MOTOROLA SOLUTIONS

MS ISO/IEC 17025
TESTING
SAMM No. 0825

MOTOROLA PENANG ADV. COMM. LABORATORY
Motorola Solutions Malaysia Sdn. Bhd.
Innoplex 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	:	11-May-2019 - 30-Sep-2019
Report Issue Date	:	16-Jun-2019
Manufacturer/Location	:	Motorola Solutions Malaysia Sdn Bhd Innoplex Plot 2A, Medan Bayan lepas, Mukim 12, S.W.D. 11900 Bayan Lepas, Penang, Malaysia
Requestor	:	TANG, GARY
Product Type	:	Mobile
Product Marketing Name (PMN)	:	APX6500
Model Number (HVIN)	:	M25URS9PW1BN
Frequency Band	:	2.402 - 2.480 GHz
Rated / Max RF Output Power	:	8.9 mWatts / 11.2 mWatts
Applicant Name	:	Motorola Solutions Inc
FCC Registrations	:	461337
IC Registrations	:	109AK
Firmware Version (FVIN)	:	D19.71.02

The equipment was tested accordance to the requirement listed below:

(2.4GHz BT) **FCC 47CFR Part 15C** **ISED RSS 247 Issue 2,** **February 2017**	**PASS**

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Prepared By:

Gan Boon Teong
Test Personnel

Approved Signatory:

Vincent Foong Chuen Kit
Deputy Technical Manager

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REVISION HISTORY

Revision History	Description	Date	Originator
Rev. A	Initial Report	**16-Jun-2019**	**Gan Boon Teong**
Rev. B	Retest and update Band-edge Conducted Spurious Emission data, amend table height, remove duty cycle correction	**30-Sep-2019**	**Gan Boon Teong**

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	Trunk(AN000163A01)

The EUT contains following accessory devices and data cable:

Item	Brand	Model or P/N
ASSY,CBL,PWR	MOTOROLA	HKN4191B-2
CABLE, DATA, USB, 1-1/2M, XTL5000	MOTOROLA	HKN6163C-2
15 Watt Speaker (Water Resistant)	MOTOROLA	HSN4040A
Keypad Microphone	MOTOROLA	HMN4079G-4
ANTENNA, STUBBY,WIFI/GNSS LOW LOSS LMR240 (2.4/5 GHZ WI-FI/BT AND GNSS BT/WiFi/GPS Antenna)	MOTOROLA	AN000163A01
ANTENNA, WHIP,3DB MCYCLE 764-870 MHZ 762-870 MHZ	MOTOROLA	AN000197A10
O7 Control Head (English)	MOTOROLA	PMHN4194C
O2 Control Head (Grey)	MOTOROLA	PMHN4193F

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

2.0. Summary of Test Results

FCC Clause	ISED Clause	Test Item	Result	Remark	Serial number tested
15.247 (b)(1)	RSS-247 5.4(b)	Conducted RF Output Power (Peak)	Pass	Highest output power: 10.065 dBm	471TVF3449
15.247 (a)(1)	RSS-247 5.1(a) RSS-247 5.1(b)	(1) 20dB Channel Bandwidth (2) Channel Separation	Pass	Highest 99% OCB: 1.188 MHz (1M19G1D)	471TVF3449
15.247(a)(1)(iii)	RSS-247 5.1(d)	Number of hopping Frequency used	Pass	Meet the limit requirement.	471TVF3449
15.247(a)(1)(iii)	RSS-247 5.1(d)	Dwell time on each channel	Pass	Meet the limit requirement.	471TVF3449
15.247 (d)	RSS-247 5.5	Band Edge Conducted Spurious Emission	Pass	Worst case emission: -46.65 dB	471TVF3449
15.247 (d)	RSS-247 5.5	Conducted Spurious Emission	Pass	Worst case emission: -44.128 dBm	471TVF3449
15.205, 15.209, 15.247 (d)	RSS-247 5.5	Radiated Emission within Restricted Bands	Pass	Meet the limit requirement.	471TVF3482
15.207	RSS-Gen 8.8	AC Powerline Conducted Emission	NA	Testing is not required, radio shall turn off during charging mode	NA
15.203	-	Antenna Requirement	NA	Internal antenna is not accessible to the end-user	NA

3.0. Measurement Uncertainty

Measurement	Frequency	Expended Uncertainty (k=1.96) (±dB)
AC Power Line Conducted Spurious Emission	150KHz ~ 30MHz	3.43
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	5.01
	200MHz ~ 1000MHz	5.01
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.01
	18GHz ~ 25GHz	5.01

4.0. Equipment List

Bluetooth ATE # 1 (SW Version: Ate Main_3.1.10_R2)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
POWER SUPPLY (0-20V / 0-25A)	6652A	MY40001437	17-Aug-17	17-Aug-19
SPECTRUM ANALYZER	FSEK30	838495/014	11-Jul-18	11-Jul-19
STEP ATTENUATOR	RSC	102218	Not Required	Not Required
WIDEBAND RADIO COMMUNICATION TES	CMW500	154549	8-May-18	8-May-20
SPECTRUM ANALYZER	E4443A	MY46181974	9-Aug-18	9-Aug-20
CHAMBER	SH-641	92003821	30-Oct-18	30-Oct-19
POWER SUPPLY (0-20V / 0-25A)	6033A	3004A05137	24-Jul-19	24-Jul-20
SPECTRUM ANALYZER	FSEK30	838495/014	19-Jul-19	19-Jul-20

Radiated Emission Station (SW Version: EMC FCC RE v1.5.2)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
DRG HORN FREQ.	SAS-571	719	18-Jul-17	18-Jul-19
DRG HORN FREQ.	SAS-571	1143	14-Feb-19	14-Feb-21
POWER SUPPLY	6032A	2615A-01178	13-Jun-18	13-Jun-19
SIGNAL GENERATOR	SMB 100A	181117	8-Nov-18	8-Nov-21
EMI TEST RECEIVER	ESW44	101750	25-Jun-18	25-Jun-19
5m Semi-anechoic Chamber	S800-HX	J2308	Not Required	Not Required
BILOG ANTENNA	CBL6112D	30991	23-Apr-18	23-Jul-19
BILOG ANTENNA	CBL6112B	2964	16-Feb-18	16-Feb-20
DATA LOGGER	SDL500	A.016800	19-Mar-19	18-Mar-20
SYSTEM CONTROLLER	SC104V	050806-1	Not Required	Not Required
TURNTABLE FLUSH MOUNT 2M	FM2011	NA	Not Required	Not Required
ANTENNA POSITIONING TOWER	TLT2	NA	Not Required	Not Required
BROAD-BAND HORN ANTENNA	BBHA9170	BBHA9170255	21-Dec-18	21-Dec-19
18 - 40GHz PREAMPLIFIER	eq Hi Gain Succ	1	Not Required	Not Required
PREAMPLIFIER	PAM-0118P	361	Not Required	Not Required
LOOP ANTENNA	6502	208416	17-Aug-18	17-Aug-19

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	23.4°C, 69.8%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	23.4°C, 69.8%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.

EUT 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:

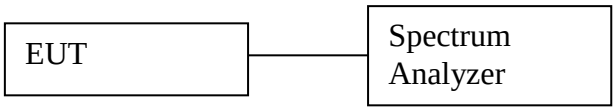
☒This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
☒Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒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, 50%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.

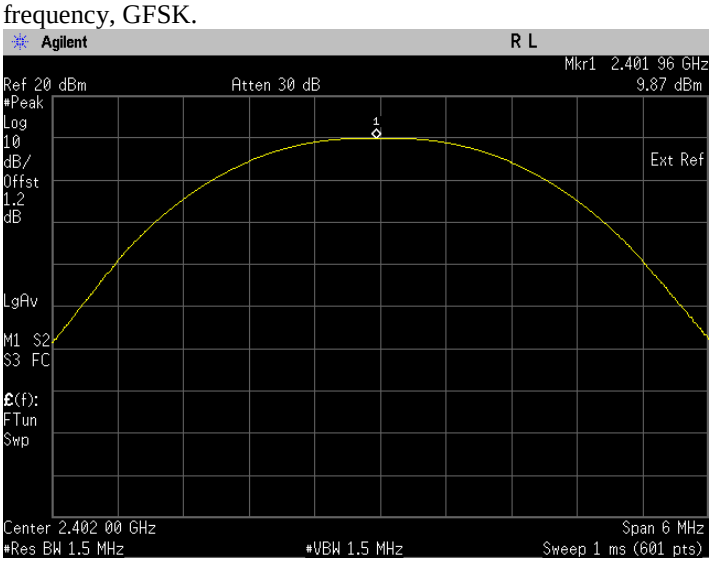
6.1.2. Test Limits:

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

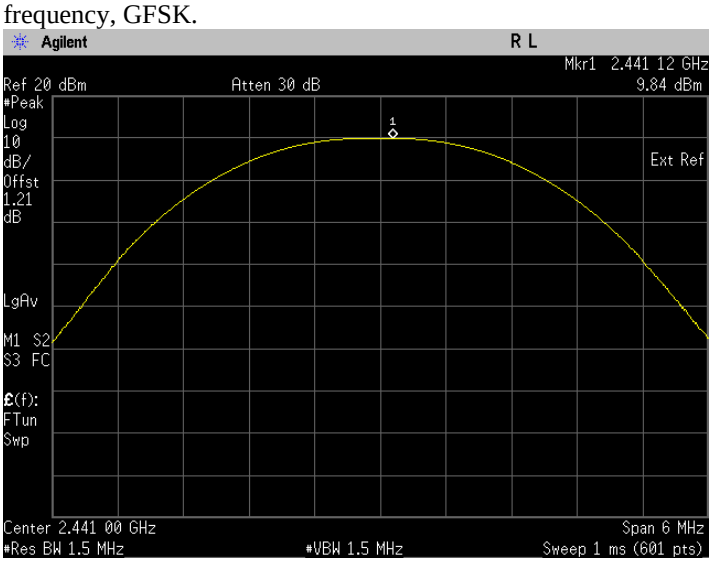
6.1.3. Test Data:

Test Conditions		Test Frequency (GHz)	Results	
Modulation	Voltage(V)		dBm	Status
GFSK	7.50	2.4020	9.868	Pass
		2.4410	9.836	Pass
		2.4800	10.065	Pass
Pi/4DQPSK	7.50	2.4020	6.137	Pass
		2.4410	6.056	Pass
		2.4800	6.266	Pass
8DPSK	7.50	2.4020	6.436	Pass
		2.4410	6.365	Pass
		2.4800	6.579	Pass

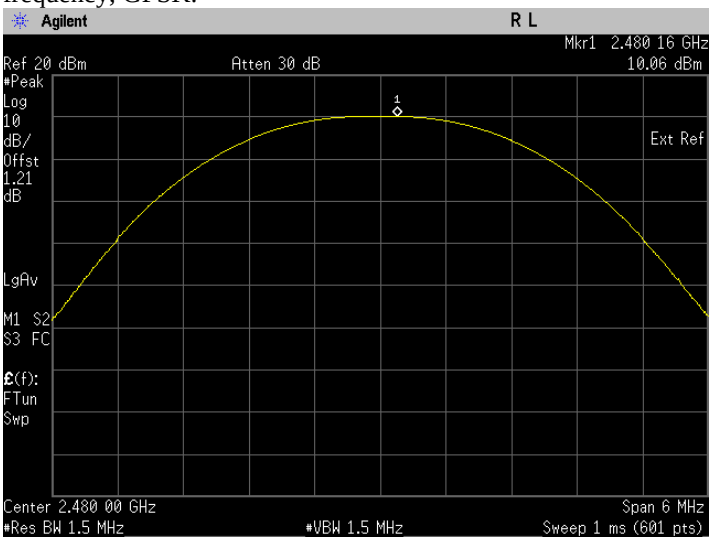
The Conducted RF Output Power test with result at low frequency, GFSK.



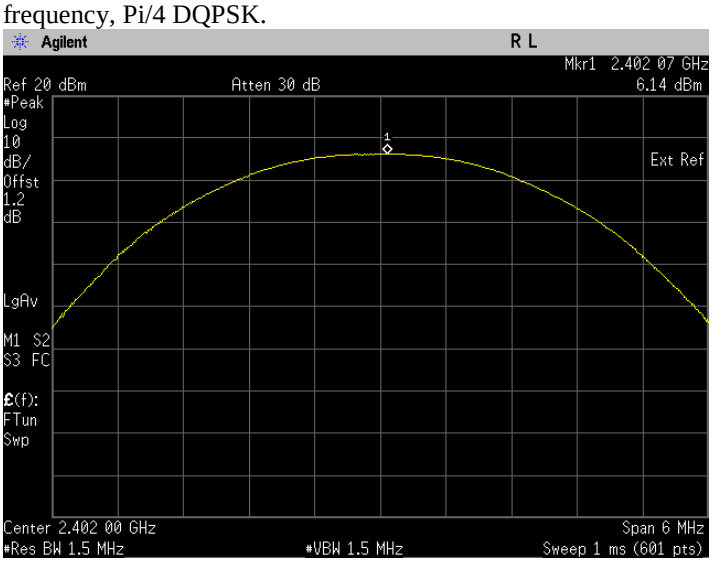
The Conducted RF Output Power test with result at mid frequency, GFSK.



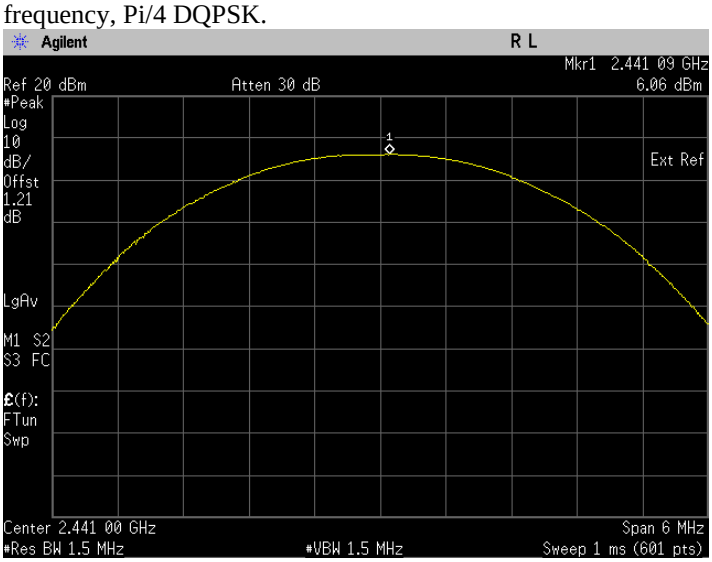
The Conducted RF Output Power test with result at high frequency, GFSK.



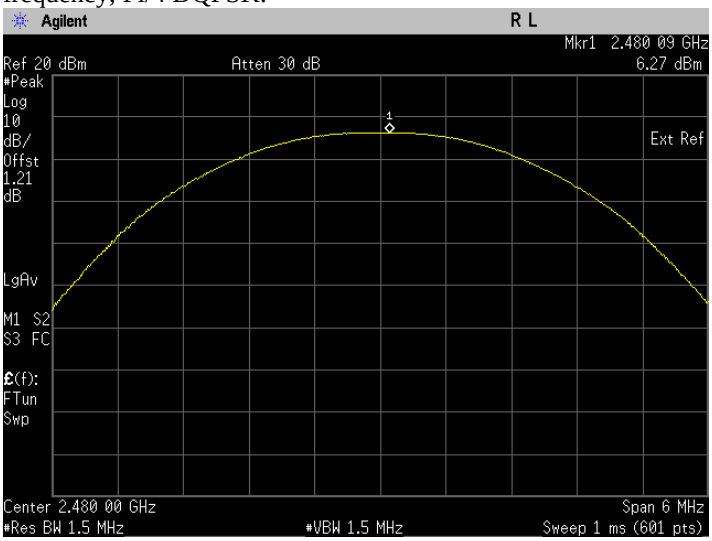
The Conducted RF Output Power test with result at low frequency, Pi/4 DQPSK.



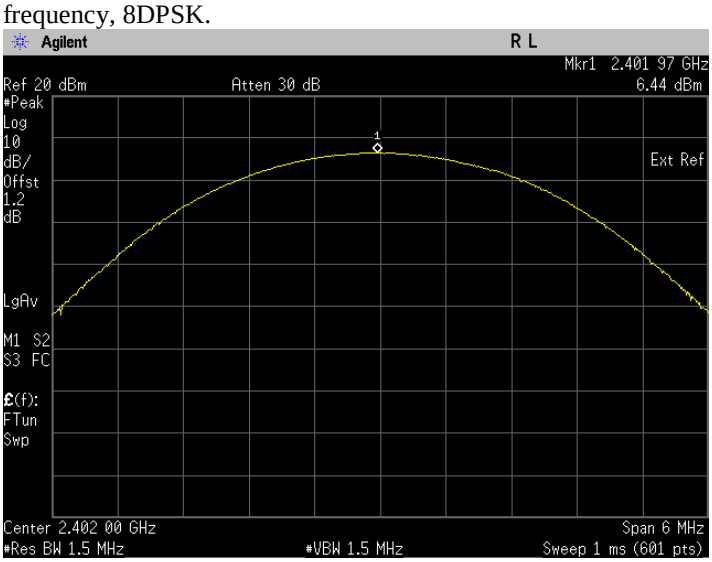
The Conducted RF Output Power test with result at mid frequency, Pi/4 DQPSK.



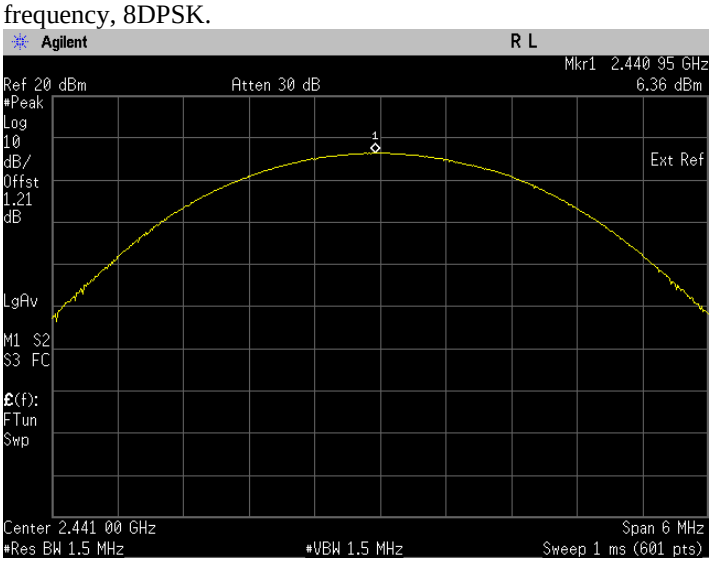
The Conducted RF Output Power test with result at high frequency, Pi/4 DQPSK.



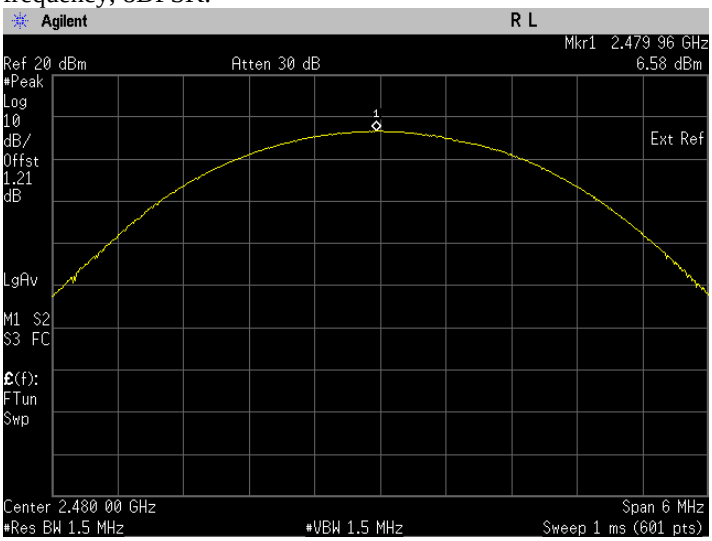
The Conducted RF Output Power test with result at low frequency, 8DPSK.



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

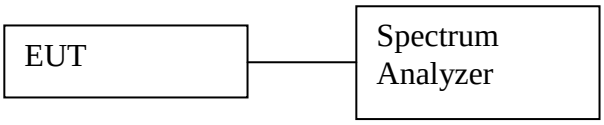


The Conducted RF Output Power test with result at high frequency, 8DPSK.



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.

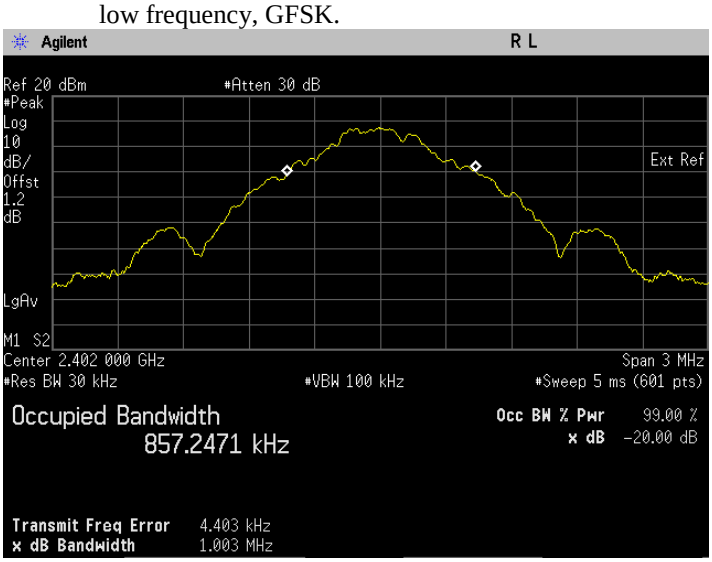
6.2.2. Test Limits:

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.

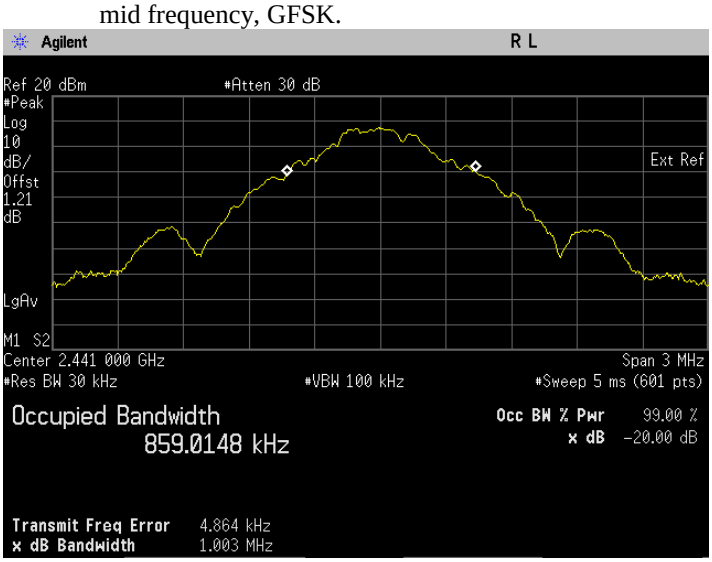
6.2.3. Test Data:

Test Conditions		Test Frequency TX (GHz)	Results (MHz)		
Modulation Type	Voltage(V)		20dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Status
GFSK	7.50	2.4020	1.003	0.857	Pass
		2.4410	1.003	0.859	Pass
		2.4800	1.004	0.859	Pass
Pi/4 DQPSK	7.50	2.4020	1.278	1.145	Pass
		2.4410	1.279	1.144	Pass
		2.4800	1.277	1.144	Pass
8DPSK	7.50	2.4020	1.270	1.188	Pass
		2.4410	1.269	1.188	Pass
		2.4800	1.269	1.188	Pass

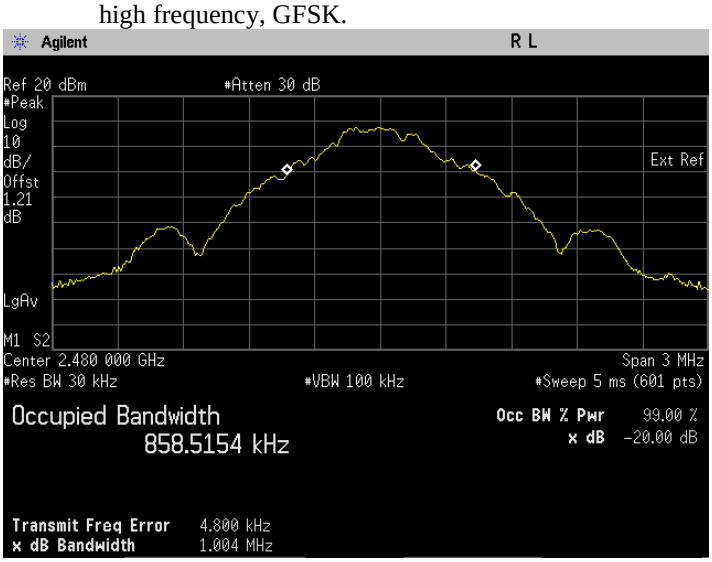
i. The 20 dB BW & occupied bandwidth test with result at low frequency, GFSK.



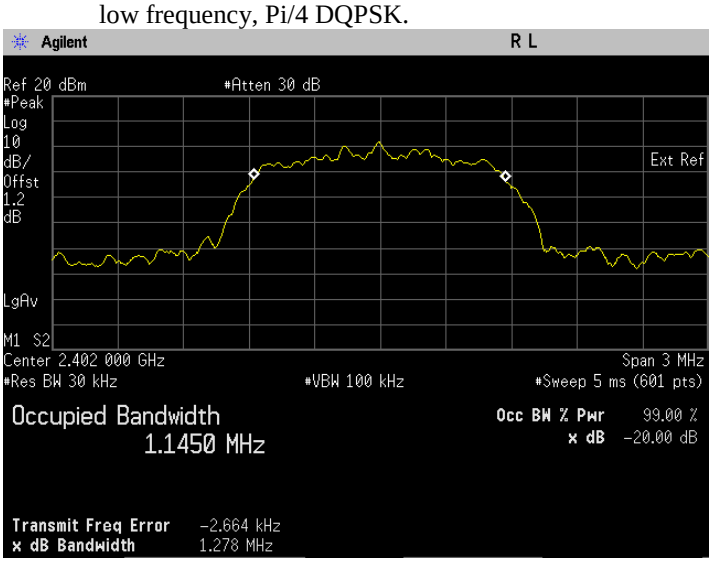
ii. The 20 dB BW & occupied bandwidth test with result at mid frequency, GFSK.



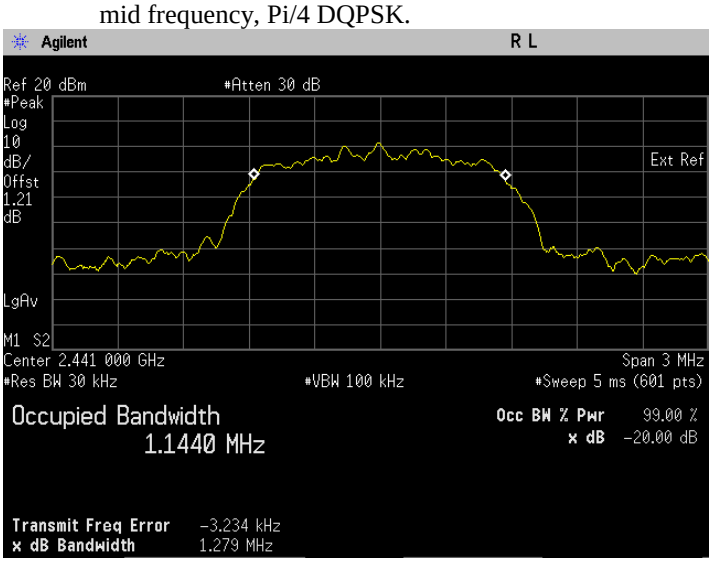
iii. The 20 dB BW & occupied bandwidth test with result at high frequency, GFSK.



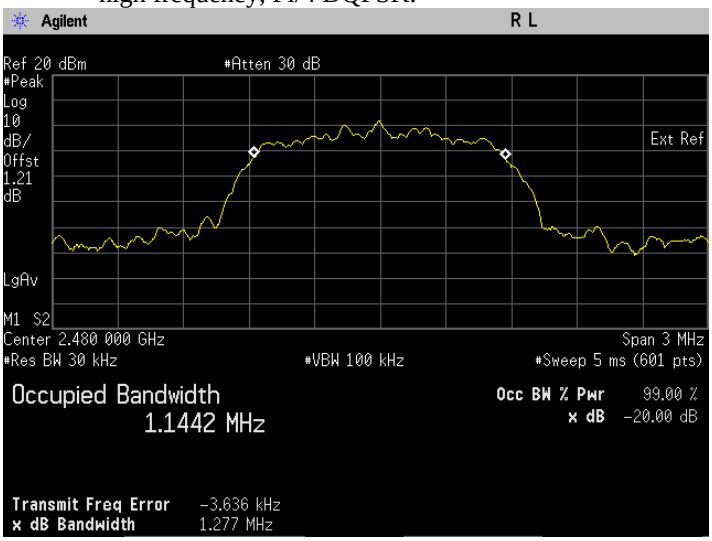
i. The 20 dB BW & occupied bandwidth test with result at low frequency, Pi/4 DQPSK.



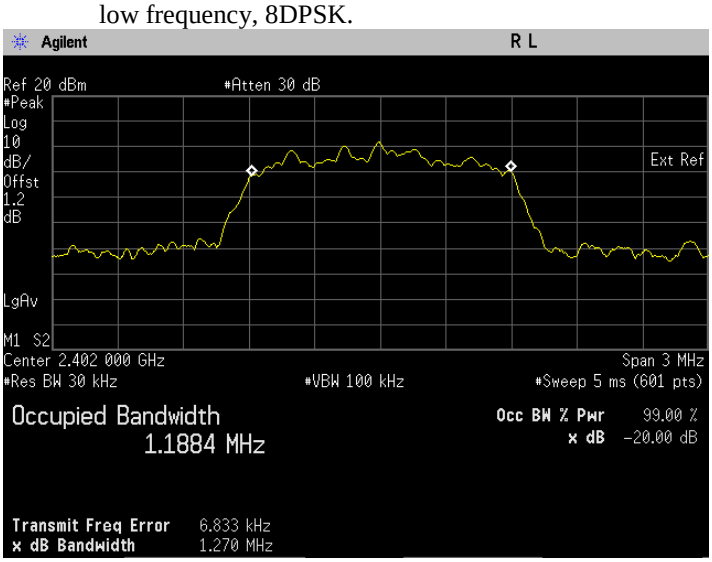
ii. The 20 dB BW & occupied bandwidth test with result at mid frequency, Pi/4 DQPSK.



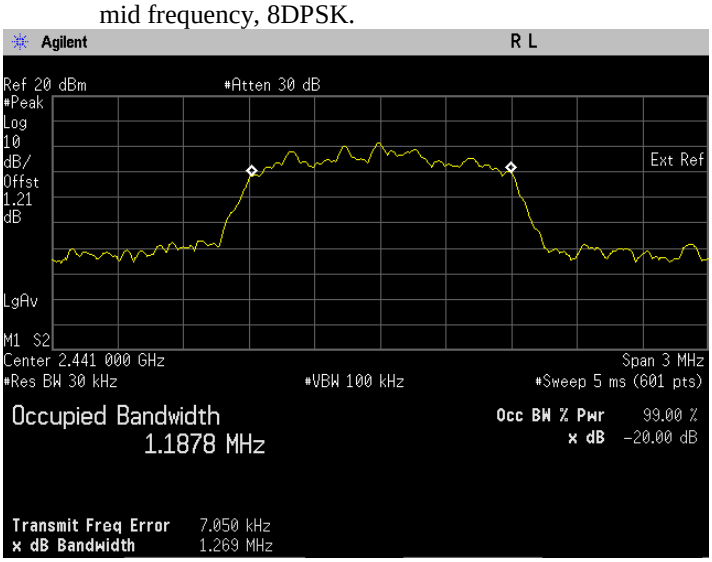
iii. The 20 dB BW & occupied bandwidth test with result at high frequency, Pi/4 DQPSK.



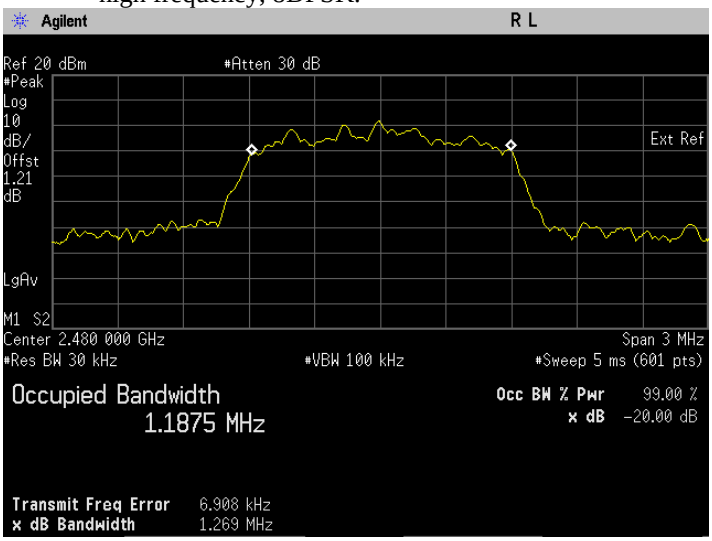
i. The 20 dB BW & occupied bandwidth test with result at low frequency, 8DPSK.



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

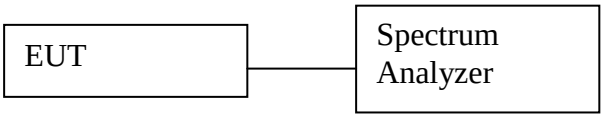


iii. The 20 dB BW & occupied bandwidth test with result at high frequency, 8DPSK.



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.

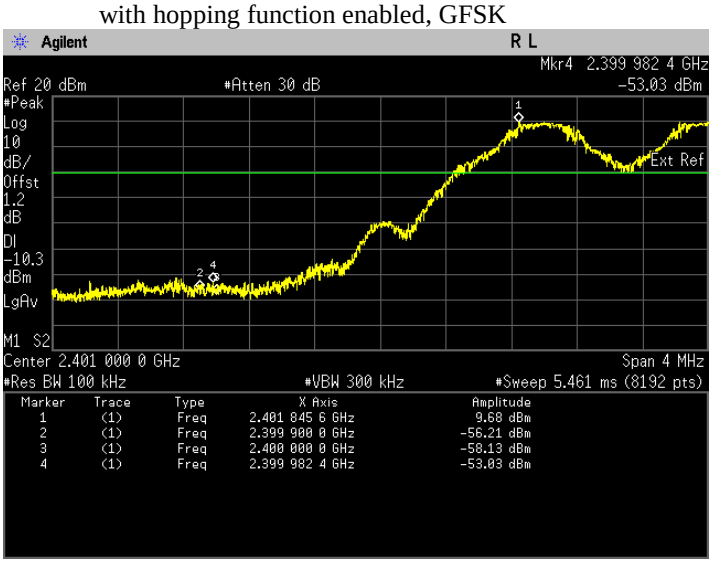
6.3.2. Test Limits

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

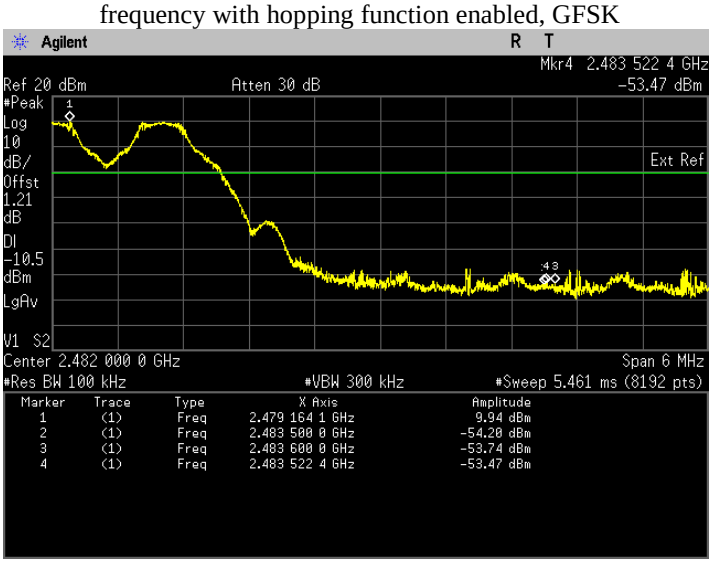
6.3.3. Test Result

Test Conditions		Hopping Method	Test Frequency(GHz)	Results	
Modulation	Voltage(V)			dB	Status
GFSK	7.50	Enabled (continuously)	2.4020	-53.03	Pass
			2.4800	-53.47	Pass
		Disabled (constantly)	2.4020	-50.73	Pass
			2.4800	-56.03	Pass
Pi/4 DQPSK	7.50	Enabled (continuously)	2.4020	-52.94	Pass
			2.4800	-58.16	Pass
		Disabled (constantly)	2.4020	-50.90	Pass
			2.4800	-56.39	Pass
8DPSK	7.50	Enabled (continuously)	2.4020	-46.65	Pass
			2.4800	-54.09	Pass
		Disabled (constantly)	2.4020	-49.04	Pass
			2.4800	-56.63	Pass

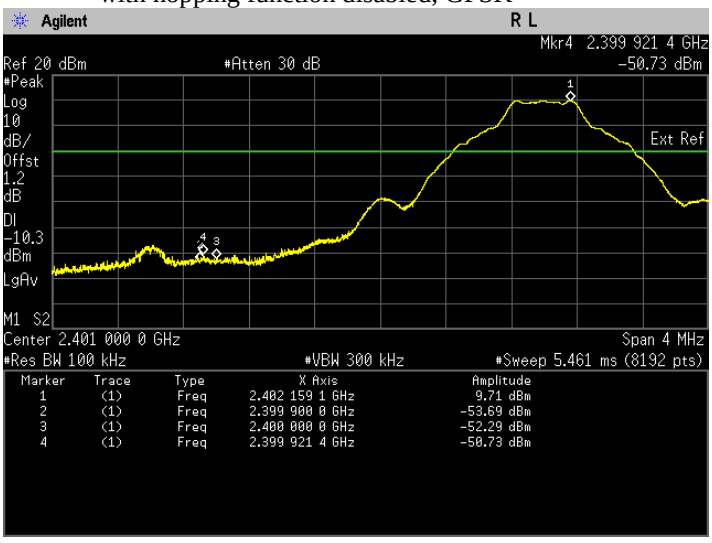
i. The highest band edge emission at low carrier frequency with hopping function enabled, GFSK



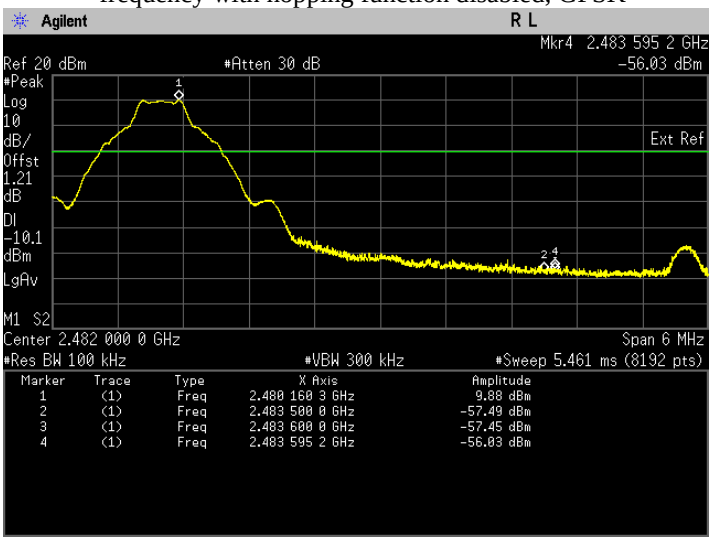
ii. The highest band edge emission at high carrier frequency with hopping function enabled, GFSK



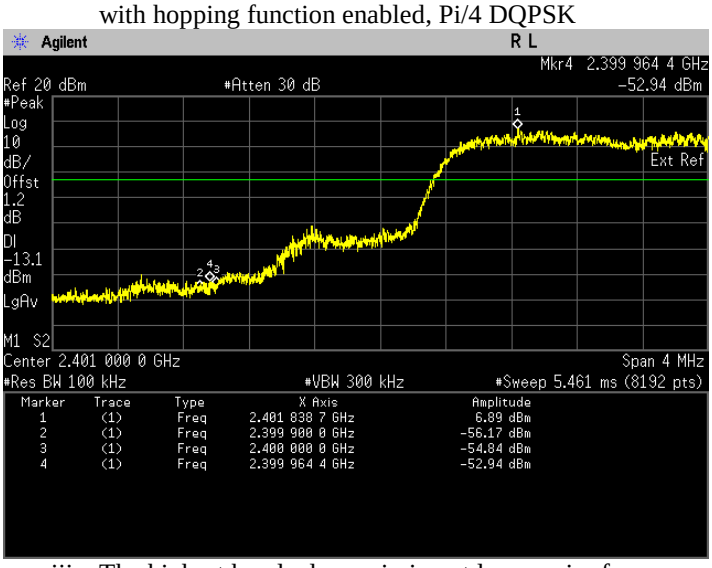
iii. The highest band edge emission at low carrier frequency with hopping function disabled, GFSK



