



FCC CFR47 PART 15 SUBPART C

Bluetooth

CERTIFICATION TEST REPORT

FOR

WCDMA/LTE Tablet + Bluetooth/BLE, DTS/UNII a/b/g/n/ac and ANT+

MODEL NUMBER : SM-T818V

FCC ID: A3LSMT818V

REPORT NUMBER: 16K23802-E3V2

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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	09/05/16	Initial issue	SungGil Park
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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.

EUT DESCRIPTION: WCDMA/LTE Tablet + Bluetooth/BLE, DTS/UNII a/b/g/n/ac and ANT+

MODEL NUMBER: SM-T818T

SERIAL NUMBER: R32H5003EKB, R32H7007CDF (RADIATED);
R32H5003EJN, R32H7007MGE (CONDUCTED)

DATE TESTED: JUL 11, 2016 - SEP 05, 2016

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.

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SungGil Park
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1.1. INTRODUCTION OF TEST DATA REUSE

This report referenced from the FCC ID: A3LSMT818T, DSS (FCC CFR 47 Part 15C).
And the applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID.

1.2. DIFFERENCE

The FCC ID: A3LSMT818V shares the same enclosure and circuit board as FCC ID: A3LSMT818T. The BT circuitry and layout are identical between these two units.
The BT antennas and surrounding circuitry are the same between these two units.

After confirming through preliminary radiated emissions that the performance of the FCC ID: A3LSMT818T remains representative of FCC ID: A3LSMT818V. The test data of FCC ID: A3LSMT818T being submitted for this application to cover BT features.

1.3. SPOT CHECK VERIFICATION DATA

Band		Test Item	Worst Freq. (MHz)	Test Limit (dBμV/m)	Original Model SM-T818T (FCC ID : A3LSMT818T)	Spot Check Model SM-T818V (FCC ID : A3LSMT818V)	Deviation
					Measured Data(dBμV/m)	Measured Power (dBμV/m)	
Bluetooth	2.4GHz	Band Edge	2480.0	54(avg)	43.89	43.71	-0.18
		RSE	2402.0	74(peak)	39.37	38.64	-0.73

Comparison of two models, Deviation is within The EMC Lab Measurement Uncertainty range and all test results are under FCC Technical Limits.

1.4. REFERENCE DETAIL

Reference application that contains the reused reference data.

Equipment Class	Reference FCC ID	Type Grant/Permissive Change	Reference Application	Folder Test/RF Exposure	Report Tittle / Section
DTS	A3LSMT818T	Grant	16K23624-E1V1	Test	FCC Report DTS WLAN / All sections
			16K23795-S1V1	RF Exposure	FCC Report SAR / Section 9.3, 10.8
DSS	A3LSMT818T	Grant	16K23624-E3V1	Test	FCC Report BT / All sections
			16K23795-S1V1	RF Exposure	FCC Report SAR / Section 9.5, 10.10
NII	A3LSMT818T	Grant	16K23624-E4V1	Test	FCC Report UNII DFS WLAN / All sections (Except DFS)
			16K23795-S1V1	RF Exposure	FCC Report SAR / Section 9.4, 10.9
DXX	A3LSMT818T	Grant	16K23624-E5V1	Test	FCC Report ANT+ / All sections
PCB	A3LSMT818T	Grant	16K23624-E6V1	Test	FCC Report WWAN / All sections for WCDMA B2, B5 LTE B2/B4/B5
			16K23795-S1V1	RF Exposure	FCC Report SAR / Section for WCDMA B2 (9.1, 10.1), WCDMA B5 (9.1, 10.3), LTE B2 (9.2, 10.4), LTE B4 (9.2, 10.5), LTE B5 (9.2, 10.6)

2. TEST METHODOLOGY

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

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 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 WCDMA/LTE Tablet + Bluetooth/BLE, DTS/UNII a/b/g/n/ac 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	9.947	9.879
		Peak	10.134	10.313
	Enhanced Pi/4-DPSK	Average	7.327	5.404
		Peak	9.429	8.768
	Enhanced 8PSK	Average	7.358	5.443
		Peak	9.796	9.541

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

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of 0.61 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 Z orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z 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 8.6.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	EP-TA12JWE	DK3H518VS/B- E	N/A
Data Cable	SAMSUNG	DG925UWE	N/A	N/A
Earphone	SAMSUNG	EHS64AVFWE	N/A	N/A

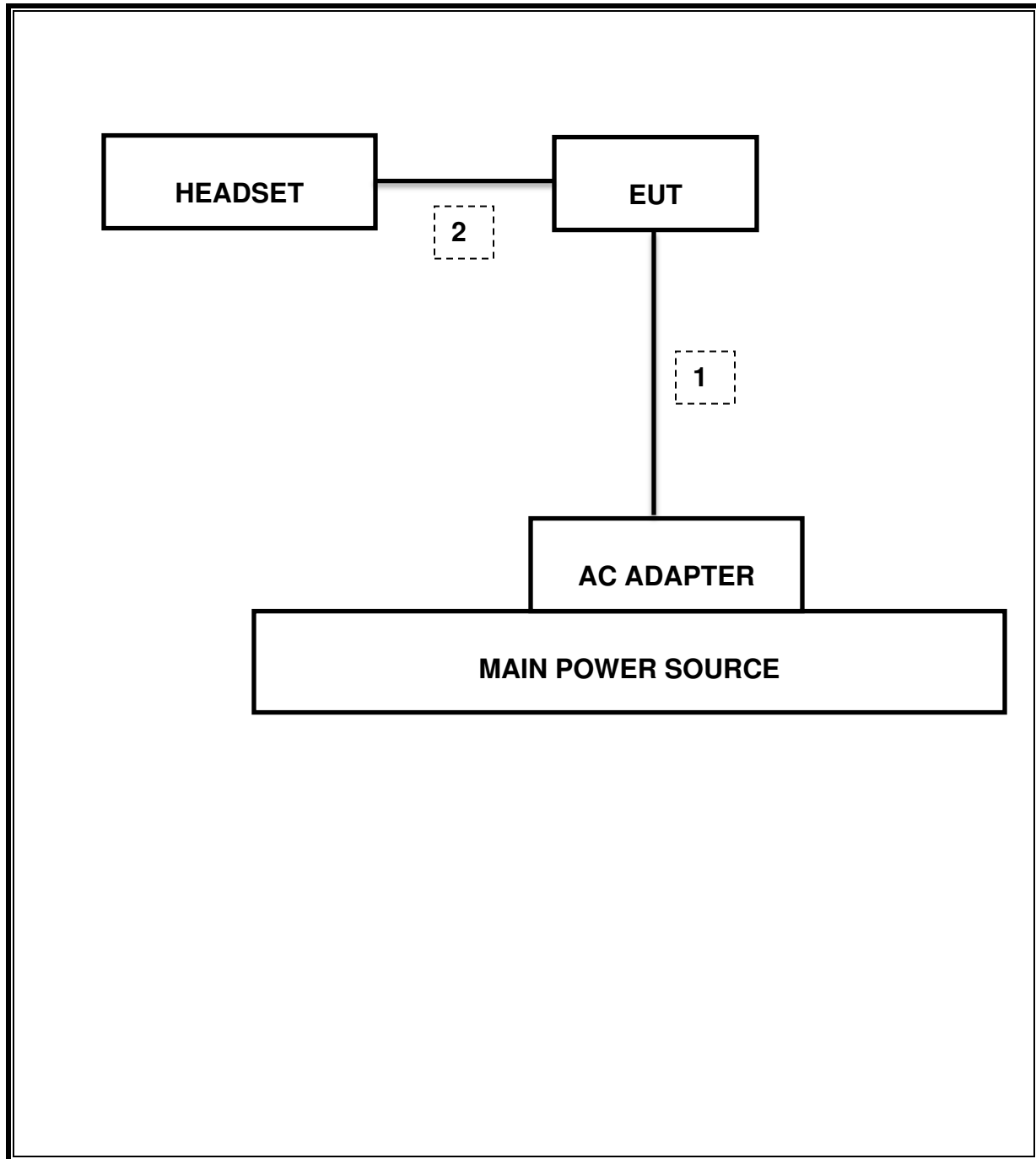
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	Mini-USB	Shielded	0.8m	N/A
2	Audio	1	Mini-Jack	Unshielded	1.0m	N/A

TEST SETUP

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

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List				
Description	Manufacturer	Model	S/N	Cal Due
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	750	11-17-16
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	04-25-17
Antenna, Horn, 18 GHz	ETS	3115	00167211	09-20-16
Antenna, Horn, 18 GHz	ETS	3115	00161451	05-17-17
Antenna, Horn, 18 GHz	ETS	3117	00168724	06-17-17
Antenna, Horn, 18 GHz	ETS	3117	00168717	06-17-17
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
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	08-16-17
Bluetooth Tester	TESCOM	TC-3000C	3000C000546	08-18-17
Average Power Sensor	R&S	NRZ-Z91	102681	08-16-17
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
Attenuator / Switch driver	HP	11713A	3748A04272	N/A
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
LISN	R&S	ENV-216	101836	08-16-17
LISN	R&S	ENV-216	101837	08-16-17
Attenuator	PASTERNAK	PE7087-10	A009	08-16-17

7. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result	Worst Case
2.1049	Occupied Band width (99%)	N/A	Conducted	Pass	1.165 MHz
2.1051, 15.247 (d)	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-40.112 dBm
15.247 (b)(1)	TX conducted output power	<21dBm		Pass	10.134 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	0.37466 sec
15.207 (a)	AC Power Line conducted emissions	Section 10	Power Line conducted	Pass	42.66 dBuV (PK)
15.205, 15.209	Radiated Spurious Emission	< 54dBuV/m	Radiated	Pass	43.89 dBuV/m (Av)

8. ANTENNA PORT TEST RESULTS

8.1. 20 dB AND 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

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

RESULTS

8.1.1. BASIC DATA RATE GFSK MODULATION

Channel	Frequency [MHz]	20 dB Bandwidth [KHz]	99% Bandwidth [KHz]
Low	2402	967.100	901.990
Mid	2441	972.600	899.020
High	2480	972.200	900.000
Worst		972.600	901.990

8.1.2. ENHANCED DATA RATE Pi/4-DQPSK MODULATION

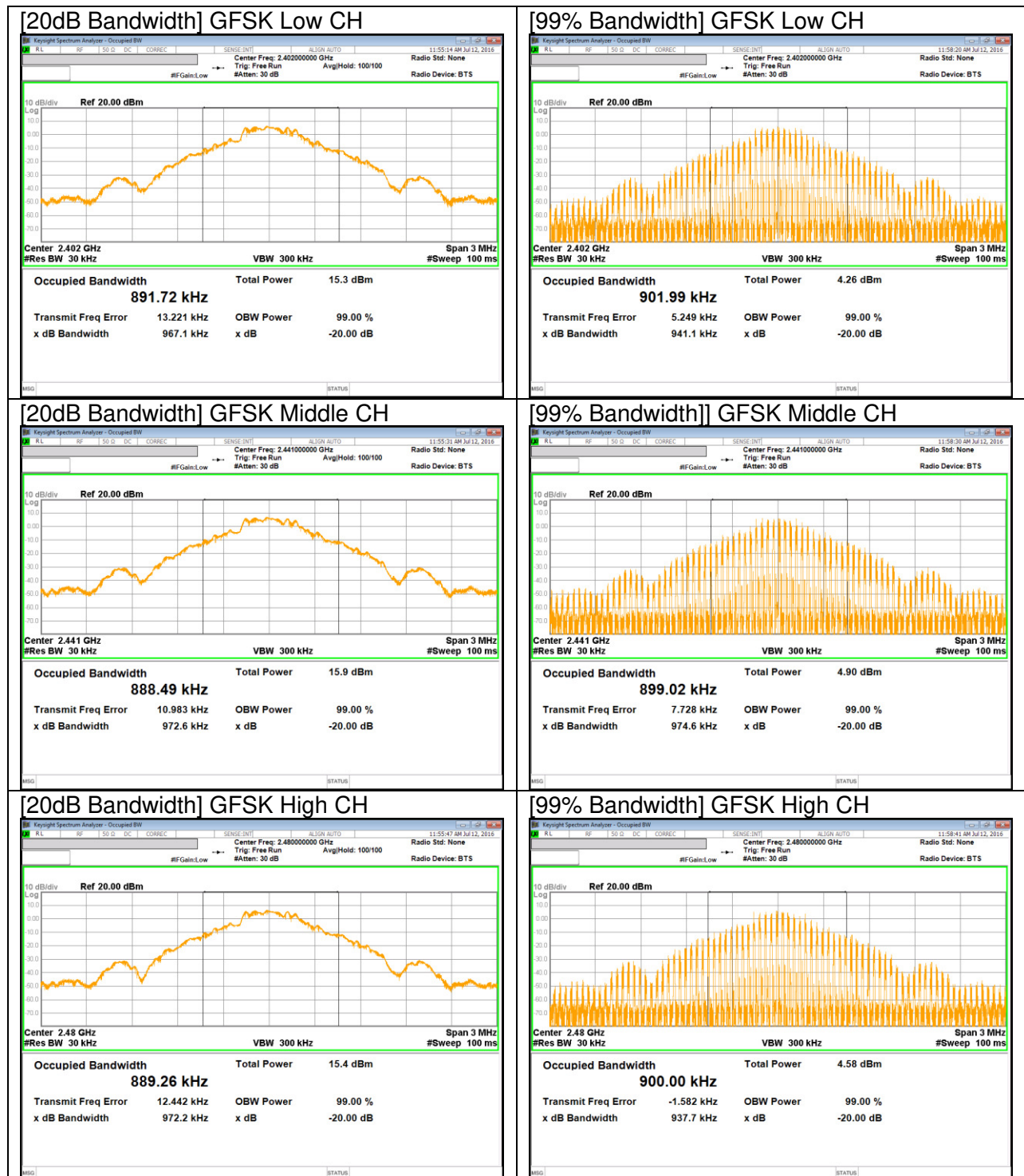
Channel	Frequency [MHz]	20 dB Bandwidth [MHz]	99% Bandwidth [MHz]
Low	2402	1.244	1.131
Mid	2441	1.306	1.162
High	2480	1.307	1.165
Worst		1.307	1.165

8.1.3. ENHANCED DATA RATE 8PSK MODULATION

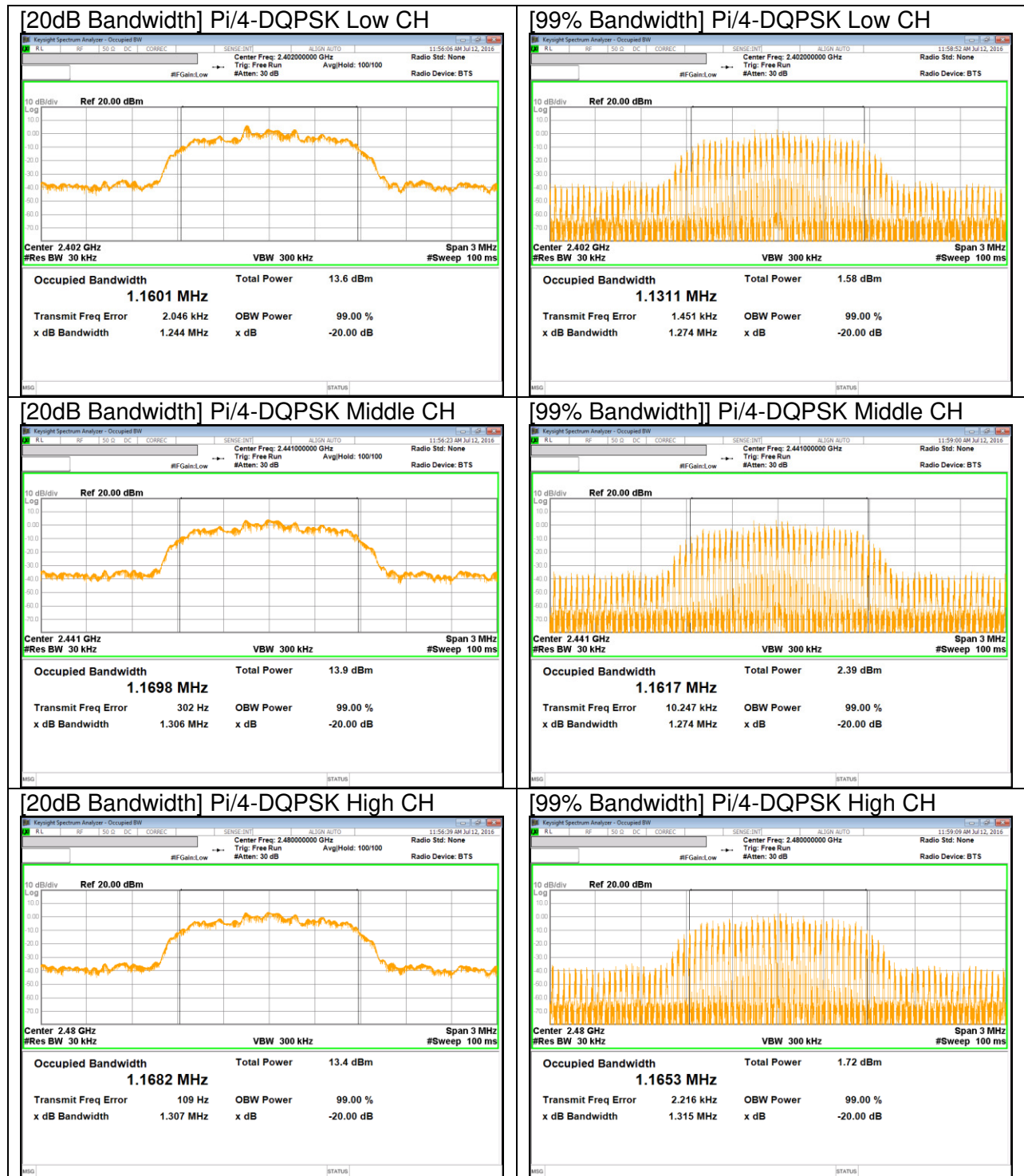
Channel	Frequency [MHz]	20 dB Bandwidth [MHz]	99% Bandwidth [MHz]
Low	2402	1.263	1.164
Mid	2441	1.267	1.164
High	2480	1.268	1.162
Worst		1.268	1.164

