



CERTIFICATION TEST REPORT

Report Number. : 12810732-E2V1

Applicant : Samsung Electronics Co., Ltd.
129 Samsung-Ro, Yeongtong-Gu,
Suwon-Si, Gyeonggi-Do, 16677, Korea

Model : SM-G398FN/DS and SM-G398FN

FCC ID : A3LSMG398FN

EUT Description : GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac and
NFC

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C

Date Of Issue:

May 14, 2019

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REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	5/14/2019	Initial Issue	

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Samsung Electronics Co., Ltd.
129 Samsung-Ro, Yeongtong-Gu,
Suwon-Si, Gyeonggi-Do, 16677, Korea

EUT DESCRIPTION: GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac and NFC

MODEL: SM-G398FN/DS and SM-G398FN

SERIAL NUMBER: Radiated: R38M4044FGF, R38M4044QSK
Conducted: R38M4044PNW

DATE TESTED: April 24 – May 8, 2019

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

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of the U.S. government.

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, and KDB 558074 D01 15.247 Meas Guidance v05r02.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, and 47658 Kato Road, Fremont, California, USA. Line conducted emissions are measured only at the 47173 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.

47173 Benicia Street	47266 Benicia Street	47658 Kato Rd
☐ Chamber A	☐ Chamber D	☒ Chamber I
☐ Chamber B	☐ Chamber E	☒ Chamber J
☐ Chamber C	☐ Chamber F	☒ Chamber K
	☐ Chamber G	☐ Chamber L
	☐ Chamber H	☐ Chamber M

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers above are covered under Industry Canada company address and respective code

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0

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

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

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

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.
 $36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.52 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	4.88 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.24 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.37 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.17 dB

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

5. EQUIPMENT UNDER TEST

5.1. EUT DESCRIPTION

The EUT is a GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac and NFC.

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402 - 2480	Basic GFSK	9.90	9.77
2402 - 2480	Enhanced DQPSK	11.00	12.59
2402 - 2480	Enhanced 8PSK	11.60	14.45

Note: GFSK, DQPSK, 8PSK average Power are all investigated, The GFSK & 8PSK Power are the worst case. Testing is based on these modes to showing compliance.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -1.13 dBi.

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 1GHz, above 18GHz, and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Band edge and radiated emissions between 1GHz and 18GHz were performed with the EUT set to transmit at the highest power on low, middle and high channels.

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

Worst-case data rates as provided by the client were:

GFSK mode: DH5
8PSK mode: 3-DH5

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Samsung	EP-TA200	R37M14P3GY1SE3	N/A
Earphone	Samsung	N/A	N/A	N/A

I/O CABLES (CONDUCTED TEST)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Antenna	1	RF	Shielded	0.2	To PSA and BT Tester
2	USB	1	USB	Un-shielded	1	EUT to AC Mains

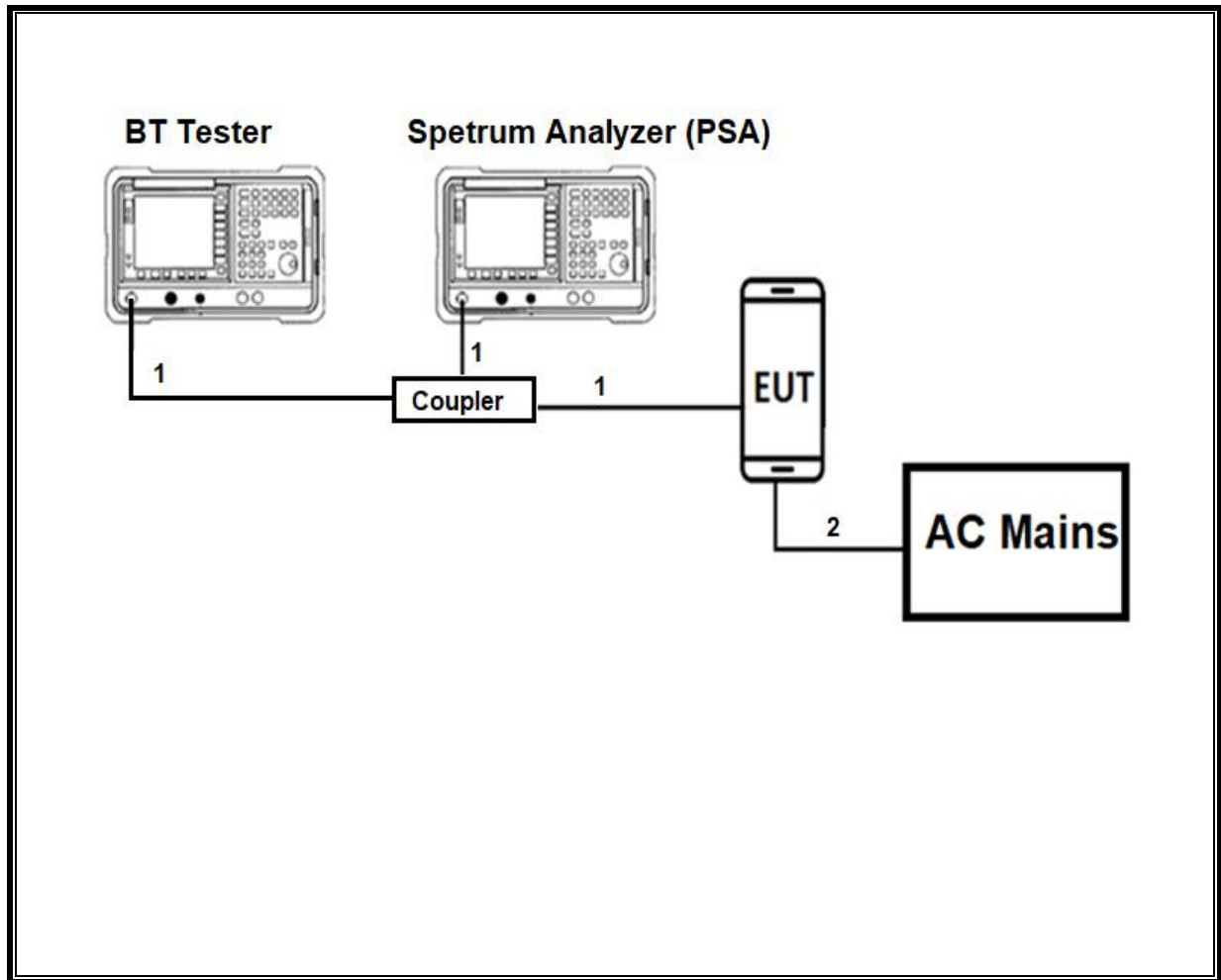
I/O CABLES (RADIATED AND CONDUCTED EMISSIONS)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	USB	1	USB	Shielded	1	N/A
2	earphone	1	3.5mm	Un-shielded	1	N/A

TEST SETUP

The EUT is a stand alone unit. Test software exercised the radio card.

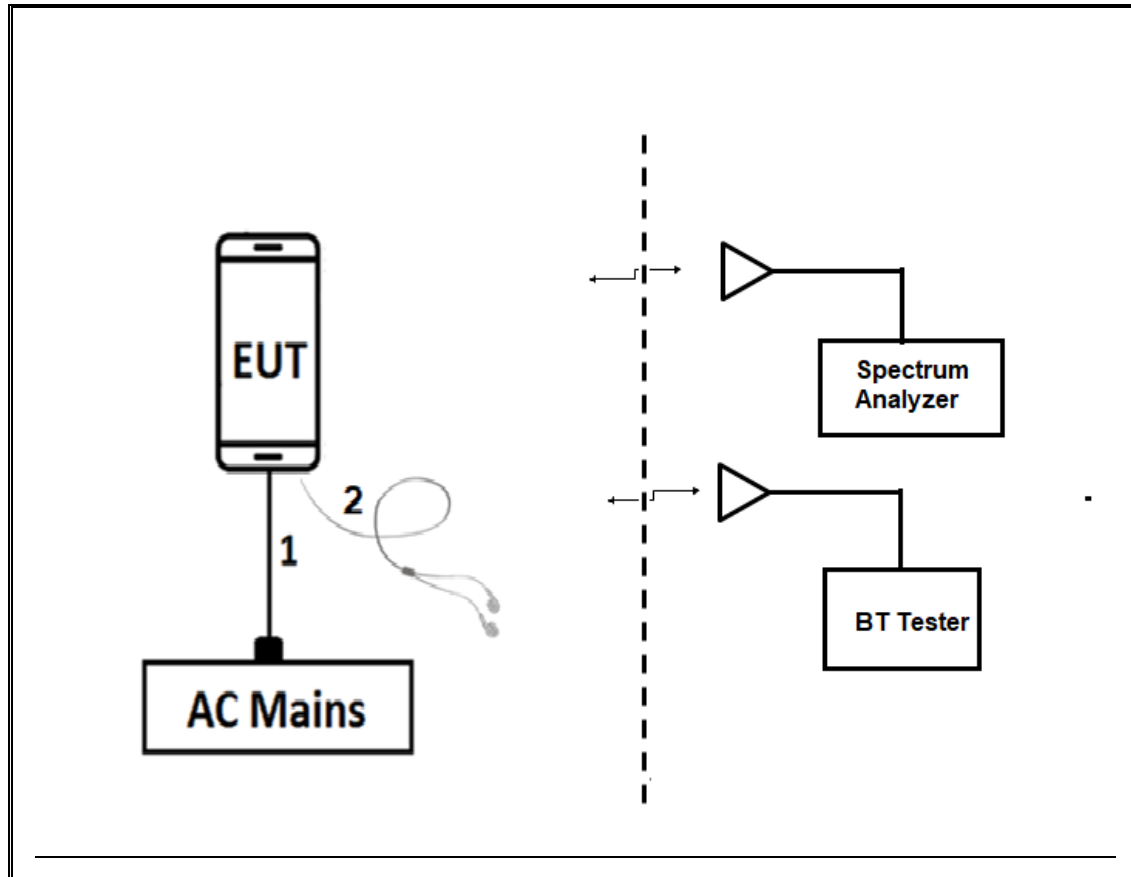
CONDUCTED TEST SETUP DIAGRAM



TEST SETUP

For conducted tests: the EUT was stand alone. The test software exercises the radio.

RADIATED AND AC LINE CONDUCTED EMISSIONS SETUP DIAGRAM



TEST SETUP

For radiated tests: EUT is stand alone. The test software exercises the radio.

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	ID Num	Cal Due	Last Cal
6 port rf switch, 1-18GHz	Pasternack	PE7159	171455	08/01/2019	08/01/2018
Bluetooth Tester	Rohde & Schwarz (Koeln) GmbH & Co. KG	CBT	T438	02/14/2020	02/14/2019
Power Meter, P-series single channel	Agilent (Keysight) Technologies	N1911A	T1271	07/26/2019	07/26/2018
Power Sensor, P-series, 50MHz to 18GHz, Wideband	Agilent (Keysight) Technologies	N1921A	T1224	10/09/2019	10/09/2018
Antenna, Passive Loop 30Hz – 1MHz	Electro-Metrics	EM-6871	PRE0179465	05/22/2019	05/22/2018
Antenna, Passive Loop 100kHz – 30MHz	Electro-Metrics	EM-6872	PRE0179467	05/23/2019	05/23/2018
Antenna, Horn 1-18GHz	AR	AMPL-ATH1G18	PRE0189055	04/20/2020	04/20/2019
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T863	06/21/2019	06/21/2018
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179372	02/26/2020	02/26/2019
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179377	02/15/2020	02/15/2019
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179376	02/14/2020	02/14/2019
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T908	01/23/2020	01/23/2019
Amplifier, 1-18GHz, 35 dB	AMPLICAL	AMP1G18-35	T1571	07/30/2019	07/30/2018
Amplifier, 1-18GHz, 35 dB	AMPLICAL	AMP1G18-35	T1569	07/30/2019	07/30/2018
Amplifier, 100kHz to 1GHz, 32 dB	Sonoma Instrument	310	PRE0180175	07/09/2019	07/09/2018
Hybrid Antenna, 30MHz to 3GHz	SunAR rf motion	JB3	PRE0181571	11/13/2019	11/13/2018
Antenna, Horn 18 to 26.5GHz	ARA	MWH-1826/B	PRE0182188	08/29/2019	08/29/2018
Pre-Amp, 18-26.5GHz	AMPLICAL	AMP18G26.5-60	PRE0181238	05/01/2020	05/01/2019
AC Line Conducted					
EMI Receiver	Rohde & Schwarz	ESR	T1436	02/14/2020	02/14/2019
LISN for Conducted Emissions CISPR-16	FCC INC.	FCC LISN 50/250	T1310	06/15/2019	06/15/2018
Test Software List					
Radiated Software	UL	UL EMC	Ver 9.5, June 22, 2018		
Antenna Port Software	UL	UL RF	Ver 9.6, April 18, 2019		
AC Line Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015		

NOTES:

- Equipment listed above that calibrated during the testing period was set for test after the calibration.
- Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

7. MEASUREMENT METHODS

On Time and Duty Cycle: ANSI C63.10-2013 Section 11.6

Occupied BW (20dB): ANSI C63.10-2013 Section 6.9.2

Occupied BW (99%): ANSI C63.10-2013 Section 6.9.3

Carrier Frequency Separation: ANSI C63.10-2013 Section 7.8.2

Number of Hopping Frequencies: ANSI C63.10-2013 Section 7.8.3

Time of Occupancy (Dwell Time): ANSI C63.10-2013 Section 7.8.4

Peak Output Power: ANSI C63.10-2013 Section 7.8.5

Conducted Spurious Emissions: ANSI C63.10-2013 Section 7.8.8

Conducted Band-Edge: ANSI C63.10-2013 Section 6.10.4

Radiated Spurious Emissions Below 30MHz: ANSI C63.10-2013 Section 6.4

Radiated Spurious Emissions 30-1000MHz: ANSI C63.10-2013 Section 6.3 and 6.5

Radiated Spurious Emissions above 1GHz: ANSI C63.10-2013 Section 6.3 and 6.6

Radiated Band-edge: ANSI C63.10-2013 Section 6.10.5

AC Power-line conducted emissions: ANSI C63.10-2013, Section 6.2.

8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

ANSI C63.10, Section 11.6 : Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)
Bluetooth GFSK	2.88	3.75	0.767	76.7%	1.15	0.348
Bluetooth 8PSK	2.88	3.75	0.768	76.8%	1.15	0.347

DUTY CYCLE PLOTS



8.2. 20 dB AND 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

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

8.2.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	0.951	0.895
Mid	2441	0.931	0.859
High	2480	0.936	0.886



8.2.2. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	1.324	1.201
Mid	2441	1.330	1.204
High	2480	1.333	1.210



8.3. HOPPING FREQUENCY SEPARATION

LIMITS

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.

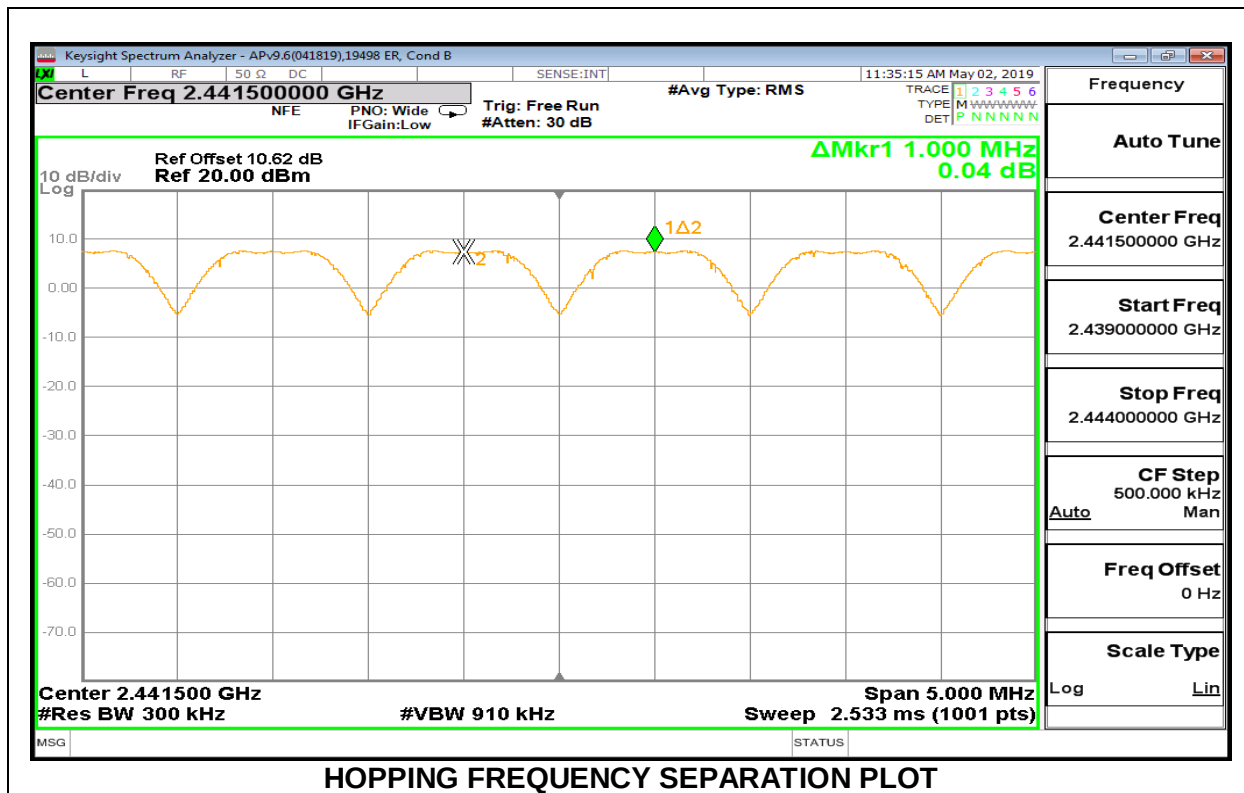
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than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

TEST PROCEDURE

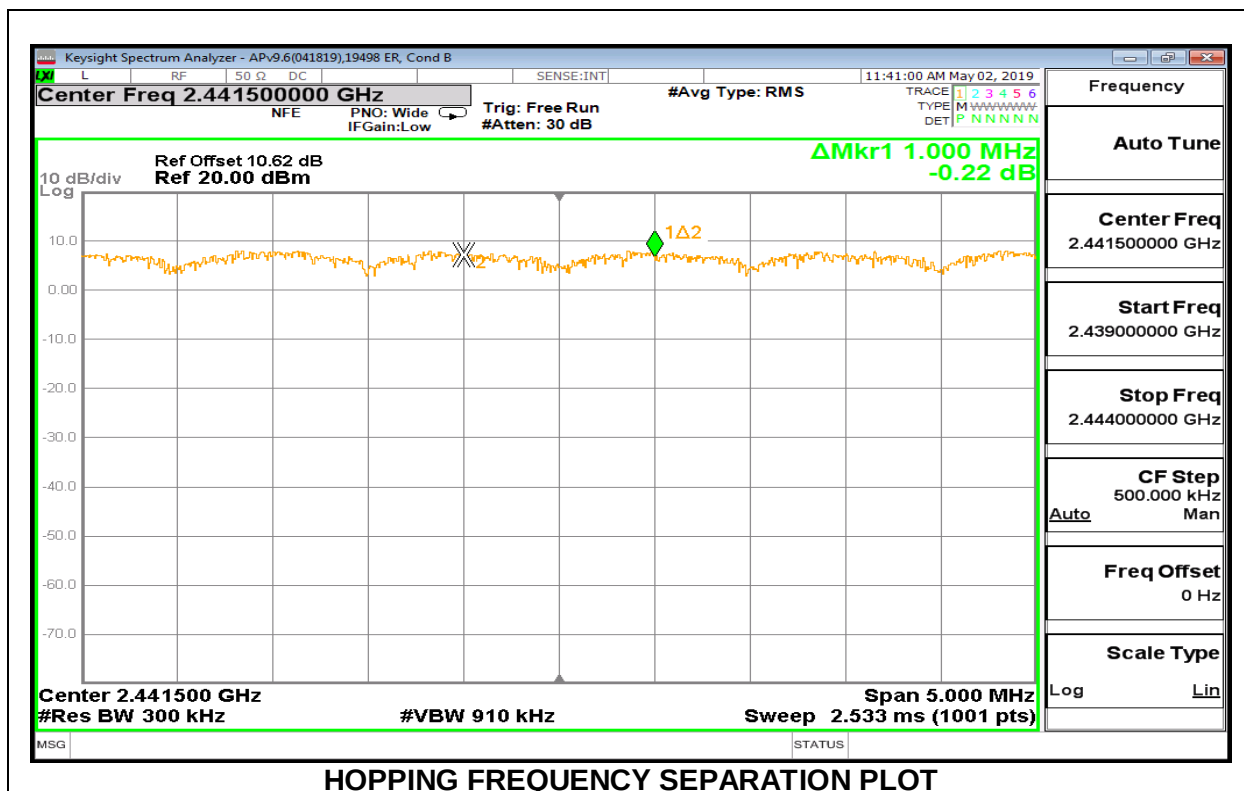
The transmitter output is connected to a spectrum analyzer. The RBW is set to 300 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