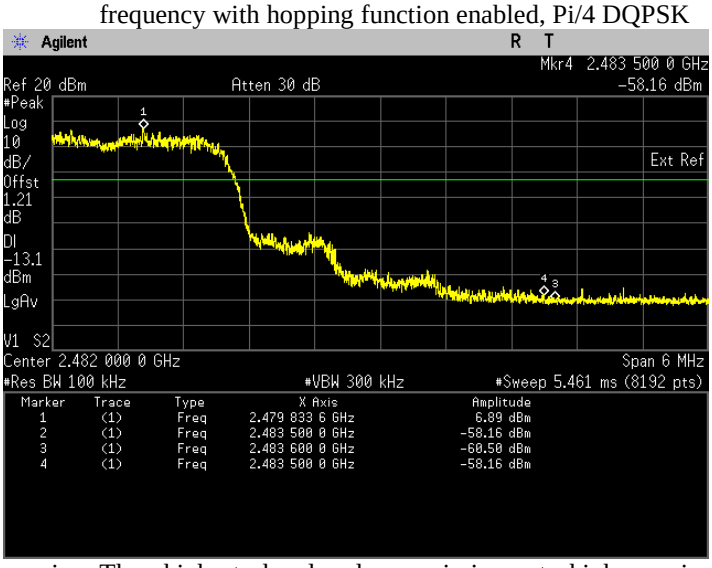
iv. The highest band edge emission at high carrier frequency with hopping function disabled, GFSK



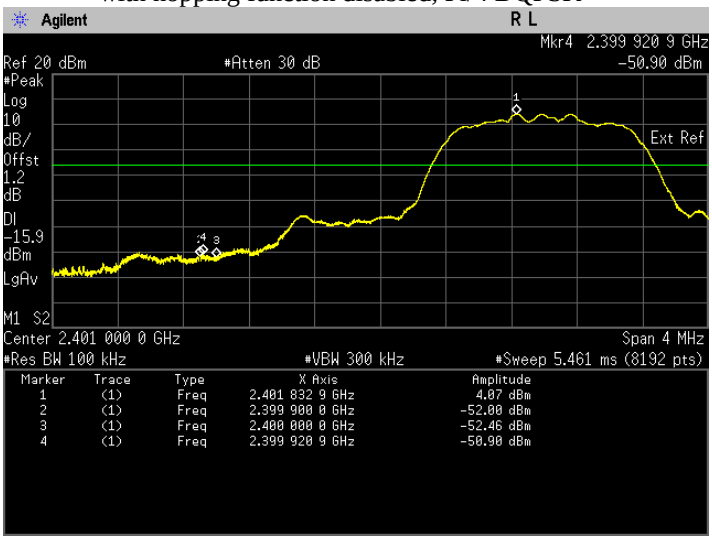
i. The highest band edge emission at low carrier frequency with hopping function enabled, Pi/4 DQPSK



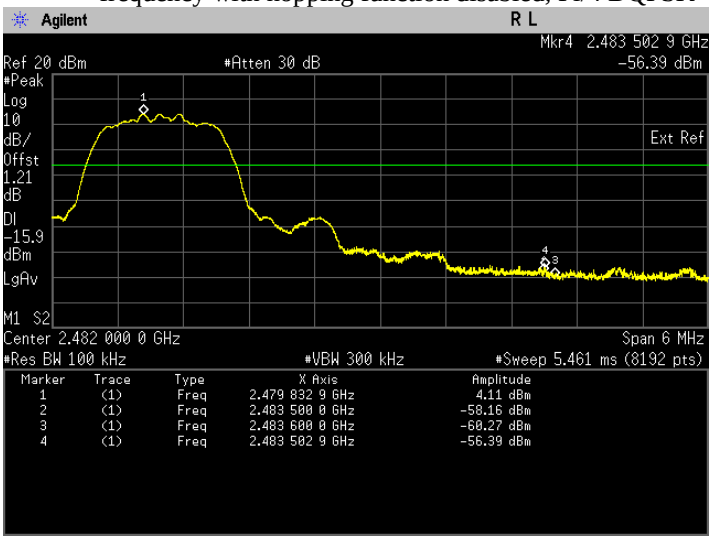
ii. The highest band edge emission at high carrier frequency with hopping function enabled, Pi/4 DQPSK



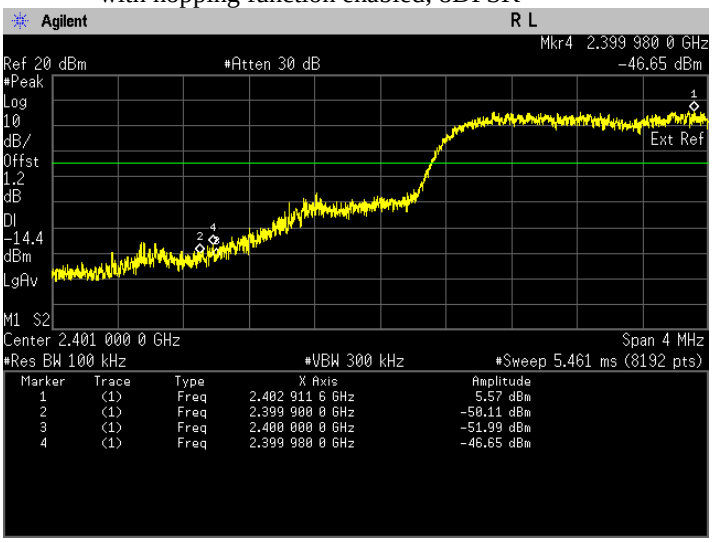
iii. The highest band edge emission at low carrier frequency with hopping function disabled, Pi/4 DQPSK



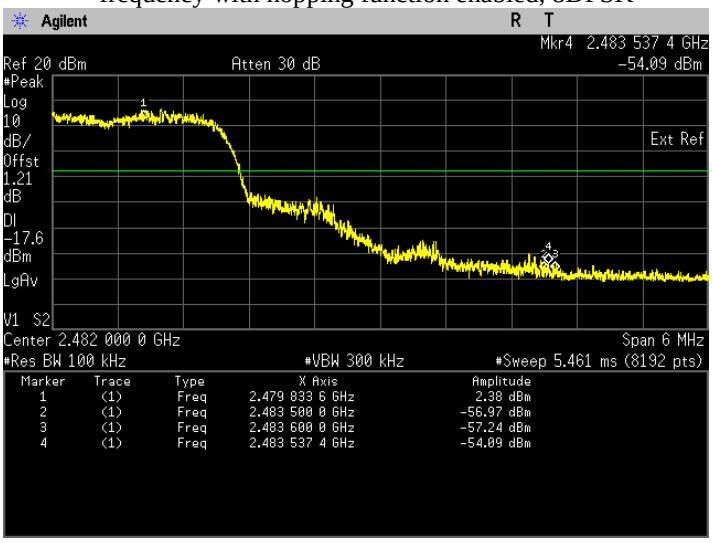
iv. The highest band edge emission at high carrier frequency with hopping function disabled, Pi/4 DQPSK



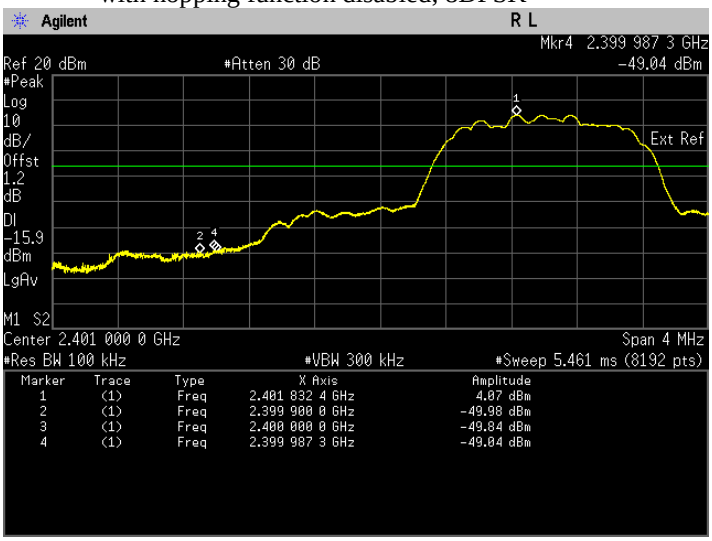
i. The highest band edge emission at low carrier frequency with hopping function enabled, 8DPSK



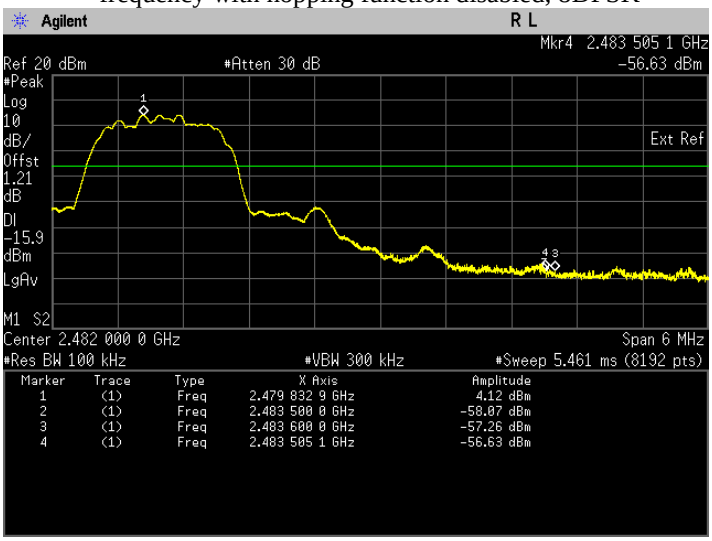
ii. The highest band edge emission at high carrier frequency with hopping function enabled, 8DPSK



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

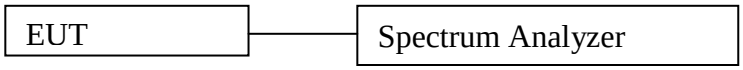


iv. The highest band edge emission at high carrier frequency with hopping function disabled, 8DPSK



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:

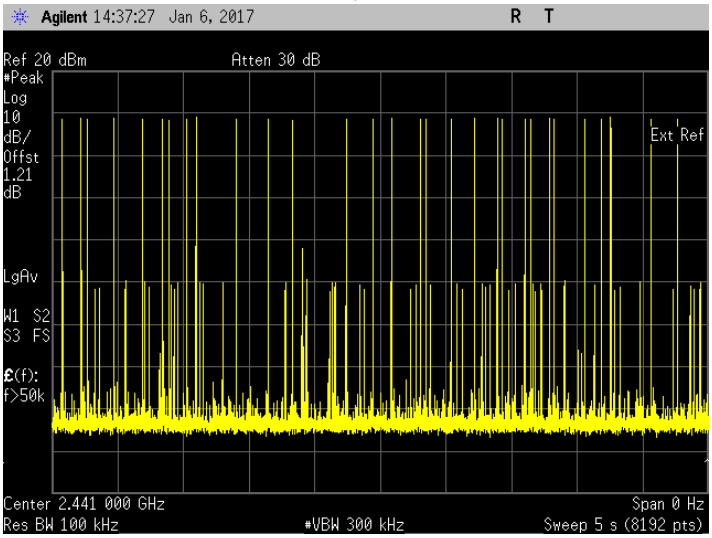
Normal Condition (25 ° C)
≤ 400ms

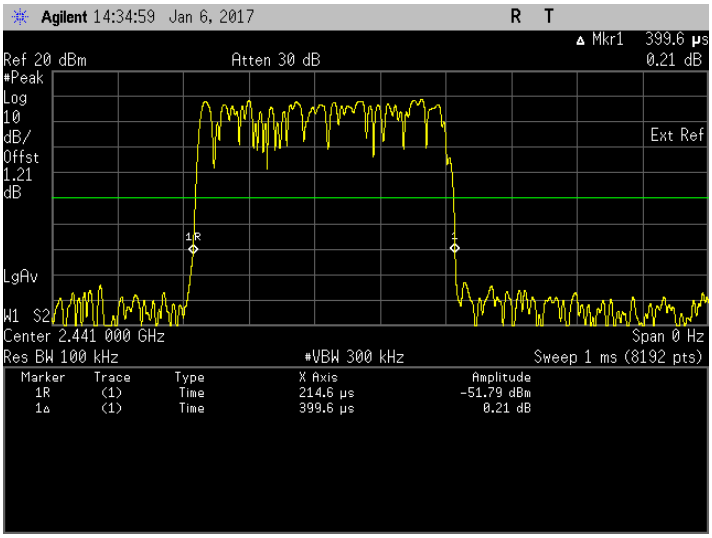
6.4.3. Test Result

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	7.50	2.4410	DH1	51	0.399	128.605680	Pass
			DH3	26	1.654	271.785280	Pass
			DH5	13	2.903	238.510480	Pass
Pi/4 DQPSK	7.50		DH1	53	0.401	134.318960	Pass
			DH3	28	1.653	292.514880	Pass
			DH5	20	2.901	366.686400	Pass
8 DPSK	7.50		DH1	52	0.400	131.456000	Pass
			DH3	29	1.651	302.595280	Pass
			DH5	16	2.902	293.450240	Pass

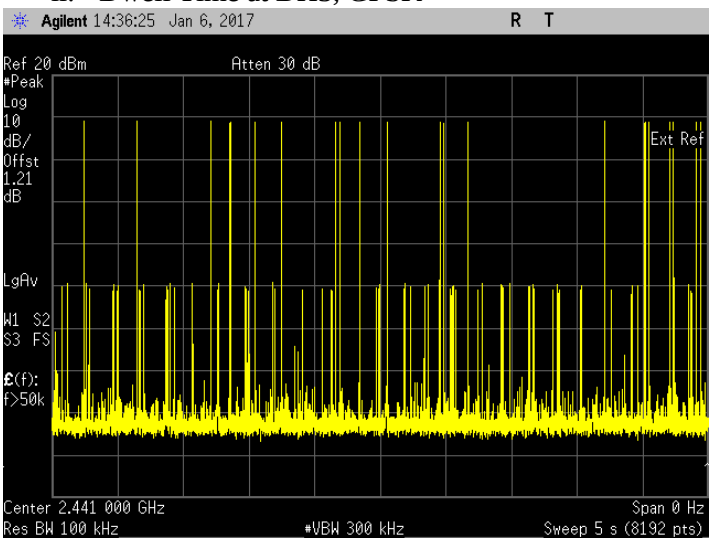
****Note:** Total dwell time 31.6s (79Hopping*0.4), (c) = (a) x 6.32 x (b)

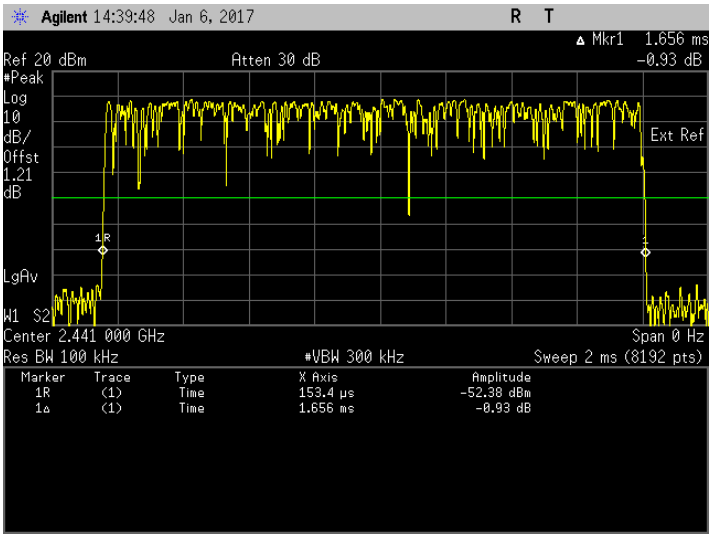
i. Dwell Time at DH1, GFSK



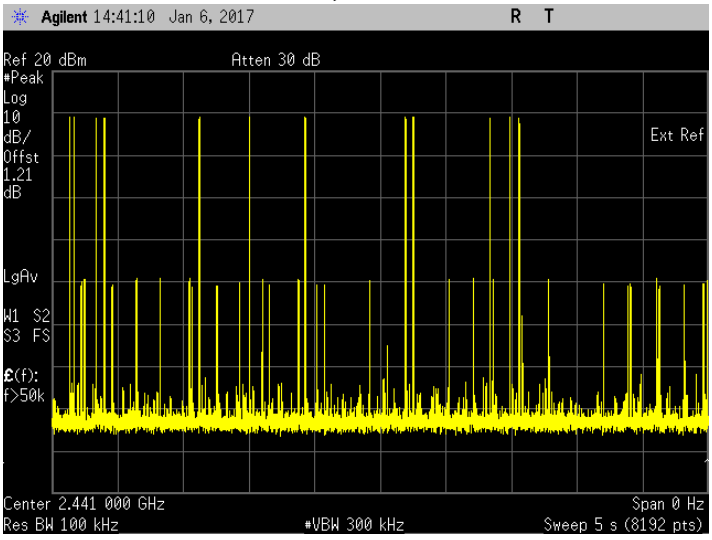


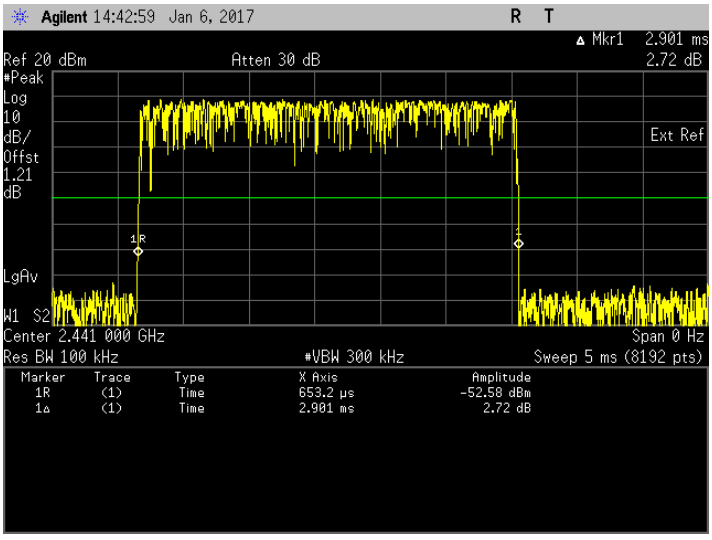
ii. Dwell Time at DH3, GFSK



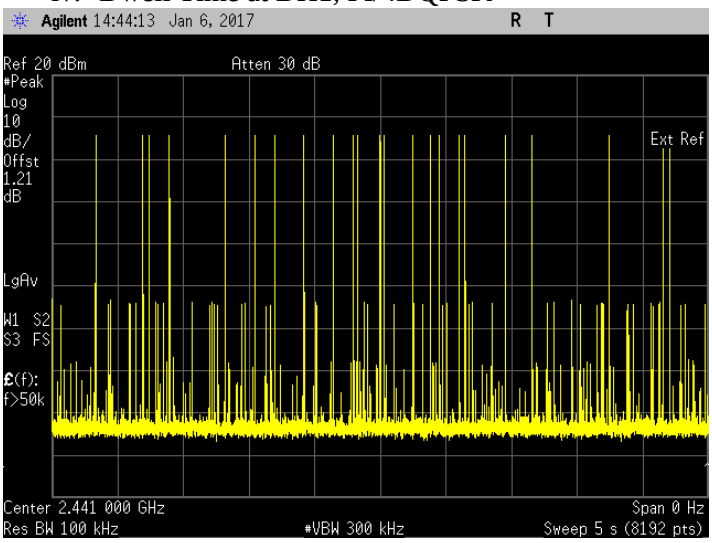


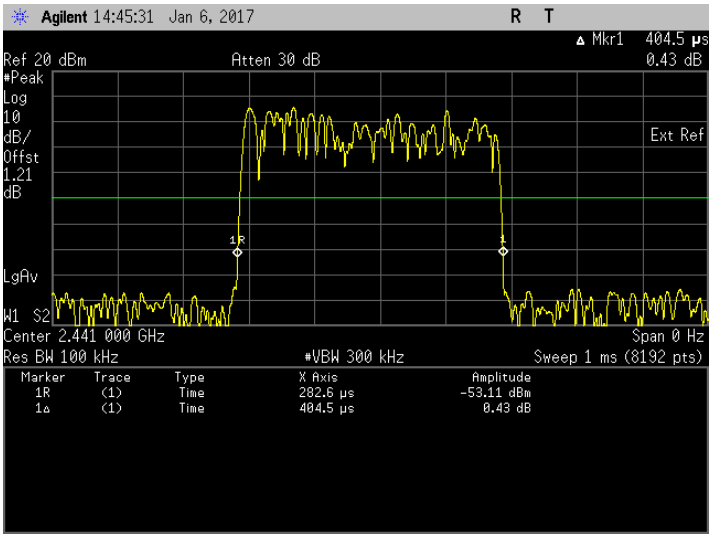
iii. Dwell Time at DH5, GFSK



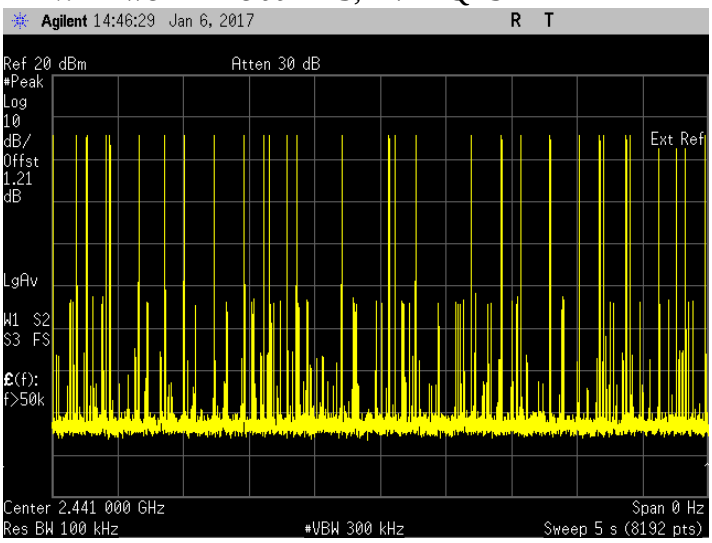


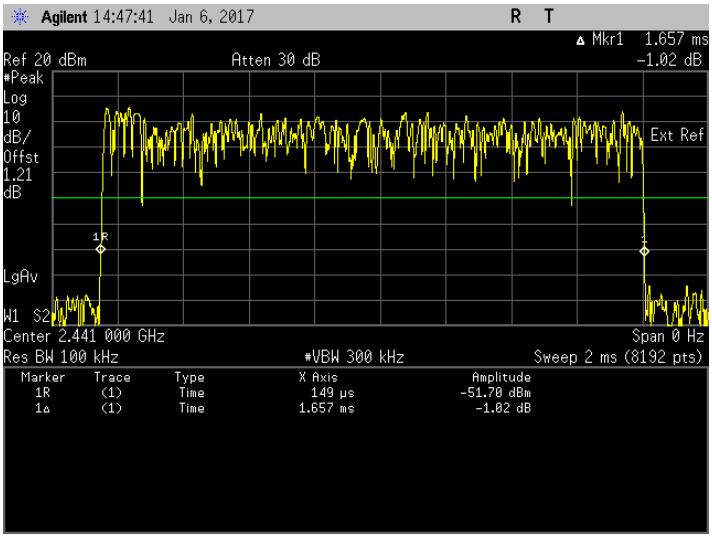
iv. Dwell Time at DH1, PI/4DQPSK



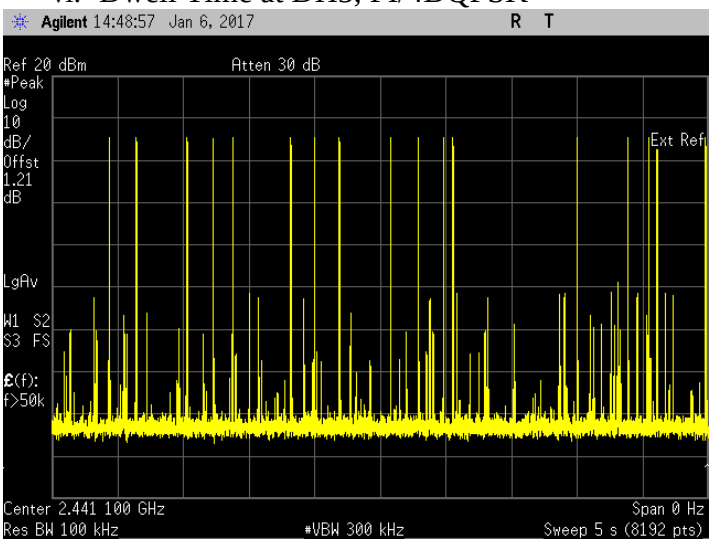


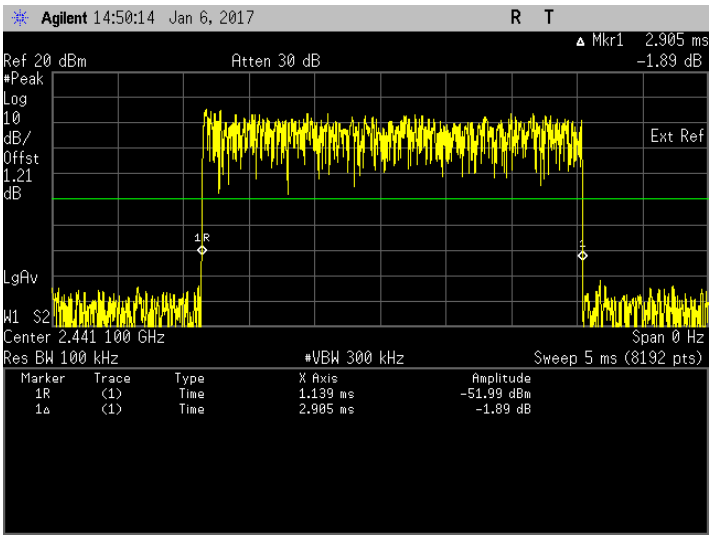
v. Dwell Time at DH3, PI/4DQPSK



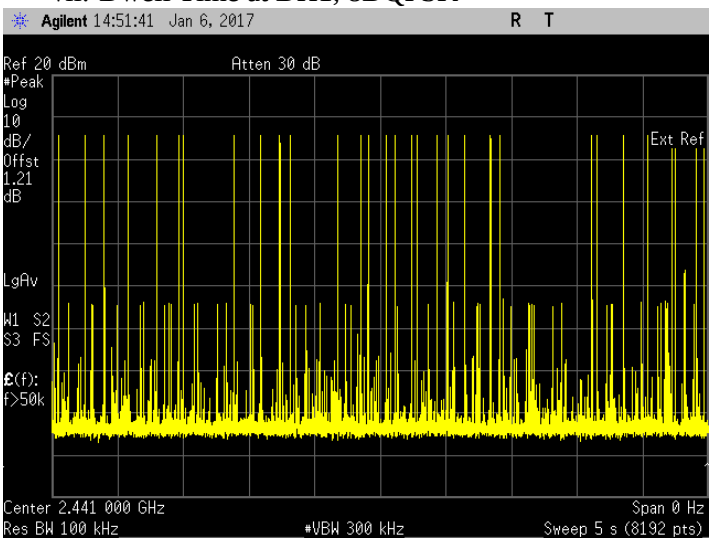


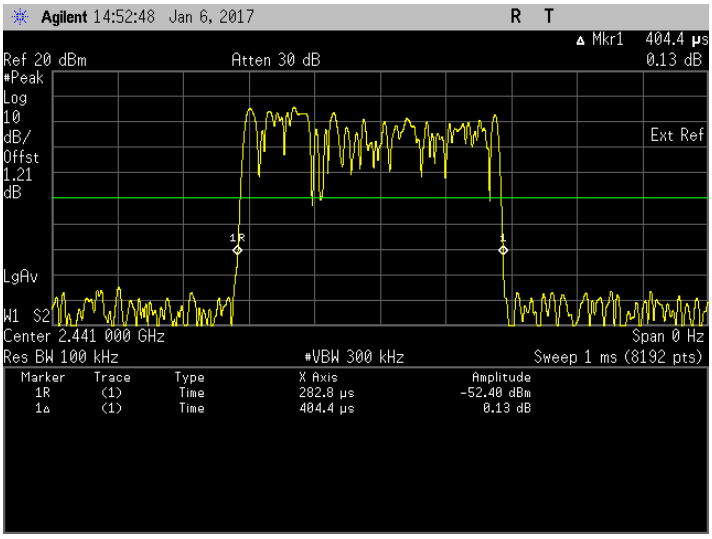
vi. Dwell Time at DH5, PI/4DQPSK



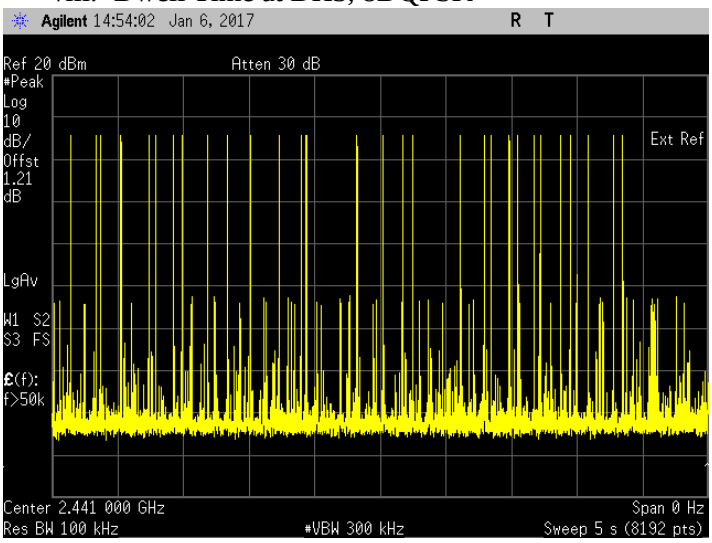


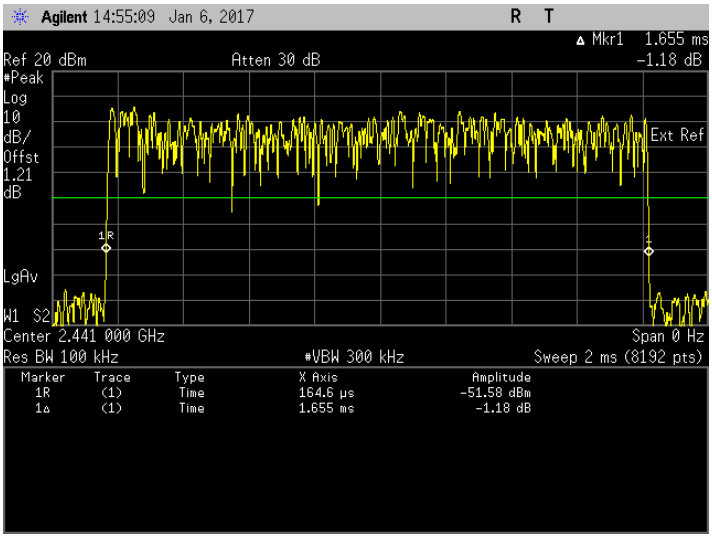
vii. Dwell Time at DH1, 8DQPSK



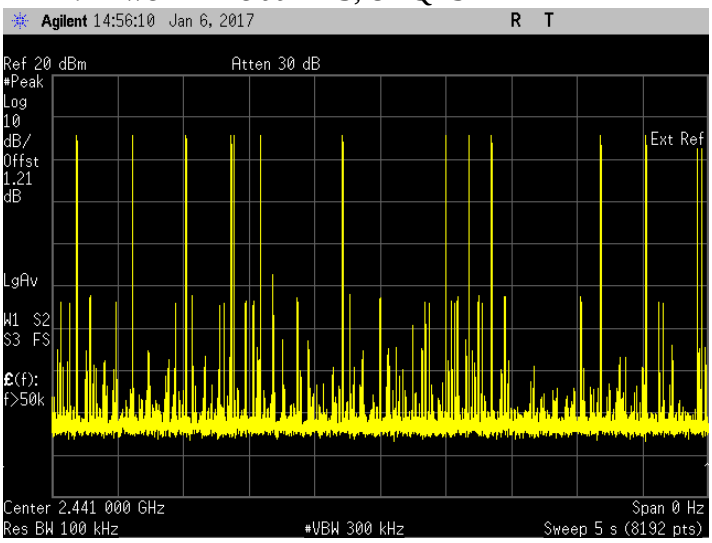


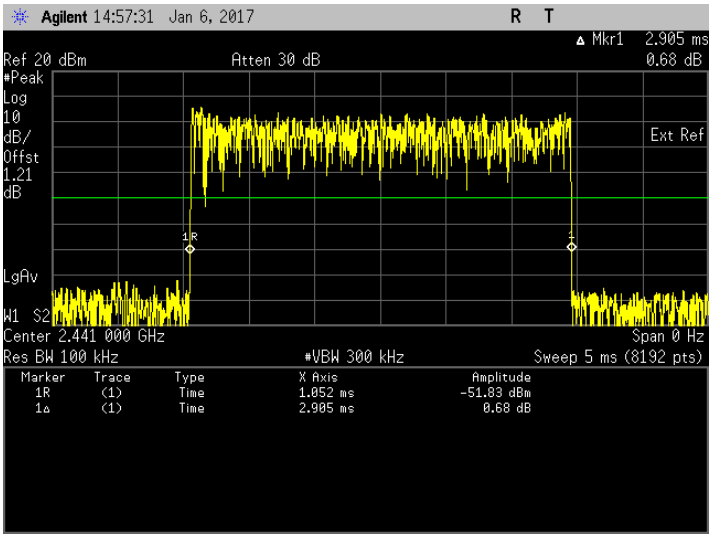
viii. Dwell Time at DH3, 8DQPSK





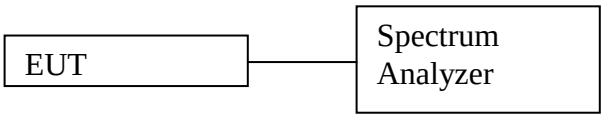
ix. Dwell Time at DH5, 8DQPSK





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.

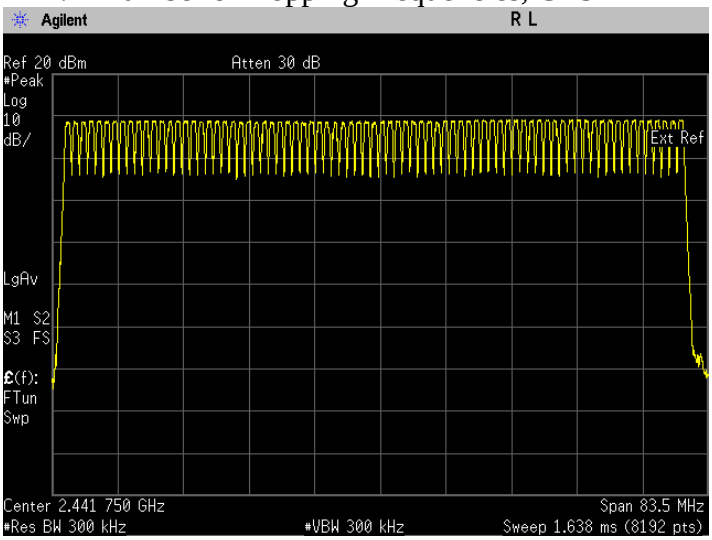
6.5.2. Test Limits:

Normal Condition (25 º C)
≥ 15

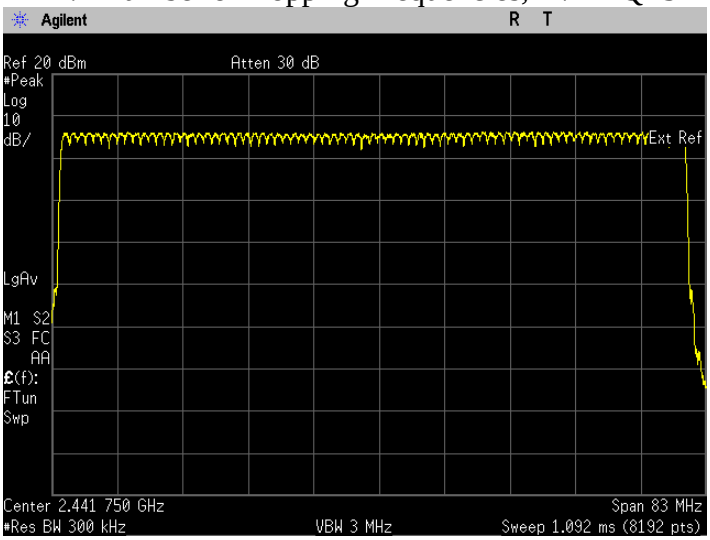
6.5.3. Test Result

Test Conditions		Sweep Range (GHz)	Results	
Modulation	Voltage(V)		No. of Hopping Frequencies	Status
GFSK	7.50	2.4000-2.4835	79	Pass
Pi/4DQPSK	7.50	2.4000-2.4835	79	Pass
8DPSK	7.50	2.4000-2.4835	79	Pass

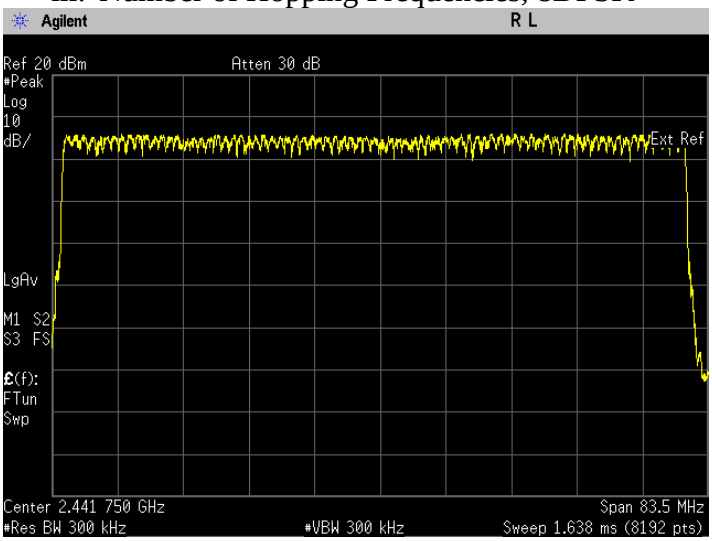
i. Number of Hopping Frequencies, GFSK



ii. Number of Hopping Frequencies, Pi/4 DQPSK

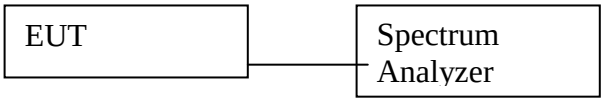


iii. Number of Hopping Frequencies, 8DPSK



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.