8.1.4. 20 dB AND 99% BANDWIDTH PLOTS

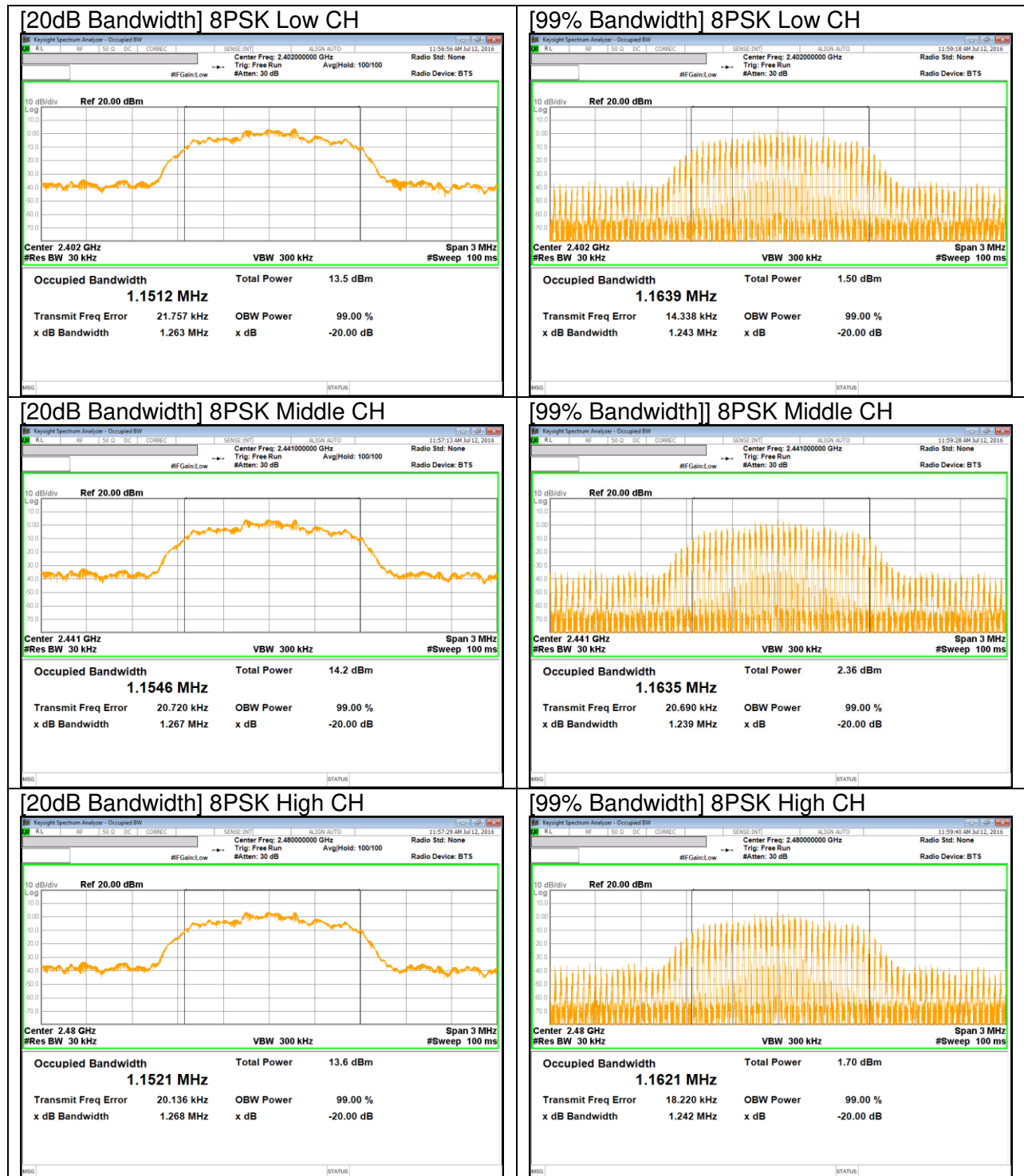
GFSK BANDWIDTH



Pi/4-DQPSK BANDWIDTH



8PSK BANDWIDTH



8.2. HOPPING FREQUENCY SEPARATION

LIMIT

FCC §15.247 (a) (1)

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

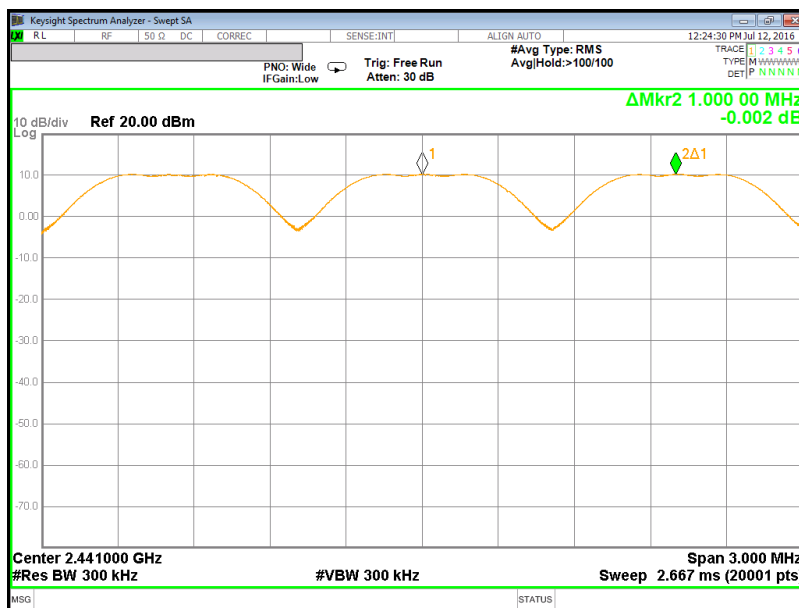
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than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

TEST PROCEDURE

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

RESULTS

HOPPING FREQUENCY SEPARATION PLOT



8.3. NUMBER OF HOPPING CHANNELS

LIMIT

FCC §15.247 (a) (1) (iii)

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

TEST PROCEDURE

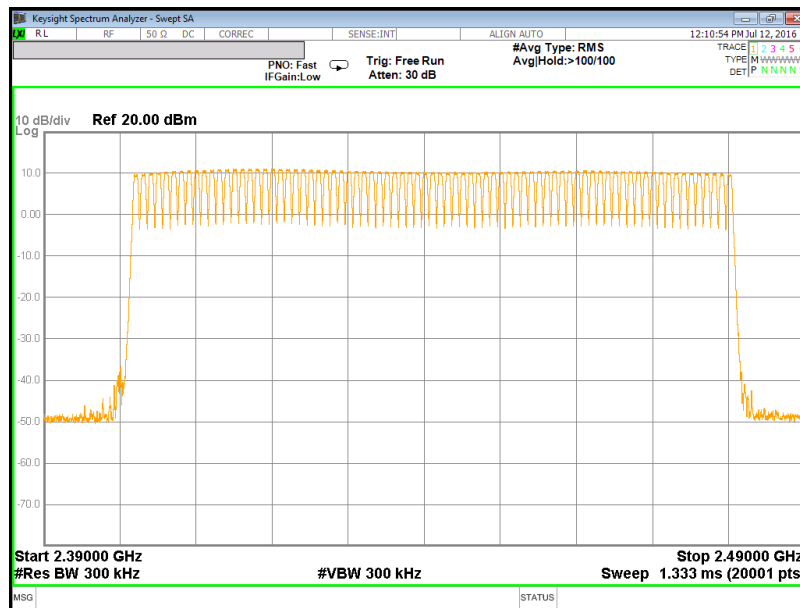
DA 00-705: The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

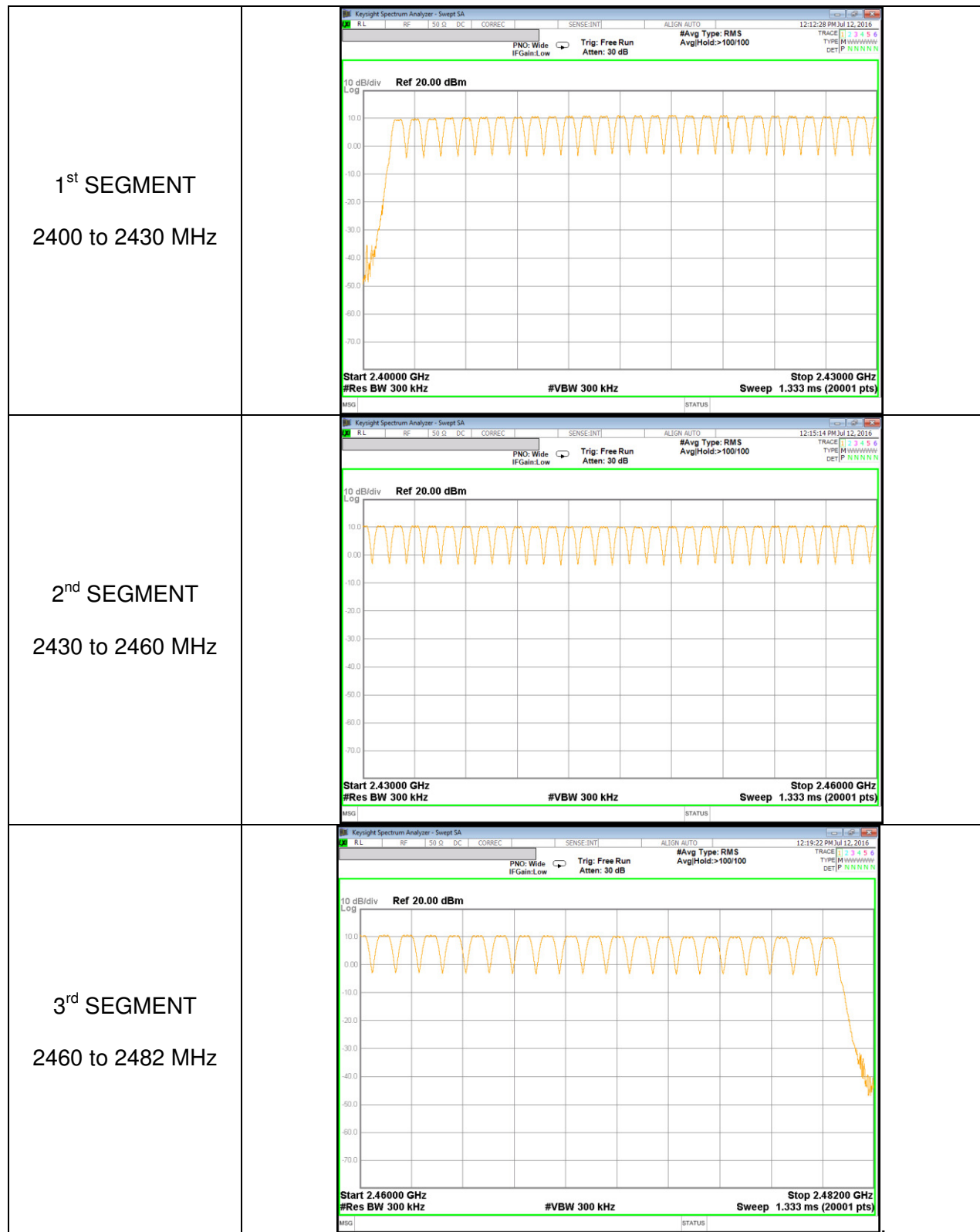
RESULTS

Normal Mode: 79 Channels observed.

NUMBER OF HOPPING CHANNELS PLOTS

NUMBER OF HOPPING CHANNELS (100 MHZ SPAN)





8.4. AVERAGE TIME OF OCCUPANCY

LIMIT

FCC §15.247 (a) (1) (iii)

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

TEST PROCEDURE

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

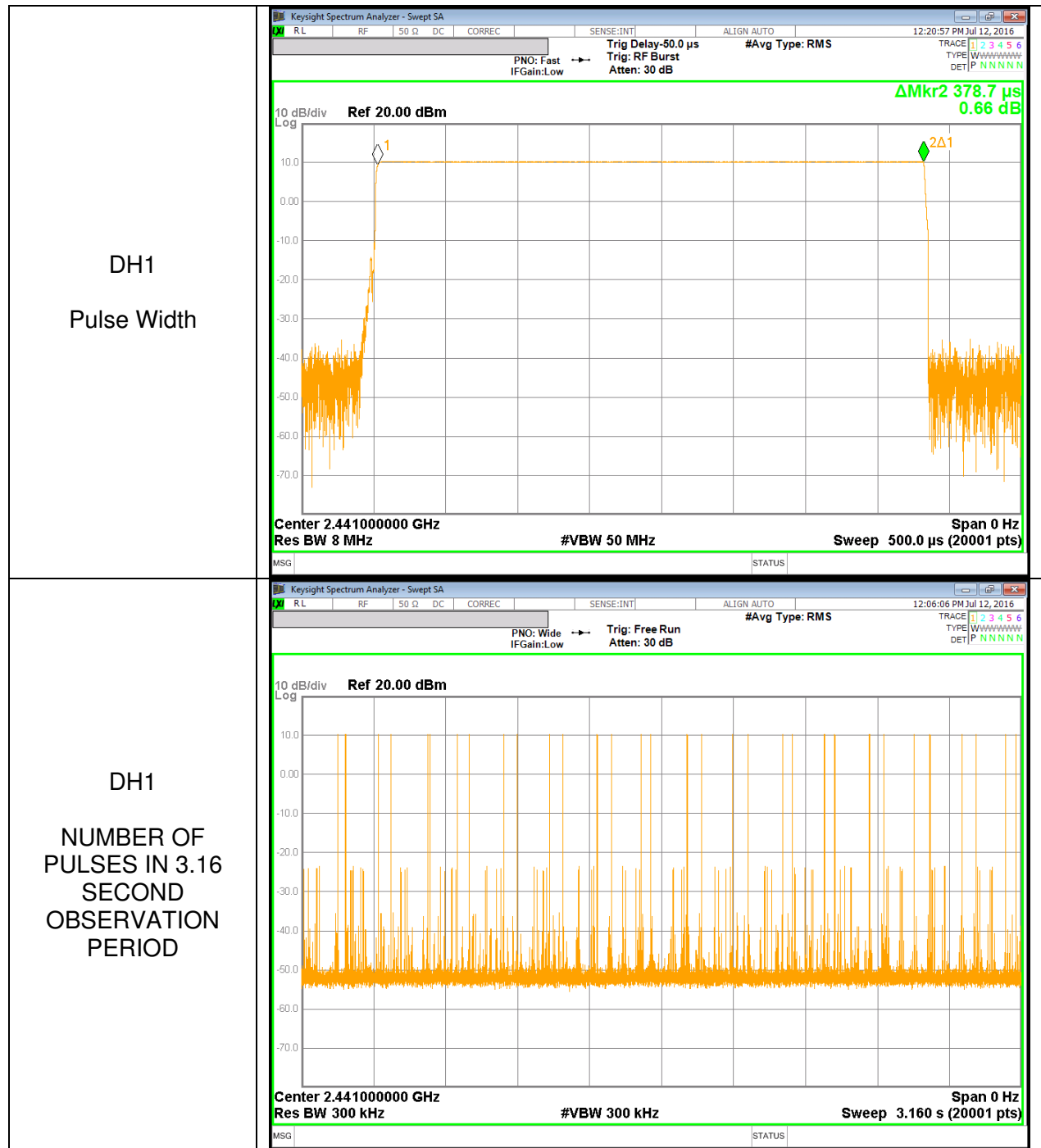
The average time of occupancy in the specified 31.6 second period (79 channels * 0.4 s) is equal to $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{pulse width}$.

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

RESULTS

DH Packet	Pulse Width [msec]	Number of Pulses in 3.16 seconds	Average Time of Occupancy [sec]	Limit [sec]	Margin [sec]
GFSK Normal					
DH1	0.379	32	0.121184	0.4	-0.2788
DH3	1.634	16	0.261440	0.4	-0.1386
DH5	2.882	13	0.374660	0.4	-0.0253
DH Packet	Pulse Width [msec]	Number of Pulses in 0.8 seconds	Average Time of Occupancy [sec]	Limit [sec]	Margin [sec]
GFSK AFH					
DH1	0.379	8	0.030296	0.4	-0.3697
DH3	1.634	4	0.065360	0.4	-0.33464
DH5	2.882	3.25	0.093665	0.4	-0.30634

DH1



DH3

Pulse Width

Key features of the screenshot:

- Y-axis: 10 dB/div, Log scale, ranging from -70.0 to 10.0.
- X-axis: Center 2.441000000 GHz, Res BW 8 MHz, Span 0 Hz.
- Triggers: PNO: Fast IFGain: Low, Trig Delay: 200.0 μ s, Trig: RF Burst, Atten: 30 dB.
- Measurement: Δ Mkr2 1.634 ms, 0.04 dB.

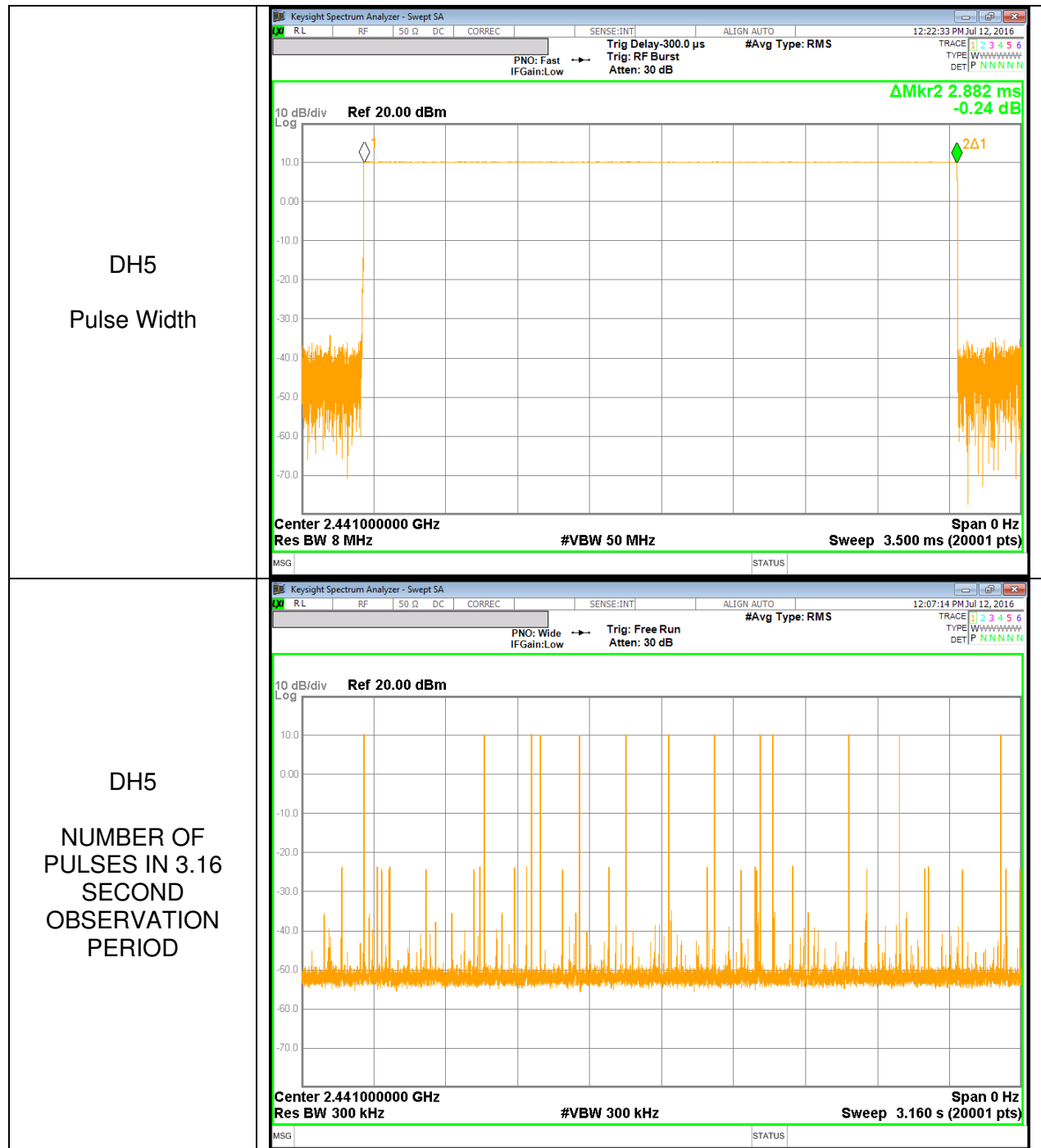
DH3

NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD

Key features of the screenshot:

- Y-axis: 10 dB/div, Log scale, ranging from -70.0 to 10.0.
- X-axis: Center 2.441000000 GHz, Res BW 300 kHz, Span 0 Hz, Sweep 3.160 s (20001 pts).
- Triggers: PNO: Wide IFGain: Low, Trig: Free Run, Atten: 30 dB.

