RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-247

Test Standard	**FCC Part 15.247** **RSS-247 issue 2 and RSS-GEN issue 5**
Product name	**Connected Digital Recorder**
Brand Name	**MiTAC, Mio, MAGELLAN, Navman**
Model No.	**N702**
Test Result	**Pass**
Statements of Conformity	**Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.**

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

The test results of this report relate only to the tested sample (EUT) identified in this report.
The test Report of full or partial shall not copy. Without written approval of Compliance Certification Services Inc. (Wugu Laboratory)

Approved by:

David Huang

David Huang
Supervisor

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	August 15, 2022	Initial Issue	ALL	Allison Chen
01	August 19, 2022	See the following Note Rev.(01)	P.8	Allison Chen

Note:
Rev.(01)
1. Modify remark description in section 1.6.

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1. GENERAL INFORMATION

1.1 EUT INFORMATION

FCC Applicant	Mitac Digital Technology Corporation 4F., No. 1, R&D Road 2, Hsinchu Science Park, Hsinchu 30076 Taiwan
FCC Manufacturer	MITAC COMPUTER (KUNSHAN) CO., LTD. No. 269, 2nd Avenue, District A, Comprehensive Free Trade Zone, Kunshan, Jiangsu, P.R. China
IC Applicant	MiTAC Digital Technology Corporation 4F., No. 1, R&D Road 2, Hsinchu Science Park, Hsinchu 30076 Taiwan
IC Manufacturer	MITAC COMPUTER (KUNSHAN) CO., LTD. No. 269, 2nd Rd, Export Processing Zone Changjiang South Road Kushan, Jiangsu China (Peoples Republic Of)
Equipment	Connected Digital Recorder
Model Name	N702
Model Discrepancy	Difference of those brand names (list on this report) are just for marketing purpose only.
Brand Name	MiTAC, Mio, MAGELLAN, Navman
Received Date	June 28, 2022
Date of Test	July 6~14, 2022
Power Supply	Power from power supply.
HW Version	R02
SW Version	R01
EUT Serial #	HAQ26E0002

Remark:
1. For more details, please refer to the User's manual of the EUT.
2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
3. Disclaimer: The variant trademarks are assessed as identical in hardware and software to each other, hence all variants are fully covered by the test results in this test report without further verification test.

1.2 INFORMATION ABOUT THE FHSS CHARACTERISTICS

1.2.1 Pseudorandom Frequency Hopping Sequence

The channel is represented by a pseudo-random hopping sequence hopping through the 79 RF channels. The hopping sequence is unique for the piconet and is determined by the Bluetooth device address of the master; the phase in the hopping sequence is determined by the Bluetooth clock of the master. The channel is divided into time slots where each slot corresponds to an RF hop frequency. Consecutive hops correspond to different RF hop frequencies. The nominal hop rate is 1 600 hops/s.

1.2.2 Equal Hopping Frequency Use

The channels of this system will be used equally over the long-term distribution of the hopsets.

1.2.3 Example of a 79 hopping sequence in data mode:

02, 05, 31, 24, 20, 10, 43, 36, 30, 23, 40, 06, 21, 50, 44, 09, 71, 78, 01, 13, 73, 07, 70, 72, 35, 62, 42, 11, 41, 08, 16, 29, 60, 15, 34, 61, 58, 04, 67, 12, 22, 53, 57, 18, 27, 76, 39, 32, 17, 77, 52, 33, 56, 46, 37, 47, 64, 49, 45, 38, 69, 14, 51, 26, 79, 19, 28, 65, 75, 54, 48, 03, 25, 66, 05, 16, 68, 74, 59, 63, 55

1.2.4 System Receiver Input Bandwidth

Each channel bandwidth is 1MHz.
The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

1.2.5 Equipment Description

RSS-247, 5.1 (a): The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

1.3 EUT CHANNEL INFORMATION

Frequency Range	2402MHz-2480MHz
Modulation Type	1. GFSK for BDR-1Mbps 2. π/4-DQPSK for EDR-2Mbps 3. 8DPSK for EDR-3Mbps
Number of channel	79 Channels

Remark:
Refer as ANSI C63.10: 2013 clause 5.6.1 Table 4 and RSS-GEN Table 1 for test channels

Number of frequencies to be tested		
Frequency range in which device operates	**Number of frequencies**	**Location in frequency range of operation**
☐ 1 MHz or less	1	Middle
☐ 1 MHz to 10 MHz	2	1 near top and 1 near bottom
☒ More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

1.4 ANTENNA INFORMATION

Antenna Specification	☐ PIFA ☐ PCB ☒ Dipole ☐ Coils
Antenna Gain	Gain: 4.2 dBi
Antenna connector	I-PEX

Notes:
1.The antenna(s) of the EUT are permanently attached and there are no provisions for connection to an external antenna. So the EUT complies with the requirements of §15.203 and RSS-Gen 6.8.

1.5 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	± 2.1183
Channel Bandwidth	± 2.1863
RF output power	± 1.2688
Channel Separation	± 2.1855
Conducted Bandedge	± 2.1866
Conducted Spurious Emission	± 2.1859
Radiated Emission_9kHz-30MHz	± 3.814
Radiated Emission_30MHz-200MHz	± 4.272
Radiated Emission_200MHz-1GHz	± 4.619
Radiated Emission_1GHz-6GHz	± 5.522
Radiated Emission_6GHz-18GHz	± 5.228
Radiated Emission_18GHz-26GHz	± 4.089
Radiated Emission_26GHz-40GHz	± 4.019

Remark:
1.This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

1.6 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at
No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan. (R.O.C.)
CAB identifier: TW1309

Test site	Test Engineer	Remark
AC Conduction Room	-	Not applicable, because EUT doesn't connect to AC Main Source direct.
Radiation	Ray Li, Tony Chao	-
RF Conducted	David Li	-

Remark: The lab has been recognized as the FCC accredited lab. under the KDB 974614 D01 and is listed in the FCC pubic Access Link (PAL) database, FCC Registration No. :444940, the FCC Designation No.:TW1309”

1.7 INSTRUMENT CALIBRATION

RF Conducted Test Site					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
EXA Signal Analyzer	KEYSIGHT	N9010B	MY55460167	09/07/2021	09/06/2022
Power Meter	Anritsu	ML2496A	2136002	12/06/2021	12/05/2022
Power Seneor	Anritsu	MA2411B	1911386	08/19/2021	08/18/2022
Power Seneor	Anritsu	MA2411B	1911387	08/19/2021	08/18/2022
Software	Radio Test Software Ver. 21				

3M 966 Chamber Test Site					
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Band Reject Filters	MICRO TRONICS	BRM 50702	112	11/23/2021	11/22/2022
Bilog Antenna	Sunol Sciences	JB3	A030105	07/19/2021	07/18/2022
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/23/2022	02/22/2023
Coaxial Cable	EMCI&	EMC105	190914+33953	06/15/2022	06/14/2023
Coaxial Cable	Woken	J-1099	201709090004	12/23/2021	12/22/2022
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	12/28/2021	12/27/2022
Horn Antenna	ETS LINDGREN	3116	00026370	11/30/2021	11/29/2022
Horn Antenna	MCTD	1209	DRH13M02003	01/25/2022	01/24/2023
K Type Cable	Huber+Suhner	SUCOFLEX 102	29406/2	12/05/2021	12/04/2022
Pre-Amplifier	EMEC	EM330	060609	02/23/2022	02/22/2023
Pre-Amplifier	HP	8449B	3008A00965	12/24/2021	12/23/2022
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	12/06/2021	12/05/2022
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Software	e3 210616				

Remark:
1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Required.

1.8 SUPPORT AND EUT ACCESSORIES EQUIPMENT

EUT Accessories Equipment						
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**	**IC**
	N/A					

Support Equipment						
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**	**IC**
1	NB(B)	Toshiba	PORTEGE R30-A	N/A	PD97260H	N/A
2	DC Power Source	GWINSTEK	SPS-3610	N/A	N/A	N/A
3	NB(G)	Lenovo	IBM 1951	R33B65	CJ6UPA3489WL	N/A

1.9 TEST METHODOLOGY AND APPLIED STANDARDS

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC Part 2, FCC Part 15.247, RSS-247 Issue 2 and RSS-GEN Issue 5.

2. TEST SUMMARY

FCC Standard Section	IC Standard Section	Report Section	Test Item	Result
15.203	RSS-Gen 6.8	1.3	Antenna Requirement	Pass
15.207(a)	RSS-GEN 8.8	4.1	AC Conducted Emission	N/A
15.247(a)(1)	RSS-247(5.1)(a)	4.2	20 dB Bandwidth	Pass
-	RSS-GEN 6.7	4.2	Occupied Bandwidth (99%)	Pass
15.247(b)(1)	RSS-247(5.4)(b)	4.3	Output Power Measurement	Pass
15.247(a)(1)	RSS-247(5.1)(b)	4.4	Frequency Separation	Pass
15.247(a)(1)(iii)	RSS-247(5.1)(d)	4.5	Number of Hopping	Pass
15.247(d)	RSS-247(5.5)	4.6	Conducted Band Edge	Pass
15.247(d)	RSS-247(5.5)	4.6	Conducted Spurious Emission	Pass
15.247(a)(1)(iii)	RSS-247(5.1)(d)	4.7	Time of Occupancy	Pass
15.247(d)	RSS-GEN 8.9, 8.10	4.8	Radiation Band Edge	Pass
15.247(d)	RSS-GEN 8.9, 8.10	4.8	Radiation Spurious Emission	Pass

3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	GFSK for BDR-1Mbps (DH5) π/4-DQPSK for EDR-2Mbps (2DH5) 8DPSK for EDR-3Mbps (3DH5)
Test Channel Frequencies	**GFSK for BDR-1Mbps:** 1.Lowest Channel: 2402MHz 2.Middle Channel: 2441MHz 3.Highest Channel: 2480MHz **π/4-DQPSK for EDR-2Mbps (2DH5)** 1.Lowest Channel: 2402MHz 2.Middle Channel: 2441MHz 3.Highest Channel: 2480MHz **8DPSK for EDR-3Mbps:** 1.Lowest Channel: 2402MHz 2.Middle Channel: 2441MHz 3.Highest Channel: 2480MHz

Remark:
1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.
2. For EDR-2/3Mbps, because the characteristics are the same, so choose the high power as a hopping test.

3.2 THE WORST MODE OF MEASUREMENT

Radiated Emission Measurement Above 1G	
Test Condition	**Radiated Emission Above 1G**
Power supply Mode	**Mode 1: EUT power by Power supply(No Camera/12V)**
Worst Mode	☒ **Mode 1** ☐ **Mode 2** ☐ **Mode 3** ☐ **Mode 4**
Worst Position	☐ **Placed in fixed position.** ☐ **Placed in fixed position at X-Plane (E2-Plane)** ☒ **Placed in fixed position at Y-Plane (E1-Plane)** ☐ **Placed in fixed position at Z-Plane (H-Plane)**

Radiated Emission Measurement Below 1G	
Test Condition	**Radiated Emission Below 1G**
Power supply Mode	**Mode 1: EUT power by Power supply(No Camera/12V)** **Mode 2: EUT power by Power supply(With Camera/12V)** **Mode 3: EUT power by Power supply(No Camera/24V)** **Mode 4: EUT power by Power supply(With Camera/24V)**
Worst Mode	☐ **Mode 1** ☒ **Mode 2** ☐ **Mode 3** ☐ **Mode 4**

Remark:
1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(Y-Plane) were recorded in this report

3.3 EUT DUTY CYCLE

Temperature: 23.4~26.5℃ **Test date:** July 6~14, 2022

Humidity: 48~55% RH **Tested by:** David Li

For GFSK (1Mbps)

PACKET TYPE	Duty Cycle (%) = Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
DH1	30.80	5.11	2.60	3.00
DH3	65.20	1.86	0.61	1.00
DH5	76.80	1.15	0.35	1.00

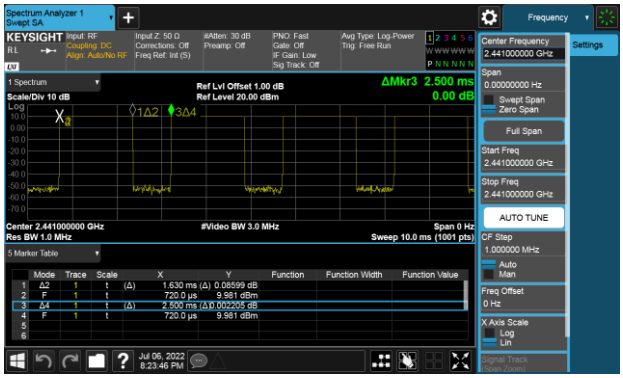
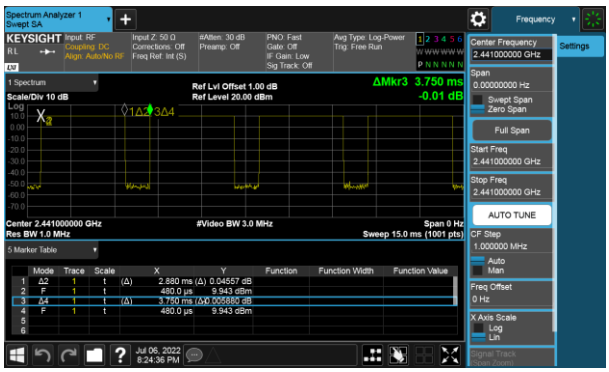
For π/4 DQPSK (2Mbps)

PACKET TYPE	Duty Cycle (%) = Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
2DH1	30.80	5.11	2.60	3.00
2DH3	65.60	1.83	0.61	1.00
2DH5	76.80	1.15	0.35	1.00

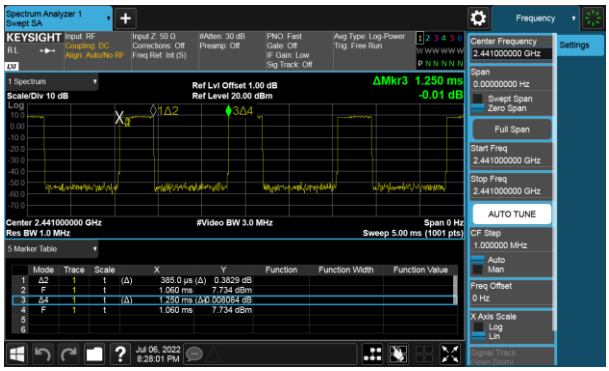
For 8-DPSK (3Mbps)

PACKET TYPE	Duty Cycle (%) = Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
3DH1	31.20	5.06	2.56	3.00
3DH3	65.60	1.83	0.61	1.00
3DH5	76.80	1.15	0.35	1.00

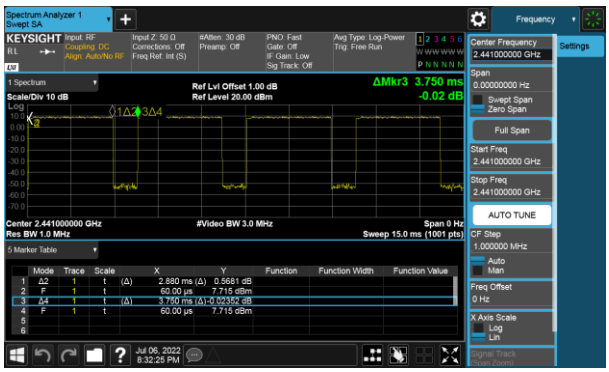
For GFSK (1Mbps)

DH1	DH3
	
DH5	
	

For π/4 DQPSK (2Mbps)

2DH1	2DH3
	
2DH5	
	

For 8-DPSK (3Mbps)

3DH1	3DH3
	
3DH5	
	

4. TEST RESULT

4.1 AC POWER LINE CONDUCTED EMISSION

4.1.1 Test Limit

According to §15.207(a) and RSS-GEN section 8.8,

Frequency Range (MHz)	Limits(dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50

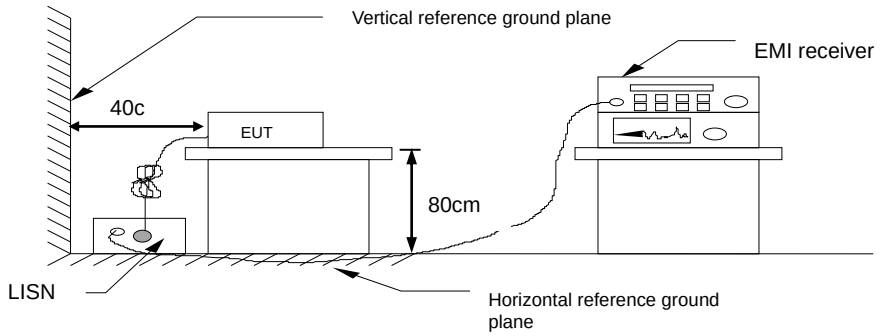
* Decreases with the logarithm of the frequency.