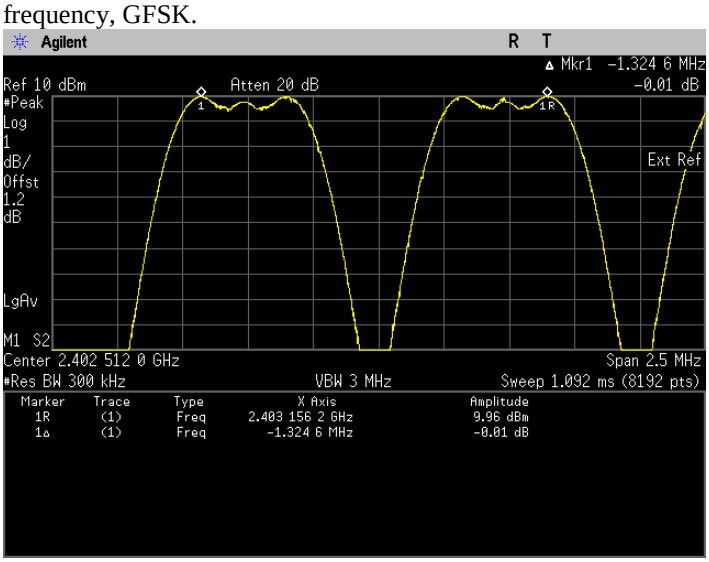
6.6.2. Test Limits:

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

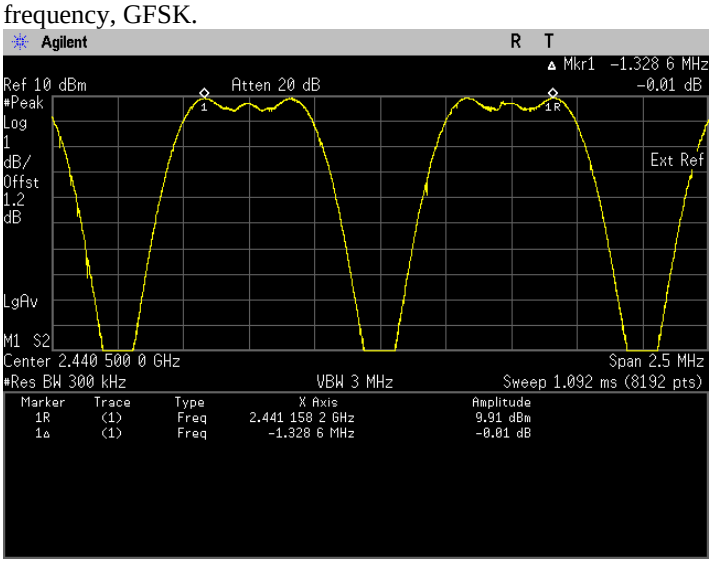
6.6.3. Test Result

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	7.50	2.4020	1.325	1.003	668.987	Pass
		2.4410	1.329	1.003	668.854	Pass
		2.4800	1.005	1.004	669.066	Pass
Pi/4DQPSK	7.50	2.4020	1.007	1.278	851.978	Pass
		2.4410	1.014	1.279	852.425	Pass
		2.4800	1.262	1.277	851.660	Pass
8DPSK	7.50	2.4020	1.043	1.270	846.433	Pass
		2.4410	0.996	1.269	846.252	Pass
		2.4800	0.969	1.269	846.108	Pass

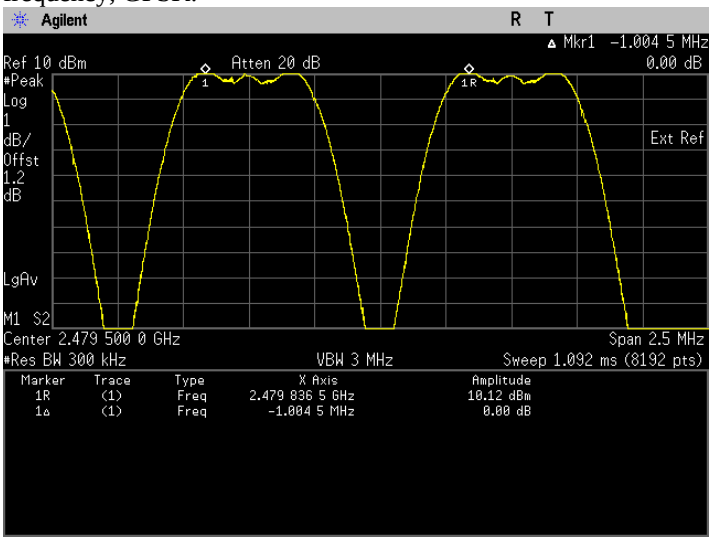
The Conducted RF Output Power test with result at low frequency, GFSK.



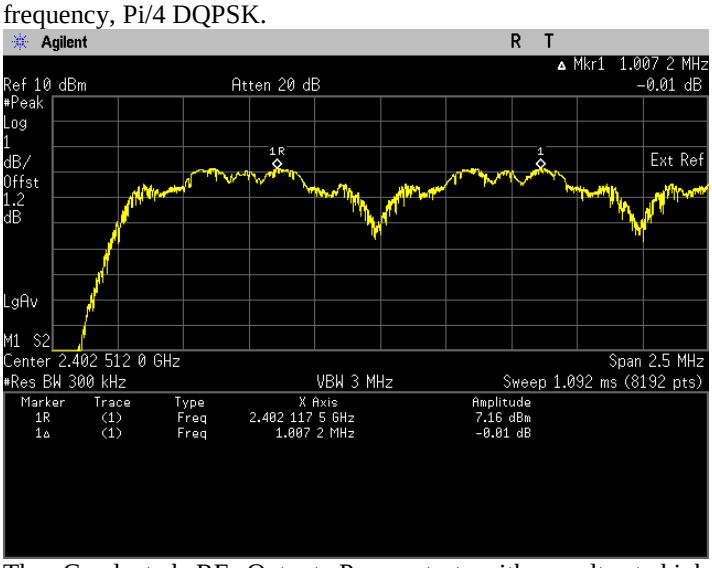
The Conducted RF Output Power test with result at mid frequency, GFSK.



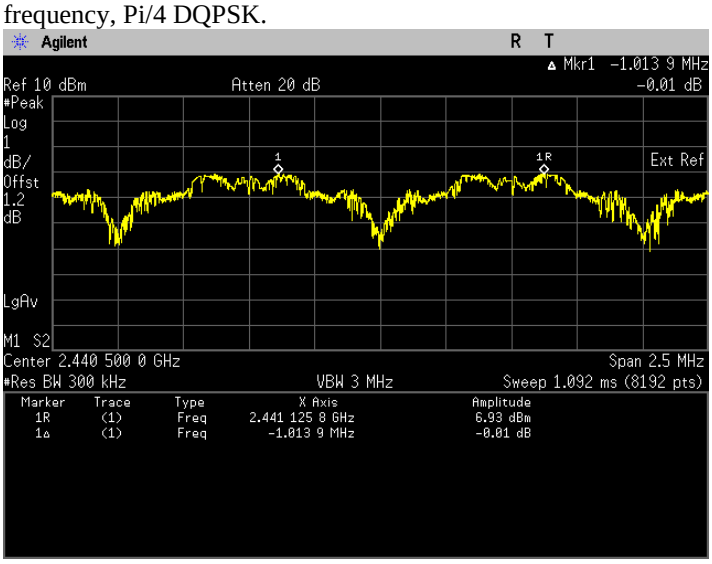
The Conducted RF Output Power test with result at high frequency, GFSK.



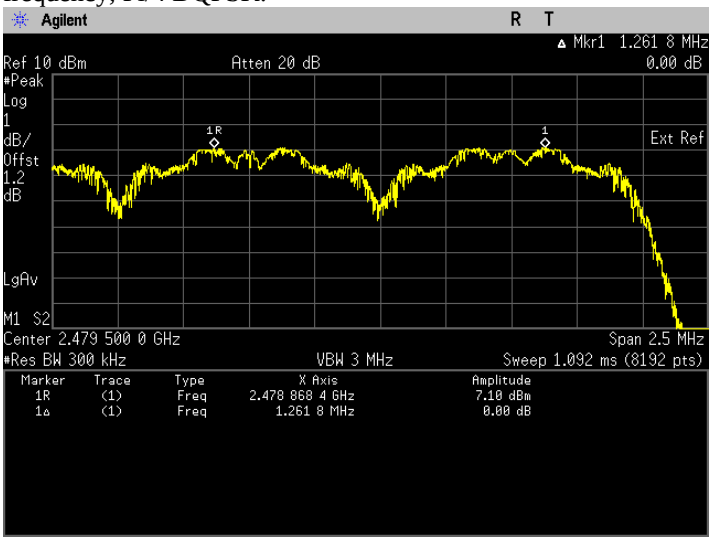
The Conducted RF Output Power test with result at low frequency, Pi/4 DQPSK.



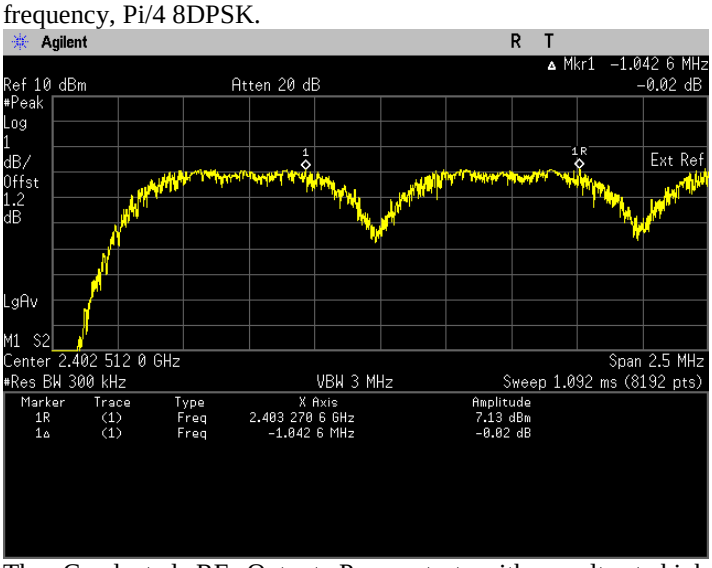
The Conducted RF Output Power test with result at mid frequency, Pi/4 DQPSK.



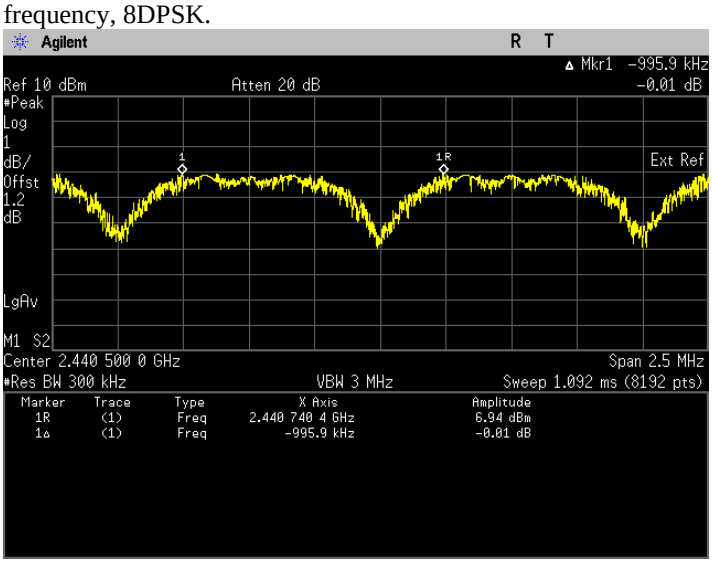
The Conducted RF Output Power test with result at high frequency, Pi/4 DQPSK.



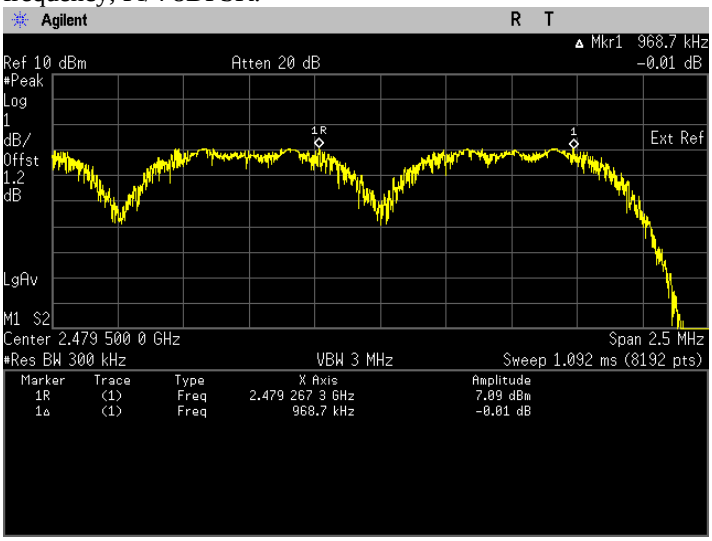
The Conducted RF Output Power test with result at low frequency, Pi/4 8DPSK.



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

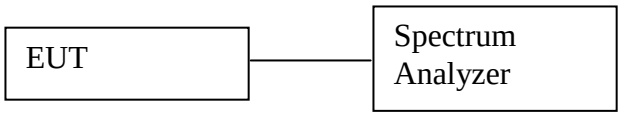


The Conducted RF Output Power test with result at high frequency, Pi/4 8DPSK.



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:

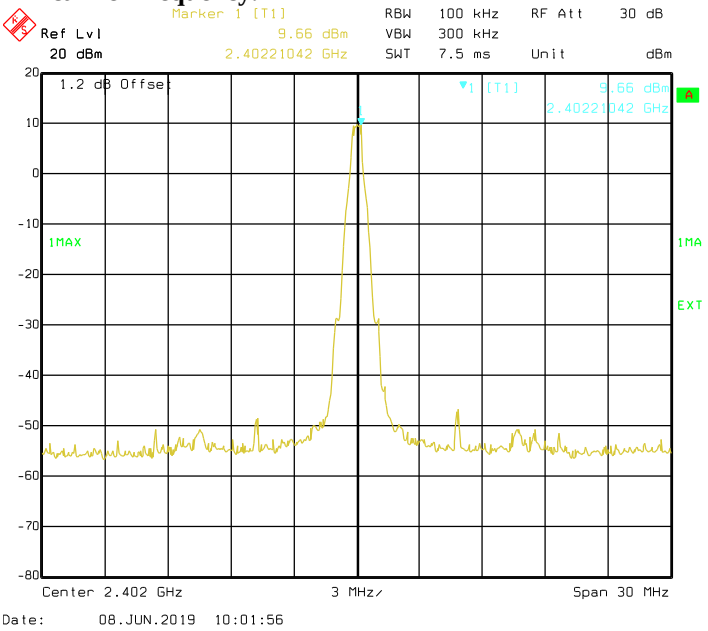
Normal Condition (25 ° C)
Shall be at least 20 dB below for peak power.

6.7.3. Test Data:

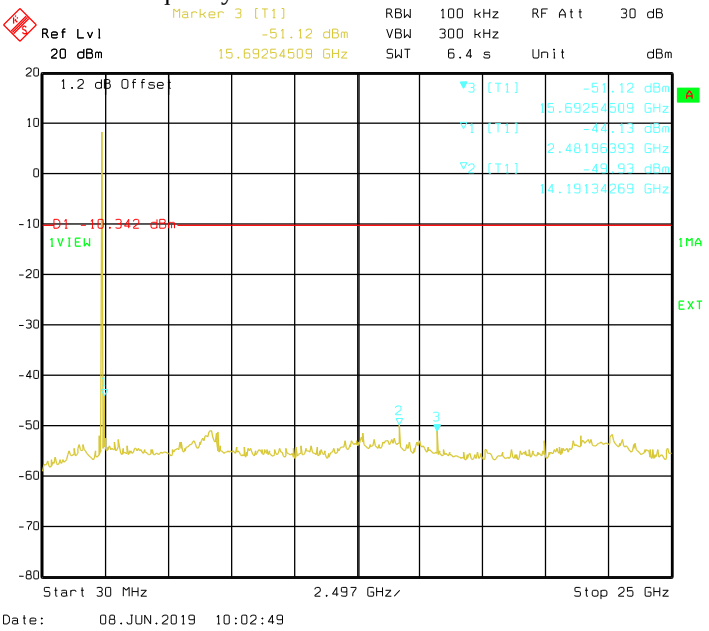
Test Conditions			Results		
Modulation	Voltage(V)	Test Frequency (GHz)	Spurs (MHz)	Level (dBm)	Status
GFSK	7.50	2.4020	2481.964	-44.128	Pass
		2.4410	2532.004	-44.388	Pass
		2.4800	2381.884	-44.240	Pass
Pi/4 DQPSK	7.50	2.4020	6685.331	-50.117	Pass
		2.4410	2532.004	-48.909	Pass
		2.4800	14191.343	-50.846	Pass
8DPSK	7.50	2.4020	6935.531	-50.103	Pass
		2.4410	14191.343	-49.843	Pass
		2.4800	14191.343	-50.185	Pass

GFSK Modulation:

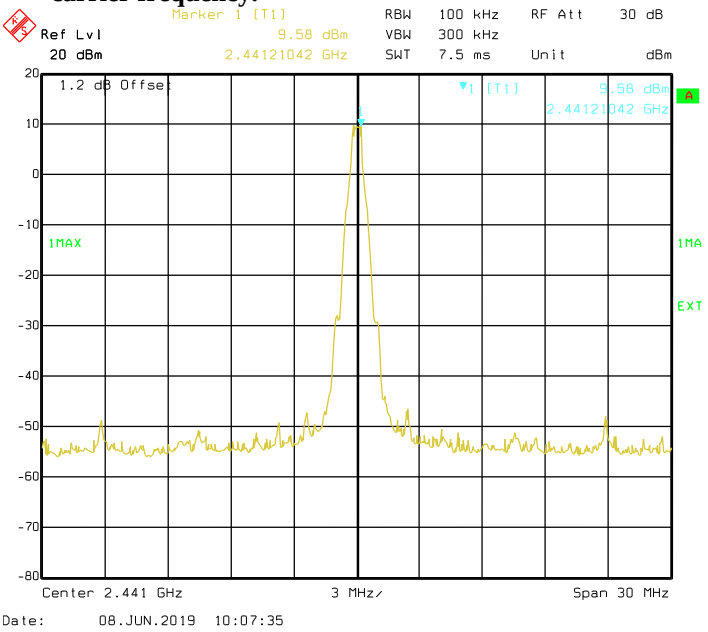
- **The high emission level within the assigned band at low carrier frequency.**



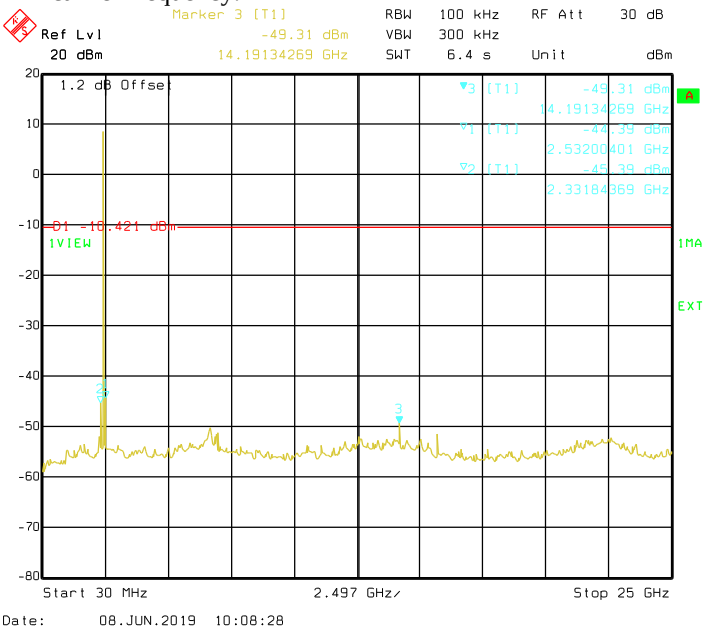
- Spurious emission measurement in **30MHz – 25GHz** at low carrier frequency.



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

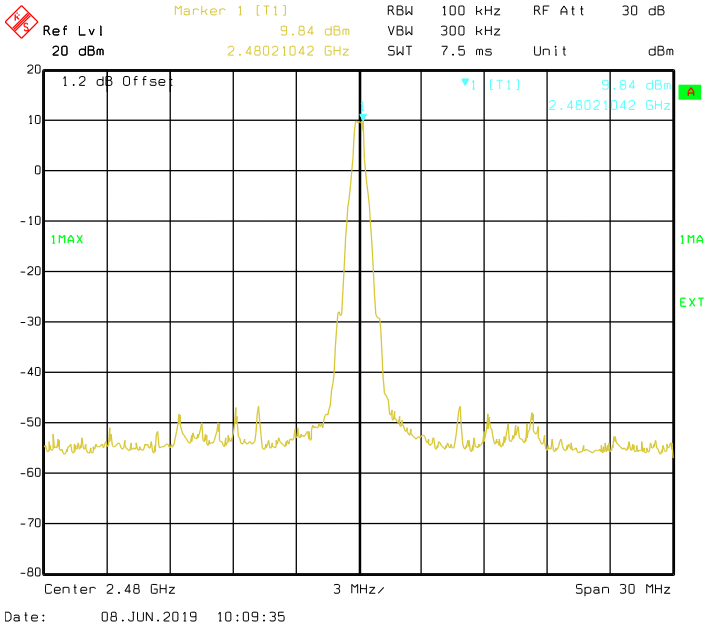


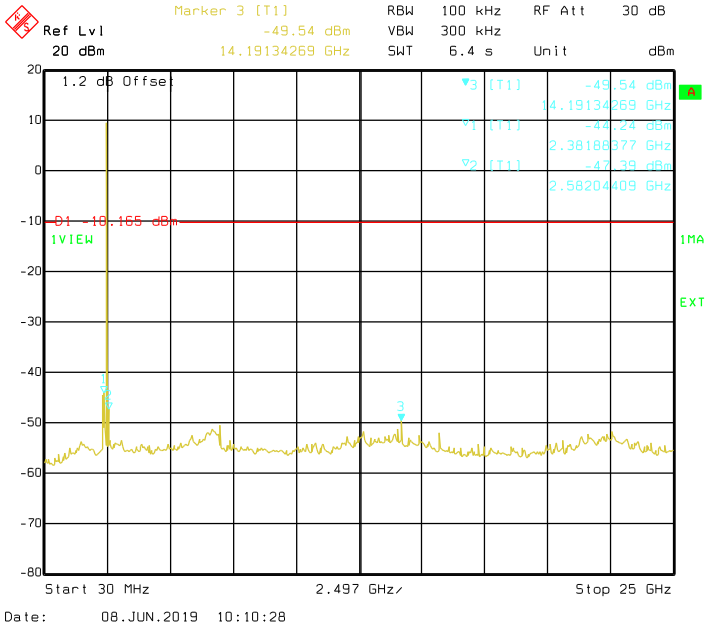
- Spurious emission measurement in **30MHz – 25GHz** at mid carrier frequency.



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

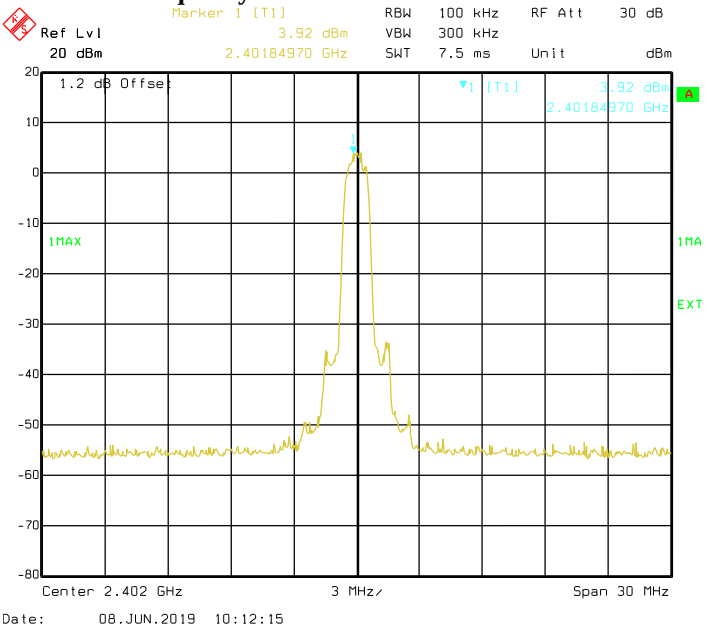
- Spurious emission measurement in **30MHz – 25GHz** at high carrier frequency.


Marker 1 [T1]
RBW 100 kHz
RF Att 30 dB
Ref Lvl
9.84 dBm
VBW 300 kHz
20 dBm
2.48021042 GHz
SWT 7.5 ms
Unit dBm
1.2 dB Offset
1MAX
1MA
EXT
Center 2.48 GHz
3 MHz/
Span 30 MHz
Date: 08.JUN.2019 10:09:35


Marker 3 [T1]
RBW 100 kHz
RF Att 30 dB
Ref Lvl
-49.54 dBm
VBW 300 kHz
20 dBm
14.19134269 GHz
SWT 6.4 s
Unit dBm
1.2 dB Offset
D1 -18.165 dBm
1VIEW
1MA
EXT
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Date: 08.JUN.2019 10:10:28

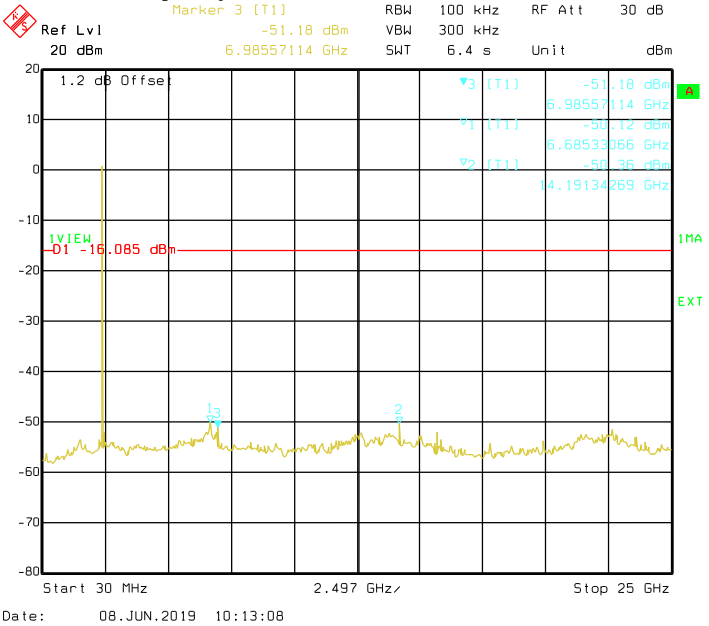
Pi/4 DQPSK Modulation:

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



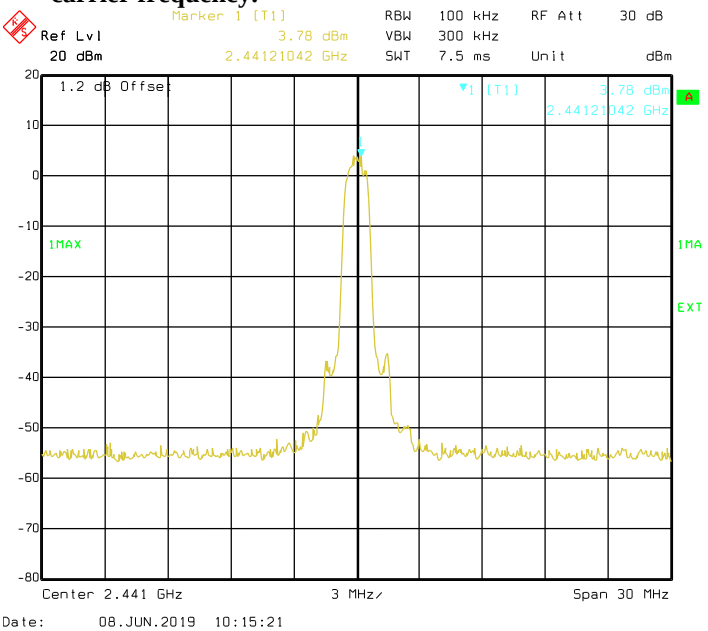
Date: 08.JUN.2019 10:12:15

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



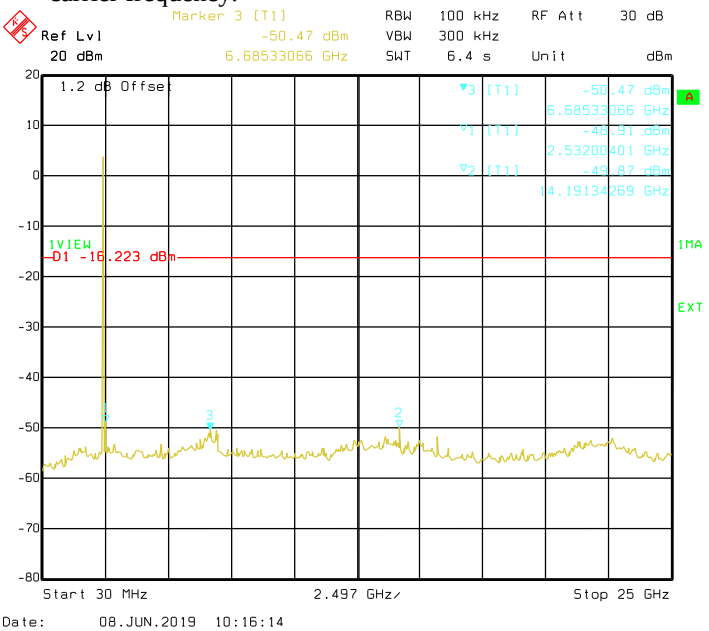
Date: 08.JUN.2019 10:13:08

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



Date: 08.JUN.2019 10:15:21

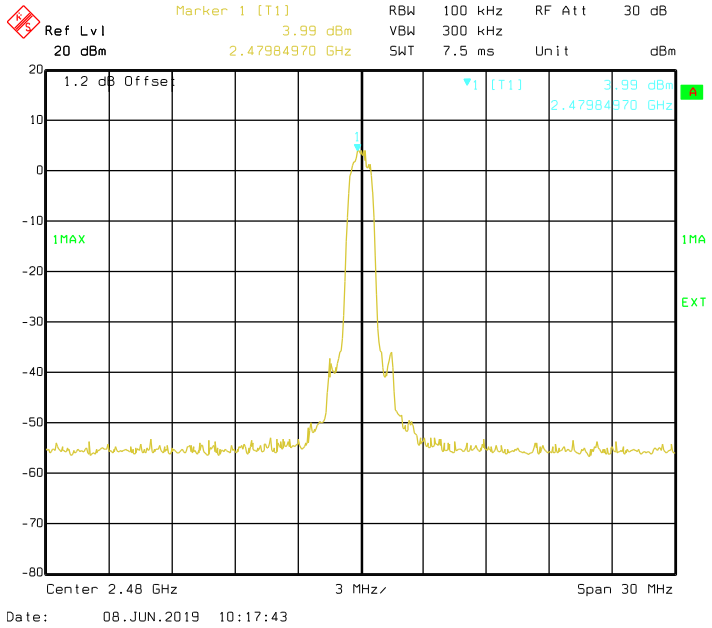
iv. Spurious emission measurement in **30MHz – 25GHz** at mid carrier frequency.

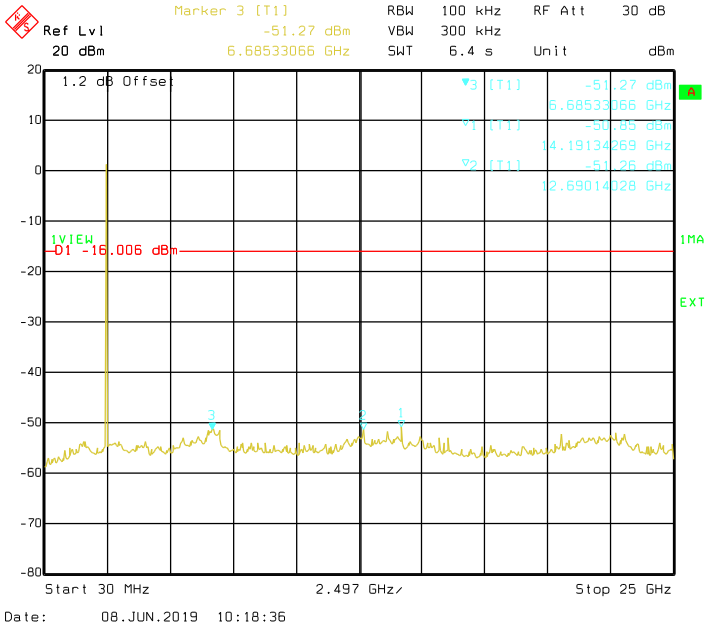


Date: 08.JUN.2019 10:16:14

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

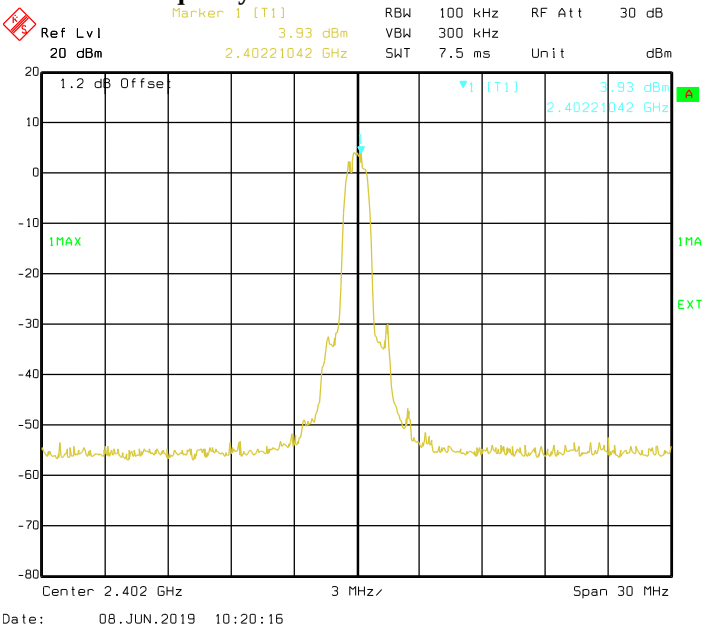
vi. Spurious emission measurement in **30MHz – 25GHz** at high carrier frequency.


Marker 1 [T1]
RBW 100 kHz
RF Att 30 dB
Ref Lvl
3.99 dBm
VBW 300 kHz
20 dBm
2.47984970 GHz
SWT 7.5 ms
Unit dBm
1.2 dB Offset
1MAX
1MA
EXT
Center 2.48 GHz
3 MHz/
Span 30 MHz
Date: 08.JUN.2019 10:17:43

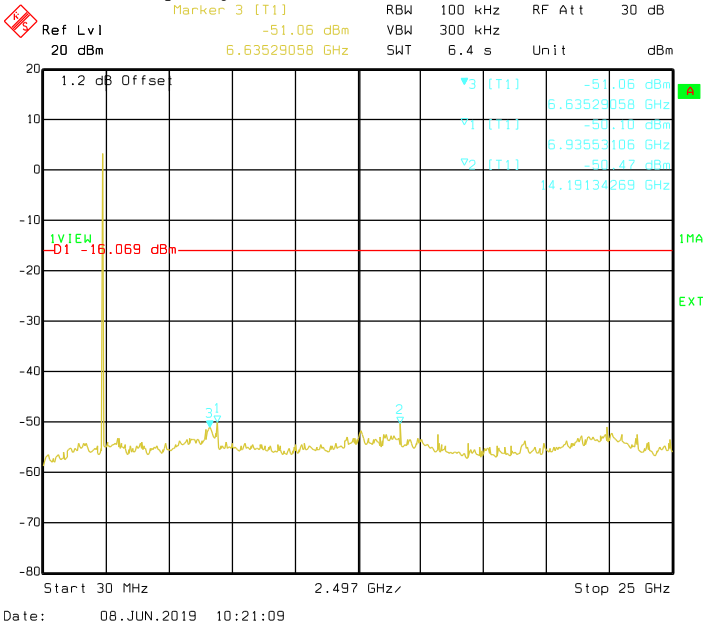

Marker 3 [T1]
RBW 100 kHz
RF Att 30 dB
Ref Lvl
-51.27 dBm
VBW 300 kHz
20 dBm
6.68533066 GHz
SWT 6.4 s
Unit dBm
1.2 dB Offset
1VIEW
D1 -16.006 dBm
1MA
EXT
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Date: 08.JUN.2019 10:18:36

8DPSK Modulation:

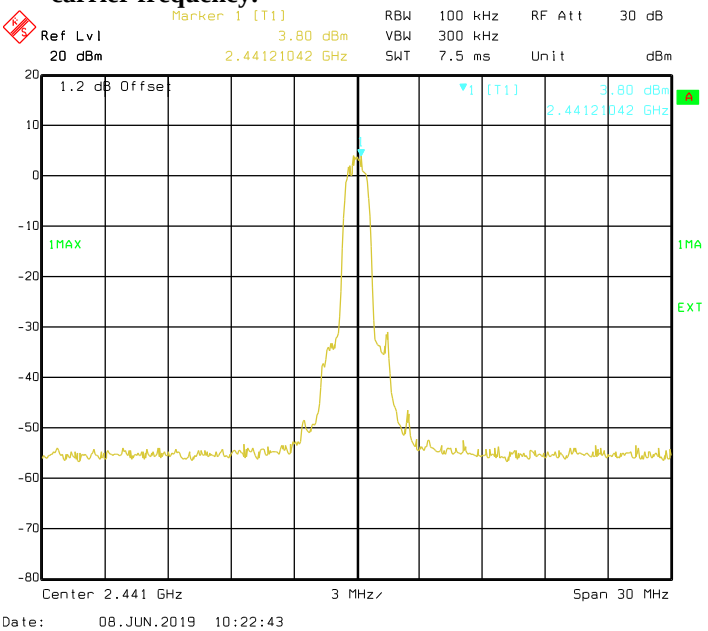
i. The high emission level within the assigned band at low carrier frequency.



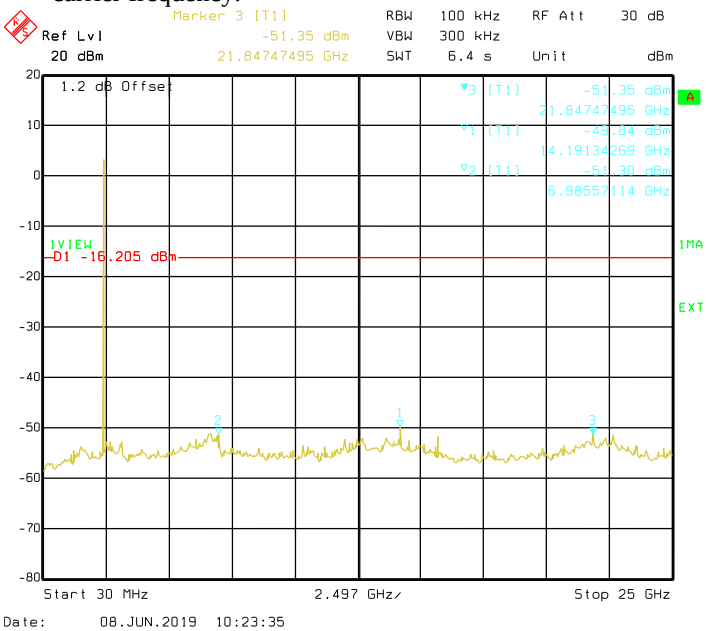
ii. Spurious emission measurement in **30MHz – 25GHz** at low carrier frequency.



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

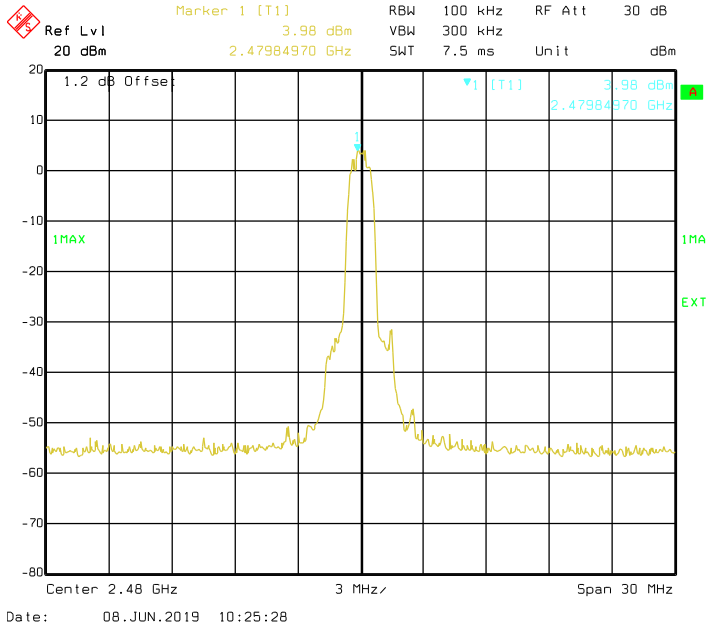


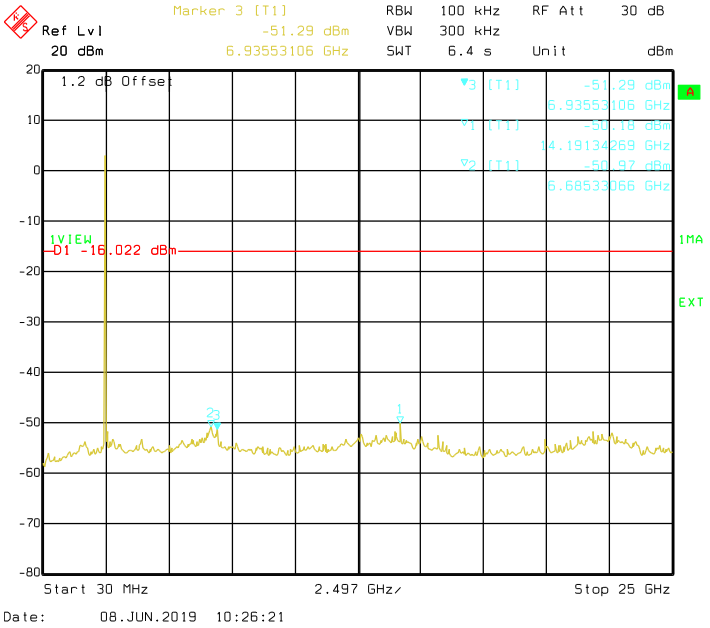
iv. Spurious emission measurement in **30MHz – 25GHz** at mid carrier frequency.



