RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-247
(CLASS II PERMISSIVE CHANGE)

Test Standard	**FCC Part 15.247** **IC RSS-247 issue 2 and IC RSS-GEN issue 5**
Product name	**module**
Brand Name	**DURABOOK**
Model No.	**9260NGW**
Test Result	**Pass**

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: *Tested by:*

Kevin Tsai
Deputy Manager

Jerry Chuang
Engineer

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
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Revision History

Rev.	Issue Date	Revisions	Revised By
00	January 29, 2019	Initial Issue	Allison Chen

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1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	TWINHEAD INTERNATIONAL CORP. 11F, No 550, Rueiguang Rd , Neihu, Taipei, Taiwan 11492, R.O.C.
Manufacturer	TWINHEAD INTERNATIONAL CORP. 11F, No 550, Rueiguang Rd , Neihu, Taipei, Taiwan 11492, R.O.C.
Equipment	module
Model No.	9260NGW
Model Discrepancy	N/A
Trade Name	DURABOOK
Received Date	September 18, 2018
Date of Test	November 6 ~ 21, 2018
Output Power (W)	GFSK : 0.0069 (EIRP: 0.0068) 8DPSK : 0.0062 (EIRP: 0.0061)
Power Supply	1. Power from AC Adapter FSP / FSP090-DIEBN2 Input: 100-240Vac, 1.5A, 50-60Hz Output: 19Vdc, 4.74A 2. Power from Battery
Class II Permissive Change	1. The subject approved module is being used in a specific host. [Product: Tablet PC, brand name: DURABOOK, FCC model:/ R11XXXXXX (X=0-9, A-Z, a-z, Blank), IC model: R11AH6] 2. Power reduction per tune-up procedure is applied in order to comply with exposure requirements.

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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

15.247(a)(1) that the Rx input bandwidths shift frequencies in synchronization with the transmitted signals.
15.247(g): In accordance with the Bluetooth Industry Standard, the system is designed to comply with all of the regulations in Section 15.247 when the transmitter is presented with a continuous data (or information) system.
15.247(h): In accordance with the Bluetooth Industry Standard, the system does not coordinate it channels selection/ hopping sequence with other frequency hopping systems for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters.

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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 63.10:2013 clause 5.6.1 Table 4 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 Type	☒ PIFA ☐ PCB ☐ Dipole ☐ Coils
Antenna Gain	Durabook Americas inc P/N: TWAH6WIPB02+A / -0.05dBi
Antenna Connector	I-PEX MHF4L

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1.5 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 1.2575
Emission bandwidth, 20dB bandwidth	+/- 0.0014
RF output power, conducted	+/- 1.14
Power density, conducted	+/- 1.40
3M Semi Anechoic Chamber / 30M~200M	+/- 4.12
3M Semi Anechoic Chamber / 200M~1000M	+/- 4.68
3M Semi Anechoic Chamber / 1G~8G	+/- 5.18
3M Semi Anechoic Chamber / 8G~18G	+/- 5.47
3M Semi Anechoic Chamber / 18G~26G	+/- 3.81
3M Semi Anechoic Chamber / 26G~40G	+/- 3.87

***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 24891, Taiwan. (R.O.C.)

Test site	Test Engineer	Remark
AC Conduction Room	Dally Hong	-
Radiation	Jerry Chuang	-
RF Conducted	Dally Hong	-

***Remark:** The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.*

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1.7 INSTRUMENT CALIBRATION

RF Conducted Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
Coaxial Cable	Woken	WC12	CC001	06/29/2018	06/28/2019
Power Meter	Anritsu	ML2495A	1149001	02/06/2018	02/05/2019
Power Seneor	Anritsu	MA2491A	030982	02/07/2018	02/06/2019
Signal Analyzer	R&S	FSV 40	101073	09/27/2018	09/26/2019

3M 966 Chamber Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
Band Reject Filters	MICRO TRONICS	BRM 50702	120	05/14/2018	05/13/2019
Bilog Antenna	Sunol Sciences	JB3	A030105	07/13/2018	07/12/2019
Cable	HUBER SUHNER	SUCOFLEX 104PEA	25157	06/29/2018	06/28/2019
Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	06/29/2018	06/28/2019
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	02/08/2018	02/07/2019
double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	08/20/2018	08/19/2019
Loop Ant	COM-POWER	AL-130	121051	03/21/2018	03/20/2019
Pre-Amplifier	EMEC	EM330	060609	06/29/2018	06/28/2019
Pre-Amplifier	HP	8449B	3008A00965	06/29/2018	06/28/2019
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	05/31/2018	05/30/2019
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

AC Line Conducted Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
CABLE	EMCI	CFD300-NL	CERF	06/29/2018	06/28/2019
EMI Test Receiver	R&S	ESCI	100064	07/24/2018	07/23/2019
LISN	SCHWARZBECK	NSLK 8127	8127-541	02/09/2018	02/08/2019
LISN	SCHAFFNER	NNB41	03/10013	02/06/2018	02/05/2019

Remark: *Each piece of equipment is scheduled for calibration once a year.*

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1.8 SUPPORT AND EUT ACCESSORIES EQUIPMENT

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

Support Equipment					
No.	**Equipment**	**Brand**	**Model**	**Series No.**	**FCC ID**
	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.

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2. TEST SUMMERY

FCC Standard Section	IC Standard Section	Report Section	Test Item	Result
15.203	-	1.3	Antenna Requirement	Pass
15.207(a)	RSS-GEN 8.8	5.1	AC Conducted Emission	Pass
15.247(b)(1)	RSS-247(5.4)(b)	5.2	Output Power Measurement	Pass
15.247(d)	RSS-GEN 8.9, 8.10	5.3	Radiation Band Edge	Pass
15.247(d)	RSS-GEN 8.9, 8.10	5.3	Radiation Spurious Emission	Pass

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3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	GFSK for BDR-1Mbps (DH5) 8DPSK for EDR-3Mbps (3DH5)
Test Channel Frequencies	**GFSK for BDR-1Mbps:** 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

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3.2 THE WORST MODE OF MEASUREMENT

AC Power Line Conducted Emission	
Test Condition	AC Power line conducted emission for line and neutral
Power supply Mode	Mode 1: EUT power by Adapter. Mode 2: EUT power by Battery.
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

Radiated Emission Measurement Above 1G	
Test Condition	Band edge, Emission for Unwanted and Fundamental
Power supply Mode	Mode 1: EUT power by Adapter. Mode 2: EUT power by Battery.
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)
Worst Polarity	☒ Horizontal ☐ Vertical

Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Power supply Mode	Mode 1: EUT power by Adapter. Mode 2: EUT power by Battery.
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, Horizontal and Vertical for radiated measurement. The worst case(X-Plane and Horizontal) were recorded in this report
3. AC power line conducted emission and for below 1G radiation emission were performed the EUT transmit at the highest output power channel as worse case.

