MOTOROLA SOLUTIONS

CERTIFICATE 2518.08

SAMM 825

MOTOROLA PENANG ADV. COMM. LABORATORY
Motorola Solutions Malaysia Sdn. Bhd.
Plot 2A Medan Bayan Lepas,
Mukim 12, S.W.D. 11900 Bayan Lepas,
Penang, Malaysia.

FCC / ISED TEST REPORT
Report Revision : Rev.B

Date/s Tested	:	26-Aug-2023 - 4-Sept-2023
Report Issue Date	:	29-Sept-2023
Manufacturer/Location	:	Motorola Solutions Malaysia Sdn Bhd Plot 2A, Medan Bayan Lepas, Mukim 12 SWD, 11900 Bayan Lepas, Penang, Malaysia
Requestor	:	SZE KEAT NG
Product Type	:	Hand-held
Product Version (PMN)	:	T803
Model Number (HVIN)	:	T803
Frequency Band	:	2.402 - 2.480 GHz
Max RF Output Power	:	5 mWatts
Applicant Name	:	Motorola Solutions Inc
Applicant Address	:	8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322
FCC Registrations	:	461337
IC Registrations	:	MY0001
Firmware Version (FVIN)	:	NA004

The equipment was tested accordance to the requirement listed below:

(2.4GHz BT)	**PASS**
FCC 47CFR Part 15C	
ISED RSS 247 Issue 2	

Prepared By:

hidayati

SITI NURHIDAYATI BINTI ABDUL HALIM
Test Personnel

Approved Signatory:

MAHESHVARAN A/L RAJAGOPAL
Responsible Engineer

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REVISION HISTORY

Revision History	Description	Date	Originator
Rev. A	Initial Report	15-Sept-2023	**Siti Nurhidayati**
Rev. B	Update Firmware Version (FVIN)	29-September-2023	**Siti Nurhidayati**

1.0. General Information

EUT Description:

Technologies	2.4GHz BT
TX Frequency range	2402MHz – 2480MHz
Modulation Type	GFSK, Pi/4 DQPSK,8DPSK
Connector type	PROGRAMMING, TEST & ALIGNMENT CABLE
Antenna type	Bluetooth Inverted-L Antenna 2400-2500 MHz

The EUT contains following accessory devices and data cable:

Item	Brand	Model or P/N
CABLE,USB-C CABLE CHARGING ONLY - (I CABLE)	MOTOROLA	PMKN4296A
800MAH 3XAA NIMH RECHARGEABLE BATTERY PACK	MOTOROLA	PMNN4477A
1300MAH 3XAA NIMH RECHARGEABLE BATTERY PACK	MOTOROLA	1532
Dual charger tray included with USB-C Connector	MOTOROLA	PMLN8588A

Channel number and frequency information:

79 channels are provided to this EUT:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		

General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, the EUT is to comply with the requirements of the following standards:

FCC 47 CFR Part 15 Subpart C
KDB 558074 D01 15.247 Meas Guidance v05
ANSI C63.10-2013

Deviation from standard

Not applicable as no deviation from standard test method

Modifications to EUT

For RF conducted measurements a pigtail was soldered out of the board while for radiated measurements there were no modifications to the device

2.0. Summary of Test Results

FCC Clause	ISED Clause	Test Item	Result	Remark	Serial number tested	Tested by
15.247 (b)(1)	RSS-247 5.4(b)	Conducted RF Output Power (Peak)	Pass	Highest output power: 6.708 dBm (4.69 mW)	17520ZN0364	Hidayati
15.247 (a)(1)	RSS-247 5.1(a) RSS-247 5.1(b)	(1) 20dB Channel Bandwidth (2) Channel Separation	Pass	GFSK – 9K5F1D Pi/4 DQPSK – 1M21G1D 8DPSK - 1M21G1D	17520ZN0364	Hidayati
15.247(a)(1)(iii)	RSS-247 5.1(d)	Number of hopping Frequency used	Pass	Meet the limit requirement.	17520ZN0364	Hidayati
15.247(a)(1)(iii)	RSS-247 5.1(d)	Dwell time on each channel	Pass	Meet the limit requirement.	17520ZN0364	Hidayati
15.247 (d)	RSS-247 5.5	Band Edge Conducted Spurious Emission	Pass	Worst case emission: -31.42 dBm	17520ZN0364	Hidayati
15.247 (d)	RSS-247 5.5	Conducted Spurious Emission	Pass	Worst case emission: -46.23 dBm	17520ZN0364	Hidayati
15.205, 15.209, 15.247 (d)	RSS-247 5.5	Radiated Emission within Restricted Bands	Pass	Worst case emission: RBE: 44.7087 dBuV/m. (Margin = 9.2913 dBuV/m) (AVG) RSE: 65.5434 dBuV/m (Margin = 8.4566 dBuV/m) (PK), noise floor	17520ZN0252	Aiman
15.207	RSS-Gen 8.8	AC Powerline Conducted Emission	NA	Meet the limit requirement.	17520ZN0256 17520ZN0252	Shidee
15.203	-	Antenna Requirement	NA	Internal antenna is not accessible to the end-user	NA	NA

3.0. Measurement Uncertainty

Measurement	Frequency	Expended Uncertainty (k=1.96) (±dB)
AC Power Line Conducted Spurious Emission	150KHz ~ 30MHz	3.48
Radiated Emissions up to 1 GHz	30MHz ~ 1000MHz	5.88
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.84
	18GHz ~ 40GHz	6.02
Conducted Spurious Emissions	9kHz ~ 12.75GHz	2.82

4.0. Equipment List

Bluetooth ATE # 1 (SW Version: Ate Main_3.1.12)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
CHAMBER	SH-641	92003820	18-Jul-23	18-Jul-24
POWER SUPPLY	6652A	3640A02967	19-Oct-22	19-Oct-23
SPECTRUM ANALYZER	E4440A	MY46185415	27-Dec-22	27-Dec-23

Radiated Emission Station (SW Version: EMC FCC RE v1.6.5)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
EMI TEST RECEIVER	ESIB26	100017	09-Nov-22	08-Nov-23
3m Semi-anechoic Chamber	NA	888032	No Cal. Req'd	No Cal. Req'd
TURNTABLE FLUSH MOUNT 2M	T-200-S	N/A	No Cal. Req'd	No Cal. Req'd
PROGRAMMING CONTROLLER	MF-7802BS	N/A	No Cal. Req'd	No Cal. Req'd
POWER SUPPLY (0-60V/0-50A, 1000W)	6032A	2615A01178	18-Jun-23	18-Jun-24
SIGNAL ANALYZER	FSV40	101432	10-Aug-23	09-Aug-24
DATA LOGGER	SDL500	A.016800	21-Jun-23	21-Jun-24
BILOG ANTENNA	CBL6112D	55546	23-Jun-22	23-Sep-23
BILOG ANTENNA	CBL6112D	30991	5-Jan-23	5-Jan-24
DRG HORN FREQ.	SAS-571	566	22-Nov-22	22-Nov-23
DRG HORN FREQ.	SAS-571	720	18-Apr-23	18-Apr-25
PREAMPLIFIER	PAM-0118	427	18-Oct-21	18-Oct-24
SIGNAL GENERATOR	SMB100A	182511	04-Jun-21	04-Jun-24
LOOP ANTENNA	6502	00208416	12-Oct-22	12-Oct-23
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170255	22-Feb-23	22-Feb-24

AC Powerline Station (SW Version: EMC32 Ver.10.60.10)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
DATA LOGGER	DSB	16344143	21-Jun-2023	23-Jun-2024
V-NETWORK 2-LINE	ENV216	101268	15-Nov-22	15-Nov-23
EMI TEST RECEIVER	ESCI	100225	9-Nov-2022	9-Nov-2023
PROGRAMMABLE AC SOURCE	61604	616040003502	12-Dec-2022	12-Dec-2023

5.0. Test Mode Applicability and Test Channel Detail

Radiated Emission Test (Above 1GHz)

☒Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Environmental Conditions
Test Mode	0 to 78	0,39,78	FHSS	GFSK, Pi/4 DQPSK,8DPSK	22.8°C, 70.1%RH

Radiated Emission Test (Below 1GHz)

☒Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Environmental Conditions
Test Mode	0 to 78	0,39,78	FHSS	GFSK, Pi/4 DQPSK,8DPSK	22.8°C, 70.1%RH

Power Line Conducted Emission Test

☒Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒Following channel(s) was (were) selected for the final test as listed below.

NAEUT Configure Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Environmental Conditions
Application Mode	0 to 78	AUTO	FHSS	AUTO	NA

Antenna Port Conducted Measurement:

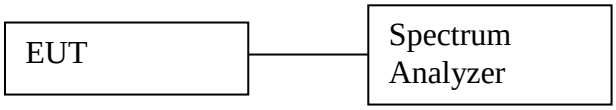
☒This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
☒Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Environmental Conditions
Test Mode	0 to 78	0,39,78	FHSS	GFSK, Pi/4 DQPSK,8DPSK	25°C, 54.8%RH

6.0. Transmitter Test Parameters

6.1. Conducted RF Output Power (Peak)

6.1.1. Test Setup



a) Check and ensure the spectrum analyzer well calibrate.
b) Turn on the EUT and set EUT to transmit maximum data rate with hopping disable.
c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
d) Setting of Spectrum analyzer :
   a. RBW = > 20 dB bandwidth
   b. VBW = RBW
   c. Detector mode = Peak
   d. AMPLITUDE → Scale/Div = 10 dB
   e. Trace = Max hold
   f. Sweep = auto
e) Measure the captured power within the band and recording the plot.
f) Repeat above procedure with other different mode of operation.

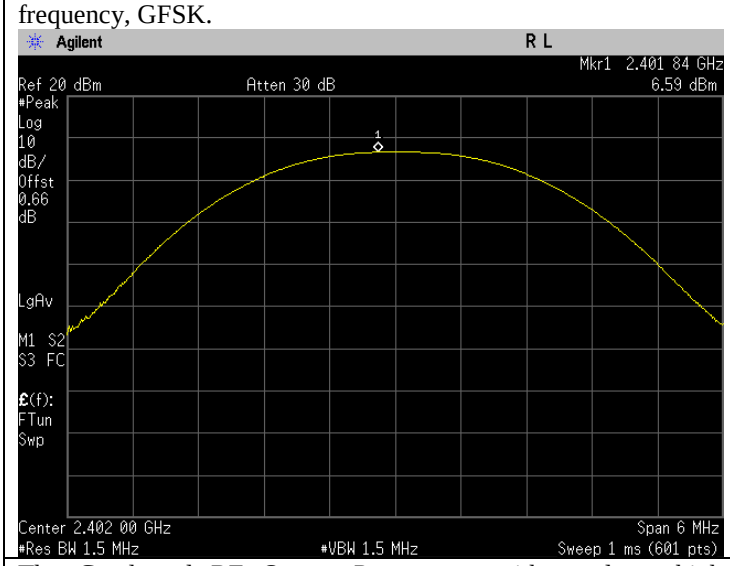
6.1.2. Test Limits:

Normal Condition (25 ° C)
≤ 125mW (or 20.9dBm)

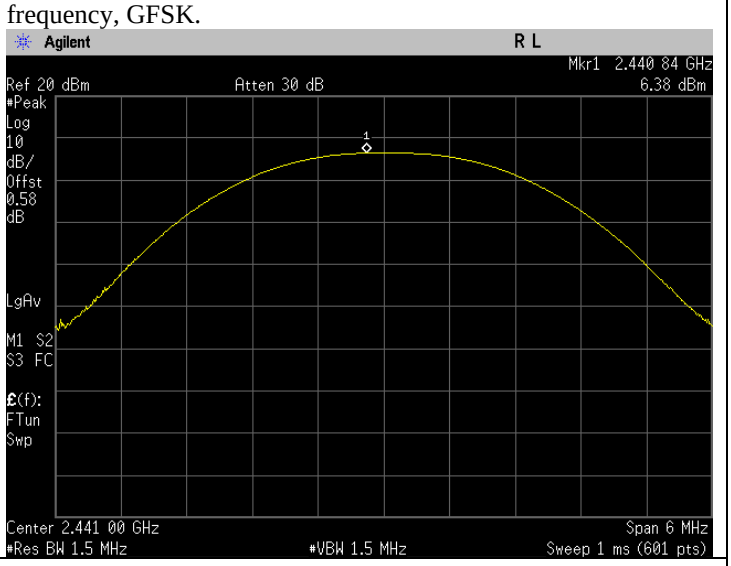
6.1.3. Test Data:

Test Conditions		Test Frequency (GHz)	Results	
Modulation	Voltage(V)		dBm	Status
GFSK	4.50	2.4020	6.594	Pass
		2.4410	6.377	Pass
		2.4800	6.034	Pass
Pi/4DQPSK	4.50	2.4020	6.708	Pass
		2.4410	6.522	Pass
		2.4800	6.206	Pass
8DPSK	4.50	2.4020	6.674	Pass
		2.4410	6.492	Pass
		2.4800	6.181	Pass

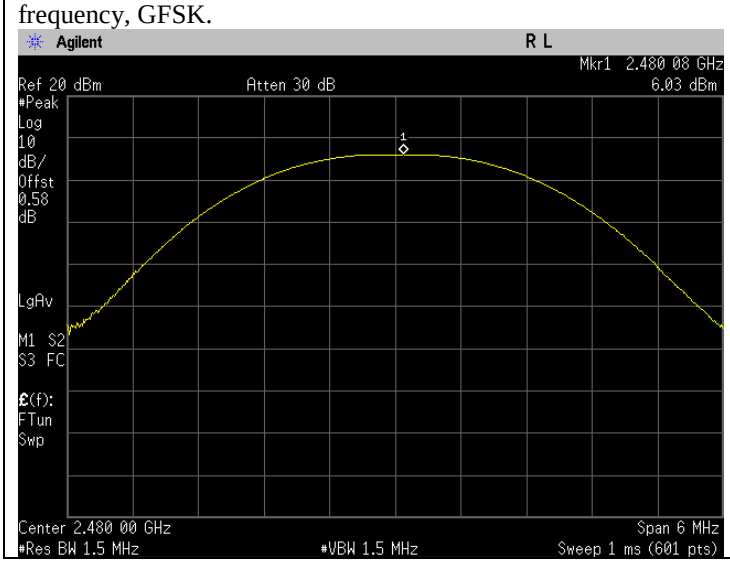
The Conducted RF Output Power test with result at low frequency, GFSK.



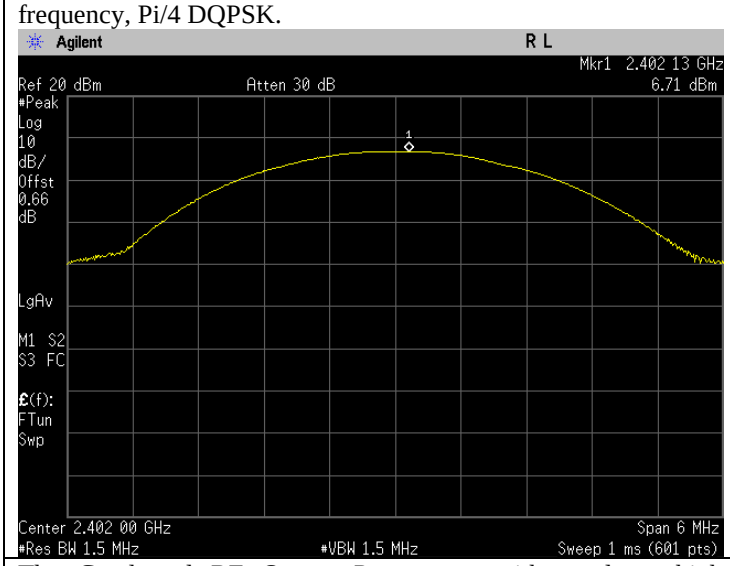
The Conducted RF Output Power test with result at mid frequency, GFSK.



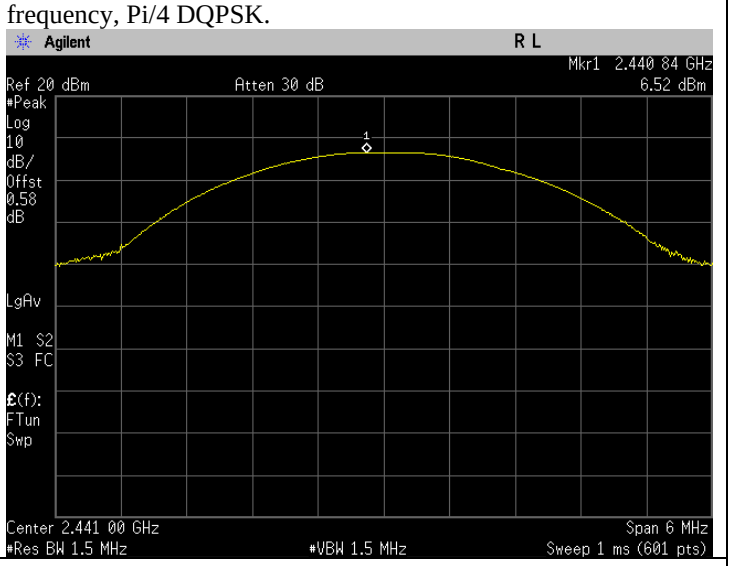
The Conducted RF Output Power test with result at high frequency, GFSK.



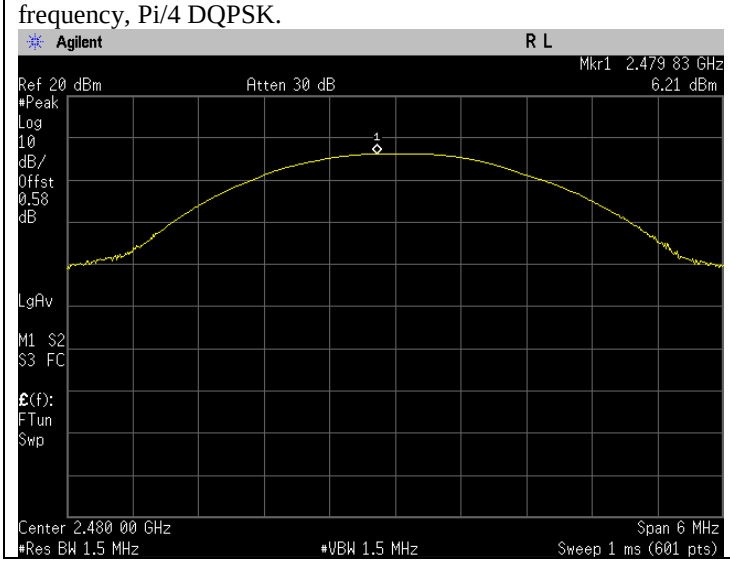
The Conducted RF Output Power test with result at low frequency, Pi/4 DQPSK.



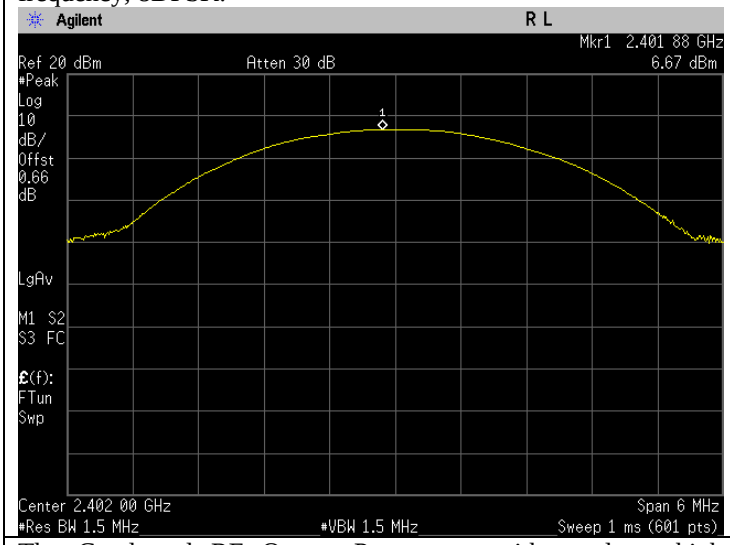
The Conducted RF Output Power test with result at mid frequency, Pi/4 DQPSK.



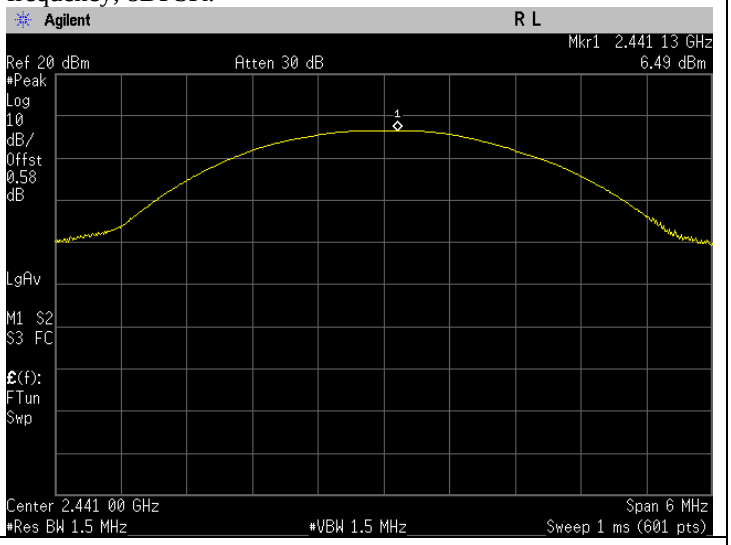
The Conducted RF Output Power test with result at high frequency, Pi/4 DQPSK.



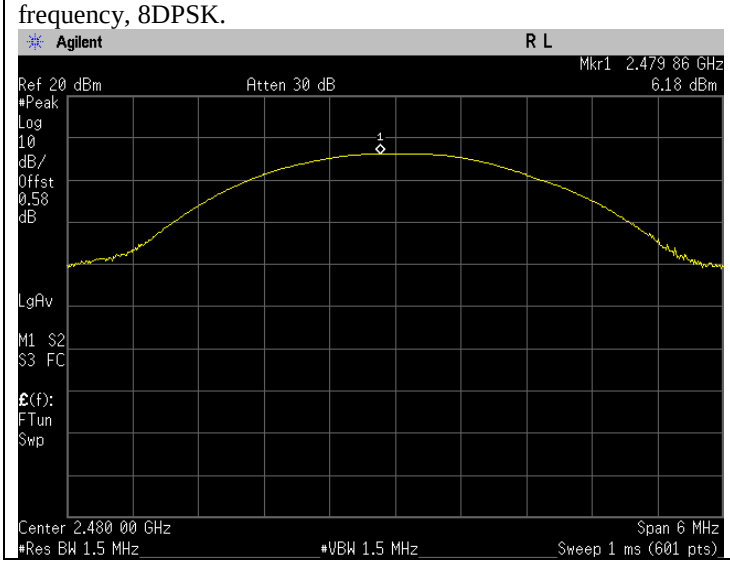
The Conducted RF Output Power test with result at low frequency, 8DPSK.



The Conducted RF Output Power test with result at mid frequency, 8DPSK.

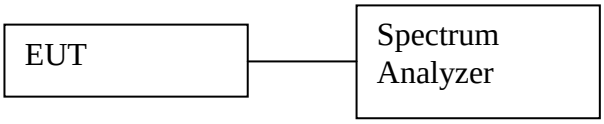


The Conducted RF Output Power test with result at high frequency, 8DPSK.



6.2. 20dB Channel Bandwidth

6.2.1. Test Setup



a) Check and ensure the spectrum analyzer well calibrate.
b) Turn on the EUT and set EUT to transmit maximum data rate with hopping disable.
c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
d) Setting of Spectrum analyzer :
   a. RBW = 30 kHz
   b. VBW = 100 kHz
   c. SPAN = 3 MHz, center on test frequency
   d. AMPLITUDE → Scale/Div = 10 dB
   e. Detector mode = Peak
   f. Trace = Max hold
   g. Sweep = auto
e) Measure the freq different of two frequencies that were attenuated 20dB from peak of the emission & record the frequency difference as the emission bandwidth.
f) Save the plot result from spectrum analyzer screen.
g) Repeat above procedure with other different mode of operation.

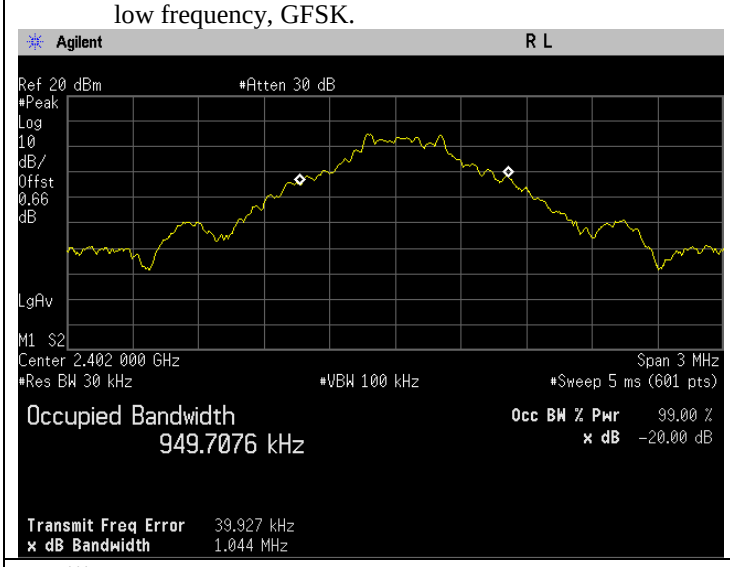
6.2.2. Test Limits:

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.

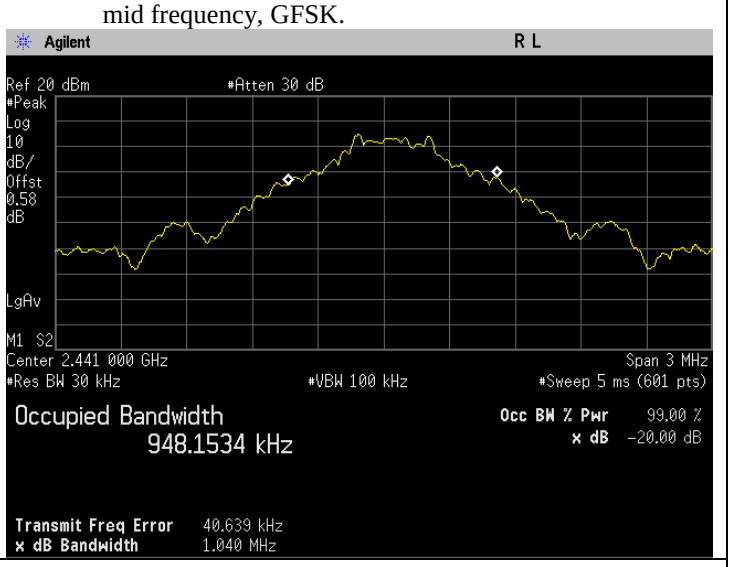
6.2.3. est Data:

Test Conditions		Test Frequency TX (GHz)	Results (MHz)		
Modulation Type	Voltage(V)		20dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Status
GFSK	4.50	2.4020	1.044	0.950	Pass
		2.4410	1.040	0.948	Pass
		2.4800	1.038	0.948	Pass
Pi/4 DQPSK	4.50	2.4020	1.269	1.214	Pass
		2.4410	1.270	1.200	Pass
		2.4800	1.264	1.199	Pass
8DPSK	4.50	2.4020	1.295	1.213	Pass
		2.4410	1.298	1.198	Pass
		2.4800	1.284	1.186	Pass

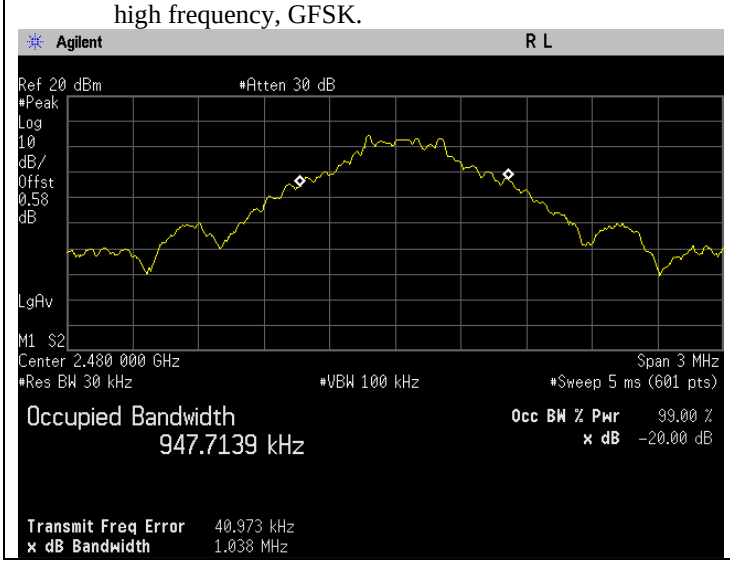
i. The 20 dB BW & occupied bandwidth test with result at low frequency, GFSK.



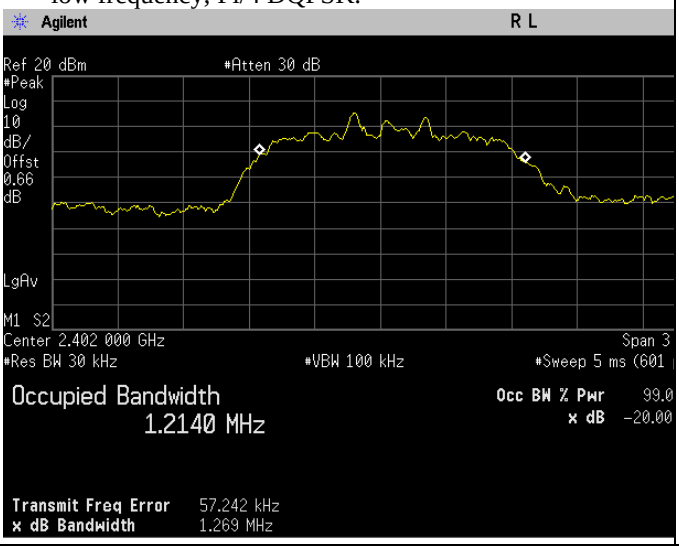
ii. The 20 dB BW & occupied bandwidth test with result at mid frequency, GFSK.



iii. The 20 dB BW & occupied bandwidth test with result at high frequency, GFSK.

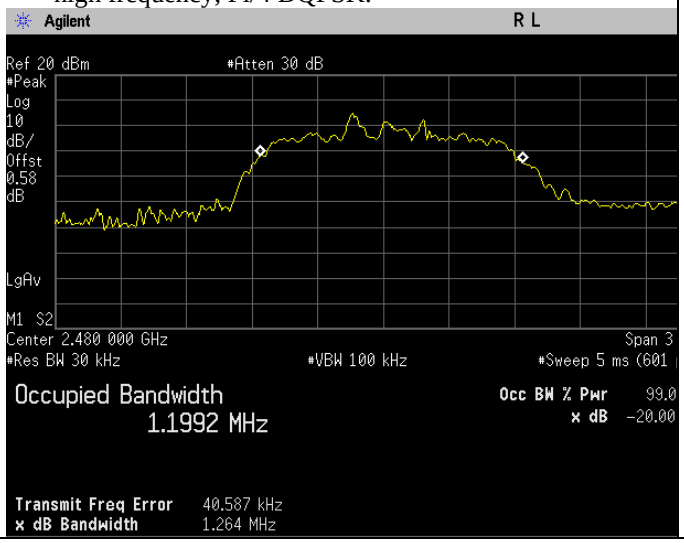


i. The 20 dB BW & occupied bandwidth test with result at low frequency, Pi/4 DQPSK.

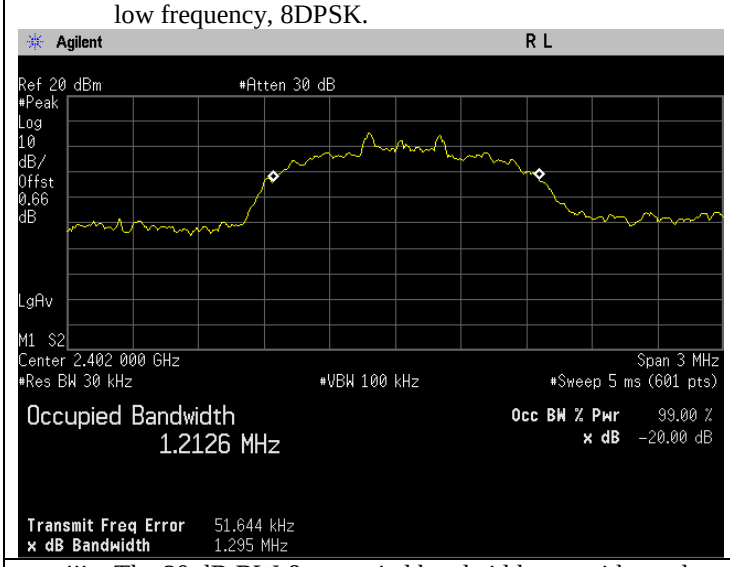


ii. The 20 dB BW & occupied bandwidth test with result at mid frequency, Pi/4 DQPSK.

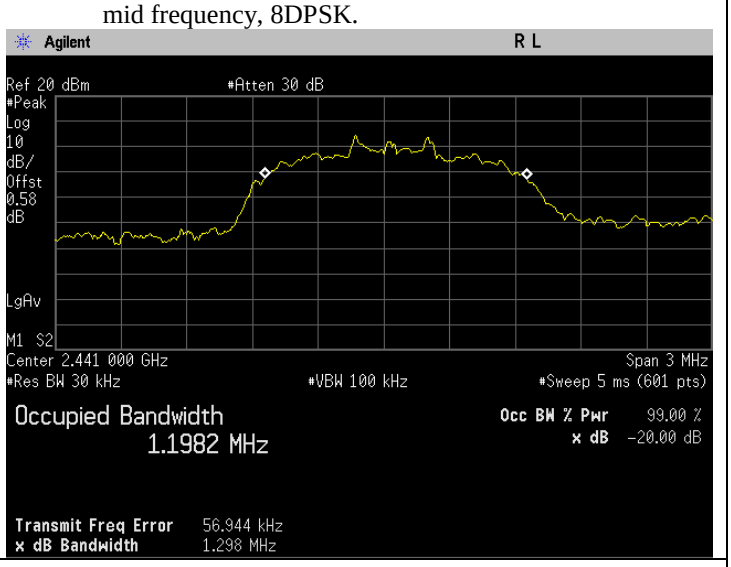
iii. The 20 dB BW & occupied bandwidth test with result at high frequency, Pi/4 DQPSK.



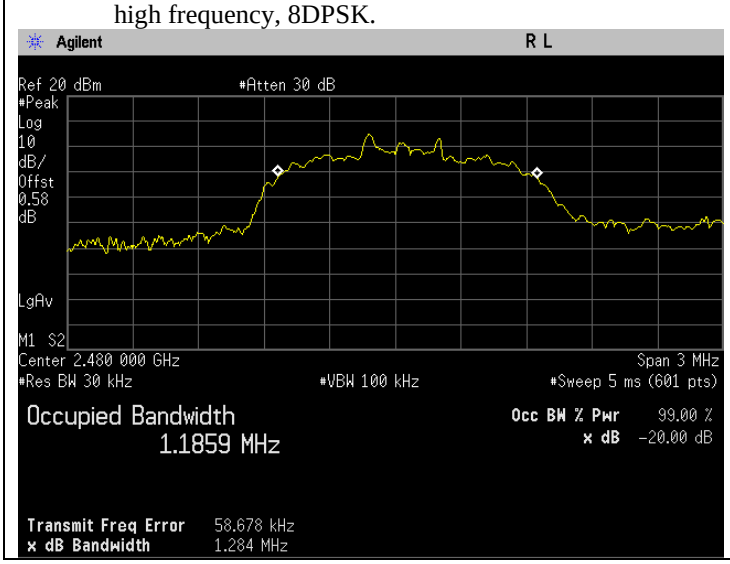
i. The 20 dB BW & occupied bandwidth test with result at low frequency, 8DPSK.



ii. The 20 dB BW & occupied bandwidth test with result at mid frequency, 8DPSK.

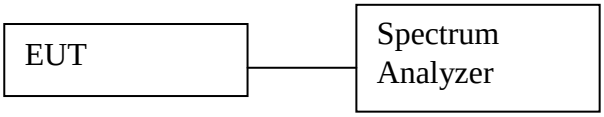


iii. The 20 dB BW & occupied bandwidth test with result at high frequency, 8DPSK.



6.3. Band-edge Conducted Spurious Emission

6.3.1. Test Setup



a) Check and ensure the spectrum analyzer well calibrate.
b) Turn on the EUT and keep the EUT in hopping mode.
c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
d) Setting of Spectrum analyzer :
   a. RBW = 100 kHz
   b. VBW = 300 kHz
   c. SPAN = 4 MHz (Low channel) or 6MHz(High Channel)
   d. Detector mode = Peak
   e. AMPLITUDE → Scale/Div = 10 dB
   f. Trace = Max hold
   g. Sweep = auto
e) Measure the captured band edge emission result and recording the plot.
f) Repeat above on EUT with hopping disable.
g) Repeat above procedure with other different test frequency.

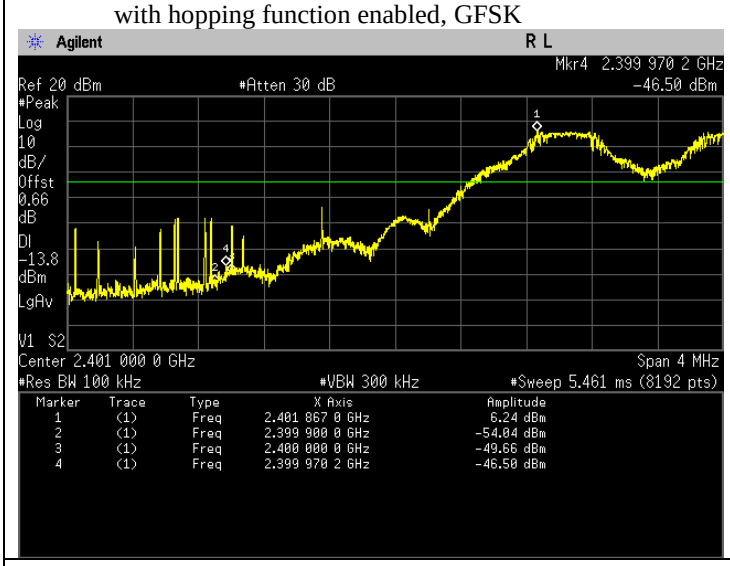
6.3.2. Test Limits

Normal Condition (25 º C)
Shall be at least 20 dB below the peak power.