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

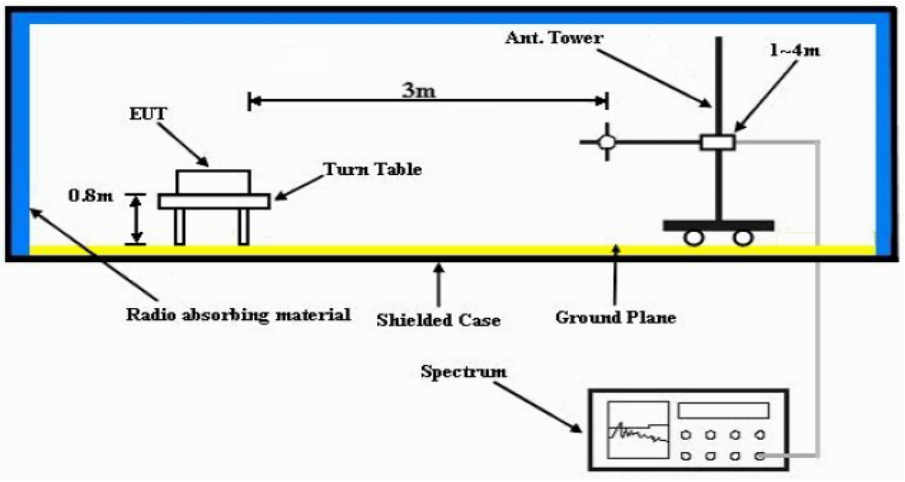
vi. Spurious emission measurement in **30MHz – 25GHz** at high carrier frequency.


Marker 1 [T1]
RBW 100 kHz
RF Att 30 dB
Ref Lvl
3.98 dBm
VBW 300 kHz
20 dBm
2.47984970 GHz
SWT 7.5 ms
Unit dBm
1.2 dB Offset
1MAX
1MA
EXT
Center 2.48 GHz
3 MHz/
Span 30 MHz
Date: 08.JUN.2019 10:25:28


Marker 3 [T1]
RBW 100 kHz
RF Att 30 dB
Ref Lvl
-51.29 dBm
VBW 300 kHz
20 dBm
6.93553106 GHz
SWT 6.4 s
Unit dBm
1.2 dB Offset
1VIEW
D1 -16.022 dBm
1MA
EXT
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Date: 08.JUN.2019 10:26:21

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 Transmitter Radiated Emission
Model#: M25URS9PW1BN S/N: 471TVF3482 EMC SR ID#: 14913-EMC-00049
Battery: NA Accessory: AN000163A01, AN000197A10, 3466-HMN4079G-4, HSN4040A-C4, HKN4191B-2, 3466-HKN6163C-2, PMHN4194C-CF3
Test Channel: Low Test Frequency: 2402.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Y-Plane (GFSK)

Radiated Emission (Low Channel) tabular data

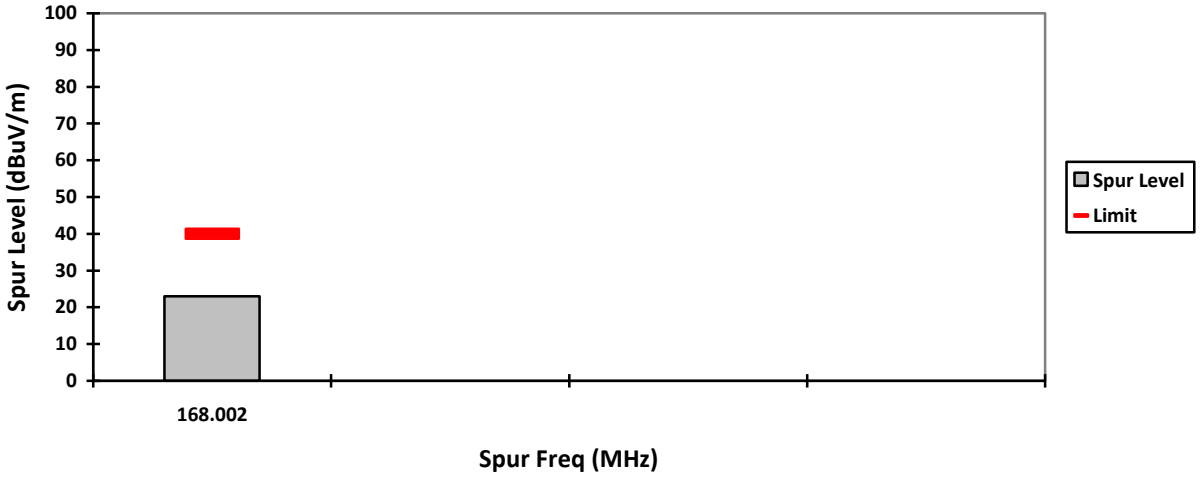
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
39.1734	-	38.8059	-	-	88.4519	-	-	49.6460	-	108.4519
96.3087	-	52.5421	-	-	88.4519	-	-	35.9098	-	108.4519
168.0020	23.0334	-	-	40.0000	-	-	16.9666	-	-	-
192.0000	-	35.5225	-	-	88.4519	-	-	52.9294	-	108.4519
287.9920	-	32.7008	-	-	88.4519	-	-	55.7511	-	108.4519
336.0130	-	31.2603	-	-	88.4519	-	-	57.1916	-	108.4519
Horizontal Radiated Emission Result										
39.7908	-	26.1357	-	-	88.4519	-	-	62.3162	-	108.4519
96.0020	-	36.6694	-	-	88.4519	-	-	51.7825	-	108.4519
167.9920	31.6033	-	-	40.0000	-	-	8.3967	-	-	-
192.0000	-	32.3372	-	-	88.4519	-	-	56.1147	-	108.4519
288.0079	-	33.8040	-	-	88.4519	-	-	54.6479	-	108.4519
336.0100	-	36.1087	-	-	88.4519	-	-	52.3432	-	108.4519

Remarks: Pass Result	Marginal Result	Fail Result

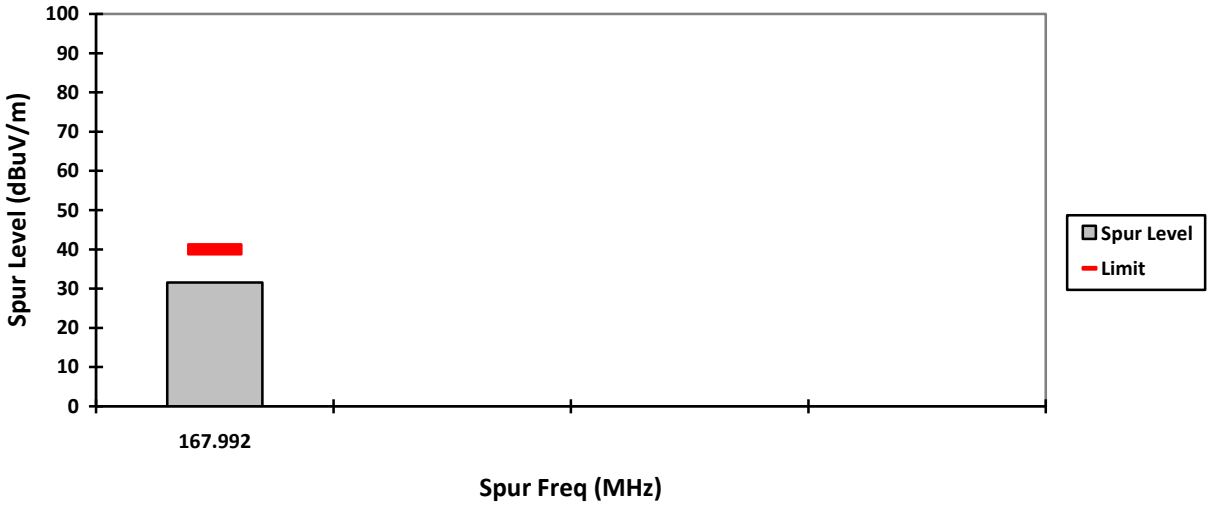
Temperature (degC): 23.4 **Humidity (%): 69.8**
Test Performed by: Qawiman&Azil **Test Date: Sun, May 12, 2019**
System MU: 5.01dB

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.**

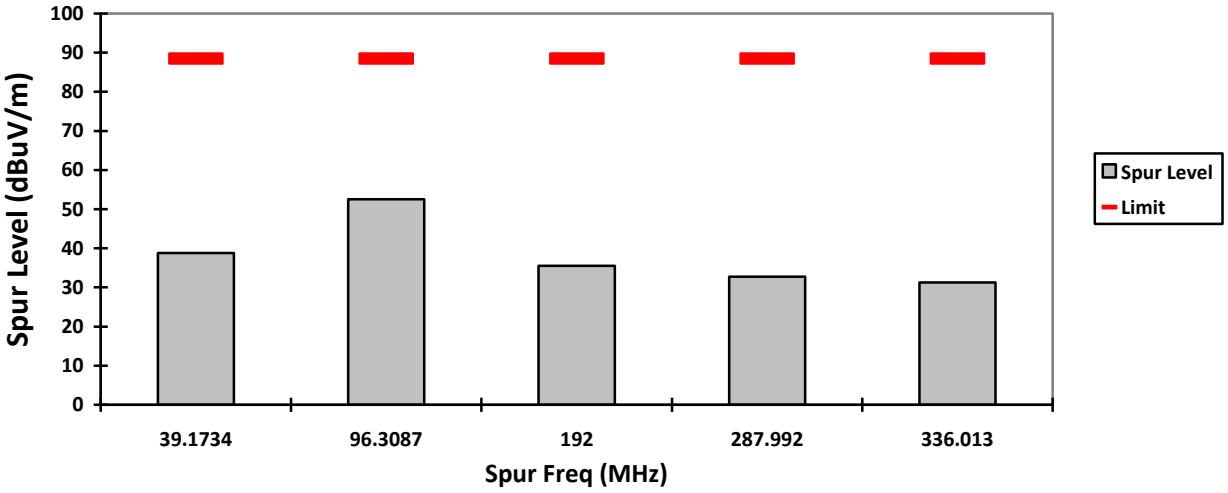
VERTICAL, QPK



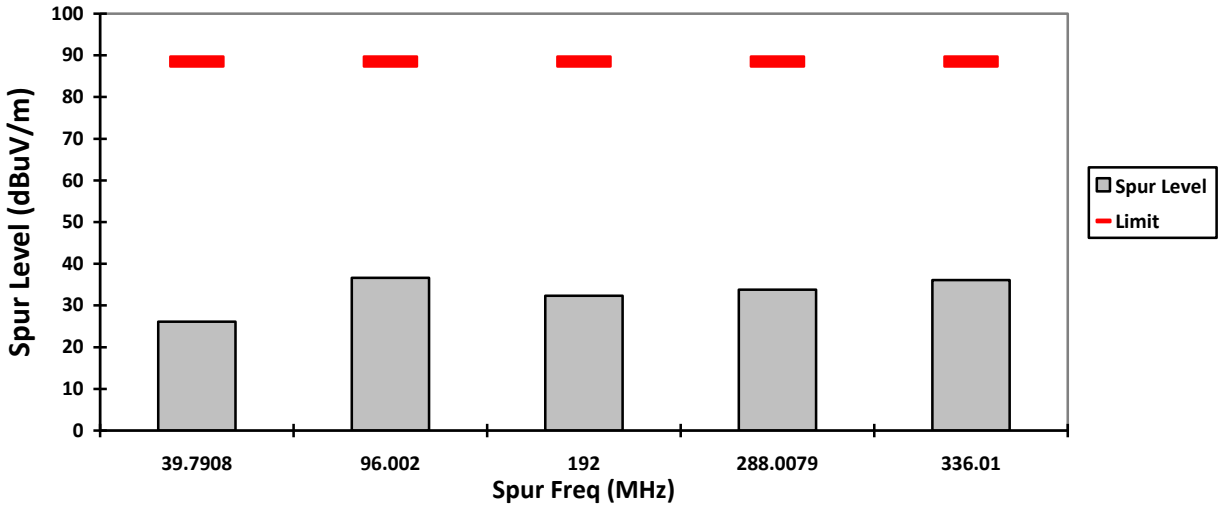
HORIZONTAL, QPK



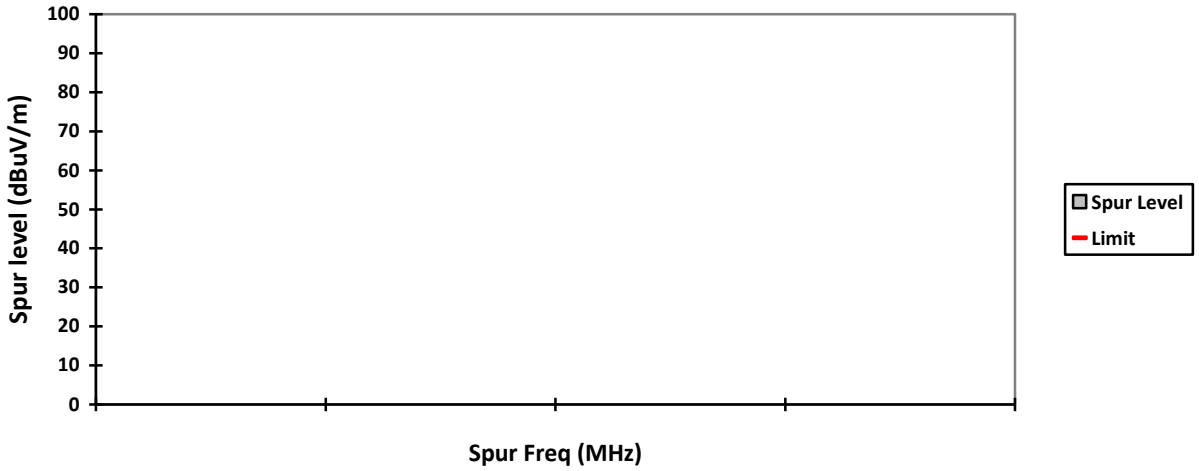
VERTICAL, PK



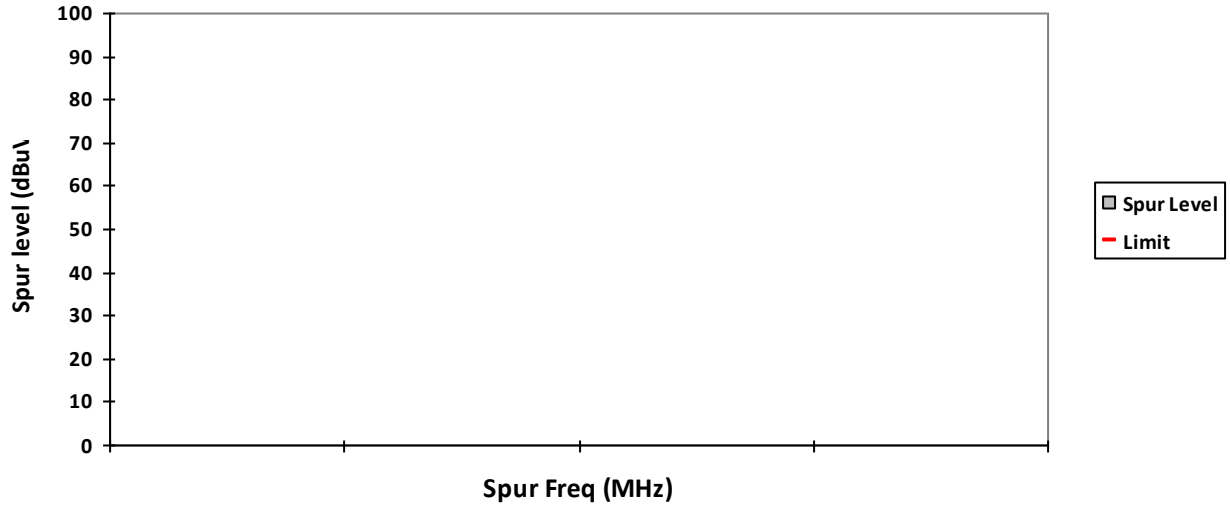
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: Bluetooth SAC Transmitter Radiated Emission

Model#: M25URS9PW1BN S/N: 471TVF3482 EMC SR ID#: 14913-EMC-00049

Battery: NA Accessory: AN000163A01, AN000197A10, 3466-HMN4079G-4, HSN4040A-C4, HKN4191B-2, 3466-HKN6163C-2, PMHN4194C-CF3

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

Worst Case Plane: Y-Plane (GFSK)

Radiated Emission (Mid Channel) tabular data

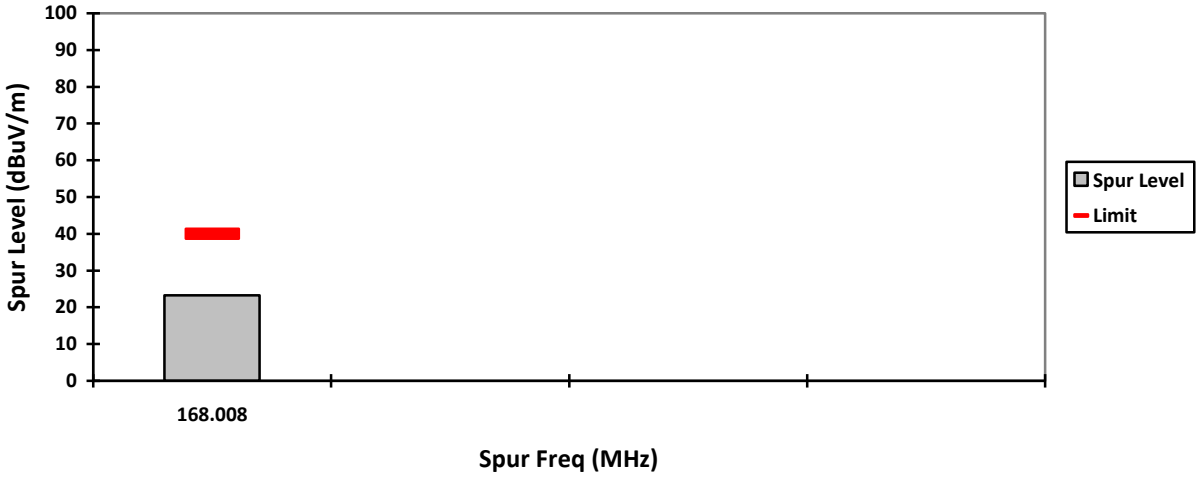
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
39.1695	-	38.3210	-	-	88.4519	-	-	50.1309	-	108.4519
66.0108	-	25.1155	-	-	88.4519	-	-	63.3364	-	108.4519
168.0080	23.2710	-	-	40.0000	-	-	16.7290	-	-	-
192.0040	-	38.1243	-	-	88.4519	-	-	50.3276	-	108.4519
287.9880	-	29.4343	-	-	88.4519	-	-	59.0176	-	108.4519
336.0070	-	33.1917	-	-	88.4519	-	-	55.2602	-	108.4519
Horizontal Radiated Emission Result										
39.1089	-	28.7433	-	-	88.4519	-	-	59.7086	-	108.4519
66.0617	-	27.2655	-	-	88.4519	-	-	61.1864	-	108.4519
168.0050	32.2086	-	-	40.0000	-	-	7.7914	-	-	-
192.0050	-	34.9462	-	-	88.4519	-	-	53.5057	-	108.4519
288.0079	-	31.7956	-	-	88.4519	-	-	56.6563	-	108.4519
336.0010	-	36.2938	-	-	88.4519	-	-	52.1581	-	108.4519

Remarks: Pass Result	Marginal Result	Fail Result

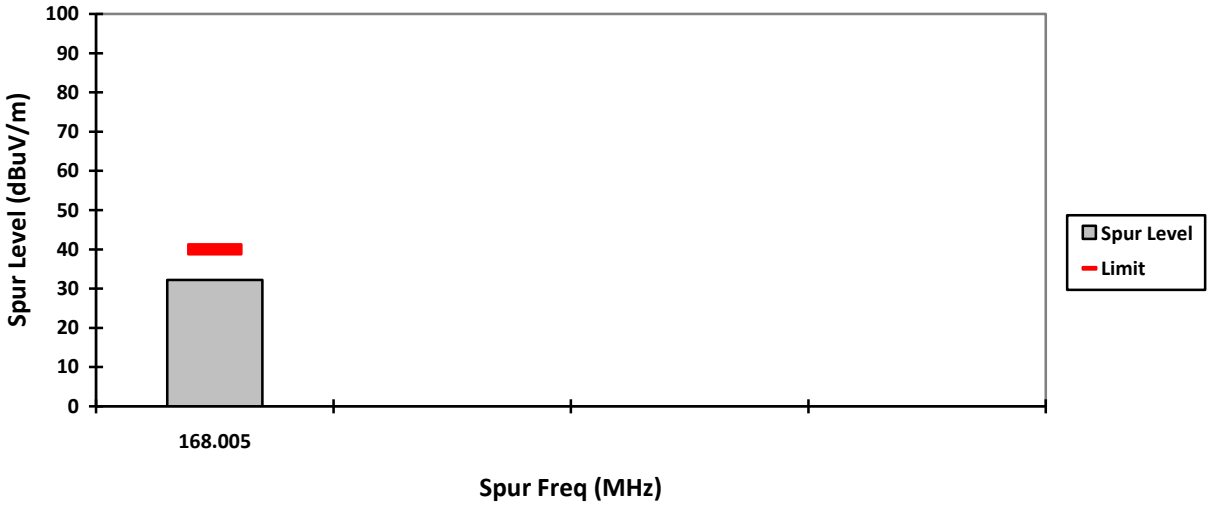
Temperature (degC): 23.4 **Humidity (%): 69.8**
Test Performed by: Qawiman&Azil **Test Date: Sun, May 12, 2019**
System MU: 5.01dB

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.**

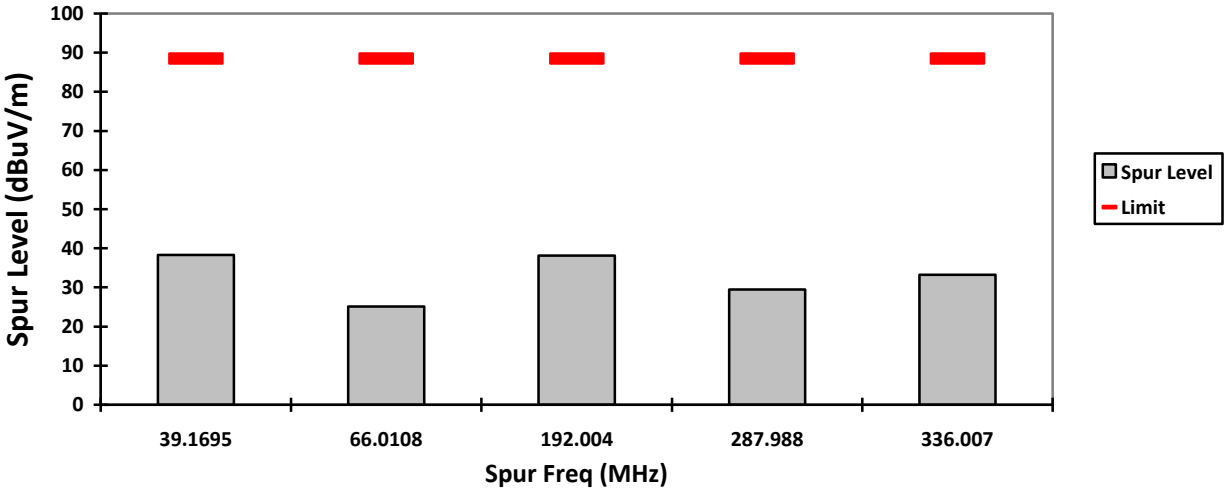
VERTICAL, QPK



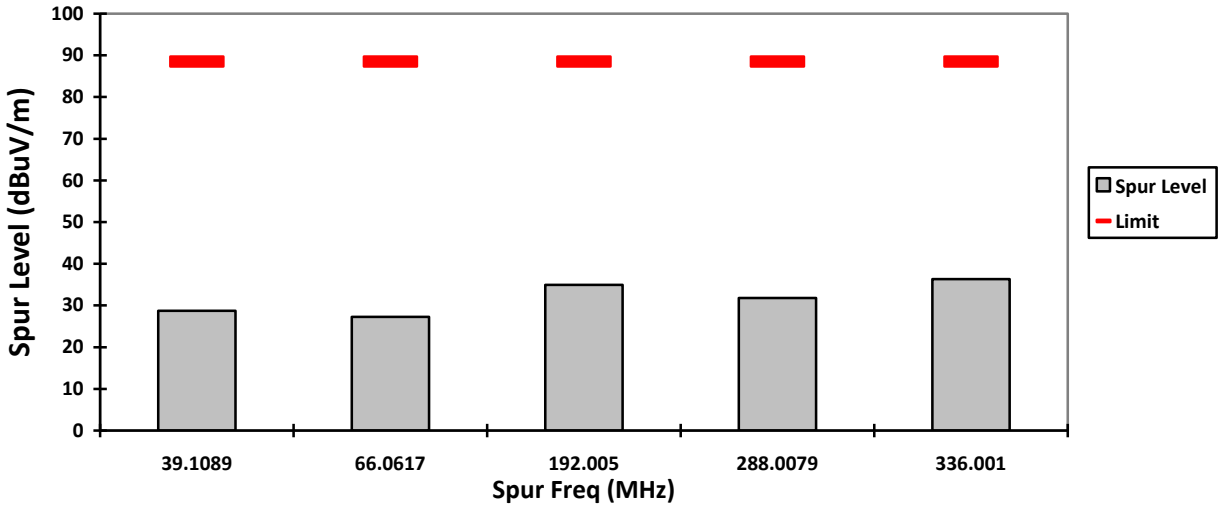
HORIZONTAL, QPK



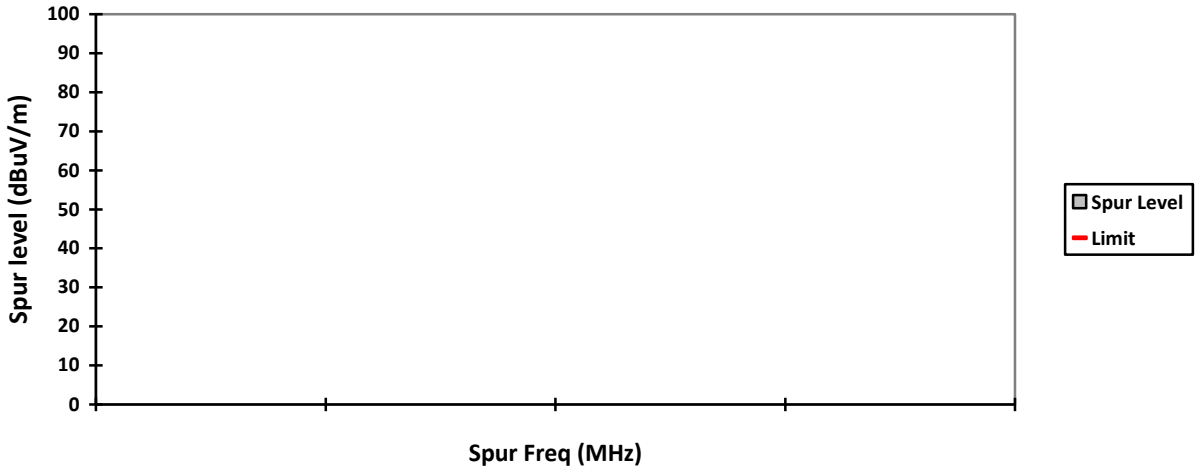
VERTICAL, PK



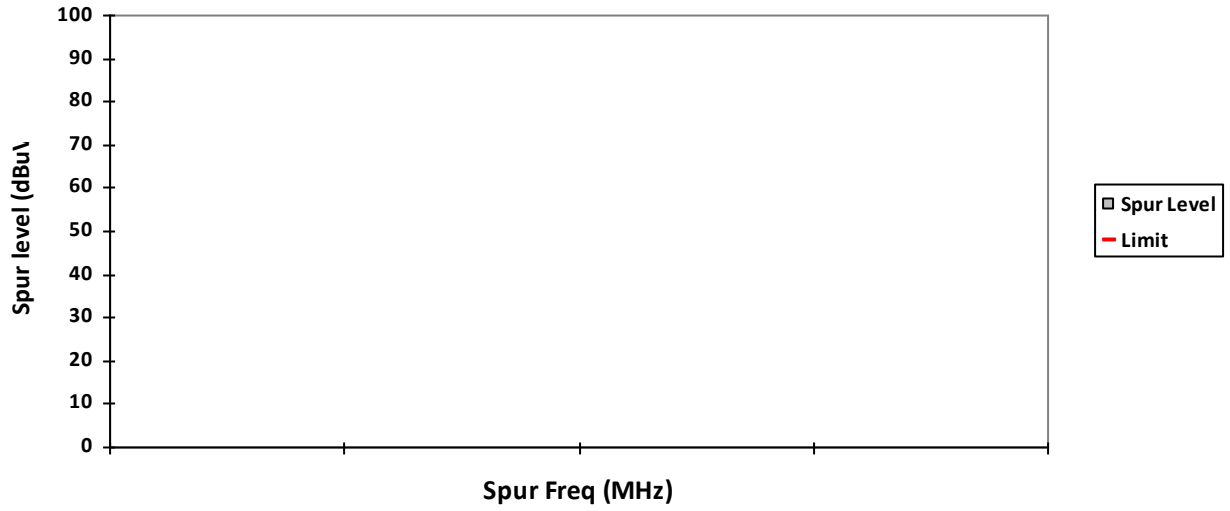
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: Bluetooth SAC Transmitter Radiated Emission

Model#: M25URS9PW1BN S/N: 471TVF3482 EMC SR ID#: 14913-EMC-00049

Battery: NA Accessory: AN000163A01, AN000197A10, 3466-HMN4079G-4, HSN4040A-C4, HKN4191B-2, 3466-HKN6163C-2, PMHN4194C-CF3

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

Worst Case Plane: Y-Plane (GFSK)

Radiated Emission (High Channel) tabular data

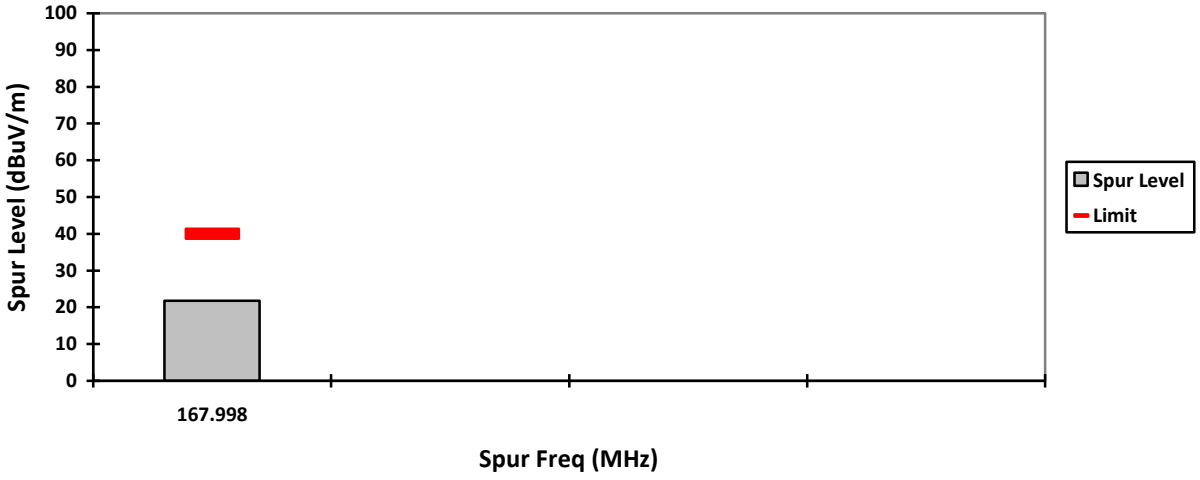
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
39.1736	-	38.9016	-	-	88.4519	-	-	49.5503	-	108.4519
66.1599	-	28.8207	-	-	88.4519	-	-	59.6312	-	108.4519
167.9980	21.7796	-	-	40.0000	-	-	18.2204	-	-	-
191.9980	-	37.6910	-	-	88.4519	-	-	50.7609	-	108.4519
288.0019	-	29.7400	-	-	88.4519	-	-	58.7119	-	108.4519
336.0060	-	32.5026	-	-	88.4519	-	-	55.9493	-	108.4519
Horizontal Radiated Emission Result										
38.3395	-	27.0140	-	-	88.4519	-	-	61.4379	-	108.4519
66.4625	-	27.5315	-	-	88.4519	-	-	60.9204	-	108.4519
168.0050	32.1085	-	-	40.0000	-	-	7.8915	-	-	-
191.9940	-	34.8065	-	-	88.4519	-	-	53.6454	-	108.4519
288.0079	-	31.6907	-	-	88.4519	-	-	56.7612	-	108.4519
335.9960	-	36.1723	-	-	88.4519	-	-	52.2796	-	108.4519

Remarks: Pass Result	Marginal Result	Fail Result

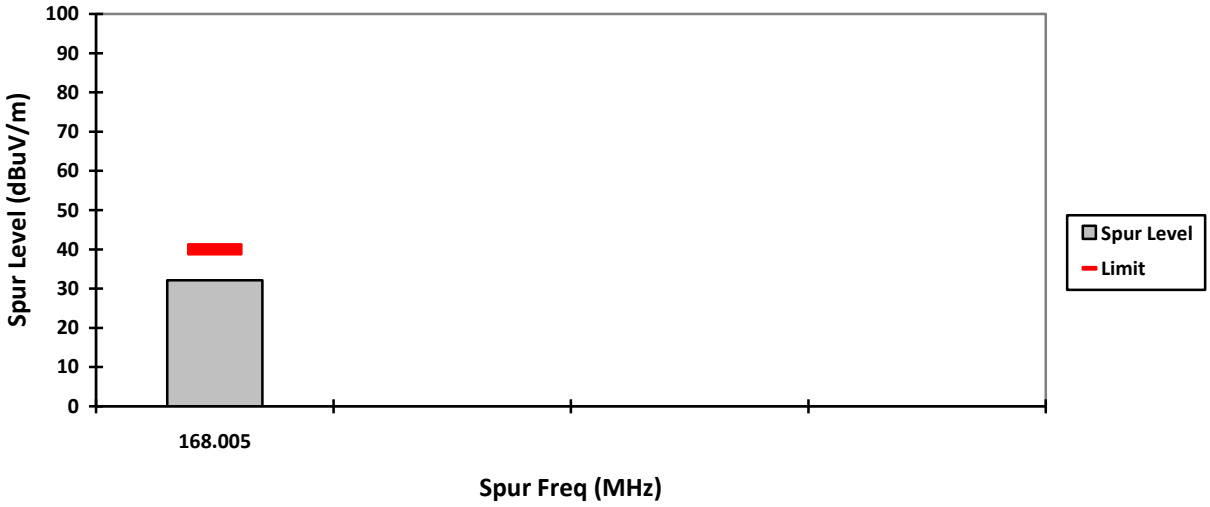
Temperature (degC): 23.4 **Humidity (%): 69.8**
Test Performed by: Qawiman&Azil **Test Date: Sun, May 12, 2019**
System MU: 5.01dB

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.**

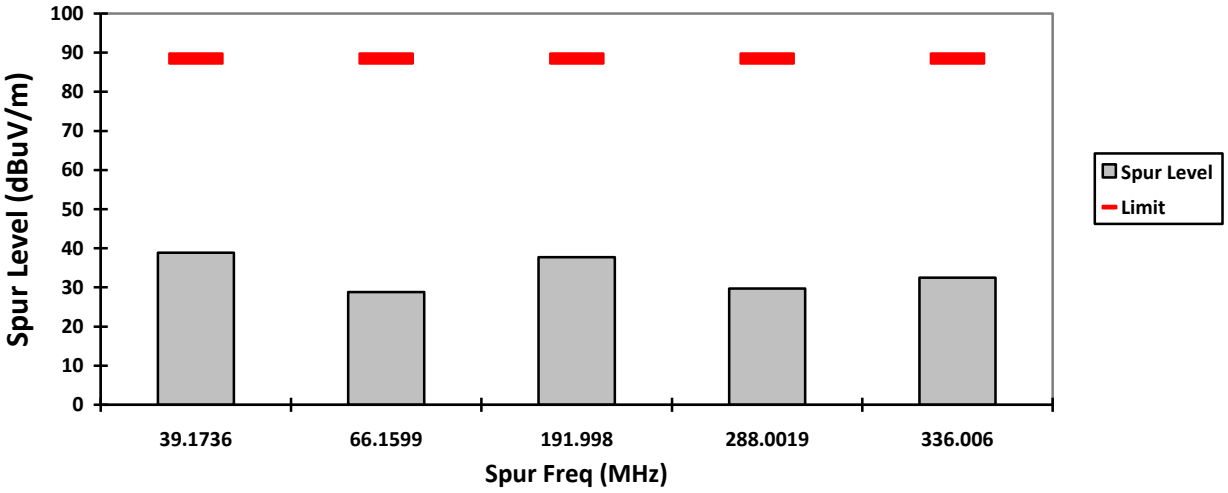
VERTICAL, QPK



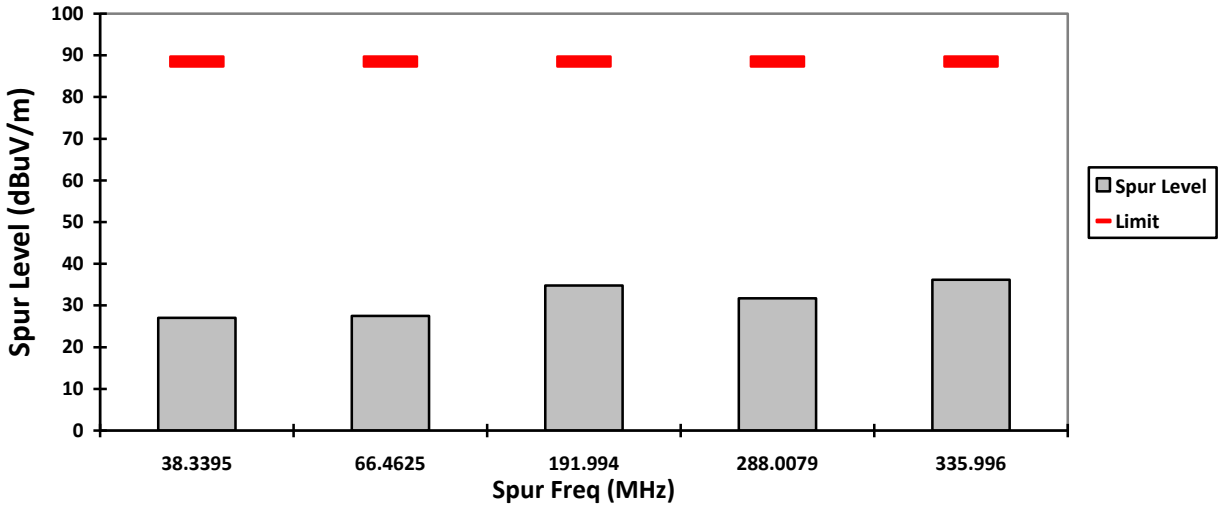
HORIZONTAL, QPK



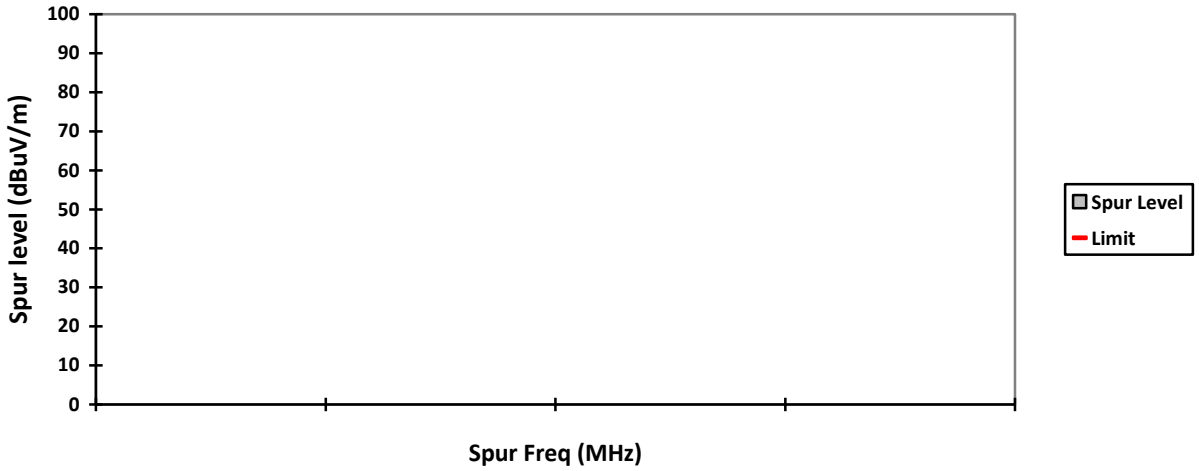
VERTICAL, PK



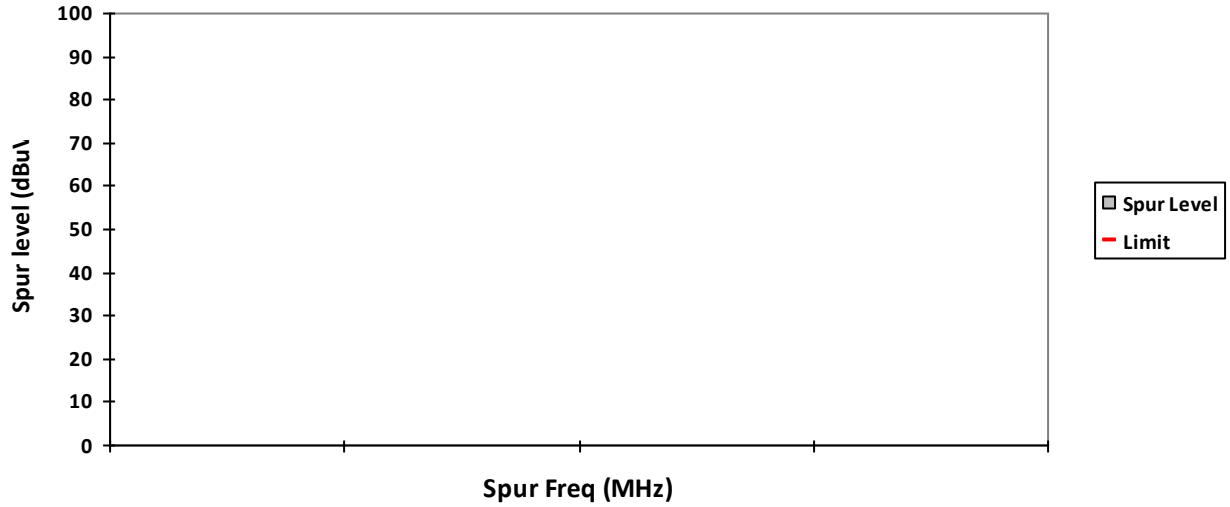
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: Bluetooth SAC Transmitter Radiated Emission

