



TEST REPORT

Report Number: 13573777-E1V2

Applicant : APPLE, INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A

Model : A2481 (Parent Model, Full Test)
A2626, A2628, A2629, A2630, (Variant Models)

FCC ID : BCG-E3994A (Parent Model, Full Test)
BCG-E3996A, BCG-E4029A, BCG-E4030A (Variant Models)

IC : 579C-E3994A (Parent Model, Full Test)
579C-E3996A, 579C-E4029A, 579C-E4030A (Variant Models)

EUT Description : SMARTPHONE

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
ISED RSS-247 ISSUE 2
ISED RSS-GEN ISSUE 5

Date of Issue:
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REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	7/29/2021	Initial Issue	Frank Ibrahim
V2	8/05/2021	TCB Questions: Updated section 6.5; Equipment list in section 7; and corrected spurious emission plots in section 9.8.	Francisco Guarnero

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A

EUT DESCRIPTION: SMARTPHONE

MODEL: A2481 (Parent Model, Full Test)
A2630, A2626, A2628, A2629 (Variant Models)

BRAND: APPLE

FCC ID: BCG-E3994A (Parent Model, Full Test)
BCG-E3996A, BCG-E4029A, BCG-E4030A (Variant Models)

IC ID: 579C-E3994A (Parent Model, Full Test)
579C-E3996A, 579C-E4029A, 579C-E4030A (Variant Models)

SERIAL NUMBER: C7H123300KN0YFCFS; G0HFYT6X7Q

SAMPLE RECEIPT DATE: 03/17/2021; 06/28/2021

DATE TESTED: MARCH 17, 2021 – JULY 28, 2021

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Complies
ISED RSS-247 Issue 2	Complies
ISED RSS-GEN Issue 5	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.

Approved & Released For
UL Verification Services Inc. By:



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Prepared By:



Francisco Guarnero
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2. TEST SUMMARY

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for the validity of results after the integration of the data provided by the customer.

FCC Clause	ISED Clause	Requirement	Result	Comment
See Comment		Duty Cycle	Reporting purposes only	Per ANSI C63.10, Section 11.6.
See Comment	RSS-GEN 6.7	20dB BW/99% OBW	Reporting purposes only	ANSI C63.10 Sections 6.9.2 and 6.9.3
15.247 (a)(1)	RSS-247 (5.1) (b)	Hopping Frequency Separation	Complies	None.
15.247 (a)(1)(iii)	RSS-247 (5.1) (d)	Number of Hopping Channels	Complies	None.
15.247 (a)(1)(iii)	RSS-247 (5.1) (d)	Average Time of Occupancy	Complies	None.
15.247 (b)(1)	RSS-247 (5.4) (b)	Output Power	Complies	None.
See Comment		Average Power	Reporting purposes only	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (d)	RSS-247 (5.5)	Conducted Spurious Emissions	Complies	None.
15.209, 15.205	RSS-GEN 8.9, 8.10	Radiated Emissions	Complies	None.
15.207	RSS-Gen 8.8	AC Mains Conducted Emissions	Complies	None.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with:

- FCC CFR 47 Part 2
- FCC CFR 47 Part 15
- FCC KDB 662911 D01 v02r01
- KDB 558074 D01 15.247 Meas Guidance v05r02
- ANSI C63.10-2013
- RSS-GEN Issue 5 + A1 + A2
- RSS-247 Issue 2
- KDB 414788 D01 Radiated Test Site v01r01

4. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, certification #0751.05, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
☒	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	208313
☒	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA	US0104	22541	208313
☒	Building 4: 47658 Kato Rd, Fremont, CA 94538, USA	US0104	2324B	208313

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	U _{Lab}
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB

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

6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The Apple iPhone is a smartphone with multimedia functions (music, application support, and video), cellular GSM, GPRS, EGPRS, UMTS, LTE, 5G, CDMA, IEEE 802.11a/b/g/n/ac/ax, Bluetooth, Ultra-Wideband, GPS, NFC and MSS. All models support at least one UICC based SIM. The second SIM is either an UICC based p-SIM (physical SIM) or e-SIM (electronic SIM). The device supports a built-in inductive charging transmitter and receiver. The rechargeable battery is not user accessible.

Testing was performed on the parent model and is used to support the application for the parent and variants identified in this report based on the test plan submitted and approved via KDB inquiry by the FCC and by ISED-Canada.

The Model and FCC and IC ID covered by this report include:

Parent Model: A2481; FCC ID: BCG-E3994A; IC ID: 579C-E3994A

Variant Models: A2626; FCC ID: BCG-E3996A; IC ID: 579C-E3996A
 A2628; FCC ID: BCG-E4029A; IC ID: 579C-E4029A
 A2629; FCC ID: BCG-E4030A; IC ID: 579C-E4030A
 A2630; FCC ID: BCG-E4030A; IC ID: 579C-E4030A

6.2. MAXIMUM OUTPUT POWER

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

Antenna	Config	Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
ANT 4	High Power	2402 - 2480	Basic GFSK	20.42	110.15
		2402 - 2480	DQPSK	19.10	81.28
		2402 - 2480	Enhanced 8PSK	19.22	83.56
	Low Power	2402 - 2480	Basic GFSK	11.25	13.34
		2402 - 2480	DQPSK	10.24	10.57
		2402 - 2480	Enhanced 8PSK	10.52	11.27
ANT 3	High Power	2402 - 2480	Basic GFSK	19.92	98.17
		2402 - 2480	DQPSK	19.10	81.28
		2402 - 2480	Enhanced 8PSK	19.29	84.92
	Low Power	2402 - 2480	Basic GFSK	11.31	13.52
		2402 - 2480	DQPSK	10.25	10.59
		2402 - 2480	Enhanced 8PSK	10.56	11.38
BF, ANT 4 + ANT 3	High Power	2402 - 2480	Basic GFSK TxBF	20.10	102.33
		2402 - 2480	DQPSK TxBF	19.29	84.92
		2402 - 2480	Enhanced 8PSK TxBF	19.47	88.51
	Low Power	2402 - 2480	Basic GFSK TxBF	14.22	26.42
		2402 - 2480	DQPSK TxBF	13.48	22.28
		2402 - 2480	Enhanced 8PSK TxBF	13.67	23.28

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. For average power data please refer to section 9.7.

6.3. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna Type is IFA.

The antennas' gains, as provided by the manufacturer, are as follows:

Frequency Range (GHz)	ANT 4 (dBi)	ANT 3 (dBi)
2.4	-3.0	-0.7

6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was 19.1.309.2612

6.5. WORST-CASE CONFIGURATION AND MODE

The EUT was investigated in three orthogonal orientations X, Y and Z on ANT 4 (Core 0) and ANT 3 (Core 1), it was determined that X (Flatbed) was the worst-case orientation for ANT 4, ANT 3 and 2TX TxBF.

Radiated band edge, harmonic, and spurious emissions from 1GHz to 18GHz were performed with the EUT was set to transmit at highest power on Low/Middle/High channels.

Radiated emissions below 1GHz, 18-26GHz and power line conducted emissions were performed with the EUT transmits at the channel with the highest output power as worst-case scenario. There were no emissions found below 30MHz within 20dB of the limit.

For below 1GHz tests EUT was connected to AC power adapter as the worst case; and for above 1GHz, the worst-case configuration reported was tested with EUT only. For AC line conducted emission, test was investigated with AC power adapter and with laptop.

For simultaneous transmission of multiple channels in the 2.4GHz BT and 5GHz bands, no noticeable emission was found.

GFSK, DQPSK, 8PSK average power are all investigated, The GFSK & 8PSK power are the worst case. For average power data please refer to section 9.7.

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

GFSK mode: DH5, 1Mbps

8PSK mode: 3-DH5, 3 Mbps

Beamforming, GFSK, DH5, 1 Mbps

Beamforming, 8PSK, 3-DH5, 3Mbps

For radiated harmonic spurious emissions test, high power beamforming GFSK mode is set to maximum power per chain to cover both SISO and MIMO modes to complies with radiated spurious emissions limits in the restricted bands between 1GHz and 18GHz low/mid/high channel.

For Radiated band edge, GFSK, 8PSK and TXBF modulations were all investigated on low and high-power setting.

There are two vendors of the WiFi/Bluetooth radio modules: variant 1 and variant 2. The Wi-Fi/Bluetooth radio modules have the same mechanical outline (e.g., the same package dimension and pin-out layout), use the same on-board antenna matching circuit, have an identical antenna structure, and are built and tested to conform to the same specifications and to operate within the same tolerances.

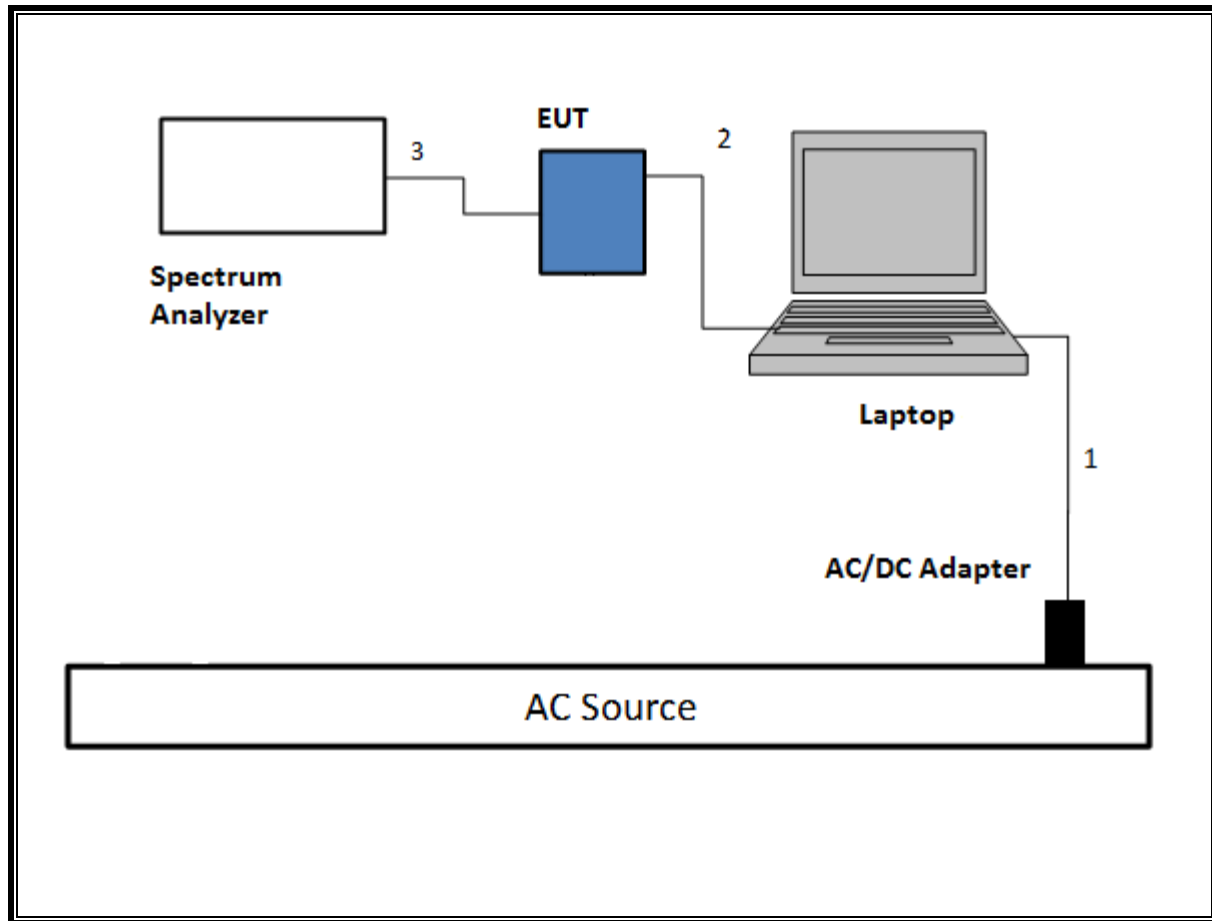
Baseline testing was performed on the two variants to determine the worst case on all conducted power and radiated emissions.

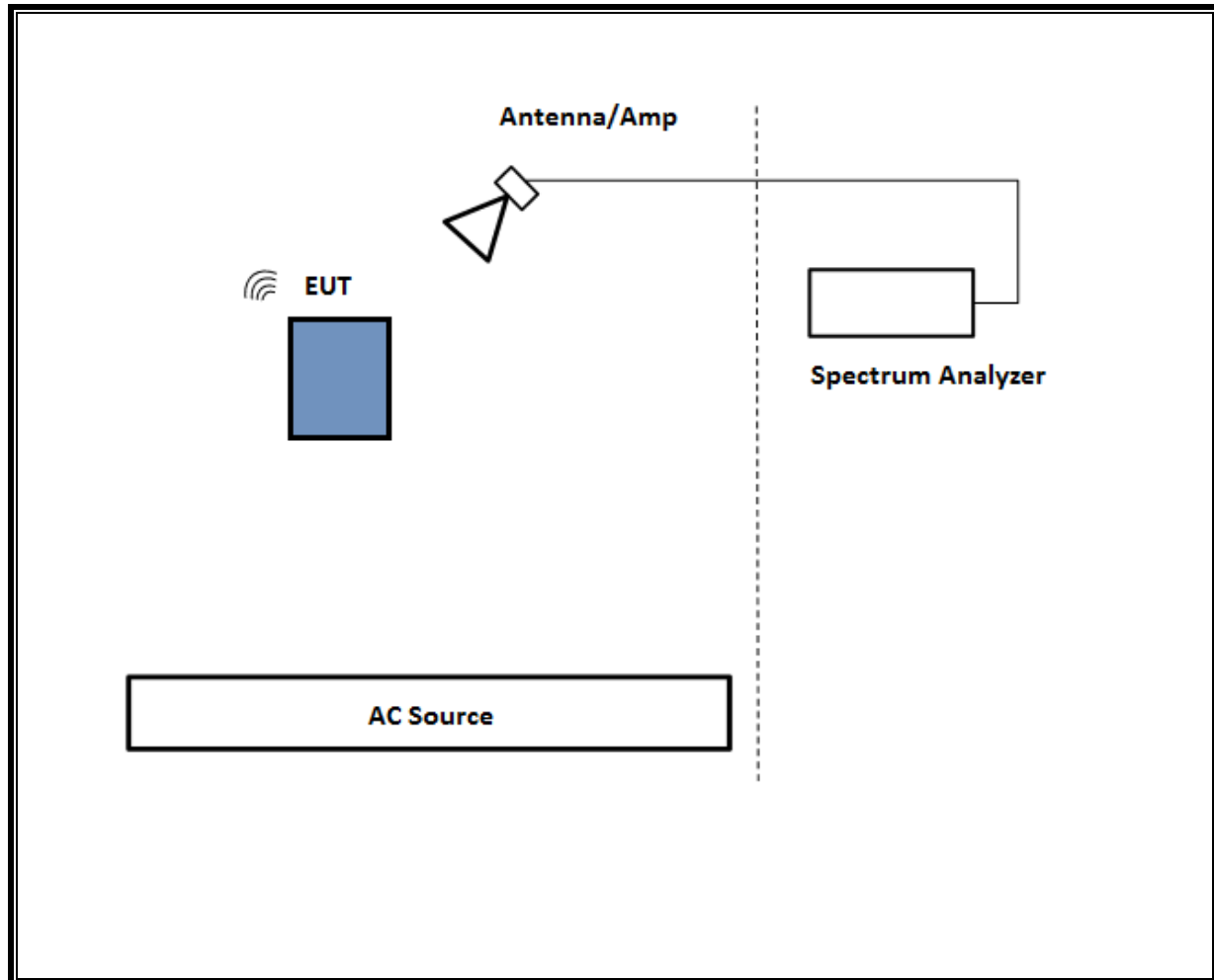
6.6. DESCRIPTION OF TEST SETUP

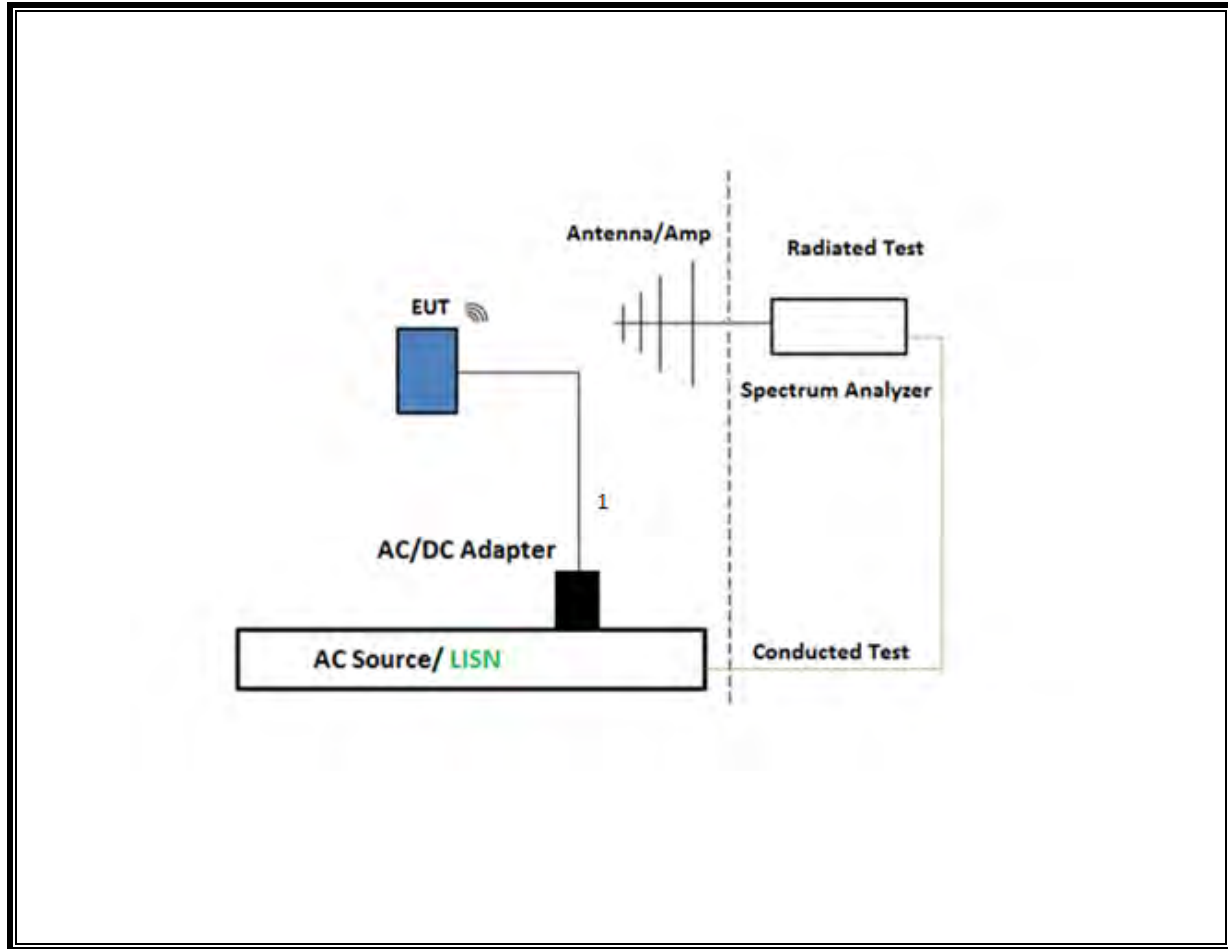
SUPPORT TEST EQUIPMENT						
Description		Manufacturer	Model	Serial Number		FCC ID/ DoC
Laptop		Apple	Macbook Pro	C02YL3ZMJHC8		BCGA1989
Laptop AC/DC adapter		Apple	A1424	NSW25679		DoC
EUT AC/DC adapter		Apple	A1720	C3D8417A7R93KVPA8		DoC
I/O CABLES (RF CONDUCTED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Un-shielded	2	N/A
2	USB	1	USB	Shielded	1.0	N/A
3	Antenna	1	SMA	Un-shielded	0.2	To spectrum Analyzer
I/O CABLES (RF RADIATED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Un-shielded	2	N/A
2	USB	1	USB	Un-shielded	1	N/A

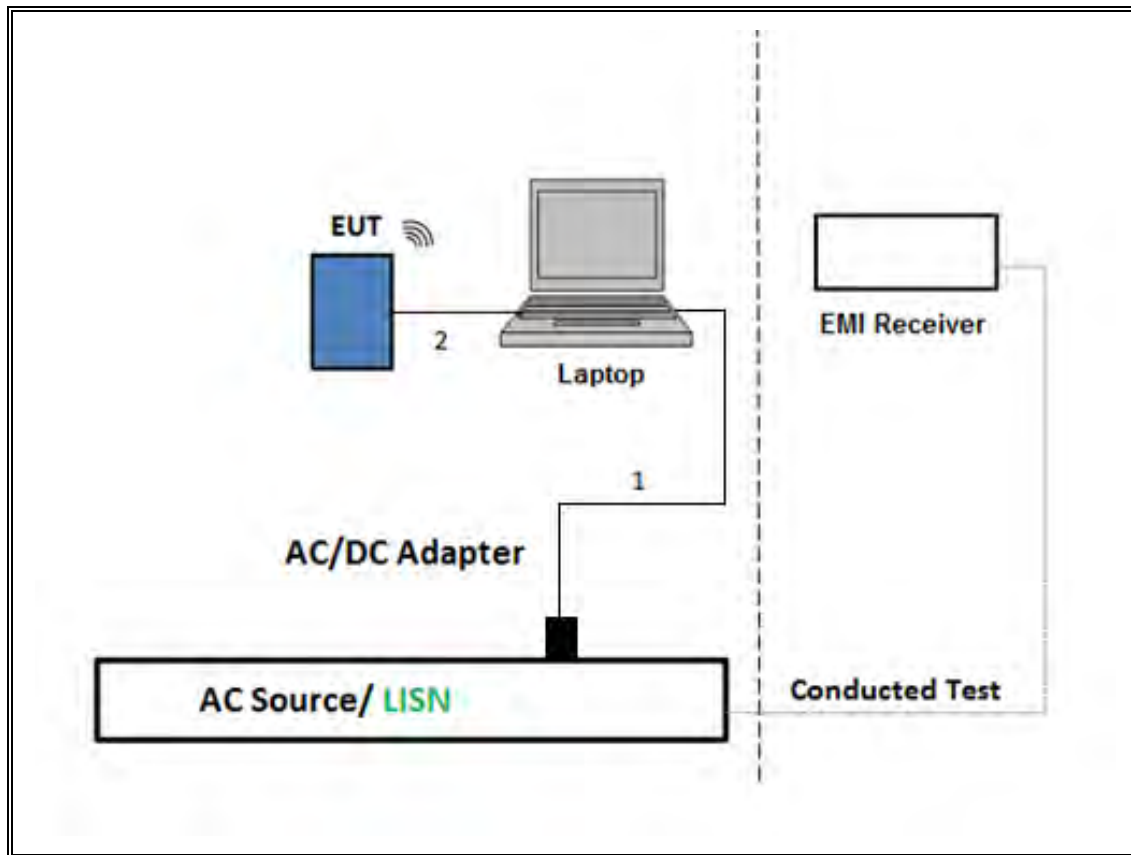
TEST SETUP

The EUT is connected to a test laptop during the tests. Test software exercised the radio card.

SETUP DIAGRAM FOR CONDUCTED TESTS

SETUP DIAGRAM FOR RADIATED TESTS Above 1 GHz

SETUP DIAGRAM FOR Below 1GHz and AC LINE CONDUCTED TEST

TEST SETUP- AC LINE CONDUCTED: LAPTOP CONFIGURATION

7. TEST AND MEASUREMENT EQUIPMENT

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

Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	T341	01/28/2022	01/28/2021
Power Meter, P-series single channel	Keysight	N1912A	T1244	01/25/2022	01/25/2021
Power Sensor	Keysight	N1921A	T1224	01/25/2022	01/25/2021
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T711	03/01/2022	03/01/2021
Amplifier, 1 to 18GHz, 35dB	AMPLICAL	AMP1G18-35	138301	03/30/2022	03/30/2021
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies Inc	N9030A	T1466	01/25/2022	01/25/2021
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	PRE0213973	02/16/2022	02/16/2021
Amplifier, 100MHz -18GHz	AMPLICAL	AMP0.1G18-47-20	205876	03/14/2022	03/14/2021
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	201499	02/26/2022	02/26/2021
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	PRE0213972	08/20/2021	08/20/2020
Amplifier 1-18GHz	AMPLICAL	AMP0.1G18-47-20	172123	01/23/2022	01/23/2021
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	201497	02/25/2022	02/25/2021
*Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T136	07/07/2021	07/07/2020
*RF Amplifier, 1-18GHz	MITEQ	AFS42-00101800-25-S-42	T1165	06/12/2022	06/12/2021
Spectrum Analyzer	Keysight Technologies Inc	N9030A	SA0016	11/25/2021	11/25/2020
Antenna, Horn 1-18GHz	ETS Lindgren	3117	200785	09/25/2021	09/25/2020
Rf Amplifier 1-18GHz, 45dB Min	Amplical	AMP0.1G18-47-20	172124	12/09/2021	12/09/2020
Filter, HPF 3.0 GHz	MICRO-TRONICS	HPM17543	202845	12/09/2021	12/09/2020
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences Corp.	JB3	T900	02/24/2022	02/24/2021
*Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	T173	07/22/2021	07/22/2020
Spectrum Analyzer, PXA, 3Hz to 50GHz	Keysight Technologies Inc	N9030A	T342	01/25/2022	01/25/2021
Antenna, Active Loop 9KHz to 30MHz	EMCO	6502	T35	11/23/2021	11/23/2020
*Antenna Horn, 18 to 26GHz	ARA	SWH-28	T125	04/17/2021	04/17/2020
*Pre-Amp 18-26GHz	Agilent Technology	8449B	T404	04/08/2021	04/08/2020
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T1454	01/27/2022	01/27/2021

AC Line Conducted					
Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESR	T1436	02/19/2022	02/19/2021
Power Cable, Line Conducted Emissions	UL	PR1	T861	10/27/2021	10/27/2020
LISN for Conducted Emissions CISPR-16	FISCHER CUSTOM COMMUNICATIONS	FCC-LISN-50/250-25-2-01	PRE0186446	01/20/2022	01/20/2021
UL AUTOMATION SOFTWARE					
Radiated Software	UL	UL EMC	Ver 9.5, Mar 6, 2020		
Conducted Software	UL	UL EMC	2020.2.26		
AC Line Conducted Software	UL	UL EMC	Ver 9.5, February 21, 2020		

*Testing was completed before equipment expiration date

8. 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 & 13

Radiated Spurious Emissions 30-1000MHz: ANSI C63.10-2013 Section 6.3, 6.5 & 13

Radiated Spurious Emissions above 1GHz: ANSI C63.10-2013 Section 6.3, 6.6 & 13

Radiated Band-edge: ANSI C63.10-2013 Section 6.10.5 & 13

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

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

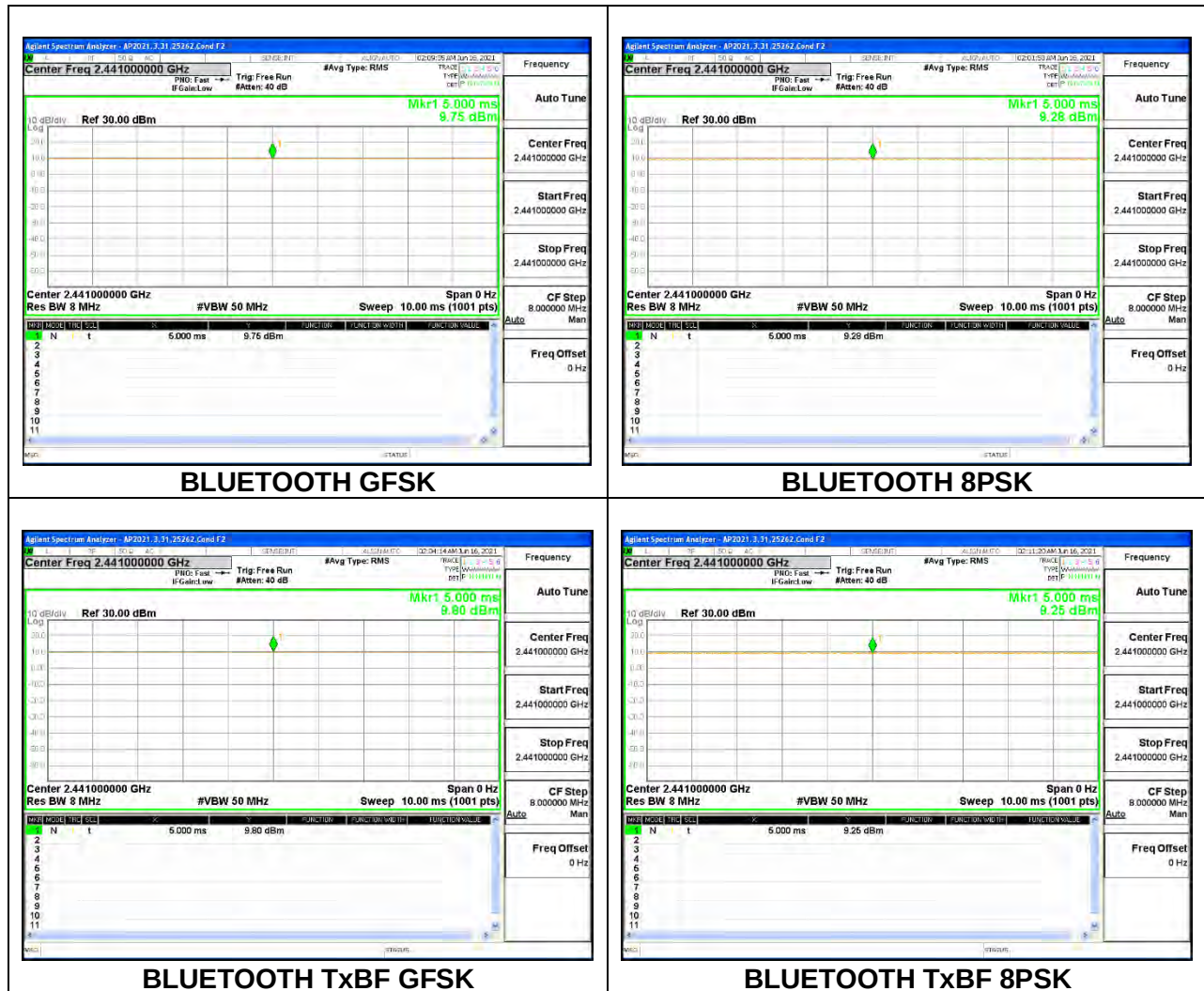
PROCEDURE

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	5.00	5.00	1.000	100.0%	0.00	0.010
Bluetooth 8PSK	5.00	5.00	1.000	100.0%	0.00	0.010
Bluetooth GFSK TxBF	5.00	5.00	1.000	100.0%	0.00	0.010
Bluetooth 8PSK TxBF	5.00	5.00	1.000	100.0%	0.00	0.010

DUTY CYCLE PLOTS



9.2. 20 dB AND 99% BANDWIDTH**LIMITS**

None; for reporting purposes only.

TEST PROCEDURE

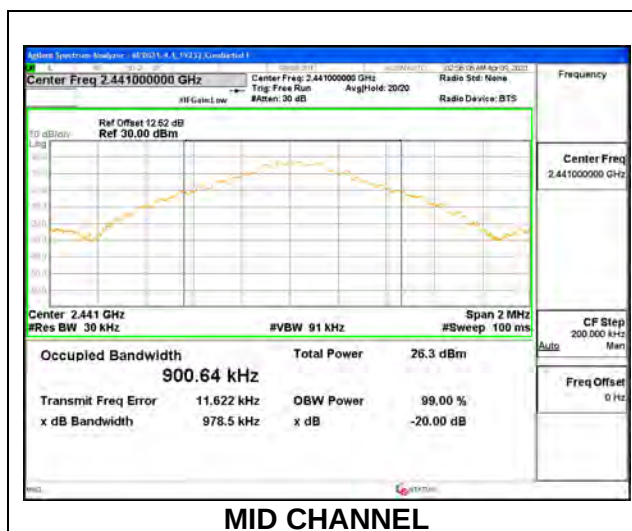
The transmitter output is connected to a spectrum analyzer. The RBW is set to $\geq 1\%$ of the 20 dB bandwidth. The VBW is set to $\geq 3 \times \text{RBW}$. The sweep time is coupled.

RESULTS

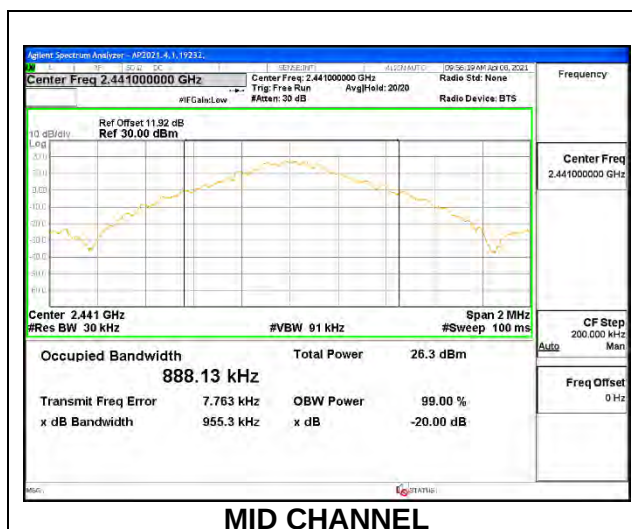
Only High-Power modes result is reported, it covers all Low Power modes. Only Mid channel plot is reported to show analyzer settings.

9.2.1. HIGH POWER BASIC DATA RATE GFSK MODULATION**ANT 4**

Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	0.9538	0.88591
Mid	2441	0.9785	0.90064
High	2480	0.9816	0.89950

**ANT 3**

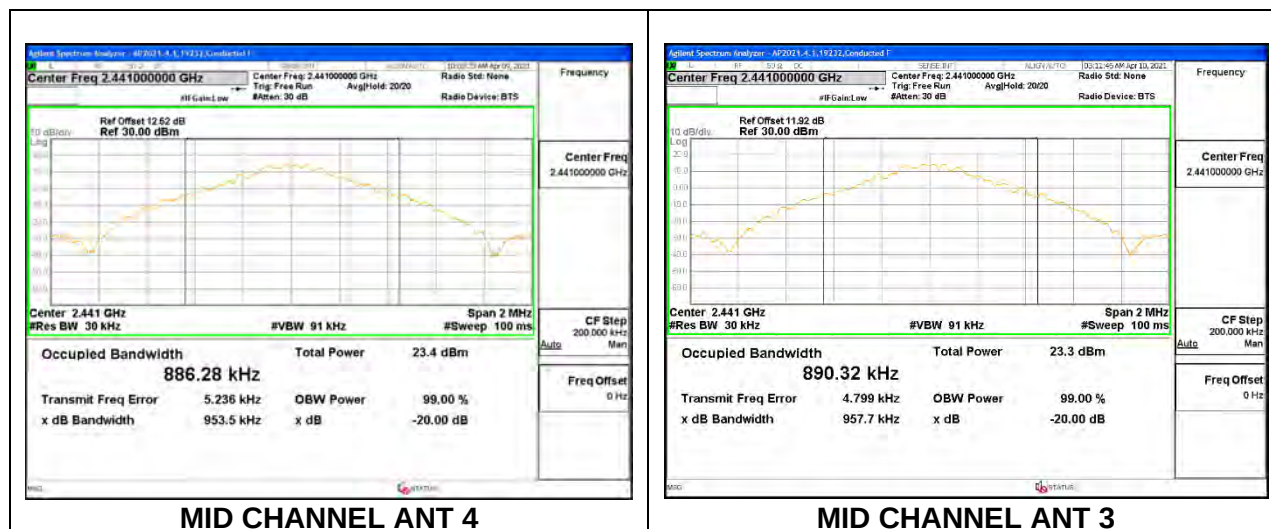
Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	0.9525	0.88685
Mid	2441	0.9553	0.88813
High	2480	0.9525	0.88553



9.2.2. HIGH POWER BASIC DATA RATE TXBF GFSK MODULATION

Channel	Frequency (MHz)	20dB Bandwidth ANT 4 (MHz)	20dB Bandwidth ANT 3 (MHz)	99% Bandwidth ANT 4 (MHz)	99% Bandwidth ANT 3 (MHz)
Low	2402	0.9516	0.9539	0.88735	0.88828
Mid	2441	0.9535	0.9577	0.88628	0.89032
High	2480	0.9527	0.9258	0.88619	0.88726

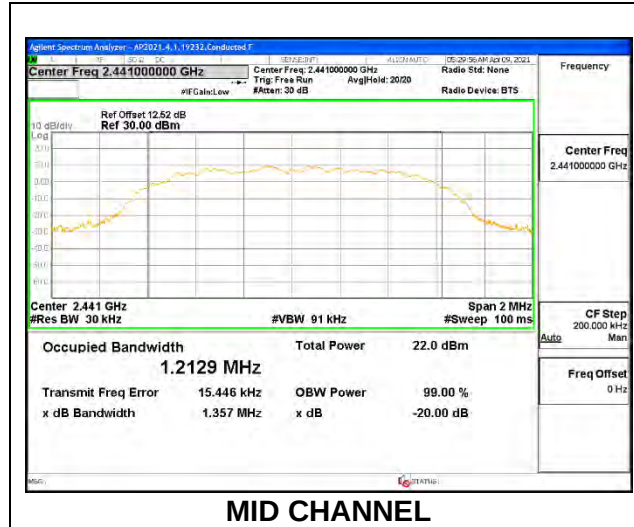
Note: Test procedures and setting on beamforming mode are same as BT basic and EDR mode



9.2.3. HIGH POWER ENHANCED DATA RATE 8PSK MODULATION

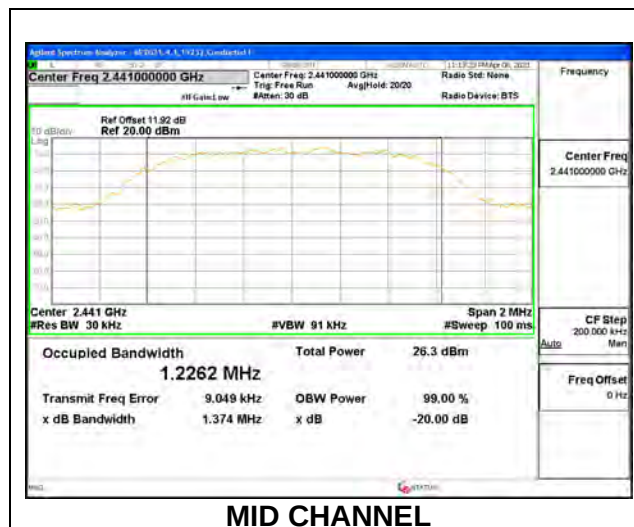
ANT 4

Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	1.351	1.2107
Mid	2441	1.357	1.2129
High	2480	1.361	1.2174



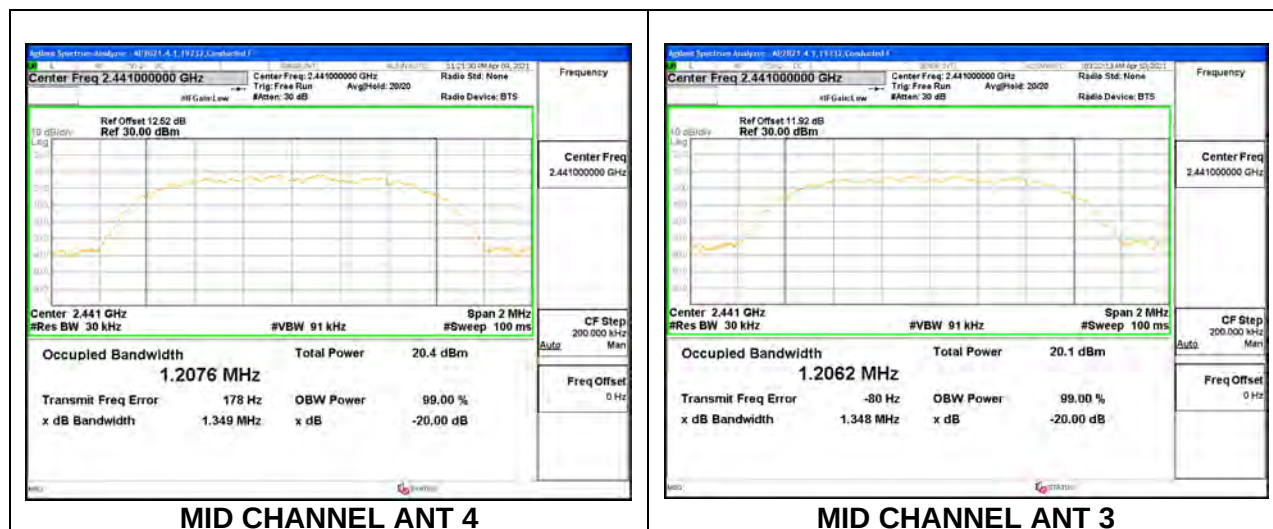
ANT 3

Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	1.360	1.2221
Mid	2441	1.374	1.2262
High	2480	1.354	1.2153



9.2.4. HIGH POWER ENHANCED DATA RATE TXBF 8PSK MODULATION

Channel	Frequency (MHz)	20dB Bandwidth ANT 4 (MHz)	20dB Bandwidth ANT 3 (MHz)	99% Bandwidth ANT 4 (MHz)	99% Bandwidth ANT 3 (MHz)
Low	2402	1.349	1.347	1.2067	1.2047
Mid	2441	1.349	1.348	1.2076	1.2062
High	2480	1.348	1.347	1.2090	1.2065



9.3. HOPPING FREQUENCY SEPARATION

LIMITS

FCC §15.247 (a) (1)

RSS-247 (5.1) (b)

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 $VBW \geq 3 \times RBW$. The sweep time is coupled.

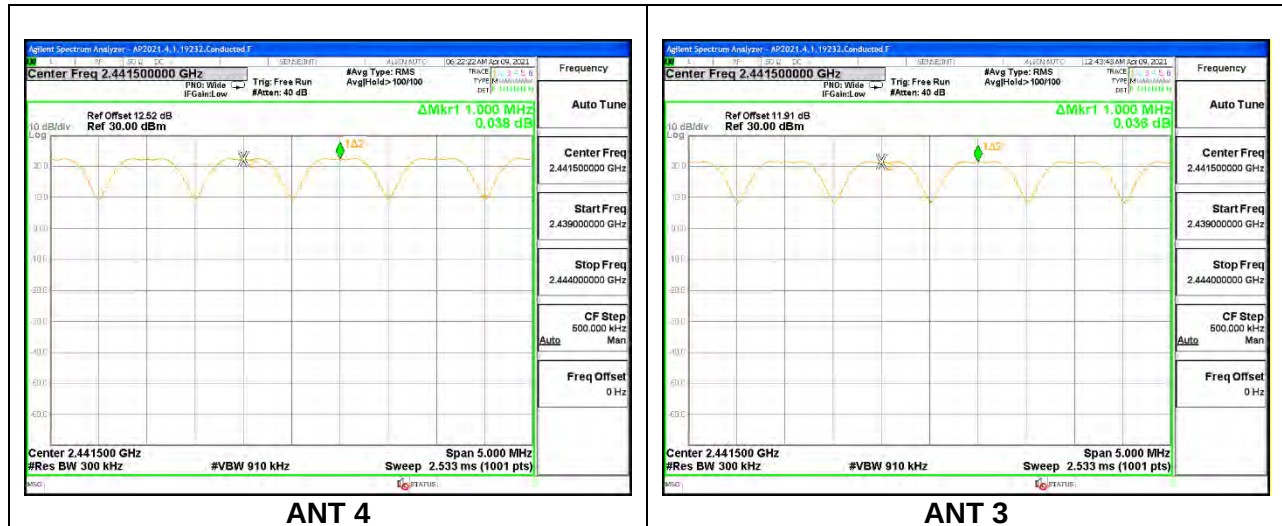
RESULTS

Only High Power GFSK mode result is reported since EDR (QPSK/8PSK) has exact same channel plan.