DH5



8.5. OUTPUT POWER

LIMIT

§15.247 (b) (1)

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

TEST PROCEDURE

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

RESULTS

8.5.1. BASIC DATA RATE GFSK MODULATION

Channel	Frequency [MHz]	Output Power [dBm]	Limit [dBm]	Margin [dB]
Low	2402	9.692	21	-11.308
Middle	2441	10.134	21	-10.866
High	2480	9.646	21	-11.354
Worst		10.134	21	-10.866

8.5.2. ENHANCED DATA RATE Pi/4-DPSK MODULATION

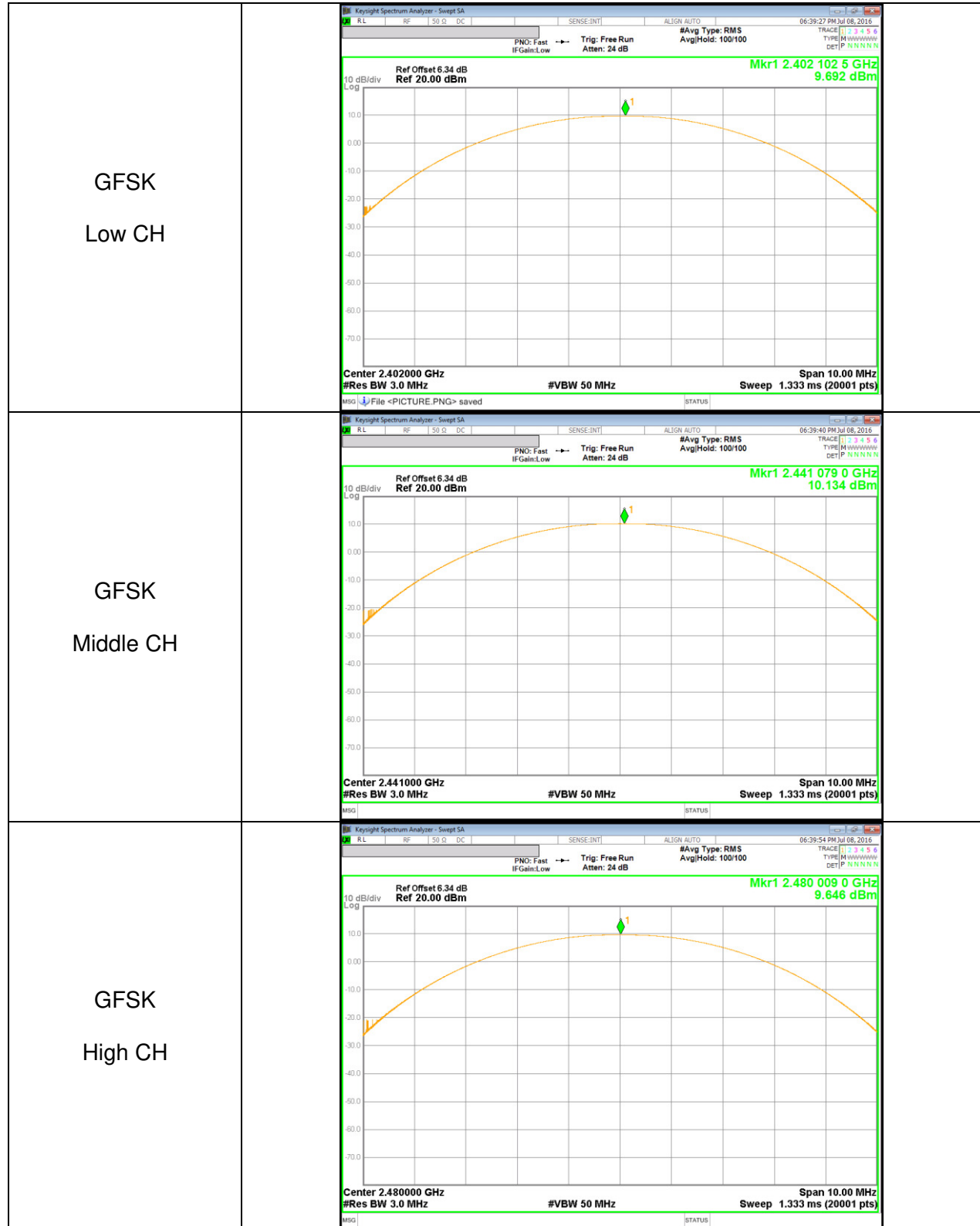
Channel	Frequency [MHz]	Output Power [dBm]	Limit [dBm]	Margin [dB]
Low	2402	8.843	21	-12.157
Middle	2441	9.429	21	-11.571
High	2480	8.864	21	-12.136
Worst		9.429	21	-11.571

8.5.3. ENHANCED DATA RATE 8PSK MODULATION

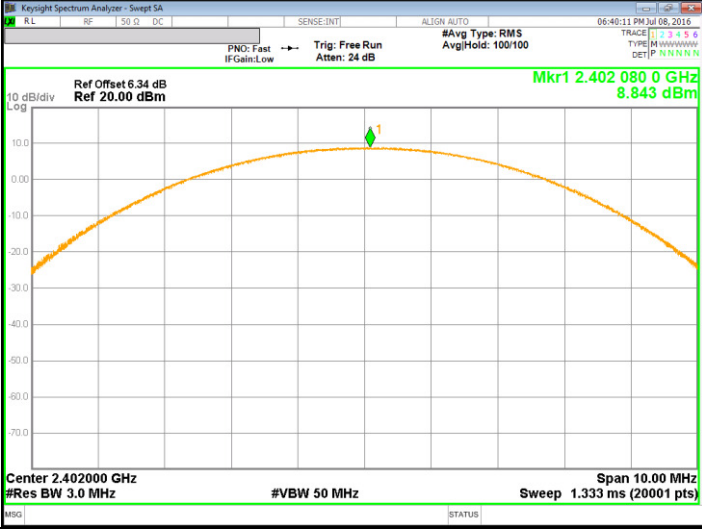
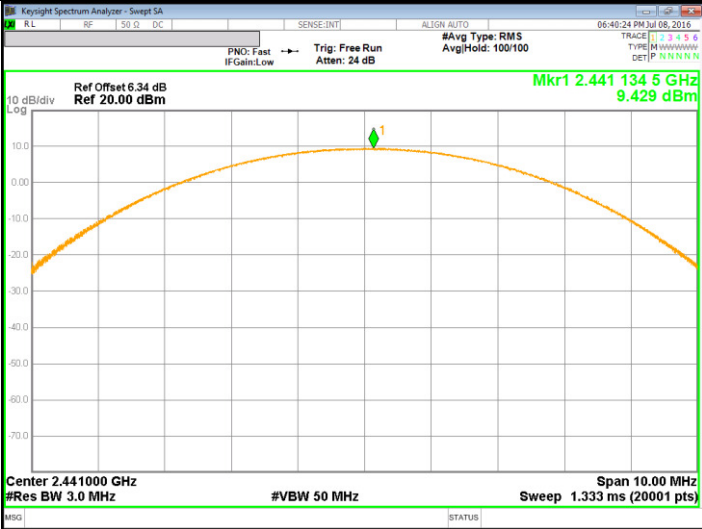
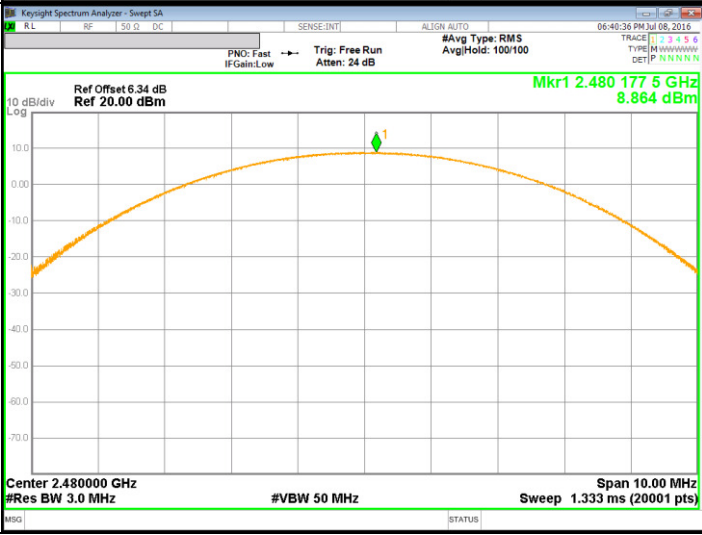
Channel	Frequency [MHz]	Output Power [dBm]	Limit [dBm]	Margin [dB]
Low	2402	9.248	21	-11.752
Middle	2441	9.796	21	-11.204
High	2480	9.270	21	-11.730
Worst		9.796	21	-11.204

8.5.4. OUTPUT POWER PLOTS

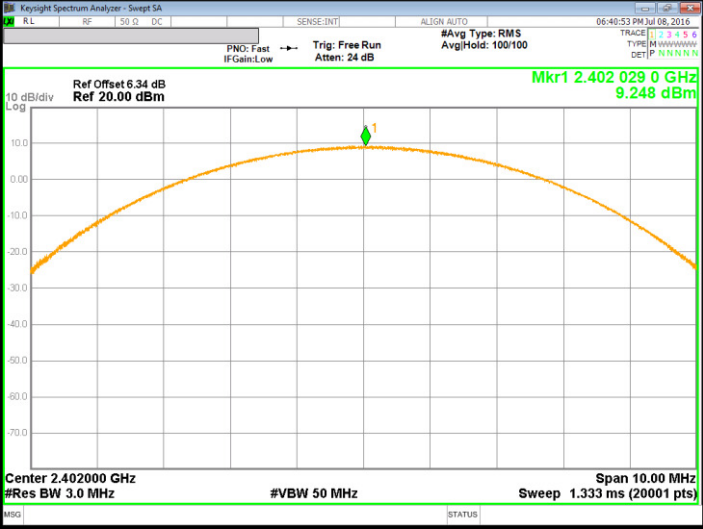
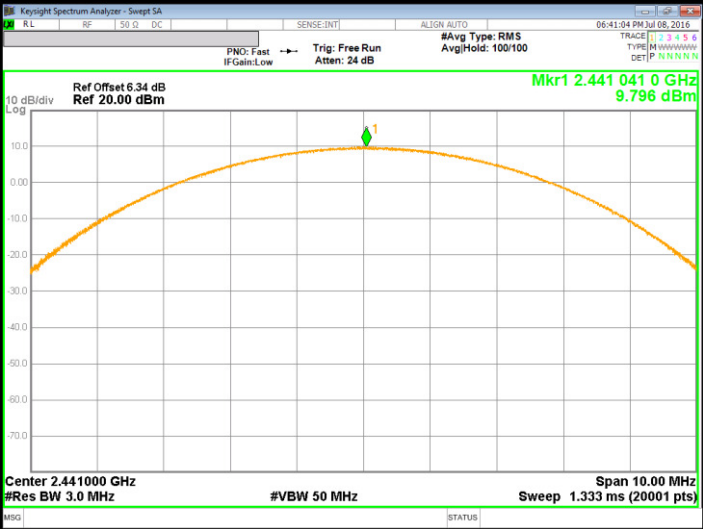
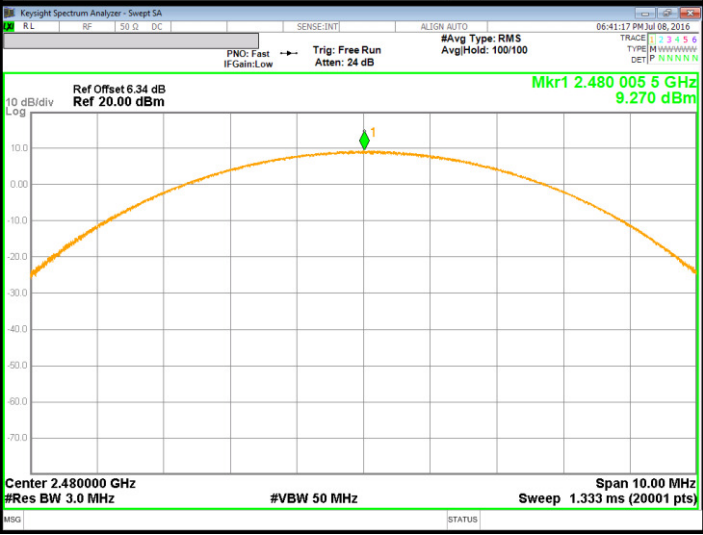
GFSK OUTPUT POWER



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	
8PSK Middle CH	
8PSK High CH	

8.6. AVERAGE POWER

LIMIT

None; for reporting purposes only.

TEST PROCEDURE

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

RESULTS

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

8.6.1. BASIC DATA RATE GFSK MODULATION

Channel	Frequency [MHz]	AV power [dBm]	AV power [mW]
Low	2402	9.453	8.82
Middle	2441	9.947	9.88
High	2480	9.460	8.83

8.6.2. DATA RATE PI/4-DQPSK MODULATION

Channel	Frequency [MHz]	AV power [dBm]	AV power [mW]
Low	2402	6.627	4.60
Middle	2441	7.327	5.40
High	2480	6.678	4.65

8.6.3. ENHANCED DATA RATE 8PSK MODULATION

Channel	Frequency [MHz]	AV power [dBm]	AV power [mW]
Low	2402	6.645	4.62
Middle	2441	7.358	5.44
High	2480	6.708	4.69

8.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

Limit = -20 dBc

TEST PROCEDURE

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

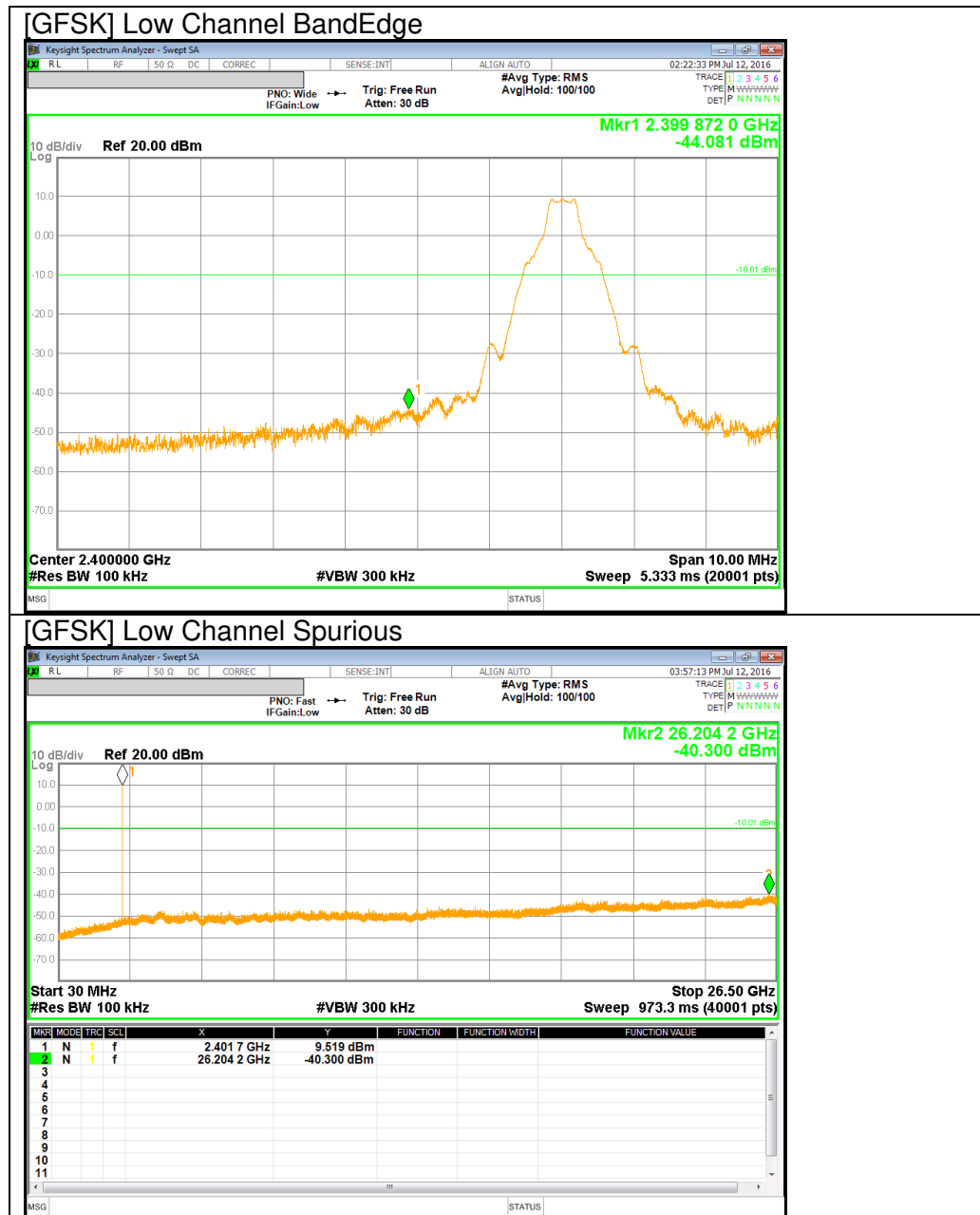
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