Model#: M25URS9PW1BN S/N: 471TVF3482 EMC SR ID#: 14913-EMC-00049

Battery: NA Accessory: AN000163A01, AN000197A10, 3466-HMN4079G-4, HSN4040A-C4, HKN4191B-2, 3466-HKN6163C-2, PMHN4194C-CF3

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

Worst Case Plane: Y-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)
39.1201	-	39.0160	-	-	88.4519	-	-	49.4359	-	108.4519
65.6500	-	26.0944	-	-	88.4519	-	-	62.3575	-	108.4519
168.0070	29.5746	-	-	40.0000	-	-	10.4254	-	-	-
192.0010	-	36.2627	-	-	88.4519	-	-	52.1892	-	108.4519
288.0019	-	28.5686	-	-	88.4519	-	-	59.8833	-	108.4519
335.9990	-	31.5161	-	-	88.4519	-	-	56.9358	-	108.4519
Horizontal Radiated Emission Result										
39.0891	-	28.6994	-	-	88.4519	-	-	59.7525	-	108.4519
65.9817	-	27.2910	-	-	88.4519	-	-	61.1609	-	108.4519
167.9930	31.1190	-	-	40.0000	-	-	8.8810	-	-	-
192.0040	-	34.3875	-	-	88.4519	-	-	54.0644	-	108.4519
288.0069	-	32.6193	-	-	88.4519	-	-	55.8326	-	108.4519
335.9970	-	36.0019	-	-	88.4519	-	-	52.4500	-	108.4519

Remarks: Pass Result	Marginal Result	Fail Result

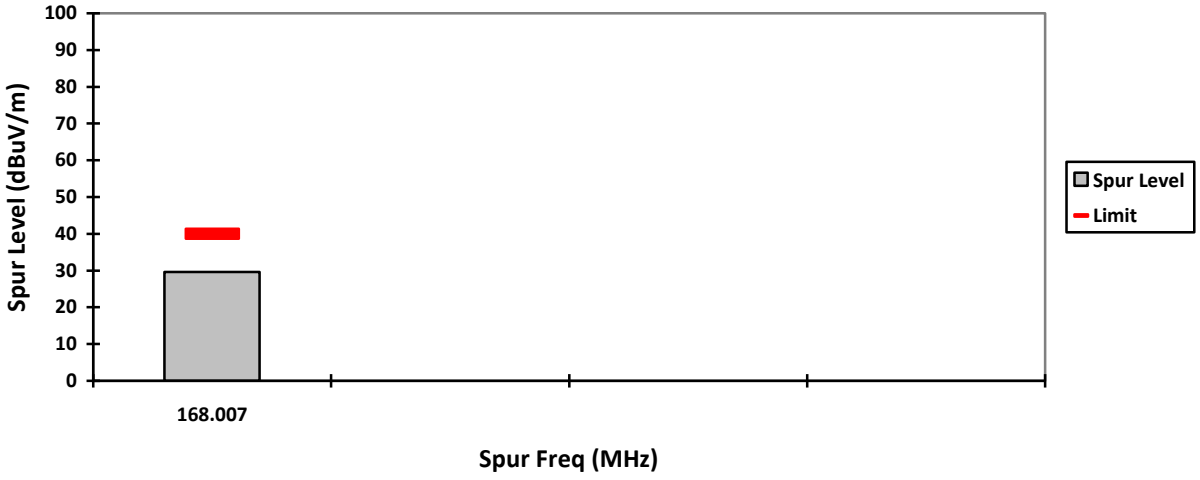
Temperature (degC): 23.4 **Humidity (%): 69.8**

Test Performed by: Qawiman&Azil **Test Date: Sun, May 12, 2019**

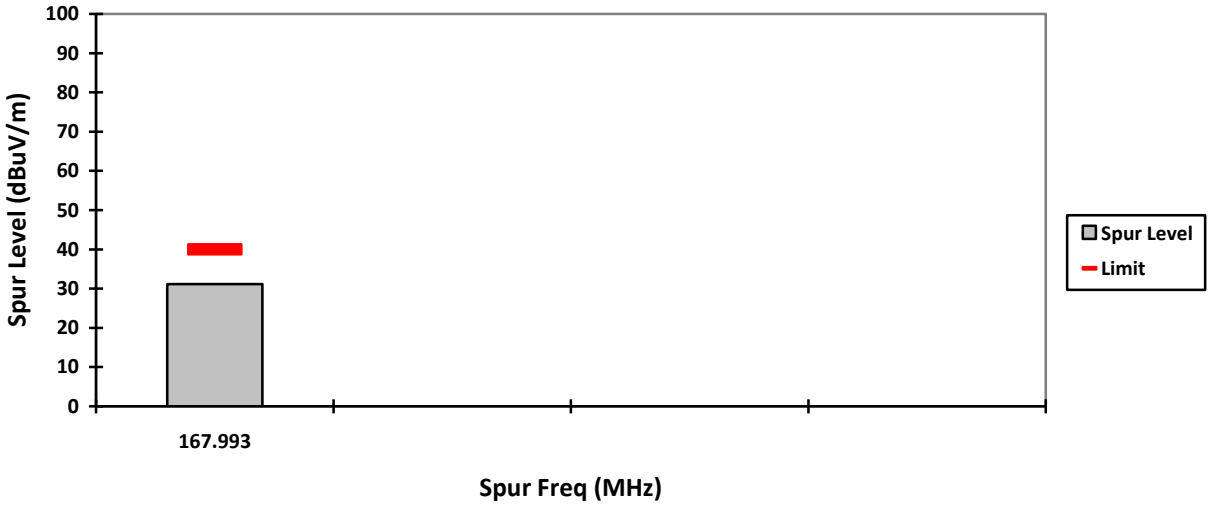
System MU: 5.01dB

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.**

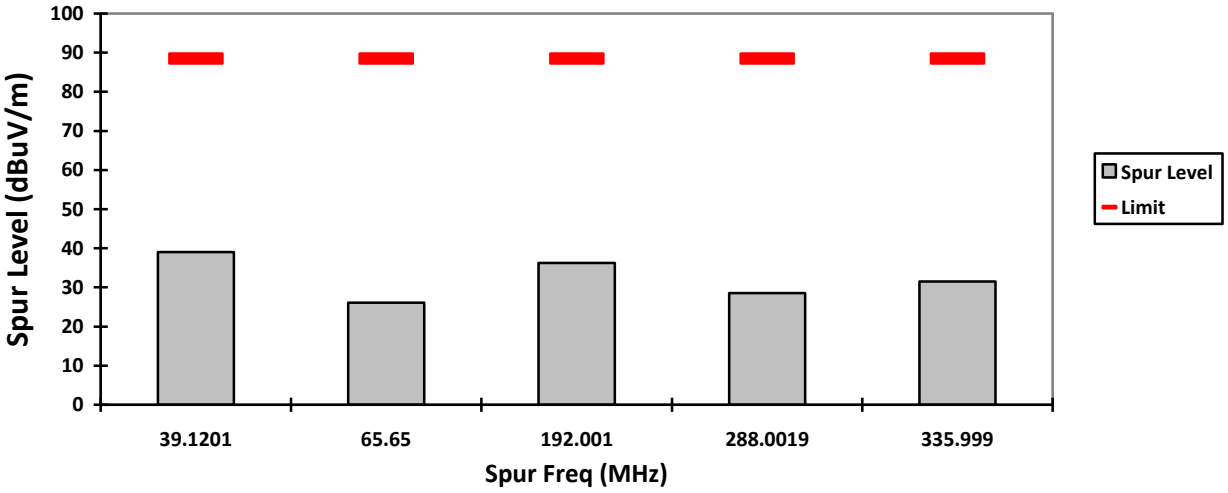
VERTICAL, QPK



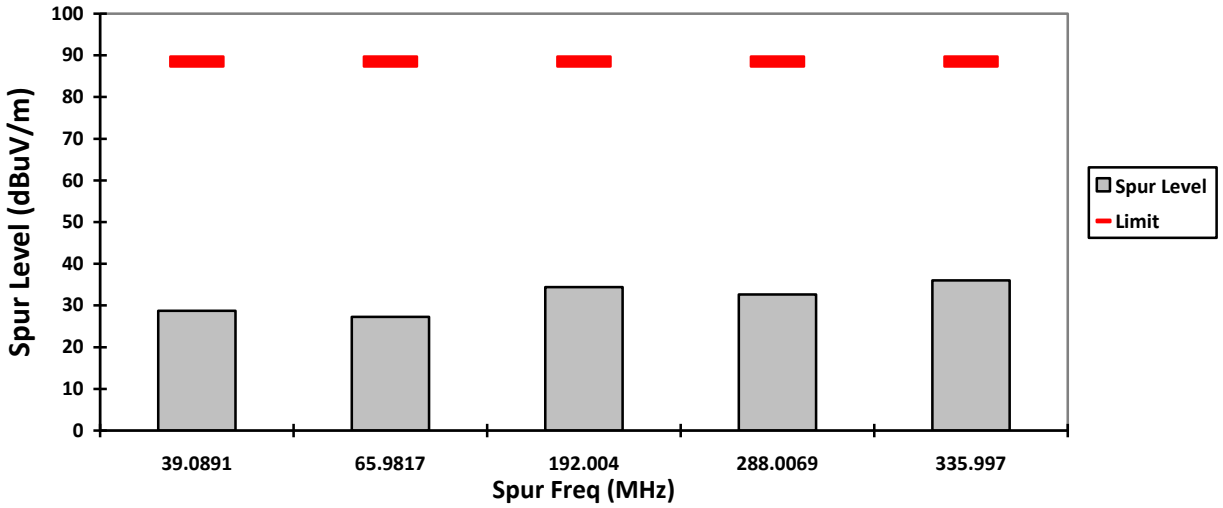
HORIZONTAL, QPK



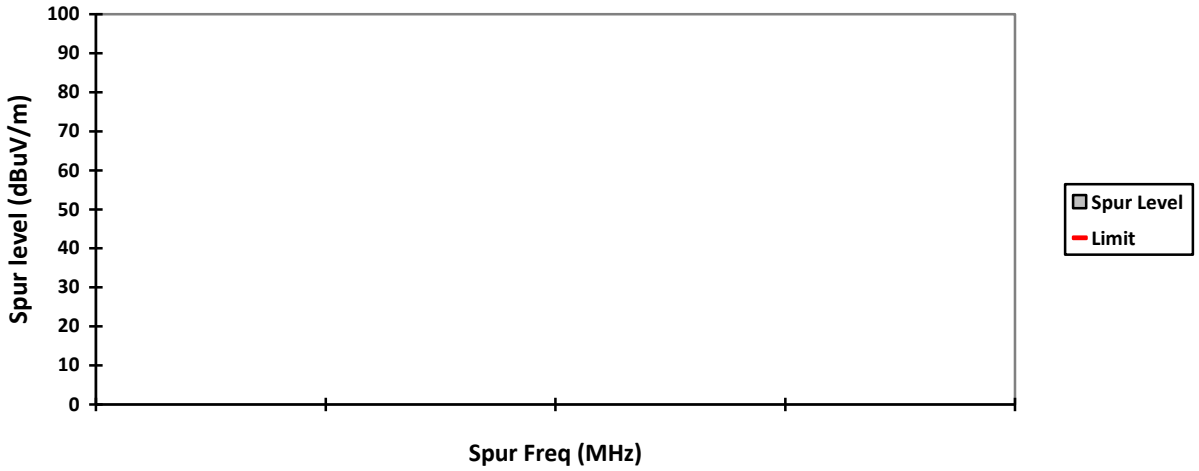
VERTICAL, PK



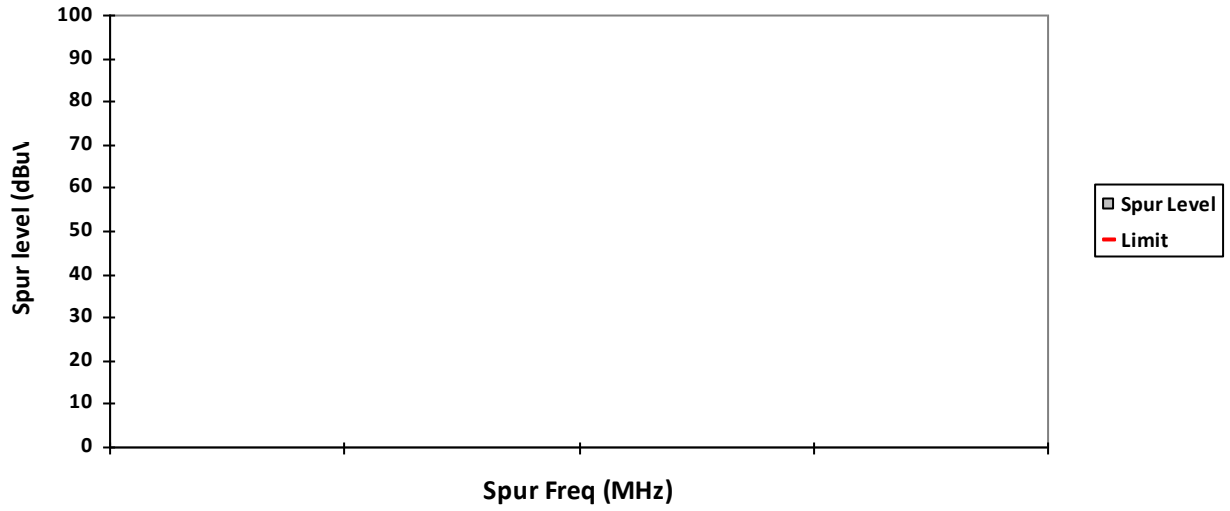
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: Bluetooth SAC Transmitter Radiated Emission

Model#: M25URS9PW1BN S/N: 471TVF3482 EMC SR ID#: 14913-EMC-00049

Battery: NA Accessory: AN000163A01, AN000197A10, 3466-HMN4079G-4, HSN4040A-C4, HKN4191B-2, 3466-HKN6163C-2, PMHN4194C-CF3

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

Worst Case Plane: Y-Plane (DQPSK)

Radiated Emission (Mid Channel) tabular data

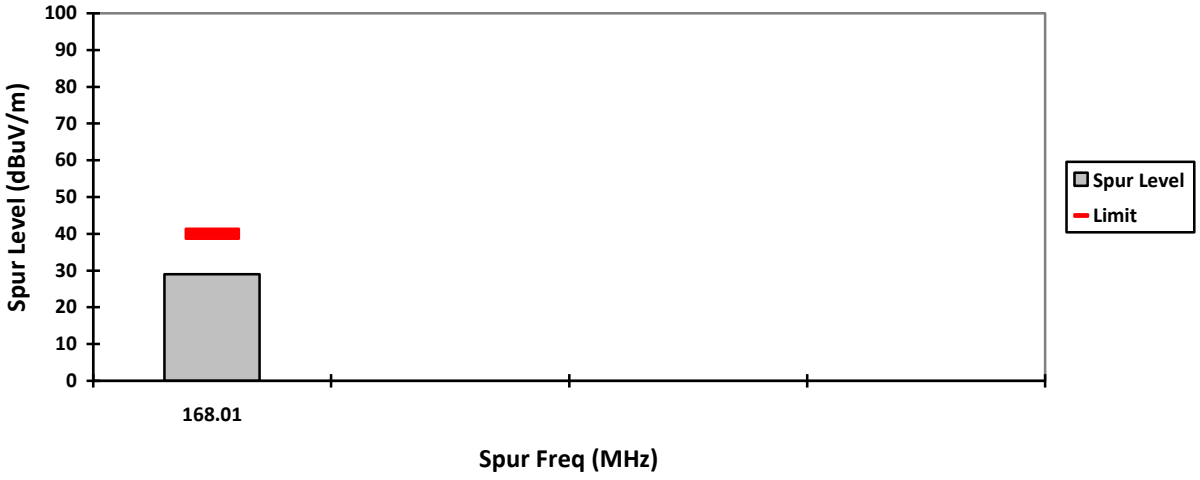
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
38.7104	-	39.0842	-	-	88.4519	-	-	49.3677	-	108.4519
65.3323	-	25.9887	-	-	88.4519	-	-	62.4632	-	108.4519
168.0100	29.0025	-	-	40.0000	-	-	10.9975	-	-	-
192.0030	-	36.0845	-	-	88.4519	-	-	52.3674	-	108.4519
287.9989	-	27.9412	-	-	88.4519	-	-	60.5107	-	108.4519
335.9980	-	31.2866	-	-	88.4519	-	-	57.1653	-	108.4519
Horizontal Radiated Emission Result										
38.7004	-	28.3005	-	-	88.4519	-	-	60.1514	-	108.4519
65.9997	-	27.9308	-	-	88.4519	-	-	60.5211	-	108.4519
168.0020	30.7532	-	-	40.0000	-	-	9.2468	-	-	-
191.9980	-	34.1436	-	-	88.4519	-	-	54.3083	-	108.4519
287.9910	-	31.9278	-	-	88.4519	-	-	56.5241	-	108.4519
335.9950	-	35.7536	-	-	88.4519	-	-	52.6983	-	108.4519

Remarks: Pass Result	Marginal Result	Fail Result

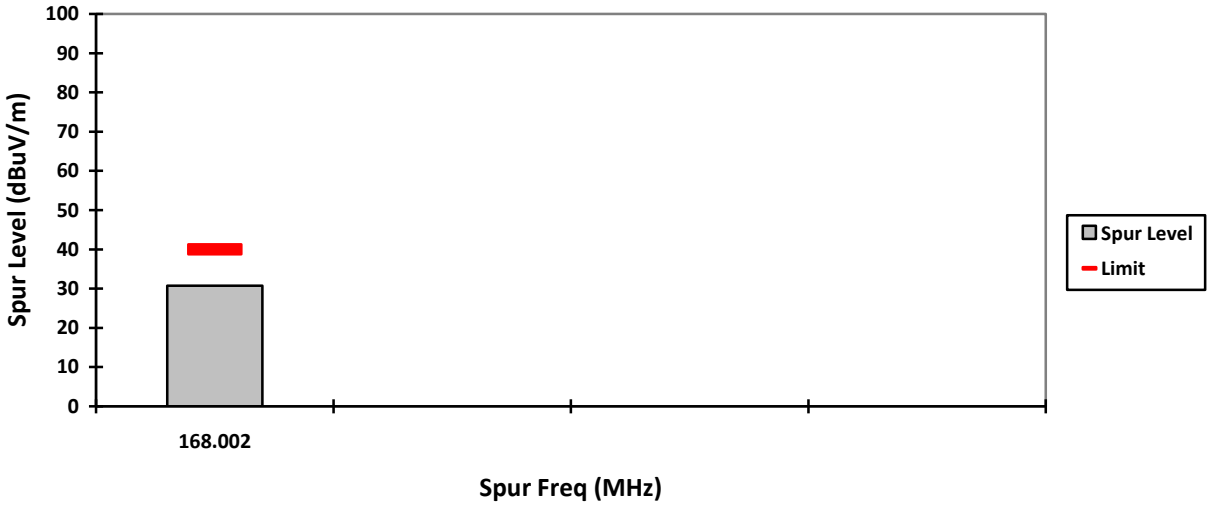
Temperature (degC): 23.4 **Humidity (%): 69.8**
Test Performed by: Qawiman&Azil **Test Date: Sun, May 12, 2019**
System MU: 5.01dB

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.**

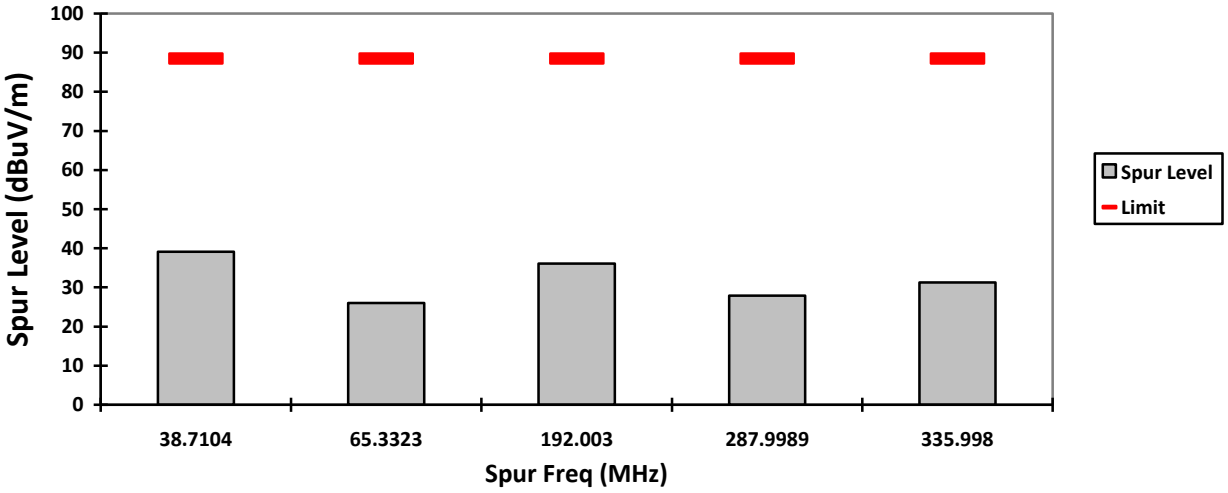
VERTICAL, QPK



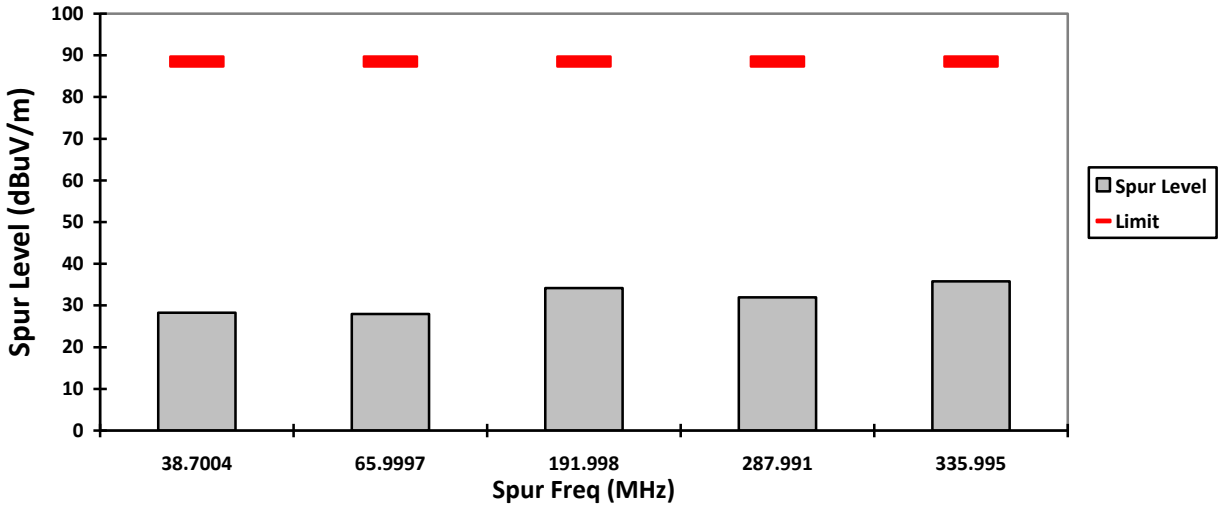
HORIZONTAL, QPK



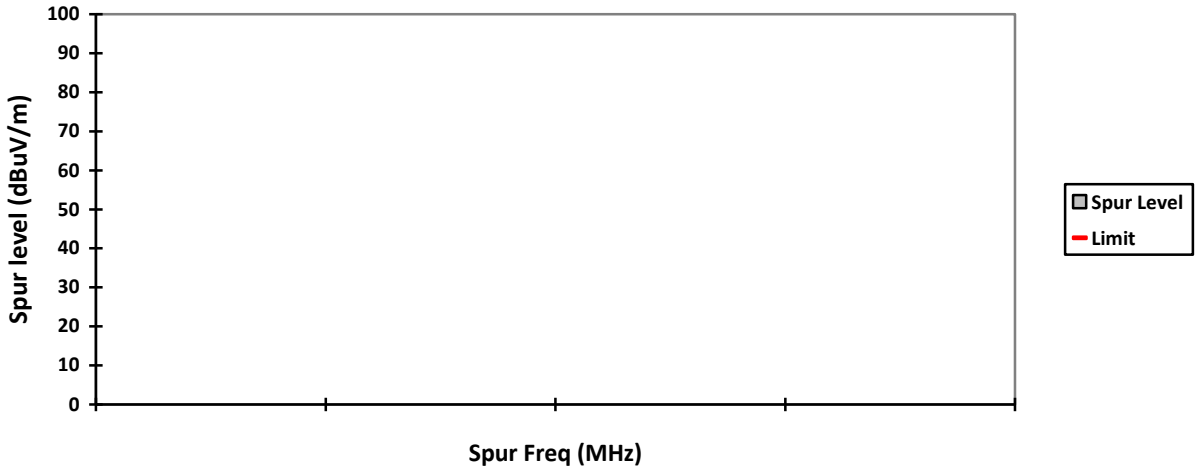
VERTICAL, PK



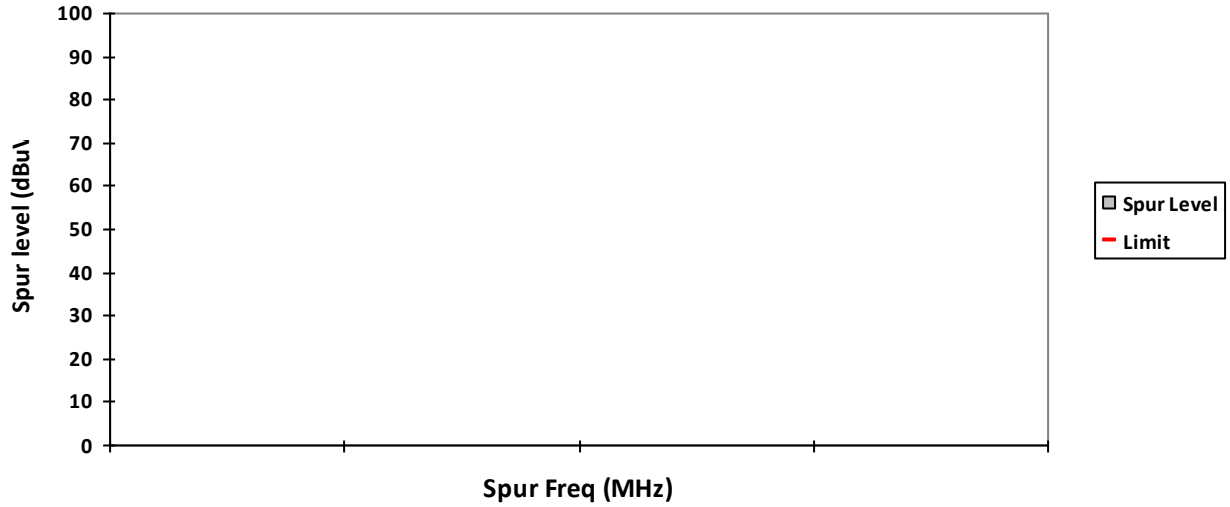
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: Bluetooth SAC Transmitter Radiated Emission

Model#: M25URS9PW1BN S/N: 471TVF3482 EMC SR ID#: 14913-EMC-00049

Battery: NA Accessory: AN000163A01, AN000197A10, 3466-HMN4079G-4, HSN4040A-C4, HKN4191B-2, 3466-HKN6163C-2, PMHN4194C-CF3

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

Worst Case Plane: Y-Plane (DQPSK)

Radiated Emission (High Channel) tabular data

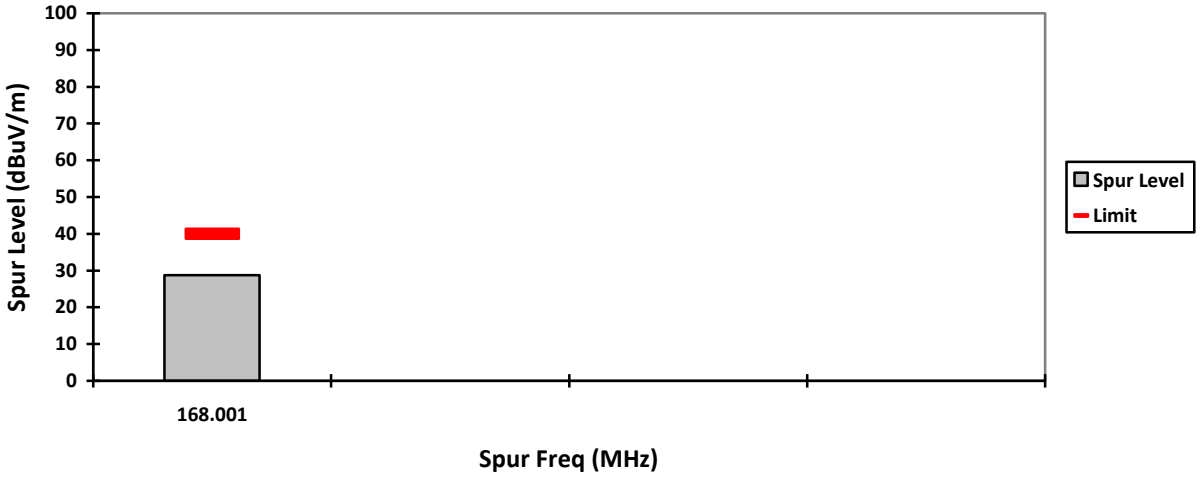
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
39.0431	-	38.3487	-	-	88.4519	-	-	50.1032	-	108.4519
65.9898	-	26.4703	-	-	88.4519	-	-	61.9816	-	108.4519
168.0010	28.7316	-	-	40.0000	-	-	11.2684	-	-	-
191.9960	-	35.9227	-	-	88.4519	-	-	52.5292	-	108.4519
287.9940	-	27.4495	-	-	88.4519	-	-	61.0024	-	108.4519
336.0030	-	32.9068	-	-	88.4519	-	-	55.5451	-	108.4519
Horizontal Radiated Emission Result										
38.7754	-	27.8456	-	-	88.4519	-	-	60.6063	-	108.4519
65.9769	-	28.0582	-	-	88.4519	-	-	60.3937	-	108.4519
168.0070	30.7251	-	-	40.0000	-	-	9.2749	-	-	-
191.9950	-	34.1626	-	-	88.4519	-	-	54.2893	-	108.4519
287.9959	-	31.6645	-	-	88.4519	-	-	56.7874	-	108.4519
336.0010	-	35.3453	-	-	88.4519	-	-	53.1066	-	108.4519

Remarks: Pass Result	Marginal Result	Fail Result

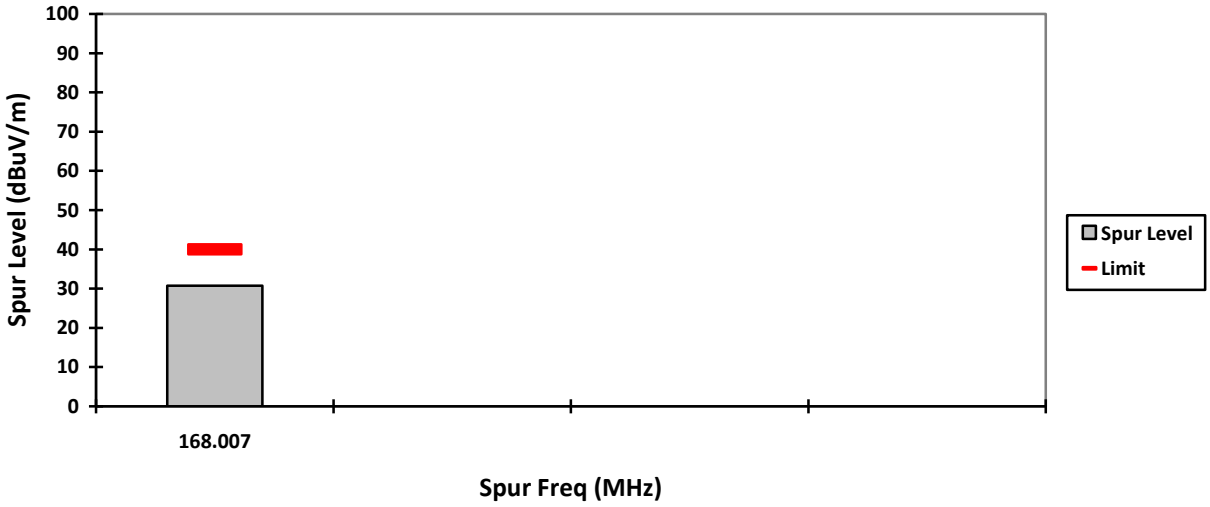
Temperature (degC): 23.4 **Humidity (%): 69.8**
Test Performed by: Qawiman&Azil **Test Date: Sun, May 12, 2019**
System MU: 5.01dB

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.**

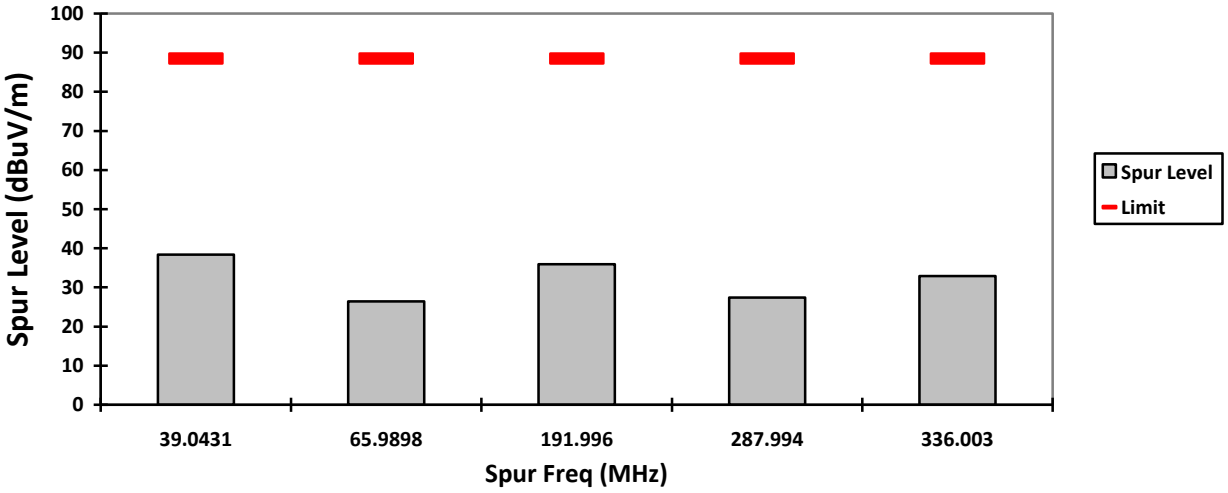
VERTICAL, QPK



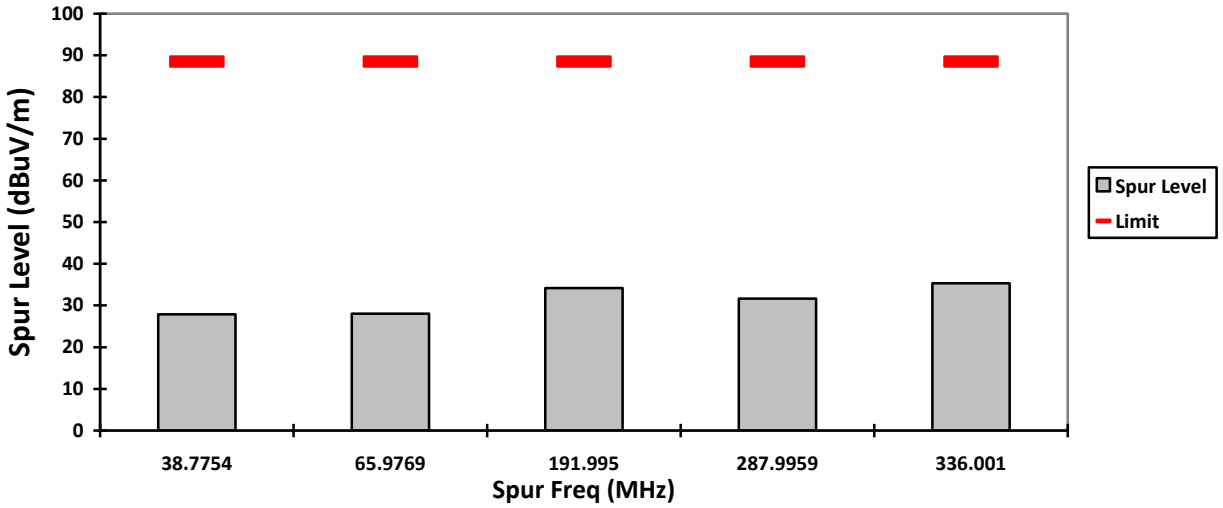
HORIZONTAL, QPK



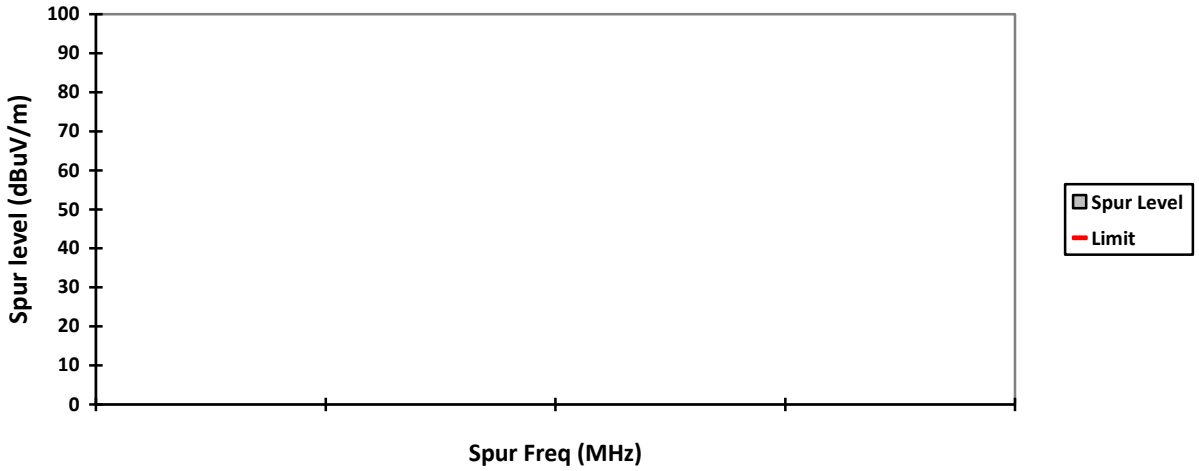
VERTICAL, PK



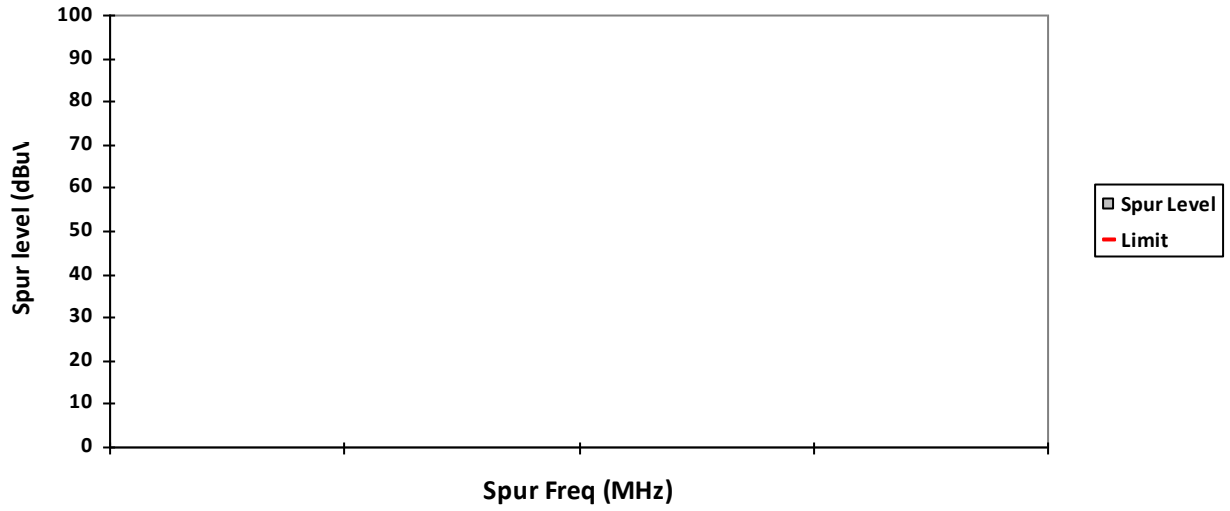
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: Bluetooth SAC Transmitter Radiated Emission