Only Mid channel plot is reported to show analyzer's settings.

9.3.1. HIGH POWER BASIC DATA RATE GFSK MODULATION

HOPPING FREQUENCY SEPARATION



9.4. NUMBER OF HOPPING CHANNELS

LIMITS

FCC §15.247 (a) (1) (iii)

RSS-247 (5.1) (d)

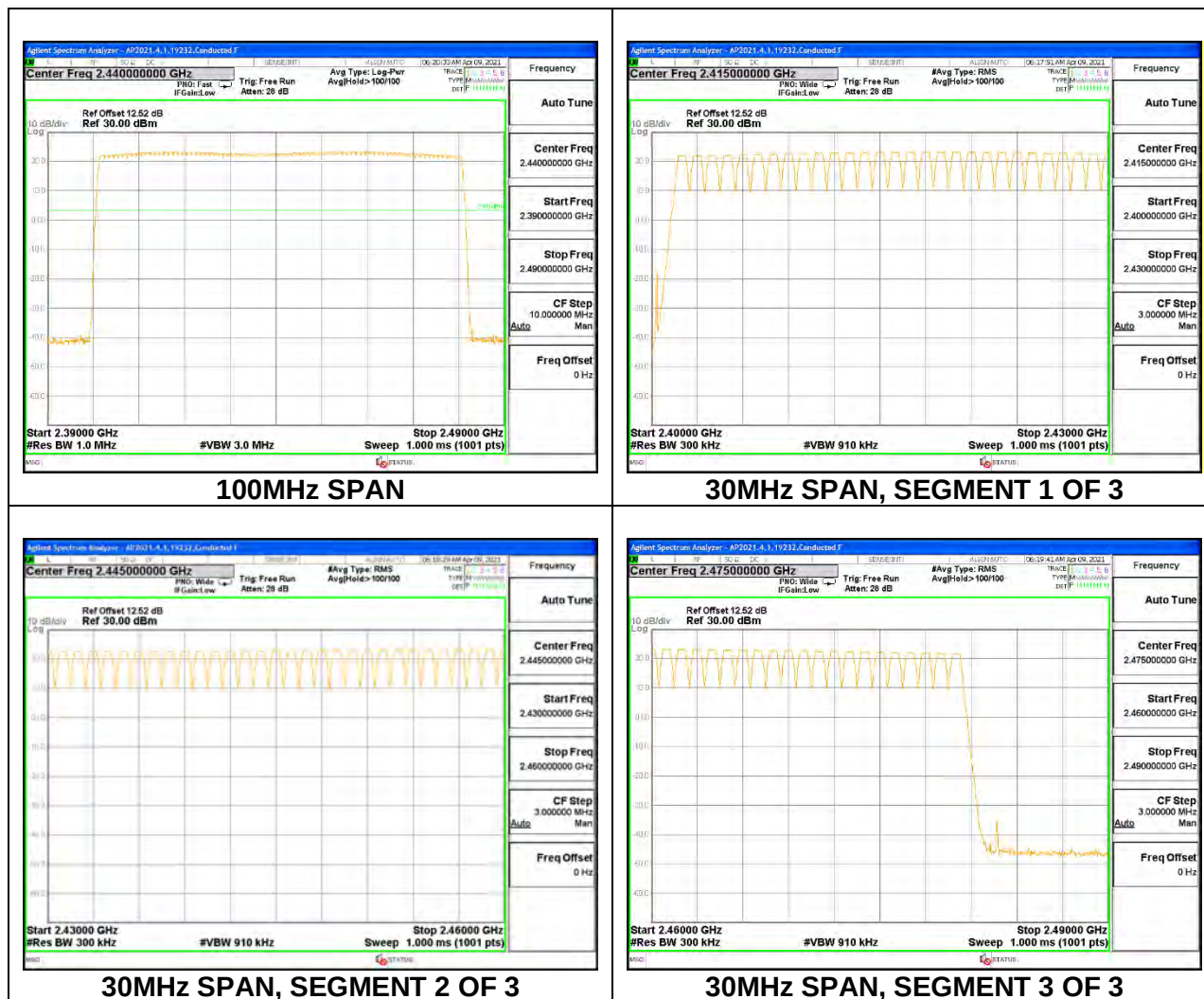
Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

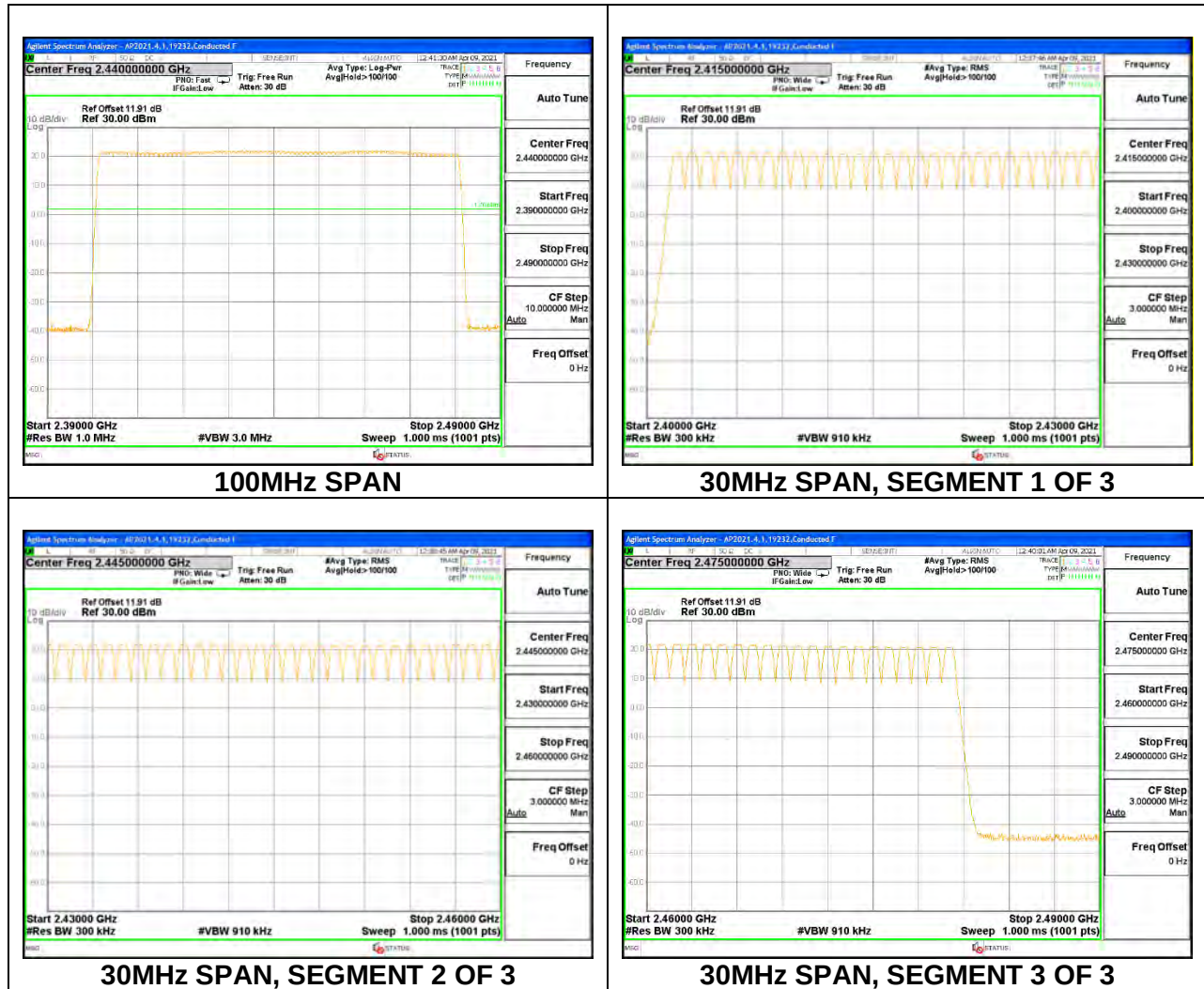
TEST PROCEDURE

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. Only High Power GFSK mode result is reported since EDR (QPSK/8PSK) has exact same channel plan.

9.4.1. HIGH POWER BASIC DATA RATE GFSK MODULATION**ANT 4**

ANT 3

9.5. AVERAGE TIME OF OCCUPANCY**LIMITS**

FCC §15.247 (a) (1) (iii)

RSS-247 (5.1) (d)

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 $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{pulse width}$.

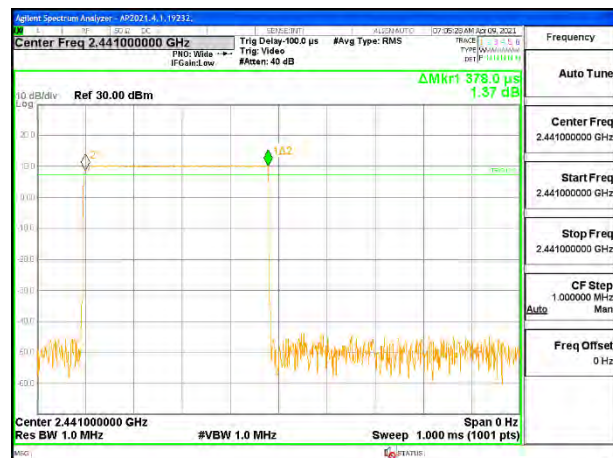
For AFH mode, the average time of occupancy in the specified 8 second period (20 channels * 0.4 seconds) is equal to $10 * (\# \text{ of pulses in } 0.8 \text{ s}) * \text{pulse width}$.

RESULTS

Only High Power GFSK mode result is reported since EDR (QPSK/8PSK) has exact same timing.

9.5.1. HIGH POWER BASIC DATA RATE GFSK MODULATION**ANT 4**

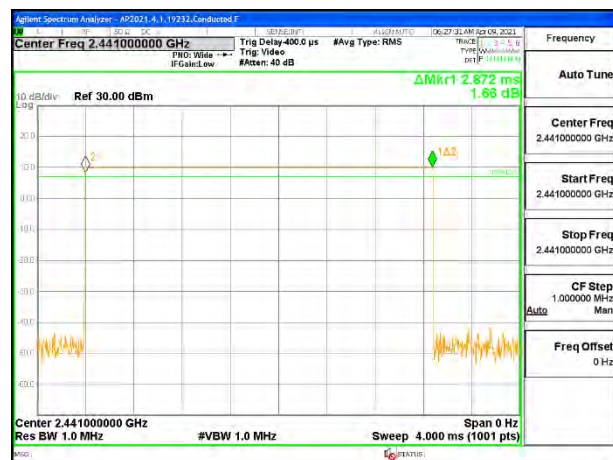
DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK Normal Mode					
DH1	0.378	32	0.121	0.4	-0.279
DH3	1.63	16	0.261	0.4	-0.139
DH5	2.872	10	0.287	0.4	-0.113
DH Packet	Pulse Width (sec)	Number of Pulses in 0.8 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK AFH Mode					
DH1	0.378	8	0.030	0.4	-0.370
DH3	1.63	4	0.065	0.4	-0.335
DH5	2.872	2.5	0.072	0.4	-0.328



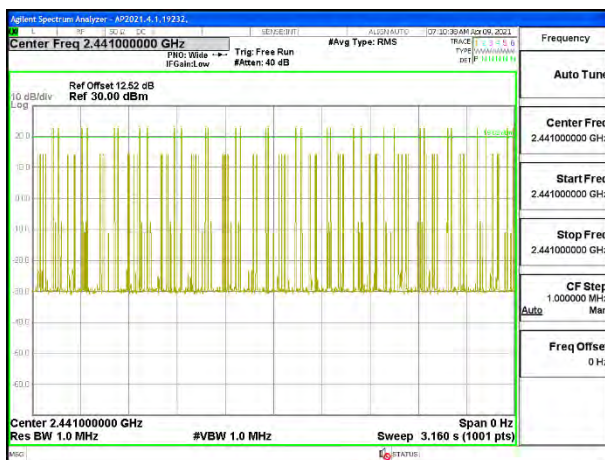
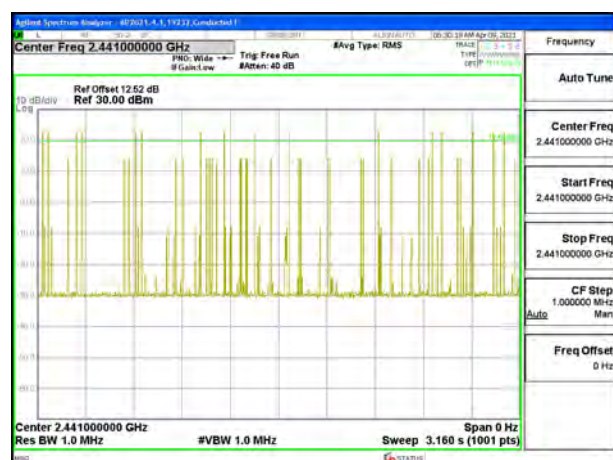
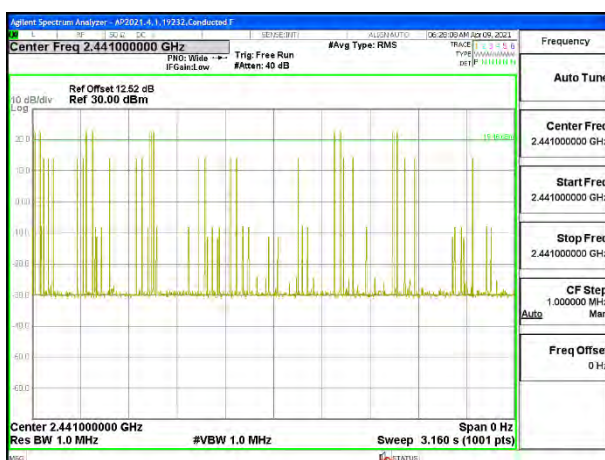
PULSE WIDTH - DH1



PULSE WIDTH - DH3

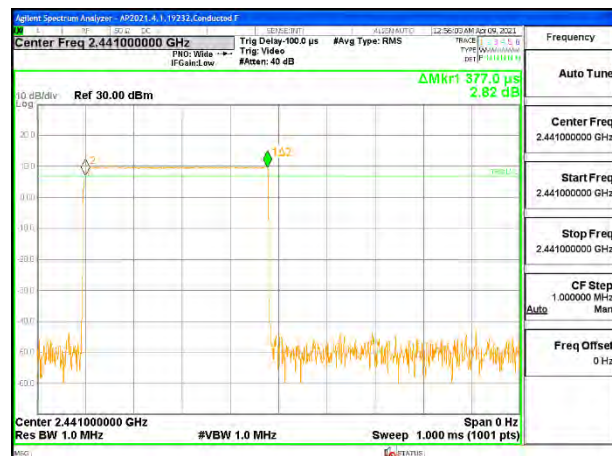


PULSE WIDTH - DH5

NUMBER OF PULSES IN 3.16 SECOND
OBSERVATION PERIOD - DH1NUMBER OF PULSES IN 3.16 SECOND
OBSERVATION PERIOD - DH3NUMBER OF PULSES IN 3.16 SECOND
OBSERVATION PERIOD - DH5

ANT 3

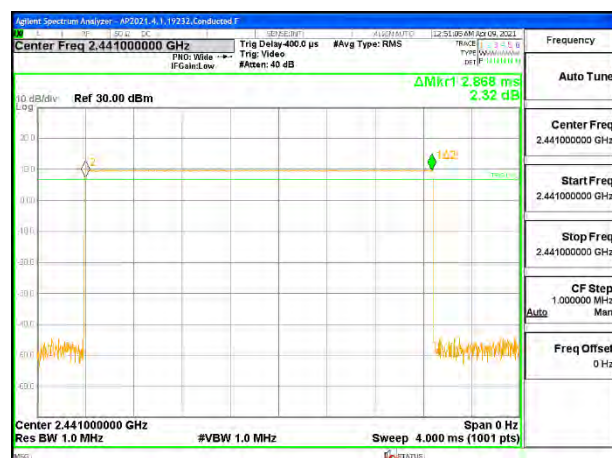
DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK Normal Mode					
DH1	0.377	32	0.121	0.4	-0.279
DH3	1.630	17	0.277	0.4	-0.123
DH5	2.868	12	0.344	0.4	-0.056
DH Packet	Pulse Width (sec)	Number of Pulses in 0.8 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
GFSK AFH Mode					
DH1	0.377	8	0.030	0.4	-0.370
DH3	1.63	4.25	0.069	0.4	-0.331
DH5	2.868	3	0.086	0.4	-0.314



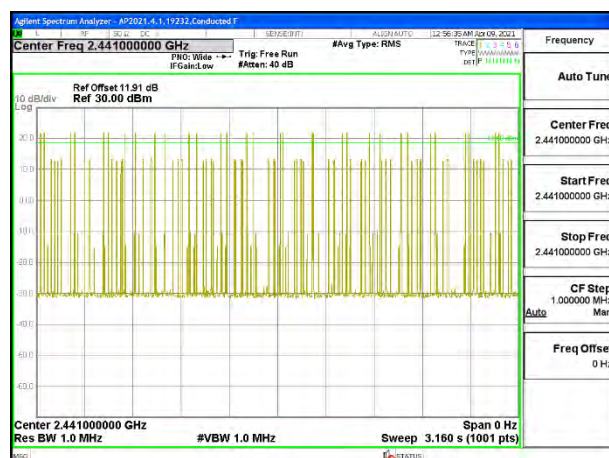
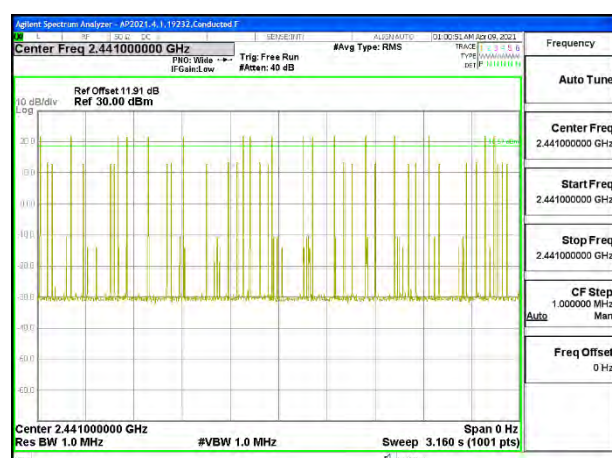
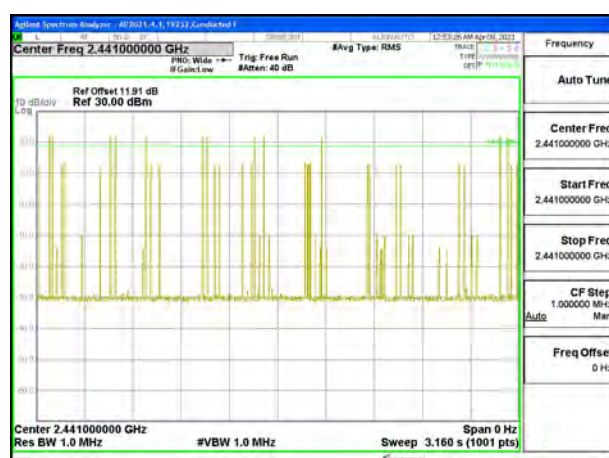
PULSE WIDTH - DH1



PULSE WIDTH - DH3



PULSE WIDTH - DH5

NUMBER OF PULSES IN 3.16 SECOND
OBSERVATION PERIOD - DH1NUMBER OF PULSES IN 3.16 SECOND
OBSERVATION PERIOD - DH3NUMBER OF PULSES IN 3.16 SECOND
OBSERVATION PERIOD - DH5

9.6. OUTPUT POWER

LIMITS

§15.247 (b) (1)

RSS-247 (5.4) (b)

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 was perform using a power meter with wideband peak power sensor.

DIRECTIONAL ANTENNA GAIN

For 1 TX:

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

For 2 TX:

Tx chains are correlated for power due to the device supporting Beamforming. The directional gains are as follows:

Band (GHz)	ANT 4 Antenna Gain (dBi)	ANT 3 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
2.4	-3.00	-0.70	-1.70	1.24

RESULTS

9.6.1. HIGH POWER BASIC DATA RATE GFSK MODULATION**ANT 4**

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	20.27	21	-0.73
Middle	2441	20.42	21	-0.58
High	2480	20.35	21	-0.65

ANT 3

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	19.92	21	-1.08
Middle	2441	19.84	21	-1.16
High	2480	19.71	21	-1.29

9.6.2. HIGH POWER BASIC DATA RATE TXBF GFSK MODULATION**ANT 4 + ANT 3**

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Output Power ANT 4 (dBm)	Output Power ANT 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	17.13	17.03	20.09	21	-0.91
Middle	2441	17.19	16.98	20.10	21	-0.90
High	2480	16.95	17.09	20.03	21	-0.97

9.6.3. HIGH POWER ENHANCED DATA RATE QPSK MODULATION

ANT 4

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	19.00	21	-2.00
Middle	2441	19.10	21	-1.90
High	2480	18.99	21	-2.01

ANT 3

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	19.08	21	-1.92
Middle	2441	19.10	21	-1.90
High	2480	19.02	21	-1.98

9.6.4. HIGH POWER ENHANCED DATA RATE TXBF QPSK MODULATION

ANT 4 + ANT 3

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Output Power ANT 4 (dBm)	Output Power ANT 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	16.22	16.19	19.22	21	-1.78
Middle	2441	16.16	16.39	19.29	21	-1.71
High	2480	16.09	16.20	19.16	21	-1.84

9.6.5. HIGH POWER ENHANCED DATA RATE 8PSK MODULATION

ANT 4

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	19.15	21	-1.85
Middle	2441	19.22	21	-1.78
High	2480	19.18	21	-1.82

ANT 3

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	19.21	21	-1.79
Middle	2441	19.29	21	-1.71
High	2480	19.23	21	-1.77

9.6.6. HIGH POWER ENHANCED DATA RATE TXBF 8PSK MODULATION

ANT 4 + ANT 3

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Output Power ANT 4 (dBm)	Output Power ANT 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	16.35	16.42	19.40	21	-1.60
Middle	2441	16.44	16.47	19.47	21	-1.53
High	2480	16.33	16.40	19.38	21	-1.62

9.6.7. LOW POWER BASIC DATA RATE GFSK MODULATION**ANT 4**

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.96	21	-10.04
Middle	2441	11.25	21	-9.75
High	2480	11.07	21	-9.93

ANT 3

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	11.31	21	-9.69
Middle	2441	11.04	21	-9.96
High	2480	11.30	21	-9.7

9.6.8. LOW POWER BASIC DATA RATE TXBF GFSK MODULATION**ANT 4 + ANT 3**

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Output Power ANT 4 (dBm)	Output Power ANT 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.70	11.37	14.06	21	-6.94
Middle	2441	11.25	11.17	14.22	21	-6.78
High	2480	10.95	11.13	14.05	21	-6.95

9.6.9. LOW POWER ENHANCED DATA RATE QPSK MODULATION

ANT 4

Tested By:	19232
Date:	7/28/2021

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	9.79	21	-11.21
Middle	2441	10.24	21	-10.76
High	2480	10.12	21	-10.88

ANT 3

Tested By:	19232
Date:	7/28/2021

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.14	21	-10.86
Middle	2441	10.25	21	-10.75
High	2480	10.21	21	-10.79

9.6.10. LOW POWER ENHANCED DATA RATE TXBF QPSK MODULATION

ANT 4 + ANT 3

Tested By:	19232
Date:	7/28/2021

Channel	Frequency (MHz)	Output Power ANT 4 (dBm)	Output Power ANT 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.38	10.48	13.44	21	-7.56
Middle	2441	10.43	10.50	13.48	21	-7.52
High	2480	10.32	10.42	13.38	21	-7.62

9.6.11. LOW POWER ENHANCED DATA RATE 8PSK MODULATION

ANT 4

Tested By:	19232
Date:	7/28/2021

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.45	21	-10.55
Middle	2441	10.52	21	-10.48
High	2480	10.48	21	-10.52

ANT 3

Tested By:	19232
Date:	7/28/2021

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.56	21	-10.44
Middle	2441	10.51	21	-10.49
High	2480	10.54	21	-10.46

9.6.12. LOW POWER ENHANCED DATA RATE TXBF 8PSK MODULATION

ANT 4 + ANT 3

Tested By:	19232
Date:	7/28/2021

Channel	Frequency (MHz)	Output Power ANT 4 (dBm)	Output Power ANT 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.62	10.63	13.64	21	-7.36
Middle	2441	10.67	10.65	13.67	21	-7.33
High	2480	10.60	10.63	13.63	21	-7.37

9.7. AVERAGE POWER**LIMITS**

None; for reporting purposes only

TEST PROCEDURE

Measurements was performed using a power meter with wideband average power sensor.

RESULTS

9.7.1. HIGH POWER BASIC DATA RATE GFSK MODULATION**ANT 4**

Tested By:	19232
Date	6/30/2021

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	19.92
Middle	2441	20.00
High	2480	19.99

ANT 3

Tested By:	19232
Date	6/30/2021

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	19.40
Middle	2441	19.47
High	2480	19.30

9.7.2. HIGH POWER BASIC DATA RATE TXBF GFSK MODULATION**ANT 4 + ANT 3**

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2402	16.92	16.79	19.87
Middle	2441	16.98	16.75	19.88
High	2480	16.74	16.85	19.81

9.7.3. HIGH POWER ENHANCED DATA RATE QPSK MODULATION

ANT 4

Tested By:	19232
Date	6/30/2021

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	16.20
Middle	2441	16.25
High	2480	16.19

ANT 3

Tested By:	19232
Date	6/30/2021

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	16.20
Middle	2441	16.24
High	2480	16.14

9.7.4. HIGH POWER BASIC DATA RATE TXBF QPSK MODULATION

ANT 4 + ANT 3

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2402	13.08	13.21	16.16
Middle	2441	13.18	13.19	16.20
High	2480	13.00	13.22	16.12

9.7.5. HIGH POWER ENHANCED DATA RATE 8PSK MODULATION

ANT 4

Tested By:	19232
Date	6/30/2021

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	16.43
Middle	2441	16.50
High	2480	16.45

ANT 3

Tested By:	19232
Date	6/30/2021

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	16.35
Middle	2441	16.49
High	2480	16.42

9.7.6. HIGH POWER BASIC DATA RATE TXBF 8PSK MODULATION

ANT 4 + ANT 3

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2402	13.32	13.40	16.37
Middle	2441	13.43	13.45	16.45
High	2480	13.30	13.38	16.35

9.7.7. LOW POWER BASIC DATA RATE GFSK MODULATION**ANT 4**

Tested By:	19232
Date	6/30/2021

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	10.71
Middle	2441	10.99
High	2480	10.87

ANT 3

Tested By:	19232
Date	6/30/2021

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	10.98
Middle	2441	10.85
High	2480	10.95

9.7.8. LOW POWER BASIC DATA RATE TXBF GFSK MODULATION**ANT 4 + ANT 3**

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2402	10.58	10.98	13.79
Middle	2441	10.89	10.94	13.93
High	2480	10.70	10.90	13.81

9.7.9. LOW POWER ENHANCED DATA RATE QPSK MODULATION

ANT 4

Tested By:	19232
Date	7/28/2021

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	7.66
Middle	2441	7.70
High	2480	7.69

ANT 3

Tested By:	19232
Date	7/28/2021

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	7.69
Middle	2441	7.75
High	2480	7.70

9.7.10. LOW POWER BASIC DATA RATE TXBF QPSK MODULATION

ANT 4 + ANT 3

Tested By:	19232
Date:	7/28/2021

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2402	7.71	7.80	10.77
Middle	2441	7.76	7.82	10.80
High	2480	7.66	7.71	10.70

9.7.11. LOW POWER ENHANCED DATA RATE 8PSK MODULATION

ANT 4

Tested By:	19232
Date	7/28/2021

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	7.91
Middle	2441	7.99
High	2480	7.94

ANT 3

Tested By:	19232
Date	7/28/2021

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	7.99
Middle	2441	7.92
High	2480	7.98

9.7.12. LOW POWER BASIC DATA RATE TXBF 8PSK MODULATION

ANT 4 + ANT 3

Tested By:	19232
Date:	6/30/2021

Channel	Frequency (MHz)	Average Power ANT 4 (dBm)	Average Power ANT 3 (dBm)	Total Power (dBm)
Low	2402	7.96	7.96	10.97
Middle	2441	8.00	7.99	11.01
High	2480	7.94	7.98	10.97

9.8. CONDUCTED SPURIOUS EMISSIONS**LIMITS**

FCC §15.247 (d)

RSS-247 5.5

Limit = -20 dBc

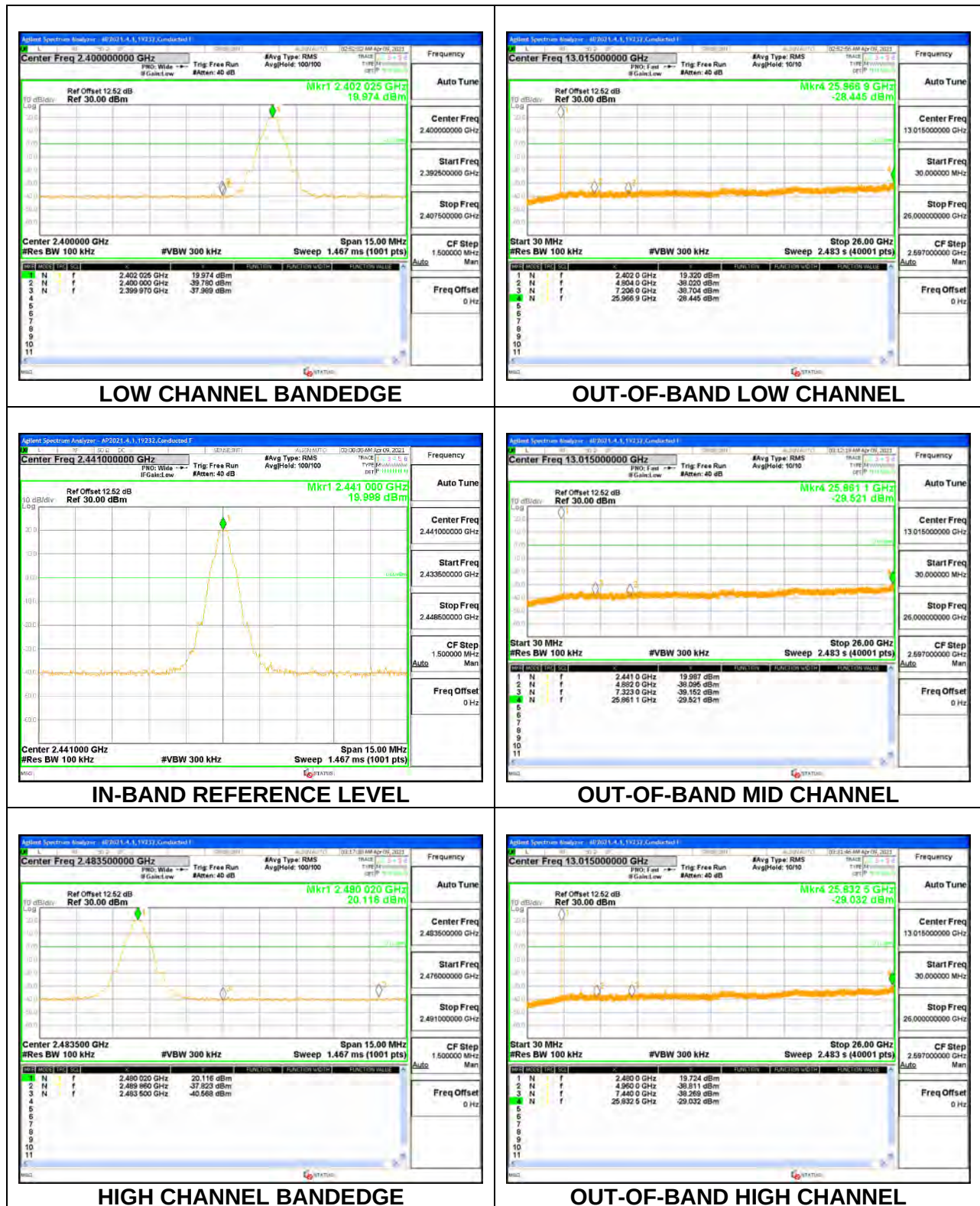
TEST PROCEDURE

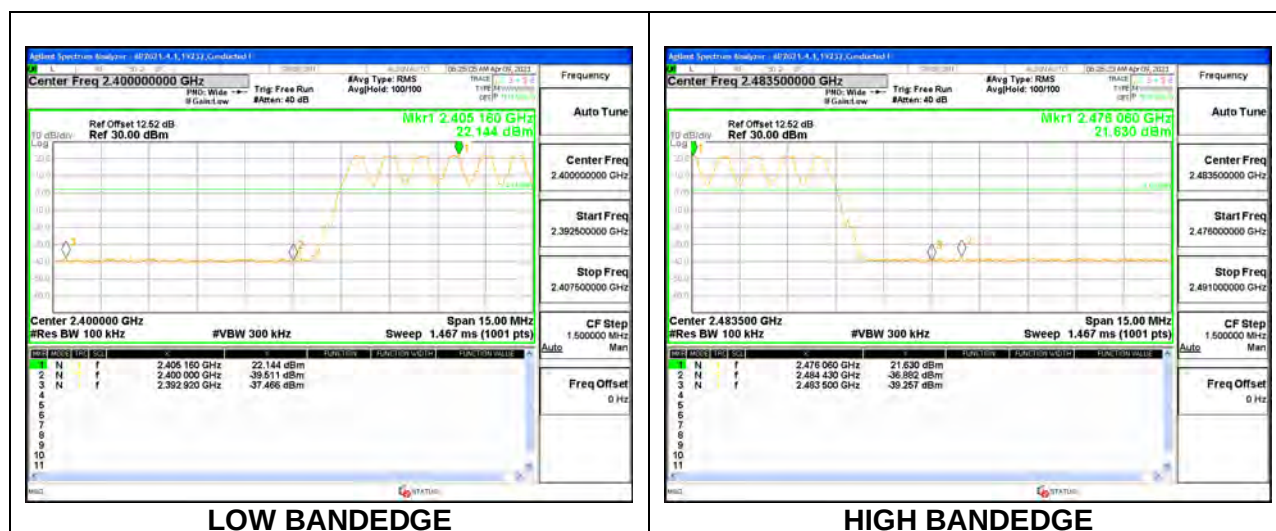
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

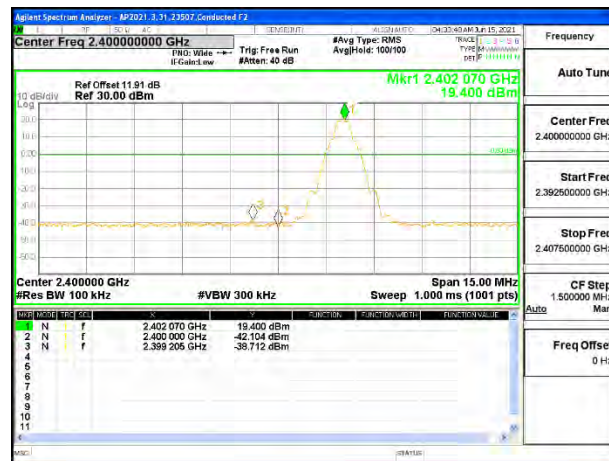
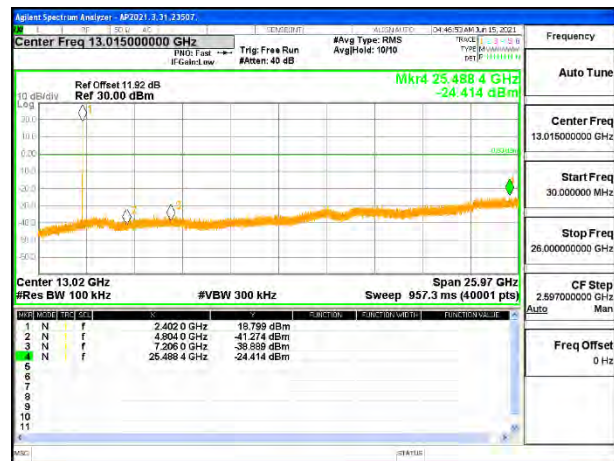
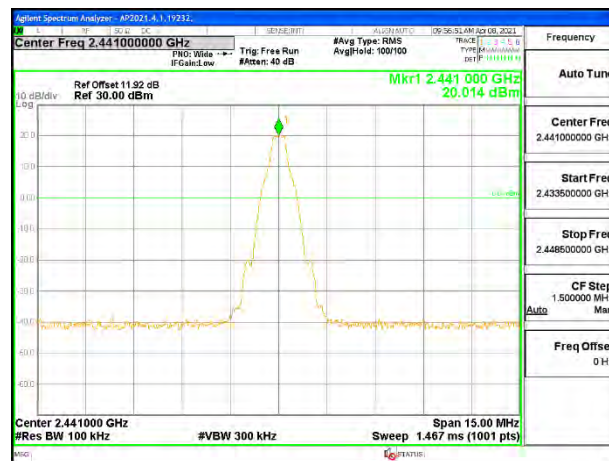
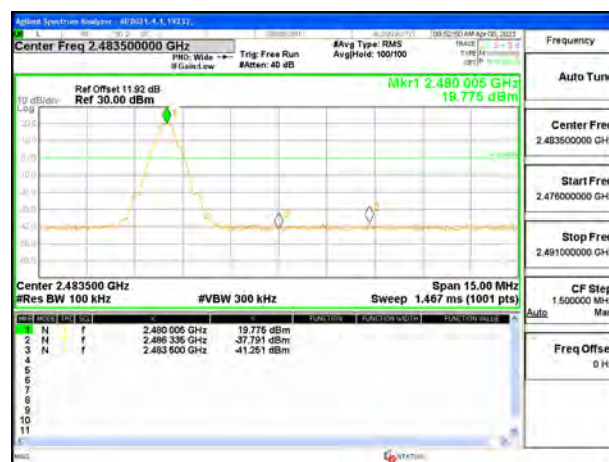
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

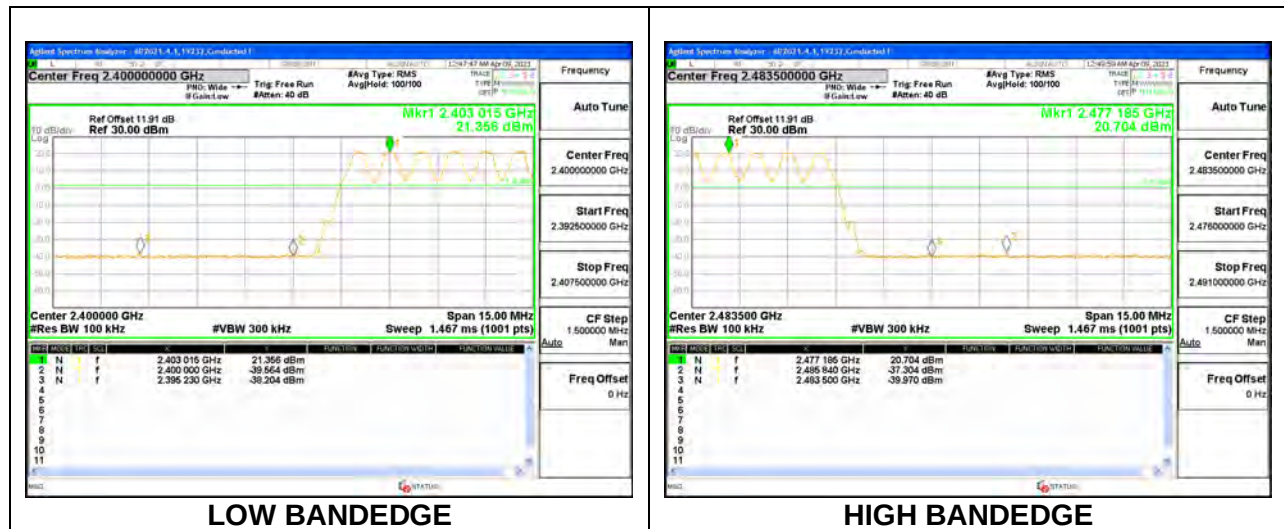
The band edges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

RESULTS

9.8.1. HIGH POWER BASIC DATA RATE GFSK MODULATION**ANT 4 SPURIOUS EMISSIONS, NON-HOPPING**

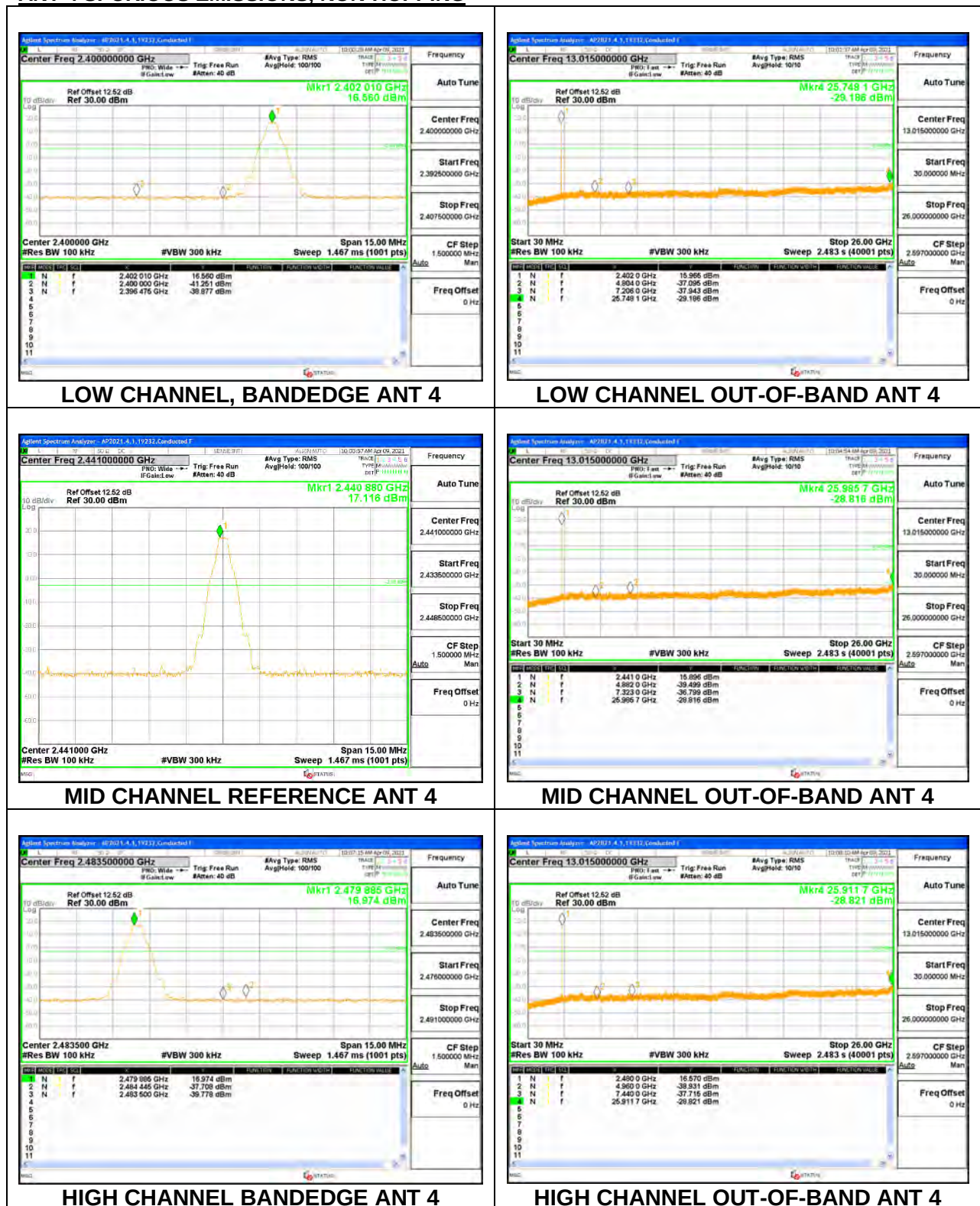
ANT 4 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