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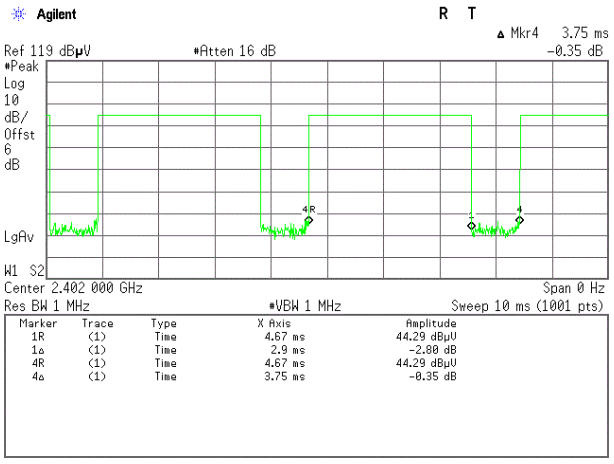
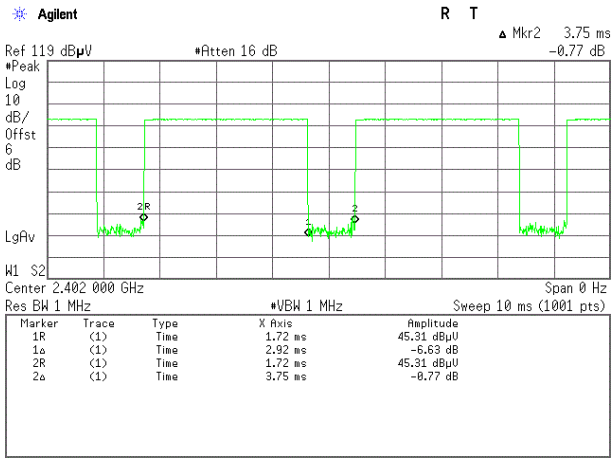
4. EUT DUTY CYCLE

Duty Cycle			
Configuration	TX ON (ms)	TX ALL (ms)	Duty Cycle (%)
BDR-1Mbps	2.9000	3.7500	77.33%
EDR-3Mbps	2.9200	3.7500	77.87%

BDR-1Mbps



EDR-3Mbps



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5. TEST RESULT

5.1 AC POWER LINE CONDUCTED EMISSION

5.1.1 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

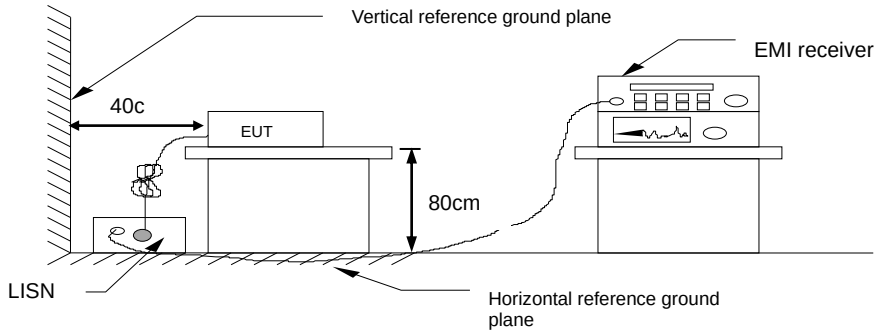
* Decreases with the logarithm of the frequency.

5.1.2 Test Procedure

Test method Refer as ANSI 63.10:2013 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.

5.1.3 Test Setup



5.1.4 Test Result

Pass.

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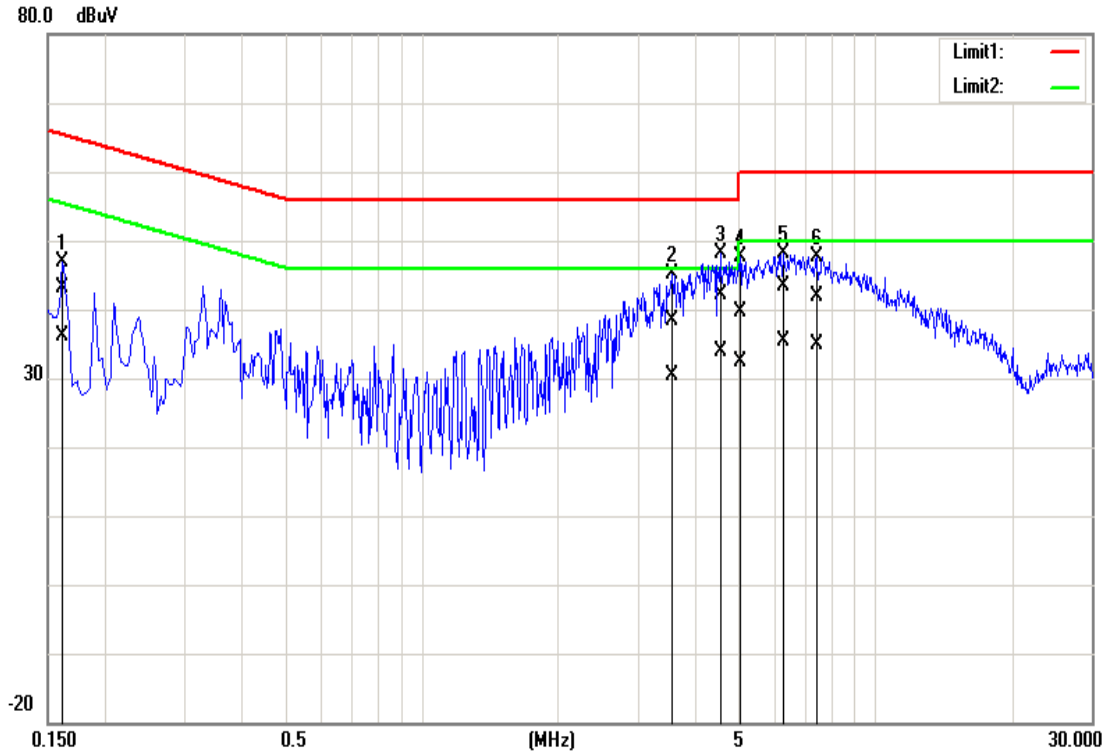
Test Data

Test Mode:	Mode 1	Temp/Hum	24(℃)/ 50%RH
Phase:	Line	Test Date	November 21, 2018
Test Voltage:	120V	Test Engineer	Dally Hong



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.1620	42.91	35.86	0.16	43.07	36.02	65.36	55.36	-22.29	-19.34	Pass
3.5700	38.16	30.19	0.28	38.44	30.47	56.00	46.00	-17.56	-15.53	Pass
4.5700	41.91	33.63	0.31	42.22	33.94	56.00	46.00	-13.78	-12.06	Pass
5.0460	39.43	32.15	0.32	39.75	32.47	60.00	50.00	-20.25	-17.53	Pass
6.2580	42.97	35.10	0.35	43.32	35.45	60.00	50.00	-16.68	-14.55	Pass
7.4180	41.59	34.47	0.38	41.97	34.85	60.00	50.00	-18.03	-15.15	Pass

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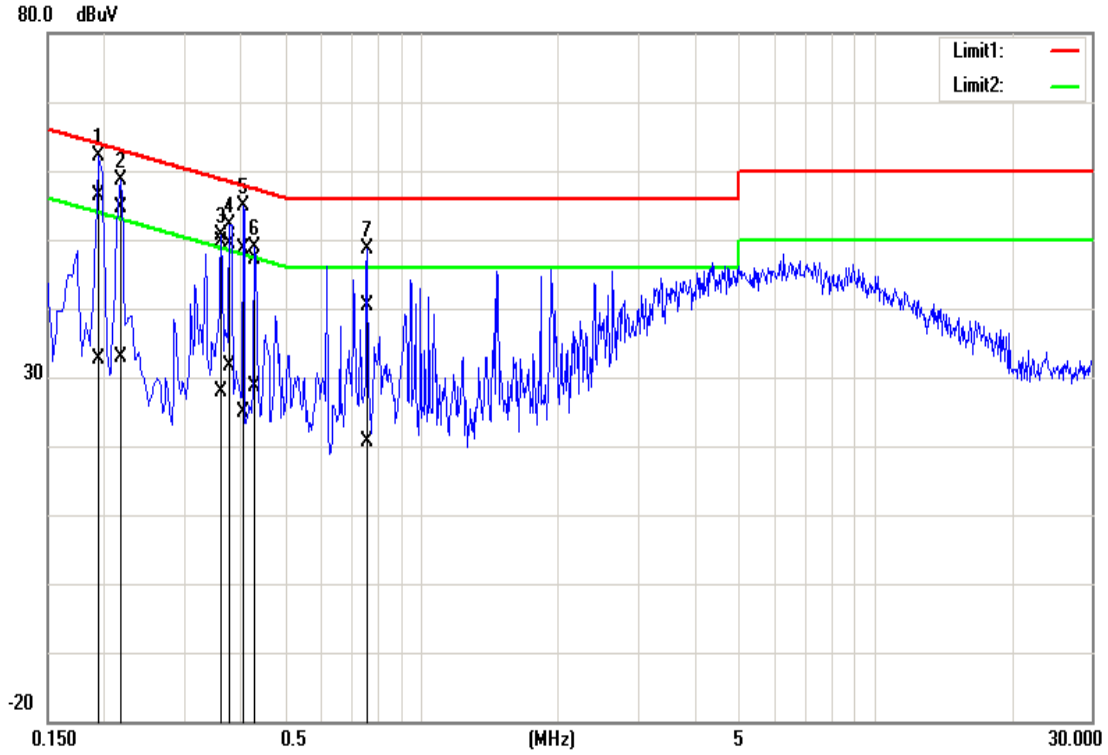
Test Mode:	Mode 1	Temp/Hum	24(℃)/ 50%RH
Phase:	Neutral	Test Date	November 21, 2018
Test Voltage:	120V	Test Engineer	Dally Hong