Model#: M25URS9PW1BN S/N: 471TVF3482 EMC SR ID#: 14913-EMC-00049

Battery: NA Accessory: AN000163A01, AN000197A10, 3466-HMN4079G-4, HSN4040A-C4, HKN4191B-2, 3466-HKN6163C-2, PMHN4194C-CF3

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

Worst Case Plane: Y-Plane (8DPSK)

Radiated Emission (Low Channel) tabular data

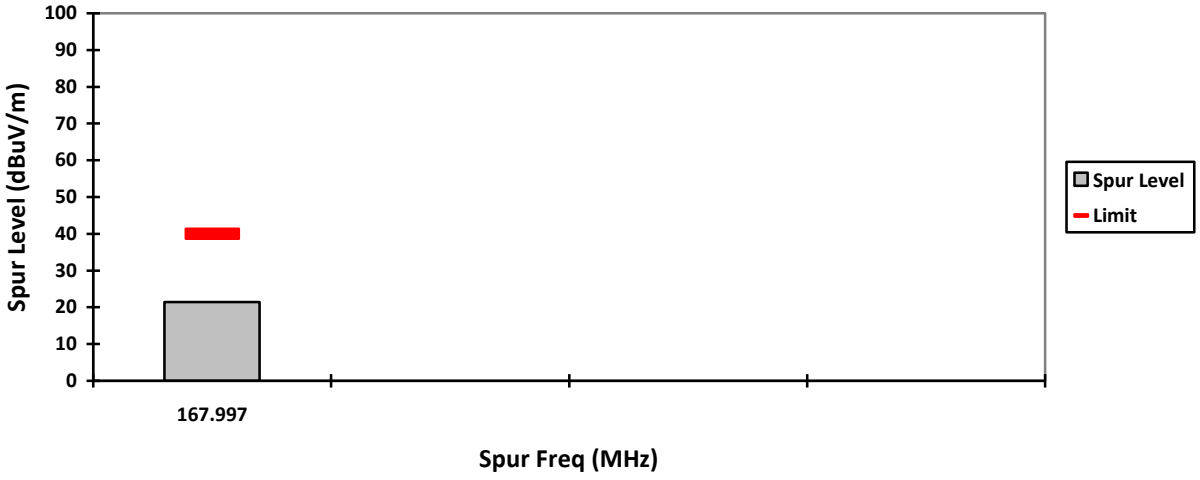
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
38.5324	-	38.6341	-	-	88.4519	-	-	49.8178	-	108.4519
50.6593	-	33.0430	-	-	88.4519	-	-	55.4089	-	108.4519
167.9970	21.4202	-	-	40.0000	-	-	18.5798	-	-	-
192.0040	-	35.7927	-	-	88.4519	-	-	52.6592	-	108.4519
288.0159	-	27.9449	-	-	88.4519	-	-	60.5070	-	108.4519
335.9990	-	31.7930	-	-	88.4519	-	-	56.6589	-	108.4519
Horizontal Radiated Emission Result										
38.5074	-	28.7976	-	-	88.4519	-	-	59.6543	-	108.4519
50.4655	-	29.3011	-	-	88.4519	-	-	59.1508	-	108.4519
168.0020	30.6889	-	-	40.0000	-	-	9.3111	-	-	-
192.0030	-	33.9623	-	-	88.4519	-	-	54.4896	-	108.4519
287.9979	-	31.5068	-	-	88.4519	-	-	56.9451	-	108.4519
336.0060	-	35.4641	-	-	88.4519	-	-	52.9878	-	108.4519

Remarks: Pass Result	Marginal Result	Fail Result

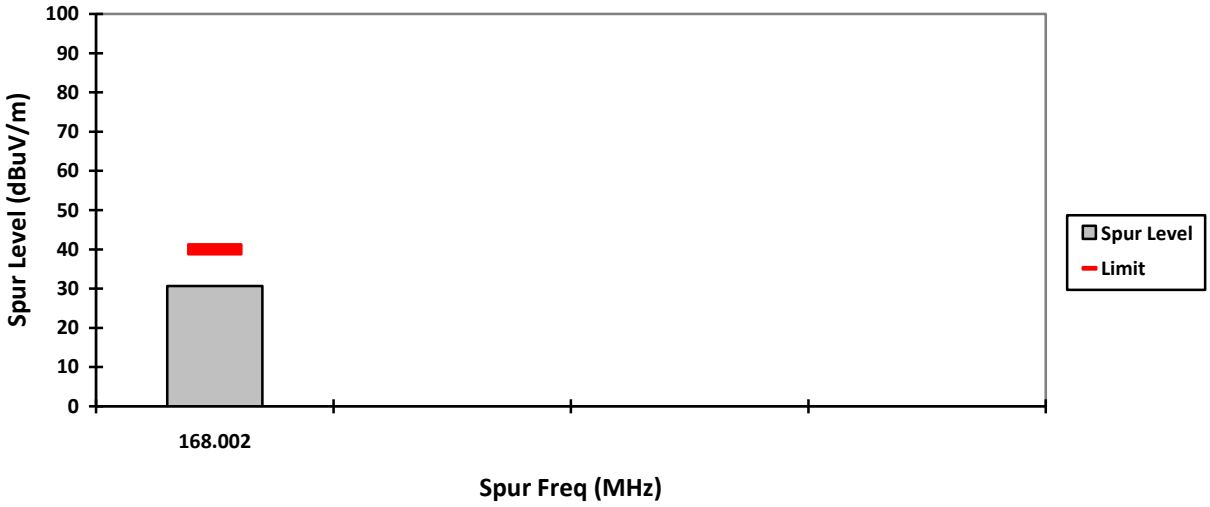
Temperature (degC): 23.4 **Humidity (%): 69.8**
Test Performed by: Qawiman&Azil **Test Date: Sun, May 12, 2019**
System MU: 5.01dB

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.**

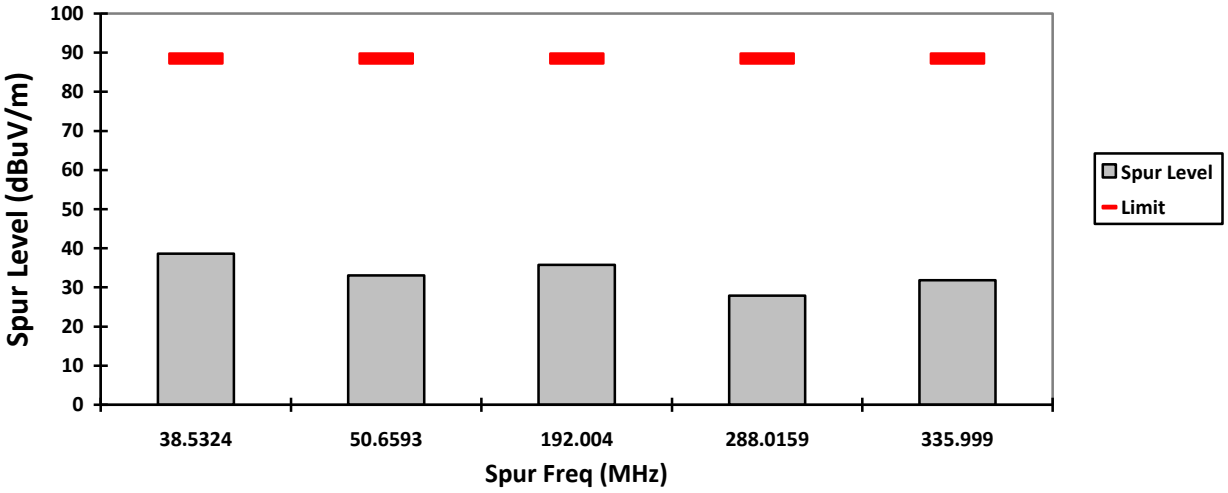
VERTICAL, QPK



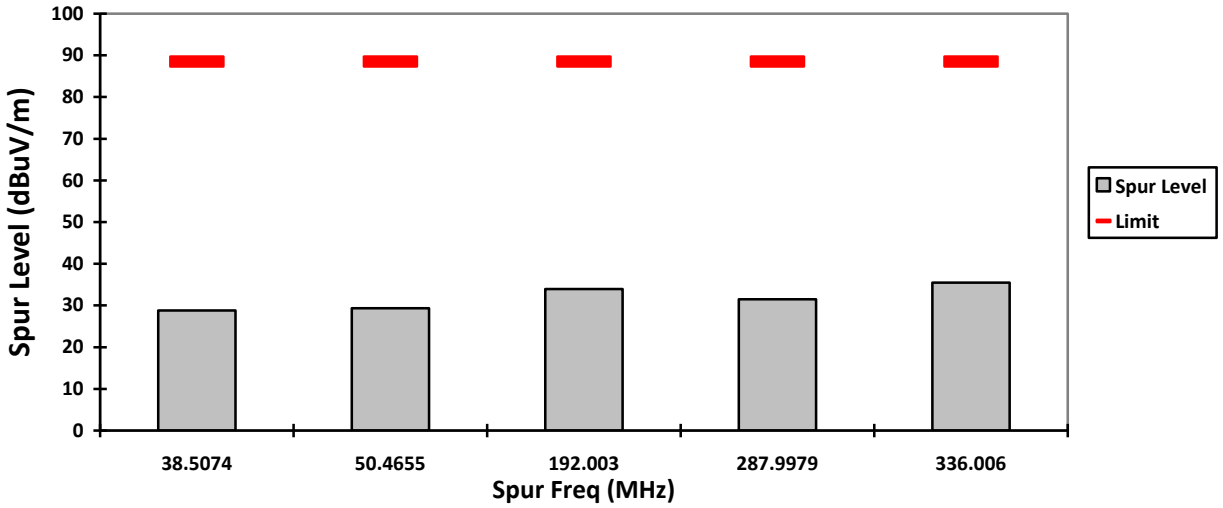
HORIZONTAL, QPK



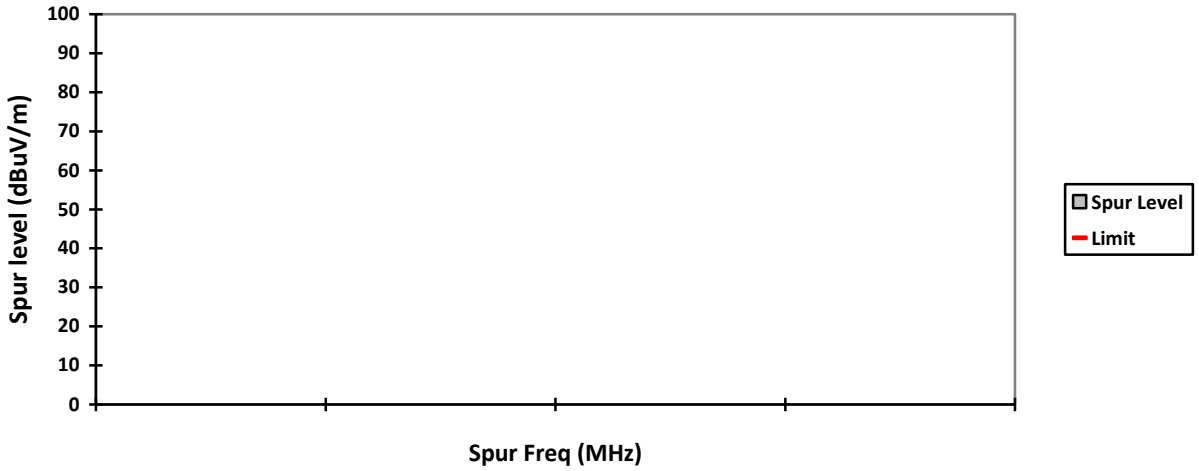
VERTICAL, PK



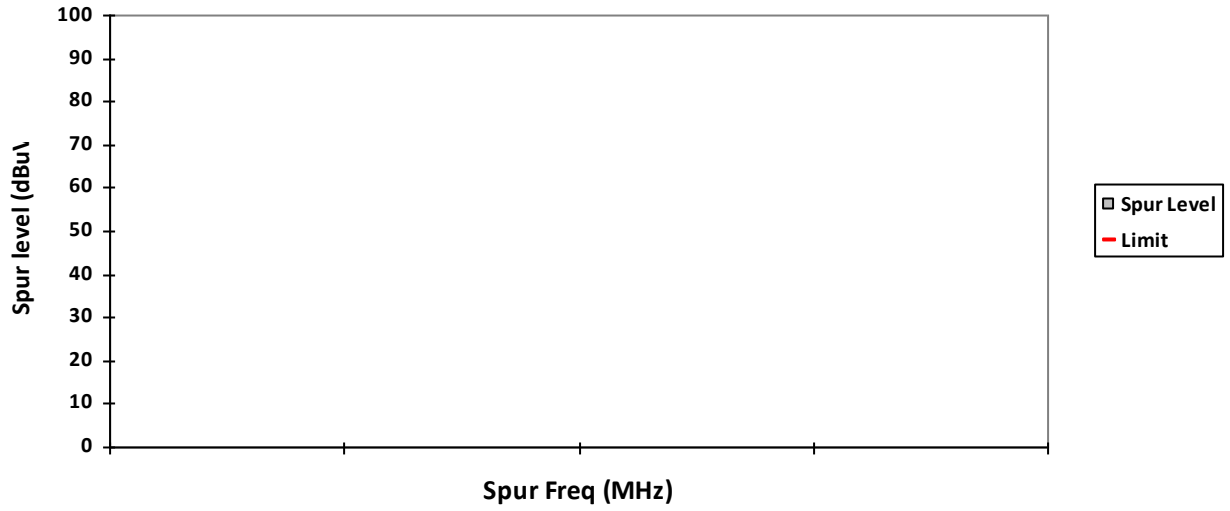
HORIZONTAL, PK



VERTICAL, AV



HORIZONTAL, AV



Test: Bluetooth SAC Transmitter Radiated Emission

Model#: M25URS9PW1BN S/N: 471TVF3482 EMC SR ID#: 14913-EMC-00049

Battery: NA Accessory: AN000163A01, AN000197A10, 3466-HMN4079G-4, HSN4040A-C4, HKN4191B-2, 3466-HKN6163C-2, PMHN4194C-CF3

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

Worst Case Plane: Y-Plane (8DPSK)

Radiated Emission (Mid Channel) tabular data

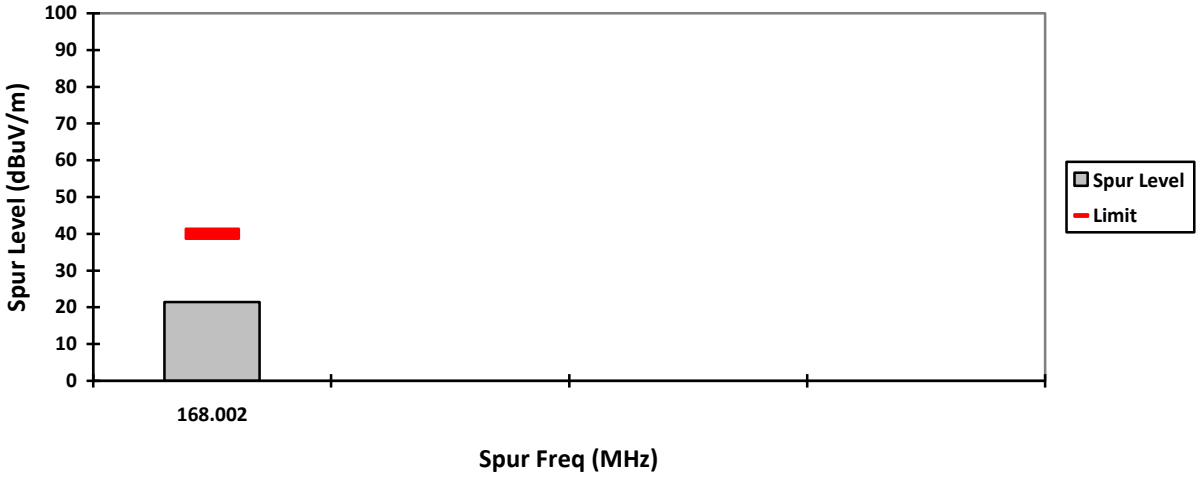
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
39.1016	-	38.8689	-	-	88.4519	-	-	49.5830	-	108.4519
168.0020	21.4135	-	-	40.0000	-	-	18.5865	-	-	-
192.0030	-	35.7130	-	-	88.4519	-	-	52.7389	-	108.4519
288.0029	-	28.2212	-	-	88.4519	-	-	60.2307	-	108.4519
336.0080	-	32.5586	-	-	88.4519	-	-	55.8933	-	108.4519
384.0141	-	24.7808	-	-	88.4519	-	-	63.6711	-	108.4519
Horizontal Radiated Emission Result										
38.4932	-	25.5911	-	-	88.4519	-	-	62.8608	-	108.4519
167.9900	30.6240	-	-	40.0000	-	-	9.3760	-	-	-
191.9950	-	33.9805	-	-	88.4519	-	-	54.4714	-	108.4519
287.9989	-	31.3716	-	-	88.4519	-	-	57.0803	-	108.4519
335.9960	-	35.5656	-	-	88.4519	-	-	52.8863	-	108.4519
384.0021	-	29.0287	-	-	88.4519	-	-	59.4232	-	108.4519

Remarks: Pass Result	Marginal Result	Fail Result

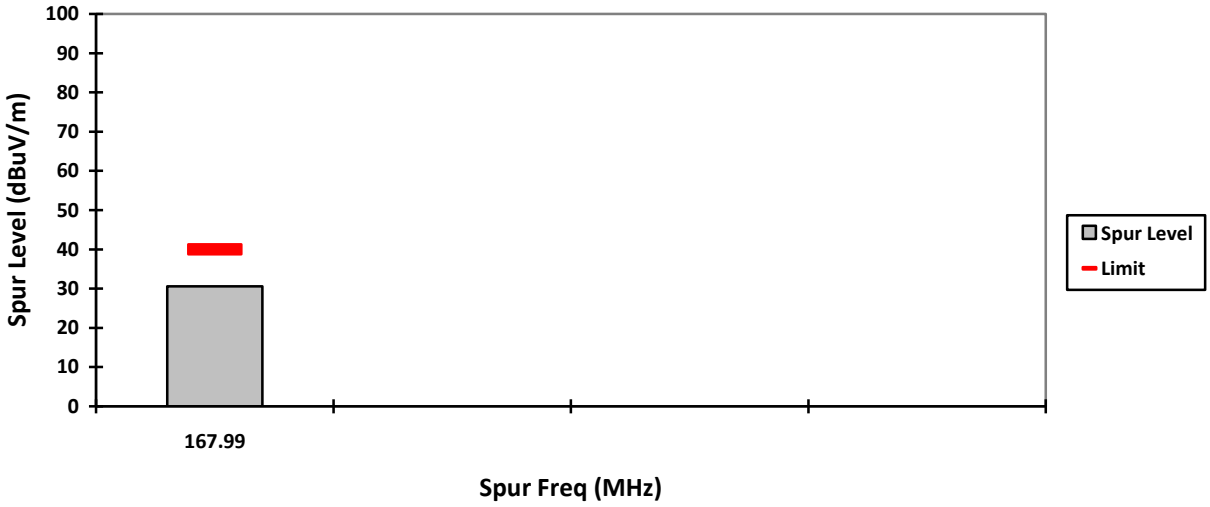
Temperature (degC): 23.4 **Humidity (%): 69.8**
Test Performed by: Qawiman&Azil **Test Date: Sun, May 12, 2019**
System MU: 5.01dB

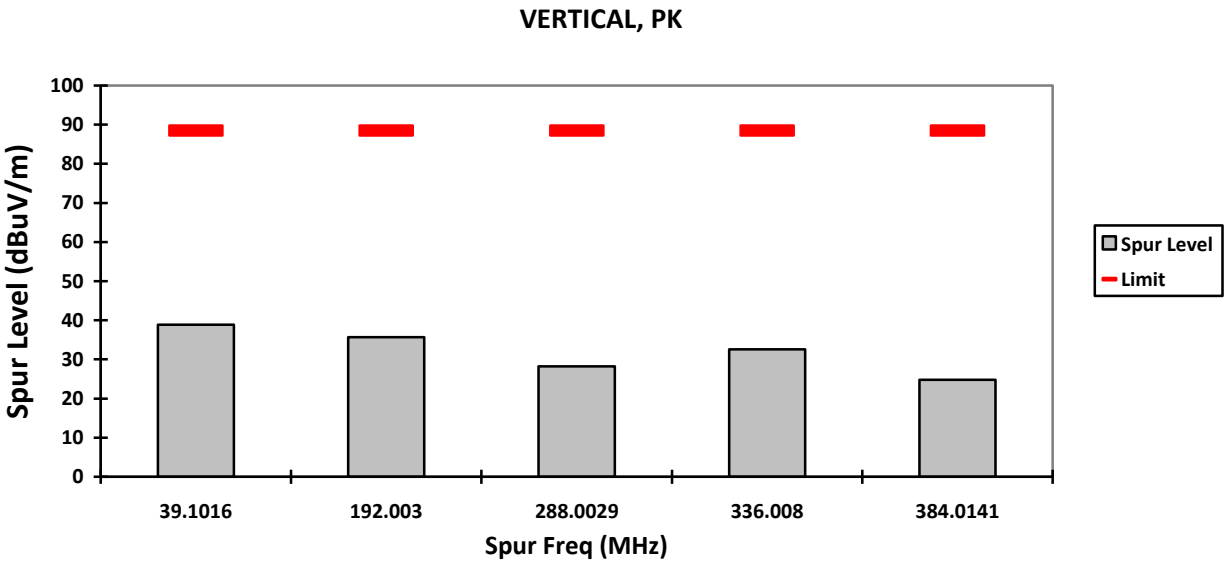
Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

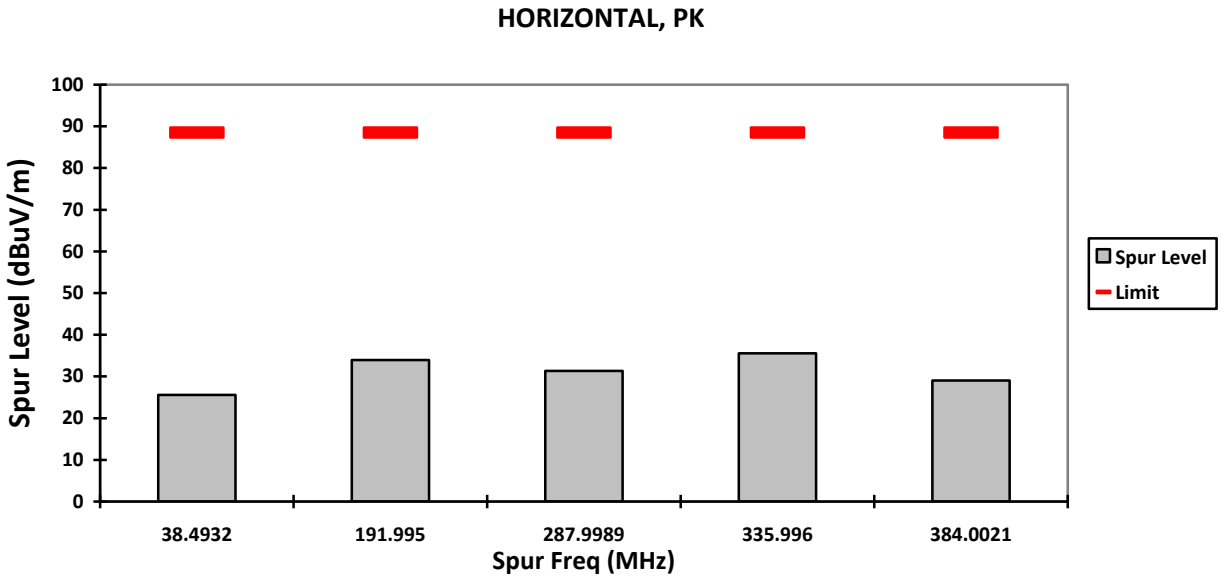
VERTICAL, QPK



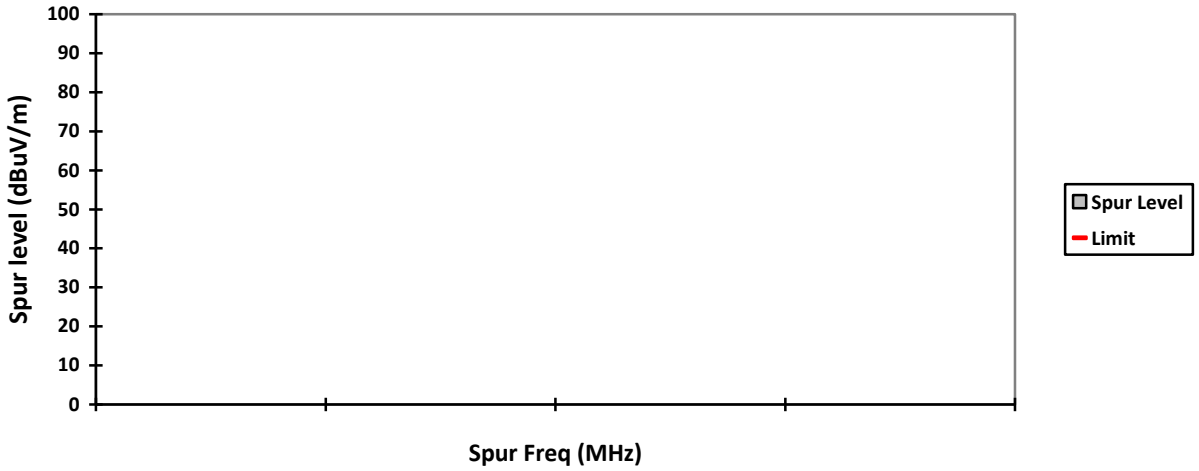
HORIZONTAL, QPK



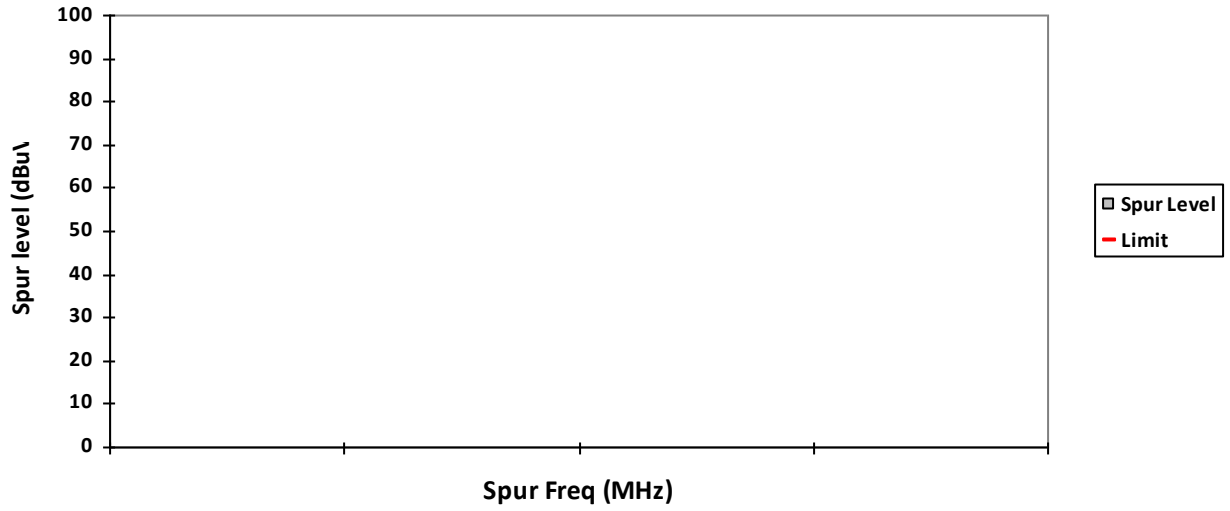

VERTICAL, PK
Spur Level (dBuV/m)
100
90
80
70
60
50
40
30
20
10
0
39.1016
192.003
288.0029
336.008
384.0141
Spur Freq (MHz)
Spur Level
Limit


HORIZONTAL, PK
Spur Level (dBuV/m)
100
90
80
70
60
50
40
30
20
10
0
38.4932
191.995
287.9989
335.996
384.0021
Spur Freq (MHz)
Spur Level
Limit

VERTICAL, AV



HORIZONTAL, AV



Test: Bluetooth SAC Transmitter Radiated Emission

Model#: M25URS9PW1BN S/N: 471TVF3482 EMC SR ID#: 14913-EMC-00049

Battery: NA Accessory: AN000163A01, AN000197A10, 3466-HMN4079G-4, HSN4040A-C4, HKN4191B-2, 3466-HKN6163C-2, PMHN4194C-CF3

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

Worst Case Plane: Y-Plane (8DPSK)

Radiated Emission (High Channel) tabular data

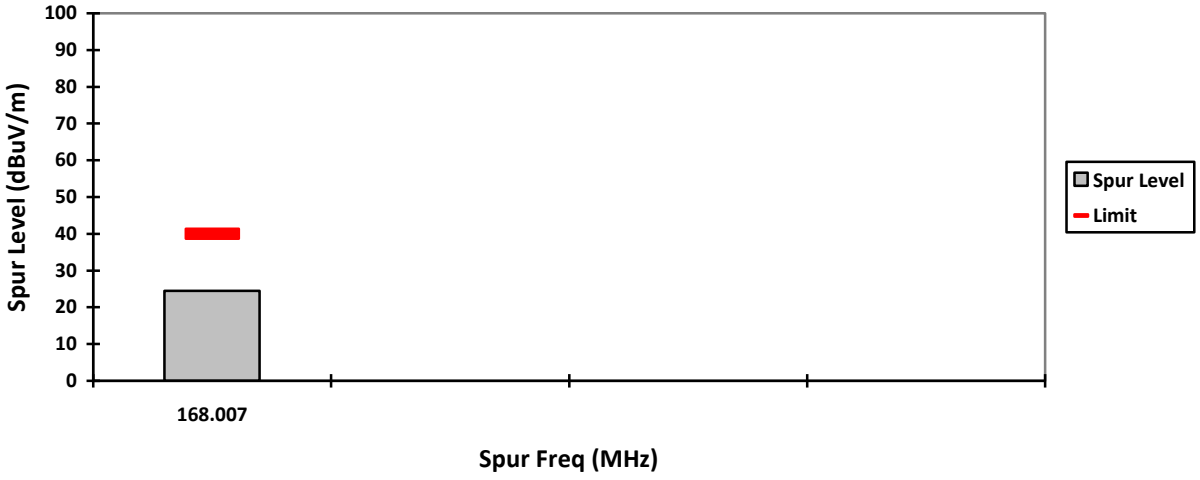
Vertical Radiated Emission Result										
Spur Freq (MHz)	Spur level QPK (dBµV/m)	Spur level PK (dBµV/m)	Spur level AV (dBµV/m)	Limit QPK (dBµV/m)	Limit PK (dBµV/m)	Limit AV (dBµV/m)	Margin QPK (dBµV/m)	Margin PK (dBµV/m)	Margin AV (dBµV/m)	Carrier PK Power (dBµV/m)
39.1746	-	39.1490	-	-	88.4519	-	-	49.3029	-	108.4519
168.0070	24.4767	-	-	40.0000	-	-	15.5233	-	-	-
192.0000	-	35.6735	-	-	88.4519	-	-	52.7784	-	108.4519
287.9989	-	28.1508	-	-	88.4519	-	-	60.3011	-	108.4519
336.0050	-	31.5906	-	-	88.4519	-	-	56.8613	-	108.4519
384.0240	-	24.9097	-	-	88.4519	-	-	63.5422	-	108.4519
Horizontal Radiated Emission Result										
38.4243	-	28.9766	-	-	88.4519	-	-	59.4753	-	108.4519
168.0030	30.6694	-	-	40.0000	-	-	9.3306	-	-	-
191.9980	-	33.8858	-	-	88.4519	-	-	54.5661	-	108.4519
288.0079	-	31.6731	-	-	88.4519	-	-	56.7788	-	108.4519
336.0040	-	35.4600	-	-	88.4519	-	-	52.9919	-	108.4519
384.0021	-	28.7881	-	-	88.4519	-	-	59.6638	-	108.4519

Remarks: Pass Result	Marginal Result	Fail Result

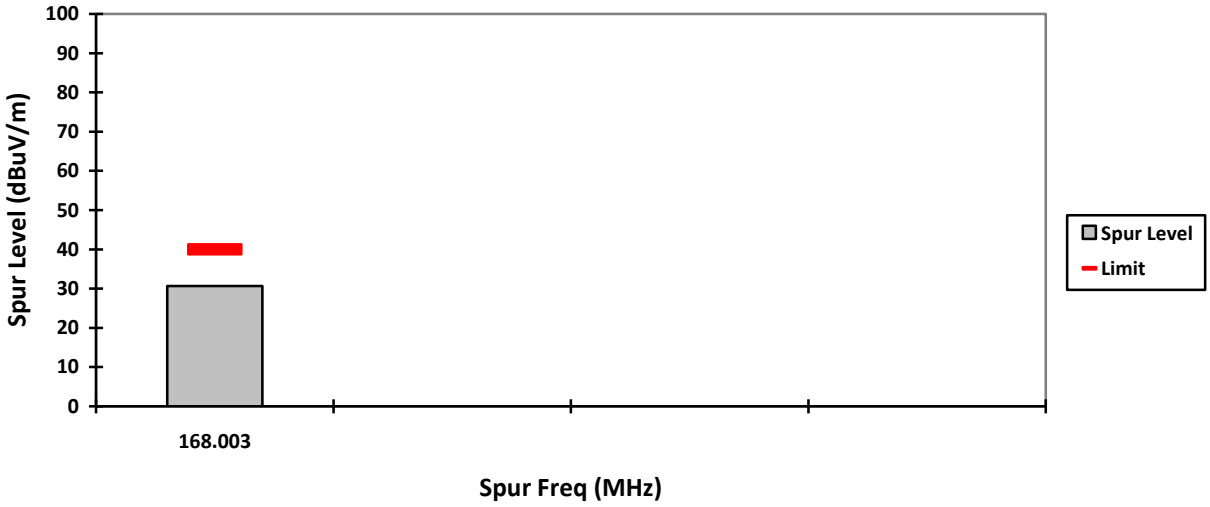
Temperature (degC): 23.4 **Humidity (%): 69.8**
Test Performed by: Qawiman&Azil **Test Date: Sun, May 12, 2019**
System MU: 5.01dB

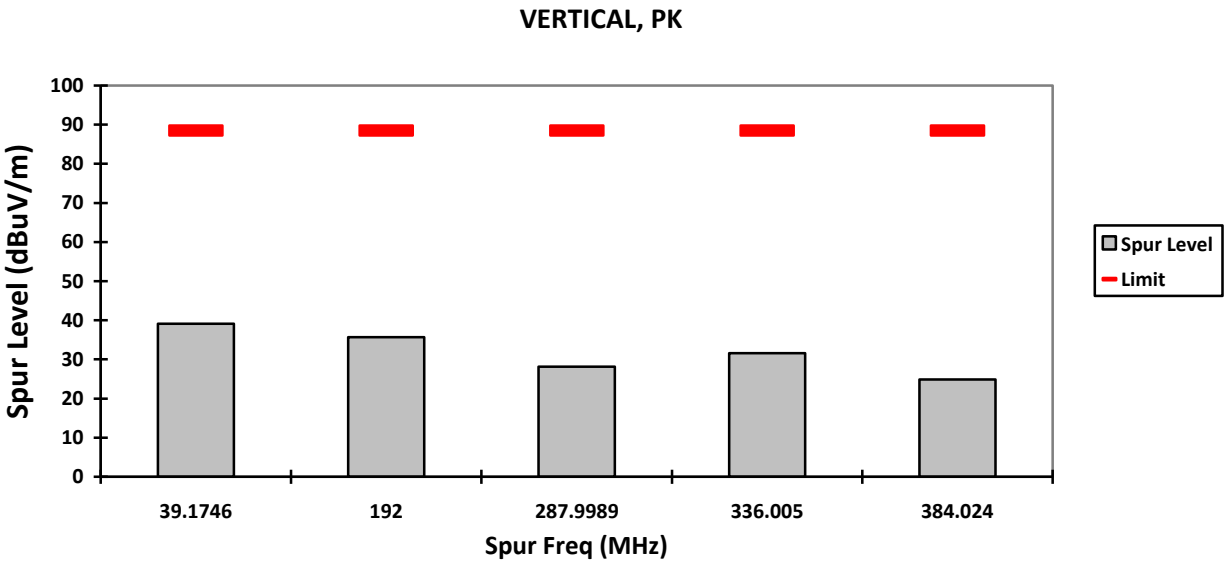
Remarks: ** Indicates the spurious emission could not be detected due to noise limitations or ambient.
***Pursuant to CFR 47 Part 2.1057 (c), emissions attenuated more than 20 dB below the permissible limit are not reported.**