ANT 3 SPURIOUS EMISSIONS, NON-HOPPING**LOW CHANNEL BANDEDGE****OUT-OF-BAND LOW CHANNEL****IN-BAND REFERENCE LEVEL****OUT-OF-BAND MID CHANNEL****HIGH CHANNEL BANDEDGE****OUT-OF-BAND HIGH CHANNEL**

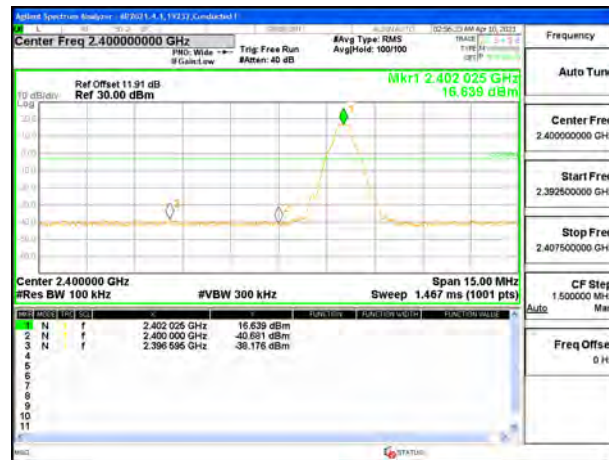
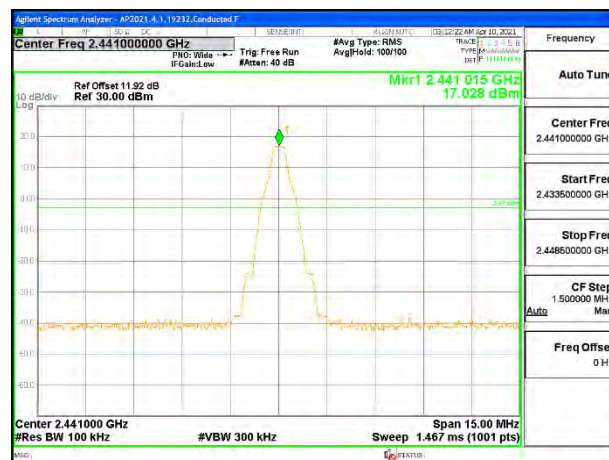
ANT 3 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

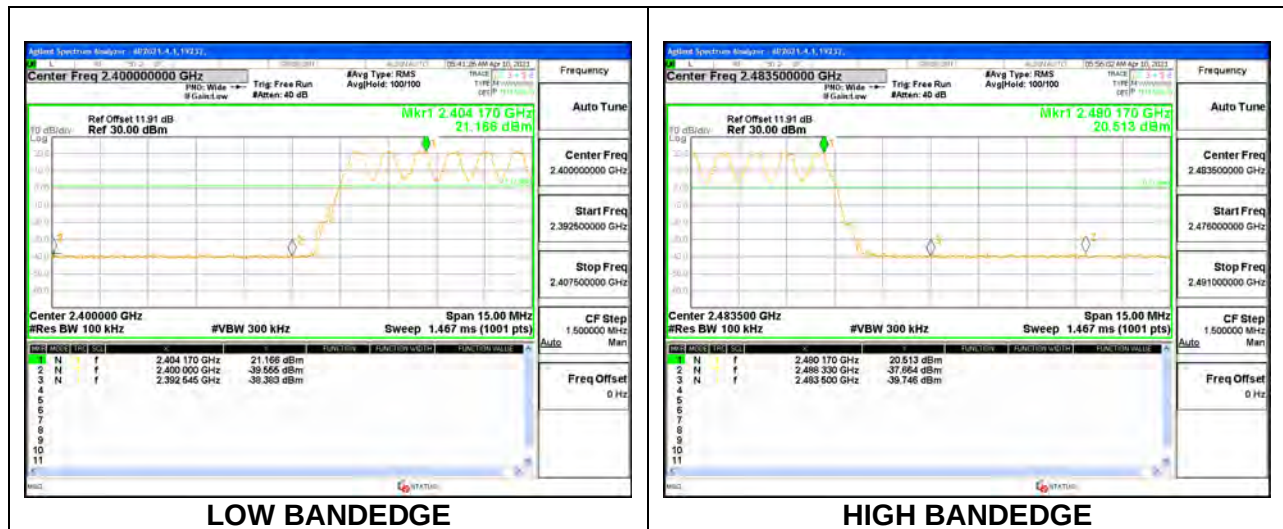
9.8.2. HIGH POWER BASIC DATA RATE TXBF GFSK MODULATION

Note: Test procedure on beamforming mode is same as BT basic and EDR mode
ANT 4 SPURIOUS EMISSIONS, NON-HOPPING



ANT 4 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

ANT 3 SPURIOUS EMISSIONS, NON-HOPPING**LOW CHANNEL, BANDEDGE ANT 3****LOW CHANNEL OUT-OF-BAND ANT 3****MID CHANNEL REFERENCE ANT 3****MID CHANNEL OUT-OF-BAND ANT 3****HIGH CHANNEL BANDEDGE ANT 3****HIGH CHANNEL OUT-OF-BAND ANT 3**

ANT 3 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

9.8.3. HIGH POWER ENHANCED DATA RATE 8PSK MODULATION

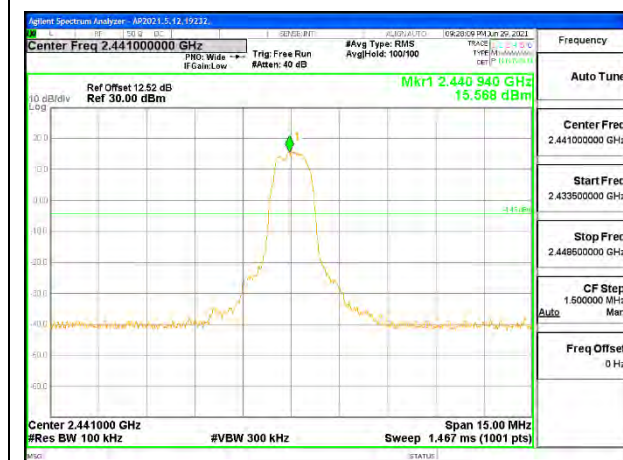
ANT 4 SPURIOUS EMISSIONS, NON-HOPPING



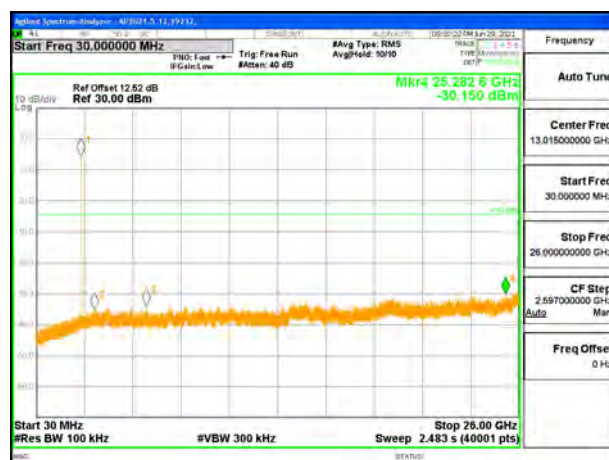
LOW CHANNEL BANDEDGE



OUT-OF-BAND LOW CHANNEL



IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL

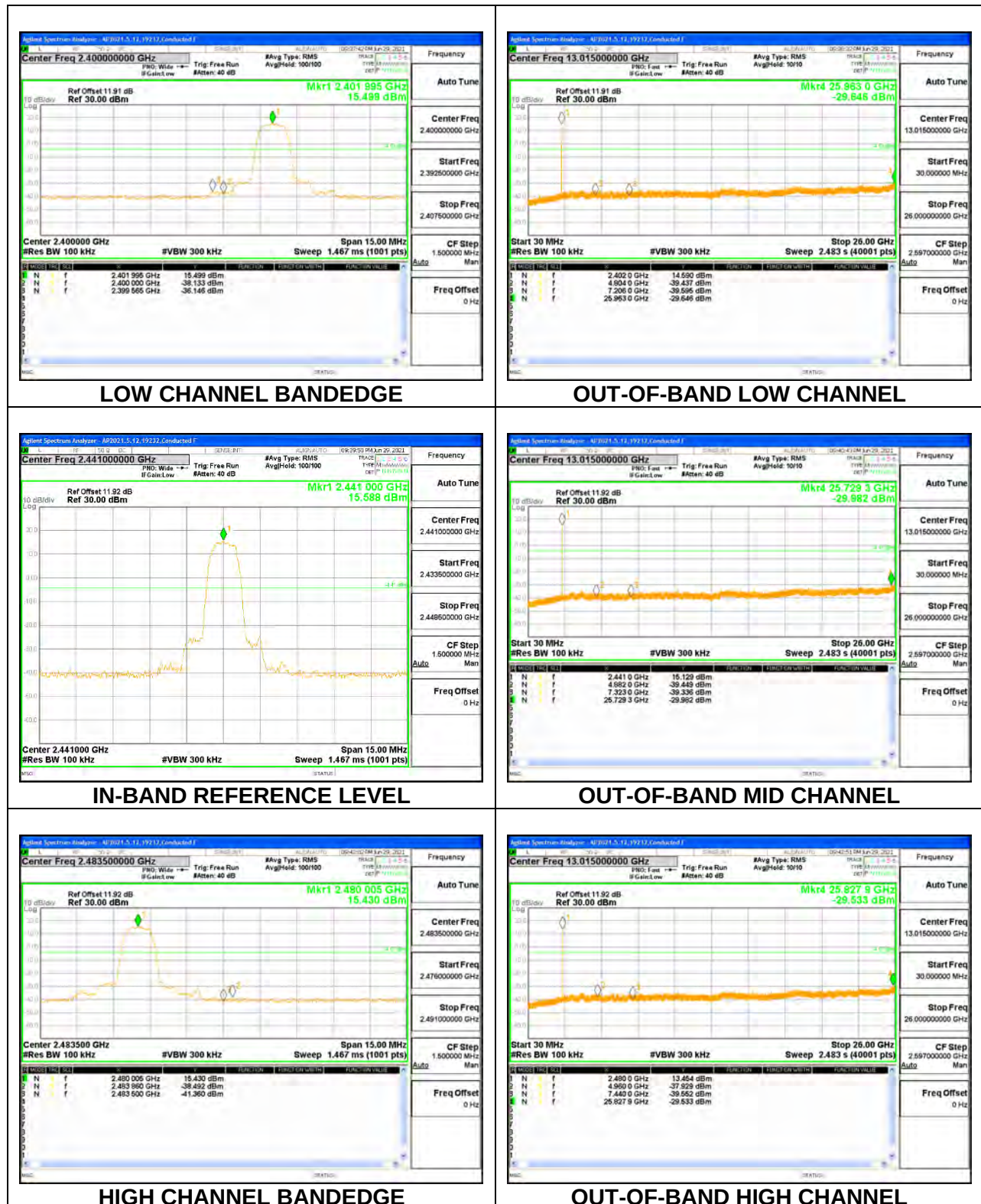


HIGH CHANNEL BANDEDGE



OUT-OF-BAND HIGH CHANNEL

ANT 4 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

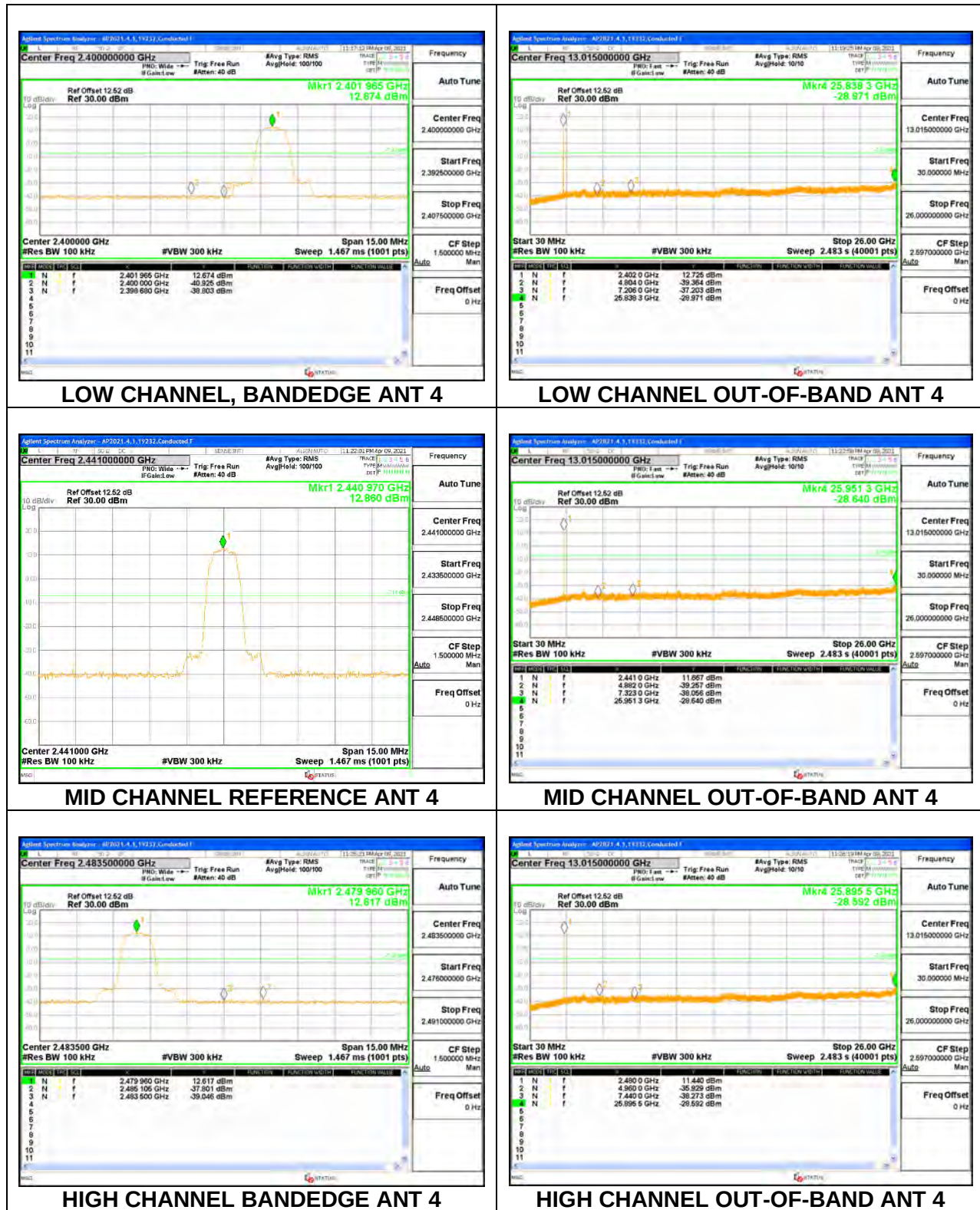
ANT 3 SPURIOUS EMISSIONS, NON-HOPPING

ANT 3 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

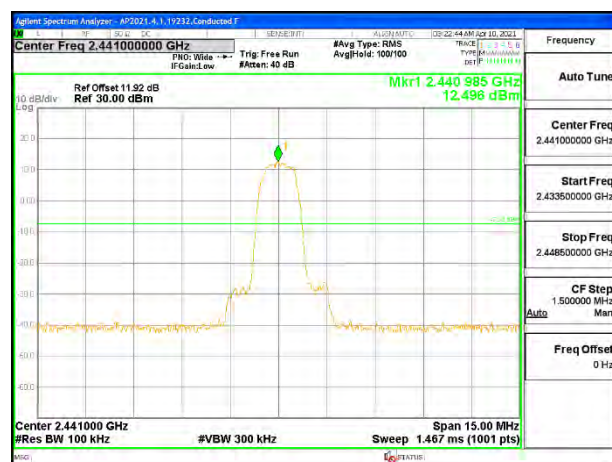
9.8.4. HIGH POWER ENHANCED DATA RATE TXBF 8PSK MODULATION

Note: Test procedure on beamforming mode is same as BT basic and EDR mode

ANT 4 SPURIOUS EMISSIONS, NON-HOPPING



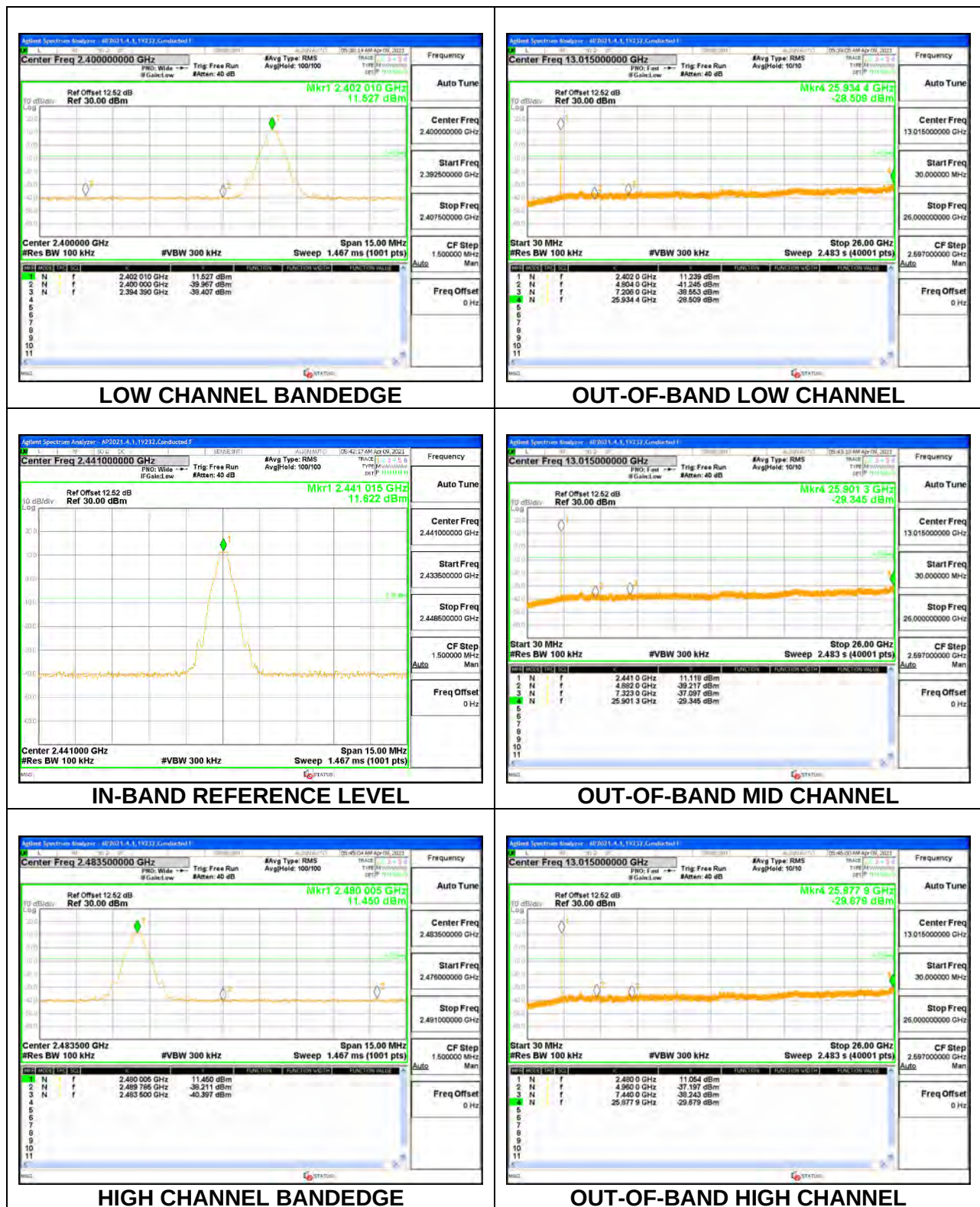
ANT 4 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

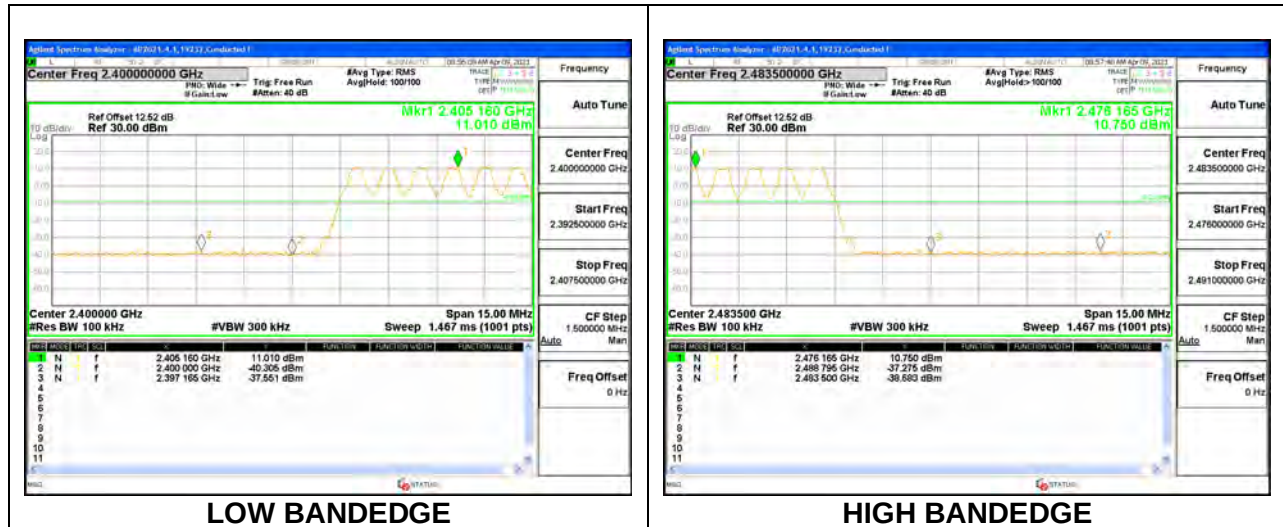
ANT 3 SPURIOUS EMISSIONS, NON-HOPPING**LOW CHANNEL BANDEDGE ANT 3****LOW CHANNEL OUT-OF-BAND ANT 3****MID CHANNEL REFERENCE ANT 3****MID CHANNEL OUT-OF-BAND ANT 3****HIGH CHANNEL BANDEDGE ANT 3****HIGH CHANNEL OUT-OF-BAND ANT 3**

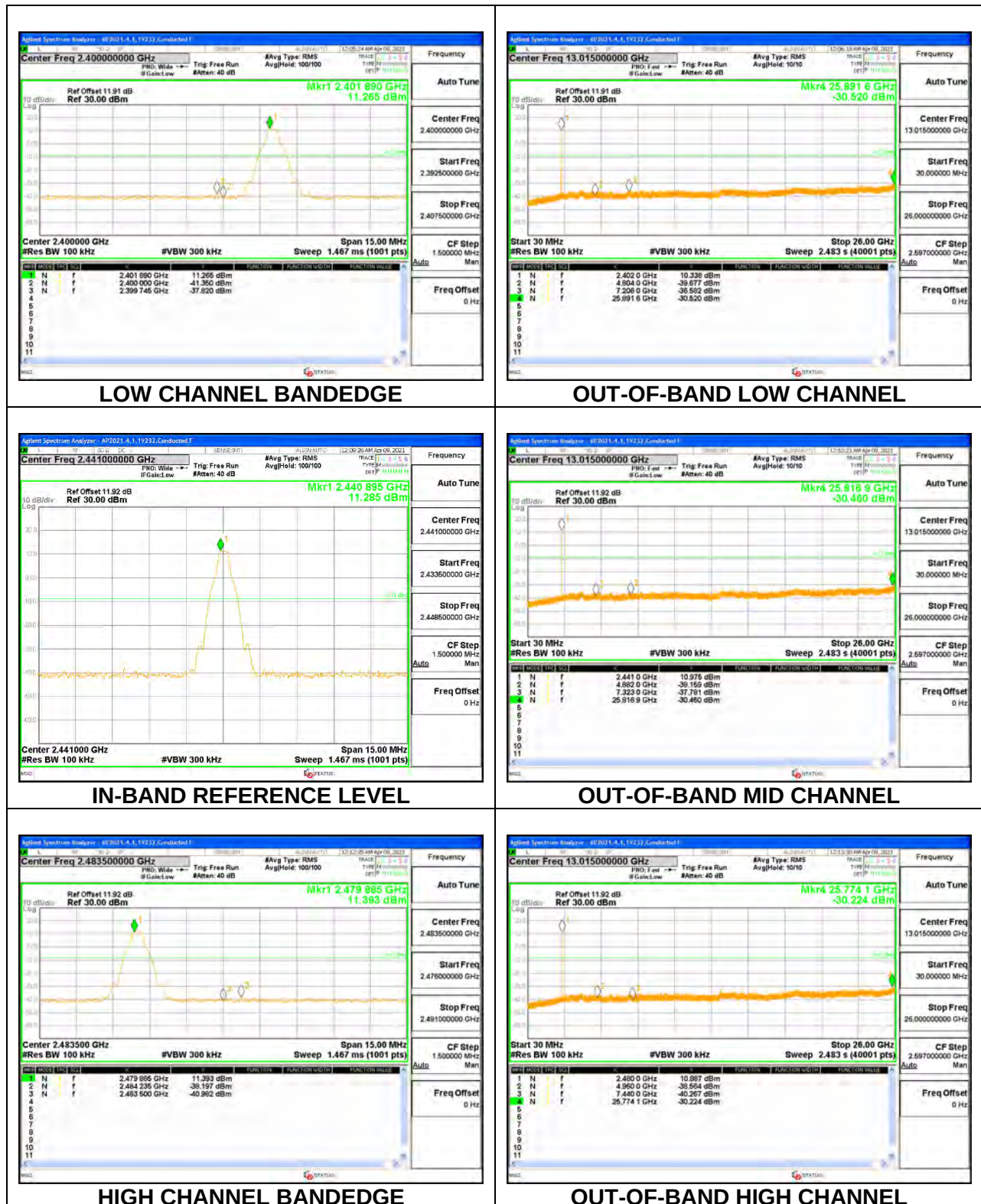
ANT 3 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

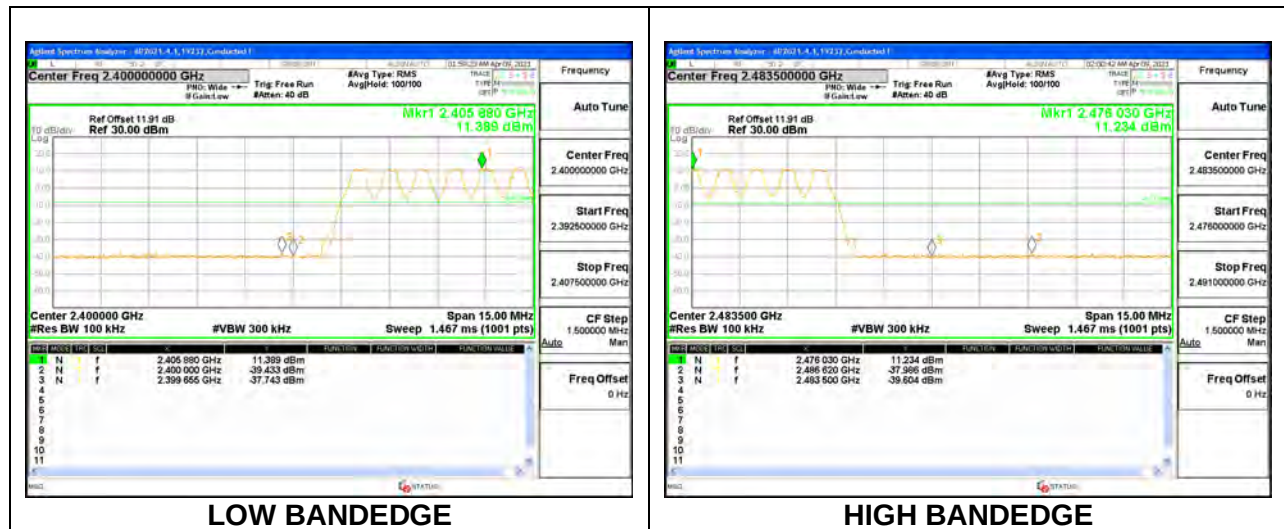
9.8.5. LOW POWER BASIC DATA RATE GFSK MODULATION

ANT 4 SPURIOUS EMISSIONS, NON-HOPPING



ANT 4 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

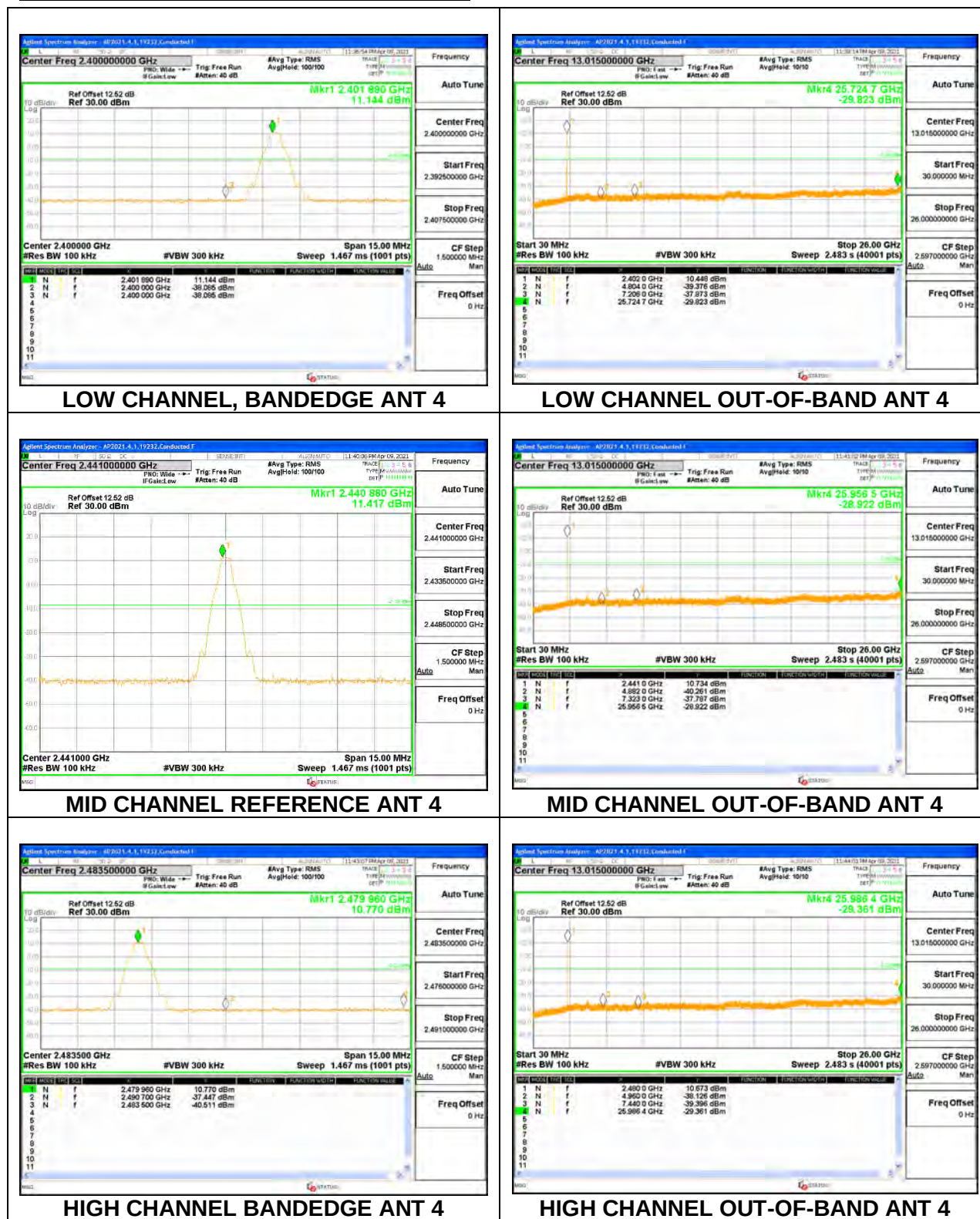
ANT 3 SPURIOUS EMISSIONS, NON-HOPPING

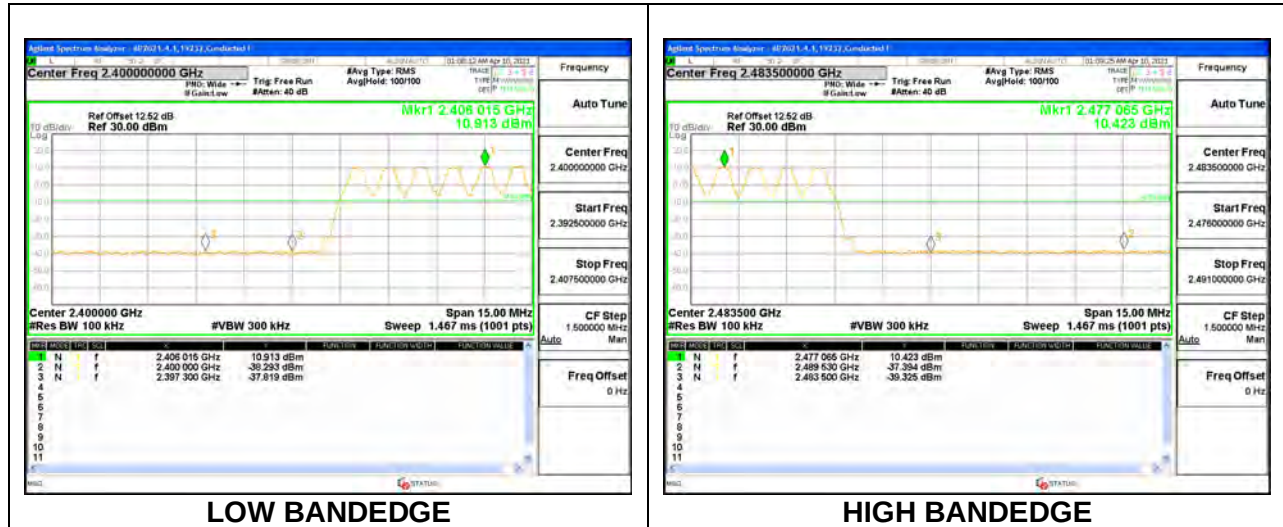
ANT 3 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

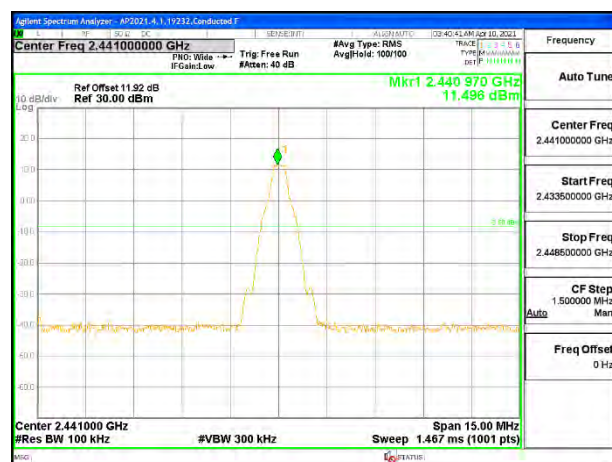
9.8.6. LOW POWER BASIC DATA RATE TXBF GFSK MODULATION

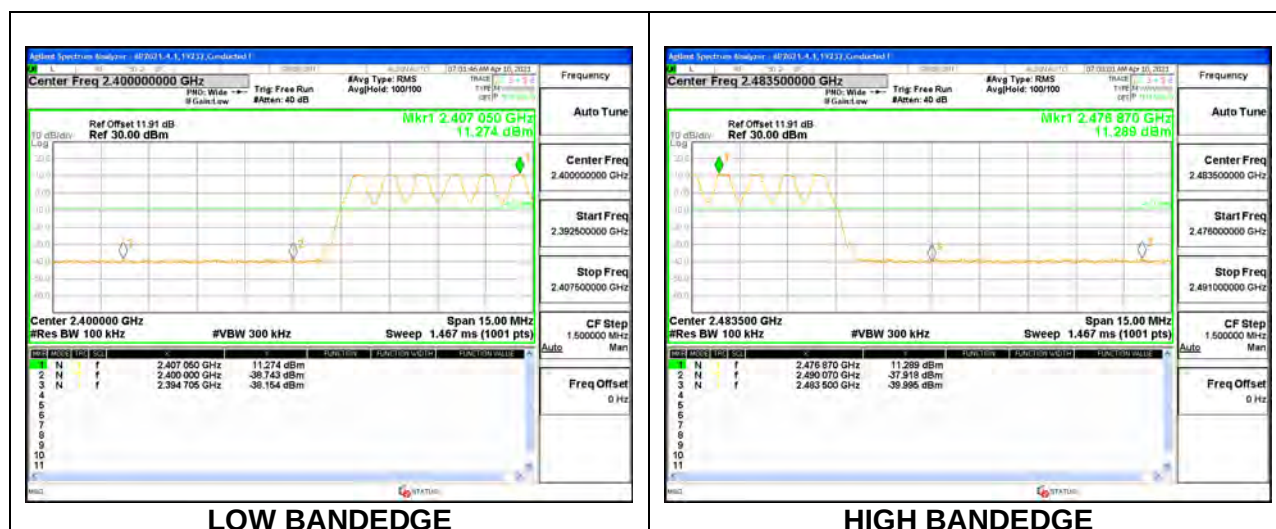
Note: Test procedure on beamforming mode is same as BT basic and EDR mode

ANT 4 SPURIOUS EMISSIONS, NON-HOPPING



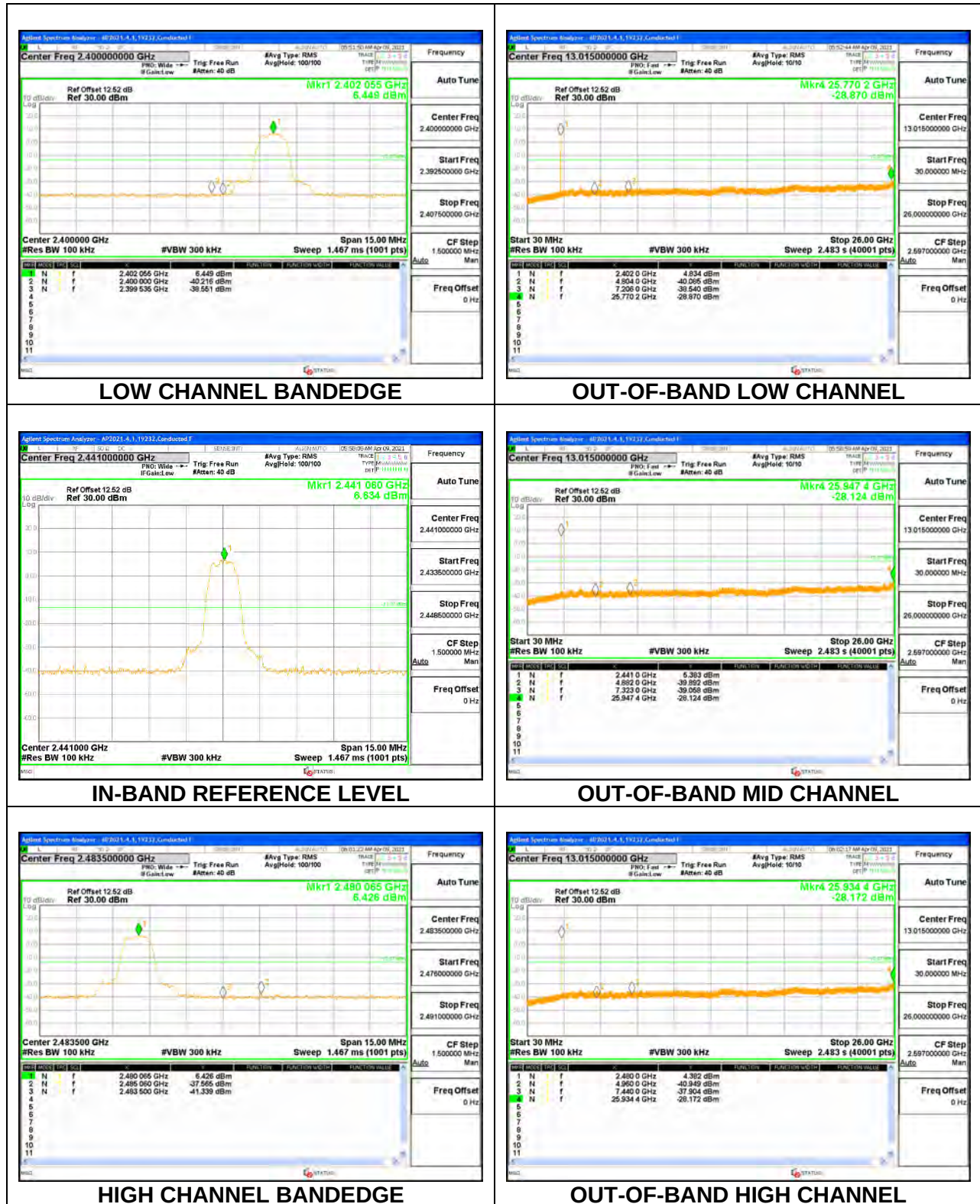
ANT 4 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

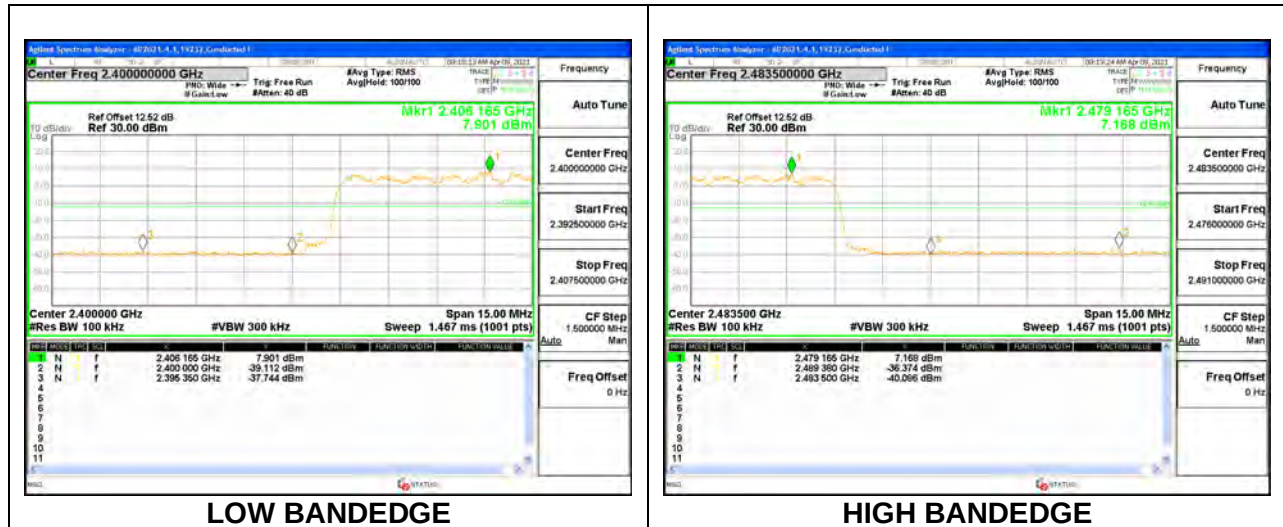
ANT 3 SPURIOUS EMISSIONS, NON-HOPPING**LOW CHANNEL, BANDEDGE ANT 3****LOW CHANNEL OUT-OF-BAND ANT 3****MID CHANNEL REFERENCE ANT 3****MID CHANNEL OUT-OF-BAND ANT 3****HIGH CHANNEL BANDEDGE ANT 3****HIGH CHANNEL OUT-OF-BAND ANT 3**