Frequency (MHz)	Quasi Peak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	Quasi Peak result (dBuV)	Average result (dBuV)	Quasi Peak limit (dBuV)	Average limit (dBuV)	Quasi Peak margin (dB)	Average margin (dB)	Remark
0.1940	56.27	32.42	0.18	56.45	32.60	63.86	53.86	-7.41	-21.26	Pass
0.2180	54.45	32.73	0.18	54.63	32.91	62.89	52.89	-8.26	-19.98	Pass
0.3620	49.36	27.60	0.19	49.55	27.79	58.68	48.68	-9.13	-20.89	Pass
0.3780	49.12	31.45	0.19	49.31	31.64	58.32	48.32	-9.01	-16.68	Pass
0.4060	48.49	24.67	0.19	48.68	24.86	57.73	47.73	-9.05	-22.87	Pass
0.4300	46.94	28.41	0.19	47.13	28.60	57.25	47.25	-10.12	-18.65	Pass
0.7620	40.17	20.52	0.21	40.38	20.73	56.00	46.00	-15.62	-25.27	Pass

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5.2 OUTPUT POWER MEASUREMENT

5.2.1 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).

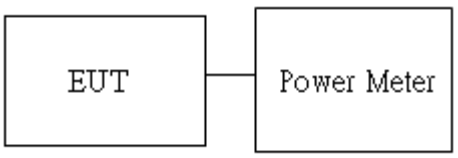
Limit	☒ Antenna not exceed 6 dBi：21dBm ☐ Antenna with DG greater than 6 dBi：21dBm [Limit = 30 – (DG – 6)]

Average output power：For reporting purposes only.

5.2.2 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.

5.2.3 Test Setup



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5.2.4 Test Result

Peak output power：

BT										
Config.	CH	Freq. (MHz)	Power Setting	PK Power (dBm)	EIRP Power (dBm)	PK Power (W)	EIRP PK Power (W)	FCC Limit (dBm)	IC EIRP Limit	Antenna Gain (dBi)
GFSK BR-1Mbps (DH5)	0	2402	12	7.17	7.12	0.0052	0.0052	21	36	-0.05
	39	2441	12	8.01	7.96	0.0063	0.0063			
	78	2480	10	8.37	8.32	0.0069	0.0068			
8DPSK EDR-3Mbps (3DH5)	0	2402	7	7.44	7.39	0.0055	0.0055			
	39	2441	7	5.86	5.81	0.0039	0.0038			
	78	2480	7	7.92	7.87	0.0062	0.0061			

Average output power：

BT				
Config.	CH	Freq. (MHz)	Power Setting	AV Power (dBm)
GFSK BR-1Mbps (DH5)	0	2402	12	7.06
	39	2441	12	7.92
	78	2480	10	8.28
8DPSK EDR-3Mbps (DH5)	0	2402	7	5.75
	39	2441	7	5.72
	78	2480	7	5.70

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5.3 RADIATION BANDEDGE AND SPURIOUS EMISSION

5.3.1 Test Limit

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

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

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 937606.

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5.3.2 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, 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.

Configuration	Duty Cycle (%)	T(ms)	1/T (kHz)	VBW setting
GFSK_BDR-1Mbps	77.33%	2.9000	0.345	360Hz
8DPSK_EDR-3Mbps	77.87%	2.9200	0.342	360Hz

Remark:

1. *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 937606.*
2. *No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).*

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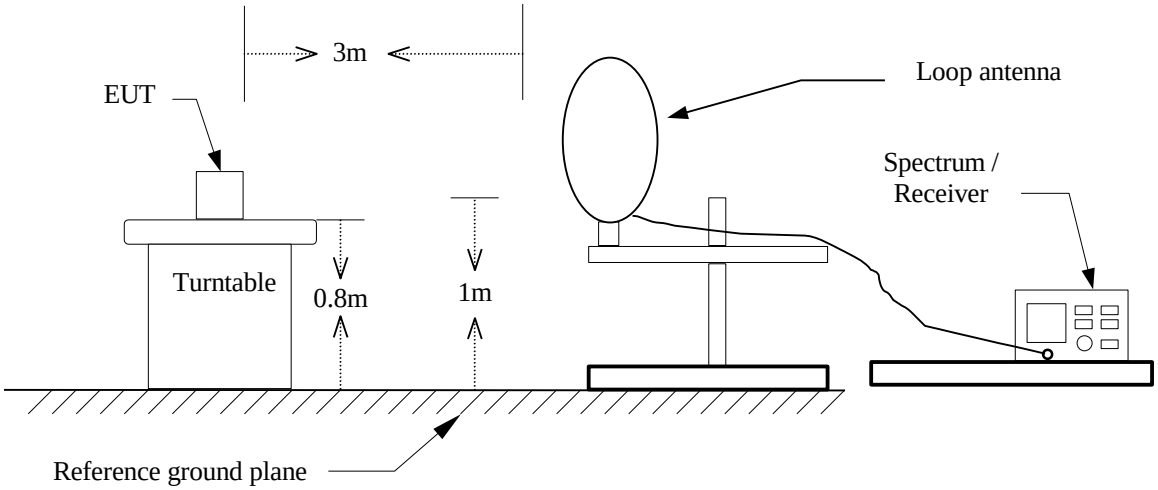
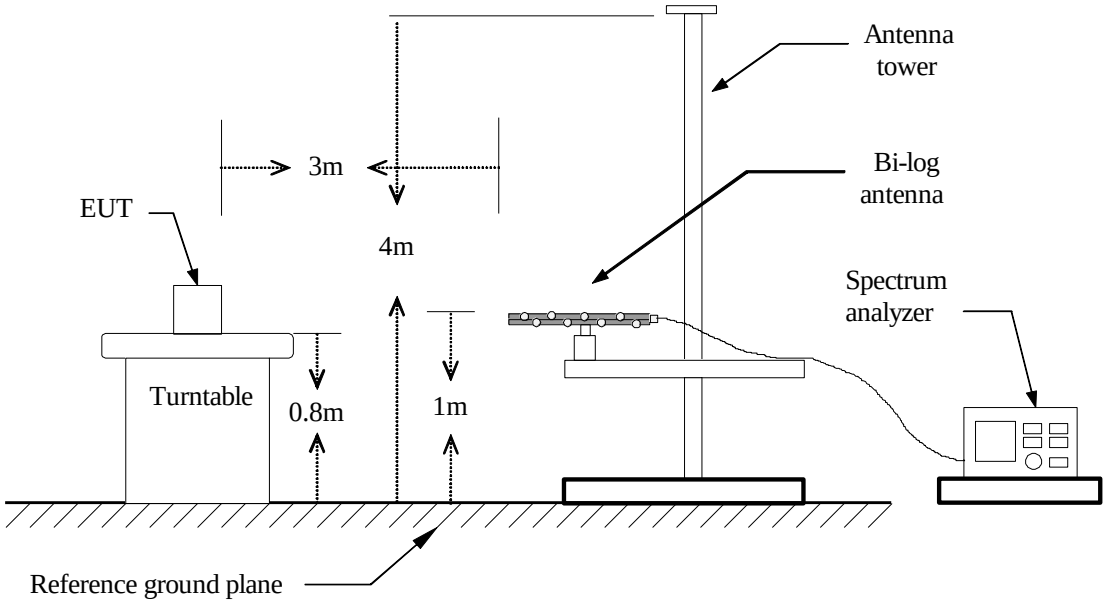
5.3.3 Test Setup

