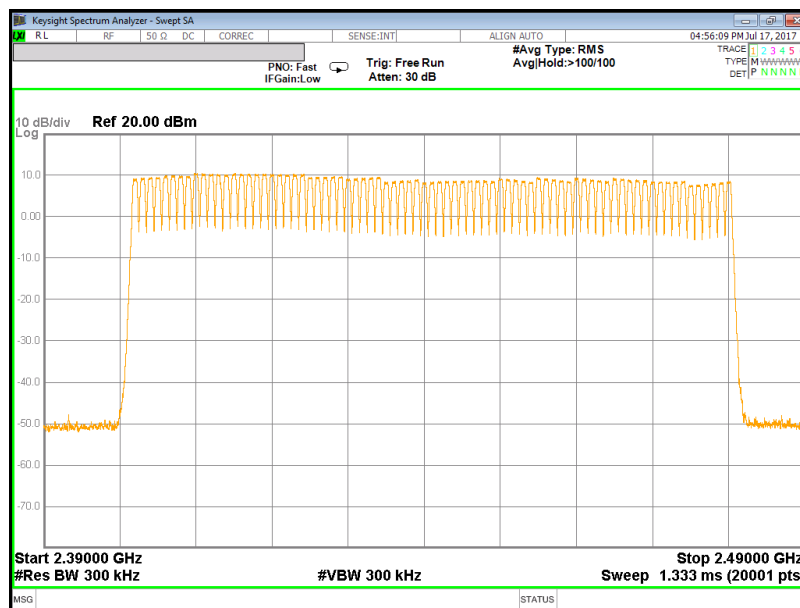
DA 00-705: The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

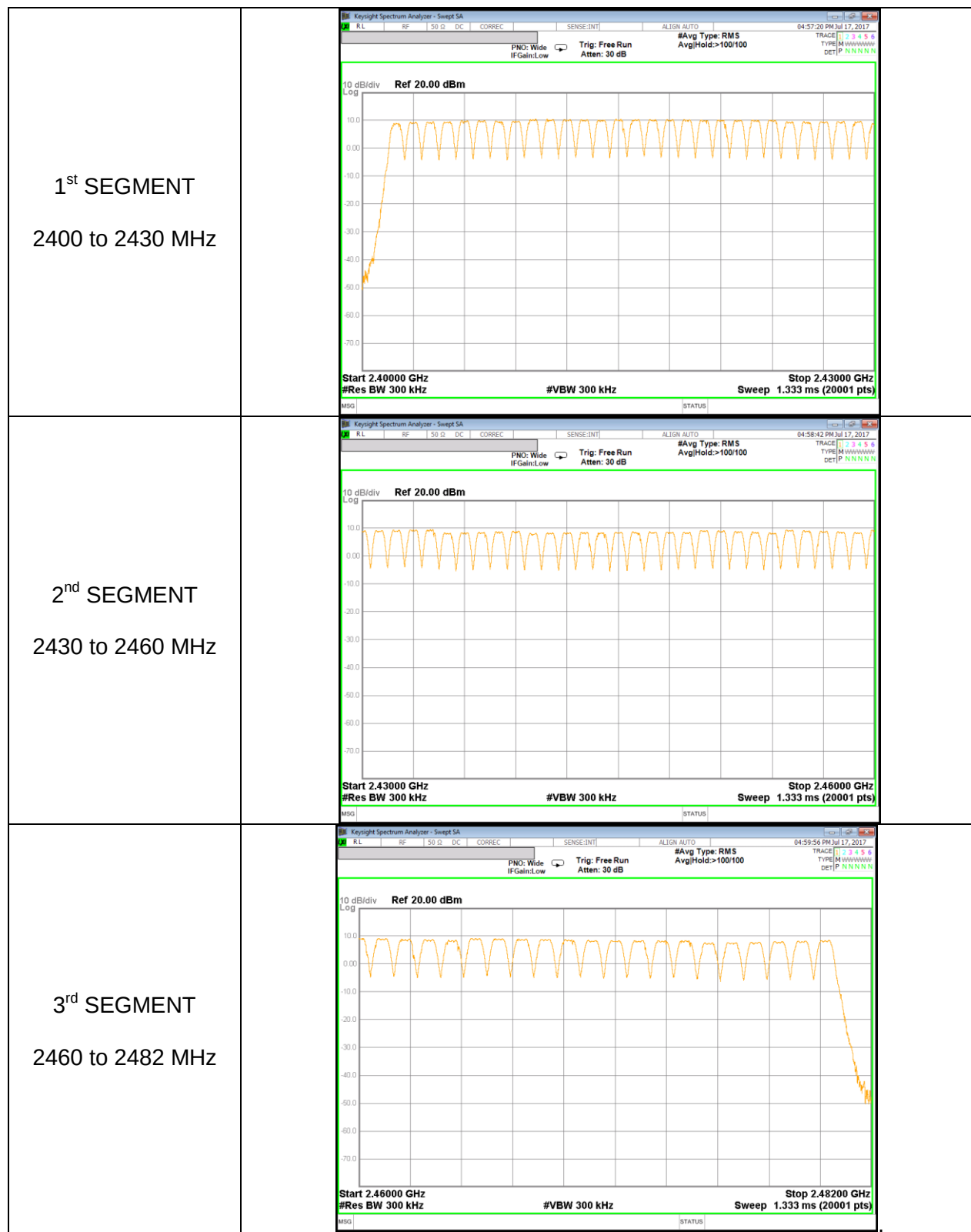
RESULTS

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.

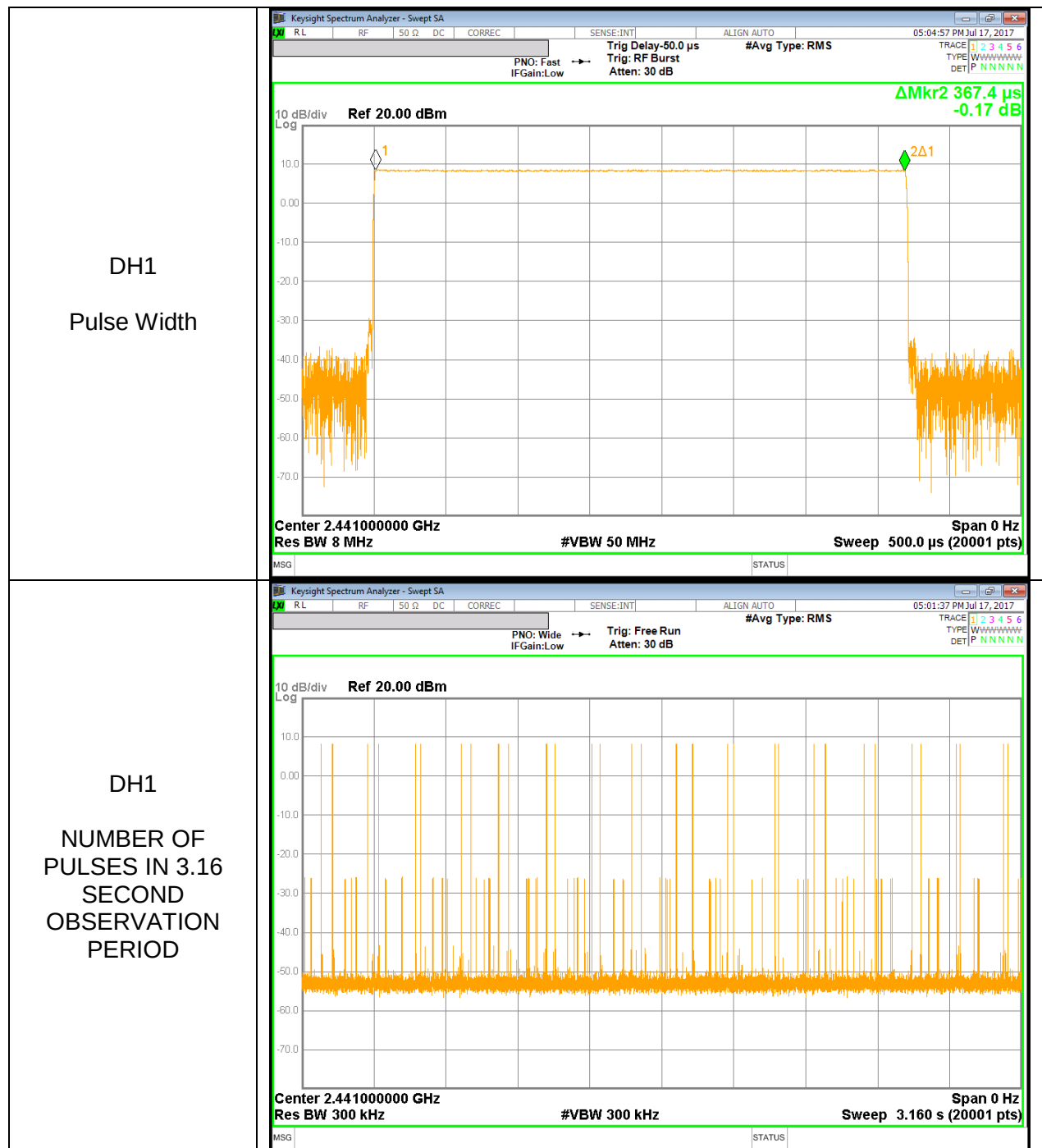
The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{pulse width}$.

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

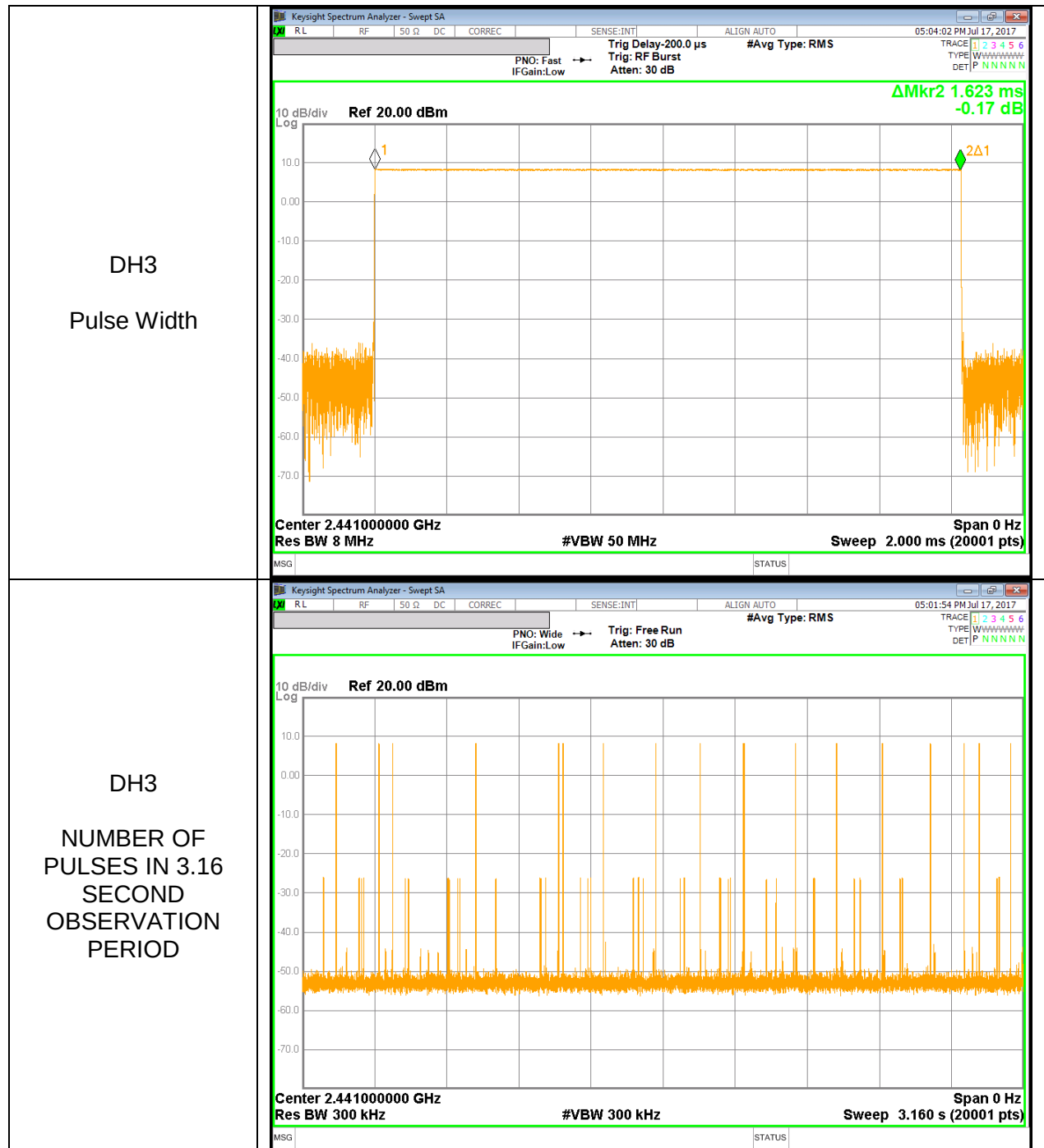
RESULTS

DH Packet	Pulse Width [msec]	Number of Pulses in 3.16 seconds	Average Time of Occupancy [sec]	Limit [sec]	Margin [sec]
GFSK Normal					
DH1	0.367	32	0.117568	0.4	-0.2824
DH3	1.623	17	0.275910	0.4	-0.1241
DH5	2.872	12	0.344640	0.4	-0.0554
DH Packet	Pulse Width [msec]	Number of Pulses in 0.8 seconds	Average Time of Occupancy [sec]	Limit [sec]	Margin [sec]
GFSK AFH					
DH1	0.367	8	0.029392	0.4	-0.37061
DH3	1.623	4.25	0.068978	0.4	-0.33102
DH5	2.872	3	0.086160	0.4	-0.31384

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	9.362	21	-11.638
Middle	2441	8.525	21	-12.475
High	2480	8.737	21	-12.263
Worst		9.362	21	-11.638

9.4.2. ENHANCED DATA RATE Pi/4-DPSK MODULATION

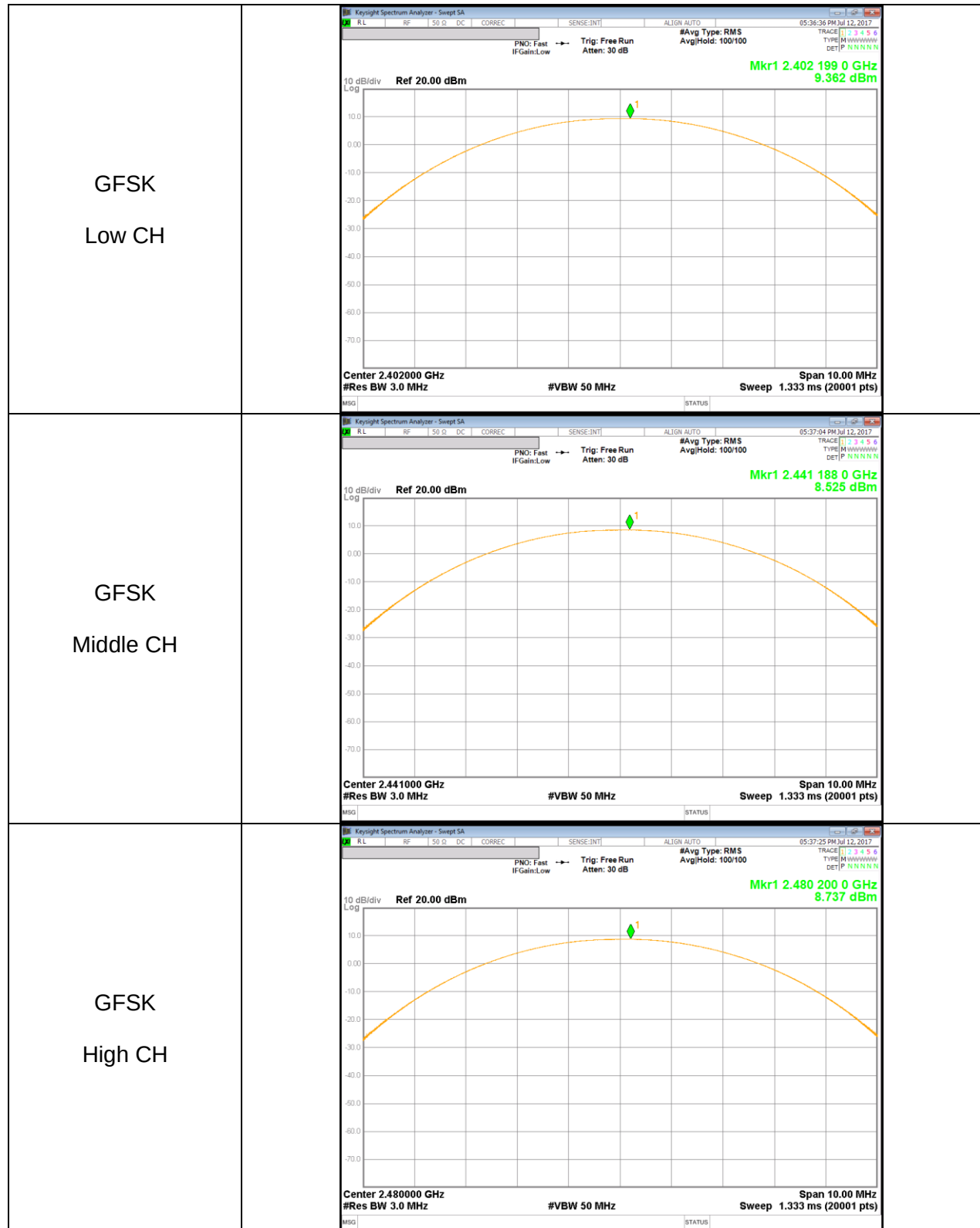
Channel	Frequency [MHz]	Output Power [dBm]	Limit [dBm]	Margin [dB]
Low	2402	8.936	21	-12.064
Middle	2441	8.101	21	-12.899
High	2480	8.240	21	-12.760
Worst		8.936	21	-12.064