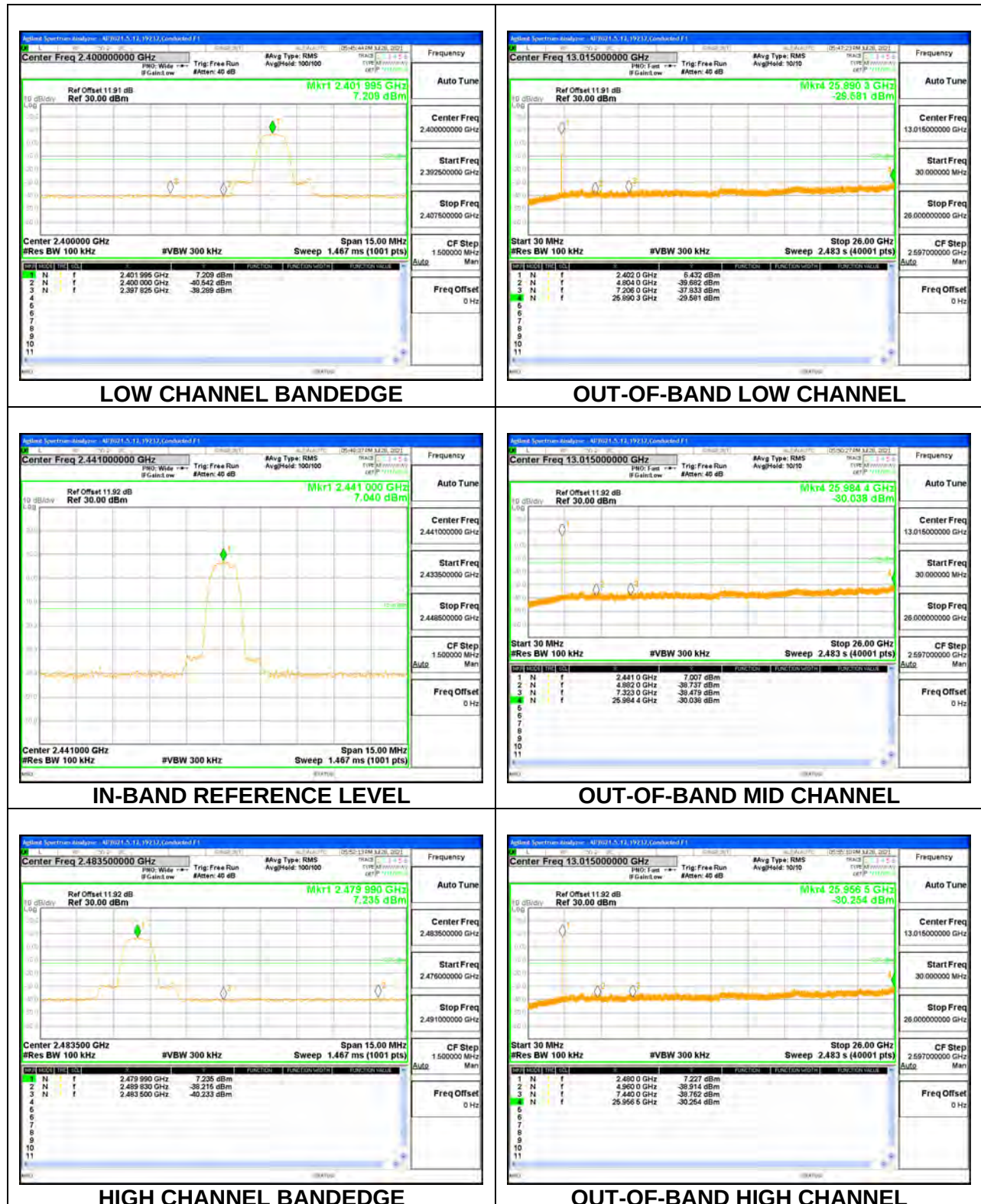
ANT 3 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

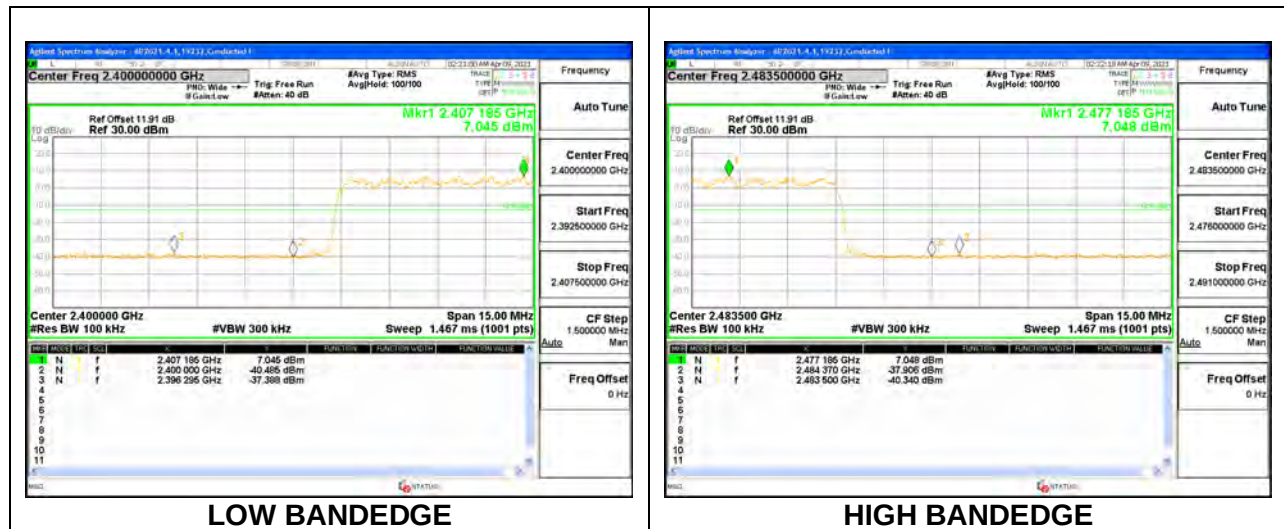
9.8.7. LOW POWER ENHANCED DATA RATE 8PSK MODULATION

ANT 4 SPURIOUS EMISSIONS, NON-HOPPING



ANT 4 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

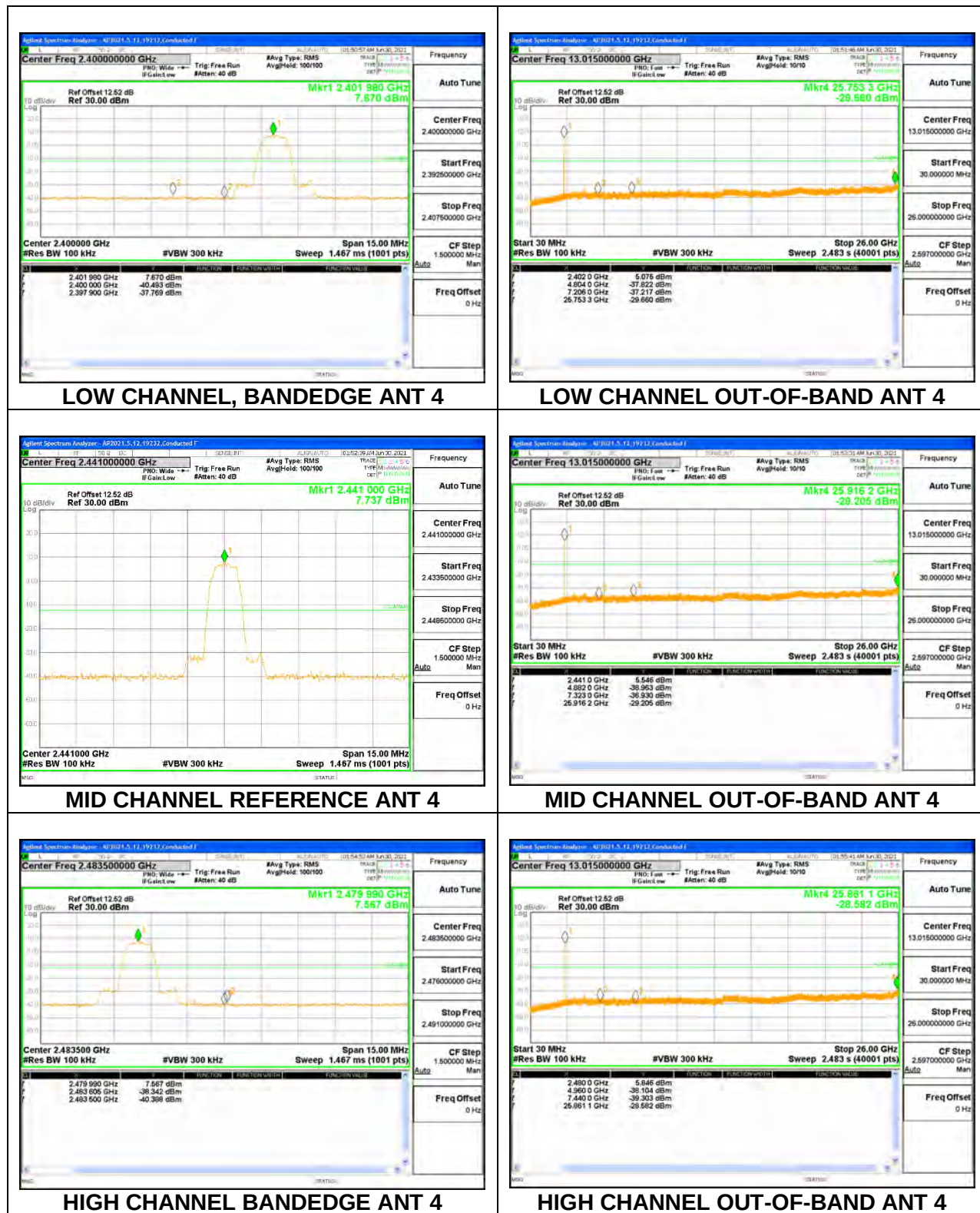
ANT 3 SPURIOUS EMISSIONS, NON-HOPPING

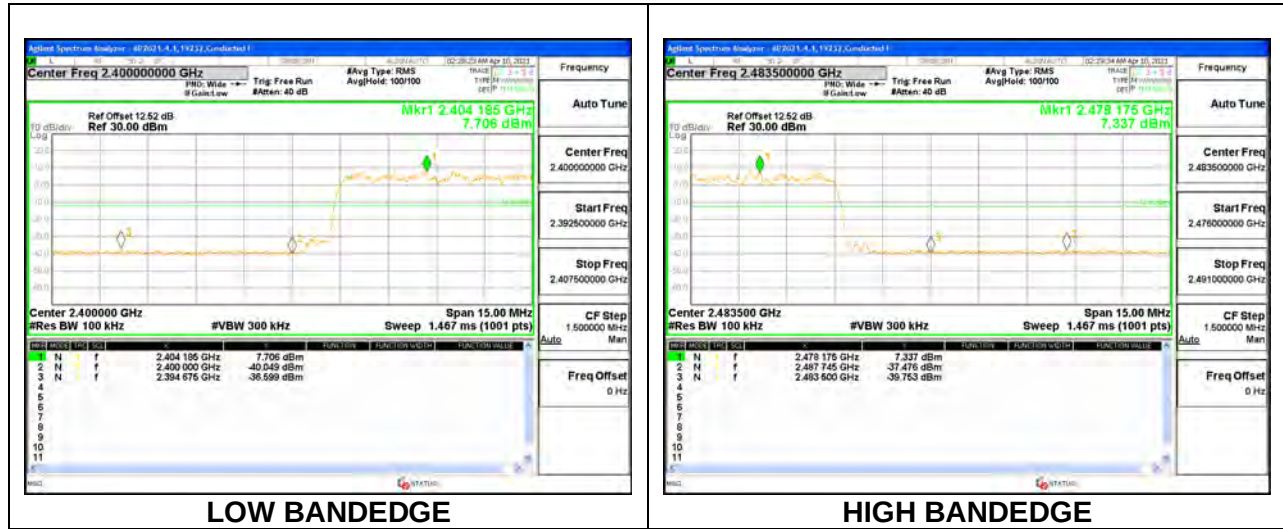
ANT 3 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

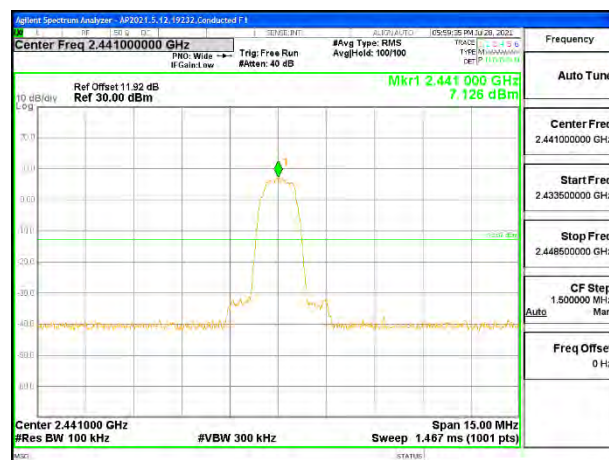
9.8.8. LOW POWER ENHANCED DATA RATE TXBF 8PSK MODULATION

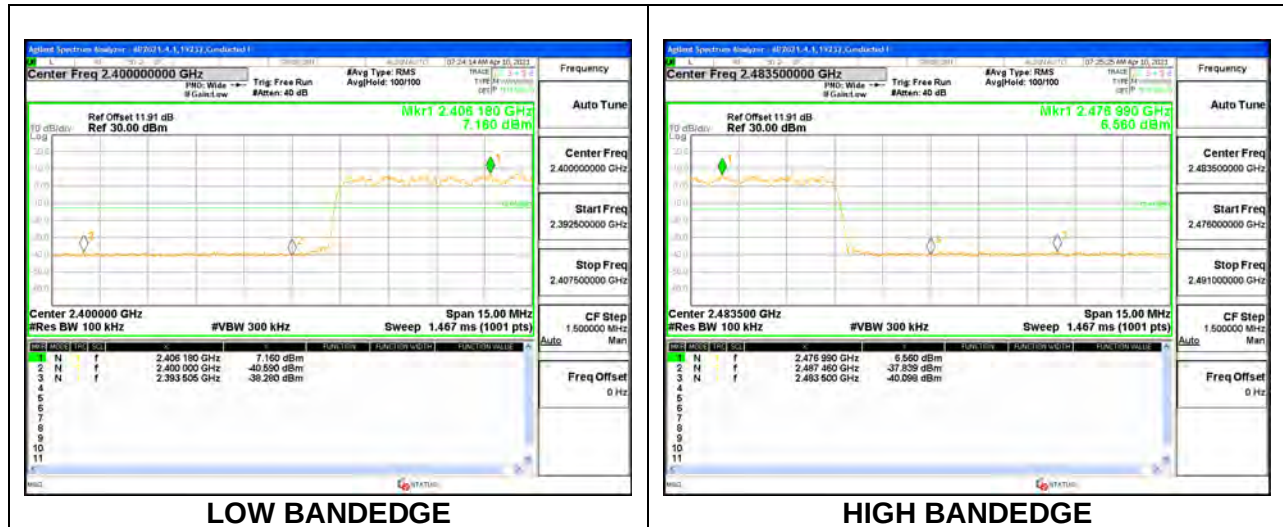
Note: Test procedure on beamforming mode is same as BT basic and EDR mode

ANT 4 SPURIOUS EMISSIONS, NON-HOPPING



ANT 4 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

ANT 3 SPURIOUS EMISSIONS, NON-HOPPING**LOW CHANNEL, BANDEDGE ANT 3****LOW CHANNEL OUT-OF-BAND ANT 3****MID CHANNEL REFERENCE ANT 3****MID CHANNEL OUT-OF-BAND ANT 3****HIGH CHANNEL BANDEDGE ANT 3****HIGH CHANNEL OUT-OF-BAND ANT 3**

ANT 3 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON

10. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

RSS-GEN, Section 8.9 and 8.10.

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 scans above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T (10 Hz) 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.

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

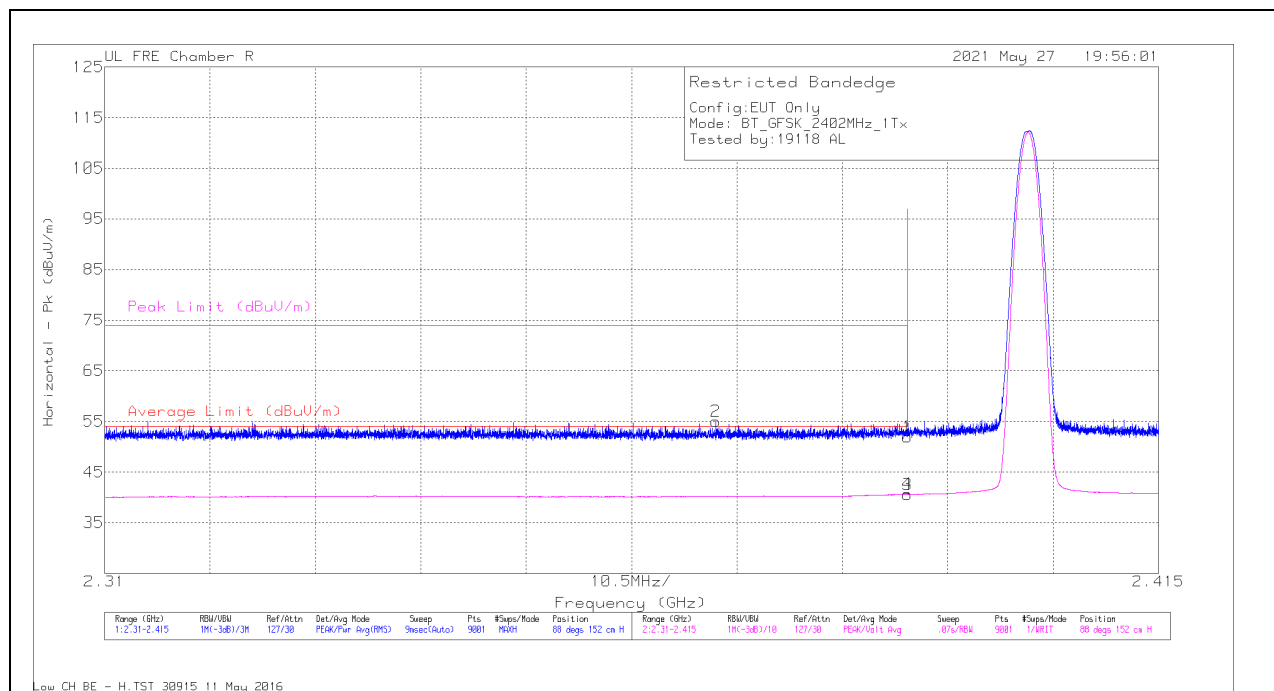
Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

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

KDB 558074 D01 15.247 Meas Guidance v05r02

Use of a duty cycle correction factor (DCCF) is permitted for calculating average radiated field strength emission levels for an FHSS device in 15.247. This DCCF can be applied when the field strength limit (e.g., within a Government Restricted band) and the conditions specified in Section 15.35(c) can be satisfied. The average radiated field strength is calculated by subtracting the DCCF from the maximum radiated field strength level as determined through measurement. The maximum radiated field strength level represents the worst-case (maximum amplitude) RMS measurement of the emission(s) during continuous transmission (i.e., not including any time intervals during which the transmitter is off or is transmitting at a reduced power level). It is also acceptable to apply the DCCF to a measurement performed with a peak detector instead of the specified RMS power averaging detector. Note that Section 15.35(c) specifies that the DCCF shall represent the worst-case (greatest duty cycle) over any 100 msec transmission period.

Results

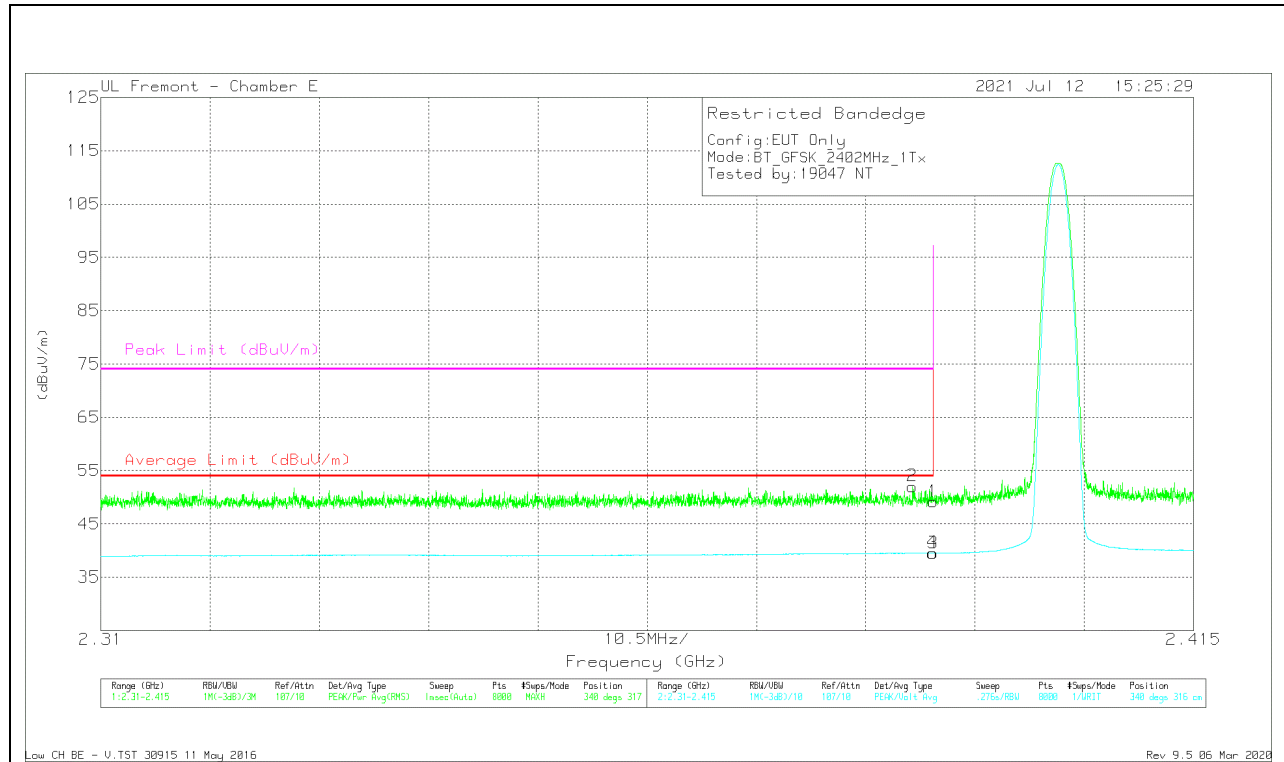
10.1. TRANSMITTER ABOVE 1 GHz**10.1.1. HIGH POWER BASIC DATA RATE GFSK MODULATION****ANT 4****BANDEDGE (LOW CHANNEL)****HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cbl/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.38999	55.34	Pk	32.1	-35.5	51.94	-	-	74	-22.06	88	152	H
2	2.37091	58.57	Pk	32.1	-35.6	55.07	-	-	74	-18.93	88	152	H
3	2.38999	44.01	VA1T	32.1	-35.5	40.61	54	-13.39	-	-	88	152	H
4	2.38997	44.02	VA1T	32.1	-35.5	40.62	54	-13.38	-	-	88	152	H

Pk - Peak detector

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

VERTICAL RESULT

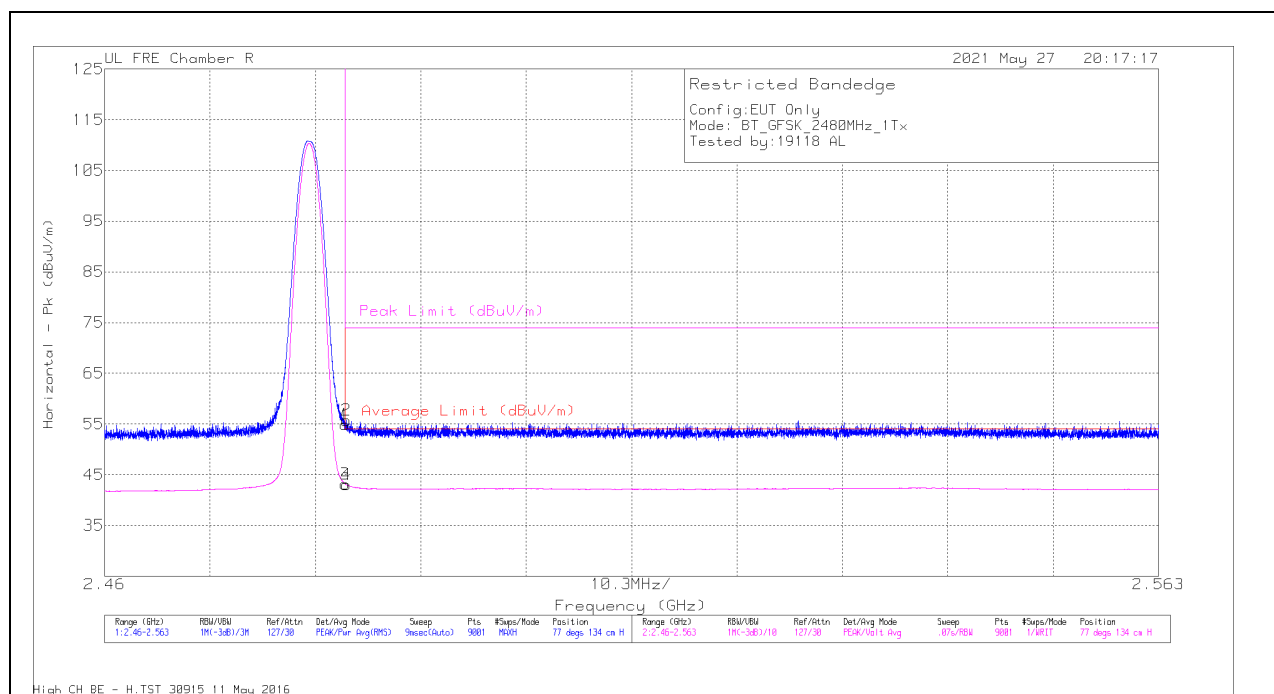


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0078107 (dB/m)	Amp/Cbl/Rtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	42.38	Pk	32.2	-25.4	49.18	-	-	74	-24.82	340	317	V
2	* 2.38799	45.26	Pk	32.2	-25.4	52.06	-	-	74	-21.94	340	317	V
3	* 2.39	32.72	VA1T	32.2	-25.4	39.52	54	-14.48	-	-	340	316	V
4	* 2.38992	32.76	VA1T	32.2	-25.4	39.56	54	-14.44	-	-	340	316	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

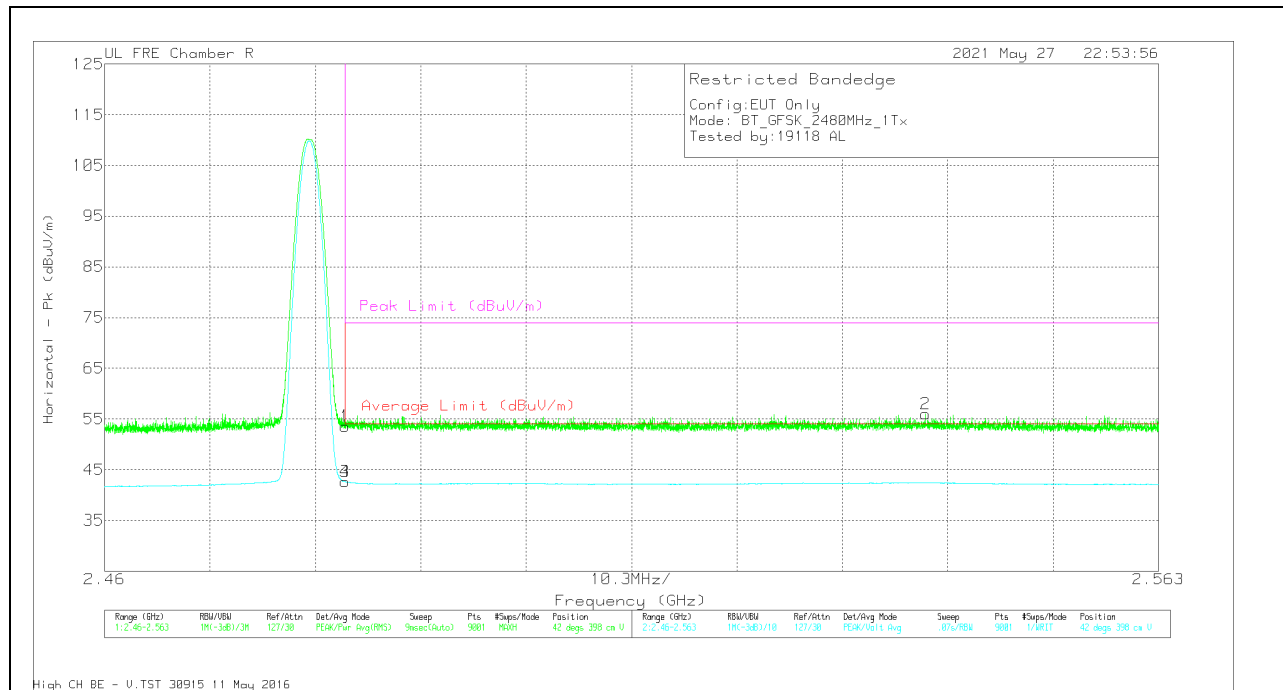
BANEDGE (HIGH CHANNEL)**HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cb/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.48351	57.66	Pk	32.5	-35.3	54.86	-	-	74	-19.14	77	134	H
2	2.4836	58.51	Pk	32.5	-35.3	55.71	-	-	74	-18.29	77	134	H
3	2.48351	45.97	VA1T	32.5	-35.3	43.17	54	-10.83	-	-	77	134	H
4	2.4836	45.85	VA1T	32.5	-35.3	43.05	54	-10.95	-	-	77	134	H

Pk - Peak detector

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

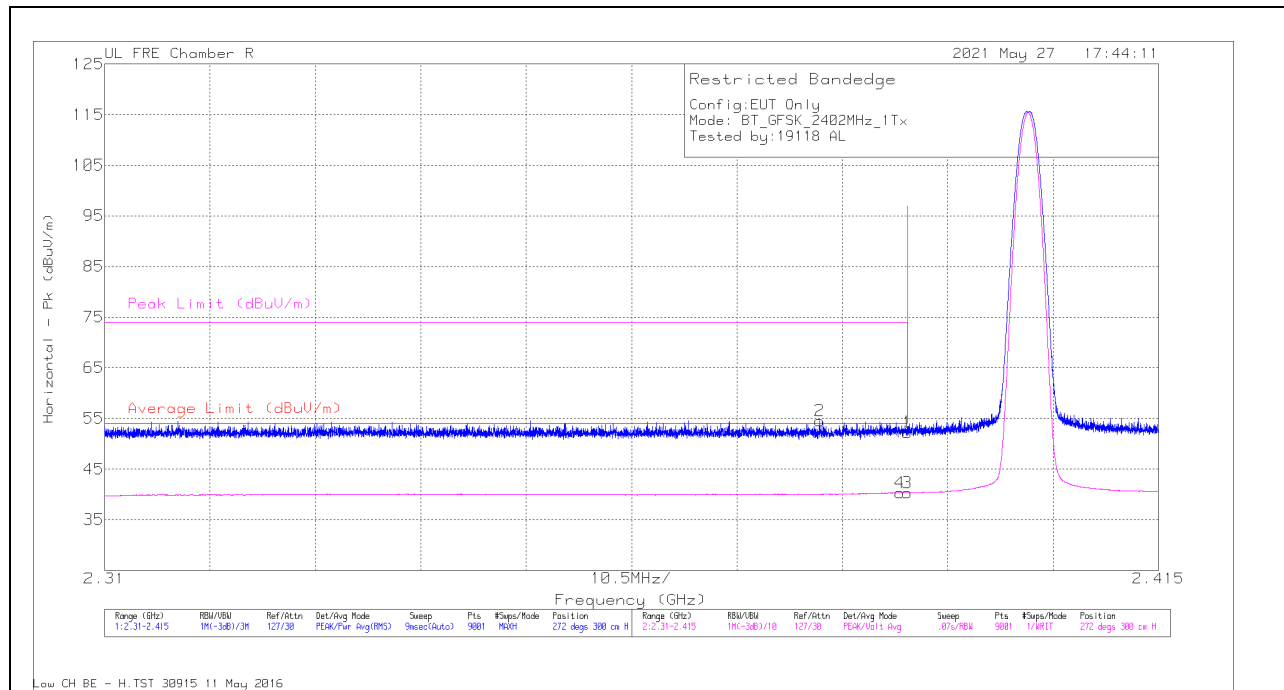
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/CbI/Ftr/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.48351	56.4	Pk	32.5	-35.3	53.6	-	-	74	-20.4	42	398	V
2	2.54025	58.44	Pk	32.6	-35	56.04	-	-	74	-17.96	42	398	V
3	2.48351	45.41	VA1T	32.5	-35.3	42.61	54	-11.39	-	-	42	398	V
4	2.48352	45.42	VA1T	32.5	-35.3	42.62	54	-11.38	-	-	42	398	V

Pk - Peak detector

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

ANT 3**HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dBm)	Amp/Cbl/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.38999	55.64	Pk	32.1	-35.5	52.24	-	-	74	-21.76	272	300	H
2	2.38122	57.95	Pk	32.1	-35.5	54.55	-	-	74	-19.45	272	300	H
3	2.38999	43.7	VA1T	32.1	-35.5	40.3	54	-13.7	-	-	272	300	H
4	2.38921	43.73	VA1T	32.1	-35.5	40.33	54	-13.67	-	-	272	300	H

Pk - Peak detector

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

UL FRE Chamber R

2021 May 27 18:06:41

Restricted Bandedge

Config: EUT Only

Mode: BT_GFSK_2402MHz_1Tx

Tested by: 19118 AL

Horizontal - Pk (dBu/m)

Peak Limit (dBu/m)

Average Limit (dBu/m)

Frequency (GHz)

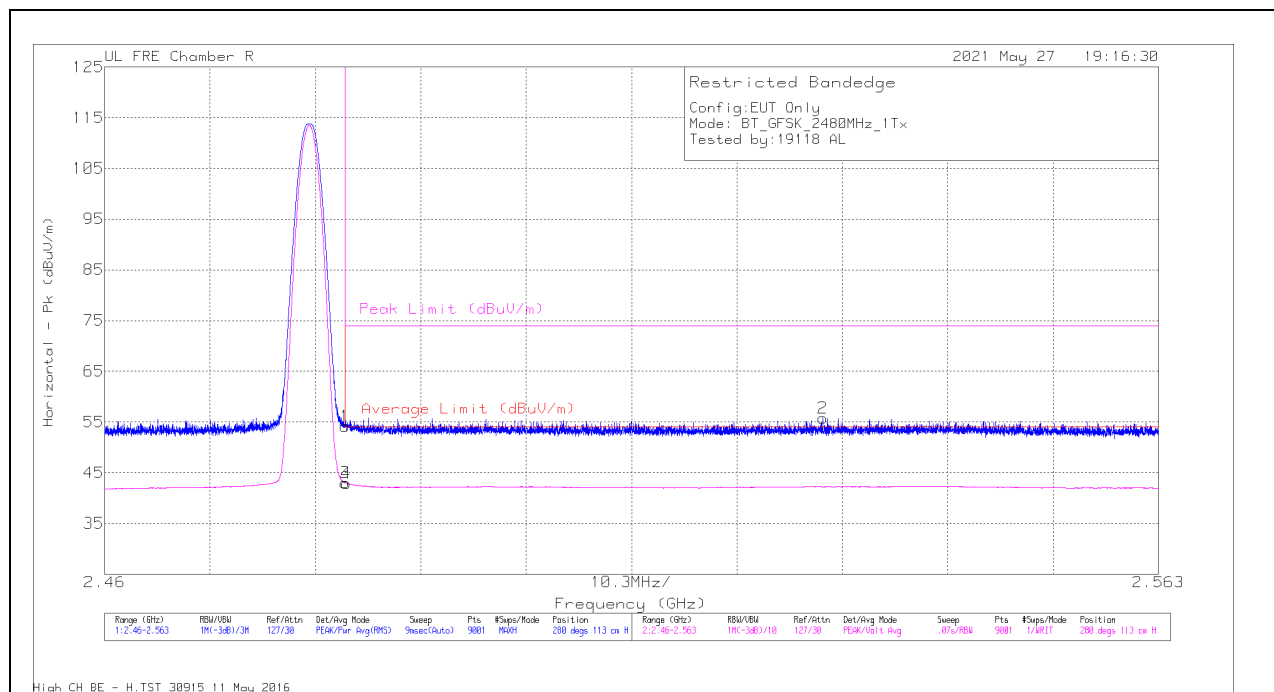
2.31 2.415

Range (Bz)	RBW/VBW	Ref/Att	Det/Avg Mode	Sweep	Pts	#Seps/Mode	Position	Range (Ghz)	RBW/VBW	Ref/Att	Det/Avg Mode	Sweep	Pts	#Seps/Mode	Position
1:2.31-2.415	1M-3dB/10	127/30	PEAK/Pwr Avg(RMS)	Sweep(Auto)	9801	16401	213 degs 384 ca 0	2:2.31-2.415	1M-3dB/10	127/30	PEAK/Vol Avg	07u/RBW	9801	1/1611	213 degs 384 ca 0

Low CH BE - U.TST 30915 11 May 2016

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dBm)	AmpCntrlFtr/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degr)	Height (cm)	Polarity
1	2.38999	55.92	Pk	32.1	-35.5	52.52	-	-	74	-21.48	213	384	V
2	2.32432	58.2	Pk	32.2	-35.6	54.8	-	-	74	-19.2	213	384	V
3	2.38999	43.77	VALT	32.1	-35.5	40.37	54	-13.63	-	-	213	384	V
4	2.38967	43.81	VALT	32.1	-35.5	40.41	54	-13.59	-	-	213	384	V

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

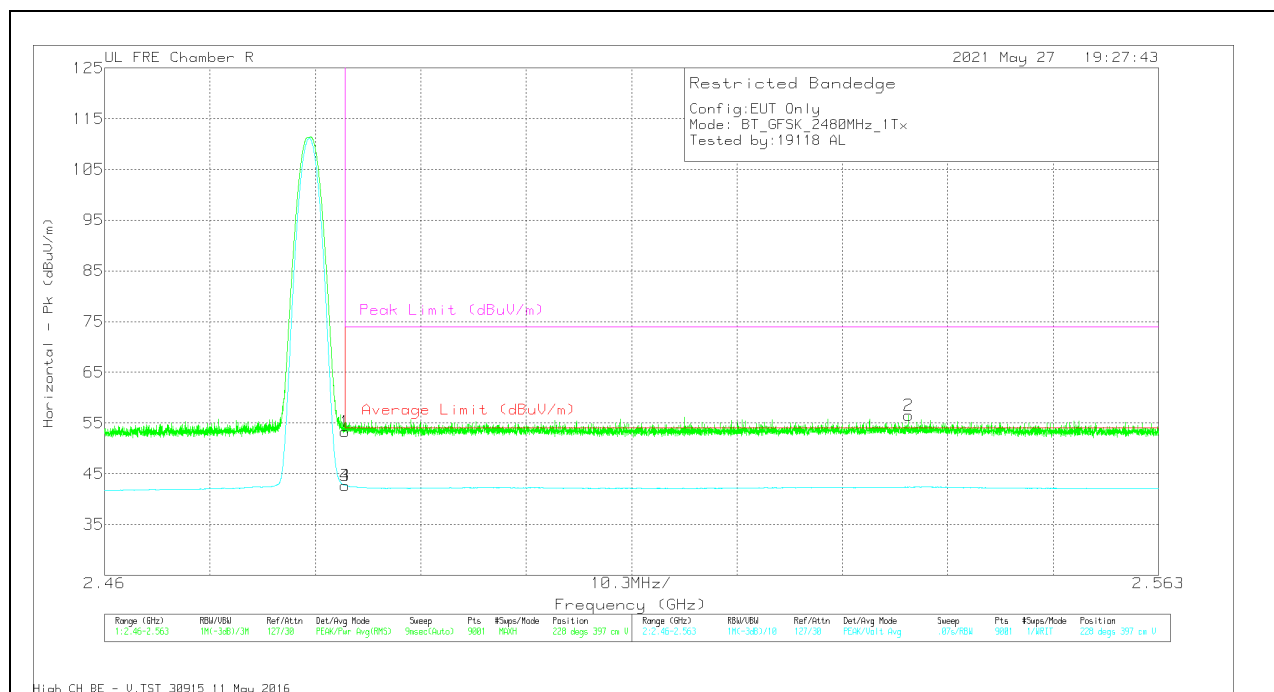
BANDEDGE (HIGH CHANNEL)**HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cb/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.48351	56.99	Pk	32.5	-35.3	54.19	-	-	74	-19.81	280	113	H
2	2.53021	58.32	Pk	32.6	-35.1	55.82	-	-	74	-18.18	280	113	H
3	2.48351	45.8	VA1T	32.5	-35.3	43	54	-11	-	-	280	113	H
4	2.4836	45.71	VA1T	32.5	-35.3	42.91	54	-11.09	-	-	280	113	H

Pk - Peak detector

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

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Ampl/Cbl/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.48351	56.13	Pk	32.5	-35.3	53.33	-	-	74	-20.67	228	397	V
2	2.53857	58.87	Pk	32.6	-35	56.47	-	-	74	-17.53	228	397	V
3	2.48351	45.5	VA1T	32.5	-35.3	42.7	54	-11.3	-	-	228	397	V
4	2.48352	45.5	VA1T	32.5	-35.3	42.7	54	-11.3	-	-	228	397	V