9kHz ~ 30MHz



30MHz ~ 1GHz



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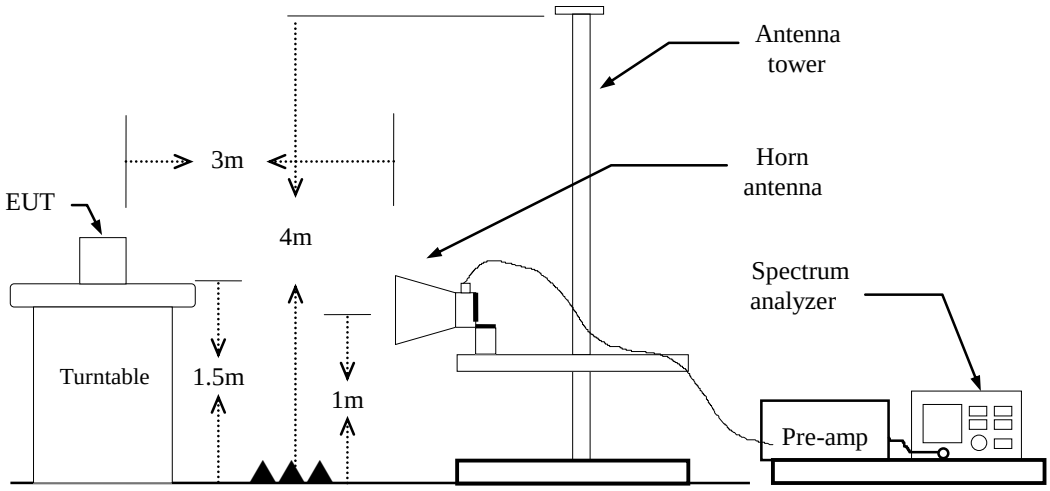
Above 1 GHz



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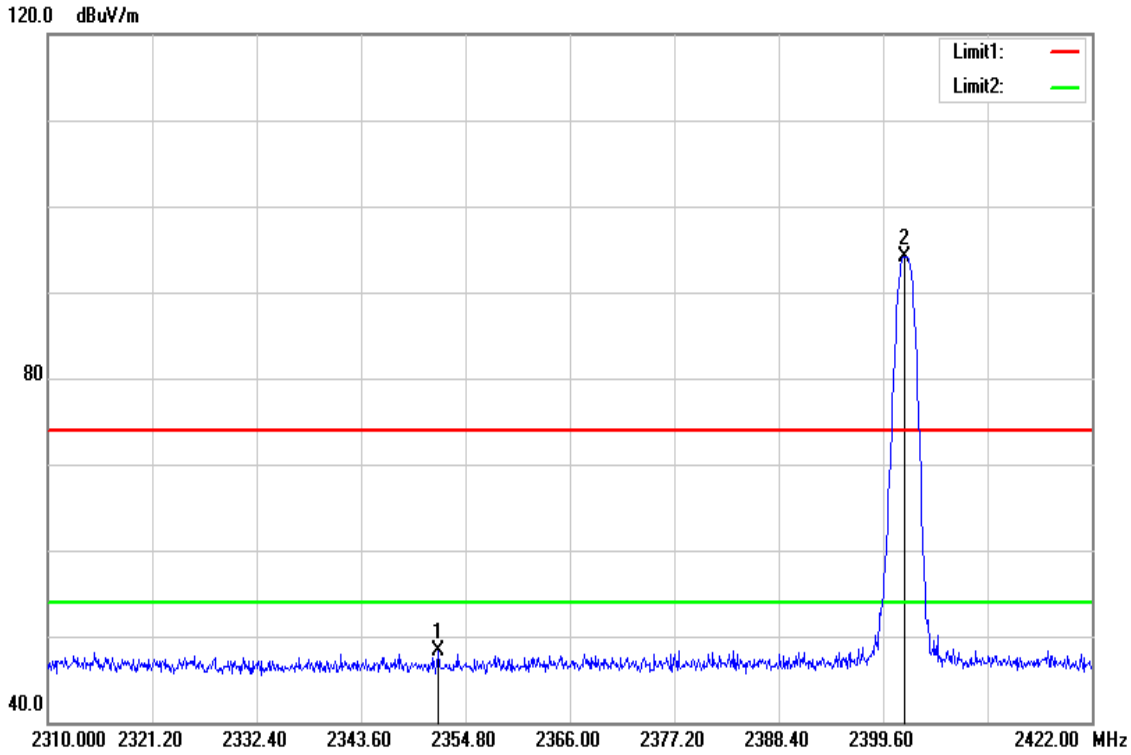
5.3.4 Test Result

Band Edge Test Data

Test Mode:	GFSK_BR-1Mbps Low CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Band Edge	Test Date	November 8, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2351.888	51.45	-3.07	48.38	74.00	-25.62	peak
2401.952	97.24	-3.13	94.11	-	-	peak

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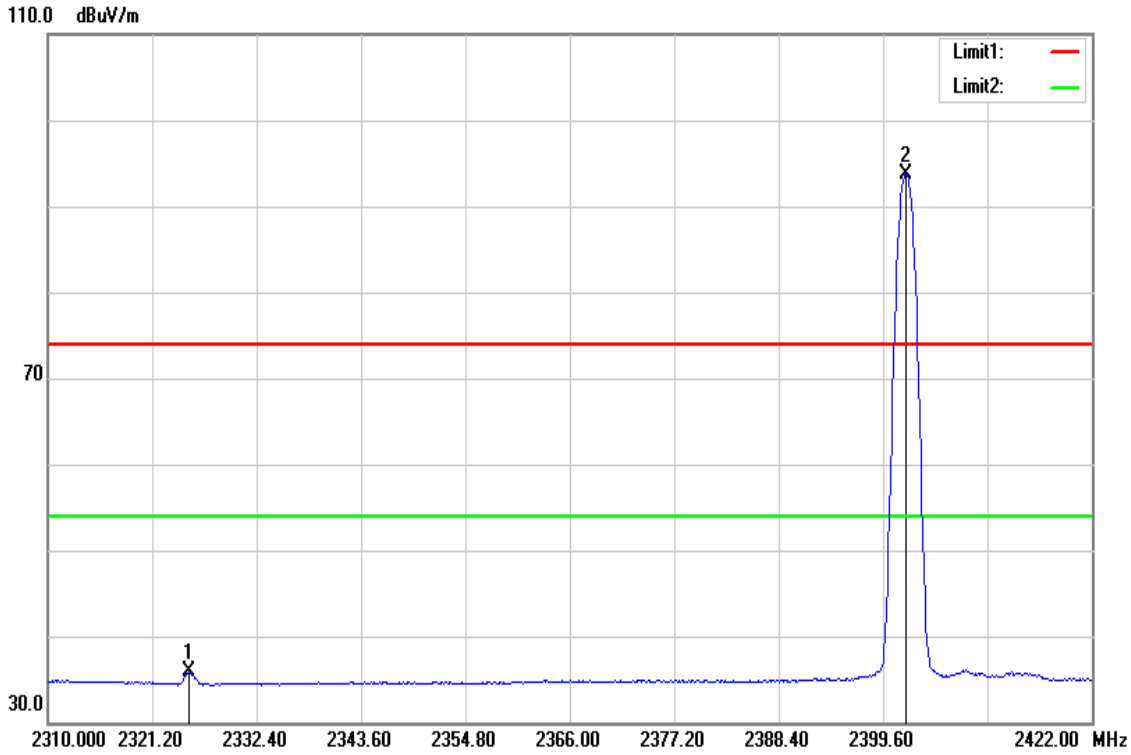
Test Mode:	GFSK_BR-1Mbps Low CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Band Edge	Test Date	November 8, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2325.120	38.95	-3.04	35.91	54.00	-18.09	AVG
2402.064	96.90	-3.13	93.77	-	-	AVG