9.4.3. ENHANCED DATA RATE 8PSK MODULATION

Channel	Frequency [MHz]	Output Power [dBm]	Limit [dBm]	Margin [dB]
Low	2402	9.180	21	-11.820
Middle	2441	8.358	21	-12.642
High	2480	8.619	21	-12.381
Worst		9.180	21	-11.820

9.4.4. OUTPUT POWER PLOTS

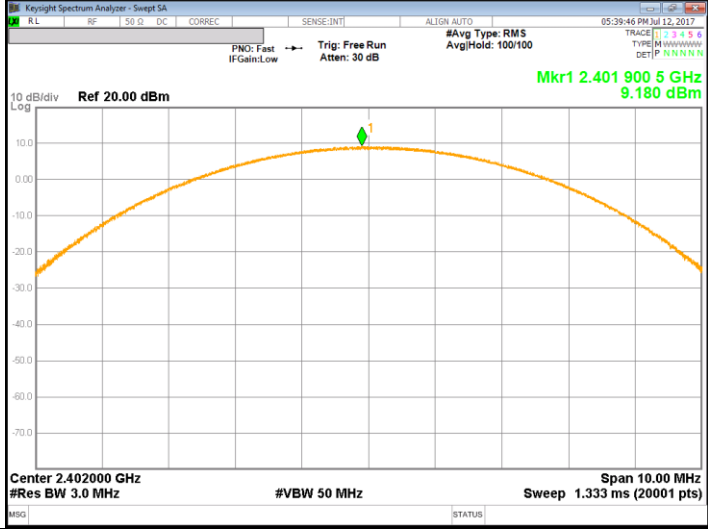
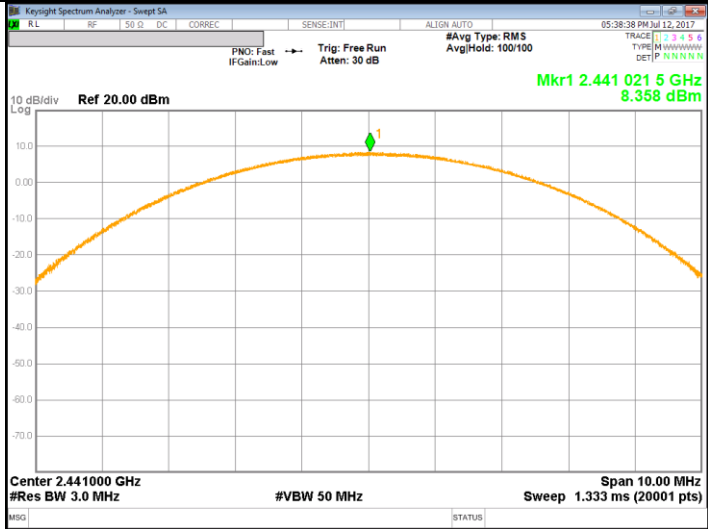
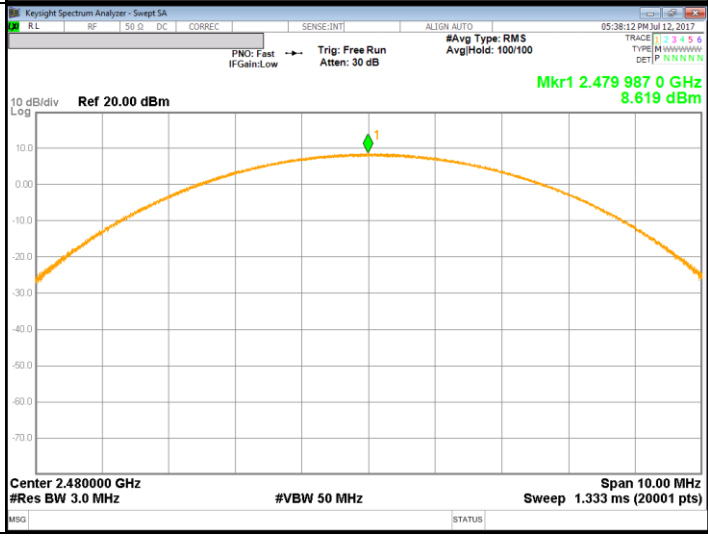
GFSK OUTPUT POWER



Pi/4-DPSK OUTPUT POWER

Pi/4-DPSK Low CH	
Pi/4-DPSK Middle CH	
Pi/4-DPSK High CH	

8PSK OUTPUT POWER

8PSK Low CH	 KeySight Spectrum Analyzer - Swept SA RL RF 50 Ω DC CORREC SENSE:INT ALIGN AUTO 05:39:46 PM Jul 12, 2017 PNO: Fast IF Gain: Low Trig: Free Run Atten: 30 dB #Avg Type: RMS AvgHold: 100/100 Mkr1 2.401 900 5 GHz 9.180 dBm 10 dB/div Log Ref 20.00 dBm Center 2.402000 GHz #Res BW 3.0 MHz #VBW 50 MHz Span 10.00 MHz Sweep 1.333 ms (20001 pts) MSG STATUS
8PSK Middle CH	 KeySight Spectrum Analyzer - Swept SA RL RF 50 Ω DC CORREC SENSE:INT ALIGN AUTO 05:38:38 PM Jul 12, 2017 PNO: Fast IF Gain: Low Trig: Free Run Atten: 30 dB #Avg Type: RMS AvgHold: 100/100 Mkr1 2.441 021 5 GHz 8.358 dBm 10 dB/div Log Ref 20.00 dBm Center 2.441000 GHz #Res BW 3.0 MHz #VBW 50 MHz Span 10.00 MHz Sweep 1.333 ms (20001 pts) MSG STATUS
8PSK High CH	 KeySight Spectrum Analyzer - Swept SA RL RF 50 Ω DC CORREC SENSE:INT ALIGN AUTO 05:38:12 PM Jul 12, 2017 PNO: Fast IF Gain: Low Trig: Free Run Atten: 30 dB #Avg Type: RMS AvgHold: 100/100 Mkr1 2.479 987 0 GHz 8.619 dBm 10 dB/div Log Ref 20.00 dBm Center 2.480000 GHz #Res BW 3.0 MHz #VBW 50 MHz Span 10.00 MHz Sweep 1.333 ms (20001 pts) MSG STATUS

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	8.994	7.93
Middle	2441	8.176	6.57
High	2480	8.347	6.83

9.5.2. DATA RATE PI/4-DQPSK MODULATION

Channel	Frequency [MHz]	AV power [dBm]	AV power [mW]
Low	2402	6.970	4.98
Middle	2441	6.066	4.04
High	2480	6.370	4.34

9.5.3. ENHANCED DATA RATE 8PSK MODULATION

Channel	Frequency [MHz]	AV power [dBm]	AV power [mW]
Low	2402	6.975	4.98
Middle	2441	6.066	4.04
High	2480	6.374	4.34

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.

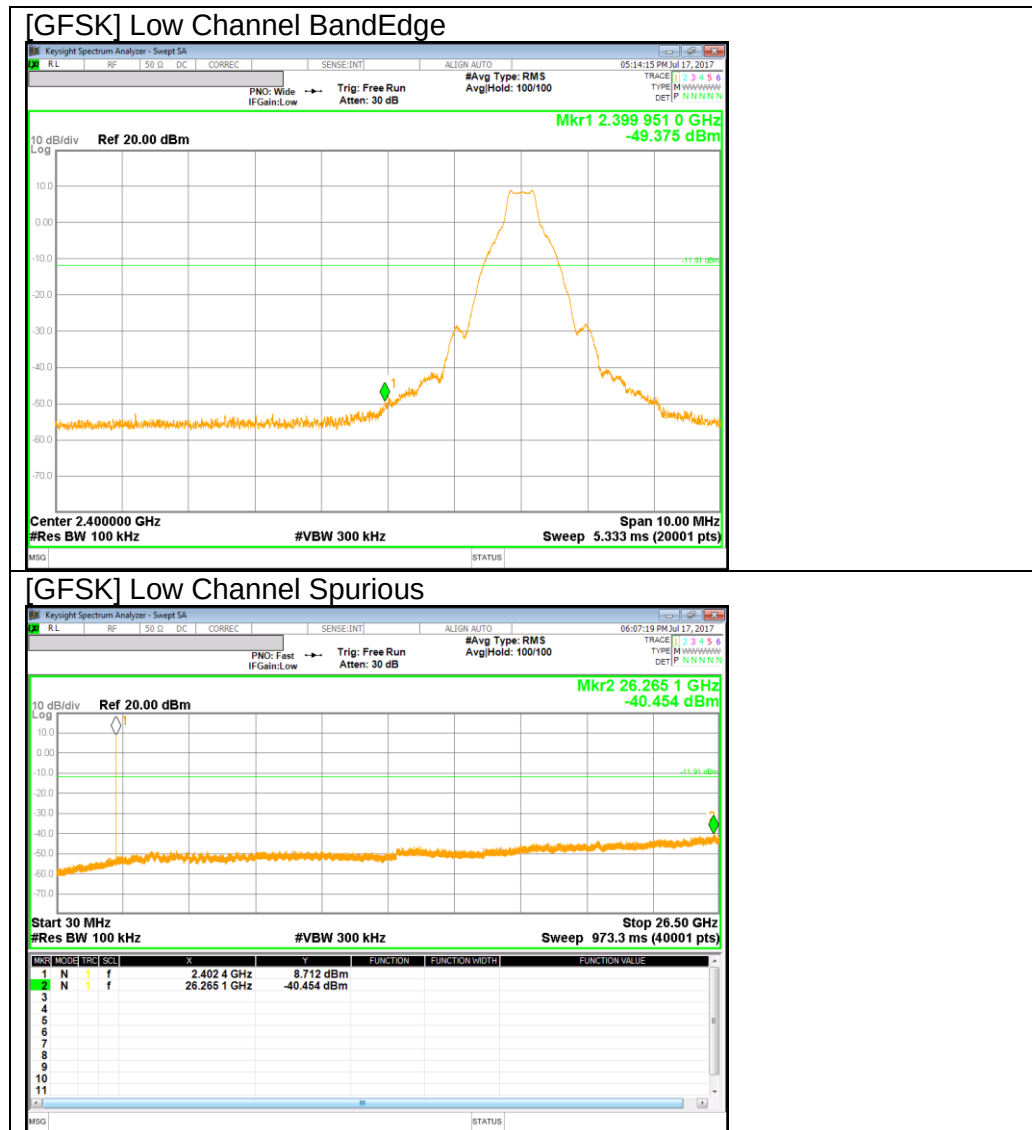
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

