FCC Test Report
(BT-EDR)

Report No.:	RFBHKO-WTW-P21115111
FCC ID:	2ACIX-PX8
Test Model:	Px7 S2, Px8
Received Date:	2021/12/8
Test Date:	2021/12/9 ~ 2022/1/6
Issued Date:	2022/1/24
Applicant:	B&W Group Ltd.
Address:	Dale Road Worthing, BN11 2BH United Kingdom
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
FCC Registration / Designation Number:	198487 / TW2021

Testing Laboratory
2021

Table of Contents

Release Control Record 4

1 Certificate of Conformity 5

2 Summary of Test Results 6

2.1 Measurement Uncertainty 6
2.2 Modification Record 6

3 General Information 7

3.1 General Description of EUT 7
3.2 Description of Test Modes 8
3.2.1 Test Mode Applicability and Tested Channel Detail 9
3.3 Duty Cycle of Test Signal 11
3.4 Description of Support Units 12
3.4.1 Configuration of System under Test 12
3.5 General Description of Applied Standards and References 13

4 Test Types and Results 14

4.1 Radiated Emission and Bandedge Measurement 14
4.1.1 Limits of Radiated Emission and Bandedge Measurement 14
4.1.2 Test Instruments 15
4.1.3 Test Procedures 16
4.1.4 Deviation from Test Standard 16
4.1.5 Test Setup 17
4.1.6 EUT Operating Conditions 18
4.1.7 Test Results 19
4.2 Conducted Emission Measurement 39
4.2.1 Limits of Conducted Emission Measurement 39
4.2.2 Test Instruments 39
4.2.3 Test Procedures 40
4.2.4 Deviation From Test Standard 40
4.2.5 Test Setup 40
4.2.6 EUT Operating Condition 40
4.3 Number of Hopping Frequency Used 49
4.3.1 Limits of Hopping Frequency Used Measurement 49
4.3.2 Test Setup 49
4.3.3 Test Instruments 49
4.3.4 Test Procedure 49
4.3.5 Deviation from Test Standard 49
4.3.6 Test Results 50
4.4 Dwell Time on Each Channel 52
4.4.1 Limits of Dwell Time on Each Channel Measurement 52
4.4.2 Test Setup 52
4.4.3 Test Instruments 52
4.4.4 Test Procedures 52
4.4.5 Deviation from Test Standard 52
4.4.6 Test Results 53
4.5 Channel Bandwidth 57
4.5.1 Limits of Channel Bandwidth Measurement 57
4.5.2 Test Setup 57
4.5.3 Test Instruments 57
4.5.4 Test Procedure 57
4.5.5 Deviation from Test Standard 57
4.5.6 EUT Operating Condition 57
4.5.7 Test Results 58
4.6 Hopping Channel Separation 59

4.6.1 Limits of Hopping Channel Separation Measurement 59
4.6.2 Test Setup 59
4.6.3 Test Instruments 59
4.6.4 Test Procedure 59
4.6.5 Deviation from Test Standard 59
4.6.6 Test Results 60
4.7 Maximum Output Power Measurement 62
4.7.1 Limits of Maximum Output Power Measurement 62
4.7.2 Test Setup 62
4.7.3 Test Instruments 62
4.7.4 Test Procedure 62
4.7.5 Deviation from Test Standard 62
4.7.6 EUT Operating Condition 62
4.7.7 Test Results 63
4.8 Conducted Out of Band Emission Measurement 65
4.8.1 Limits of Conducted Out of Band Emission Measurement 65
4.8.2 Test Instruments 65
4.8.3 Test Procedure 65
4.8.4 Deviation from Test Standard 65
4.8.5 EUT Operating Condition 65
4.8.6 Test Results 65

5 Pictures of Test Arrangements 70

Annex A - Bandedge Measurement 71

Appendix – Information of the Testing Laboratories 75

Release Control Record

Issue No.	Description	Date Issued
RFBHKO-WTW-P21115111	Original release.	2022/1/24

1 Certificate of Conformity

Product:	Wireless Headphones
Brand:	Bowers & Wilkins
Test Model:	Px7 S2, Px8
Sample Status:	Engineering sample
Applicant:	B&W Group Ltd.
Test Date:	2021/12/9 ~ 2022/1/6
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10: 2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Jessica Cheng , **Date:** 2022/1/24

Jessica Cheng / Senior Specialist

Approved by : Jeremy Lin , **Date:** 2022/1/24

Jeremy Lin / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -8.08dB at 0.15781MHz.
15.247(a)(1)(iii)	Number of Hopping Frequency Used	Pass	Meet the requirement of limit.
15.247(a)(1)(iii)	Dwell Time on Each Channel	Pass	Meet the requirement of limit.
15.247(a)(1)	1. Hopping Channel Separation 2. Spectrum Bandwidth of a Frequency Hopping Sequence Spread Spectrum System	Pass	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power	Pass	Meet the requirement of limit.
15.205 & 209 & 15.247(d)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -4.08dB at 51.34MHz.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is IPEX not a standard connector.

NOTE:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. If The Frequency Hopping System operating in 2400-2483.5MHz band and the output power less than 125mW. The hopping channel carrier frequencies separated by a minimum of 25kHz or two-thirds of the 20dB bandwidth of hopping channel whichever is greater.
3. For 2.4GHz band compliance with rule 15.247(d) of the band-edge items, the test plots were recorded in Annex A. Test Procedures refer to report 4.1.3.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	3.00 dB
Conducted Emissions	9kHz ~ 40GHz	2.63 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	2.38 dB
	30MHz ~ 1GHz	5.70 dB
Radiated Emissions above 1 GHz	Above 1GHz	5.21 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Wireless Headphones
Brand	Bowers & Wilkins
Test Model	Px7 S2, Px8
Model Difference	Refer to note as below
Status of EUT	Engineering sample
Nominal Voltage	3.8Vdc from battery or 5Vdc from host equipment
Modulation Type	GFSK, π/4-DQPSK, 8DPSK
Modulation Technology	FHSS
Transfer Rate	Up to 3Mbps
Operating Frequency	2402MHz ~ 2480MHz
Number of Channel	79
Output Power	1.622mW for Model: Px7 S2
	1.66mW for Model: Px8
Antenna Type	Refer to note as below
Antenna Connector	Refer to note as below
Accessory Device	N/A
Data Cable Supplied	USB-C to 3.5mm audio cable (1.2m) USB-C to USB-C cable (1.2m)

Note:

1. All models are listed as below.

Brand	Model	Cover material
Bowers & Wilkins	Px7 S2	Plastics
	Px8	Metal

2. The Antenna information is listed as below.

Model: Px7 S2		
Antenna Net Gain (dBi)	Antenna Type	Connector Type
2.29	FPC	IPEX
Model: Px8		
Antenna Net Gain (dBi)	Antenna Type	Connector Type
2.64	FPC	IPEX

3. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.
4. Connecting with the USB cable the EUT will automatically disconnect from any Bluetooth devices.
5. For Radiated Emissions test of charging mode, following modes were pre-tested:
   - ✧ Charging Mode (Powered from Adapter)
   - ✧ Charging Mode (Powered from Notebook)

   The worst emission level was found when the EUT tested under **Charging Mode (Powered from Notebook)**, therefore, only its test data was recorded in this report.
6. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 Description of Test Modes

79 channels are provided for BT-EDR mode:

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		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	-	√	Test Model: Px7 S2 (Operating Mode)
B	√	√	-	√	Test Model: Px8 (Operating Mode)
C	-	√	√	-	Test Model: Px7 S2 (Charging mode Powered from Notebook)
D	-	√	√	-	Test Model: Px8 (Charging mode Powered from Notebook)
E	-	-	√	-	Test Model: Px7 S2 (Charging mode Powered from Adapter)
F	-	-	√	-	Test Model: Px8 (Charging mode Powered from Adapter)

Where **RE≥1G:** Radiated Emission above 1GHz **RE<1G:** Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

NOTE: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

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	Packet Type
A & B	0 to 78	0, 39, 78	FHSS	GFSK	DH5
A & B	0 to 78	0, 39, 78	FHSS	8DPSK	3DH5

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	Packet Type
A & B	0 to 78	39	FHSS	8DPSK	3DH5
C & D	-	-	-	-	-

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	Packet Type
C & D & E & F	-	-	-	-	-

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	Packet Type
A & B	0 to 78	0, 39, 78	FHSS	GFSK	DH5
A & B	0 to 78	0, 39, 78	FHSS	8DPSK	3DH5

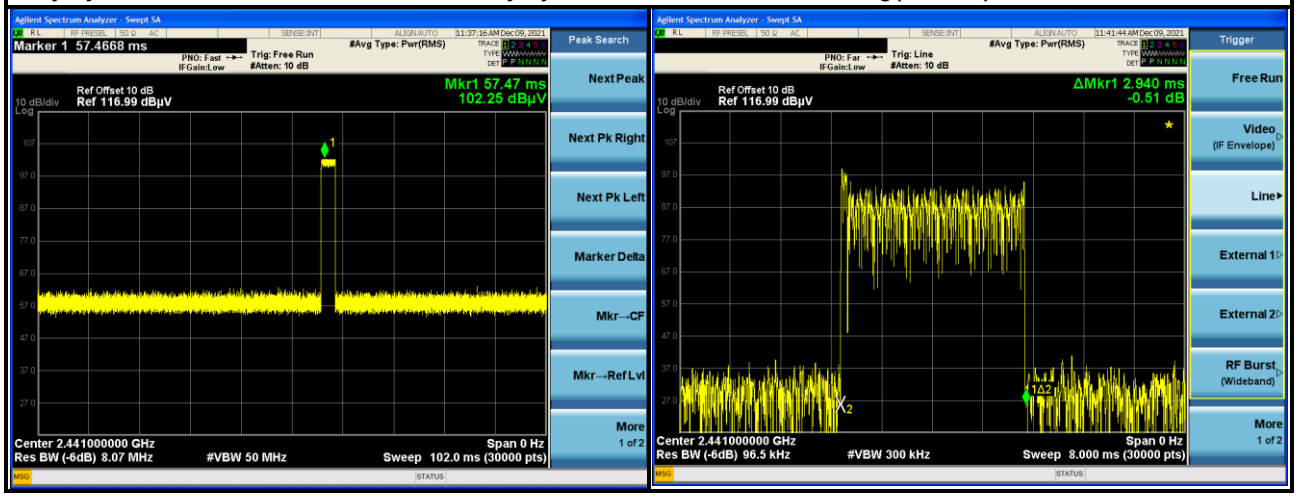
Test Condition:

Applicable To	EUT Configure Mode	Environmental Conditions	Input Power	Tested By
RE≥1G	A	23deg. C, 64%RH	3.8Vdc	Ian Chang
	B	23deg. C, 66%RH	3.8Vdc	Ian Chang
RE<1G	A	23deg. C, 64%RH	3.8Vdc	Ian Chang
	B	23deg. C, 66%RH	3.8Vdc	Ian Chang
	C	23deg. C, 64%RH	120Vac, 60Hz (System)	Ian Chang
	D	23deg. C, 66%RH	120Vac, 60Hz (System)	Ian Chang
PLC	C & D	25deg. C, 75%RH	120Vac, 60Hz (System)	Pirar Hsieh
	E & F	25deg. C, 75%RH	120Vac, 60Hz (Adapter)	Pirar Hsieh
APCM	A & B	25deg. C, 76%RH	3.8Vdc	Dalen Dai

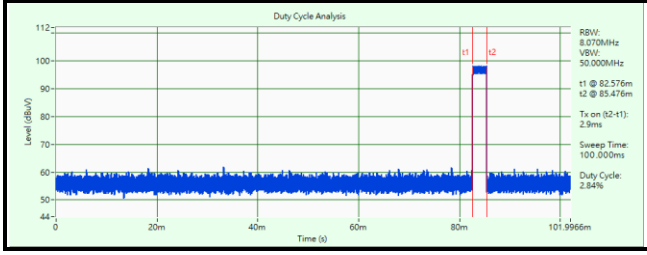
3.3 Duty Cycle of Test Signal

Duty cycle of test signal is < 98%, duty factor shall be considered.

Test Model: Px7 S2
Duty cycle = 2.94ms/100ms = 0.0294, Duty cycle correction factor = 20*log(0.0294) = -30.6dB



Test Model: Px8
Duty cycle = 2.9ms/100ms = 0.029, Duty cycle correction factor = 20*log(0.029) = -30.7dB



3.4 Description of Support Units

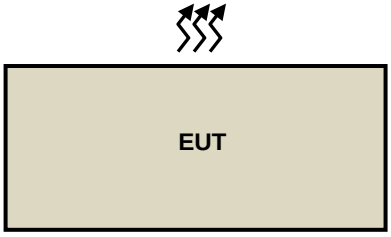
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook PC	Lenovo	81A4	NA	NA	Provided by Lab
B.	Adapter	Samaung	EP-TA800	NA	NA	Provided by Lab

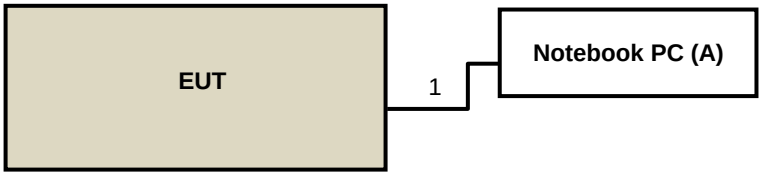
ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/ No)	Cores (Qty.)	Remarks
1.	USB-C to USB-C cable	1	1.2	Y	0	Supplied by applicant

3.4.1 Configuration of System under Test

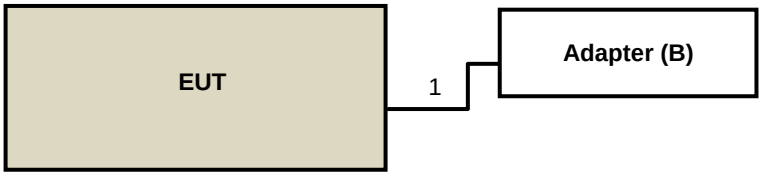
Mode A & B



Mode C & D



Mode E & F



3.5 General Description of Applied Standards and References

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

Test standard:
FCC Part 15, Subpart C (15.247)
ANSI C63.10-2013
All test items have been performed and recorded as per the above standards.

References Test Guidance:
KDB 558074 D01 15.247 Meas Guidance v05r02
All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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:

Frequencies (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:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, 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.

4.1.2 Test Instruments

Description & Manufacturer	Model no.	Serial No.	Calibrated Date	Calibrated Until
Test Receiver Agilent	N9038A	MY51210129	2021/3/12	2022/3/11
Software BVADT	ADT_Radiated_V8.7.08	NA	NA	NA
Software BVADT	ADT_RF Test Software V6.6.5.4	NA	NA	NA
Auto Control System(Antenna Tower, Table, Controller) ADT	SC100+AT100+TT100	0306	NA	NA
Pre_Amplifier EMCI	EMC001340	980269	2021/6/29	2022/6/28
LOOP ANTENNA EMCI	LPA600	270	2021/9/2	2023/9/1
RF Coaxial Cable Pacific	8D-FB	Cable-CH6-02	2021/7/13	2022/7/12
Pre_Amplifier HP	8447D	2432A03504	2021/2/18	2022/2/17
Bi-log Broadband Antenna Schwarzbeck	VULB9168	139	2021/11/1	2022/10/31
Attenuator Mini-Circuits	UNAT-5+	PAD-CH6-01	2021/7/13	2022/7/12
RF Coaxial Cable Pacific	8D-FB	Cable-CH6-02	2021/7/13	2022/7/12
Antenna(Horn) EMCO	3115	00028257	2021/11/14	2022/11/13
Test Receiver Agilent	N9038A	MY51210129	2021/3/12	2022/3/11
Pre-amplifier HP	8449B	3008A01201	2021/2/19	2022/2/18
RF Coaxial Cable NEAT BAR PROER SUHNER	SF-102	Cable-CH6-01	2021/7/8	2022/7/7
Highpass filter Wainwright Instruments	WHK 3.1/18G-10SS	SN 8	2021/5/28	2022/5/27
Fix tool for Boresight	BAF-01	5	NA	NA
Pre_Amplifier MITEQ	AMF-6F-260400-33-8P	892164	2021/2/19	2022/2/18
Antenna(Horn) Schwarzbeck	BBHA-9170	BBHA9170190	2021/11/14	2022/11/13
Spectrum Analyzer R&S	FSV40	101544	2021/5/24	2022/5/23
RF Coaxial Cable WOKEN	WC01	Cable-CH10-03	2021/7/8	2022/7/7
RF Coaxial Cable Rosnol	K1K50-UP0279-K1K50-3000	Cable-CH10(3m)-04	2021/7/8	2022/7/7
Highpass filter SUHNER	11SH10-7000/T18000-O/OP	SN 4	2021/5/28	2022/5/27

NOTE: 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in LK - 966 chamber 1.
4. Tested Date: 2021/12/9 ~ 2021/12/20

4.1.3 Test Procedures

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna 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 was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

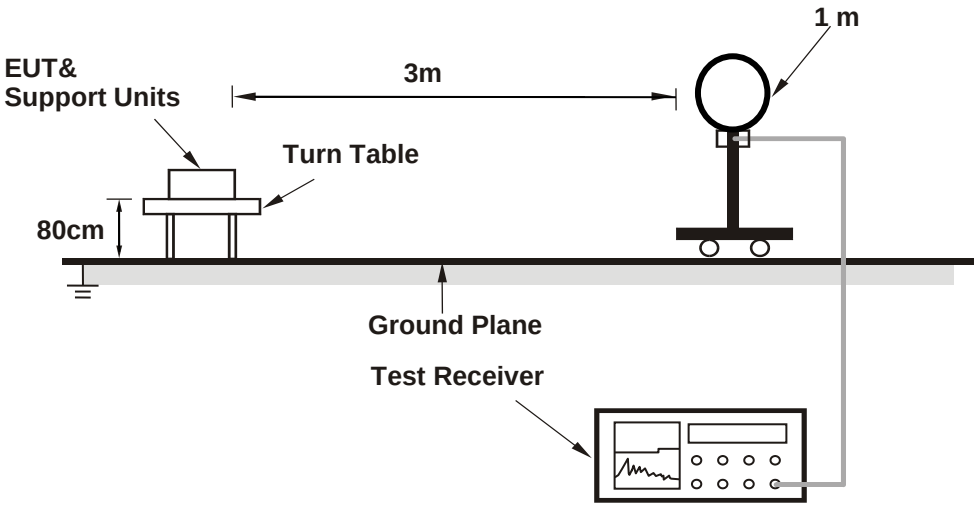
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) and Average detection at frequency above 1GHz. For fundamental and harmonic signal measurement, according to ANSI C63.10 section 7.5, the average value = peak value + duty cycle correction factor. The duty cycle correction factor refer to Chapter 3.3 of this report.
3. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

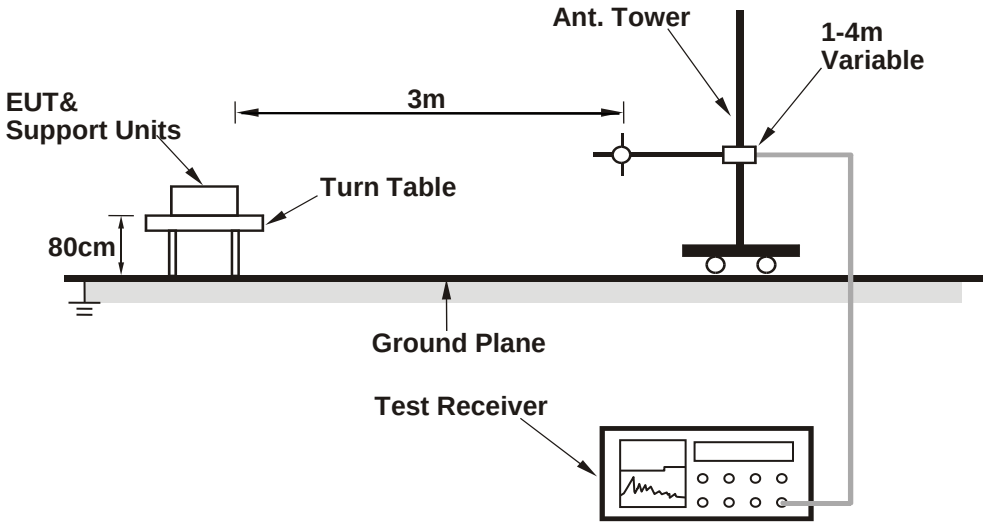
No deviation.