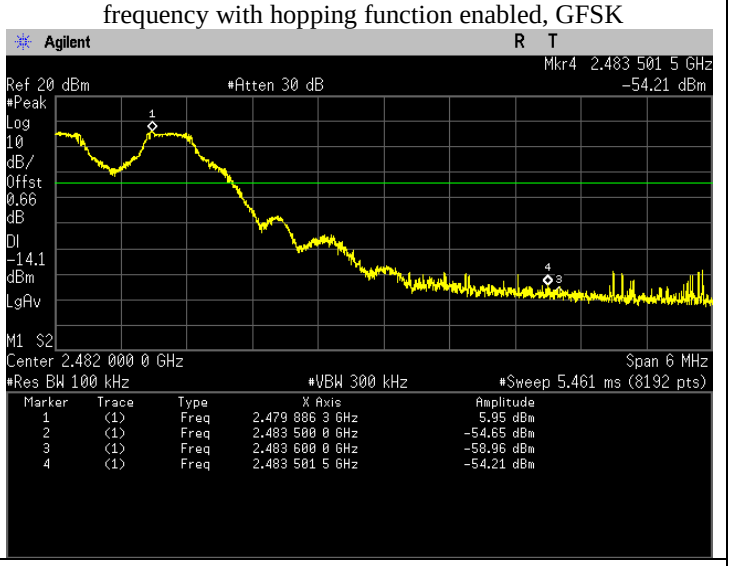
6.3.3. Test Result

Test Conditions		Hopping Method	Test Frequency(GHz)	Results	
Modulation	Voltage(V)			dB	Status
GFSK	4.50	Enabled (continuously)	2.4020	-46.50	Pass
			2.4800	-54.21	Pass
		Disabled (constantly)	2.4020	-46.15	Pass
			2.4800	-53.51	Pass
Pi/4 DQPSK	4.50	Enabled (continuously)	2.4020	-35.14	Pass
			2.4800	-45.52	Pass
		Disabled (constantly)	2.4020	-31.42	Pass
			2.4800	-40.75	Pass
8DPSK	4.50	Enabled (continuously)	2.4020	-37.28	Pass
			2.4800	-45.05	Pass
		Disabled (constantly)	2.4020	-31.45	Pass
			2.4800	-42.47	Pass

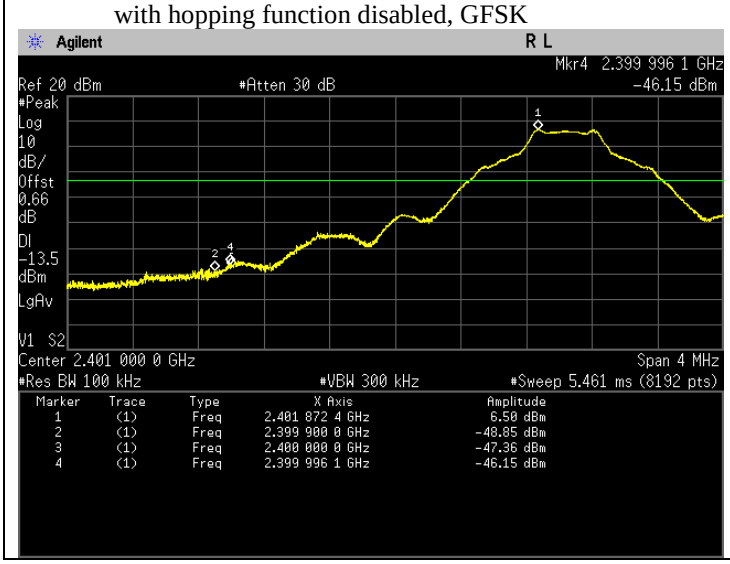
i. The highest band edge emission at low carrier frequency with hopping function enabled, GFSK



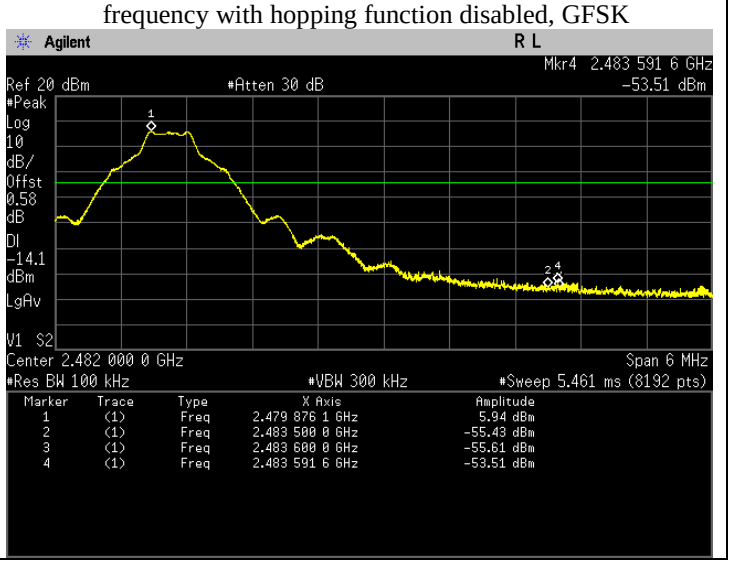
ii. The highest band edge emission at high carrier frequency with hopping function enabled, GFSK



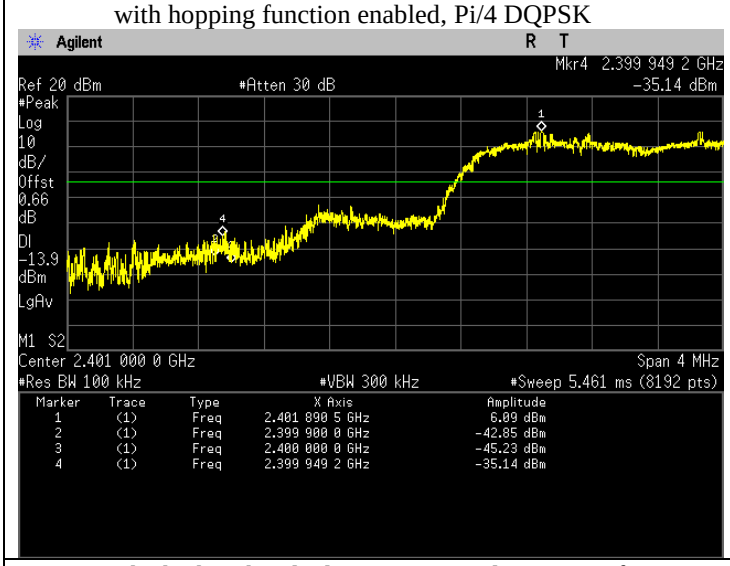
iii. The highest band edge emission at low carrier frequency with hopping function disabled, GFSK



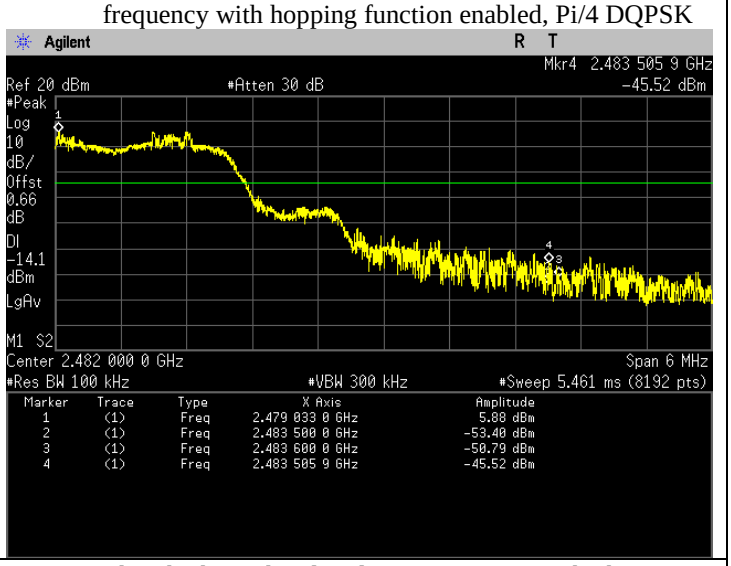
iv. The highest band edge emission at high carrier frequency with hopping function disabled, GFSK



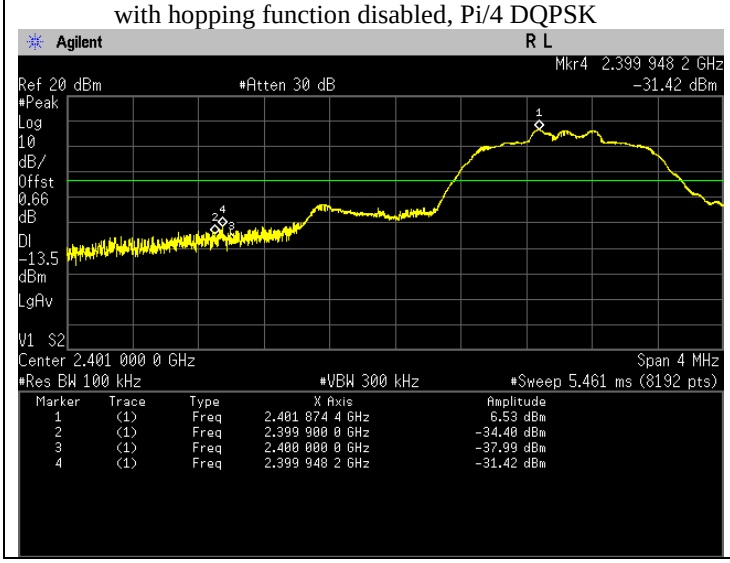
i. The highest band edge emission at low carrier frequency with hopping function enabled, Pi/4 DQPSK



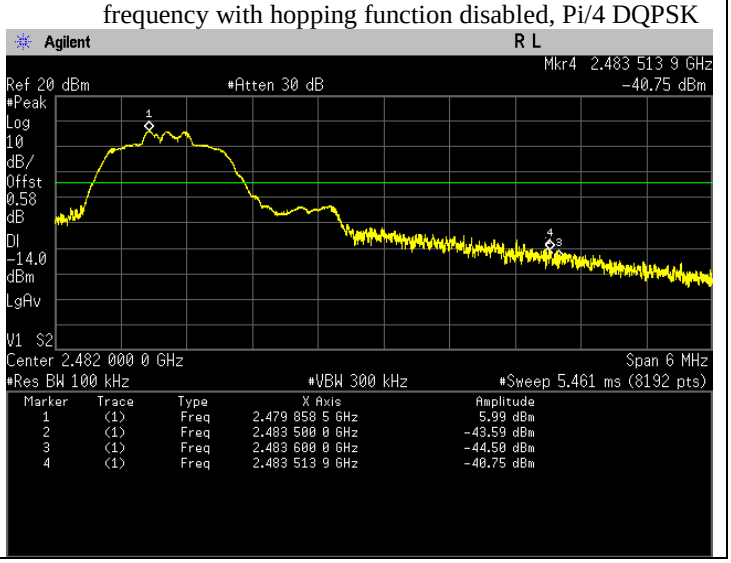
ii. The highest band edge emission at high carrier frequency with hopping function enabled, Pi/4 DQPSK



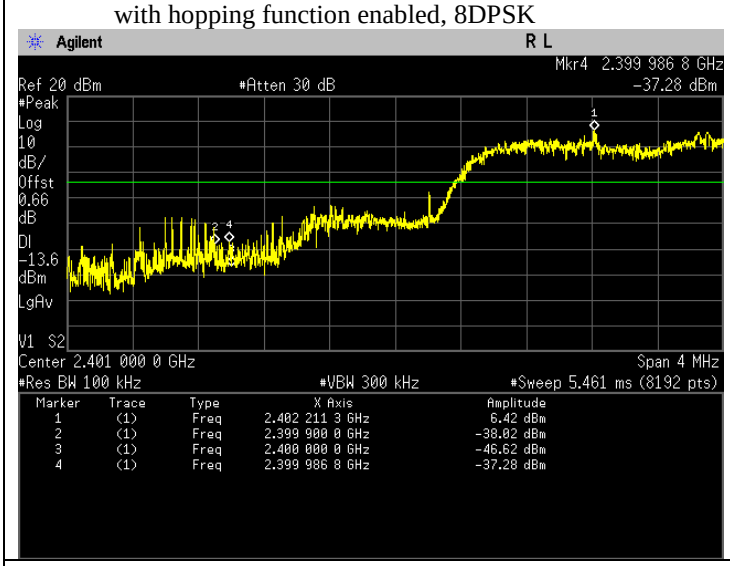
iii. The highest band edge emission at low carrier frequency with hopping function disabled, Pi/4 DQPSK



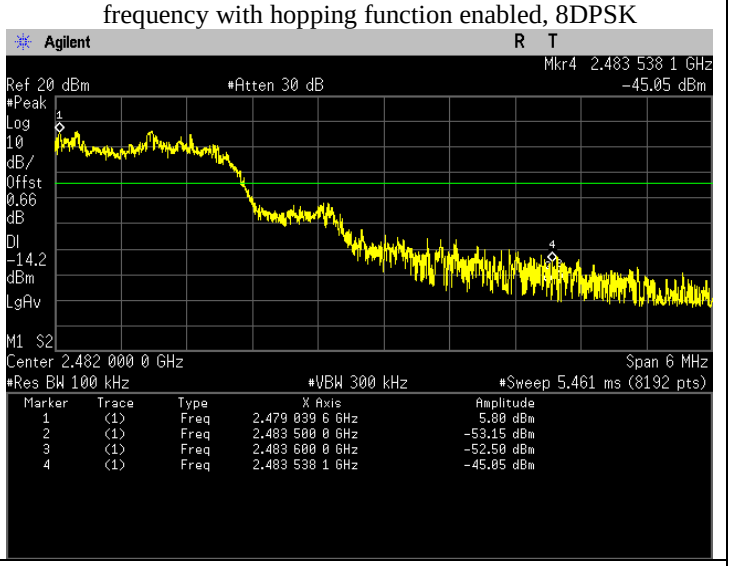
iv. The highest band edge emission at high carrier frequency with hopping function disabled, Pi/4 DQPSK



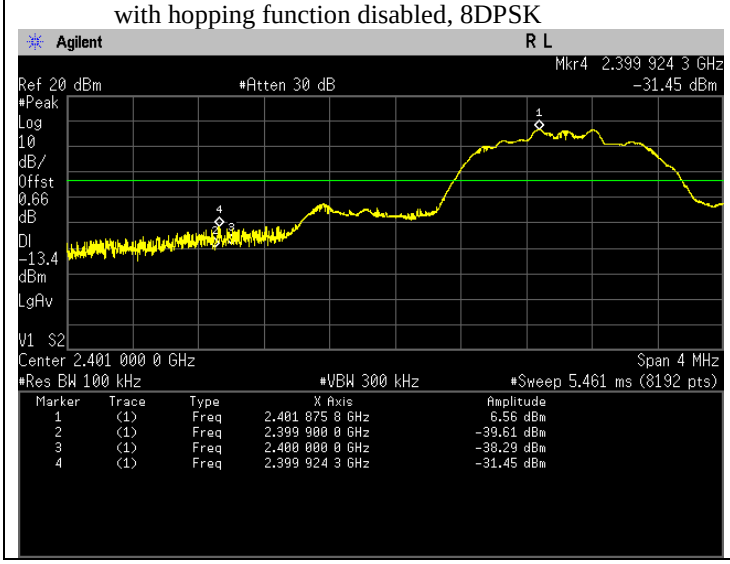
i. The highest band edge emission at low carrier frequency with hopping function enabled, 8DPSK



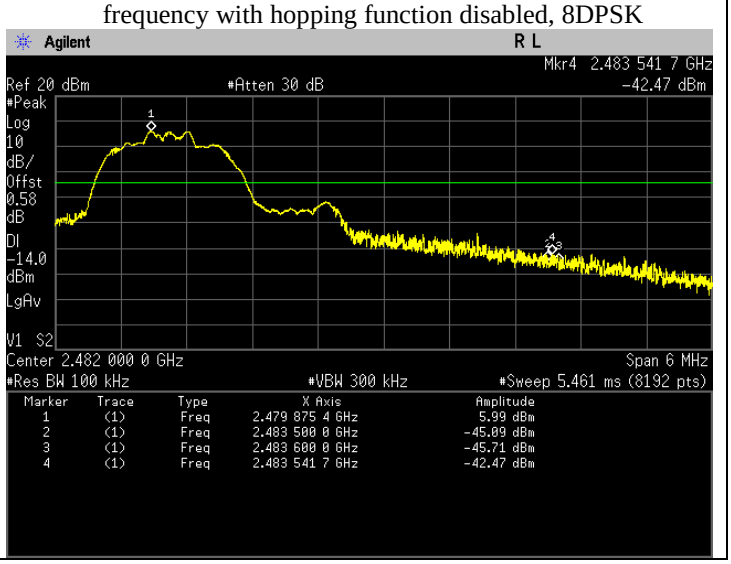
ii. The highest band edge emission at high carrier frequency with hopping function enabled, 8DPSK



iii. The highest band edge emission at low carrier frequency with hopping function disabled, 8DPSK

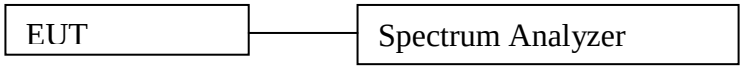


iv. The highest band edge emission at high carrier frequency with hopping function disabled, 8DPSK



6.4. Dwell time on each channel

6.4.1. Test Setup



a) Check and ensure the spectrum analyzer well calibrate.
b) Turn on the EUT and keep the EUT in hopping mode.
c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
d) Setting of Spectrum analyzer :
    a. RBW = 100 kHz
    b. VBW = 300 kHz
    c. SPAN = Zero SPAN, center on hopping frequency
    d. Detector mode = Peak
    e. Trace = Max hold
    f. Sweep time = 5second
    g. Sweep = Single
e) Measure total numbers of transmissions occur in 5 second and save the plot.
f) Change the setting of spectrum analyzer :
    a. RBW = 100 kHz
    b. VBW = 300 kHz
    c. Sweep time = sufficient to capture dwell time for 1 transmission
    d. Sweep = Single
g) Measure dwell time for 1 transmission and save the plot.
h) Calculate accumulate dwell time in a given period equal to number of hopping frequencies x 0.4
i) Repeat above procedure with other different mode of operation.

6.4.2. Test Limits:

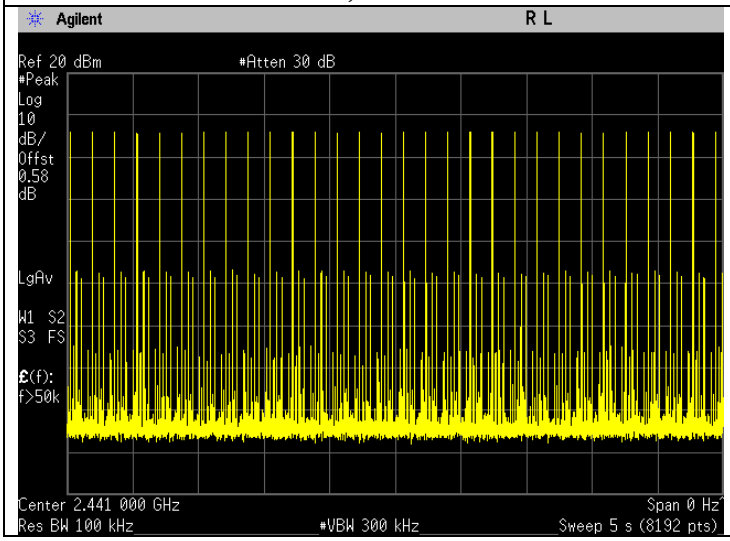
Normal Condition (25 ° C)
≤ 400ms

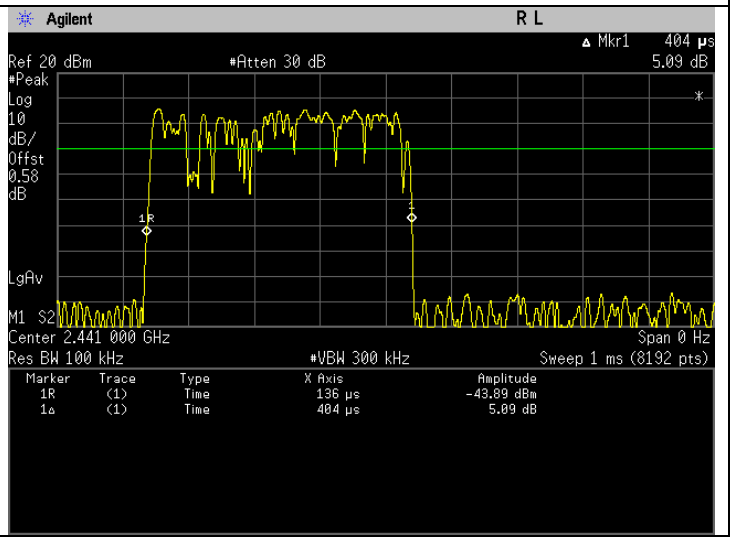
6.4.3. Test Result

Test Conditions			Data Package	Results			
Modulation	Voltage (V)	Test Frequency (GHz)		No. of transmission in 5s **(a)**	Dwell time in one transmission **(b) (msec)**	Total accumulate dwell time in 31.6s. **(c) (msec)**	Status
GFSK	4.50	2.4410	DH1	31	0.404	79.151680	Pass
			DH3	21	1.661	220.447920	Pass
			DH5	14	2.908	257.299840	Pass
Pi/4 DQPSK	4.50		DH1	30	0.403	76.408800	Pass
			DH3	22	1.654	229.972160	Pass
			DH5	13	2.903	238.510480	Pass
8 DPSK	4.50		DH1	35	0.401	88.701200	Pass
			DH3	18	1.653	188.045280	Pass
			DH5	13	2.903	238.510480	Pass

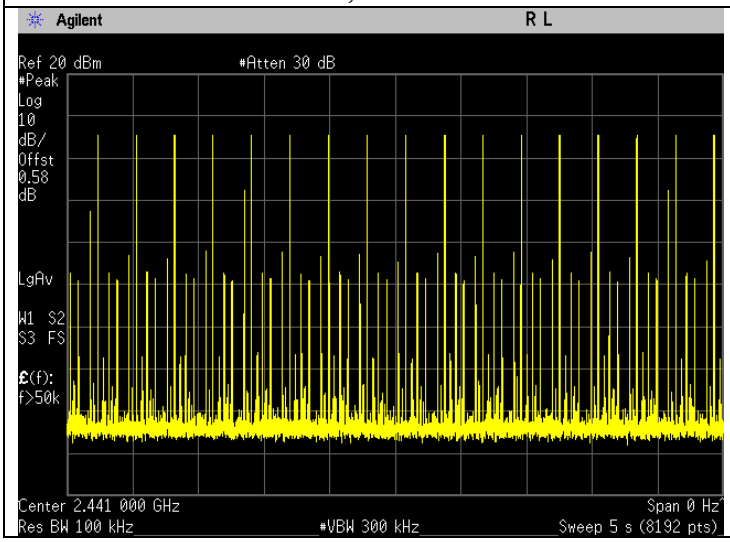
****Note:** Total dwell time 31.6s (79Hopping*0.4), (c) = (a) x 6.32 x (b)

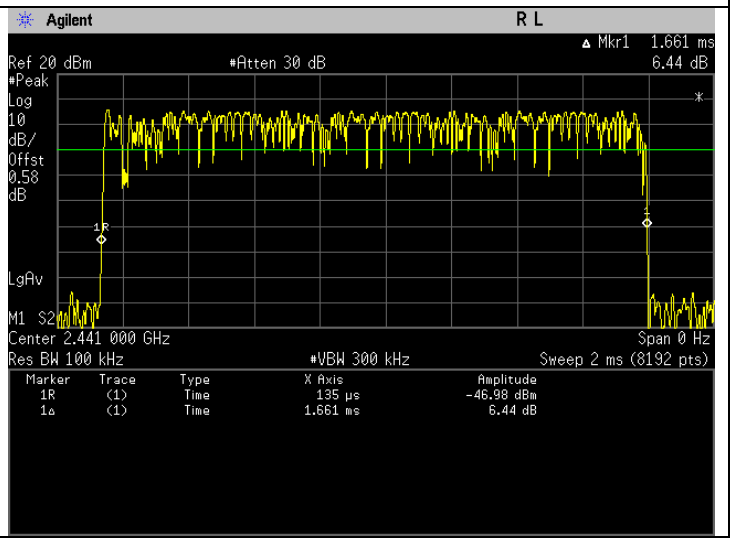
i. Dwell Time at DH1, GFSK



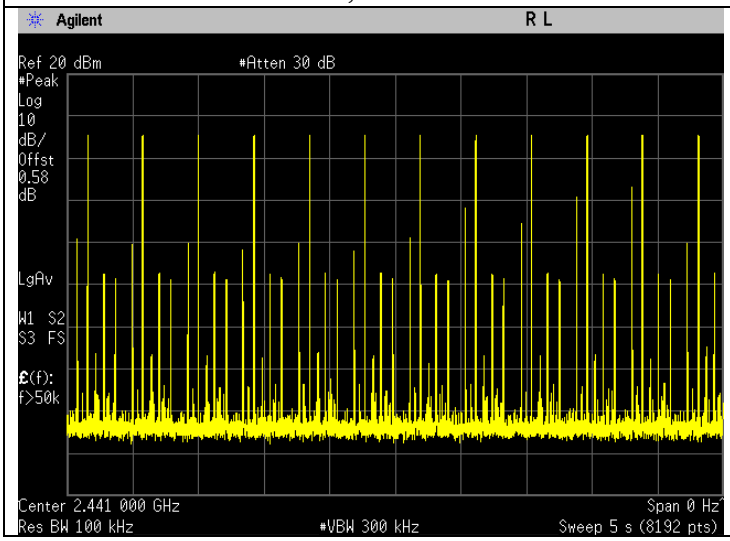


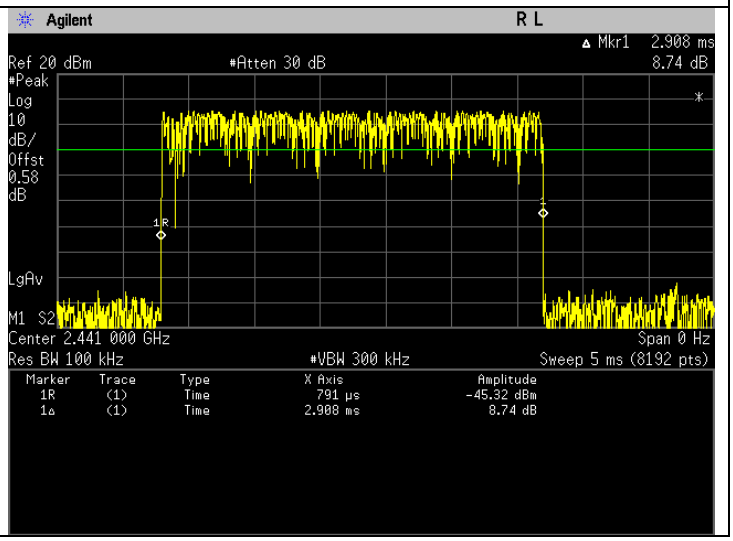
i. Dwell Time at DH3, GFSK



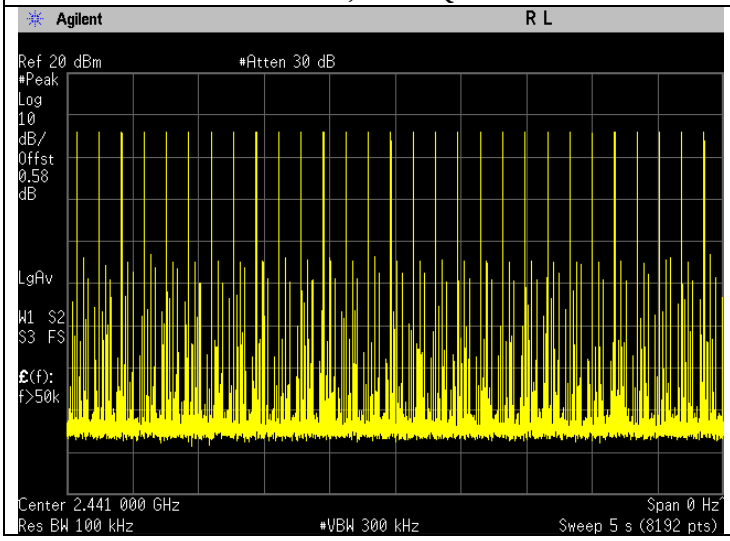


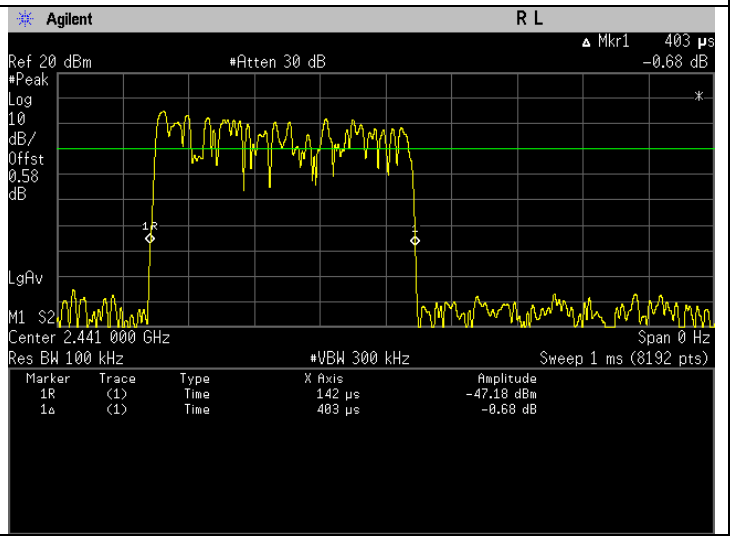
i. Dwell Time at DH5, GFSK



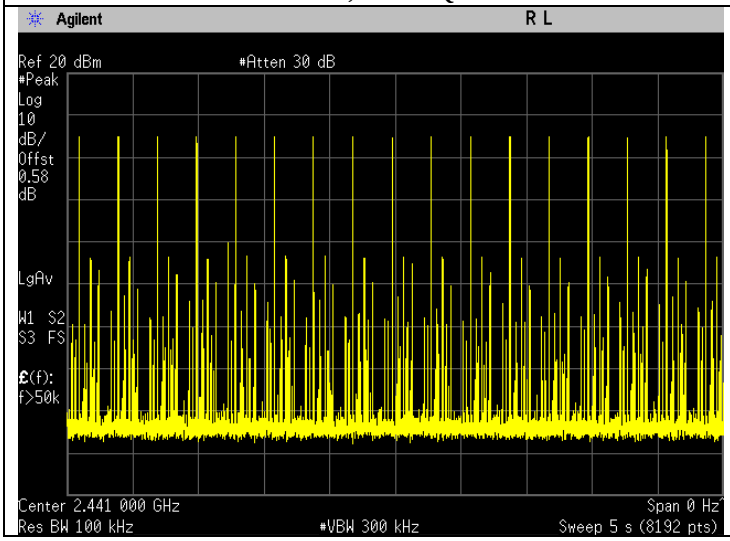


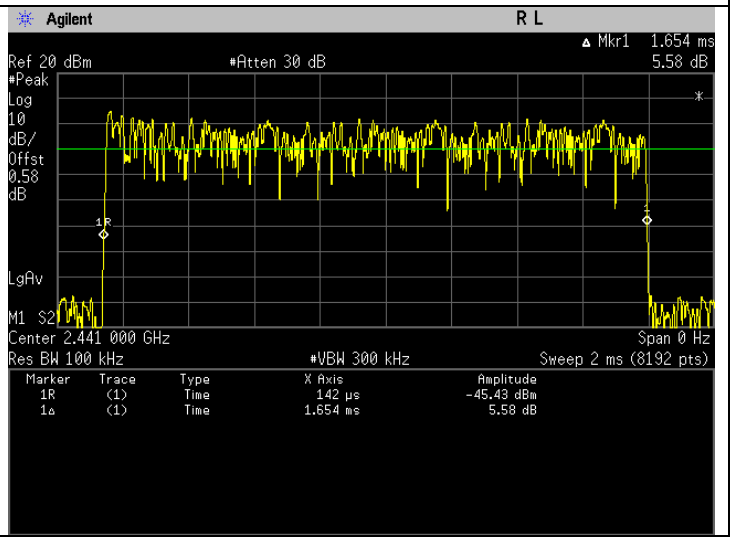
i. Dwell Time at DH1, PI/4DQPSK



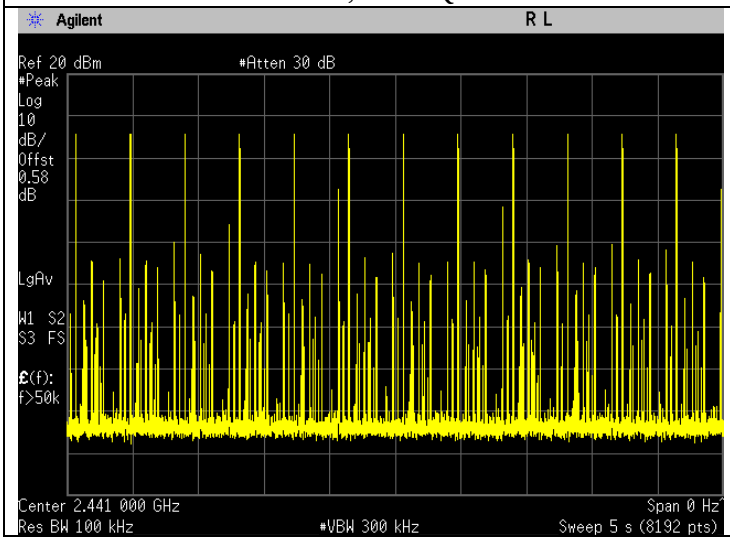


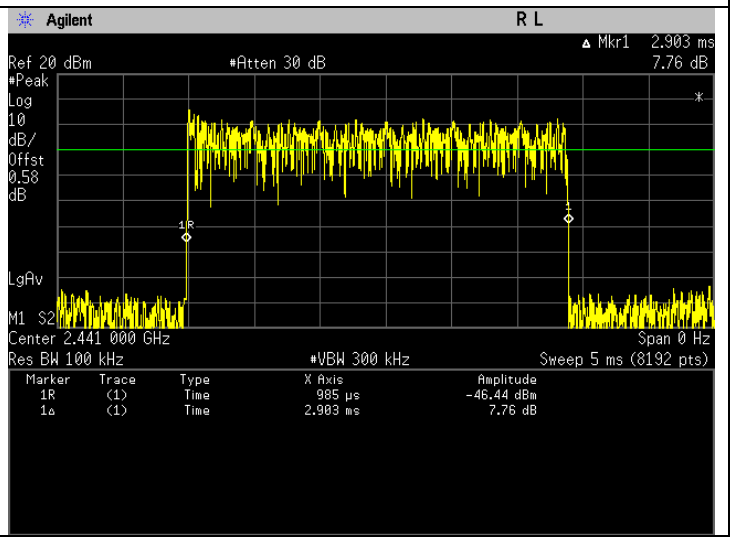
i. Dwell Time at DH3, PI/4DQPSK



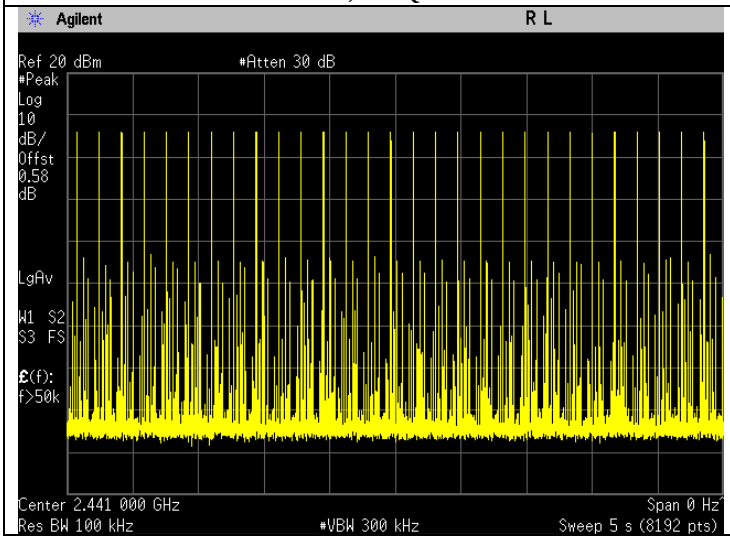


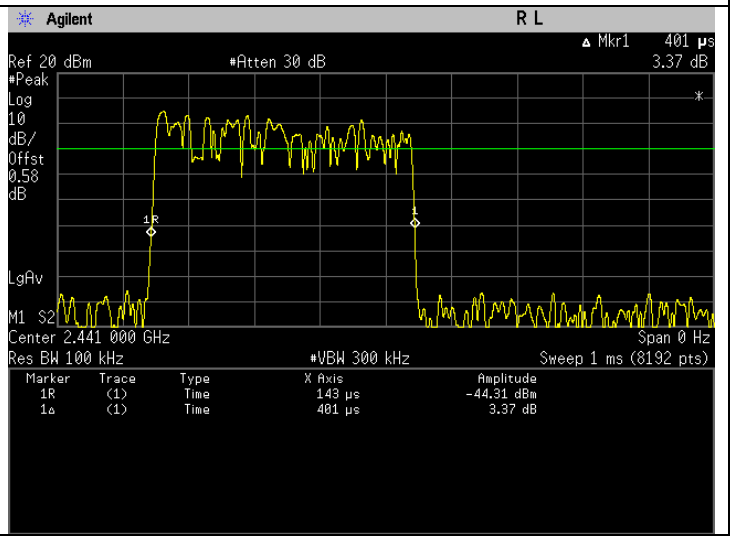
i. Dwell Time at DH5, PI/4DQPSK



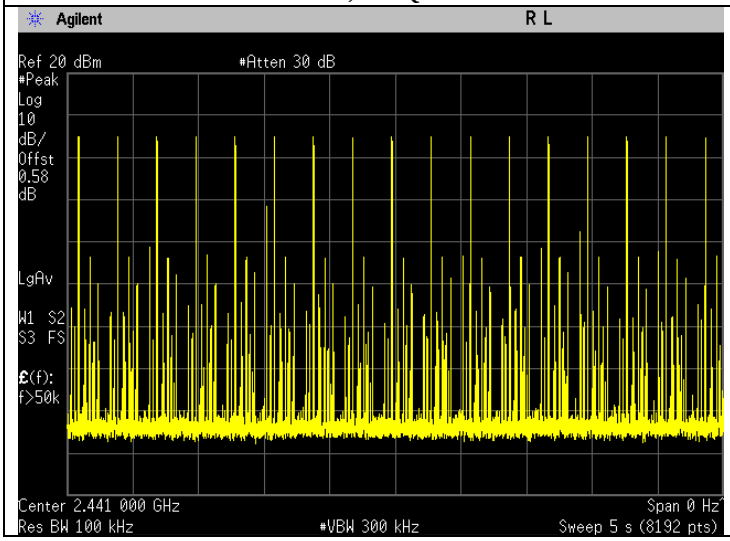


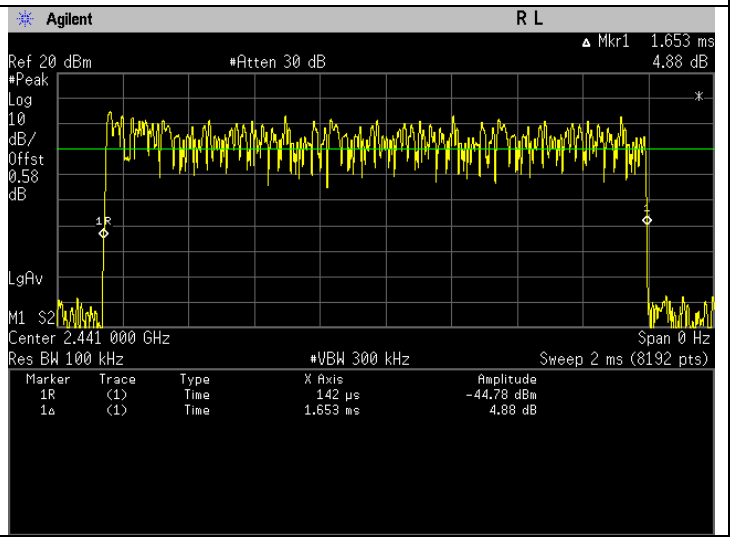
i. Dwell Time at DH1, 8DQPSK



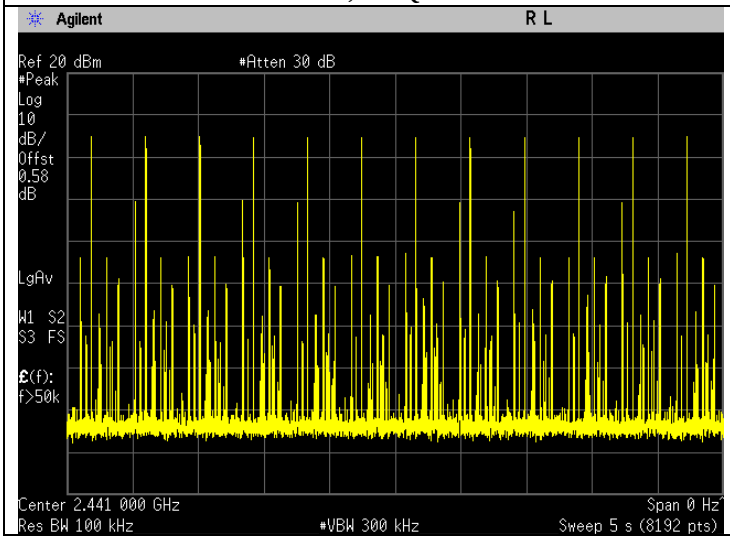


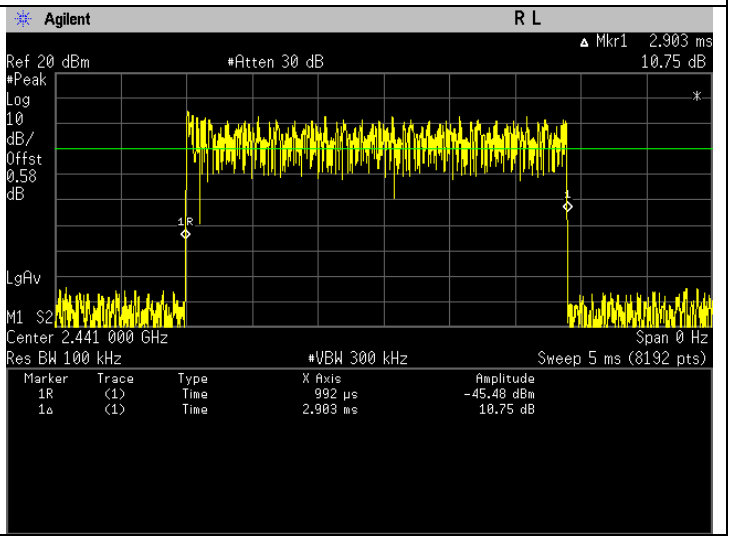
i. Dwell Time at DH3, 8DQPSK





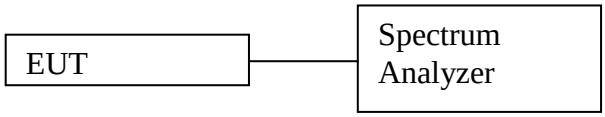
i. Dwell Time at DH5, 8DQPSK





6.5. Number of hopping Frequency

6.5.1. Test Setup



a) Check and ensure the spectrum analyzer well calibrate.
b) Turn on the EUT and keep the EUT in hopping mode.
c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
d) Setting of Spectrum analyzer :
   a. RBW = 300 kHz
   b. VBW = 300 kHz
   c. Detector mode = Peak
   d. Trace = Max hold
e) Allow the trace to stabilized & save the plot result from spectrum analyzer screen.
f) Count number of channel frequency in the operating.
g) Repeat above procedure for other test frequency.