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

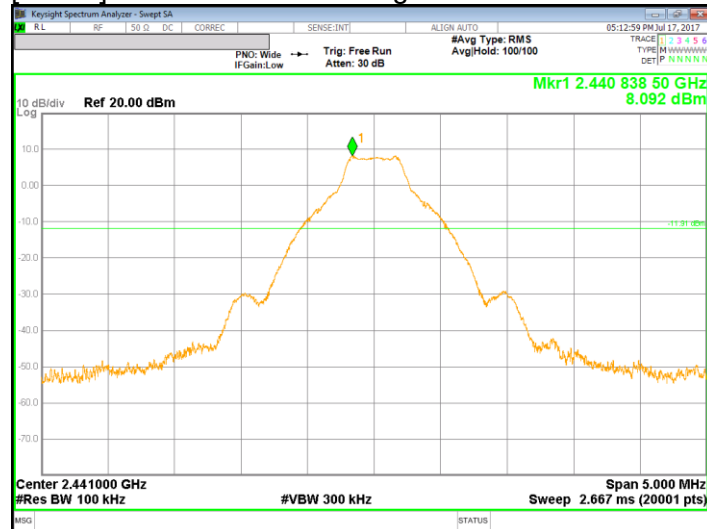
RESULTS

9.6.1. BASIC DATA RATE GFSK MODULATION

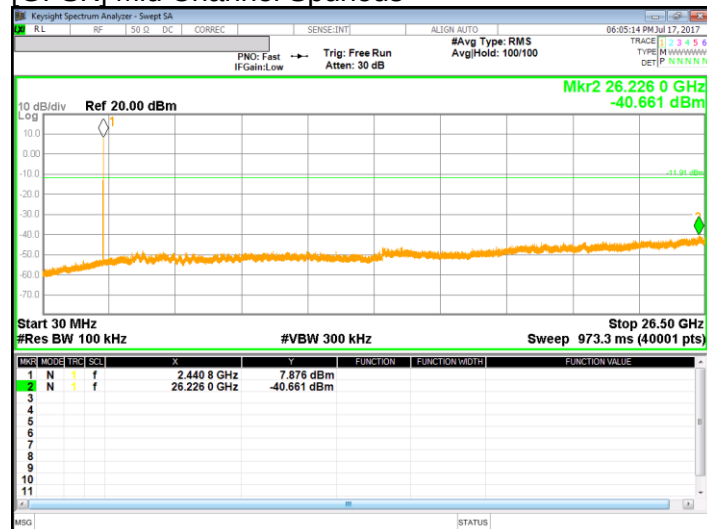
GFSK Mode



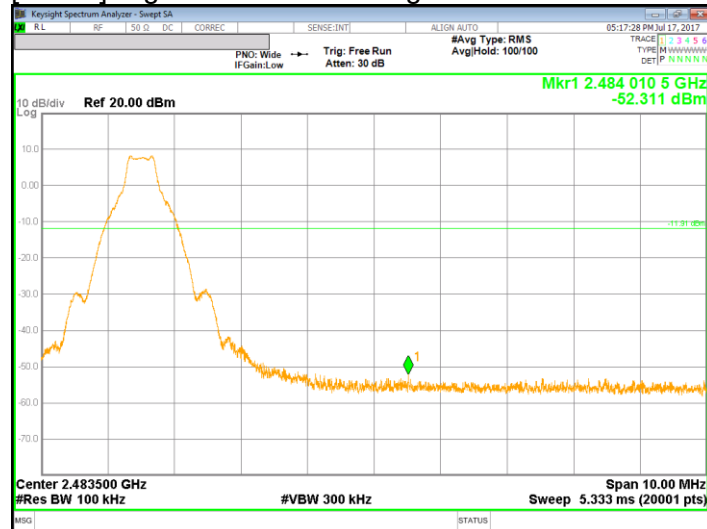
[GFSK] Mid Channel BandEdge



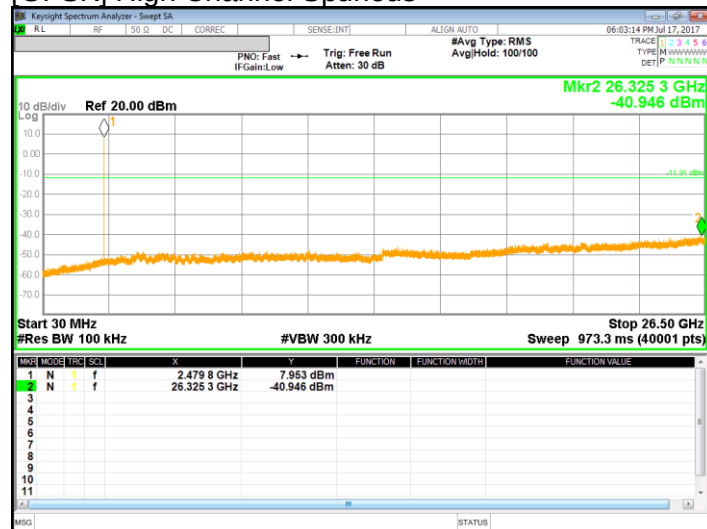
[GFSK] Mid Channel Spurious



[GFSK] High Channel BandEdge

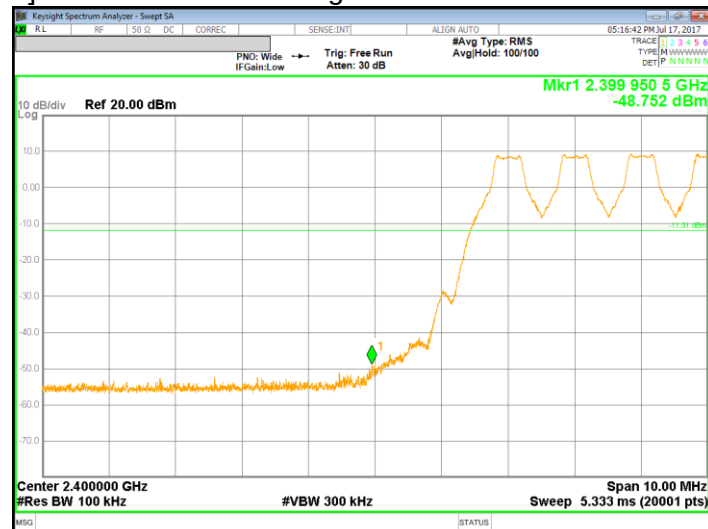


[GFSK] High Channel Spurious

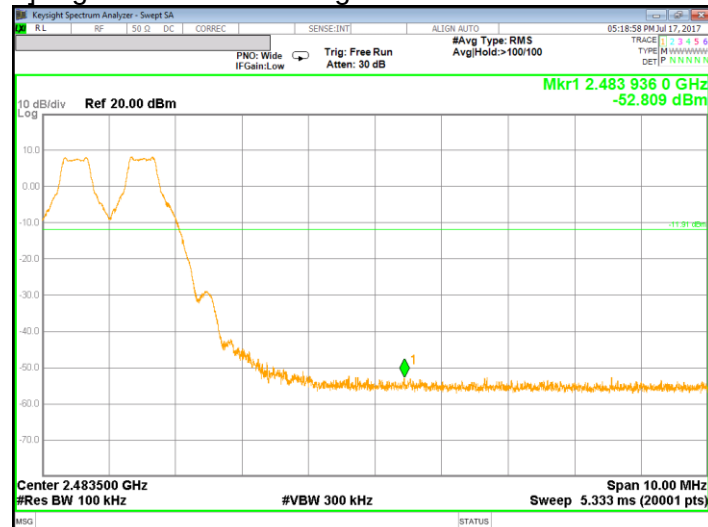


BandEdge Emission at GFSK Hopping Mode

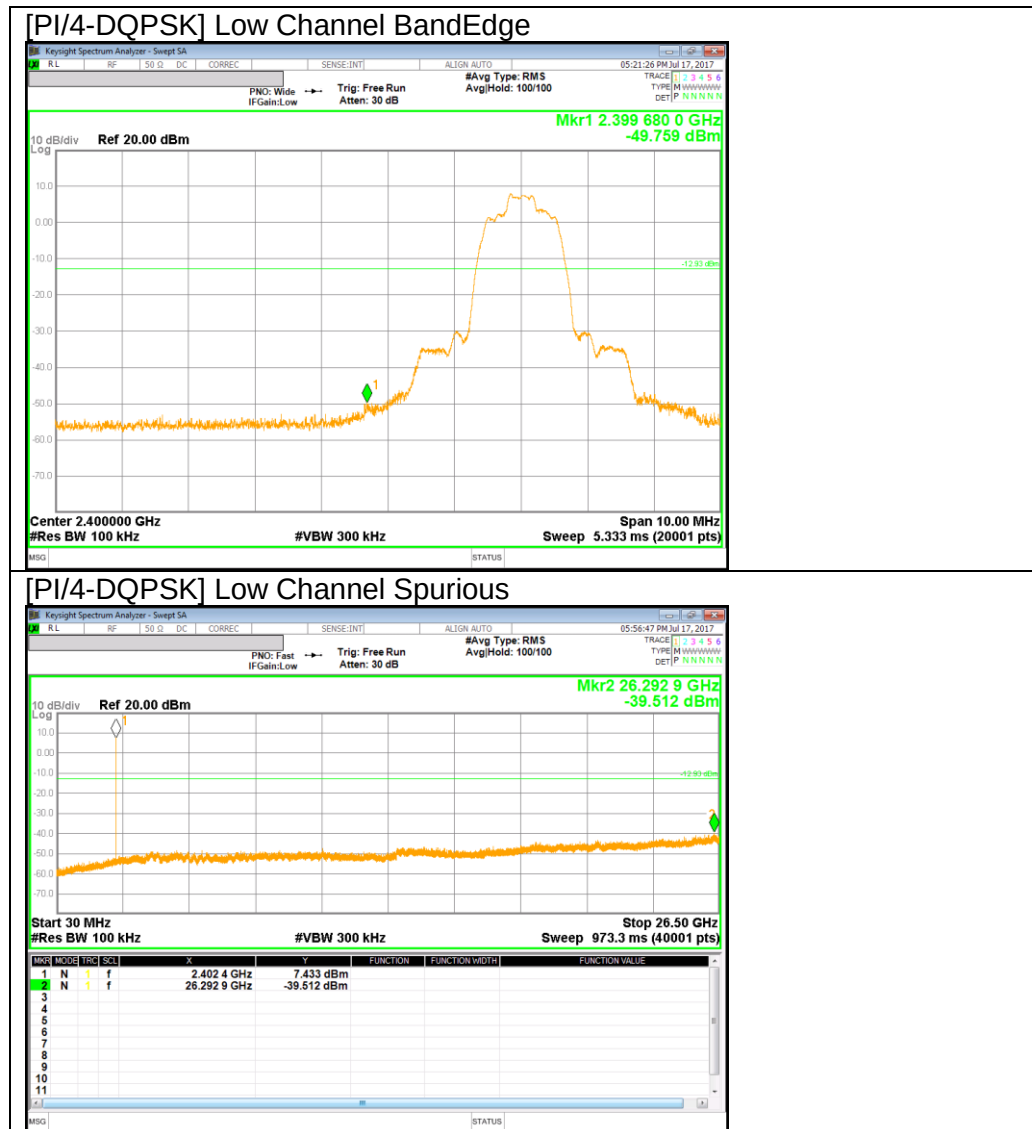
[GFSK Hopping Mode] Low Channel BandEdge



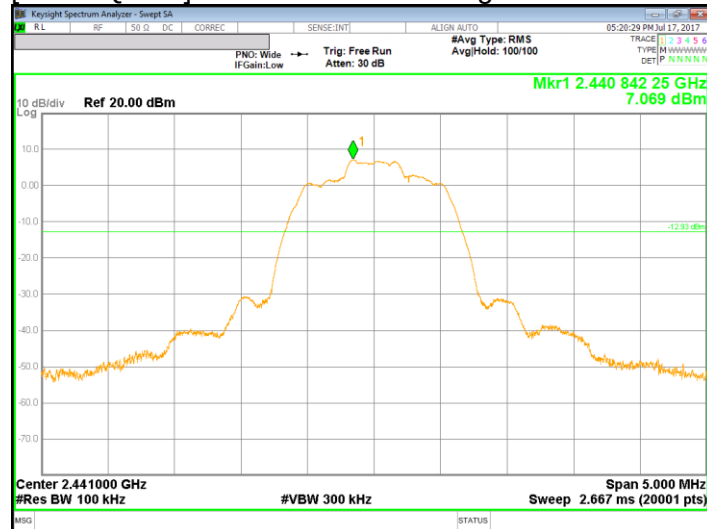
[GFSK Hopping Mode] High Channel BandEdge