4.1.2 Test Procedure

Test method Refer as ANSI C63.10: 2013 clause 6.2,

1. The EUT was placed on a non-conducted table, which is 0.8m above horizontal ground plane and 0.4m above vertical ground plane.
2. EUT connected to the line impedance stabilization network (LISN)
3. Receiver set RBW of 9kHz and Detector Peak, and note as quasi-peak and average.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. Recorded Line for Neutral and Line.

4.1.3 Test Setup



4.1.4 Test Result

Not applicable, because EUT doesn't connect to AC Main Source direct.

4.2 20dB BANDWIDTH AND OCCUPIED BANDWIDTH (99%)

4.2.1 Test Limit

According to §15.247(a) (1), RSS-247 section 5.1(a) and RSS-GEN 6.7,

20 dB Bandwidth ：For reporting purposes only.

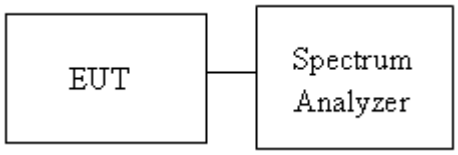
Occupied Bandwidth(99%) ：For reporting purposes only.

4.2.2 Test Procedure

Test method Refer as ANSI C63.10: 2013 clause 7.8.7,

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 1% ~ 5% OBW, VBW ≥3*RBW and Detector = Peak, to measurement 20 dB Bandwidth.
4. SA set RBW = 1% ~ 5% OBW, VBW ≥ three times the RBW and Detector = Peak, to measurement 99% Bandwidth
5. Measure and record the result of 20 dB Bandwidth and 99% Bandwidth. in the test report.

4.2.3 Test Setup



4.2.4 Test Result

Temperature: 23.4~26.5℃ **Test date:** July 6~14, 2022

Humidity: 48~55% RH **Tested by:** David Li

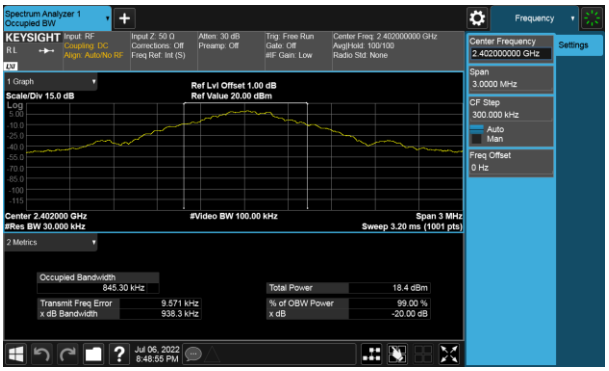
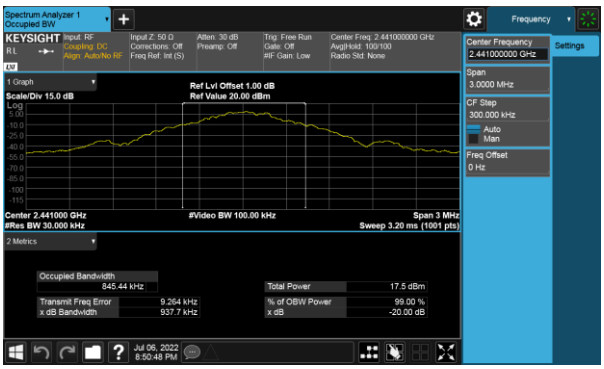
Test mode: GFSK_BDR-1Mbps mode / 2402-2480 MHz			
Channel	**Frequency (MHz)**	**OBW(99%) (MHz)**	**20dB BW (MHz)**
Low	2402	0.84456	0.9383
Mid	2441	0.84616	0.9377
High	2480	0.84501	0.9371

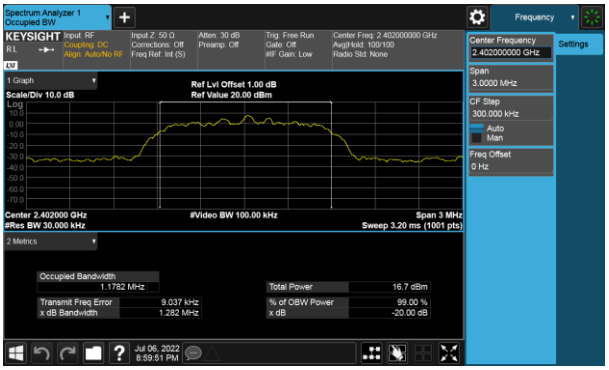
Test mode: π/4-DQPSK_EDR -2Mbps mode / 2402-2480 MHz			
Channel	**Frequency (MHz)**	**OBW(99%) (MHz)**	**20dB BW (MHz)**
Low	2402	1.1750	1.282
Mid	2441	1.1722	1.281
High	2480	1.1760	1.284

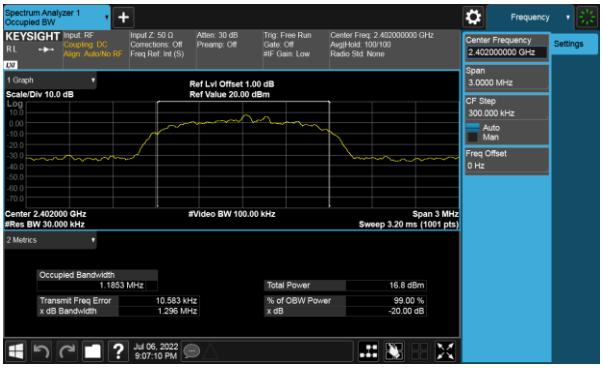
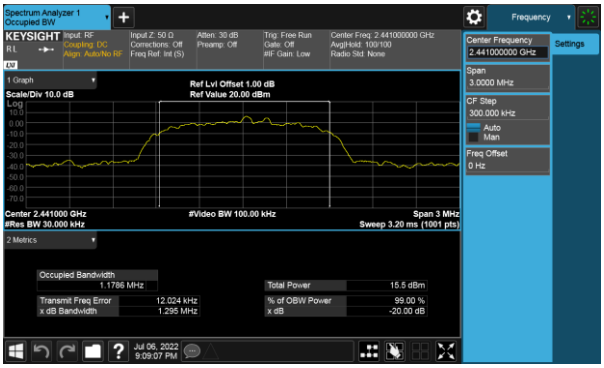
Test mode: 8DPSK_EDR-3Mbps mode / 2402-2480 MHz			
Channel	**Frequency (MHz)**	**OBW(99%) (MHz)**	**20dB BW (MHz)**
Low	2402	1.1819	1.296
Mid	2441	1.1772	1.295
High	2480	1.1833	1.296

Test Data

20dB BANDWIDTH

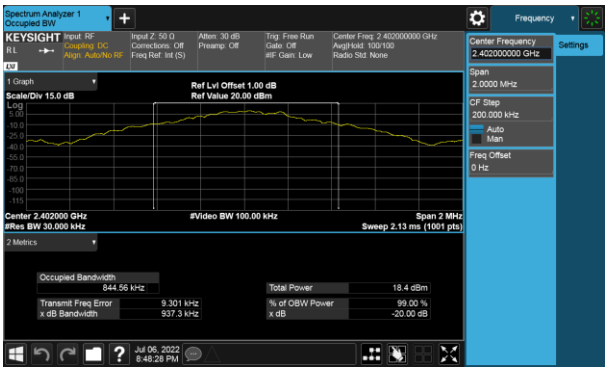
GFSK_BDR-1Mbps mode	
Low CH	**Mid CH**
	
High CH	
	

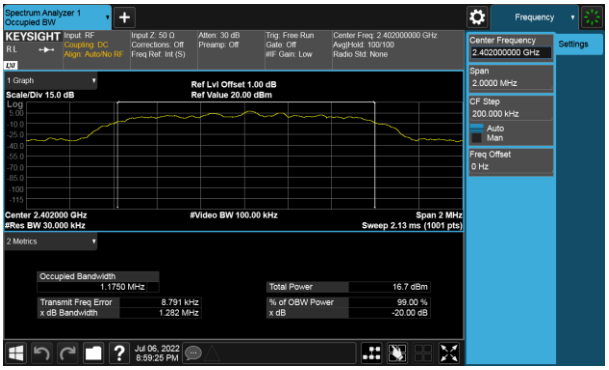
π/4-DQPSK_EDR -2Mbps mode	
Low CH	**Mid CH**
	
High CH	
	

8DPSK_EDR-3Mbps mode	
Low CH	**Mid CH**
	
High CH	
	

Test Data

BANDWIDTH 99%

GFSK_BDR-1Mbps mode	
Low CH	**Mid CH**
	
High CH	
	

π/4-DQPSK_EDR -2Mbps mode	
Low CH	**Mid CH**
	
High CH	
	

8DPSK_EDR-3Mbps mode	
Low CH	**Mid CH**
	
High CH	
	

4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

According to §15.247(a)(1) and RSS-247 section 5.4(b)

Peak output power：

FCC

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

IC

According to RSS-247 section 5.4(b), For FHSs operating in the band 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1.0 W if the hopset uses 75 or more hopping channels; the maximum peak conducted output power shall not exceed 0.125 W if the hopset uses less than 75 hopping channels. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).

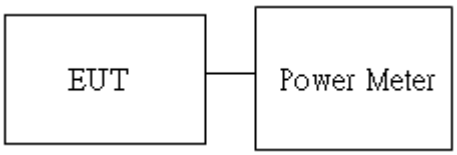
Limit	☒ Antenna not exceed 6 dBi：21dBm ☐ Antenna with DG greater than 6 dBi：21dBm [Limit = 30 – (DG – 6)]

Average output power：For reporting purposes only.

4.3.2 Test Procedure

1. The EUT RF output connected to the power meter by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Peak output power and Average output power. in the test report.

4.3.3 Test Setup



4.3.4 Test Result

Temperature:	23.4~26.5℃	**Test date:**	July 6~14, 2022
Humidity:	48~55% RH	**Tested by:**	David Li

Peak output power：

1M BR mode (Peak):

CH	Freq. (MHz)	Power set	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	9	**10.95**	12.445	125
Mid	2441	9	10.11	10.257	125
High	2480	9	10.89	12.274	125

2M EDR mode (Peak):

CH	Freq. (MHz)	Power set	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	9	**10.53**	11.298	125
Mid	2441	9	9.53	8.974	125
High	2480	9	10.51	11.246	125

3M EDR mode (Peak):

CH	Freq. (MHz)	Power set	Peak Output Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	9	**10.73**	11.830	125
Mid	2441	9	9.88	9.727	125
High	2480	9	10.69	11.722	125

Average output power：

1M BR mode (Average):

CH	Freq. (MHz)	Power set	Max. Avg.Output include tune up tolerance Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	9	10.84	12.120	125
Mid	2441	9	10.03	10.058	125
High	2480	9	10.81	12.037	125

2M EDR mode (Average):

CH	Freq. (MHz)	Power set	Max. Avg.Output include tune up tolerance Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	9	8.67	7.354	125
Mid	2441	9	7.28	5.340	125
High	2480	9	8.63	7.286	125

3M EDR mode (Average):

CH	Freq. (MHz)	Power set	Max. Avg.Output include tune up tolerance Power (dBm)	Output Power (mW)	Limit (mW)
Low	2402	9	8.75	7.490	125
Mid	2441	9	7.39	5.477	125
High	2480	9	8.73	7.456	125

***Note: Max. Output include tune up tolerance Power measured by using average detector.**

EIRP power：

1M BR mode EIRP

Channel	Frequency (MHz)	Power set	Max. Avg. Output include tune up tolerance Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	Limit (mW)
Low	2402	9	10.84	4.20	31.879	4000
Mid	2441	9	10.03	4.20	26.455	4000
High	2480	9	10.81	4.20	31.660	4000

2M EDR mode EIRP

Channel	Frequency (MHz)	Power set	Max. Avg.Output include tune up tolerance Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	Limit (mW)
Low	2402	9	8.67	4.20	19.342	4000
Mid	2441	9	7.28	4.20	14.045	4000
High	2480	9	8.63	4.20	19.165	4000

3M EDR mode EIRP

Channel	Frequency (MHz)	Power set	Max. Avg.Output include tune up tolerance Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	Limit (mW)
Low	2402	9	8.75	4.20	19.702	4000
Mid	2441	9	7.39	4.20	14.405	4000
High	2480	9	8.73	4.20	19.611	4000

*** Note: EIRP = Average Power + Gain**

4.4 FREQUENCY SEPARATION

4.4.1 Test Limit

According to §15.247(a)(1) and RSS-247 section 5.1(b)

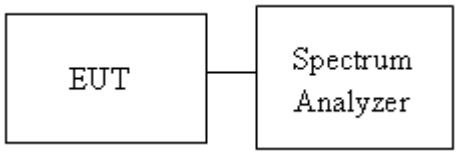
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than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