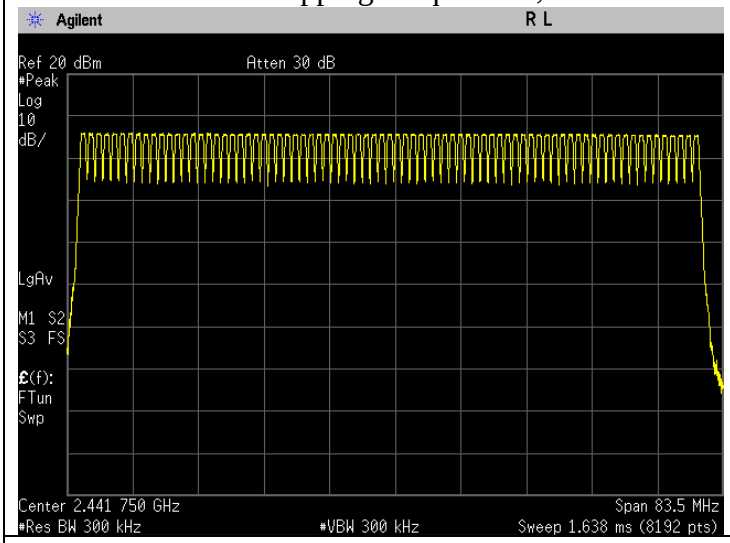
6.5.2. Test Limits:

Normal Condition (25 ° C)
≥ 15

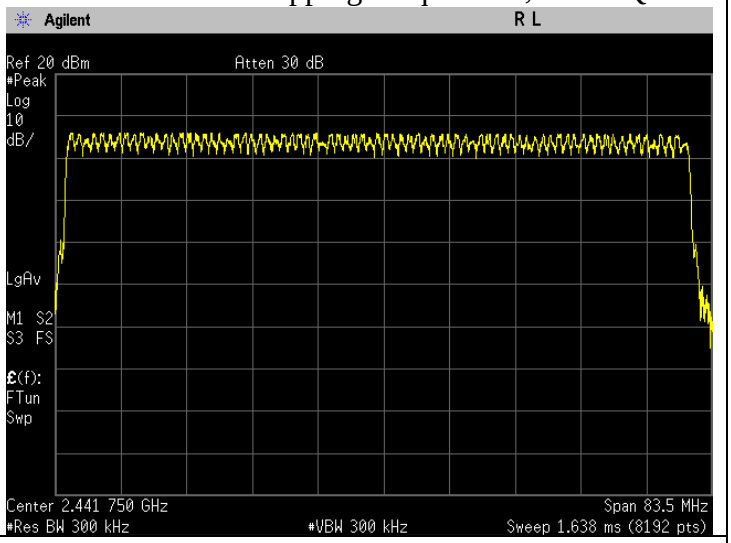
6.5.3. Test Result

Test Conditions		Sweep Range (GHz)	Results	
Modulation	Voltage(V)		No. of Hopping Frequencies	Status
GFSK	4.50	2.4000-2.4835	79	Pass
Pi/4DQPSK	4.50	2.4000-2.4835	79	Pass
8DPSK	4.50	2.4000-2.4835	79	Pass

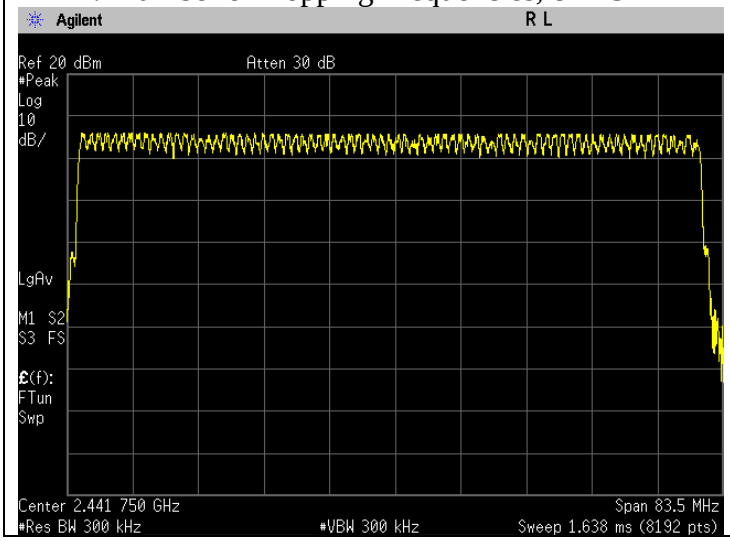
i. Number of Hopping Frequencies, GFSK



ii. Number of Hopping Frequencies, Pi/4 DQPSK

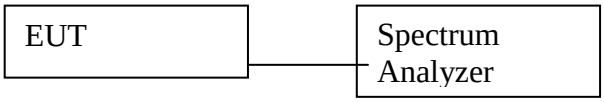


iii. Number of Hopping Frequencies, 8DPSK



6.6. Channel Separation

6.6.1. Test Setup



a) Check and ensure the spectrum analyzer well calibrate.
b) Turn on the EUT and keep the EUT in hopping mode.
c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
d) Setting of Spectrum analyzer :
   a. RBW = 300 kHz
   b. VBW = 300 kHz
   c. SPAN = 3 MHz, center on test frequency
   d. AMPLITUDE → Scale/Div = 5 dB
   e. Detector mode = Peak
   f. Trace = Max hold
   g. Sweep = auto
e) Measure the frequency different of these two adjacent channels with marker delta function & record the measurement results.
f) Repeat above procedure with other different mode of operation.

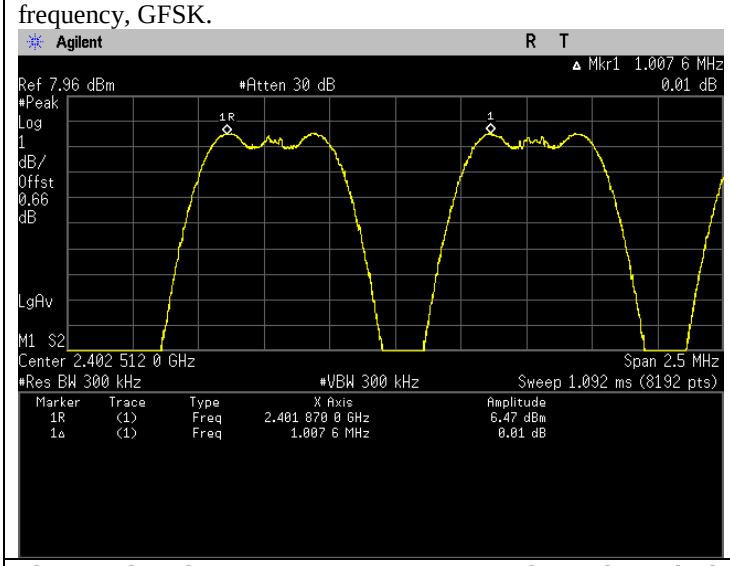
6.6.2. Test Limits:

Normal Condition (25 º C)
≥ 2/3 of 20dB Bandwidth

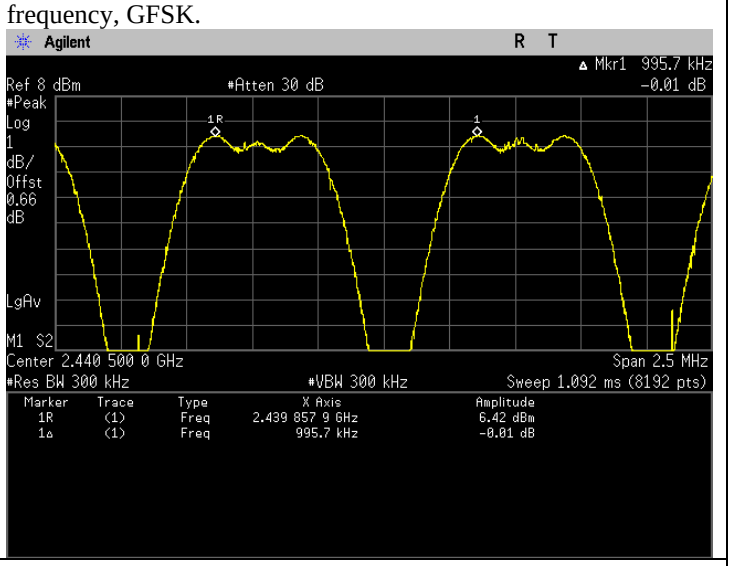
6.6.3. Test Result

Test Conditions		Test Frequency (GHz)	Results			
Modulation	Voltage(V)		Test Data Adjacent Channel Separation (MHz)	20dB Bandwidth (MHz)	Min Limit = 2/3 of 20dB Bandwidth (kHz)	Status
GFSK	4.50	2.4020	1.008	1.044	696.000	Pass
		2.4410	0.996	1.040	693.333	Pass
		2.4800	0.995	1.038	692.000	Pass
Pi/4DQPSK	4.50	2.4020	0.996	1.269	846.000	Pass
		2.4410	0.998	1.270	846.667	Pass
		2.4800	1.002	1.264	842.667	Pass
8DPSK	4.50	2.4020	1.003	1.295	863.333	Pass
		2.4410	1.008	1.298	865.333	Pass
		2.4800	1.002	1.284	856.000	Pass

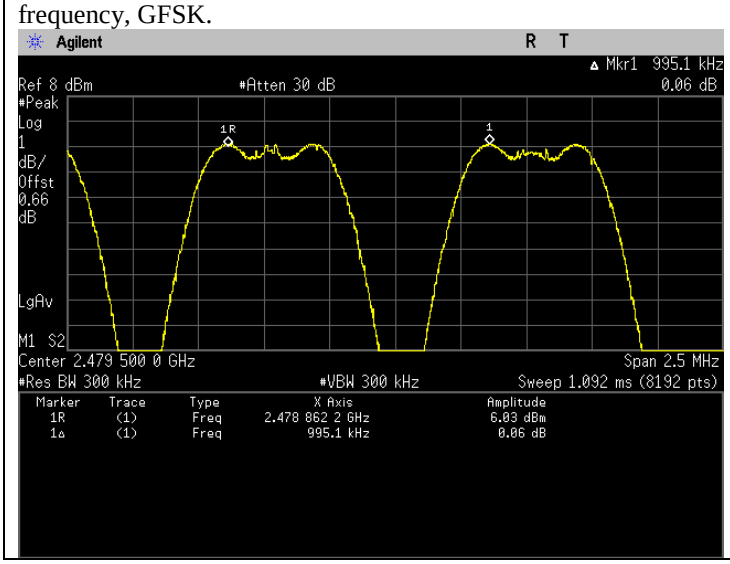
The Conducted RF Output Power test with result at low frequency, GFSK.



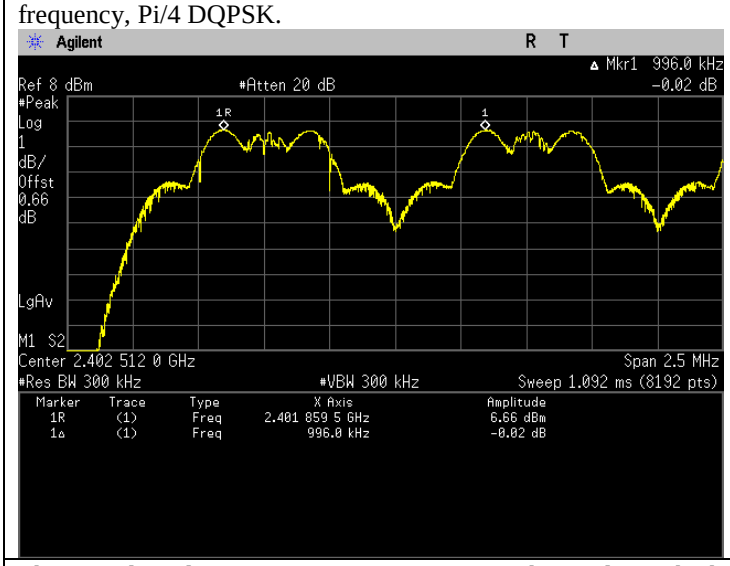
The Conducted RF Output Power test with result at mid frequency, GFSK.



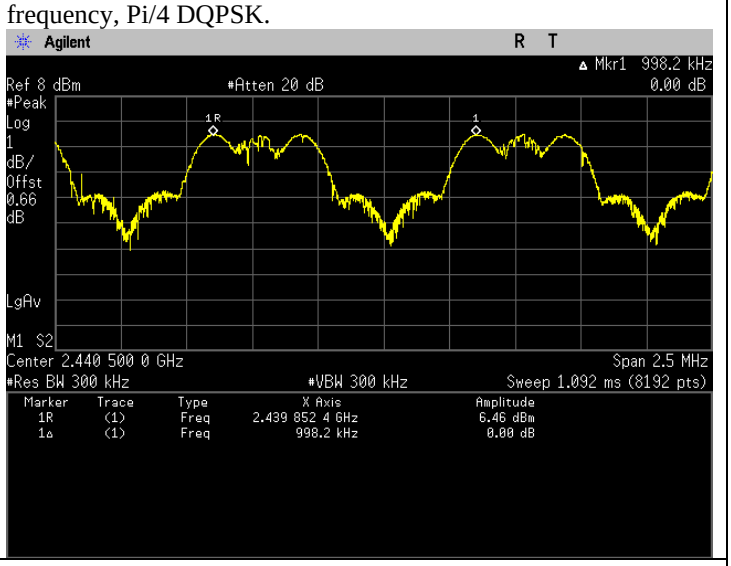
The Conducted RF Output Power test with result at high frequency, GFSK.



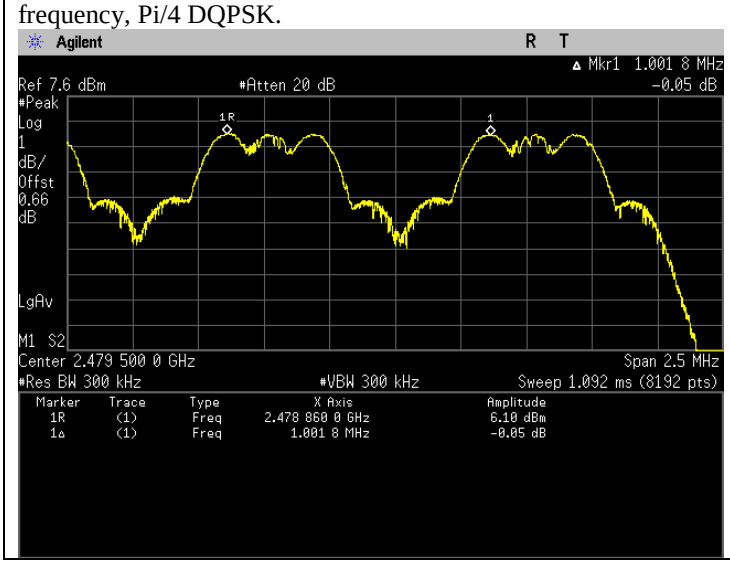
The Conducted RF Output Power test with result at low frequency, Pi/4 DQPSK.



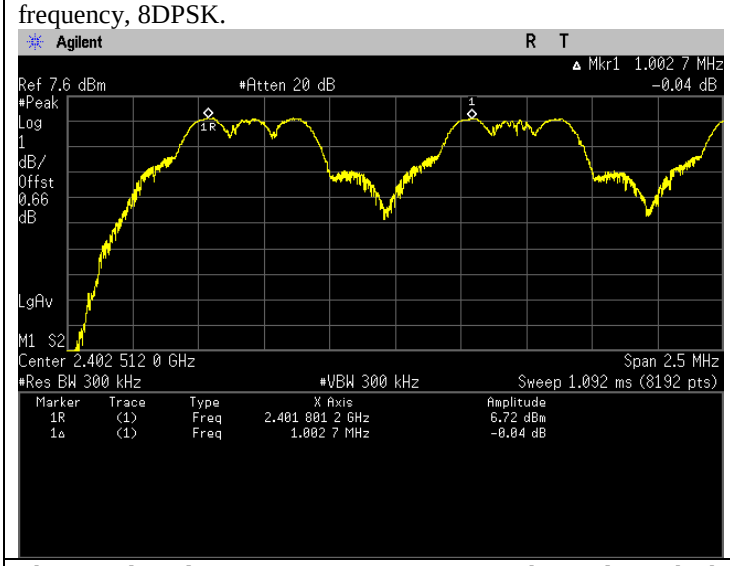
The Conducted RF Output Power test with result at mid frequency, Pi/4 DQPSK.



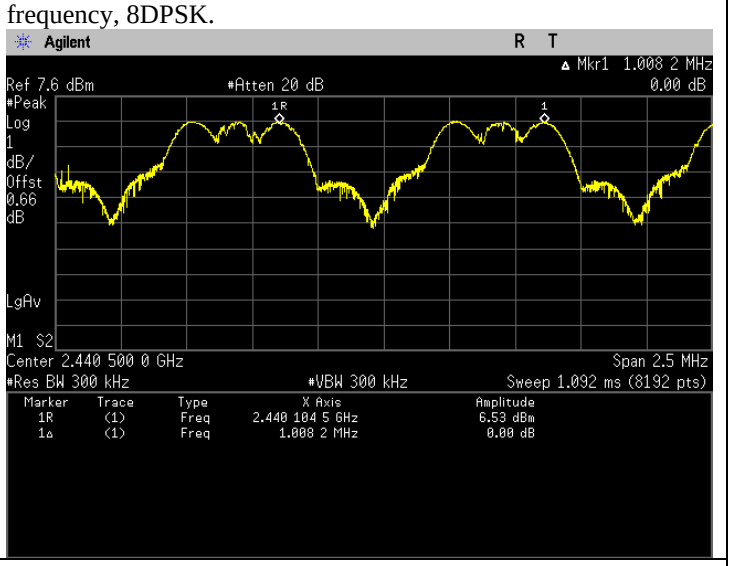
The Conducted RF Output Power test with result at high frequency, Pi/4 DQPSK.



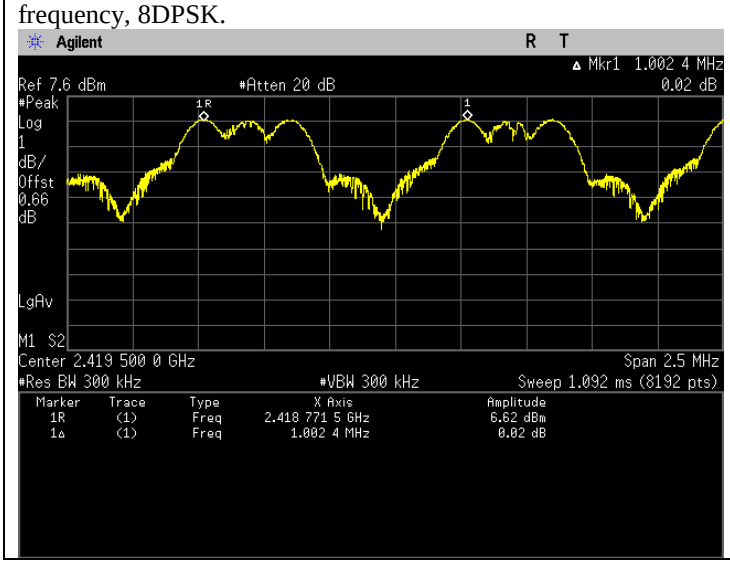
The Conducted RF Output Power test with result at low frequency, 8DPSK.



The Conducted RF Output Power test with result at mid frequency, 8DPSK.

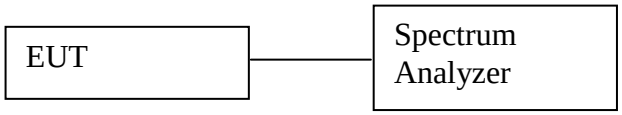


The Conducted RF Output Power test with result at high frequency, 8DPSK.



6.7. Conducted Spurious Emission

6.7.1. Test Setup



a) Check and ensure the spectrum analyzer well calibrate.
b) Turn on the EUT and set EUT to transmit maximum data rate with hopping disable.
c) Connect EUT's antenna terminal to spectrum analyzer with a low loss cable.
d) Setting of Spectrum analyzer :
   a. RBW = 100 kHz
   b. VBW = 300 kHz
   c. SPAN = Cover until 10^{th} harmonic
   d. Detector mode = Peak
   e. AMPLITUDE → Scale/Div = 10 dB
   f. Trace = Max hold
   g. Sweep = auto
e) Measure the captured spurious emission result and recording the plot.
f) Repeat above procedure with other different mode of operation.

6.7.2. Test Limits:

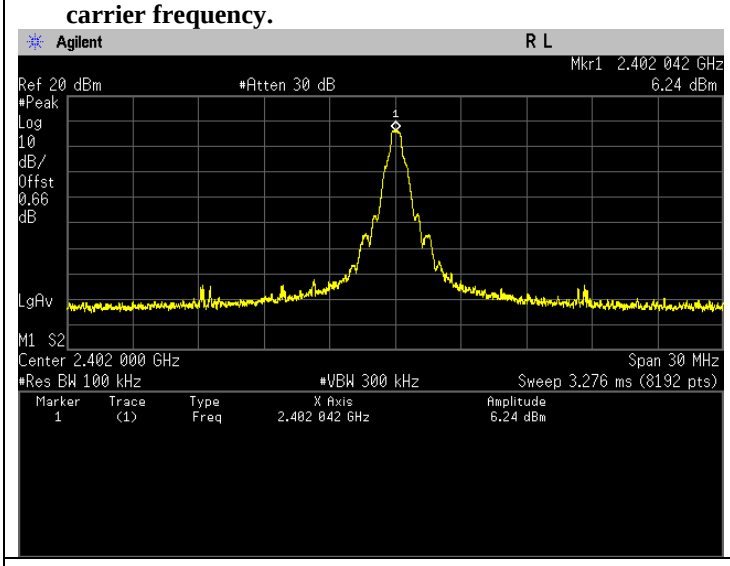
Normal Condition (25 ° C)
Shall be at least 20 dB below for peak power.

6.7.3. Test Data:

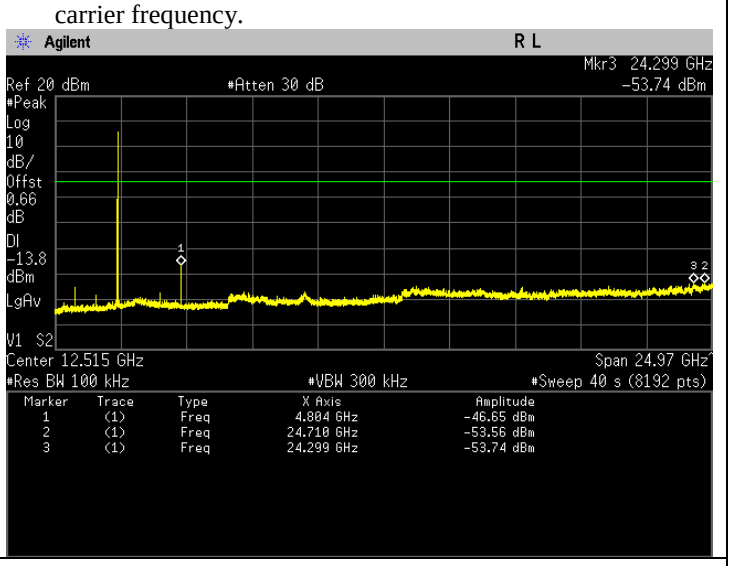
Test Conditions			Results		
Modulation	Voltage(V)	Test Frequency (GHz)	Spurs (MHz)	Level (dBm)	Status
GFSK	4.50	2.4020	4804.000	-46.652	Pass
		2.4410	4883.000	-49.012	Pass
		2.4800	4959.000	-46.230	Pass
Pi/4 DQPSK	4.50	2.4020	4804.000	-49.030	Pass
		2.4410	4883.000	-47.630	Pass
		2.4800	4959.000	-48.060	Pass
8DPSK	4.50	2.4020	4804.000	-47.720	Pass
		2.4410	4883.000	-50.610	Pass
		2.4800	4959.000	-47.930	Pass

GFSK Modulation:

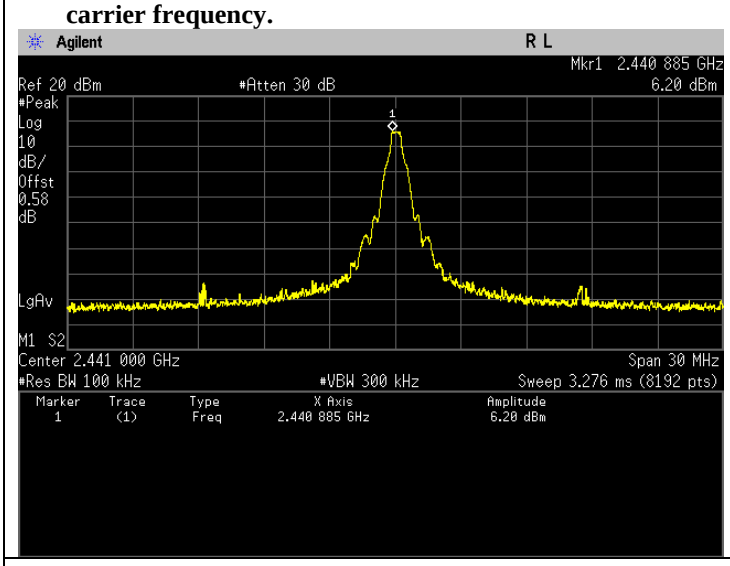
- **The high emission level within the assigned band at low carrier frequency.**



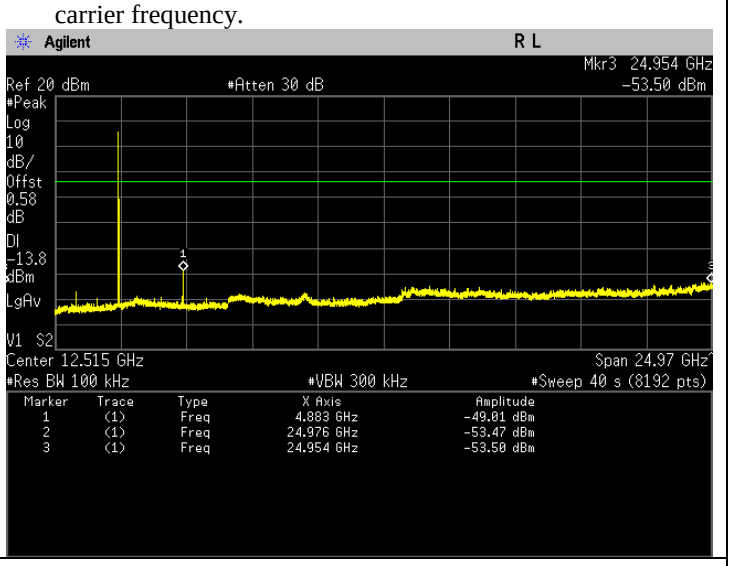
- Spurious emission measurement in **30MHz – 25GHz** at low carrier frequency.



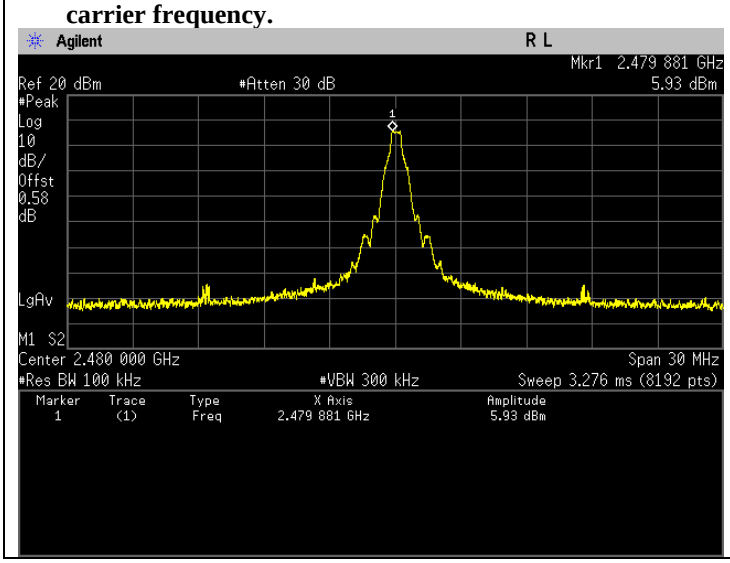
- **The high emission level within the assigned band at mid carrier frequency.**



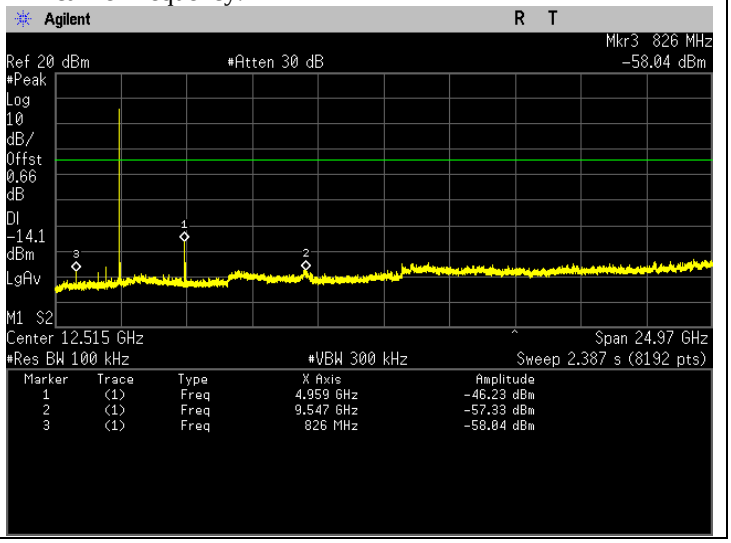
- Spurious emission measurement in **30MHz – 25GHz** at mid carrier frequency.



- **The high emission level within the assigned band at high carrier frequency.**

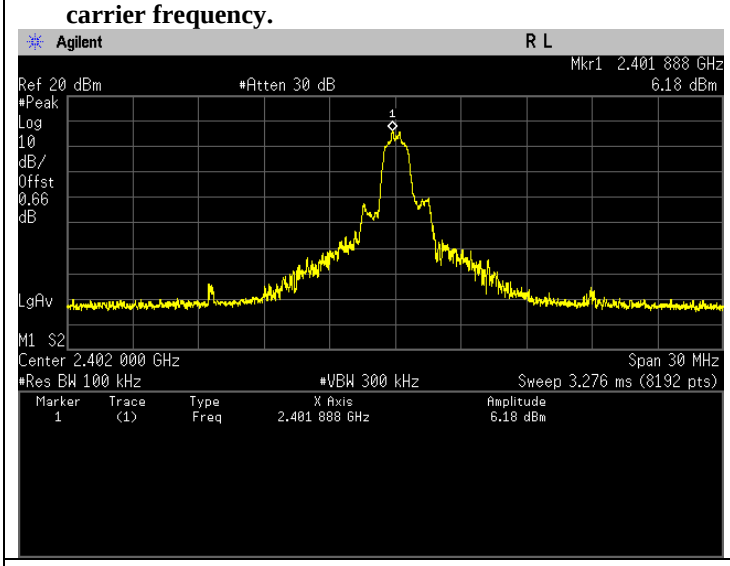


- Spurious emission measurement in **30MHz – 25GHz** at high carrier frequency.

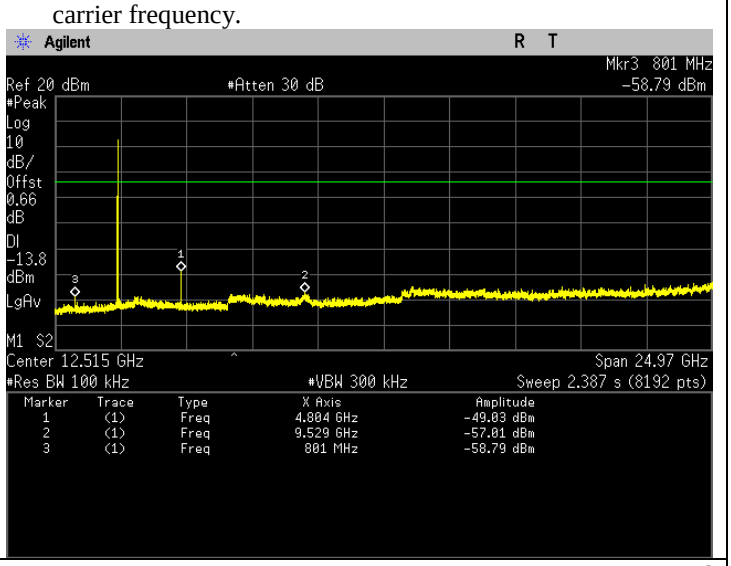


Pi/4 DQPSK Modulation:

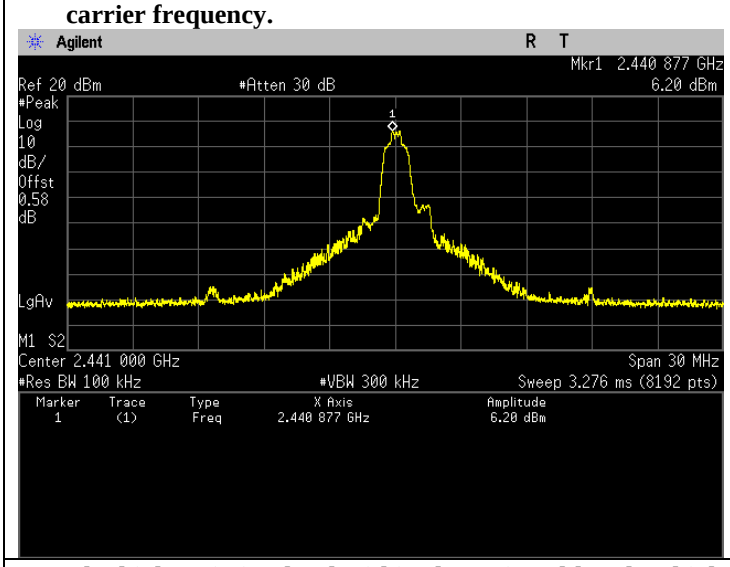
i. The high emission level within the assigned band at low carrier frequency.



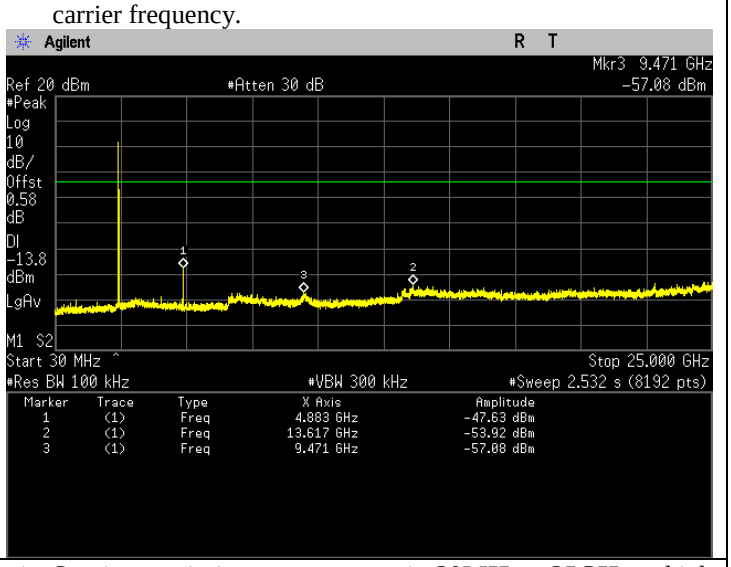
ii. Spurious emission measurement in **30MHz – 25GHz** at low carrier frequency.



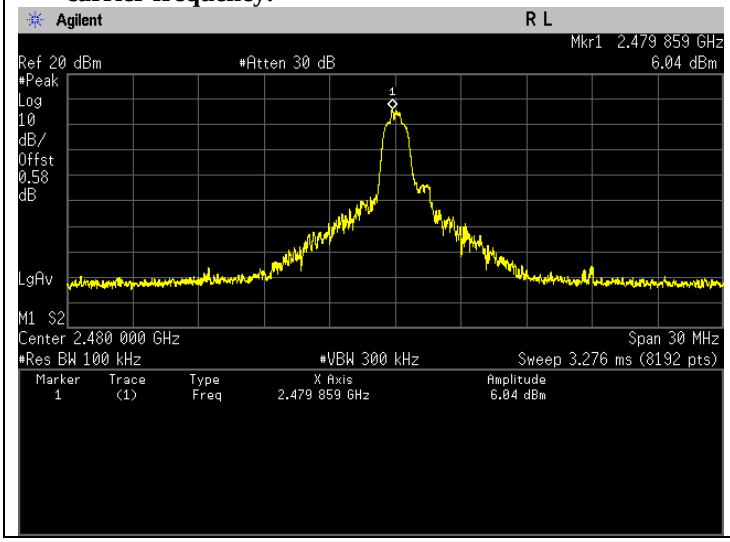
iii. The high emission level within the assigned band at mid carrier frequency.



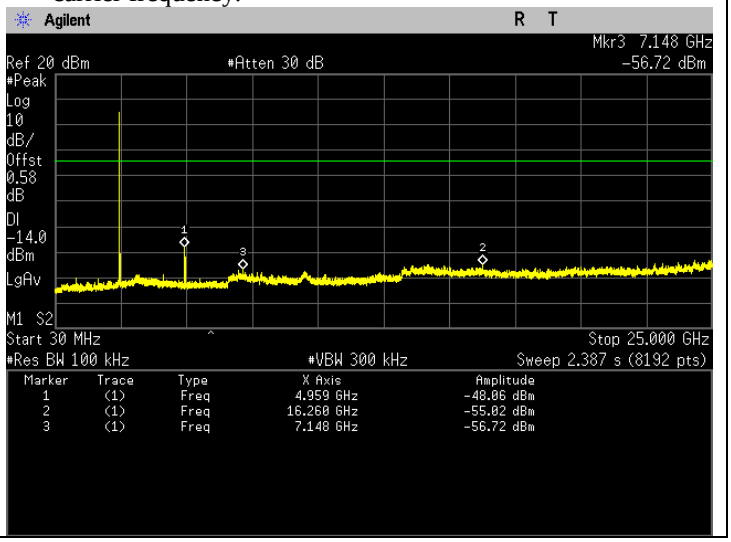
iv. Spurious emission measurement in **30MHz – 25GHz** at mid carrier frequency.



v. The high emission level within the assigned band at high carrier frequency.

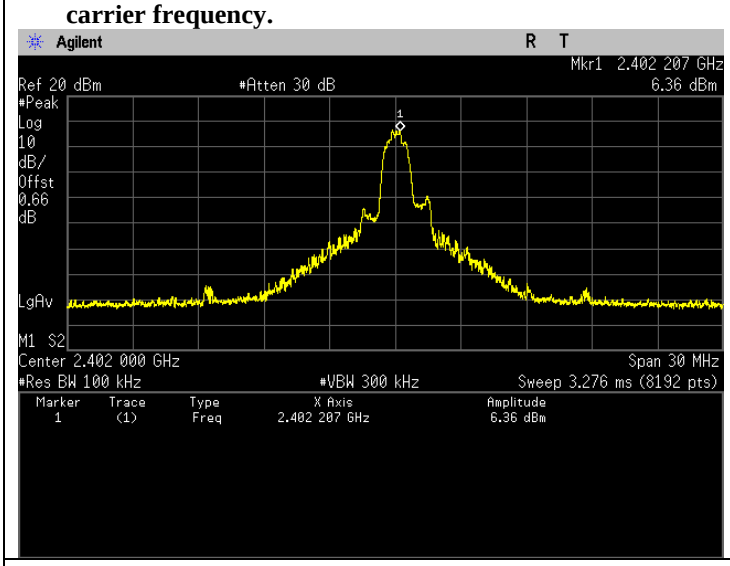


vi. Spurious emission measurement in **30MHz – 25GHz** at high carrier frequency.

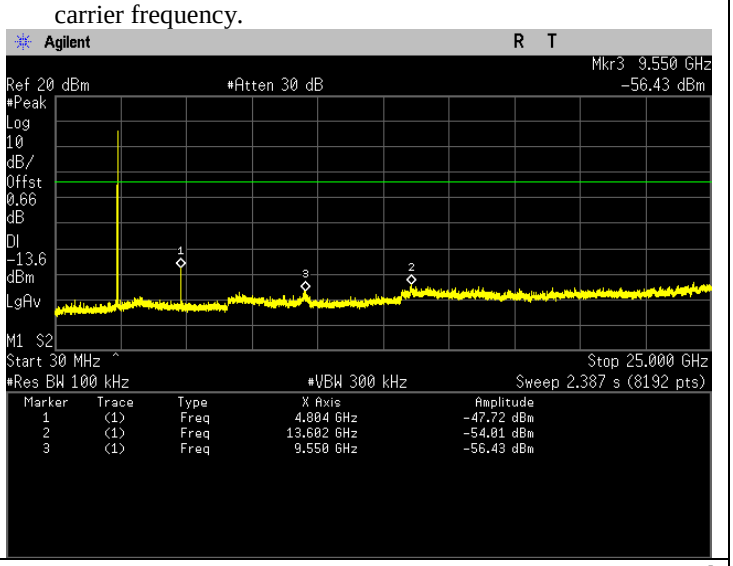


8DPSK Modulation:

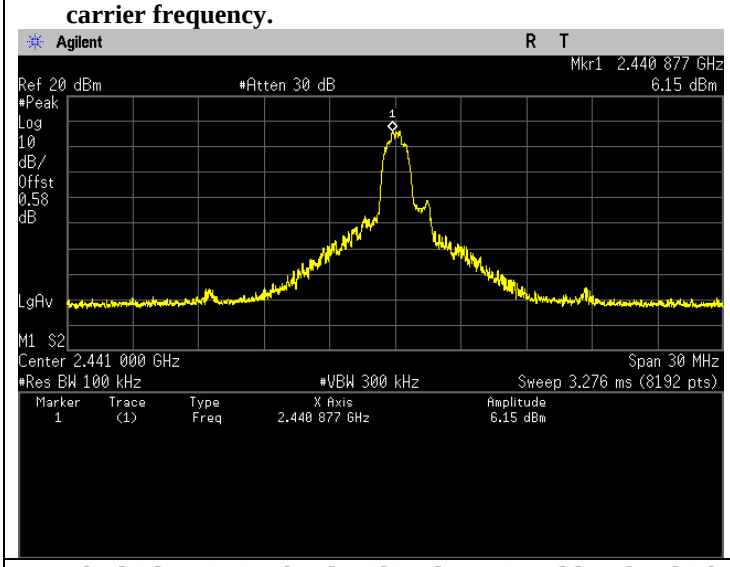
i. The high emission level within the assigned band at low carrier frequency.