8.3.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION



8.3.2. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION



8.4. NUMBER OF HOPPING CHANNELS

LIMITS

FCC §15.247 (a) (1) (iii)

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

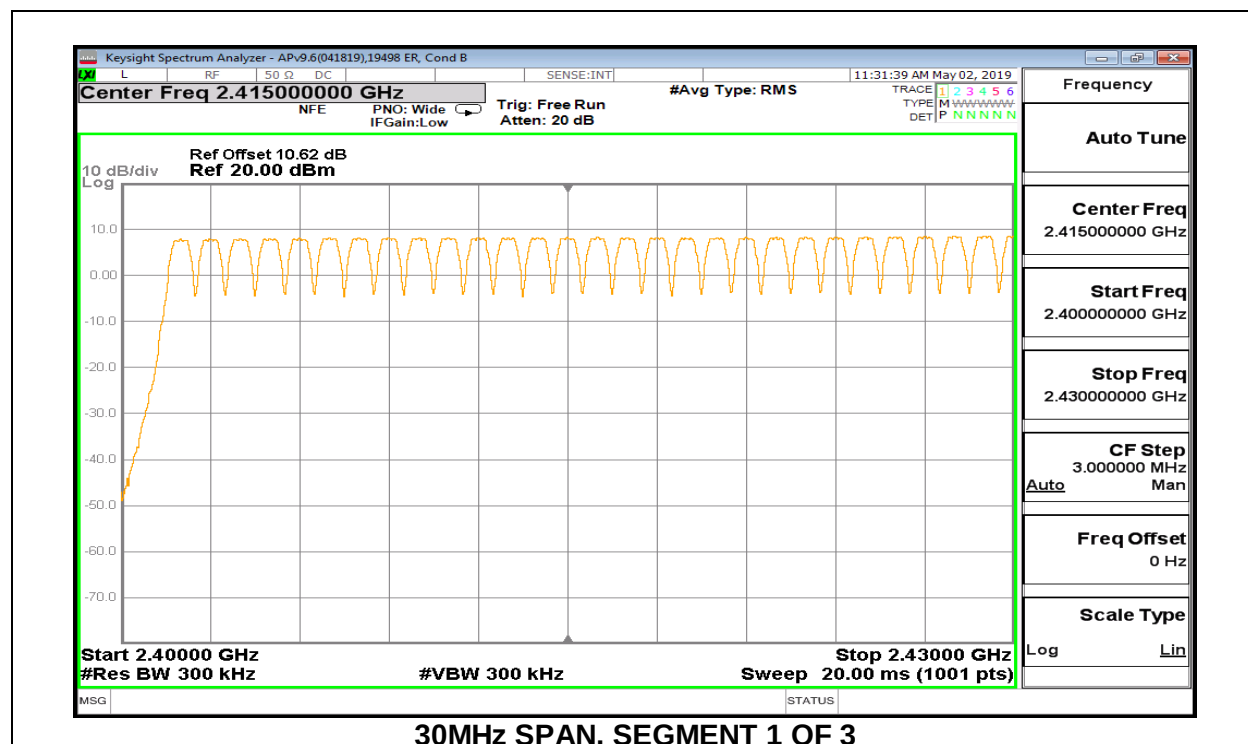
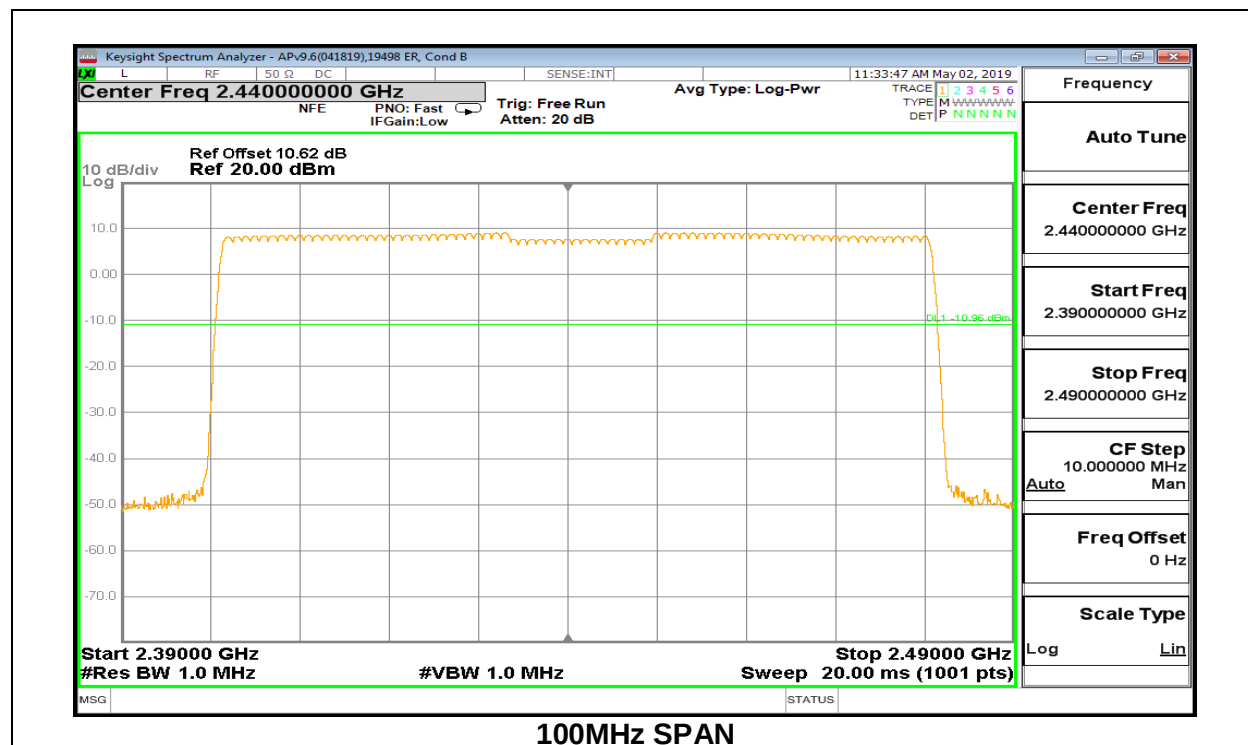
TEST PROCEDURE

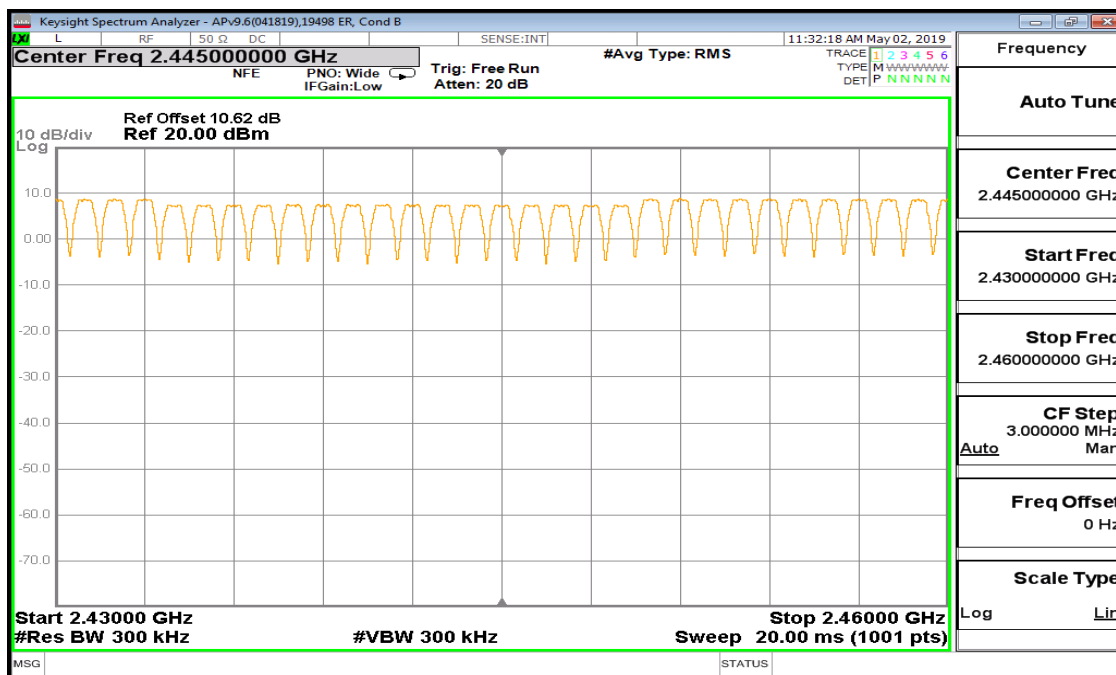
The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

RESULTS

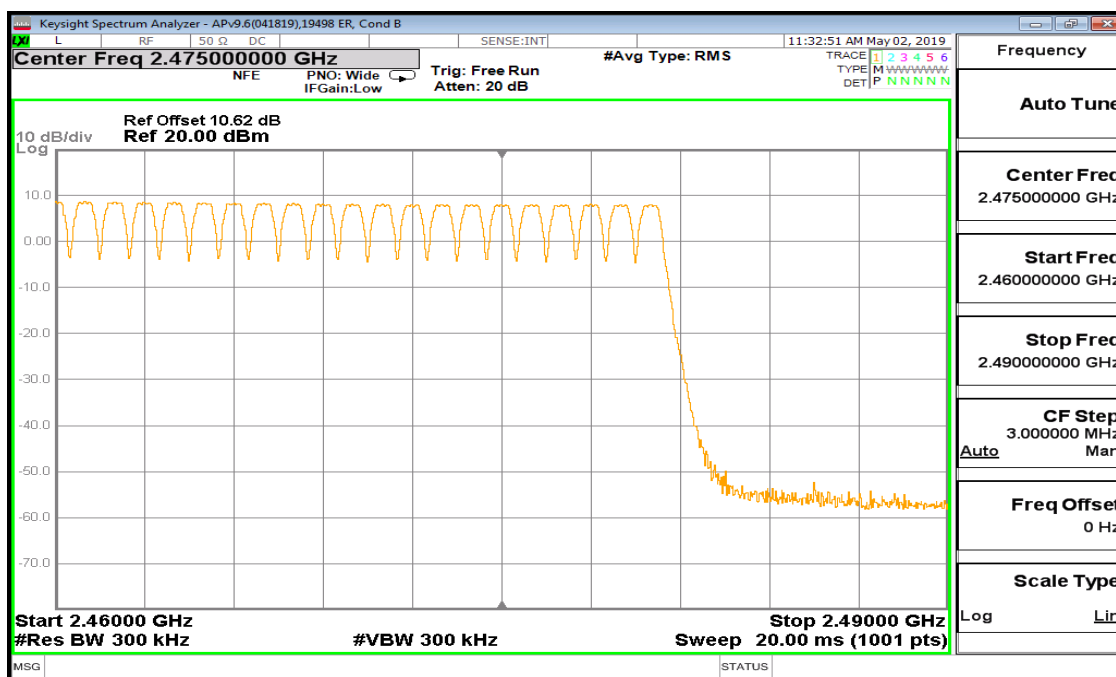
Normal Mode: 79 Channels Observed

8.4.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION



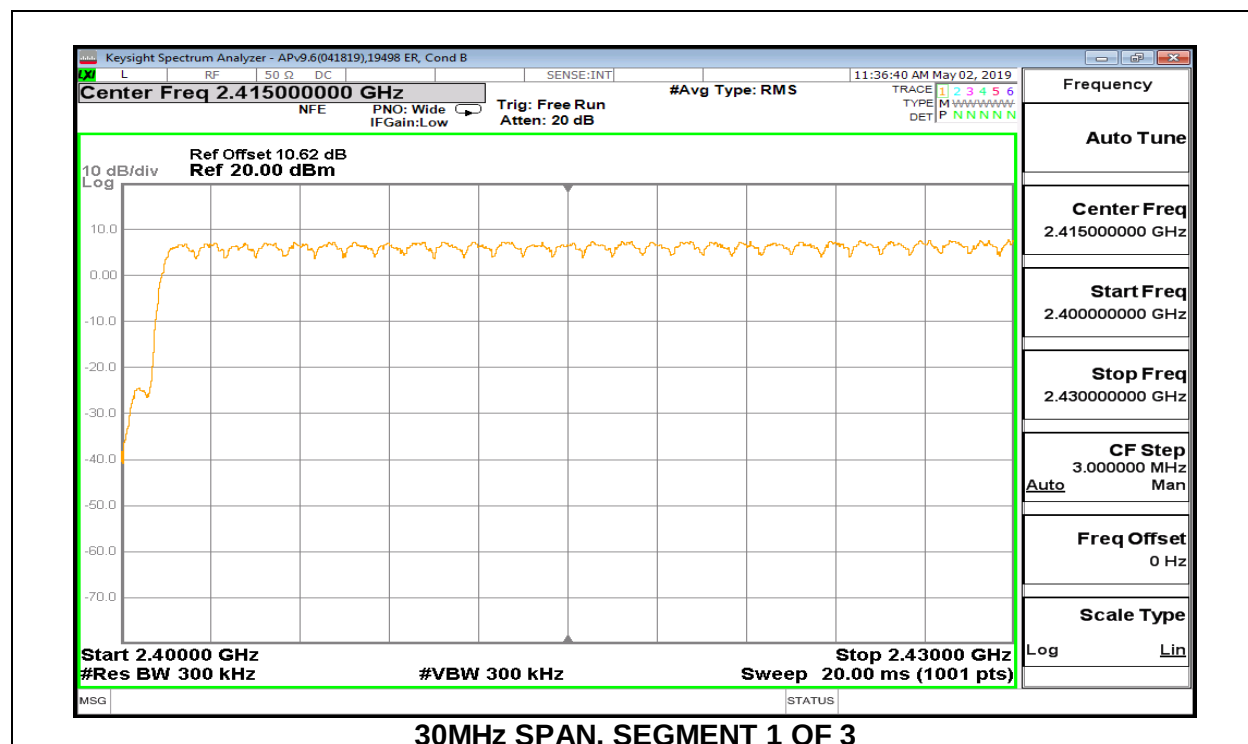
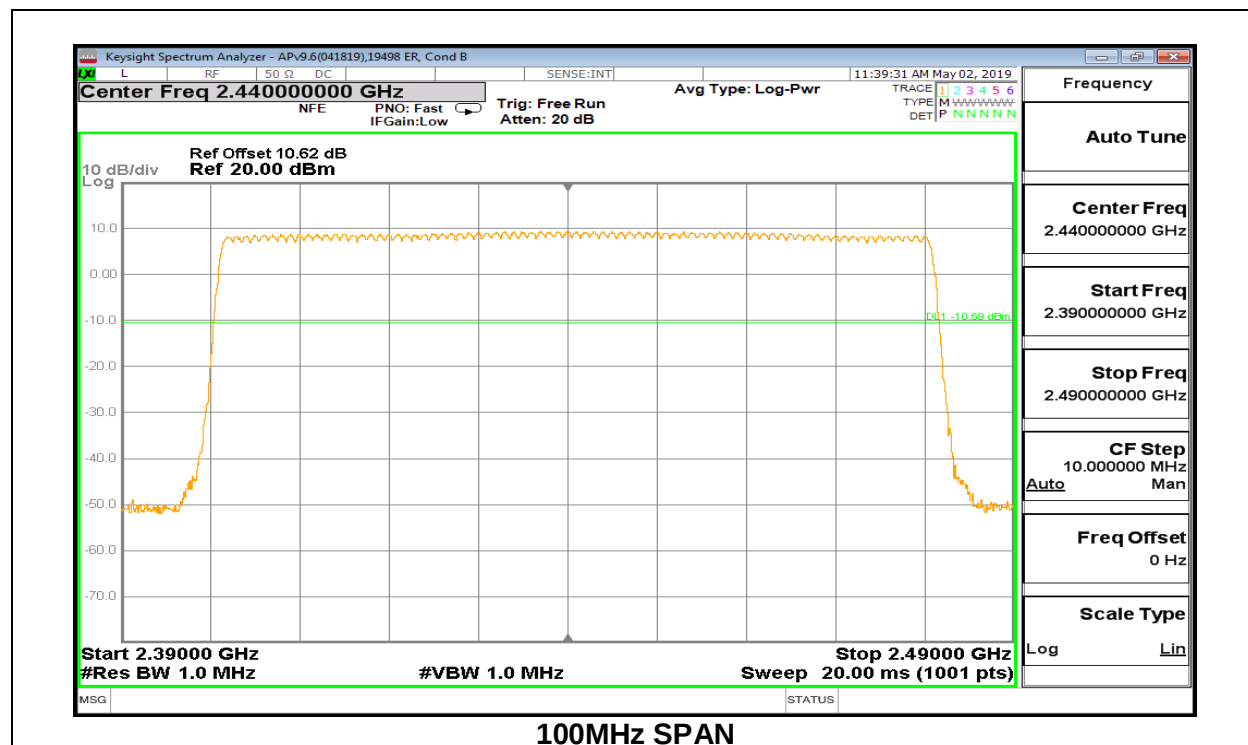