4.1.5 Test Setup

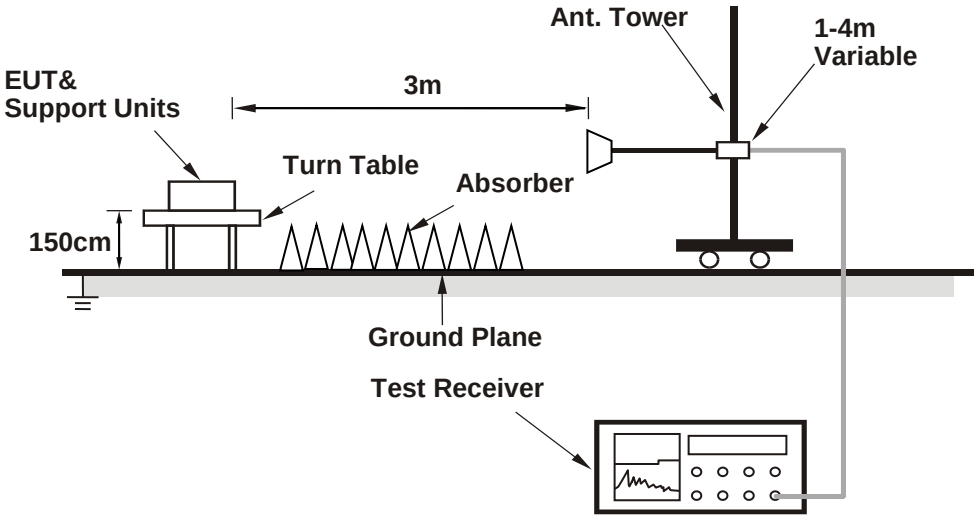
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

Mode A & B

Set the EUT under transmission condition continuously at specific channel frequency.

Mode C & D

a. Connected the EUT to Notebook PC.

b. Set the EUT under charging condition.

4.1.7 Test Results

ABOVE 1GHz DATA

Mode A

RF Mode	TX BT_GFSK	**Channel**	CH 0：2402 MHz
Frequency Range	1GHz ~ 25GHz	**Detector Function**	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2390.00	51.78 PK	74.00	-22.22	1.45 H	300	54.15	-2.37
2	2390.00	40.37 AV	54.00	-13.63	1.45 H	300	42.74	-2.37
3	*2402.00	98.84 PK			1.45 H	300	101.19	-2.35
4	*2402.00	68.24 AV			1.45 H	300	70.59	-2.35
5	4804.00	47.67 PK	74.00	-26.33	2.24 H	123	42.31	5.36
6	4804.00	17.07 AV	54.00	-36.93	2.24 H	123	11.71	5.36
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2390.00	51.34 PK	74.00	-22.66	1.04 V	196	53.71	-2.37
2	2390.00	40.33 AV	54.00	-13.67	1.04 V	196	42.70	-2.37
3	*2402.00	93.75 PK			1.04 V	196	96.10	-2.35
4	*2402.00	63.15 AV			1.04 V	196	65.50	-2.35
5	4804.00	48.99 PK	74.00	-25.01	2.03 V	291	43.63	5.36
6	4804.00	18.39 AV	54.00	-35.61	2.03 V	291	13.03	5.36

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(0.0294 ms / 100 ms) = -30.6 dB
   Please refer to the plotted duty (see section 3.3)

RF Mode	TX BT_GFSK	Channel	CH 39：2441 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	99.92 PK			1.45 H	319	102.12	-2.20
2	*2441.00	69.32 AV			1.45 H	319	71.52	-2.20
3	4882.00	47.92 PK	74.00	-26.08	2.31 H	357	42.36	5.56
4	4882.00	17.32 AV	54.00	-36.68	2.31 H	357	11.76	5.56
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	95.36 PK			1.06 V	201	97.56	-2.20
2	*2441.00	64.76 AV			1.06 V	201	66.96	-2.20
3	4882.00	49.25 PK	74.00	-24.75	1.98 V	266	43.69	5.56
4	4882.00	18.65 AV	54.00	-35.35	1.98 V	266	13.09	5.56

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(0.0294 ms / 100 ms) = -30.6 dB
   Please refer to the plotted duty (see section 3.3)

RF Mode	TX BT_GFSK	Channel	CH 78：2480 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	99.81 PK			1.24 H	310	101.83	-2.02
2	*2480.00	69.21 AV			1.24 H	310	71.23	-2.02
3	2483.50	52.14 PK	74.00	-21.86	1.24 H	310	54.14	-2.00
4	2483.50	41.88 AV	54.00	-12.12	1.24 H	310	43.88	-2.00
5	4960.00	48.24 PK	74.00	-25.76	1.85 H	264	42.65	5.59
6	4960.00	17.64 AV	54.00	-36.36	1.85 H	264	12.05	5.59
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	94.66 PK			1.10 V	203	96.68	-2.02
2	*2480.00	64.06 AV			1.10 V	203	66.08	-2.02
3	2483.50	50.46 PK	74.00	-23.54	1.10 V	203	52.46	-2.00
4	2483.50	40.19 AV	54.00	-13.81	1.10 V	203	42.19	-2.00
5	4960.00	49.04 PK	74.00	-24.96	2.31 V	164	43.45	5.59
6	4960.00	18.44 AV	54.00	-35.56	2.31 V	164	12.85	5.59

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(0.0294 ms / 100 ms) = -30.6 dB
   Please refer to the plotted duty (see section 3.3)

RF Mode	TX BT_8DPSK	Channel	CH 0：2402 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	51.35 PK	74.00	-22.65	1.12 H	315	53.72	-2.37
2	2390.00	40.70 AV	54.00	-13.30	1.12 H	315	43.07	-2.37
3	*2402.00	100.94 PK			1.12 H	315	103.29	-2.35
4	*2402.00	70.34 AV			1.12 H	315	72.69	-2.35
5	4804.00	48.21 PK	74.00	-25.79	1.57 H	188	42.85	5.36
6	4804.00	17.61 AV	54.00	-36.39	1.57 H	188	12.25	5.36
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	50.12 PK	74.00	-23.88	1.11 V	203	52.49	-2.37
2	2390.00	40.19 AV	54.00	-13.81	1.11 V	203	42.56	-2.37
3	*2402.00	96.14 PK			1.11 V	203	98.49	-2.35
4	*2402.00	65.54 AV			1.11 V	203	67.89	-2.35
5	4804.00	48.88 PK	74.00	-25.12	2.36 V	298	43.52	5.36
6	4804.00	18.28 AV	54.00	-35.72	2.36 V	298	12.92	5.36

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(0.0294 ms / 100 ms) = -30.6 dB
   Please refer to the plotted duty (see section 3.3)

RF Mode	TX BT_8DPSK	Channel	CH 39：2441 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	101.67 PK			1.43 H	313	103.87	-2.20
2	*2441.00	71.07 AV			1.43 H	313	73.27	-2.20
3	4882.00	48.43 PK	74.00	-25.57	1.69 H	202	42.87	5.56
4	4882.00	17.83 AV	54.00	-36.17	1.69 H	202	12.27	5.56
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	96.43 PK			1.04 V	197	98.63	-2.20
2	*2441.00	65.83 AV			1.04 V	197	68.03	-2.20
3	4882.00	48.84 PK	74.00	-25.16	1.74 V	165	43.28	5.56
4	4882.00	18.24 AV	54.00	-35.76	1.74 V	165	12.68	5.56

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(0.0294 ms / 100 ms) = -30.6 dB
   Please refer to the plotted duty (see section 3.3)

RF Mode	TX BT_8DPSK	Channel	CH 78：2480 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	101.99 PK			1.24 H	313	104.01	-2.02
2	*2480.00	71.39 AV			1.24 H	313	73.41	-2.02
3	2483.50	55.06 PK	74.00	-18.94	1.24 H	313	57.06	-2.00
4	2483.50	42.71 AV	54.00	-11.29	1.24 H	313	44.71	-2.00
5	4960.00	47.95 PK	74.00	-26.05	1.85 H	246	42.36	5.59
6	4960.00	17.35 AV	54.00	-36.65	1.85 H	246	11.76	5.59
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	97.11 PK			1.10 V	195	99.13	-2.02
2	*2480.00	66.51 AV			1.10 V	195	68.53	-2.02
3	2483.50	53.85 PK	74.00	-20.15	1.10 V	195	55.85	-2.00
4	2483.50	40.39 AV	54.00	-13.61	1.10 V	195	42.39	-2.00
5	4960.00	49.28 PK	74.00	-24.72	1.24 V	229	43.69	5.59
6	4960.00	18.68 AV	54.00	-35.32	1.24 V	229	13.09	5.59

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(0.0294 ms / 100 ms) = -30.6 dB
   Please refer to the plotted duty (see section 3.3)

Mode B

RF Mode	TX BT_GFSK	Channel	CH 0：2402 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	50.74 PK	74.00	-23.26	2.26 H	135	53.11	-2.37
2	2390.00	39.64 AV	54.00	-14.36	2.26 H	135	42.01	-2.37
3	*2402.00	96.53 PK			2.26 H	135	98.88	-2.35
4	*2402.00	65.83 AV			2.26 H	135	68.18	-2.35
5	4804.00	47.55 PK	74.00	-26.45	1.23 H	323	42.19	5.36
6	4804.00	16.85 AV	54.00	-37.15	1.23 H	323	11.49	5.36
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	50.50 PK	74.00	-23.50	3.69 V	2	52.87	-2.37
2	2390.00	39.51 AV	54.00	-14.49	3.69 V	2	41.88	-2.37
3	*2402.00	93.15 PK			3.69 V	2	95.50	-2.35
4	*2402.00	62.45 AV			3.69 V	2	64.80	-2.35
5	4804.00	48.58 PK	74.00	-25.42	1.59 V	54	43.22	5.36
6	4804.00	17.88 AV	54.00	-36.12	1.59 V	54	12.52	5.36

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(0.029 ms / 100 ms) = -30.7 dB
   Please refer to the plotted duty (see section 3.3)

RF Mode	TX BT_GFSK	Channel	CH 39：2441 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	97.69 PK			2.43 H	136	99.89	-2.20
2	*2441.00	66.99 AV			2.43 H	136	69.19	-2.20
3	4882.00	48.22 PK	74.00	-25.78	1.35 H	336	42.66	5.56
4	4882.00	17.52 AV	54.00	-36.48	1.35 H	336	11.96	5.56
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	94.38 PK			3.72 V	6	96.58	-2.20
2	*2441.00	63.68 AV			3.72 V	6	65.88	-2.20
3	4882.00	48.93 PK	74.00	-25.07	1.68 V	66	43.37	5.56
4	4882.00	18.23 AV	54.00	-35.77	1.68 V	66	12.67	5.56

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(0.029 ms / 100 ms) = -30.7 dB
   Please refer to the plotted duty (see section 3.3)

RF Mode	TX BT_GFSK	Channel	CH 78：2480 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	97.69 PK			2.62 H	138	99.71	-2.02
2	*2480.00	66.99 AV			2.62 H	138	69.01	-2.02
3	2483.50	51.77 PK	74.00	-22.23	2.62 H	138	53.77	-2.00
4	2483.50	41.23 AV	54.00	-12.77	2.62 H	138	43.23	-2.00
5	4960.00	48.25 PK	74.00	-25.75	1.35 H	317	42.66	5.59
6	4960.00	17.55 AV	54.00	-36.45	1.35 H	317	11.96	5.59
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	94.46 PK			3.66 V	12	96.48	-2.02
2	*2480.00	63.76 AV			3.66 V	12	65.78	-2.02
3	2483.50	50.48 PK	74.00	-23.52	3.66 V	12	52.48	-2.00
4	2483.50	40.19 AV	54.00	-13.81	3.66 V	12	42.19	-2.00
5	4960.00	49.18 PK	74.00	-24.82	1.69 V	68	43.59	5.59
6	4960.00	18.48 AV	54.00	-35.52	1.69 V	68	12.89	5.59

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(0.029 ms / 100 ms) = -30.7 dB
   Please refer to the plotted duty (see section 3.3)

RF Mode	TX BT_8DPSK	Channel	CH 0：2402 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	51.43 PK	74.00	-22.57	1.47 H	158	53.80	-2.37
2	2390.00	40.40 AV	54.00	-13.60	1.47 H	158	42.77	-2.37
3	*2402.00	97.38 PK			1.47 H	158	99.73	-2.35
4	*2402.00	66.68 AV			1.47 H	158	69.03	-2.35
5	4804.00	47.65 PK	74.00	-26.35	1.31 H	336	42.29	5.36
6	4804.00	16.95 AV	54.00	-37.05	1.31 H	336	11.59	5.36
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	50.10 PK	74.00	-23.90	3.41 V	13	52.47	-2.37
2	2390.00	39.74 AV	54.00	-14.26	3.41 V	13	42.11	-2.37
3	*2402.00	94.29 PK			3.41 V	13	96.64	-2.35
4	*2402.00	63.59 AV			3.41 V	13	65.94	-2.35
5	4804.00	49.02 PK	74.00	-24.98	1.69 V	55	43.66	5.36
6	4804.00	18.32 AV	54.00	-35.68	1.69 V	55	12.96	5.36

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(0.029 ms / 100 ms) = -30.7 dB
   Please refer to the plotted duty (see section 3.3)

RF Mode	TX BT_8DPSK	Channel	CH 39：2441 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	98.39 PK			1.28 H	159	100.59	-2.20
2	*2441.00	67.69 AV			1.28 H	159	69.89	-2.20
3	4882.00	48.14 PK	74.00	-25.86	1.25 H	328	42.58	5.56
4	4882.00	17.44 AV	54.00	-36.56	1.25 H	328	11.88	5.56
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2441.00	95.38 PK			3.49 V	10	97.58	-2.20
2	*2441.00	64.68 AV			3.49 V	10	66.88	-2.20
3	4882.00	48.93 PK	74.00	-25.07	1.58 V	49	43.37	5.56
4	4882.00	18.23 AV	54.00	-35.77	1.58 V	49	12.67	5.56

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(0.029 ms / 100 ms) = -30.7 dB
   Please refer to the plotted duty (see section 3.3)

RF Mode	TX BT_8DPSK	Channel	CH 78：2480 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	98.69 PK			1.11 H	162	100.71	-2.02
2	*2480.00	67.99 AV			1.11 H	162	70.01	-2.02
3	2483.50	52.64 PK	74.00	-21.36	1.11 H	162	54.64	-2.00
4	2483.50	41.53 AV	54.00	-12.47	1.11 H	162	43.53	-2.00
5	4960.00	48.30 PK	74.00	-25.70	1.29 H	341	42.71	5.59
6	4960.00	17.60 AV	54.00	-36.40	1.29 H	341	12.01	5.59
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	95.56 PK			3.36 V	26	97.58	-2.02
2	*2480.00	64.86 AV			3.36 V	26	66.88	-2.02
3	2483.50	51.02 PK	74.00	-22.98	3.36 V	26	53.02	-2.00
4	2483.50	40.63 AV	54.00	-13.37	3.36 V	26	42.63	-2.00
5	4960.00	48.98 PK	74.00	-25.02	1.70 V	42	43.39	5.59
6	4960.00	18.28 AV	54.00	-35.72	1.70 V	42	12.69	5.59

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.
6. The average value of fundamental and harmonic frequency is: Average value = Peak value + 20 log(Duty cycle) Where the Duty cycle correction factor is calculated from following formula:
   20 log(Duty cycle) = 20 log(0.029 ms / 100 ms) = -30.7 dB
   Please refer to the plotted duty (see section 3.3)

BELOW 1GHz WORST-CASE DATA

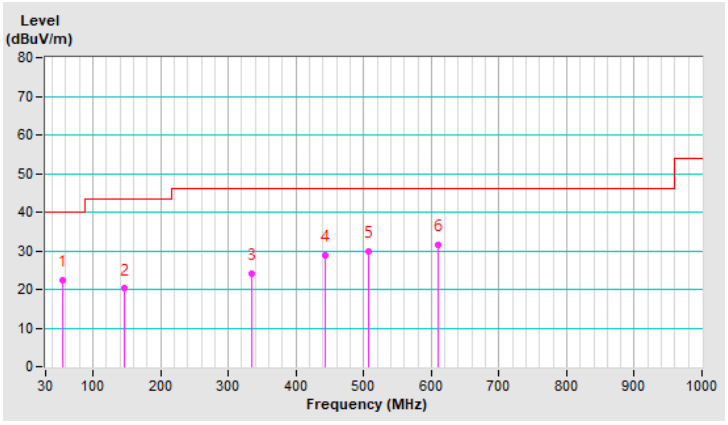
Mode A

RF Mode	TX BT_8DPSK	Channel	CH 39：2441 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	55.22	22.36 QP	40.00	-17.64	1.98 H	134	29.34	-6.98
2	145.43	20.23 QP	43.50	-23.27	2.19 H	22	26.73	-6.50
3	334.58	24.14 QP	46.00	-21.86	2.42 H	152	27.45	-3.31
4	443.22	28.74 QP	46.00	-17.26	2.66 H	229	29.65	-0.91
5	507.24	29.77 QP	46.00	-16.23	3.21 H	167	29.65	0.12
6	609.09	31.60 QP	46.00	-14.40	3.45 H	316	29.13	2.47