Limit	> two-thirds of the 20 dB bandwidth

4.4.2 Test Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. EUT RF output port connected to the SA by RF cable.
3. Set the spectrum analyzer as RBW = 300kHz, VBW = 300kHz, Sweep = auto. Max hold, mark 3 peaks of hopping channel and record the 3 peaks frequency

4.4.3 Test Setup



4.4.4 Test Result

Temperature: 23.4~26.5℃ **Test date:** July 6~14, 2022

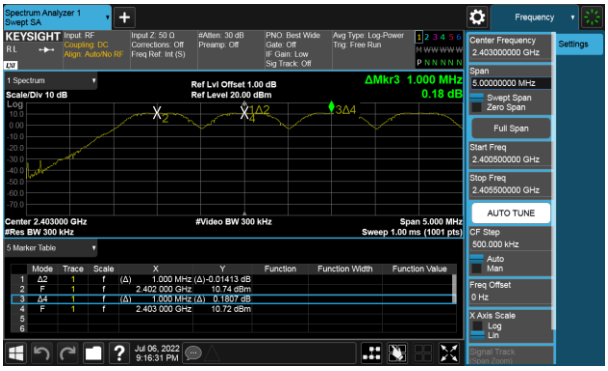
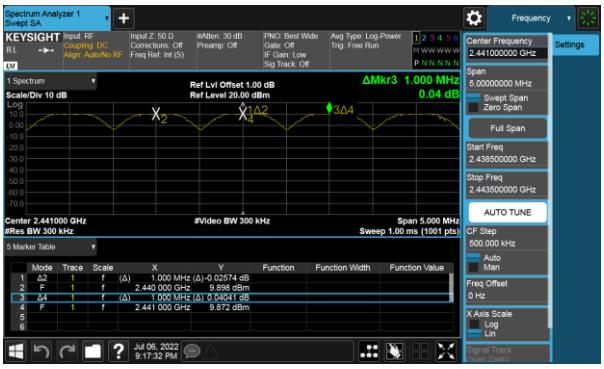
Humidity: 48~55% RH **Tested by:** David Li

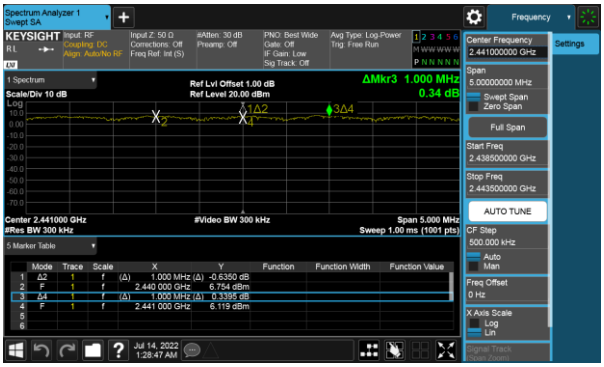
Test mode: GFSK_BDR-1Mbps mode / 2402-2480 MHz				
Channel	**Frequency (MHz)**	**Channel Separation (MHz)**	**Channel Separation Limits (MHz)**	**Result**
Low	2402	1.000	0.63	PASS
Mid	2441	1.000	0.63	PASS
High	2480	1.000	0.62	PASS

Test mode: π/4-DQPSK_EDR -2Mbps mode / 2402-2480 MHz				
Channel	**Frequency (MHz)**	**Channel Separation (MHz)**	**Channel Separation Limits (MHz)**	**Result**
Low	2402	1.000	0.85	PASS
Mid	2441	1.000	0.85	PASS
High	2480	1.000	0.86	PASS

Test mode: 8DPSK_EDR-3Mbps mode / 2402-2480 MHz				
Channel	**Frequency (MHz)**	**Channel Separation (MHz)**	**Channel Separation Limits (MHz)**	**Result**
Low	2402	1.000	0.86	PASS
Mid	2441	1.000	0.86	PASS
High	2480	1.000	0.86	PASS

Test Data

GFSK_BDR-1Mbps mode	
Low CH	**Mid CH**
	
High CH	
	

π/4-DQPSK_EDR -2Mbps mode	
Low CH	**Mid CH**
	
High CH	
	

8DPSK_EDR-3Mbps mode	
Low CH	**Mid CH**
	
High CH	
	

4.5 NUMBER OF HOPPING

4.5.1 Test Limit

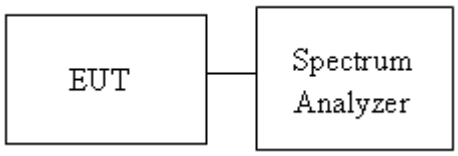
According to §15.247(a)(1)(iii) and RSS-247 section 5.1(d)

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

4.5.2 Test Procedure

Test method Refer as ANSI C63.10: 2013 clause 7.8.3
1. Place the EUT on the table and set it in transmitting mode.
2. EUT RF output port connected to the SA by RF cable.
3. Set spectrum analyzer Start Freq. = 2400 MHz, Stop Freq. = 2441 MHz for Low range, Start Freq. = 2441 MHz, Stop Freq. = 2483.5 MHz for High range ; RBW=430KHz, VBW = 1.5MHz.
4. Max hold, view and count how many channel in the band.

4.5.3 Test Setup

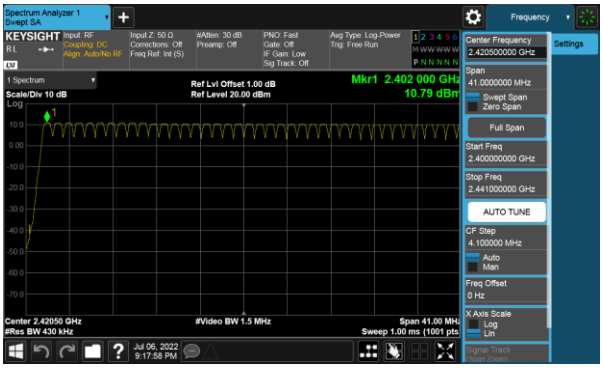
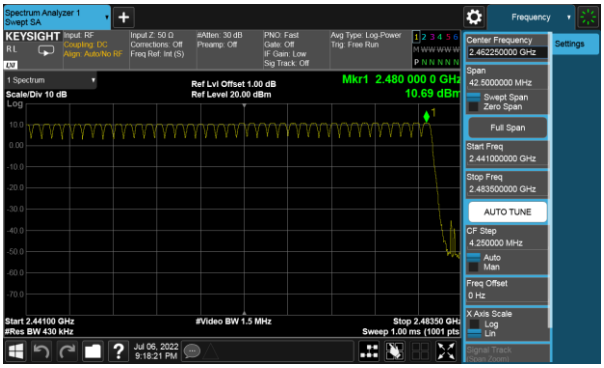
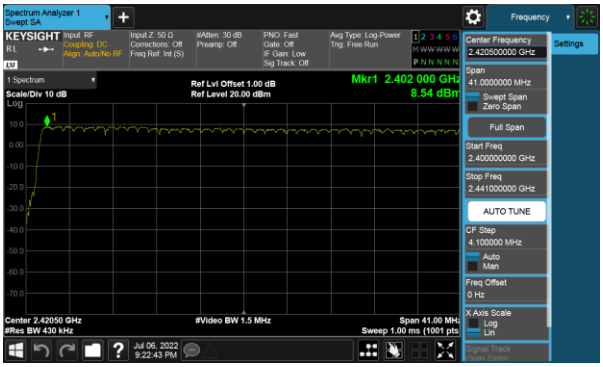
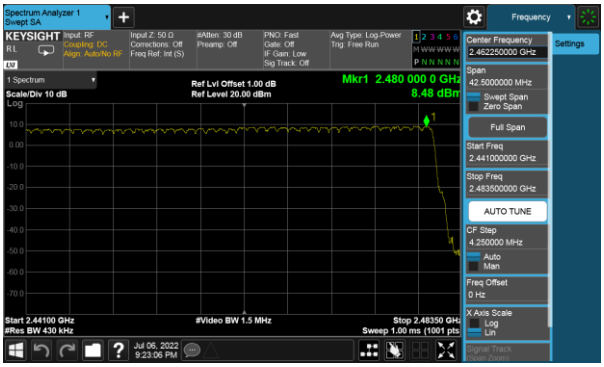


4.5.4 Test Result

Temperature:	23.4~26.5℃	**Test date:**	July 6~14, 2022
Humidity:	48~55% RH	**Tested by:**	David Li

Number of Hopping				
Mode	**Frequency (MHz)**	**Hopping Channel Number**	**Hopping Channel Number Limits**	**Result**
BDR-1Mbps	2402-2480	79	15	Pass
EDR-3Mbps	2402-2480	79	15	

Test Data

Number of Hopping	
GFSK_BDR-1Mbps mode	
Low	High
	
8DPSK_EDR-3Mbps mode	
Low	High
	

4.6 CONDUCTED BANDEDGE AND SPURIOUS EMISSION

4.6.1 Test Limit

According to §15.247(d) and RSS-247 section 5.5

Limit	-20 dBc

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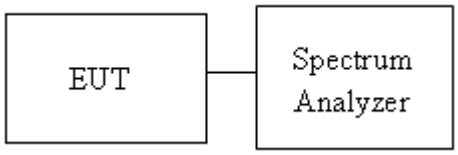
4.6.2 Test Procedure

1. EUT RF output port connected to the SA by RF cable, and the path loss was compensated to result.

2. SA setting, RBW=100kHz, VBW=300kHz, Detector=Peak, Trace mode = max hold, SWT = Auto.

3. The Band Edge at 2.4GHz and 2.4835GHz are investigated with both hopping “ON” and “OFF” modes “.

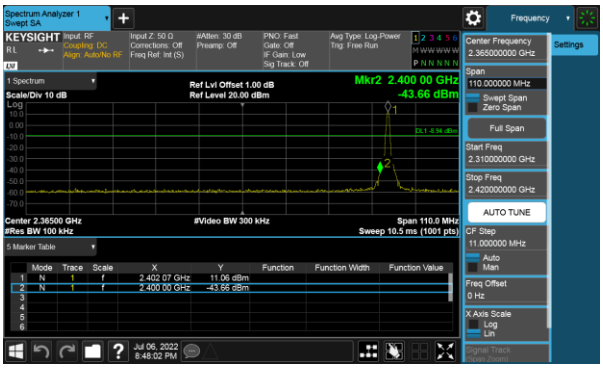
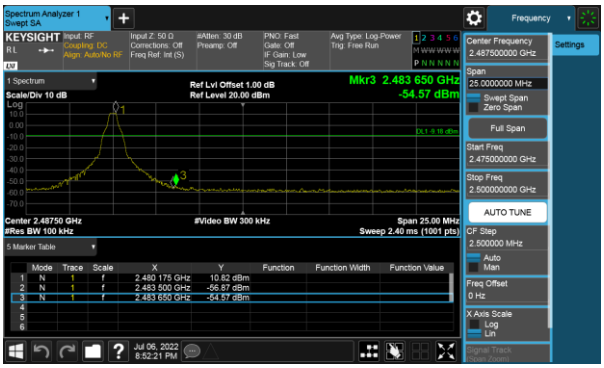
4.6.3 Test Setup

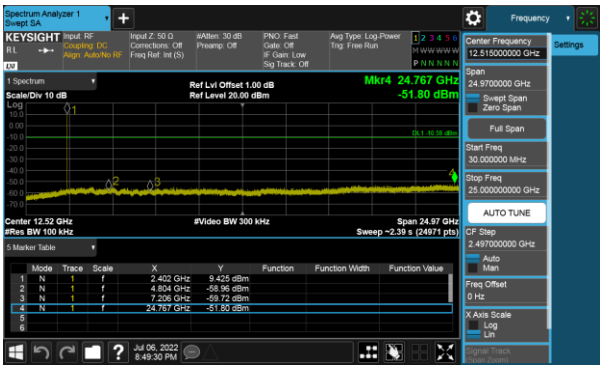
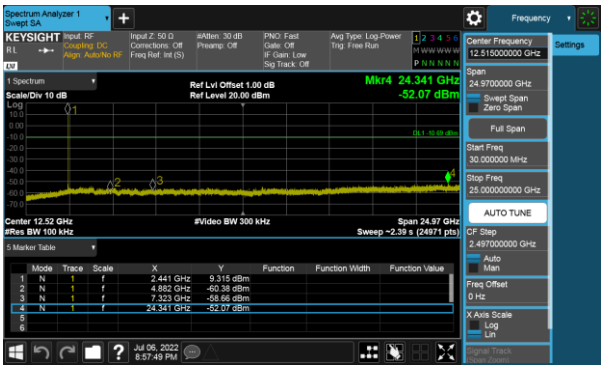


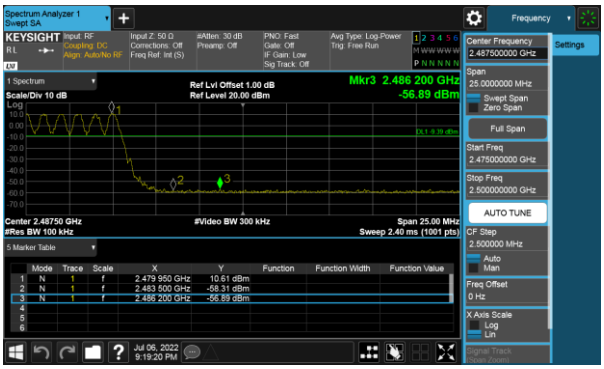
4.6.4 Test Result

Temperature:	23.4~26.5℃	**Test date:**	July 6~14, 2022
Humidity:	48~55% RH	**Tested by:**	David Li

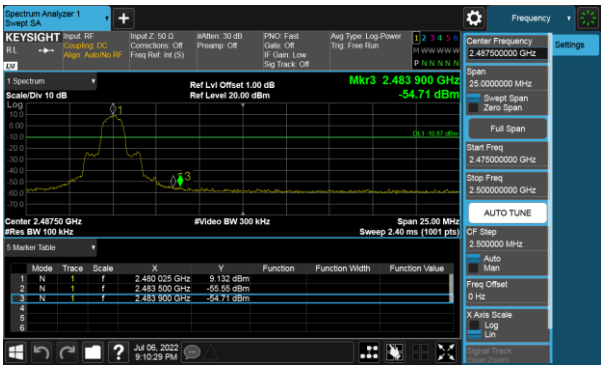
Test Data

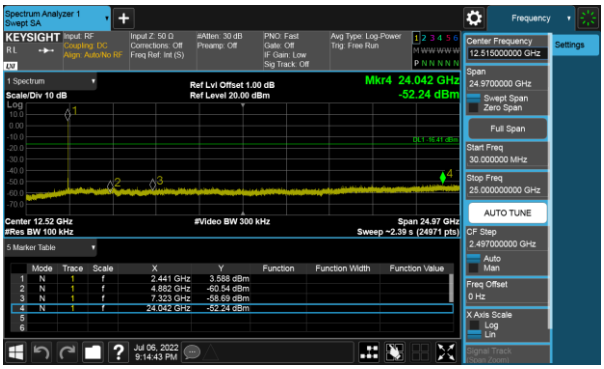
GFSK_BDR-1Mbps mode Band Edge	
Low CH	**High CH**
	