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

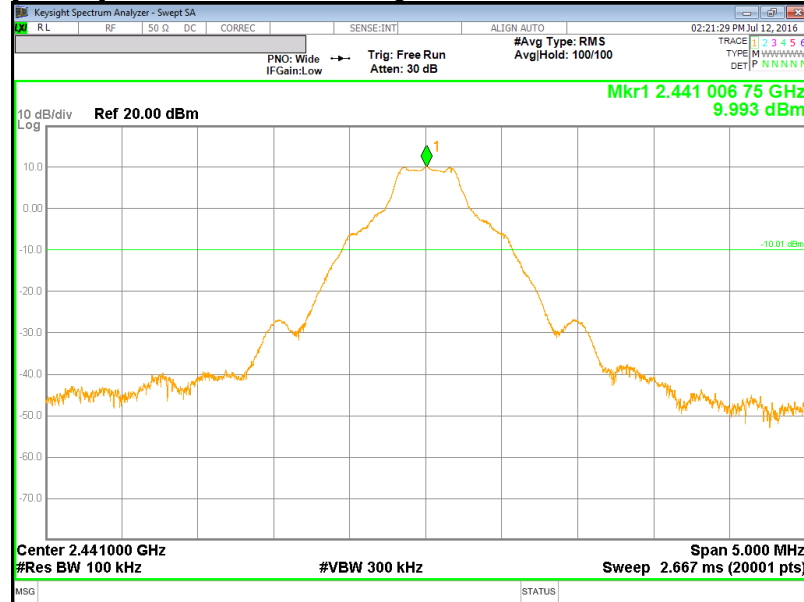
RESULTS

8.7.1. BASIC DATA RATE GFSK MODULATION

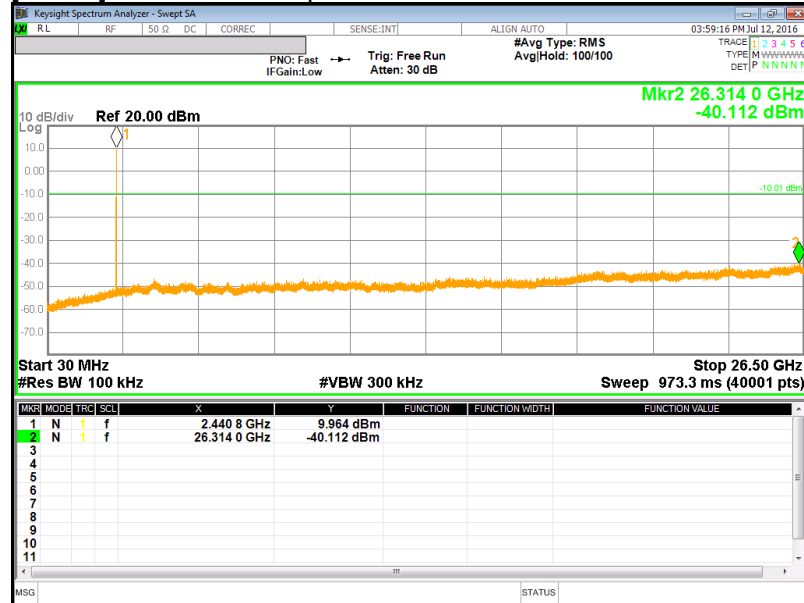
GFSK Mode

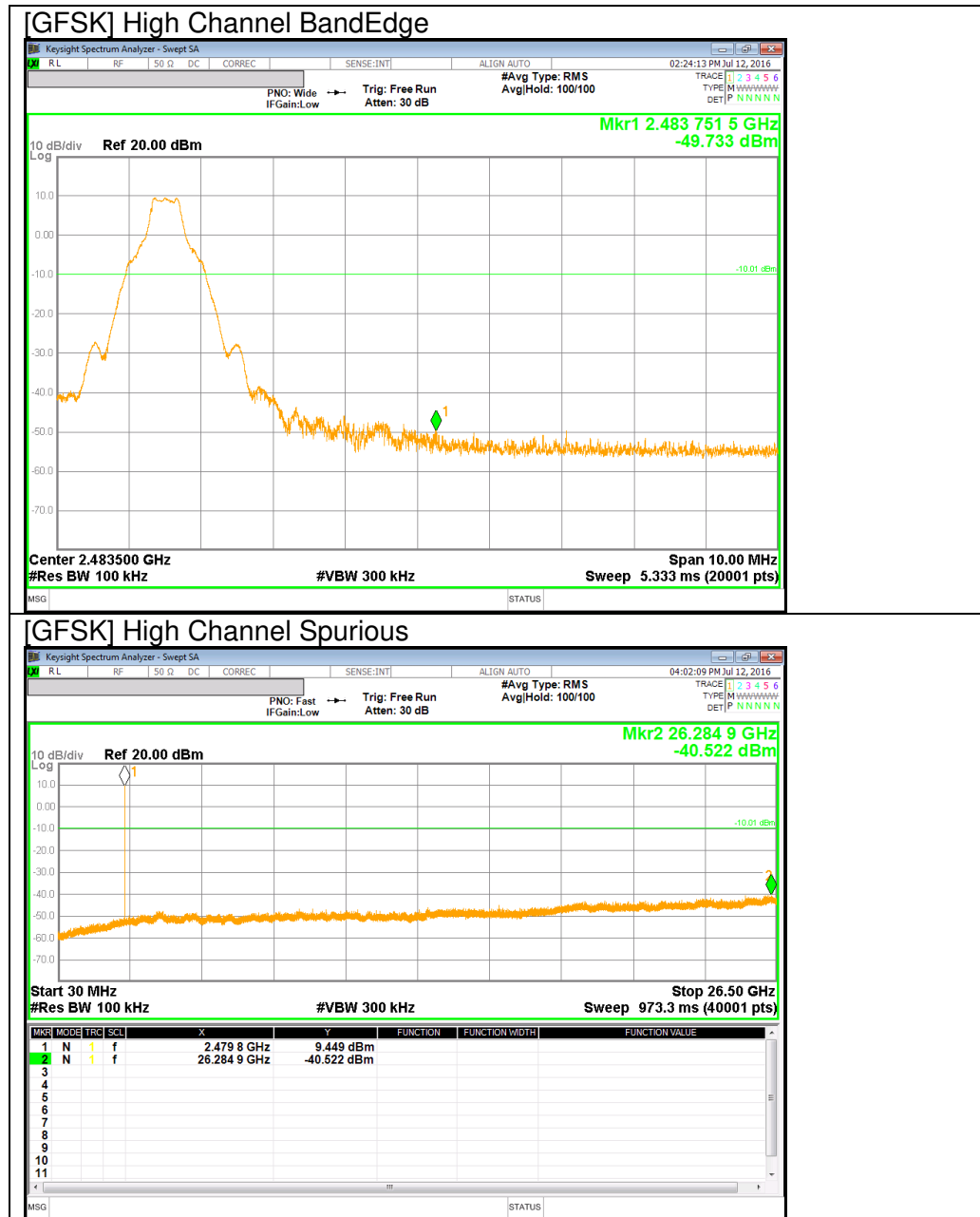


[GFSK] Mid Channel BandEdge



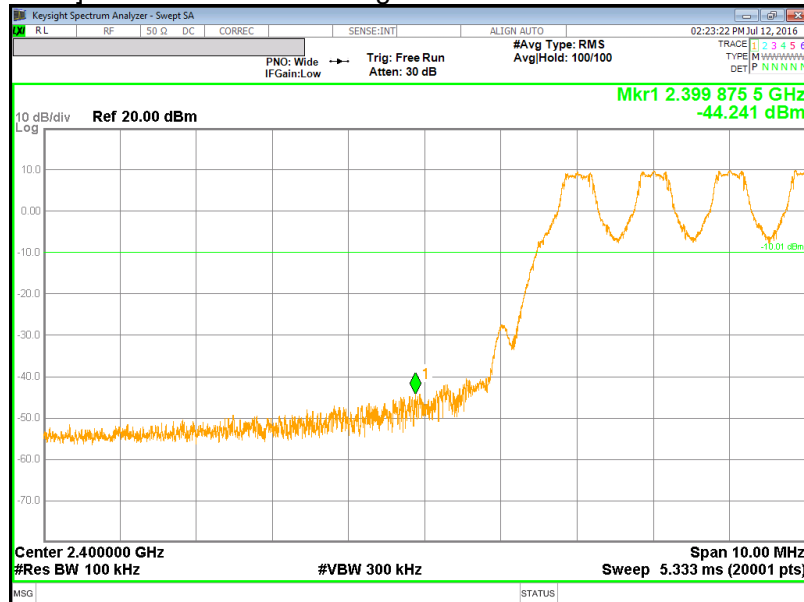
[GFSK] Mid Channel Spurious





BandEdge Emission at GFSK Hopping Mode

[GFSK Hopping Mode] Low Channel BandEdge



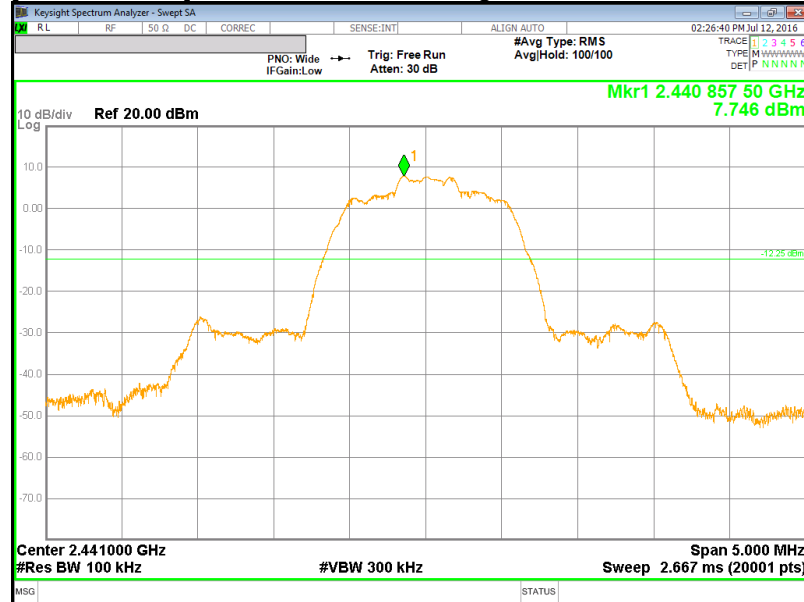
[GFSK Hopping Mode] High Channel BandEdge



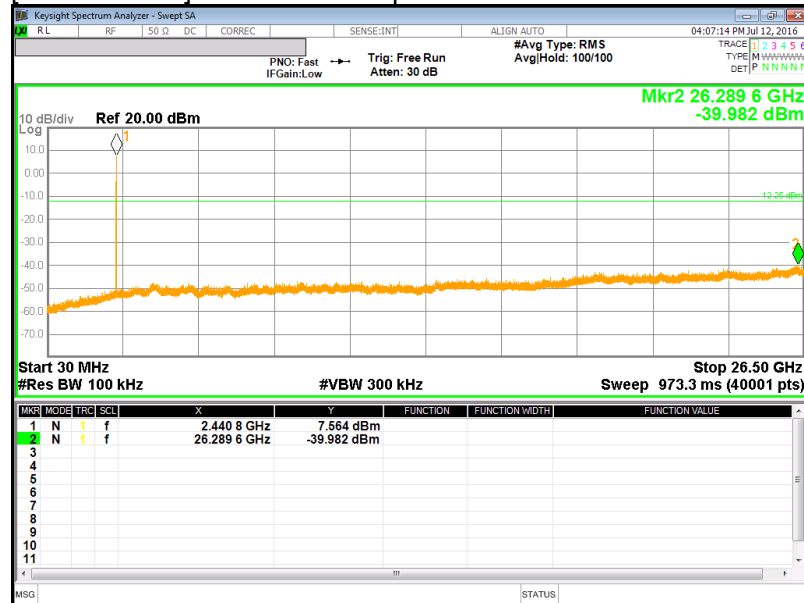
PI/4-DQPSK Mode



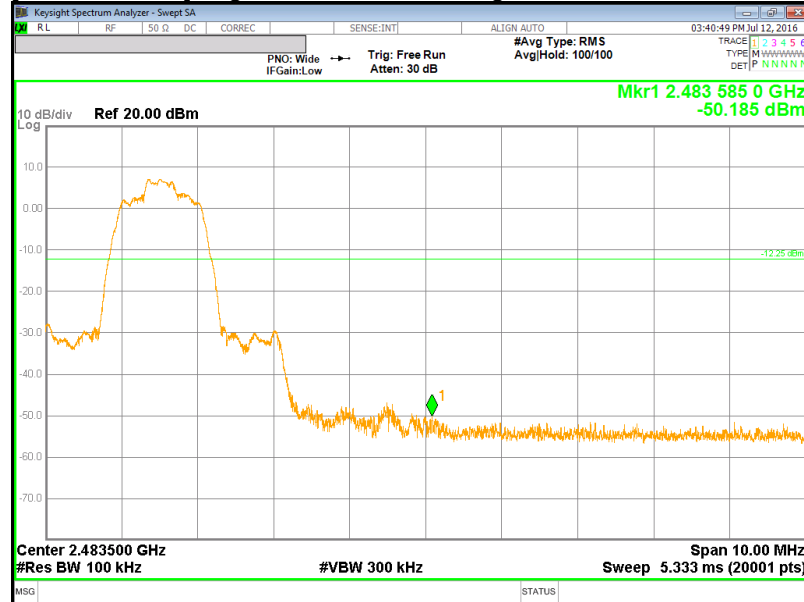
[PI/4-DQPSK] Mid Channel BandEdge



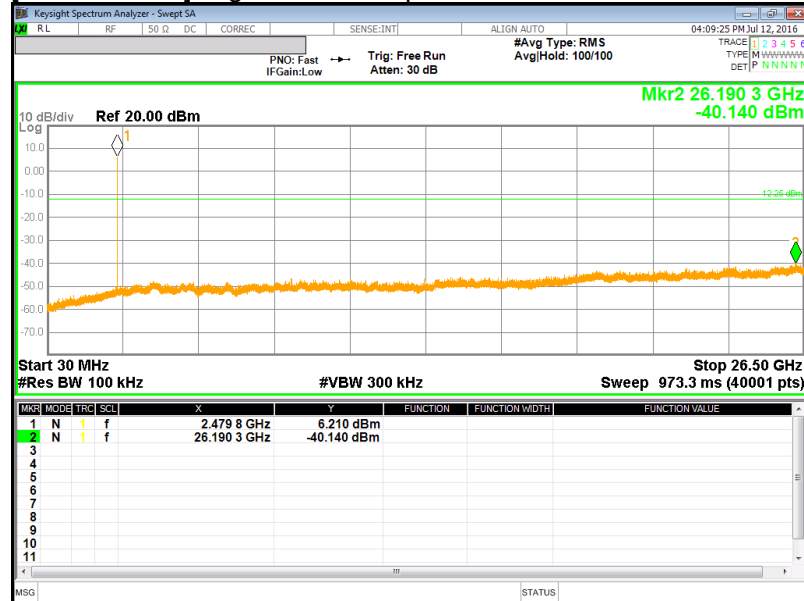
[PI/4-DQPSK] Mid Channel Spurious



[PI/4-DQPSK] High Channel BandEdge



[PI/4-DQPSK] High Channel Spurious



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



KeySight Spectrum Analyzer - Swept SA

RL RF 50 Ω DC CORREC SENSE:INT ALIGN AUTO 03:41:26 PM Jul 12, 2016

PNO: Wide Trg: Free Run #Avg Type: RMS
IFGain:Low Atten: 30 dB AvgHld: 100/100

TRACE 1 2 3 4 5
TYPE M WWWWWWW
DET P NNNNN

Ref 20.00 dBm

10 dB/div Log

Mkr1 2.483 651 0 GHz
-50.040 dBm

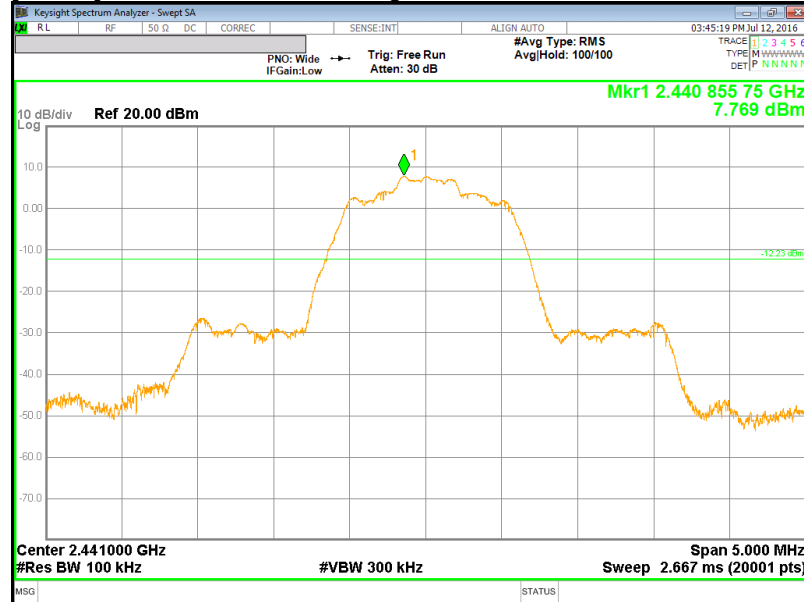
Center 2.483500 GHz Span 10.00 MHz
#Res BW 100 kHz #VBW 300 kHz Sweep 5.333 ms (20001 pts)

MSG STATUS

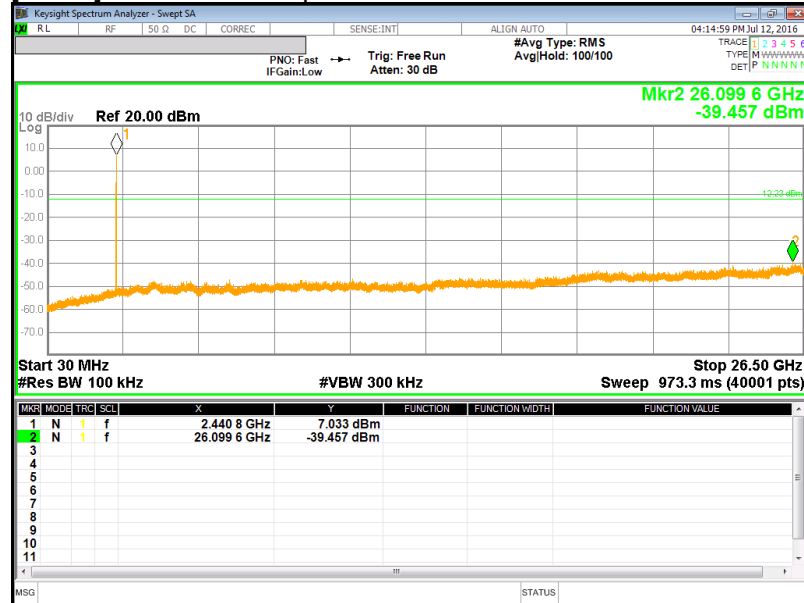
8PSK Mode



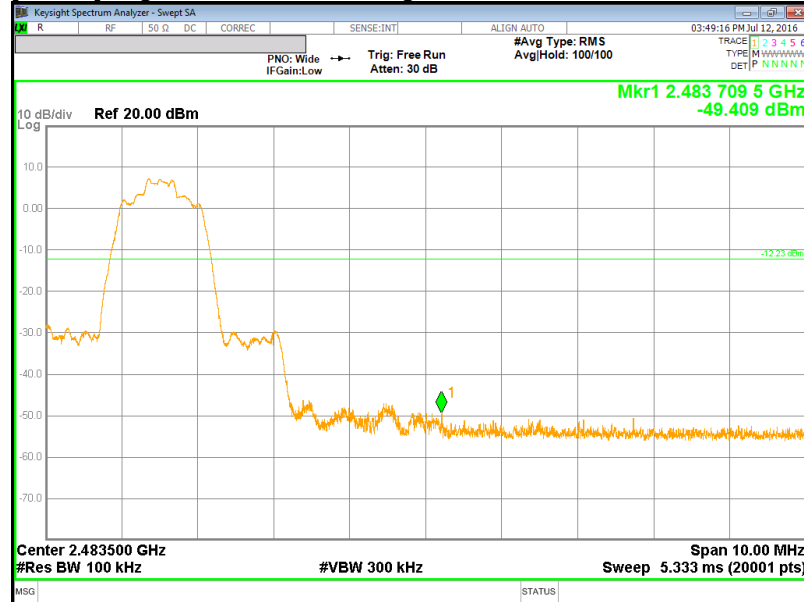
[8PSK] Mid Channel BandEdge



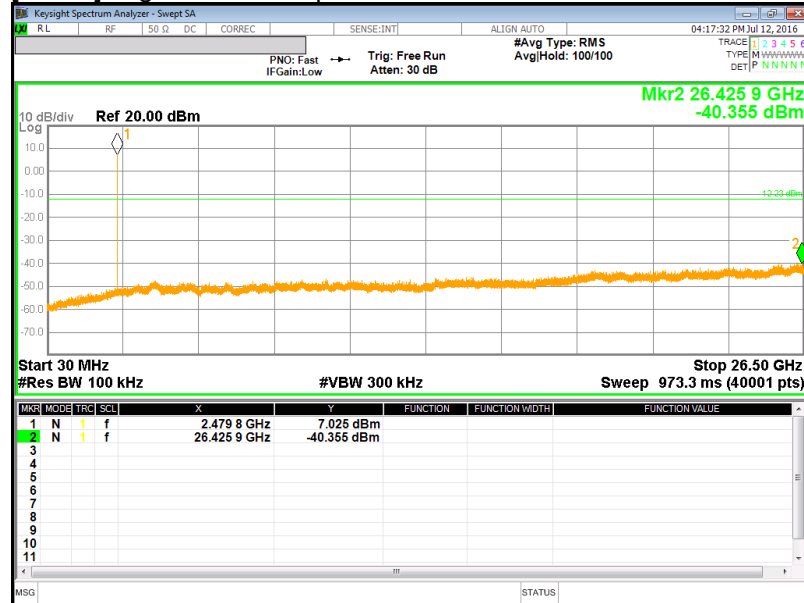
[8PSK] Mid Channel Spurious



[8PSK] High Channel BandEdge

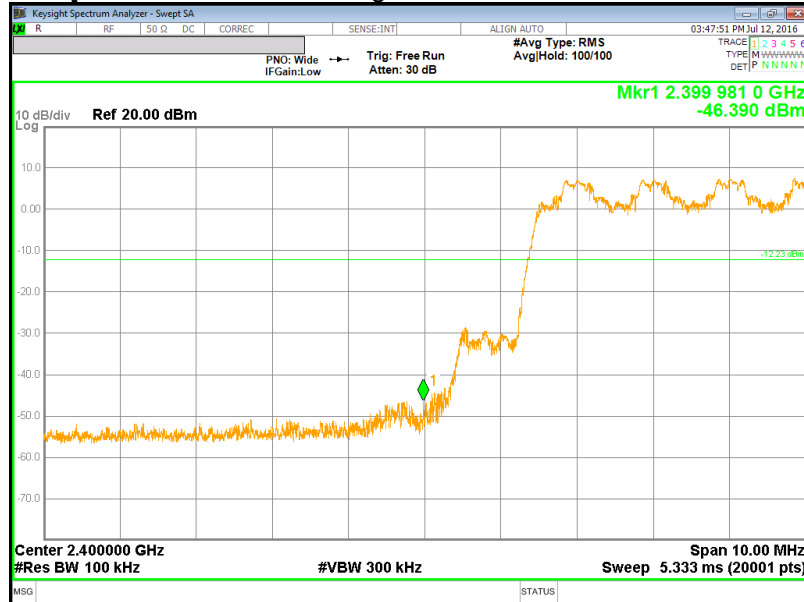


[8PSK] High Channel Spurious

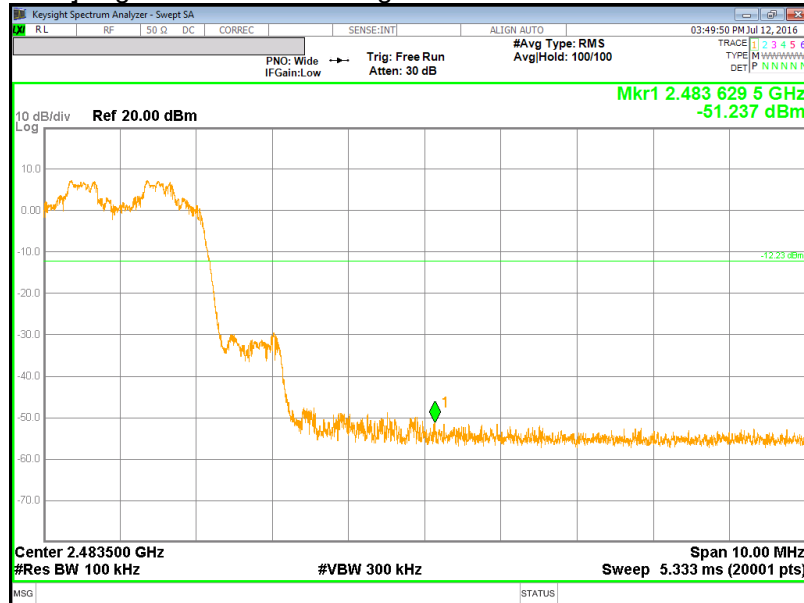


BandEdge Emission at 8PSK Hopping Mode

[8PSK Hopping Mode] Low Channel BandEdge



[8PSK Hopping Mode] High Channel BandEdge



9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

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.