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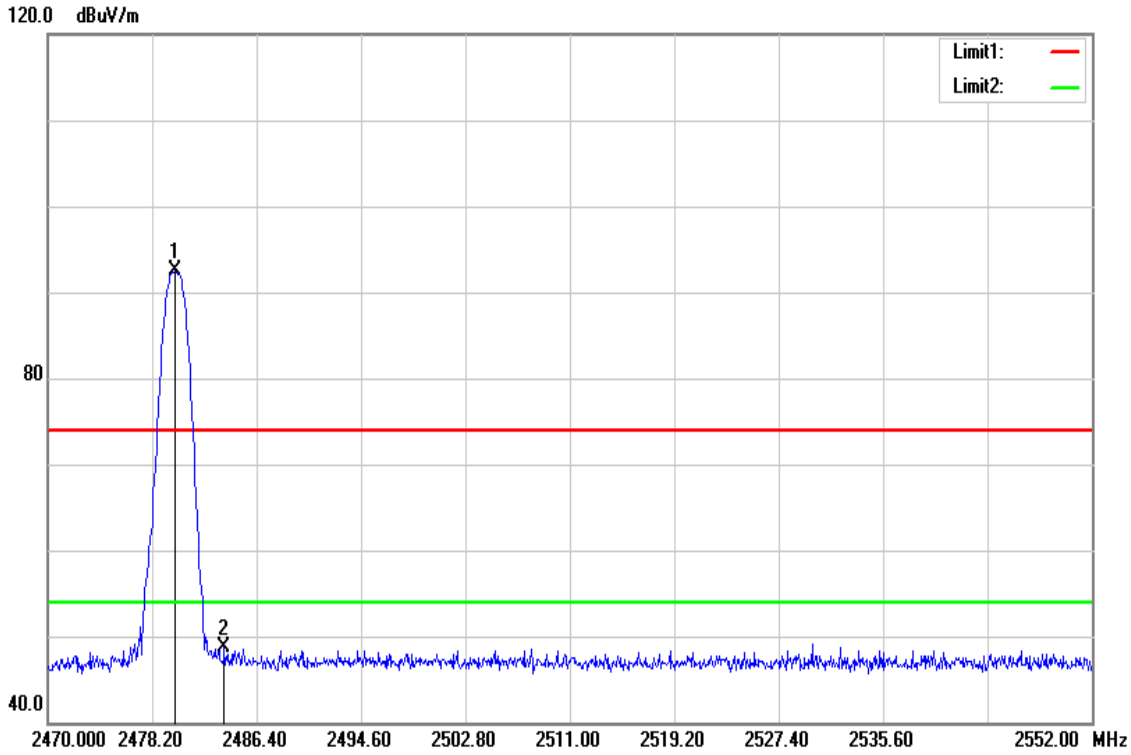
Test Mode:	GFSK_BR-1Mbps High CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Band Edge	Test Date	November 8, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2480.004	95.14	-2.73	92.41	-	-	peak
2483.858	51.49	-2.71	48.78	74.00	-25.22	peak

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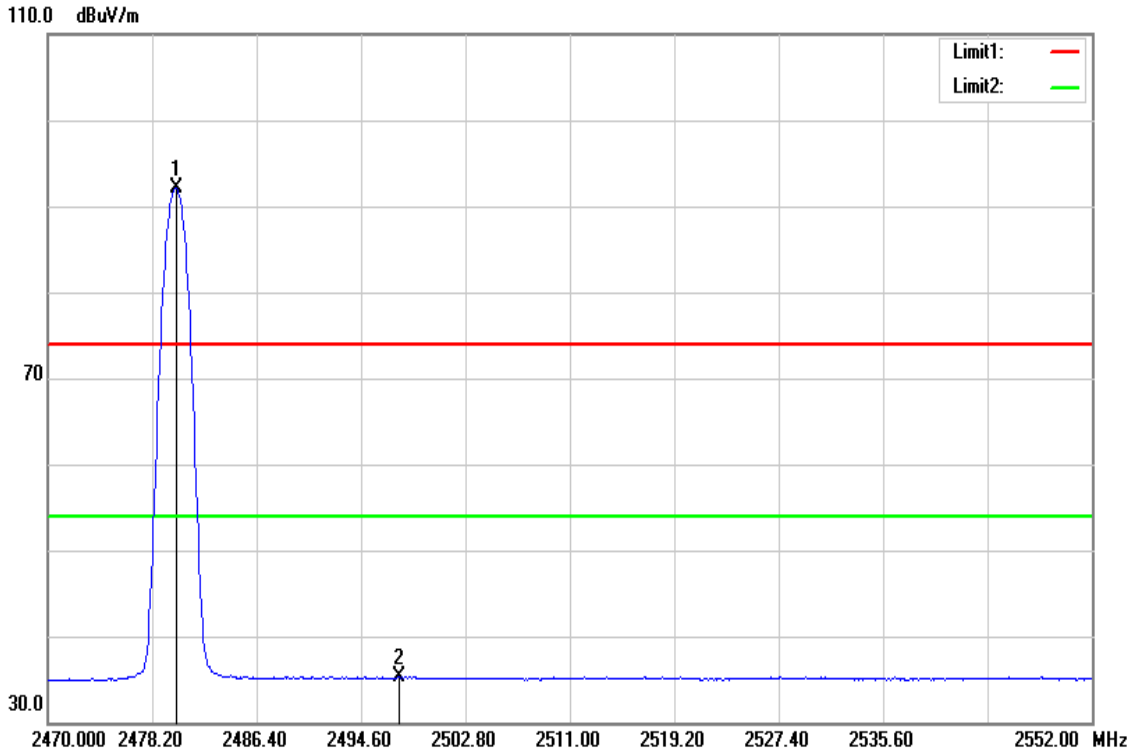
Test Mode:	GFSK_BR-1Mbps High CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Band Edge	Test Date	November 8, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2480.086	94.78	-2.73	92.05	-	-	AVG
2497.552	38.01	-2.64	35.37	54.00	-18.63	AVG