GFSK_BDR-1Mbps mode Spurious Emission 30MHz-25GHz	
Low CH	**Mid CH**
	
High CH	
	

GFSK_BDR-1Mbps Hopping mode	
Low Band Edge	**High Band Edge**
	

π/4-DQPSK _EDR-2Mbps mode Spurious Emission 30MHz-25GHz	
Low CH	**Mid CH**
	
High CH	
	

8DPSK_EDR-3Mbps mode Band Edge	
Low CH	**High CH**
	

8DPSK_EDR-3Mbps mode Spurious Emission 30MHz-25GHz	
Low CH	**Mid CH**
	
High CH	
	

8DPSK_EDR-3Mbps mode Hopping mode	
Low Band Edge	**High Band Edge**
	

4.7 TIME OF OCCUPANCY (DWELL TIME)

4.7.1 Test Limit

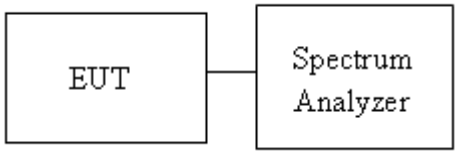
According to §15.247(a)(1)(iii)and RSS-247 section 5.1(d)

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

4.7.2 Test Procedure

1. EUT RF output port connected to the SA by RF cable.
2. Set center frequency of spectrum analyzer = operating frequency.
3. Set the spectrum analyzer as RBW, VBW=1MHz, Sweep = 1 ms

4.7.3 Test Setup



4.7.4 Test Result

Temperature:	23.4~26.5℃	**Test date:**	July 6~14, 2022
Humidity:	48~55% RH	**Tested by:**	David Li

For GFSK (1Mbps)

Channel	PACKET TYPE	Measurement Result (ms)	Limit (ms)
Mid	DH1	123.20	400ms
	DH3	260.80	400ms
	DH5	307.20	400ms

CH Mid	DH1 time slot	=	0.385 *	(1600/2/79)	*	31.6	=	123.20 (ms)
	DH3 time slot	=	1.630 *	(1600/4/79)	*	31.6	=	260.80 (ms)
	DH5 time slot	=	2.880 *	(1600/6/79)	*	31.6	=	307.20 (ms)

For π/4 DQPSK (2Mbps)

Channel	PACKET TYPE	Measurement Result (ms)	Limit (ms)
Mid	2DH1	123.20	400ms
	2DH3	262.40	400ms
	2DH5	307.20	400ms

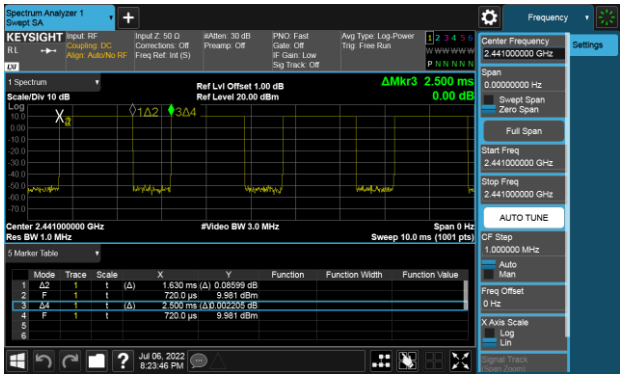
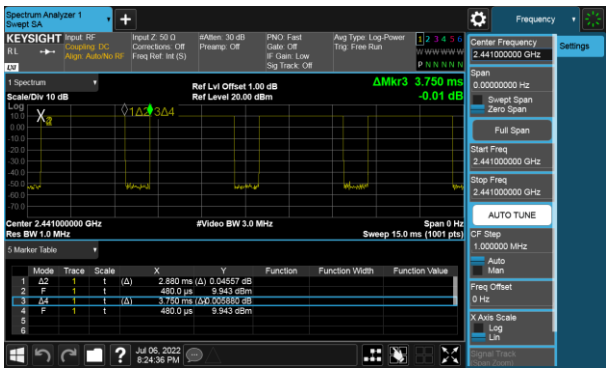
CH Mid	2DH1 time slot	=	0.385 *	(1600/2/79)	*	31.6	=	123.20 (ms)
	2DH3 time slot	=	1.640 *	(1600/4/79)	*	31.6	=	262.40 (ms)
	2DH5 time slot	=	2.880 *	(1600/6/79)	*	31.6	=	307.20 (ms)

For 8-DPSK (3Mbps)

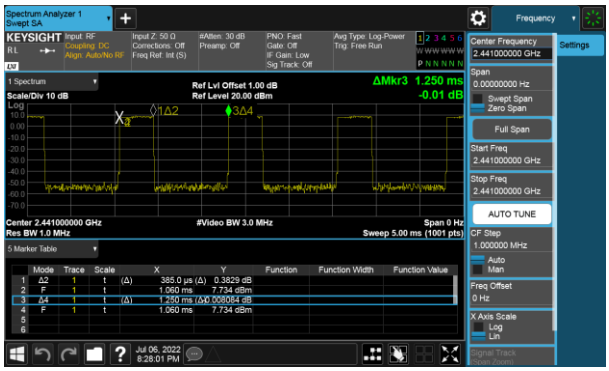
Channel	PACKET TYPE	Measurement Result (ms)	Limit (ms)
Mid	3DH1	124.80	400ms
	3DH3	262.40	400ms
	3DH5	307.20	400ms

CH Mid	3DH1 time slot	=	0.390 *	(1600/2/79)	*	31.6	=	124.80 (ms)
	3DH3 time slot	=	1.640 *	(1600/4/79)	*	31.6	=	262.40 (ms)
	3DH5 time slot	=	2.880 *	(1600/6/79)	*	31.6	=	307.20 (ms)

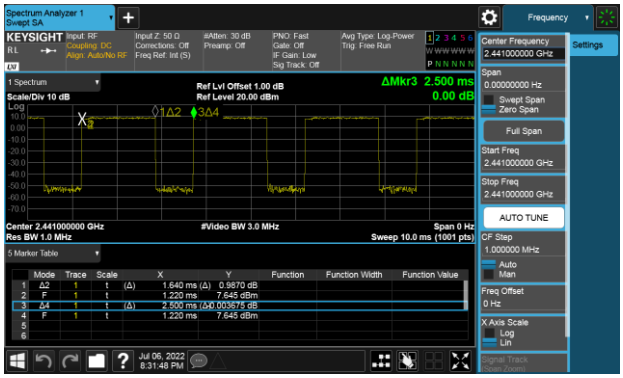
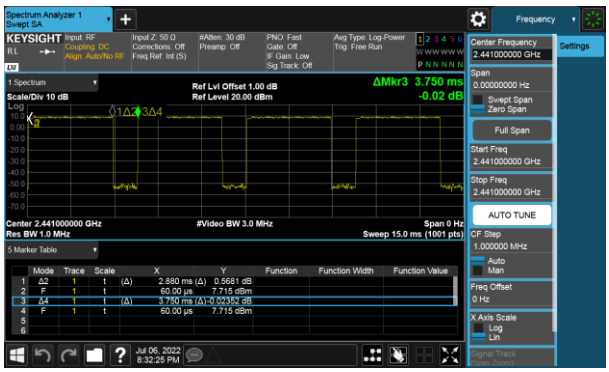
For GFSK (1Mbps)

DH1	DH3
	
DH5	
	

For π/4 DQPSK (2Mbps)

2DH1	2DH3
	
2DH5	
	

For 8-DPSK (3Mbps)

3DH1	3DH3
	
3DH5	
	

4.8 RADIATION BANDEDGE AND SPURIOUS EMISSION

4.8.1 Test Limit

FCC according to §15.247(d), §15.209 and §15.205,

In any 100 kHz bandwidth outside the authorized frequency band, all harmonic and spurious must be least 20 dB below the highest emission level with the authorized frequency band. Radiation emission which fall in the restricted bands must also follow the FCC section 15.209 as below limit in table.

Below 30 MHz

Frequency	Field Strength (microvolts/m)	Magnetic H-Field (microamperes/m)	Measurement Distance (metres)
9-490 kHz	2,400/F (F in kHz)	2,400/F (F in kHz)	300
490-1,705 kHz	24,000/F (F in kHz)	24,000/F (F in kHz)	30
1.705-30 MHz	30	N/A	30

Above 30 MHz

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

Remark:
Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.

IC according to RSS-247 section 5.5, RSS-Gen, Section 8.9 and 8.10

RSS-Gen Table 3 and Table 5 – General Field Strength Limits for Transmitters and Receivers at Frequencies Above 30 MHz (Note)

Frequency (MHz)	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)	
	Transmitters	Receivers
30-88	100 (3 nW)	100 (3 nW)
88-216	150 (6.8 nW)	150 (6.8 nW)
216-960	200 (12 nW)	200 (12 nW)
Above 960	500 (75 nW)	500 (75 nW)

Note: Measurements for compliance with the limits in table 3 may be performed at distances other than 3 metres, in accordance with Section 6.6.

RSS-Gen Table 6: General Field Strength Limits for Transmitters at Frequencies Below 30 MHz (Transmit)

Frequency	Magnetic field strength (H-Field) (µA/m)	Measurement Distance (m)
9-490 kHz Note	6.37/F (F in kHz)	300
490-1,705 kHz	63.7/F (F in kHz)	30
1.705-30 MHz	0.08	30

Note: The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

4.8.2 Test Procedure

1. The EUT is placed on a turntable, Above 1 GHz is 1.5m and below 1 GHz is 0.8m above ground plane. The EUT Configured un accordance with ANSI C63.10: 2013, and the EUT set in a continuous mode.

2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. And EUT is set 3m away from the receiving antenna, which is scanned from 1m to 4m above the ground plane to find out the highest emissions. Measurement are made polarized in both the vertical and the horizontal positions with antenna.

3. Span shall wide enough to full capture the emission measured. The SA from 9kHz to 26.5GHz set to the low, Mid and High channels with the EUT transmit.

Note: No emission found between lowest internal used/generated frequency to 30MHz(9KHz~30MHz)

4. For harmonic, the worst case of output power was BDR-1Mbps. Therefore only BDR-1Mbps record in the report.

5. The SA setting following：

(1) Below 1G：RBW = 100kHz, VBW ≥ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.

(2) Above 1G：

(2.1) For Peak measurement：RBW = 1MHz, VBW ≥ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.

(2.2) For Average measurement：RBW = 1MHz, VBW

˙If Duty Cycle ≥ 98%, VBW=10Hz.

˙If Duty Cycle < 98%, VBW≥1/T.