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

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.

Note : Emission was pre-scanned from 9KHz to 30MHz; No emissions were detected which was at least 20dB below the specification limit (consider distance correction factor).
Per FCC part 15.31(o), test results were not reported.

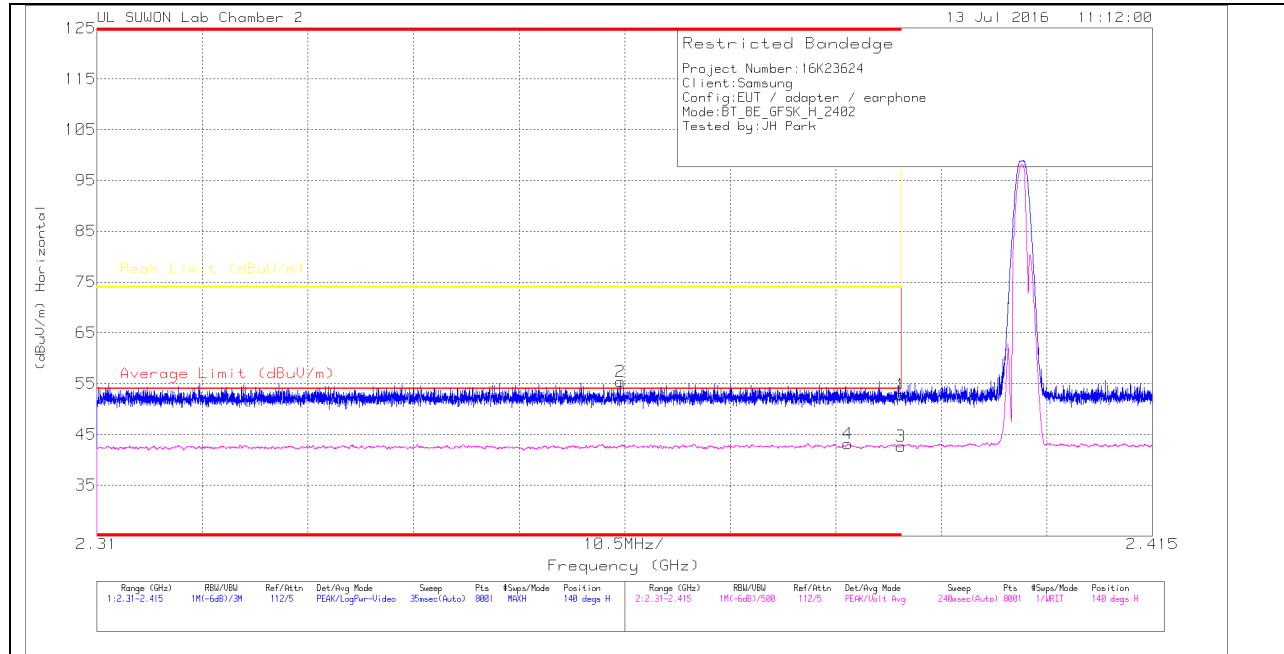
Formula for converting the field strength from uV/m to dBuV/m is:
Limit (dBuV/m) = 20 log limit (uV/m)

9.2. TRANSMITTER ABOVE 1 GHz

9.2.1. BASIC DATA RATE GFSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

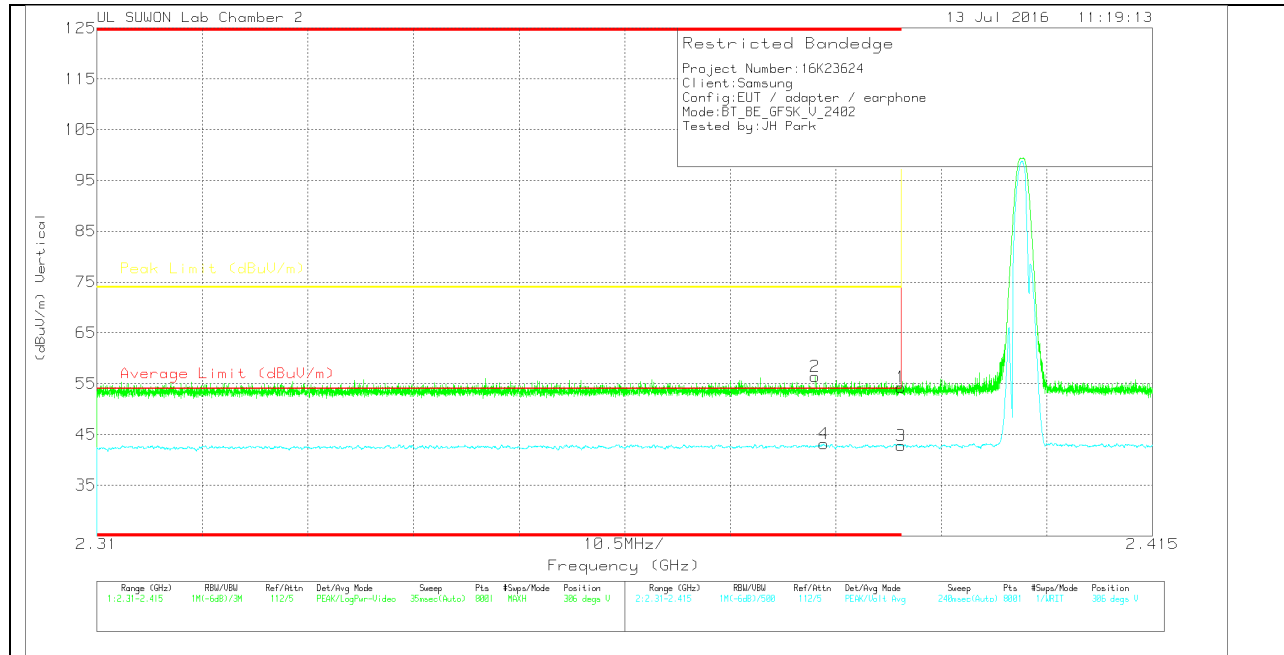
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8724)_150 619	Path_2_10 dB	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.58	Pk	31.7	-19.5	52.78	-	-	74	-21.22	140	136	H
2	* 2.362	43.32	Pk	31.7	-19.6	55.42	-	-	74	-18.58	140	136	H
3	* 2.39	30.47	VA1T	31.7	-19.5	42.67	54	-11.33	-	-	140	136	H
4	* 2.385	30.94	VA1T	31.7	-19.5	43.14	54	-10.86	-	-	140	136	H

* - 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

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8724)_150 619	Path_2_10 dB	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	42.11	Pk	31.7	-19.5	54.31	-	-	74	-19.69	306	378	V
2	* 2.381	44.17	Pk	31.7	-19.5	56.37	-	-	74	-17.63	306	378	V
3	* 2.39	30.6	VA1T	31.7	-19.5	42.8	54	-11.2	-	-	306	378	V
4	* 2.382	30.92	VA1T	31.7	-19.5	43.12	54	-10.88	-	-	306	378	V

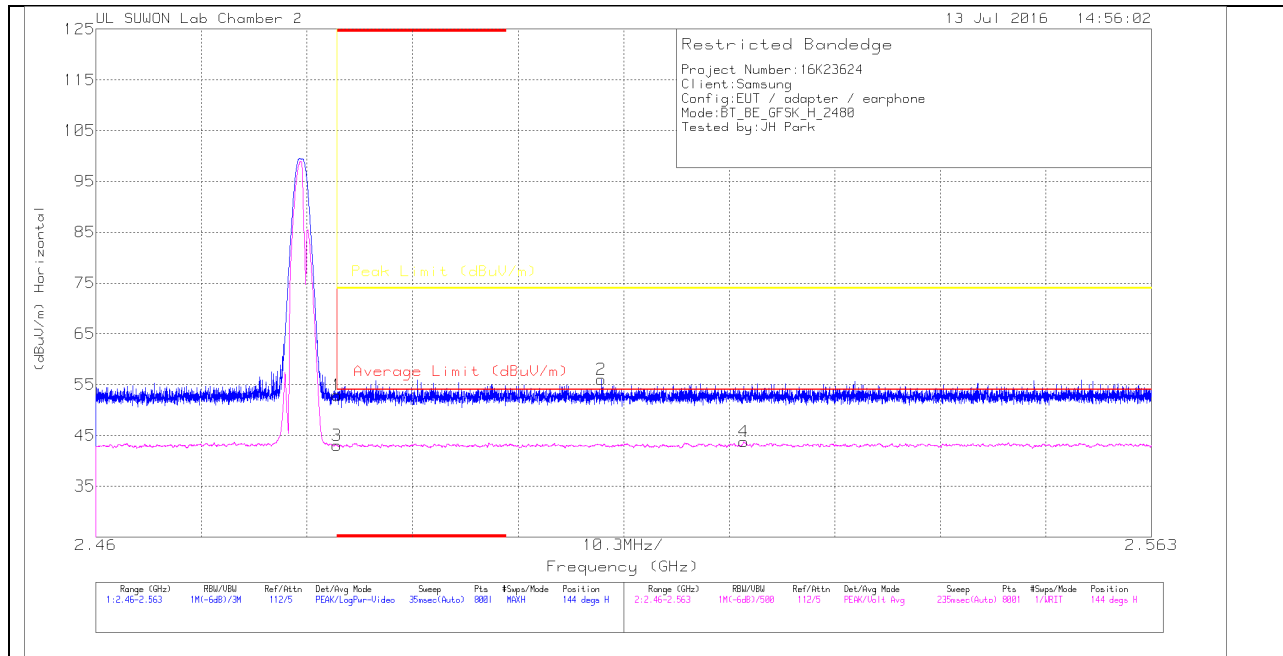
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

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

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

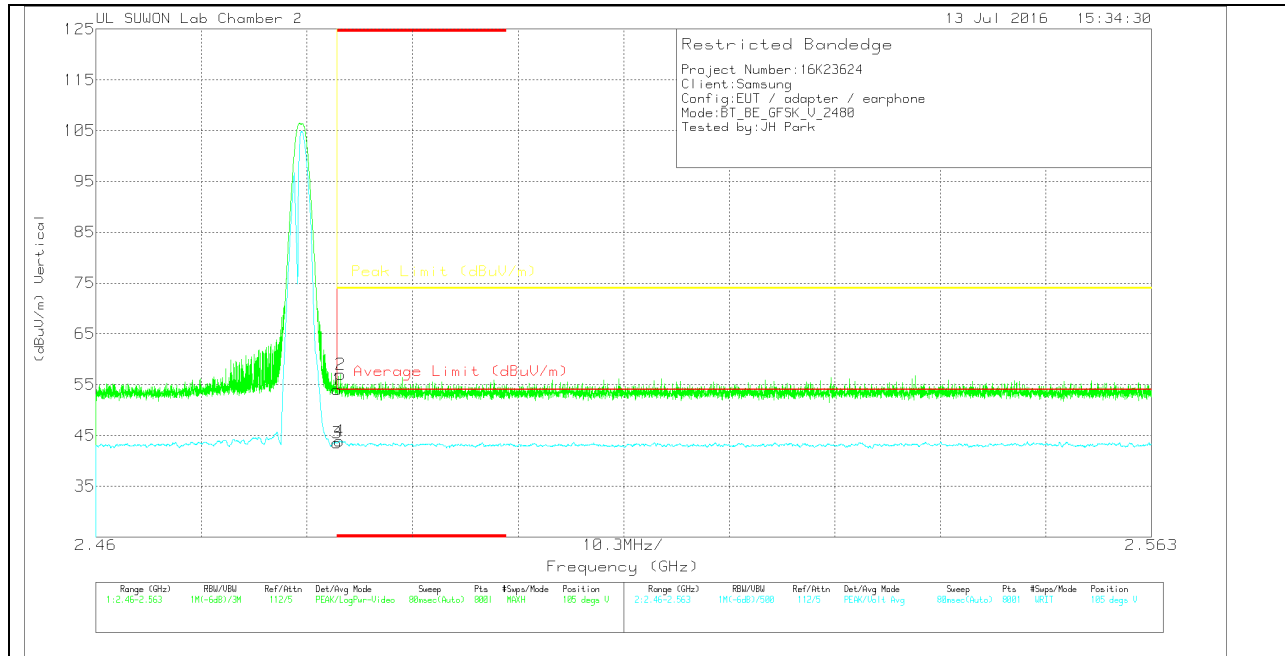
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8724)_150 619	Path_2_10 dB	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.47	Pk	31.8	-19.4	52.87	-	-	74	-21.13	144	175	H
2	2.509	43.37	Pk	31.9	-19.3	55.97	-	-	74	-18.03	144	175	H
3	* 2.484	30.67	VA1T	31.8	-19.4	43.07	54	-10.93	-	-	144	175	H
4	2.523	31.16	VA1T	31.9	-19.3	43.76	54	-10.24	-	-	144	175	H

* - 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

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8724)_150 619	Path_2_10 dB	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	41.61	Pk	31.8	-19.4	54.01	-	-	74	-19.99	105	346	V
2	* 2.484	44.6	Pk	31.8	-19.4	57	-	-	74	-17	105	346	V
3	* 2.484	31.07	VA1T	31.8	-19.4	43.47	54	-10.53	-	-	105	346	V
4	* 2.484	31.49	VA1T	31.8	-19.4	43.89	54	-10.11	-	-	105	346	V

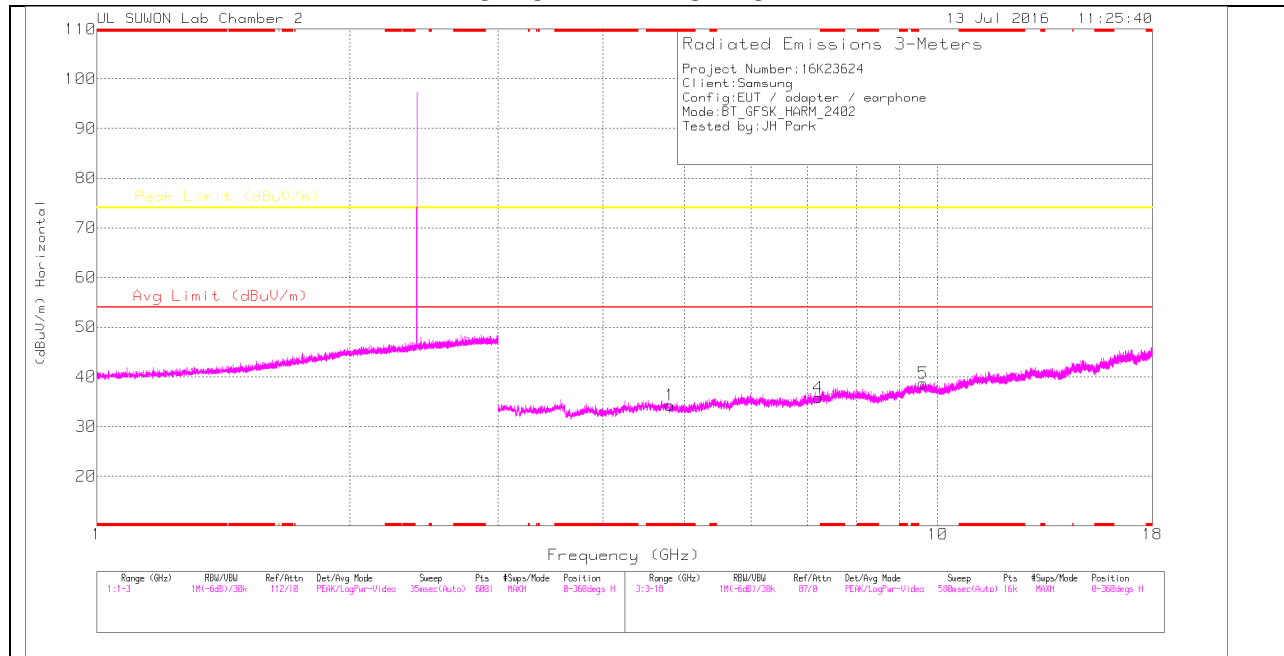
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

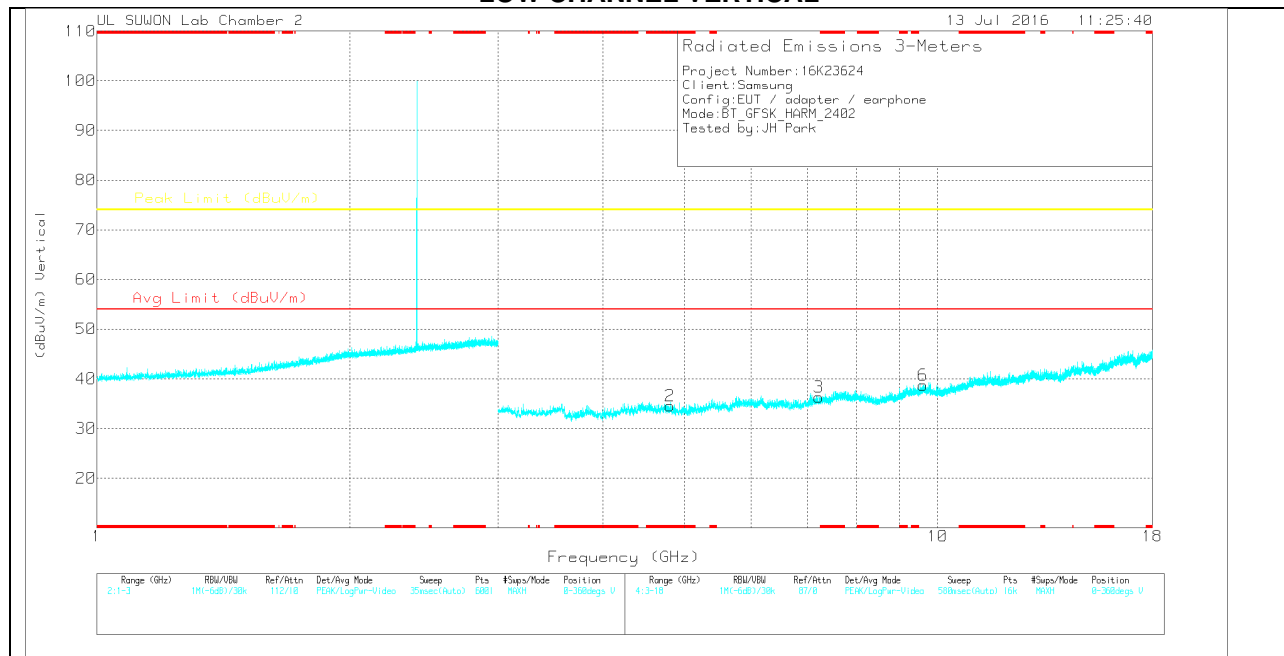
VA1T - FHSS: Linear Voltage Average $VB=1/Ton$ where: Ton is transmit duration