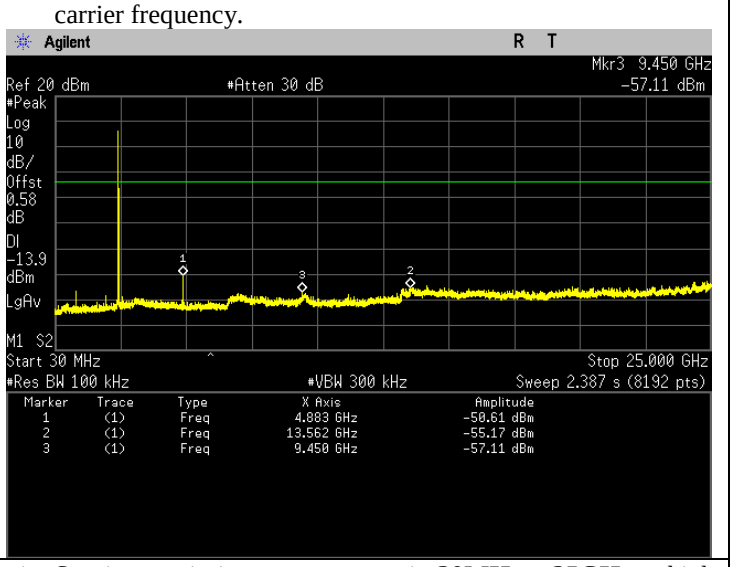
ii. Spurious emission measurement in **30MHz – 25GHz** at low carrier frequency.



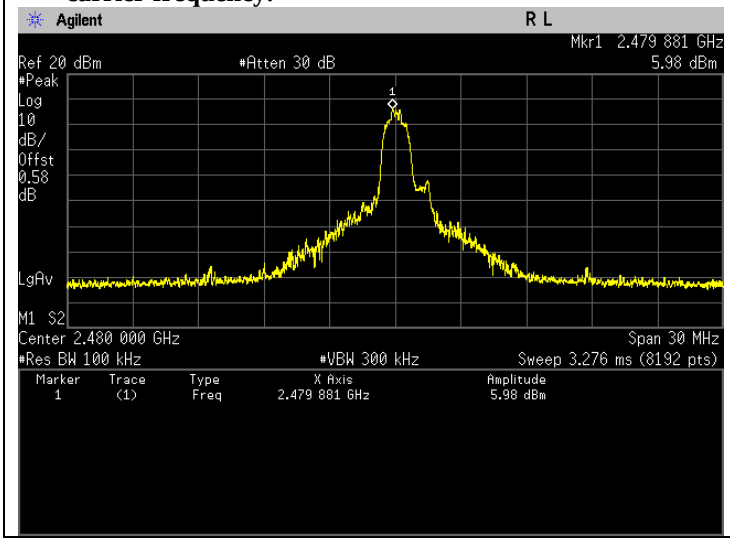
iii. The high emission level within the assigned band at mid carrier frequency.



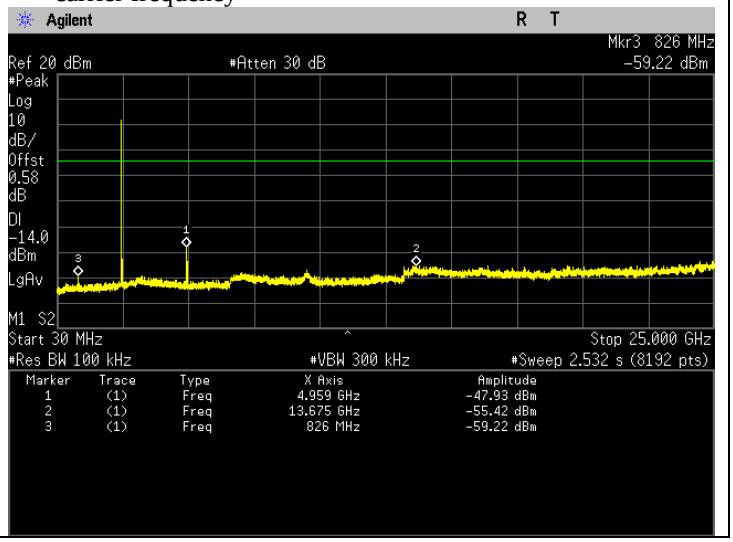
iv. Spurious emission measurement in **30MHz – 25GHz** at mid carrier frequency.



v. The high emission level within the assigned band at high carrier frequency.

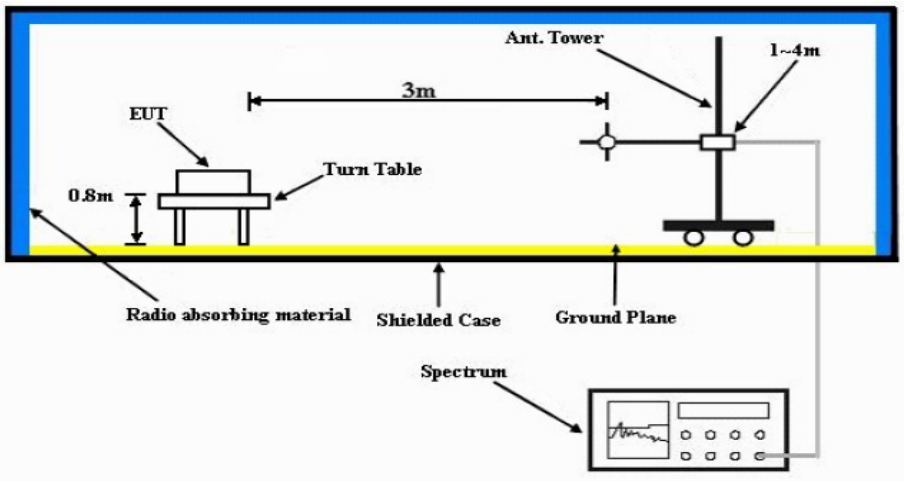


vi. Spurious emission measurement in **30MHz – 25GHz** at high carrier frequency



6.8. Radiated Emission within restricted Bands

6.8.1. Test Setup



a. The EUT is placed on the top of a rotating table 0.8m (<1GHz) or 1.5m (>1GHz) above the ground at a 3m semi-anechoic chamber. The table is rotated 360 degrees to determine the position of the highest radiation.
b. The EUT is set 3m away from the interference-receiving antenna, which is mounted on the top of a variable-height antenna tower.
c. The antenna is Bilog/Horn antenna depend on which frequency range uses, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT is arranged to its worst case and then the antenna is tuned to heights from 1m to 4m and the rotatable table is turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system is set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode is fall within the range of 10dB from the limit specified, the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. Otherwise, the testing could be stopped and the peak values of the EUT would be reported.

NOTE:
a. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1GHz.
b. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1 GHz.
c. All modes of operation were investigated and the worst-case emissions are reported.

6.8.2. Test Limits:

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power.

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

NOTE:

a. The lower limit shall apply at the transition frequencies.
b. Emission level (dBuV/m) = 20 log Emission level (uV/m).
c. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

6.8.3. Test Data:

Test: Bluetooth SAC Restricted Band Edge
Model Number: T803 **S/N: 17520ZN0252** **EMC SR ID#: 39731-EMC-00035**
Battery: 1532 **Accessory: NA**
Test Channel: Low **Test Frequency: 2402.0000 MHz** **Test Standard: ANSI C63.10-2013**
Worst Case Plane: Z-Plane (GFSK)

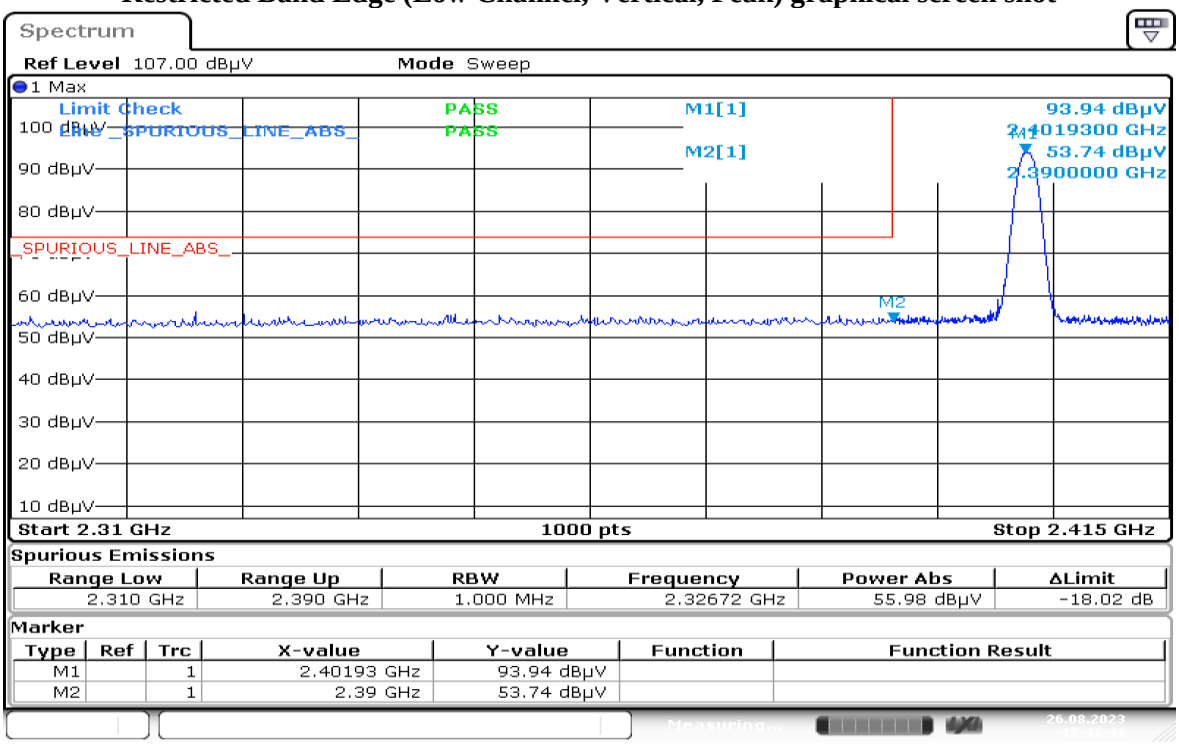
Restricted Band Edge (Low Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
2390.0000	-	53.7449	43.4445	-	74.0000	54.0000	-	20.2551	10.5555	-
Horizontal Radiated Emission Result										
2390.0000	-	53.1424	41.9312	-	74.0000	54.0000	-	20.8576	12.0688	-

Remarks: Pass Result	Marginal Result	Fail Result

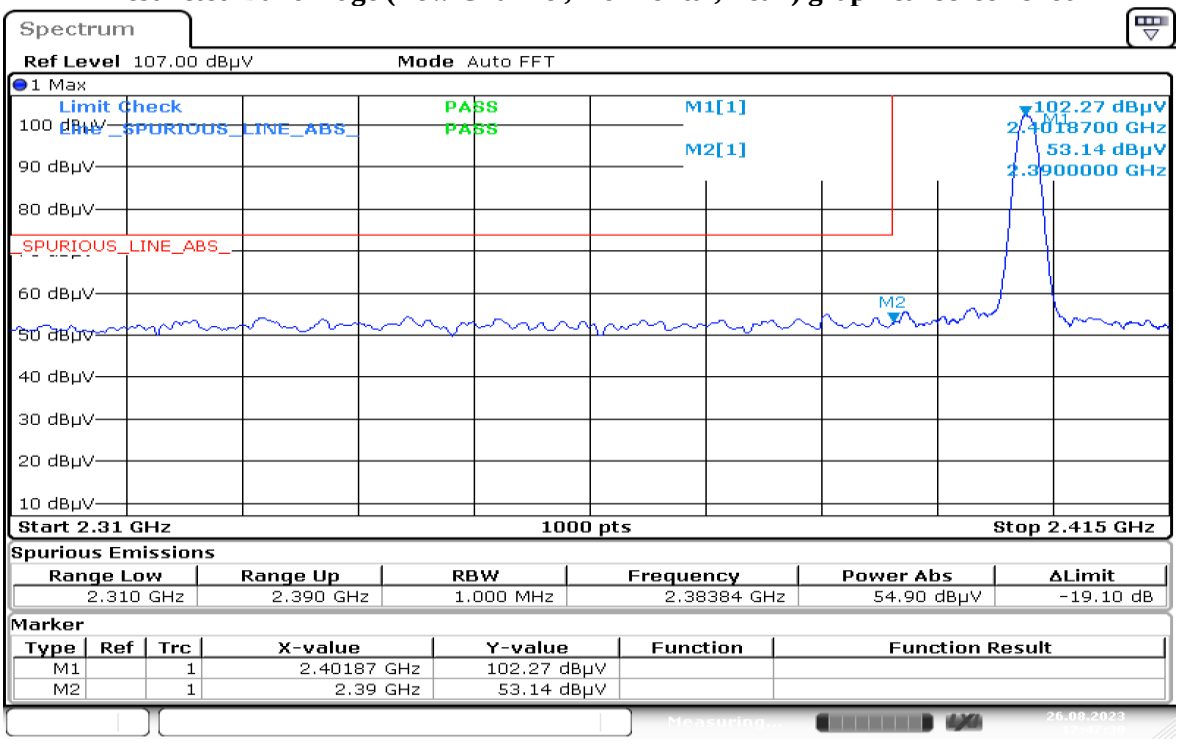
Temperature (degC):23.1 **Humidity (%): 56.3**
Test Performed by: Aiman **Test Date: Sat, 26 Aug, 2023**
System MU: 5.88dB

Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



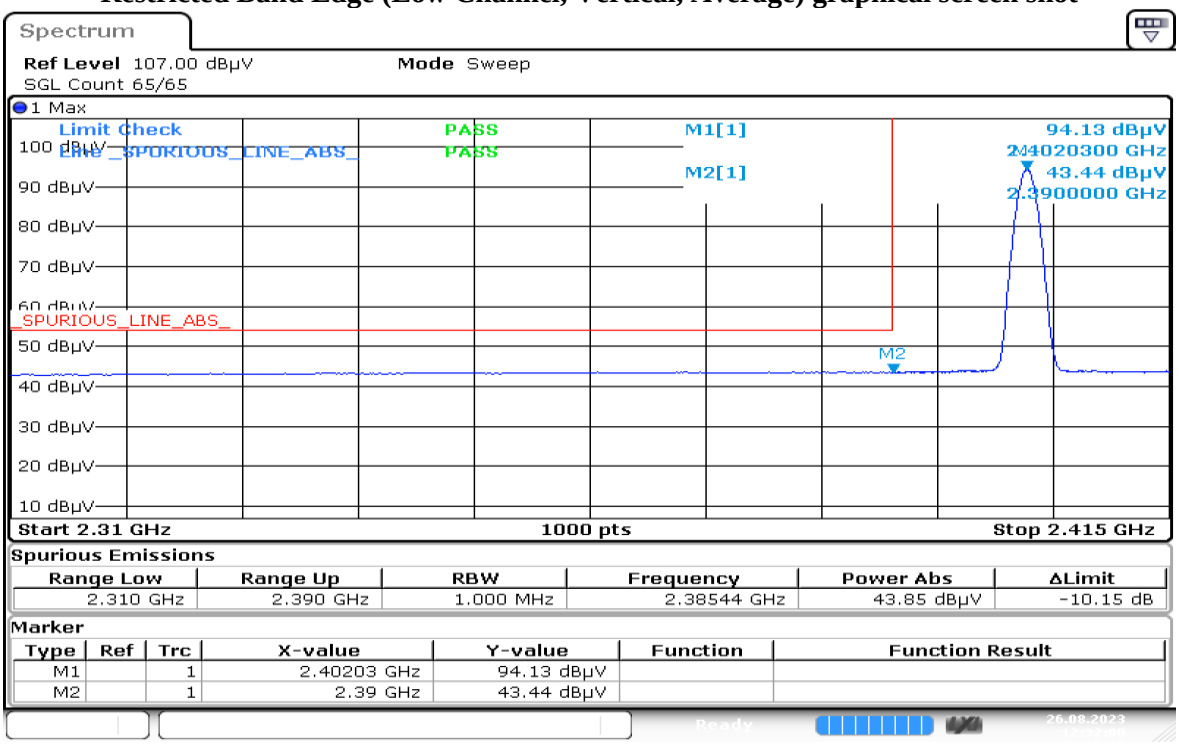
Date: 26.AUG.2023 12:42:41

Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot



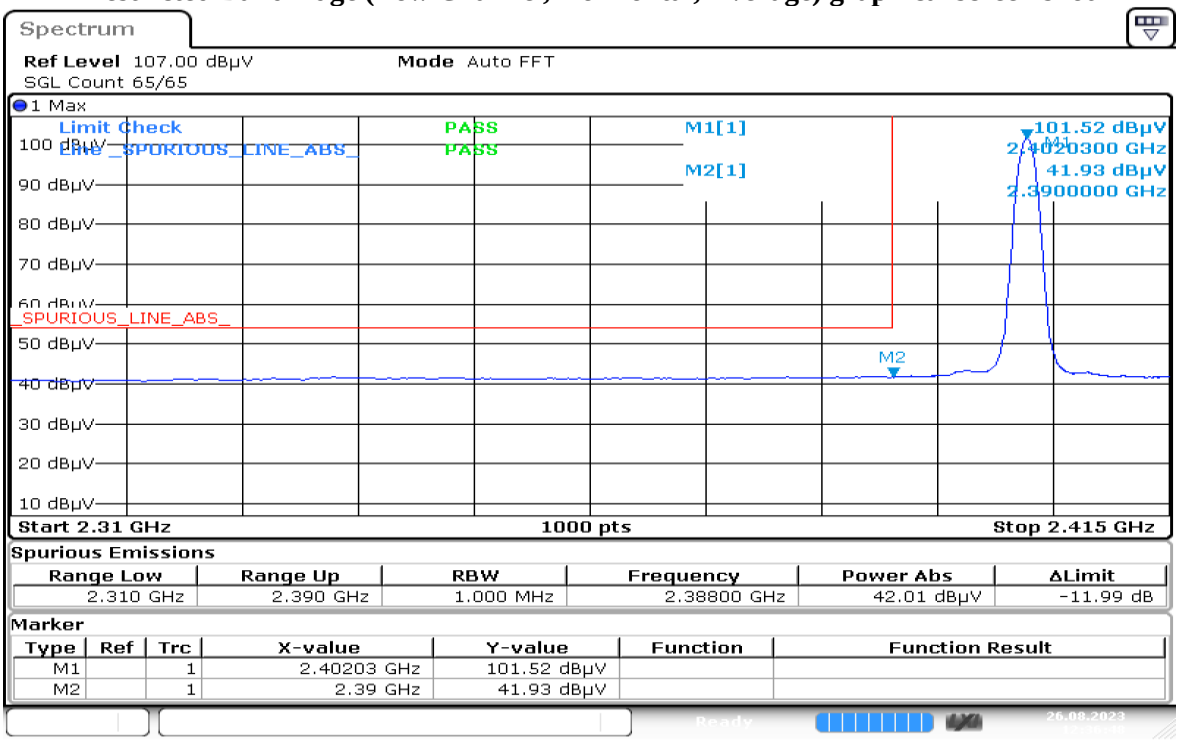
Date: 26.AUG.2023 12:47:30

Restricted Band Edge (Low Channel, Vertical, Average) graphical screen shot



Date: 26.AUG.2023 12:32:01

Restricted Band Edge (Low Channel, Horizontal, Average) graphical screen shot



Date: 26.AUG.2023 12:36:49

Test: Bluetooth SAC Restricted Band Edge
Model Number: T803 S/N: 17520ZN0252 EMC SR ID#: 39731-EMC-00035
Battery: 1532 Accessory: NA
Test Channel: High Test Frequency: 2480.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (GFSK)

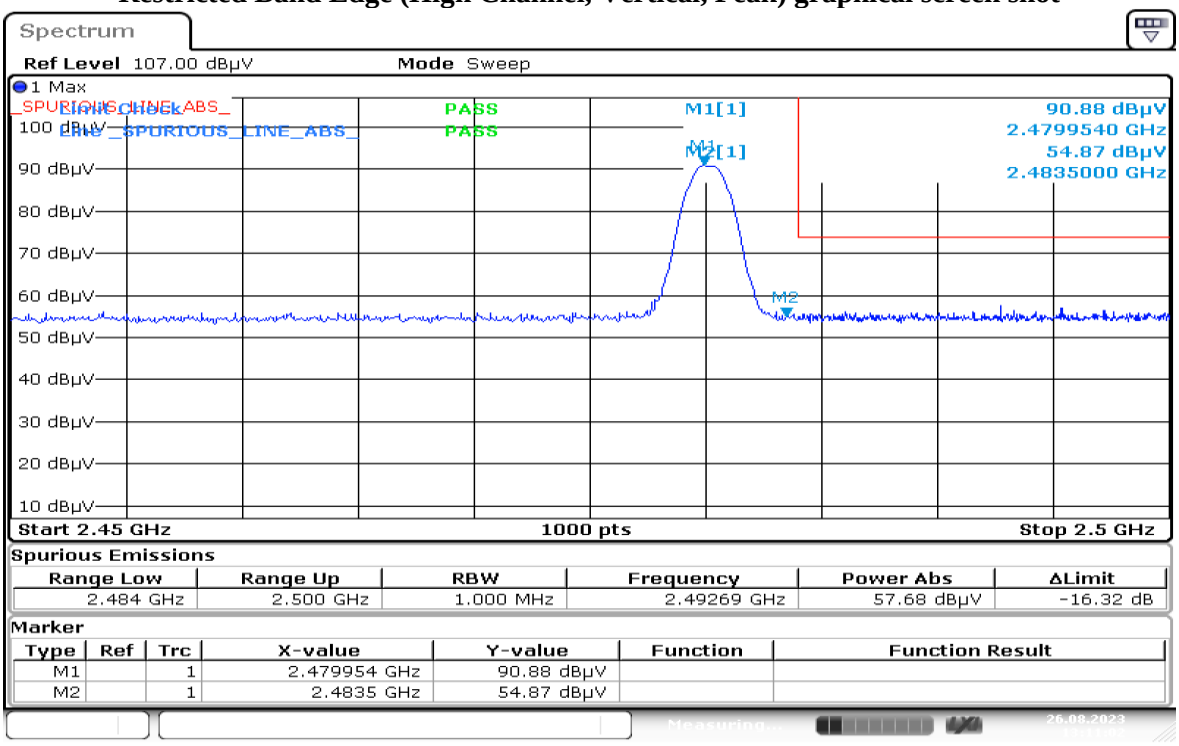
Restricted Band Edge (High Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
2483.5000	-	54.8718	44.5314	-	74.0000	54.0000	-	19.1282	9.4686	-
Horizontal Radiated Emission Result										
2483.5000	-	53.7378	44.0959	-	74.0000	54.0000	-	20.2622	9.9041	-

Remarks: Pass Result	Marginal Result	Fail Result

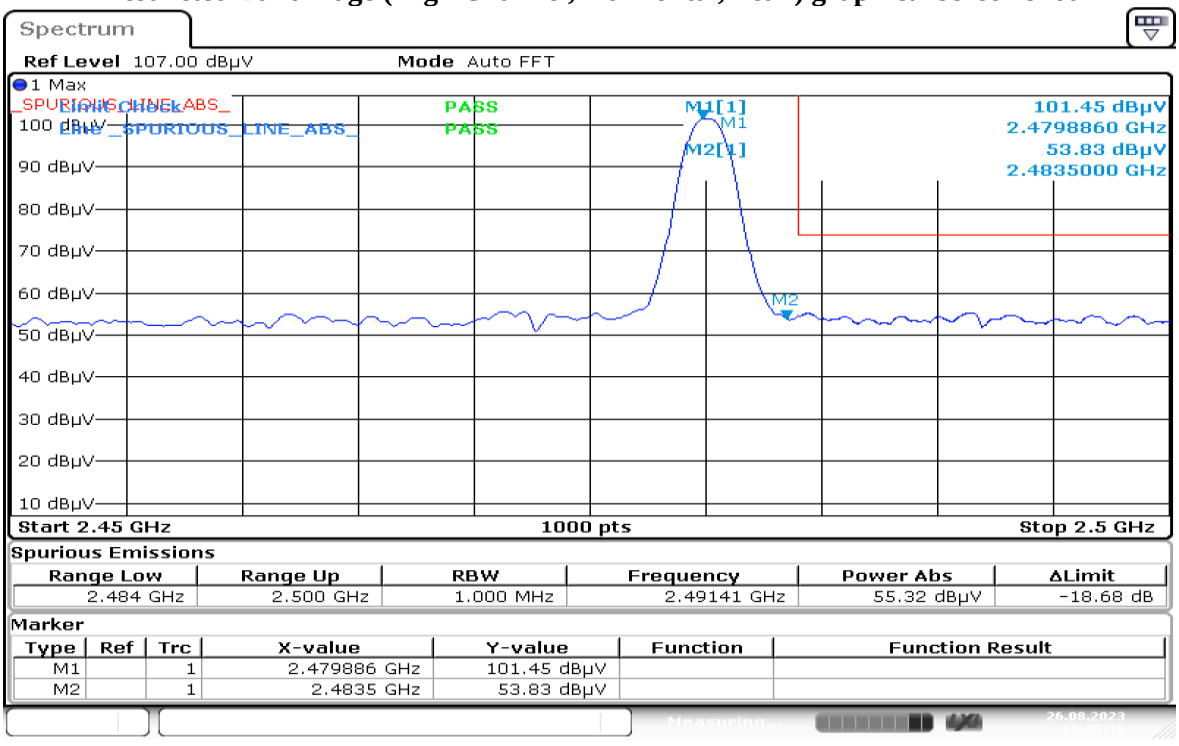
Temperature (degC):23.1 **Humidity (%): 56.3**
Test Performed by: Aiman **Test Date: Sat, 26 Aug, 2023**
System MU: 5.88dB

Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



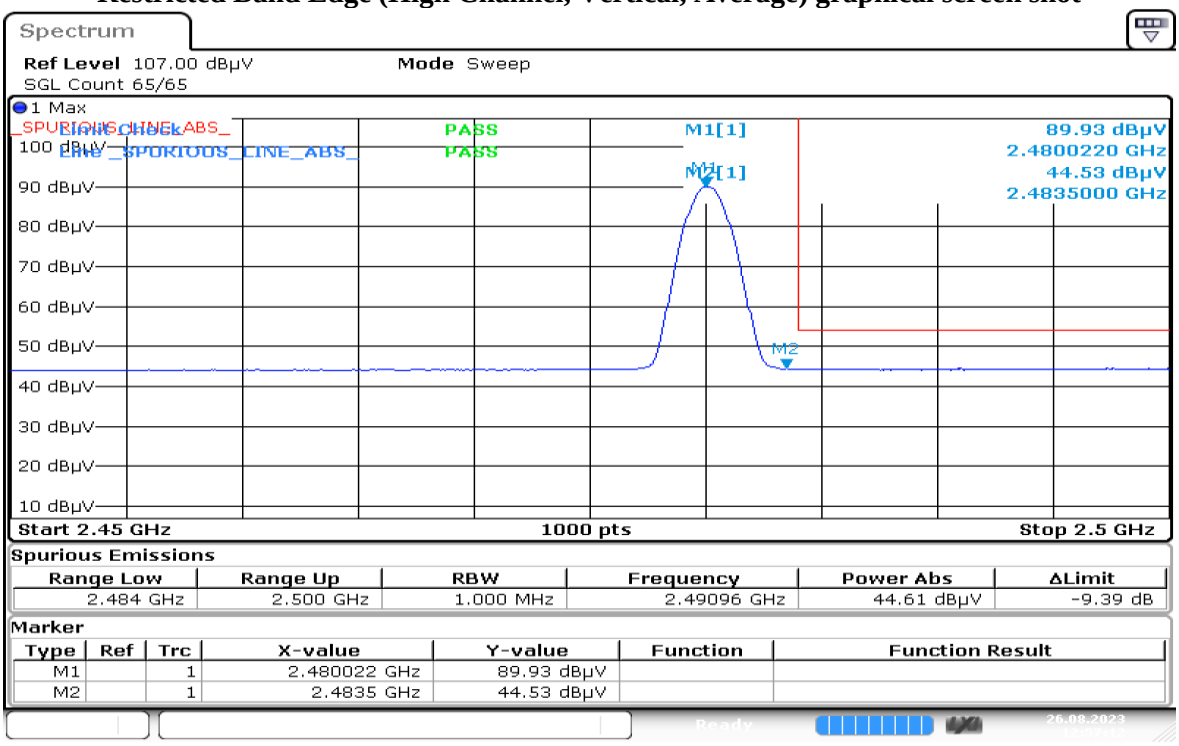
Date: 26.AUG.2023 13:11:02

Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot



Date: 26.AUG.2023 13:15:16

Restricted Band Edge (High Channel, Vertical, Average) graphical screen shot



Spurious Emissions

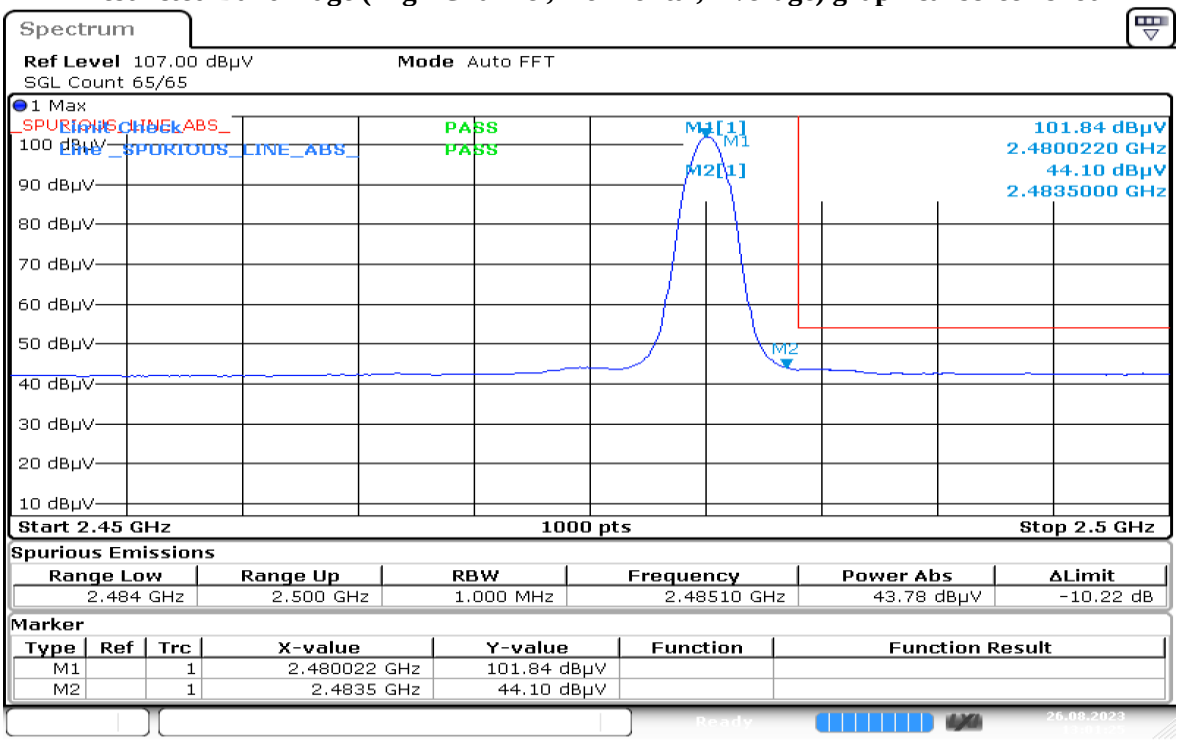
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.484 GHz	2.500 GHz	1.000 MHz	2.49096 GHz	44.61 dBµV	-9.39 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.480022 GHz	89.93 dBµV		
M2		1	2.4835 GHz	44.53 dBµV		

Date: 26.AUG.2023 12:57:12

Restricted Band Edge (High Channel, Horizontal, Average) graphical screen shot



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.484 GHz	2.500 GHz	1.000 MHz	2.48510 GHz	43.78 dBµV	-10.22 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.480022 GHz	101.84 dBµV		
M2		1	2.4835 GHz	44.10 dBµV		

Date: 26.AUG.2023 13:01:26

Test: Bluetooth SAC Restricted Band Edge
Model Number: T803 S/N: 17520ZN0252 EMC SR ID#: 39731-EMC-00035
Battery: 1532 Accessory: NA
Test Channel: Low Test Frequency: 2402.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (DQPSK)

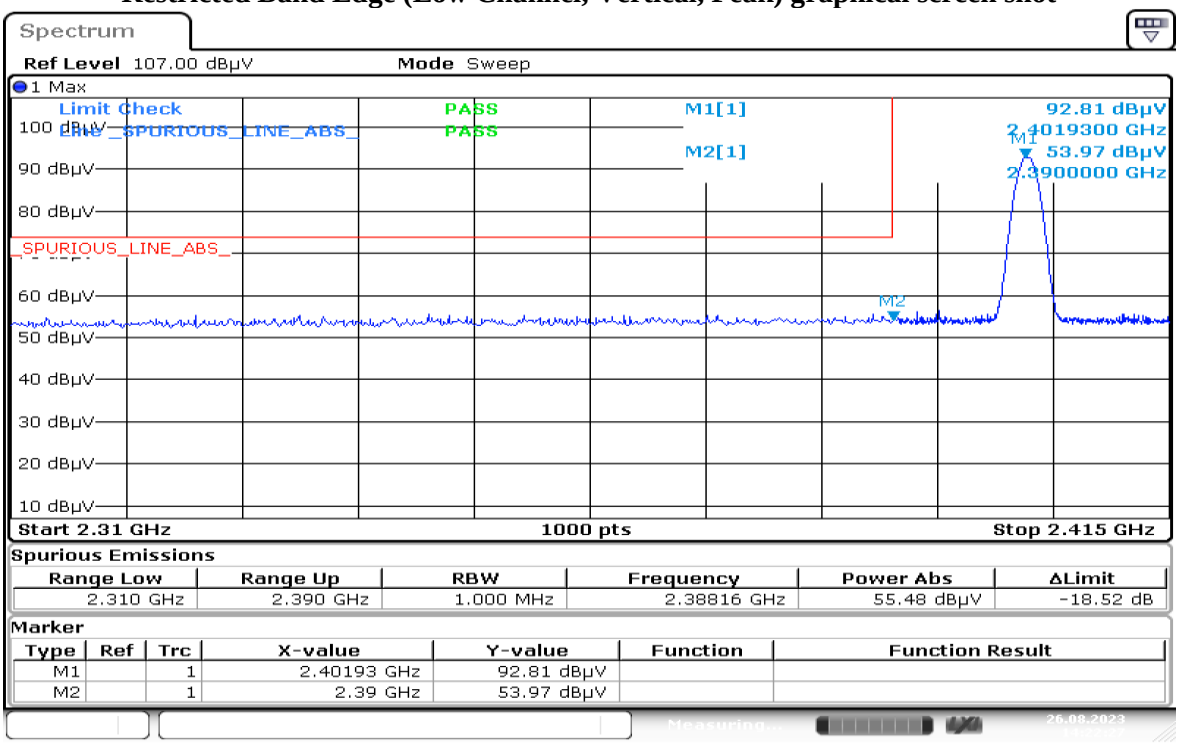
Restricted Band Edge (Low Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
2390.0000	-	53.9730	43.4445	-	74.0000	54.0000	-	20.0270	10.5555	-
Horizontal Radiated Emission Result										
2390.0000	-	53.1449	41.8067	-	74.0000	54.0000	-	20.8551	12.1933	-

Remarks: Pass Result	Marginal Result	Fail Result

Temperature (degC):22.1 **Humidity (%): 58.4**
Test Performed by: Aiman **Test Date: Sat, 26 Aug, 2023**
System MU: 5.88dB

Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



Spurious Emissions

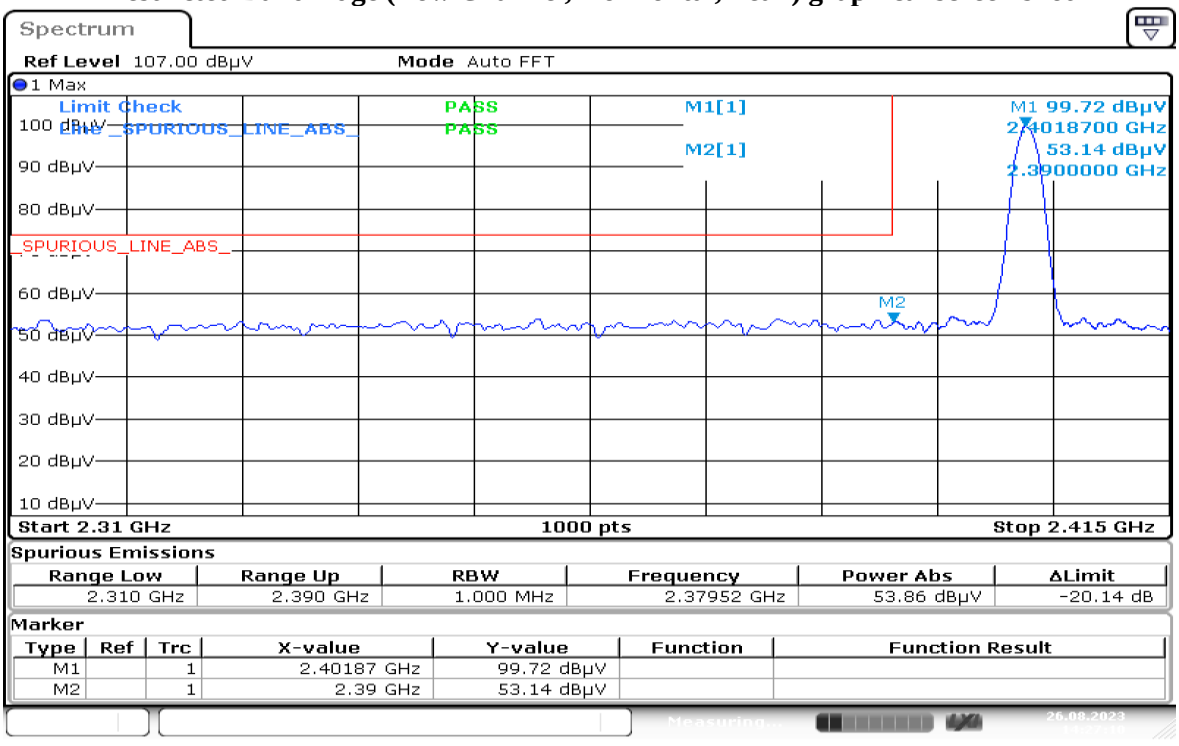
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.310 GHz	2.390 GHz	1.000 MHz	2.38816 GHz	55.48 dBµV	-18.52 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40193 GHz	92.81 dBµV		
M2		1	2.39 GHz	53.97 dBµV		

Date: 26.AUG.2023 14:22:28

Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot



Spurious Emissions

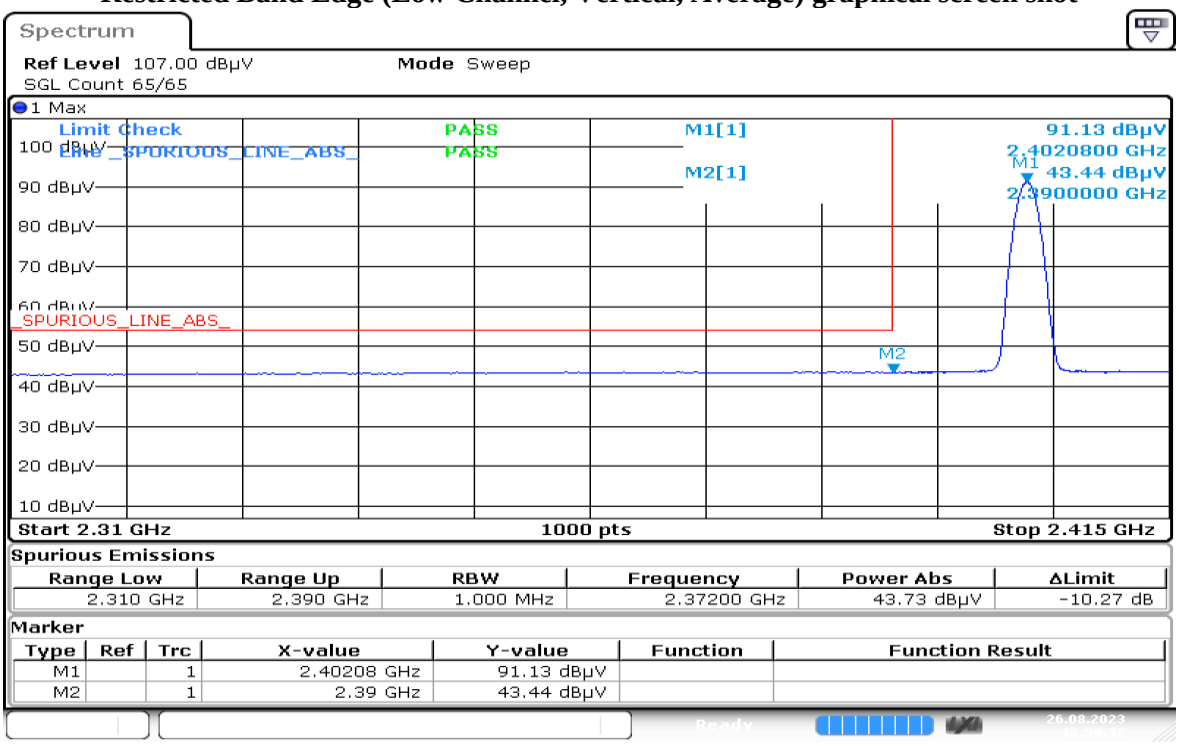
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.310 GHz	2.390 GHz	1.000 MHz	2.37952 GHz	53.86 dBµV	-20.14 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40187 GHz	99.72 dBµV		
M2		1	2.39 GHz	53.14 dBµV		