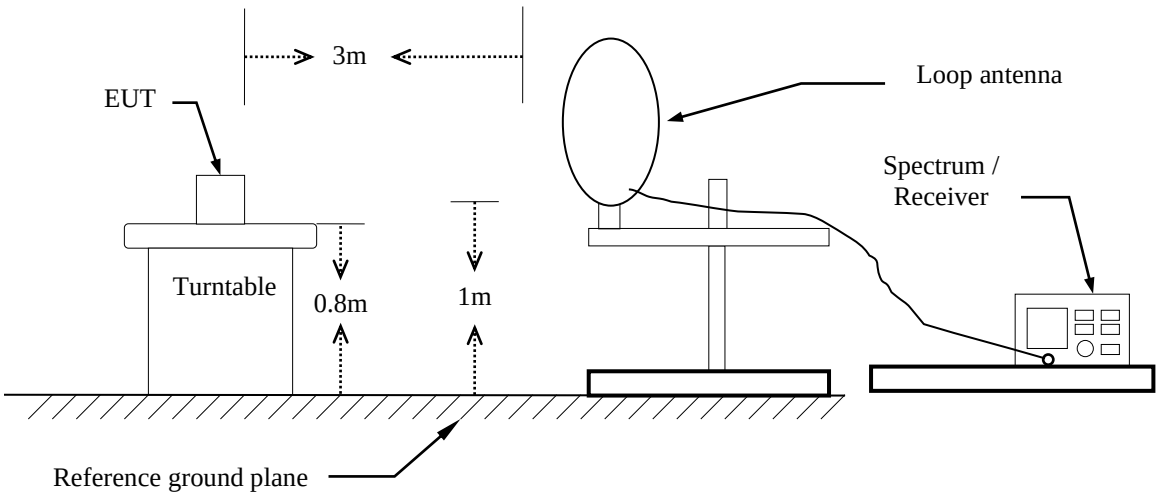
6. Data result

Actual FS=Spectrum Reading Level + Factor

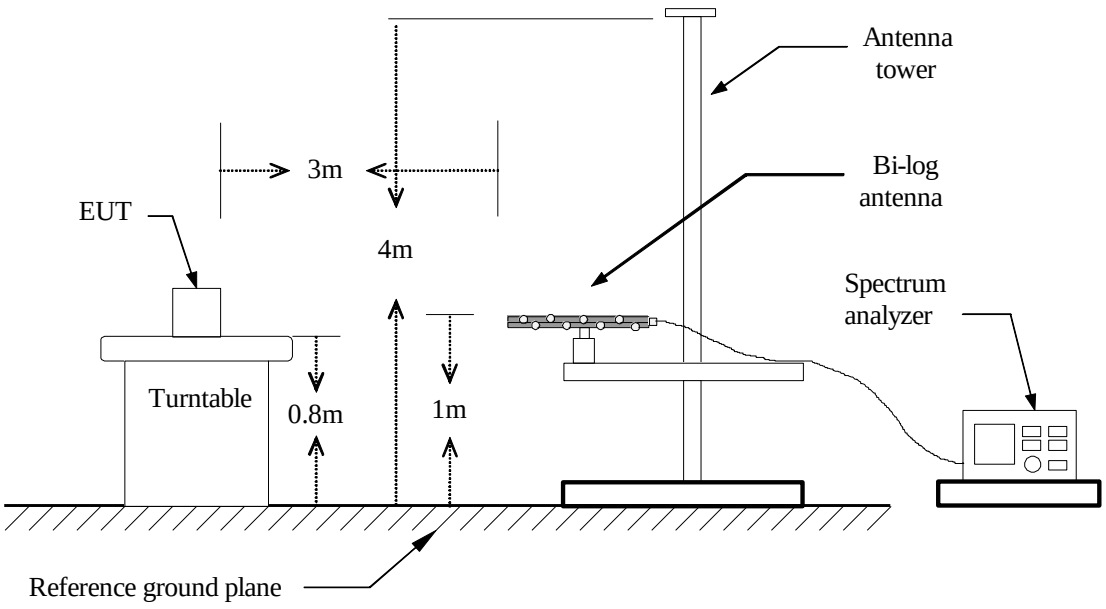
Margin=Actual FS- Limit

4.8.3 Test Setup

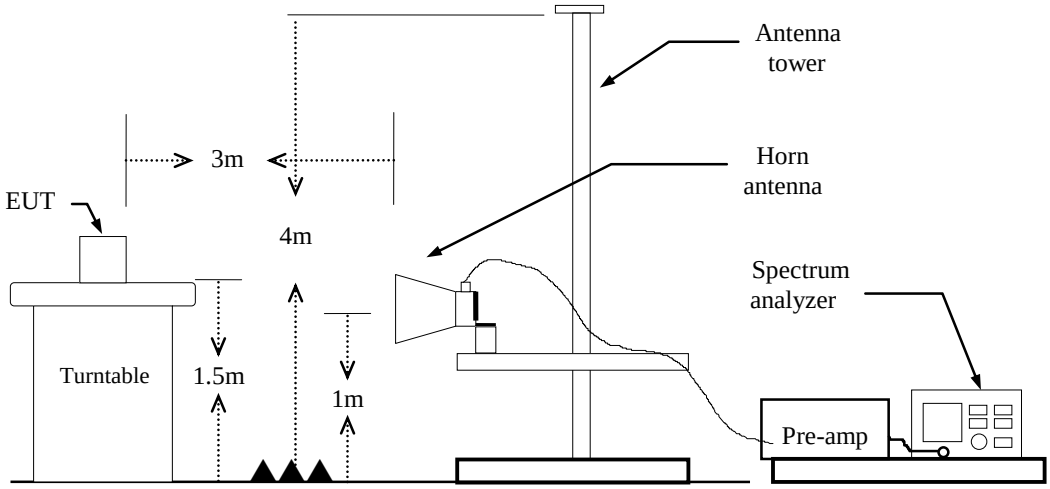
9kHz ~ 30MHz



30MHz ~ 1GHz



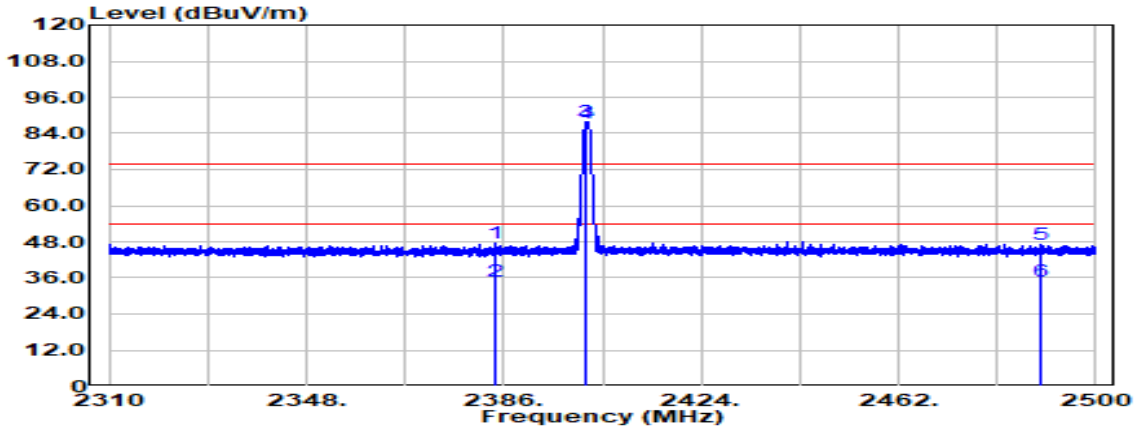
Above 1 GHz



4.8.4 Test Result

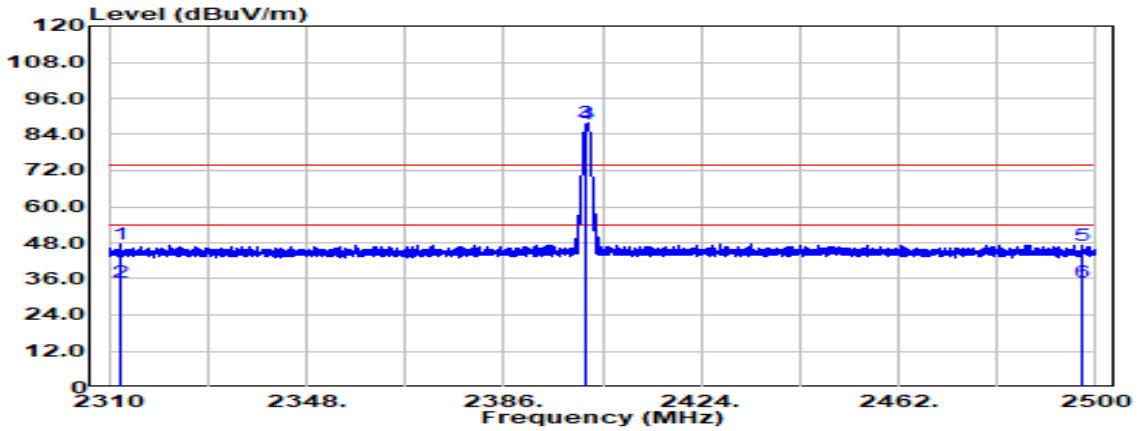
Band Edge Test Data

Test Mode:	GFSK_BDR-1Mbps Low CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Band Edge	Test Date	July 11, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		



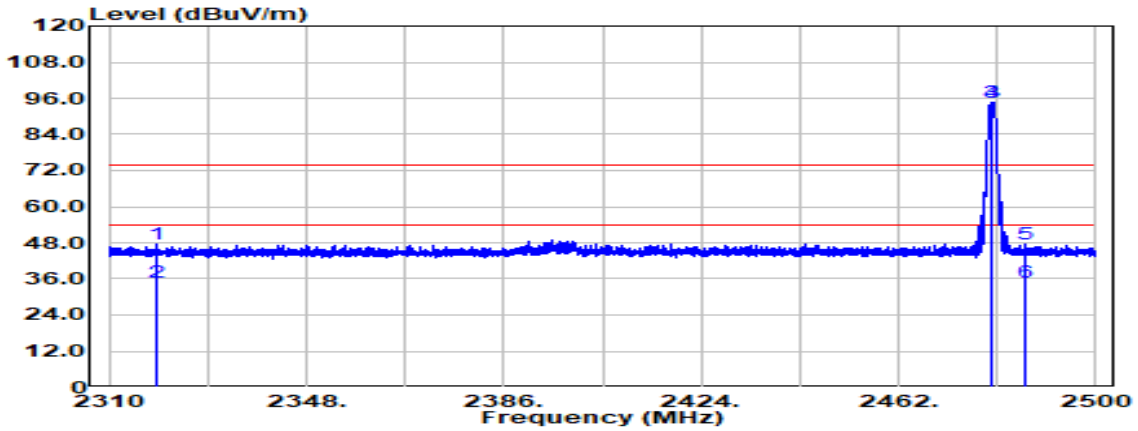
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
2384.518	Peak	39.64	7.74	47.38	74.00	-26.62
2384.518	Average	27.07	7.74	34.81	54.00	-19.19
2402.000	Peak	80.20	7.79	87.99	- -	- -
2402.000	Average	79.70	7.79	87.49	- -	- -
2489.246	Peak	38.63	8.29	46.92	74.00	-27.08
2489.246	Average	26.54	8.29	34.83	54.00	-19.17

Test Mode:	GFSK_BDR-1Mbps Low CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Band Edge	Test Date	July 11, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		



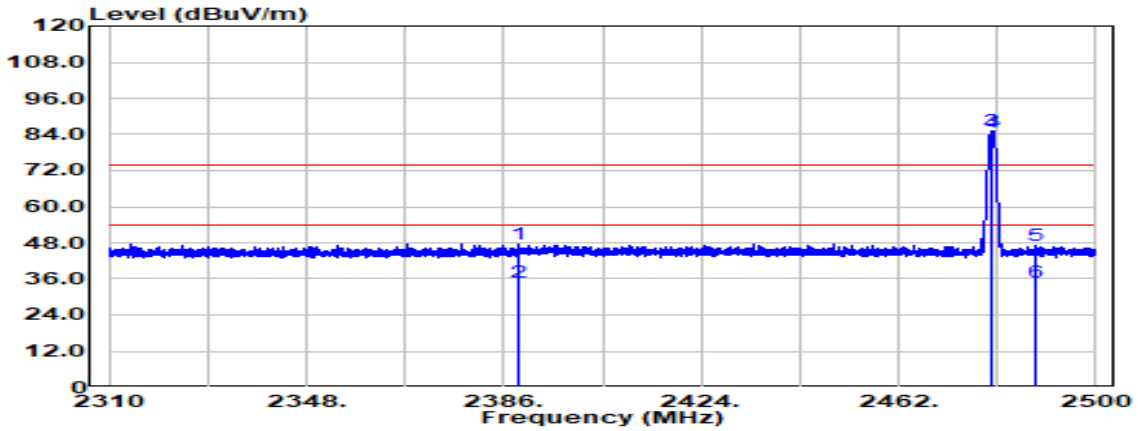
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
2312.318	Peak	39.83	7.58	47.41	74.00	-26.59
2312.318	Average	27.30	7.58	34.88	54.00	-19.12
2402.000	Peak	79.83	7.79	87.63	- -	- -
2402.000	Average	79.45	7.79	87.24	- -	- -
2497.530	Peak	38.76	8.33	47.09	74.00	-26.91
2497.530	Average	26.60	8.33	34.93	54.00	-19.07

Test Mode:	GFSK_BDR-1Mbps High CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Band Edge	Test Date	July 11, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		



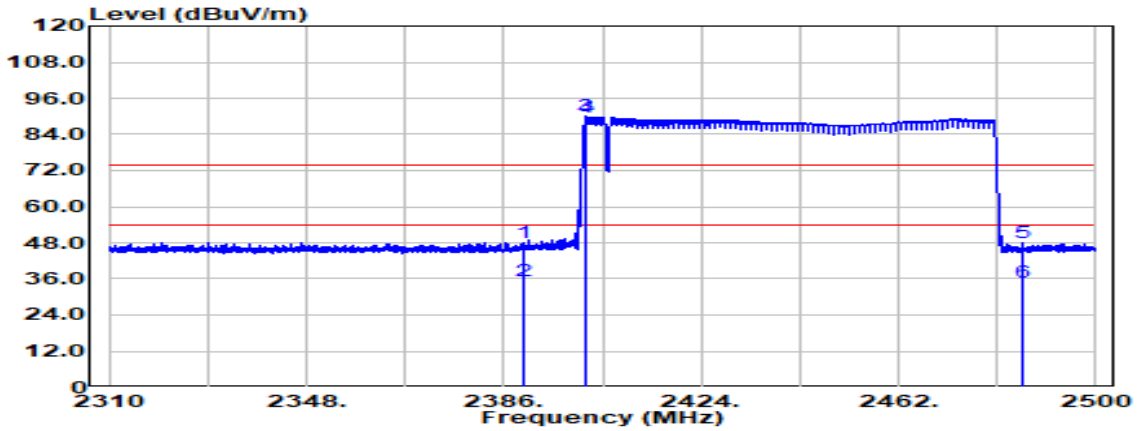
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
2318.968	Peak	39.77	7.59	47.36	74.00	-26.64
2318.968	Average	27.34	7.59	34.93	54.00	-19.07
2480.000	Peak	86.54	8.24	94.79	- -	- -
2480.000	Average	86.21	8.24	94.45	- -	- -
2486.624	Peak	39.27	8.28	47.54	74.00	-26.46
2486.624	Average	26.59	8.28	34.87	54.00	-19.13

Test Mode:	GFSK_BDR-1Mbps High CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Band Edge	Test Date	July 11, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		



Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
2388.850	Peak	40.00	7.75	47.75	74.00	-26.25
2388.850	Average	27.26	7.75	35.01	54.00	-18.99
2480.000	Peak	76.73	8.24	84.97	- -	- -
2480.000	Average	76.22	8.24	84.47	- -	- -
2488.600	Peak	38.70	8.29	46.98	74.00	-27.02
2488.600	Average	26.60	8.29	34.89	54.00	-19.11

Test Mode:	GFSK_BDR-1Mbps Hopping	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Band Edge	Test Date	July 11, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		

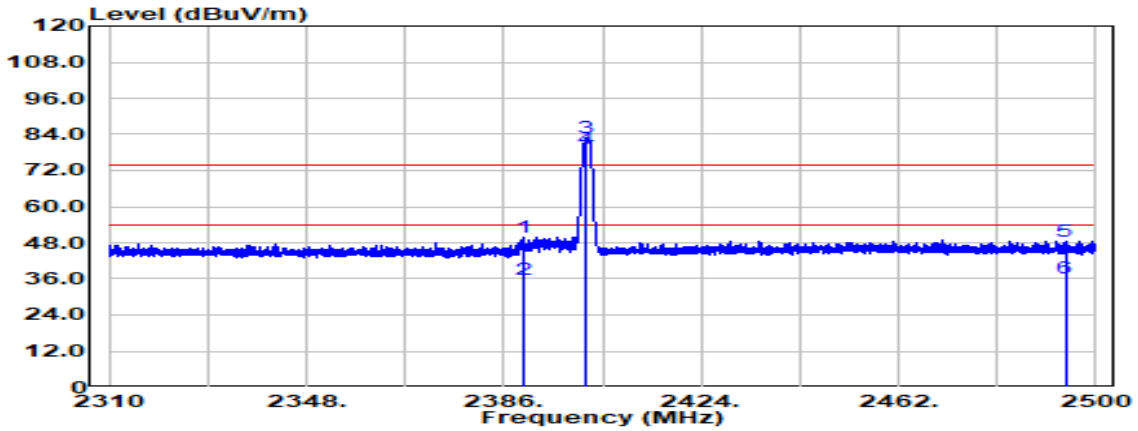


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
2389.838	Peak	40.47	7.75	48.22	74.00	-25.78
2389.838	Average	27.40	7.75	35.15	54.00	-18.85
2401.884	Peak	82.10	7.79	89.89	- -	- -
2401.884	Average	81.78	7.79	89.57	- -	- -
2485.902	Peak	39.58	8.27	47.86	74.00	-26.14
2485.902	Average	26.66	8.27	34.94	54.00	-19.06

Test Mode:	GFSK_BDR-1Mbps Hopping	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Band Edge	Test Date	July 11, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		