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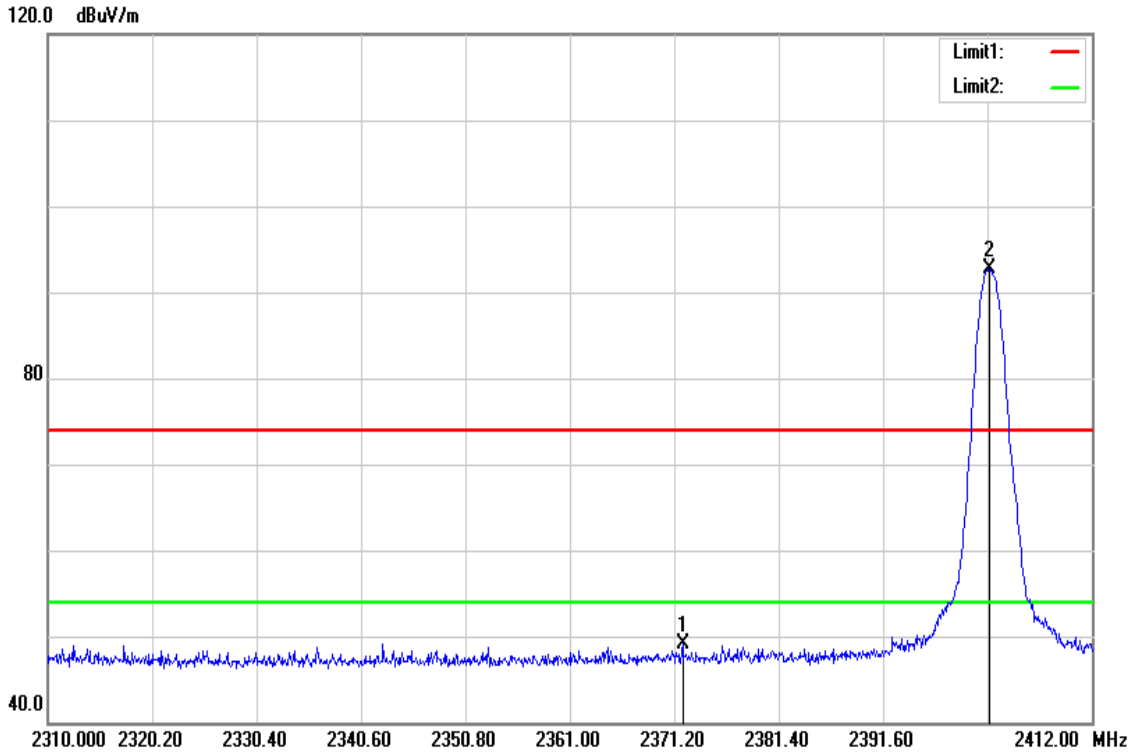
Test Mode:	8DPSK_EDR-3Mbps Low CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Band Edge	Test Date	November 8, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2372.016	52.18	-3.10	49.08	74.00	-24.92	peak
2402.004	95.75	-3.13	92.62	-	-	peak

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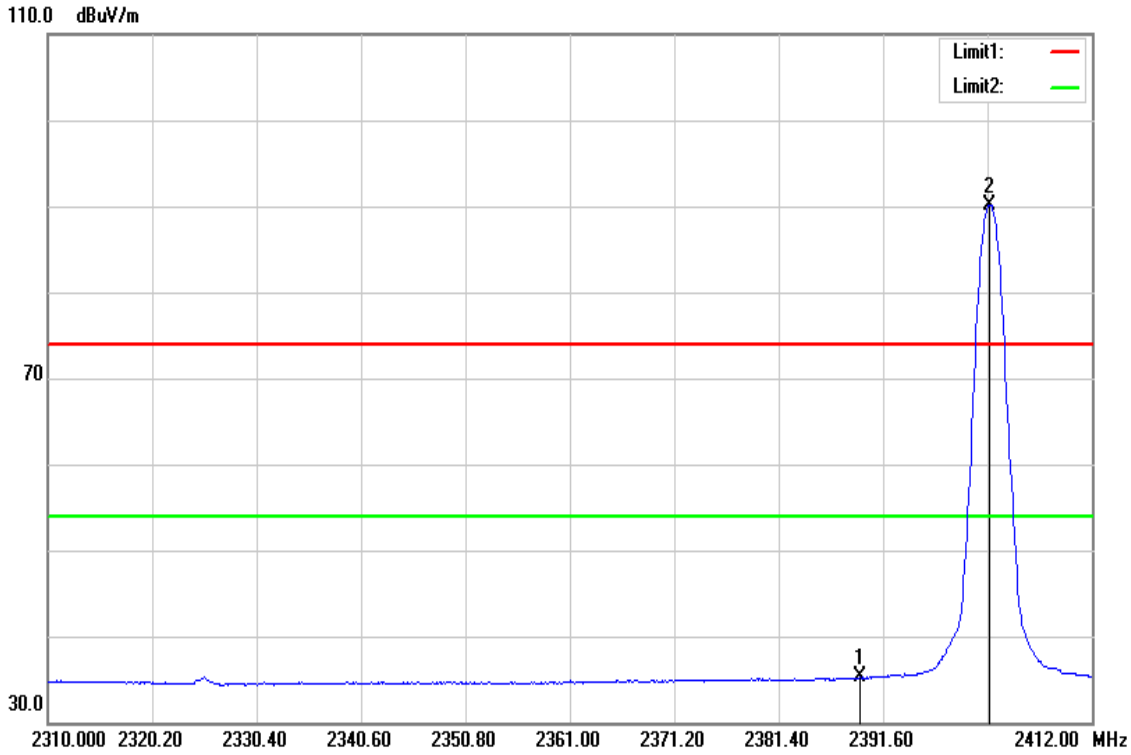
Test Mode:	8DPSK_EDR-3Mbps Low CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Band Edge	Test Date	November 8, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2389.356	38.35	-3.13	35.22	54.00	-18.78	AVG
2402.004	93.30	-3.13	90.17	-	-	AVG

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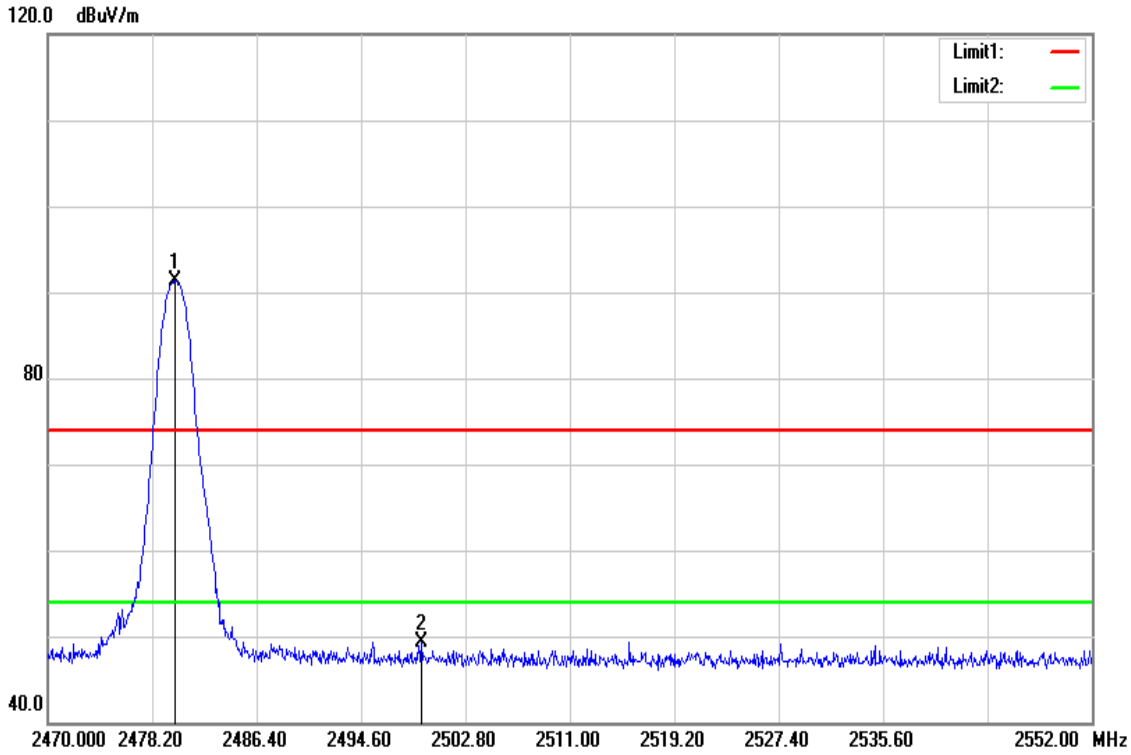
Test Mode:	8DPSK_EDR-3Mbps High CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Band Edge	Test Date	November 8, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2480.004	94.07	-2.73	91.34	-	-	peak
2499.356	51.96	-2.63	49.33	74.00	-24.67	peak