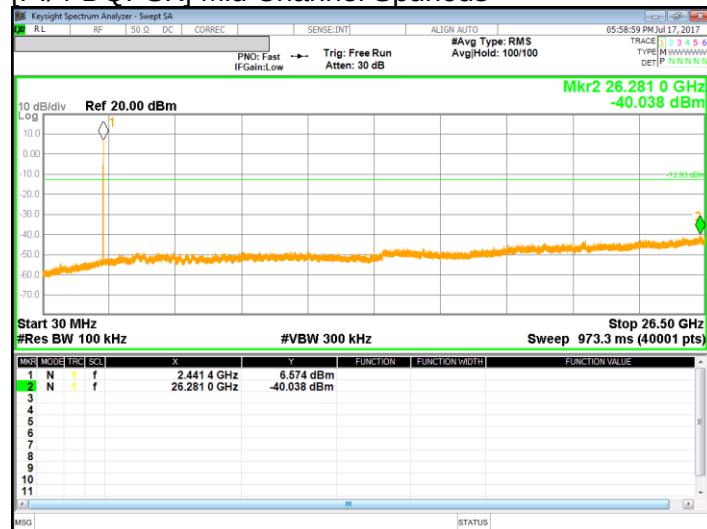
PI/4-DQPSK Mode



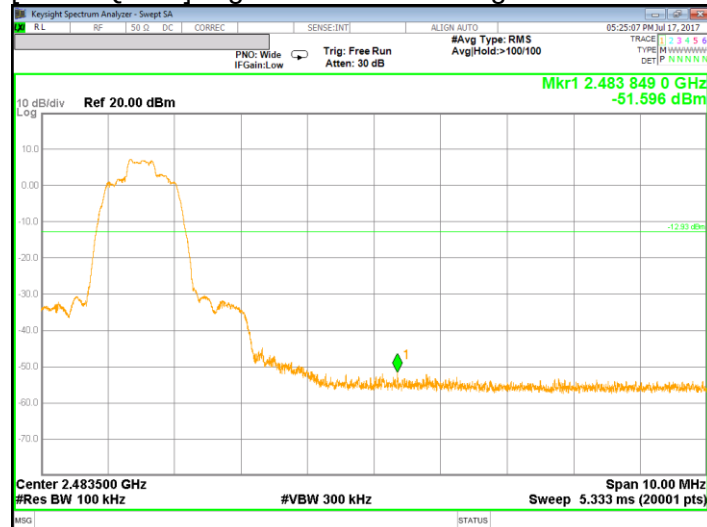
[PI/4-DQPSK] Mid Channel BandEdge



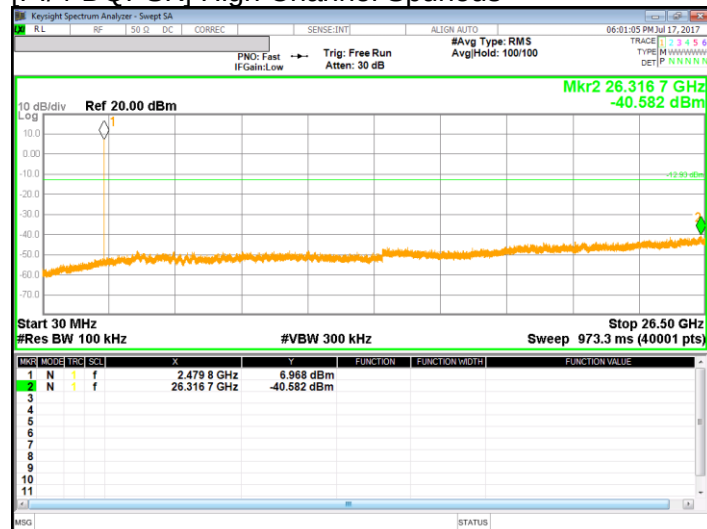
[PI/4-DQPSK] Mid Channel Spurious



[PI/4-DQPSK] High Channel BandEdge

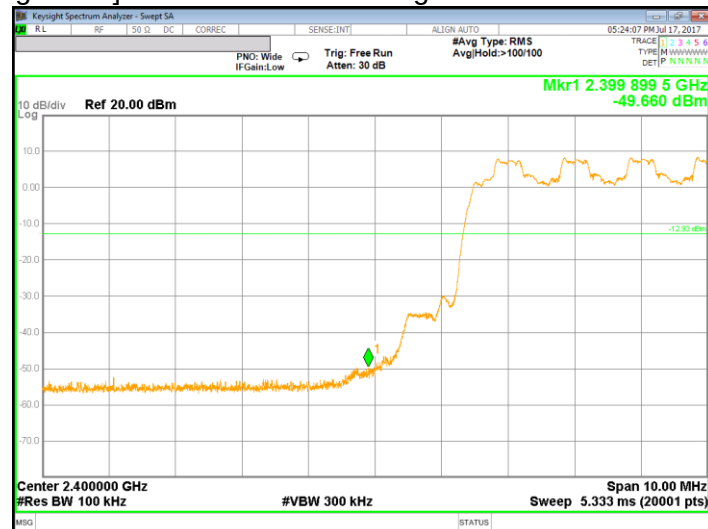


[PI/4-DQPSK] High Channel Spurious

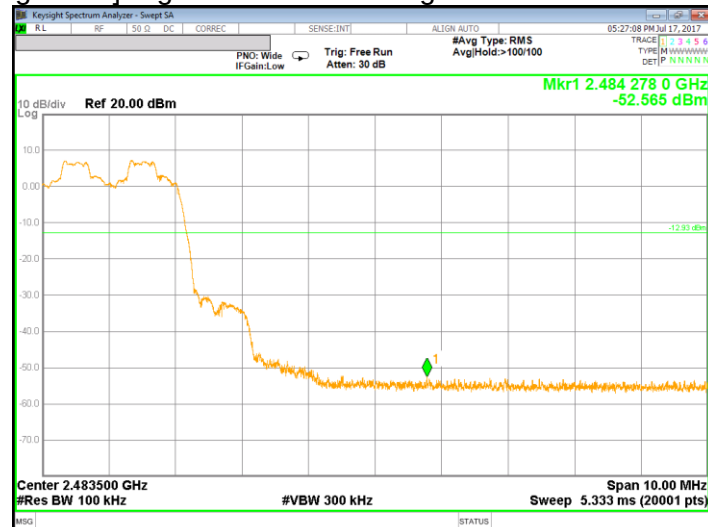


BandEdge Emission at PI/4-DQPSK Hopping Mode

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



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

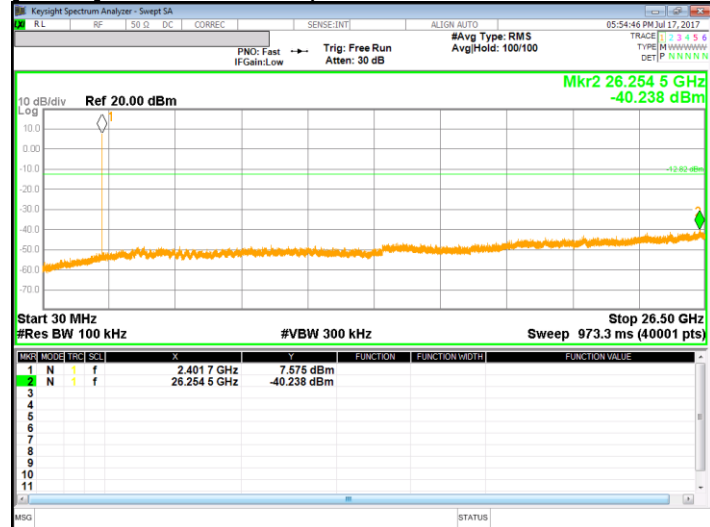


8PSK Mode

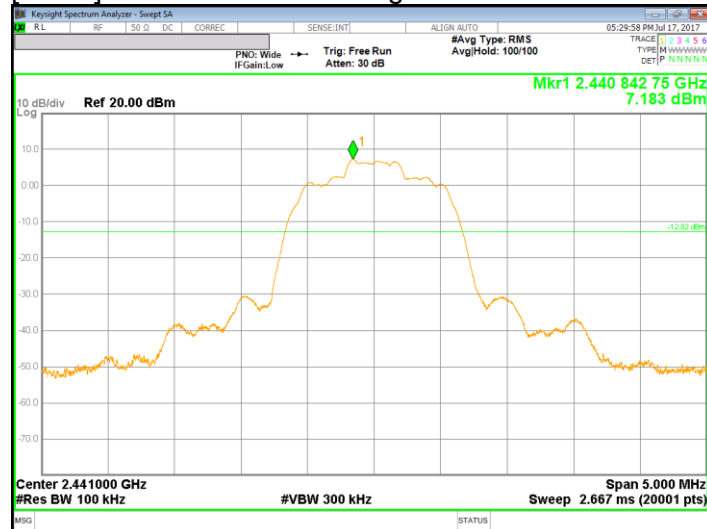
[8PSK] Low Channel BandEdge



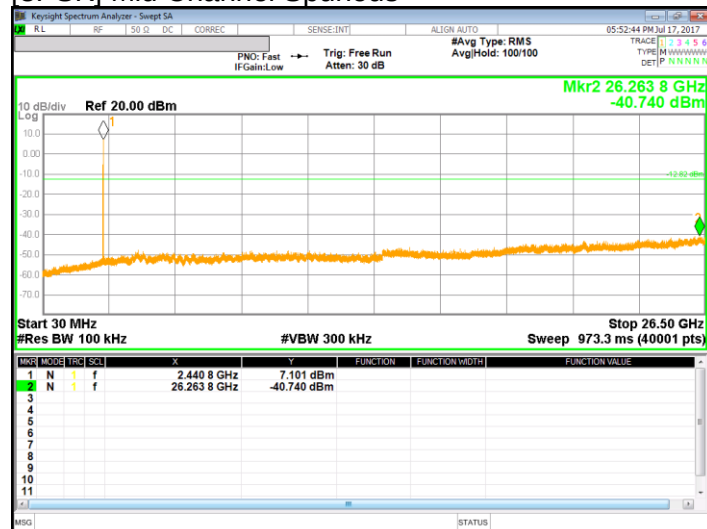
[8PSK] Low Channel Spurious



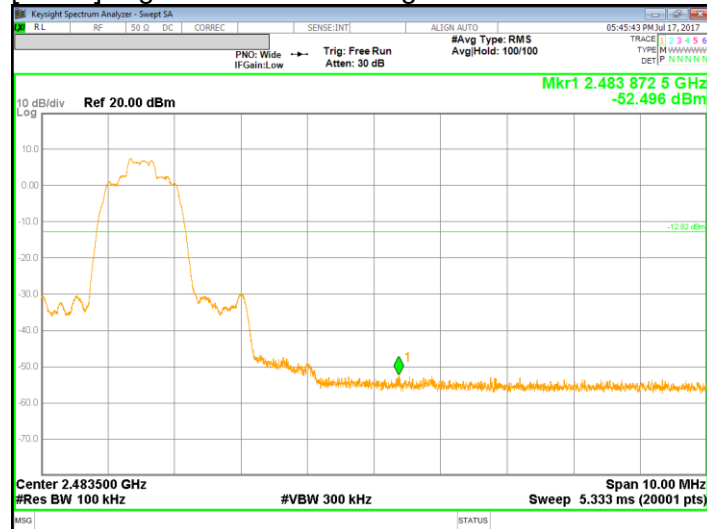
[8PSK] Mid Channel BandEdge



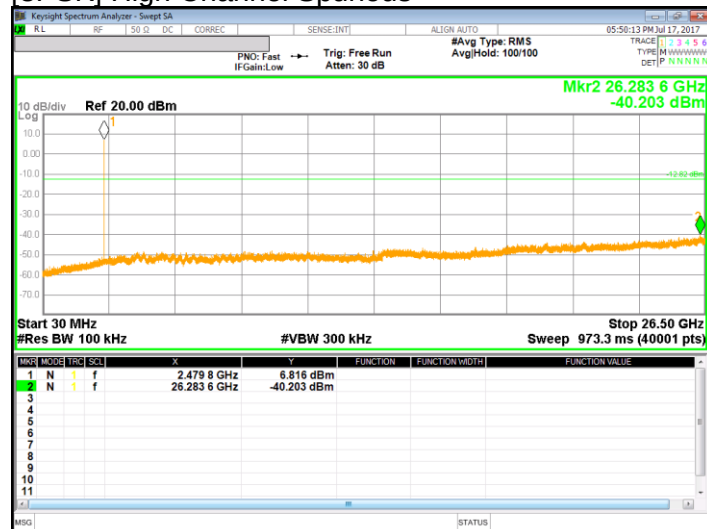
[8PSK] Mid Channel Spurious



[8PSK] High Channel BandEdge



[8PSK] High Channel Spurious



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 1 MHz for peak measurements and 1/T (on time) for average measurement.

$GFSK = 1/T = 1 / 0.0029S = 350Hz.$

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)

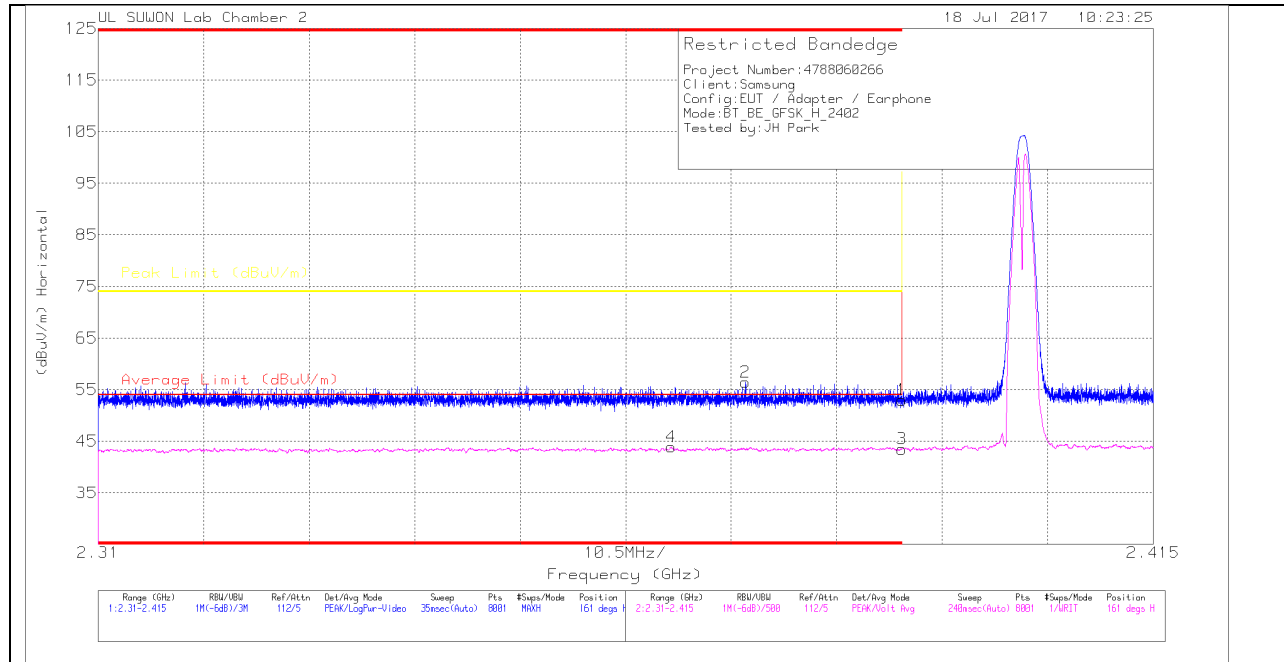
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

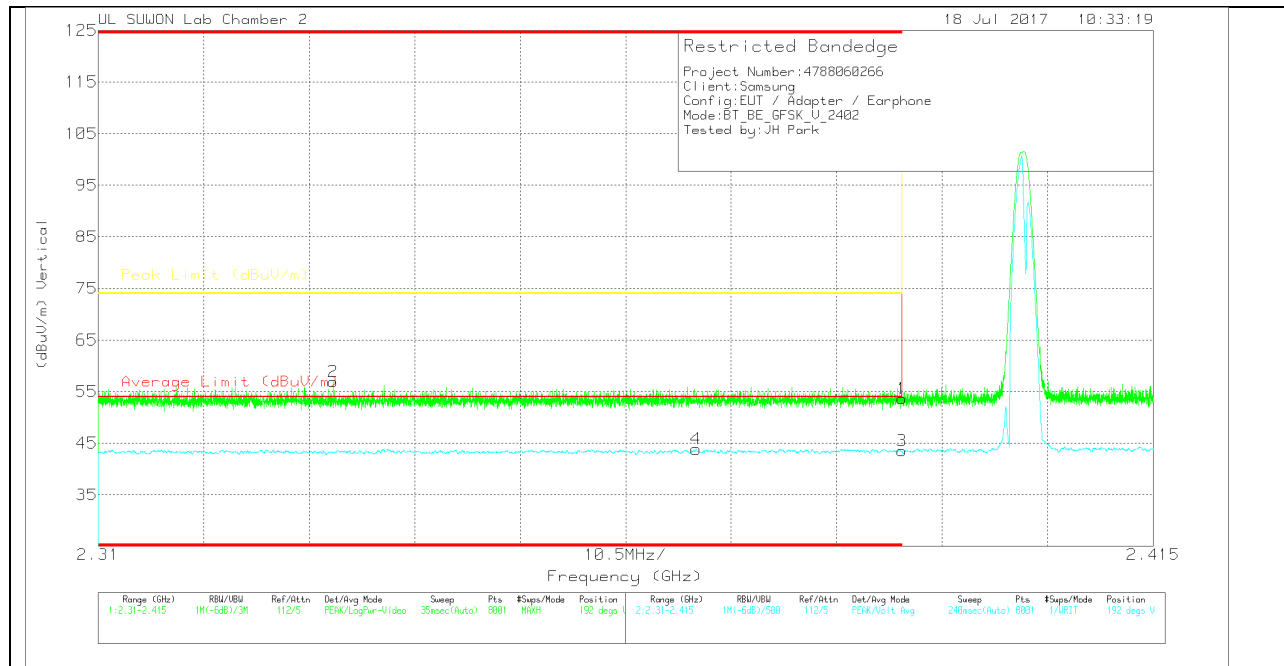
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3 117[00168 724]	10dB[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	39.89	Pk		-18.2	52.99	-	-	74	-21.01	161	131	H
2	* 2.374	43.55	Pk		-18.3	56.45	-	-	74	-17.55	161	131	H
3	* 2.39	30.39	VA1T		-18.2	43.49	54	-10.51	-	-	161	131	H
4	* 2.367	31	VA1T		-18.3	43.9	54	-10.1	-	-	161	131	H

* - indicates frequency in CFR15.205/IC7.2.2 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	170531_3 117[00168 724]	10dB[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	40.53	Pk	31.3	-18.2	53.63	-	-	74	-20.37	192	302	V
2	* 2.333	44.14	Pk	31.2	-18.4	56.94	-	-	74	-17.06	192	302	V
3	* 2.39	30.43	VA1T	31.3	-18.2	43.53	54	-10.47	-	-	192	302	V
4	* 2.37	30.97	VA1T	31.2	-18.3	43.87	54	-10.13	-	-	192	302	V

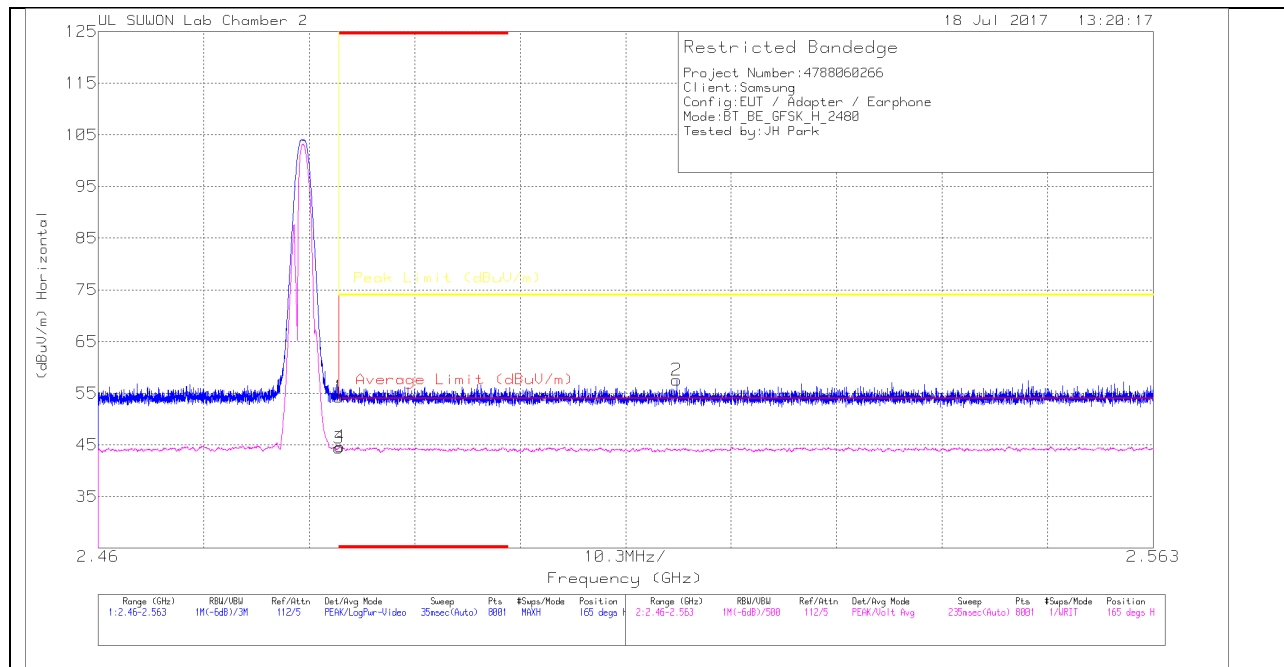
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

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

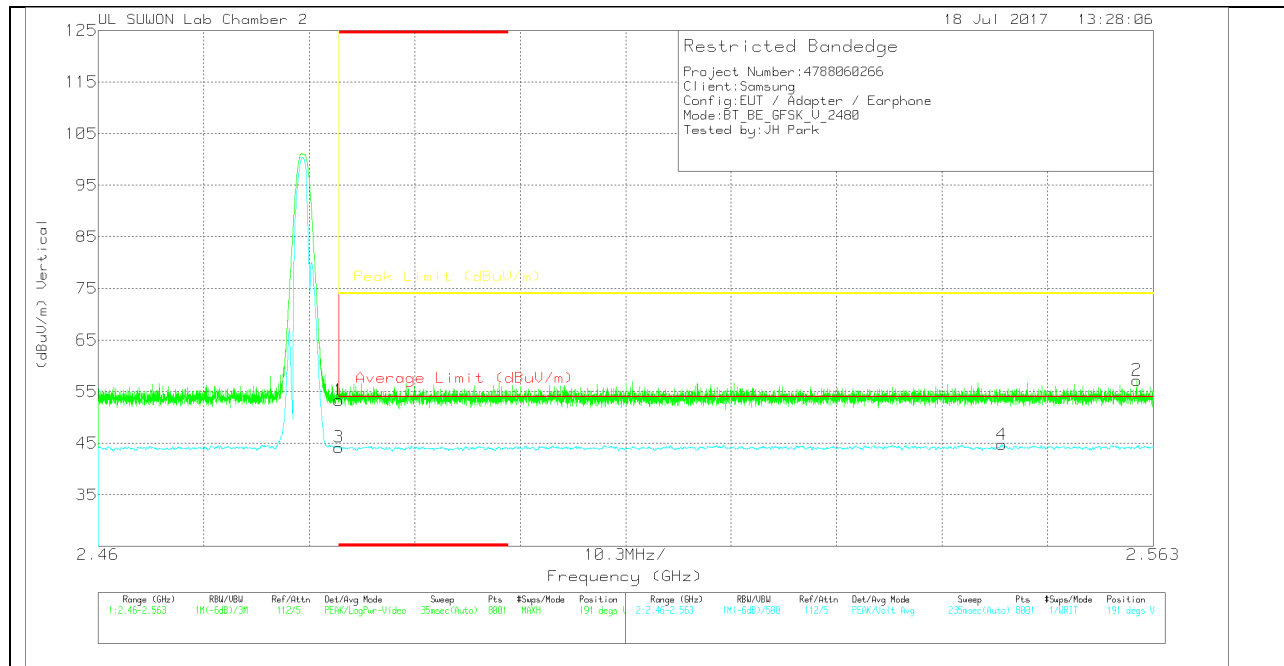
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3 117[00168 724]	10dB[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.74	Pk	31.6	-18	54.34	-	-	74	-19.66	165	124	H
2	2.516	43.96	Pk	31.6	-18	57.56	-	-	74	-16.44	165	124	H
3	* 2.484	30.79	VA1T	31.6	-18	44.39	54	-9.61	-	-	165	124	H
4	* 2.484	31.08	VA1T	31.6	-18	44.68	54	-9.32	-	-	165	124	H

* - indicates frequency in CFR15.205/IC7.2.2 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	170531_3 117[00168 724]	10dB[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	39.76	Pk	31.6	-18	53.36	-	-	74	-20.64	191	319	V
2	2.561	43.52	Pk	31.7	-18	57.22	-	-	74	-16.78	191	319	V
3	* 2.484	30.61	VA1T	31.6	-18	44.21	54	-9.79	-	-	191	319	V
4	2.548	31.03	VA1T	31.7	-18	44.73	54	-9.27	-	-	191	319	V