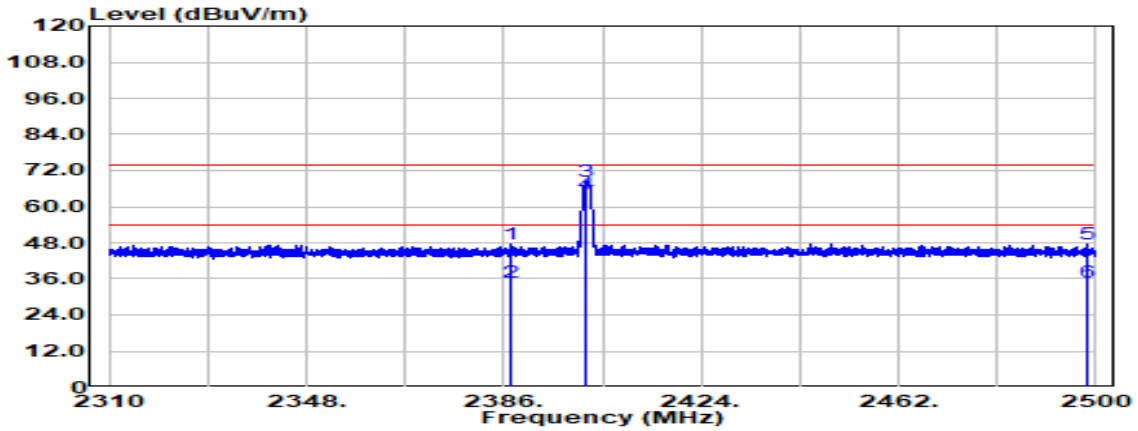
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
2317.866	Peak	40.89	7.59	48.48	74.00	-25.52
2317.866	Average	27.44	7.59	35.03	54.00	-18.97
2401.884	Peak	68.14	7.79	75.93	- -	- -
2401.884	Average	66.69	7.79	74.48	- -	- -
2487.042	Peak	40.07	8.28	48.35	74.00	-25.65
2487.042	Average	26.68	8.28	34.96	54.00	-19.04

Test Mode:	8DPSK_EDR-3Mbps Low CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Band Edge	Test Date	July 11, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		



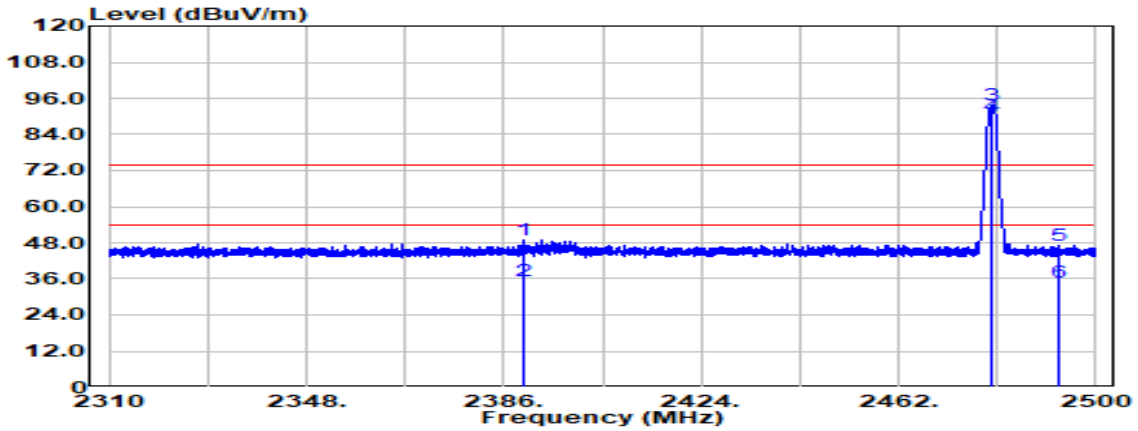
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
2389.610	Peak	42.01	7.75	49.76	74.00	-24.24
2389.610	Average	28.20	7.75	35.95	54.00	-18.05
2402.000	Peak	75.14	7.79	82.94	- -	- -
2402.000	Average	71.51	7.79	79.30	- -	- -
2494.110	Peak	40.31	8.31	48.63	74.00	-25.37
2494.110	Average	28.13	8.31	36.44	54.00	-17.56

Test Mode:	8DPSK_EDR-3Mbps Low CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Band Edge	Test Date	July 11, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		



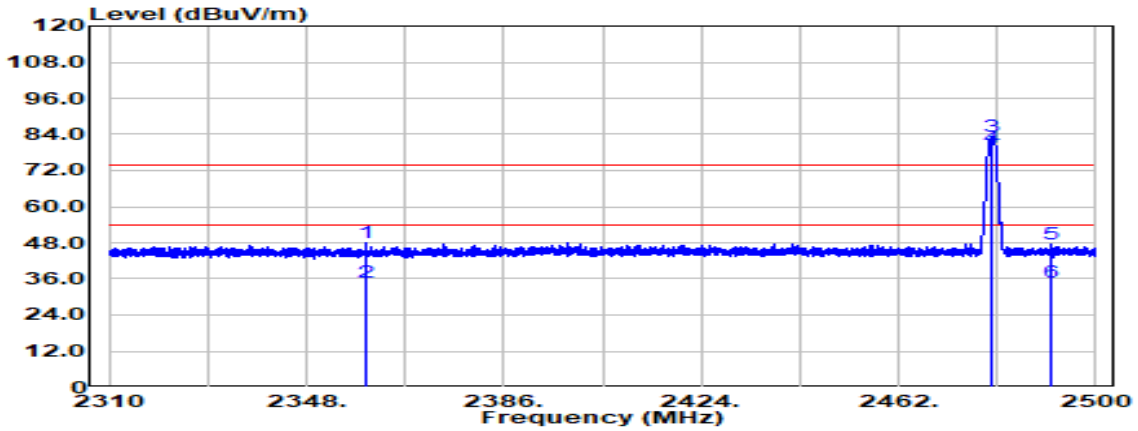
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
2387.292	Peak	39.59	7.74	47.34	74.00	-26.66
2387.292	Average	27.03	7.74	34.77	54.00	-19.23
2402.000	Peak	60.63	7.79	68.43	- -	- -
2402.000	Average	56.65	7.79	64.45	- -	- -
2498.518	Peak	39.36	8.33	47.70	74.00	-26.30
2498.518	Average	26.41	8.33	34.74	54.00	-19.26

Test Mode:	8DPSK_EDR-3Mbps High CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Band Edge	Test Date	July 11, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		



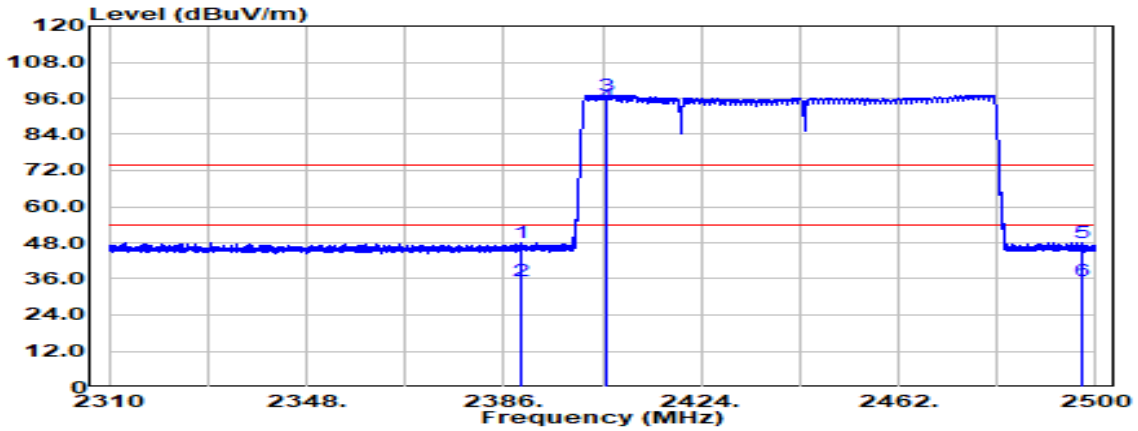
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
2389.686	Peak	41.00	7.75	48.75	74.00	-25.25
2389.686	Average	27.55	7.75	35.30	54.00	-18.70
2480.000	Peak	85.31	8.24	93.55	- -	- -
2480.000	Average	81.84	8.24	90.09	- -	- -
2493.046	Peak	38.91	8.31	47.21	74.00	-26.79
2493.046	Average	26.67	8.31	34.98	54.00	-19.02

Test Mode:	8DPSK_EDR-3Mbps High CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Band Edge	Test Date	July 11, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		



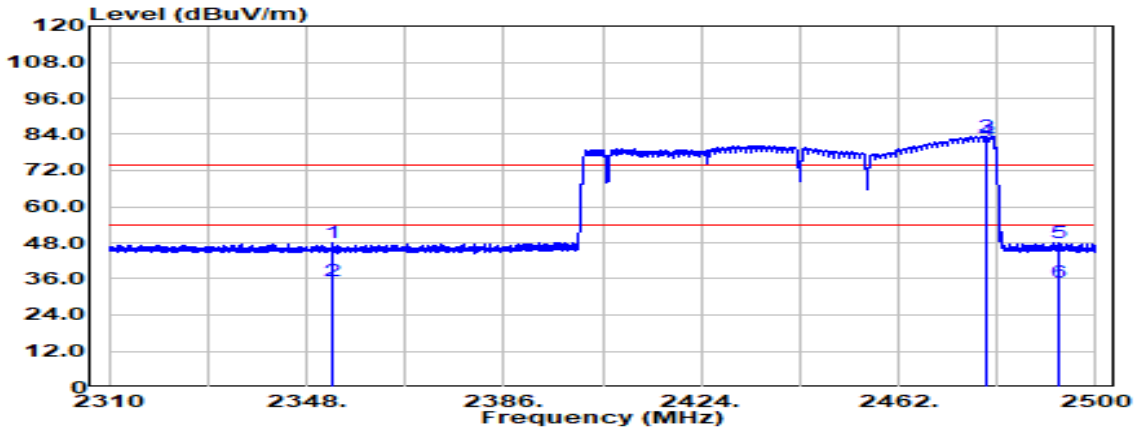
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
2359.400	Peak	40.44	7.67	48.11	74.00	-25.89
2359.400	Average	27.27	7.67	34.94	54.00	-19.06
2480.000	Peak	74.87	8.24	83.12	- -	- -
2480.000	Average	71.49	8.24	79.73	- -	- -
2491.564	Peak	39.39	8.30	47.69	74.00	-26.31
2491.564	Average	26.55	8.30	34.85	54.00	-19.15

Test Mode:	8DPSK_EDR-3Mbps Hopping	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Band Edge	Test Date	July 12, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		



Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
2389.268	Peak	40.20	7.75	47.95	74.00	-26.05
2389.268	Average	27.42	7.75	35.17	54.00	-18.83
2405.912	Peak	89.24	7.82	97.06	- -	- -
2405.912	Average	85.78	7.82	93.60	- -	- -
2497.264	Peak	39.76	8.33	48.09	74.00	-25.91
2497.264	Average	27.10	8.33	35.43	54.00	-18.57

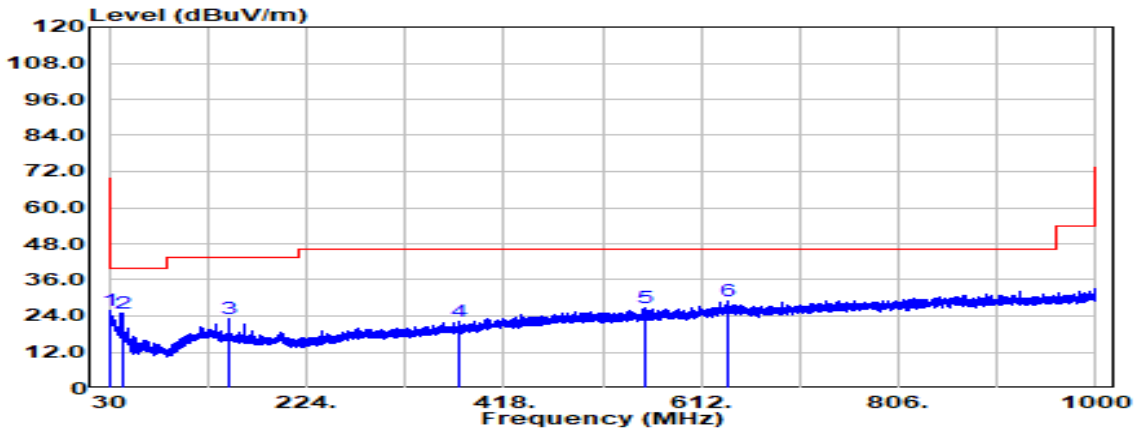
Test Mode:	8DPSK_EDR-3Mbps Hopping	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Band Edge	Test Date	July 12, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		



Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
2352.788	Peak	40.55	7.65	48.19	74.00	-25.81
2352.788	Average	27.50	7.65	35.15	54.00	-18.85
2479.024	Peak	75.12	8.24	83.36	- -	- -
2479.024	Average	73.53	8.24	81.77	- -	- -
2492.970	Peak	39.83	8.31	48.13	74.00	-25.87
2492.970	Average	26.62	8.31	34.93	54.00	-19.07

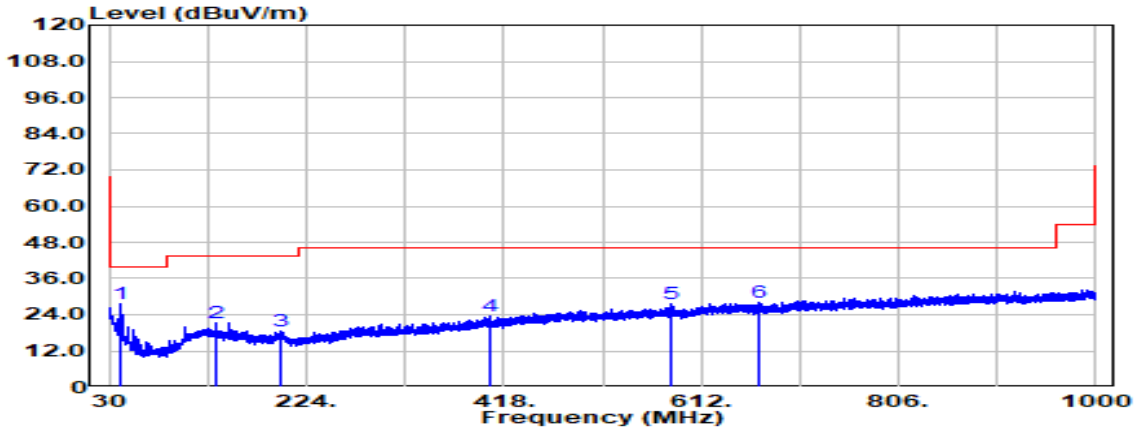
Below 1G Test Data

Test Mode:	GFSK_BDR-1Mbps High CH	Temp/Hum	22.4(℃)/ 60%RH
Test Item	30MHz-1GHz	Test Date	July 12, 2022
Polarize	Vertical	Test Engineer	Tony Chao
Detector	Peak		