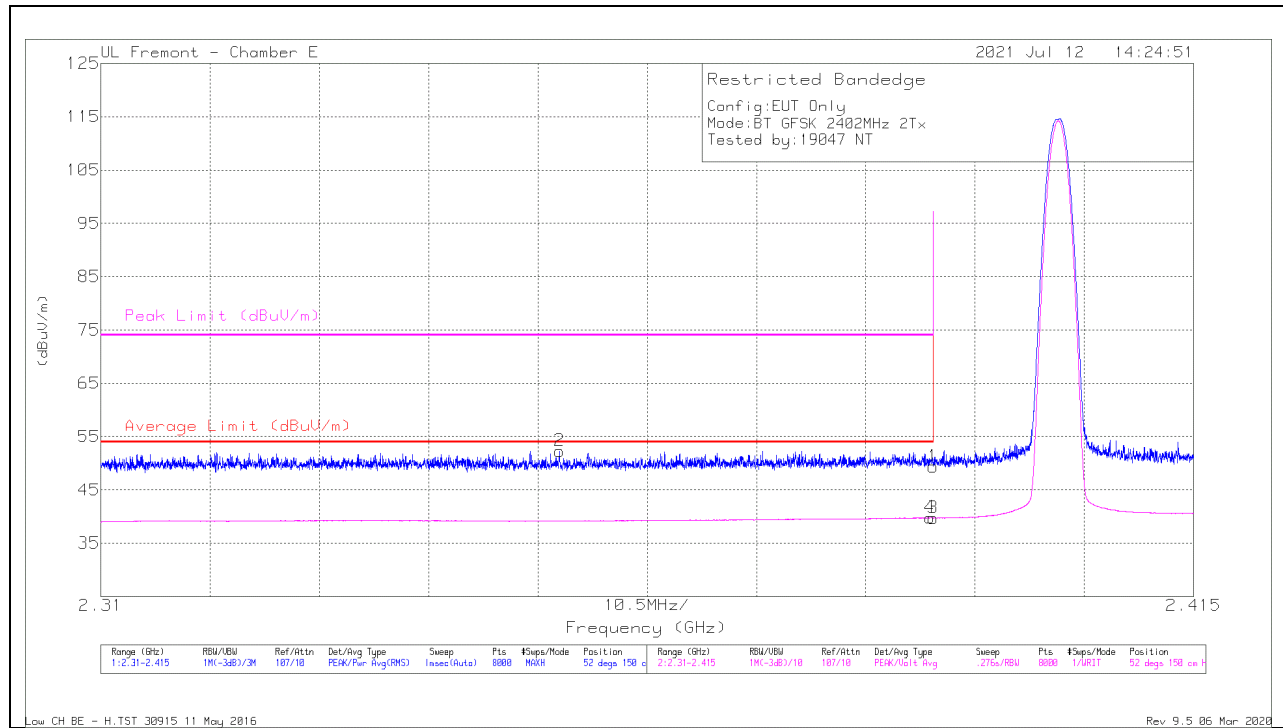
Pk - Peak detector

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

10.1.2. HIGH POWER BASIC DATA RATE TXBF GFSK MODULATION

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



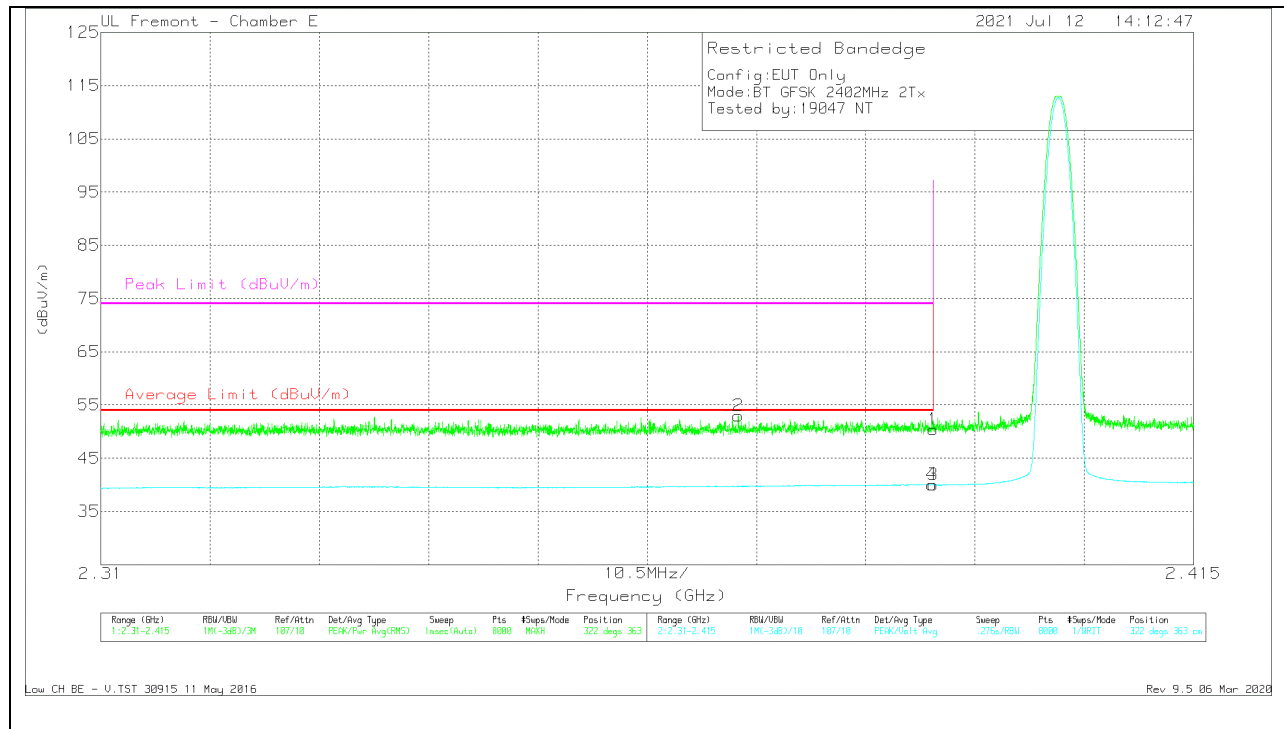
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0078107 (dB/m)	Amp/Cbl/Ftr/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	42.59	Pk	32.2	-25.4	49.39	-	-	74	-24.61	52	150	H
2	* 2.35408	45.71	Pk	32	-25.4	52.31	-	-	74	-21.69	52	150	H
3	* 2.39	32.92	VA1T	32.2	-25.4	39.72	54	-14.28	-	-	52	150	H
4	* 2.38967	32.99	VA1T	32.2	-25.4	39.79	54	-14.21	-	-	52	150	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

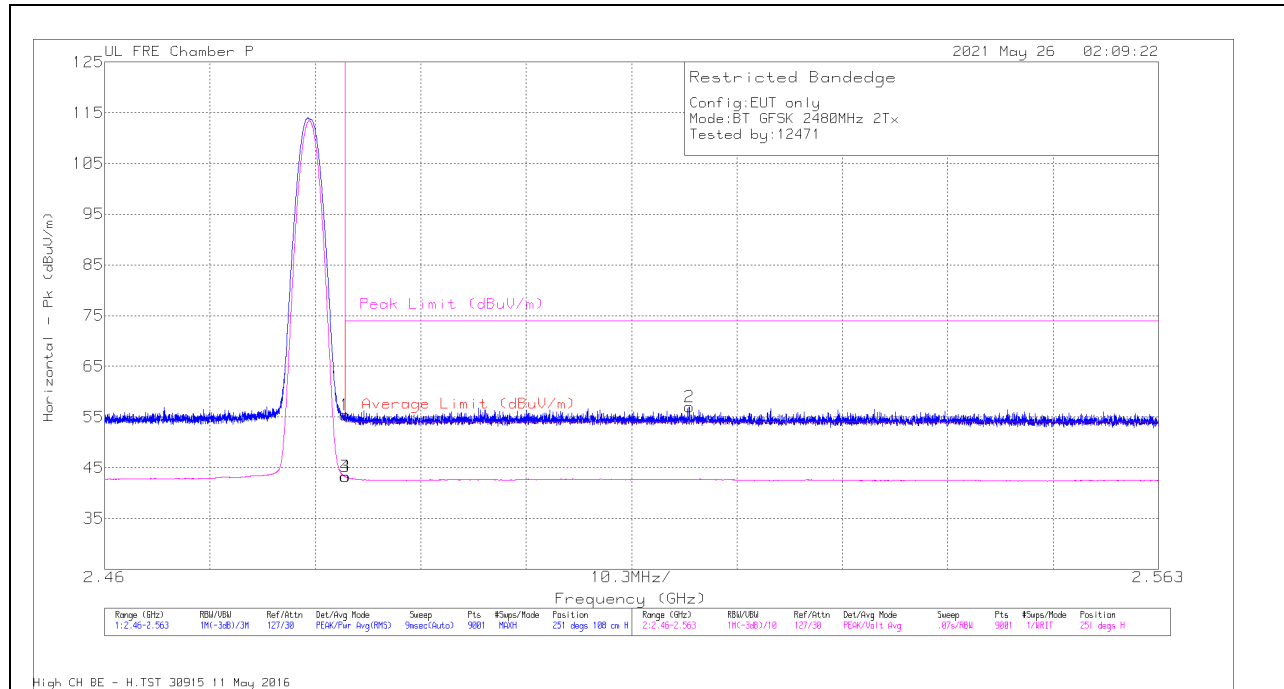


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0078107 (dBm)	Amp/Cbl/Ftr/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	43.61	Pk	32.2	-25.4	50.41	-	-	74	-23.59	322	363	V
2	* 2.37125	46.37	Pk	32.1	-25.5	52.97	-	-	74	-21.03	322	363	V
3	* 2.39	33.2	VA1T	32.2	-25.4	40	54	-14	-	-	322	363	V
4	* 2.38985	33.24	VA1T	32.2	-25.4	40.04	54	-13.96	-	-	322	363	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

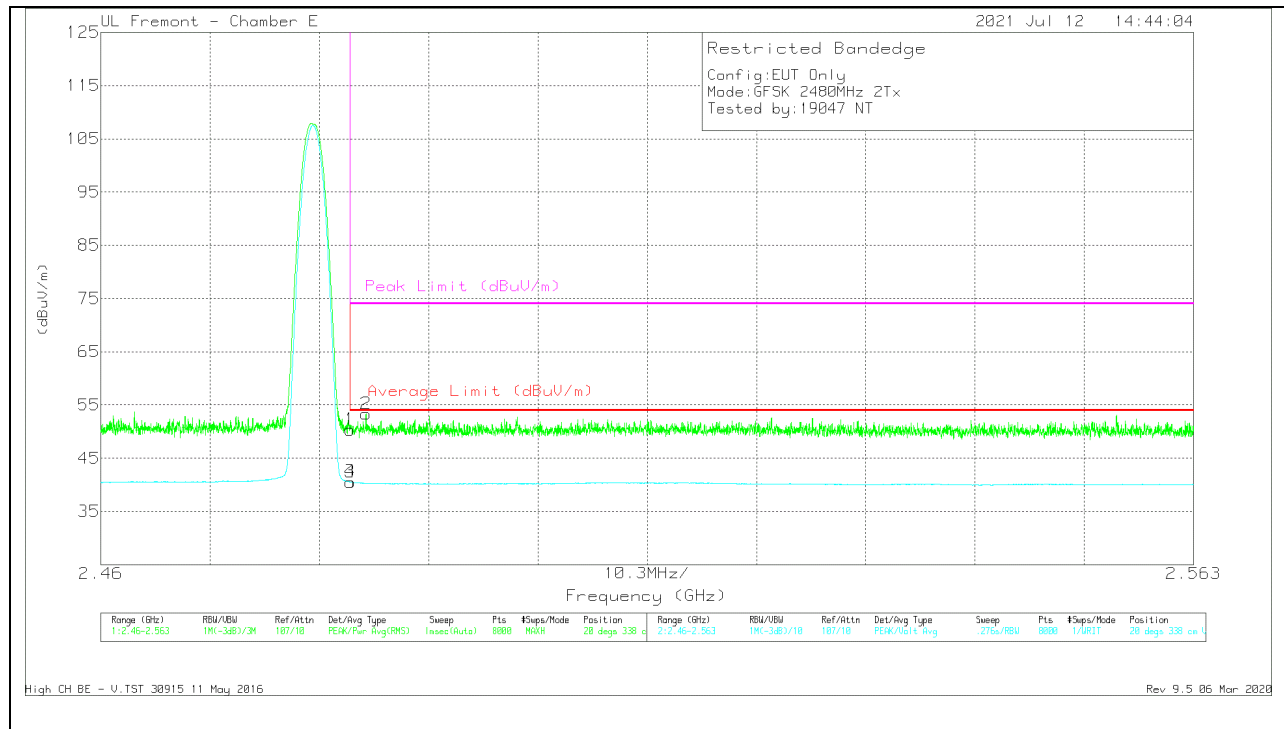
BANDEDGE (HIGH CHANNEL)**HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896 (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	2.48351	56.91	Pk	32.5	-34	55.41	-	-	74	-18.59	251	108	H
2	2.51713	58.18	Pk	32.7	-33.9	56.98	-	-	74	-17.02	251	108	H
3	2.48351	44.73	VA1T	32.5	-34	43.23	54	-10.77	-	-	251	108	H
4	2.48353	44.72	VA1T	32.5	-34	43.22	54	-10.78	-	-	251	108	H

Pk - Peak detector

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

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0078107 (dBm)	Ampl/Cbl/Filr/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	43.17	Pk	32.6	-25.4	50.37	-	-	74	-23.63	20	338	V
2	* 2.48499	46.14	Pk	32.6	-25.4	53.34	-	-	74	-20.66	20	338	V
3	* 2.4835	33.35	VA1T	32.6	-25.4	40.55	54	-13.45	-	-	20	338	V
4	* 2.48351	33.35	VA1T	32.6	-25.4	40.55	54	-13.45	-	-	20	338	V

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

Pk - Peak detector

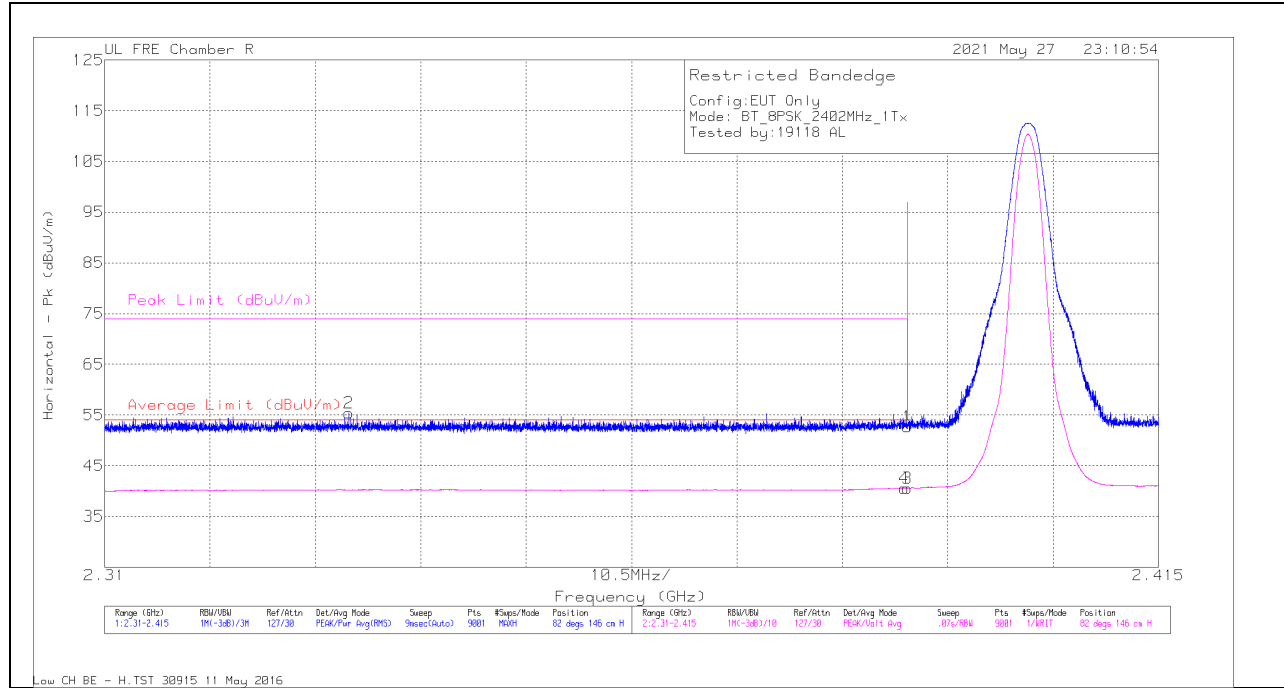
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

10.1.3. HIGH POWER ENHANCED DATA RATE 8PSK MODULATION

ANT 4

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

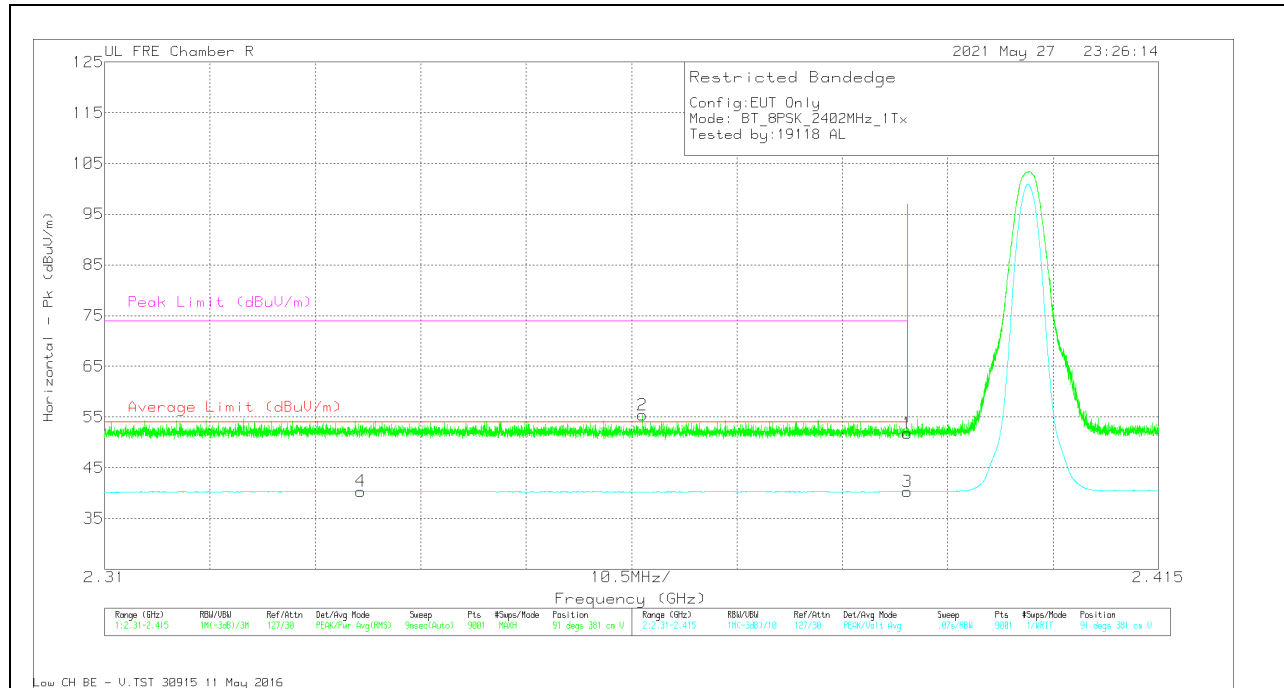


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/CbI/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.38999	56.13	Pk	32.1	-35.5	52.73	-	-	74	-21.27	82	146	H
2	2.33431	58.66	Pk	32.3	-35.6	55.36	-	-	74	-18.64	82	146	H
3	2.38999	44	VA1T	32.1	-35.5	40.6	54	-13.4	-	-	82	146	H
4	2.38964	44.01	VA1T	32.1	-35.5	40.61	54	-13.39	-	-	82	146	H

Pk - Peak detector

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

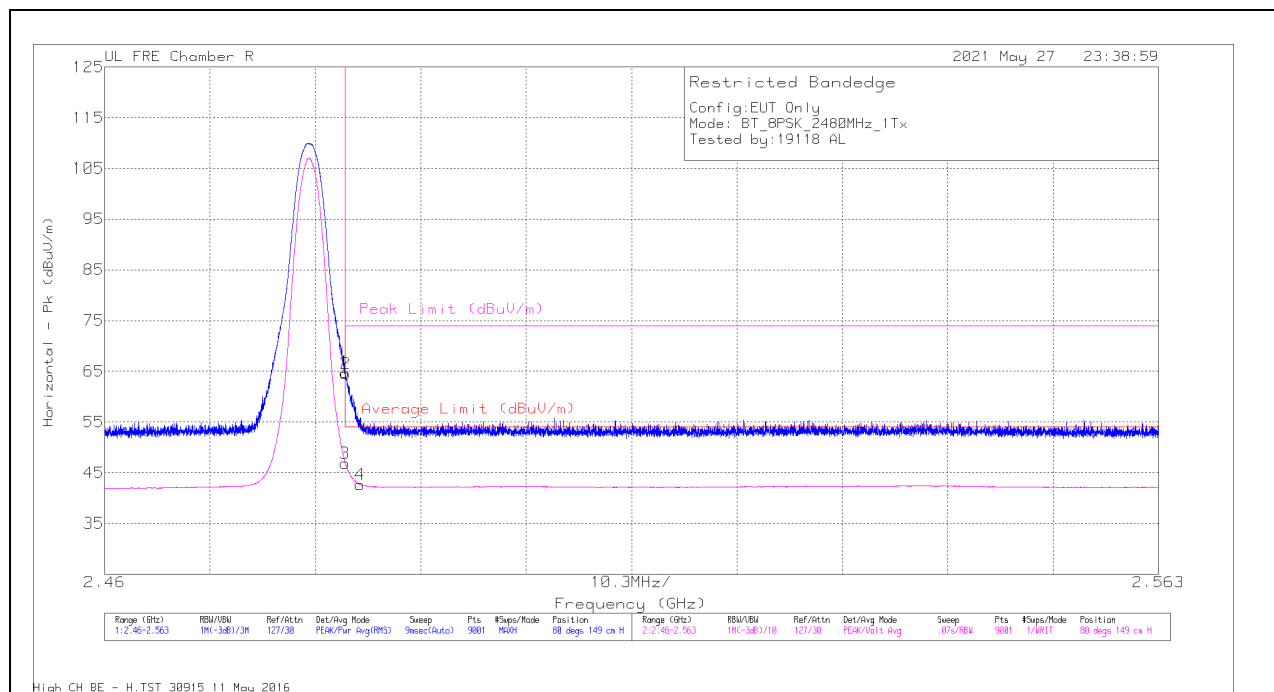
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cb/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.38999	55.24	Pk	32.1	-35.5	51.84	-	-	74	-22.16	91	381	V
2	2.36357	58.77	Pk	32.1	-35.5	55.37	-	-	74	-18.63	91	381	V
3	2.38999	43.67	VA1T	32.1	-35.5	40.27	54	-13.73	-	-	91	381	V
4	2.33554	43.67	VA1T	32.3	-35.6	40.37	54	-13.63	-	-	91	381	V

Pk - Peak detector

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

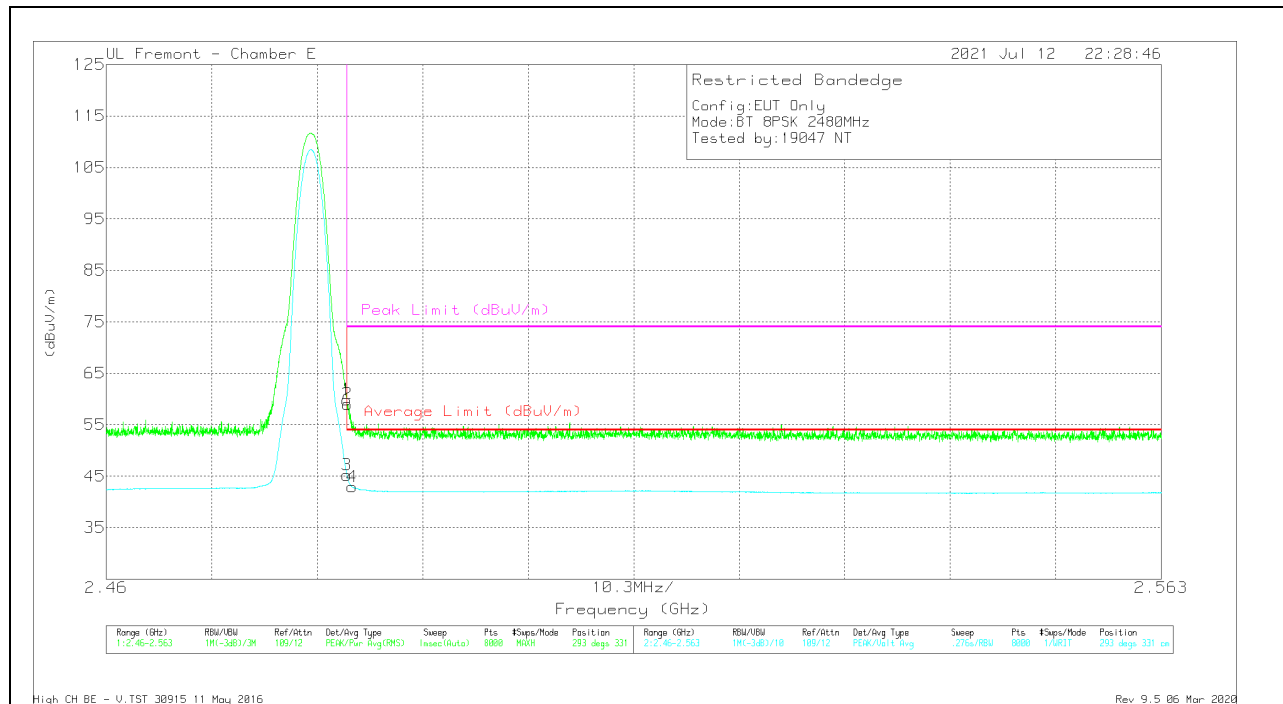
BANEDGE (HIGH CHANNEL)**HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/CbI/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.48351	67.66	Pk	32.5	-35.3	64.86	-	-	74	-9.14	80	149	H
2	2.48354	67.35	Pk	32.5	-35.3	64.55	-	-	74	-9.45	80	149	H
3	2.48351	49.68	VA1T	32.5	-35.3	46.88	54	-7.12	-	-	80	149	H
4	2.48496	45.44	VA1T	32.5	-35.3	42.64	54	-11.36	-	-	80	149	H

Pk - Peak detector

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

VERTICAL RESULT

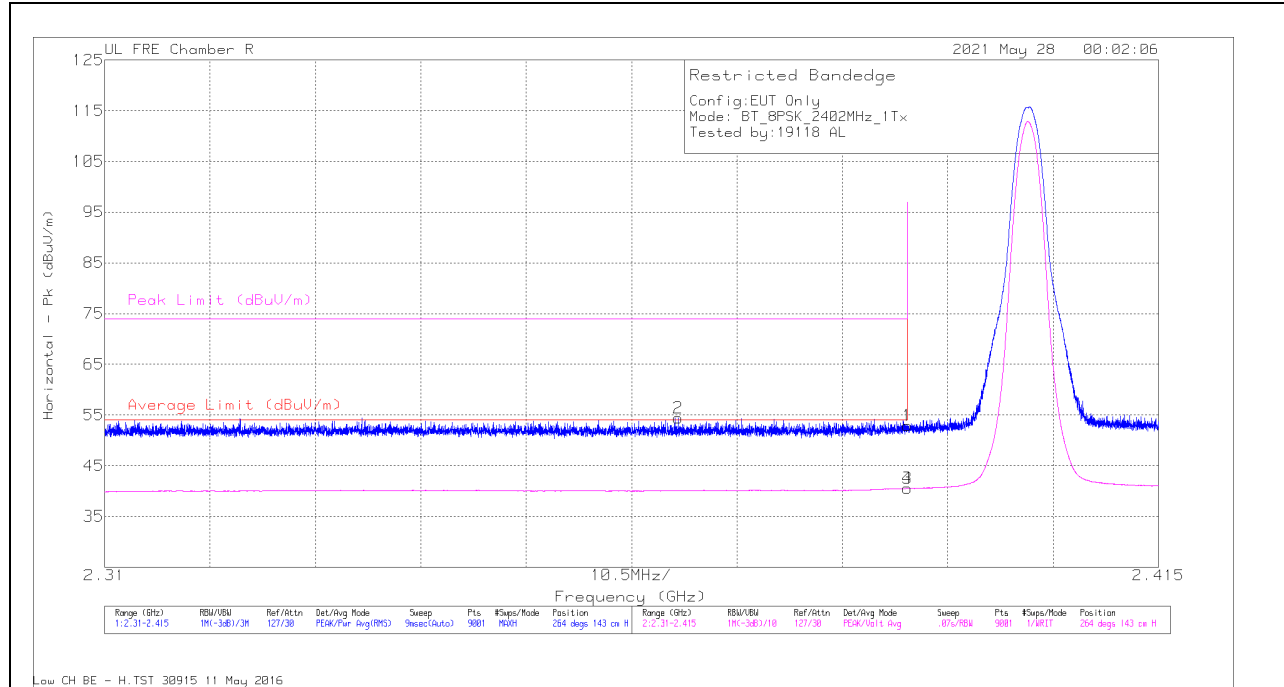


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0078107 (dBm)	Amp/Cbl/Filtr/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	44.96	Pk	32.6	-17.7	59.86	-	-	74	-14.14	293	331	V
2	* 2.48355	44.13	Pk	32.6	-17.7	59.03	-	-	74	-14.97	293	331	V
3	* 2.4835	30.33	VA1T	32.6	-17.7	45.23	54	-8.77	-	-	293	331	V
4	* 2.484	28.02	VA1T	32.6	-17.7	42.92	54	-11.08	-	-	293	331	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

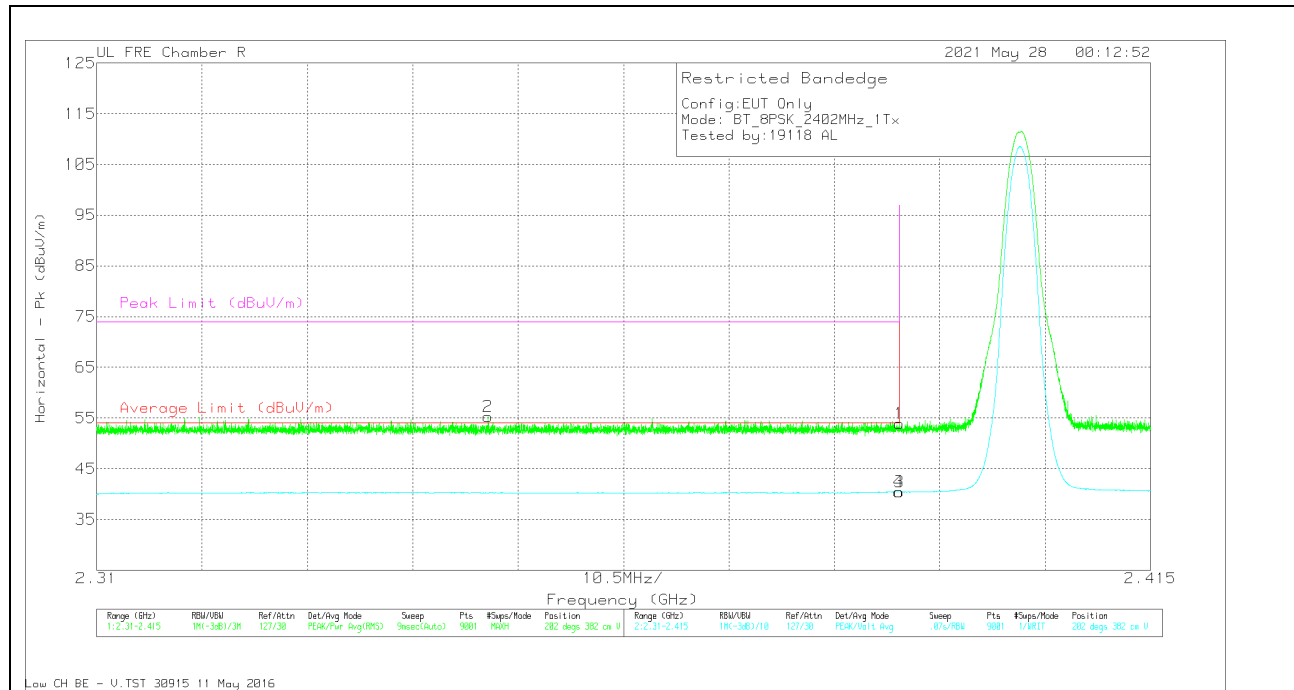
ANT 3**BANDEDGE (LOW CHANNEL)****HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dBm)	Amp/Cb/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.38999	56.35	PK	32.1	-35.5	52.95	-	-	74	-21.05	264	143	H
2	2.36716	57.96	PK	32.1	-35.6	54.46	-	-	74	-19.54	264	143	H
3	2.38999	43.92	VA1T	32.1	-35.5	40.52	54	-13.48	-	-	264	143	H
4	2.38995	43.92	VA1T	32.1	-35.5	40.52	54	-13.48	-	-	264	143	H

Pk - Peak detector

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

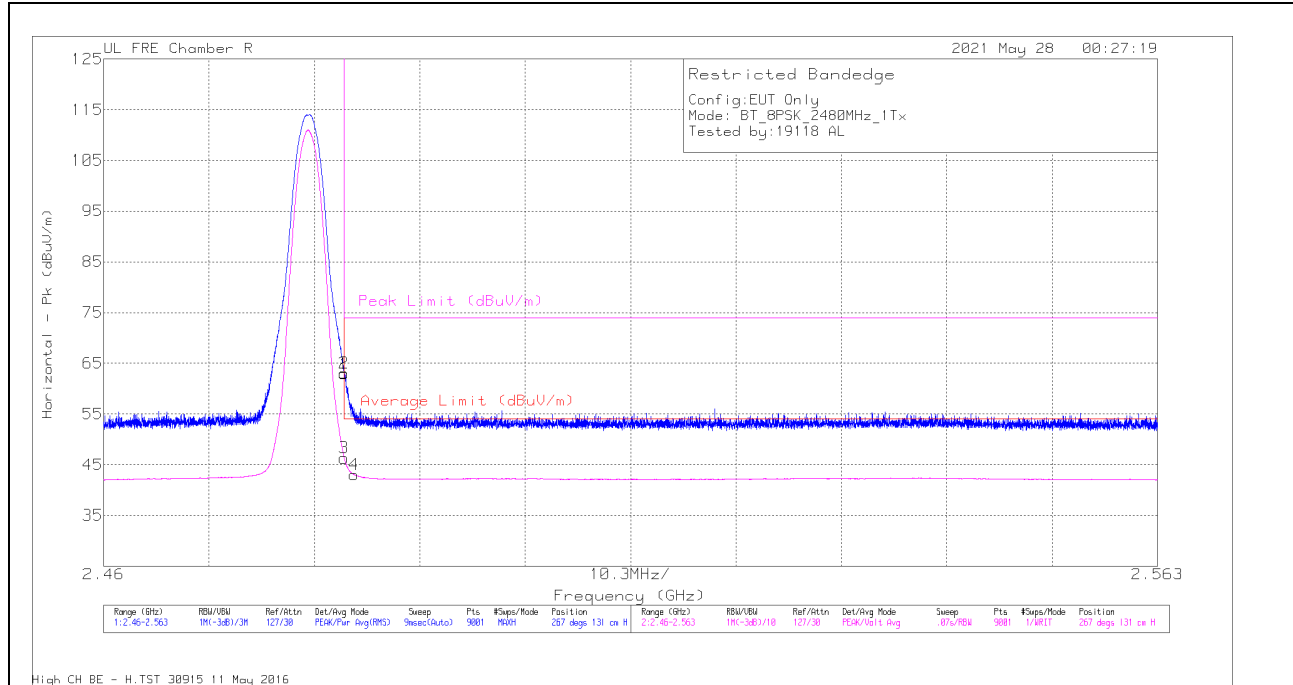
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/CbI/Ftr/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.38999	57.31	Pk	32.1	-35.5	53.91	-	-	74	-20.09	202	382	V
2	2.349	58.66	Pk	32.1	-35.5	55.26	-	-	74	-18.74	202	382	V
3	2.38999	43.83	VA1T	32.1	-35.5	40.43	54	-13.57	-	-	202	382	V
4	2.38993	43.84	VA1T	32.1	-35.5	40.44	54	-13.56	-	-	202	382	V

Pk - Peak detector

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

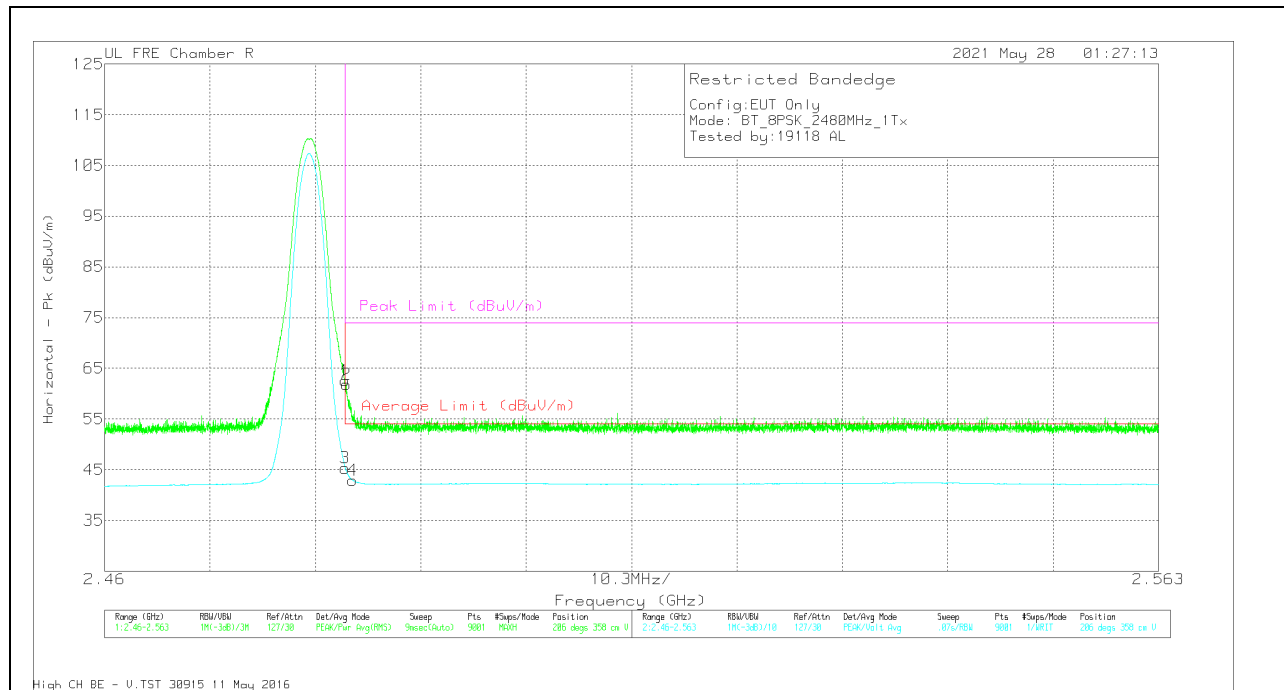
BANDEDGE (HIGH CHANNEL)**HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/CbI/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.48351	65.7	Pk	32.5	-35.3	62.9	-	-	74	-11.1	267	131	H
2	2.48352	65.85	Pk	32.5	-35.3	63.05	-	-	74	-10.95	267	131	H
3	2.48351	49.11	VA1T	32.5	-35.3	46.31	54	-7.69	-	-	267	131	H
4	2.48446	45.84	VA1T	32.5	-35.3	43.04	54	-10.96	-	-	267	131	H

Pk - Peak detector

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

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cb/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.48351	65.37	Pk	32.5	-35.3	62.57	-	-	74	-11.43	206	358	V
2	2.48363	64.66	Pk	32.5	-35.3	61.86	-	-	74	-12.14	206	358	V
3	2.48351	48.12	VA1T	32.5	-35.3	45.32	54	-8.68	-	-	206	358	V
4	2.48424	45.72	VA1T	32.5	-35.3	42.92	54	-11.08	-	-	206	358	V

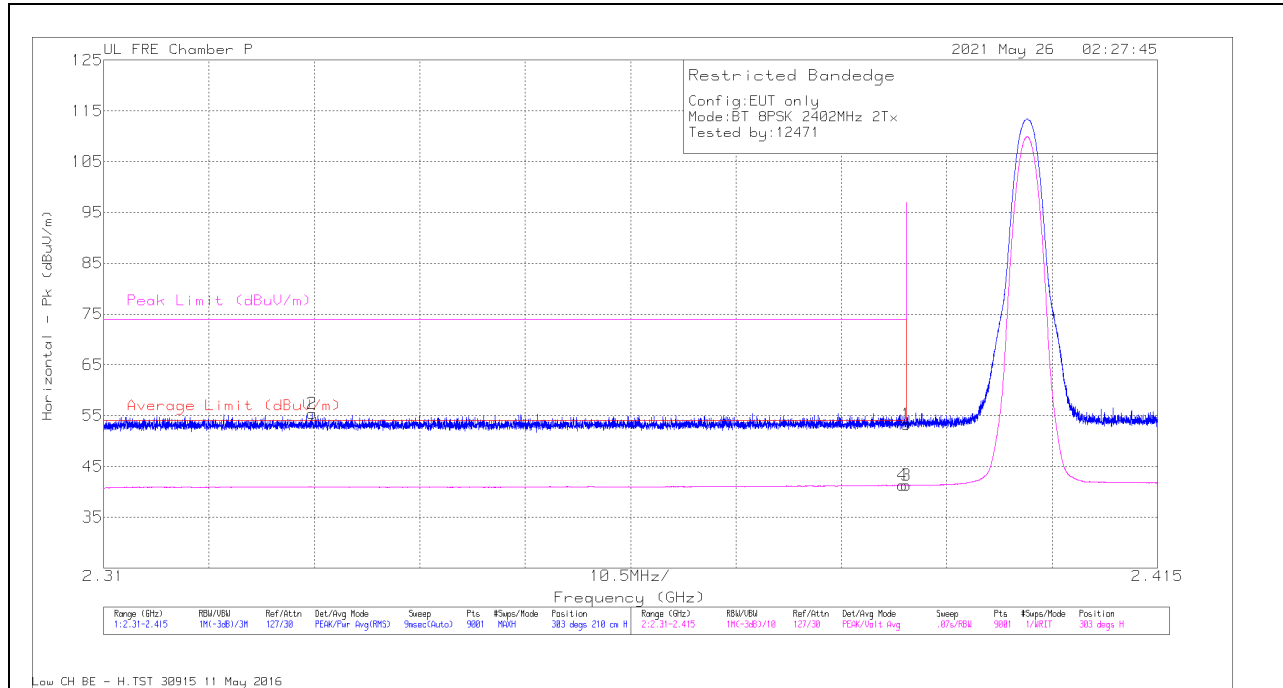
Pk - Peak detector

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

10.1.4. HIGH POWER ENHANCED DATA RATE TXBF 8PSK MODULATION

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

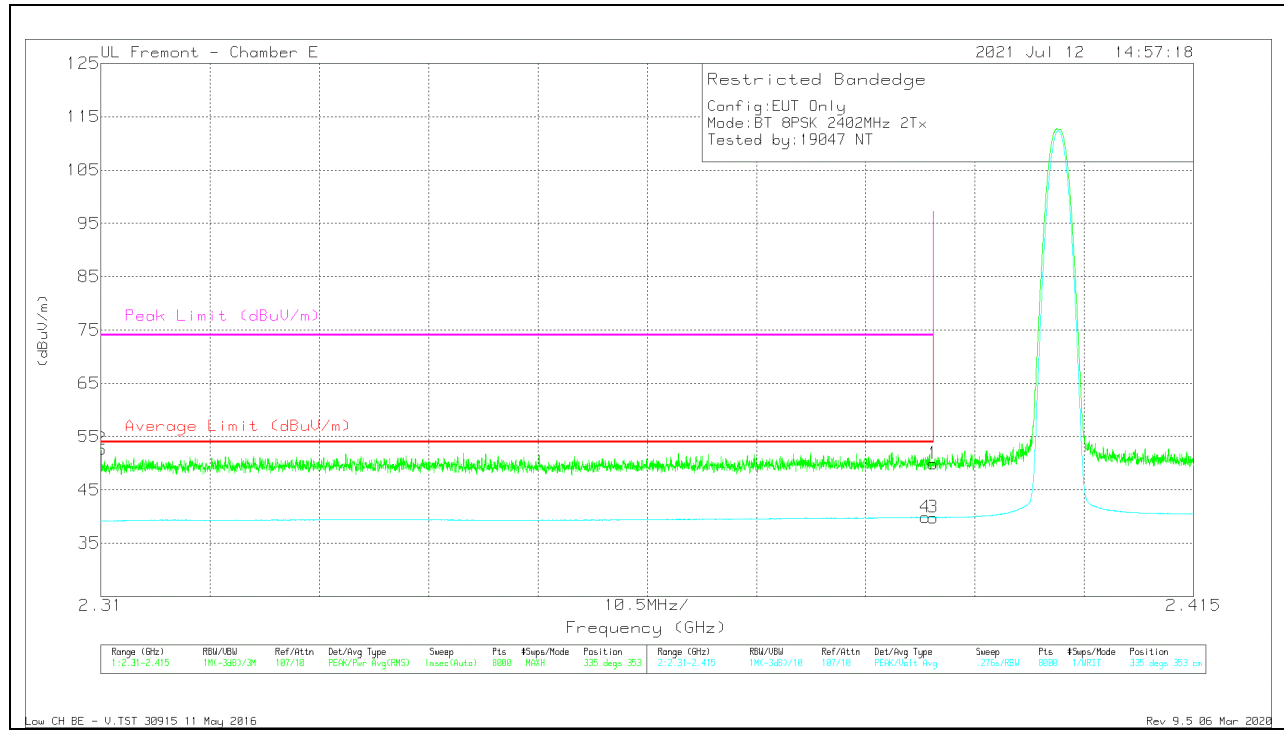


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896 (dB/m)	Amp/Cb/Filt/ Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.38999	55.52	Pk	31.9	-34.1	53.32	-	-	74	-20.68	303	210	H
2	2.33074	57.63	Pk	31.9	-34.1	55.43	-	-	74	-18.57	303	210	H
3	2.38999	43.46	VA1T	31.9	-34.1	41.26	54	-12.74	-	-	303	210	H
4	2.3896	43.51	VA1T	31.9	-34.1	41.31	54	-12.69	-	-	303	210	H