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

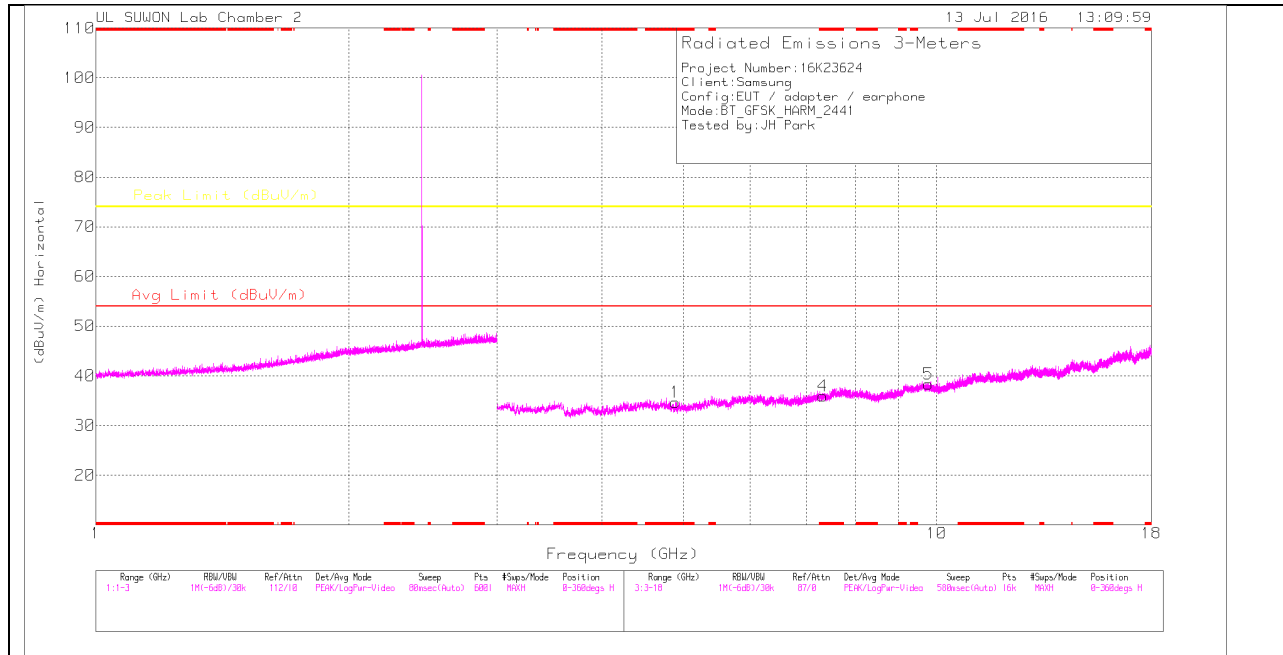
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168 724)_15061 9	Path_3	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.806	25.72	Pk	33.9	-25.3	34.32	-	-	74	-39.68	0-360	200	H
4	7.214	22.97	Pk	35.8	-23	35.77	-	-	74	-38.23	0-360	200	H
5	9.609	20.88	Pk	36.9	-19.1	38.68	-	-	74	-35.32	0-360	200	H
2	* 4.808	25.96	Pk	33.9	-25.3	34.56	-	-	74	-39.44	0-360	100	V
3	7.217	23.47	Pk	35.8	-23	36.27	-	-	74	-37.73	0-360	200	V
6	9.605	20.87	Pk	36.9	-19.1	38.67	-	-	74	-35.33	0-360	100	V

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

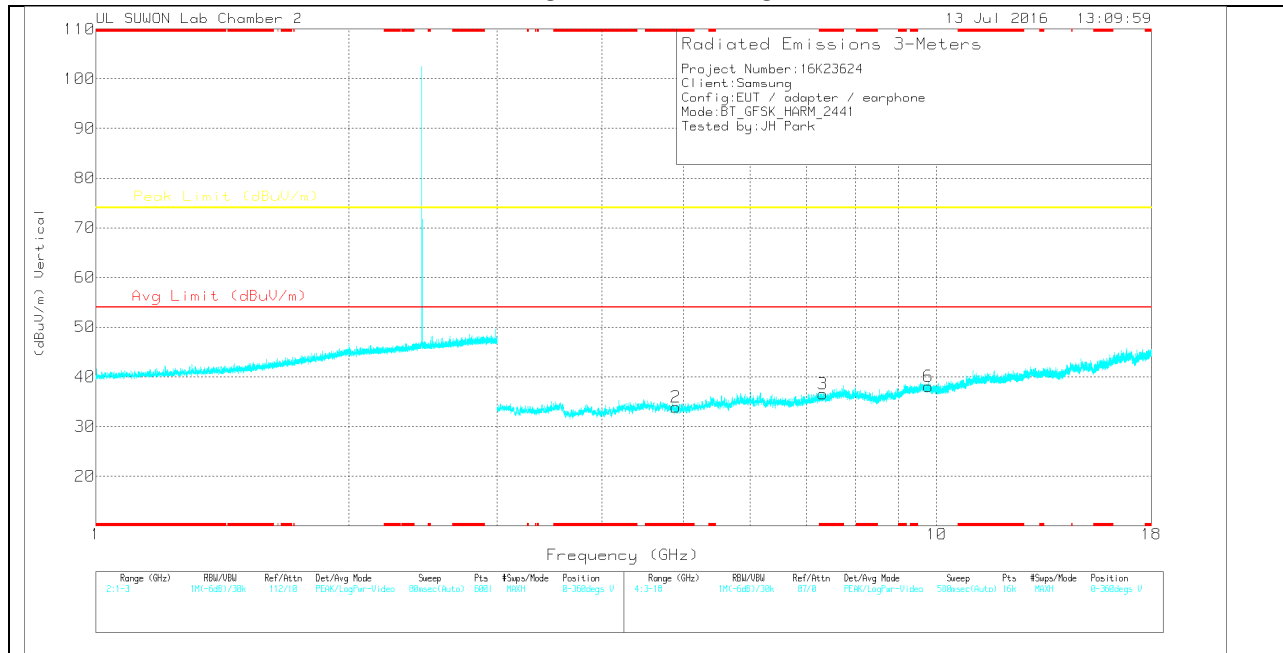
Pk – Peak detector

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

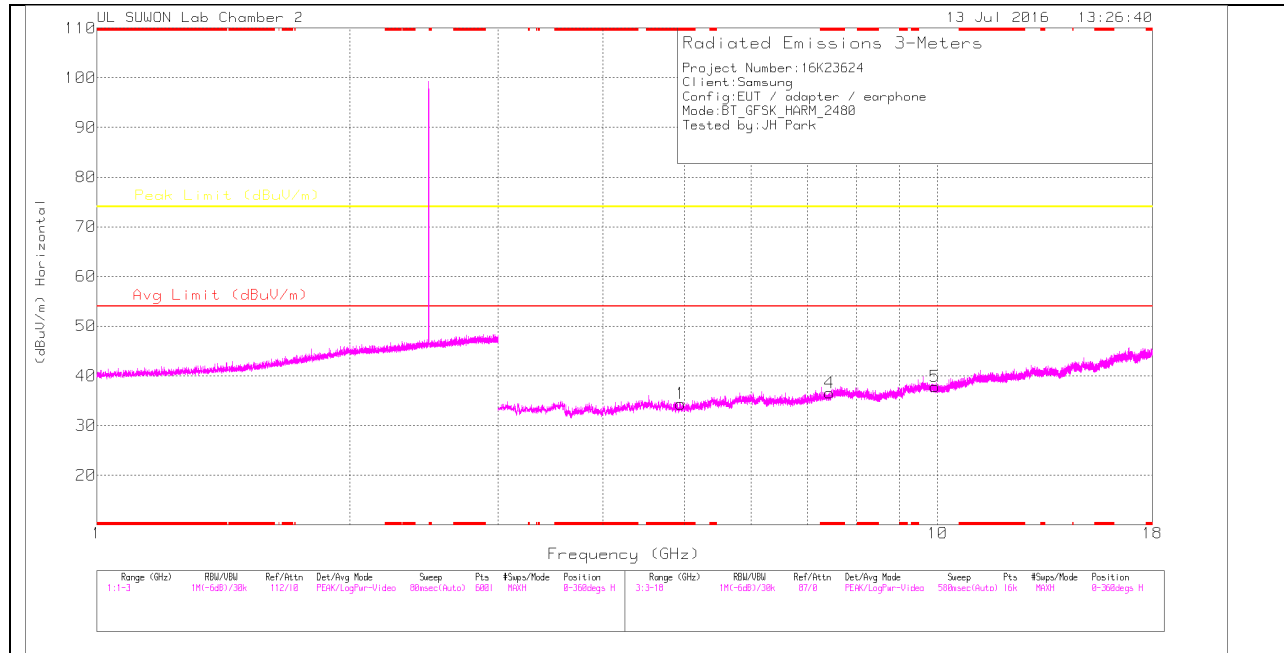
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168 724)_15061 9	Path_3	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.891	25.92	PK	33.9	-25.2	34.62	-	-	74	-39.38	0-360	200	H
4	* 7.319	22.67	PK	35.9	-22.6	35.97	-	-	74	-38.03	0-360	100	H
5	9.776	20.64	PK	37	-19.3	38.34	-	-	74	-35.66	0-360	100	H
2	* 4.894	25.18	PK	33.9	-25.2	33.88	-	-	74	-40.12	0-360	100	V
3	* 7.321	23.18	PK	35.9	-22.5	36.58	-	-	74	-37.42	0-360	200	V
6	9.767	20.38	PK	37	-19.3	38.08	-	-	74	-35.92	0-360	200	V

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

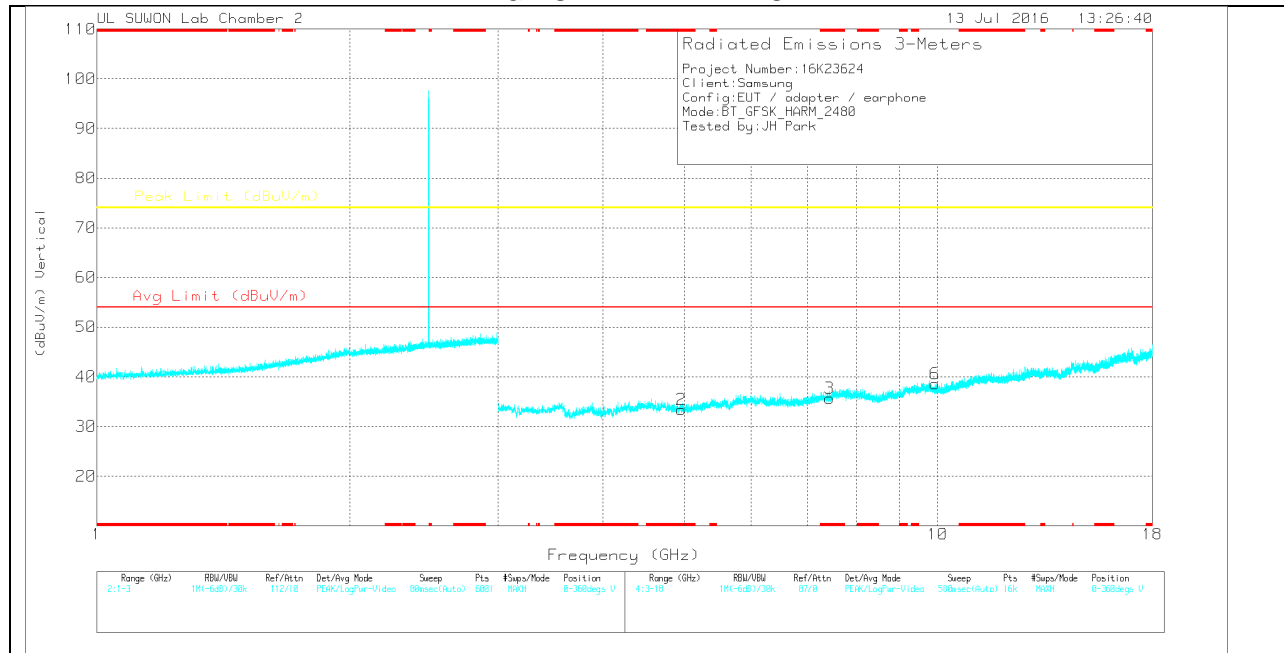
PK – Peak Detector

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	3117(00168 724)_15061 9	Path_3	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.949	25.46	PK	33.9	-25	34.36	-	-	74	-39.64	0-360	100	H
4	* 7.438	22.67	PK	36	-22.1	36.57	-	-	74	-37.43	0-360	100	H
5	9.92	19.77	PK	37.1	-19	37.87	-	-	74	-36.13	0-360	200	H
2	* 4.958	24.55	PK	33.9	-25	33.45	-	-	74	-40.55	0-360	200	V
3	* 7.442	21.83	PK	36	-22.1	35.73	-	-	74	-38.27	0-360	100	V
6	9.918	20.46	PK	37.1	-19	38.56	-	-	74	-35.44	0-360	100	V

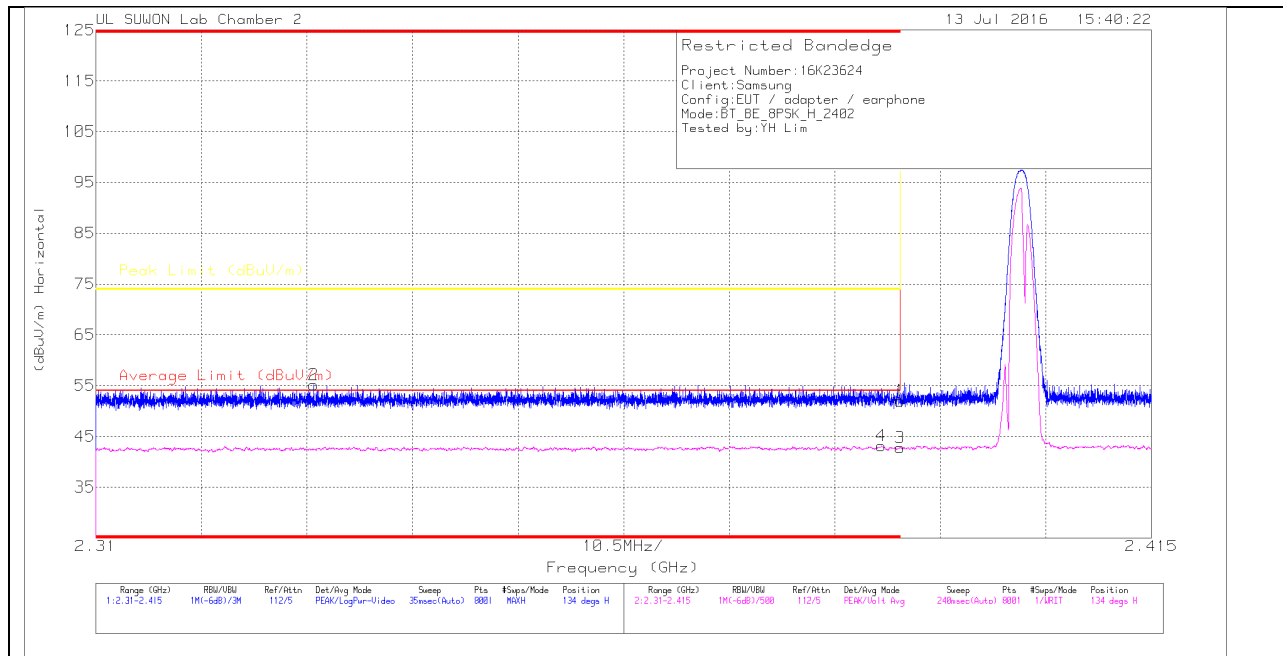
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK – Peak Detector

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

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

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

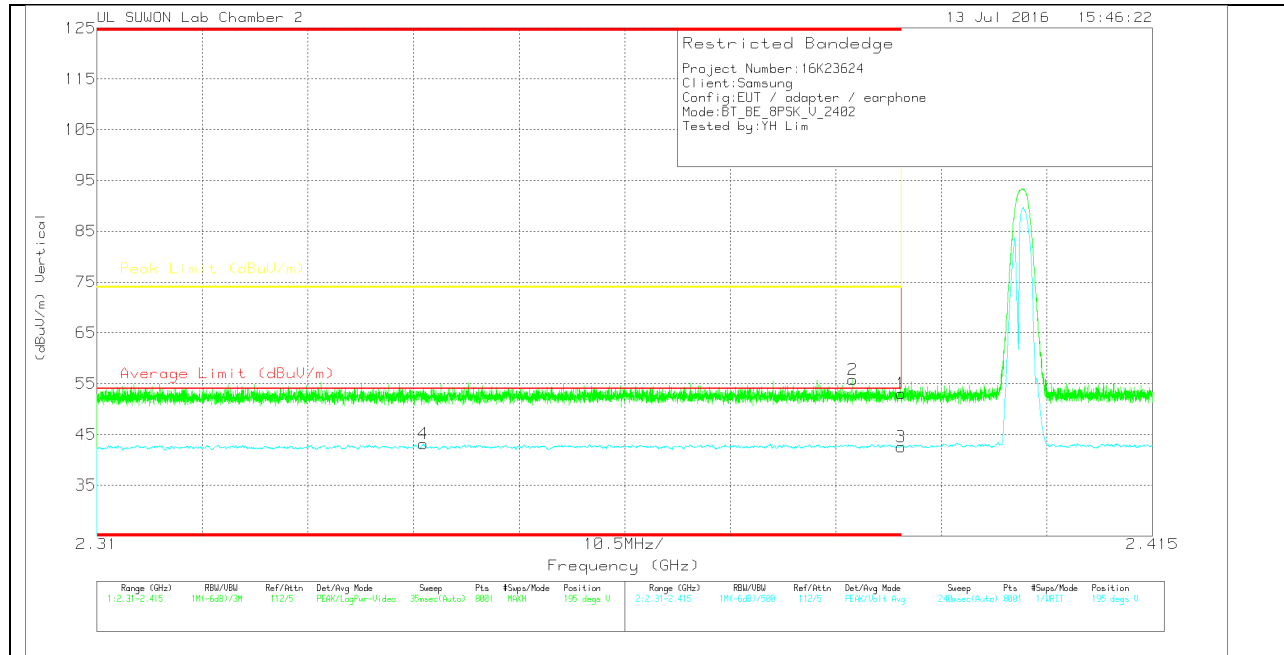
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8724)_150 619	Path_2_10 dB	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	39.8	Pk	31.7	-19.5	52	-	-	74	-22	134	153	H
2	* 2.332	43.22	Pk	31.6	-19.7	55.12	-	-	74	-18.88	134	153	H
3	* 2.39	30.58	VA1T	31.7	-19.5	42.78	54	-11.22	-	-	134	153	H
4	* 2.388	30.9	VA1T	31.7	-19.5	43.1	54	-10.9	-	-	134	153	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	3117(0016 8724)_150 619	Path_2_10 dB	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.86	Pk	31.7	-19.5	53.06	-	-	74	-20.94	195	208	V
2	* 2.385	43.62	Pk	31.7	-19.5	55.82	-	-	74	-18.18	195	208	V
3	* 2.39	30.34	VA1T	31.7	-19.5	42.54	54	-11.46	-	-	195	208	V
4	* 2.342	31.11	VA1T	31.6	-19.6	43.11	54	-10.89	-	-	195	208	V