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

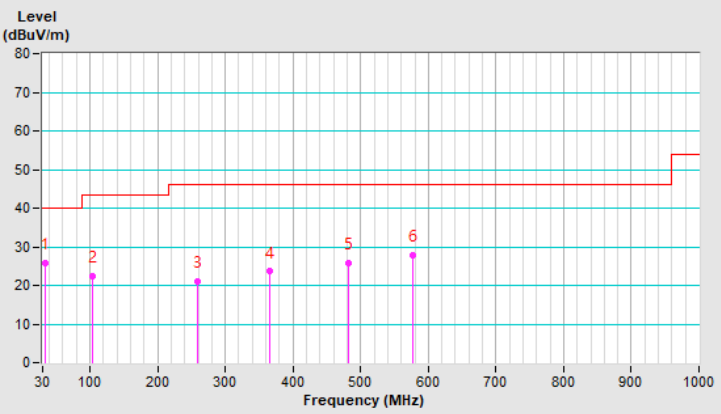


RF Mode	TX BT_8DPSK	Channel	CH 39：2441 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	33.88	25.93 QP	40.00	-14.07	1.13 V	30	34.30	-8.37
2	103.72	22.39 QP	43.50	-21.11	1.34 V	51	32.98	-10.59
3	257.95	20.99 QP	46.00	-25.01	1.66 V	83	26.97	-5.98
4	366.59	23.57 QP	46.00	-22.43	1.85 V	101	26.39	-2.82
5	481.05	25.83 QP	46.00	-20.17	2.06 V	122	26.18	-0.35
6	576.11	27.89 QP	46.00	-18.11	2.24 V	140	26.39	1.50

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



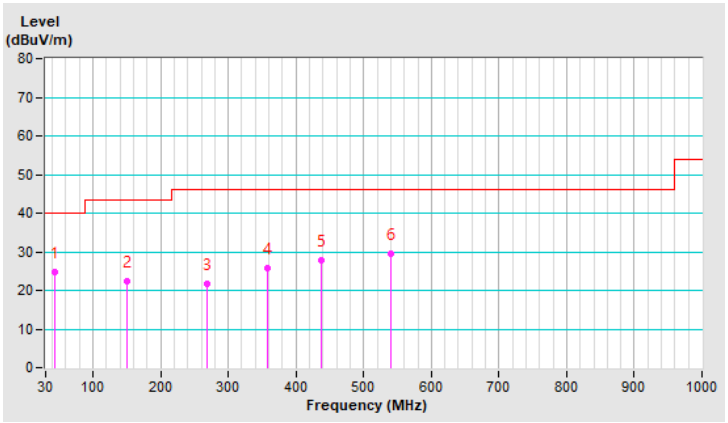
Mode B

RF Mode	TX BT_8DPSK	Channel	CH 39：2441 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	42.61	24.87 QP	40.00	-15.13	1.71 H	327	32.06	-7.19
2	149.31	22.31 QP	43.50	-21.19	1.94 H	304	28.68	-6.37
3	267.65	21.62 QP	46.00	-24.38	2.16 H	283	26.94	-5.32
4	356.89	25.73 QP	46.00	-20.27	2.44 H	254	28.83	-3.10
5	437.40	27.75 QP	46.00	-18.25	2.76 H	223	28.75	-1.00
6	540.22	29.44 QP	46.00	-16.56	3.11 H	188	28.99	0.45

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

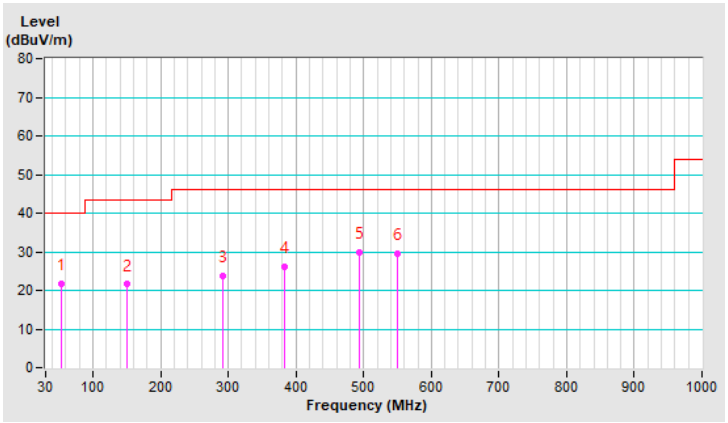


RF Mode	TX BT_8DPSK	Channel	CH 39：2441 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	52.31	21.68 QP	40.00	-18.32	1.63 V	239	28.52	-6.84
2	149.31	21.56 QP	43.50	-21.94	1.92 V	211	27.93	-6.37
3	291.90	23.87 QP	46.00	-22.13	2.19 V	184	28.32	-4.45
4	383.08	26.15 QP	46.00	-19.85	2.40 V	163	28.63	-2.48
5	492.69	29.77 QP	46.00	-16.23	2.68 V	136	29.95	-0.18
6	549.92	29.42 QP	46.00	-16.58	2.89 V	116	28.85	0.57

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



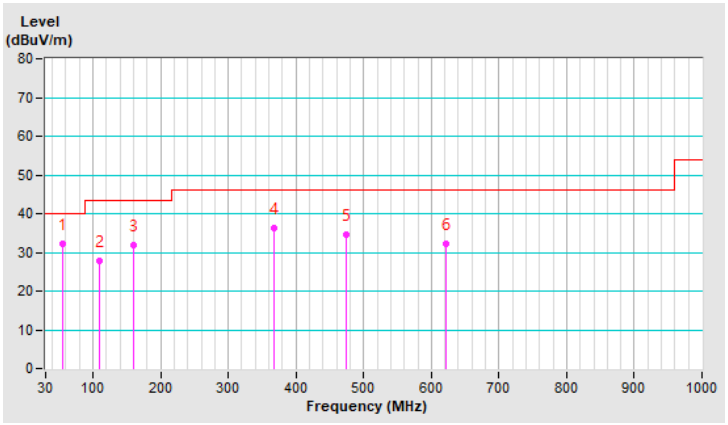
Mode C- Charging Mode

Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	55.22	32.28 QP	40.00	-7.72	3.30 H	74	39.26	-6.98
2	108.57	27.77 QP	43.50	-15.73	3.14 H	90	37.68	-9.91
3	159.01	32.03 QP	43.50	-11.47	2.91 H	113	38.19	-6.16
4	367.56	36.41 QP	46.00	-9.59	2.61 H	143	39.20	-2.79
5	474.26	34.56 QP	46.00	-11.44	2.18 H	185	34.94	-0.38
6	620.73	32.31 QP	46.00	-13.69	1.55 H	247	29.48	2.83

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

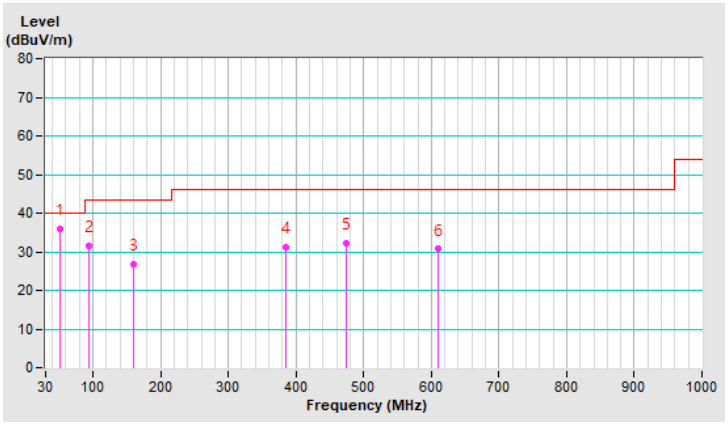


Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	**51.34**	**35.92 QP**	**40.00**	**-4.08**	**1.74 V**	**298**	**42.71**	**-6.79**
2	94.02	31.66 QP	43.50	-11.84	1.93 V	278	43.68	-12.02
3	159.01	26.81 QP	43.50	-16.69	2.19 V	253	32.97	-6.16
4	384.05	31.18 QP	46.00	-14.82	2.45 V	227	33.63	-2.45
5	474.26	32.23 QP	46.00	-13.77	2.67 V	206	32.61	-0.38
6	611.03	30.73 QP	46.00	-15.27	2.92 V	180	28.18	2.55

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



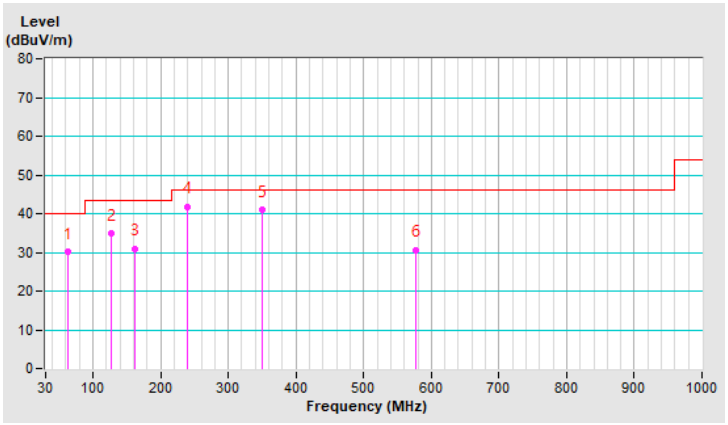
Mode D- Charging Mode

Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	62.98	30.01 QP	40.00	-9.99	2.13 H	127	37.79	-7.78
2	127.00	34.77 QP	43.50	-8.73	2.55 H	168	42.86	-8.09
3	161.92	30.97 QP	43.50	-12.53	2.83 H	195	37.13	-6.16
4	238.55	41.62 QP	46.00	-4.38	3.17 H	228	48.73	-7.11
5	350.10	40.87 QP	46.00	-5.13	3.63 H	274	44.12	-3.25
6	576.11	30.47 QP	46.00	-15.53	4.00 H	323	28.97	1.50

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

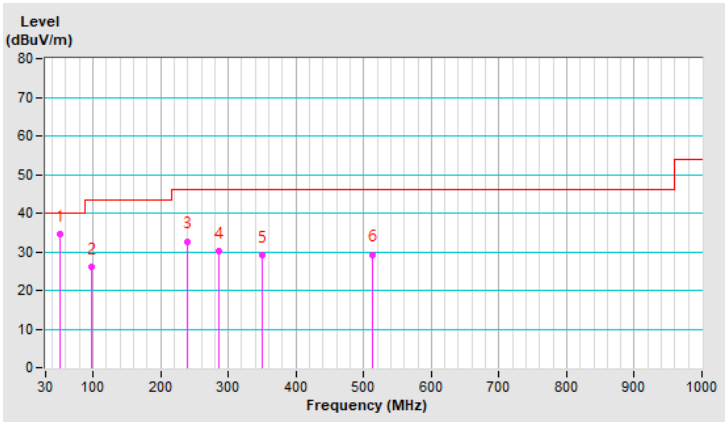


Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	51.34	34.48 QP	40.00	-5.52	2.60 V	163	41.27	-6.79
2	97.90	25.96 QP	43.50	-17.54	2.17 V	25	37.49	-11.53
3	238.55	32.49 QP	46.00	-13.51	1.88 V	241	39.60	-7.11
4	286.08	30.06 QP	46.00	-15.94	1.59 V	165	34.60	-4.54
5	350.10	28.99 QP	46.00	-17.01	1.04 V	185	32.24	-3.25
6	512.09	29.15 QP	46.00	-16.85	1.36 V	169	28.95	0.20

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model no.	Serial No.	Calibrated Date	Calibrated Until
Test Receiver ESR3 R&S	ESR3	102412	2021/1/29	2022/1/28
LISN SCHWARZBECK	NSLK 8128	8128-244	2021/11/11	2022/11/10
LISN SCHWARZBECK	NNLK8129	8129229	2021/5/20	2022/5/19
DC LISN SCHWARZBECK	NNLK 8121	8121-808	2021/4/18	2022/4/17
LISN SCHWARZBECK	NNLK 8121	8121-731	2021/4/28	2022/4/27
LISN R&S	ENV216	101196	2021/4/26	2022/4/25
LISN R&S	ESH3-Z5	100220	2021/11/25	2022/11/24
LISN R&S	ESH3-Z6	844950/018	2021/7/25	2022/7/24
DC LISN R&S	ESH3-Z6	100219	2021/7/25	2022/7/24
High Voltage Probe Schwarzbeck	TK9420	00982	2021/1/8	2022/1/7
RF Coaxial Cable Commate	5D-FB	Cable-CO5-01	2021/1/29	2022/1/28
Attenuator STI	STI02-2200-10	NO.4	2021/9/3	2022/9/2
50 Ohms Terminator LYNICS	0900510	E1-01-305	2021/2/17	2022/2/16
Isolation Transformer Erika Fiedler	D-65396	017	2021/9/9	2022/9/8
Software BVADT	Cond_V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Linkou Conduction05
3. The VCCI Site Registration No. C-11093.
4. Tested Date: 2022/1/6

4.2.3 Test Procedures

a. 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.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

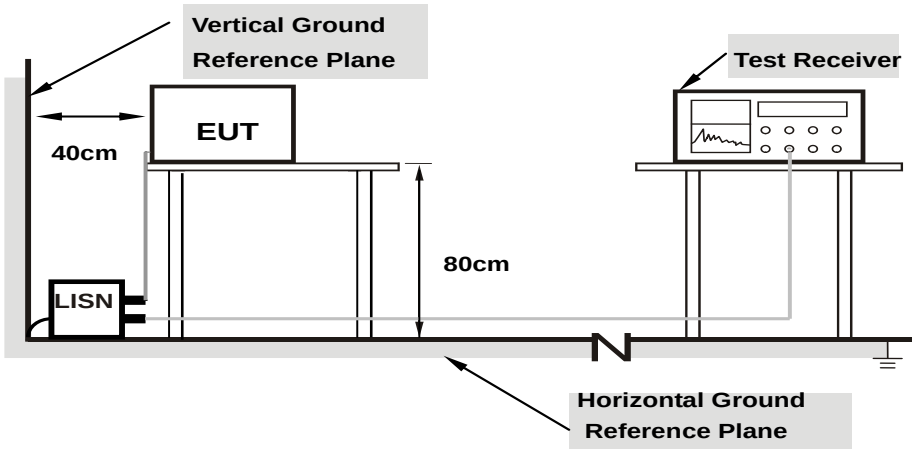
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation From Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Condition

Mode C & D & E & F

a. Connected the EUT to Notebook PC or Adapter.

b. Set the EUT under charging condition.

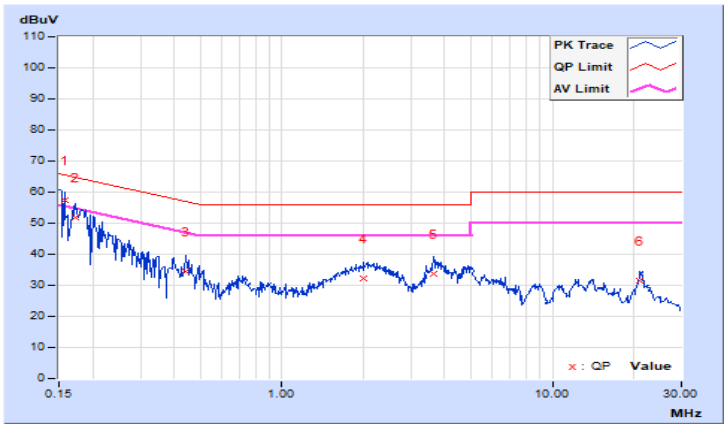
Mode C- Charging Mode

Frequency Range	150kHz ~ 30MHz	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.15781**	**9.89**	**47.61**	**23.79**	**57.50**	**33.68**	**65.58**	**55.58**	**-8.08**	**-21.90**
2	0.17344	9.89	41.78	21.10	51.67	30.99	64.79	54.79	-13.12	-23.80
3	0.44297	9.92	24.60	13.75	34.52	23.67	57.01	47.01	-22.49	-23.34
4	2.01563	10.02	22.07	16.16	32.09	26.18	56.00	46.00	-23.91	-19.82
5	3.64844	10.12	23.47	16.92	33.59	27.04	56.00	46.00	-22.41	-18.96
6	21.13281	10.71	20.86	15.06	31.57	25.77	60.00	50.00	-28.43	-24.23

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

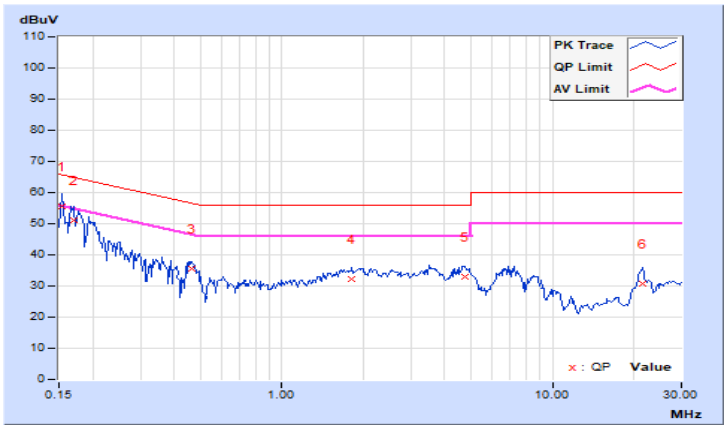


Frequency Range	150kHz ~ 30MHz	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.91	45.48	25.15	55.39	35.06	65.79	55.79	-10.40	-20.73
2	0.16953	9.91	41.35	15.61	51.26	25.52	64.98	54.98	-13.72	-29.46
3	0.46250	9.94	25.46	16.21	35.40	26.15	56.65	46.65	-21.25	-20.50
4	1.81250	10.04	22.16	16.68	32.20	26.72	56.00	46.00	-23.80	-19.28
5	4.73438	10.18	22.82	15.84	33.00	26.02	56.00	46.00	-23.00	-19.98
6	21.52734	10.68	20.11	14.36	30.79	25.04	60.00	50.00	-29.21	-24.96