Pk - Peak detector

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

VERTICAL RESULT

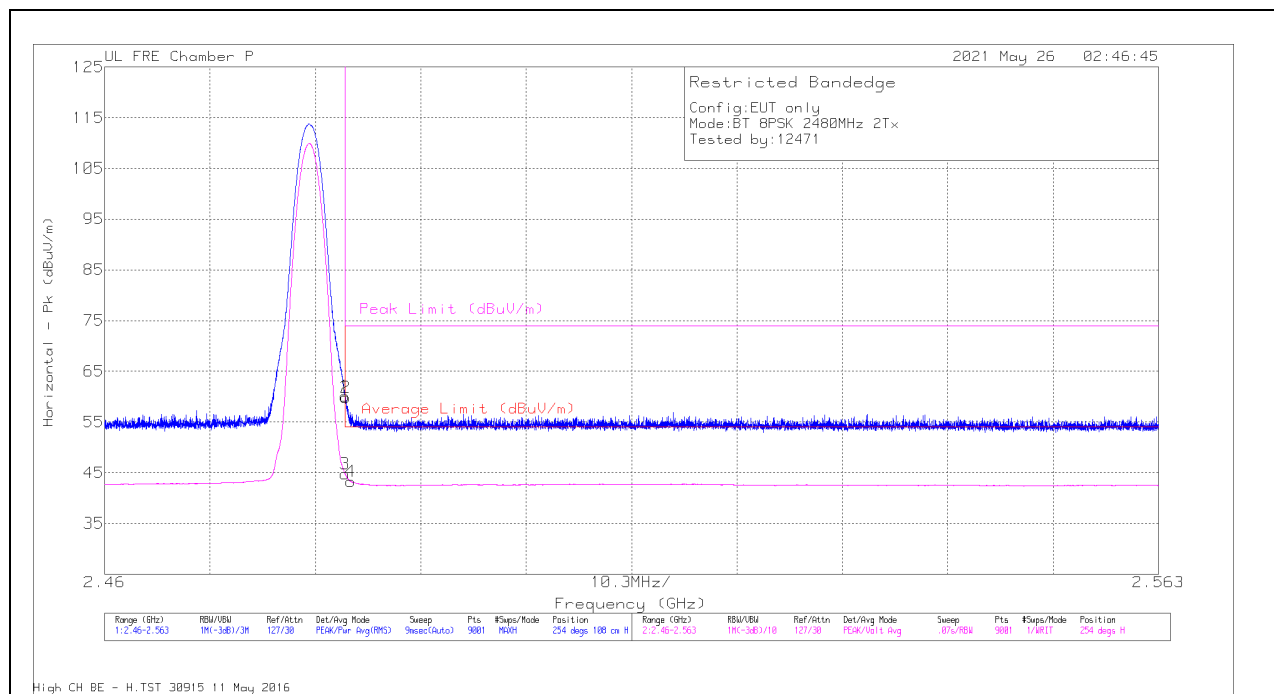


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0078107 (dBm)	Amp/Cbl/Filr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	43.13	Pk	32.2	-25.4	49.93	-	-	74	-24.07	335	353	V
2	* 2.31001	46.24	Pk	31.9	-25.5	52.64	-	-	74	-21.36	335	353	V
3	* 2.39	33.03	VA1T	32.2	-25.4	39.83	54	-14.17	-	-	335	353	V
4	* 2.38922	33.08	VA1T	32.2	-25.4	39.88	54	-14.12	-	-	335	353	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

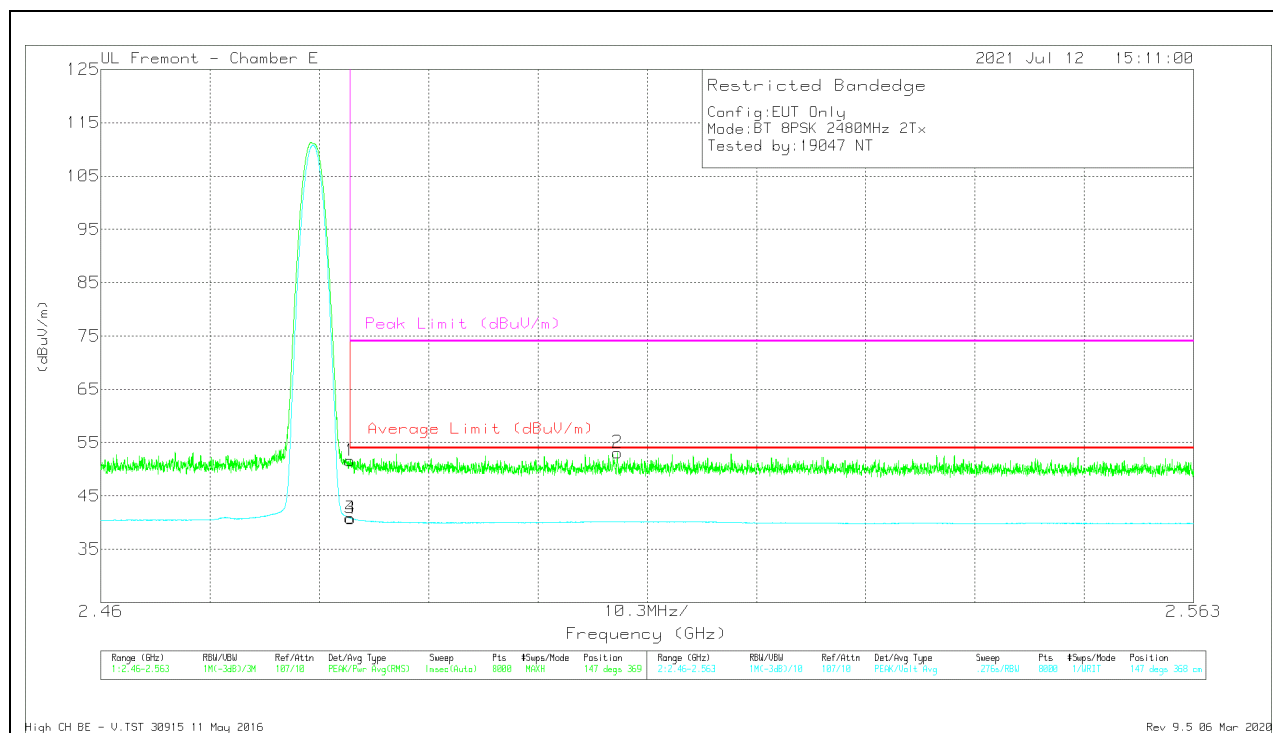
BANDEDGE (HIGH CHANNEL)**HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896 (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	2.48351	61.59	Pk	32.5	-34	60.09	-	-	74	-13.91	254	108	H
2	2.48355	61.34	Pk	32.5	-34	59.84	-	-	74	-14.16	254	108	H
3	2.48351	46.22	VA1T	32.5	-34	44.72	54	-9.28	-	-	254	108	H
4	2.48404	44.78	VA1T	32.5	-34	43.28	54	-10.72	-	-	254	108	H

Pk - Peak detector

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

VERTICAL RESULT

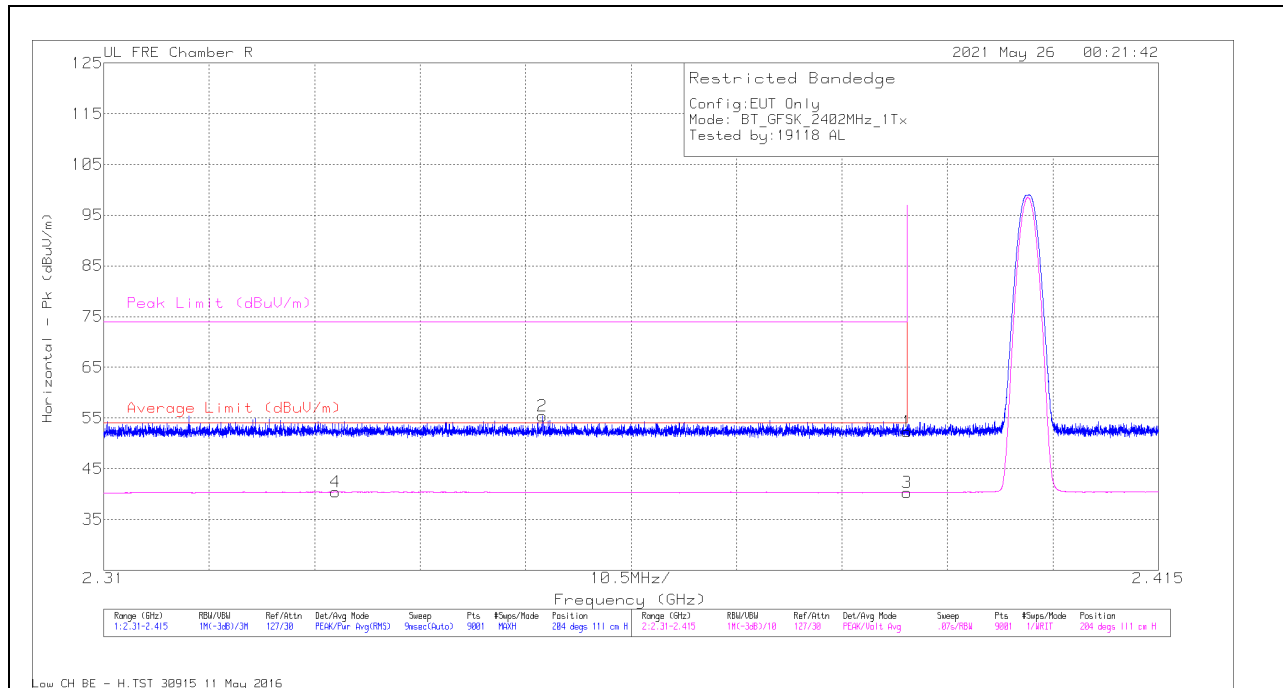


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0078107 (dBm)	Amp/Cbl/Filr/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	44.4	Pk	32.6	-25.4	51.6	-	-	74	-22.4	147	369	V
2	2.5087	45.72	Pk	32.7	-25.3	53.12	-	-	74	-20.88	147	369	V
3	* 2.4835	33.65	VA1T	32.6	-25.4	40.85	54	-13.15	-	-	147	368	V
4	* 2.48355	33.59	VA1T	32.6	-25.4	40.79	54	-13.21	-	-	147	368	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

10.1.5. LOW POWER BASIC DATA RATE GFSK MODULATION**ANT 4****BANDEDGE (LOW CHANNEL)****HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cb/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.38999	55.76	Pk	32.1	-35.5	52.36	-	-	74	-21.64	204	111	H
2	2.35366	58.93	Pk	32.1	-35.6	55.43	-	-	74	-18.57	204	111	H
3	2.38999	43.72	VA1T	32.1	-35.5	40.32	54	-13.68	-	-	204	111	H
4	2.33307	43.73	VA1T	32.3	-35.6	40.43	54	-13.57	-	-	204	111	H

Pk - Peak detector

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

UL FRE Chamber R

2021 May 26 00:48:41

Restricted Bandedge

Config: EUT Only

Mode: BT_GFSK_2402MHz_1Tx

Tested by: 19118 AL

Peak Limit (dBu/m)

Average Limit (dBu/m)

Horizontal - Pk (dBu/m)

Frequency (GHz)

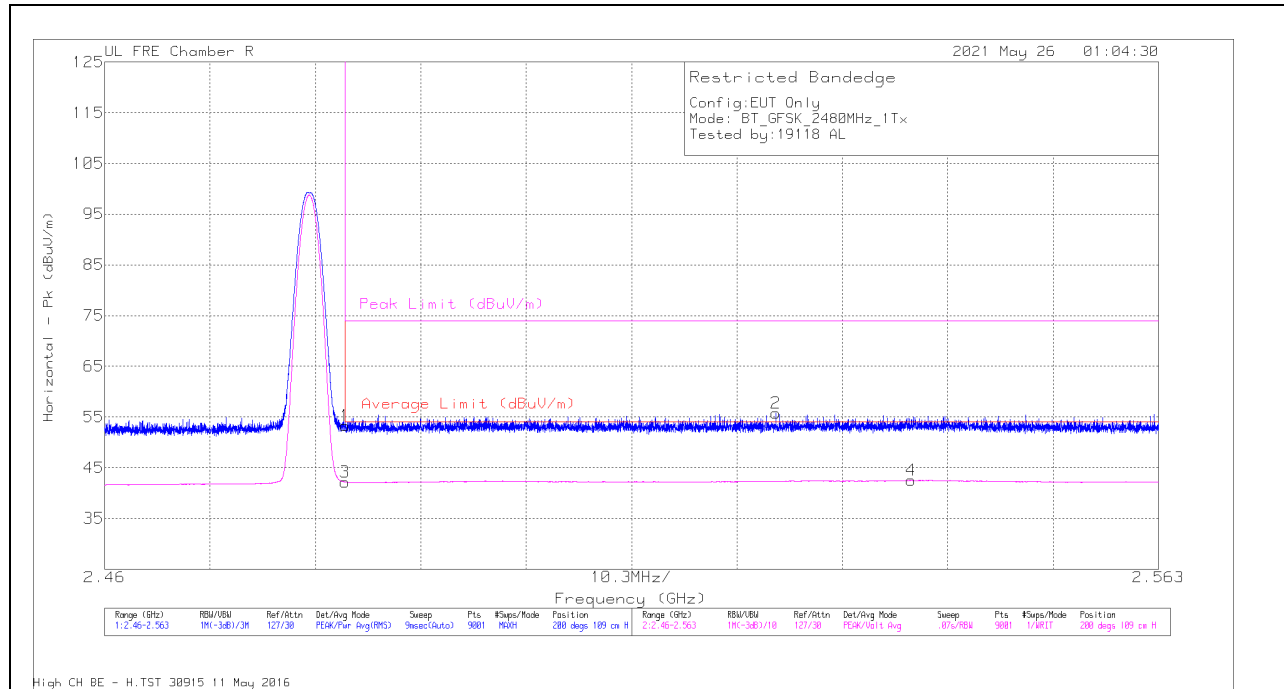
2.31 2.415

Range (Bzt)	RBW/VBW	Ref/Att	Det/Avg Mode	Sweep	Pts	#Seps/Mode	Position	Range (Gbtz)	RBW/VBW	Ref/Att	Det/Avg Mode	Sweep	Pts	#Seps/Mode	Position
1.2:31+2.415	1M/-3dB/10M	127/30	PEAK/Pwr Avg(RMS)	Sweep(Auto)	9801	16401	239 degs 235 ca 0	2.2:31+2.415	1M/-3dB/10M	127/30	PEAK/Wt1 Avg	07u/RBW	9801	1/1611	239 degs 235 ca 0

Low CH BE - U.TST 30915 11 May 2016

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dBm)	Amp/Cb/Fltr/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.38999	56.53	Pk	32.1	-35.5	53.13	-	-	74	-20.87	269	235	V
2	2.34583	58.34	Pk	32.2	-35.6	54.94	-	-	74	-19.06	269	235	V
3	2.38999	43.72	VA1T	32.1	-35.5	40.32	54	-13.68	-	-	269	235	V
4	2.34052	43.84	VA1T	32.2	-35.6	40.44	54	-13.56	-	-	269	235	V

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

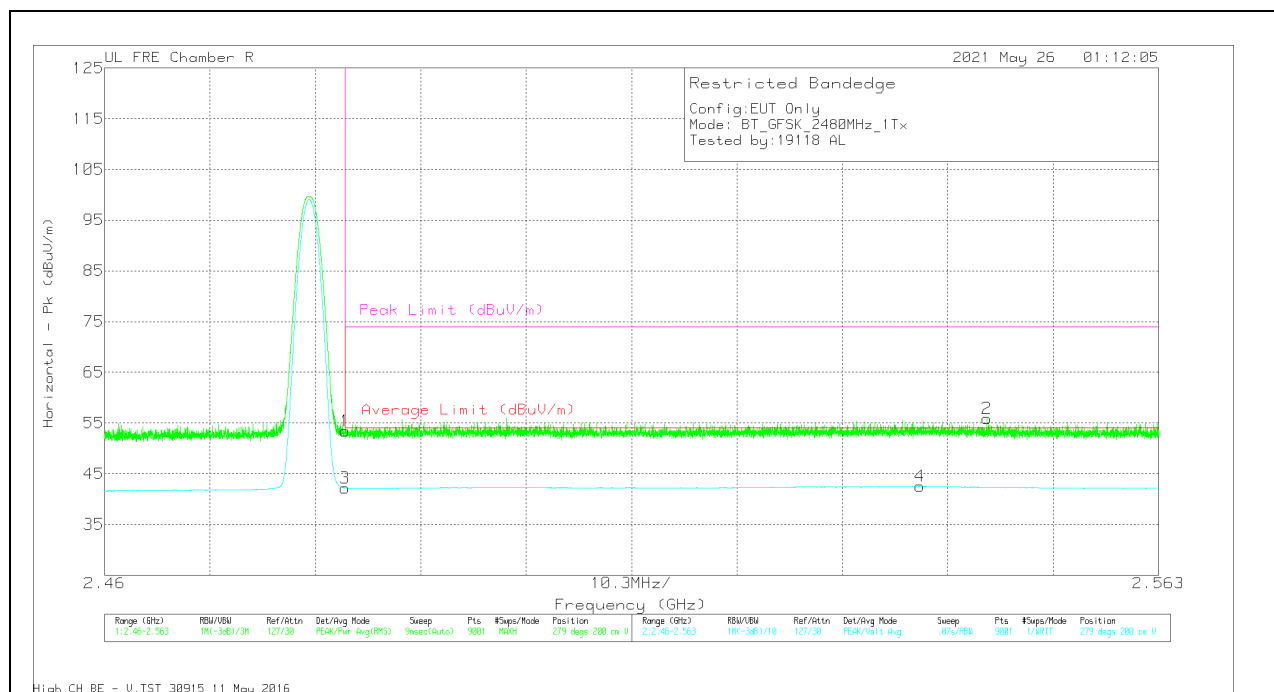
BANEDGE (HIGH CHANNEL)**HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/CbI/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.48351	56.15	Pk	32.5	-35.3	53.35	-	-	74	-20.65	200	109	H
2	2.52559	58.16	Pk	32.7	-35.1	55.76	-	-	74	-18.24	200	109	H
3	2.48351	44.99	VA1T	32.5	-35.3	42.19	54	-11.81	-	-	200	109	H
4	2.53884	44.91	VA1T	32.6	-35	42.51	54	-11.49	-	-	200	109	H

Pk - Peak detector

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

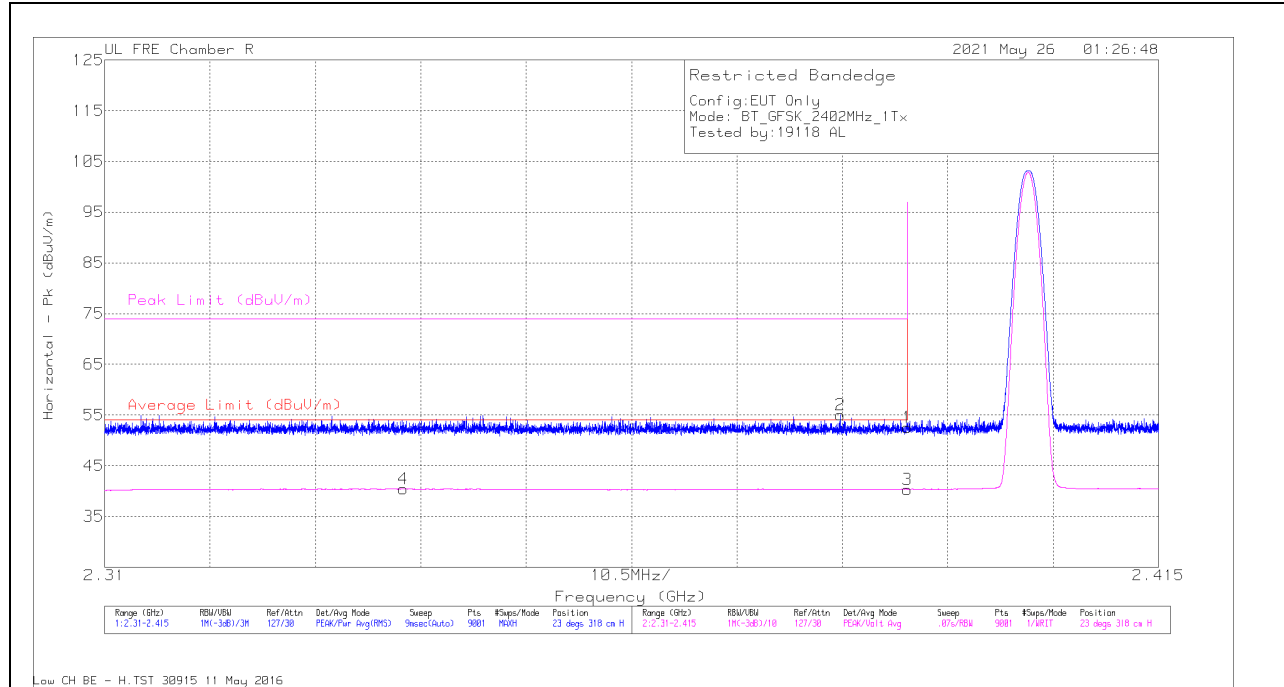
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cb/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.48351	56.23	Pk	32.5	-35.3	53.43	-	-	74	-20.57	279	200	V
2	2.54622	58.36	Pk	32.5	-35	55.86	-	-	74	-18.14	279	200	V
3	2.48351	44.97	VA1T	32.5	-35.3	42.17	54	-11.83	-	-	279	200	V
4	2.53971	44.91	VA1T	32.6	-35	42.51	54	-11.49	-	-	279	200	V

Pk - Peak detector

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

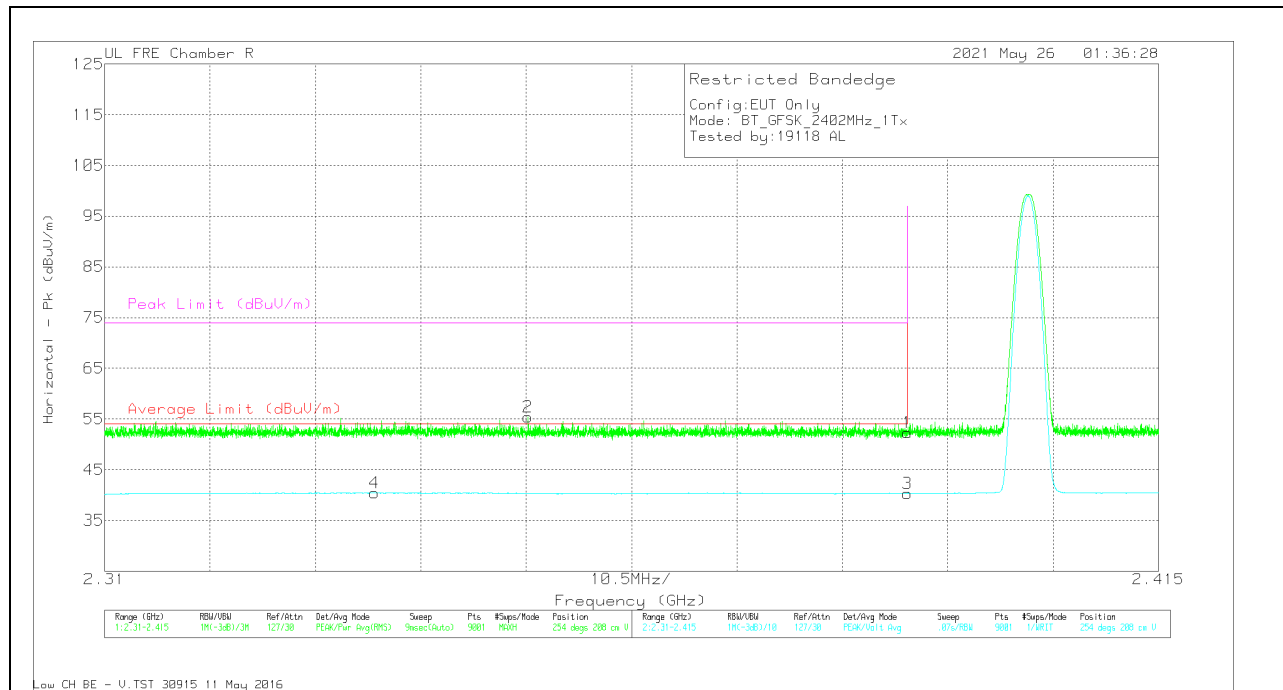
ANT 3**BANDEDGE (LOW CHANNEL)****HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cbll/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.38999	55.95	Pk	32.1	-35.5	52.55	-	-	74	-21.45	23	318	H
2	2.38328	58.41	Pk	32.1	-35.5	55.01	-	-	74	-18.99	23	318	H
3	2.38999	43.76	VA1T	32.1	-35.5	40.36	54	-13.64	-	-	23	318	H
4	2.33973	43.84	VA1T	32.2	-35.6	40.44	54	-13.56	-	-	23	318	H

Pk - Peak detector

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

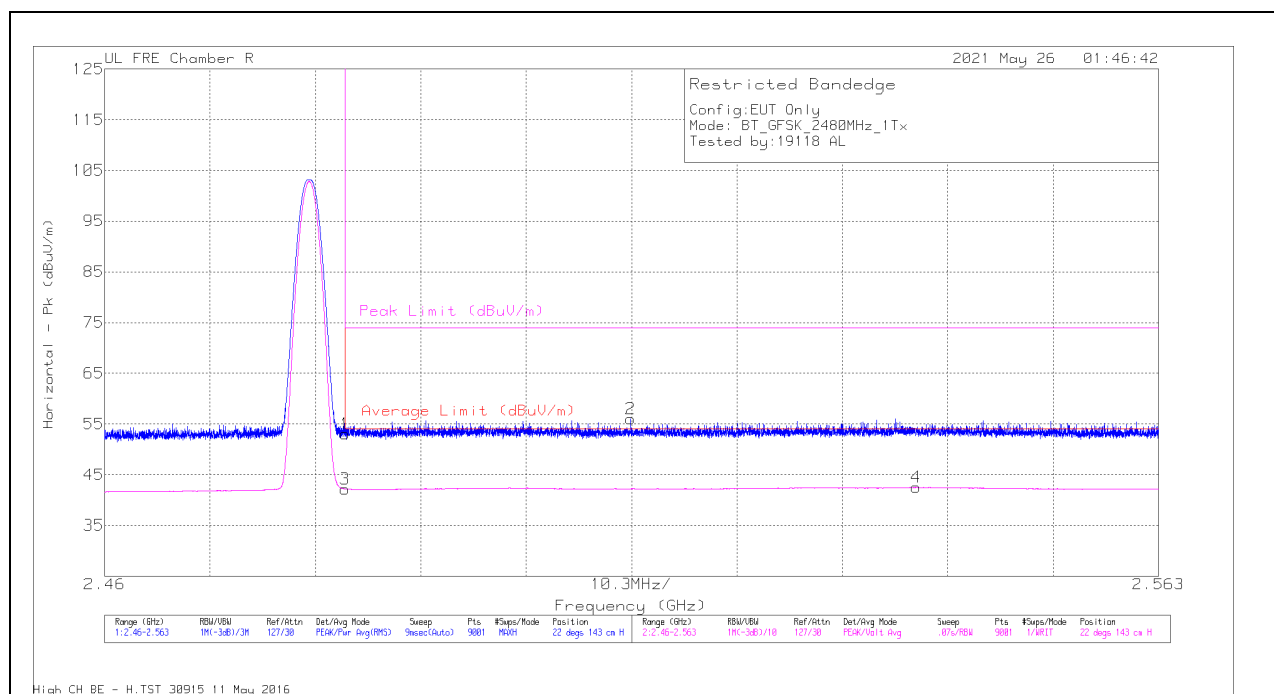
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cb/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.38999	55.74	Pk	32.1	-35.5	52.34	-	-	74	-21.66	254	208	V
2	2.35219	58.91	Pk	32.1	-35.6	55.41	-	-	74	-18.59	254	208	V
3	2.38999	43.74	VA1T	32.1	-35.5	40.34	54	-13.66	-	-	254	208	V
4	2.33689	43.75	VA1T	32.3	-35.6	40.45	54	-13.55	-	-	254	208	V

Pk - Peak detector

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

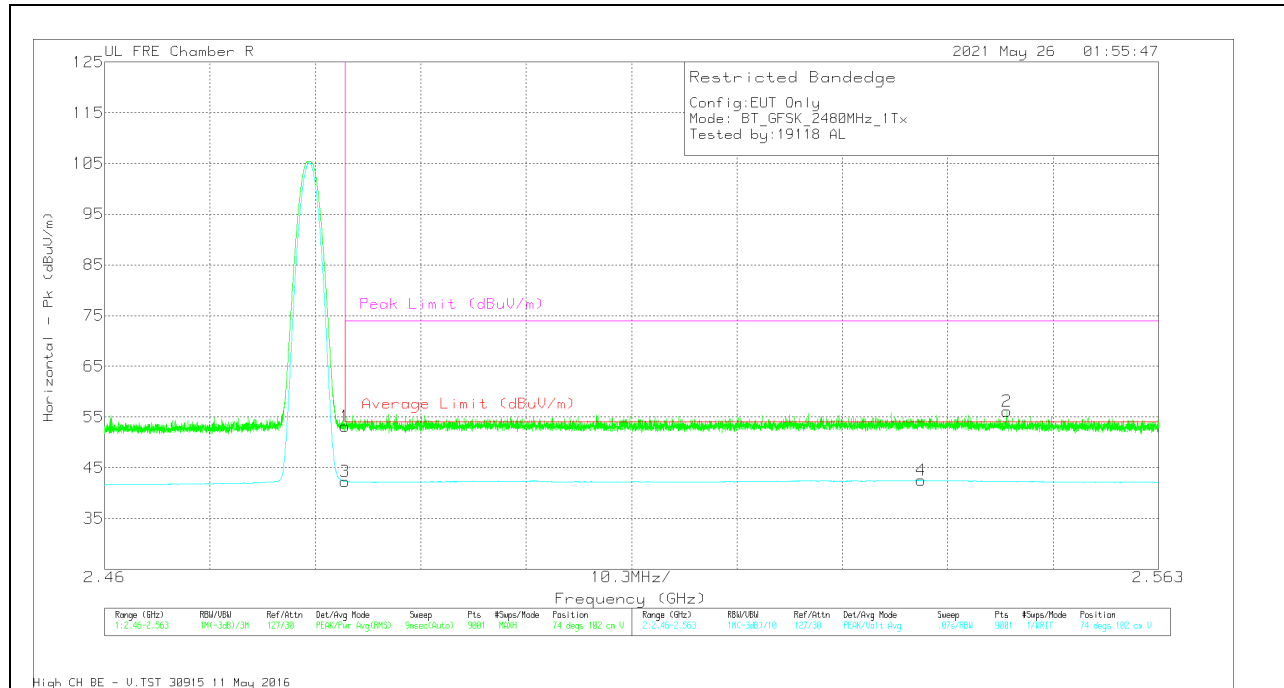
BANEDGE (HIGH CHANNEL)**HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/CbI/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.48351	55.87	Pk	32.5	-35.3	53.07	-	-	74	-20.93	22	143	H
2	2.51141	58.65	Pk	32.6	-35.2	56.05	-	-	74	-17.95	22	143	H
3	2.48351	44.98	VA1T	32.5	-35.3	42.18	54	-11.82	-	-	22	143	H
4	2.53934	44.91	VA1T	32.6	-35	42.51	54	-11.49	-	-	22	143	H

Pk - Peak detector

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

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cb/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.48351	55.92	Pk	32.5	-35.3	53.12	-	-	74	-20.88	74	102	V
2	2.54816	58.64	Pk	32.5	-35	56.14	-	-	74	-17.86	74	102	V
3	2.48351	45.06	VA1T	32.5	-35.3	42.26	54	-11.74	-	-	74	102	V
4	2.53981	44.89	VA1T	32.6	-35	42.49	54	-11.51	-	-	74	102	V

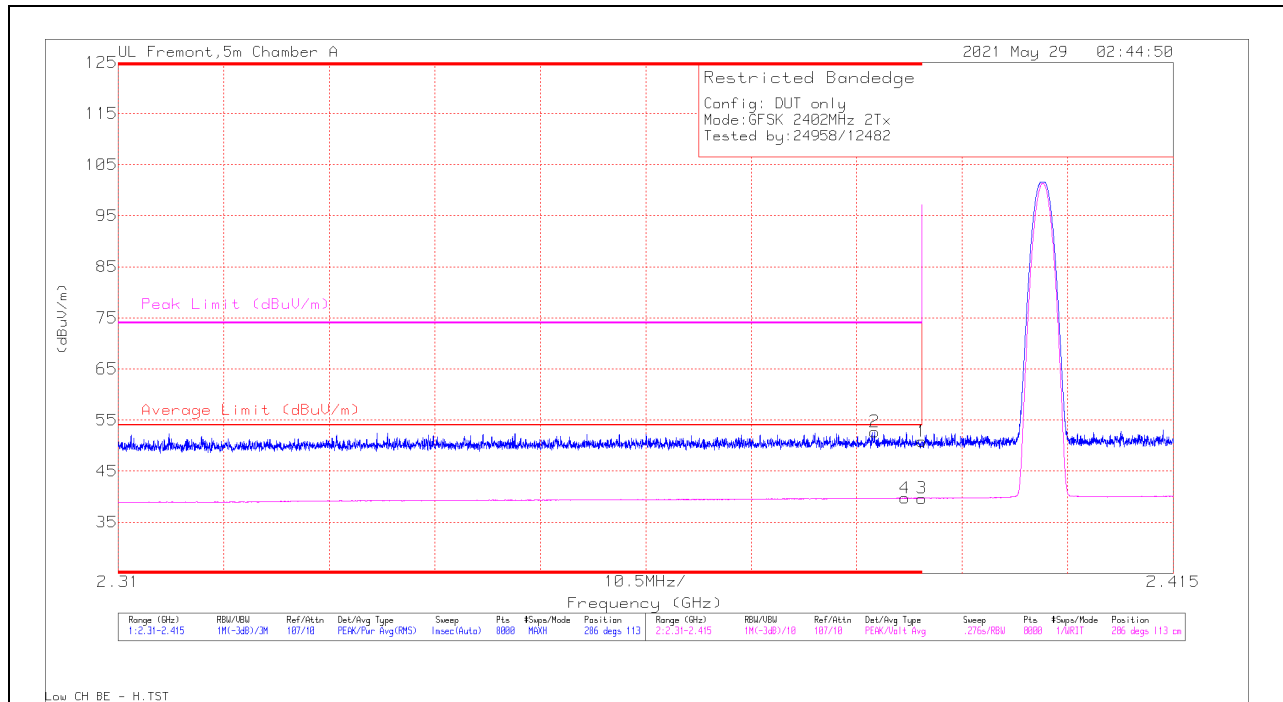
Pk - Peak detector

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

10.1.6. LOW POWER BASIC DATA RATE TXBF GFSK MODULATION

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



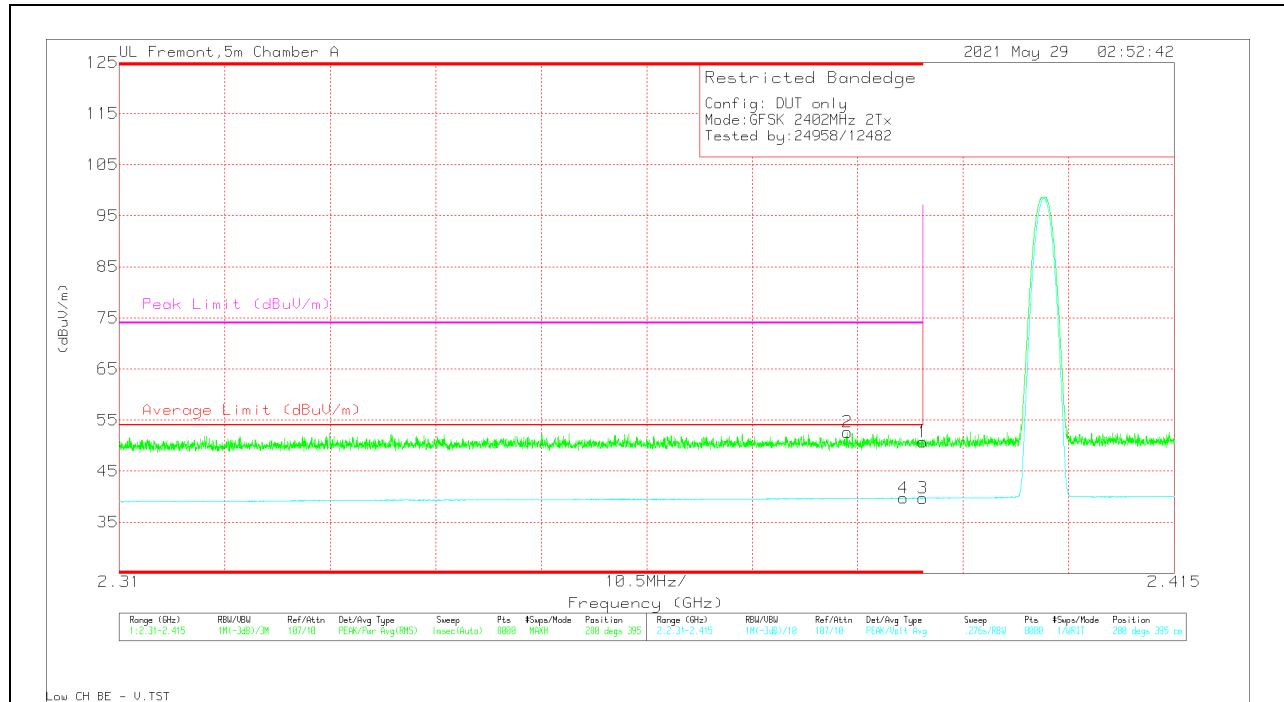
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dBm)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	39.5	Pk	32.6	-21.3	50.8	-	-	74	-23.2	286	113	H
2	* 2.38527	41.42	Pk	32.6	-21.3	52.72	-	-	74	-21.28	286	113	H
3	* 2.39	28.38	VA1T	32.6	-21.3	39.68	54	-14.32	-	-	286	113	H
4	* 2.3883	28.44	VA1T	32.6	-21.3	39.74	54	-14.26	-	-	286	113	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

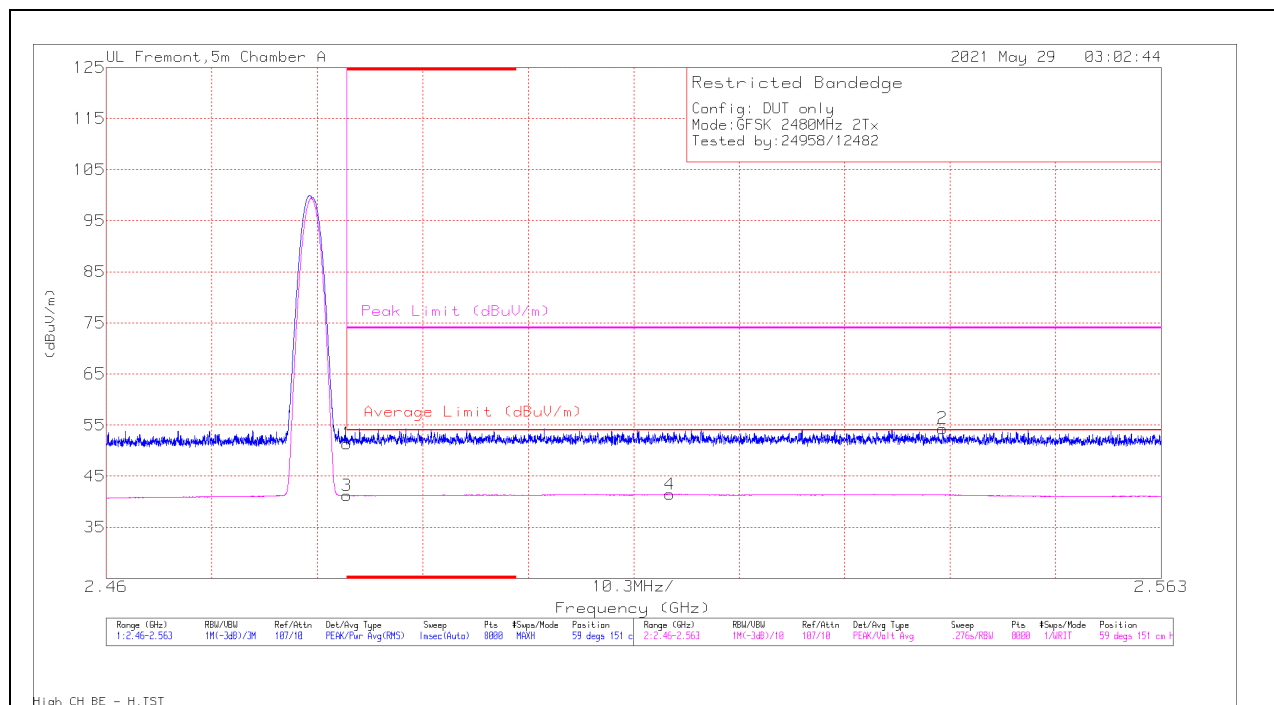


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	39.42	Pk	32.6	-21.3	50.72	-	-	74	-23.28	280	395	V
2	* 2.38247	41.32	Pk	32.6	-21.3	52.62	-	-	74	-21.38	280	395	V
3	* 2.39	28.4	VA1T	32.6	-21.3	39.7	54	-14.3	-	-	280	395	V
4	* 2.38803	28.43	VA1T	32.6	-21.3	39.73	54	-14.27	-	-	280	395	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**

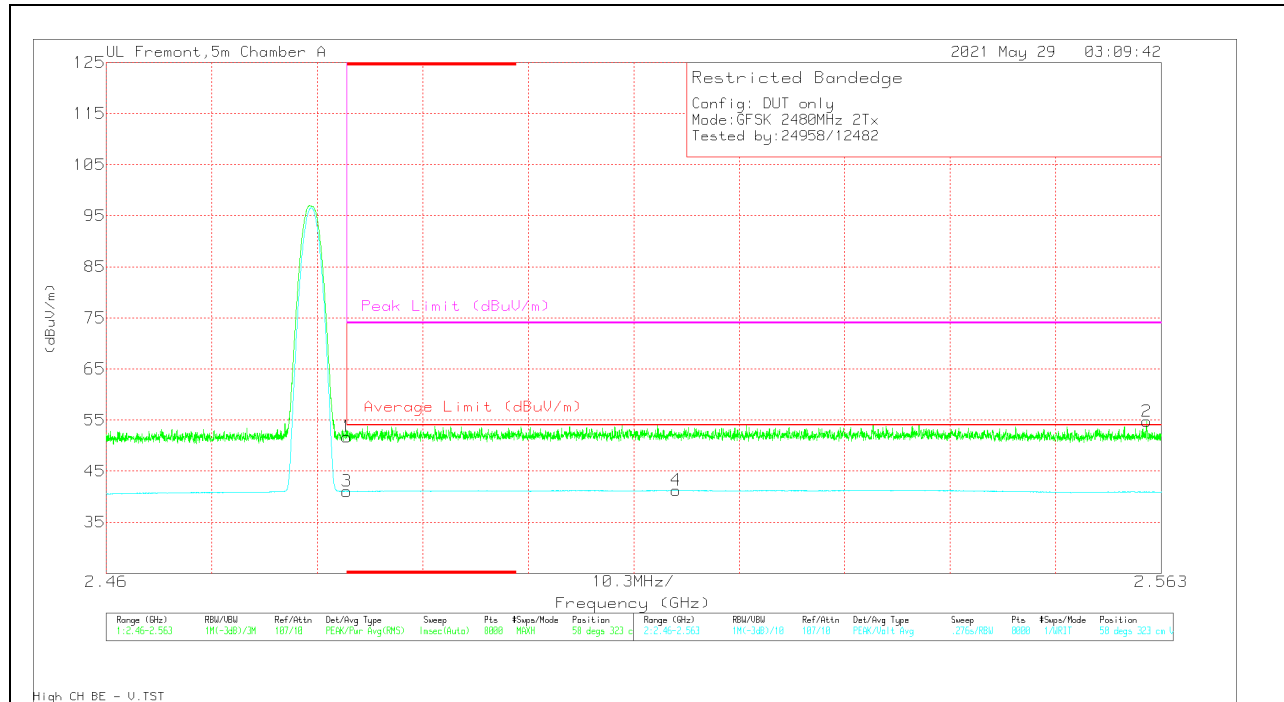
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Ampl/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	38.75	Pk	33.4	-20.8	51.35	-	-	74	-22.65	59	151	H
2	2.54164	41.42	Pk	33.4	-20.5	54.32	-	-	74	-19.68	59	151	H
3	* 2.4835	28.59	VA1T	33.4	-20.8	41.19	54	-12.81	-	-	59	151	H
4	2.51501	28.55	VA1T	33.5	-20.6	41.45	54	-12.55	-	-	59	151	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