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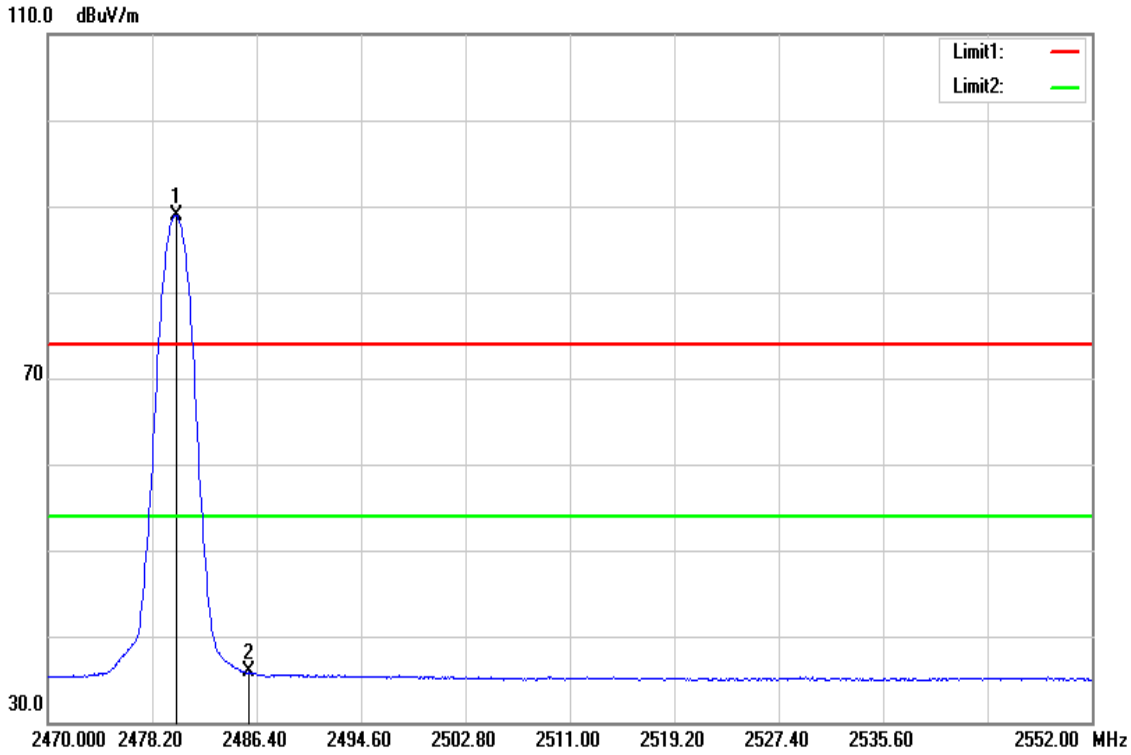
Test Mode:	8DPSK_EDR-3Mbps High CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Band Edge	Test Date	November 8, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2480.086	91.60	-2.73	88.87	-	-	AVG
2485.826	38.51	-2.70	35.81	54.00	-18.19	AVG

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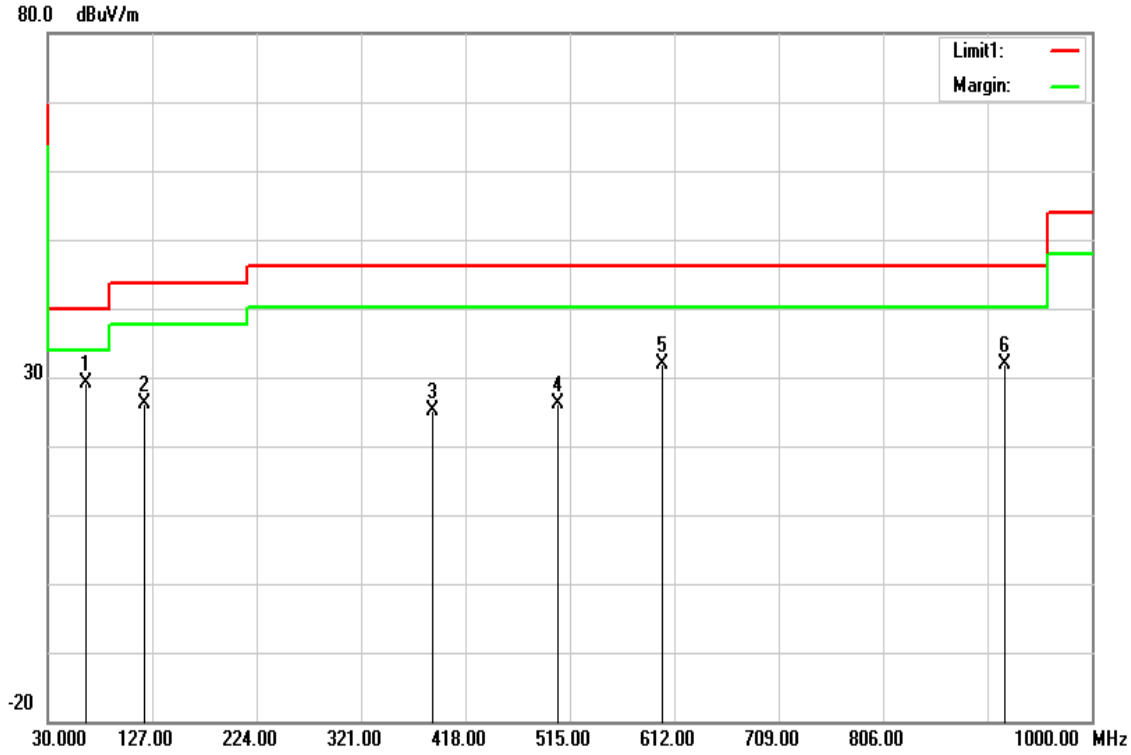
Below 1G Test Data

Test Mode:	BT Mode	Temp/Hum	20.9(℃)/ 43%RH
Test Item	30MHz-1GHz	Test Date	November 6, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
64.9200	44.01	-14.78	29.23	40.00	-10.77	peak
120.2100	34.44	-8.41	26.03	43.52	-17.49	peak
386.9600	30.48	-5.27	25.21	46.02	-20.81	peak
504.3300	28.43	-2.22	26.21	46.02	-19.81	peak
600.3600	32.66	-0.79	31.87	46.02	-14.15	peak
919.4900	26.88	4.88	31.76	46.02	-14.26	peak