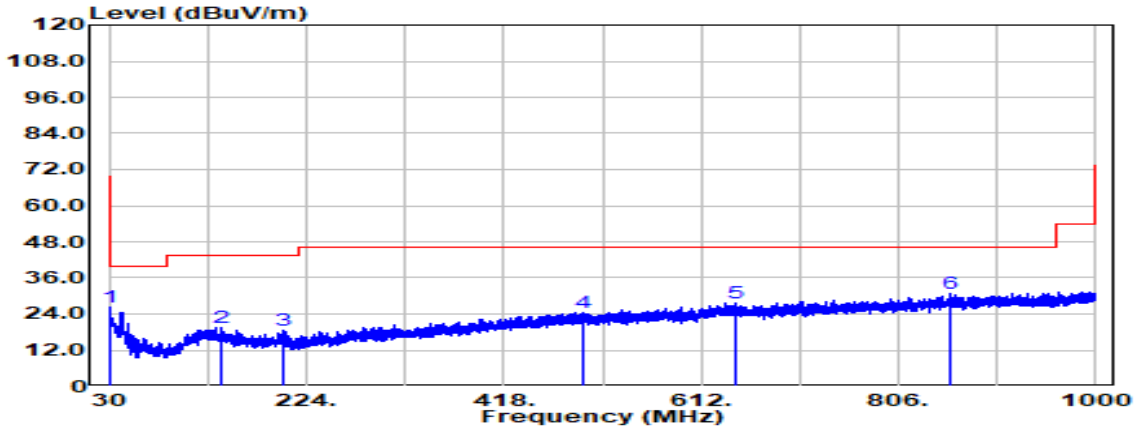
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
31.091	Peak	29.06	-3.40	25.65	40.00	-14.35
42.610	Peak	36.80	-11.74	25.06	40.00	-14.94
147.855	Peak	33.56	-10.64	22.92	43.50	-20.58
374.835	Peak	29.63	-7.29	22.34	46.00	-23.66
555.861	Peak	29.73	-2.85	26.87	46.00	-19.13
637.826	Peak	29.85	-1.07	28.78	46.00	-17.22

Test Mode:	GFSK_BDR-1Mbps High CH	Temp/Hum	22.4(℃)/ 60%RH
Test Item	30MHz-1GHz	Test Date	July 12, 2022
Polarize	Horizontal	Test Engineer	Tony Chao
Detector	Peak		



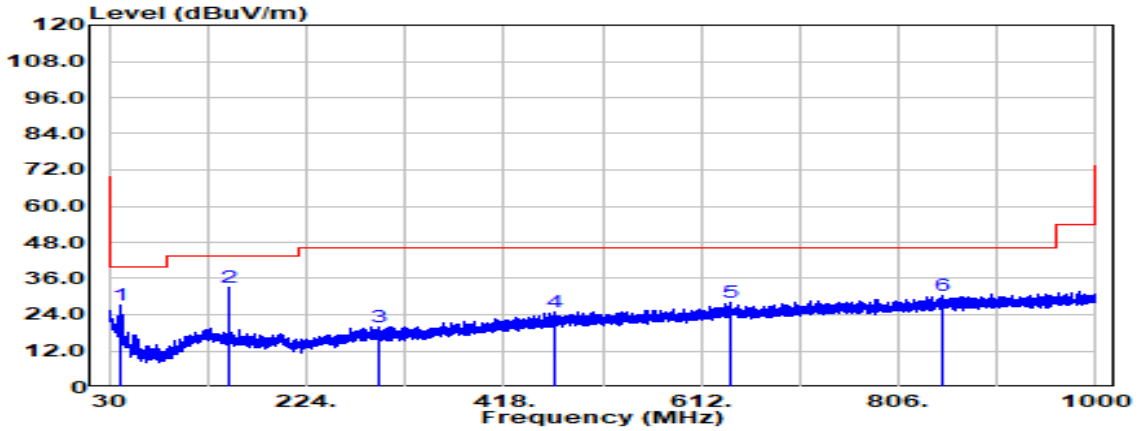
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
40.306	Peak	37.93	-10.26	27.67	40.00	-12.33
134.518	Peak	31.23	-9.79	21.43	43.50	-22.07
199.871	Peak	28.51	-10.01	18.49	43.50	-25.01
404.056	Peak	29.80	-6.14	23.66	46.00	-22.34
582.415	Peak	30.13	-2.68	27.45	46.00	-18.55
669.473	Peak	29.02	-1.07	27.95	46.00	-18.05

Test Mode:	8DPSK_EDR-3Mbps Low CH	Temp/Hum	22.4(℃)/ 60%RH
Test Item	30MHz-1GHz	Test Date	July 12, 2022
Polarize	Vertical	Test Engineer	Tony Chao
Detector	Peak		



Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
30.364	Peak	29.10	-2.94	26.16	40.00	-13.84
139.489	Peak	29.68	-10.25	19.43	43.50	-24.07
200.478	Peak	28.72	-10.19	18.53	43.50	-24.97
494.994	Peak	28.40	-3.86	24.54	46.00	-21.46
646.193	Peak	28.87	-1.08	27.79	46.00	-18.21
857.410	Peak	28.90	1.89	30.79	46.00	-15.21

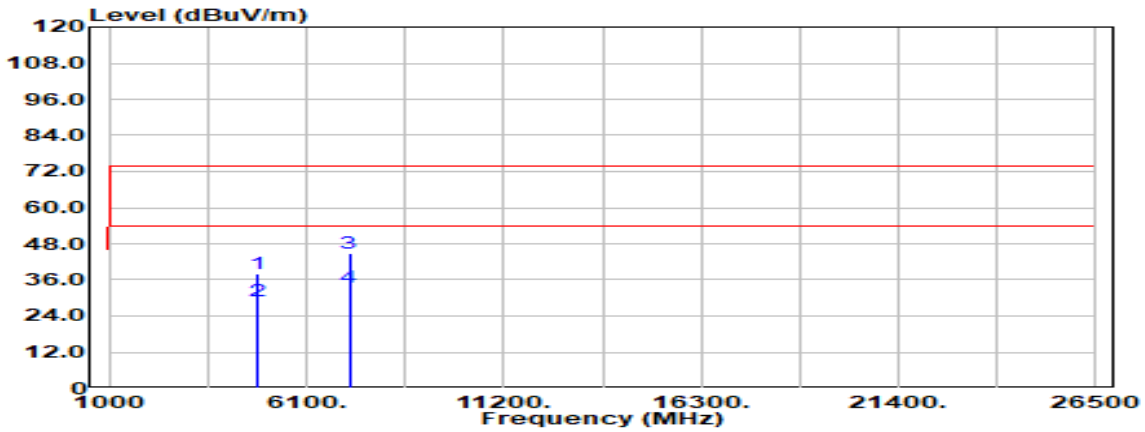
Test Mode:	8DPSK_EDR-3Mbps Low CH	Temp/Hum	22.4(℃)/ 60%RH
Test Item	30MHz-1GHz	Test Date	July 12, 2022
Polarize	Horizontal	Test Engineer	Tony Chao
Detector	Peak		



Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
40.185	Peak	37.43	-10.16	27.28	40.00	-12.72
147.855	Peak	43.86	-10.64	33.22	43.50	-10.28
295.416	Peak	29.02	-9.13	19.89	46.00	-26.11
468.319	Peak	29.09	-4.27	24.83	46.00	-21.17
641.221	Peak	29.35	-1.08	28.27	46.00	-17.73
849.044	Peak	28.82	1.58	30.39	46.00	-15.61

Above 1G Test Data

Test Mode:	GFSK_BDR-1Mbps Low CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Harmonic	Test Date	July 12, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		

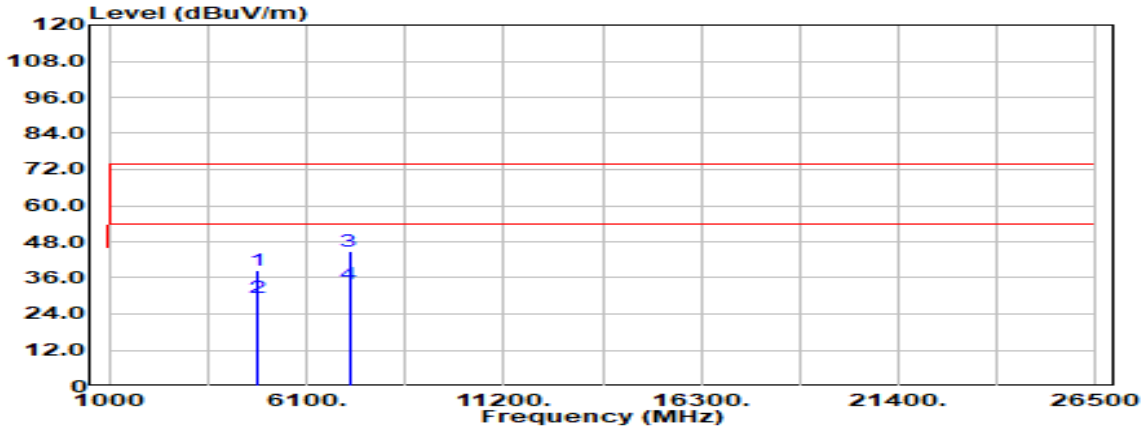


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
4804.000	Peak	32.20	5.87	38.07	74.00	-35.93
4804.000	Average	23.22	5.87	29.09	54.00	-24.91
7206.000	Peak	31.38	13.25	44.63	74.00	-29.37
7206.000	Average	20.48	13.25	33.74	54.00	-20.26
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode:	GFSK_BDR-1Mbps Low CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Harmonic	Test Date	July 12, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		

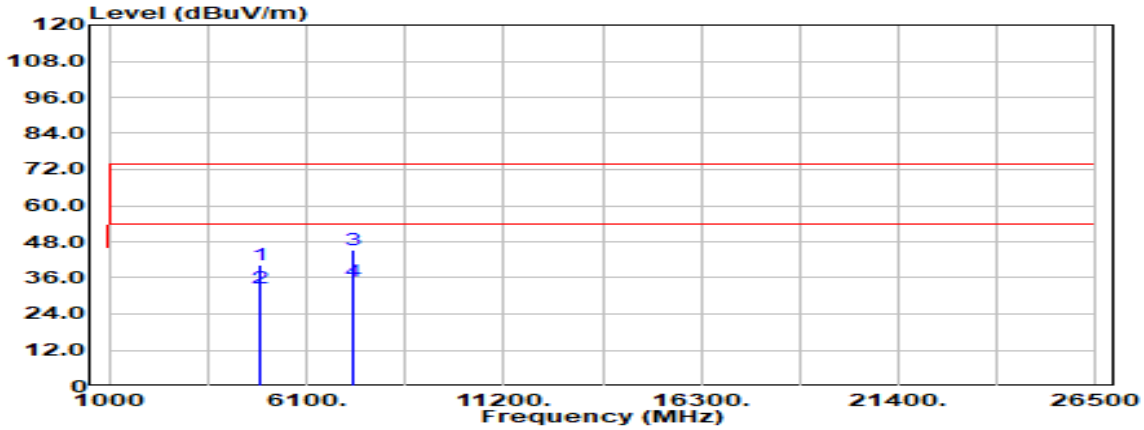


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
4804.000	Peak	32.73	5.87	38.59	74.00	-35.41
4804.000	Average	23.45	5.87	29.32	54.00	-24.68
7206.000	Peak	31.68	13.25	44.93	74.00	-29.07
7206.000	Average	20.61	13.25	33.86	54.00	-20.14
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode:	GFSK_BDR-1Mbps Mid CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Harmonic	Test Date	July 12, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		

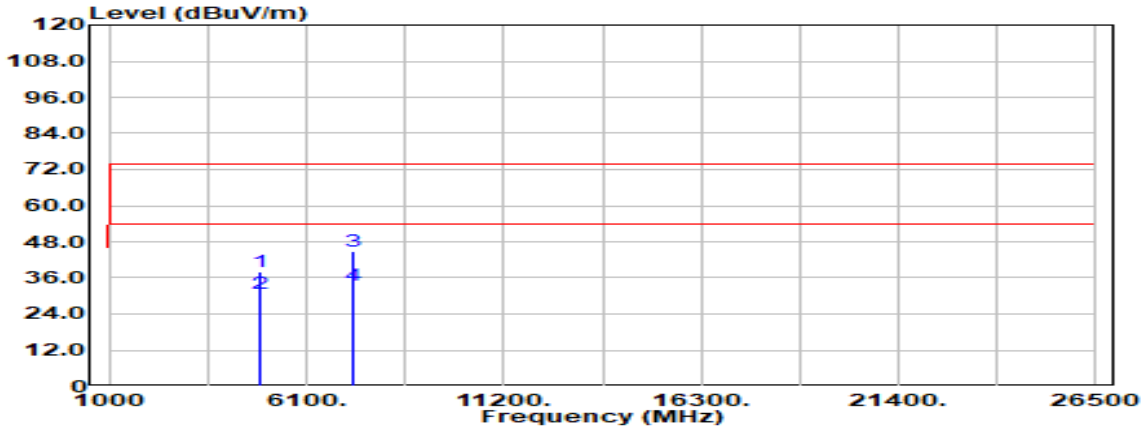


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
4882.000	Peak	34.03	6.14	40.16	74.00	-33.84
4882.000	Average	26.34	6.14	32.48	54.00	-21.52
7323.000	Peak	31.87	13.36	45.23	74.00	-28.77
7323.000	Average	21.61	13.36	34.97	54.00	-19.03
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode:	GFSK_BDR-1Mbps Mid CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Harmonic	Test Date	July 12, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		

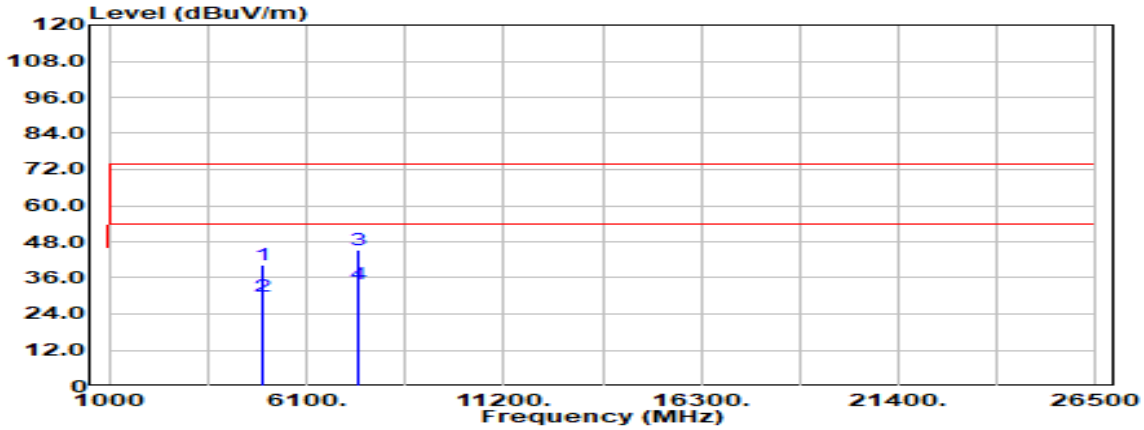


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
4882.000	Peak	32.11	6.14	38.24	74.00	-35.76
4882.000	Average	24.49	6.14	30.63	54.00	-23.37
7323.000	Peak	31.57	13.36	44.93	74.00	-29.07
7323.000	Average	20.31	13.36	33.67	54.00	-20.33
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode:	GFSK_BDR-1Mbps High CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Harmonic	Test Date	July 12, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		