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Ftr/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	* 2.4835	39.15	Pk	33.4	-20.8	51.75	-	-	74	-22.25	58	323	V
2	2.56157	42.17	Pk	33.2	-20.6	54.77	-	-	74	-19.23	58	323	V
3	* 2.4835	28.45	VA1T	33.4	-20.8	41.05	54	-12.95	-	-	58	323	V
4	2.51565	28.36	VA1T	33.5	-20.6	41.26	54	-12.74	-	-	58	323	V

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

Pk - Peak detector

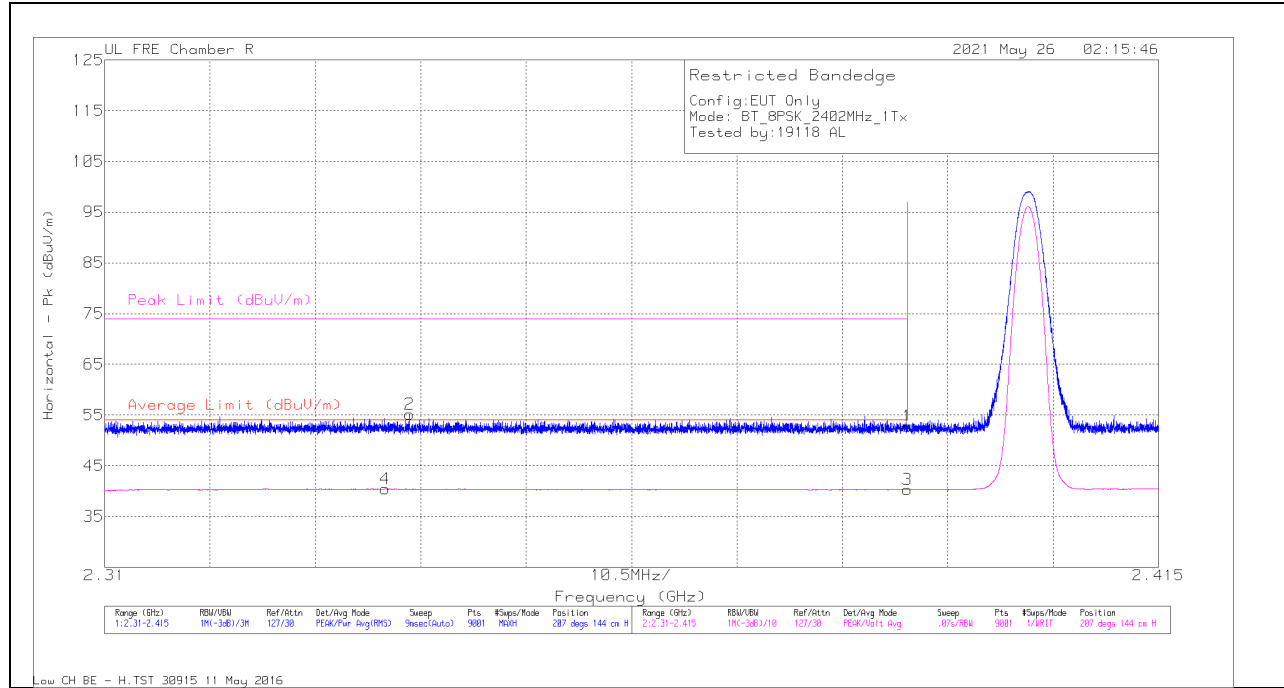
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

10.1.7. LOW POWER ENHANCED DATA RATE 8PSK MODULATION

ANT 4

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

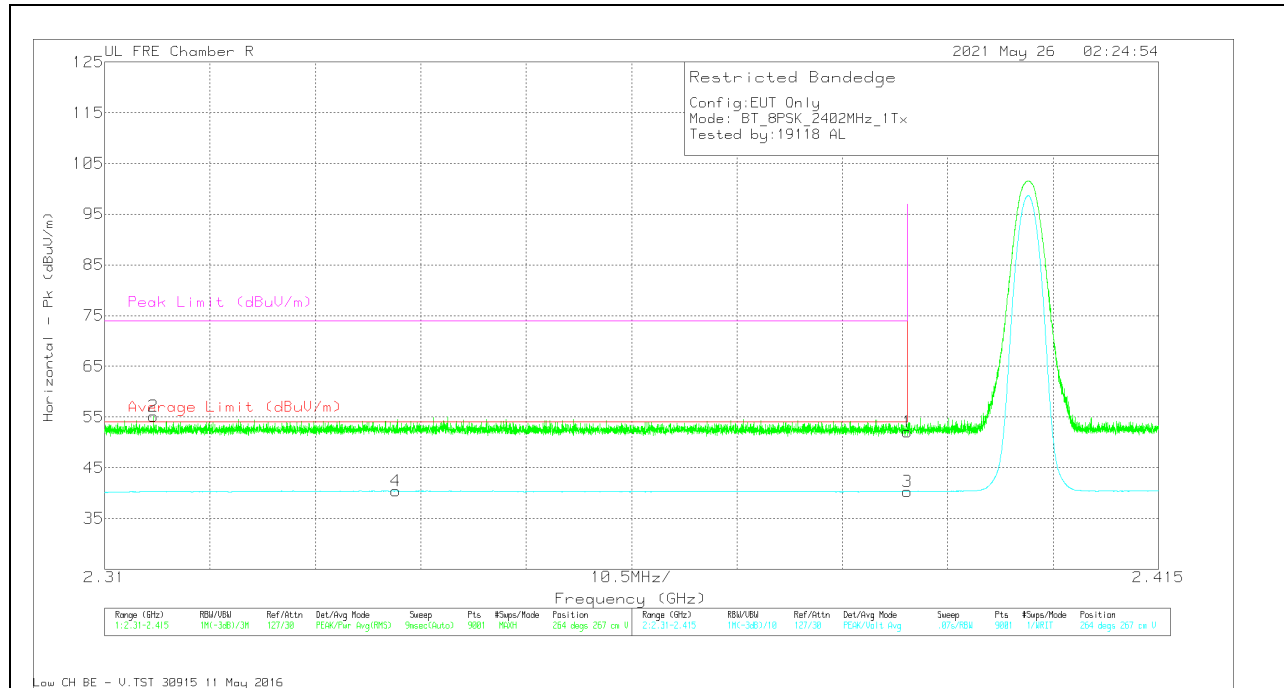


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/CbI/Ftr/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.38999	56.17	Pk	32.1	-35.5	52.77	-	-	74	-21.23	207	144	H
2	2.34037	58.58	Pk	32.2	-35.6	55.18	-	-	74	-18.82	207	144	H
3	2.38999	43.72	VA1T	32.1	-35.5	40.32	54	-13.68	-	-	207	144	H
4	2.33795	43.81	VA1T	32.2	-35.6	40.41	54	-13.59	-	-	207	144	H

Pk - Peak detector

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

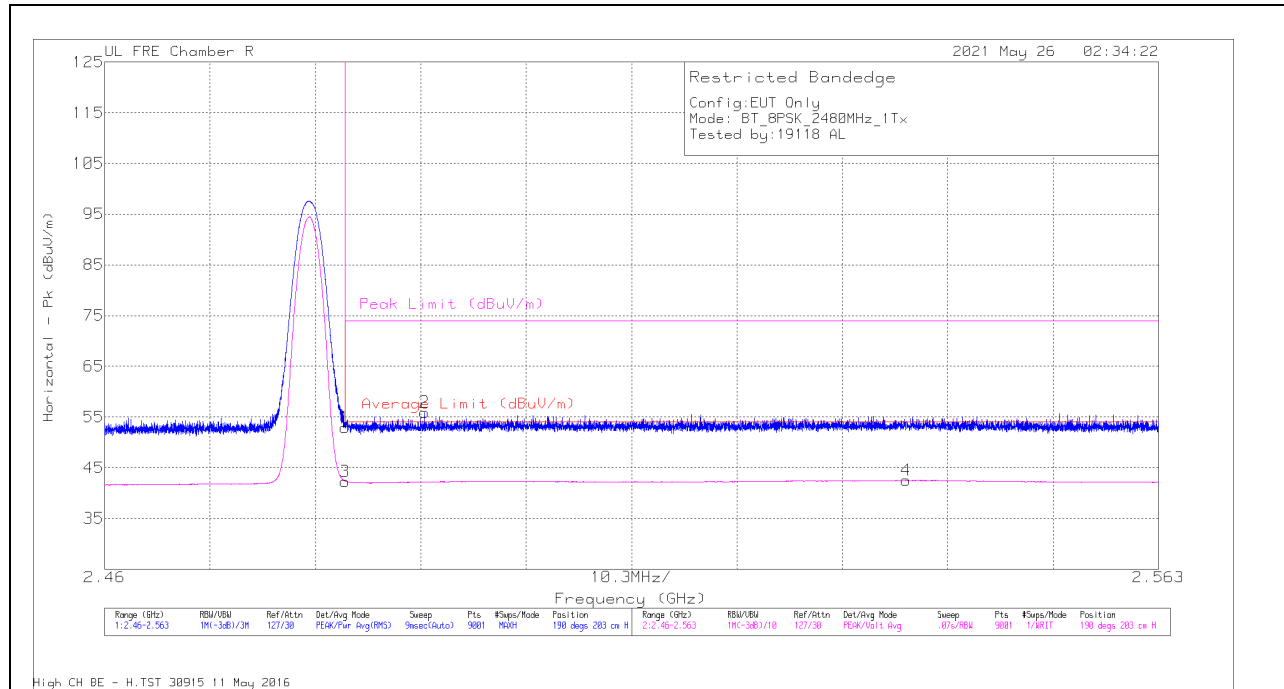
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cb/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.38999	55.47	Pk	32.1	-35.5	52.07	-	-	74	-21.93	264	267	V
2	2.31484	58.57	Pk	32.2	-35.6	55.17	-	-	74	-18.83	264	267	V
3	2.38999	43.76	VA1T	32.1	-35.5	40.36	54	-13.64	-	-	264	267	V
4	2.33899	43.82	VA1T	32.2	-35.6	40.42	54	-13.58	-	-	264	267	V

Pk - Peak detector

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

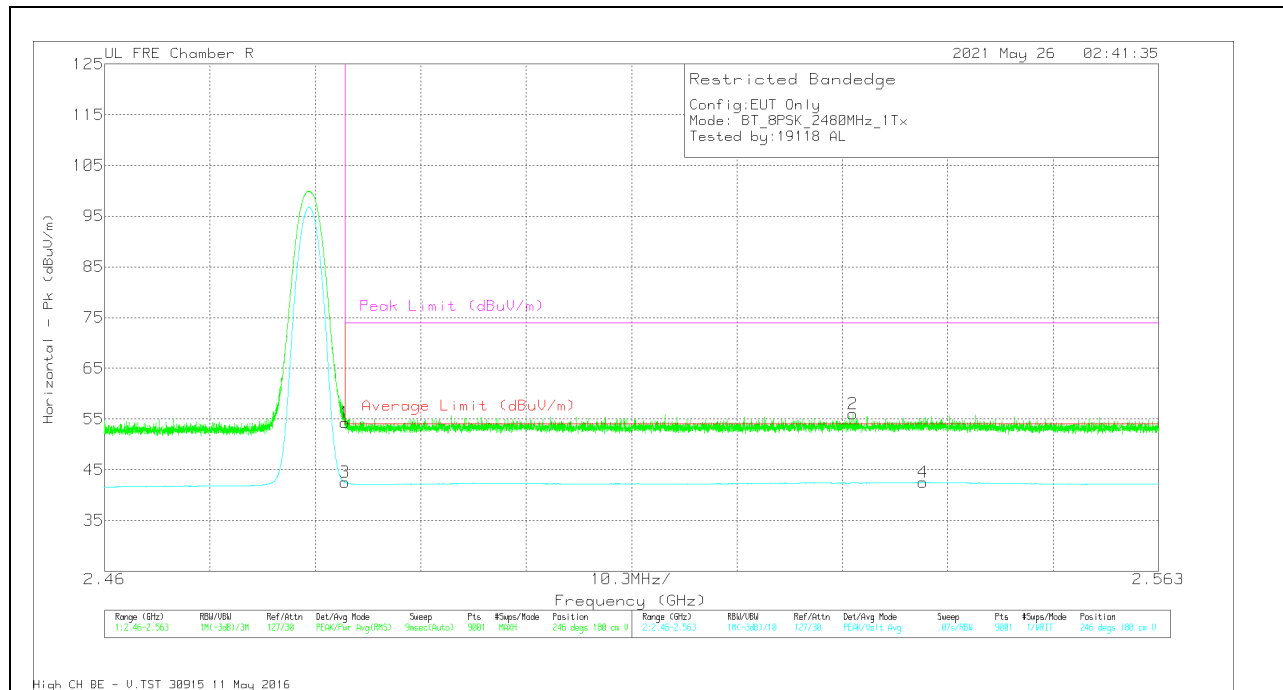
BANDEDGE (HIGH CHANNEL)**HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/CbI/Ftr/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.48351	55.73	Pk	32.5	-35.3	52.93	-	-	74	-21.07	190	203	H
2	2.49125	58.55	Pk	32.6	-35.2	55.95	-	-	74	-18.05	190	203	H
3	2.48351	45.13	VA1T	32.5	-35.3	42.33	54	-11.67	-	-	190	203	H
4	2.53836	44.91	VA1T	32.6	-35	42.51	54	-11.49	-	-	190	203	H

Pk - Peak detector

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

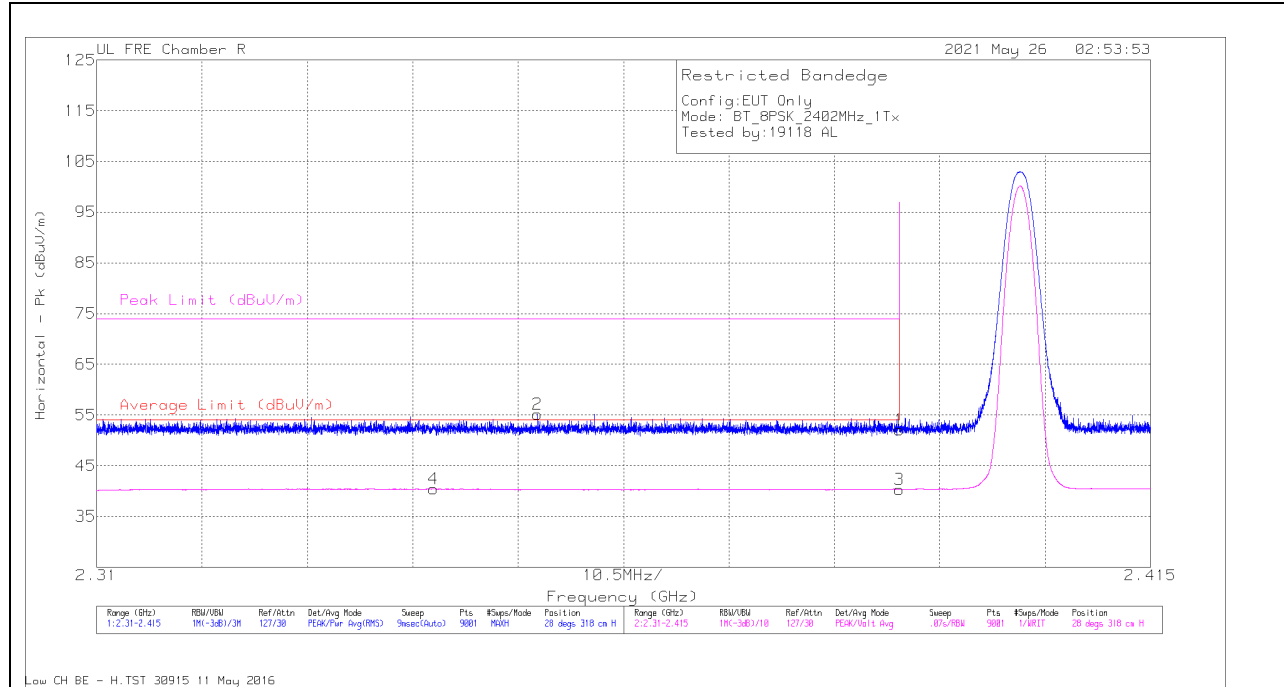
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cb/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.48351	57.09	Pk	32.5	-35.3	54.29	-	-	74	-19.71	246	180	V
2	2.53314	58.43	Pk	32.6	-35	56.03	-	-	74	-17.97	246	180	V
3	2.48351	45.28	VA1T	32.5	-35.3	42.48	54	-11.52	-	-	246	180	V
4	2.53999	44.82	VA1T	32.6	-34.9	42.52	54	-11.48	-	-	246	180	V

Pk - Peak detector

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

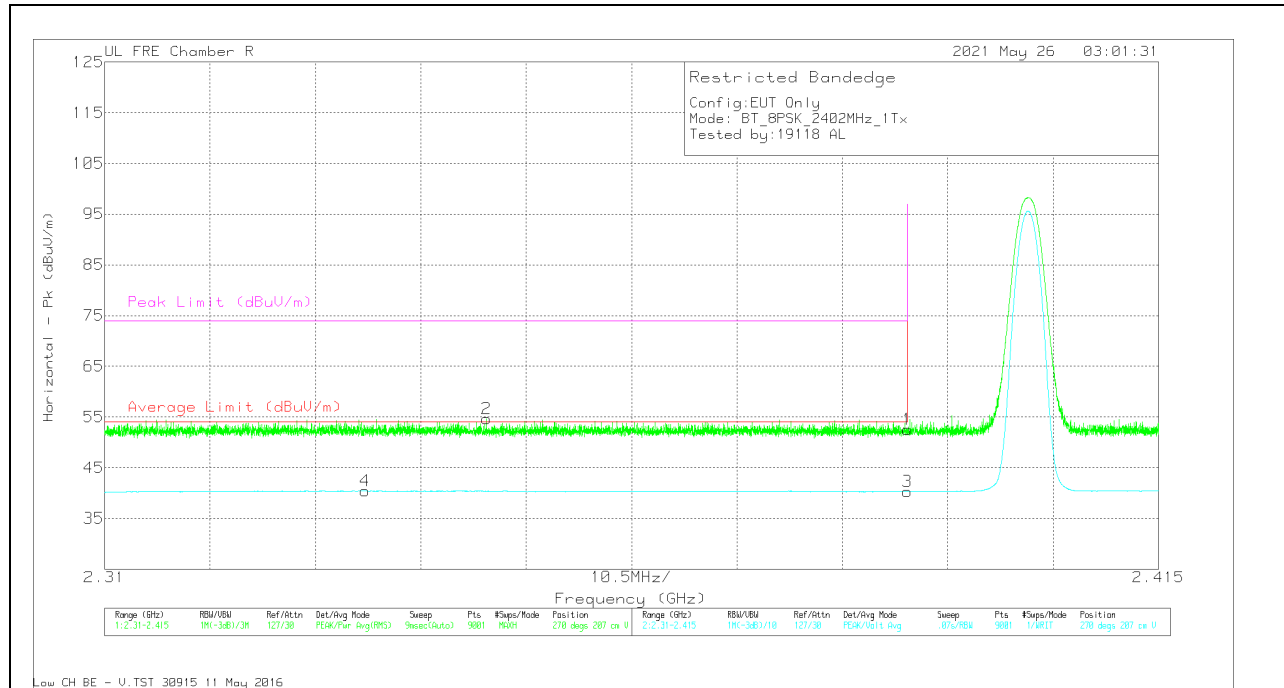
ANT 3**BANDEDGE (LOW CHANNEL)****HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/CbI/Ftr/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.38999	55.45	Pk	32.1	-35.5	52.05	-	-	74	-21.95	28	318	H
2	2.3539	58.69	Pk	32.1	-35.6	55.19	-	-	74	-18.81	28	318	H
3	2.38999	43.7	VA1T	32.1	-35.5	40.3	54	-13.7	-	-	28	318	H
4	2.34359	43.82	VA1T	32.2	-35.6	40.42	54	-13.58	-	-	28	318	H

Pk - Peak detector

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

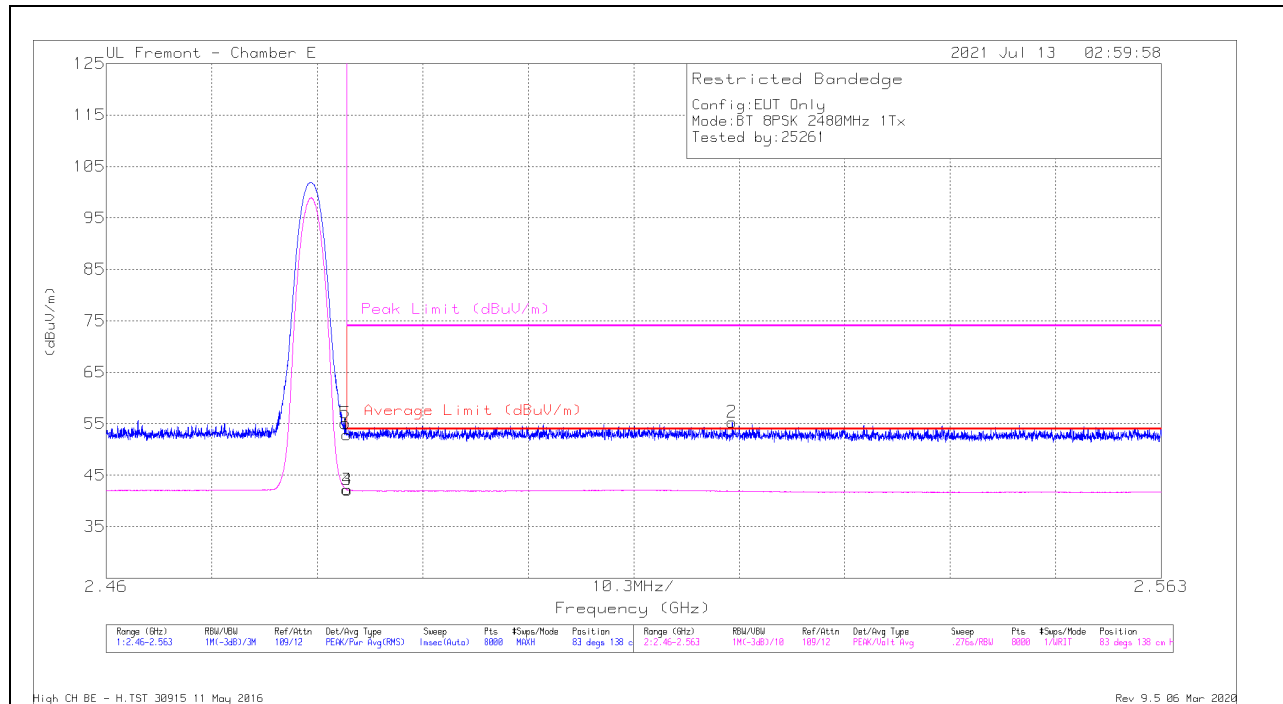
VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213973 (dB/m)	Amp/Cb/Filt/P ad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.38999	55.93	Pk	32.1	-35.5	52.53	-	-	74	-21.47	270	207	V
2	2.34807	57.95	Pk	32.2	-35.5	54.65	-	-	74	-19.35	270	207	V
3	2.38999	43.74	VA1T	32.1	-35.5	40.34	54	-13.66	-	-	270	207	V
4	2.33597	43.74	VA1T	32.3	-35.6	40.44	54	-13.56	-	-	270	207	V

Pk - Peak detector

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

BANDEDGE (HIGH CHANNEL)**HORIZONTAL RESULT**

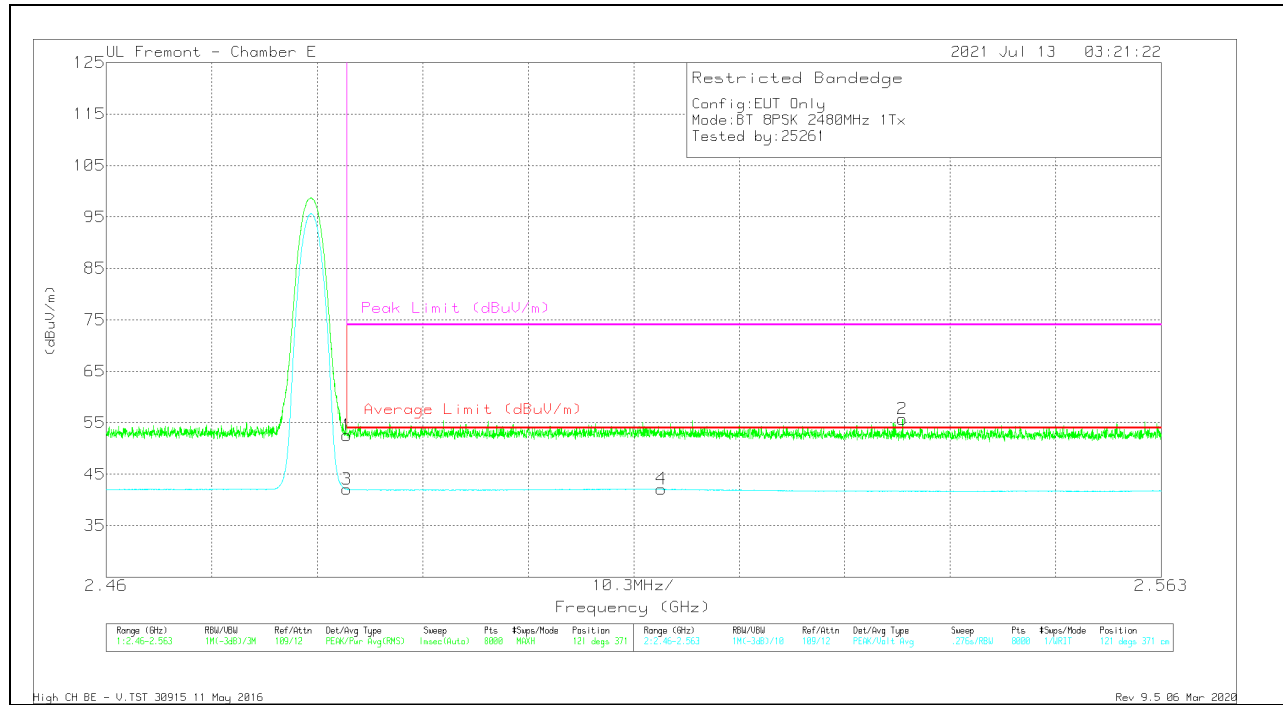
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0078107 (dB/m)	Amp/Cbl/Ftr/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	37.96	Pk	32.6	-17.7	52.86	-	-	74	-21.14	83	138	H
2	2.52111	40.43	Pk	32.6	-17.7	55.33	-	-	74	-18.67	83	138	H
3	* 2.4835	27.29	VA1T	32.6	-17.7	42.19	54	-11.81	-	-	83	138	H
4	* 2.48353	27.27	VA1T	32.6	-17.7	42.17	54	-11.83	-	-	83	138	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



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0078107 (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	* 2.4835	37.66	Pk	32.6	-17.7	52.56	-	-	74	-21.44	121	371	V
2	2.53774	41.03	Pk	32.5	-17.8	55.73	-	-	74	-18.27	121	371	V
3	* 2.4835	27.18	VA1T	32.6	-17.7	42.08	54	-11.92	-	-	121	371	V
4	2.51419	27.04	VA1T	32.7	-17.6	42.14	54	-11.86	-	-	121	371	V

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

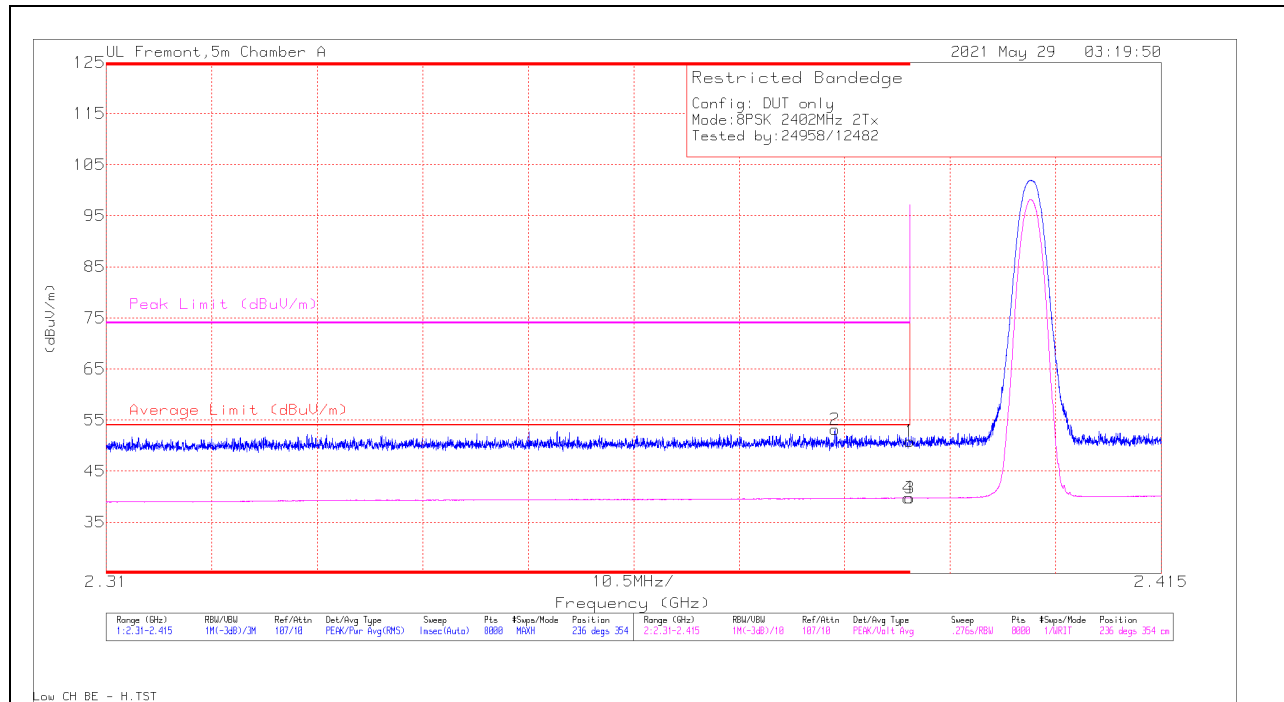
Pk - Peak detector

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

10.1.8. LOW POWER ENHANCED DATA RATE TXBF 8PSK MODULATION

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



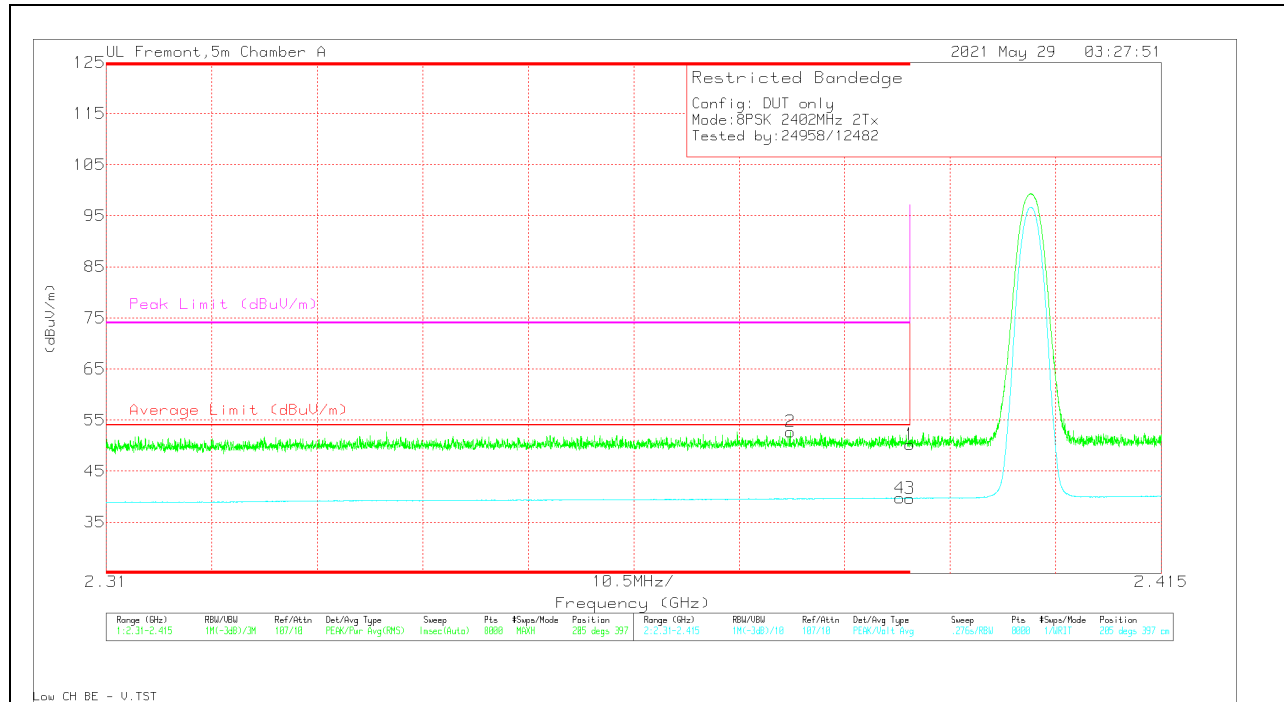
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dBm)	Amp/Cbll/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	39.56	Pk	32.6	-21.3	50.86	-	-	74	-23.14	236	354	H
2	* 2.38253	41.86	Pk	32.6	-21.3	53.16	-	-	74	-20.84	236	354	H
3	* 2.39	28.42	VA1T	32.6	-21.3	39.72	54	-14.28	-	-	236	354	H
4	* 2.38983	28.45	VA1T	32.6	-21.3	39.75	54	-14.25	-	-	236	354	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

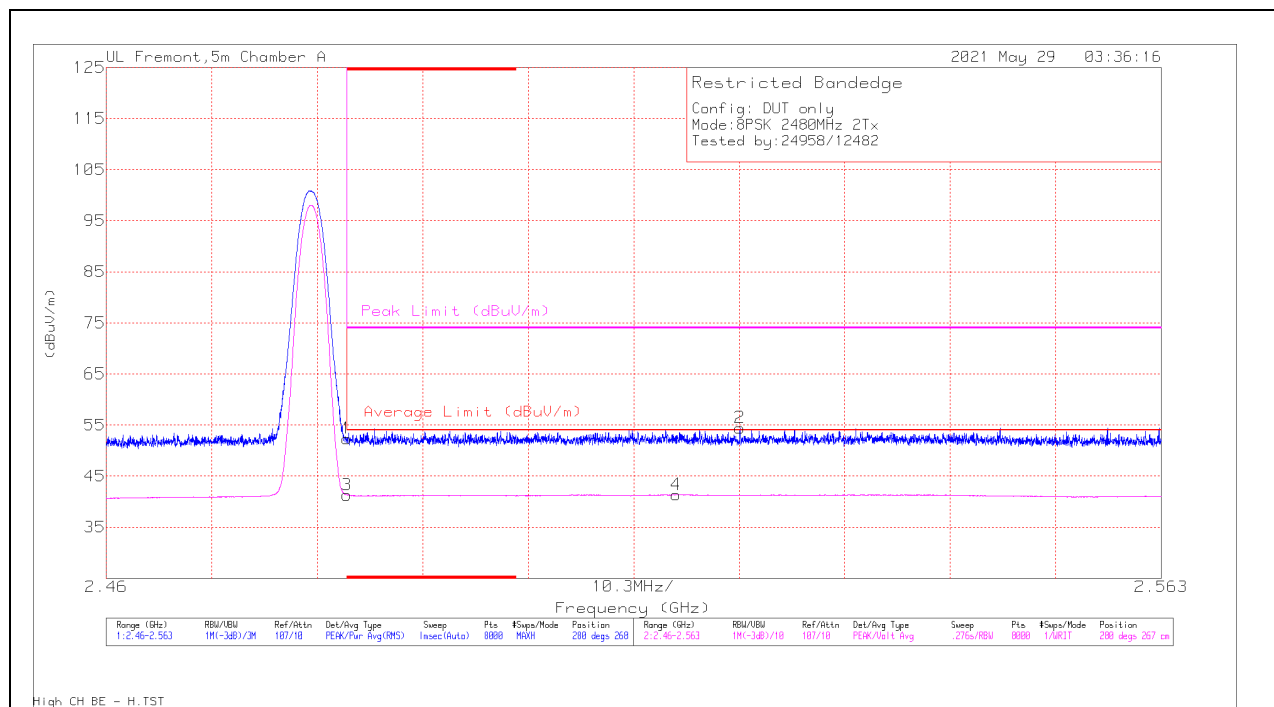


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Filt/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.92	Pk	32.6	-21.3	50.22	-	-	74	-23.78	205	397	V
2	* 2.37808	41.53	Pk	32.5	-21.3	52.73	-	-	74	-21.27	205	397	V
3	* 2.39	28.35	VA1T	32.6	-21.3	39.65	54	-14.35	-	-	205	397	V
4	* 2.38897	28.42	VA1T	32.6	-21.3	39.72	54	-14.28	-	-	205	397	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**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Filt/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	39.77	Pk	33.4	-20.8	52.37	-	-	74	-21.63	280	268	H
2	2.52186	41.76	Pk	33.4	-20.7	54.46	-	-	74	-19.54	280	268	H
3	* 2.4835	28.71	VA1T	33.4	-20.8	41.31	54	-12.69	-	-	280	267	H
4	2.51563	28.46	VA1T	33.5	-20.6	41.36	54	-12.64	-	-	280	267	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



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Ftr/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	* 2.4835	39.34	Pk	33.4	-20.8	51.94	-	-	74	-22.06	329	364	V
2	2.51518	42.04	Pk	33.5	-20.6	54.94	-	-	74	-19.06	329	364	V
3	* 2.4835	28.73	VA1T	33.4	-20.8	41.33	54	-12.67	-	-	329	364	V
4	2.51529	28.57	VA1T	33.5	-20.6	41.47	54	-12.53	-	-	329	364	V

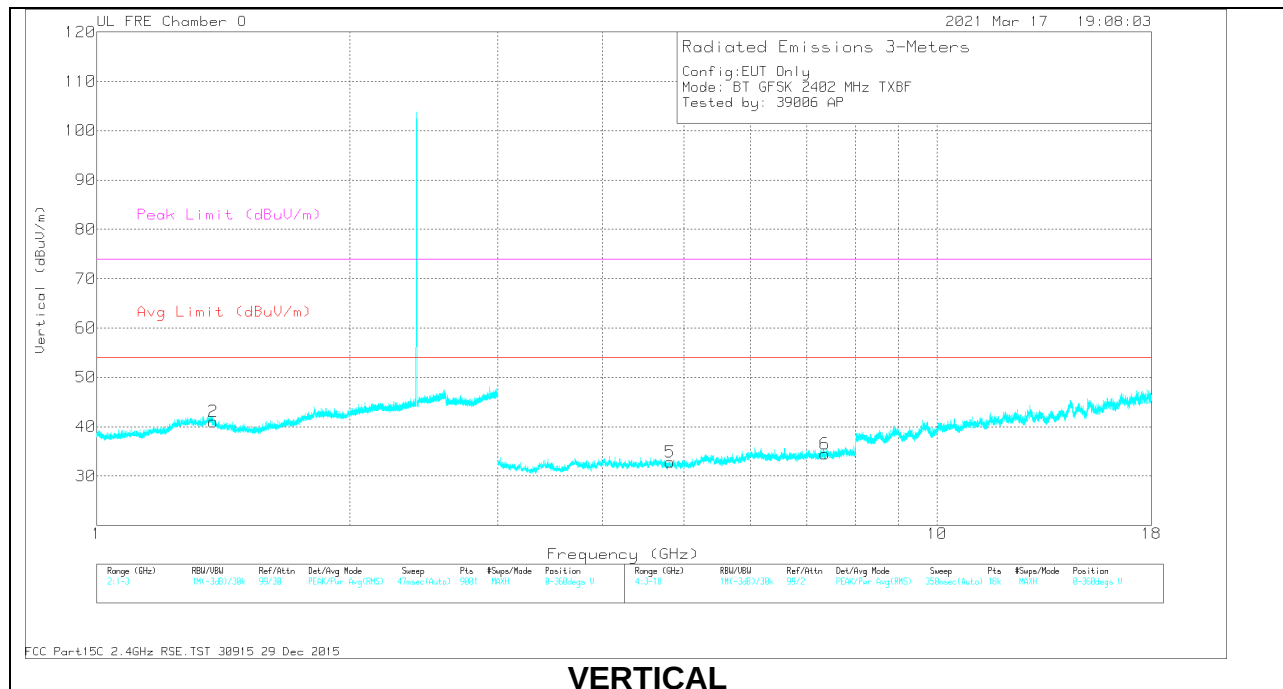
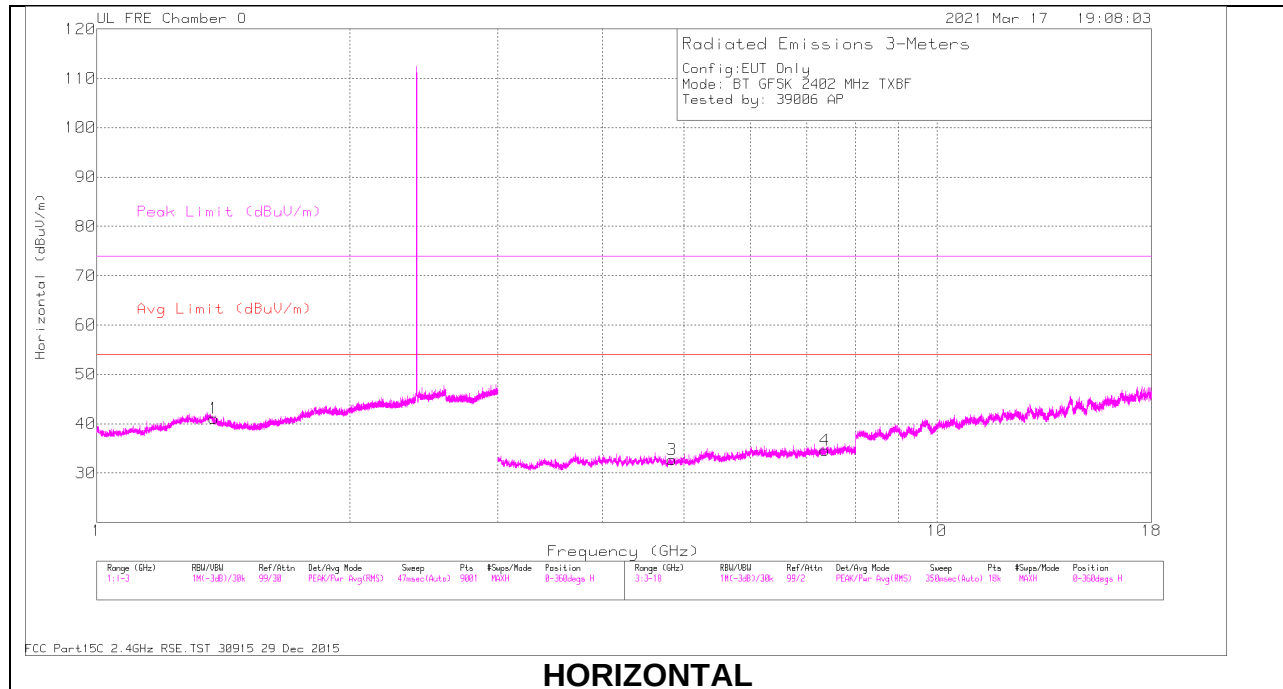
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

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

10.1.9. HIGH POWER TXBF HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS**Range 1: Horizontal 1000 - 3000MHz**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	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	1.37966	56.48	PKFH	29.4	-36.2	49.68	-	-	74	-24.32	269	198	H
	1.37834	42.82	VA1T	29.4	-36.2	36.02	54	-17.98	-	-	269	198	H