Date: 26.AUG.2023 14:27:11

Restricted Band Edge (Low Channel, Vertical, Average) graphical screen shot



Spurious Emissions

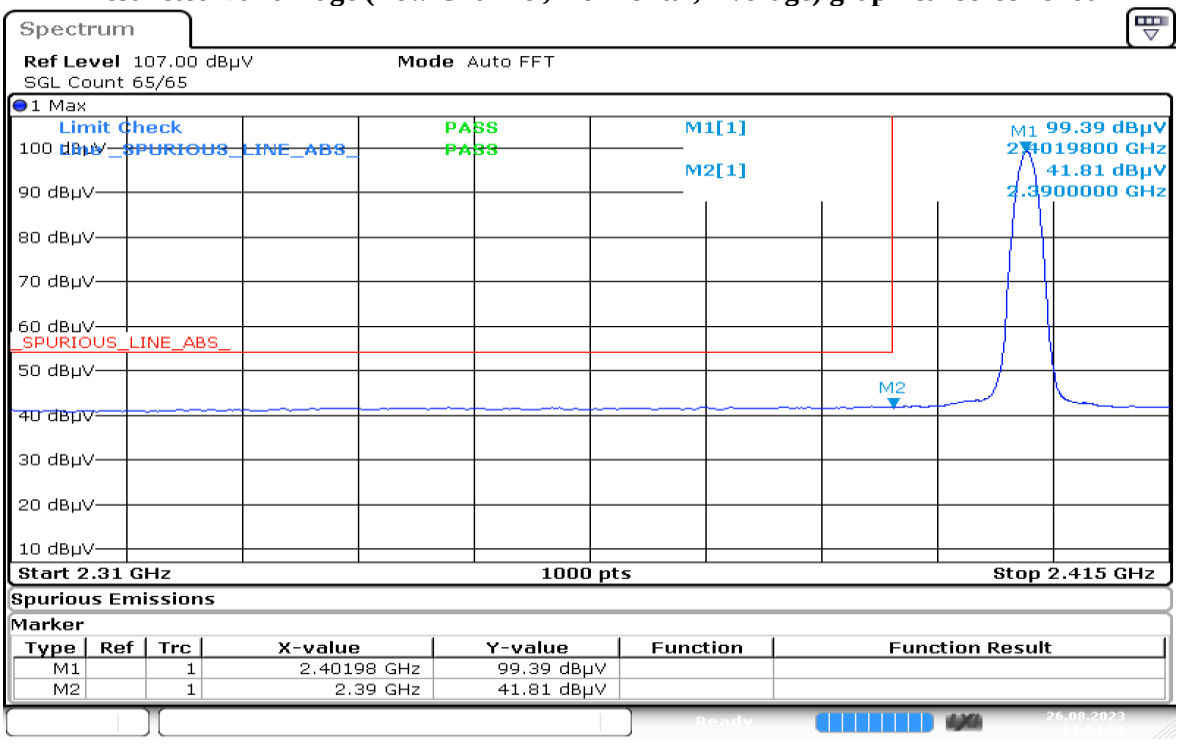
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.310 GHz	2.390 GHz	1.000 MHz	2.37200 GHz	43.73 dBµV	-10.27 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40208 GHz	91.13 dBµV		
M2		1	2.39 GHz	43.44 dBµV		

Date: 26.AUG.2023 13:59:33

Restricted Band Edge (Low Channel, Horizontal, Average) graphical screen shot



Spurious Emissions

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40198 GHz	99.39 dBµV		
M2		1	2.39 GHz	41.81 dBµV		

Date: 26.AUG.2023 14:04:04

Test: Bluetooth SAC Restricted Band Edge

Model Number: T803 **S/N: 17520ZN0252** **EMC SR ID#: 39731-EMC-00035**

Battery: 1532 **Accessory: NA**

Test Channel: High **Test Frequency: 2480.0000 MHz** **Test Standard: ANSI C63.10-2013**

Worst Case Plane: Z-Plane (DQPSK)

Restricted Band Edge (High Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
2483.5000	-	54.5715	44.2585	-	74.0000	54.0000	-	19.4285	9.7415	-
Horizontal Radiated Emission Result										
2483.5000	-	55.6195	43.9571	-	74.0000	54.0000	-	18.3805	10.0429	-

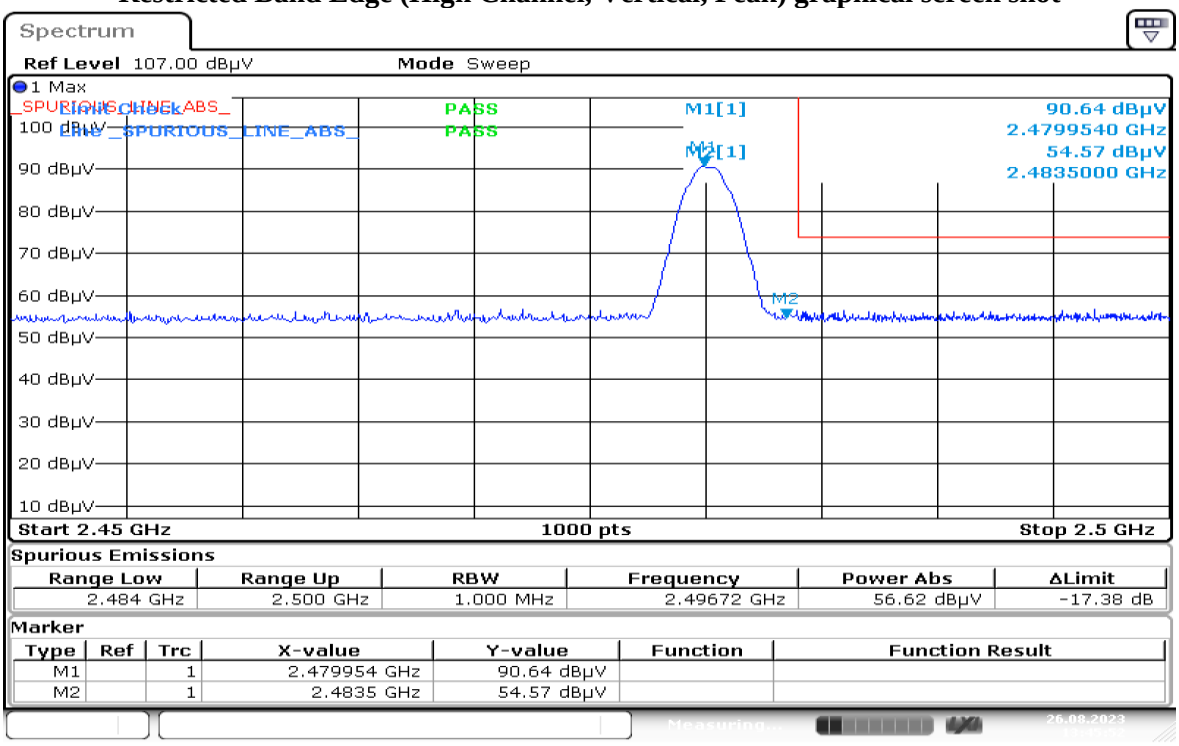
Remarks: Pass Result	Marginal Result	Fail Result

Temperature (degC):22.1 **Humidity (%): 58.4**

Test Performed by: Aiman **Test Date: Sat, 26 Aug, 2023**

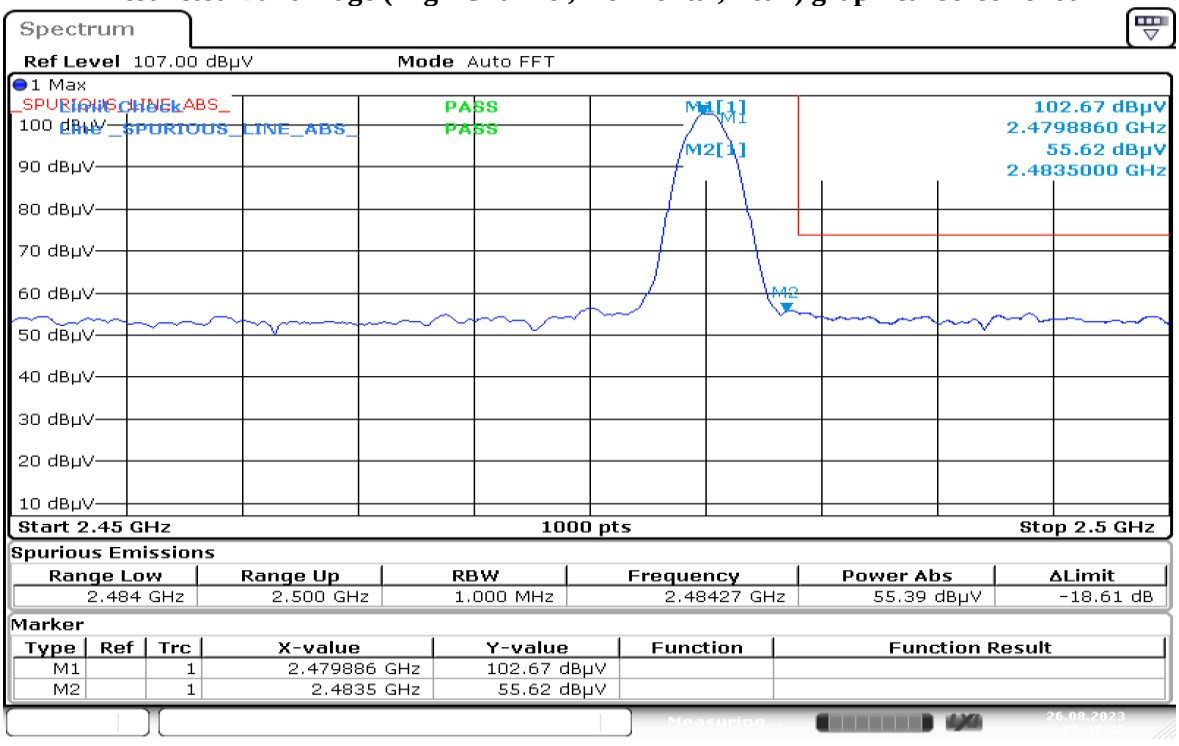
System MU: 5.88dB

Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



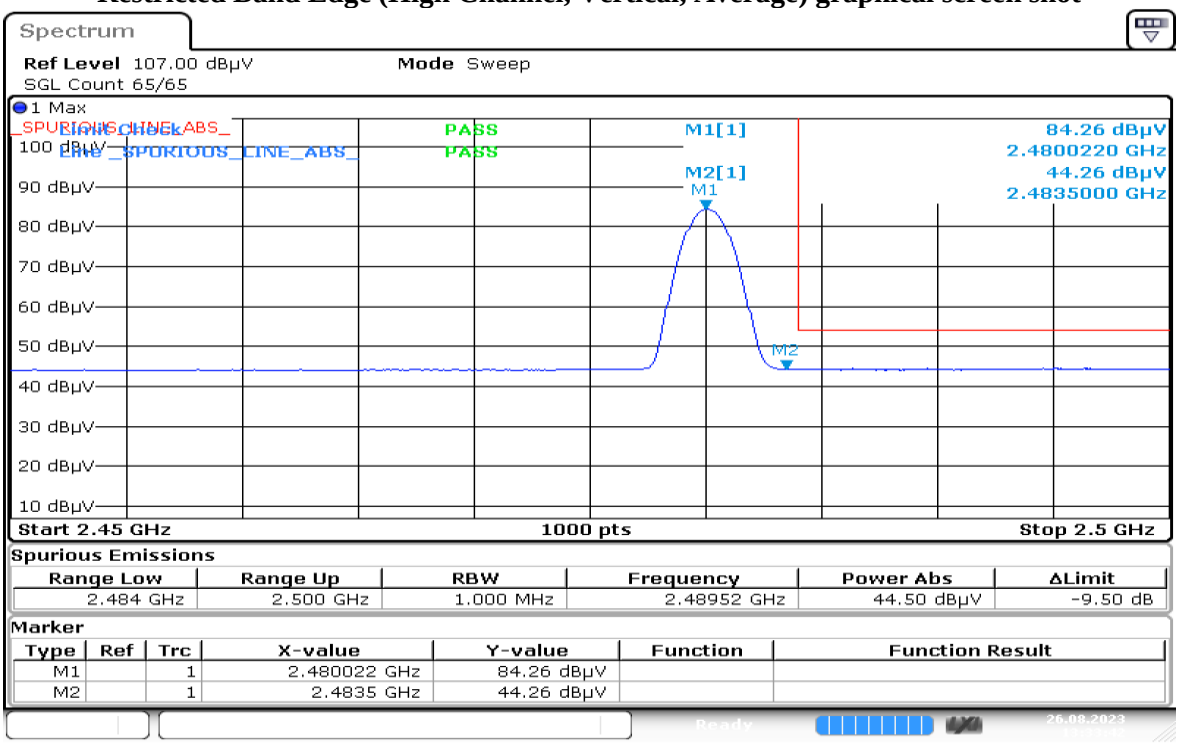
Date: 26.AUG.2023 13:45:52

Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot



Date: 26.AUG.2023 13:49:43

Restricted Band Edge (High Channel, Vertical, Average) graphical screen shot



Spurious Emissions

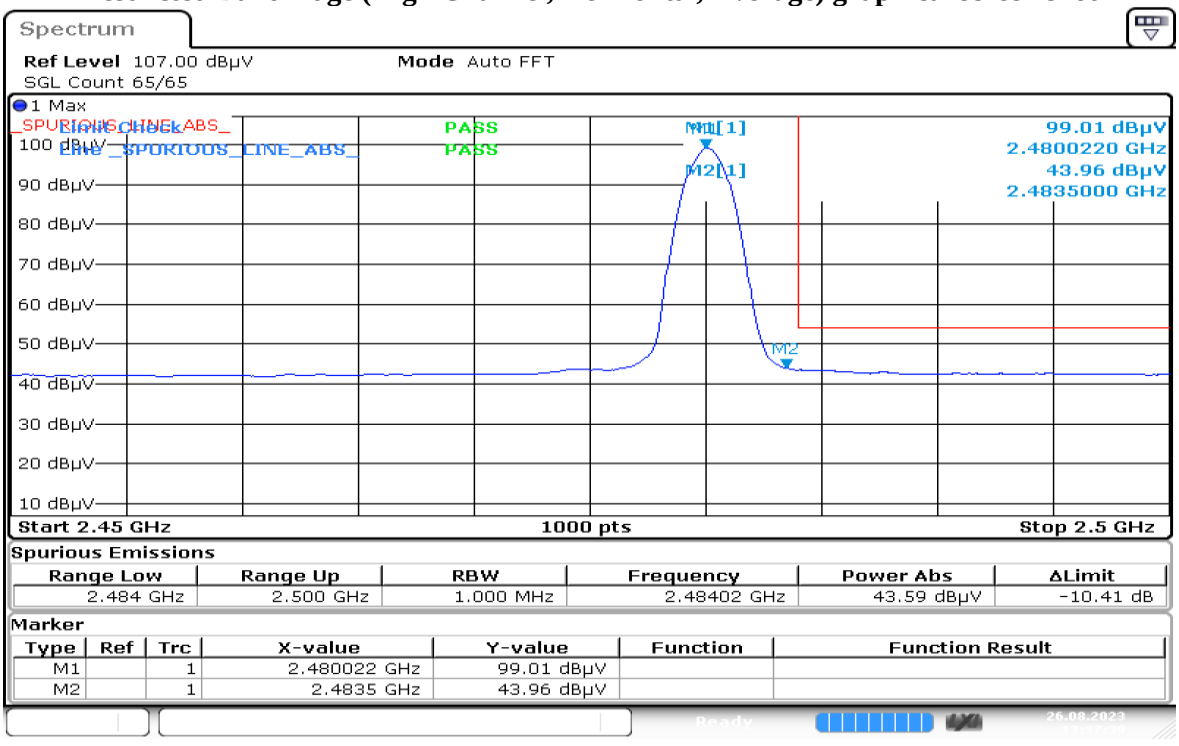
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.484 GHz	2.500 GHz	1.000 MHz	2.48952 GHz	44.50 dBµV	-9.50 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.480022 GHz	84.26 dBµV		
M2		1	2.4835 GHz	44.26 dBµV		

Date: 26.AUG.2023 13:33:42

Restricted Band Edge (High Channel, Horizontal, Average) graphical screen shot



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
2.484 GHz	2.500 GHz	1.000 MHz	2.48402 GHz	43.59 dBµV	-10.41 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.480022 GHz	99.01 dBµV		
M2		1	2.4835 GHz	43.96 dBµV		

Date: 26.AUG.2023 13:37:40

Test: Bluetooth SAC Restricted Band Edge

Model Number: T803 **S/N: 17520ZN0252** **EMC SR ID#: 39731-EMC-00035**

Battery: 1532 **Accessory: NA**

Test Channel: Low **Test Frequency: 2402.0000 MHz** **Test Standard: ANSI C63.10-2013**

Worst Case Plane: Z-Plane (8DPSK)

Restricted Band Edge (Low Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
2390.0000	-	55.1632	43.5345	-	74.0000	54.0000	-	18.8368	10.4655	-
Horizontal Radiated Emission Result										
2390.0000	-	51.9711	41.7686	-	74.0000	54.0000	-	22.0289	12.2314	-

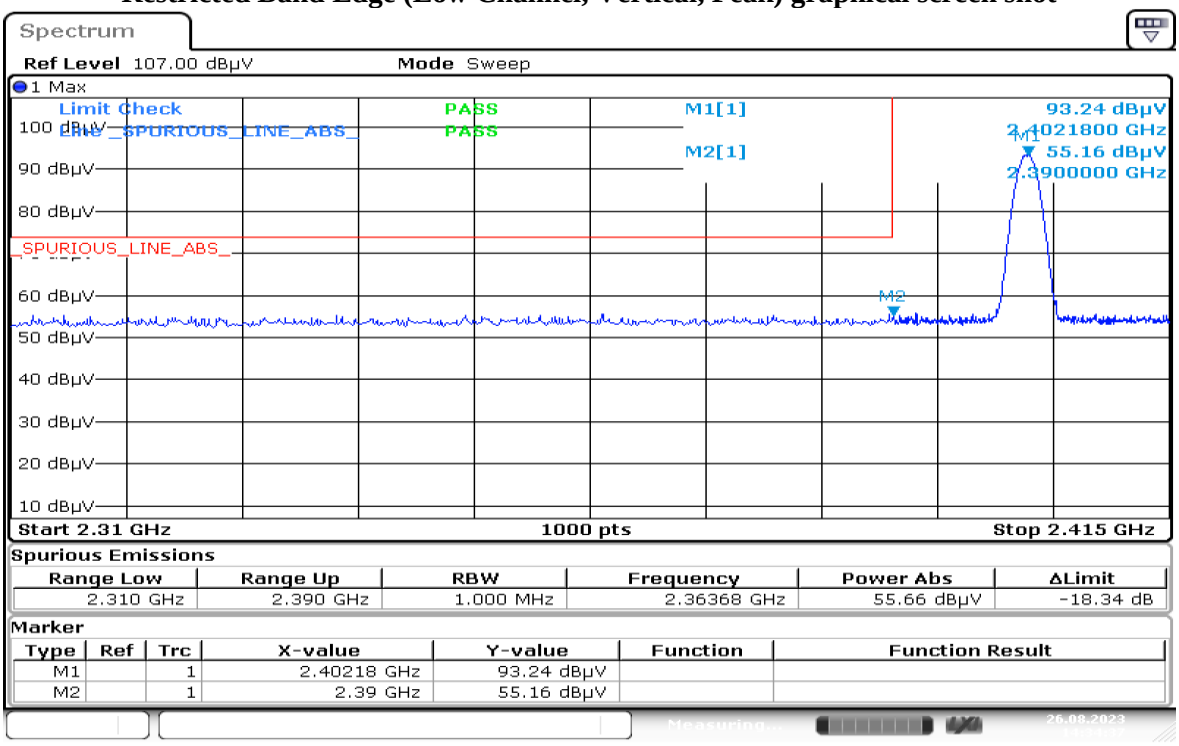
Remarks: Pass Result	Marginal Result	Fail Result

Temperature (degC):22.1 **Humidity (%): 58.4**

Test Performed by: Aiman **Test Date: Sat, 26 Aug, 2023**

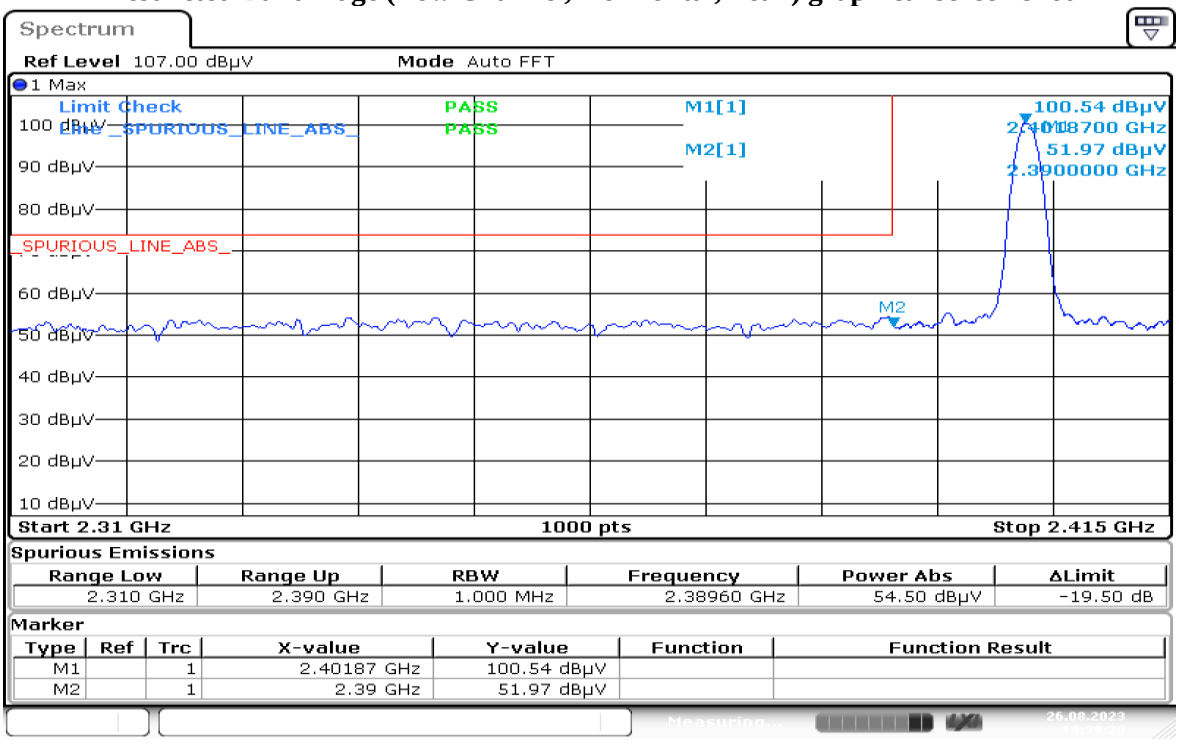
System MU: 5.88dB

Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



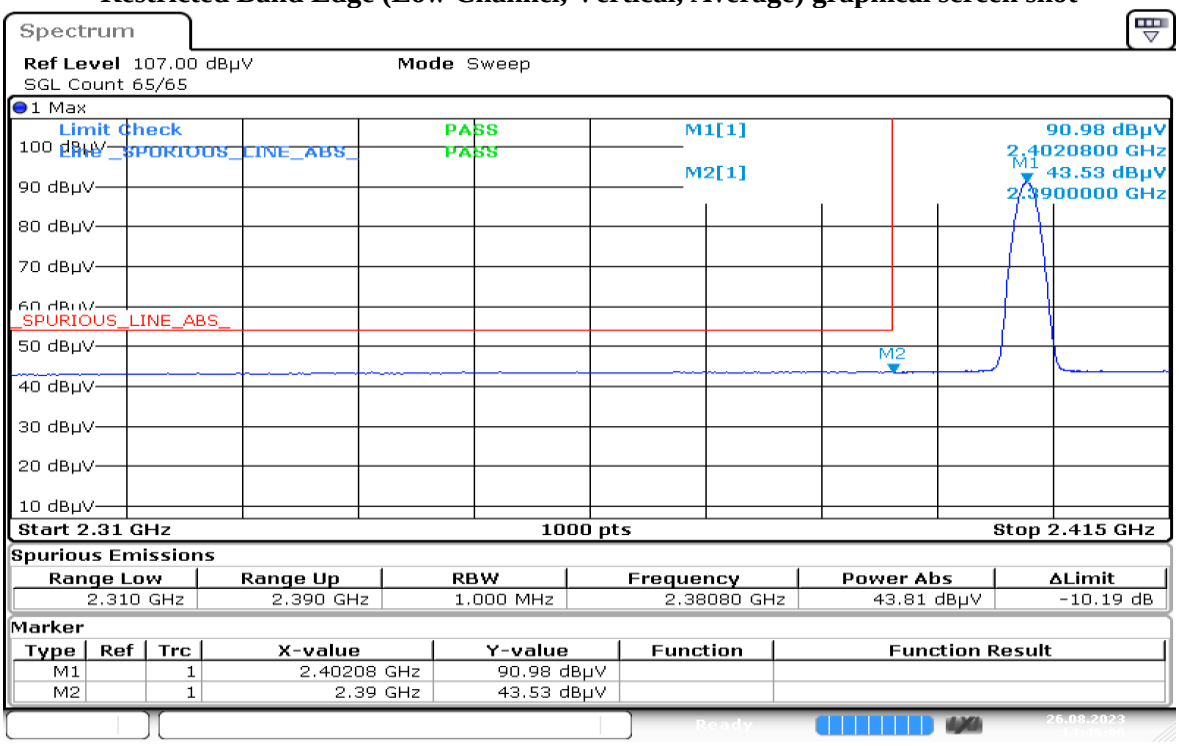
Date: 26.AUG.2023 14:34:37

Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot



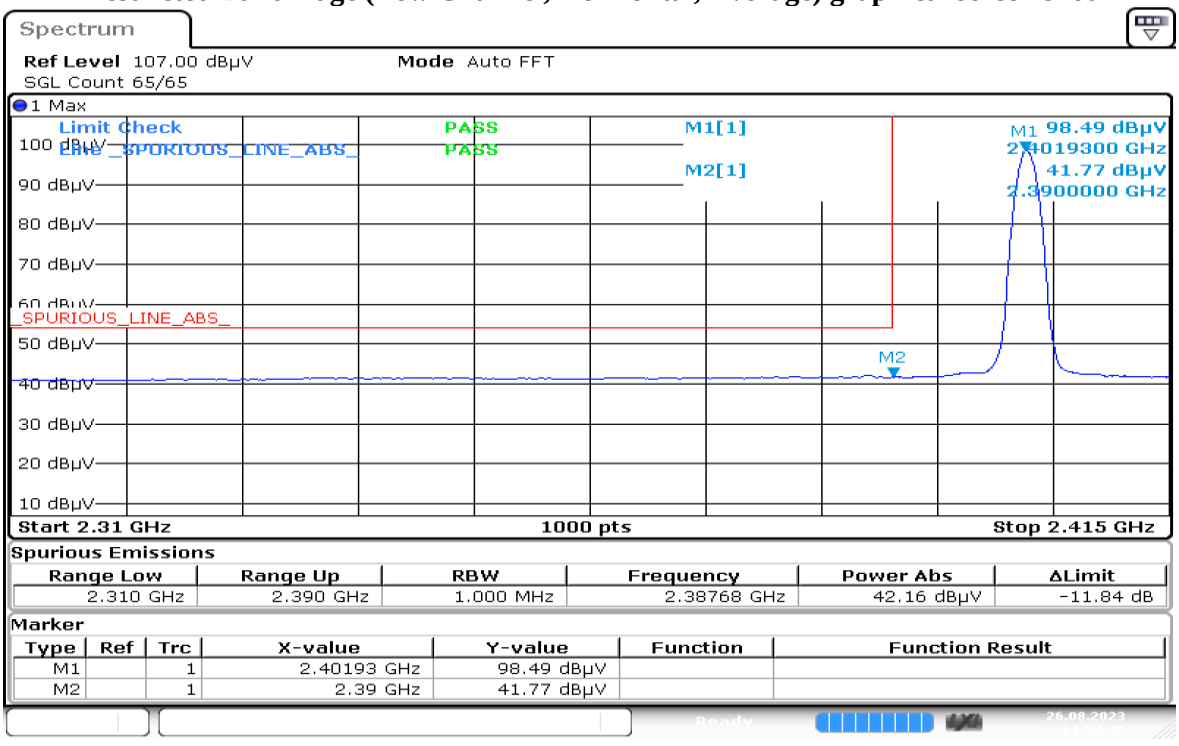
Date: 26.AUG.2023 14:39:20

Restricted Band Edge (Low Channel, Vertical, Average) graphical screen shot



Date: 26.AUG.2023 14:46:06

Restricted Band Edge (Low Channel, Horizontal, Average) graphical screen shot



Date: 26.AUG.2023 14:50:48

Test: Bluetooth SAC Restricted Band Edge
Model Number: T803 **S/N: 17520ZN0252** **EMC SR ID#: 39731-EMC-00035**
Battery: 1532 **Accessory: NA**
Test Channel: High **Test Frequency: 2480.0000 MHz** **Test Standard: ANSI C63.10-2013**
Worst Case Plane: Z-Plane (8DPSK)

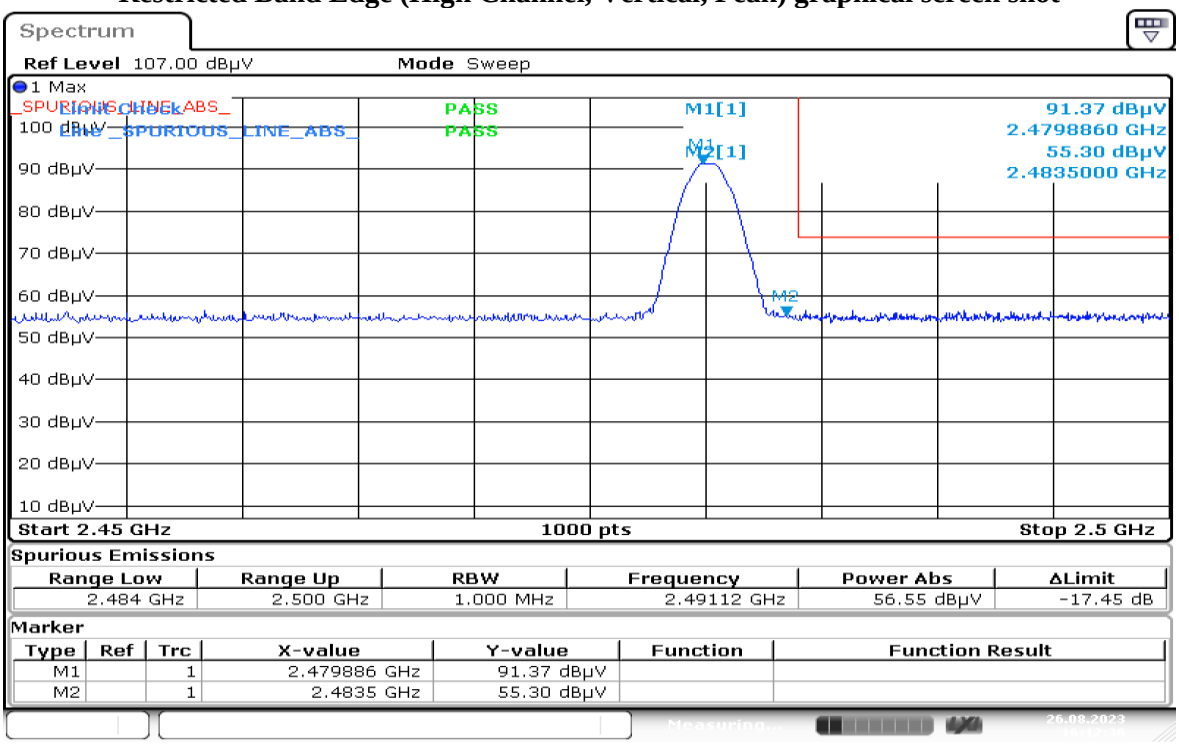
Restricted Band Edge (High Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
2483.5000	-	55.2987	44.7087	-	74.0000	54.0000	-	18.7013	9.2913	-
Horizontal Radiated Emission Result										
2483.5000	-	55.2248	43.8384	-	74.0000	54.0000	-	18.7752	10.1616	-

Remarks: Pass Result	Marginal Result	Fail Result

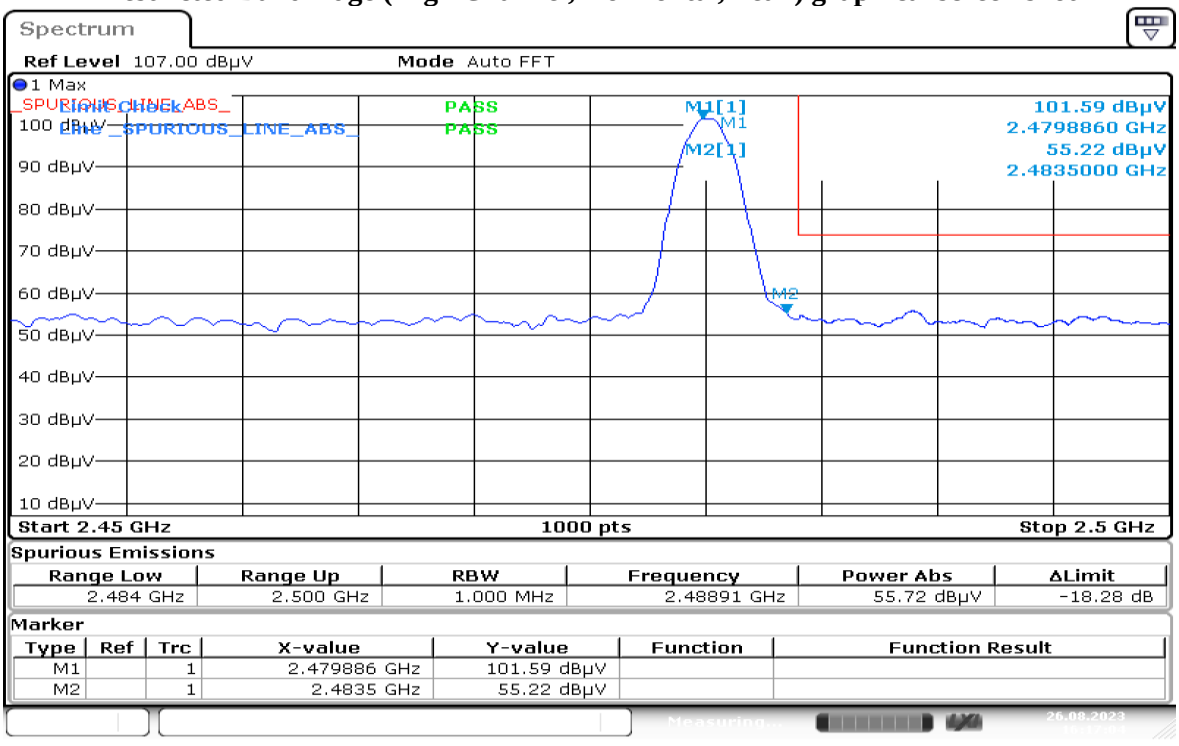
Temperature (degC):22.1 **Humidity (%): 58.4**
Test Performed by: Aiman **Test Date: Sat, 26 Aug, 2023**
System MU: 5.88dB

Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



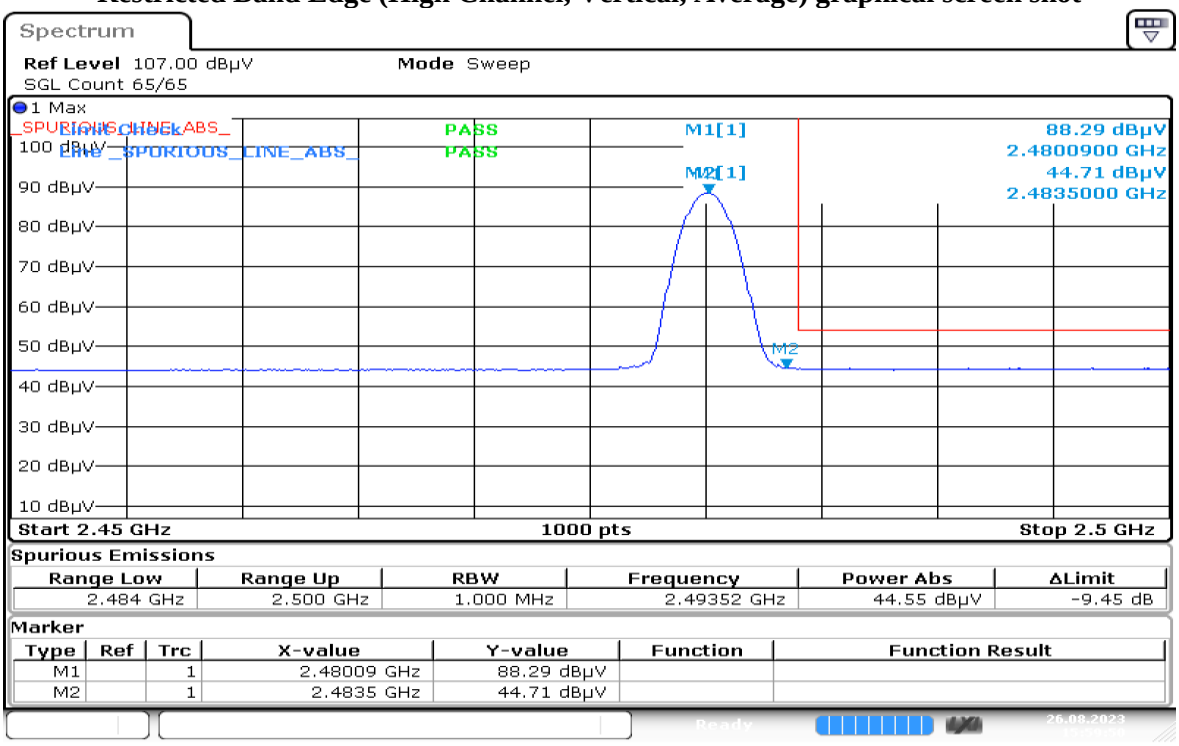
Date: 26.AUG.2023 16:12:36

Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot



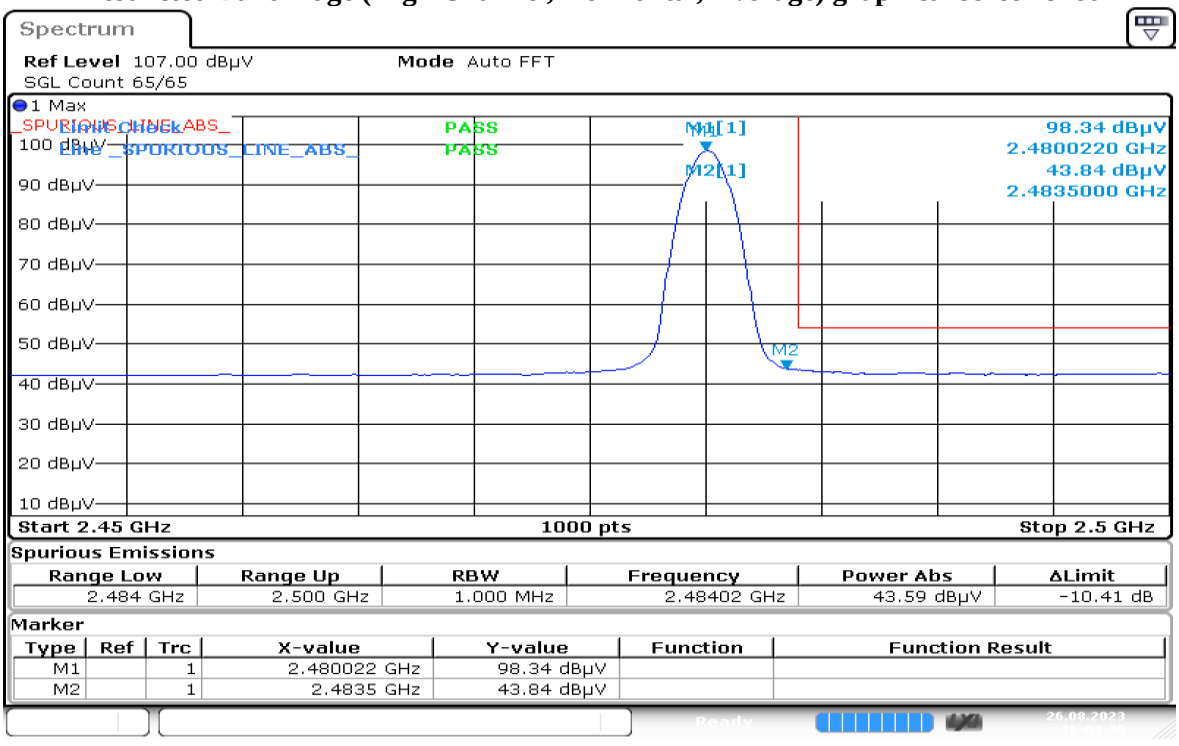
Date: 26.AUG.2023 16:17:05

Restricted Band Edge (High Channel, Vertical, Average) graphical screen shot



Date: 26.AUG.2023 15:59:50

Restricted Band Edge (High Channel, Horizontal, Average) graphical screen shot



Date: 26.AUG.2023 16:03:39

Test: Bluetooth SAC Transmitter Radiated Emission

Model#: T803 **S/N: 17520ZN0252** **EMC SR ID#: 39731-EMC-00035**

Battery: 1532 **Accessory: NA**

Test Channel: Low **Test Frequency: 2402.0000 MHz** **Test Standard: ANSI C63.10-2013**