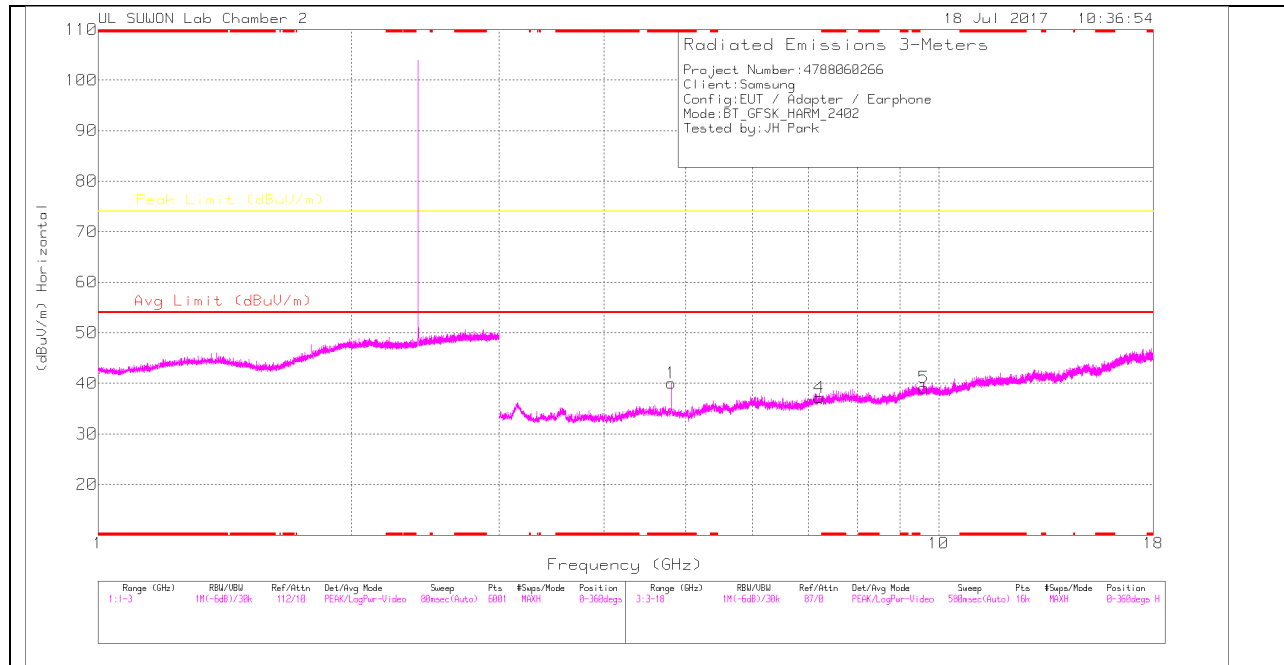
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

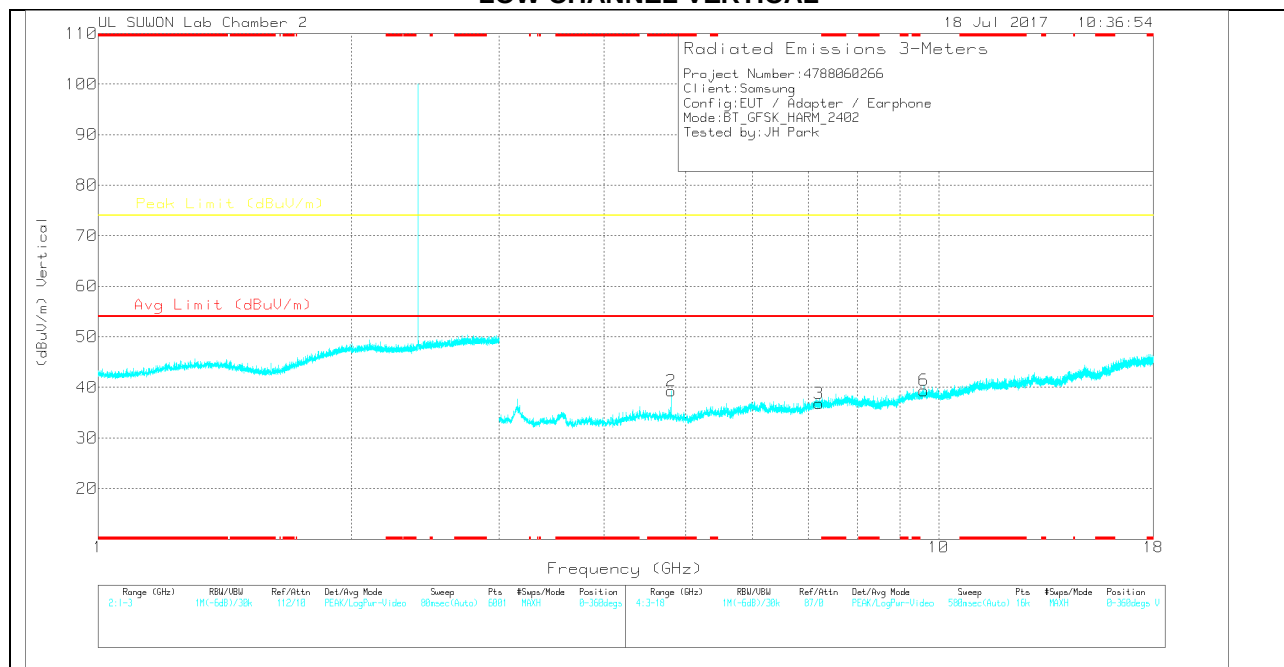
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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	170531_31 17[001687 24]	3GHz_HP[d B]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.804	30.55	PK	33.8	-24.3	40.05	-	-	74	-33.95	0-360	149	H
4	7.21	22.95	PK	35.9	-21.7	37.15	-	-	74	-36.85	0-360	149	H
5	9.606	20.83	PK	36.7	-18.4	39.13	-	-	74	-34.87	0-360	250	H
2	* 4.804	29.81	PK	33.8	-24.3	39.31	-	-	74	-34.69	0-360	250	V
3	7.205	22.59	PK	35.9	-21.7	36.79	-	-	74	-37.21	0-360	150	V
6	9.604	21.07	PK	36.7	-18.4	39.37	-	-	74	-34.63	0-360	250	V

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

PK – Peak Detector

Radiated Emissions

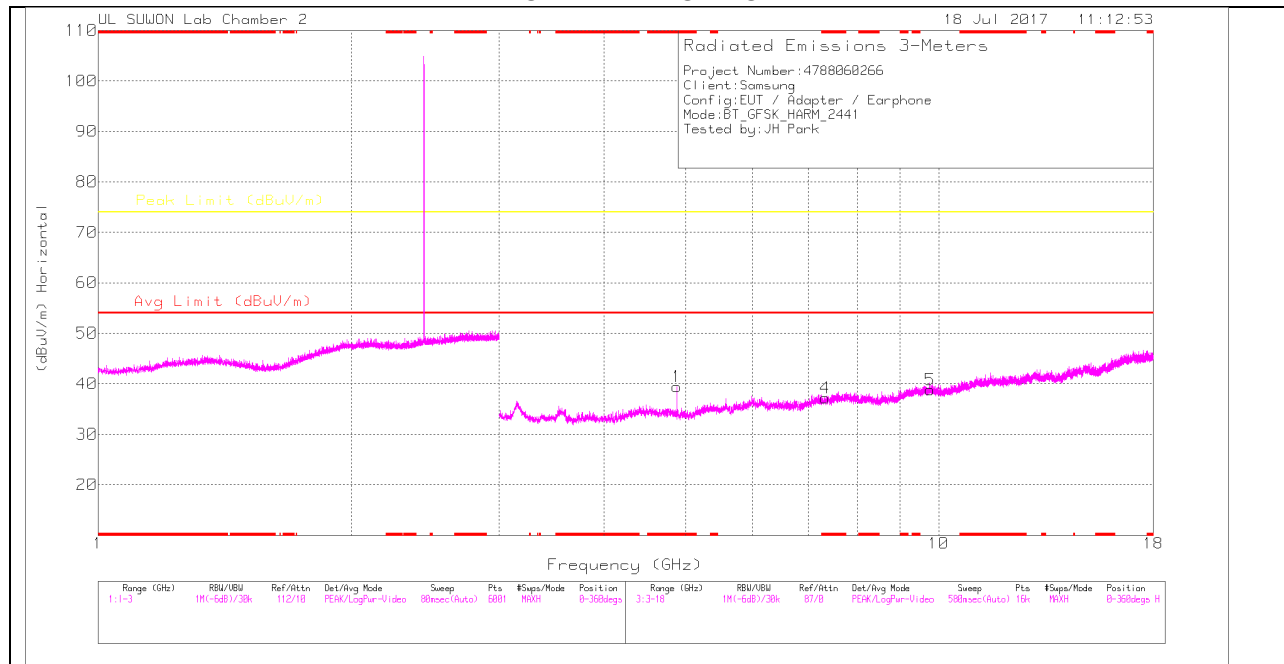
Frequency (GHz)	Meter Reading (dBuV)	Det	170531_31 17[001687 24]	3GHz_HP[d B]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.804	38.76	PK2	33.8	-24.3	48.26	-	-	74	-25.74	139	122	H
* 4.804	29.48	VA1T	33.8	-24.3	38.98	54	-15.02	-	-	139	122	H
* 4.804	38.51	PK2	33.8	-24.3	48.01	-	-	74	-25.99	205	337	V
* 4.804	29.27	VA1T	33.8	-24.3	38.77	54	-15.23	-	-	205	337	V

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

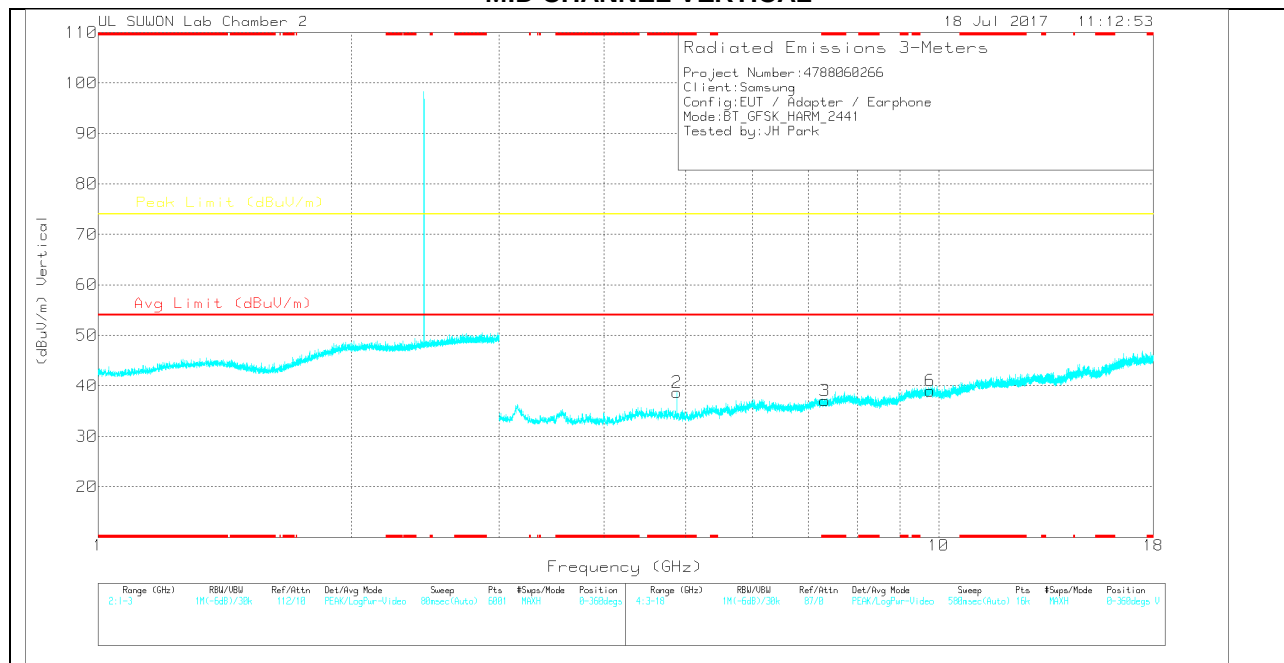
PK2 - KDB558074 Method: Maximum Peak

VA1T - FHSS: Linear Voltage Average $V_B=1/T_{on}$ where: T_{on} 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	170531_31 17[001687 24]	3GHz_HP[d B]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.881	30.21	PK	33.8	-24.6	39.41	-	-	74	-34.59	0-360	150	H
4	* 7.323	23.19	PK	35.9	-21.9	37.19	-	-	74	-36.81	0-360	250	H
5	9.763	19.9	PK	36.9	-18	38.8	-	-	74	-35.2	0-360	250	H
2	* 4.881	29.49	PK	33.8	-24.6	38.69	-	-	74	-35.31	0-360	250	V
3	* 7.322	23.03	PK	35.9	-21.9	37.03	-	-	74	-36.97	0-360	149	V
6	9.763	20.11	PK	36.9	-18	39.01	-	-	74	-34.99	0-360	149	V

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

PK – Peak Detector

Radiated Emissions

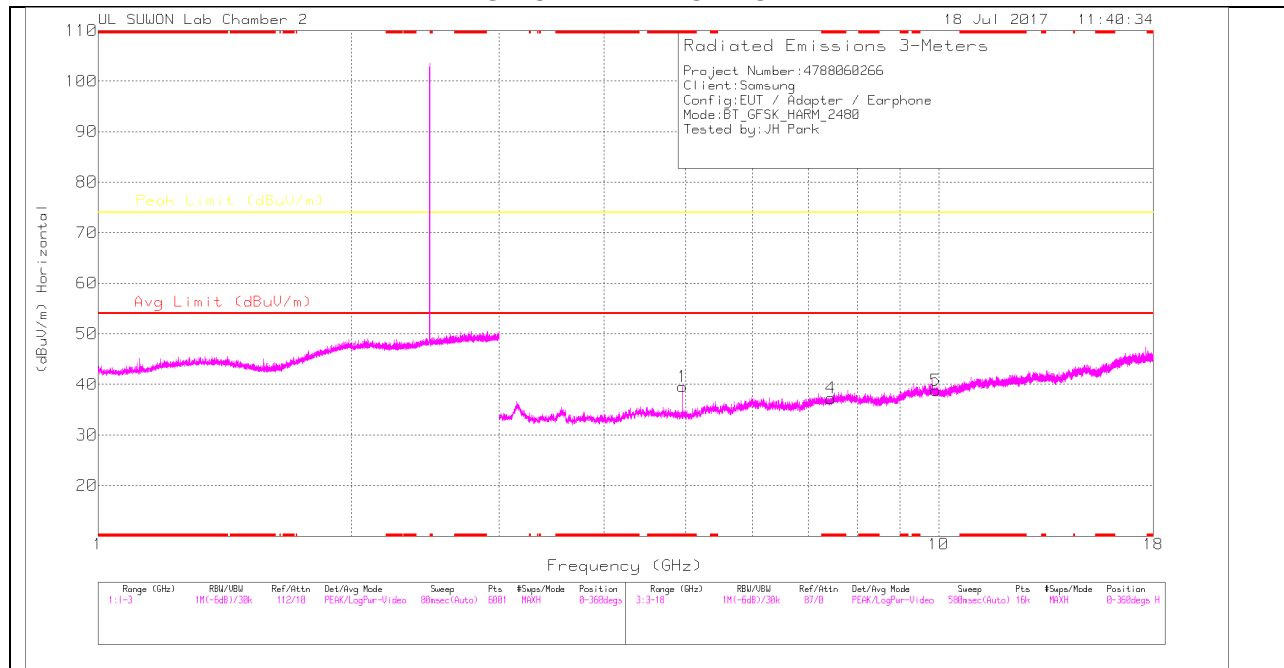
Frequency (GHz)	Meter Reading (dBuV)	Det	170531_31 17[001687 24]	3GHz_HP[d B]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.882	40.04	PK2	33.8	-24.6	49.24	-	-	74	-24.76	143	165	H
* 4.882	31.41	VA1T	33.8	-24.6	40.61	54	-13.39	-	-	143	165	H
* 4.882	38.23	PK2	33.8	-24.6	47.43	-	-	74	-26.57	201	224	V
* 4.882	29.05	VA1T	33.8	-24.6	38.25	54	-15.75	-	-	201	224	V