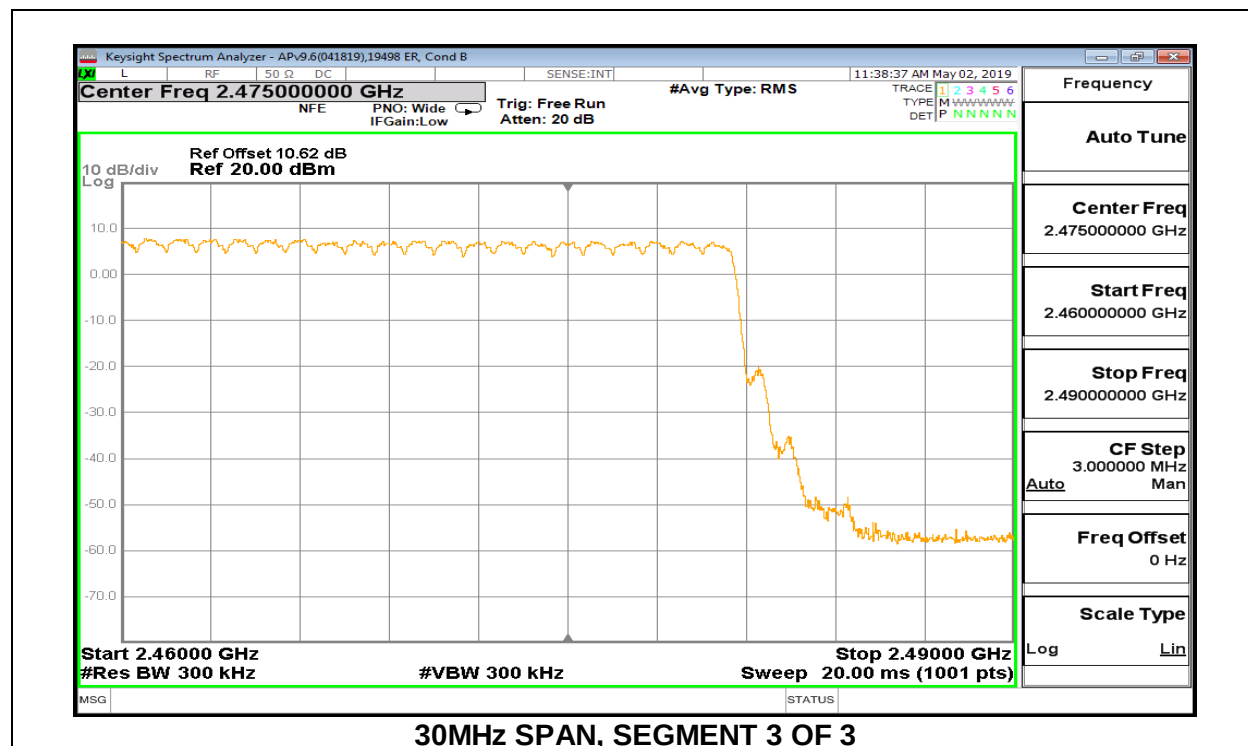
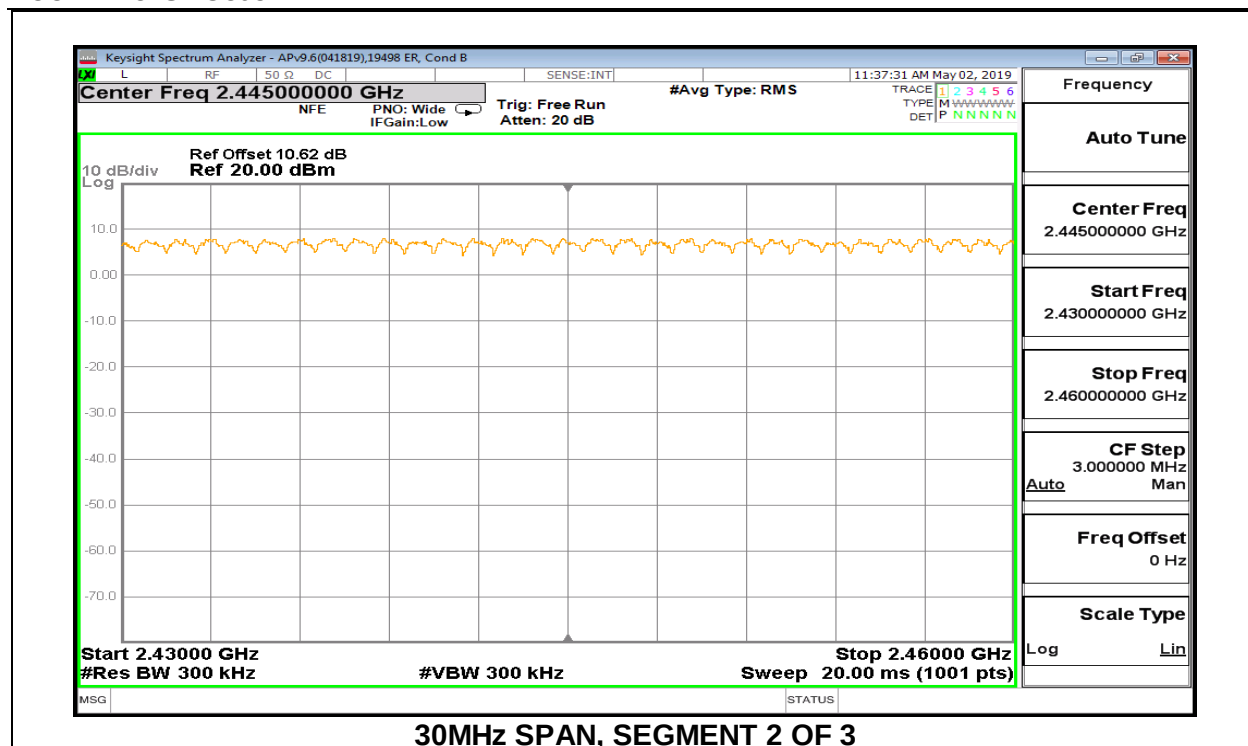
30MHz SPAN, SEGMENT 2 OF 3



30MHz SPAN, SEGMENT 3 OF 3

8.4.2. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION





8.5. AVERAGE TIME OF OCCUPANCY

LIMITS

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.

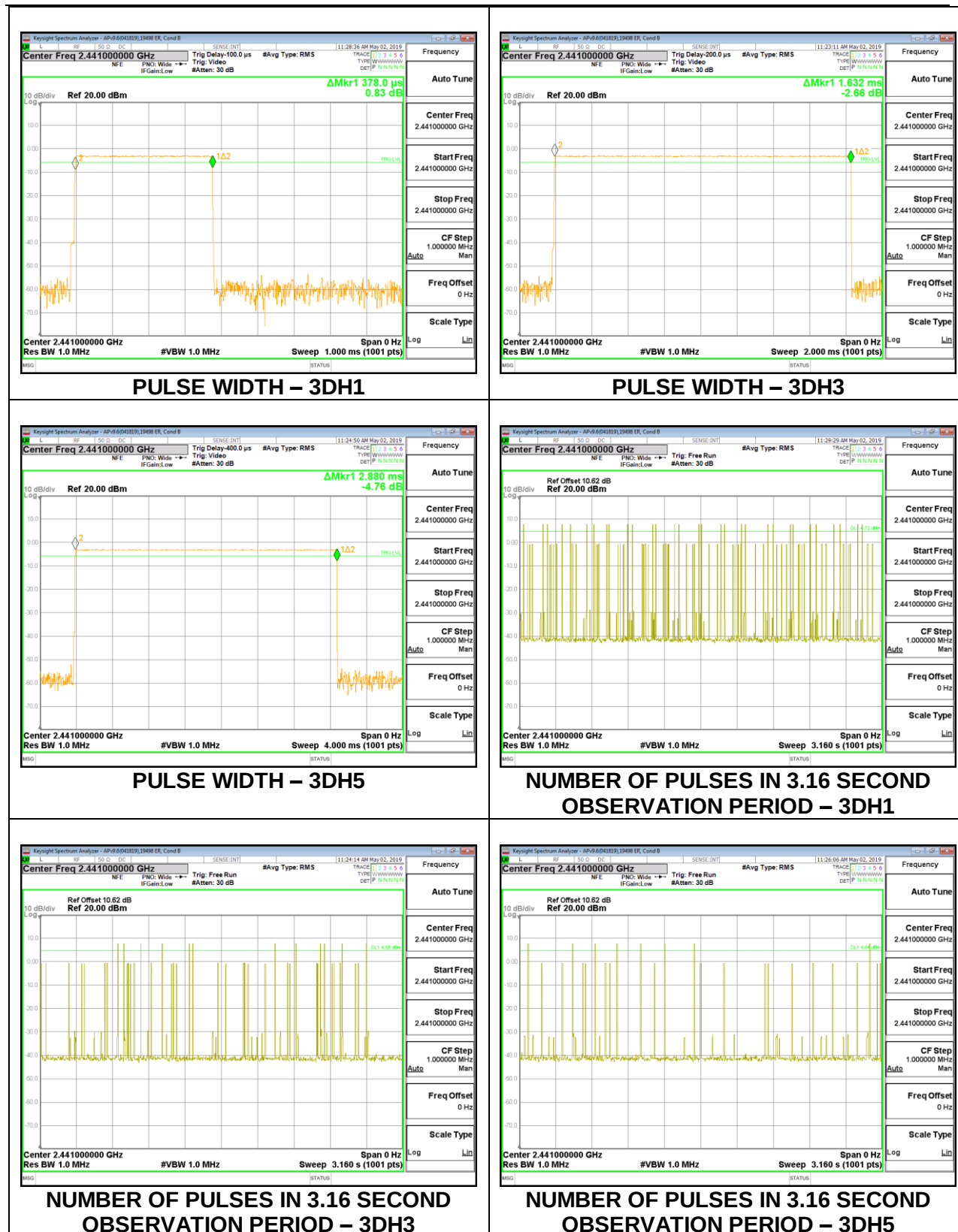
The average time of occupancy in the specified 3.16 second period (79 channels * 0.4 s) is equal to $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{pulse width}$.

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

8.5.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

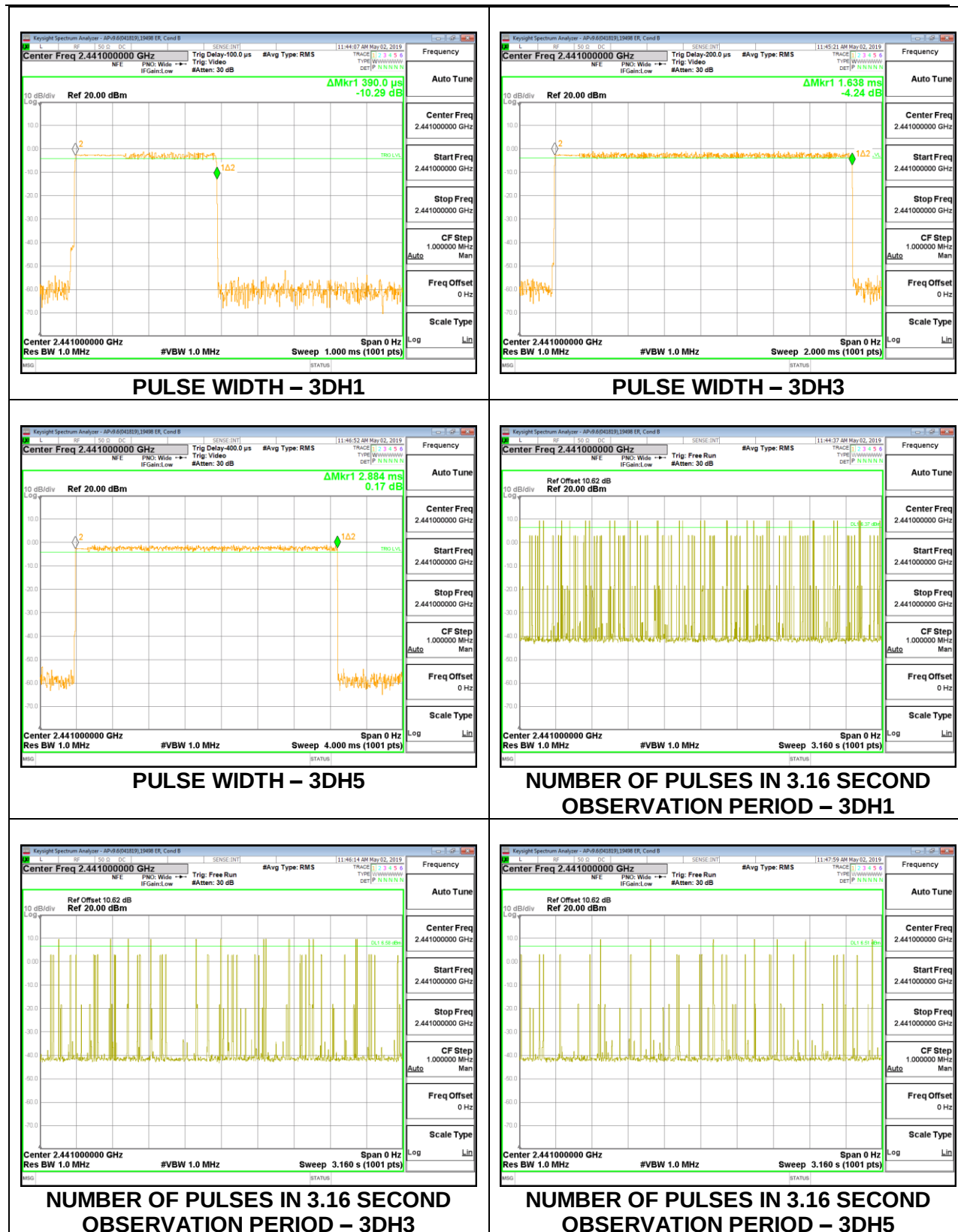
DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK Normal Mode					
3DH1	0.378	32	0.1210	0.4	-0.2790
3DH3	1.632	12	0.1958	0.4	-0.2042
3DH5	2.88	8	0.2304	0.4	-0.1696
DH Packet	Pulse Width (sec)	Number of Pulses in 0.8 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK AFH Mode					
3DH1	0.378	8	0.03024	0.4	-0.3698
3DH3	1.632	3	0.04896	0.4	-0.3510
3DH5	2.88	2	0.05760	0.4	-0.3424



8.5.2. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
8PSK Normal Mode					
3DH1	0.39	30	0.117	0.4	-0.283
3DH3	1.638	14	0.22932	0.4	-0.17068
3DH5	2.884	7	0.20188	0.4	-0.19812

Note: for AFH(8PSK) mode, please refer to the results of AFH(GFSK) mode; the channel selection and hopping rate are the same for both EDR and Basic Rate operation, data for Basic Rate demonstrates compliance with channel occupancy when AFH is employed.



8.6. OUTPUT POWER

LIMITS

§15.247 (b) (1)

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

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

TEST PROCEDURE

Measurements perform using a wideband gated RF power meter. The cable assembly insertion loss was entered as an offset in the power meter to allow for the peak reading of power.

RESULTS

8.6.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

Tested By:	19498 ER
Date:	5/2/2019

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	9.60	21	-11.4
Middle	2441	8.80	21	-12.2
High	2480	9.90	21	-11.1

8.6.2. BLUETOOTH ENHANCED DATA RATE DQPSK MODULATION

Tested By:	19498 ER
Date:	5/2/2019

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	9.80	21	-11.2
Middle	2441	11.00	21	-10
High	2480	10.20	21	-10.8

8.6.3. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

Tested By:	19498 ER
Date:	5/2/2019

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.50	21	-10.5
Middle	2441	11.60	21	-9.4
High	2480	10.70	21	-10.3

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

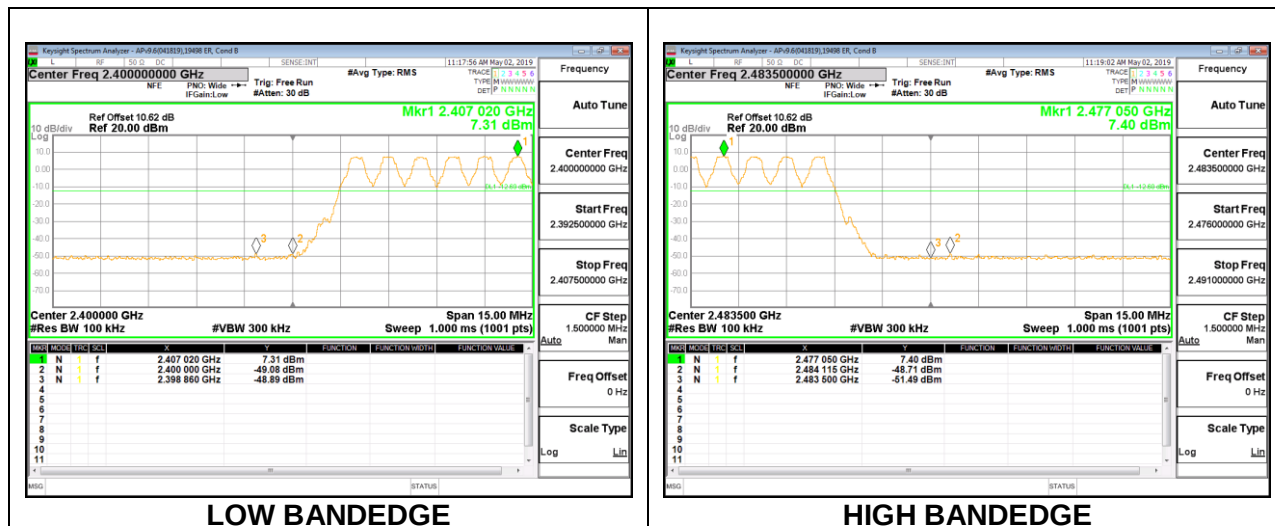
RESULTS

8.7.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

SPURIOUS EMISSIONS, NON-HOPPING

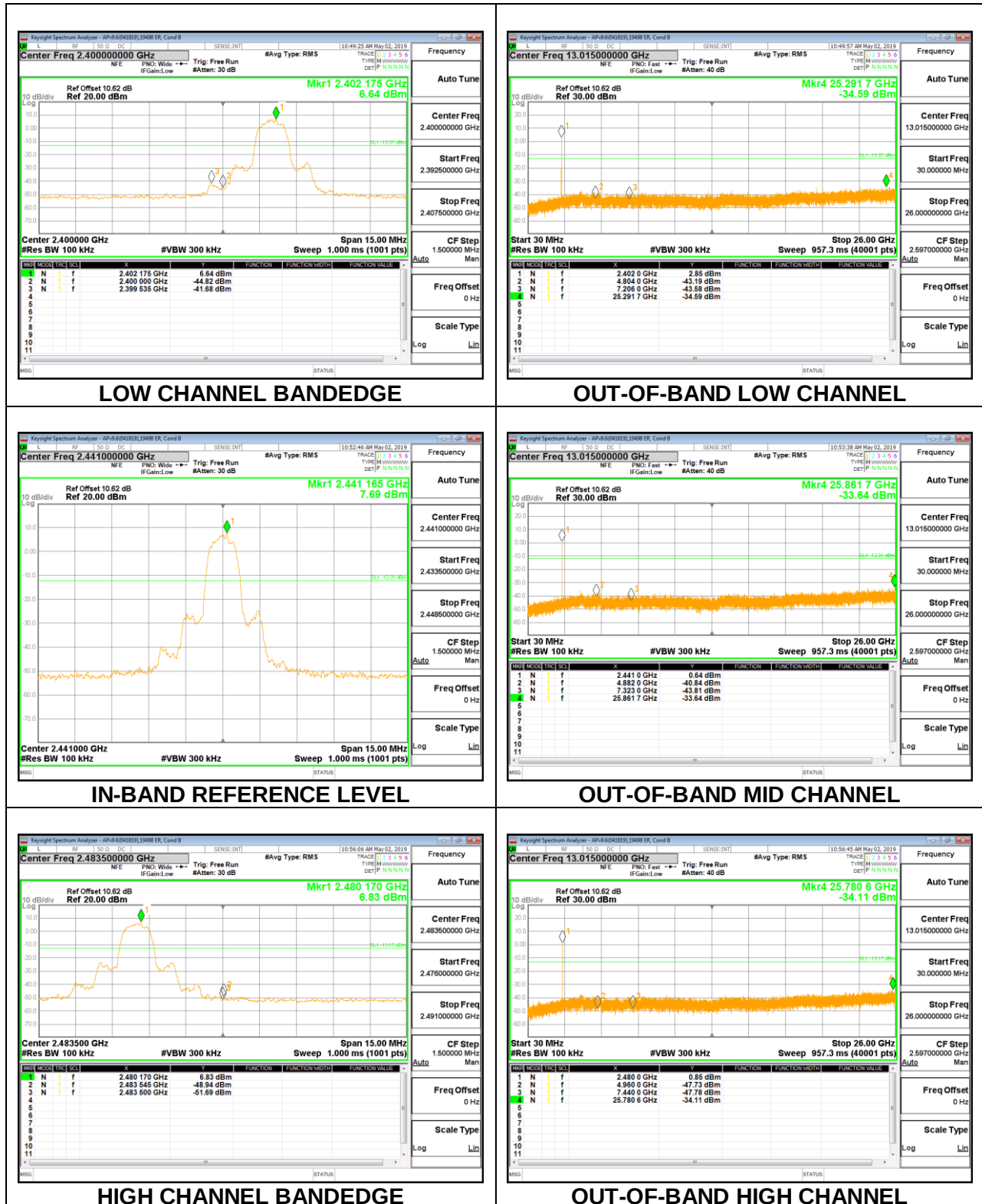


SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

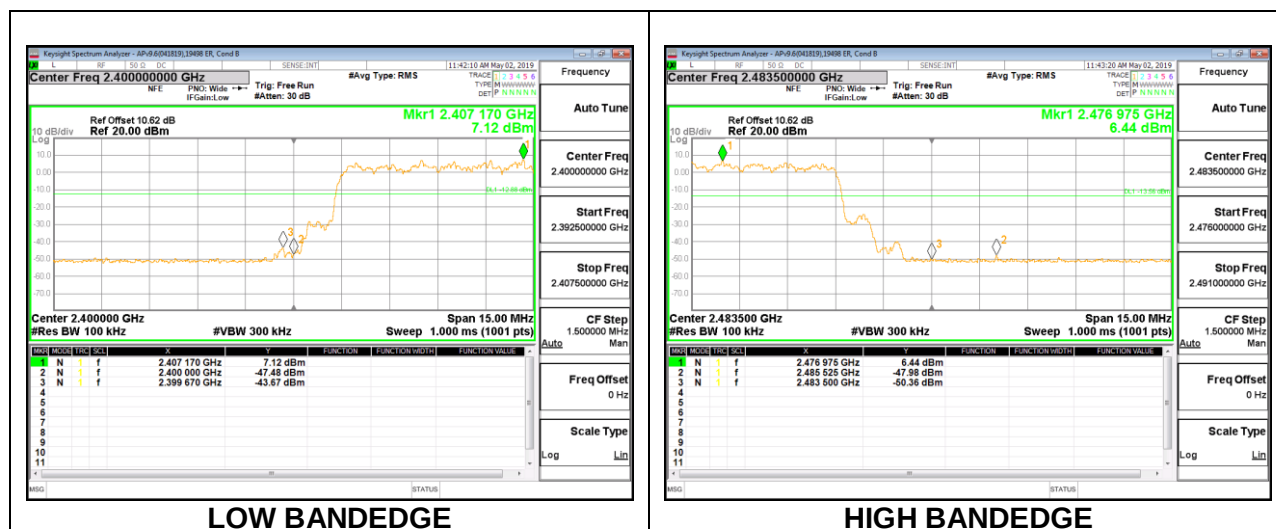


8.7.2. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

SPURIOUS EMISSIONS, NON-HOPPING



SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



9. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements.