Worst Case Plane: Z-Plane (GFSK)

Radiated Emission (Low Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4804	-	50.9123**	-	-	74.0000	-	-	23.0877	-	-
7206	-	56.3776**	-	-	79.8652	-	-	23.4876	-	99.8652
9608	-	56.3258**	-	-	79.8652	-	-	23.5394	-	99.8652
12010	-	64.4376**	41.9376**	-	74.0000	54.0000	-	9.5624	12.0624	-
14412	-	63.8453**	-	-	79.8652	-	-	16.0199	-	99.8652
16814	-	64.3373**	-	-	79.8652	-	-	15.5279	-	99.8652
19216	-	39.3983**	-	-	74.0000	-	-	34.6017	-	-
21618	-	40.0696**	-	-	79.8652	-	-	39.7956	-	99.8652
24020	-	40.6077**	-	-	79.8652	-	-	39.2575	-	99.8652
Horizontal Radiated Emission Result										
4804	-	50.3985**	-	-	74.0000	-	-	23.6015	-	-
7206	-	54.3242**	-	-	79.8652	-	-	25.5410	-	99.8652
9608	-	57.8168**	-	-	79.8652	-	-	22.0484	-	99.8652
12010	-	64.1436**	41.6436**	-	74.0000	54.0000	-	9.8564	12.3564	-
14412	-	63.0784**	-	-	79.8652	-	-	16.7868	-	99.8652
16814	-	62.4514**	-	-	79.8652	-	-	17.4138	-	99.8652
19216	-	39.0870**	-	-	74.0000	-	-	34.9130	-	-
21618	-	40.1844**	-	-	79.8652	-	-	39.6808	-	99.8652
24020	-	39.6537**	-	-	79.8652	-	-	40.2115	-	99.8652

Remarks: Pass Result	Marginal Result	Fail Result

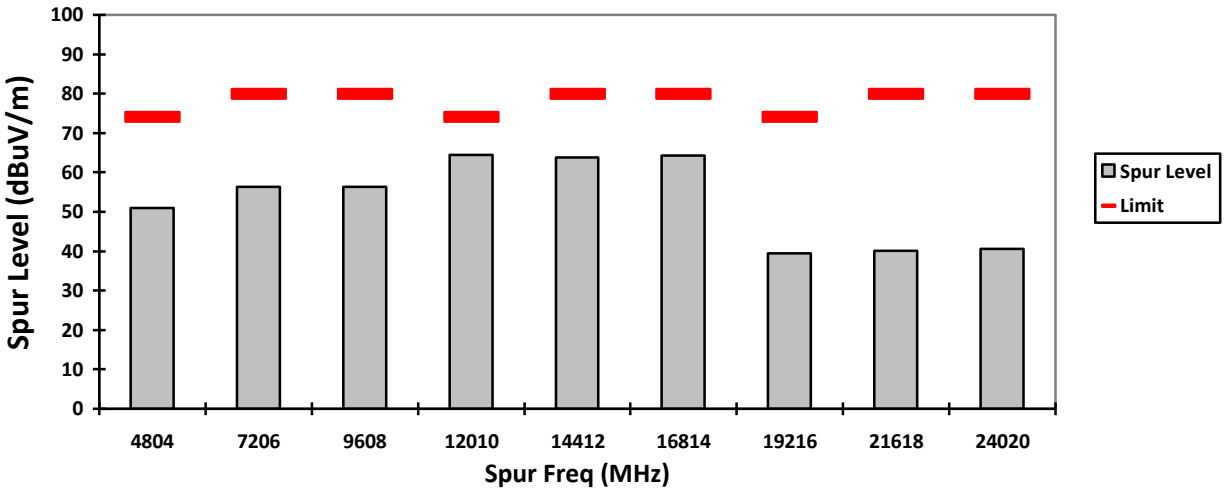
Temperature (degC): 22.1 **Humidity (%): 58.4**

Test Performed by: Aiman **Test Date: Sat, 26 Aug, 2023**

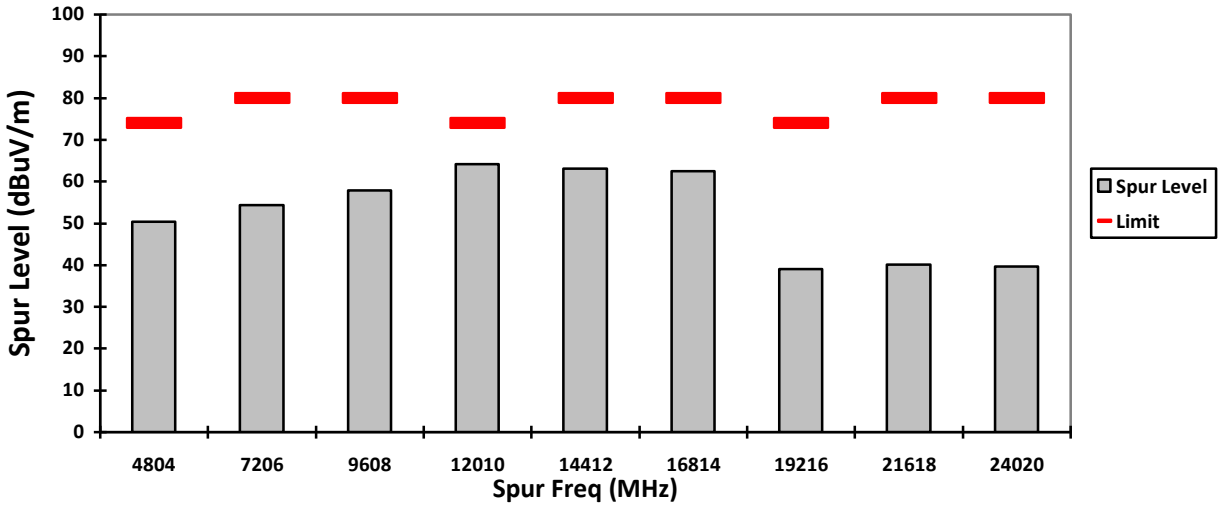
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

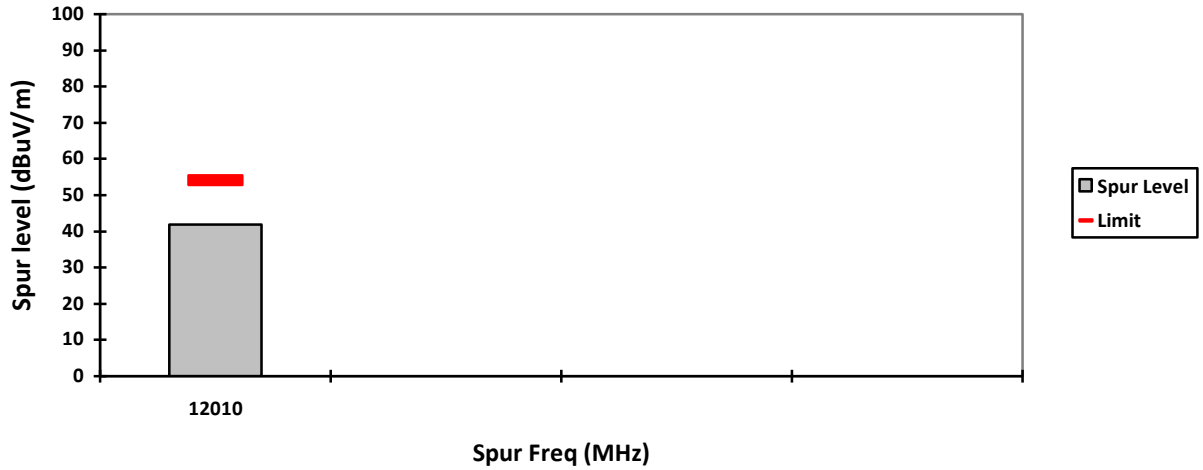
VERTICAL, PK



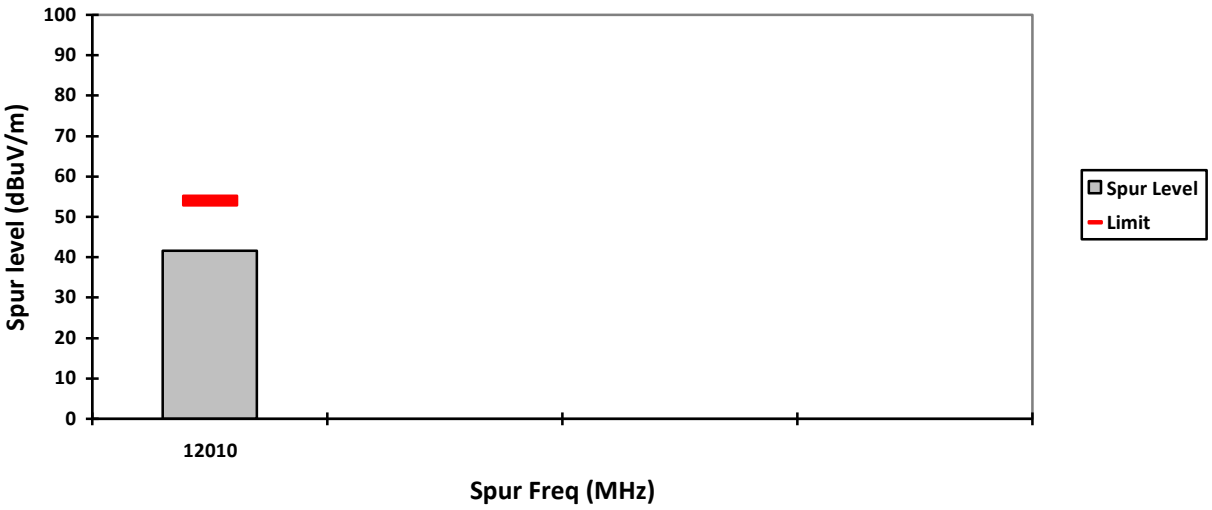
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: Bluetooth SAC Transmitter Radiated Emission

Model#: T803 **S/N: 17520ZN0252** **EMC SR ID#: 39731-EMC-00035**

Battery: 1532 **Accessory: NA**

Test Channel: Mid **Test Frequency: 2441.0000 MHz** **Test Standard: ANSI C63.10-2013**

Worst Case Plane: Z-Plane (GFSK)

Radiated Emission (Mid Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4882	-	50.8023**	-	-	74.0000	-	-	23.1977	-	-
7323	-	61.0186**	38.5186**	-	74.0000	54.0000	-	12.9814	15.4814	-
9764	-	58.2259**	-	-	79.8652	-	-	21.6393	-	99.8652
12205	-	65.0188**	42.5188**	-	74.0000	54.0000	-	8.9812	11.4812	-
14646	-	62.3132**	-	-	79.8652	-	-	17.5520	-	99.8652
17087	-	65.1472**	-	-	79.8652	-	-	14.7180	-	99.8652
19528	-	38.4973**	-	-	74.0000	-	-	35.5027	-	-
21969	-	39.9987**	-	-	79.8652	-	-	39.8665	-	99.8652
24410	-	40.5786**	-	-	79.8652	-	-	39.2866	-	99.8652
Horizontal Radiated Emission Result										
4882	-	50.5738**	-	-	74.0000	-	-	23.4262	-	-
7323	-	60.6671**	38.1671**	-	74.0000	54.0000	-	13.3329	15.8329	-
9764	-	57.8121**	-	-	79.8652	-	-	22.0531	-	99.8652
12205	-	64.7477**	42.2477**	-	74.0000	54.0000	-	9.2523	11.7523	-
14646	-	63.9431**	-	-	79.8652	-	-	15.9221	-	99.8652
17087	-	65.0339**	-	-	79.8652	-	-	14.8313	-	99.8652
19528	-	38.8263**	-	-	74.0000	-	-	35.1737	-	-
21969	-	39.5062**	-	-	79.8652	-	-	40.3590	-	99.8652
24410	-	40.2361**	-	-	79.8652	-	-	39.6291	-	99.8652

Remarks: Pass Result	Marginal Result	Fail Result

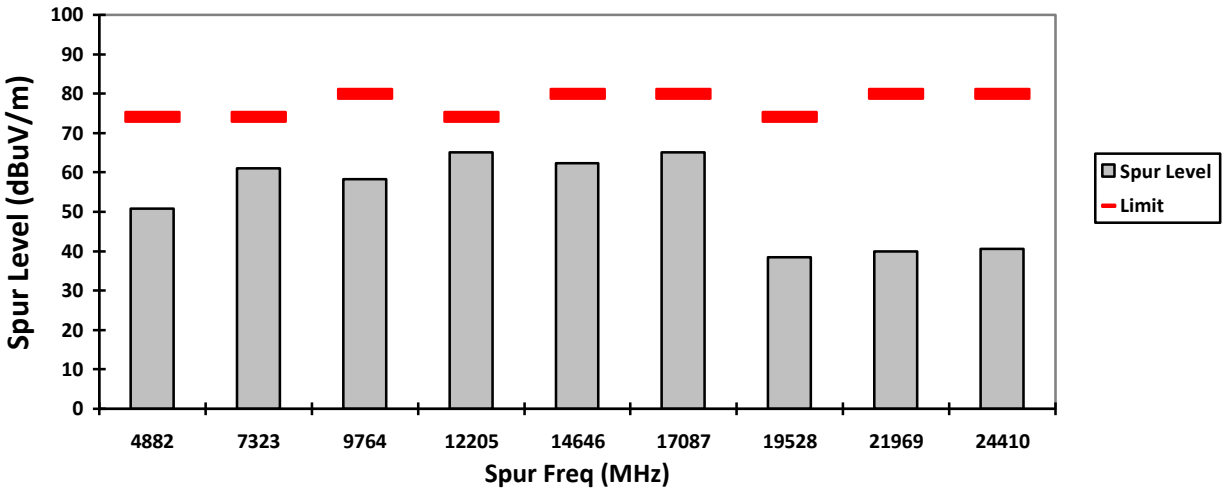
Temperature (degC): 22.1 **Humidity (%): 58.4**

Test Performed by: Aiman **Test Date: Sat, 26 Aug, 2023**

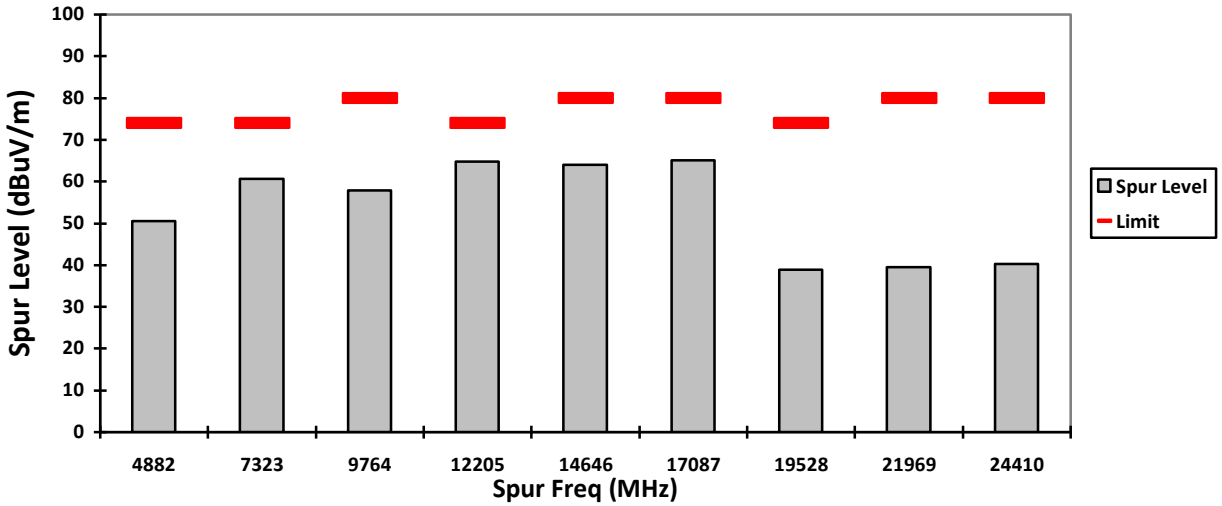
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

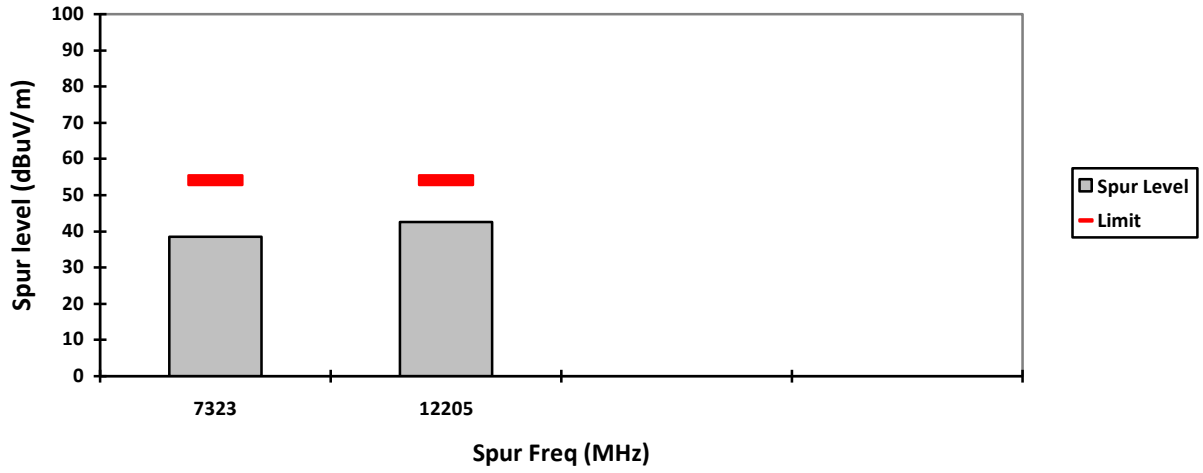
VERTICAL, PK



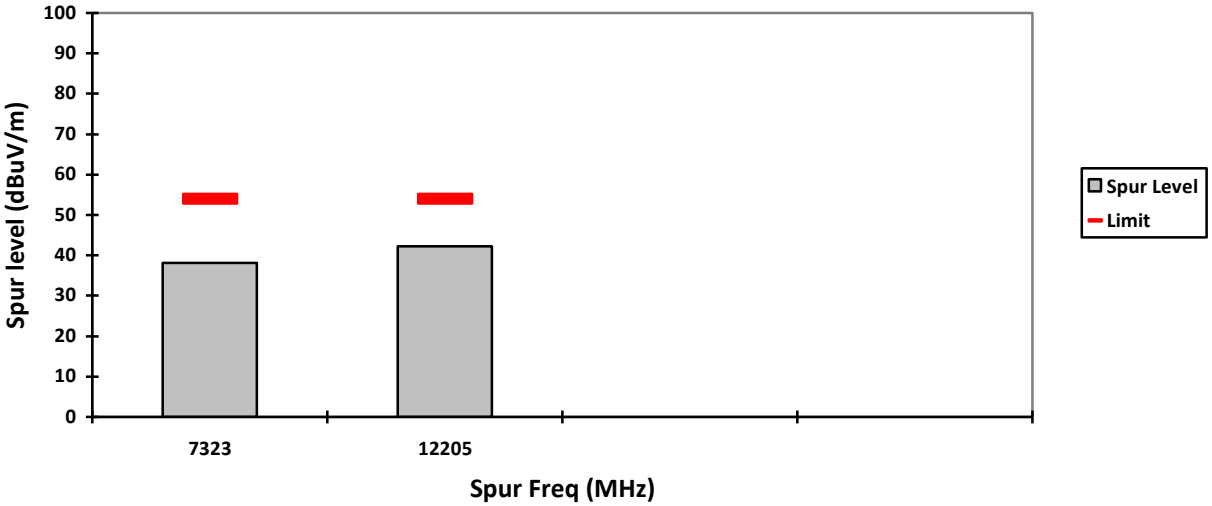
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: Bluetooth SAC Transmitter Radiated Emission

Model#: T803 **S/N: 17520ZN0252** **EMC SR ID#: 39731-EMC-00035**

Battery: 1532 **Accessory: NA**

Test Channel: High **Test Frequency: 2480.0000 MHz** **Test Standard: ANSI C63.10-2013**

Worst Case Plane: Z-Plane (GFSK)

Radiated Emission (High Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4960	-	52.5650**	-	-	74.0000	-	-	21.4350	-	-
7440	-	60.7656**	38.2656**	-	74.0000	54.0000	-	13.2344	15.7344	-
9920	-	58.0221**	-	-	79.8652	-	-	21.8431	-	99.8652
12400	-	65.3295**	42.8295**	-	74.0000	54.0000	-	8.6705	11.1705	-
14880	-	60.4185**	-	-	79.8652	-	-	19.4467	-	99.8652
17360	-	63.5241**	-	-	79.8652	-	-	16.3411	-	99.8652
19840	-	39.1309**	-	-	74.0000	-	-	34.8691	-	-
22320	-	39.5554**	-	-	74.0000	-	-	34.4446	-	-
24800	-	39.9660**	-	-	79.8652	-	-	39.8992	-	99.8652
Horizontal Radiated Emission Result										
4960	-	50.9622**	-	-	74.0000	-	-	23.0378	-	-
7440	-	60.0854**	37.5854**	-	74.0000	54.0000	-	13.9146	16.4146	-
9920	-	58.1209**	-	-	79.8652	-	-	21.7443	-	99.8652
12400	-	64.9362**	42.4362**	-	74.0000	54.0000	-	9.0638	11.5638	-
14880	-	60.2282**	-	-	79.8652	-	-	19.6370	-	99.8652
17360	-	64.2254**	-	-	79.8652	-	-	15.6398	-	99.8652
19840	-	39.2345**	-	-	74.0000	-	-	34.7655	-	-
22320	-	39.7878**	-	-	74.0000	-	-	34.2122	-	-
24800	-	40.4103**	-	-	79.8652	-	-	39.4549	-	99.8652

Remarks: Pass Result	Marginal Result	Fail Result

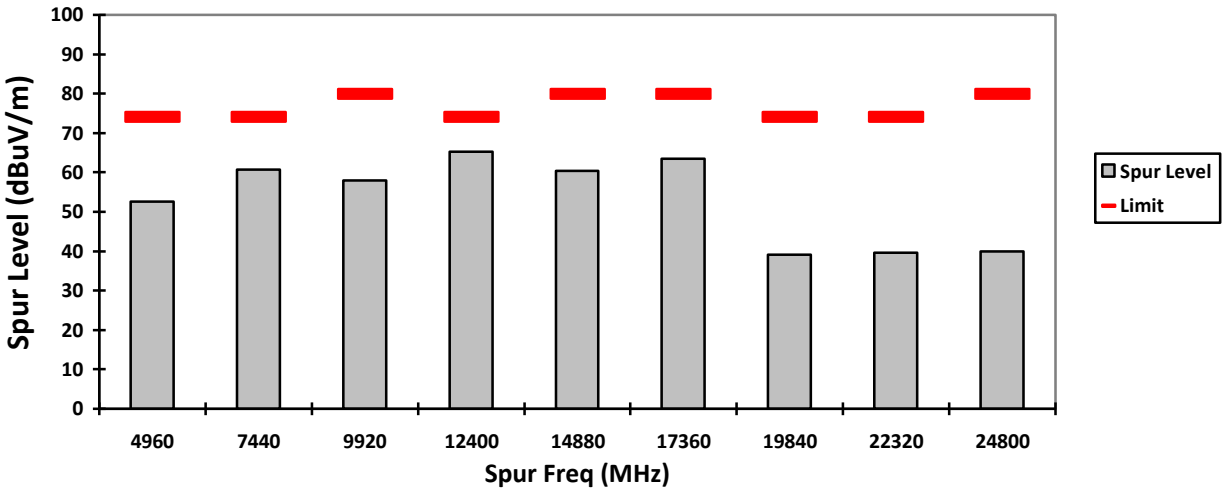
Temperature (degC): 22.1 **Humidity (%): 58.4**

Test Performed by: Aiman **Test Date: Sat, 26 Aug, 2023**

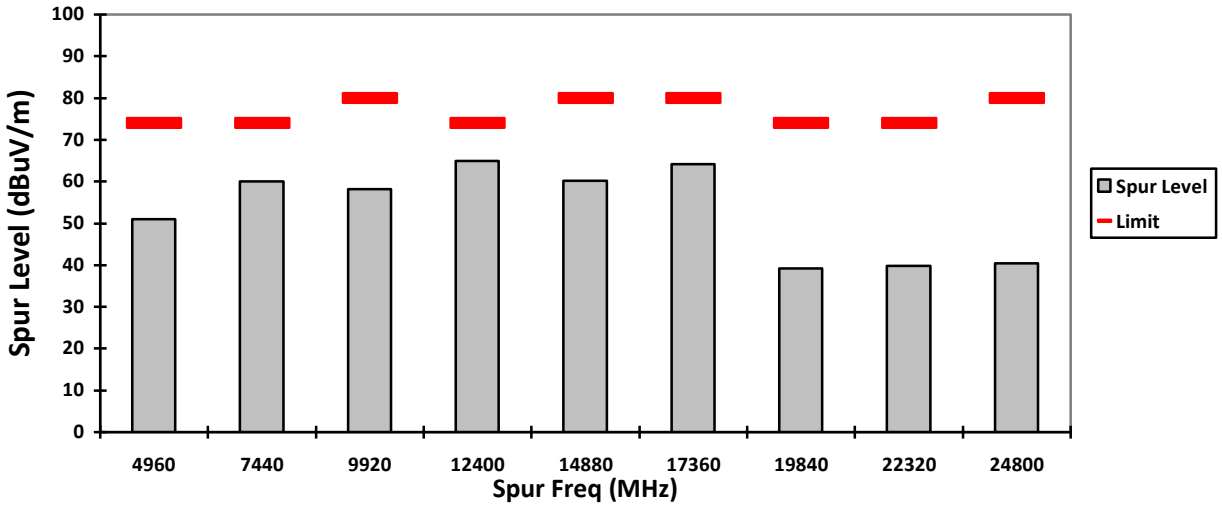
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

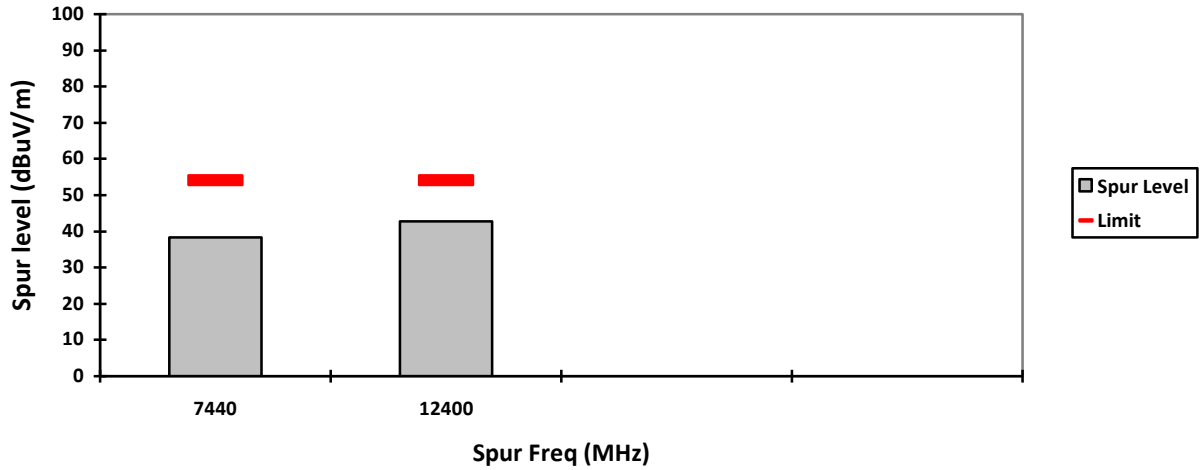
VERTICAL, PK



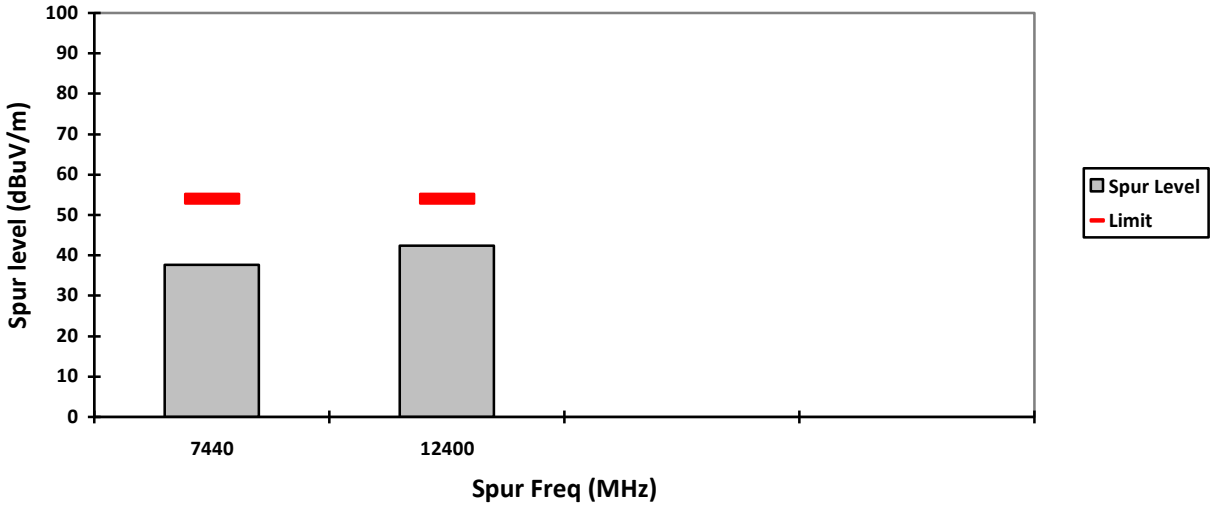
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



NOTE:
Transmitter Duty Cycle Calculation, FCC Rule 15.35 (b,c)

Based on the Bluetooth Specification Version 2.1+EDR, and worst case AFH mode, transmitter ON time is independent of packet type (DH1, DH3 and DH5) and packet length, the AFH mode Duty cycle connection factor as below:

Channel hop rate = 800 hops/second (AFH Mode)
Adjusted channel hop rate for DH5 mode = 133.33 hops/second
Time per channel hop = 1 / 133.33 hops/second = 7.5 ms
Time to cycle through all channels = 7.5 x 20 channels = 150 ms
Number of times transmitter hits on one channel = 100 ms / 150 ms = 1 time(s)
Worst case dwell time = 7.5 ms
Duty cycle connection factor = $20\log_{10}$ (7.5ms / 100ms) = **-22.5 dB**

Test: Bluetooth SAC Transmitter Radiated Emission
Model Number: T803 **S/N: 17520ZN0252** **EMC SR ID#: 39731-EMC-00035**
Battery: 1532 **Accessory: NA**
Test Channel: Low **Test Frequency: 2402.0000 MHz** **Test Standard: ANSI C63.10-2013**
Worst Case Plane: Z-Plane (DQPSK)

Radiated Emission (Low Channel) tabular data

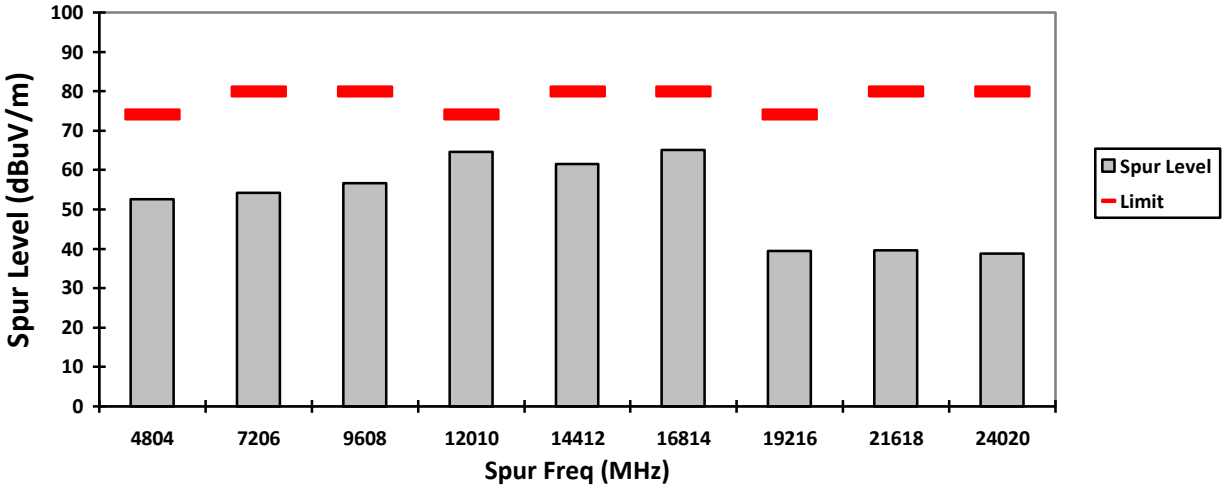
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4804	-	52.5646**	-	-	74.0000	-	-	21.4354	-	-
7206	-	54.1696**	-	-	79.8652	-	-	25.6956	-	99.8652
9608	-	56.6404**	-	-	79.8652	-	-	23.2248	-	99.8652
12010	-	64.6126**	42.1126**	-	74.0000	54.0000	-	9.3874	11.8874	-
14412	-	61.5760**	-	-	79.8652	-	-	18.2892	-	99.8652
16814	-	65.0931**	-	-	79.8652	-	-	14.7721	-	99.8652
19216	-	39.5158**	-	-	74.0000	-	-	34.4842	-	-
21618	-	39.6625**	-	-	79.8652	-	-	40.2027	-	99.8652
24020	-	38.7724**	-	-	79.8652	-	-	41.0928	-	99.8652
Horizontal Radiated Emission Result										
4804	-	50.3992**	-	-	74.0000	-	-	23.6008	-	-
7206	-	55.0330**	-	-	79.8652	-	-	24.8322	-	99.8652
9608	-	57.4815**	-	-	79.8652	-	-	22.3837	-	99.8652
12010	-	64.3676**	41.8676**	-	74.0000	54.0000	-	9.6324	12.1324	-
14412	-	61.9322**	-	-	79.8652	-	-	17.9330	-	99.8652
16814	-	62.5122**	-	-	79.8652	-	-	17.3530	-	99.8652
19216	-	39.2534**	-	-	74.0000	-	-	34.7466	-	-
21618	-	40.7975**	-	-	79.8652	-	-	39.0677	-	99.8652
24020	-	38.4462**	-	-	79.8652	-	-	41.4190	-	99.8652

Remarks: Pass Result	Marginal Result	Fail Result

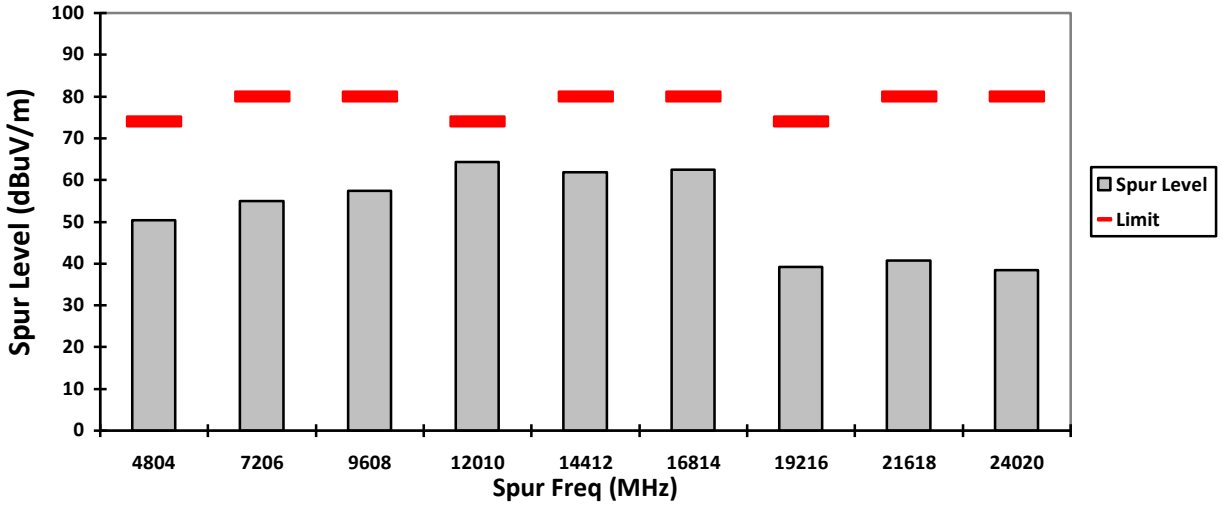
Temperature (degC): 22.1 **Humidity (%): 58.4**
Test Performed by: Aiman **Test Date: Sat, 26 Aug, 2023**
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

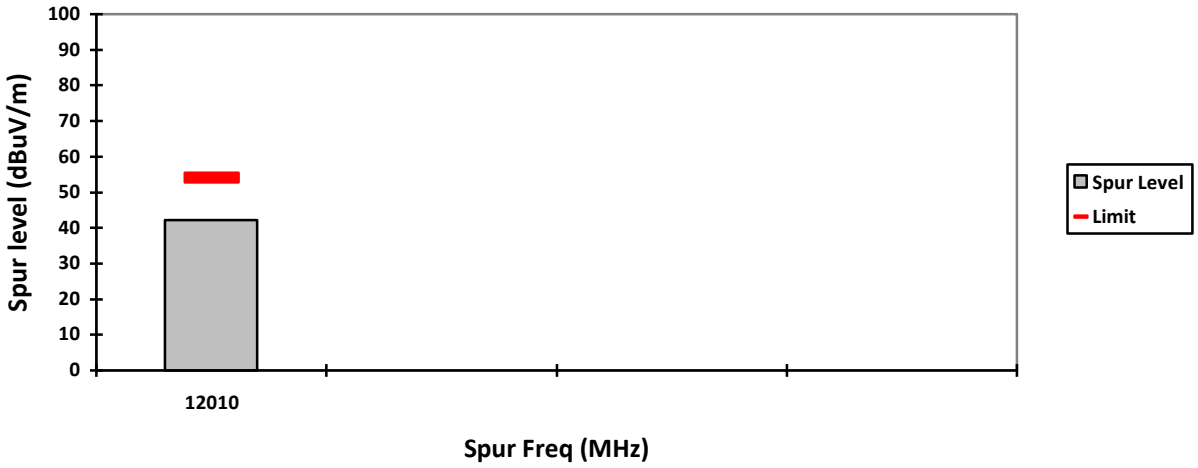
VERTICAL, PK



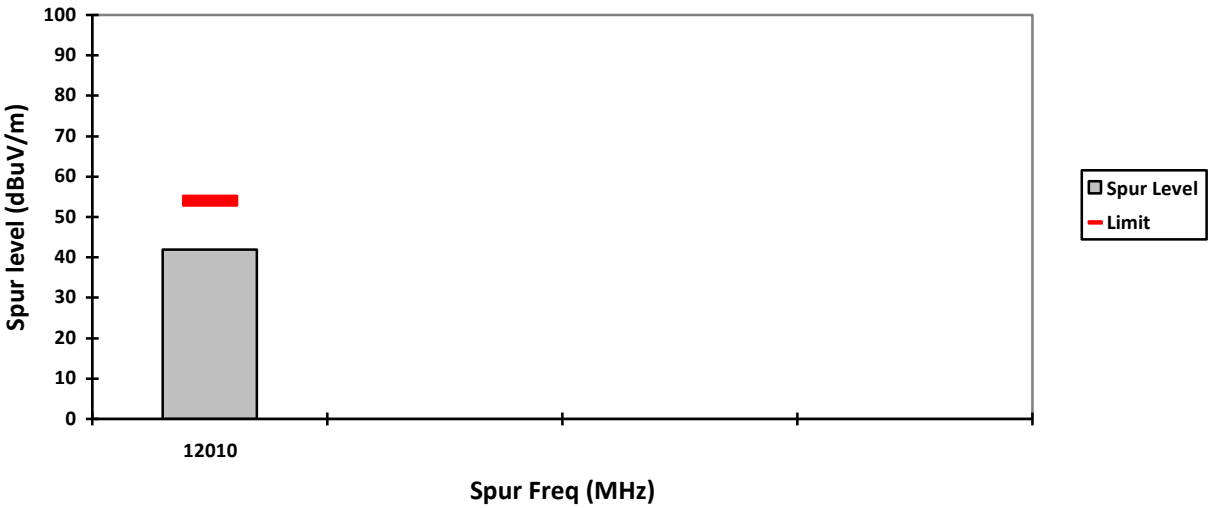
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: Bluetooth SAC Transmitter Radiated Emission
Model Number: T803 **S/N: 17520ZN0252** **EMC SR ID#: 39731-EMC-00035**
Battery: 1532 **Accessory: NA**
Test Channel: Mid **Test Frequency: 2441.0000 MHz** **Test Standard: ANSI C63.10-2013**
Worst Case Plane: Z-Plane (DQPSK)