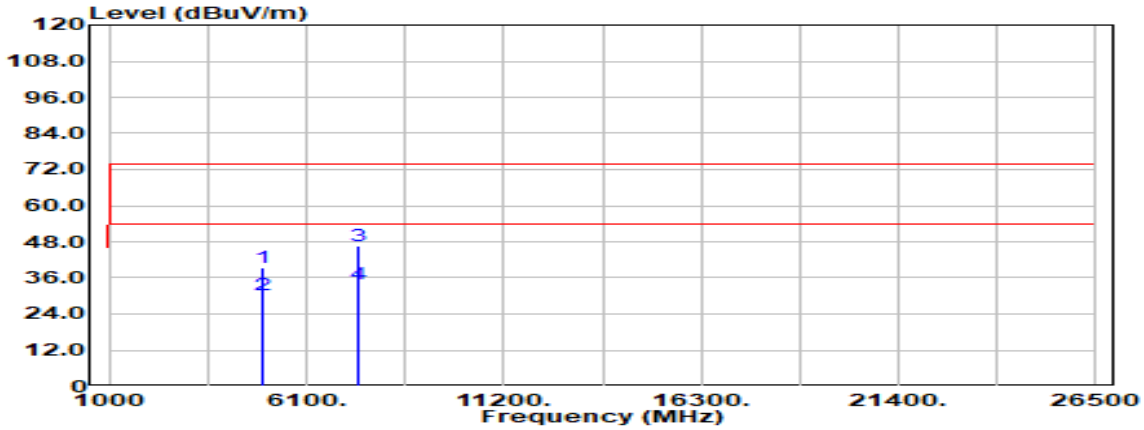


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
4960.000	Peak	33.47	6.91	40.39	74.00	-33.61
4960.000	Average	22.80	6.91	29.71	54.00	-24.29
7440.000	Peak	31.99	13.22	45.21	74.00	-28.79
7440.000	Average	20.94	13.22	34.16	54.00	-19.84
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode:	GFSK_BDR-1Mbps High CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Harmonic	Test Date	July 12, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		

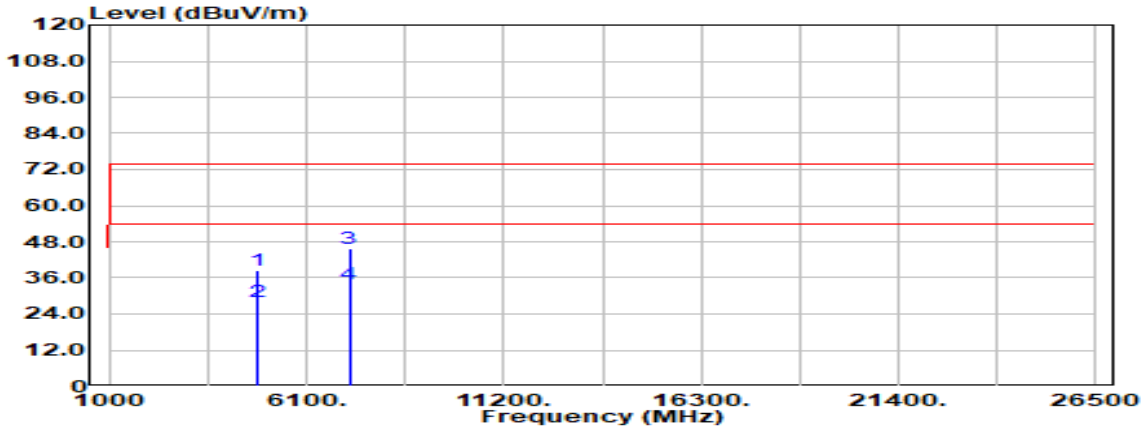


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
4960.000	Peak	32.57	6.91	39.48	74.00	-34.52
4960.000	Average	23.40	6.91	30.32	54.00	-23.68
7440.000	Peak	33.44	13.22	46.66	74.00	-27.34
7440.000	Average	20.71	13.22	33.93	54.00	-20.07
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode:	8DPSK_EDR-3Mbps Low CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Harmonic	Test Date	July 12, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		

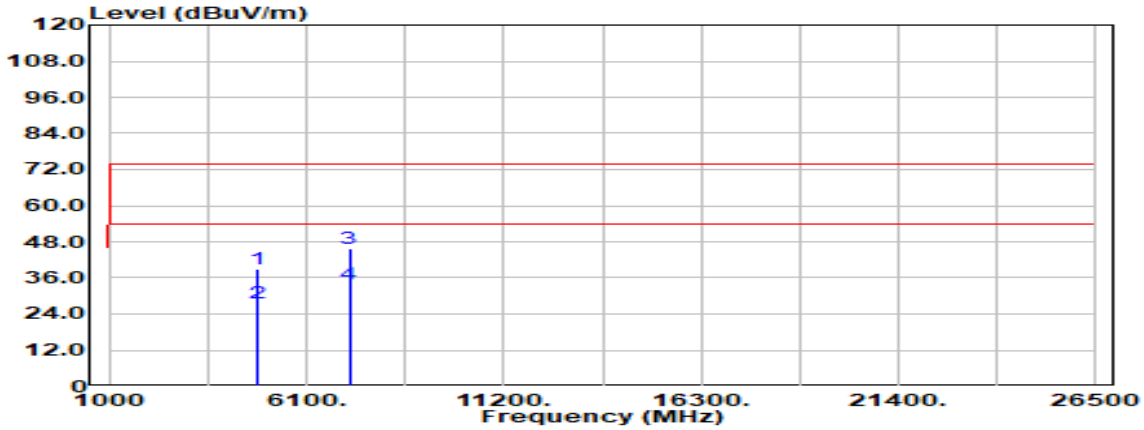


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
4804.000	Peak	32.57	5.87	38.44	74.00	-35.56
4804.000	Average	22.03	5.87	27.89	54.00	-26.11
7206.000	Peak	32.44	13.25	45.69	74.00	-28.31
7206.000	Average	20.58	13.25	33.83	54.00	-20.17
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode:	8DPSK_EDR-3Mbps Low CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Harmonic	Test Date	July 12, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		

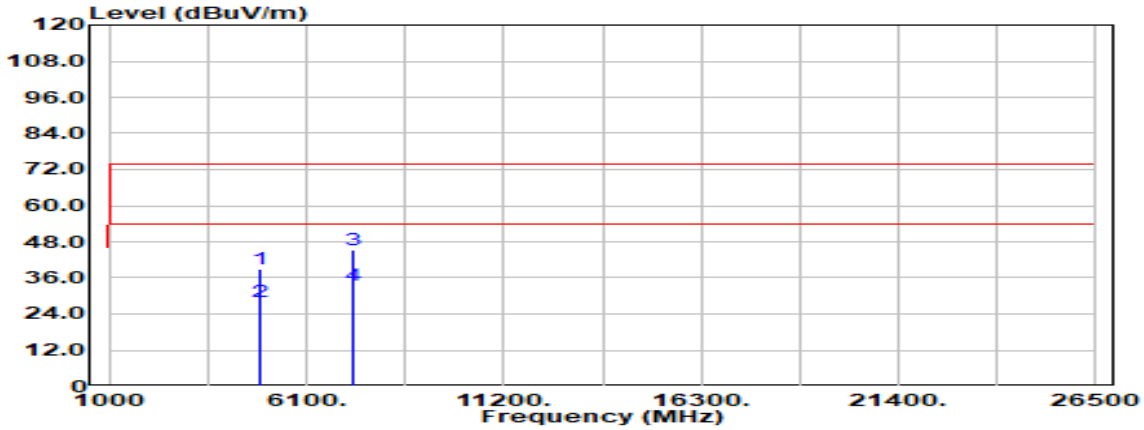


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
4804.000	Peak	33.20	5.87	39.07	74.00	-34.93
4804.000	Average	21.81	5.87	27.68	54.00	-26.32
7206.000	Peak	32.63	13.25	45.89	74.00	-28.11
7206.000	Average	20.68	13.25	33.93	54.00	-20.07
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode:	8DPSK_EDR-3Mbps Mid CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Harmonic	Test Date	July 12, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		

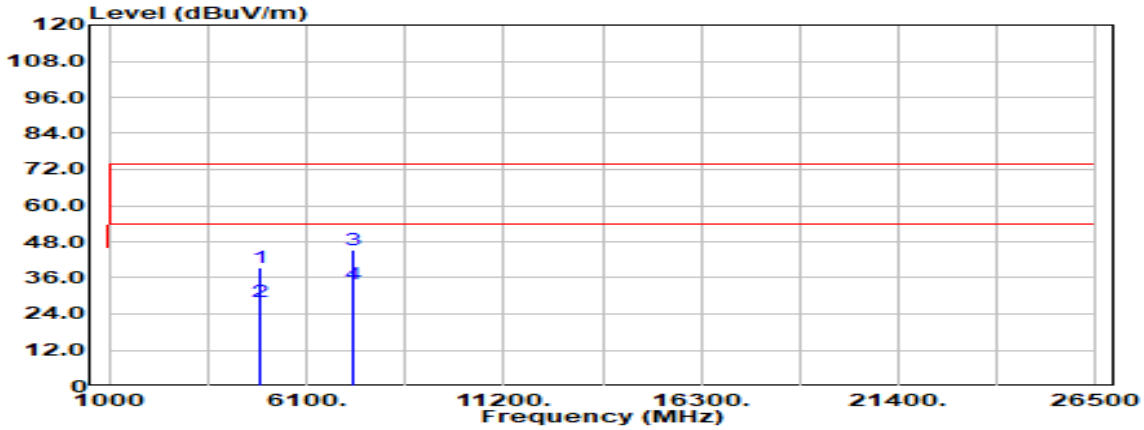


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
4882.000	Peak	32.68	6.14	38.81	74.00	-35.19
4882.000	Average	21.72	6.14	27.86	54.00	-26.14
7323.000	Peak	31.74	13.36	45.10	74.00	-28.90
7323.000	Average	20.37	13.36	33.73	54.00	-20.27
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode:	8DPSK_EDR-3Mbps Mid CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Harmonic	Test Date	July 12, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		

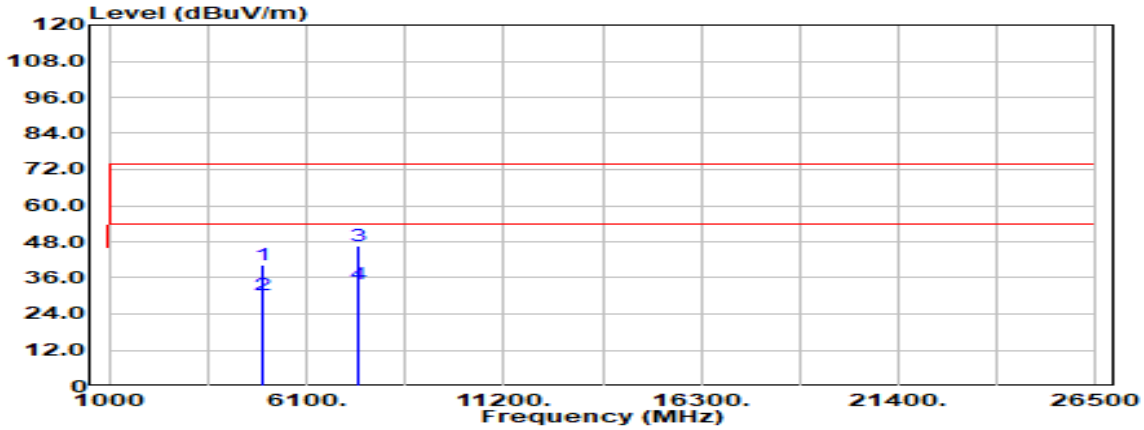


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
4882.000	Peak	33.29	6.14	39.43	74.00	-34.57
4882.000	Average	21.90	6.14	28.04	54.00	-25.96
7323.000	Peak	31.77	13.36	45.13	74.00	-28.87
7323.000	Average	20.40	13.36	33.75	54.00	-20.25
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode:	8DPSK_EDR-3Mbps High CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Harmonic	Test Date	July 12, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		

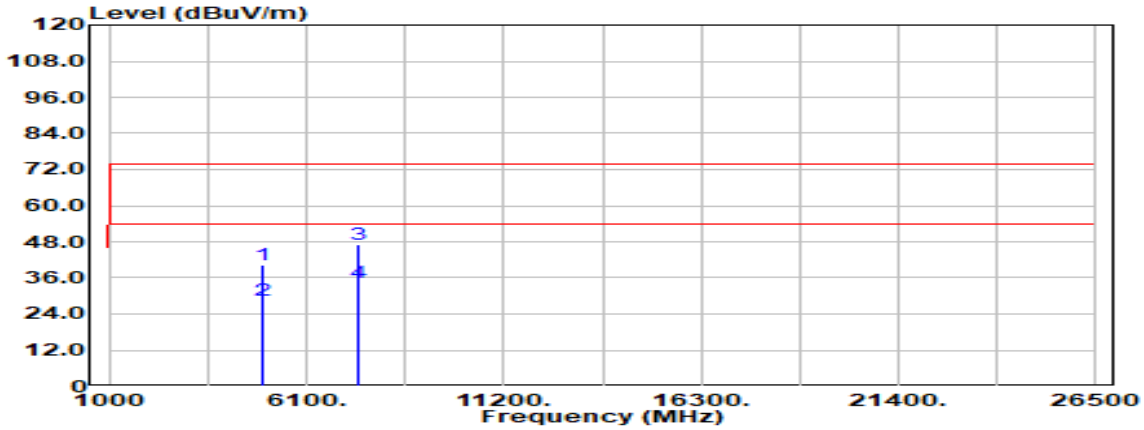


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
4960.000	Peak	33.17	6.91	40.09	74.00	-33.91
4960.000	Average	23.45	6.91	30.36	54.00	-23.64
7440.000	Peak	33.22	13.22	46.44	74.00	-27.56
7440.000	Average	20.85	13.22	34.07	54.00	-19.93
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Test Mode:	8DPSK_EDR-3Mbps High CH	Temp/Hum	22.6(℃)/ 66%RH
Test Item	Harmonic	Test Date	July 12, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		



Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBµV)	Factor (dB)	Actual FS (dBµV/m)	Limit @3m (dBµV/m)	Margin (dB)
4960.000	Peak	33.34	6.91	40.25	74.00	-33.75
4960.000	Average	21.67	6.91	28.58	54.00	-25.42
7440.000	Peak	33.81	13.22	47.03	74.00	-26.97
7440.000	Average	21.02	13.22	34.24	54.00	-19.76
N/A						

Remark:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

- End of Test Report -