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest output power was tested.

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.

2D antenna use - For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel), parallel and perpendicular are the worst orientations, therefore testing was performed on these two orientations only.

KDB 414788 Open Field Site(OFS) and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

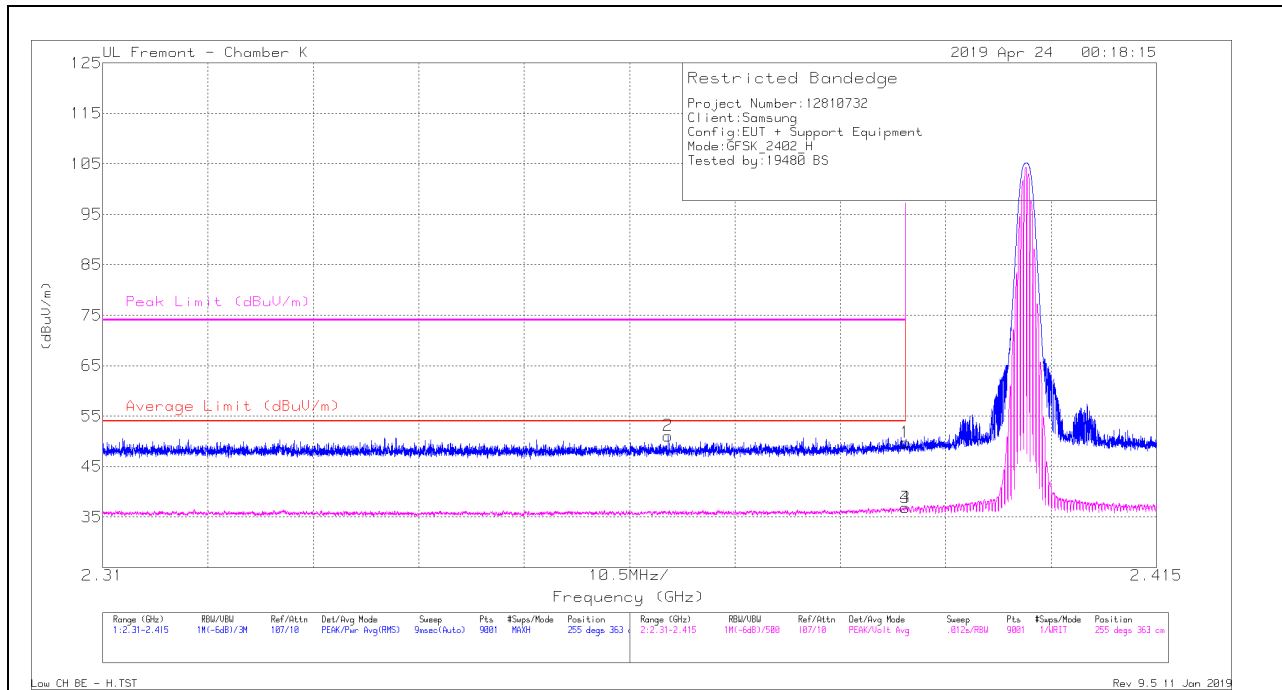
OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

9.1. TRANSMITTER ABOVE 1 GHz

9.1.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Trace Markers

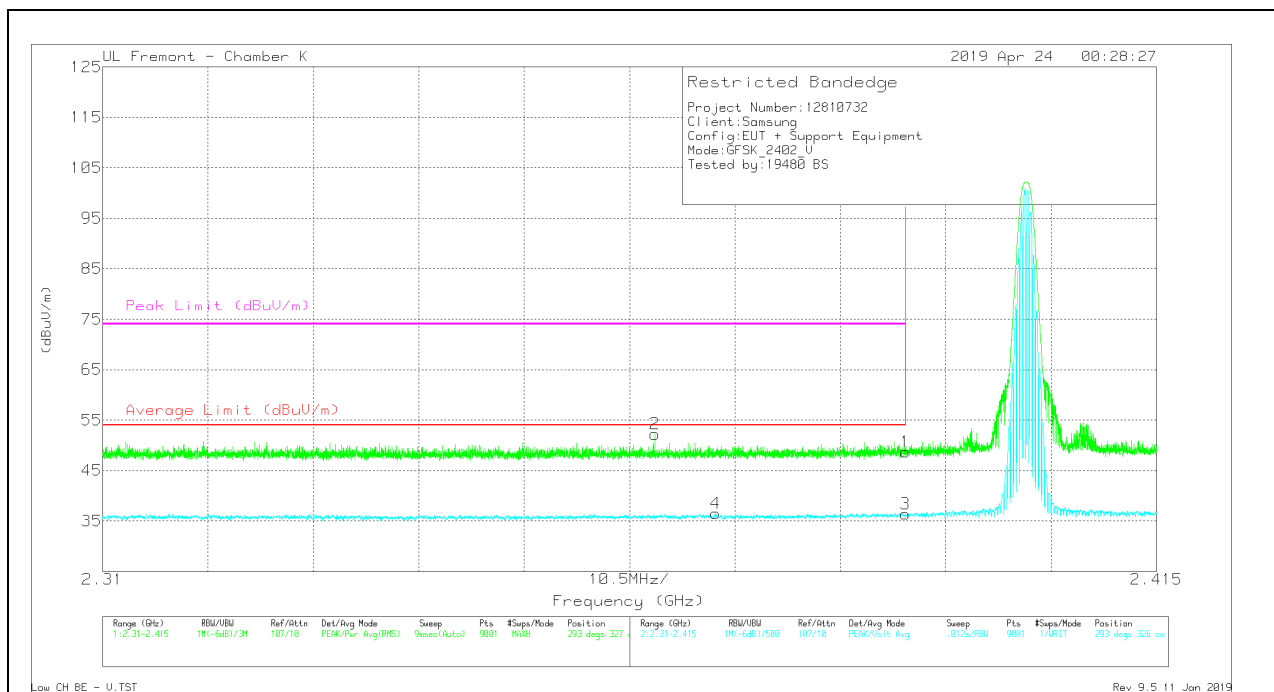
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	42.59	Pk	31.9	-24.7	49.79	-	-	74	-24.21	255	363	H
2	* 2.366	43.9	Pk	31.8	-24.6	51.1	-	-	74	-22.9	255	363	H
3	* 2.39	29.69	VA1T	31.9	-24.7	36.89	54	-17.11	-	-	255	363	H
4	* 2.39	29.73	VA1T	31.9	-24.7	36.93	54	-17.07	-	-	255	363	H

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

Pk - Peak detector

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

VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/Pad (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	41.52	Pk	31.9	-24.7	48.72	-	-	74	-25.28	293	327	V
2	* 2.365	45.02	Pk	31.8	-24.6	52.22	-	-	74	-21.78	293	327	V
3	* 2.39	29.19	VA1T	31.9	-24.7	36.39	54	-17.61	-	-	293	326	V
4	* 2.371	29.36	VA1T	31.8	-24.6	36.56	54	-17.44	-	-	293	326	V

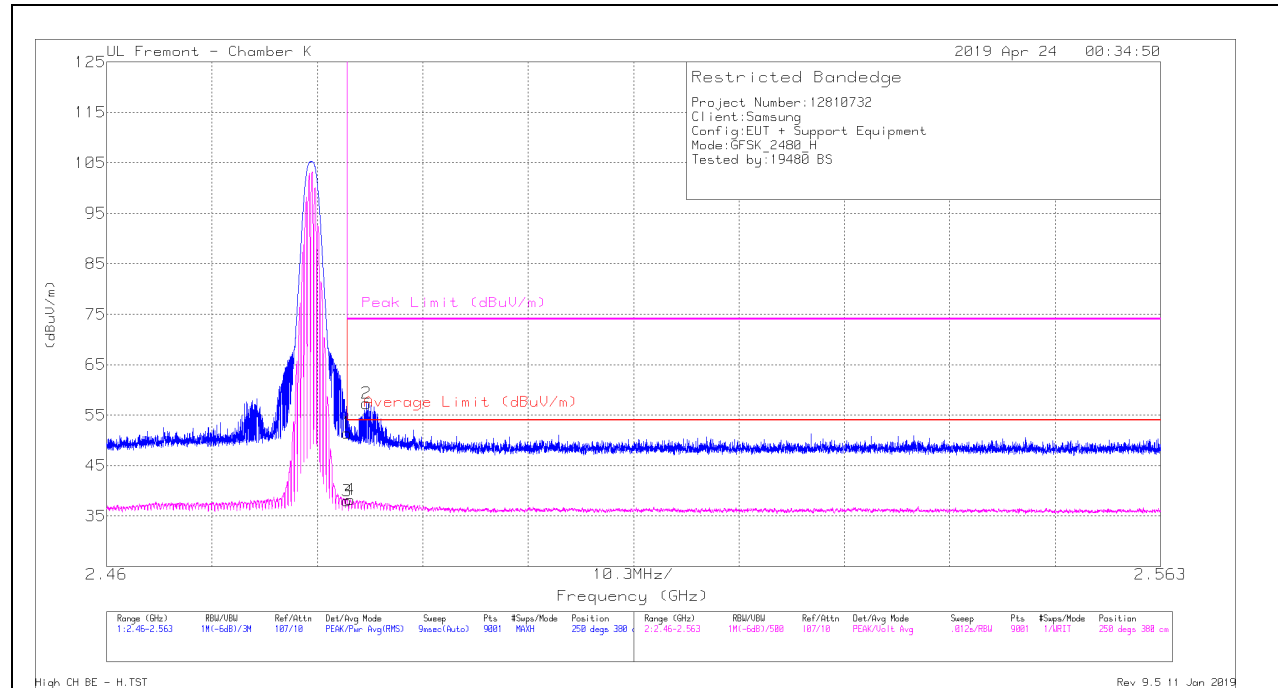
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

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

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Trace Markers

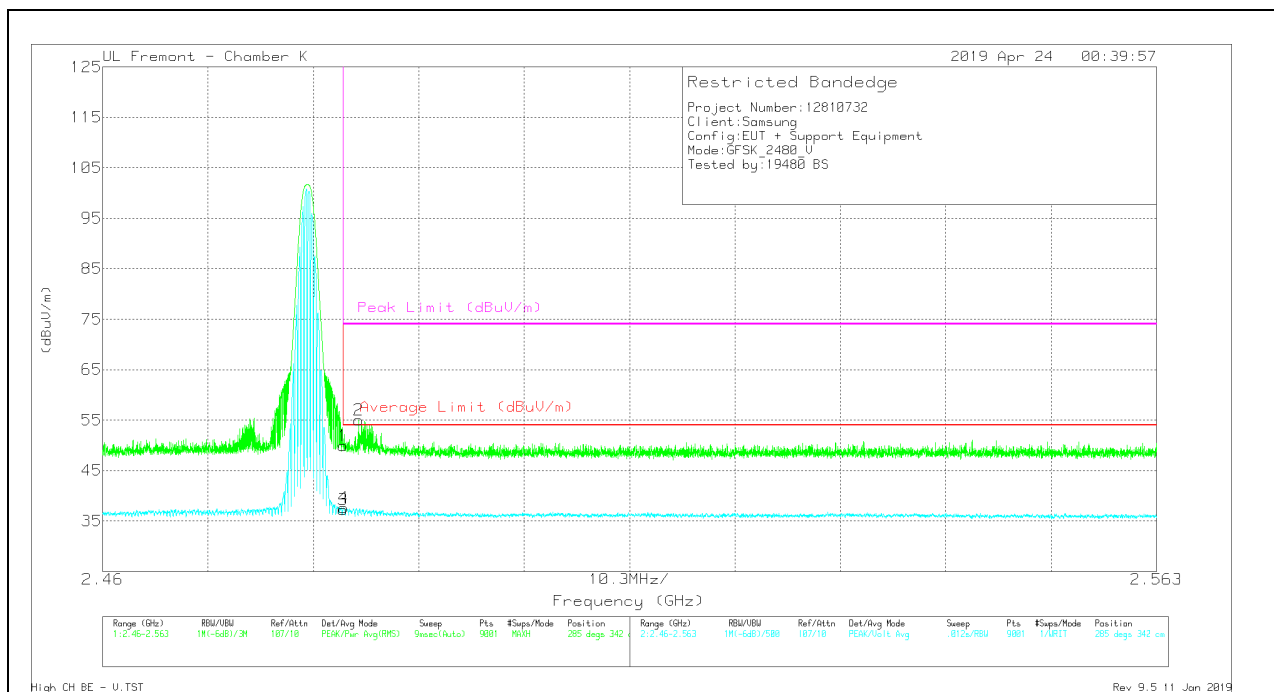
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	43.97	Pk	32.3	-24.8	51.47	-	-	74	-22.53	250	380	H
2	* 2.485	49.81	Pk	32.3	-24.8	57.31	-	-	74	-16.69	250	380	H
3	* 2.484	30.45	VA1T	32.3	-24.8	37.95	54	-16.05	-	-	250	380	H
4	* 2.484	30.73	VA1T	32.3	-24.8	38.23	54	-15.77	-	-	250	380	H

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

Pk - Peak detector

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

VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	42.45	Pk	32.3	-24.8	49.95	-	-	74	-24.05	285	342	V
2	* 2.485	47.55	Pk	32.3	-24.8	55.05	-	-	74	-18.95	285	342	V
3	* 2.484	29.81	VA1T	32.3	-24.8	37.31	54	-16.69	-	-	285	342	V
4	* 2.484	30.18	VA1T	32.3	-24.8	37.68	54	-16.32	-	-	285	342	V

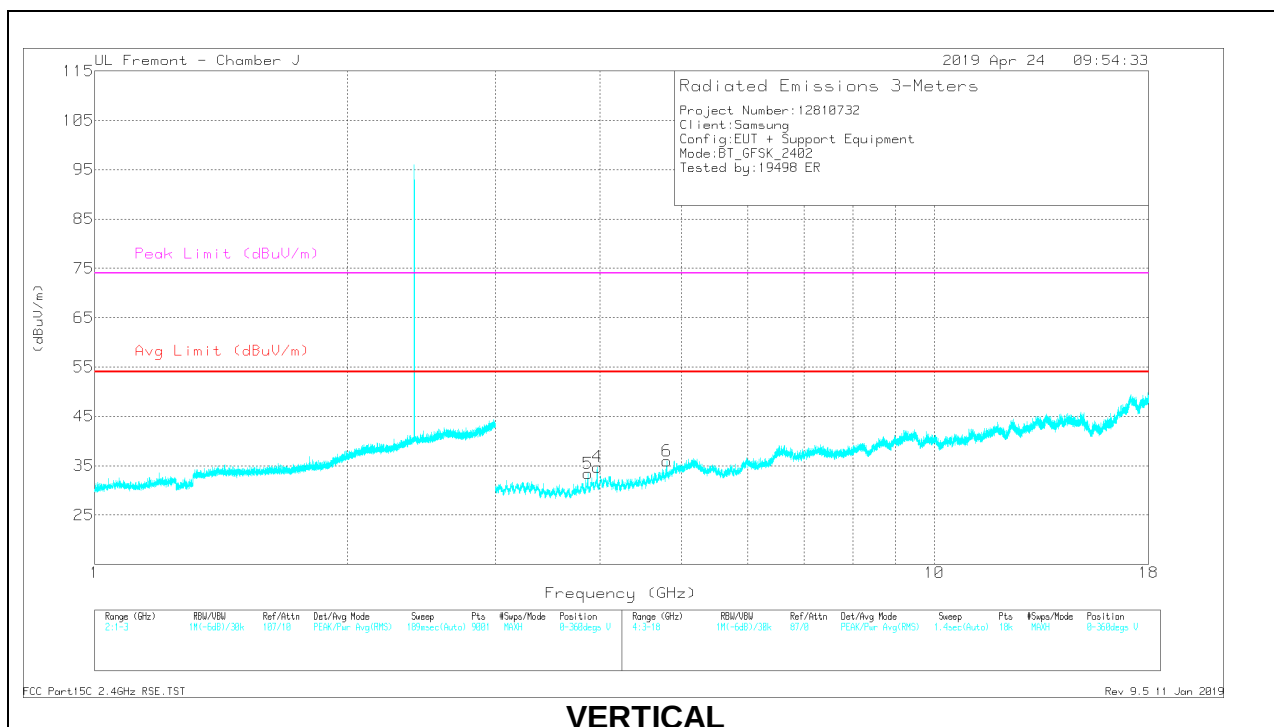
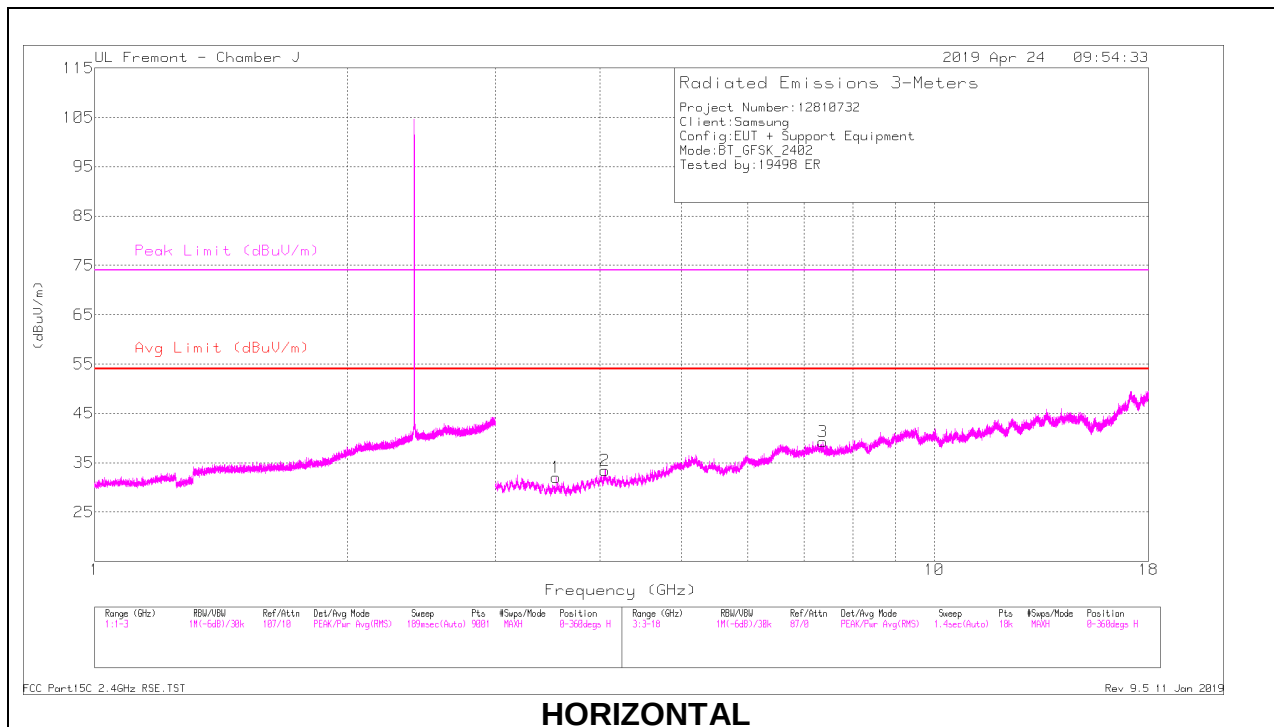
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