Radiated Emission (Mid Channel) tabular data

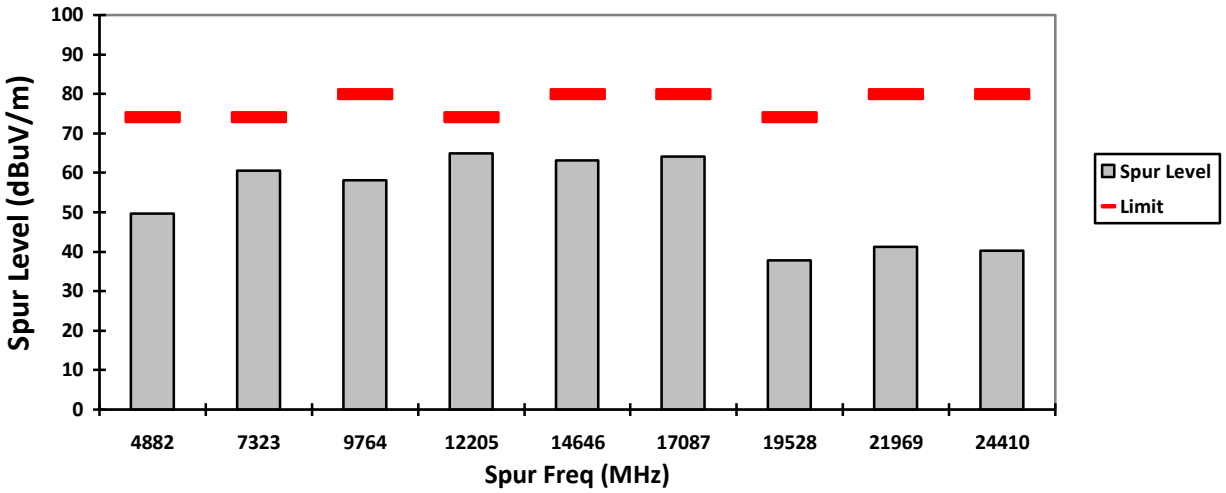
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4882	-	49.7213**	-	-	74.0000	-	-	24.2787	-	-
7323	-	60.5627**	38.0627**	-	74.0000	54.0000	-	13.4373	15.9373	-
9764	-	58.0853**	-	-	79.8652	-	-	21.7799	-	99.8652
12205	-	64.9892**	42.4892**	-	74.0000	54.0000	-	9.0108	11.5108	-
14646	-	63.0940**	-	-	79.8652	-	-	16.7712	-	99.8652
17087	-	64.1368**	-	-	79.8652	-	-	15.7284	-	99.8652
19528	-	37.8487**	-	-	74.0000	-	-	36.1513	-	-
21969	-	41.1711**	-	-	79.8652	-	-	38.6941	-	99.8652
24410	-	40.3113**	-	-	79.8652	-	-	39.5539	-	99.8652
Horizontal Radiated Emission Result										
4882	-	50.5744**	-	-	74.0000	-	-	23.4256	-	-
7323	-	60.9623**	38.4623**	-	74.0000	54.0000	-	13.0377	15.5377	-
9764	-	58.9402**	-	-	79.8652	-	-	20.9250	-	99.8652
12205	-	64.7556**	42.2556**	-	74.0000	54.0000	-	9.2444	11.7444	-
14646	-	64.4538**	-	-	79.8652	-	-	15.4114	-	99.8652
17087	-	64.2193**	-	-	79.8652	-	-	15.6459	-	99.8652
19528	-	39.7551**	-	-	74.0000	-	-	34.2449	-	-
21969	-	40.5120**	-	-	79.8652	-	-	39.3532	-	99.8652
24410	-	40.0338**	-	-	79.8652	-	-	39.8314	-	99.8652

Remarks: Pass Result	Marginal Result	Fail Result

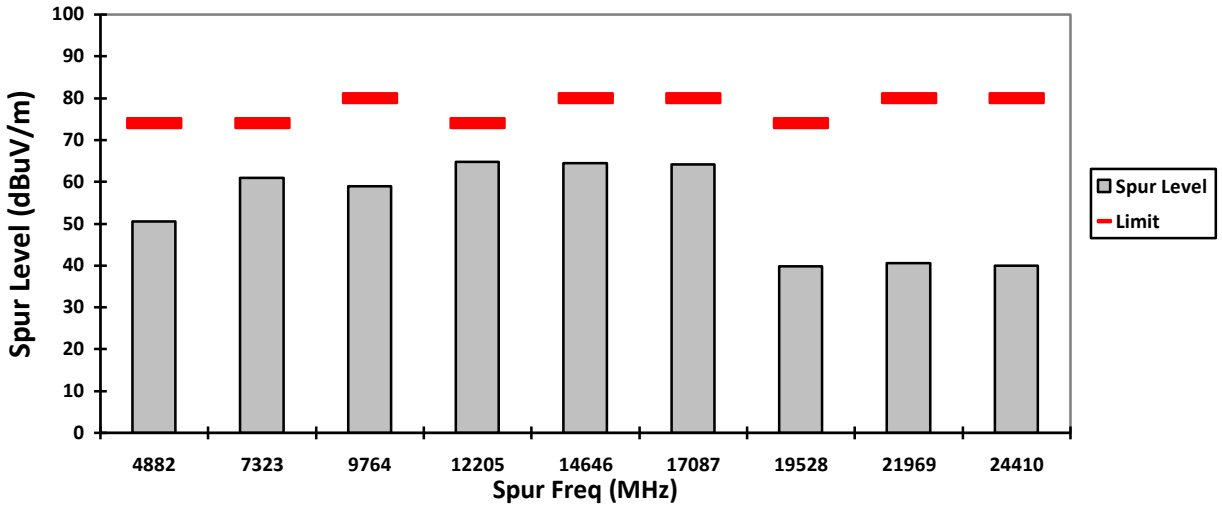
Temperature (degC): 22.1 **Humidity (%): 58.4**
Test Performed by: Aiman **Test Date: Sat, 26 Aug, 2023**
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

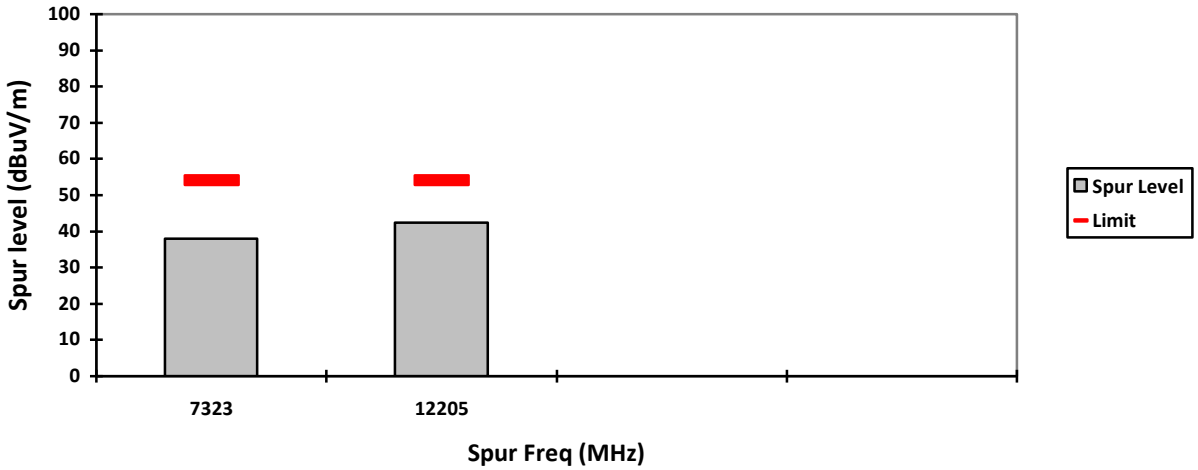
VERTICAL, PK



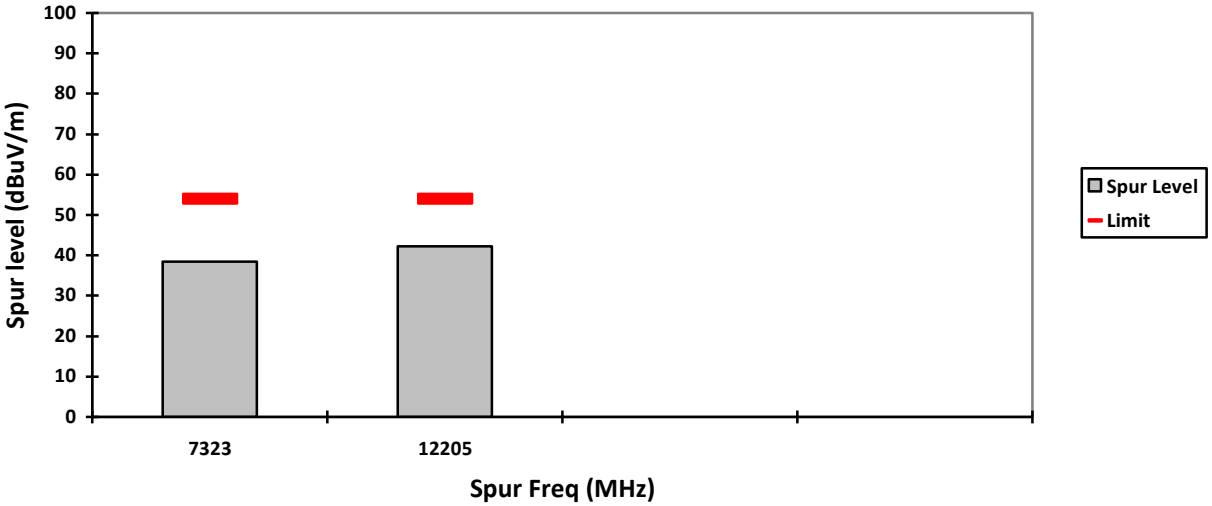
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: Bluetooth SAC Transmitter Radiated Emission
Model Number: T803 **S/N: 17520ZN0252** **EMC SR ID#: 39731-EMC-00035**
Battery: 1532 **Accessory: NA**
Test Channel: High **Test Frequency: 2480.0000 MHz** **Test Standard: ANSI C63.10-2013**
Worst Case Plane: Z-Plane (DQPSK)

Radiated Emission (High Channel) tabular data

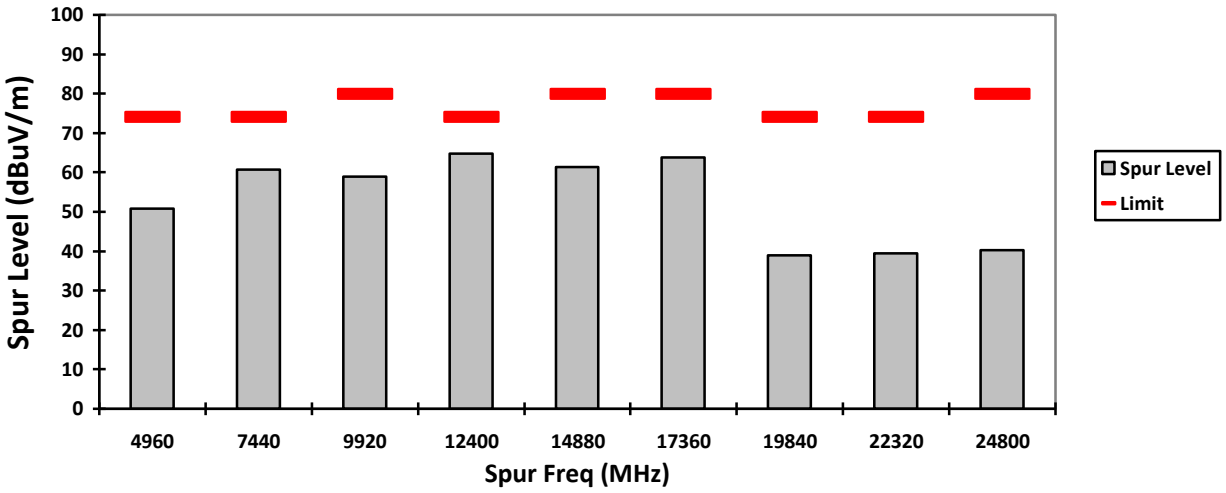
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4960	-	50.7563**	-	-	74.0000	-	-	23.2437	-	-
7440	-	60.6508**	38.1508**	-	74.0000	54.0000	-	13.3492	15.8492	-
9920	-	58.8589**	-	-	79.8652	-	-	21.0063	-	99.8652
12400	-	64.8337**	42.3337**	-	74.0000	54.0000	-	9.1663	11.6663	-
14880	-	61.3332**	-	-	79.8652	-	-	18.5320	-	99.8652
17360	-	63.8192**	-	-	79.8652	-	-	16.0460	-	99.8652
19840	-	38.9097**	-	-	74.0000	-	-	35.0903	-	-
22320	-	39.5287**	-	-	74.0000	-	-	34.4713	-	-
24800	-	40.3213**	-	-	79.8652	-	-	39.5439	-	99.8652
Horizontal Radiated Emission Result										
4960	-	51.1954**	-	-	74.0000	-	-	22.8046	-	-
7440	-	60.3093**	37.8093**	-	74.0000	54.0000	-	13.6907	16.1907	-
9920	-	58.2380**	-	-	79.8652	-	-	21.6272	-	99.8652
12400	-	65.3212**	42.8212**	-	74.0000	54.0000	-	8.6788	11.1788	-
14880	-	60.6007**	-	-	79.8652	-	-	19.2645	-	99.8652
17360	-	64.8498**	-	-	79.8652	-	-	15.0154	-	99.8652
19840	-	40.1253**	-	-	74.0000	-	-	33.8747	-	-
22320	-	39.7688**	-	-	74.0000	-	-	34.2312	-	-
24800	-	39.7459**	-	-	79.8652	-	-	40.1193	-	99.8652

Remarks: Pass Result	Marginal Result	Fail Result

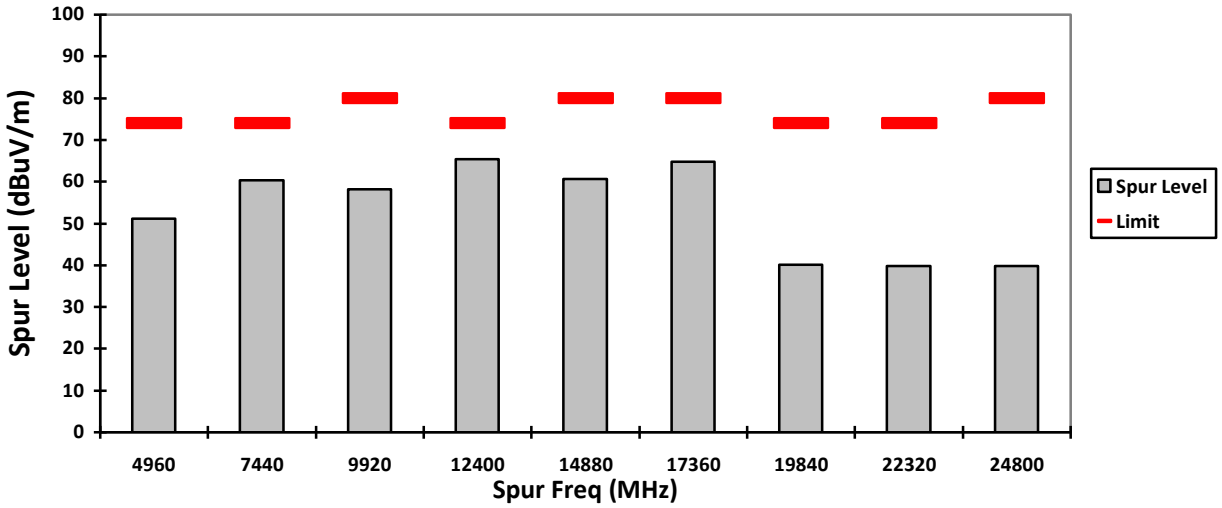
Temperature (degC): 22.1 **Humidity (%): 58.4**
Test Performed by: Aiman **Test Date: Sat, 26 Aug, 2023**
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

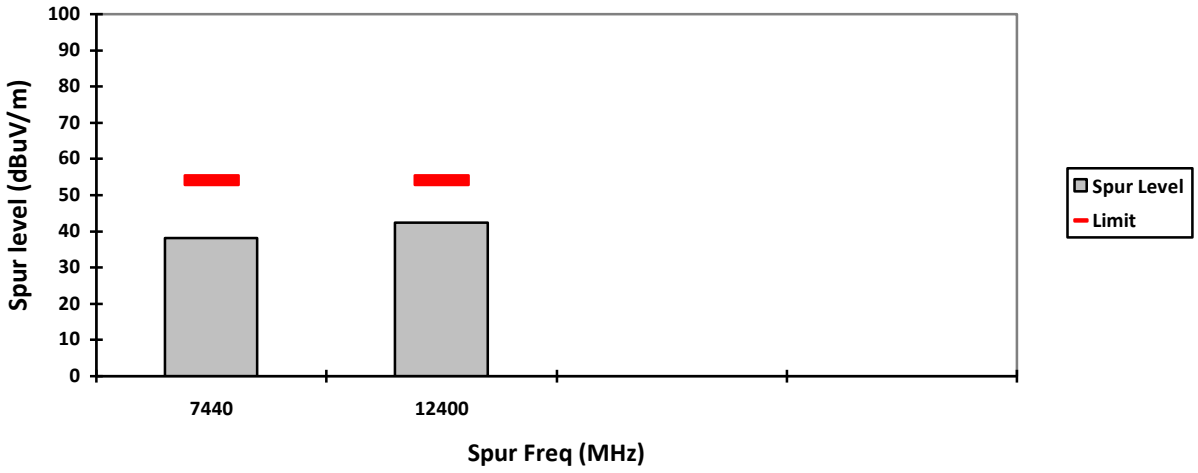
VERTICAL, PK



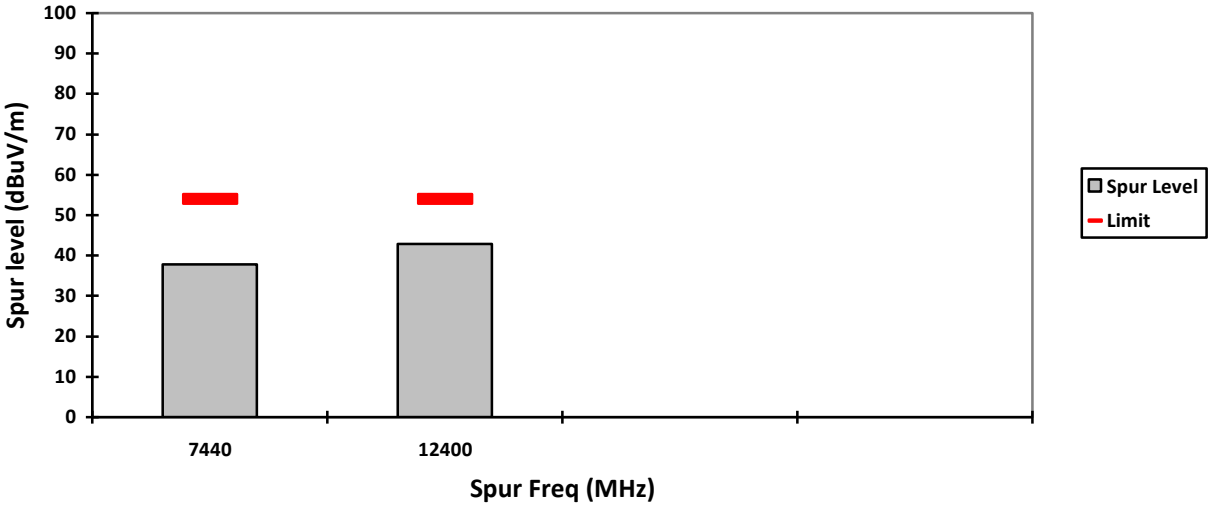
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



NOTE:
Transmitter Duty Cycle Calculation, FCC Rule 15.35 (b,c)

Based on the Bluetooth Specification Version 2.1+EDR, and worst case AFH mode, transmitter ON time is independent of packet type (DH1, DH3 and DH5) and packet length, the AFH mode Duty cycle connection factor as below:

Channel hop rate = 800 hops/second (AFH Mode)
Adjusted channel hop rate for DH5 mode = 133.33 hops/second
Time per channel hop = 1 / 133.33 hops/second = 7.5 ms
Time to cycle through all channels = 7.5 x 20 channels = 150 ms
Number of times transmitter hits on one channel = 100 ms / 150 ms = 1 time(s)
Worst case dwell time = 7.5 ms
Duty cycle connection factor = $20\log_{10}$ (7.5ms / 100ms) = **-22.5 dB**

Test: Bluetooth SAC Transmitter Radiated Emission

Model#: T803 **S/N: 17520ZN0252** **EMC SR ID#: 39731-EMC-00035**

Battery: 1532 **Accessory: NA**

Test Channel: Low **Test Frequency: 2402.0000 MHz** **Test Standard: ANSI C63.10-2013**

Worst Case Plane: Z-Plane (8DPSK)

Radiated Emission (Low Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4804	-	50.8050**	-	-	74.0000	-	-	23.1950	-	-
7206	-	54.6334**	-	-	79.8652	-	-	25.2318	-	99.8652
9608	-	58.6005**	-	-	79.8652	-	-	21.2647	-	99.8652
12010	-	64.6158**	42.1158**	-	74.0000	54.0000	-	9.3842	11.8842	-
14412	-	62.0778**	-	-	79.8652	-	-	17.7874	-	99.8652
16814	-	62.9450**	-	-	79.8652	-	-	16.9202	-	99.8652
19216	-	40.6752**	-	-	74.0000	-	-	33.3248	-	-
21618	-	39.8651**	-	-	79.8652	-	-	40.0001	-	99.8652
24020	-	39.0826**	-	-	79.8652	-	-	40.7826	-	99.8652
Horizontal Radiated Emission Result										
4804	-	50.9896**	-	-	74.0000	-	-	23.0104	-	-
7206	-	55.2124**	-	-	79.8652	-	-	24.6528	-	99.8652
9608	-	57.0181**	-	-	79.8652	-	-	22.8471	-	99.8652
12010	-	64.4250**	41.9250**	-	74.0000	54.0000	-	9.5750	12.0750	-
14412	-	62.2042**	-	-	79.8652	-	-	17.6610	-	99.8652
16814	-	63.0877**	-	-	79.8652	-	-	16.7775	-	99.8652
19216	-	39.3630**	-	-	74.0000	-	-	34.6370	-	-
21618	-	39.4473**	-	-	79.8652	-	-	40.4179	-	99.8652
24020	-	38.7959**	-	-	79.8652	-	-	41.0693	-	99.8652

Remarks: Pass Result	Marginal Result	Fail Result

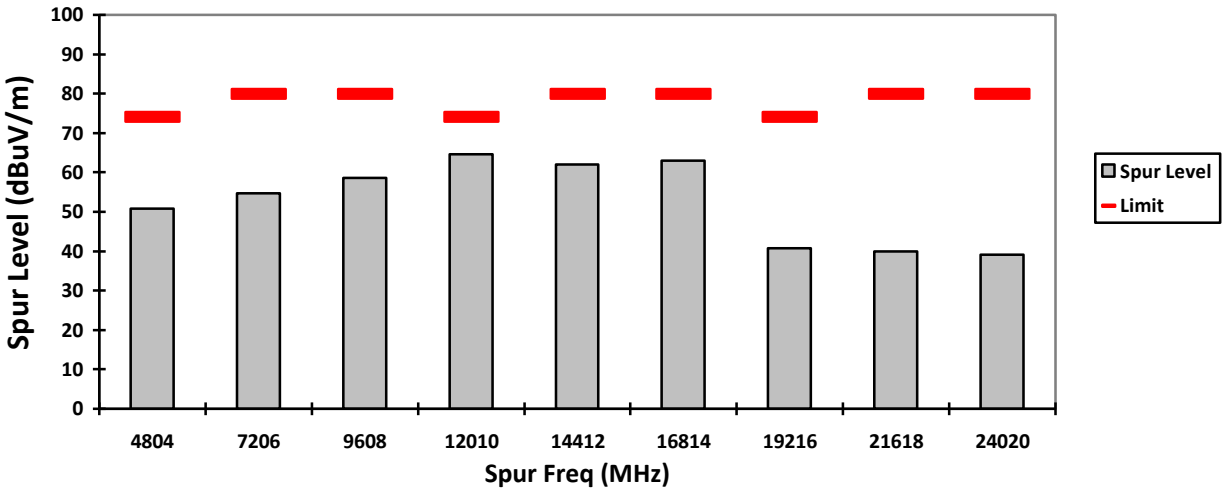
Temperature (degC): 22.1 **Humidity (%): 58.4**

Test Performed by: Aiman **Test Date: Sat, 26 Aug, 2023**

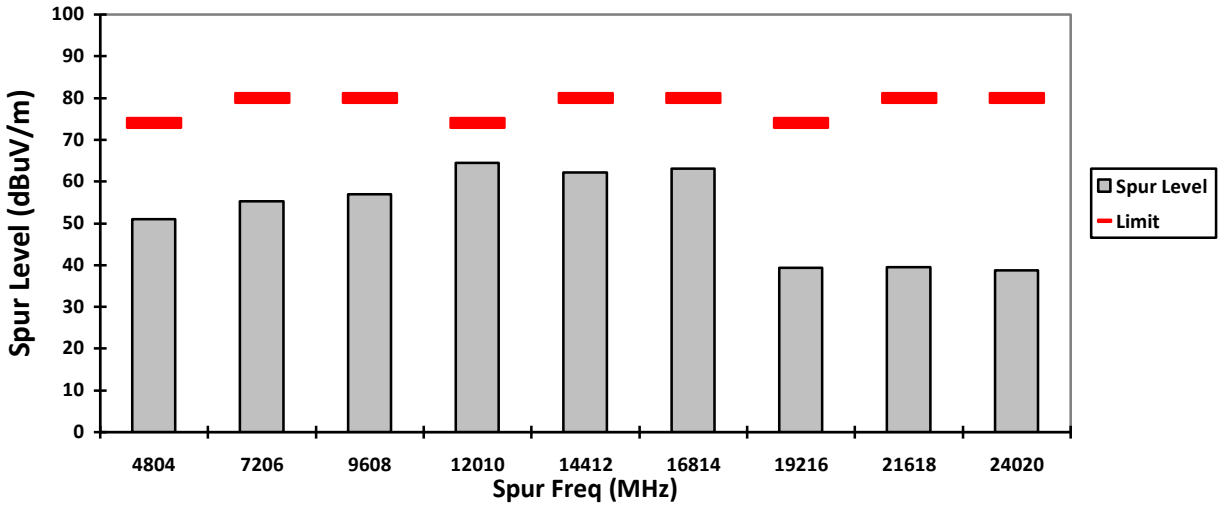
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

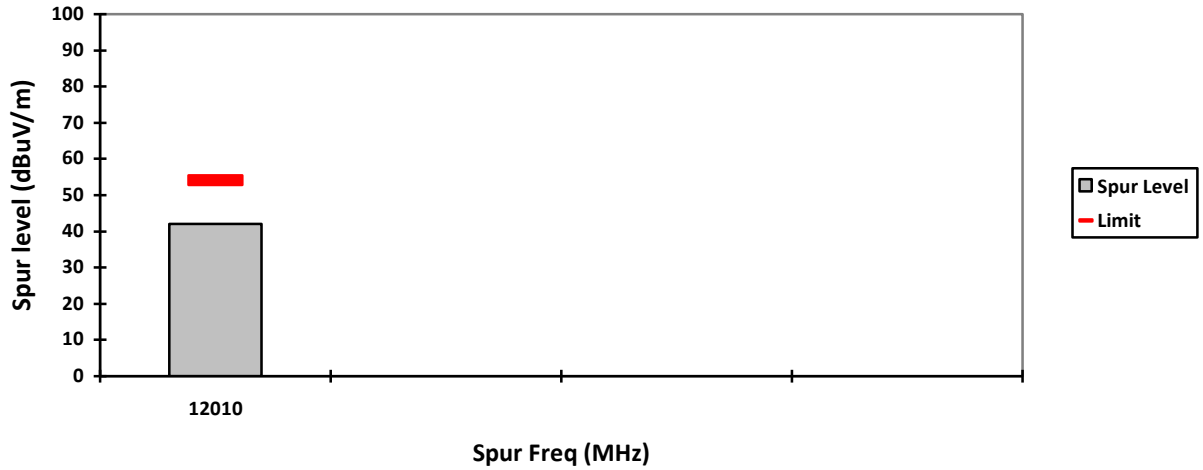
VERTICAL, PK



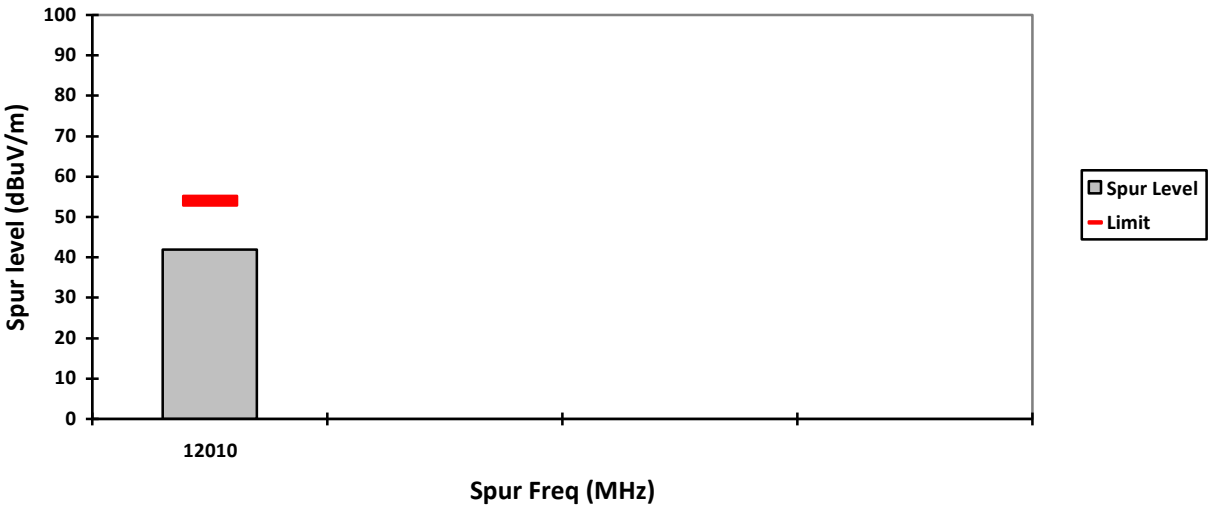
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: Bluetooth SAC Transmitter Radiated Emission

Model#: T803 **S/N: 17520ZN0252** **EMC SR ID#: 39731-EMC-00035**

Battery: 1532 **Accessory: NA**

Test Channel: Mid **Test Frequency: 2441.0000 MHz** **Test Standard: ANSI C63.10-2013**

Worst Case Plane: Z-Plane (8DPSK)

Radiated Emission (Mid Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4882	-	50.7138**	-	-	74.0000	-	-	23.2862	-	-
7323	-	60.7017**	38.2017**	-	74.0000	54.0000	-	13.2983	15.7983	-
9764	-	56.7537**	-	-	79.8652	-	-	23.1115	-	99.8652
12205	-	65.3069**	42.8069**	-	74.0000	54.0000	-	8.6931	11.1931	-
14646	-	63.5314**	-	-	79.8652	-	-	16.3338	-	99.8652
17087	-	65.4686**	-	-	79.8652	-	-	14.3966	-	99.8652
19528	-	39.3449**	-	-	74.0000	-	-	34.6551	-	-
21969	-	40.8657**	-	-	79.8652	-	-	38.9995	-	99.8652
24410	-	39.6265**	-	-	79.8652	-	-	40.2387	-	99.8652
Horizontal Radiated Emission Result										
4882	-	49.9857**	-	-	74.0000	-	-	24.0143	-	-
7323	-	60.9915**	38.4915**	-	74.0000	54.0000	-	13.0085	15.5085	-
9764	-	58.9277**	-	-	79.8652	-	-	20.9375	-	99.8652
12205	-	64.8627**	42.3627**	-	74.0000	54.0000	-	9.1373	11.6373	-
14646	-	64.6360**	-	-	79.8652	-	-	15.2292	-	99.8652
17087	-	65.0607**	-	-	79.8652	-	-	14.8045	-	99.8652
19528	-	39.9017**	-	-	74.0000	-	-	34.0983	-	-
21969	-	40.5318**	-	-	79.8652	-	-	39.3334	-	99.8652
24410	-	41.0702**	-	-	79.8652	-	-	38.7950	-	99.8652

Remarks: Pass Result	Marginal Result	Fail Result

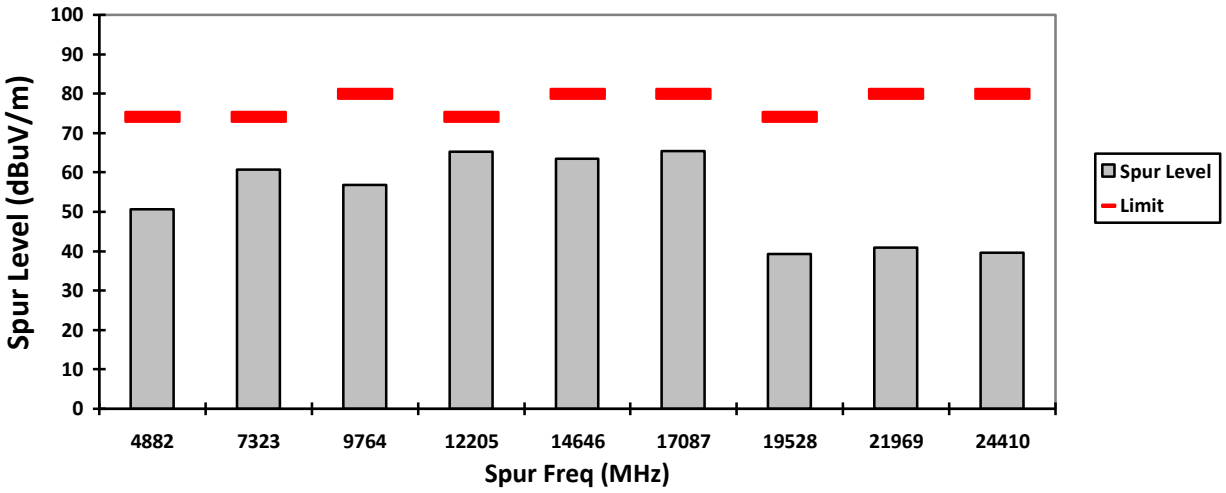
Temperature (degC): 22.1 **Humidity (%): 58.4**

Test Performed by: Aiman **Test Date: Sat, 26 Aug, 2023**

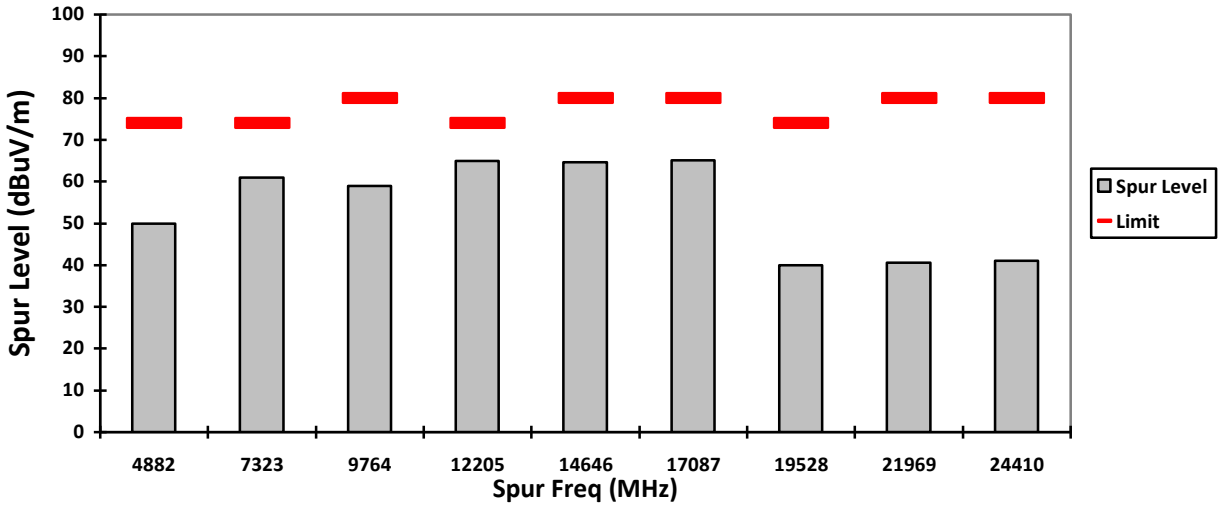
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

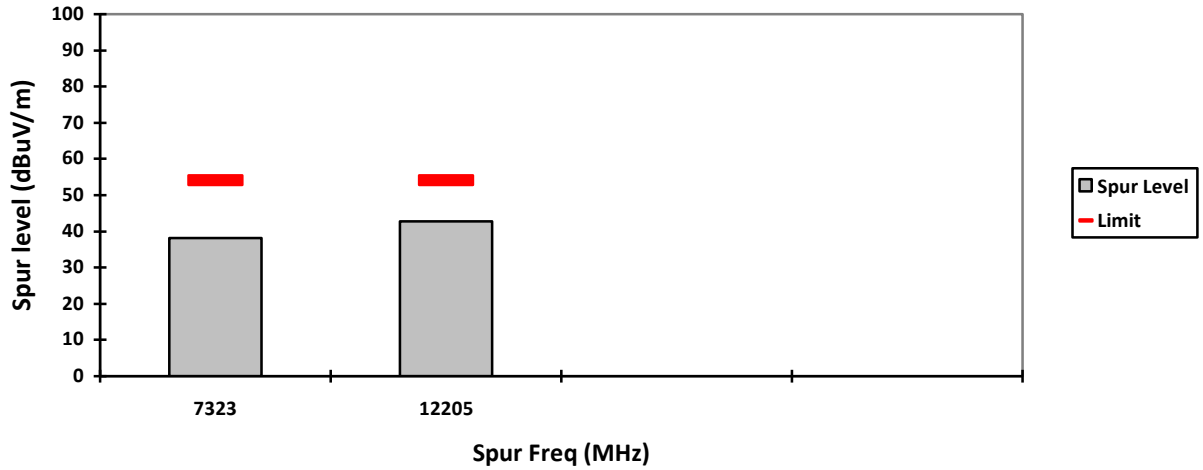
VERTICAL, PK



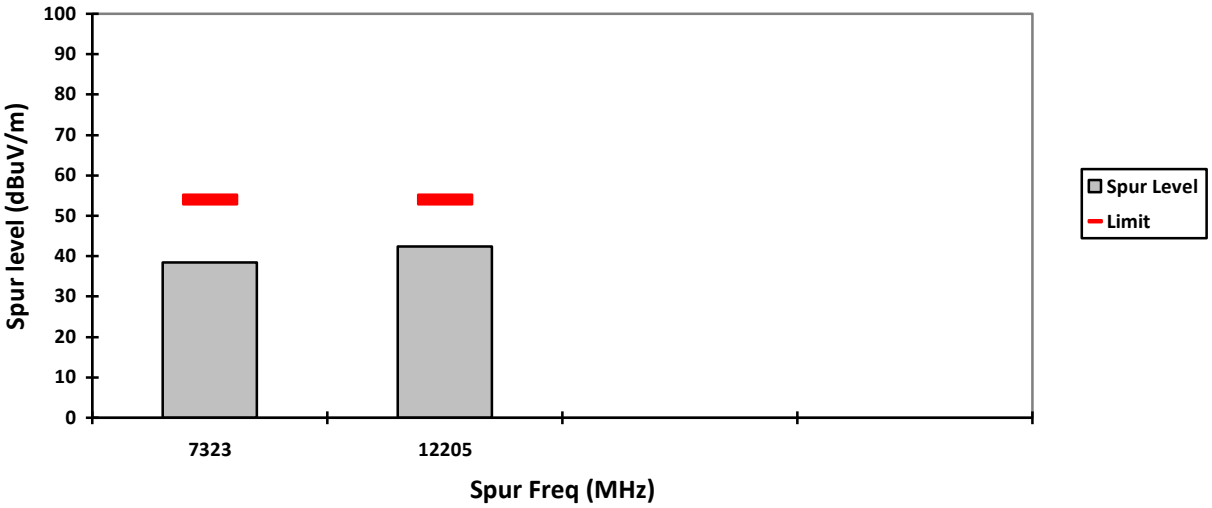
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: Bluetooth SAC Transmitter Radiated Emission