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

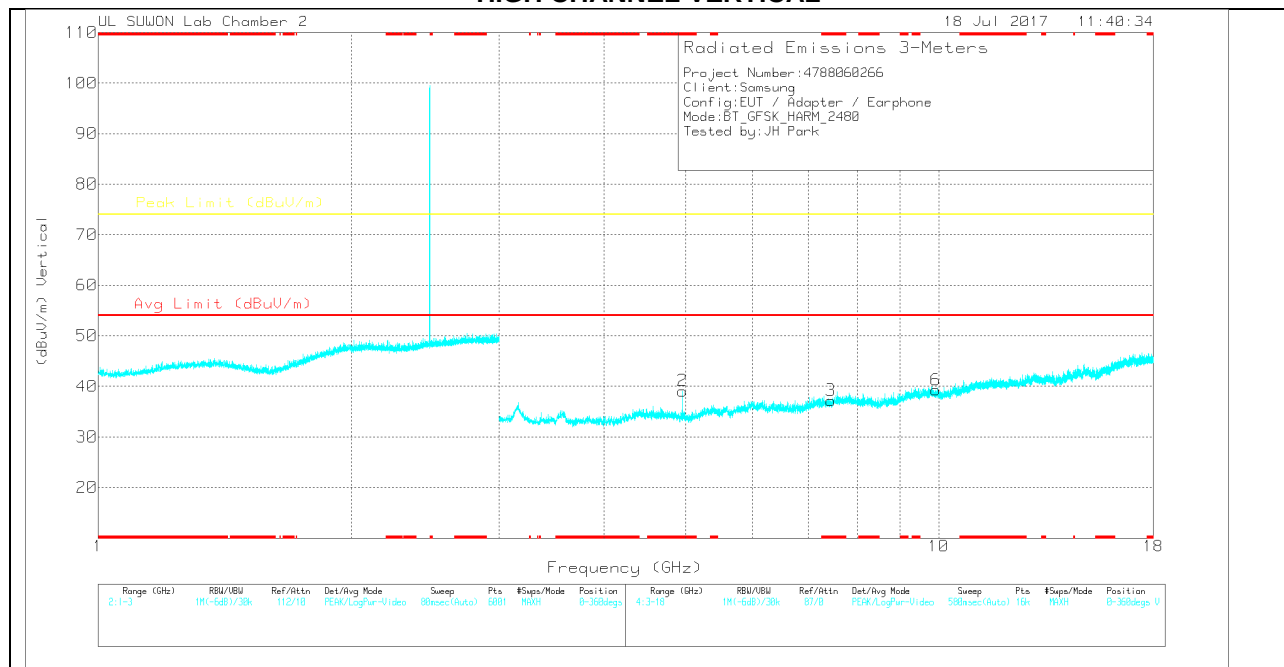
PK2 - KDB558074 Method: Maximum Peak

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	170531_31 17[001687 24]	3GHz_HP[d B]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.959	30.43	PK	33.8	-24.7	39.53	-	-	74	-34.47	0-360	150	H
4	* 7.441	22.35	PK	35.9	-21	37.25	-	-	74	-36.75	0-360	150	H
5	9.919	19.68	PK	37.1	-18	38.78	-	-	74	-35.22	0-360	150	H
2	* 4.96	30.01	PK	33.8	-24.7	39.11	-	-	74	-34.89	0-360	250	V
3	* 7.442	22.3	PK	35.9	-21	37.2	-	-	74	-36.8	0-360	150	V
6	9.922	20.17	PK	37.1	-18	39.27	-	-	74	-34.73	0-360	250	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	170531_31 17[001687 24]	3GHz_HP[d B]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.96	39.1	PK2	33.8	-24.7	48.2	-	-	74	-25.8	144	162	H
* 4.96	31.02	VA1T	33.8	-24.7	40.12	54	-13.88	-	-	144	162	H
* 4.96	38.58	PK2	33.8	-24.7	47.68	-	-	74	-26.32	199	276	V
* 4.96	28.92	VA1T	33.8	-24.7	38.02	54	-15.98	-	-	199	276	V

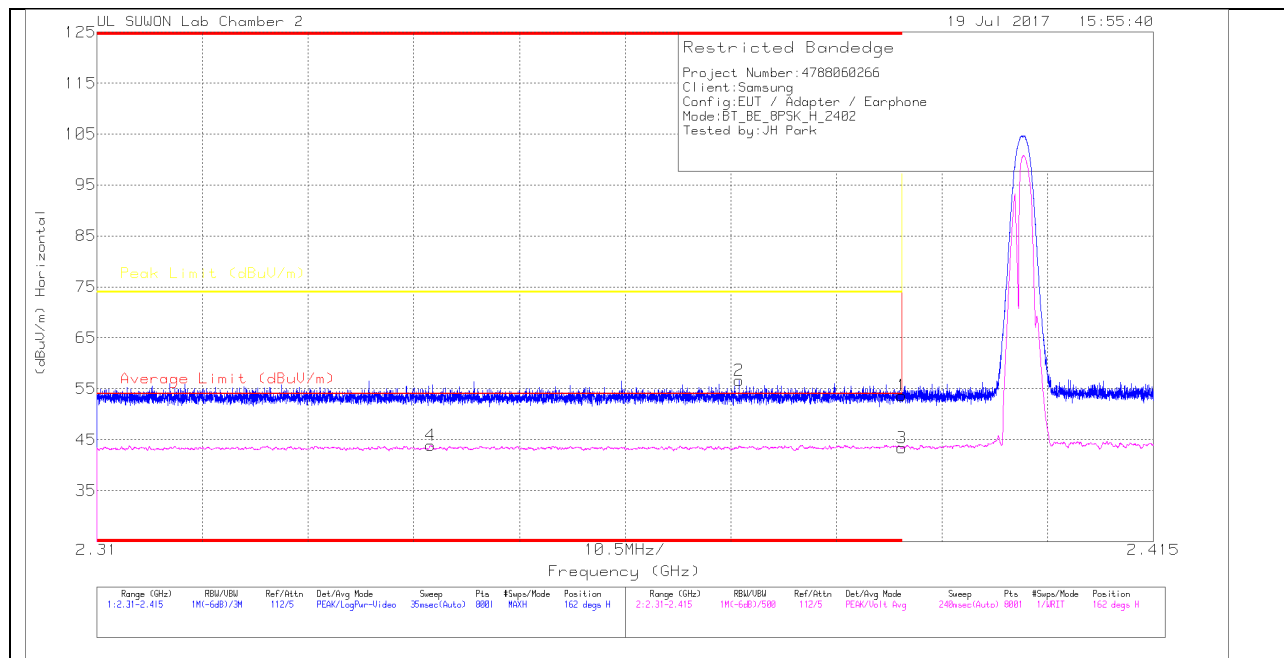
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK2 - KDB558074 Method: Maximum 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

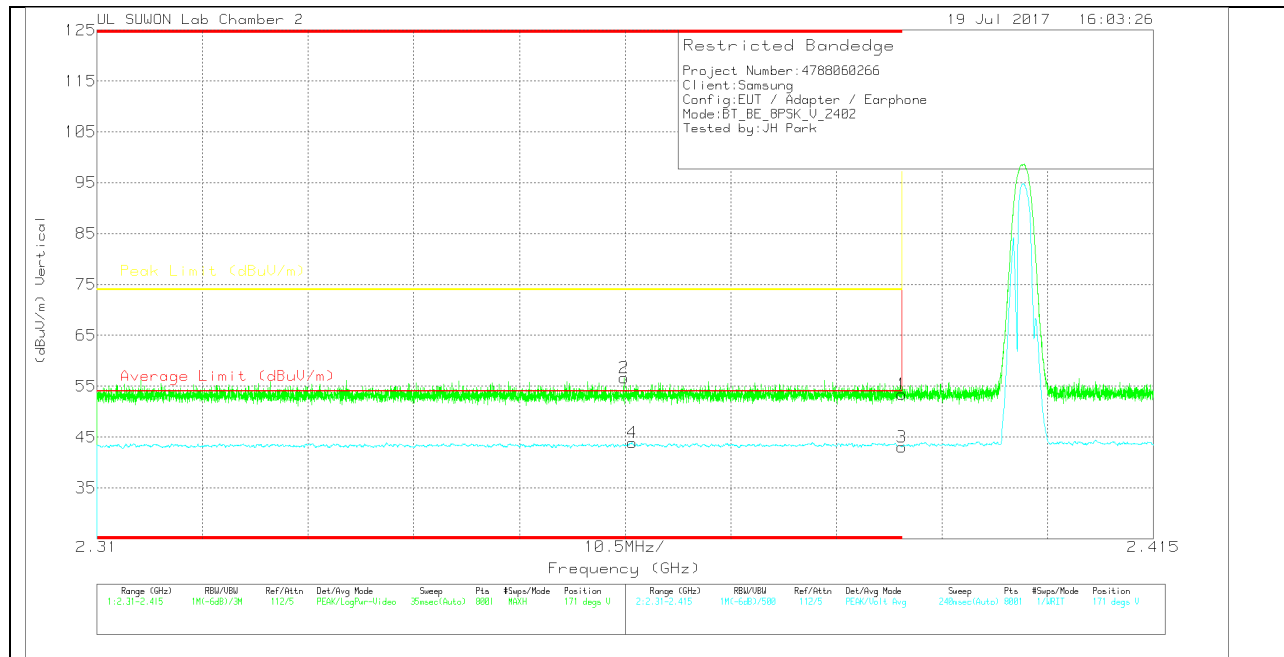
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3 117[00168 724]	10dB[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.53	Pk	31.3	-18.2	53.63	-	-	74	-20.37	162	147	H
2	* 2.374	43.72	Pk	31.2	-18.3	56.62	-	-	74	-17.38	162	147	H
3	* 2.39	30.28	VA1T	31.3	-18.2	43.38	54	-10.62	-	-	162	147	H
4	* 2.343	31.05	VA1T	31.2	-18.3	43.95	54	-10.05	-	-	162	147	H

* - indicates frequency in CFR15.205/IC7.2.2 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	170531_3 117[00168 724]	10dB[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	40.28	Pk	31.3	-18.2	53.38	-	-	74	-20.62	171	345	V
2	* 2.362	43.72	Pk	31.2	-18.3	56.62	-	-	74	-17.38	171	345	V
3	* 2.39	29.98	VA1T	31.3	-18.2	43.08	54	-10.92	-	-	171	345	V
4	* 2.363	31.04	VA1T	31.2	-18.3	43.94	54	-10.06	-	-	171	345	V

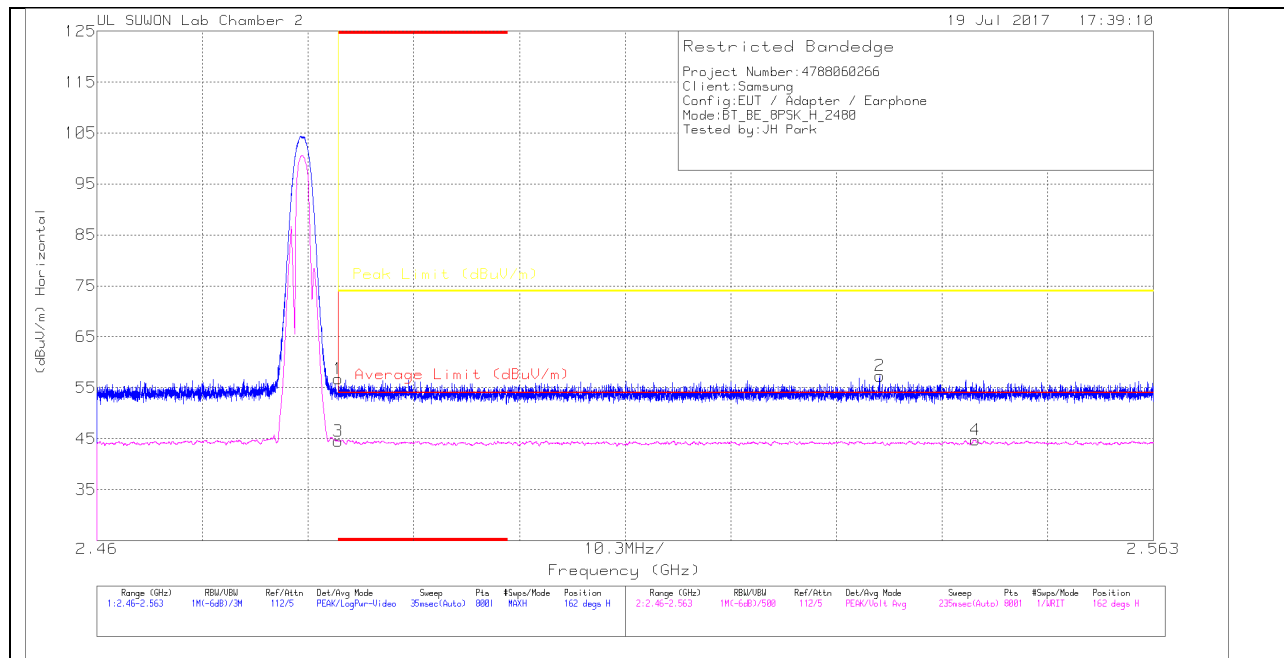
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

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

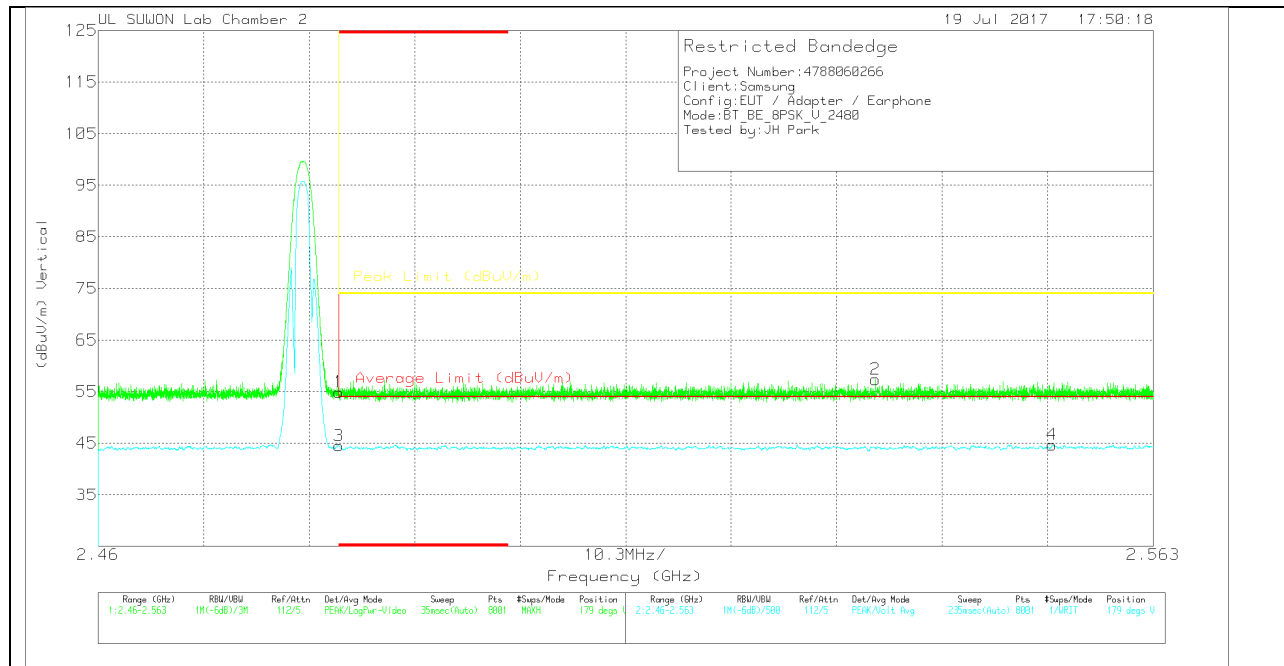
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	170531_3 117[00168 724]	10dB[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	43.15	Pk		-18	56.75	-	-	74	-17.25	162	220	H
2	2.536	43.62	Pk		-18	57.32	-	-	74	-16.68	162	220	H
3	* 2.484	30.88	VA1T		-18	44.48	54	-9.52	-	-	162	220	H
4	2.546	31.05	VA1T		-18	44.75	54	-9.25	-	-	162	220	H

* - indicates frequency in CFR15.205/IC7.2.2 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	170531_3 117[00168 724]	10dB[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	41.32	Pk		-18	54.92	-	-	74	-19.08	179	319	V
2	2.536	43.68	Pk		-18	57.38	-	-	74	-16.62	179	319	V
3	* 2.484	30.89	VA1T		-18	44.49	54	-9.51	-	-	179	319	V
4	2.553	31	VA1T		-18	44.7	54	-9.3	-	-	179	319	V