Range 2: Vertical 1000 - 3000MHz

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	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	1.3748	56.55	PKFH	29.5	-36.2	49.85	-	-	74	-24.15	338	159	V
	1.37429	42.9	VA1T	29.5	-36.2	36.2	54	-17.8	-	-	338	159	V

Range 3: Horizontal 3000 - 18000MHz

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	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
3	*4.83848	51.81	PKFH	34.2	-42.5	43.51	-	-	74	-30.49	237	129	H
	*4.83698	37.86	VA1T	34.1	-42.5	29.46	54	-24.54	-	-	237	129	H
4	*7.35843	48.1	PKFH	35.7	-38.9	44.9	-	-	74	-29.1	239	191	H
	*7.35734	34.7	VA1T	35.7	-38.9	31.5	54	-22.5	-	-	239	191	H

Range 4: Vertical 3000 - 18000MHz

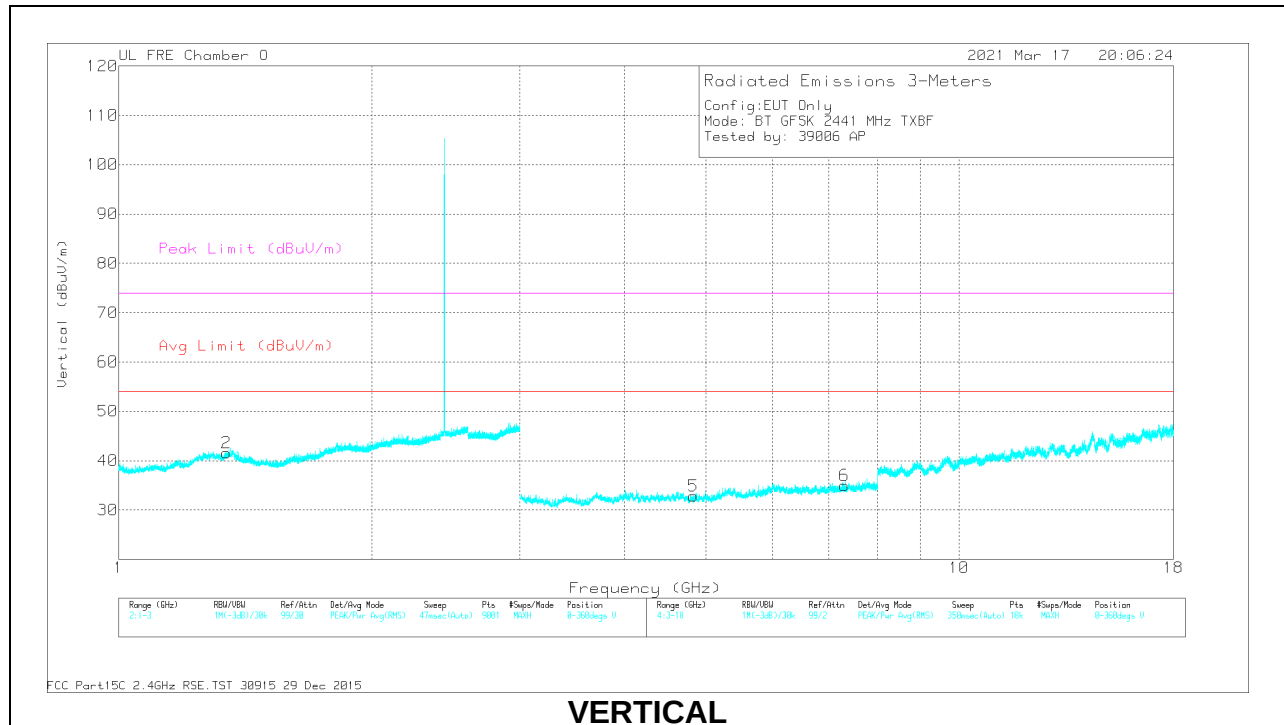
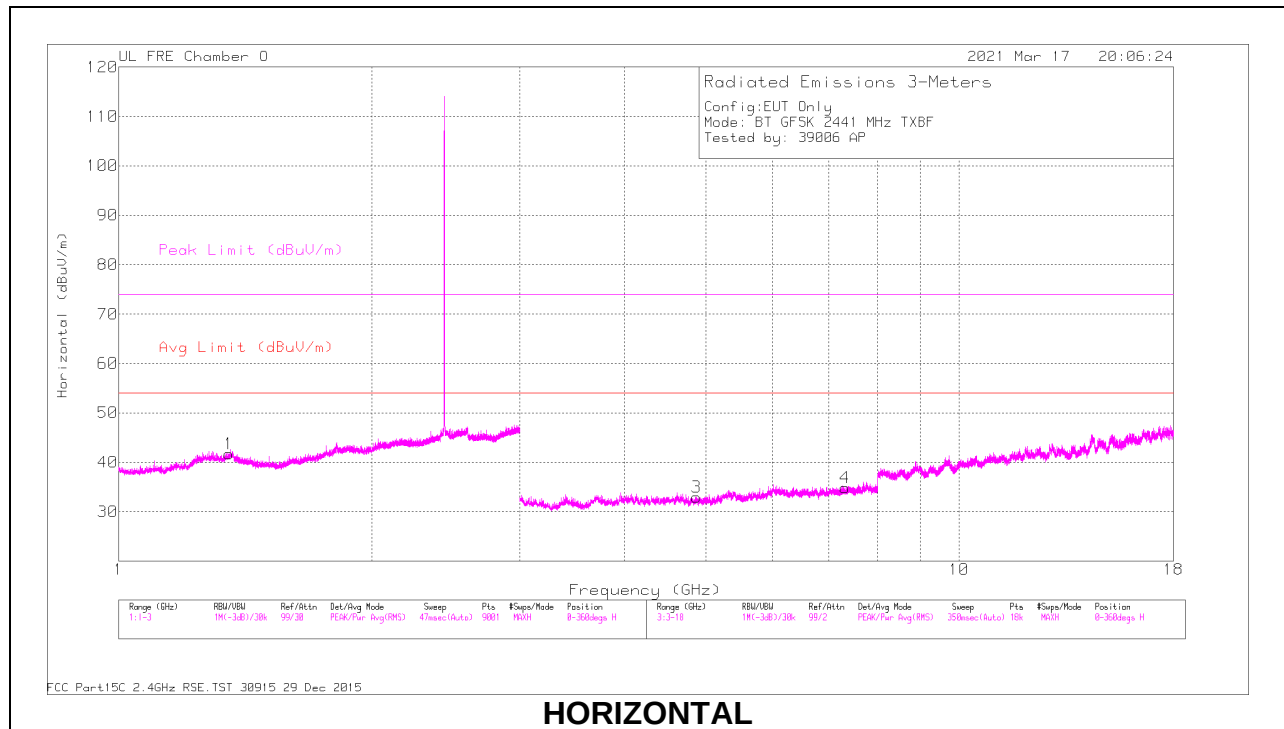
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	*4.8149	51.44	PKFH	34.1	-42.5	43.04	-	-	74	-30.96	338	159	V
	*4.81295	38.14	VA1T	34.1	-42.5	29.74	54	-24.26	-	-	338	159	V
6	*7.35061	48.16	PKFH	35.6	-38.9	44.86	-	-	74	-29.14	260	213	V
	*7.34918	34.89	VA1T	35.6	-39	31.49	54	-22.51	-	-	260	213	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



RADIATED EMISSIONS**Range 1: Horizontal 1000 - 3000MHz**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	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	* 1.35374	57.1	PKFH	29.4	-36.3	50.2	-	-	74	-23.8	128	152	H
	* 1.3518	43.59	VA1T	29.3	-36.3	36.59	54	-17.41	-	-	128	152	H

Range 2: Vertical 1000 - 3000MHz

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	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	* 1.34378	56.98	PKFH	29	-36.3	49.68	-	-	74	-24.32	94	197	V
	* 1.34508	43.54	VA1T	29.1	-36.3	36.34	54	-17.66	-	-	94	197	V

Range 3: Horizontal 3000 - 18000MHz

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	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
3	* 4.8709	51.65	PKFH	34.1	-42.4	43.35	-	-	74	-30.65	153	267	H
	* 4.86858	38.17	VA1T	34	-42.4	29.77	54	-24.23	-	-	153	267	H
4	* 7.32067	49.18	PKFH	35.7	-39.1	45.78	-	-	74	-28.22	135	133	H
	* 7.32144	35.17	VA1T	35.7	-39.1	31.77	54	-22.23	-	-	135	133	H

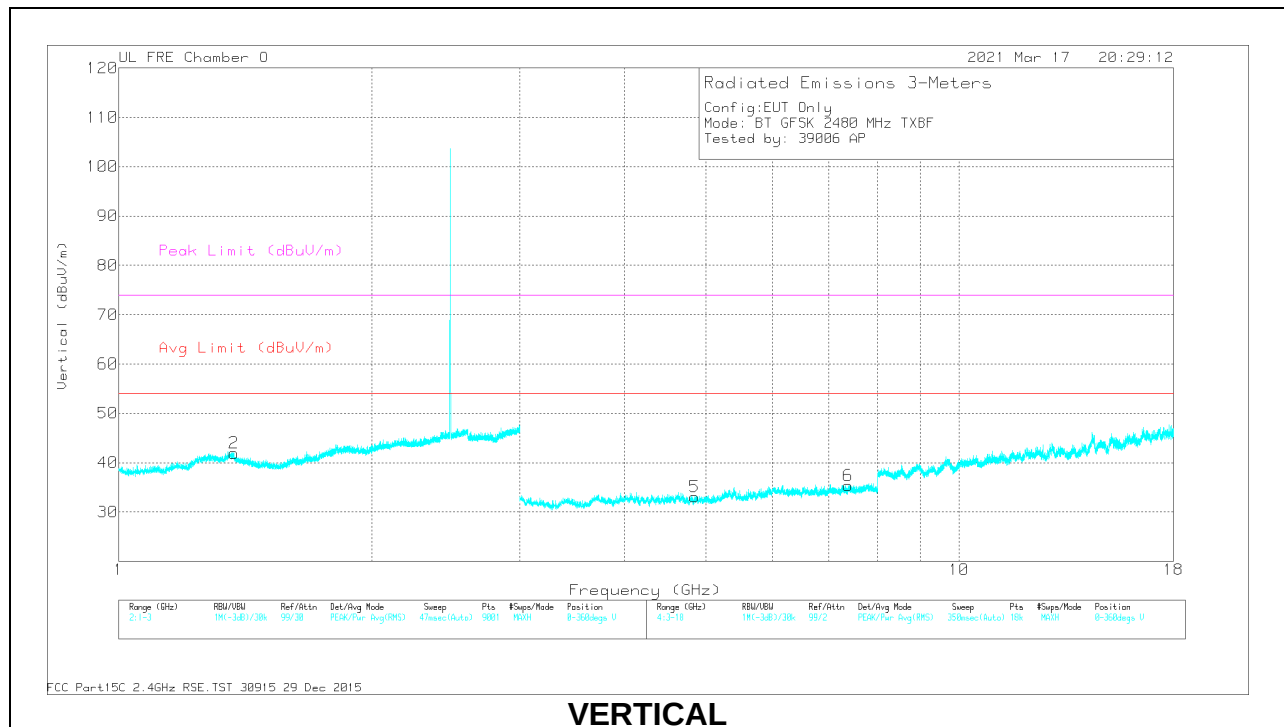
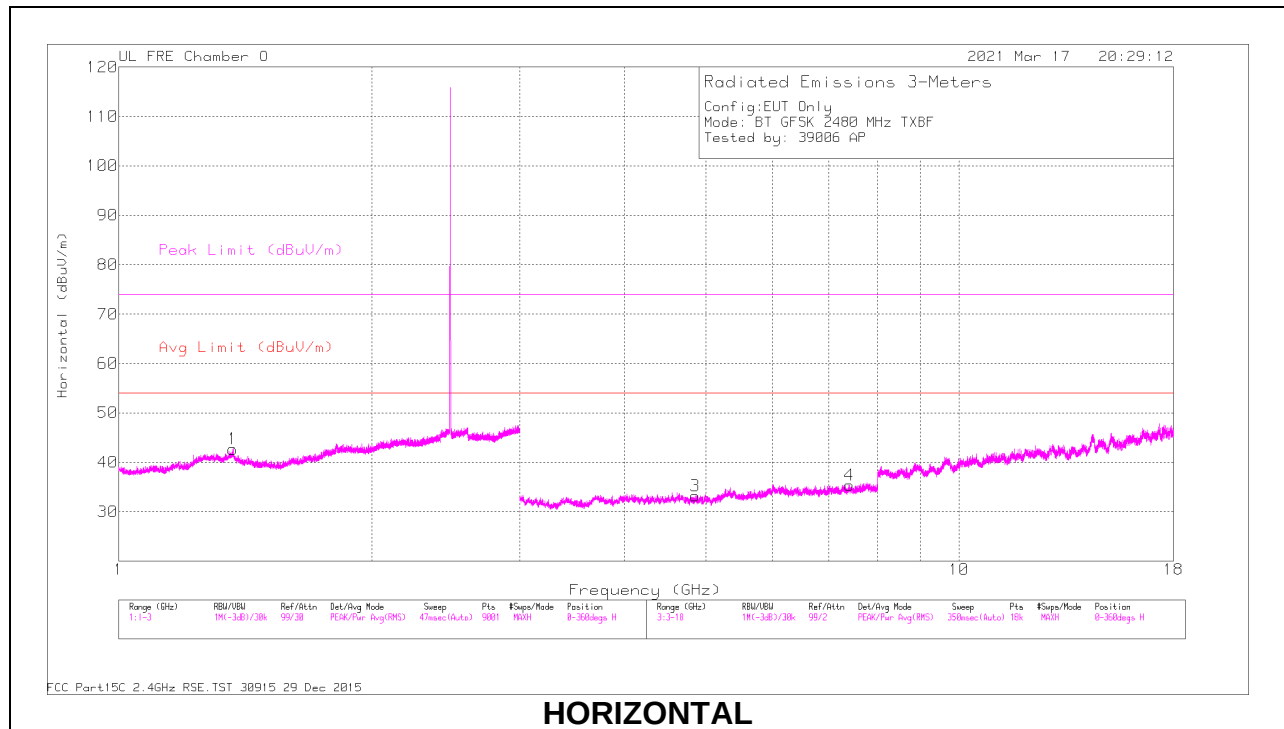
Range 4: Vertical 3000 - 18000MHz

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	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
5	* 4.82425	51.73	PKFH	34.1	-42.5	43.33	-	-	74	-30.67	189	164	V
	* 4.82396	37.83	VA1T	34.1	-42.5	29.43	54	-24.57	-	-	189	164	V
6	* 7.30388	48.49	PKFH	35.7	-39.1	45.09	-	-	74	-28.91	110	115	V
	* 7.30133	35.09	VA1T	35.7	-39.1	31.69	54	-22.31	-	-	110	115	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

RADIATED EMISSIONS**Range 1: Horizontal 1000 - 3000MHz**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	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	* 1.36789	57.27	PKFH	29.6	-36.2	50.67	-	-	74	-23.33	237	129	H
	* 1.3642	43.57	VA1T	29.5	-36.2	36.87	54	-17.13	-	-	237	129	H

Range 2: Vertical 1000 - 3000MHz

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	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	* 1.37385	55.98	PKFH	29.5	-36.2	49.28	-	-	74	-24.72	111	176	V
	* 1.37068	43.02	VA1T	29.6	-36.2	36.42	54	-17.58	-	-	111	176	V

Range 3: Horizontal 3000 - 18000MHz

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	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
3	* 4.85474	51.47	PKFH	34.1	-42.5	43.07	-	-	74	-30.93	338	159	H
	* 4.8527	38.21	VA1T	34.1	-42.4	29.91	54	-24.09	-	-	338	159	H
4	* 7.40507	49.51	PKFH	35.7	-38.6	45.61	-	-	74	-28.39	260	213	H
	* 7.4037	34.99	VA1T	35.8	-38.6	32.19	54	-21.81	-	-	260	213	H

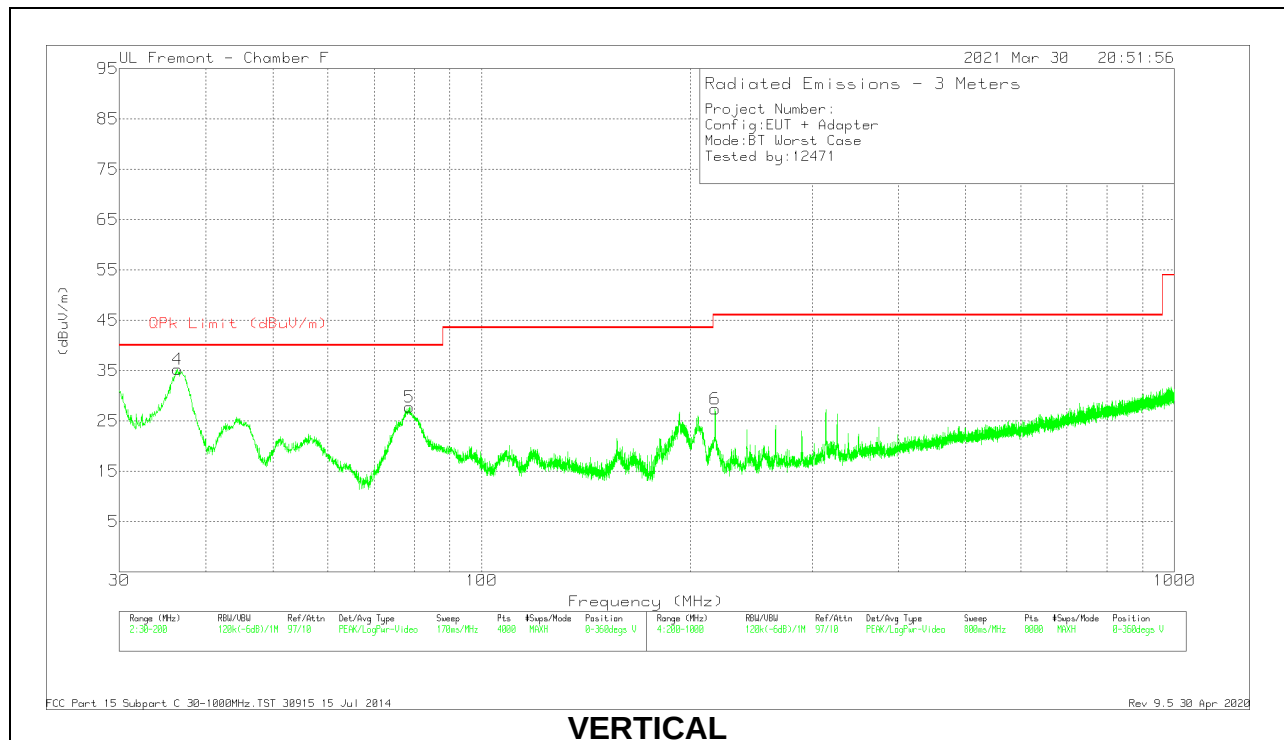
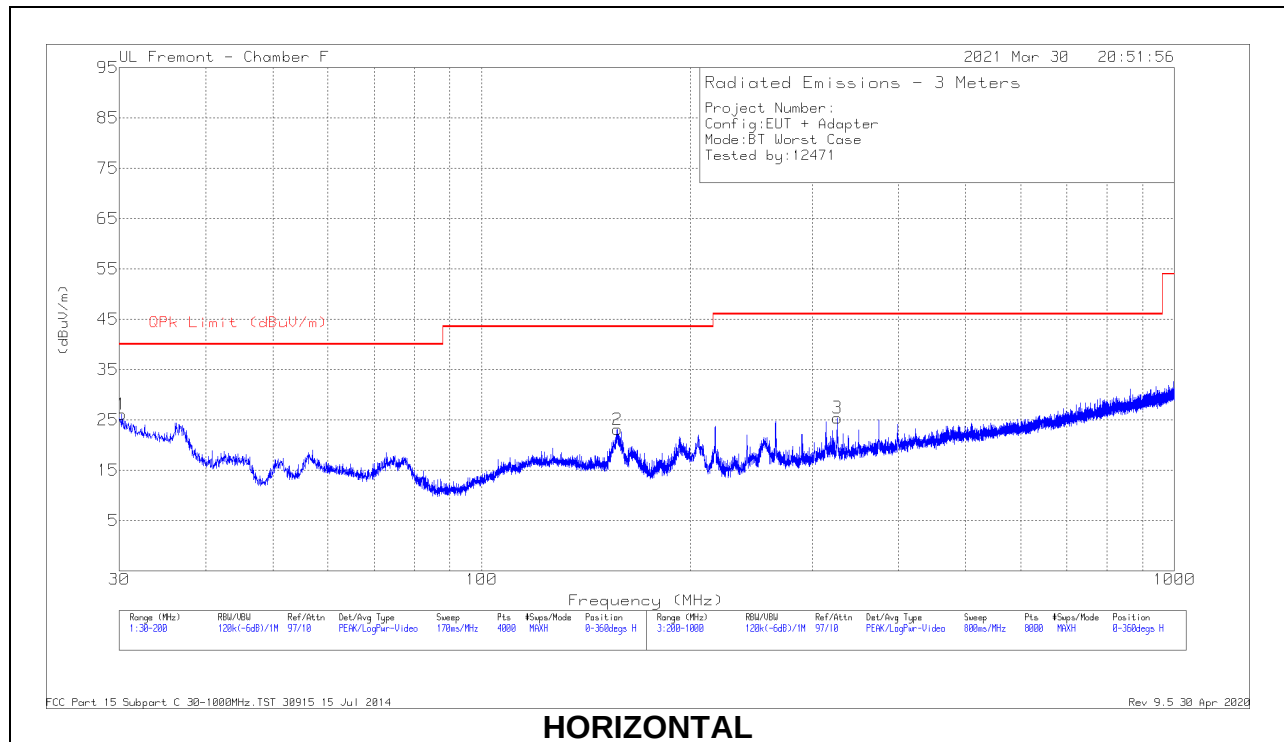
Range 4: Vertical 3000 - 18000MHz

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF PRE0213832	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
5	* 4.84758	51.84	PKFH	34.1	-42.5	43.44	-	-	74	-30.56	269	198	V
	* 4.8459	38.09	VA1T	34.1	-42.4	29.79	54	-24.21	-	-	269	198	V
6	* 7.38156	49.91	PKFH	35.7	-38.7	45.91	-	-	74	-28.09	239	191	V
	* 7.37843	34.91	VA1T	35.6	-38.7	31.81	54	-22.19	-	-	239	191	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

10.2. WORST CASE BELOW 1 GHZ**SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)**

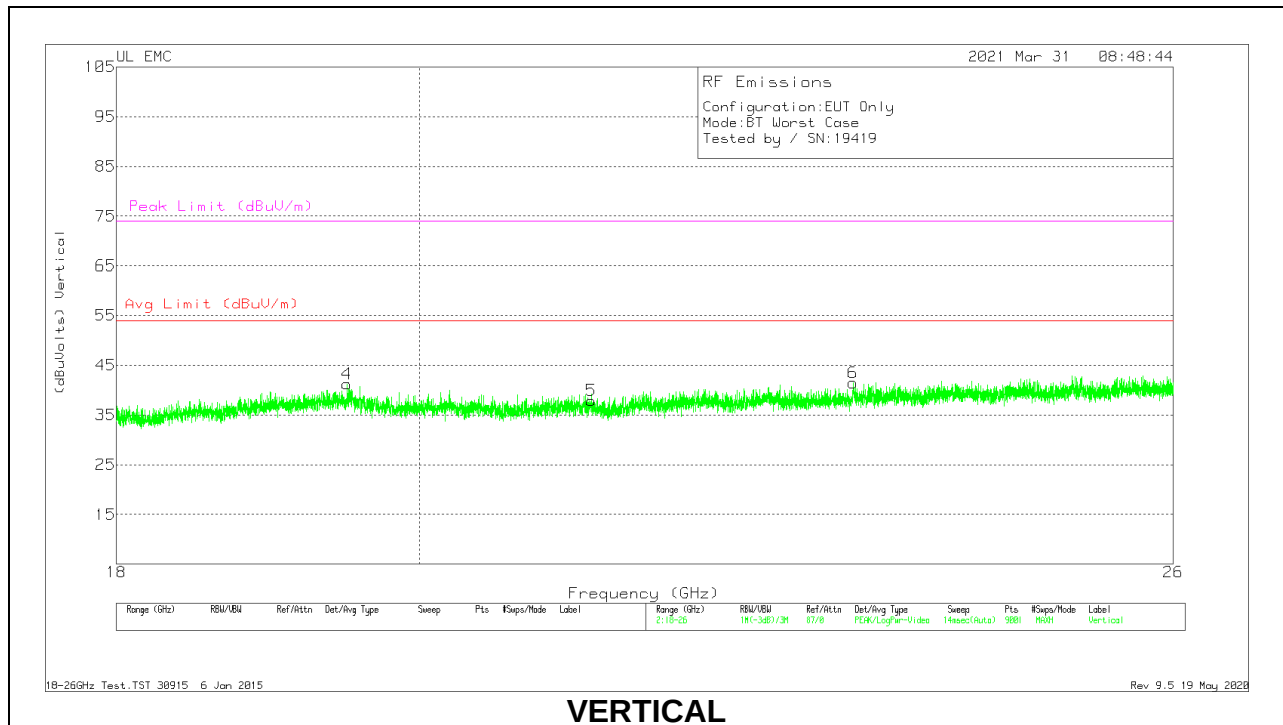
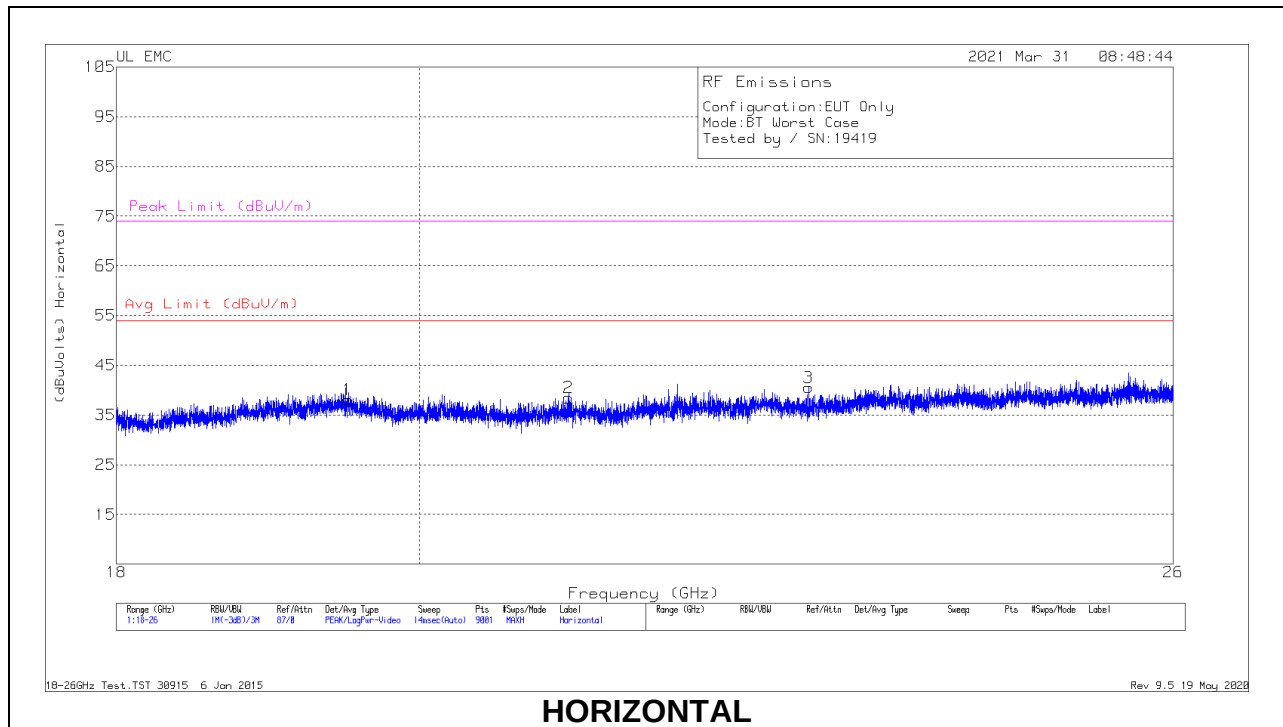
Below 1GHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degr)	Height (cm)	Polarity
1	30.2551	29.99	Pk	28	-31.9	26.09	40	-13.91	0-360	400	H
2	157.0229	35.4	Pk	18.5	-30.8	23.1	43.52	-20.42	0-360	200	H
4	36.4192	43.82	Pk	23.2	-31.8	35.22	40	-4.78	0-360	100	V
4	36.9392	40.32	Qp	22.7	-31.8	31.22	40	-8.78	236	103	V
5	78.6751	45.21	Pk	13.9	-31.4	27.71	40	-12.29	0-360	100	V
3	* 326.3164	34.68	Pk	20.4	-29.7	25.38	46.02	-20.64	0-360	99	H
6	217.4023	40.45	Pk	17.2	-30.3	27.35	46.02	-18.67	0-360	98	V

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

Pk - Peak detector

Qp - Quasi-Peak detector

10.3. WORST CASE 18-26 GHZ**SPURIOUS EMISSIONS 18-26 GHz (WORST-CASE CONFIGURATION)**

18 – 26GHz DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T125 AF (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	19.50578	33.91	Pk	32.8	-19.1	-9.5	38.11	54	-15.89	74	-35.89
2	21.06489	35.96	Pk	33	-21	-9.5	38.46	54	-15.54	74	-35.54
3	22.90045	36.92	Pk	33.6	-20.5	-9.5	40.52	54	-13.48	74	-33.48
4	19.504	37.03	Pk	32.8	-19.1	-9.5	41.23	54	-12.77	74	-32.77
5	21.23378	35.49	Pk	33	-21.1	-9.5	37.89	54	-16.11	74	-36.11
6	23.25689	37.48	Pk	33.7	-20.2	-9.5	41.48	54	-12.52	74	-32.52

Pk - Peak detector

Note: measurement distance was 1m.

11. AC POWER LINE CONDUCTED EMISSIONS**LIMITS**

FCC §15.207 (a)

RSS-Gen 8.8

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

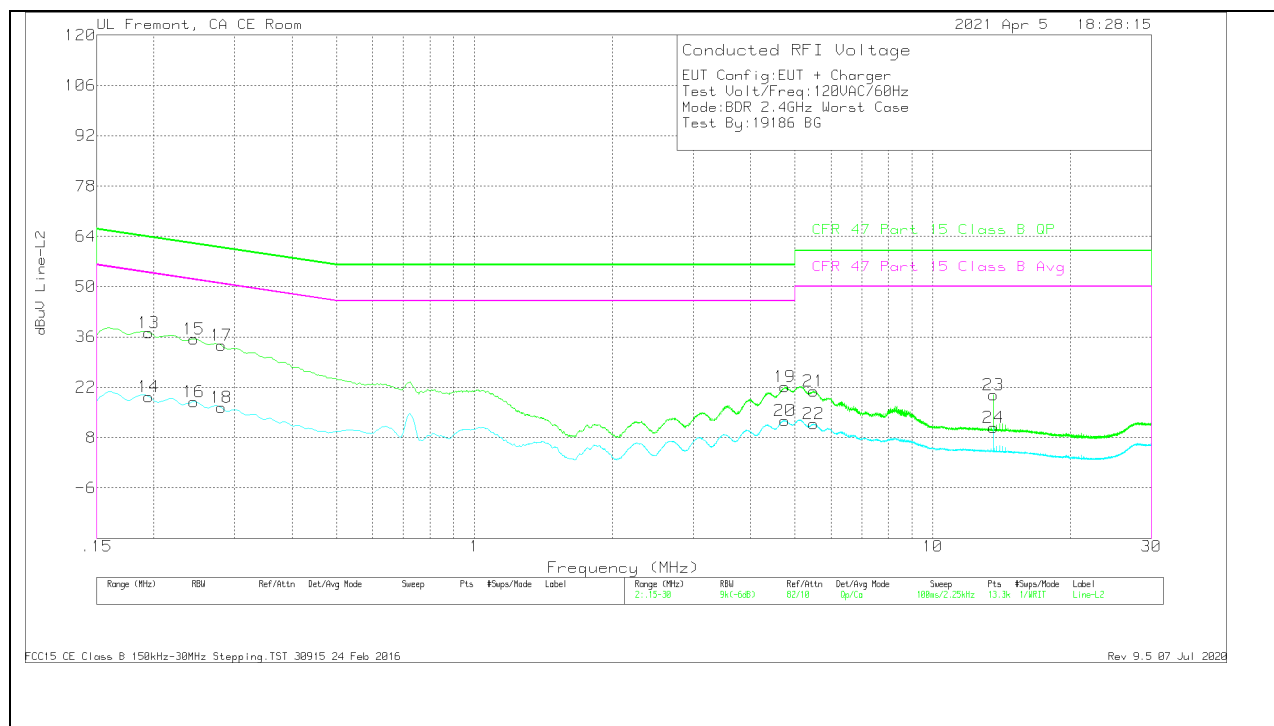
11.1. AC POWER LINE WITH AC/DC ADAPTER**LINE 1 RESULTS****Range 1: Line-L1 .15 - 30MHz**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE018644 6 L1	LC Cables C1&C3 dB	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	.17025	29.01	Qp	0	0	10.1	39.11	64.95	-25.84	-	-
2	.168	10.96	Ca	0	0	10.1	21.06	-	-	55.06	-34
3	.22425	26.73	Qp	0	0	10.1	36.83	62.66	-25.83	-	-
4	.22425	9.05	Ca	0	0	10.1	19.15	-	-	52.66	-33.51
5	.321	21.65	Qp	0	0	10.1	31.75	59.68	-27.93	-	-
6	.321	4.45	Ca	0	0	10.1	14.55	-	-	49.68	-35.13
7	.71475	14.55	Qp	0	0	10.1	24.65	56	-31.35	-	-
8	.717	4.3	Ca	0	0	10.1	14.4	-	-	46	-31.6
9	5.07638	13.33	Qp	0	.1	10.2	23.63	60	-36.37	-	-
10	5.055	3.86	Ca	0	.1	10.2	14.16	-	-	50	-35.84
11	13.56	9.95	Qp	.1	.2	10.2	20.45	60	-39.55	-	-
12	13.56	1.08	Ca	.1	.2	10.2	11.58	-	-	50	-38.42

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS

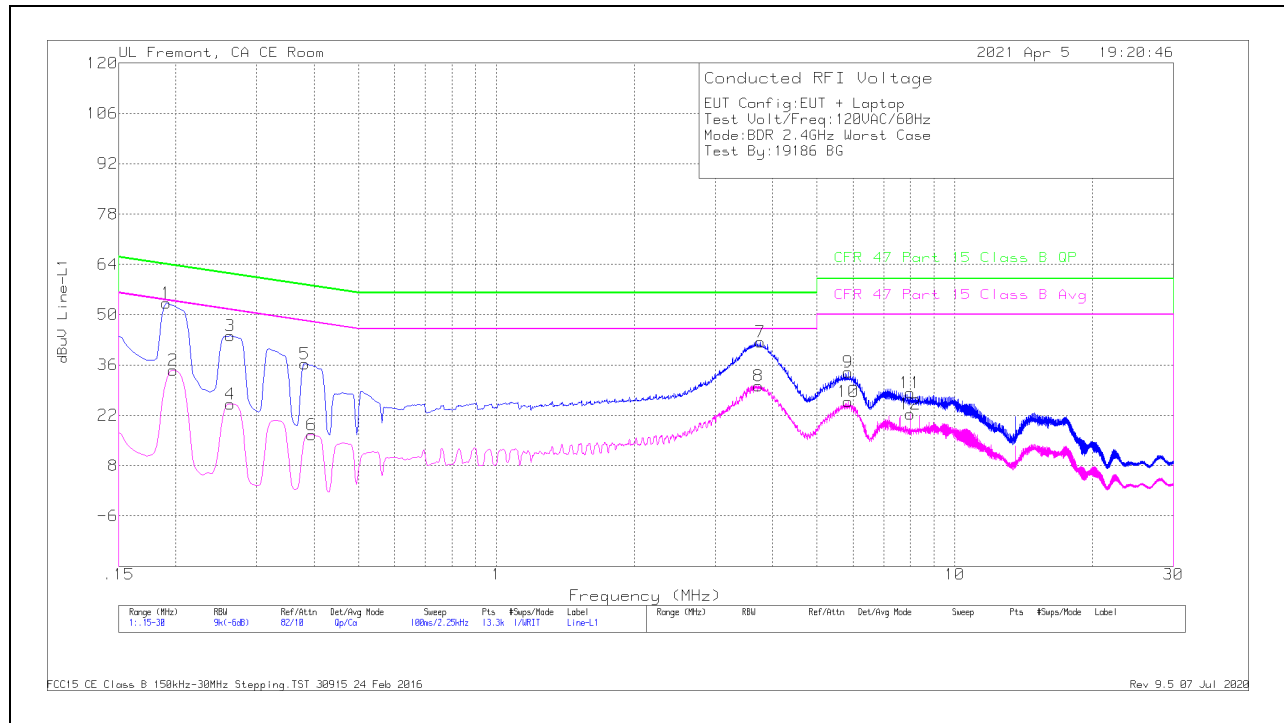


Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE018644 6 L2	LC Cables C2&C3 dB	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)M argin (dB)
13	.195	27.12	Qp	0	0	10.1	37.22	63.82	-26.6	-	-
14	.195	9.34	Ca	0	0	10.1	19.44	-	-	53.82	-34.38
15	.2445	25.37	Qp	0	0	10.1	35.47	61.94	-26.47	-	-
16	.2445	7.93	Ca	0	0	10.1	18.03	-	-	51.94	-33.91
17	.2805	23.55	Qp	0	0	10.1	33.65	60.8	-27.15	-	-
18	.2805	6.24	Ca	0	0	10.1	16.34	-	-	50.8	-34.46
19	4.76025	11.8	Qp	0	.1	10.2	22.1	56	-33.9	-	-
20	4.7625	2.52	Ca	0	.1	10.2	12.82	-	-	46	-33.18
21	5.49375	10.59	Qp	0	.1	10.2	20.89	60	-39.11	-	-
22	5.496	1.55	Ca	0	.1	10.2	11.85	-	-	50	-38.15
23	13.56	9.33	Qp	.1	.2	10.2	19.83	60	-40.17	-	-
24	13.56	.37	Ca	.1	.2	10.2	10.87	-	-	50	-39.13

Qp - Quasi-Peak detector

Ca - CISPR average detection

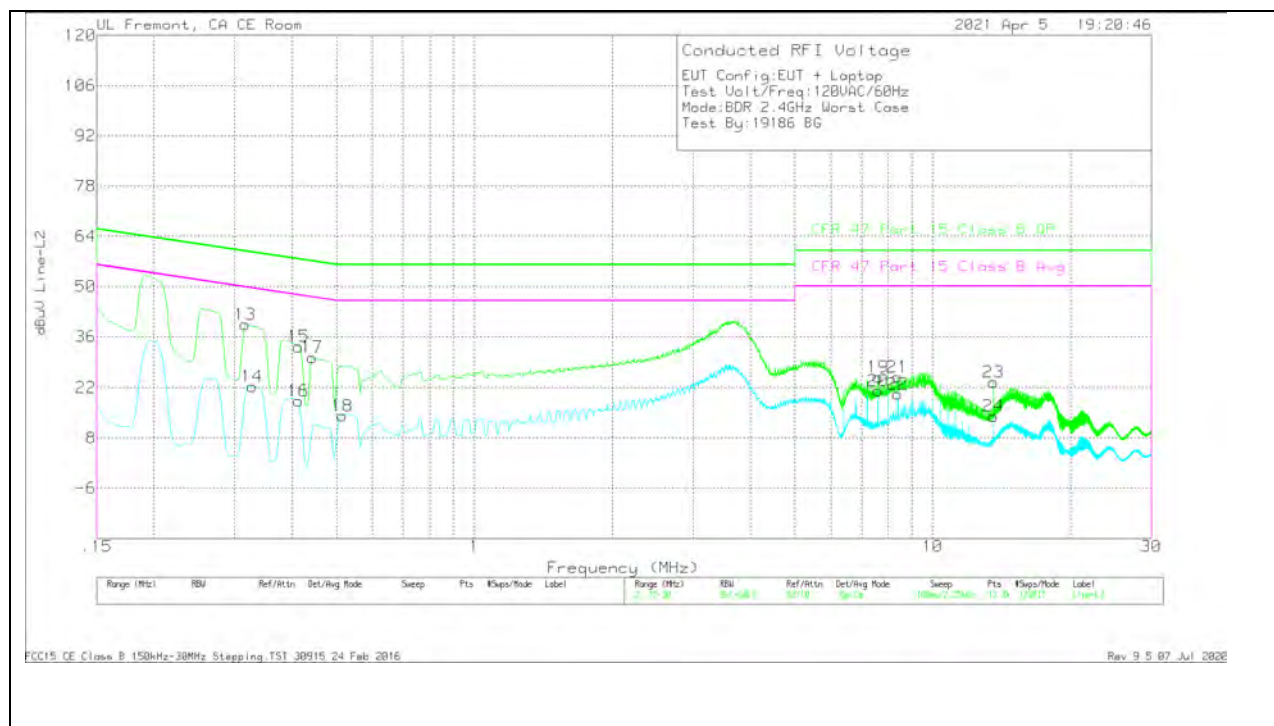
11.2. AC POWER LINE WITH LAPTOP**LINE 1 RESULTS****Range 1: Line-L1 .15 - 30MHz**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE018644 6 L1	LC Cables C1&C3 dB	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)M argin (dB)
1	.1905	43.1	Qp	0	0	10.1	53.2	64.01	-10.81	-	-
2	.19725	24.46	Ca	0	0	10.1	34.56	-	-	53.73	-19.17
3	.2625	33.97	Qp	0	0	10.1	44.07	61.35	-17.28	-	-
4	.2625	15.09	Ca	0	0	10.1	25.19	-	-	51.35	-26.16
5	.38175	26.27	Qp	0	0	10.1	36.37	58.24	-21.87	-	-
6	.39525	6.48	Ca	0	0	10.1	16.58	-	-	47.95	-31.37
7	3.76575	32.07	Qp	0	.1	10.2	42.37	56	-13.63	-	-
8	3.7365	19.94	Ca	0	.1	10.2	30.24	-	-	46	-15.76
9	5.856	23.76	Qp	0	.1	10.2	34.06	60	-25.94	-	-
10	5.856	15.49	Ca	0	.1	10.2	25.79	-	-	50	-24.21
11	7.99125	17.97	Qp	0	.1	10.2	28.27	60	-31.73	-	-
12	7.99125	12.07	Ca	0	.1	10.2	22.37	-	-	50	-27.63

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE018644 6 L2	LC Cables C2&C3 dB	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR)M argin (dB)
13	.3165	29.37	Qp	0	0	10.1	39.47	59.8	-20.33	-	-
14	.32775	12.28	Ca	0	0	10.1	22.38	-	-	49.51	-27.13
15	.41325	23.24	Qp	0	0	10.1	33.34	57.58	-24.24	-	-
16	.41325	8.24	Ca	0	0	10.1	18.34	-	-	47.58	-29.24
17	.4425	20.24	Qp	0	0	10.1	30.34	57.01	-26.67	-	-
18	.5145	4.09	Ca	0	0	10.1	14.19	-	-	46	-31.81
19	7.59525	14.67	Qp	0	.1	10.2	24.97	60	-35.03	-	-
20	7.593	10.77	Ca	0	.1	10.2	21.07	-	-	50	-28.93
21	8.39175	14.6	Qp	0	.2	10.2	25	60	-35	-	-
22	8.39175	9.79	Ca	0	.2	10.2	20.19	-	-	50	-29.81
23	13.56	13.1	Qp	.1	.2	10.2	23.6	60	-36.4	-	-
24	13.56	3.55	Ca	.1	.2	10.2	14.05	-	-	50	-35.95

Qp - Quasi-Peak detector

Ca - CISPR average detection

12. SETUP PHOTOS

Please refer to 13573777-EP1 for setup photos

END OF TEST REPORT