Model#: T803 **S/N: 17520ZN0252** **EMC SR ID#: 39731-EMC-00035**

Battery: 1532 **Accessory: NA**

Test Channel: High **Test Frequency: 2480.0000 MHz** **Test Standard: ANSI C63.10-2013**

Worst Case Plane: Z-Plane (8DPSK)

Radiated Emission (High Channel) tabular data

Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
4960	-	50.2759**	-	-	74.0000	-	-	23.7241	-	-
7440	-	60.4126**	37.9126**	-	74.0000	54.0000	-	13.5874	16.0874	-
9920	-	58.0402**	-	-	79.8652	-	-	21.8250	-	99.8652
12400	-	65.0499**	42.5499**	-	74.0000	54.0000	-	8.9501	11.4501	-
14880	-	60.9266**	-	-	79.8652	-	-	18.9386	-	99.8652
17360	-	63.6235**	-	-	79.8652	-	-	16.2417	-	99.8652
19840	-	39.2173**	-	-	74.0000	-	-	34.7827	-	-
22320	-	40.3759**	-	-	74.0000	-	-	33.6241	-	-
24800	-	39.9655**	-	-	79.8652	-	-	39.8997	-	99.8652
Horizontal Radiated Emission Result										
4960	-	50.8184**	-	-	74.0000	-	-	23.1816	-	-
7440	-	60.9767**	38.4767**	-	74.0000	54.0000	-	13.0233	15.5233	-
9920	-	58.1182**	-	-	79.8652	-	-	21.7470	-	99.8652
12400	-	65.5434**	43.0434**	-	74.0000	54.0000	-	8.4566	10.9566	-
14880	-	60.4616**	-	-	79.8652	-	-	19.4036	-	99.8652
17360	-	64.5334**	-	-	79.8652	-	-	15.3318	-	99.8652
19840	-	40.9502**	-	-	74.0000	-	-	33.0498	-	-
22320	-	40.3113**	-	-	74.0000	-	-	33.6887	-	-
24800	-	39.6400**	-	-	79.8652	-	-	40.2252	-	99.8652

Remarks: Pass Result	Marginal Result	Fail Result

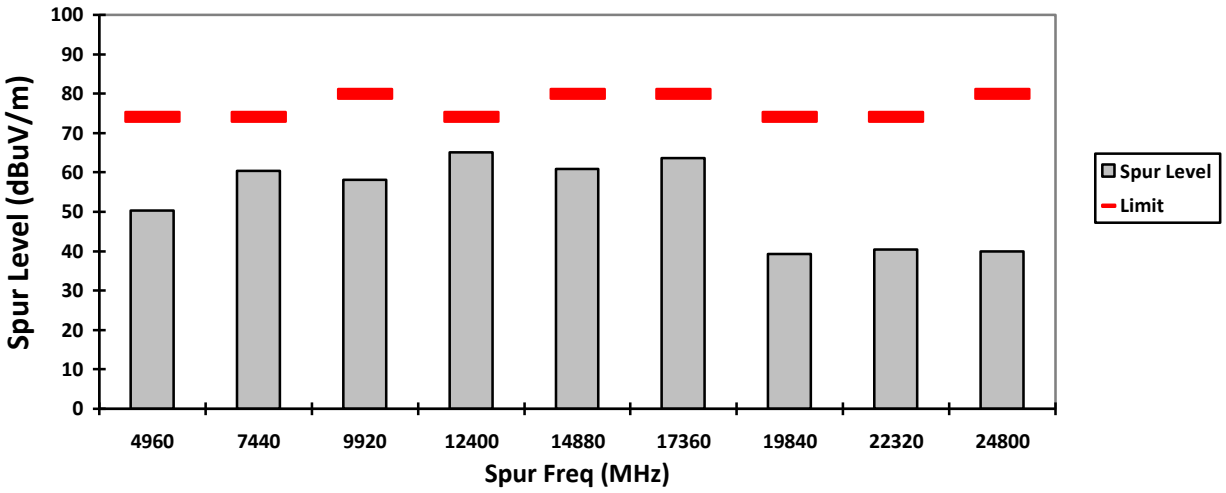
Temperature (degC): 22.1 **Humidity (%): 58.4**

Test Performed by: Aiman **Test Date: Sat, 26 Aug, 2023**

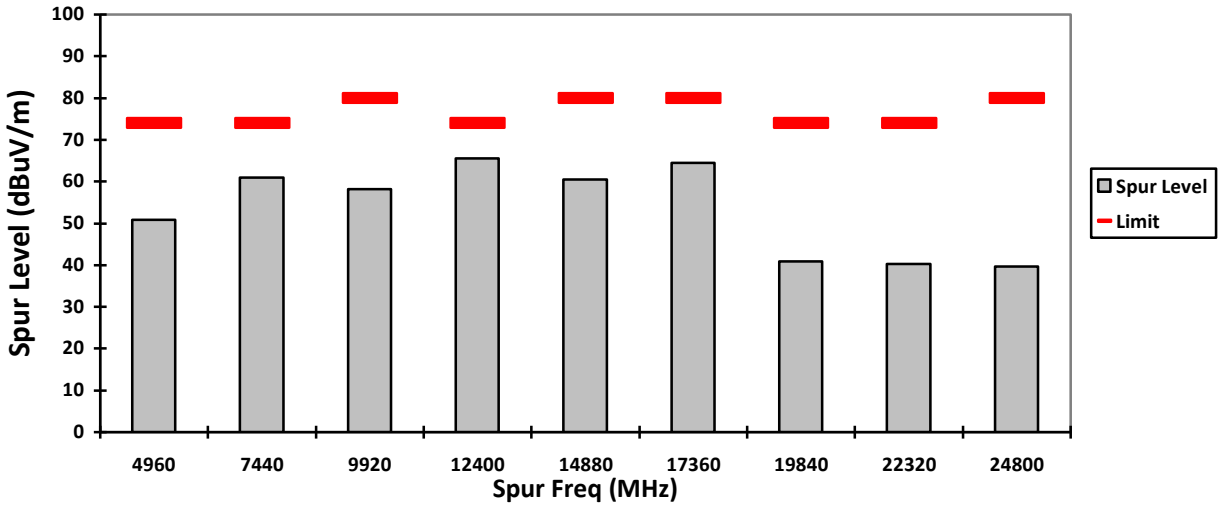
System MU: 5.88 dB (30-1000MHz), 5.84 dB (1000-18000MHz), 6.02 dB (18000MHz-40000MHz)

Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

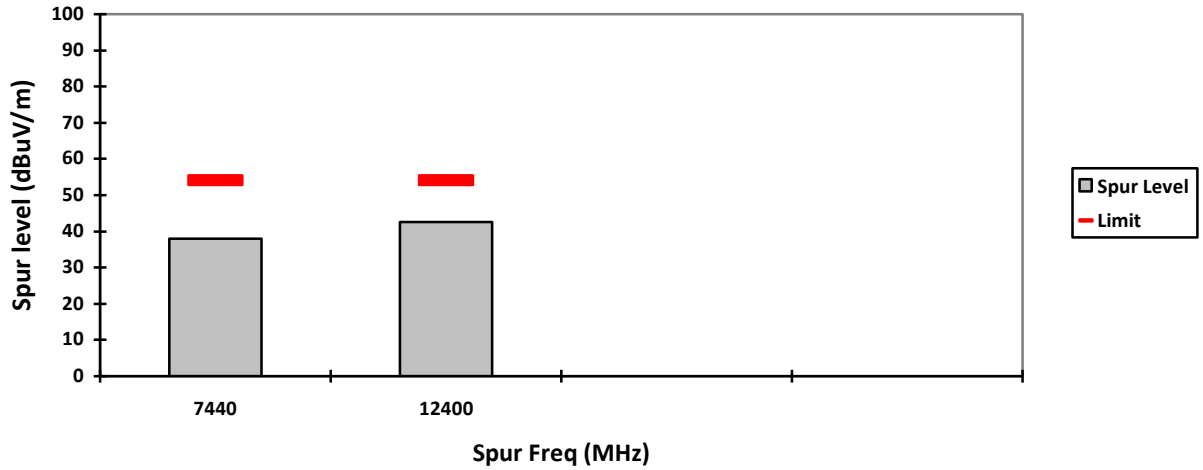
VERTICAL, PK



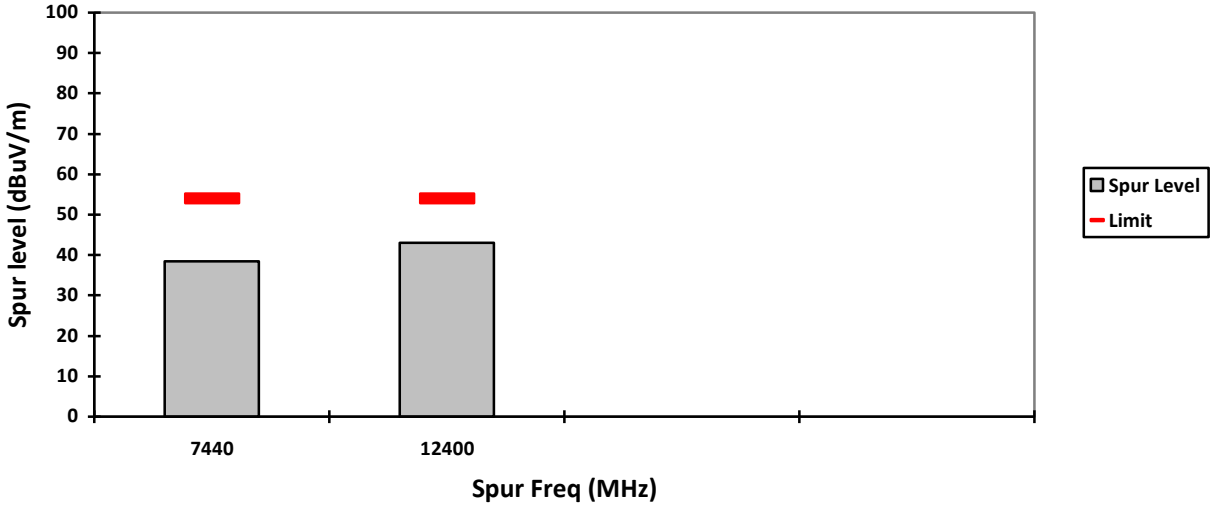
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



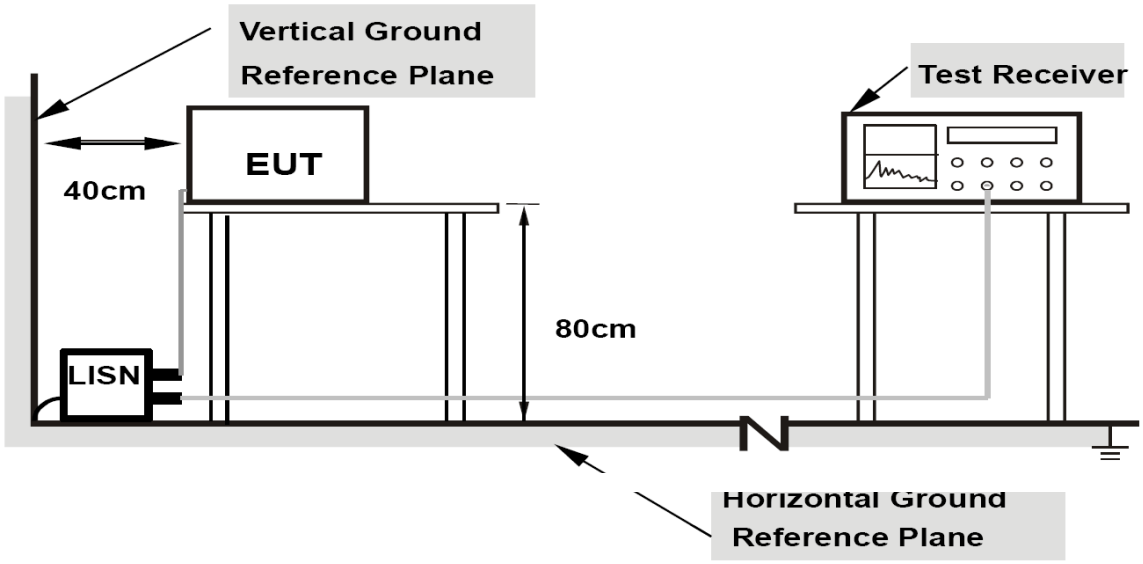
NOTE:
Transmitter Duty Cycle Calculation, FCC Rule 15.35 (b,c)

Based on the Bluetooth Specification Version 2.1+EDR, and worst case AFH mode, transmitter ON time is independent of packet type (DH1, DH3 and DH5) and packet length, the AFH mode Duty cycle connection factor as below:

Channel hop rate = 800 hops/second (AFH Mode)
Adjusted channel hop rate for DH5 mode = 133.33 hops/second
Time per channel hop = 1 / 133.33 hops/second = 7.5 ms
Time to cycle through all channels = 7.5 x 20 channels = 150 ms
Number of times transmitter hits on one channel = 100 ms / 150 ms = 1 time(s)
Worst case dwell time = 7.5 ms
Duty cycle connection factor = $20\log_{10}$ (7.5ms / 100ms) = **-22.5 dB**

6.9. AC Powerline Conducted Emission

6.9.1. Test Setup



1) Tests were conducted for both Receive and Transmit Mode of the EUT.
2) The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50uH of coupling impedance for the measuring instrument.
3) Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
4) The frequency range from 150 kHz to 30MHz was measured.

6.9.2. Test Limits:

For AC Power Line Conducted Test Limit can be Class A or B depends on product classification.

Limits for conducted disturbance at the mains ports of class A ITE

Frequency range MHz	Limits dB(µV)	
	Quasi-peak	Average
0,15 to 0,50	79	66
0,50 to 30	73	60
NOTE The lower limit shall apply at the transition frequency.		

Table 1: Limits for Conducted Disturbance at the Mains Ports of Class A ITE.

Limits for conducted disturbance at the mains ports of class B ITE

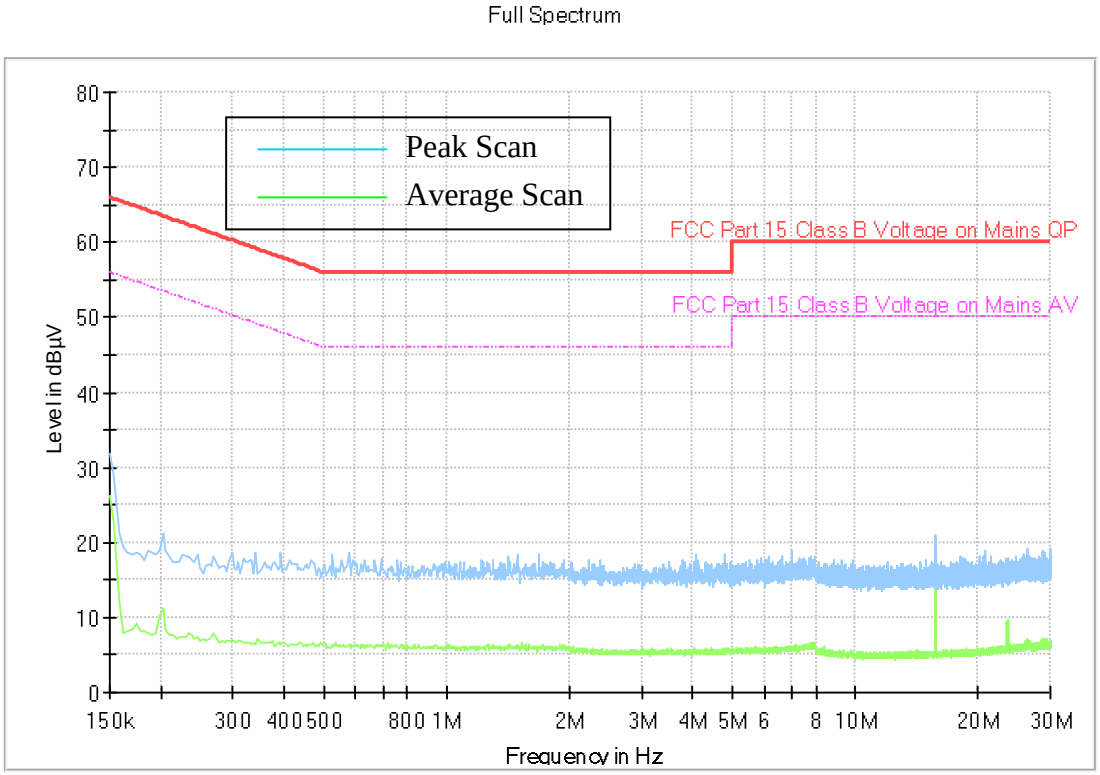
Frequency range MHz	Limits dB(µV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50
NOTE 1 The lower limit shall apply at the transition frequencies. NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.		

Table 2: Limits for Conducted Disturbance at the Mains Ports of Class B ITE

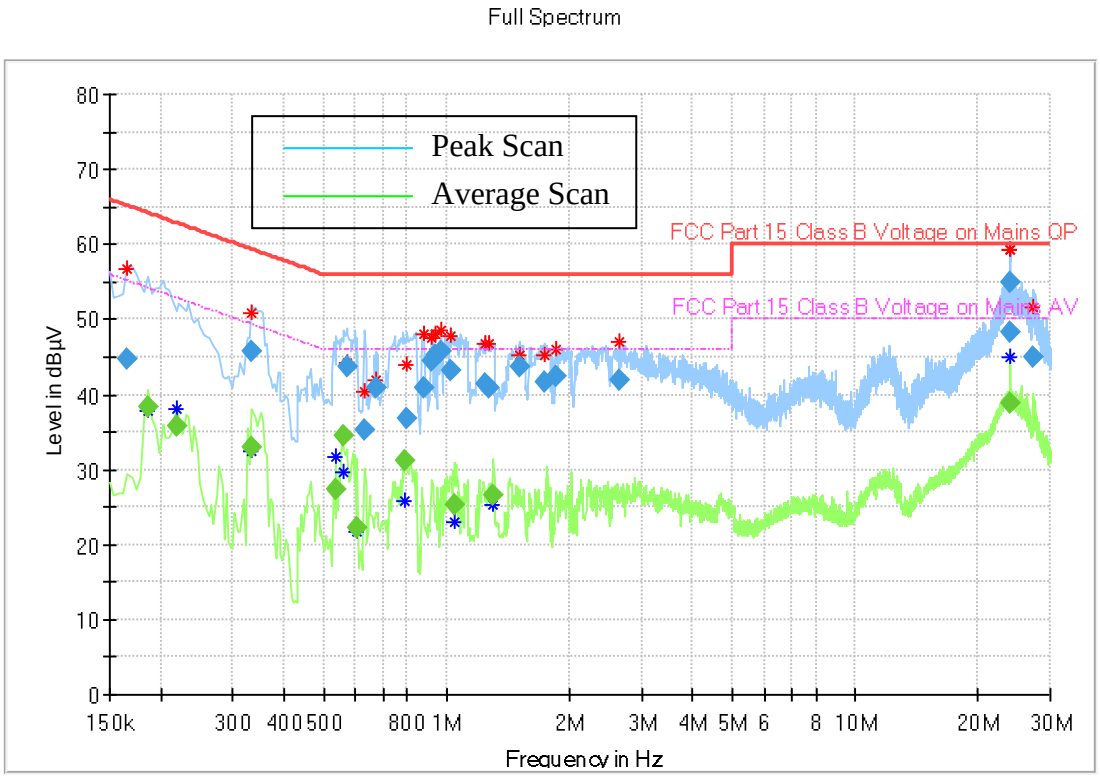
6.9.3. Test Result

Report ID.:	:	39731-EMC-00038
Ambient Temperature:	:	20.2 °C
Humidity:	:	59.5 %RH
Tester:	:	Shidee
Date of test:	:	4 September 2023

1) Ambient



2) Ambient + Charger Laptop



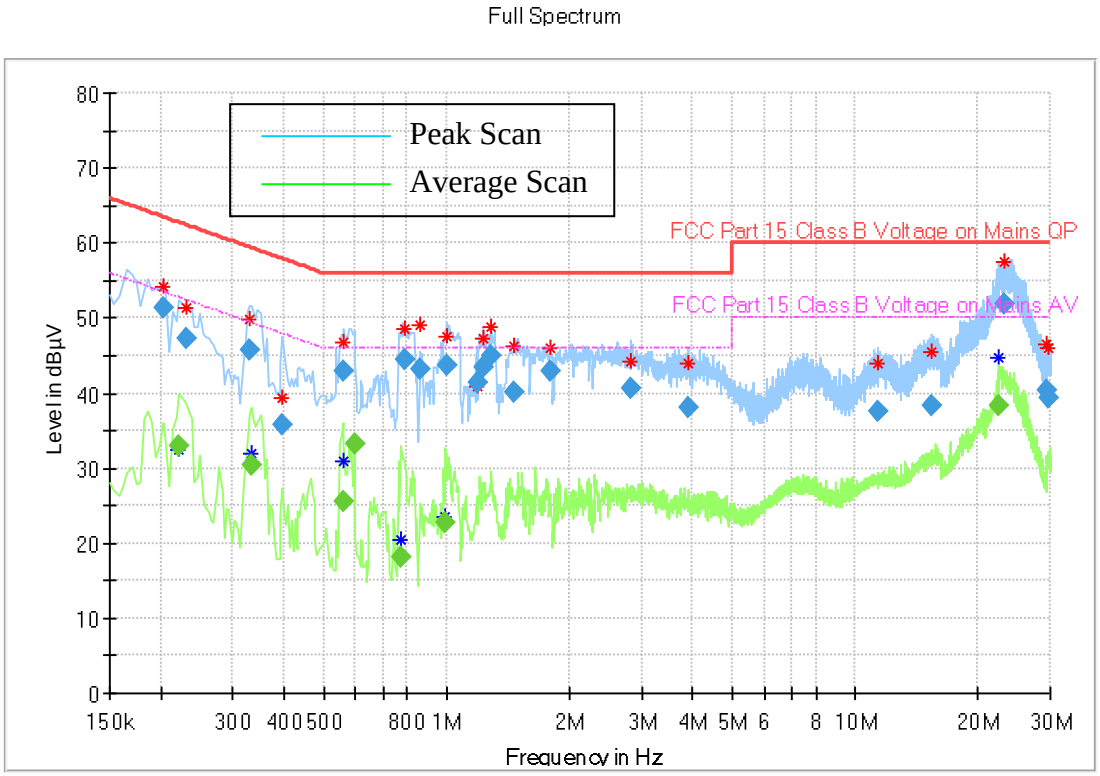
Quasipeak and Average Measurement

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)	Comment
0.166000	44.65	---	65.16	20.51	1000.0	9.000	N	ON	10.6	Pass
0.186000	---	38.27	54.21	15.94	1000.0	9.000	L1	ON	10.5	Pass
0.218000	---	35.77	52.90	17.13	1000.0	9.000	N	ON	10.3	Pass
0.334000	---	33.03	49.35	16.32	1000.0	9.000	L1	ON	10.3	Pass
0.334000	45.76	---	59.35	13.59	1000.0	9.000	L1	ON	10.3	Pass
0.538000	---	27.41	46.00	18.59	1000.0	9.000	N	ON	10.3	Pass
0.558000	---	34.56	46.00	11.44	1000.0	9.000	N	ON	10.3	Pass
0.570000	43.60	---	56.00	12.40	1000.0	9.000	N	ON	10.3	Pass
0.606000	---	22.20	46.00	23.80	1000.0	9.000	N	ON	10.3	Pass
0.630000	35.15	---	56.00	20.85	1000.0	9.000	N	ON	10.3	Pass
0.674000	40.84	---	56.00	15.16	1000.0	9.000	N	ON	10.3	Pass
0.794000	---	31.26	46.00	14.74	1000.0	9.000	N	ON	10.3	Pass
0.802000	36.68	---	56.00	19.32	1000.0	9.000	L1	ON	10.3	Pass
0.878000	40.94	---	56.00	15.06	1000.0	9.000	N	ON	10.3	Pass
0.922000	44.55	---	56.00	11.45	1000.0	9.000	N	ON	10.3	Pass
0.942000	45.22	---	56.00	10.78	1000.0	9.000	N	ON	10.3	Pass
0.966000	45.63	---	56.00	10.37	1000.0	9.000	N	ON	10.3	Pass
1.026000	43.14	---	56.00	12.86	1000.0	9.000	N	ON	10.2	Pass
1.046000	---	25.26	46.00	20.74	1000.0	9.000	L1	ON	10.2	Pass
1.246000	41.36	---	56.00	14.64	1000.0	9.000	N	ON	10.2	Pass
1.274000	40.96	---	56.00	15.04	1000.0	9.000	N	ON	10.2	Pass
1.302000	---	26.59	46.00	19.41	1000.0	9.000	L1	ON	10.2	Pass
1.510000	43.70	---	56.00	12.30	1000.0	9.000	N	ON	10.2	Pass
1.738000	41.70	---	56.00	14.30	1000.0	9.000	L1	ON	10.2	Pass
1.854000	42.49	---	56.00	13.51	1000.0	9.000	L1	ON	10.2	Pass
2.654000	42.01	---	56.00	13.99	1000.0	9.000	L1	ON	10.3	Pass
23.846000	54.89	---	60.00	5.11	1000.0	9.000	L1	ON	10.4	Pass
23.946000	---	38.77	50.00	11.23	1000.0	9.000	L1	ON	10.4	Pass
23.954000	48.39	---	60.00	11.61	1000.0	9.000	L1	ON	10.4	Pass
27.166000	45.03	---	60.00	14.97	1000.0	9.000	L1	ON	10.4	Pass

*** Expanded Uncertainty (U) = +/- 3.48dB**

120 Vac, 60Hz

1) Laptop + Charger Alone

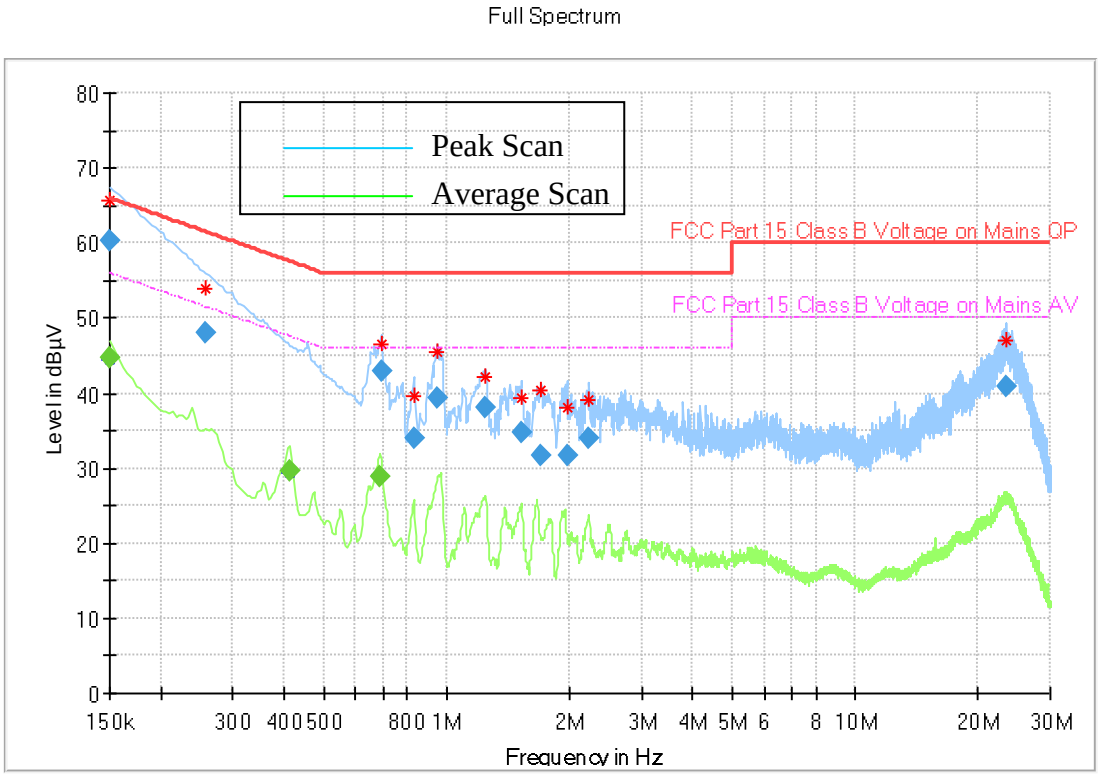


Quasipeak and Average Measurement

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)	Comment
0.202000	51.41	---	63.53	12.12	1000.0	9.000	L1	ON	10.4	Pass
0.222000	---	32.86	52.74	19.88	1000.0	9.000	L1	ON	10.3	Pass
0.230000	47.37	---	62.45	15.08	1000.0	9.000	N	ON	10.2	Pass
0.330000	45.78	---	59.45	13.67	1000.0	9.000	L1	ON	10.3	Pass
0.334000	---	30.49	49.35	18.86	1000.0	9.000	L1	ON	10.3	Pass
0.398000	35.89	---	57.90	22.01	1000.0	9.000	L1	ON	10.3	Pass
0.558000	---	25.62	46.00	20.38	1000.0	9.000	N	ON	10.3	Pass
0.562000	42.83	---	56.00	13.17	1000.0	9.000	N	ON	10.3	Pass
0.594000	---	33.23	46.00	12.77	1000.0	9.000	N	ON	10.3	Pass
0.770000	---	18.22	46.00	27.78	1000.0	9.000	L1	ON	10.3	Pass
0.790000	44.48	---	56.00	11.52	1000.0	9.000	N	ON	10.3	Pass
0.862000	43.11	---	56.00	12.89	1000.0	9.000	N	ON	10.3	Pass
0.994000	---	22.68	46.00	23.32	1000.0	9.000	N	ON	10.2	Pass
1.002000	43.78	---	56.00	12.22	1000.0	9.000	N	ON	10.2	Pass
1.186000	41.34	---	56.00	14.66	1000.0	9.000	N	ON	10.2	Pass
1.234000	43.55	---	56.00	12.45	1000.0	9.000	N	ON	10.2	Pass
1.290000	45.02	---	56.00	10.98	1000.0	9.000	N	ON	10.2	Pass
1.466000	40.16	---	56.00	15.84	1000.0	9.000	N	ON	10.2	Pass
1.786000	43.03	---	56.00	12.97	1000.0	9.000	N	ON	10.2	Pass
2.830000	40.63	---	56.00	15.37	1000.0	9.000	L1	ON	10.3	Pass
3.914000	37.99	---	56.00	18.01	1000.0	9.000	N	ON	10.3	Pass
11.358000	37.59	---	60.00	22.41	1000.0	9.000	N	ON	10.3	Pass
15.378000	38.42	---	60.00	21.58	1000.0	9.000	L1	ON	10.3	Pass
22.462000	---	38.38	50.00	11.62	1000.0	9.000	L1	ON	10.4	Pass
23.034000	51.84	---	60.00	8.16	1000.0	9.000	L1	ON	10.4	Pass
29.206000	40.46	---	60.00	19.54	1000.0	9.000	L1	ON	10.4	Pass
29.690000	39.24	---	60.00	20.76	1000.0	9.000	L1	ON	10.4	Pass

*** Expanded Uncertainty (U) = +/- 3.48dB**

2) Laptop + Charger with Radio Off

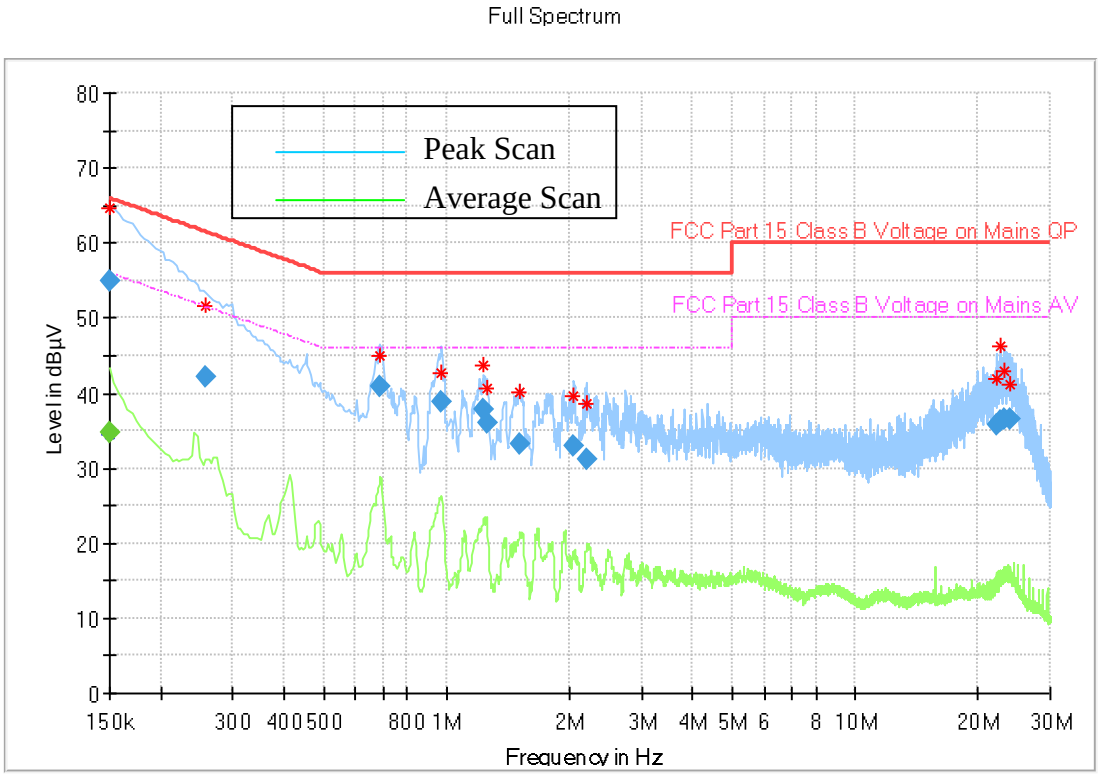


Quasipeak and Average Measurement

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)	Comment
0.150000	---	44.72	56.00	11.28	1000.0	9.000	L1	ON	10.3	Pass
0.150000	60.39	---	66.00	5.61	1000.0	9.000	N	ON	10.3	Pass
0.258000	48.09	---	61.50	13.41	1000.0	9.000	N	ON	10.2	Pass
0.414000	---	29.61	47.57	17.96	1000.0	9.000	N	ON	10.3	Pass
0.690000	---	28.78	46.00	17.22	1000.0	9.000	N	ON	10.3	Pass
0.694000	42.86	---	56.00	13.14	1000.0	9.000	N	ON	10.3	Pass
0.830000	33.99	---	56.00	22.01	1000.0	9.000	N	ON	10.3	Pass
0.954000	39.43	---	56.00	16.57	1000.0	9.000	N	ON	10.3	Pass
1.250000	38.15	---	56.00	17.85	1000.0	9.000	N	ON	10.2	Pass
1.526000	34.78	---	56.00	21.22	1000.0	9.000	N	ON	10.2	Pass
1.706000	31.72	---	56.00	24.29	1000.0	9.000	L1	ON	10.2	Pass
1.970000	31.73	---	56.00	24.27	1000.0	9.000	L1	ON	10.2	Pass
2.234000	33.95	---	56.00	22.05	1000.0	9.000	L1	ON	10.2	Pass
23.290000	40.94	---	60.00	19.06	1000.0	9.000	L1	ON	10.4	Pass

*** Expanded Uncertainty (U) = +/- 3.48dB**

3) Laptop + Charger with Radio Standby

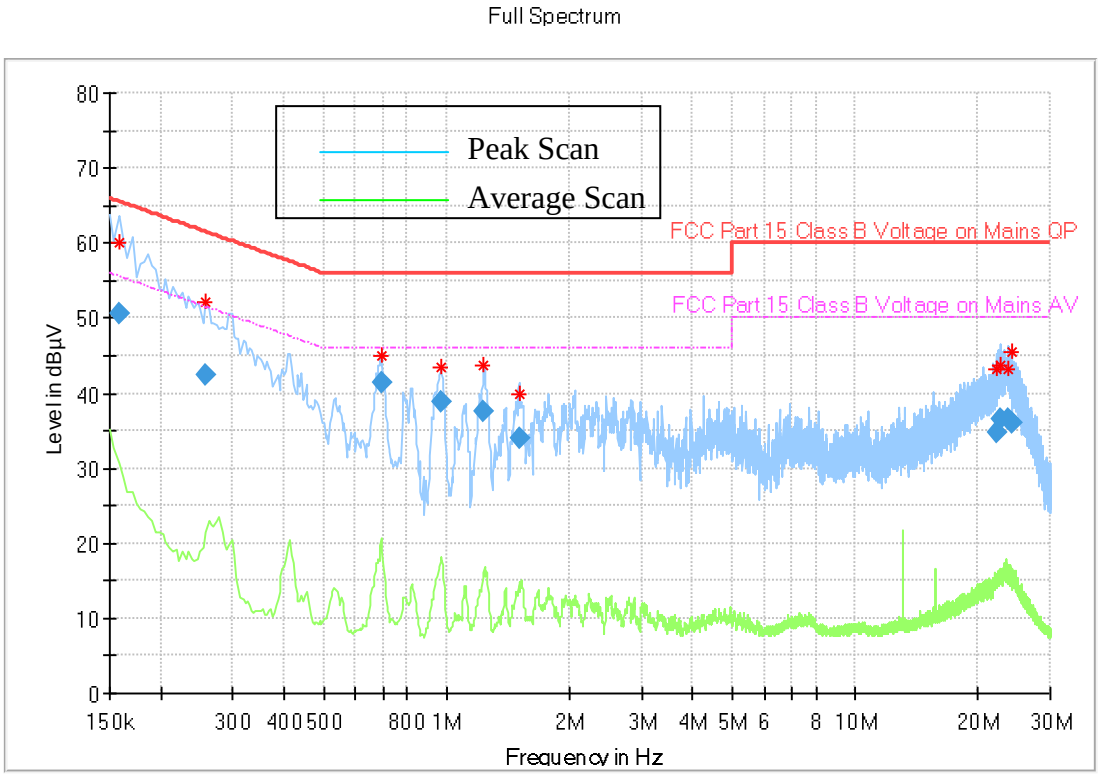


Quasipeak and Average Measurement

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)	Comment
0.150000	---	34.81	56.00	21.19	1000.0	9.000	L1	ON	10.3	Pass
0.150000	54.84	---	66.00	11.16	1000.0	9.000	N	ON	10.3	Pass
0.258000	42.16	---	61.50	19.34	1000.0	9.000	L1	ON	10.2	Pass
0.690000	40.83	---	56.00	15.17	1000.0	9.000	N	ON	10.3	Pass
0.974000	38.73	---	56.00	17.27	1000.0	9.000	N	ON	10.3	Pass
1.234000	37.72	---	56.00	18.28	1000.0	9.000	N	ON	10.2	Pass
1.254000	36.13	---	56.00	19.87	1000.0	9.000	N	ON	10.2	Pass
1.514000	33.31	---	56.00	22.69	1000.0	9.000	N	ON	10.2	Pass
2.050000	32.98	---	56.00	23.02	1000.0	9.000	L1	ON	10.2	Pass
2.194000	31.16	---	56.00	24.84	1000.0	9.000	L1	ON	10.2	Pass
22.066000	35.71	---	60.00	24.29	1000.0	9.000	L1	ON	10.4	Pass
22.626000	36.21	---	60.00	23.79	1000.0	9.000	L1	ON	10.4	Pass
23.182000	36.60	---	60.00	23.40	1000.0	9.000	L1	ON	10.4	Pass
23.870000	36.47	---	60.00	23.53	1000.0	9.000	L1	ON	10.4	Pass

*** Expanded Uncertainty (U) = +/- 3.48dB**

4) Charger + Radio Tx with BT.



Quasipeak and Average Measurement

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)	Comment
0.158000	50.55	---	65.57	15.01	1000.0	9.000	N	ON	10.5	Pass
0.258000	42.39	---	61.50	19.10	1000.0	9.000	L1	ON	10.2	Pass
0.694000	41.36	---	56.00	14.64	1000.0	9.000	N	ON	10.3	Pass
0.970000	38.84	---	56.00	17.16	1000.0	9.000	N	ON	10.3	Pass
1.234000	37.68	---	56.00	18.32	1000.0	9.000	N	ON	10.2	Pass
1.502000	33.88	---	56.00	22.12	1000.0	9.000	N	ON	10.2	Pass
22.202000	34.85	---	60.00	25.15	1000.0	9.000	L1	ON	10.4	Pass
22.722000	36.52	---	60.00	23.48	1000.0	9.000	L1	ON	10.4	Pass
23.578000	36.55	---	60.00	23.45	1000.0	9.000	L1	ON	10.4	Pass
24.194000	36.07	---	60.00	23.93	1000.0	9.000	L1	ON	10.4	Pass

*** Expanded Uncertainty (U) = +/- 3.48dB**

END OF TEST REPORT