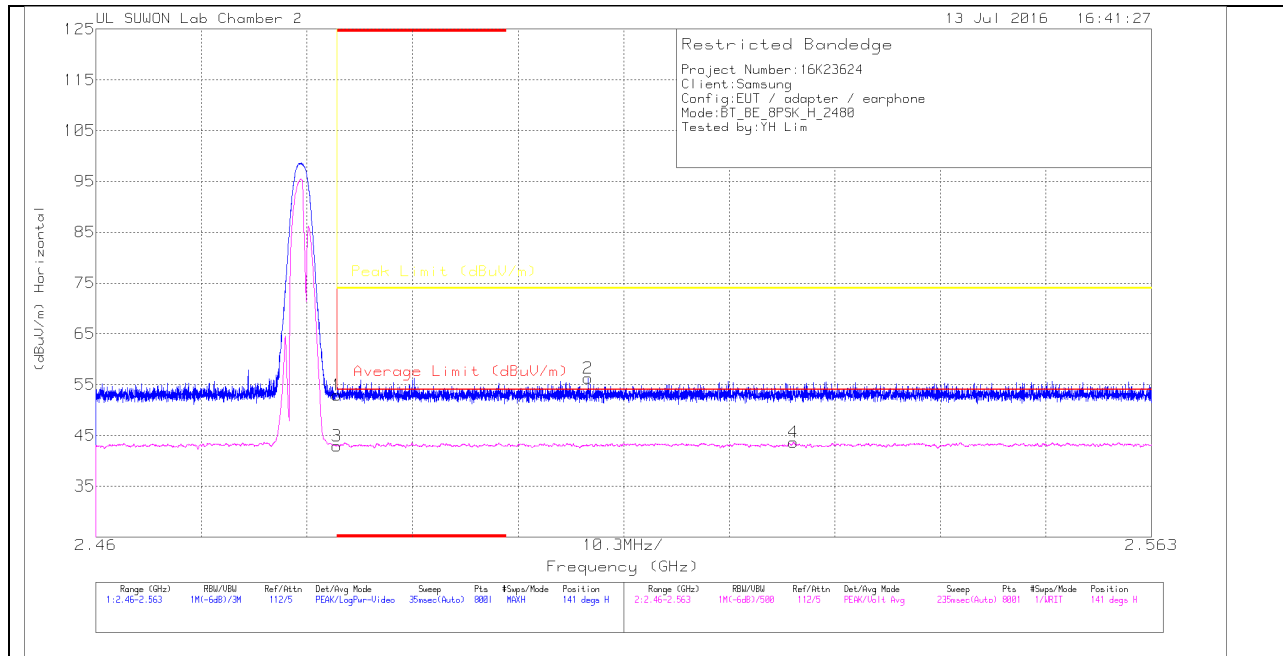
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

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

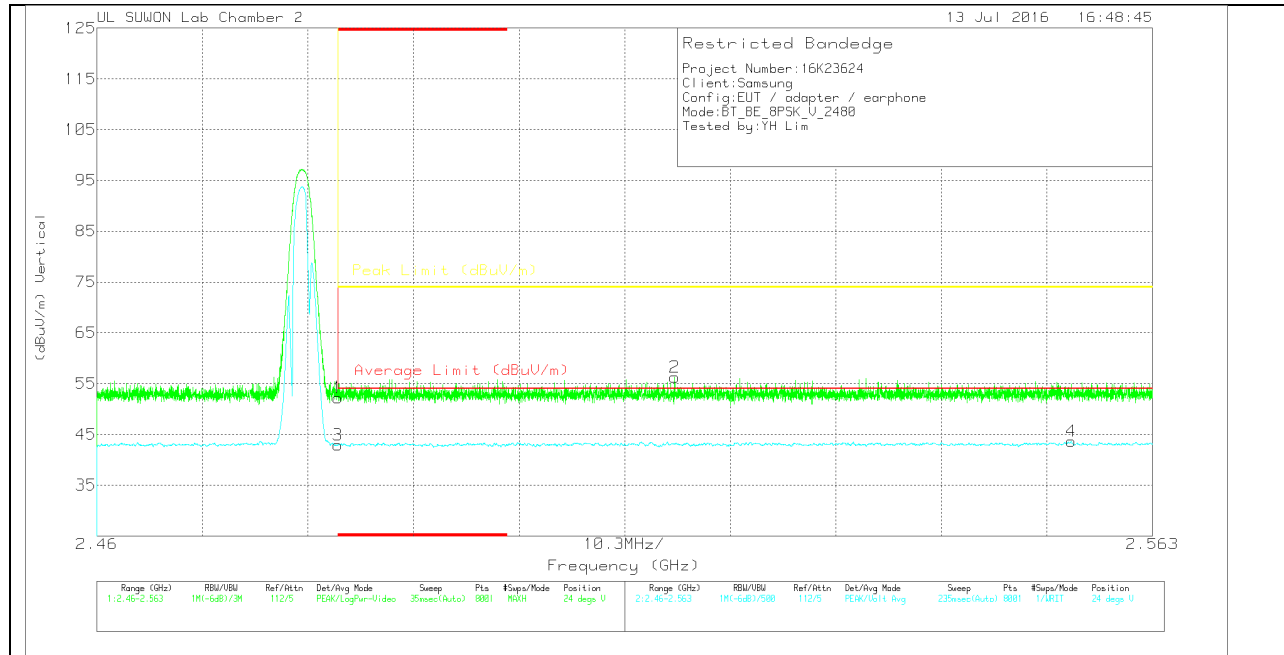
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(0016 8724)_150 619	Path_2_10 dB	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.51	Pk	31.8	-19.4	52.91	-	-	74	-21.09	141	174	H
2	2.508	43.72	Pk	31.9	-19.3	56.32	-	-	74	-17.68	141	174	H
3	* 2.484	30.5	VA1T	31.8	-19.4	42.9	54	-11.1	-	-	141	174	H
4	2.528	31	VA1T	31.9	-19.3	43.6	54	-10.4	-	-	141	174	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	3117(0016 8724)_150 619	Path_2_10 dB	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.84	Pk	31.8	-19.4	52.24	-	-	74	-21.76	24	287	V
2	2.516	43.61	Pk	31.9	-19.3	56.21	-	-	74	-17.79	24	287	V
3	* 2.484	30.49	VA1T	31.8	-19.4	42.89	54	-11.11	-	-	24	287	V
4	2.555	31.05	VA1T	31.9	-19.3	43.65	54	-10.35	-	-	24	287	V

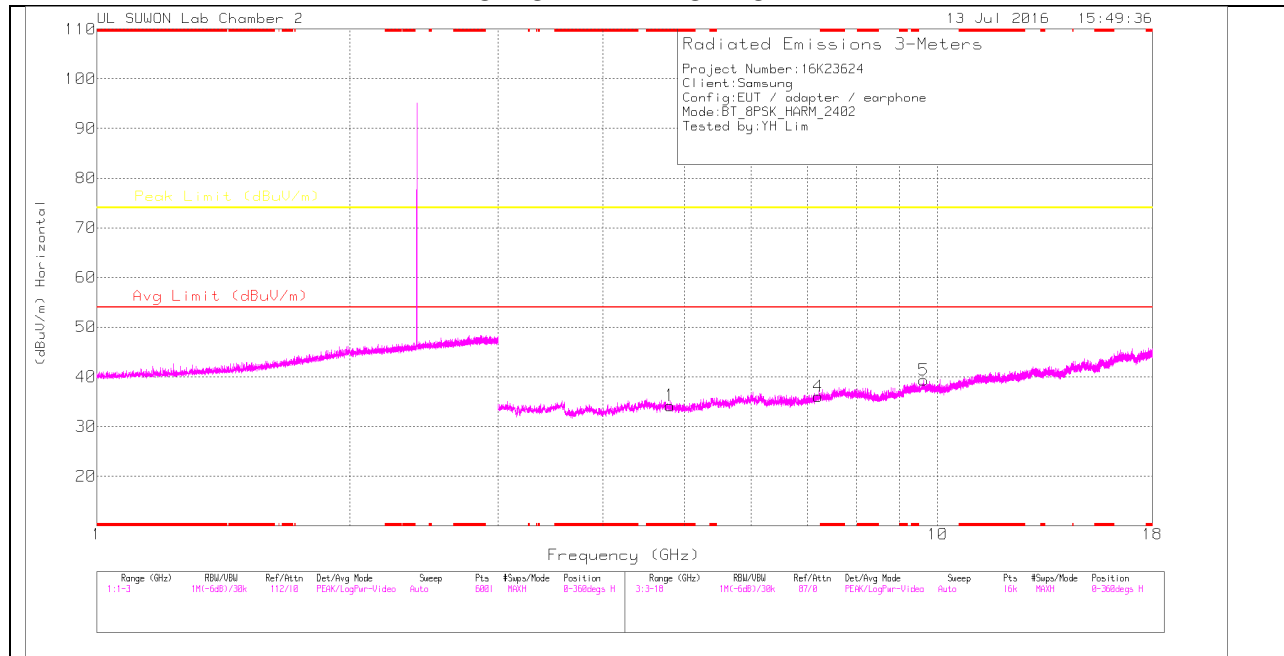
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

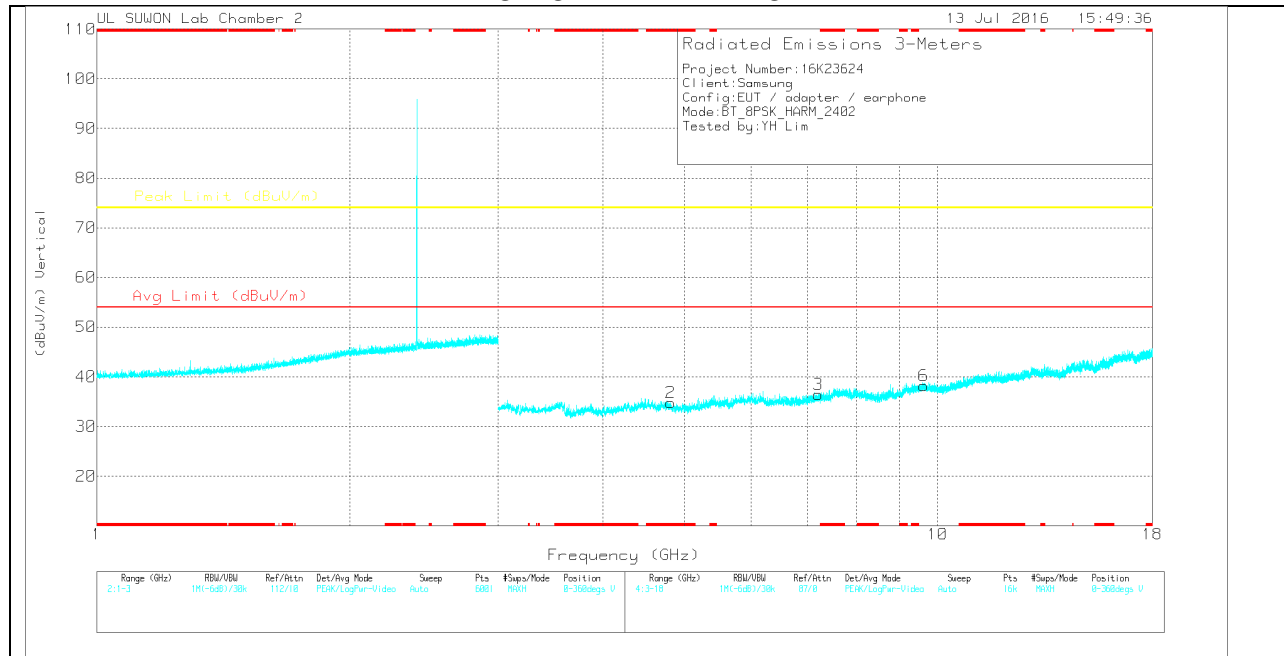
VA1T - FHSS: Linear Voltage Average $V_B = 1/T_{on}$ where: T_{on} is transmit duration

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

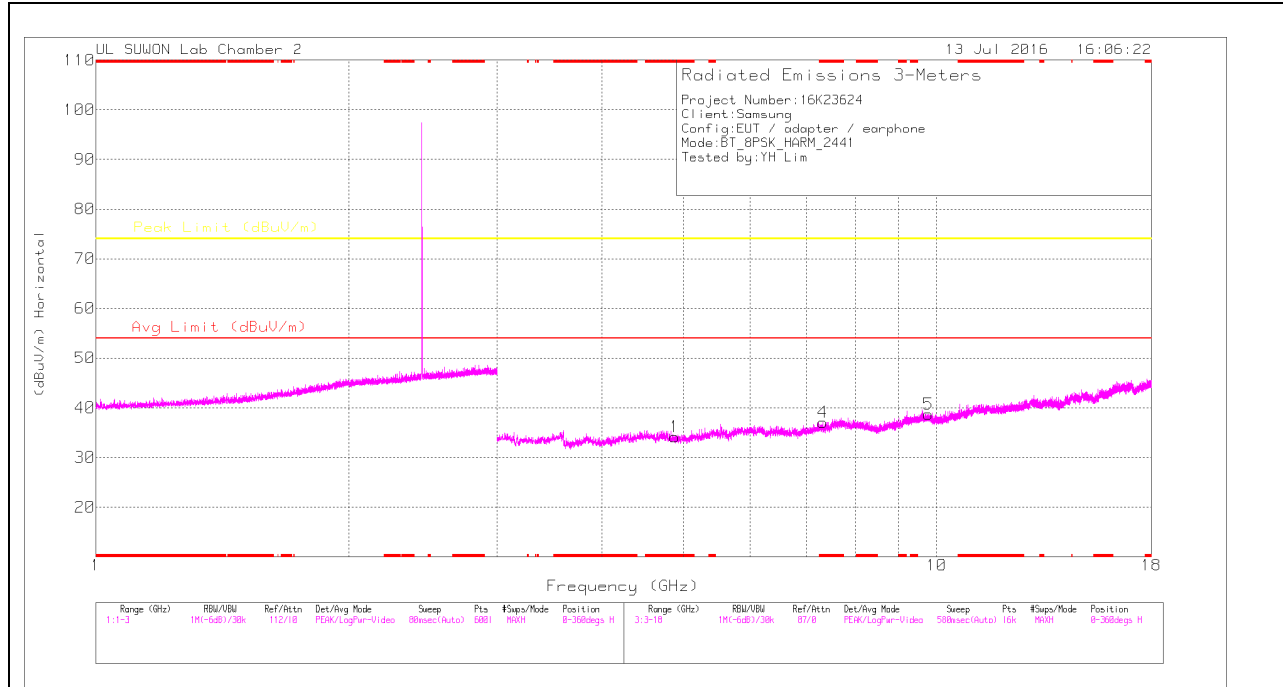
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168 724)_15061 9	Path_3	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.805	25.63	Pk	33.9	-25.3	34.23	-	-	74	-39.77	0-360	100	H
4	7.207	23.24	Pk	35.8	-23	36.04	-	-	74	-37.96	0-360	100	H
5	9.617	21.57	Pk	36.9	-19.1	39.37	-	-	74	-34.63	0-360	100	H
2	* 4.81	26.23	Pk	33.9	-25.3	34.83	-	-	74	-39.17	0-360	100	V
3	7.209	23.68	Pk	35.8	-23	36.48	-	-	74	-37.52	0-360	100	V
6	9.628	20.44	Pk	36.9	-19.1	38.24	-	-	74	-35.76	0-360	200	V

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

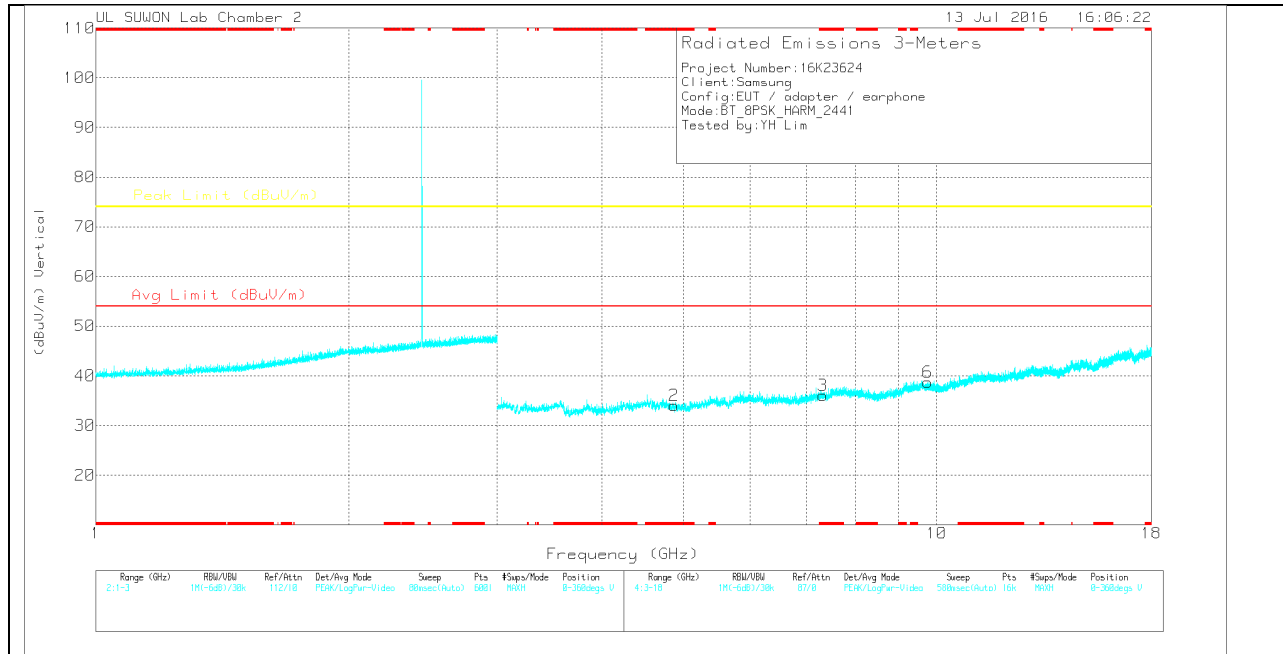
Pk – Peak detector

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

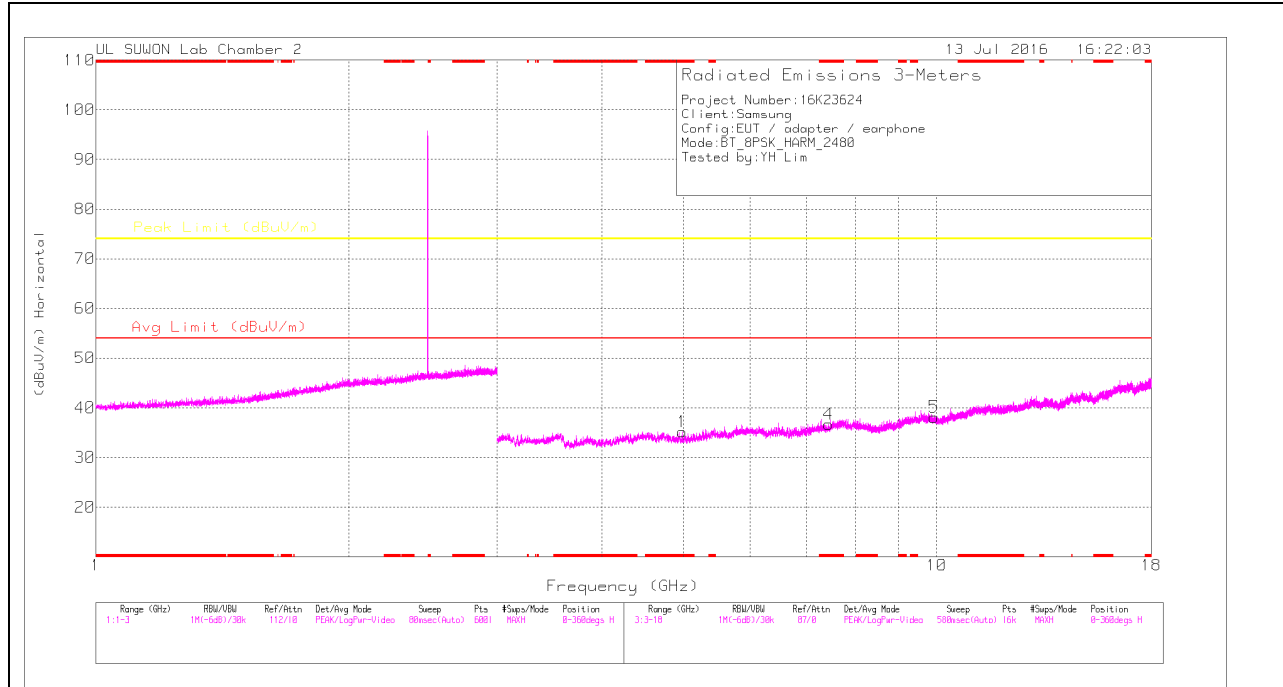
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168 724)_15061 9	Path_3	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.879	25.49	PK	33.9	-25.2	34.19	-	-	74	-39.81	0-360	100	H
4	* 7.324	23.66	PK	35.9	-22.5	37.06	-	-	74	-36.94	0-360	200	H
5	9.766	20.98	PK	37	-19.3	38.68	-	-	74	-35.32	0-360	100	H
2	* 4.874	25.36	PK	33.9	-25.2	34.06	-	-	74	-39.94	0-360	100	V
3	* 7.323	22.71	PK	35.9	-22.5	36.11	-	-	74	-37.89	0-360	100	V
6	9.762	21.03	PK	37	-19.3	38.73	-	-	74	-35.27	0-360	100	V