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



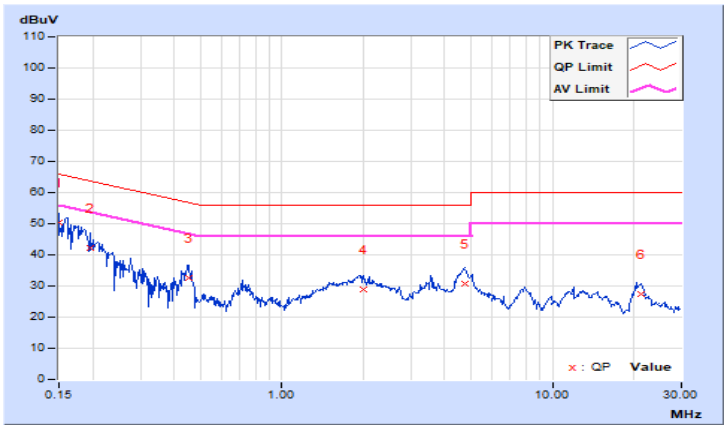
Mode D- Charging Mode

Frequency Range	150kHz ~ 30MHz	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.89	40.56	19.73	50.45	29.62	66.00	56.00	-15.55	-26.38
2	0.19687	9.89	32.16	12.84	42.05	22.73	63.74	53.74	-21.69	-31.01
3	0.45078	9.92	22.68	14.08	32.60	24.00	56.86	46.86	-24.26	-22.86
4	2.01563	10.02	18.79	13.63	28.81	23.65	56.00	46.00	-27.19	-22.35
5	4.74219	10.17	20.70	11.77	30.87	21.94	56.00	46.00	-25.13	-24.06
6	21.19531	10.71	16.84	11.88	27.55	22.59	60.00	50.00	-32.45	-27.41

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

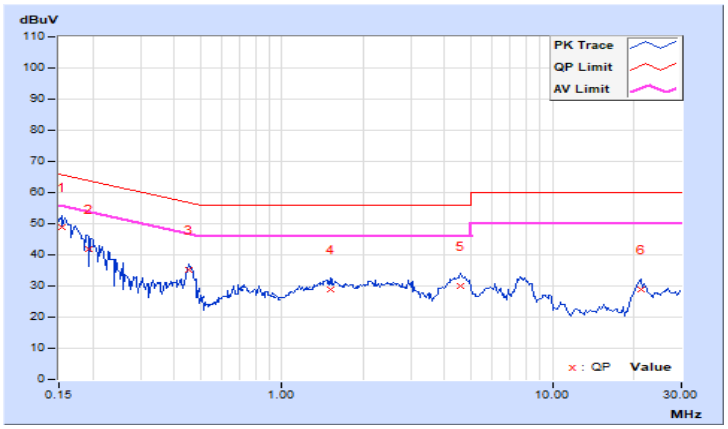


Frequency Range	150kHz ~ 30MHz	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.91	38.98	18.08	48.89	27.99	65.79	55.79	-16.90	-27.80
2	0.19297	9.91	31.83	12.60	41.74	22.51	63.91	53.91	-22.17	-31.40
3	0.45469	9.94	25.39	20.34	35.33	30.28	56.79	46.79	-21.46	-16.51
4	1.51953	10.02	18.79	13.50	28.81	23.52	56.00	46.00	-27.19	-22.48
5	4.56641	10.17	19.91	12.66	30.08	22.83	56.00	46.00	-25.92	-23.17
6	21.23047	10.68	18.23	13.24	28.91	23.92	60.00	50.00	-31.09	-26.08

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



Mode E- Charging Mode

Frequency Range	150kHz ~ 30MHz	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.89	45.30	29.18	55.19	39.07	65.79	55.79	-10.60	-16.72
2	0.19687	9.89	40.70	24.20	50.59	34.09	63.74	53.74	-13.15	-19.65
3	0.39609	9.91	36.86	20.69	46.77	30.60	57.93	47.93	-11.16	-17.33
4	0.78672	9.96	21.11	10.06	31.07	20.02	56.00	46.00	-24.93	-25.98
5	1.41797	10.00	17.46	7.21	27.46	17.21	56.00	46.00	-28.54	-28.79
6	11.87891	10.45	20.40	12.82	30.85	23.27	60.00	50.00	-29.15	-26.73

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

Frequency Range	150kHz ~ 30MHz	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.91	44.65	25.35	54.56	35.26	65.79	55.79	-11.23	-20.53
2	0.19297	9.91	39.74	19.36	49.65	29.27	63.91	53.91	-14.26	-24.64
3	0.39609	9.93	36.25	19.93	46.18	29.86	57.93	47.93	-11.75	-18.07
4	0.74766	9.96	18.02	10.19	27.98	20.15	56.00	46.00	-28.02	-25.85
5	1.74609	10.03	12.62	5.21	22.65	15.24	56.00	46.00	-33.35	-30.76
6	12.02344	10.45	17.65	11.51	28.10	21.96	60.00	50.00	-31.90	-28.04

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

Mode F- Charging Mode

Frequency Range	150kHz ~ 30MHz	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.89	47.34	27.42	57.23	37.31	66.00	56.00	-8.77	-18.69
2	0.16562	9.89	43.27	22.59	53.16	32.48	65.18	55.18	-12.02	-22.70
3	0.19687	9.89	42.92	23.03	52.81	32.92	63.74	53.74	-10.93	-20.82
4	0.39609	9.91	36.61	18.32	46.52	28.23	57.93	47.93	-11.41	-19.70
5	0.81016	9.96	22.28	11.96	32.24	21.92	56.00	46.00	-23.76	-24.08
6	11.51953	10.44	22.57	14.97	33.01	25.41	60.00	50.00	-26.99	-24.59

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

Frequency Range	150kHz ~ 30MHz	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.91	47.05	27.42	56.96	37.33	65.79	55.79	-8.83	-18.46
2	0.17344	9.91	44.00	21.67	53.91	31.58	64.79	54.79	-10.88	-23.21
3	0.22422	9.91	38.58	18.05	48.49	27.96	62.66	52.66	-14.17	-24.70
4	0.39219	9.93	35.59	18.71	45.52	28.64	58.02	48.02	-12.50	-19.38
5	1.43750	10.02	15.46	8.18	25.48	18.20	56.00	46.00	-30.52	-27.80
6	12.33984	10.46	18.26	12.07	28.72	22.53	60.00	50.00	-31.28	-27.47

Remarks:

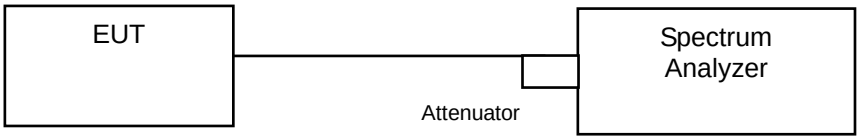
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

4.3 Number of Hopping Frequency Used

4.3.1 Limits of Hopping Frequency Used Measurement

At least 15 channels frequencies, and should be equally spaced.

4.3.2 Test Setup



4.3.3 Test Instruments

Description & Manufacturer	Model no.	Serial No.	Calibrated Date	Calibrated Until
Spectrum Analyzer R&S	FSV40	101042	2021/9/9	2022/9/8

NOTE: 1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in LK - Oven
3. Tested Date: 2021/12/17

4.3.4 Test Procedure

a. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.

b. Turn on the EUT and connect its antenna terminal to measurement via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.

c. Set the SA on MaxHold Mode, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been recorded.

d. Set the SA on View mode and then plot the result on SA screen.

e. Repeat above procedures until all frequencies measured were complete.

4.3.5 Deviation from Test Standard

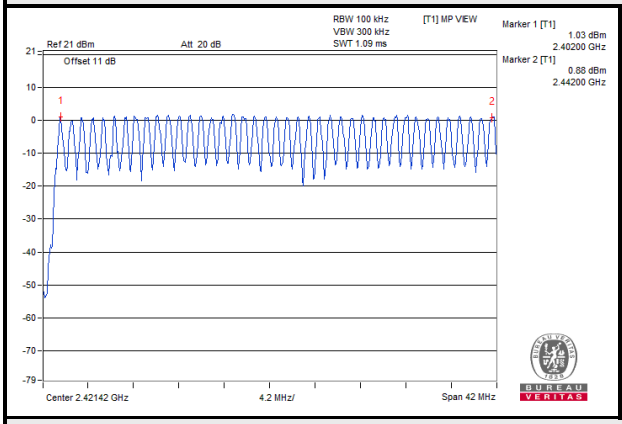
No deviation.

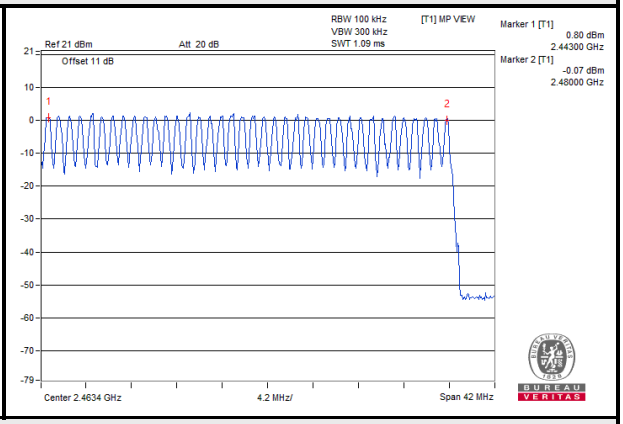
4.3.6 Test Results

There are 79 hopping frequencies in the hopping mode. Please refer to next page for the test result. On the plots, it shows that the hopping frequencies are equally spaced.

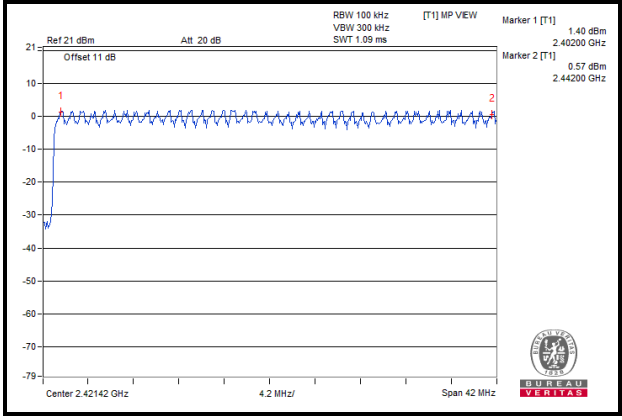
Mode A

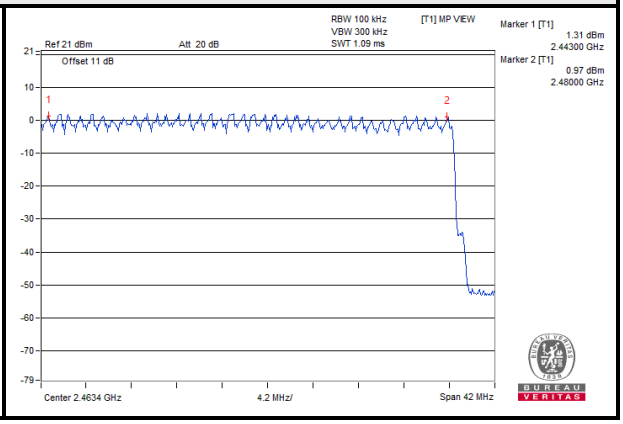
GFSK





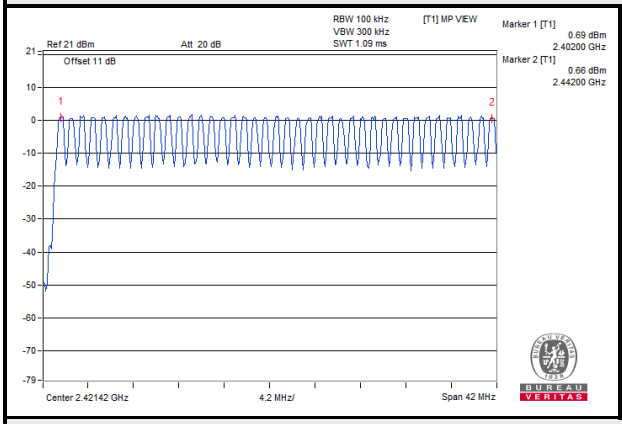
8DPSK

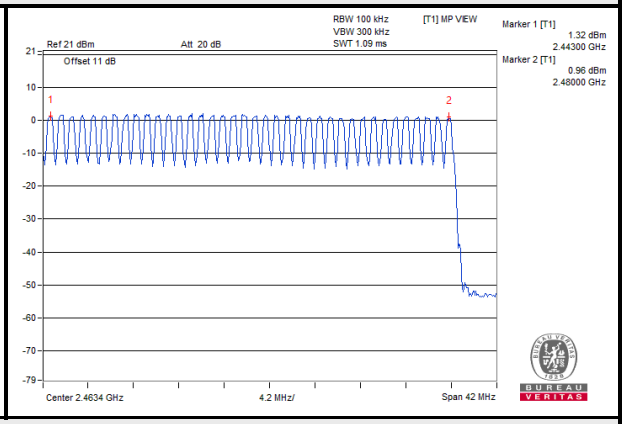




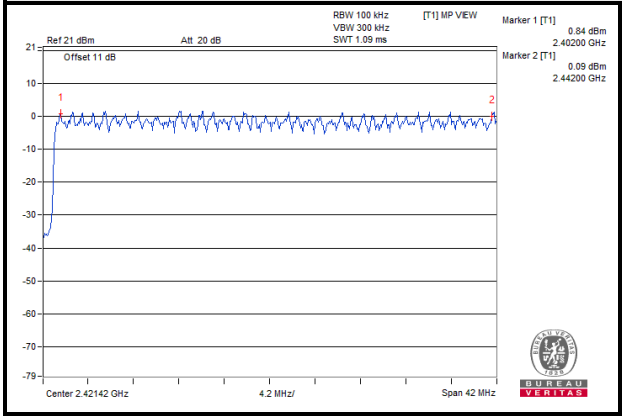
Mode B

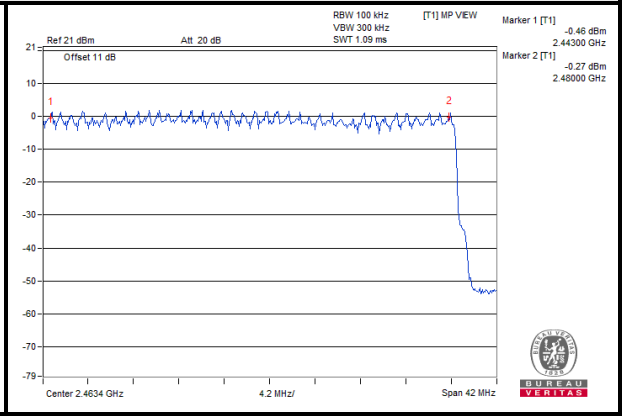
GFSK





8DPSK



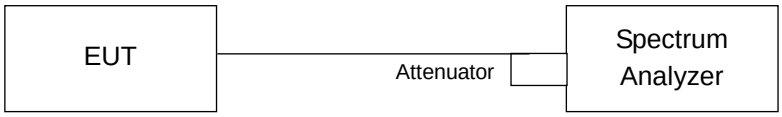


4.4 Dwell Time on Each Channel

4.4.1 Limits of Dwell Time on Each Channel Measurement

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.3.3 to get information of above instrument.

4.4.4 Test Procedures

a. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
b. Turn on the EUT and connect its antenna terminal to measurement via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
c. Adjust the center frequency of SA on any frequency be measured and set SA to zero span mode. And then, set RBW and VBW of spectrum analyzer to proper value.
d. Measure the time duration of one transmission on the measured frequency. And then plot the result with time difference of this time duration.
e. Repeat above procedures until all different time-slot modes have been completed.

.

4.4.5 Deviation from Test Standard

No deviation.

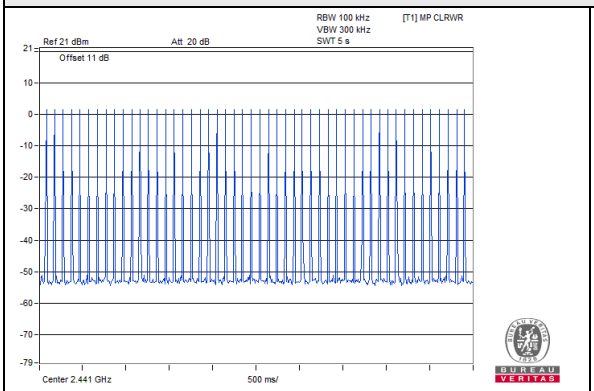
4.4.6 Test Results

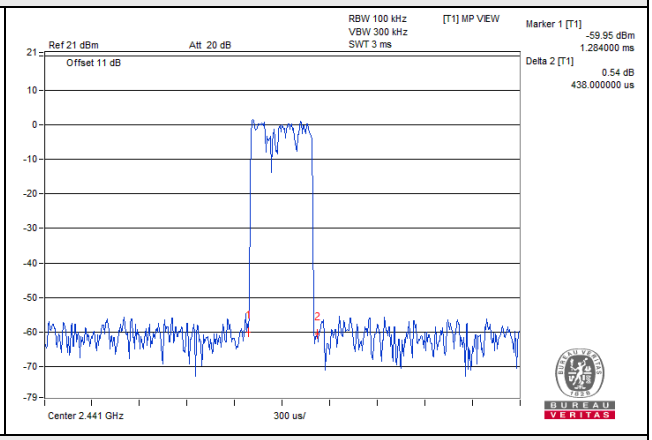
Mode A-GFSK

Mode	Number of transmission in a 31.6 (79Hopping*0.4)	Length of transmission time (msec)	Result (msec)	Limit (msec)
DH1	50 (times / 5 sec) * 6.32 = 316 times	0.438	138.41	400
DH3	26 (times / 5 sec) * 6.32 = 165 times	1.68	277.2	400
DH5	17 (times / 5 sec) * 6.32 = 108 times	3.056	330.05	400

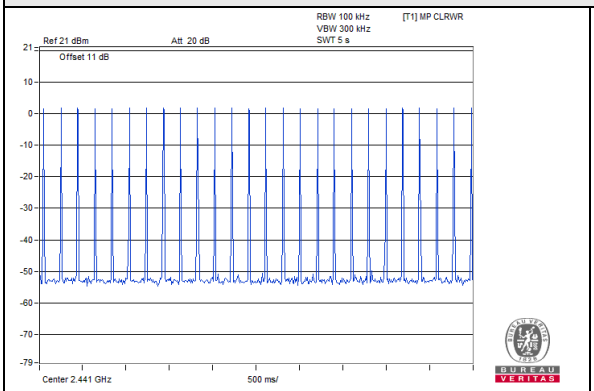
NOTE: Test plots of the transmitting time slot are shown as follows.