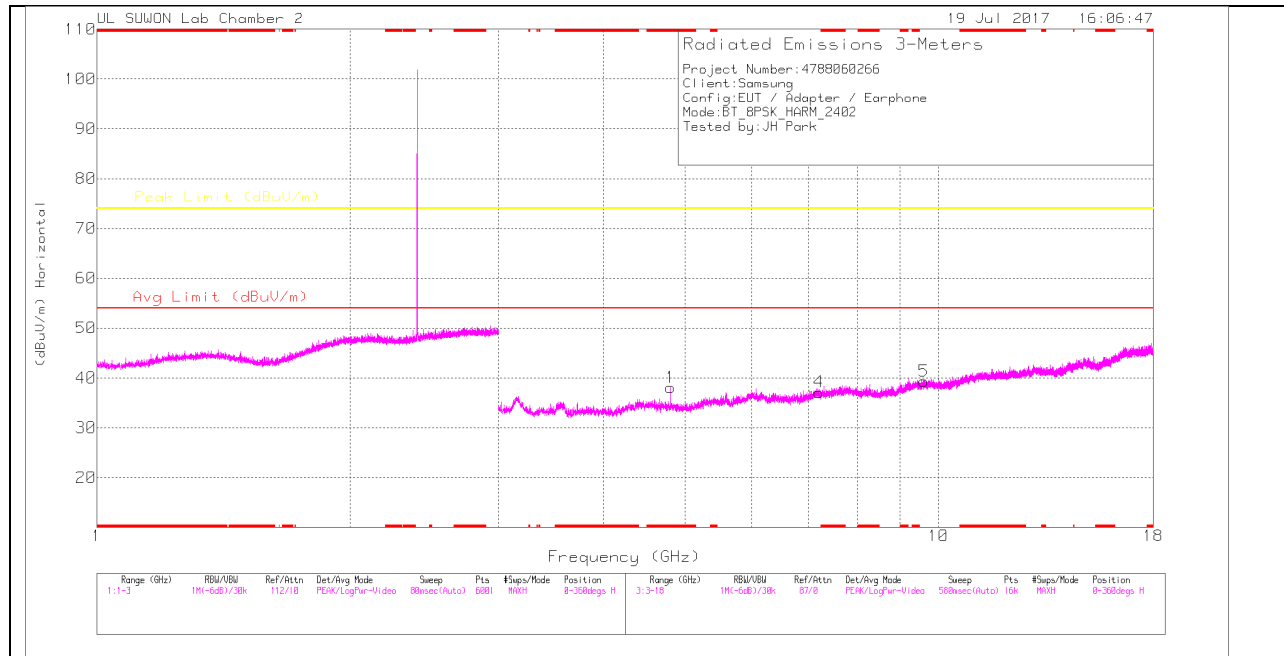
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

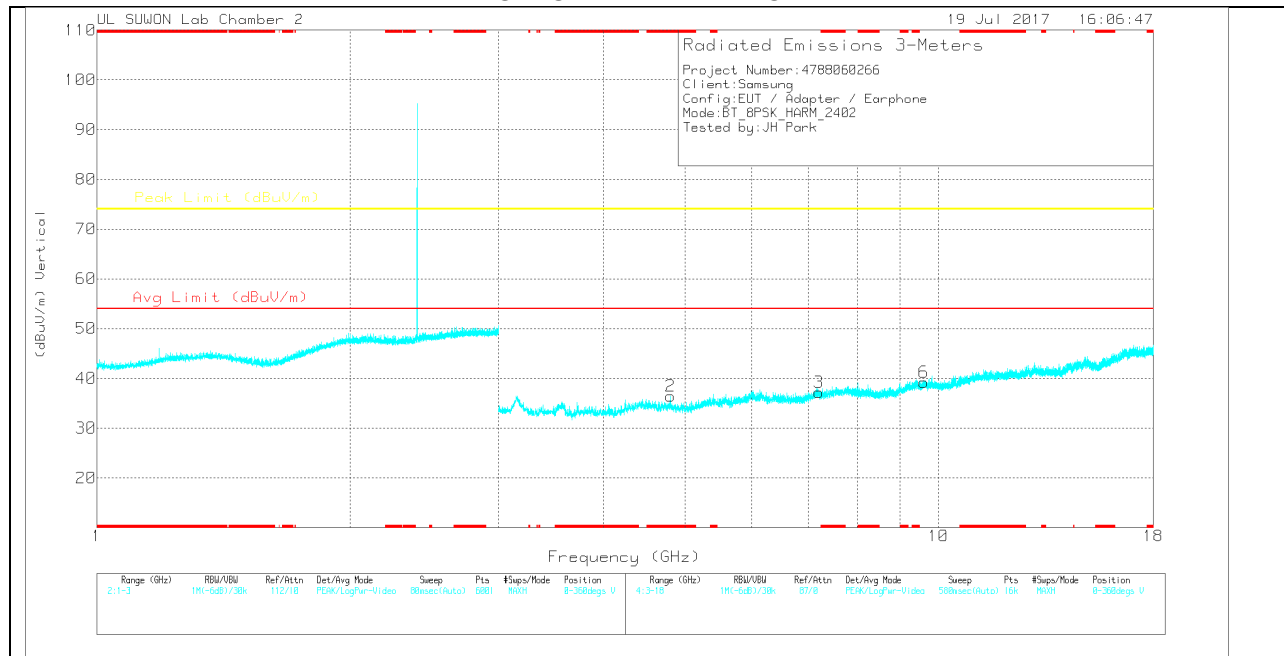
VA1T - FHSS: Linear Voltage Average $V_B = 1/T_{on}$ where: T_{on} is transmit duration

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	170531_31 17[001687 24]	3GHz_HP[d B]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.803	28.61	PK	33.8	-24.3	38.11	-	-	74	-35.89	0-360	250	H
4	7.204	22.94	PK	35.9	-21.7	37.14	-	-	74	-36.86	0-360	150	H
5	9.609	21.05	PK	36.7	-18.4	39.35	-	-	74	-34.65	0-360	150	H
2	* 4.803	26.94	PK	33.8	-24.3	36.44	-	-	74	-37.56	0-360	250	V
3	7.208	23.04	PK	35.9	-21.7	37.24	-	-	74	-36.76	0-360	250	V
6	9.608	20.9	PK	36.7	-18.4	39.2	-	-	74	-34.8	0-360	250	V

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

PK – Peak Detector

Radiated Emissions

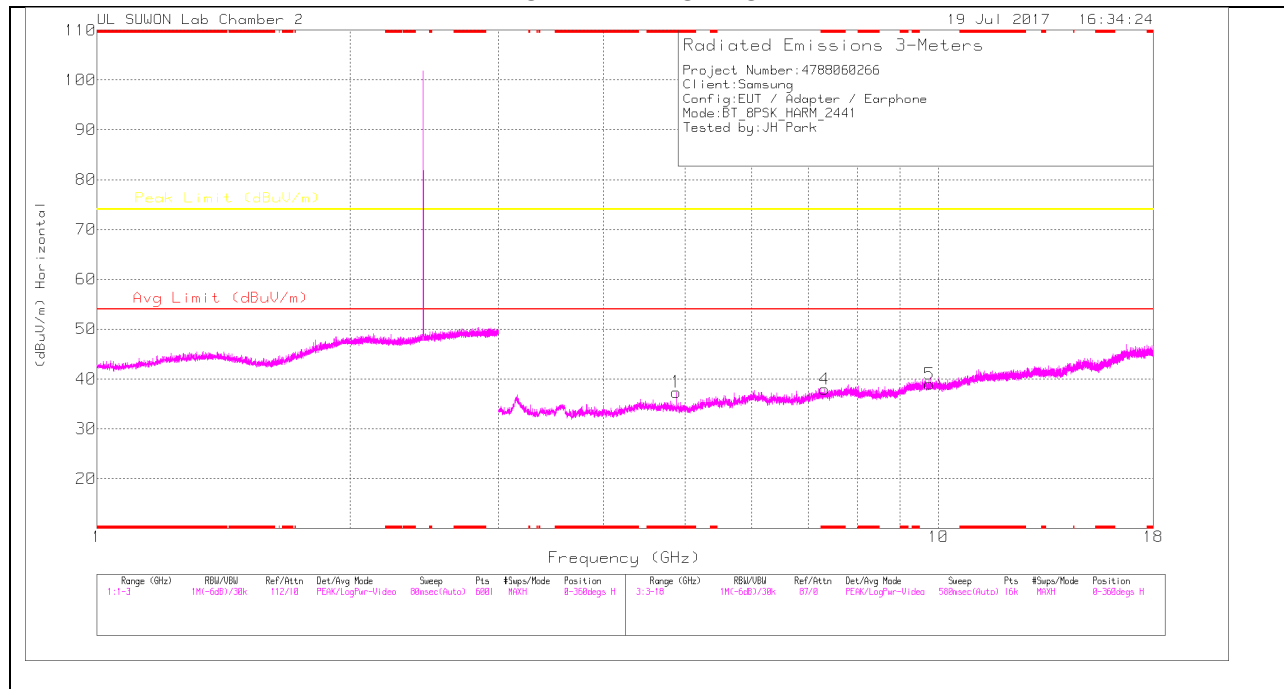
Frequency (GHz)	Meter Reading (dBuV)	Det	170531_31 17[001687 24]	3GHz_HP[d B]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.805	38.29	PK2	33.8	-24.3	47.79	-	-	74	-26.21	160	296	H
* 4.804	26.77	VA1T	33.8	-24.3	36.27	54	-17.73	-	-	160	296	H
* 4.803	37.84	PK2	33.8	-24.3	47.34	-	-	74	-26.66	212	317	V
* 4.804	25.1	VA1T	33.8	-24.3	34.6	54	-19.4	-	-	212	317	V

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

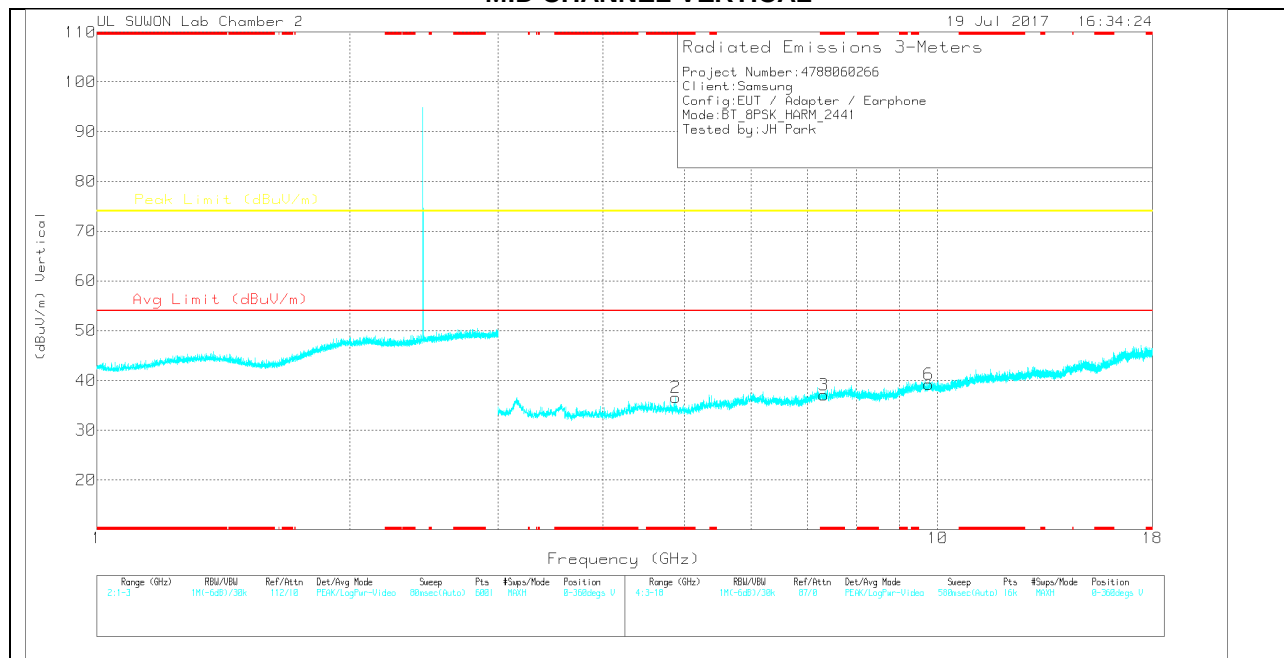
PK2 - KDB558074 Method: Maximum Peak

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	170531_31 17[001687 24]	3GHz_HP[d B]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.881	28.19	PK	33.8	-24.6	37.39	-	-	74	-36.61	0-360	250	H
4	* 7.322	23.95	PK	35.9	-21.9	37.95	-	-	74	-36.05	0-360	150	H
5	9.765	20.03	PK	36.9	-18	38.93	-	-	74	-35.07	0-360	250	H
2	* 4.882	27.33	PK	33.8	-24.6	36.53	-	-	74	-37.47	0-360	250	V
3	* 7.323	23.06	PK	35.9	-21.9	37.06	-	-	74	-36.94	0-360	150	V
6	9.764	20.37	PK	36.9	-18	39.27	-	-	74	-34.73	0-360	250	V

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

PK – Peak Detector

Radiated Emissions

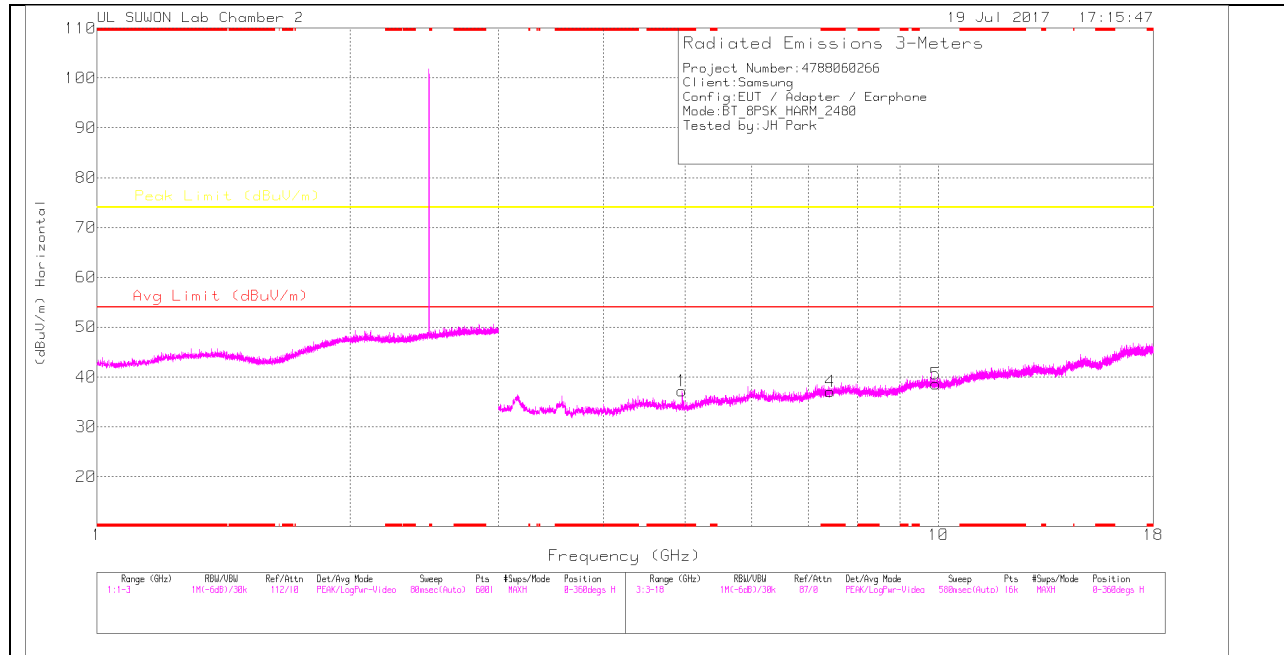
Frequency (GHz)	Meter Reading (dBuV)	Det	170531_31 17[001687 24]	3GHz_HP[d B]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.882	38.5	PK2	33.8	-24.6	47.7	-	-	74	-26.3	157	297	H
* 4.882	27.1	VA1T	33.8	-24.6	36.3	54	-17.7	-	-	157	297	H
* 4.882	36.36	PK2	33.8	-24.6	45.56	-	-	74	-28.44	269	295	V
* 4.882	22.13	VA1T	33.8	-24.6	31.33	54	-22.67	-	-	269	295	V