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

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

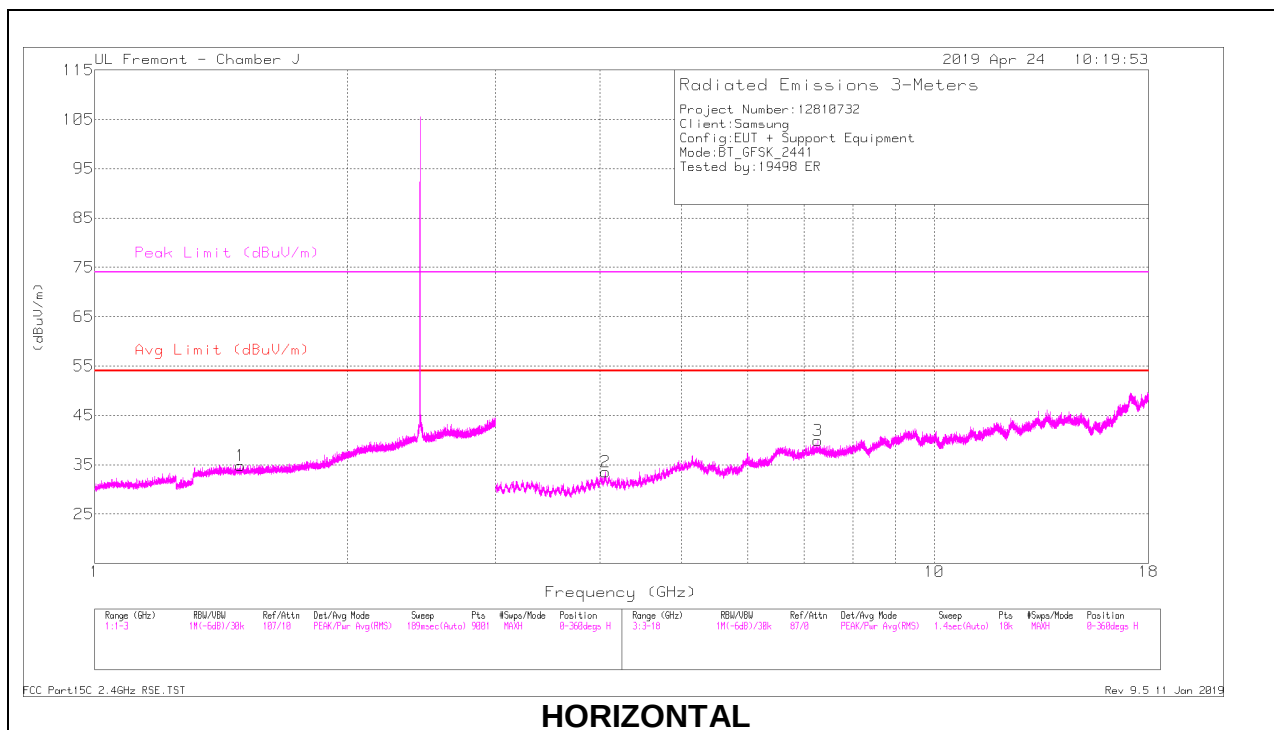
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0189055 (dB/m)	Amp/Cbl/Filt/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.546	41.22	PKFH	30.3	-33.5	38.02	-	-	74	-35.98	161	154	H
	* 3.545	28.52	VA1T	30.3	-33.5	25.32	54	-28.68	-	-	161	154	H
2	* 4.052	39.42	PKFH	32.3	-32.1	39.62	-	-	74	-34.38	280	131	H
	* 4.052	27.64	VA1T	32.3	-32.1	27.84	54	-26.16	-	-	280	131	H
3	* 7.365	36.18	PKFH	38	-27.6	46.58	-	-	74	-27.42	184	147	H
	* 7.368	23.35	VA1T	37.9	-27.6	33.65	54	-20.35	-	-	184	147	H
4	* 3.967	41.04	PKFH	32.3	-32.5	40.84	-	-	74	-33.16	64	113	V
	* 3.968	27.43	VA1T	32.3	-32.5	27.23	54	-26.77	-	-	64	113	V
5	* 3.865	40.89	PKFH	31.6	-32.4	40.09	-	-	74	-33.91	139	104	V
	* 3.868	27.43	VA1T	31.7	-32.4	26.73	54	-27.27	-	-	139	104	V
6	* 4.801	39.82	PKFH	33.9	-31.3	42.42	-	-	74	-31.58	286	103	V
	* 4.801	28.96	VA1T	33.9	-31.3	31.56	54	-22.44	-	-	286	103	V

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

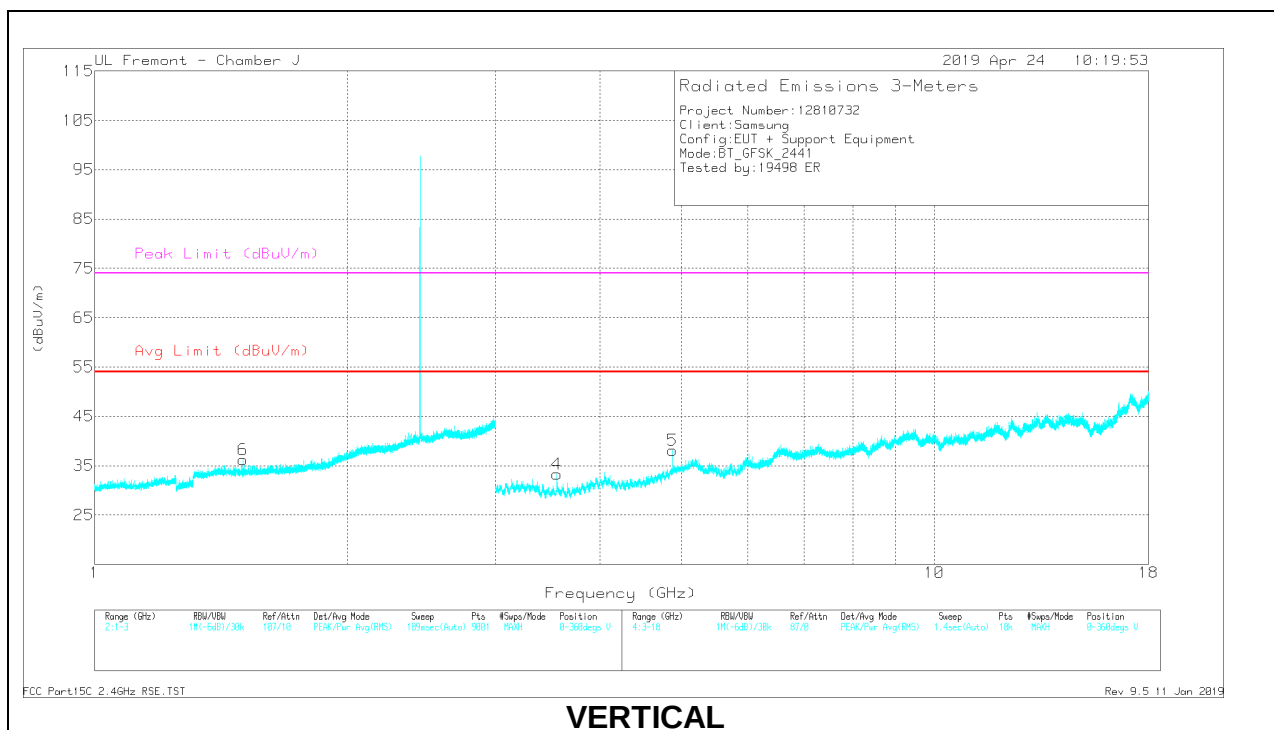
PKFH FHSS/BT RB=100k for Frequencies<1GHz / RB=1MHz for Frequencies>1GHz, VB=3 x RB, Peak

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

MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

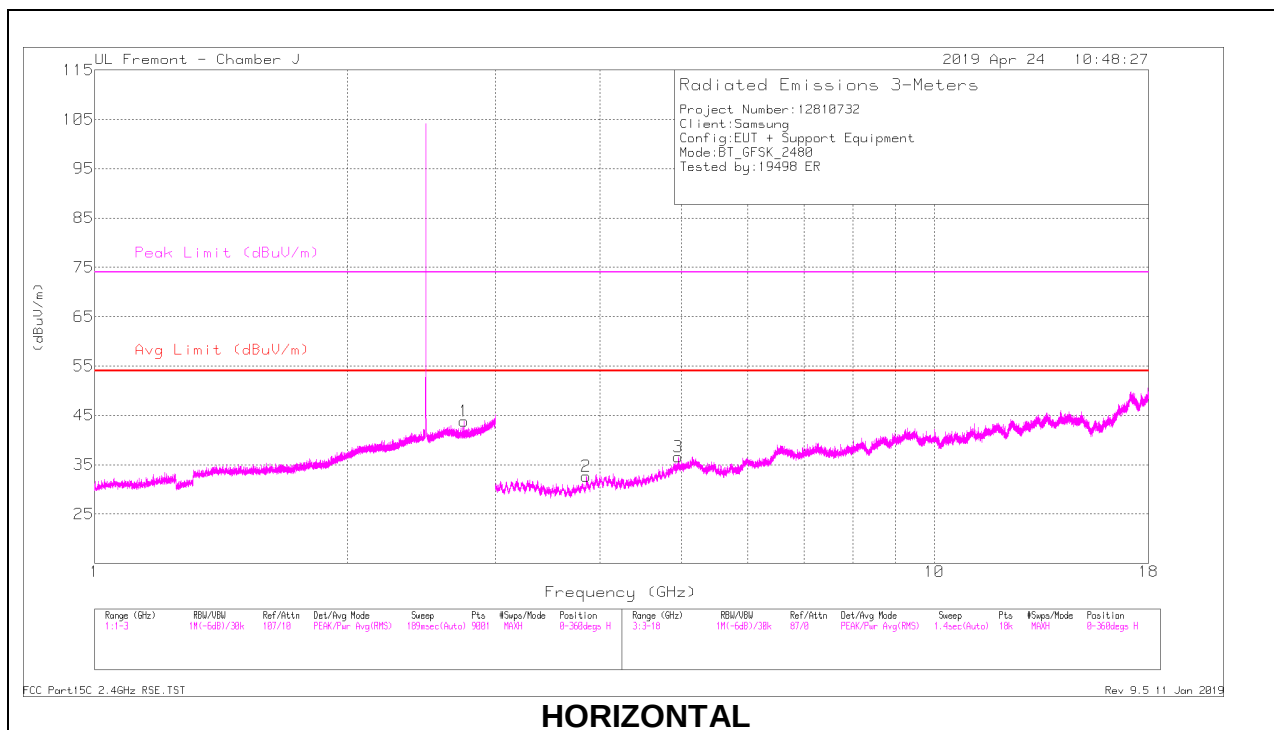
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0189055 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.493	34.49	PKFH	25	-17.3	42.19	-	-	74	-31.81	227	110	H
	* 1.49	21.62	VA1T	25	-17.3	29.32	54	-24.68	-	-	227	110	H
6	* 1.504	34.76	PKFH	25	-17.2	42.56	-	-	74	-31.44	62	154	V
	* 1.503	21.55	VA1T	25	-17.2	29.35	54	-24.65	-	-	62	154	V
2	* 4.061	40.25	PKFH	32.3	-32	40.55	-	-	74	-33.45	213	145	H
	* 4.062	27.53	VA1T	32.3	-31.9	27.93	54	-26.07	-	-	213	145	H
3	* 7.27	35.78	PKFH	38.2	-27.4	46.58	-	-	74	-27.42	37	318	H
	* 7.271	23.25	VA1T	38.2	-27.4	34.05	54	-19.95	-	-	37	318	H
4	* 3.554	41.45	PKFH	30.3	-33.4	38.35	-	-	74	-35.65	94	191	V
	* 3.555	28.82	VA1T	30.3	-33.4	25.72	54	-28.28	-	-	94	191	V
5	* 4.882	41.57	PKFH	34.4	-31.4	44.57	-	-	74	-29.43	303	108	V
	* 4.882	32.31	VA1T	34.4	-31.4	35.31	54	-18.69	-	-	303	108	V

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

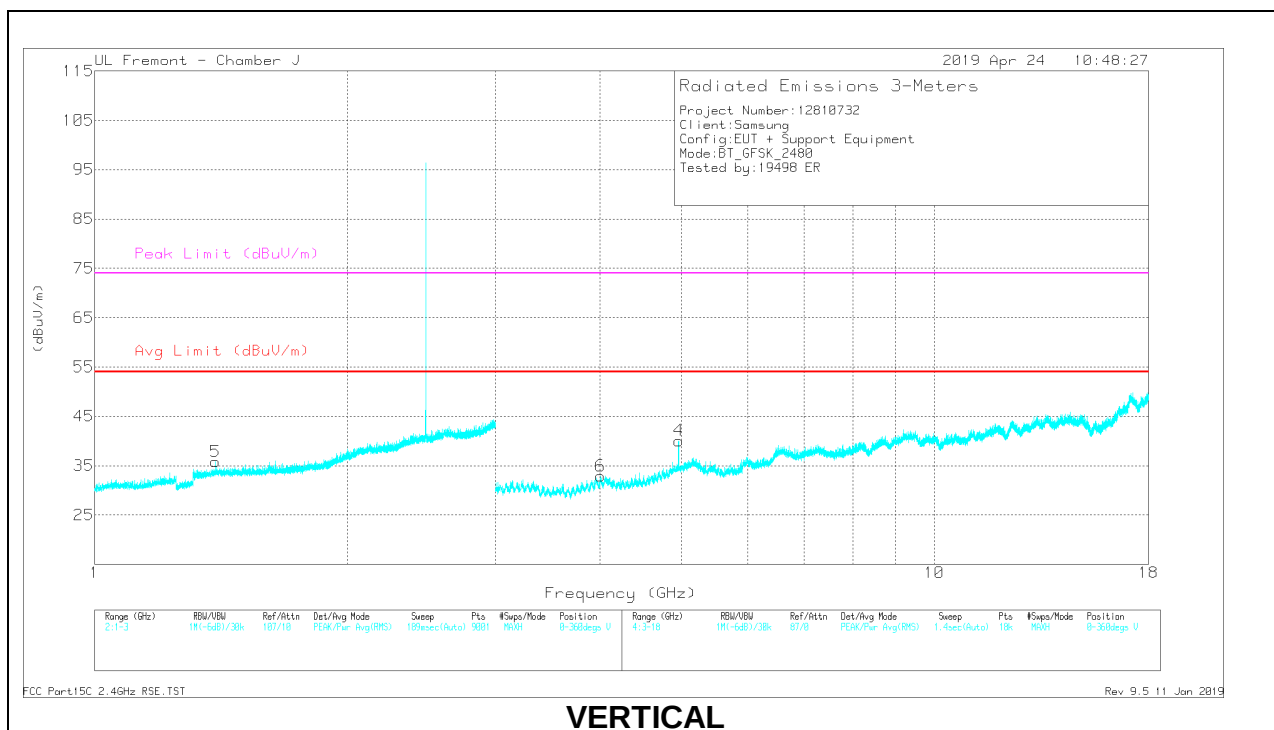
PKFH FHSS/BT RB=100k for Frequencies<1GHz / RB=1MHz for Frequencies>1GHz, VB=3 x RB, Peak

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

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0189055 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degr)	Height (cm)	Polarity
1	* 2.752	33.65	PKFH	29.4	-14.1	48.95	-	-	74	-25.05	267	132	H
	* 2.752	21.4	VA1T	29.4	-14.1	36.7	54	-17.3	-	-	267	132	H
5	* 1.391	35.58	PKFH	25.2	-17.5	43.28	-	-	74	-30.72	16	161	V
	* 1.393	21.87	VA1T	25.2	-17.5	29.57	54	-24.43	-	-	16	161	V
2	* 3.854	40.92	PKFH	31.5	-32.5	39.92	-	-	74	-34.08	124	181	H
	* 3.853	27.79	VA1T	31.5	-32.5	26.79	54	-27.21	-	-	124	181	H
3	* 4.96	39.63	PKFH	34.8	-30.4	44.03	-	-	74	-29.97	252	104	H
	* 4.96	29.56	VA1T	34.8	-30.4	33.96	54	-20.04	-	-	252	104	H
4	* 4.96	41.63	PKFH	34.8	-30.4	46.03	-	-	74	-27.97	326	107	V
	* 4.96	33.9	VA1T	34.8	-30.4	38.3	54	-15.7	-	-	326	107	V
6	* 4.008	40.82	PKFH	32.3	-32.4	40.72	-	-	74	-33.28	218	151	V
	* 4.008	27.95	VA1T	32.3	-32.4	27.85	54	-26.15	-	-	218	151	V