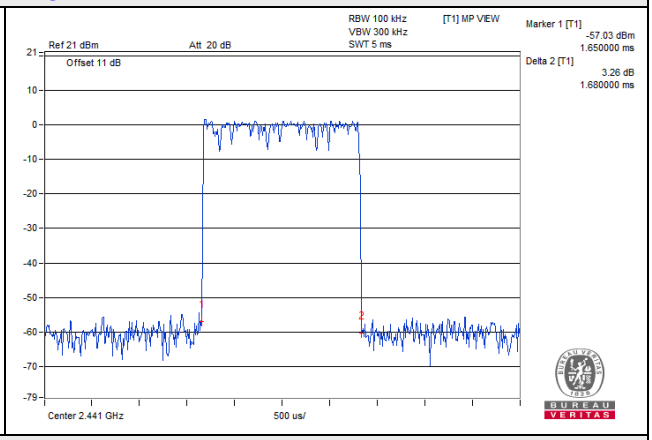
DH1



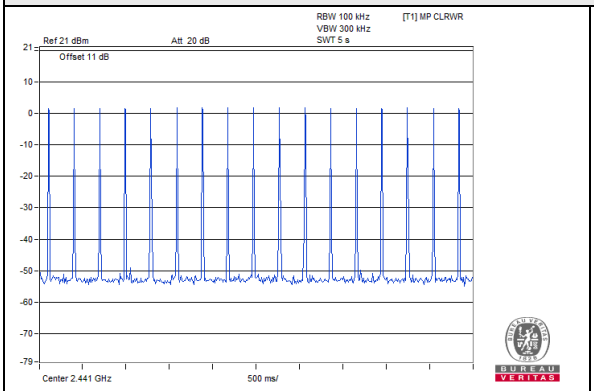


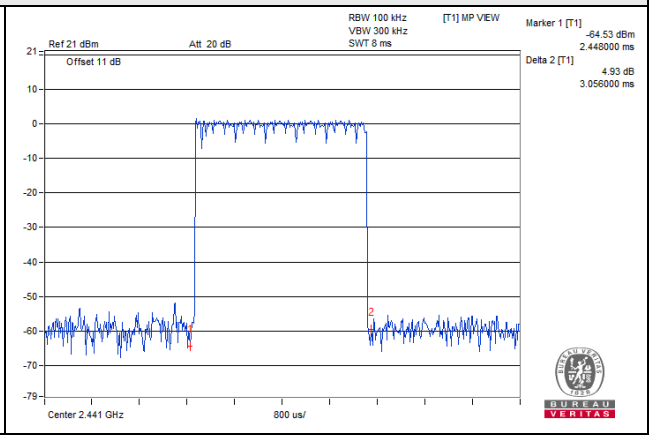
DH3





DH5



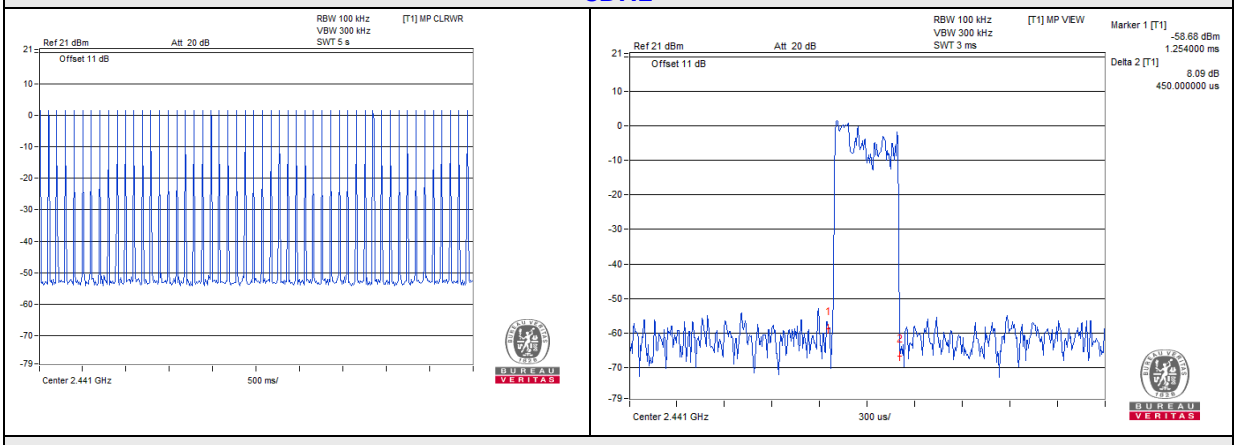


Mode A-8DPSK

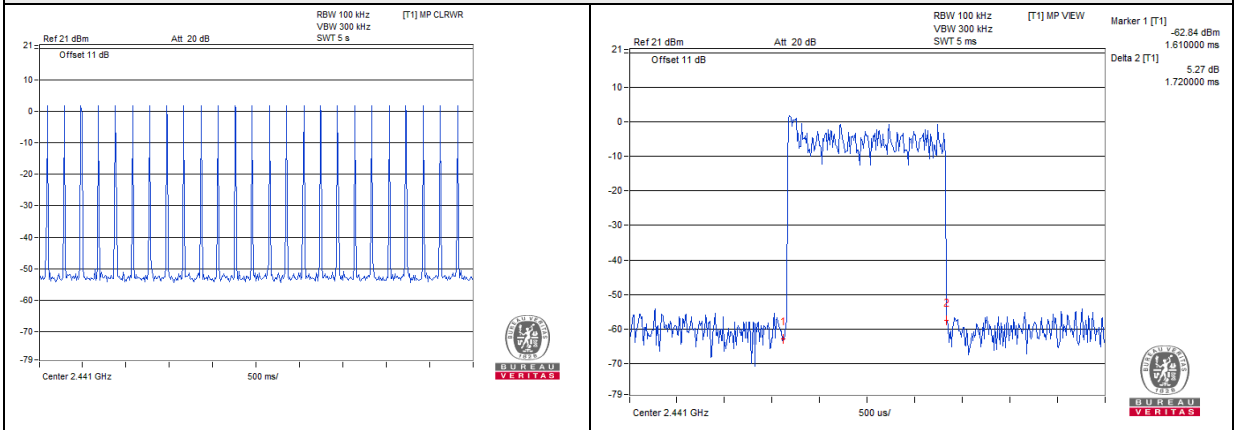
Mode	Number of transmission in a 31.6 (79Hopping*0.4)	Length of transmission time (msec)	Result (msec)	Limit (msec)
3DH1	50 (times / 5 sec) * 6.32 = 316 times	0.45	142.2	400
3DH3	25 (times / 5 sec) * 6.32 = 158 times	1.72	271.76	400
3DH5	16 (times / 5 sec) * 6.32 = 102 times	3.008	306.82	400

NOTE: Test plots of the transmitting time slot are shown as follows.

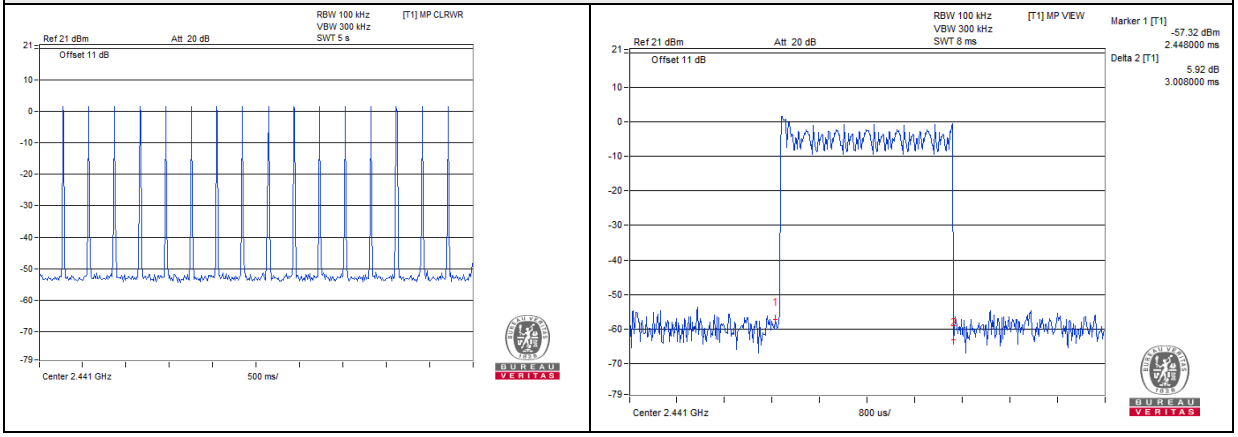
3DH1



3DH3



3DH5

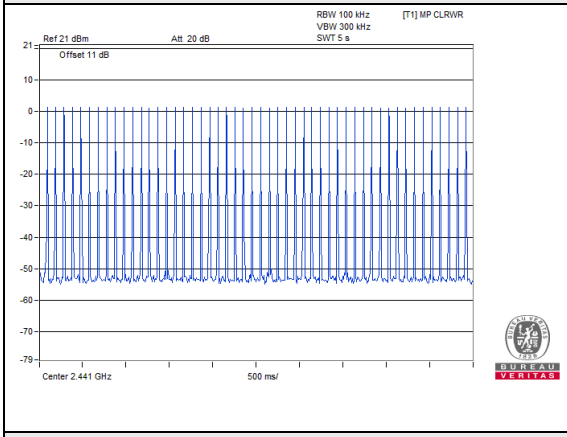


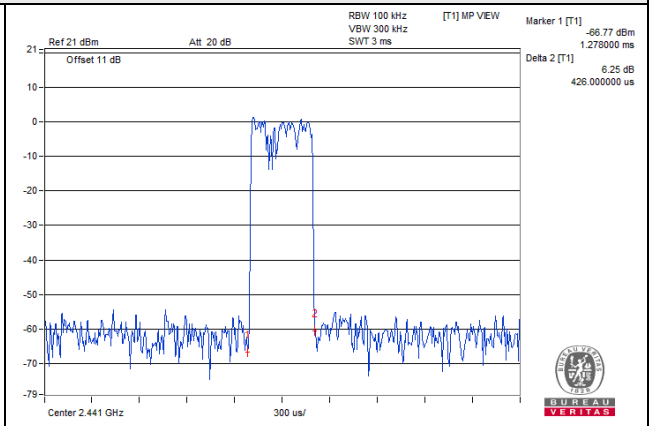
Mode B-GFSK

Mode	Number of transmission in a 31.6 (79Hopping*0.4)	Length of transmission time (msec)	Result (msec)	Limit (msec)
DH1	50 (times / 5 sec) * 6.32 = 316 times	0.426	134.62	400
DH3	25 (times / 5 sec) * 6.32 = 158 times	1.73	273.34	400
DH5	17 (times / 5 sec) * 6.32 = 108 times	2.944	317.95	400

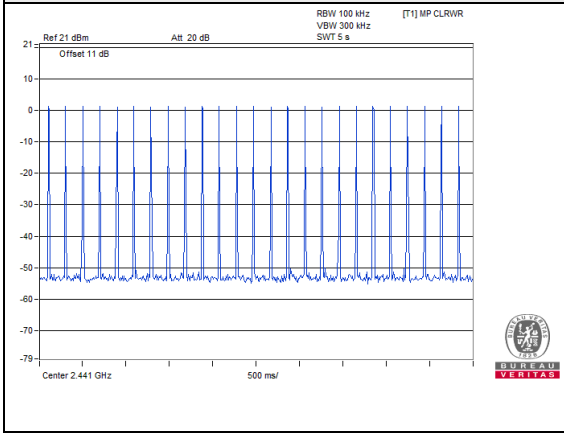
NOTE: Test plots of the transmitting time slot are shown as follows.

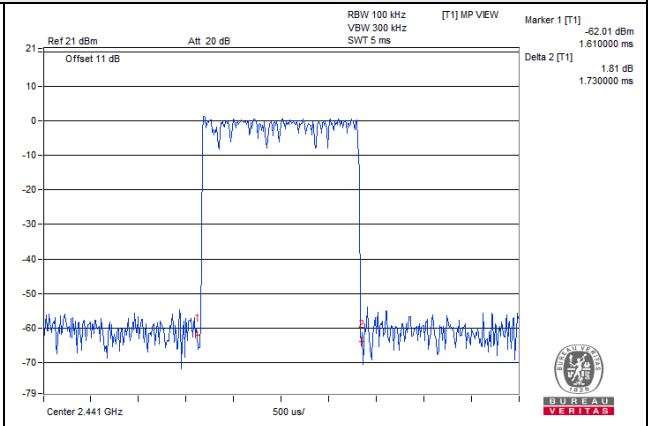
DH1



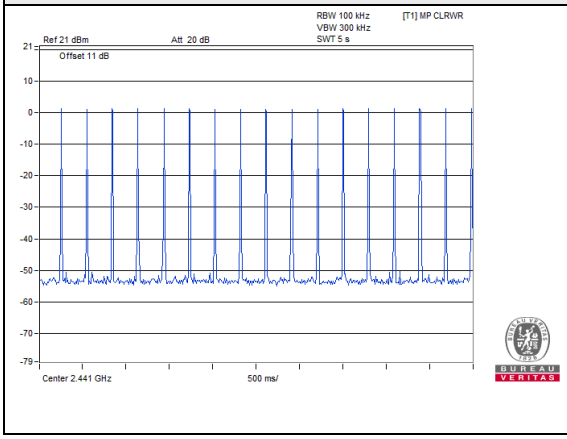


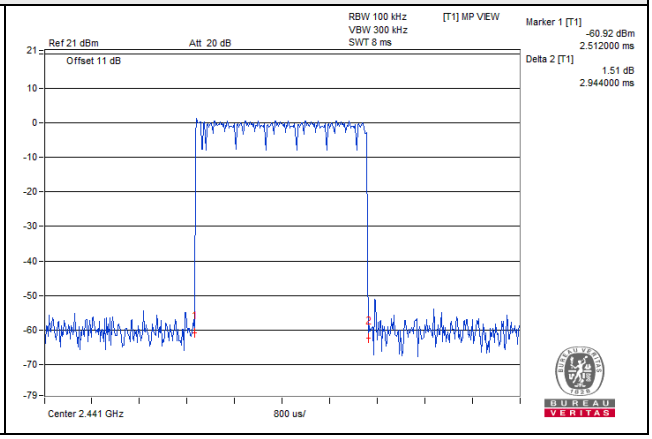
DH3





DH5



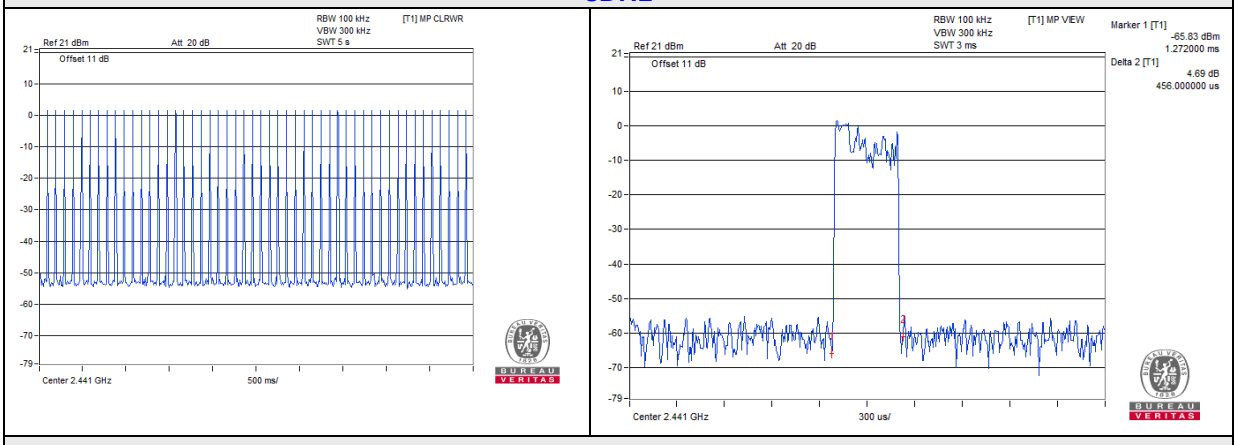


Mode B-8DPSK

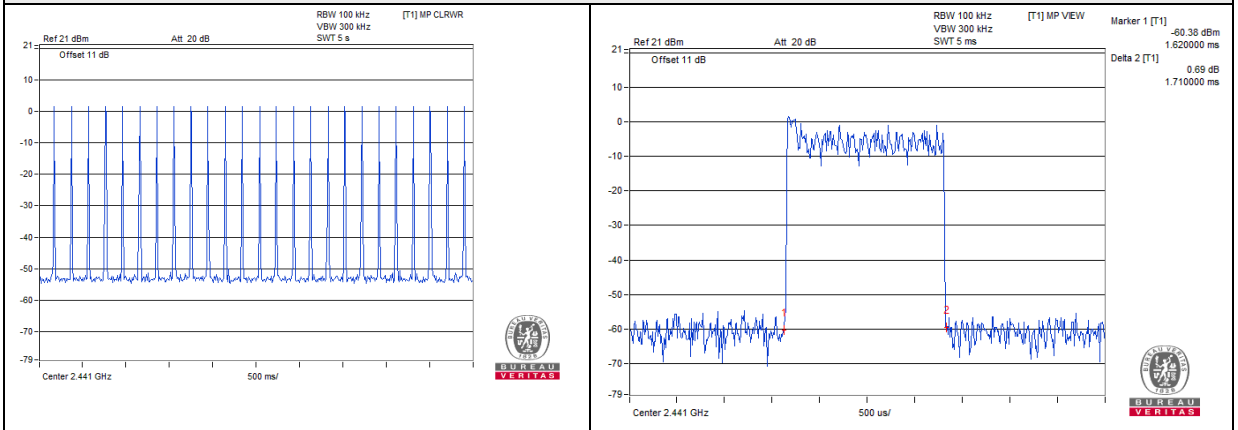
Mode	Number of transmission in a 31.6 (79Hopping*0.4)	Length of transmission time (msec)	Result (msec)	Limit (msec)
3DH1	50 (times / 5 sec) * 6.32 = 316 times	0.456	144.1	400
3DH3	25 (times / 5 sec) * 6.32 = 158 times	1.71	270.18	400
3DH5	17 (times / 5 sec) * 6.32 = 108 times	3.024	326.59	400

NOTE: Test plots of the transmitting time slot are shown as follows.