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

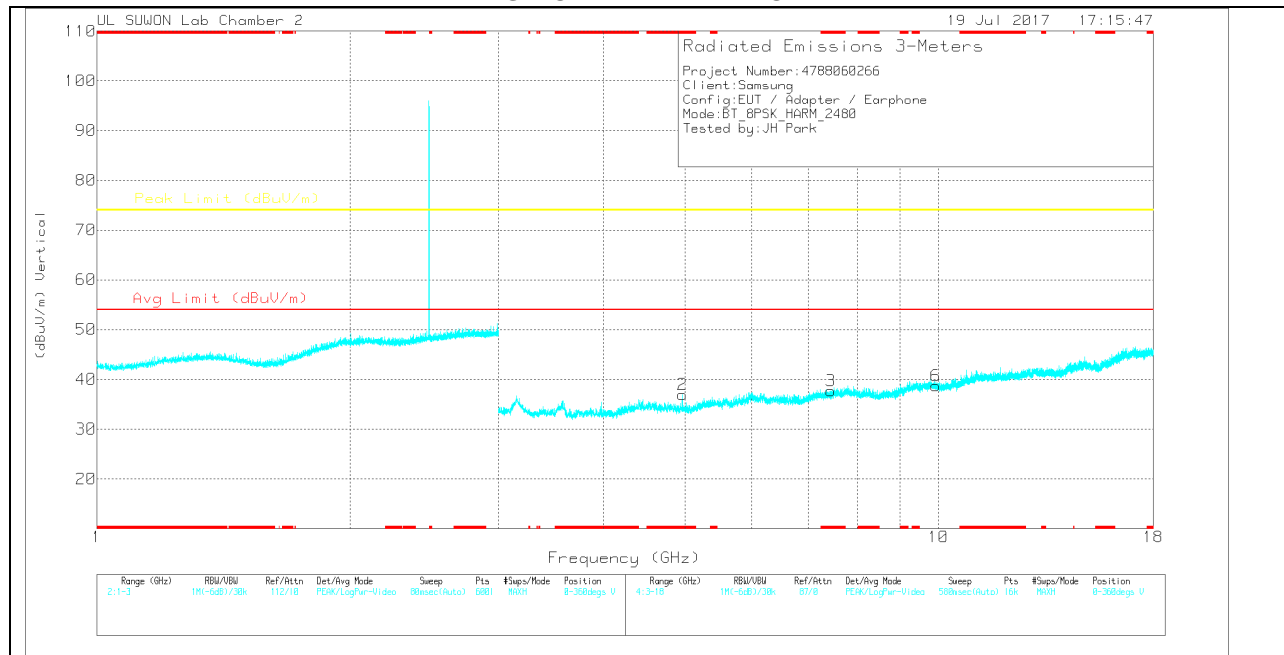
PK2 - KDB558074 Method: Maximum Peak

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	170531_31 17[001687 24]	3GHz_HP[d B]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.959	28.16	PK	33.8	-24.7	37.26	-	-	74	-36.74	0-360	250	H
4	* 7.442	22.14	PK	35.9	-21	37.04	-	-	74	-36.96	0-360	150	H
5	9.923	19.46	PK	37.1	-18	38.56	-	-	74	-35.44	0-360	250	H
2	* 4.96	27.9	PK	33.8	-24.7	37	-	-	74	-37	0-360	250	V
3	* 7.443	22.86	PK	35.9	-21	37.76	-	-	74	-36.24	0-360	250	V
6	9.923	19.63	PK	37.1	-18	38.73	-	-	74	-35.27	0-360	250	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	170531_31 17[001687 24]	3GHz_HP[d B]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.96	38.19	PK2	33.8	-24.7	47.29	-	-	74	-26.71	155	276	H
* 4.96	26.7	VA1T	33.8	-24.7	35.8	54	-18.2	-	-	155	276	H
* 4.96	37.62	PK2	33.8	-24.7	46.72	-	-	74	-27.28	188	251	V
* 4.96	25.17	VA1T	33.8	-24.7	34.27	54	-19.73	-	-	188	251	V

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

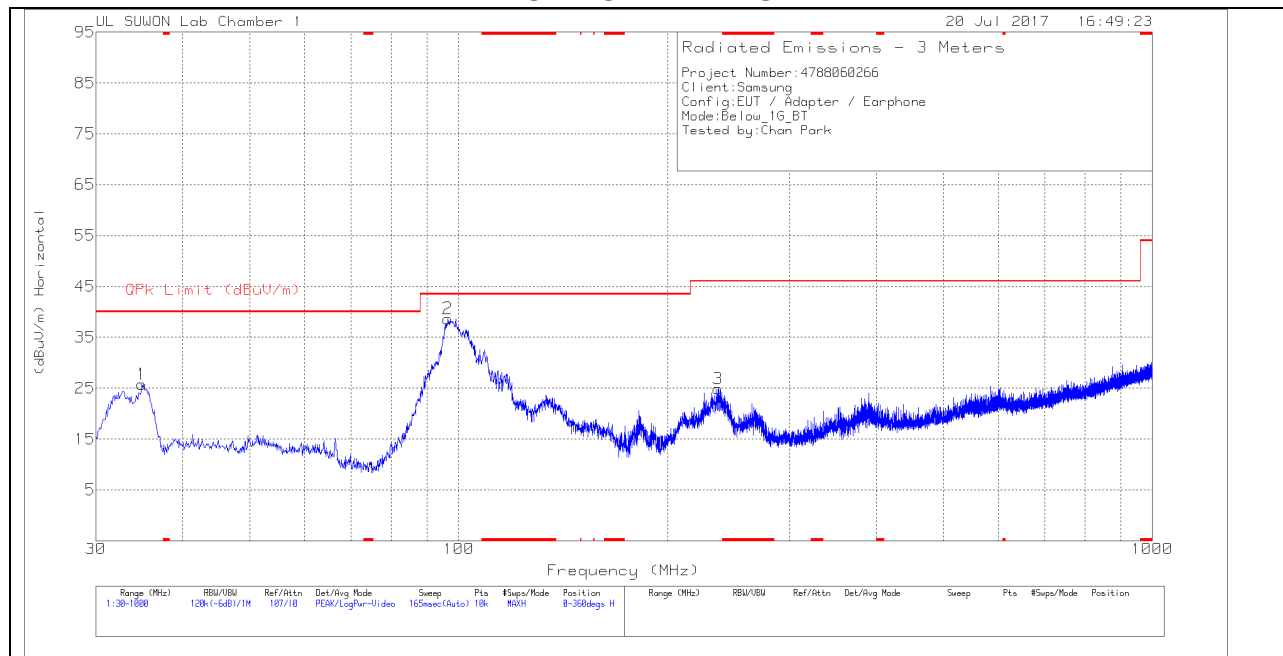
PK2 - KDB558074 Method: Maximum Peak

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

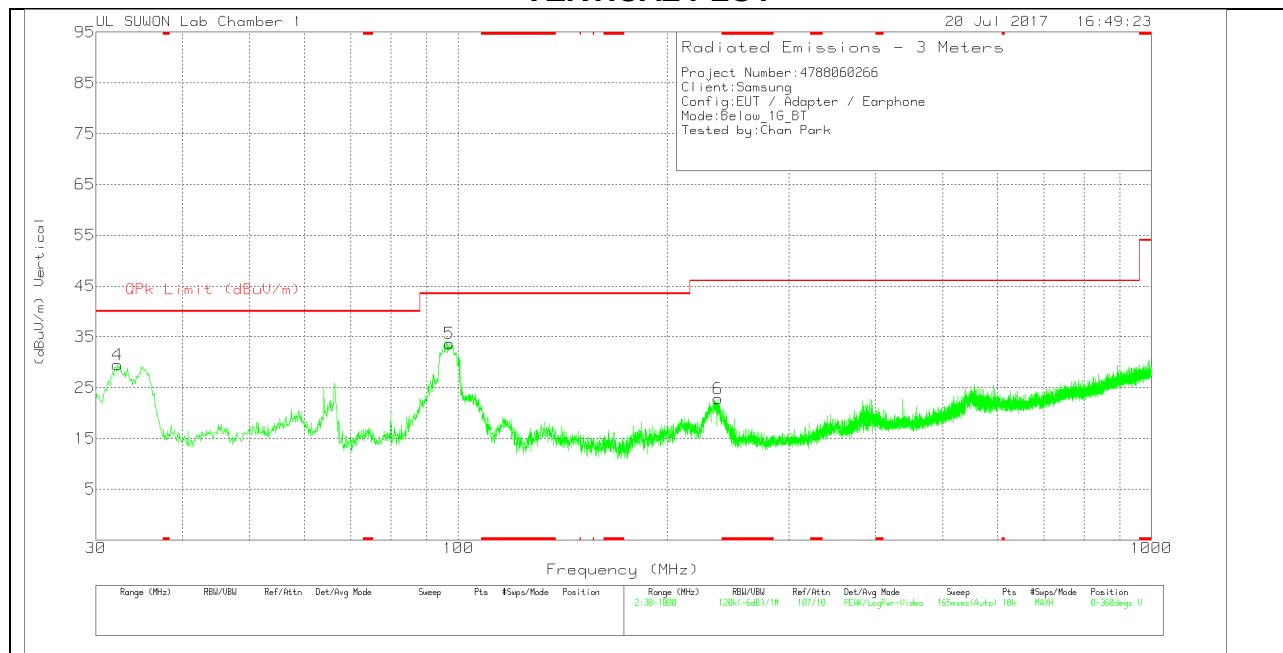
10.3. WORST-CASE BELOW 1 GHz

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	VULB9163_750(dB)	30-1000MHz[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	34.947	44.71	Pk	10.7	-29.6	25.81	40	-14.19	0-360	300	H
2	96.542	56.29	Pk	10.9	-28.5	38.69	43.52	-4.83	0-360	300	H
3	236.416	40.48	Pk	11.9	-27.5	24.88	46.02	-21.14	0-360	100	H
4	32.231	48.51	Pk	10.5	-29.5	29.51	40	-10.49	0-360	100	V
5	97.027	51.14	Pk	11	-28.5	33.64	43.52	-9.88	0-360	100	V
6	237.095	38.29	Pk	11.9	-27.4	22.79	46.02	-23.23	0-360	200	V

Pk - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750(dB)	30-1000MHz[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
96.58256	48.82	Qp	11	-28.5	31.32	43.52	-12.2	207	298	H
32.28447	43.4	Qp	10.5	-29.6	24.3	40	-15.7	29	100	V
97.25447	45.98	Qp	11.1	-28.5	28.58	43.52	-14.94	55	100	V

Qp - Quasi-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.

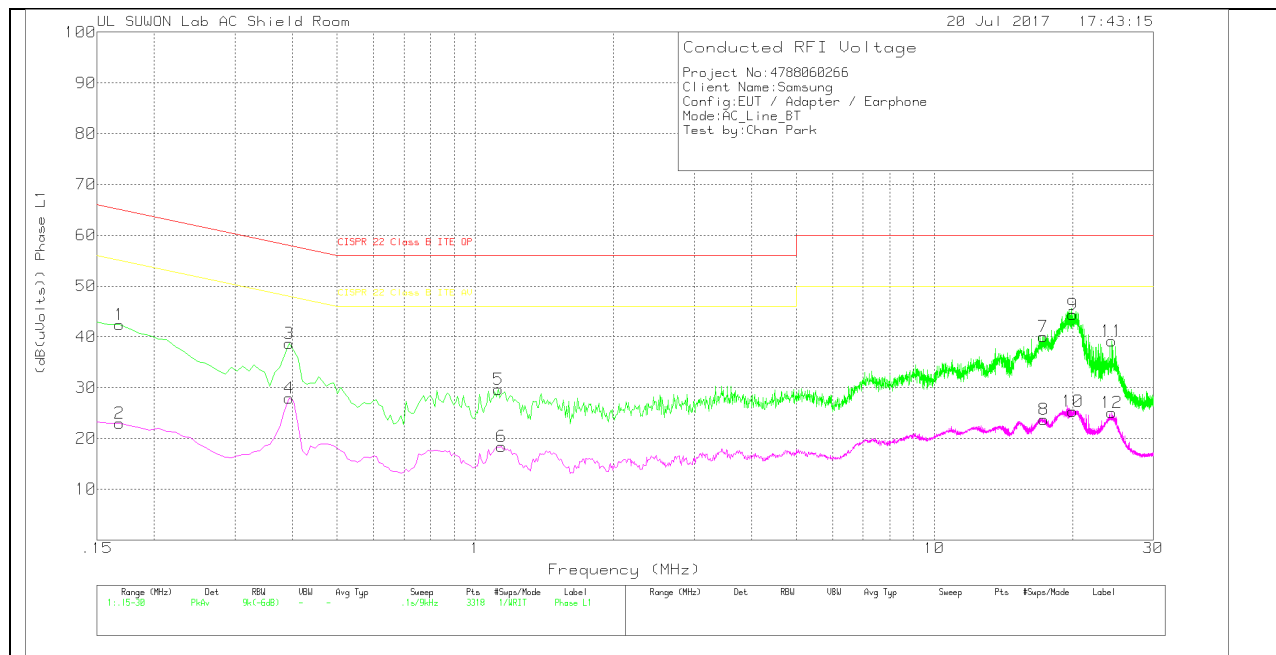
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULTS

Trace Markers

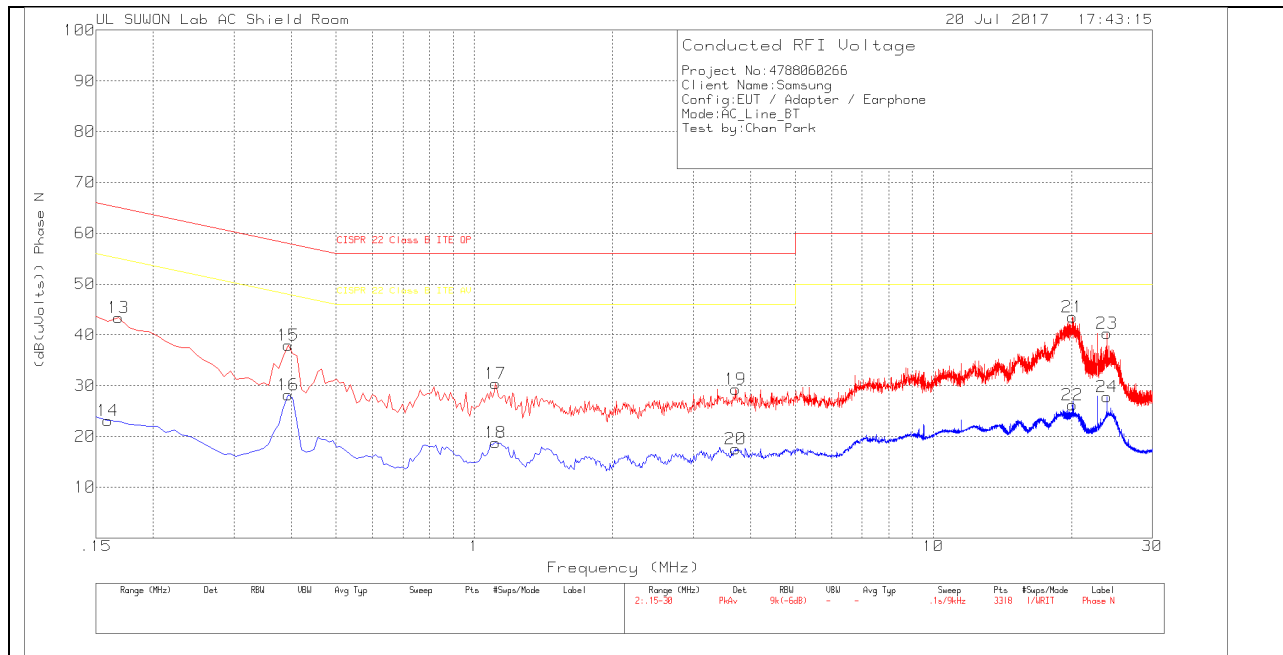
Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_w ith ex- cord_L1	CABLELOS S(dB)	Corrected Reading (dB(uVolts)	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
1	.168	32.34	Pk	10	.1	42.44	65.06	-22.62	-	-
2	.168	12.92	Av	10	.1	23.02	-	-	55.06	-32.04
3	.393	28.58	Pk	9.9	.2	38.68	58	-19.32	-	-
4	.393	17.88	Av	9.9	.2	27.98	-	-	48	-20.02
5	1.122	19.57	Pk	9.8	.3	29.67	56	-26.33	-	-
6	1.14	8.32	Av	9.8	.3	18.42	-	-	46	-27.58
7	17.277	29.5	Pk	10.2	.4	40.1	60	-19.9	-	-
8	17.304	13.12	Av	10.2	.4	23.72	-	-	50	-26.28
9	20.013	33.59	Pk	10.4	.4	44.39	60	-15.61	-	-
10	20.004	14.53	Av	10.4	.4	25.33	-	-	50	-24.67
11	24.387	28.31	Pk	10.5	.4	39.21	60	-20.79	-	-
12	24.351	14.15	Av	10.5	.4	25.05	-	-	50	-24.95

Pk - Peak detector

Av - Average detection

LINE 2 PLOT



LINE 2 RESULTS

Trace Markers

Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_w ith ex- cord_N	CABLELOS S(dB)	Corrected Reading (dB(uVolts)	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
13	.168	33.25	Pk	10	.1	43.35	65.06	-21.71	-	-
14	.159	13.07	Av	9.9	.1	23.07	-	-	55.52	-32.45
15	.393	27.83	Pk	9.9	.2	37.93	58	-20.07	-	-
16	.393	18.08	Av	9.9	.2	28.18	-	-	48	-19.82
17	1.113	20.32	Pk	9.8	.3	30.42	56	-25.58	-	-
18	1.113	8.62	Av	9.8	.3	18.72	-	-	46	-27.28
19	3.705	19.14	Pk	9.8	.3	29.24	56	-26.76	-	-
20	3.714	7.48	Av	9.8	.3	17.58	-	-	46	-28.42
21	20.076	32.4	Pk	10.7	.4	43.5	60	-16.5	-	-
22	20.076	15.06	Av	10.7	.4	26.16	-	-	50	-23.84
23	23.865	29.05	Pk	10.8	.4	40.25	60	-19.75	-	-
24	23.874	16.65	Av	10.8	.4	27.85	-	-	50	-22.15

Pk - Peak detector

Av - Average detection