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

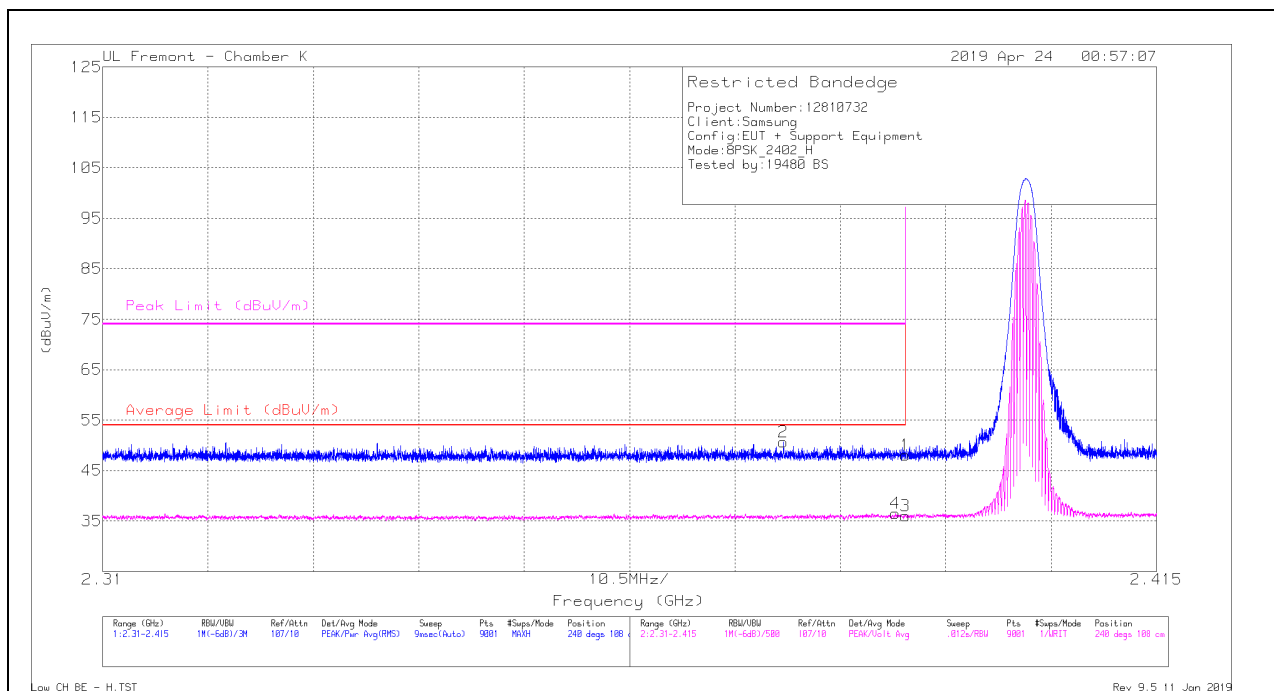
PKFH FHSS/BT RB=100k for Frequencies<1GHz / RB=1MHz for Frequencies>1GHz, VB=3 x RB, Peak

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

9.1.2. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Trace Markers

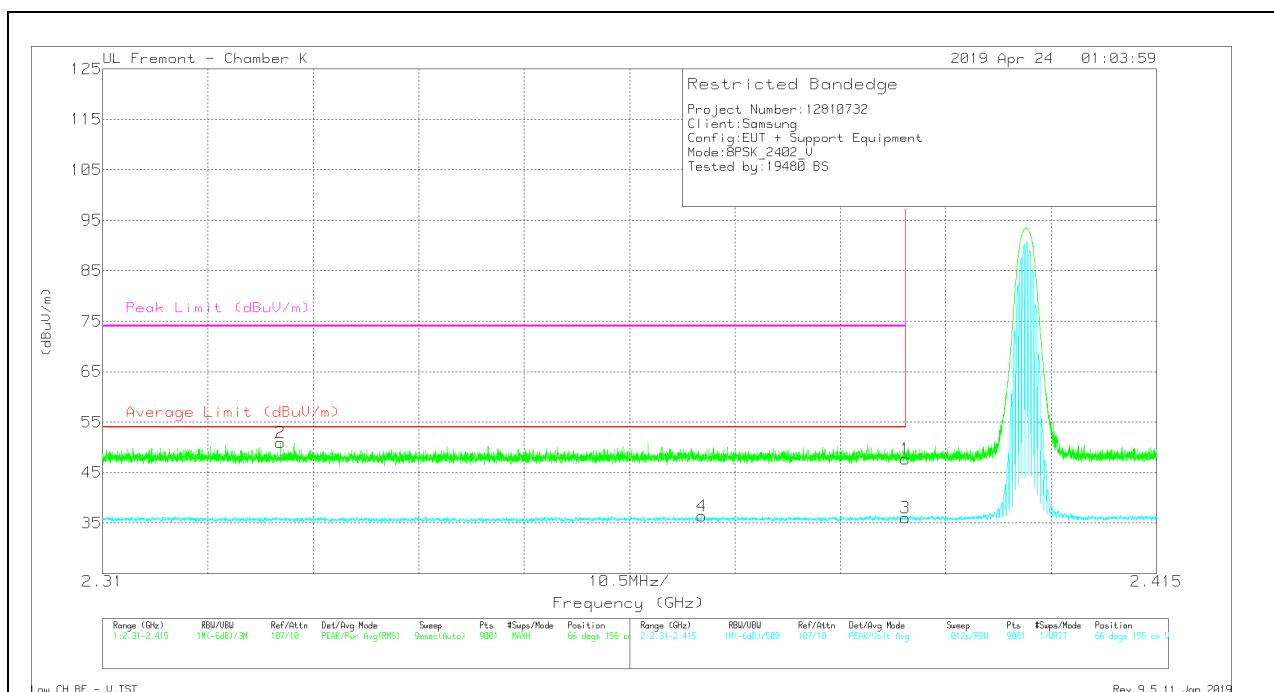
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.81	Pk	31.9	-24.7	48.01	-	-	74	-25.99	240	108	H
2	* 2.378	43.62	Pk	31.8	-24.7	50.72	-	-	74	-23.28	240	108	H
3	* 2.39	28.81	VA1T	31.9	-24.7	36.01	54	-17.99	-	-	240	108	H
4	* 2.389	29.27	VA1T	31.9	-24.7	36.47	54	-17.53	-	-	240	108	H

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

Pk - Peak detector

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

VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filt/Pad (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	40.45	Pk	31.9	-24.7	47.65	-	-	74	-26.35	66	156	V
2	* 2.328	43.86	Pk	31.7	-24.6	50.96	-	-	74	-23.04	66	156	V
3	* 2.39	28.81	VA1T	31.9	-24.7	36.01	54	-17.99	-	-	66	155	V
4	* 2.37	29.22	VA1T	31.8	-24.6	36.42	54	-17.58	-	-	66	155	V

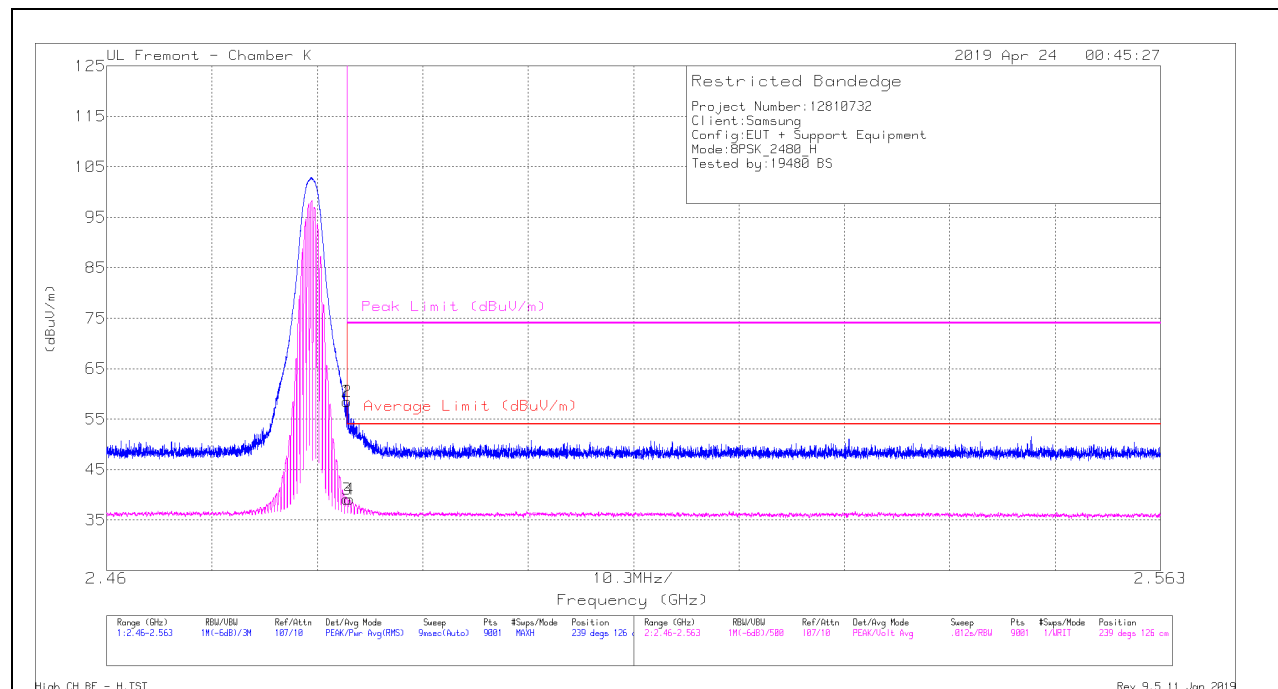
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

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

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Trace Markers

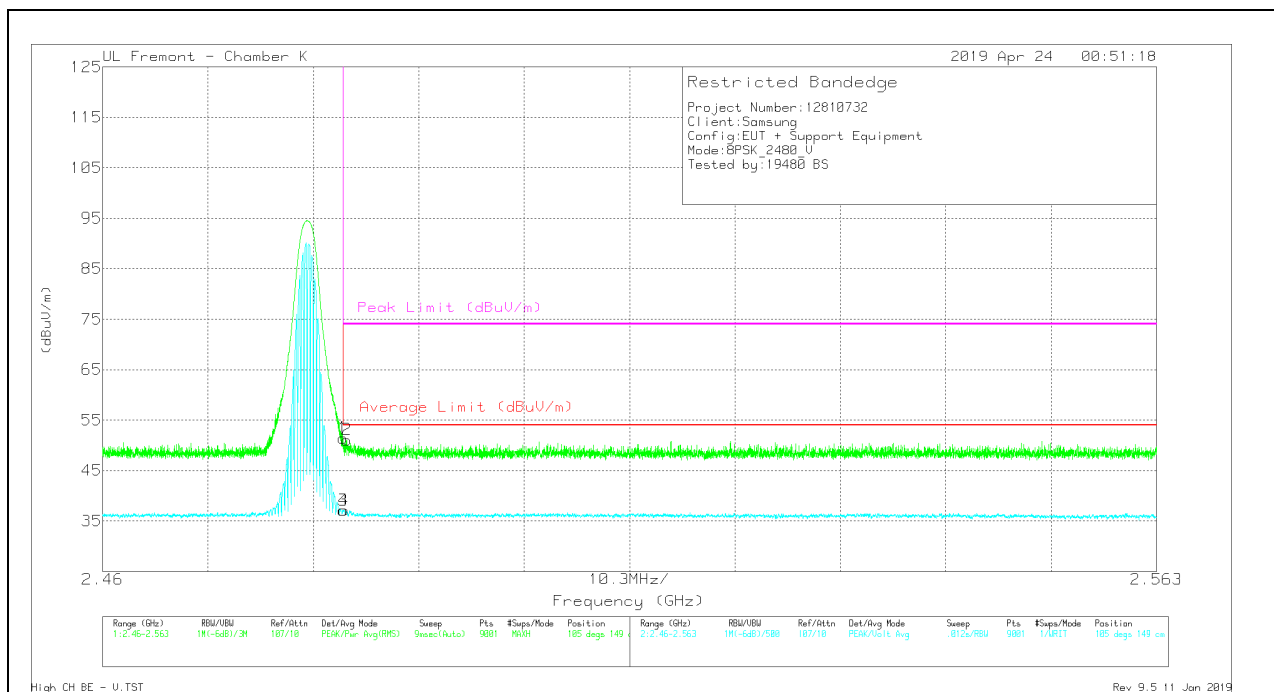
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	50.94	Pk	32.3	-24.8	58.44	-	-	74	-15.56	239	126	H
2	* 2.484	51.03	Pk	32.3	-24.8	58.53	-	-	74	-15.47	239	126	H
3	* 2.484	31.6	VA1T	32.3	-24.8	39.1	54	-14.9	-	-	239	126	H
4	* 2.484	31.63	VA1T	32.3	-24.8	39.13	54	-14.87	-	-	239	126	H

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

Pk - Peak detector

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

VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fitr/Pad (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	43.97	Pk	32.3	-24.8	51.47	-	-	74	-22.53	105	149	V
2	* 2.484	43.6	Pk	32.3	-24.8	51.1	-	-	74	-22.9	105	149	V
3	* 2.484	29.6	VA1T	32.3	-24.8	37.1	54	-16.9	-	-	105	149	V
4	* 2.484	29.67	VA1T	32.3	-24.8	37.17	54	-16.83	-	-	105	149	V

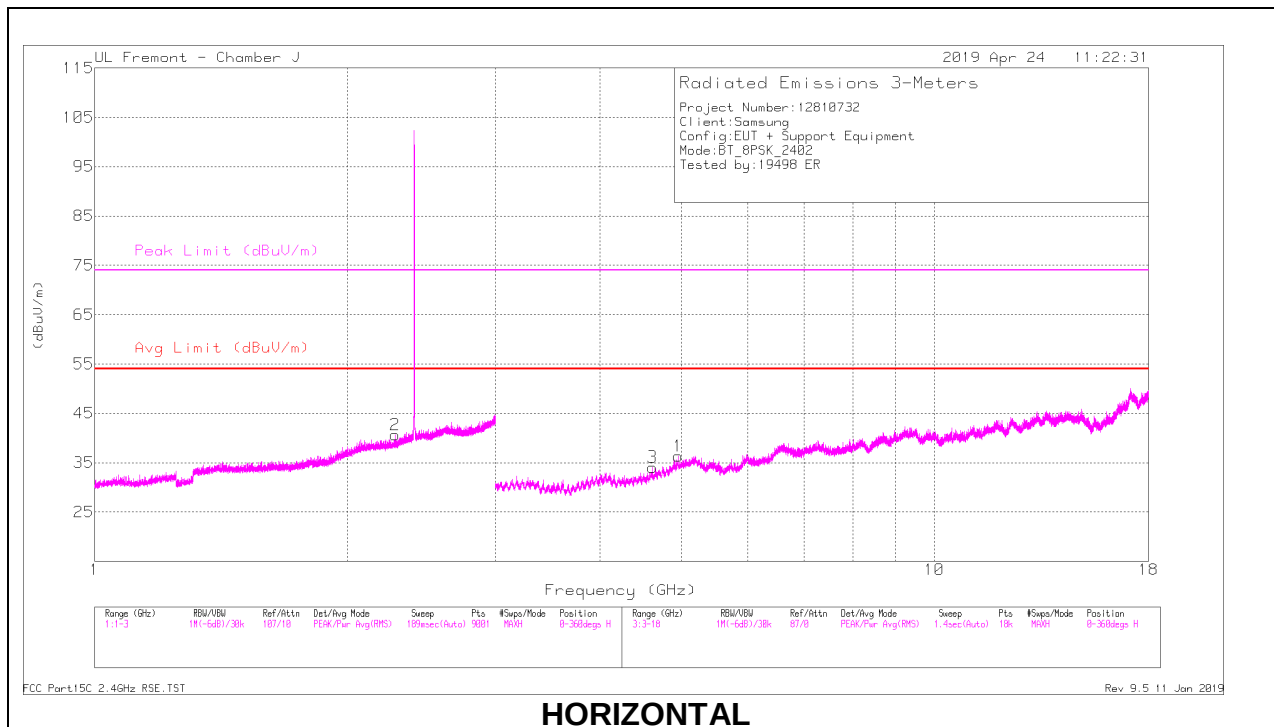
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

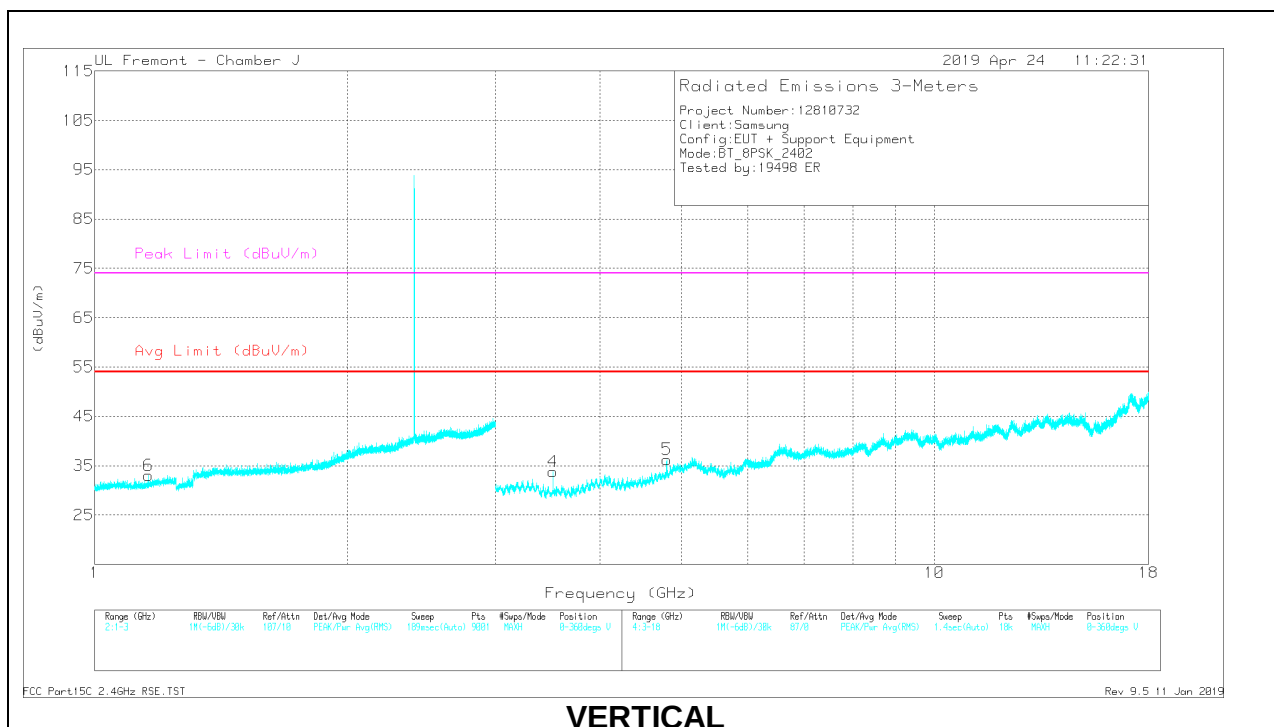
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