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

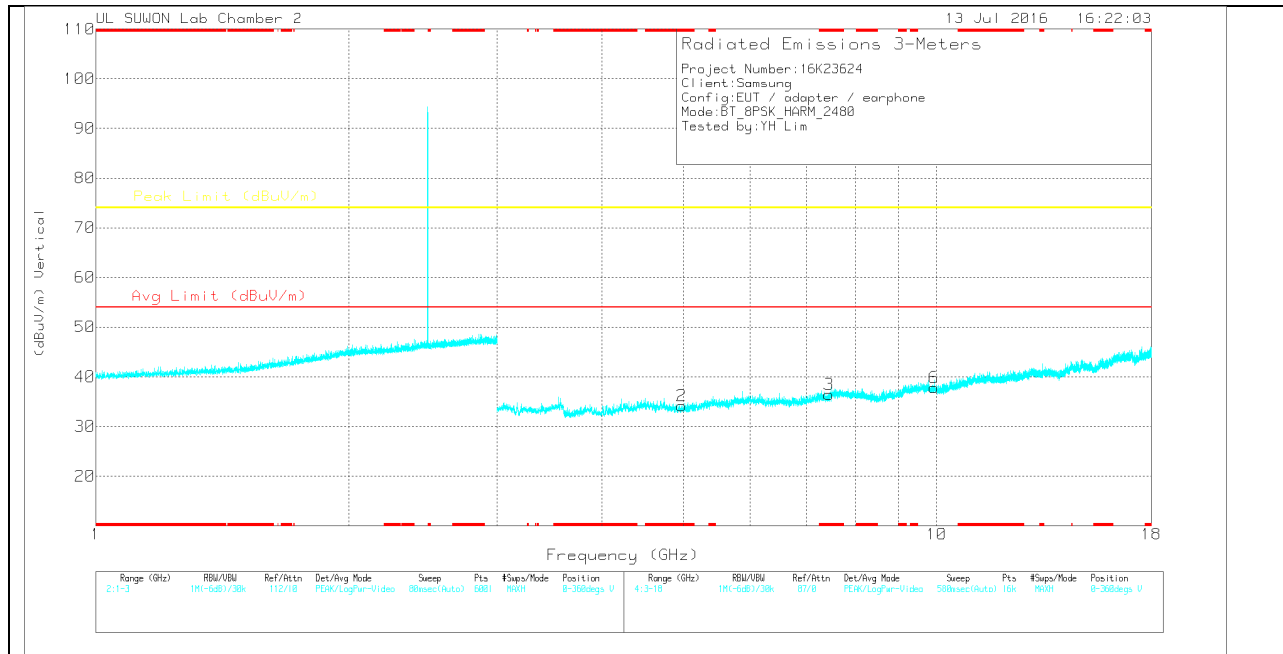
PK – Peak Detector

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	3117(00168 724)_15061 9	Path_3	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.978	26.32	PK	33.9	-25	35.22	-	-	74	-38.78	0-360	100	H
4	* 7.442	22.85	PK	36	-22.1	36.75	-	-	74	-37.25	0-360	100	H
5	9.924	19.95	PK	37.2	-19	38.15	-	-	74	-35.85	0-360	200	H
2	* 4.976	25.32	PK	33.9	-25	34.22	-	-	74	-39.78	0-360	100	V
3	* 7.443	22.6	PK	36	-22.1	36.5	-	-	74	-37.5	0-360	200	V
6	9.928	19.68	PK	37.2	-19	37.88	-	-	74	-36.12	0-360	100	V

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

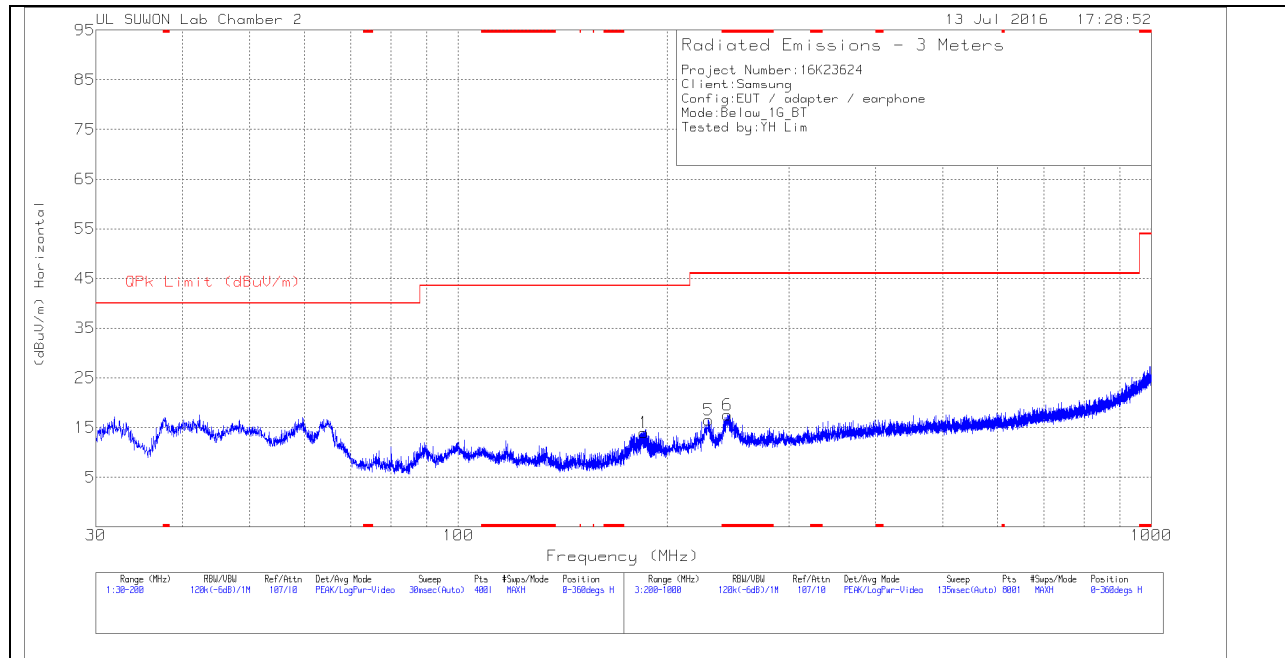
PK – Peak Detector

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

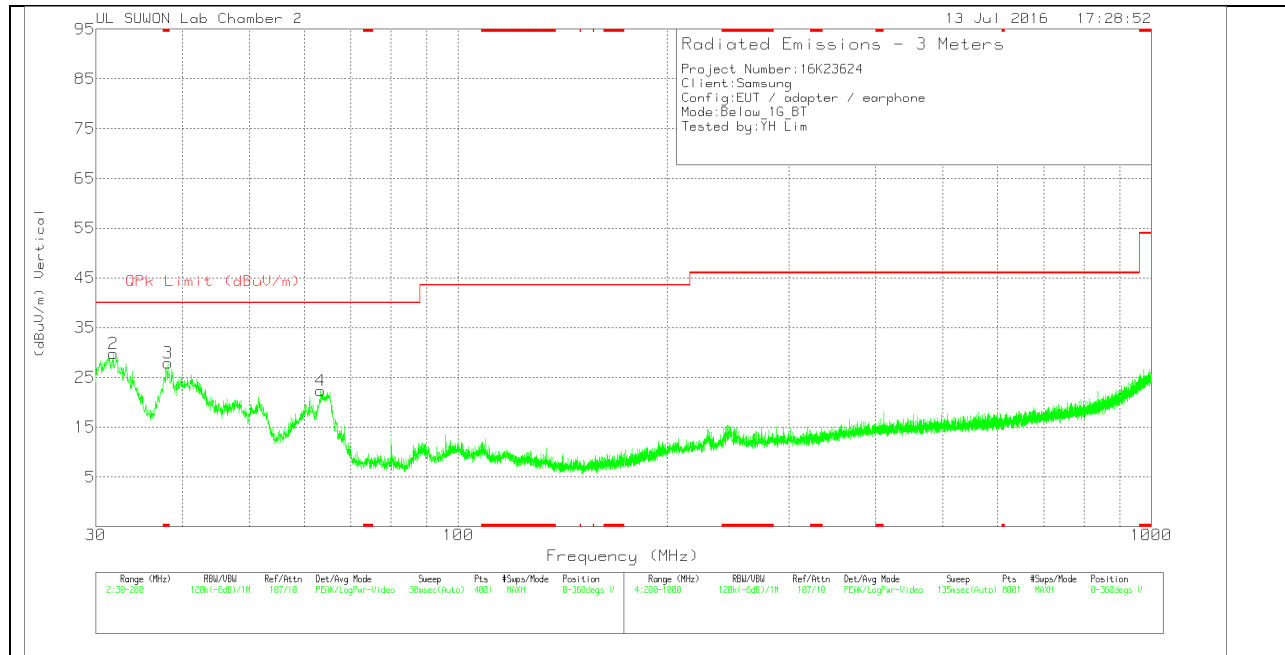
9.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



BELOW 1 GHz TABLE

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163-749	Below_1G	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	185.295	34.43	Pk	10	-30.4	14.03	43.52	-29.49	0-360	100	H
2	31.785	50.2	Pk	10.4	-30.8	29.8	40	-10.2	0-360	100	V
3	* 38.1175	46.68	Pk	12	-30.8	27.88	40	-12.12	0-360	100	V
4	63.32	41.28	Pk	11.7	-30.7	22.28	40	-17.72	0-360	100	V
5	229.8	34.69	Pk	12	-30.2	16.49	46.02	-29.53	0-360	100	H
6	* 244.5	35.37	Pk	12.3	-30.1	17.57	46.02	-28.45	0-360	100	H

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

Pk - Peak detector

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

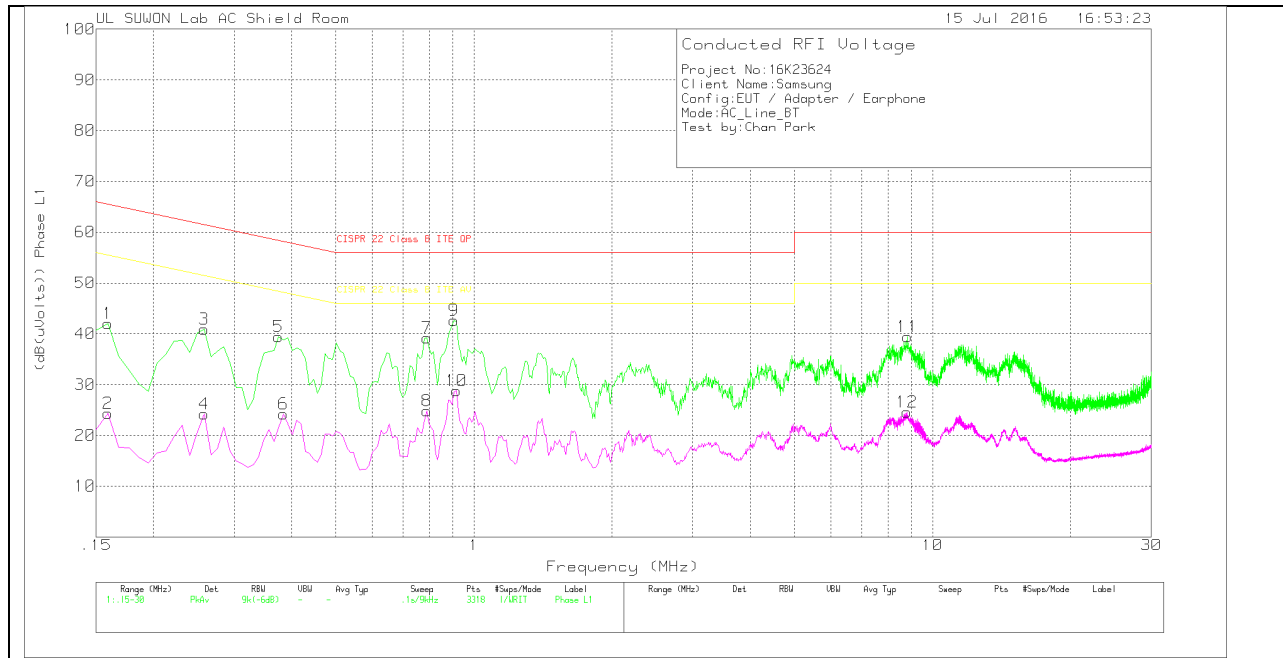
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULTS

Trace Markers

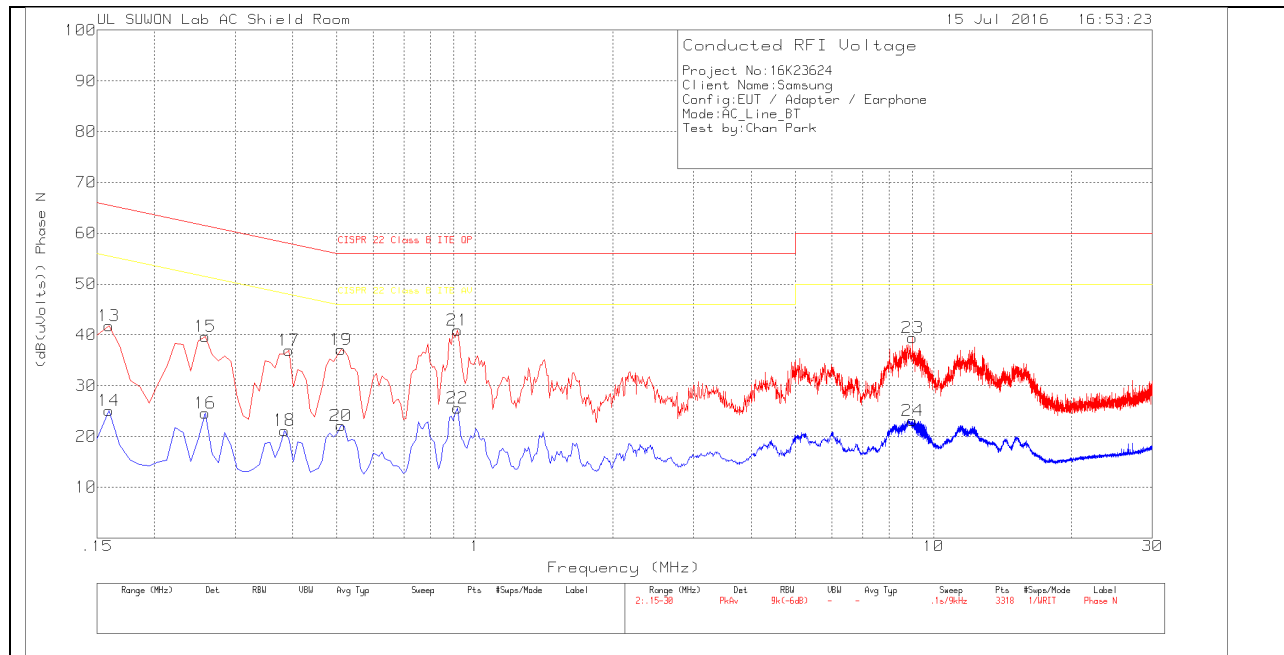
Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_w ith ex- cord_L1	CE Shield Room	Corrected Reading (dB(uVolts)	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
1	.159	32.08	Pk	10	0	42.08	65.52	-23.44	-	-
2	.159	14.32	Av	10	0	24.32	-	-	55.52	-31.2
3	.258	31.1	Pk	9.8	0	40.9	61.5	-20.6	-	-
4	.258	14.44	Av	9.8	0	24.24	-	-	51.5	-27.26
5	.375	29.37	Pk	10.1	0	39.47	58.39	-18.92	-	-
6	.384	14.15	Av	10.1	0	24.25	-	-	48.19	-23.94
7	.789	29.23	Pk	10	0	39.23	56	-16.77	-	-
8	.789	14.87	Av	10	0	24.87	-	-	46	-21.13
9	.906	32.76	Pk	9.9	0	42.66	56	-13.34	-	-
10	.915	18.91	Av	9.9	0	28.81	-	-	46	-17.19
11	8.826	29.31	Pk	10	.1	39.41	60	-20.59	-	-
12	8.808	14.52	Av	10	.1	24.62	-	-	50	-25.38

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	CE Shield Room	Corrected Reading (dB(uVolts)	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
13	.159	31.81	Pk	10	0	41.81	65.52	-23.71	-	-
14	.159	15.03	Av	10	0	25.03	-	-	55.52	-30.49
15	.258	29.94	Pk	9.7	0	39.64	61.5	-21.86	-	-
16	.258	14.91	Av	9.7	0	24.61	-	-	51.5	-26.89
17	.393	26.82	Pk	10.1	0	36.92	58	-21.08	-	-
18	.384	11.08	Av	10.1	0	21.18	-	-	48.19	-27.01
19	.51	27.03	Pk	10.1	0	37.13	56	-18.87	-	-
20	.51	12.01	Av	10.1	0	22.11	-	-	46	-23.89
21	.915	31.06	Pk	9.9	0	40.96	56	-15.04	-	-
22	.915	15.69	Av	9.9	0	25.59	-	-	46	-20.41
23	9.006	29.35	Pk	10	.1	39.45	60	-20.55	-	-
24	9.006	13.04	Av	10	.1	23.14	-	-	50	-26.86

Pk - Peak detector

Av - Average detection