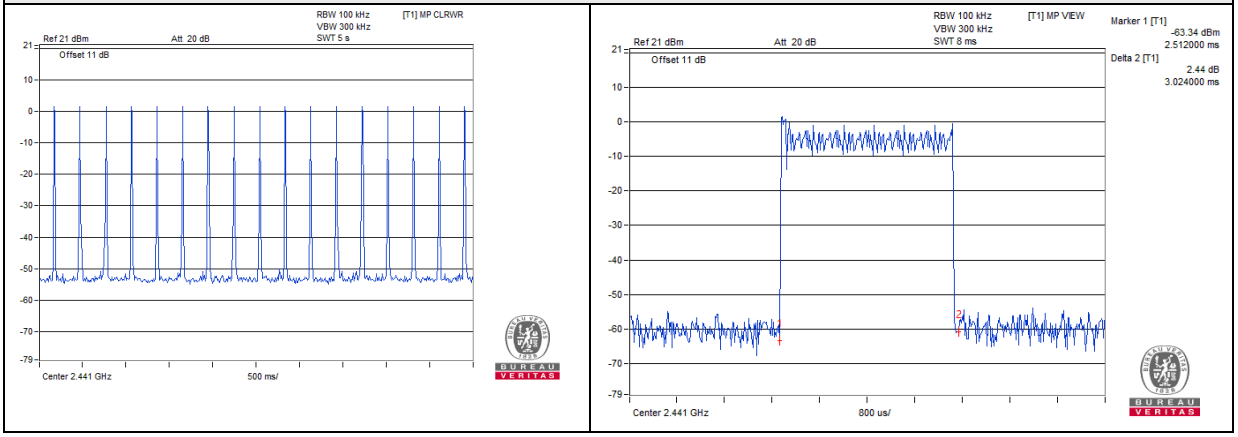
3DH1



3DH3



3DH5

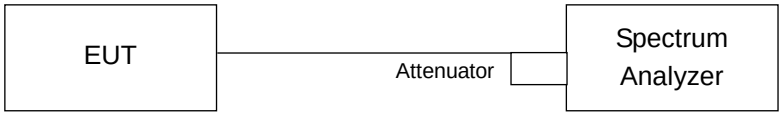


4.5 Channel Bandwidth

4.5.1 Limits of Channel Bandwidth Measurement

Maximum bandwidth is not specified.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.3.3 to get information of above instrument.

4.5.4 Test Procedure

a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
c. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
d. Repeat above procedures until all frequencies measured were complete.

4.5.5 Deviation from Test Standard

No deviation.

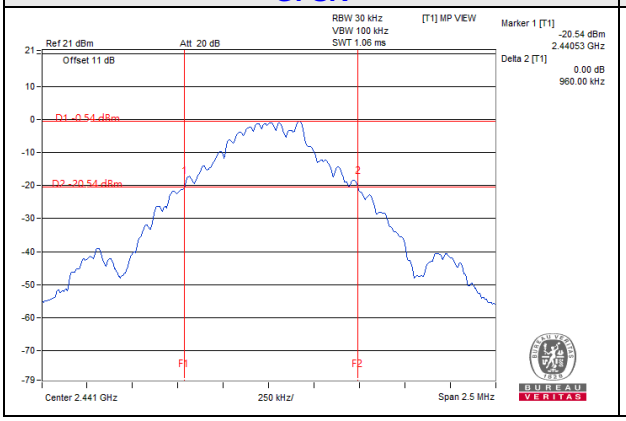
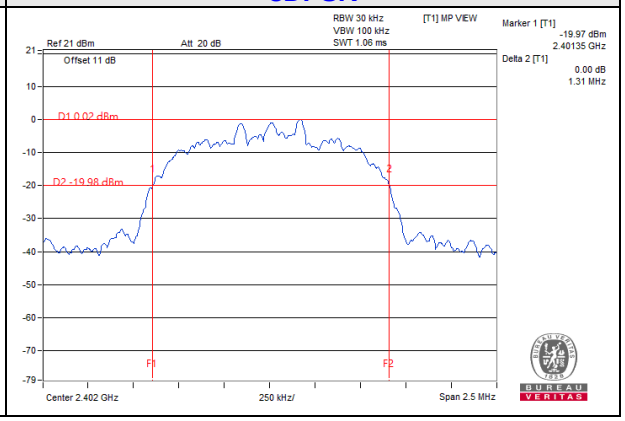
4.5.6 EUT Operating Condition

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

4.5.7 Test Results

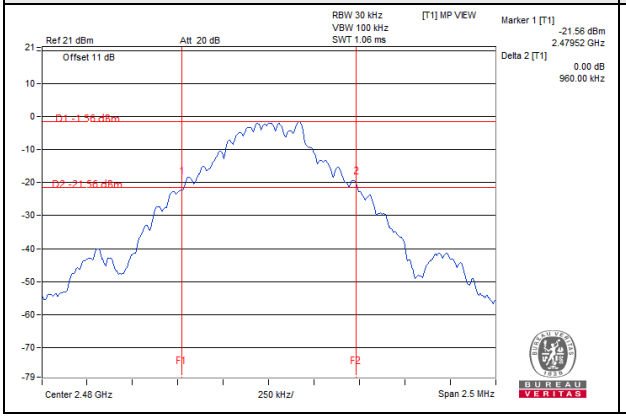
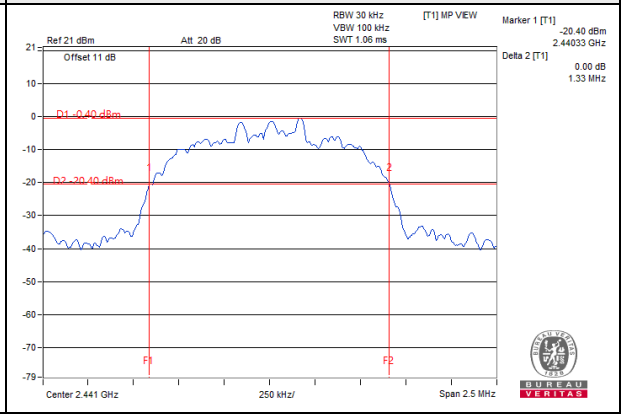
Mode A

Channel	Frequency (MHz)	20dB Bandwidth (MHz)	
		GFSK	8DPSK
0	2402	0.95	1.31
39	2441	0.96	1.31
78	2480	0.96	1.31

Spectrum Plot of Worst Value	
GFSK	8DPSK
	

Mode B

Channel	Frequency (MHz)	20dB Bandwidth (MHz)	
		GFSK	8DPSK
0	2402	0.95	1.31
39	2441	0.95	1.33
78	2480	0.96	1.31

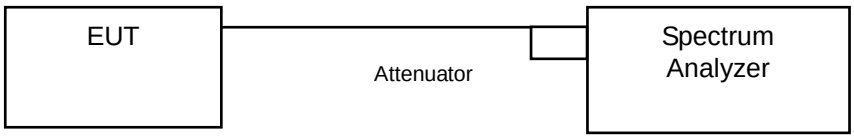
Spectrum Plot of Worst Value	
GFSK	8DPSK
	

4.6 Hopping Channel Separation

4.6.1 Limits of Hopping Channel Separation Measurement

At least 25kHz or two-third of 20dB hopping channel bandwidth (whichever is greater).

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.3.3 to get information of above instrument.

4.6.4 Test Procedure

Measurement Procedure REF

a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range.
c. By using the MaxHold function record the separation of two adjacent channels.
d. Measure the frequency difference of these two adjacent channels by SA MARK function. And then plot the result on SA screen.
e. Repeat above procedures until all frequencies measured were complete.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 Test Results

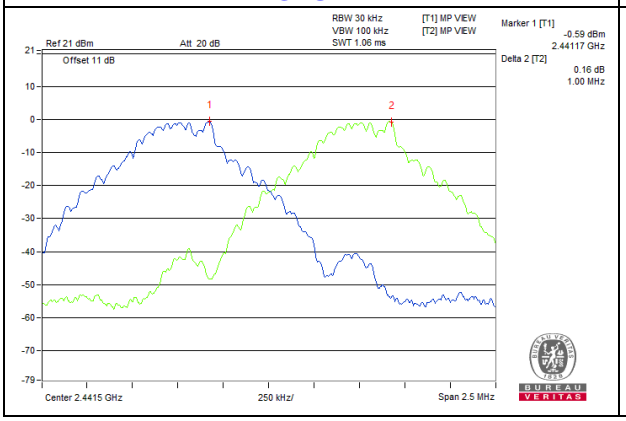
Mode A

Channel	Frequency (MHz)	Adjacent Channel Separation (MHz)		20dB Bandwidth (MHz)		Minimum Limit (MHz)		Pass / Fail
		GFSK	8DPSK	GFSK	8DPSK	GFSK	8DPSK	
0	2402	1.00	1.00	0.95	1.31	0.64	0.88	Pass
39	2441	1.00	1.00	0.96	1.31	0.64	0.88	Pass
78	2480	1.00	1.00	0.96	1.31	0.64	0.88	Pass

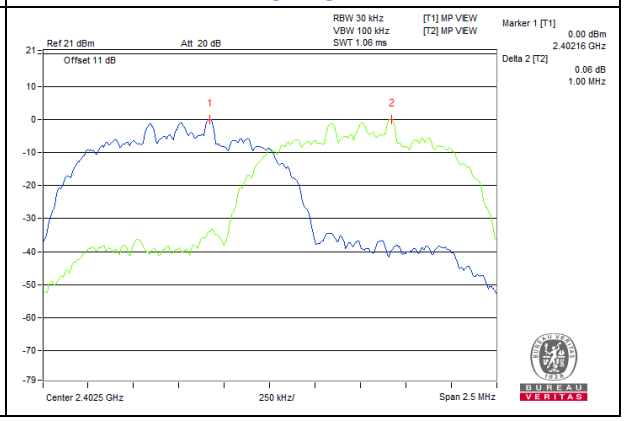
NOTE: The minimum limit is two-third 20dB bandwidth.

Spectrum Plot of Worst Value

GFSK



8DPSK



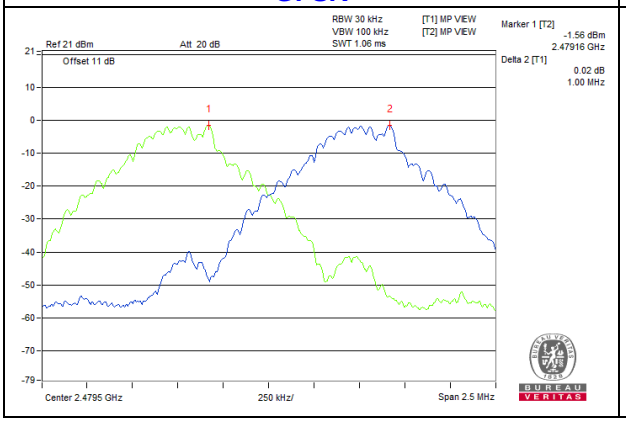
Mode B

Channel	Frequency (MHz)	Adjacent Channel Separation (MHz)		20dB Bandwidth (MHz)		Minimum Limit (MHz)		Pass / Fail
		GFSK	8DPSK	GFSK	8DPSK	GFSK	8DPSK	
0	2402	1.00	1.00	0.95	1.31	0.64	0.88	Pass
39	2441	1.00	1.00	0.95	1.33	0.64	0.89	Pass
78	2480	1.00	1.00	0.96	1.31	0.64	0.88	Pass

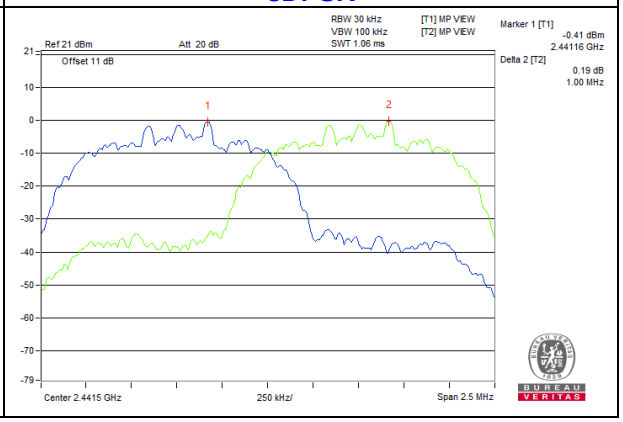
NOTE: The minimum limit is two-third 20dB bandwidth.

Spectrum Plot of Worst Value

GFSK



8DPSK

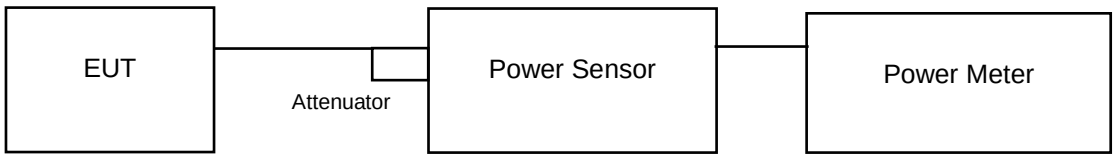


4.7 Maximum Output Power Measurement

4.7.1 Limits of Maximum Output Power Measurement

The Maximum Output Power Measurement is 125mW.

4.7.2 Test Setup



4.7.3 Test Instruments

Description & Manufacturer	Model no.	Serial No.	Calibrated Date	Calibrated Until
Pulse Power Sensor Anritsu	MA2411B	0738404	2021/4/15	2022/4/14
Peak Power meter Anritsu	ML2495A	0842014	2021/4/15	2022/4/14

NOTE: 1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in LK - Oven
3. Tested Date: 2021/12/17

4.7.4 Test Procedure

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

4.7.7 Test Results

Mode A

FOR PEAK POWER

Channel	Frequency (MHZ)	Output Power (mW)		Output Power (dBm)		Power Limit (mW)	Pass / Fail
		GFSK	8DPSK	GFSK	8DPSK		
0	2402	1.538	1.589	1.87	2.01	125	Pass
39	2441	1.56	**1.622**	1.93	2.10	125	Pass
78	2480	1.387	1.419	1.42	1.52	125	Pass

Note: The operating frequency of the DUT is in the 2400 MHz~2483.5 MHz frequency band, and the output power should be less than or equal to 125 mW for the frequency hopping system, and the hopping channel separation should not be less than two thirds of the 20 dB bandwidth of the frequency hopping channel. Refer to Chapter 4.6 measurement results.

FOR AVERAGE POWER

Channel	Frequency (MHZ)	Output Power (mW)		Output Power (dBm)	
		GFSK	8DPSK	GFSK	8DPSK
0	2402	1.466	1.51	1.66	1.79
39	2441	1.5	1.563	1.76	1.94
78	2480	1.309	1.346	1.17	1.29

Note: The operating frequency of the DUT is in the 2400 MHz~2483.5 MHz frequency band, and the output power should be less than or equal to 125 mW for the frequency hopping system, and the hopping channel separation should not be less than two thirds of the 20 dB bandwidth of the frequency hopping channel. Refer to Chapter 4.6 measurement results.

Mode B

FOR PEAK POWER

Channel	Frequency (MHZ)	Output Power (mW)		Output Power (dBm)		Power Limit (mW)	Pass / Fail
		GFSK	8DPSK	GFSK	8DPSK		
0	2402	1.545	1.6	1.89	2.04	125	Pass
39	2441	1.57	**1.66**	1.96	2.20	125	Pass
78	2480	1.393	1.472	1.44	1.68	125	Pass

Note: The operating frequency of the DUT is in the 2400 MHz~2483.5 MHz frequency band, and the output power should be less than or equal to 125 mW for the frequency hopping system, and the hopping channel separation should not be less than two thirds of the 20 dB bandwidth of the frequency hopping channel. Refer to Chapter 4.6 measurement results.

FOR AVERAGE POWER

Channel	Frequency (MHZ)	Output Power (mW)		Output Power (dBm)	
		GFSK	8DPSK	GFSK	8DPSK
0	2402	1.483	1.517	1.71	1.81
39	2441	1.521	1.6	1.82	2.04
78	2480	1.355	1.409	1.32	1.49

Note: The operating frequency of the DUT is in the 2400 MHz~2483.5 MHz frequency band, and the output power should be less than or equal to 125 mW for the frequency hopping system, and the hopping channel separation should not be less than two thirds of the 20 dB bandwidth of the frequency hopping channel. Refer to Chapter 4.6 measurement results.

4.8 Conducted Out of Band Emission Measurement

4.8.1 Limits of Conducted Out of Band Emission Measurement

Below 20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.8.2 Test Instruments

Refer to section 4.3.3 to get information of above instrument.

4.8.3 Test Procedure

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100 kHz and 300 kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

4.8.4 Deviation from Test Standard

No deviation.