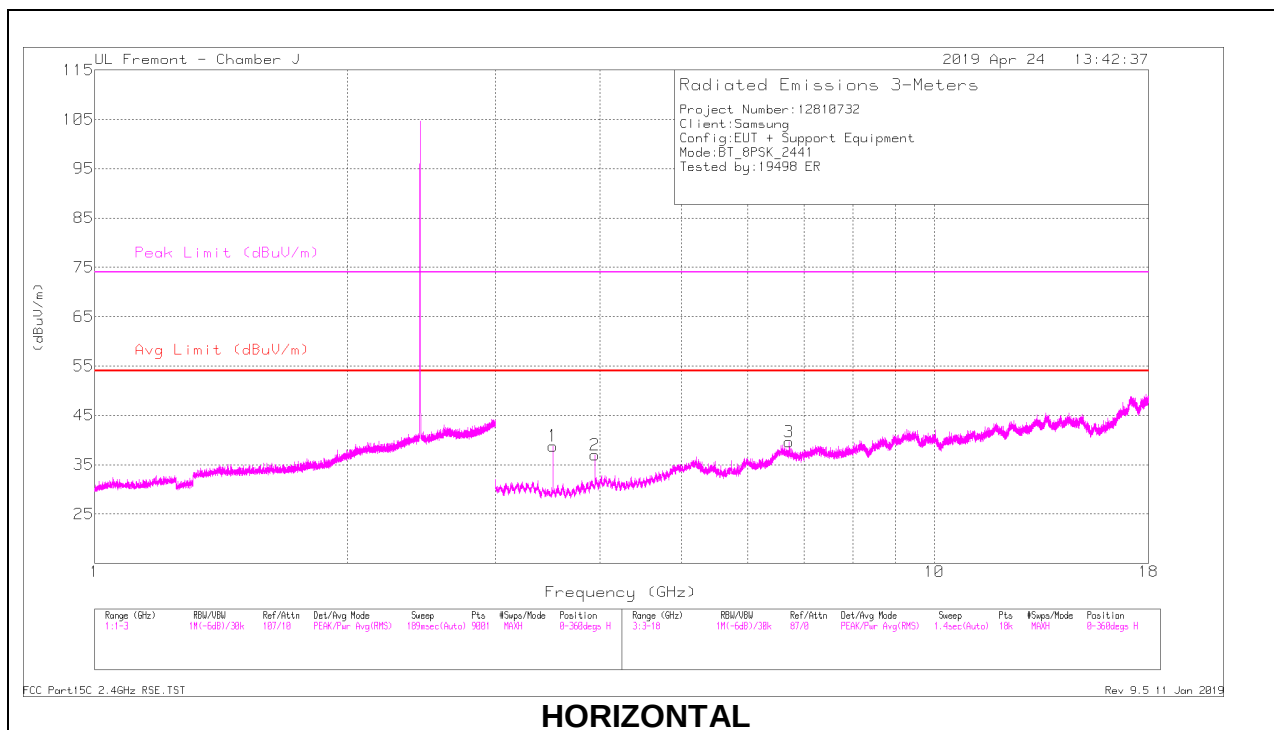
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0189055 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.278	32.33	PKFH	28.5	-15.2	45.63	-	-	74	-28.37	224	122	H
	* 2.279	21.03	VA1T	28.5	-15.2	34.33	54	-19.67	-	-	224	122	H
6	* 1.16	33.97	PKFH	23.8	-18.2	39.57	-	-	74	-34.43	124	167	V
	* 1.158	21.4	VA1T	23.8	-18.2	27	54	-27	-	-	124	167	V
1	* 4.952	38.55	PKFH	34.8	-30.5	42.85	-	-	74	-31.15	113	184	H
	* 4.952	26.2	VA1T	34.8	-30.5	30.5	54	-23.5	-	-	113	184	H
3	* 4.616	39.28	PKFH	33	-31.4	40.88	-	-	74	-33.12	201	173	H
	* 4.614	26.63	VA1T	33	-31.4	28.23	54	-25.77	-	-	201	173	H
4	* 3.514	41.35	PKFH	30.4	-33.7	38.05	-	-	74	-35.95	46	137	V
	* 3.515	29.04	VA1T	30.4	-33.7	25.74	54	-28.26	-	-	46	137	V
5	* 4.804	41.26	PKFH	33.9	-31.3	43.86	-	-	74	-30.14	275	107	V
	* 4.804	30.63	VA1T	33.9	-31.3	33.23	54	-20.77	-	-	275	107	V

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

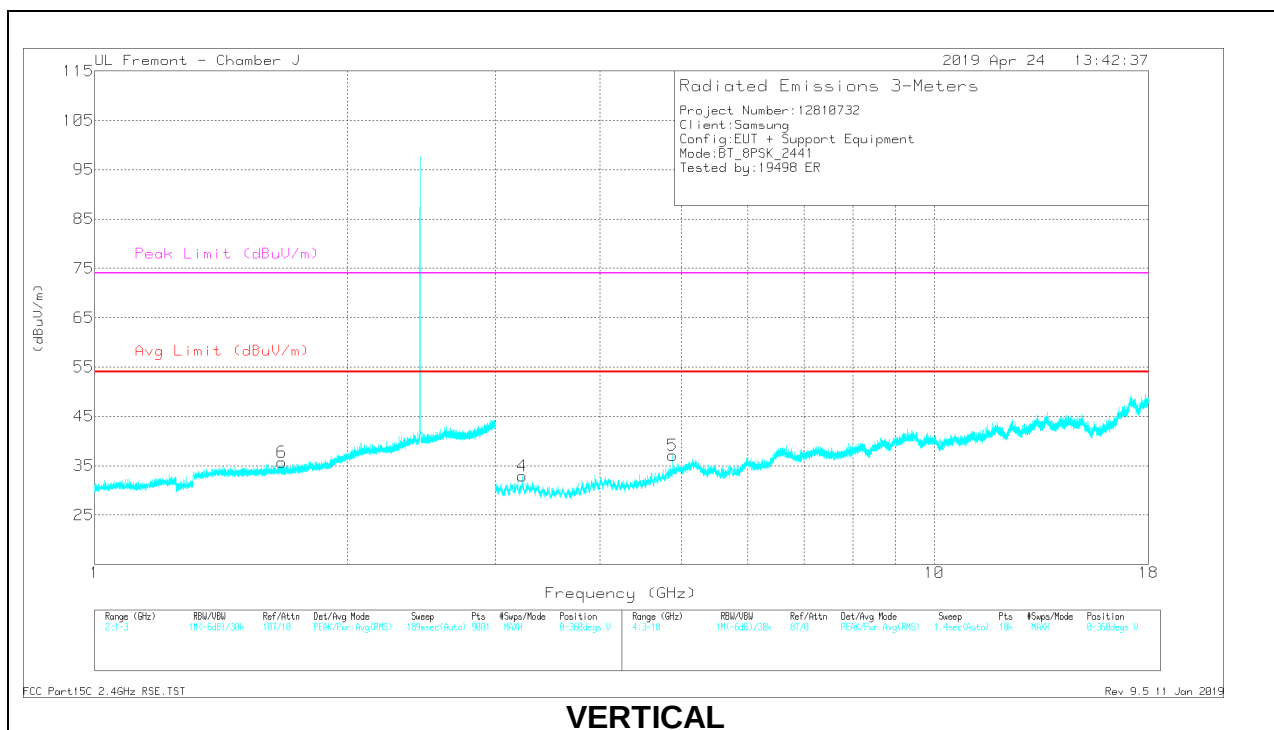
PKFH FHSS/BT RB=100k for Frequencies<1GHz / RB=1MHz for Frequencies>1GHz, VB=3 x RB, Peak

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

MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

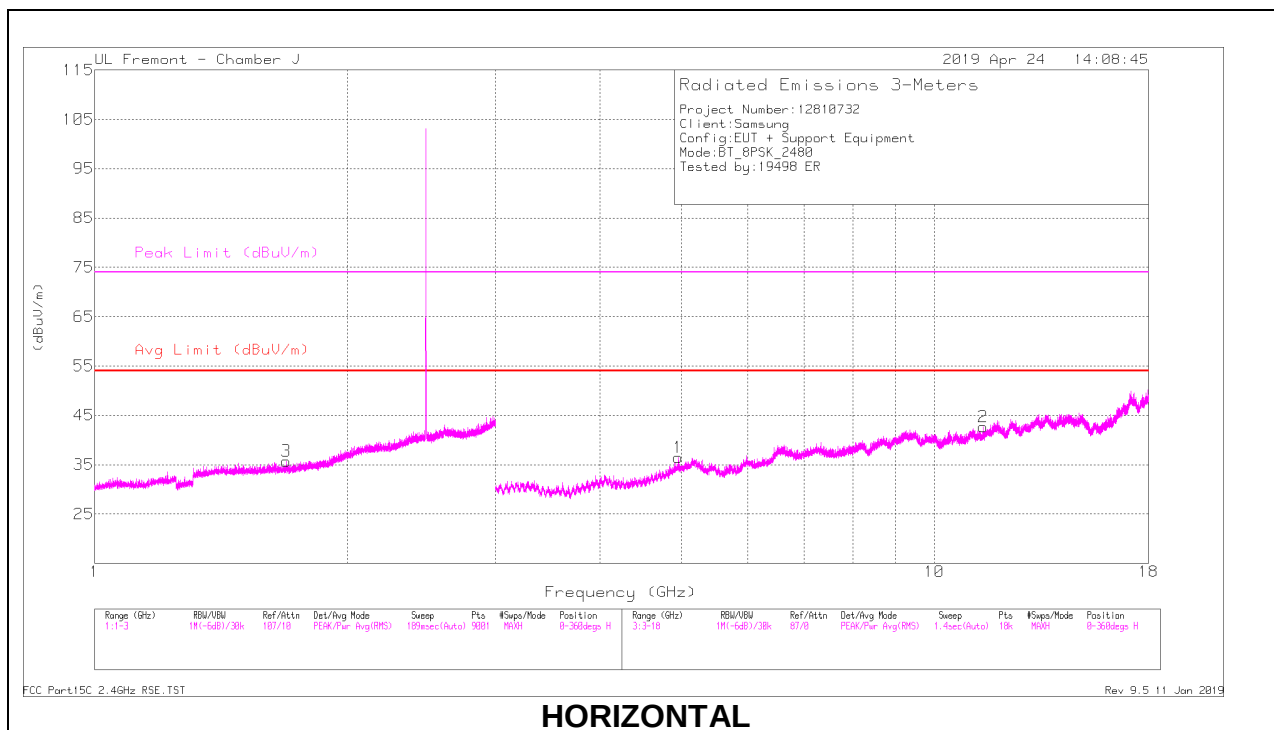
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0189055 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	* 1.671	33.41	PKFH	25.8	-16.7	42.51	-	-	74	-31.49	200	114	V
	* 1.671	20.75	VA1T	25.8	-16.7	29.85	54	-24.15	-	-	200	114	V
1	* 3.513	41.71	PKFH	30.4	-33.7	38.41	-	-	74	-35.59	114	104	H
	* 3.514	28.93	VA1T	30.4	-33.7	25.63	54	-28.37	-	-	114	104	H
2	* 3.946	39.2	PKFH	32.3	-32.5	39	-	-	74	-35	235	155	H
	* 3.947	27.11	VA1T	32.3	-32.5	26.91	54	-27.09	-	-	235	155	H
3	6.72	37.11	PKFH	37.6	-27.8	46.91	-	-	-	-	181	184	H
4	3.232	41.98	PKFH	31.7	-34.2	39.48	-	-	-	-	60	138	V
5	* 4.882	41.1	PKFH	34.4	-31.4	44.1	-	-	74	-29.9	272	113	V
	* 4.882	32.37	VA1T	34.4	-31.4	35.37	54	-18.63	-	-	272	113	V

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

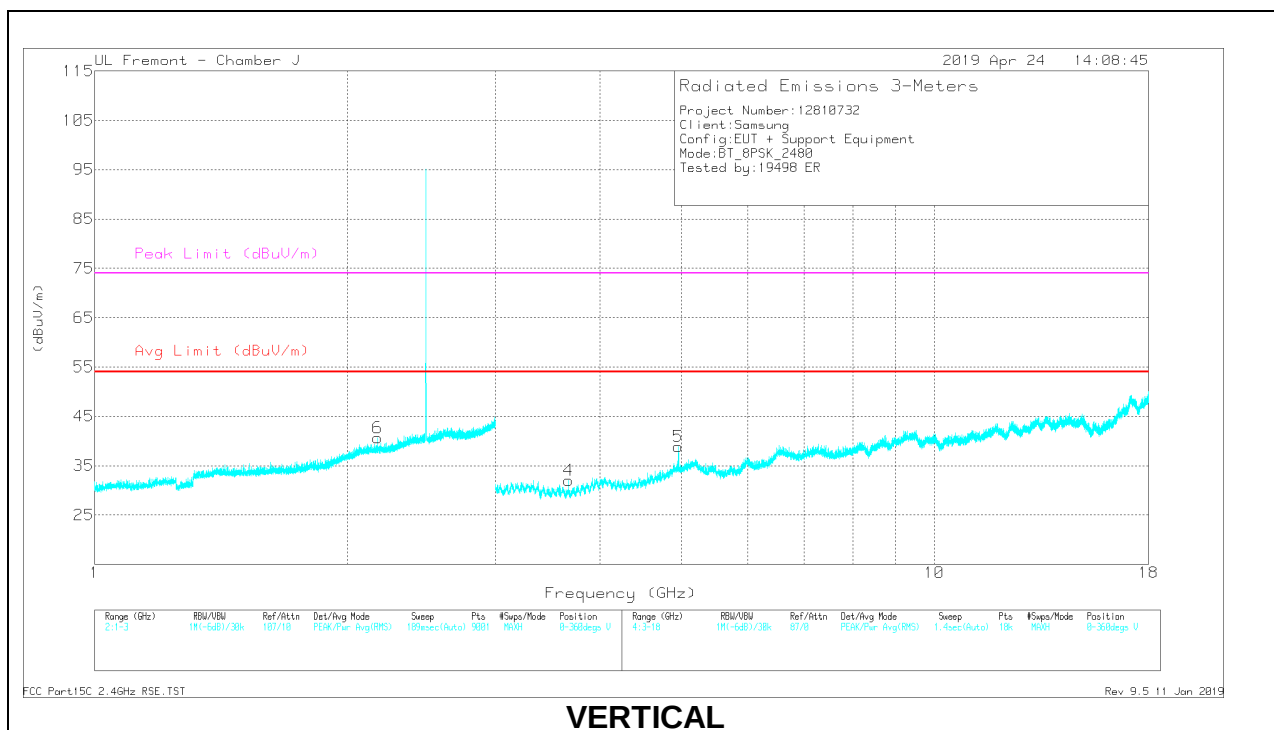
PKFH FHSS/BT RB=100k for Frequencies<1GHz / RB=1MHz for Frequencies>1GHz, VB=3 x RB, Peak

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

HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0189055 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degr)	Height (cm)	Polarity
3	* 1.69	34.36	PKFH	25.9	-16.7	43.56	-	-	74	-30.44	161	158	H
	* 1.693	20.72	VA1T	25.9	-16.7	29.92	54	-24.08	-	-	161	158	H
6	2.173	33.98	PKFH	28.3	-15.4	46.88	-	-	-	-	244	196	V
1	* 4.96	39.54	PKFH	34.8	-30.4	43.94	-	-	74	-30.06	34	110	H
	* 4.96	29.12	VA1T	34.8	-30.4	33.52	54	-20.48	-	-	34	110	H
2	* 11.441	32.58	PKFH	39.2	-23.1	48.68	-	-	74	-25.32	123	213	H
	* 11.441	20.34	VA1T	39.2	-23.1	36.44	54	-17.56	-	-	123	213	H
4	* 3.667	40.89	PKFH	30.4	-32.6	38.69	-	-	74	-35.31	152	130	V
	* 3.667	27.88	VA1T	30.4	-32.6	25.68	54	-28.32	-	-	152	130	V
5	* 4.957	40.79	PKFH	34.8	-30.5	45.09	-	-	74	-28.91	317	117	V
	* 4.957	30.71	VA1T	34.8	-30.5	35.01	54	-18.99	-	-	317	117	V

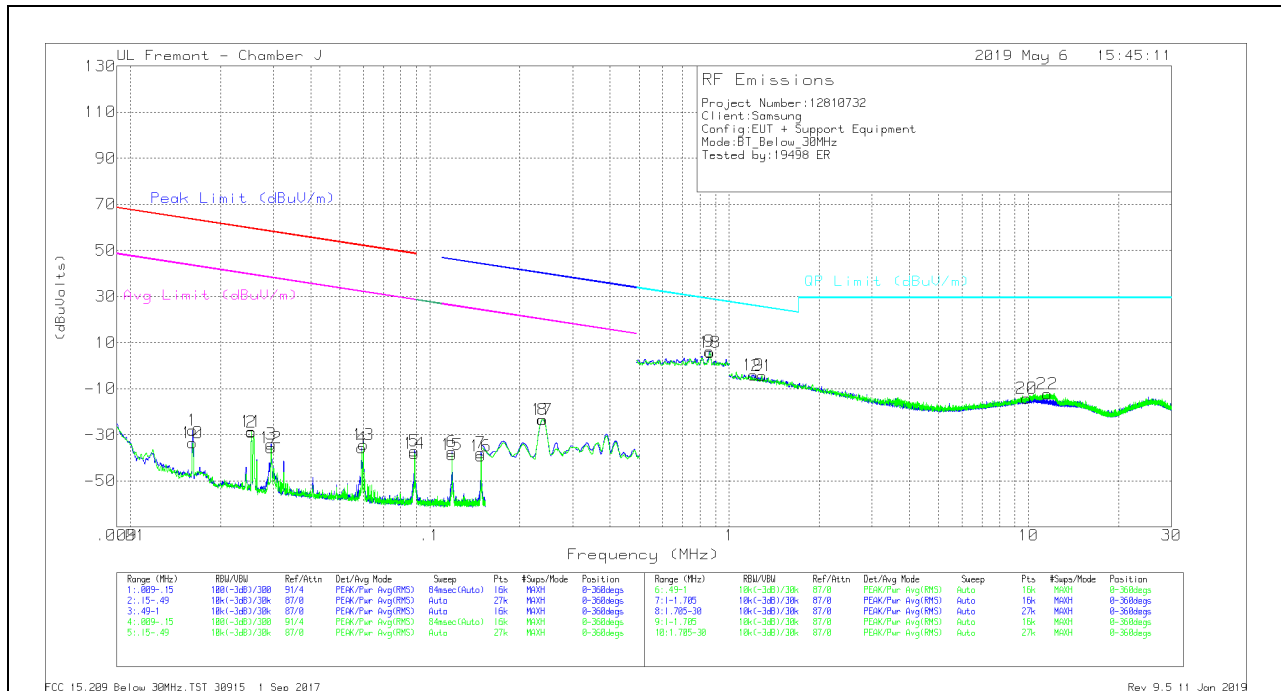
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PKFH FHSS/BT RB=100k for Frequencies<1GHz / RB=1MHz for Frequencies>1GHz, VB=3 x RB, Peak

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

9.2. WORST CASE BELOW 30MHZ

SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)



Below 30MHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (ACF)	Amp/Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.01615	21	Pk	59.5	-28.5	-80	-28	63.42	-81.42	43.42	-71.42	-	-	-	-	0-360
2	.02535	21.27	Pk	58.4	-28.5	-80	-28.83	59.5	-88.33	39.5	-68.33	-	-	-	-	0-360
3	.02951	16.47	Pk	58	-28.5	-80	-34.03	58.19	-92.22	38.19	-72.22	-	-	-	-	0-360
4	.05921	16.69	Pk	56.3	-28.6	-80	-35.61	52.14	-87.75	32.14	-67.75	-	-	-	-	0-360
5	.08894	15.8	Pk	55.8	-28.6	-80	-37	48.6	-85.6	28.6	-65.6	-	-	-	-	0-360
6	.11867	15.42	Pk	55.7	-28.5	-80	-37.38	-	-	-	-	46.14	-83.52	26.14	-63.52	0-360
7	.14833	14.77	Pk	55.9	-28.6	-80	-37.93	-	-	-	-	44.2	-82.13	24.2	-62.13	0-360
8	.23822	28.71	Pk	56.3	-28.5	-80	-23.49	-	-	-	-	40.08	-63.57	20.08	-43.57	0-360
10	.01615	15.42	Pk	59.5	-28.5	-80	-33.58	63.42	-97	43.42	-77	-	-	-	-	0-360
11	.02535	21.41	Pk	58.4	-28.5	-80	-28.69	59.5	-88.19	39.5	-68.19	-	-	-	-	0-360
12	.02951	14.89	Pk	58	-28.5	-80	-35.61	58.19	-93.8	38.19	-73.8	-	-	-	-	0-360
13	.05999	18.22	Pk	56.2	-28.6	-80	-34.18	52.02	-86.2	32.02	-66.2	-	-	-	-	0-360
14	.08891	14.66	Pk	55.8	-28.6	-80	-38.14	48.61	-86.75	28.61	-66.75	-	-	-	-	0-360
15	.11861	14.04	Pk	55.7	-28.5	-80	-38.76	-	-	-	-	46.14	-84.9	26.14	-64.9	0-360
16	.14821	13.53	Pk	55.9	-28.6	-80	-39.17	-	-	-	-	44.21	-83.38	24.21	-63.38	0-360
17	.23756	28.85	Pk	56.3	-28.5	-80	-23.35	-	-	-	-	40.1	-63.45	20.1	-43.45	0-360