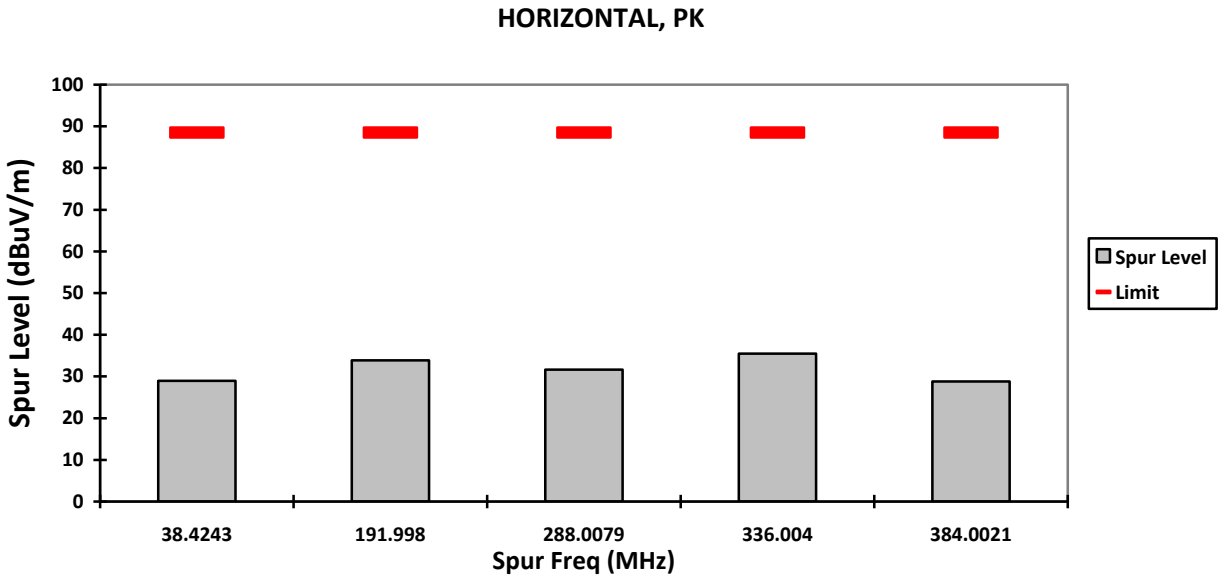
VERTICAL, QPK



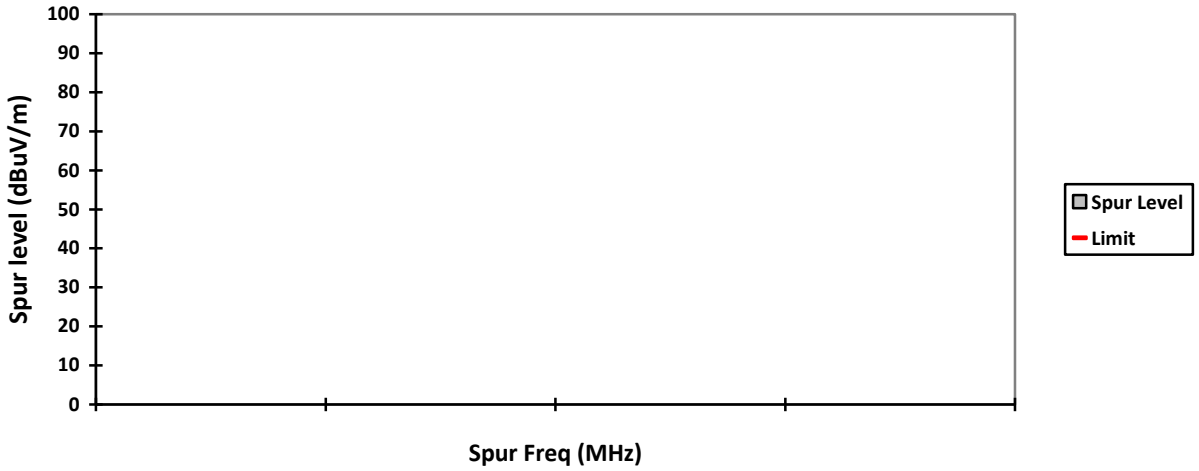
HORIZONTAL, QPK



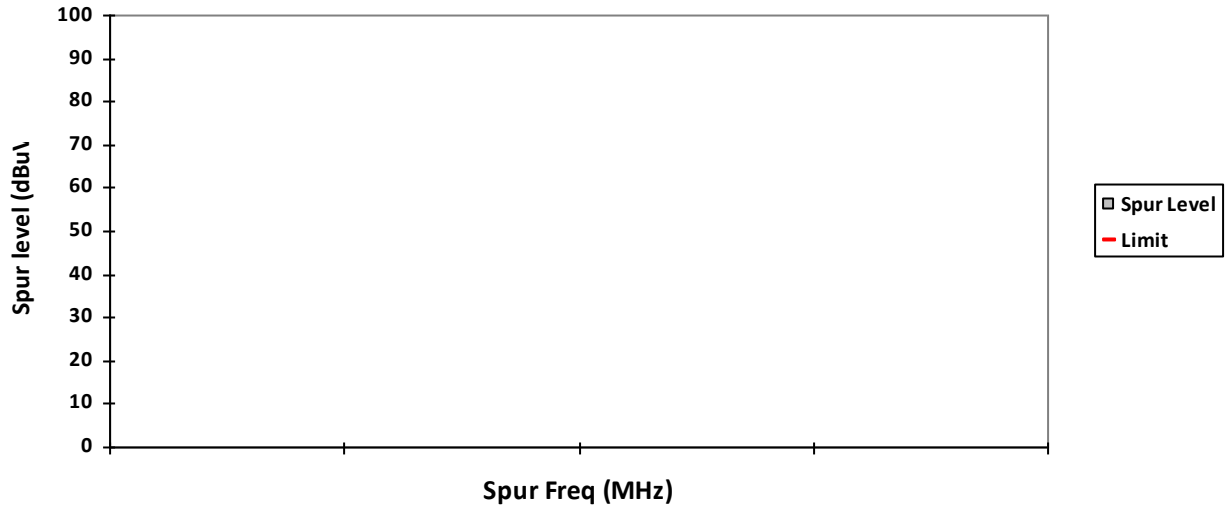

VERTICAL, PK
Spur Level (dBuV/m)
100
90
80
70
60
50
40
30
20
10
0
39.1746
192
287.9989
336.005
384.024
Spur Freq (MHz)
Spur Level
Limit


HORIZONTAL, PK
Spur Level (dBuV/m)
100
90
80
70
60
50
40
30
20
10
0
38.4243
191.998
288.0079
336.004
384.0021
Spur Freq (MHz)
Spur Level
Limit

VERTICAL, AV



HORIZONTAL, AV



Test: Bluetooth SAC Restricted Band Edge
Model Number: M25URS9PW1BN S/N: 471TVF3482 EMC SR ID#: 14913-EMC-00049
Battery: NA Accessory: AN000163A01, AN000197A10, 3466-HMN4079G-4, HSN4040A-C4, HKN4191B-2, 3466-HKN6163C-2, PMHN4194C-CF3
Test Channel: Low Test Frequency: 2402.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Y-Plane (GFSK)

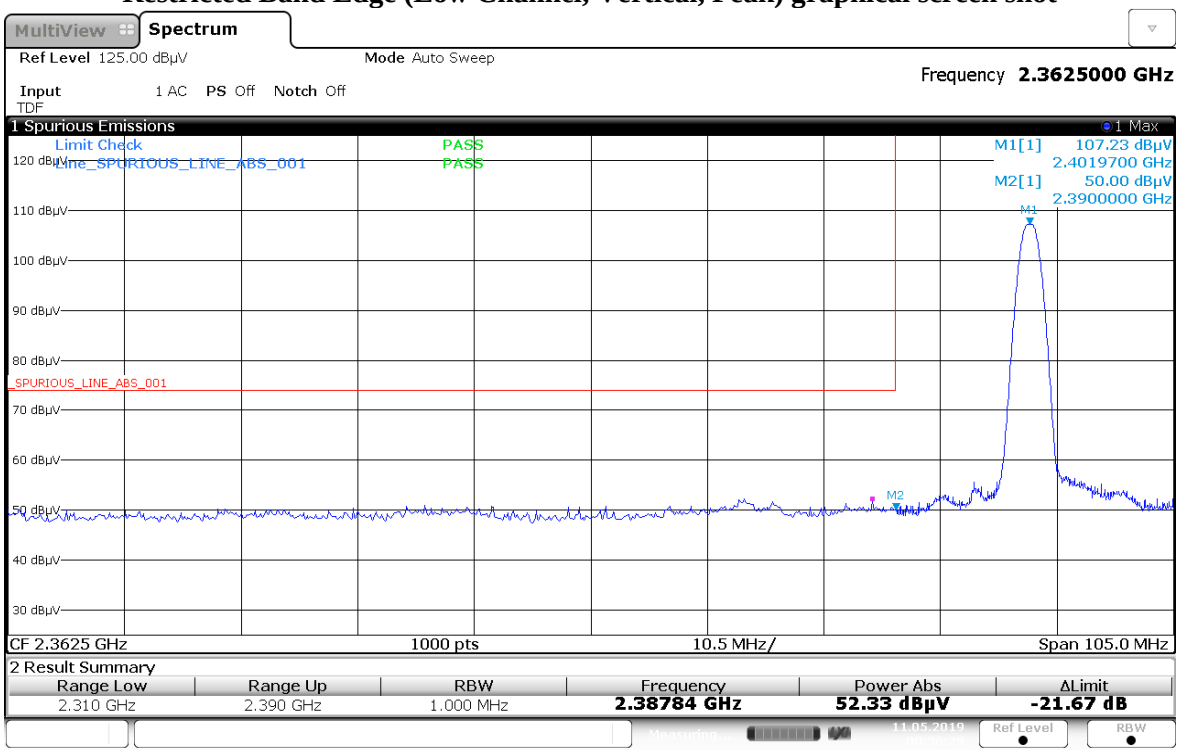
Restricted Band Edge (Low Channel) tabular data

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)
2372.8000	-	-	42.0143	-	-	54.0000	-	-	-11.9857	-
2375.5200	-	-	42.1995	-	-	54.0000	-	-	-11.8005	-
2387.8400	-	52.3305	-	-	74.0000	-	-	-21.6695	-	-
2390.0000	-	50.0035	39.4990	-	74.0000	54.0000	-	-23.9965	-14.5010	-
Horizontal Radiated Emission Result										
2334.0800	-	50.6311	-	-	74.0000	-	-	-23.3689	-	-
2390.0000	-	48.4711	37.7937	-	74.0000	54.0000	-	-25.5289	-16.2063	-

Remarks: Pass Result	Marginal Result	Fail Result

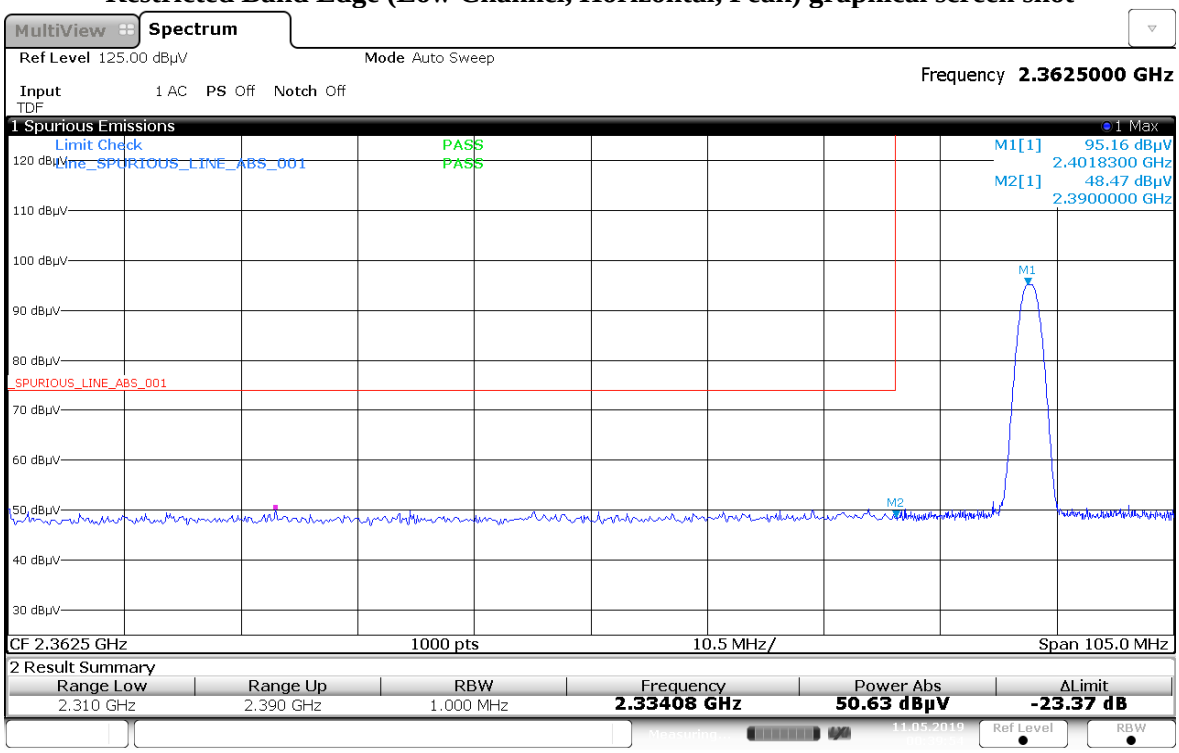
Temperature (degC):23.4 Humidity (%): 69.8
Test Performed by: Qawiman&Azil Test Date: Sat, May 11, 2019
System MU: 5.01dB

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



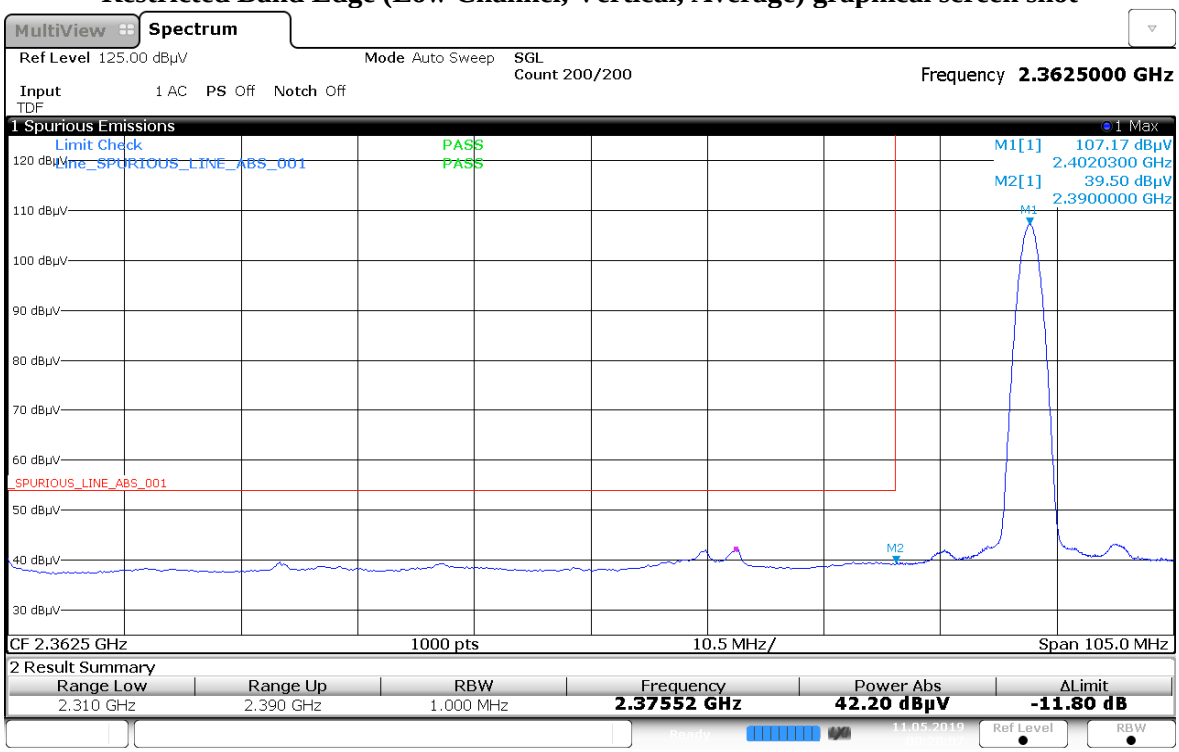
00:36:30 11.05.2019

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



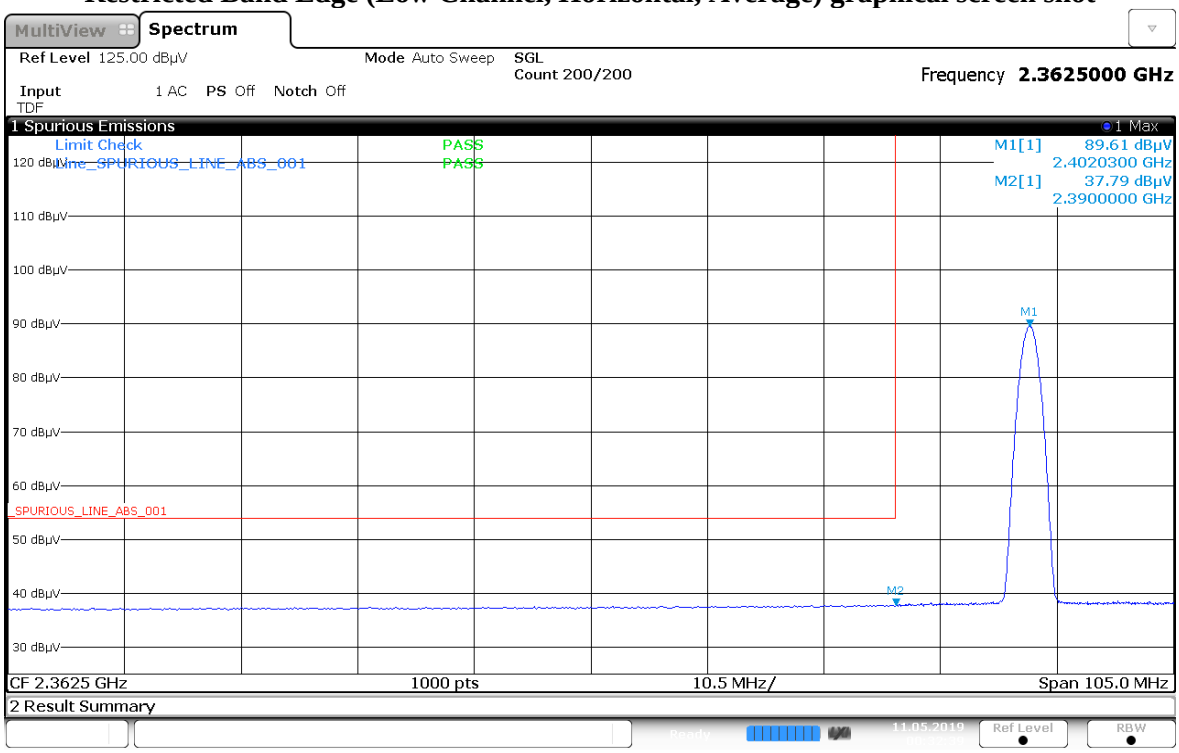
00:39:55 11.05.2019

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



00:28:07 11.05.2019

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



00:32:40 11.05.2019

Test: Bluetooth SAC Restricted Band Edge
Model Number: M25URS9PW1BN S/N: 471TVF3482 EMC SR ID#: 14913-EMC-00049
Battery: NA Accessory: AN000163A01, AN000197A10, 3466-HMN4079G-4, HSN4040A-C4, HKN4191B-2, 3466-HKN6163C-2, PMHN4194C-CF3
Test Channel: High Test Frequency: 2480.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Y-Plane (GFSK)

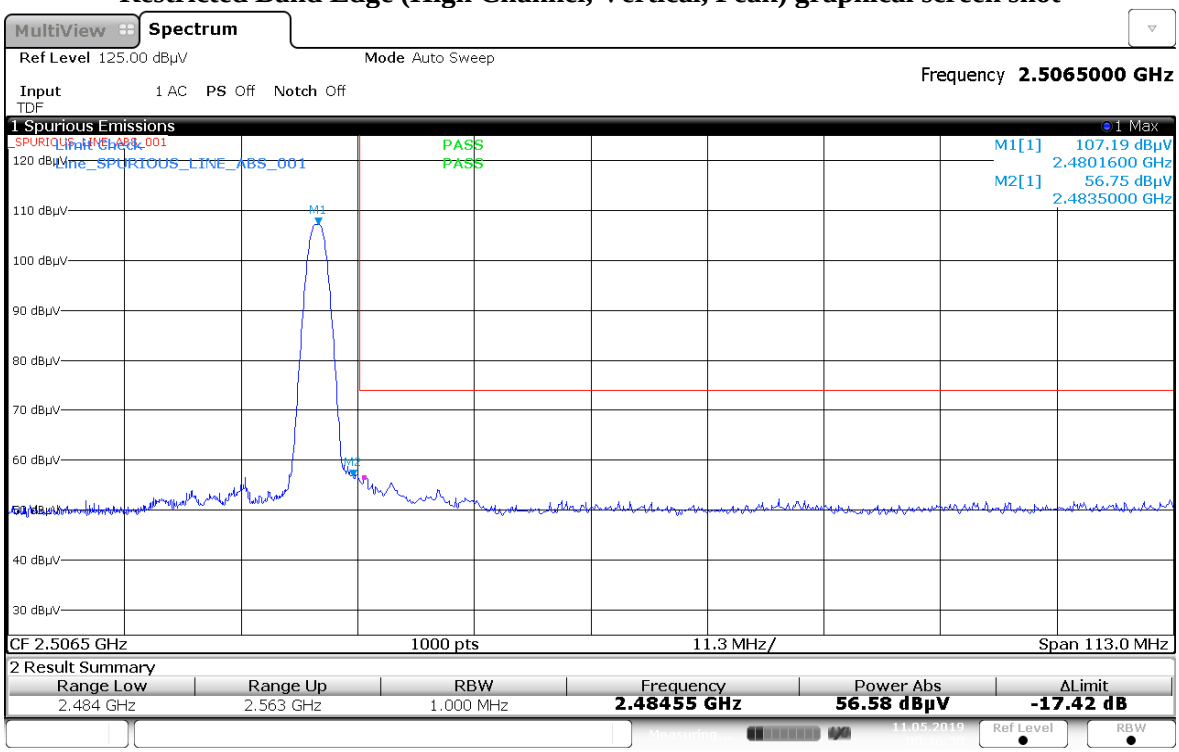
Restricted Band Edge (High Channel) tabular data

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	-	56.7502	42.3519	-	74.0000	54.0000	-	-17.2498	-11.6481	-
2484.5530	-	56.5788	-	-	74.0000	-	-	-17.4212	-	-
2487.7130	-	-	43.7000	-	-	54.0000	-	-	-10.3000	-
2489.9250	-	-	42.6162	-	-	54.0000	-	-	-11.3838	-
2490.8730	-	-	42.2523	-	-	54.0000	-	-	-11.7477	-
Horizontal Radiated Emission Result										
2483.5000	-	48.9619	37.5800	-	74.0000	54.0000	-	-25.0381	-16.4200	-
2561.0250	-	51.5022	-	-	74.0000	-	-	-22.4978	-	-

Remarks: Pass Result	Marginal Result	Fail Result

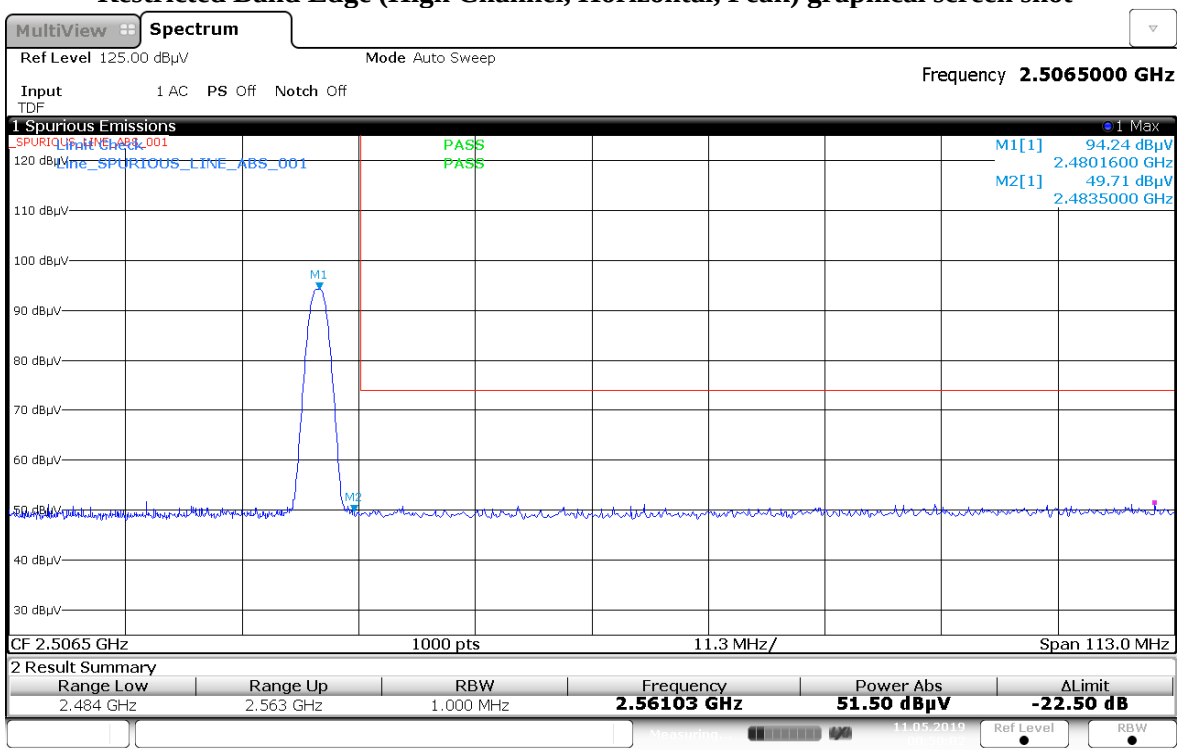
Temperature (degC):23.4 **Humidity (%): 69.8**
Test Performed by: Qawiman&Azil **Test Date: Sat, May 11, 2019**
System MU: 5.01dB

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



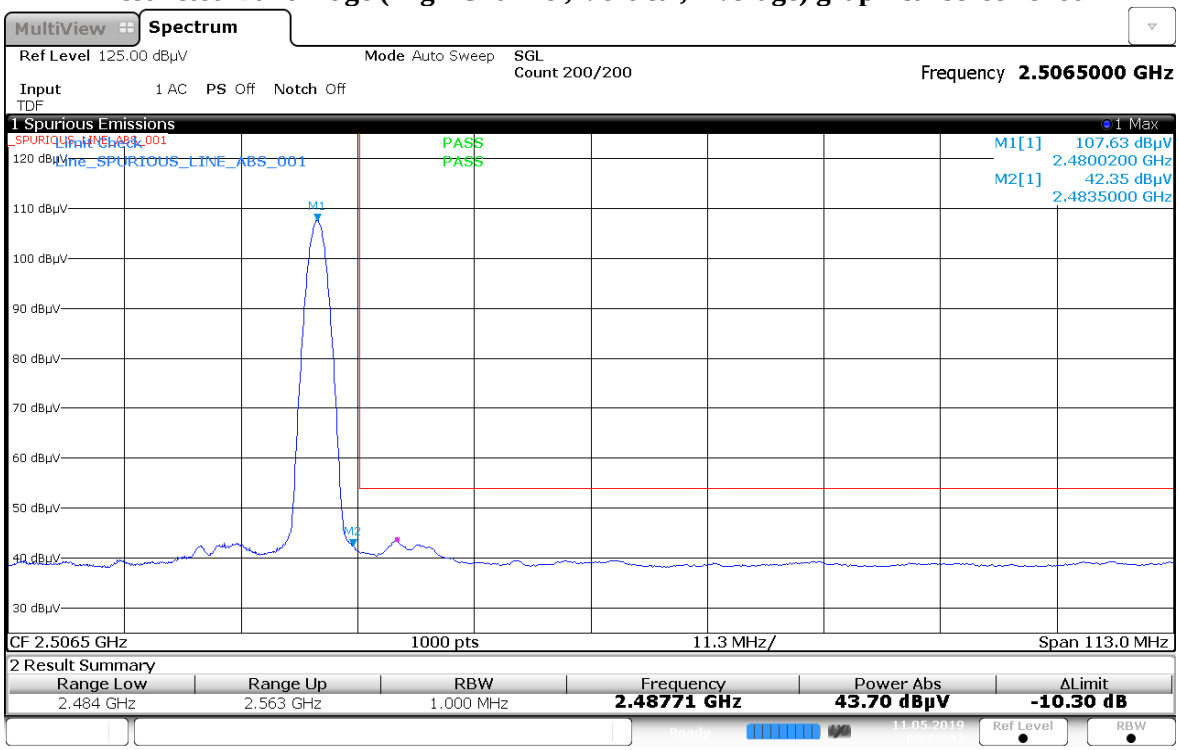
00:46:30 11.05.2019

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



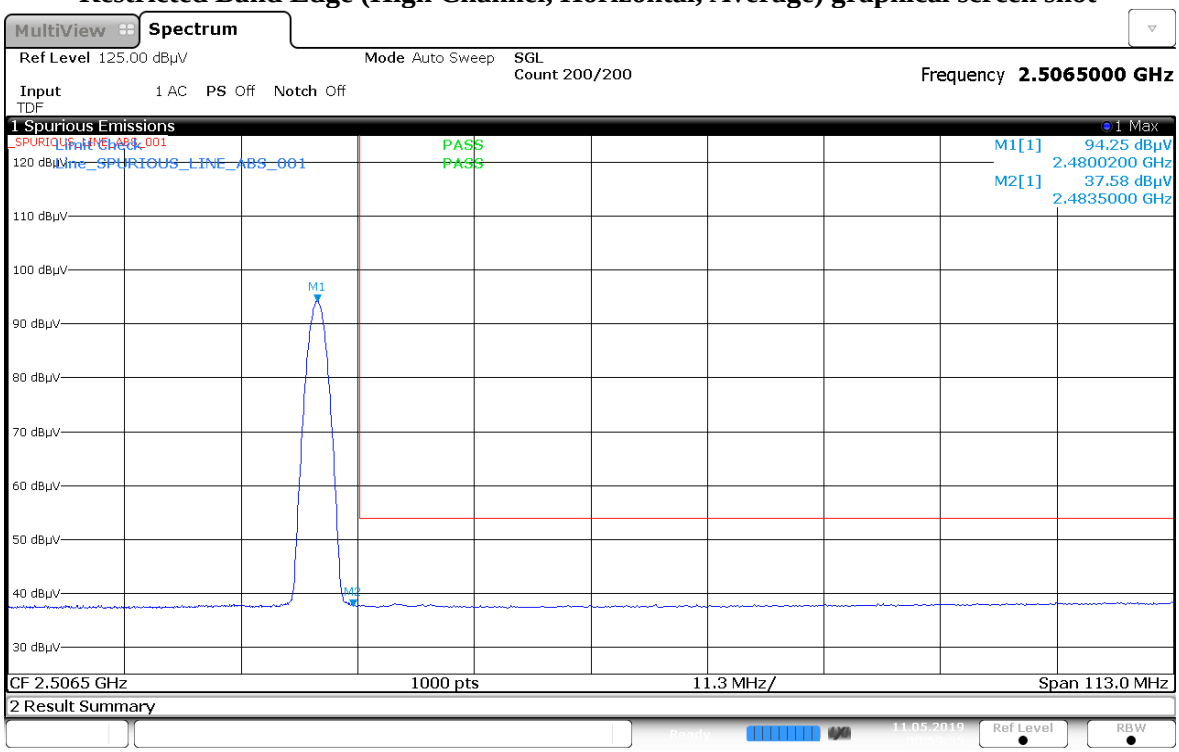
00:50:02 11.05.2019

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



00:55:07 11.05.2019

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



00:59:35 11.05.2019

Test: Bluetooth SAC Restricted Band Edge
Model Number: M25URS9PW1BN S/N: 471TVF3482 EMC SR ID#: 14913-EMC-00049
Battery: NA Accessory: AN000163A01, AN000197A10, 3466-HMN4079G-4, HSN4040A-C4, HKN4191B-2, 3466-HKN6163C-2, PMHN4194C-CF3
Test Channel: Low Test Frequency: 2402.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Y-Plane (DQPSK)

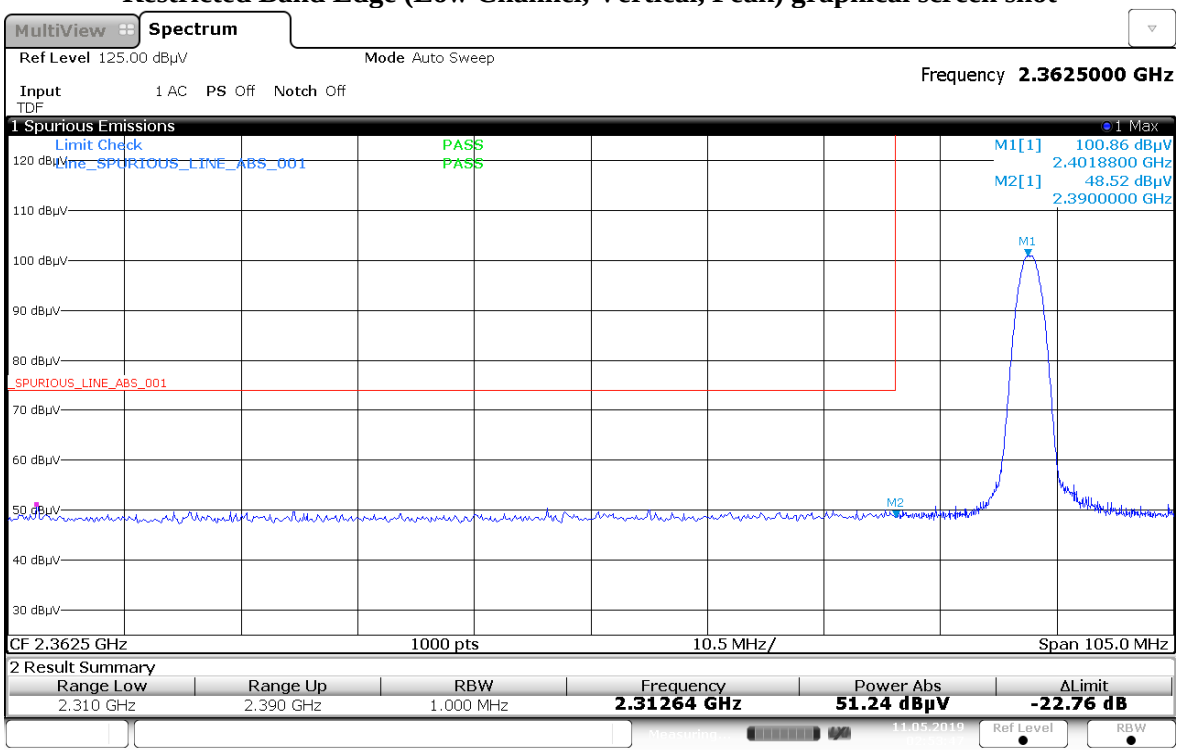
Restricted Band Edge (Low Channel) tabular data

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)
2312.6400	-	51.2379	-	-	74.0000	-	-	-22.7621	-	-
2390.0000	-	48.5218	38.2802	-	74.0000	54.0000	-	-25.4782	-15.7198	-
Horizontal Radiated Emission Result										
2389.7600	-	50.2436	-	-	74.0000	-	-	-23.7564	-	-
2390.0000	-	48.1518	37.7310	-	74.0000	54.0000	-	-25.8482	-16.2690	-

Remarks: Pass Result	Marginal Result	Fail Result

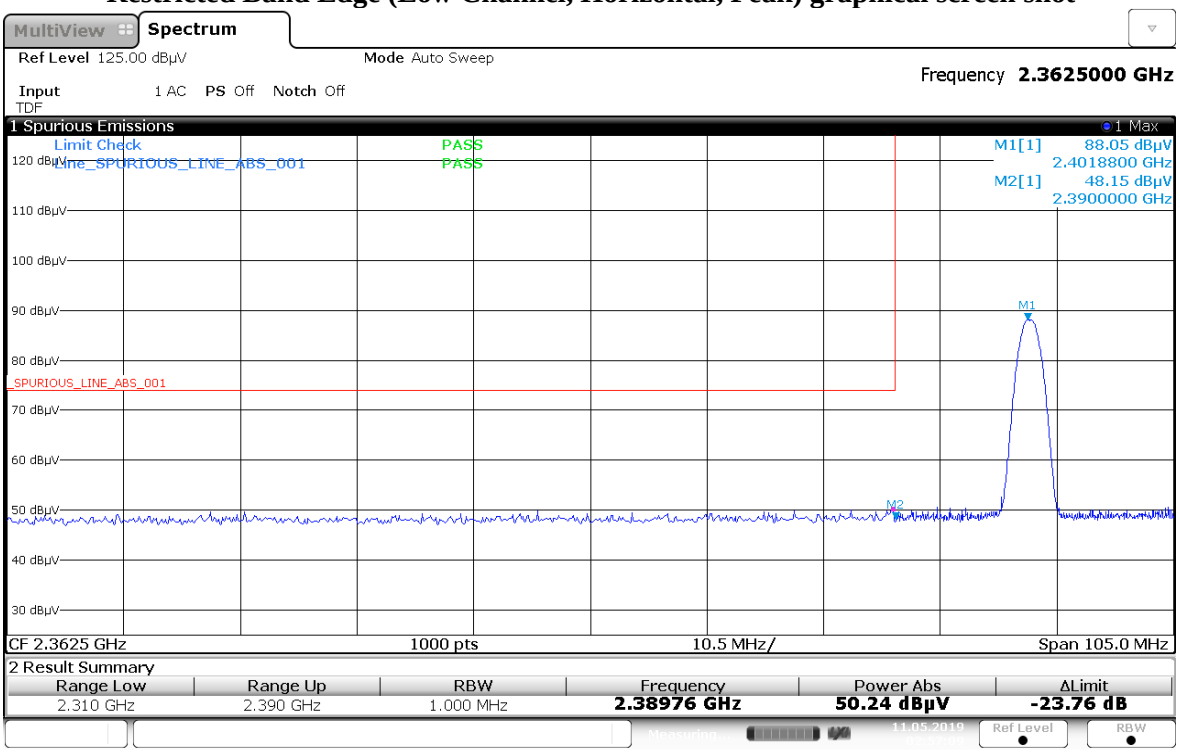
Temperature (degC):23.4 **Humidity (%): 69.8**
Test Performed by: Qawiman&Azil **Test Date: Sat, May 11, 2019**
System MU: 5.01dB

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



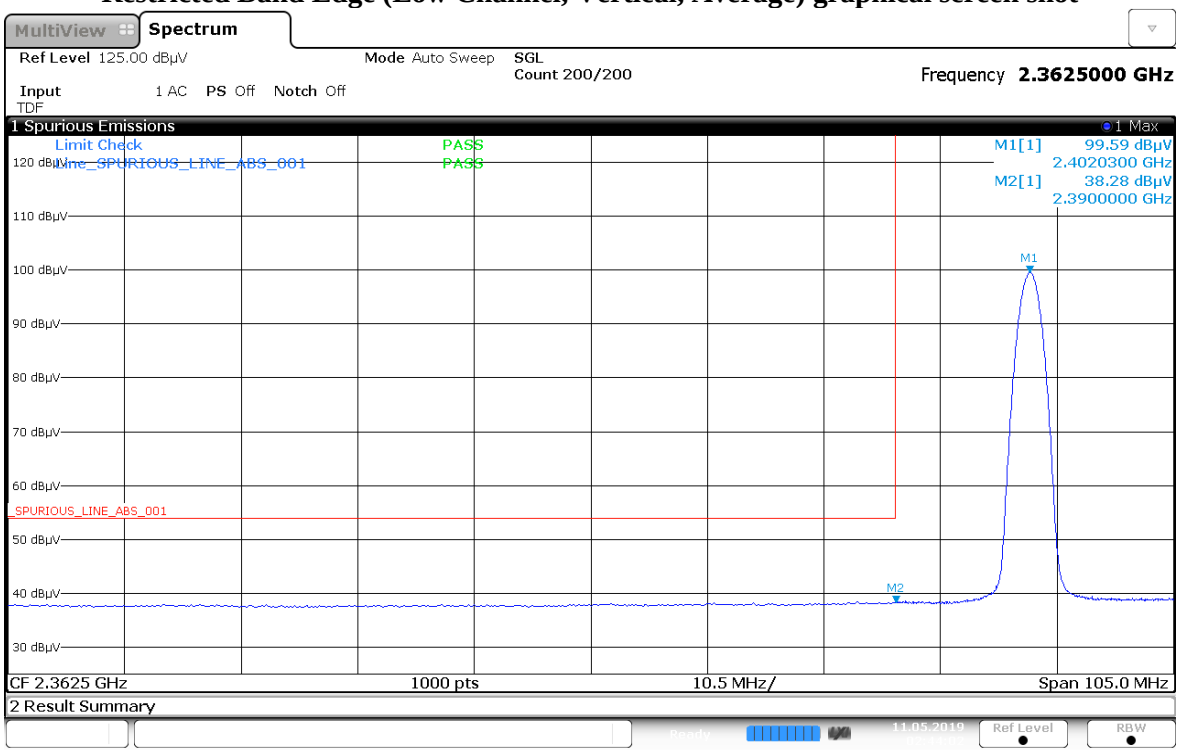
02:53:47 11.05.2019

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



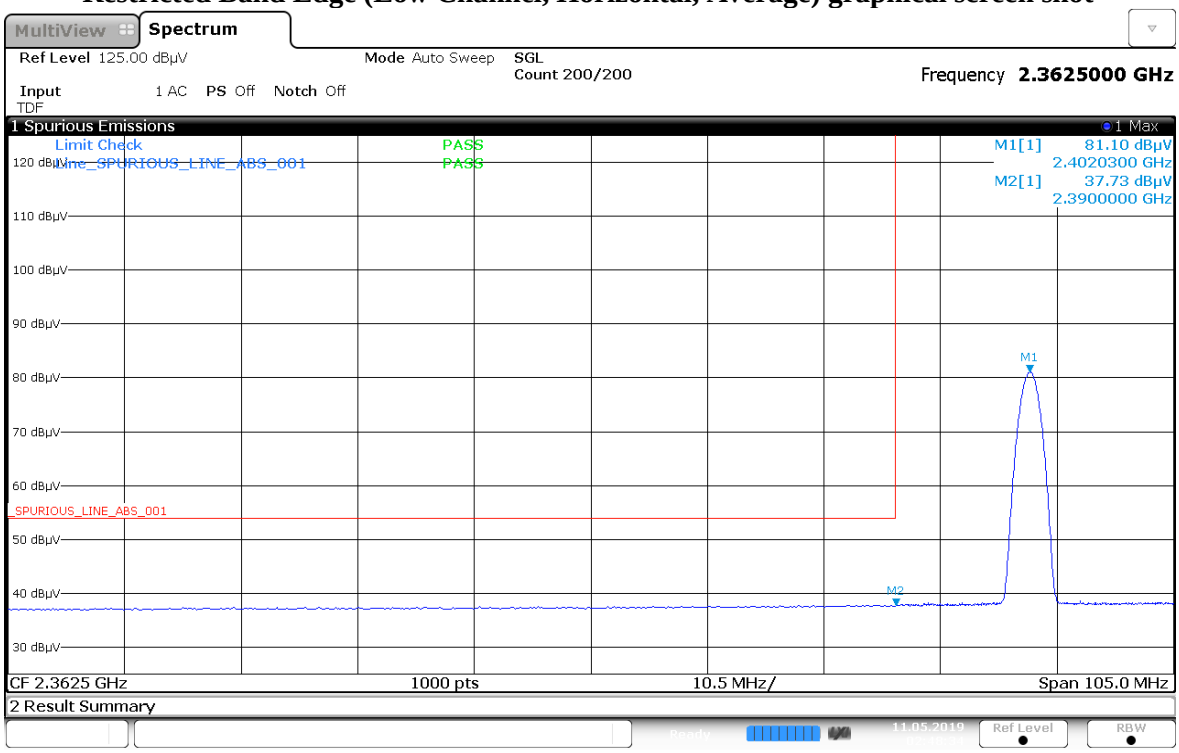
02:57:10 11.05.2019

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



02:44:02 11.05.2019

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



02:48:35 11.05.2019

Test: Bluetooth SAC Restricted Band Edge
Model Number: M25URS9PW1BN S/N: 471TVF3482 EMC SR ID#: 14913-EMC-00049
Battery: NA Accessory: AN000163A01, AN000197A10, 3466-HMN4079G-4, HSN4040A-C4, HKN4191B-2, 3466-HKN6163C-2, PMHN4194C-CF3
Test Channel: High Test Frequency: 2480.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Y-Plane (DQPSK)