4.8.5 EUT Operating Condition

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

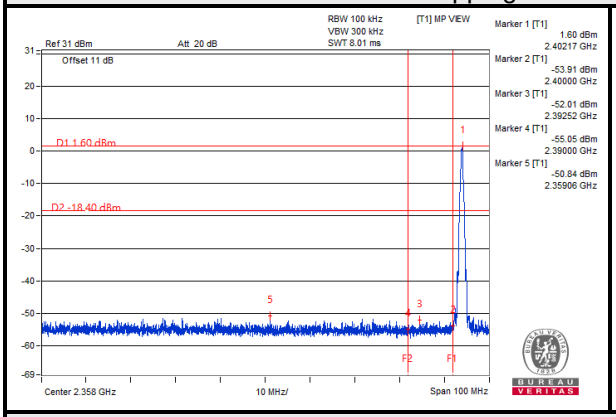
4.8.6 Test Results

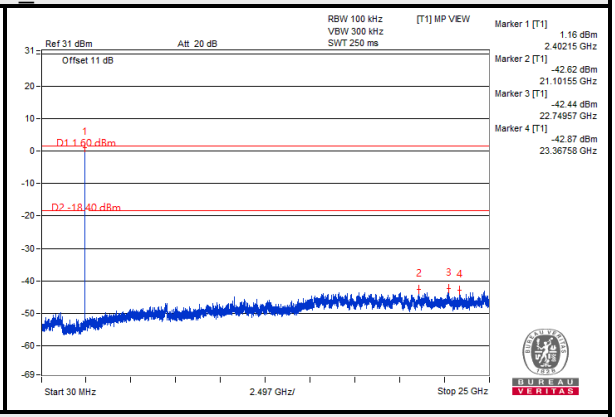
The spectrum plots are attached on the following images. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