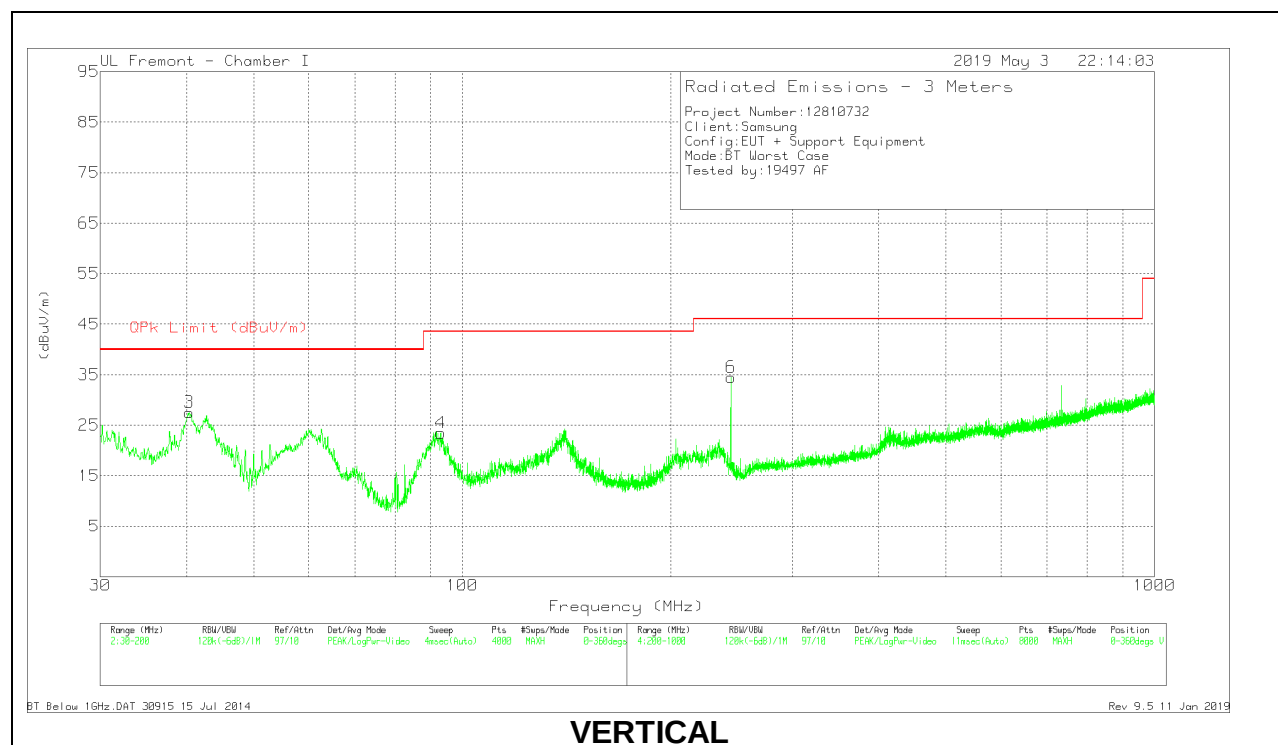
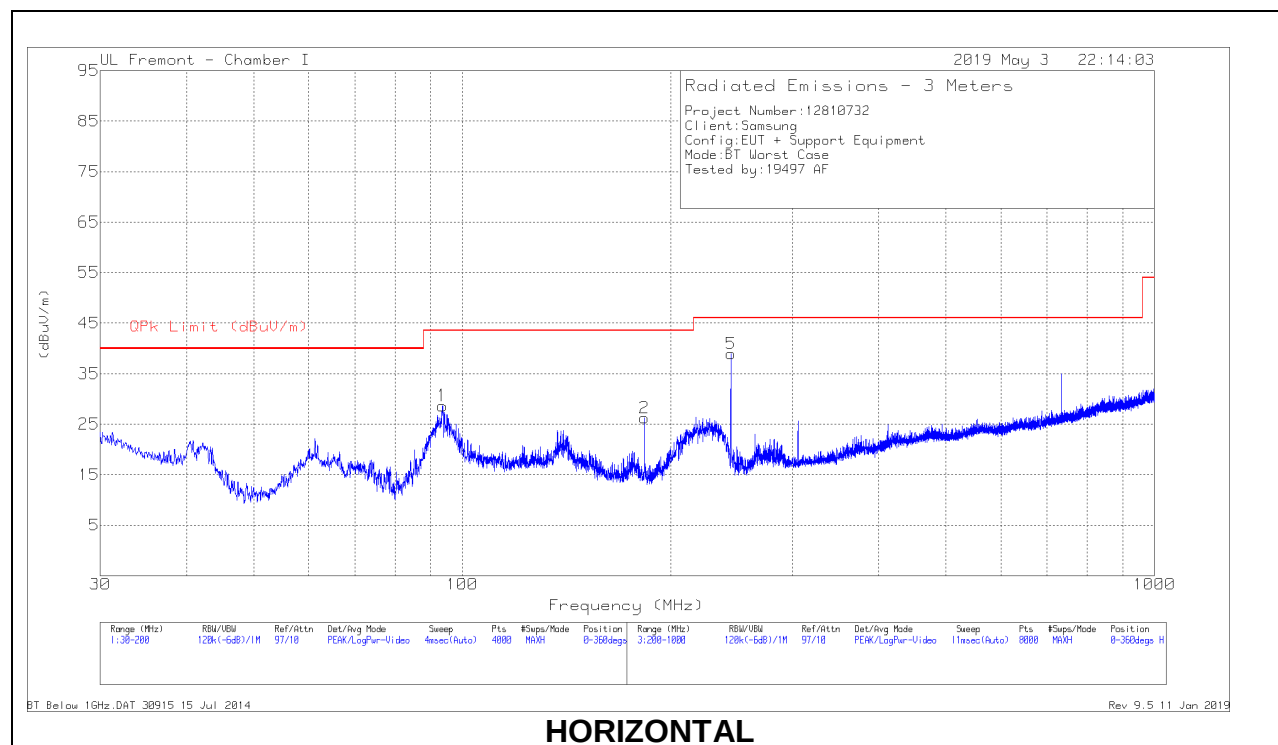
Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (ACF)	Amp/Cbl (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
9	.86029	18.22	Pk	56.3	-28.4	-40	6.12	28.92	-22.8	0-360
18	.86294	17.7	Pk	56.3	-28.4	-40	5.6	28.9	-23.3	0-360
19	1.20678	19.1	Pk	45.3	-28.4	-40	-4	25.99	-29.99	0-360
20	9.85058	19.39	Pk	34.4	-28	-40	-14.21	29.5	-43.71	0-360
21	1.2858	19.04	Pk	44.9	-28.4	-40	-4.46	25.44	-29.9	0-360
22	11.54362	21.66	Pk	34.1	-28	-40	-12.24	29.5	-41.74	0-360

Pk - Peak detector

9.3. WORST CASE BELOW 1 GHZ

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



Below 1GHz Data

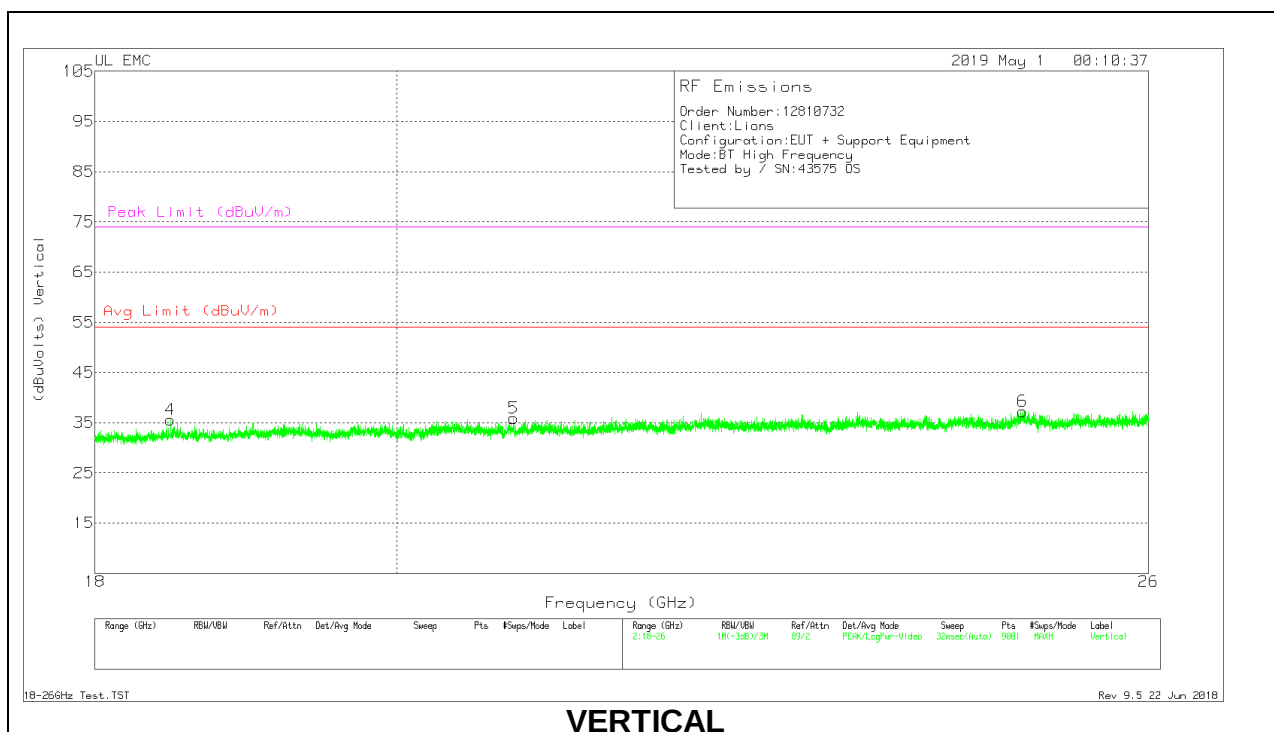
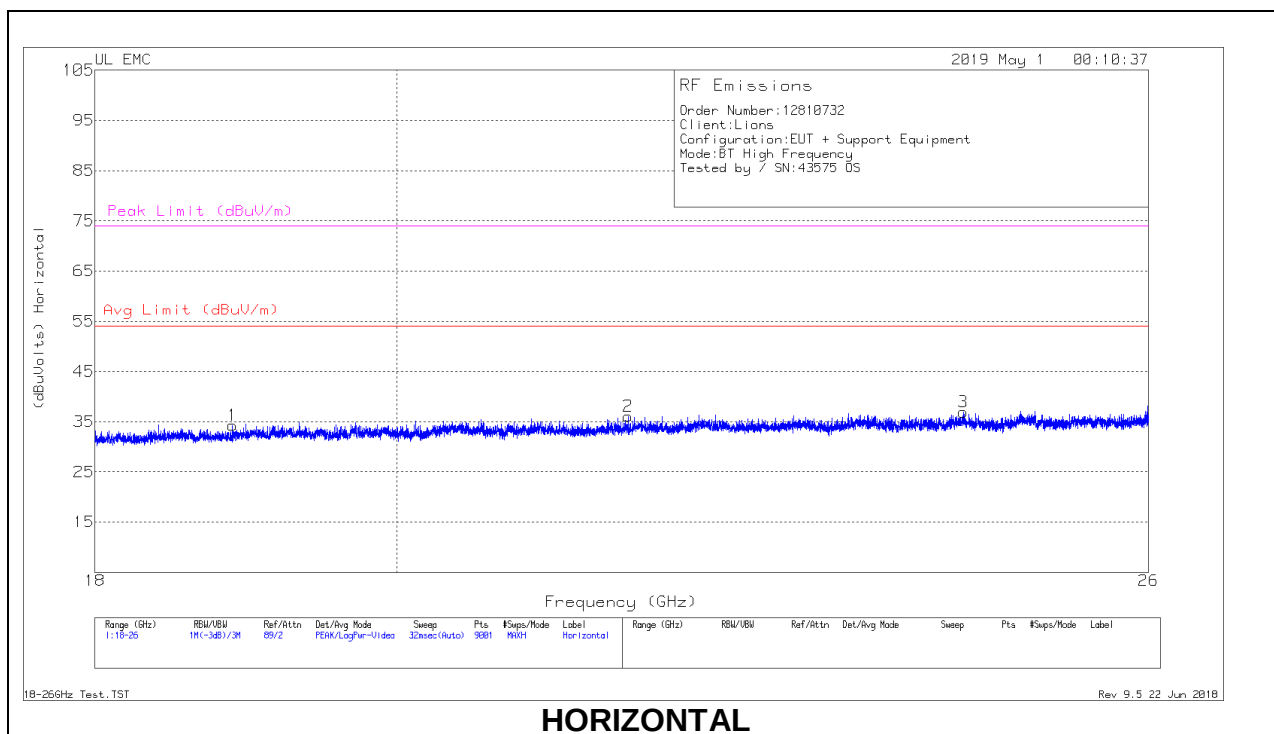
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF PRE0184971 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	93.6815	45.14	Pk	14.3	-30.8	28.64	43.52	-14.88	0-360	199	H
2	183.4222	39.62	Pk	16.9	-30.3	26.22	43.52	-17.3	0-360	199	H
3	40.3727	39.34	Pk	19.4	-31.2	27.54	40	-12.46	0-360	100	V
4	93.1288	40.07	Pk	14.2	-30.8	23.47	43.52	-20.05	0-360	100	V
5	244.5557	52.16	Pk	17.6	-30	39.76	46.02	-6.26	185	100	H
	244.5557	51.24	Qp	17.6	-30	38.84	46.02	-7.18	185	100	H
6	244.5058	46.9	Pk	17.6	-30	34.5	46.02	-11.52	0-360	199	V

Pk - Peak detector

Qp - Quasi-Peak detector

9.4. WORST CASE 18-26 GHZ

SPURIOUS EMISSIONS 18-26 GHz (WORST-CASE CONFIGURATION)



18 – 26GHz DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0182188 (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	18.885	68.87	Pk	33	-58.1	-9.5	34.27	54	-19.73	74	-39.73
2	21.681	68.98	Pk	33.9	-57.3	-9.5	36.08	54	-17.92	74	-37.92
3	24.372	67.81	Pk	34.6	-56	-9.5	36.91	54	-17.09	74	-37.09
4	18.48	71.07	Pk	33	-59	-9.5	35.57	54	-18.43	74	-38.43
5	20.832	68.48	Pk	33.6	-56.7	-9.5	35.88	54	-18.12	74	-38.12
6	24.883	67.25	Pk	35	-55.5	-9.5	37.25	54	-16.75	74	-36.75

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 C63.4.

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

AC Power Line Norm

LINE 1 RESULTS



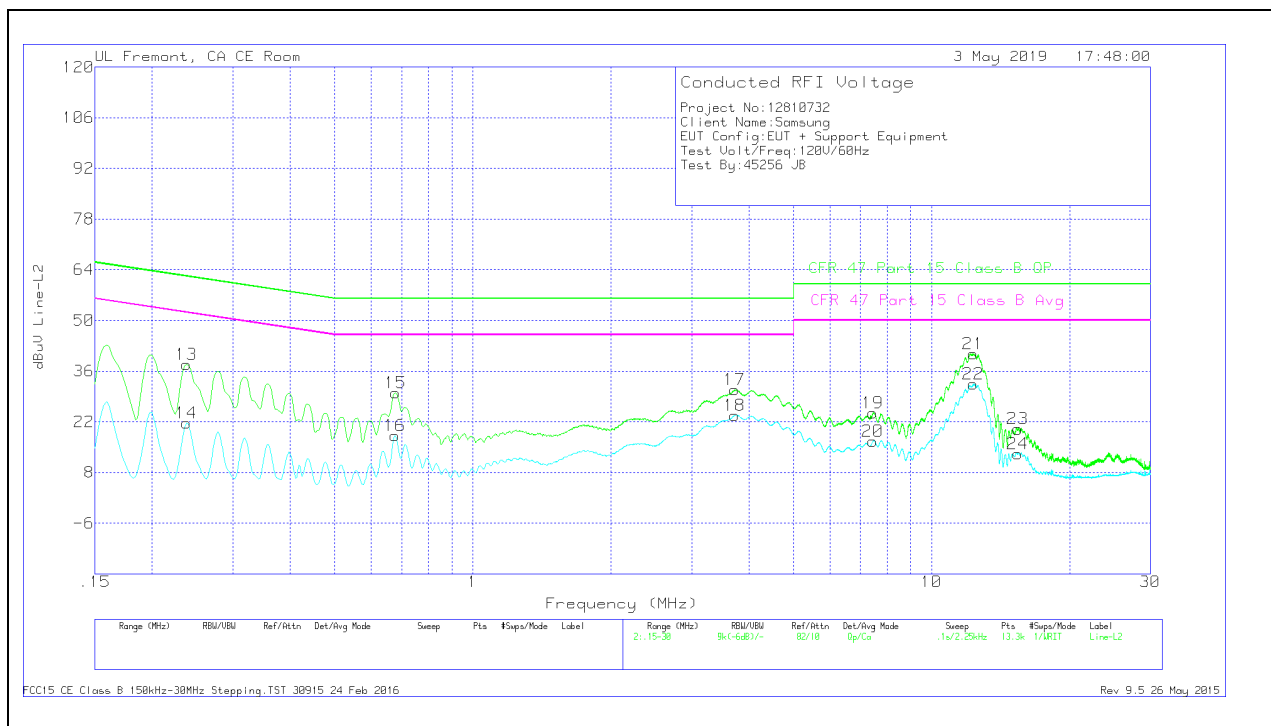
Trace Markers

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
13	.23775	27.74	Qp	0	0	10.1	37.84	62.17	-24.33	-	-
14	.23775	11.56	Ca	0	0	10.1	21.66	-	-	52.17	-30.51
15	.67875	19.88	Qp	0	0	10.1	29.98	56	-26.02	-	-
16	.6765	8.08	Ca	0	0	10.1	18.18	-	-	46	-27.82
17	3.71625	20.64	Qp	0	.1	10.1	30.84	56	-25.16	-	-
18	3.7185	13.62	Ca	0	.1	10.1	23.82	-	-	46	-22.18
19	7.449	14.05	Qp	0	.2	10.2	24.45	60	-35.55	-	-
20	7.45575	6.23	Ca	0	.2	10.2	16.63	-	-	50	-33.37
21	12.33713	30.36	Qp	.1	.2	10.2	40.86	60	-19.14	-	-
22	12.3405	21.87	Ca	.1	.2	10.2	32.37	-	-	50	-17.63
23	15.4095	9.42	Qp	.1	.3	10.2	20.02	60	-39.98	-	-
24	15.42638	2.61	Ca	.1	.3	10.2	13.21	-	-	50	-36.79

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS



Trace Markers

Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
1	.2445	26.97	Qp	0	0	10.1	37.07	61.94	-24.87	-	-
2	.2445	12.05	Ca	0	0	10.1	22.15	-	-	51.94	-29.79
3	.68775	21.28	Qp	0	0	10.1	31.38	56	-24.62	-	-
4	.69225	14.15	Ca	0	0	10.1	24.25	-	-	46	-21.75
5	3.78825	20.16	Qp	0	.1	10.1	30.36	56	-25.64	-	-
6	3.79613	14.95	Ca	0	.1	10.1	25.15	-	-	46	-20.85
7	7.40175	8.33	Qp	0	.2	10.2	18.73	60	-41.27	-	-
8	7.41075	2.88	Ca	0	.2	10.2	13.28	-	-	50	-36.72
9	12.3315	26.71	Qp	.1	.2	10.2	37.21	60	-22.79	-	-
10	12.33375	18.43	Ca	.1	.2	10.2	28.93	-	-	50	-21.07
11	15.558	4.96	Qp	.1	.3	10.2	15.56	60	-44.44	-	-
12	15.558	-13	Ca	.1	.3	10.2	10.47	-	-	50	-39.53

Qp - Quasi-Peak detector

Ca - CISPR average detection