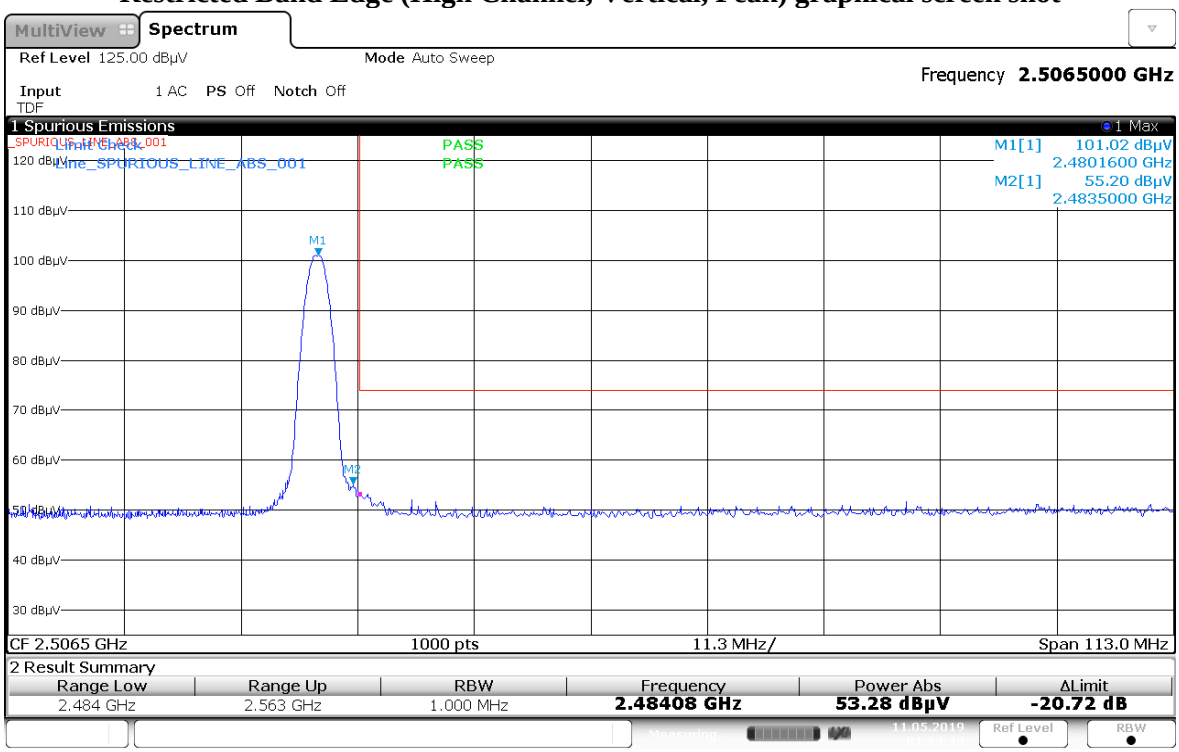
Restricted Band Edge (High Channel) tabular data

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	-	55.1965	40.0856	-	74.0000	54.0000	-	-18.8035	-13.9144	-
2484.0790	-	53.2761	-	-	74.0000	-	-	-20.7239	-	-
Horizontal Radiated Emission Result										
2483.5000	-	48.6298	37.3805	-	74.0000	54.0000	-	-25.3702	-16.6195	-
2552.8090	-	51.2469	-	-	74.0000	-	-	-22.7531	-	-

Remarks: Pass Result	Marginal Result	Fail Result

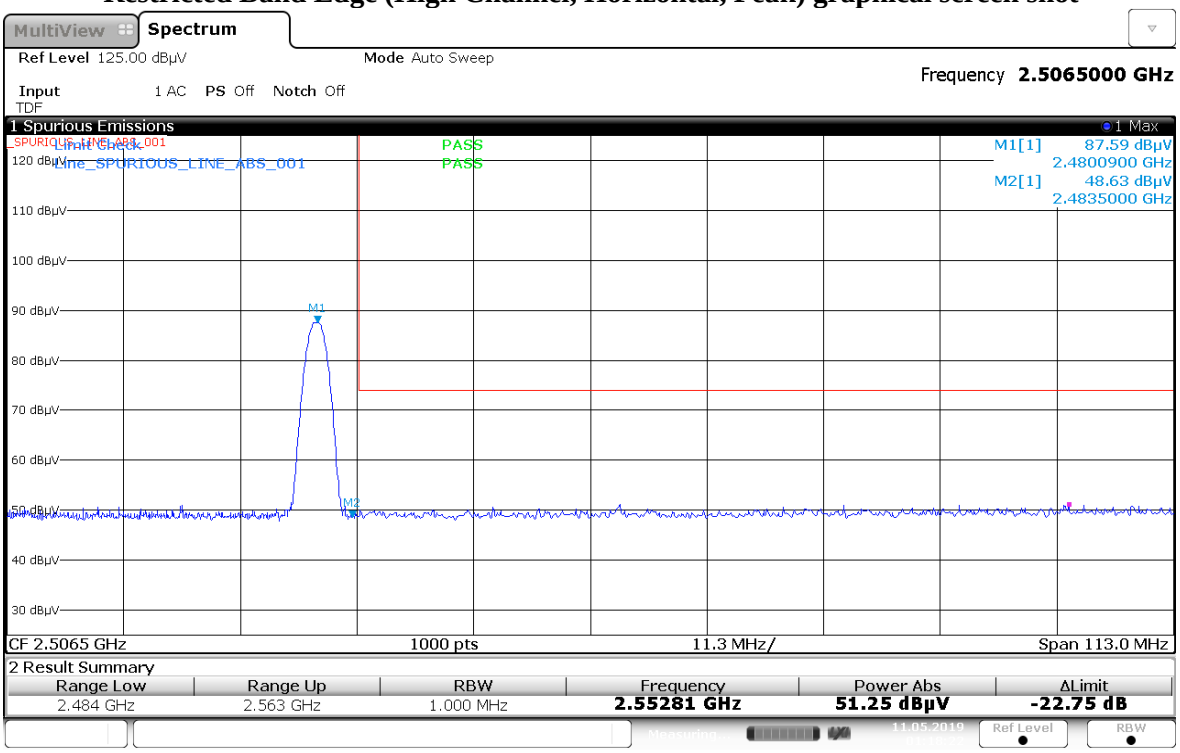
Temperature (degC):23.4 **Humidity (%): 69.8**
Test Performed by: Qawiman&Azil **Test Date: Sat, May 11, 2019**
System MU: 5.01dB

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



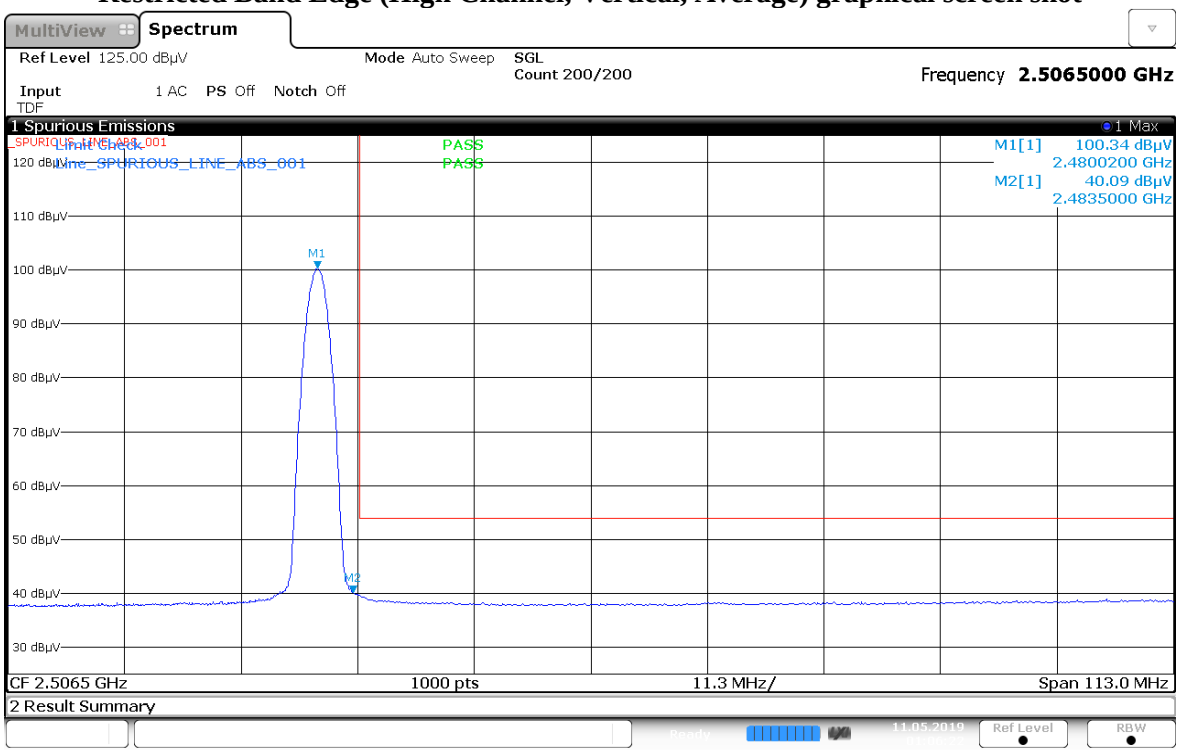
01:14:50 11.05.2019

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



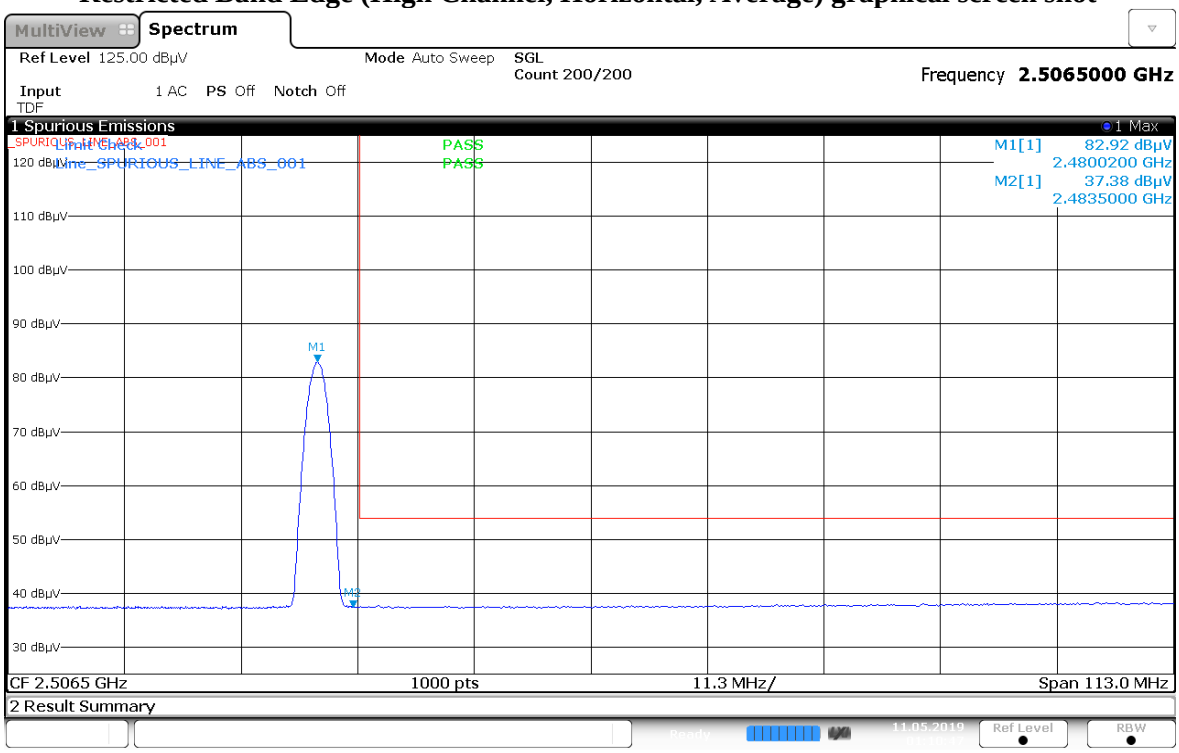
01:18:22 11.05.2019

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



01:06:22 11.05.2019

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



01:10:47 11.05.2019

Test: Bluetooth SAC Restricted Band Edge

Model Number: M25URS9PW1BN S/N: 471TVF3482 EMC SR ID#: 14913-EMC-00049

Battery: NA Accessory: AN000163A01, AN000197A10, 3466-HMN4079G-4, HSN4040A-C4, HKN4191B-2, 3466-HKN6163C-2, PMHN4194C-CF3

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

Worst Case Plane: Y-Plane (8 DPSK)

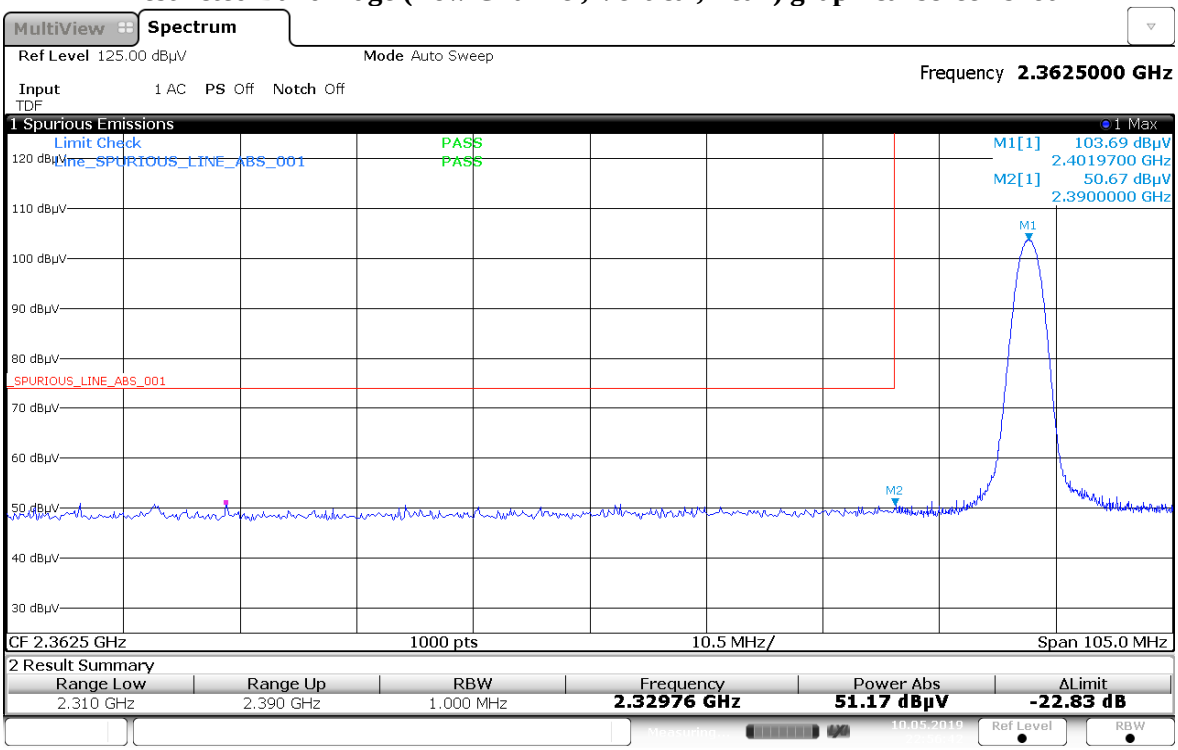
Restricted Band Edge (Low Channel) tabular data

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)
2329.7600	-	51.1699	-	-	74.0000	-	-	-22.8301	-	-
2390.0000	-	50.6729	38.4515	-	74.0000	54.0000	-	-23.3271	-15.5485	-
Horizontal Radiated Emission Result										
2370.8800	-	50.4619	-	-	74.0000	-	-	-23.5381	-	-
2390.0000	-	48.2062	37.8638	-	74.0000	54.0000	-	-25.7938	-16.1362	-

Remarks: Pass Result	Marginal Result	Fail Result

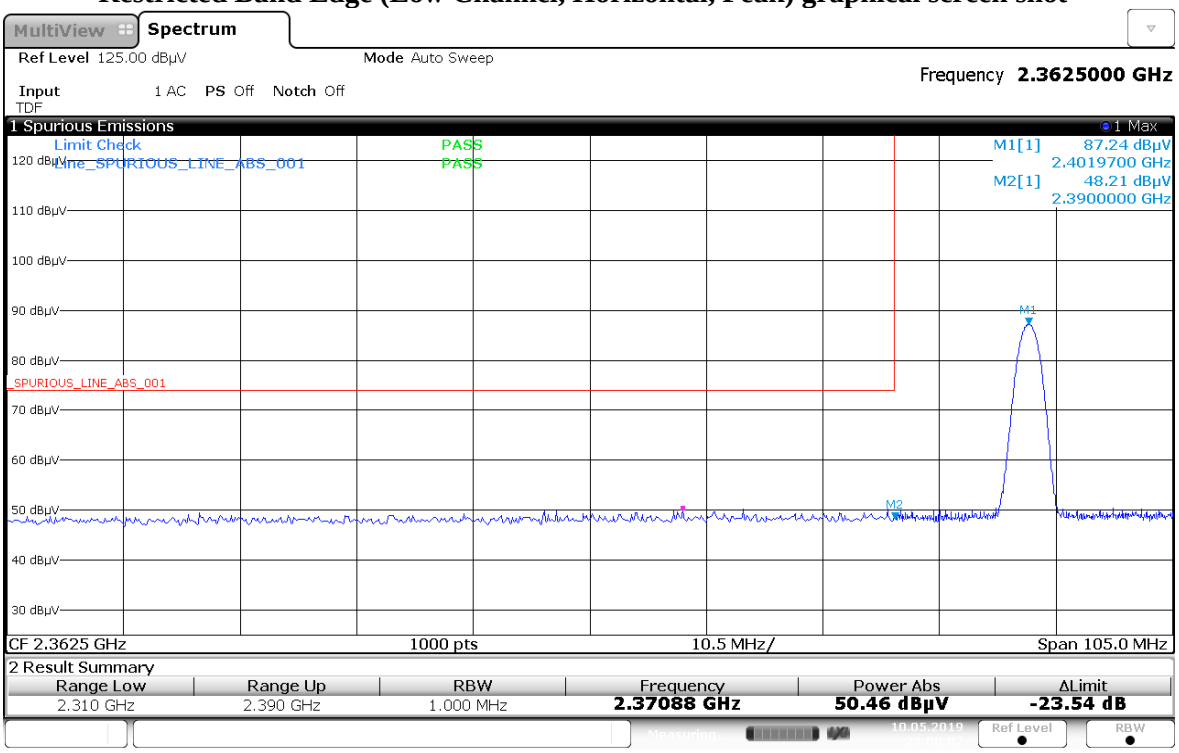
Temperature (degC):23.4 **Humidity (%): 69.8**
Test Performed by: Qawiman&Azil **Test Date: Sat, May 11, 2019**
System MU: 5.01dB

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



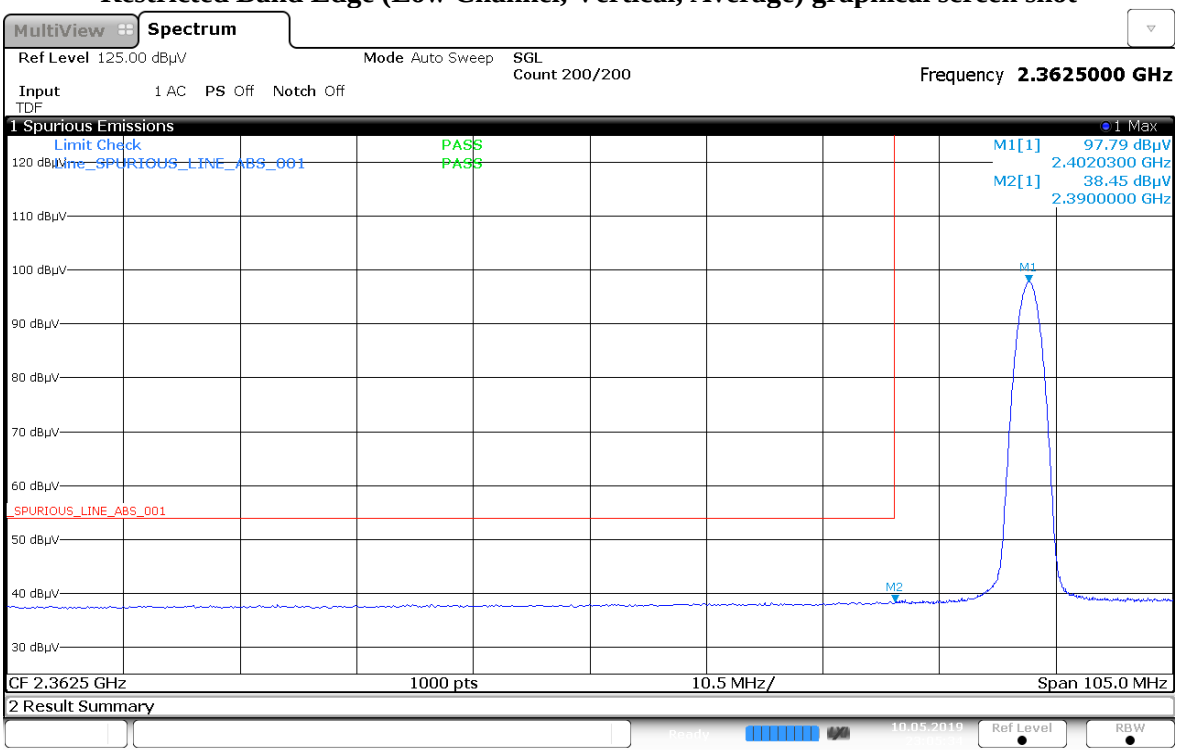
22:56:42 10.05.2019

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



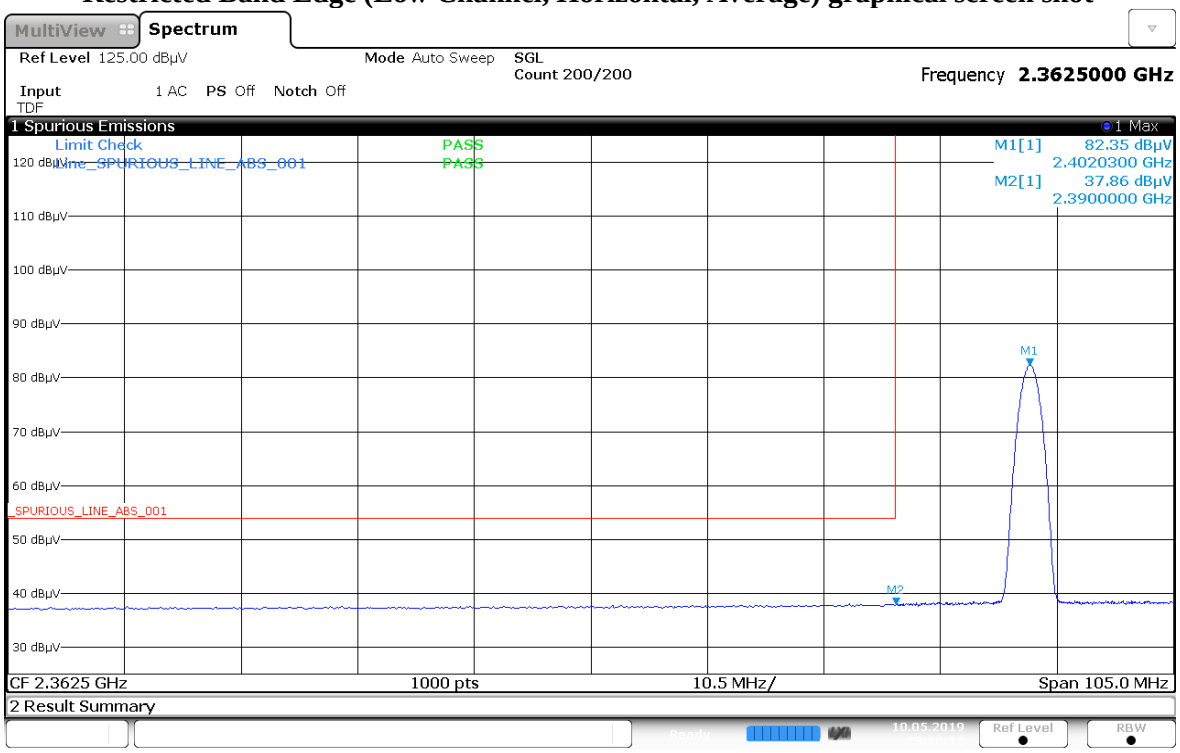
23:00:02 10.05.2019

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



23:05:35 10.05.2019

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



23:10:12 10.05.2019

Test: Bluetooth SAC Restricted Band Edge
Model Number: M25URS9PW1BN S/N: 471TVF3482 EMC SR ID#: 14913-EMC-00049
Battery: NA Accessory: AN000163A01, AN000197A10, 3466-HMN4079G-4, HSN4040A-C4, HKN4191B-2, 3466-HKN6163C-2, PMHN4194C-CF3
Test Channel: High Test Frequency: 2480.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Y-Plane (8 DPSK)

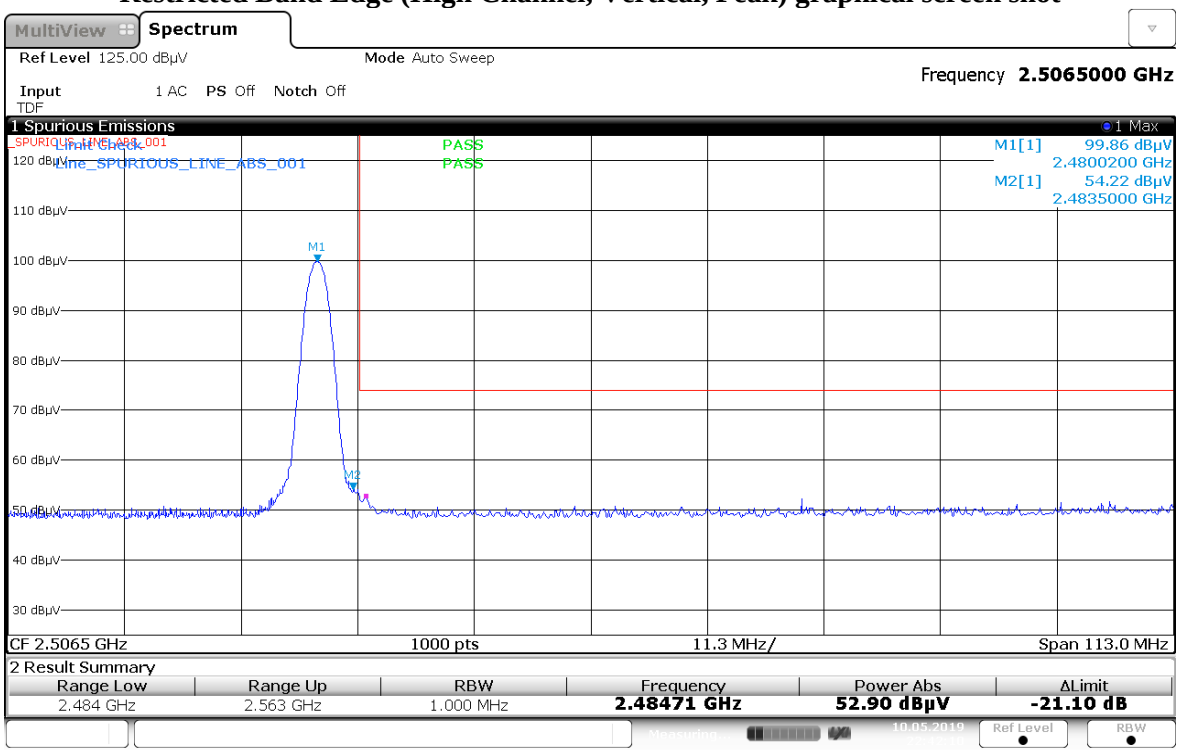
Restricted Band Edge (High Channel) tabular data

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	-	54.2181	40.0436	-	74.0000	54.0000	-	-19.7819	-13.9564	-
2484.7110	-	52.8995	-	-	74.0000	-	-	-21.1005	-	-
Horizontal Radiated Emission Result										
2483.5000	-	48.7907	37.4605	-	74.0000	54.0000	-	-25.2093	-16.5395	-
2561.3410	-	51.7903	-	-	74.0000	-	-	-22.2097	-	-

Remarks: Pass Result	Marginal Result	Fail Result

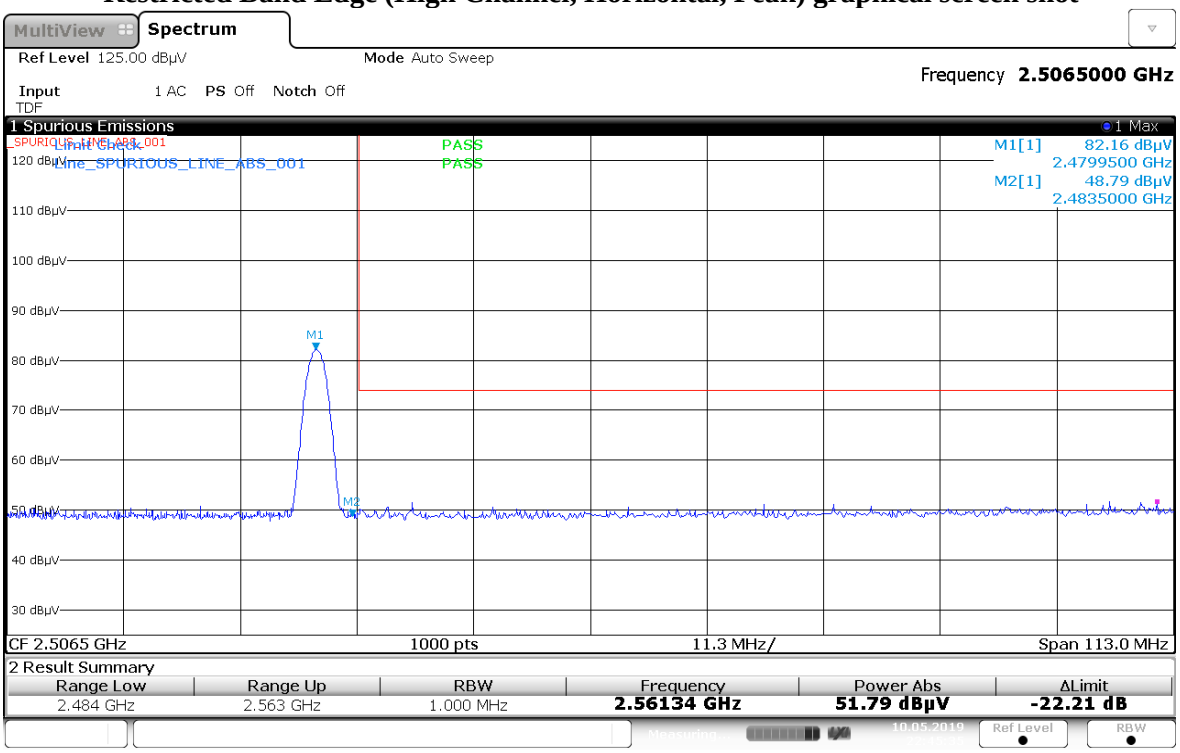
Temperature (degC):23.4 **Humidity (%): 69.8**
Test Performed by: Qawiman&Azil **Test Date: Sat, May 11, 2019**
System MU: 5.01dB

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



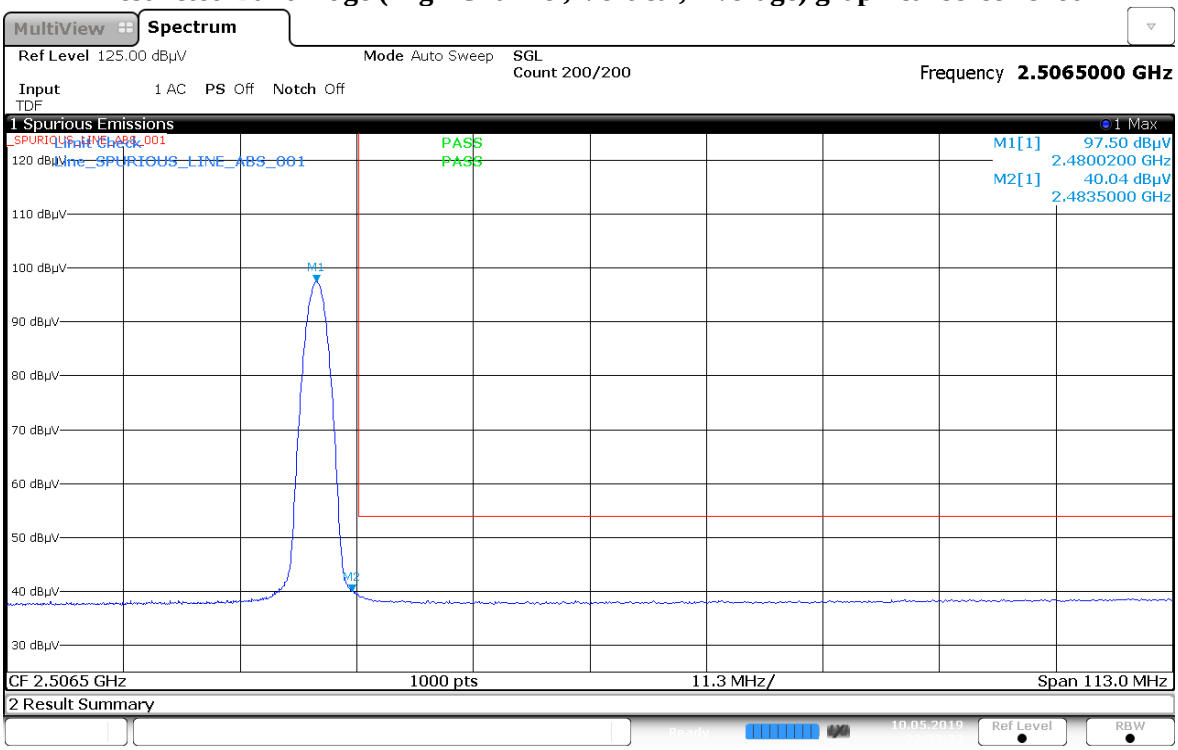
22:42:10 10.05.2019

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



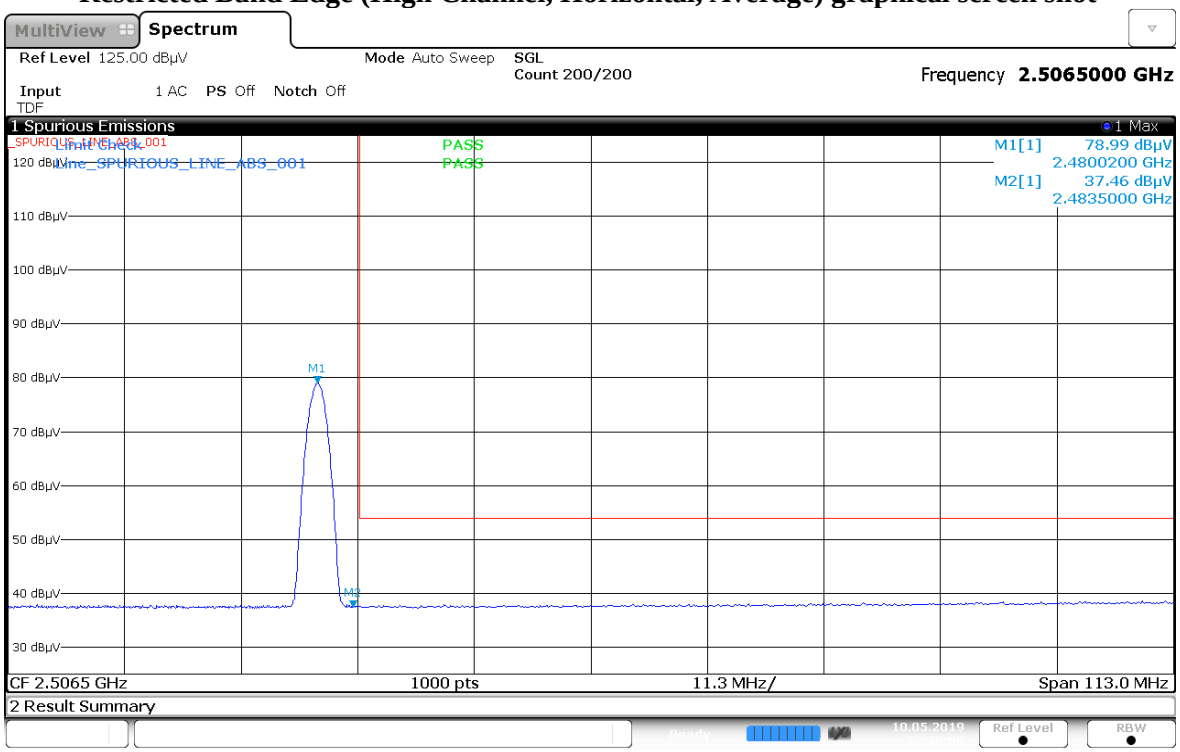
22:45:35 10.05.2019

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



22:33:32 10.05.2019

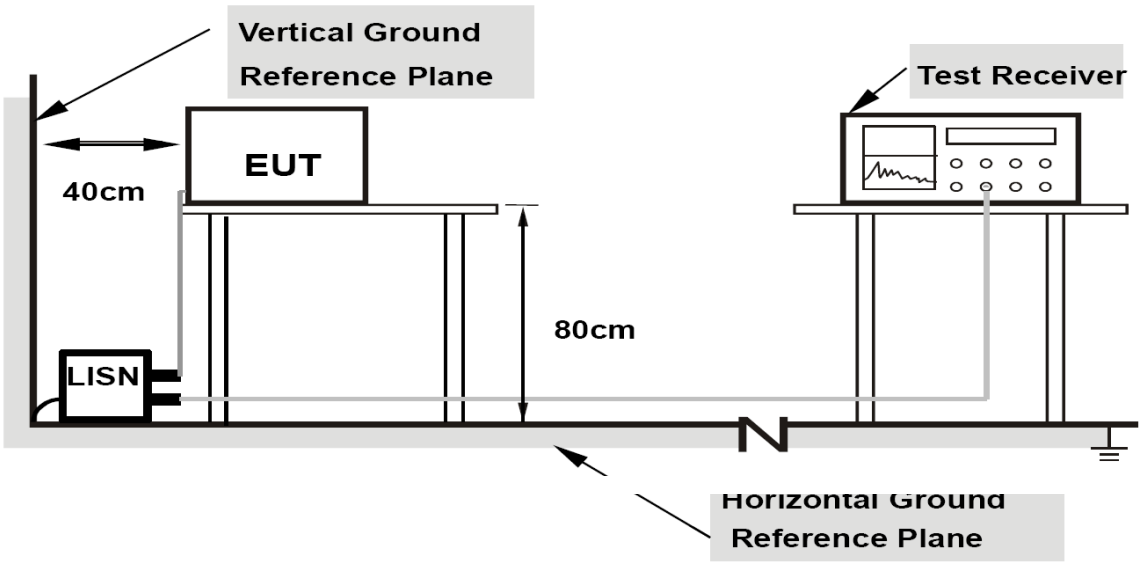
Restricted Band Edge (High Channel, Horizontal, Average) graphical screen shot



22:38:07 10.05.2019

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

Not Applicable. Testing is not required, radio shall turn off during charging mode

END OF TEST REPORT