Mode A

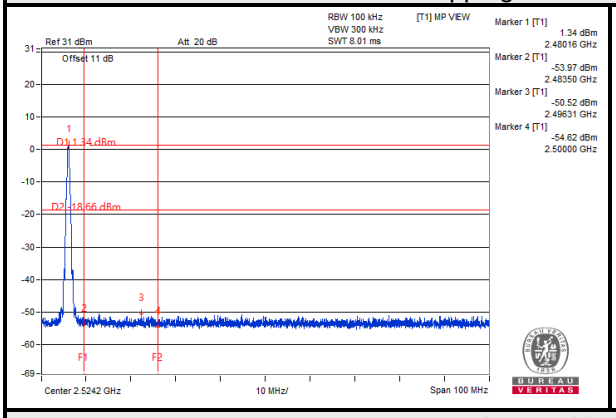
GFSK

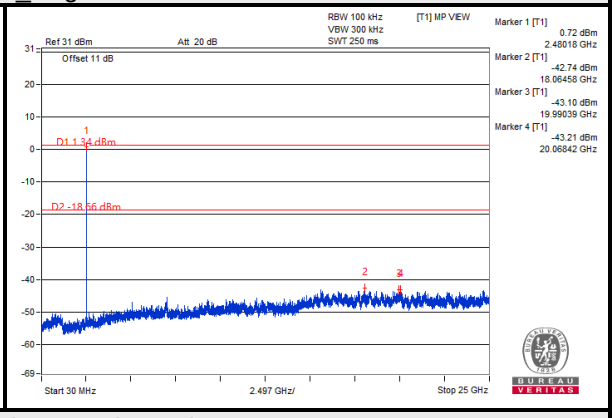
Hopping disabled_ Low Channel



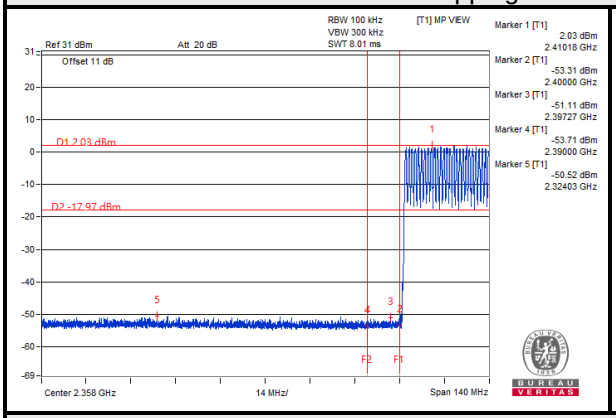


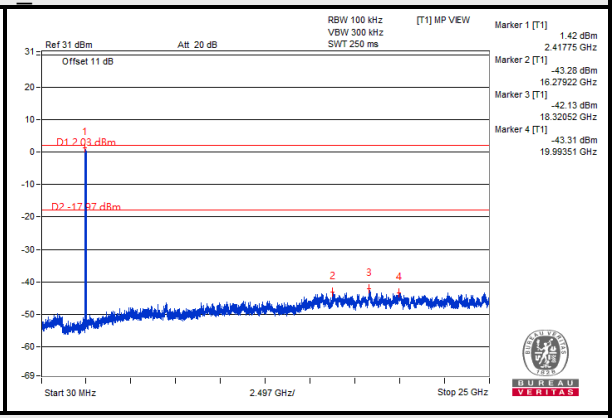
Hopping disabled_ High Channel



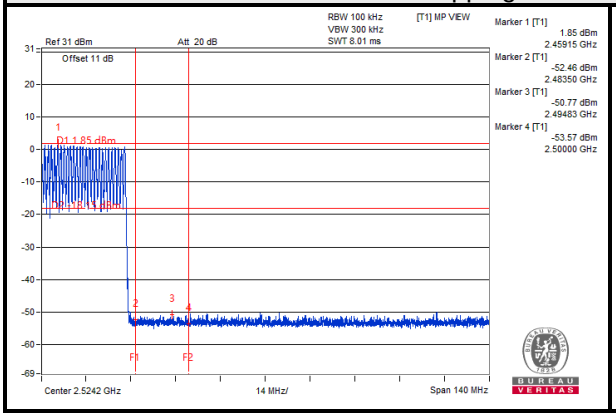


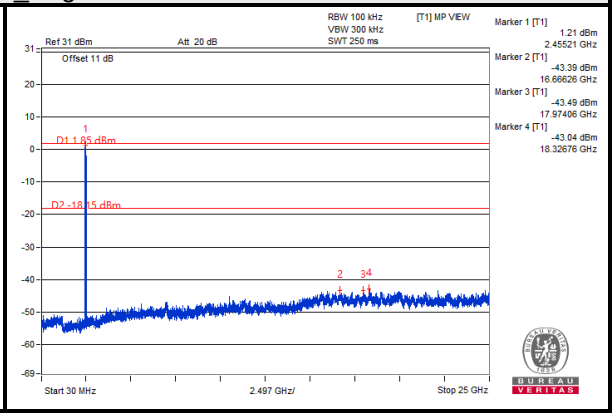
Hopping enabled_ Low Channel





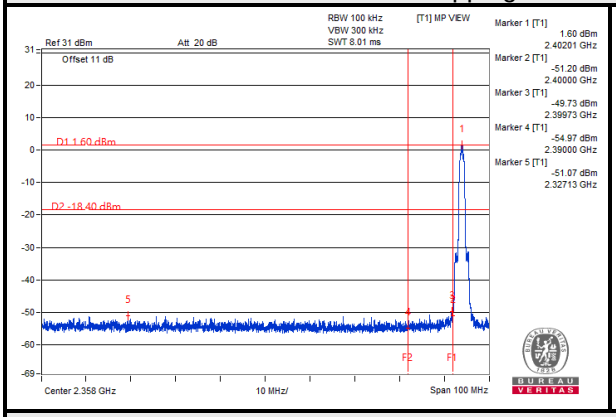
Hopping enabled_ High Channel

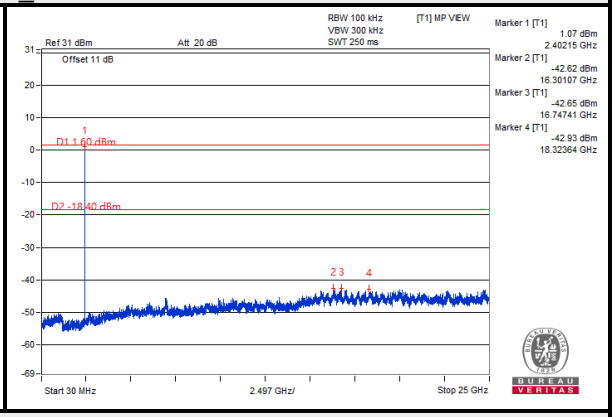




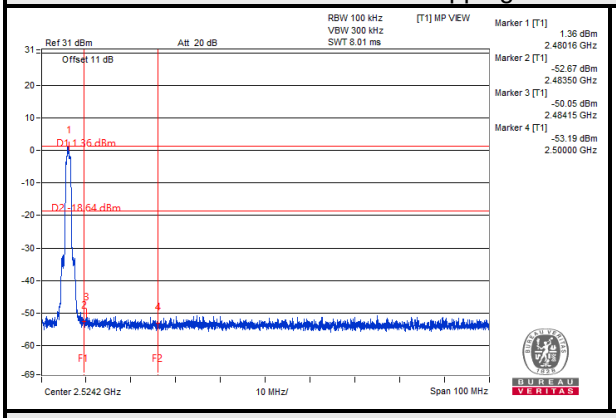
8DPSK

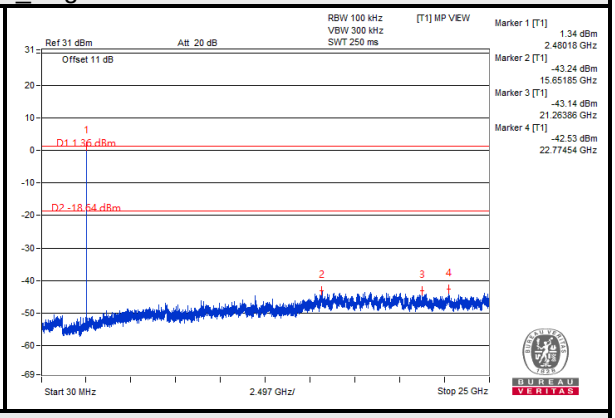
Hopping disabled_ Low Channel



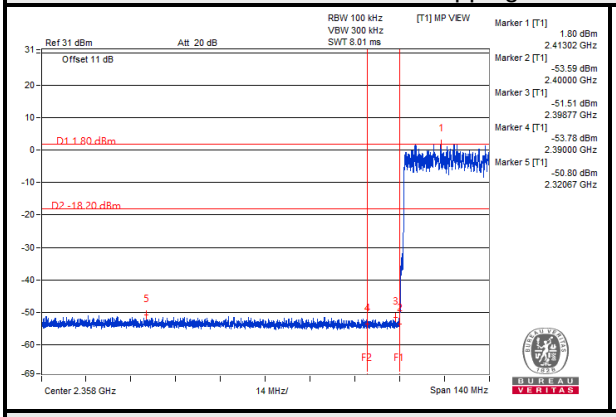


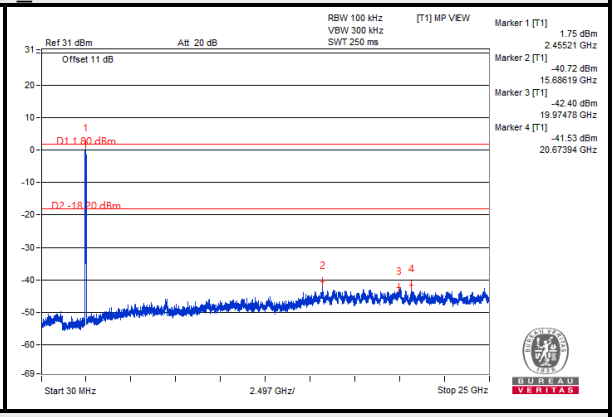
Hopping disabled_ High Channel



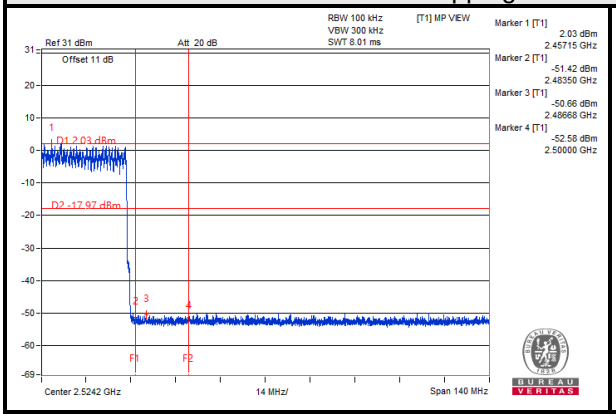


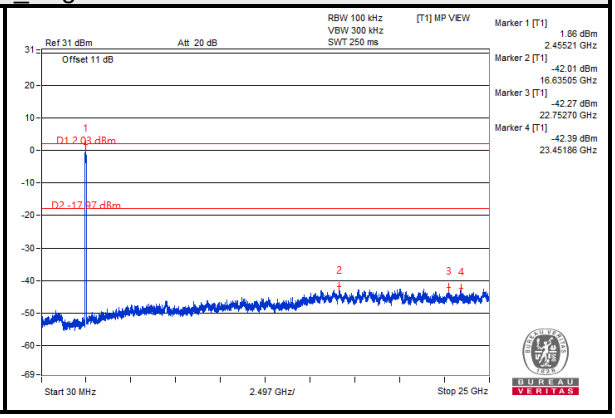
Hopping enabled_ Low Channel





Hopping enabled_ High Channel

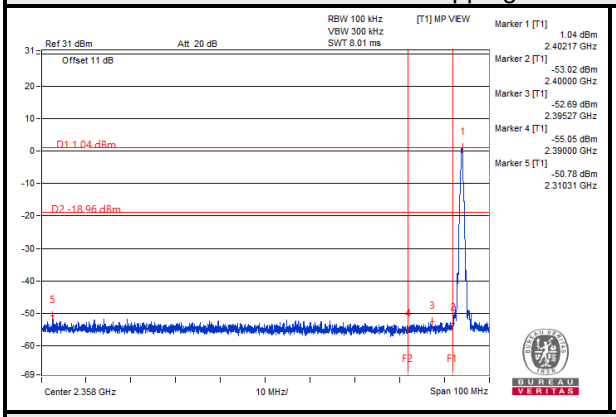


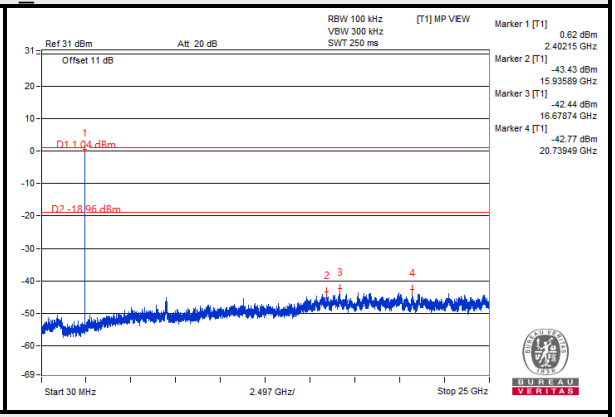


Mode B

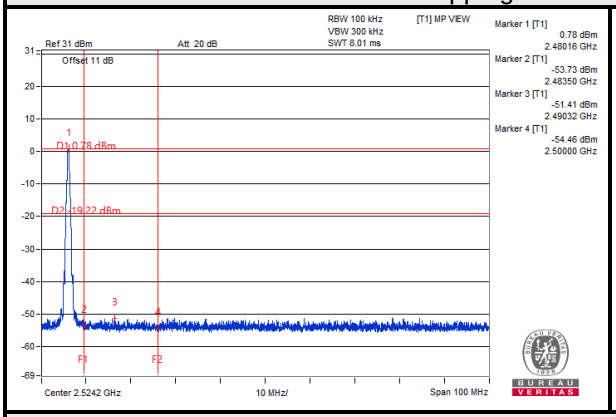
GFSK

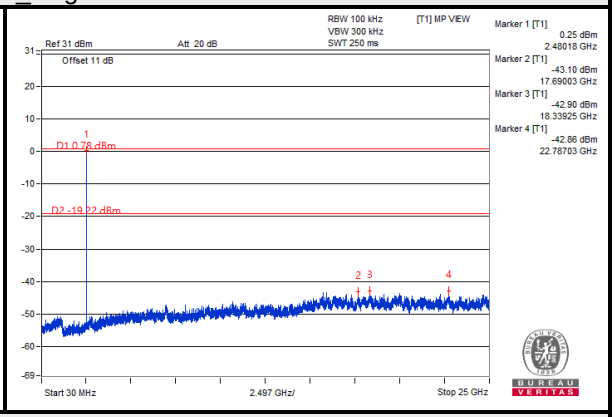
Hopping disabled_ Low Channel



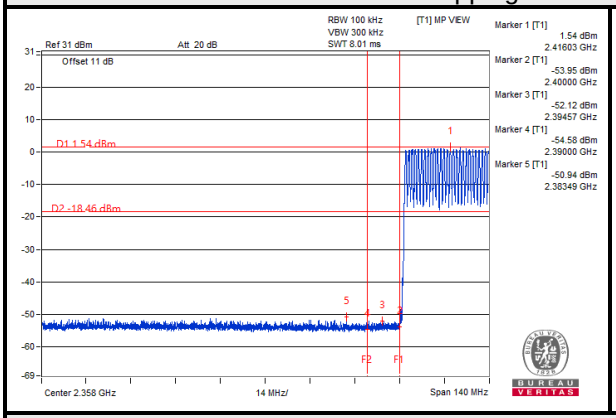


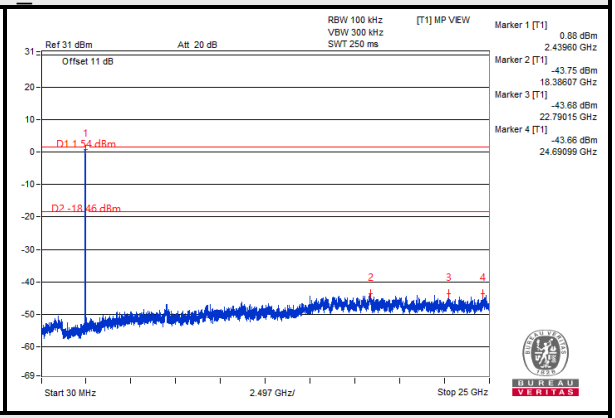
Hopping disabled_ High Channel



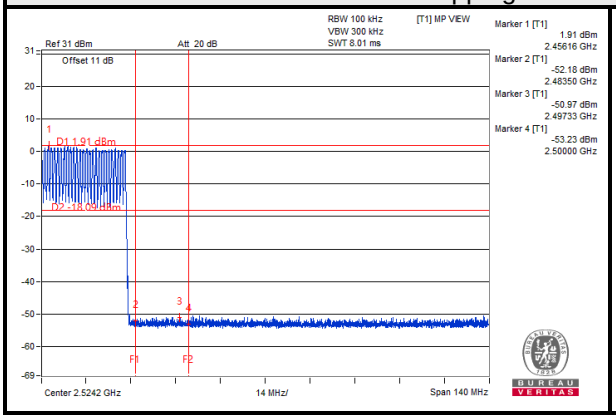


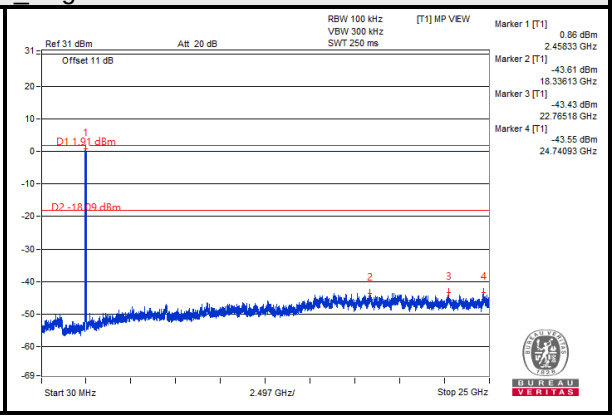
Hopping enabled_ Low Channel





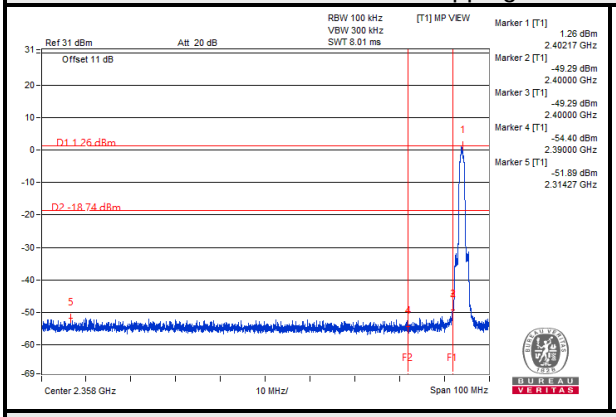
Hopping enabled_ High Channel

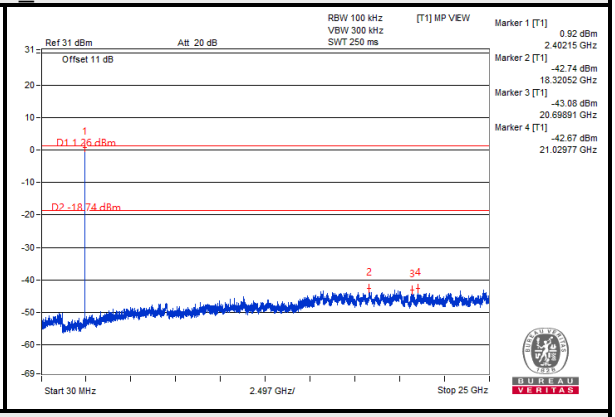




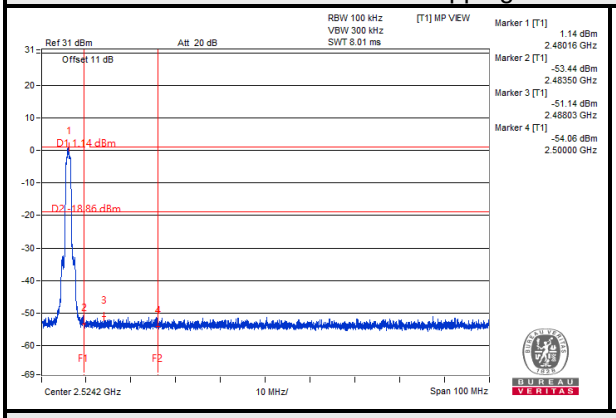
8DPSK

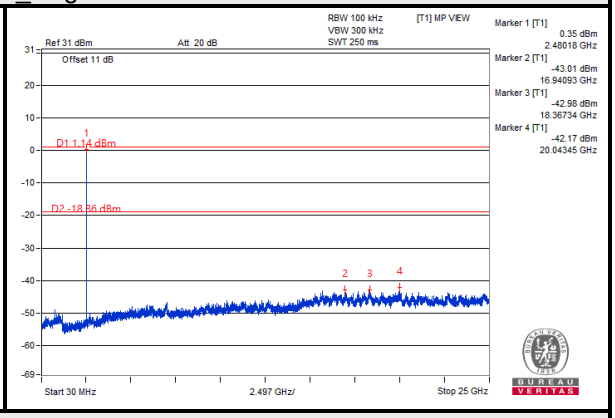
Hopping disabled_ Low Channel



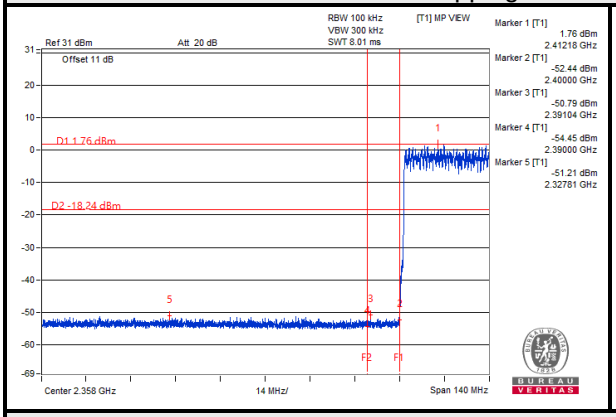


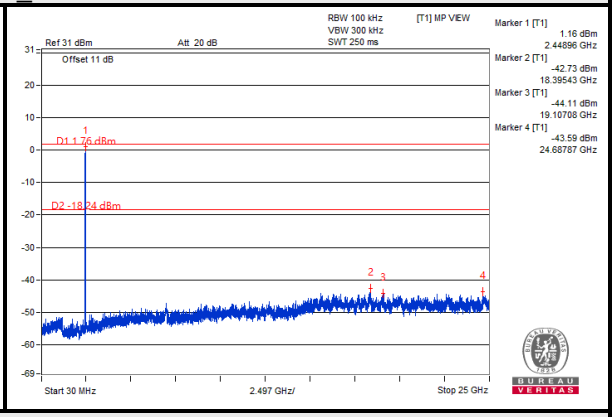
Hopping disabled_ High Channel



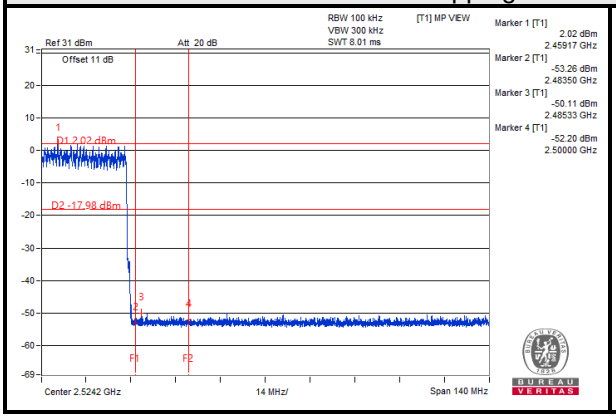


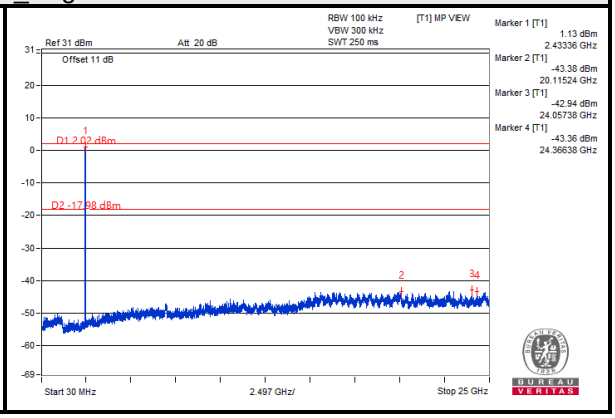
Hopping enabled_ Low Channel





Hopping enabled_ High Channel



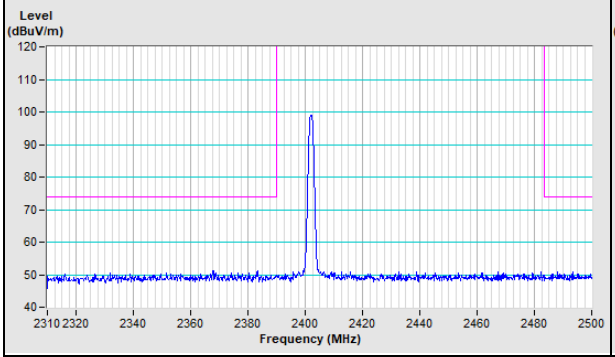
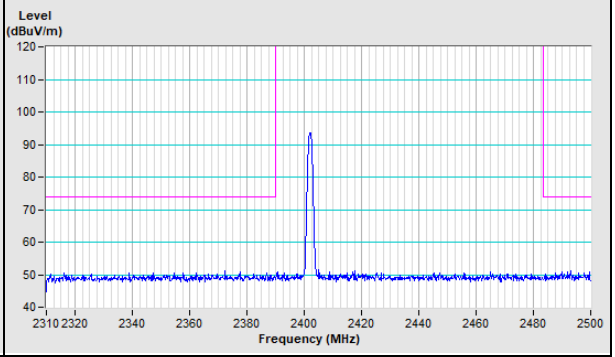
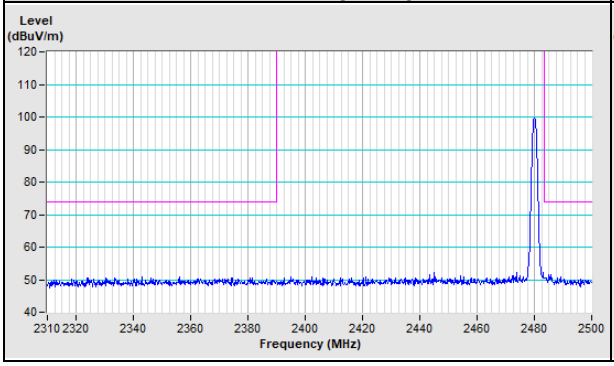
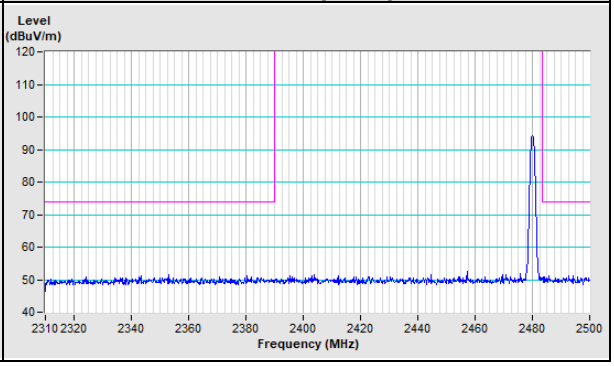


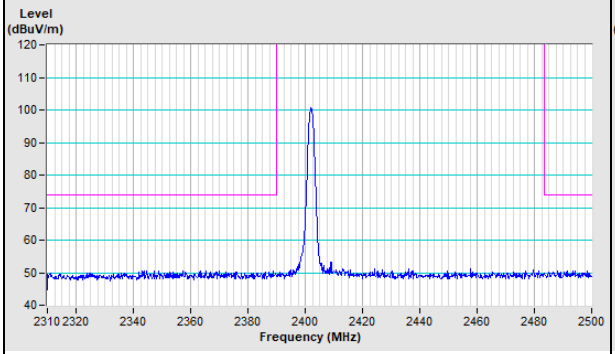
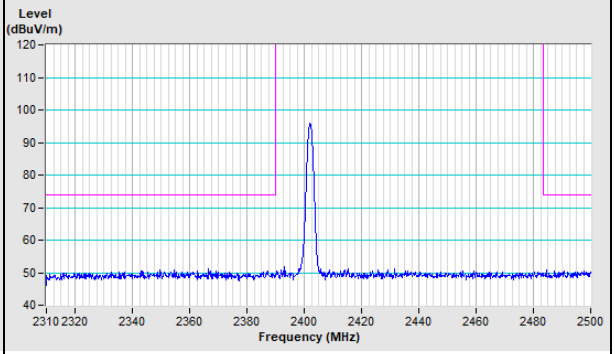
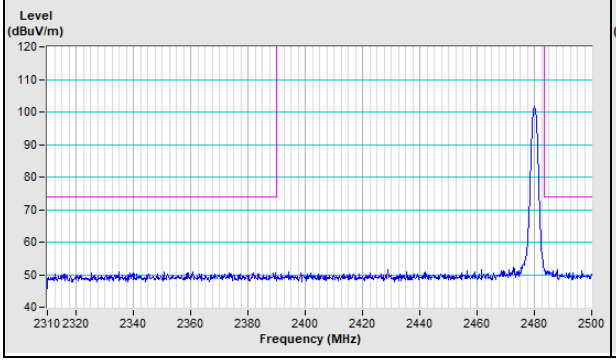
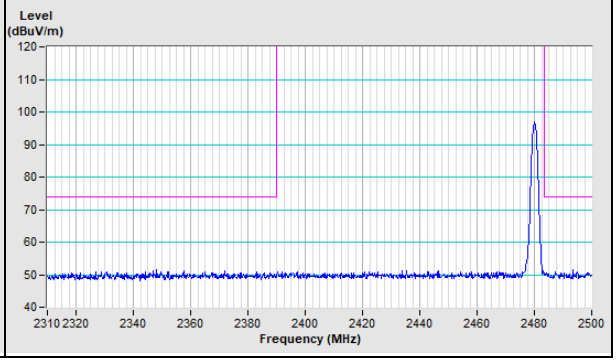
5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

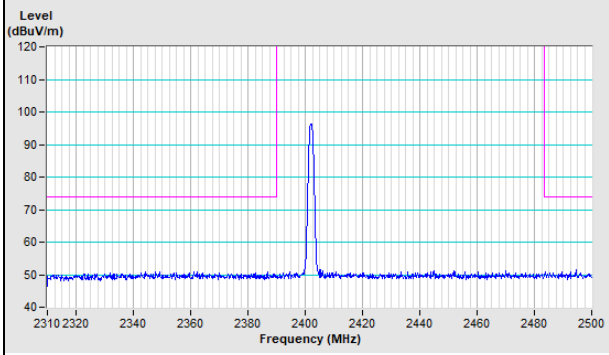
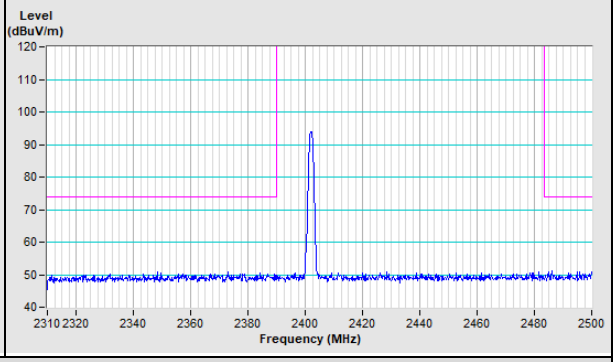
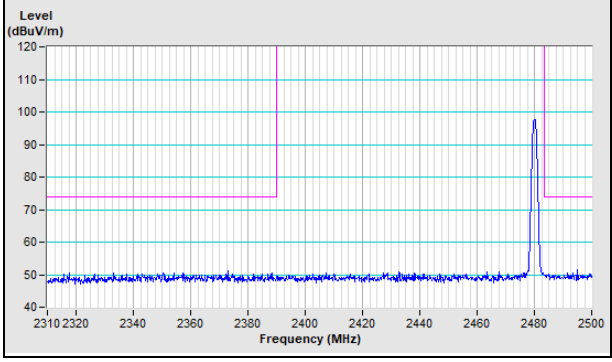
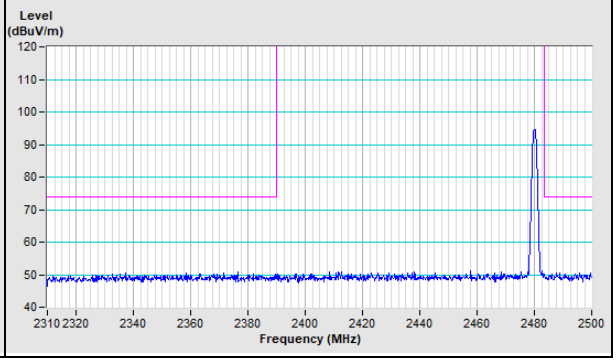
Annex A - Bandedge Measurement

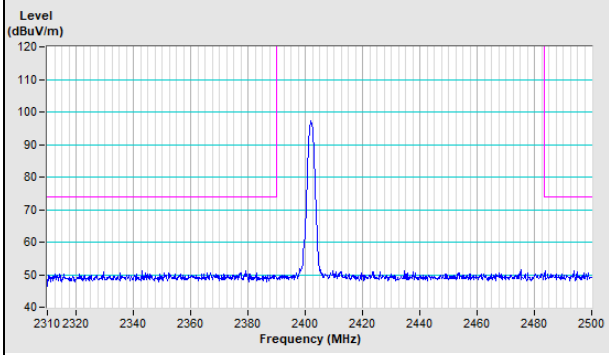
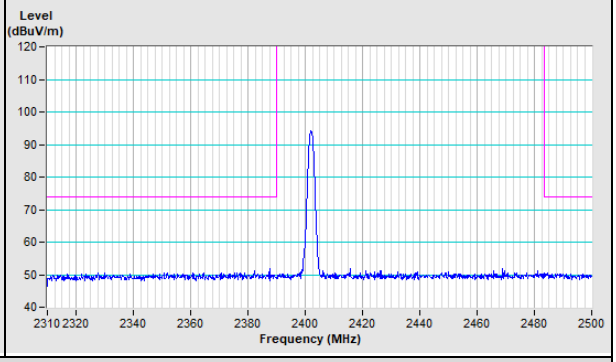
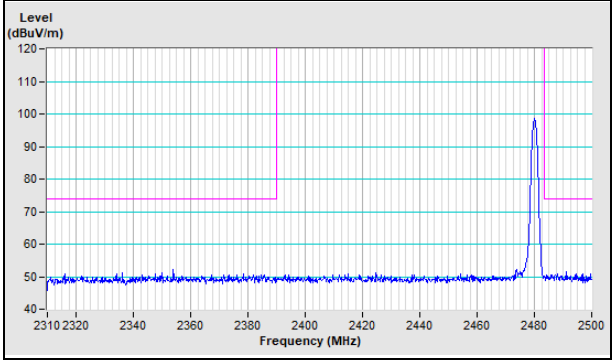
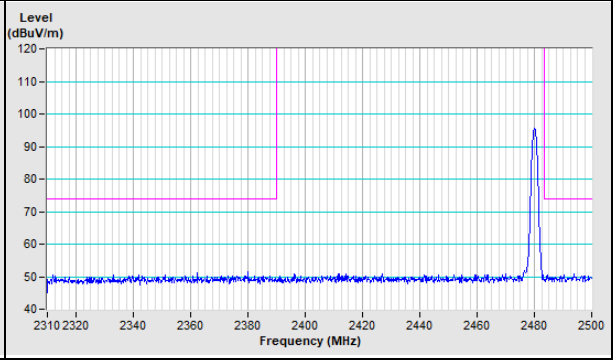
Mode A

BT_GFSK Channel 0	
Horizontal (Peak)	**Vertical (Peak)**
	
BT_GFSK Channel 78	
Horizontal (Peak)	**Vertical (Peak)**
	

BT_8DPSK Channel 0	
Horizontal (Peak)	**Vertical (Peak)**
	
BT_8DPSK Channel 78	
Horizontal (Peak)	**Vertical (Peak)**
	

Mode B

BT_GFSK Channel 0	
Horizontal (Peak)	**Vertical (Peak)**
	
BT_GFSK Channel 78	
Horizontal (Peak)	**Vertical (Peak)**
	

BT_8DPSK Channel 0	
Horizontal (Peak)	**Vertical (Peak)**
	
BT_8DPSK Channel 78	
Horizontal (Peak)	**Vertical (Peak)**
	

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

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