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

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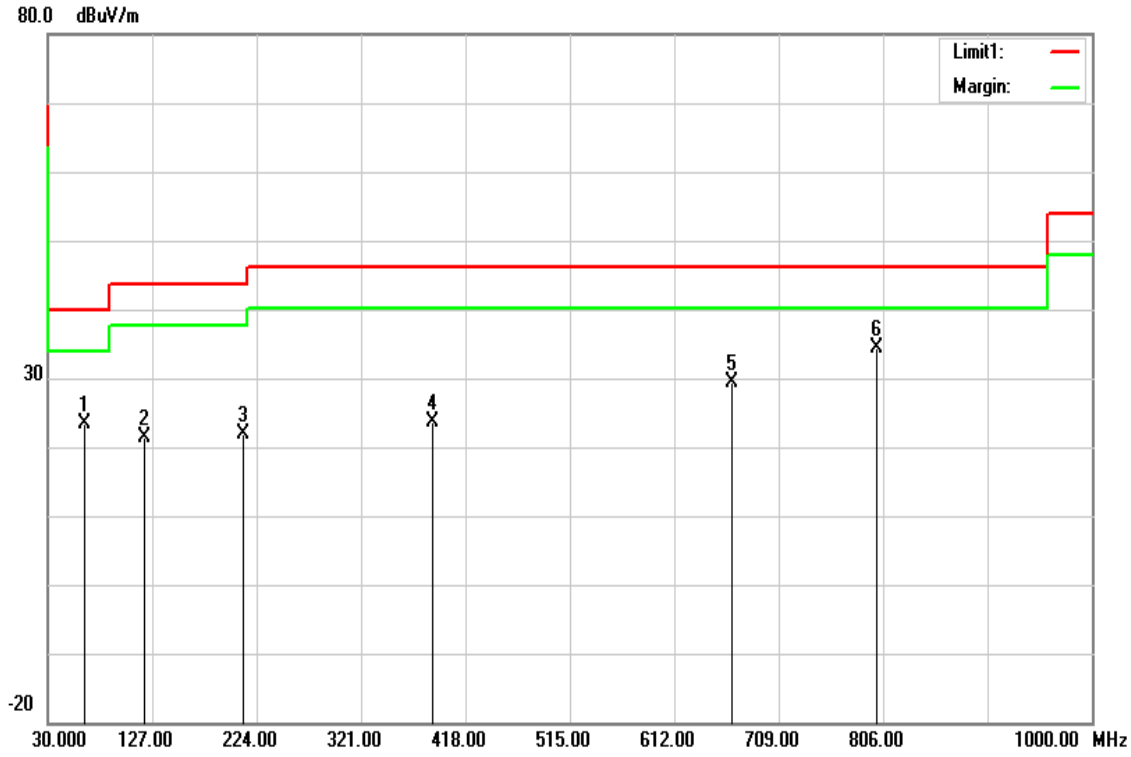
Test Mode:	BT Mode	Temp/Hum	20.9(℃)/ 43%RH
Test Item	30MHz-1GHz	Test Date	November 6, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
63.9500	38.28	-14.84	23.44	40.00	-16.56	peak
120.2100	29.91	-8.41	21.50	43.52	-22.02	peak
211.3900	31.90	-9.90	22.00	43.52	-21.52	peak
386.9600	29.02	-5.27	23.75	46.02	-22.27	peak
665.3500	28.61	0.66	29.27	46.02	-16.75	peak
800.1800	31.30	3.04	34.34	46.02	-11.68	peak

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

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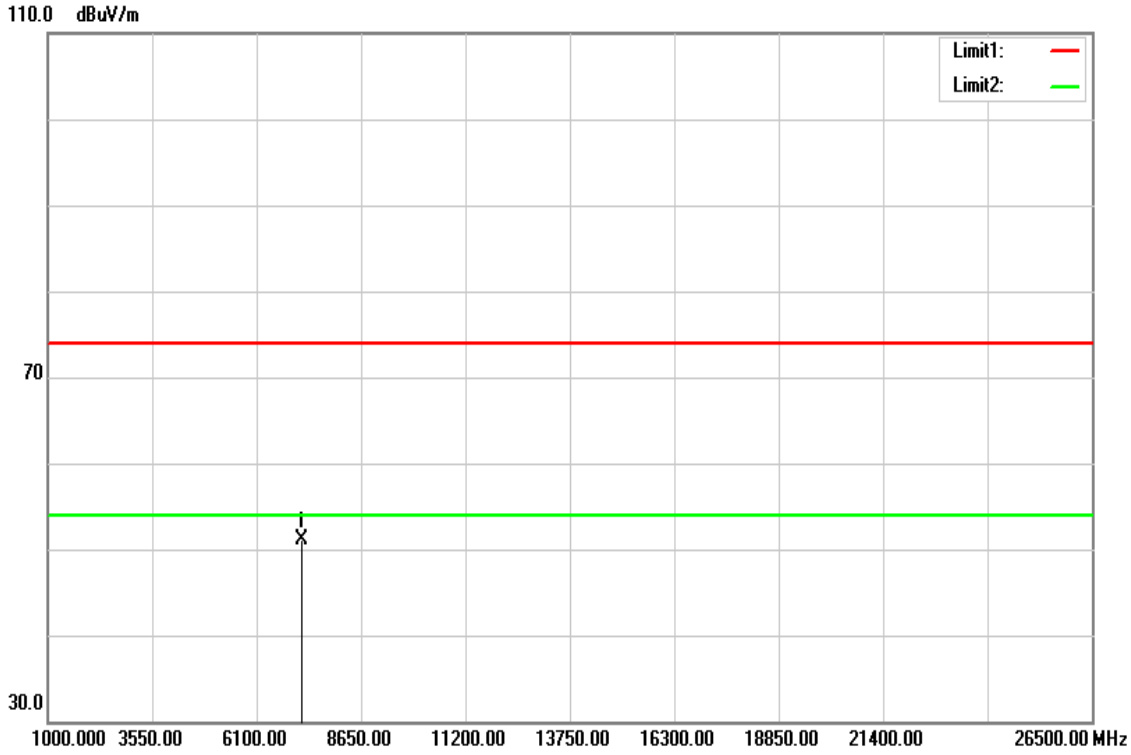
Above 1G Test Data

Test Mode:	GFSK_BR-1Mbps Low CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Harmonic	Test Date	November 9, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
7207.000	40.62	10.51	51.13	74.00	-22.87	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

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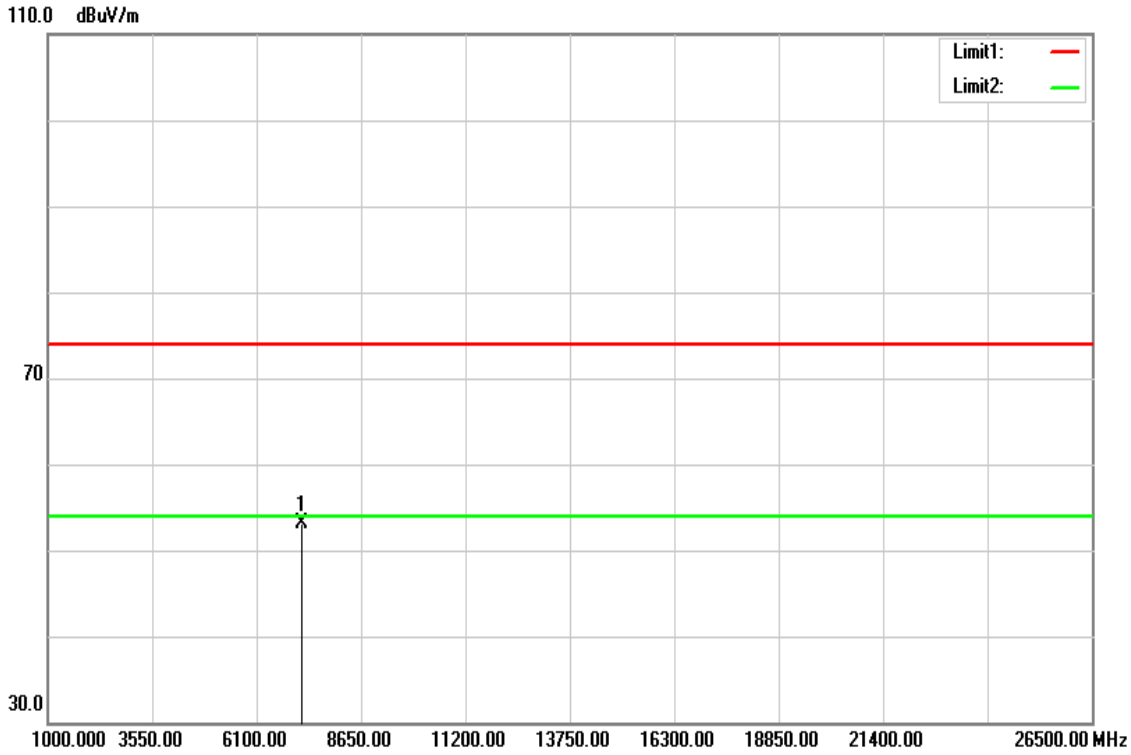
Test Mode:	GFSK_BR-1Mbps Low CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Harmonic	Test Date	November 9, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
7207.000	42.57	10.51	53.08	74.00	-20.92	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

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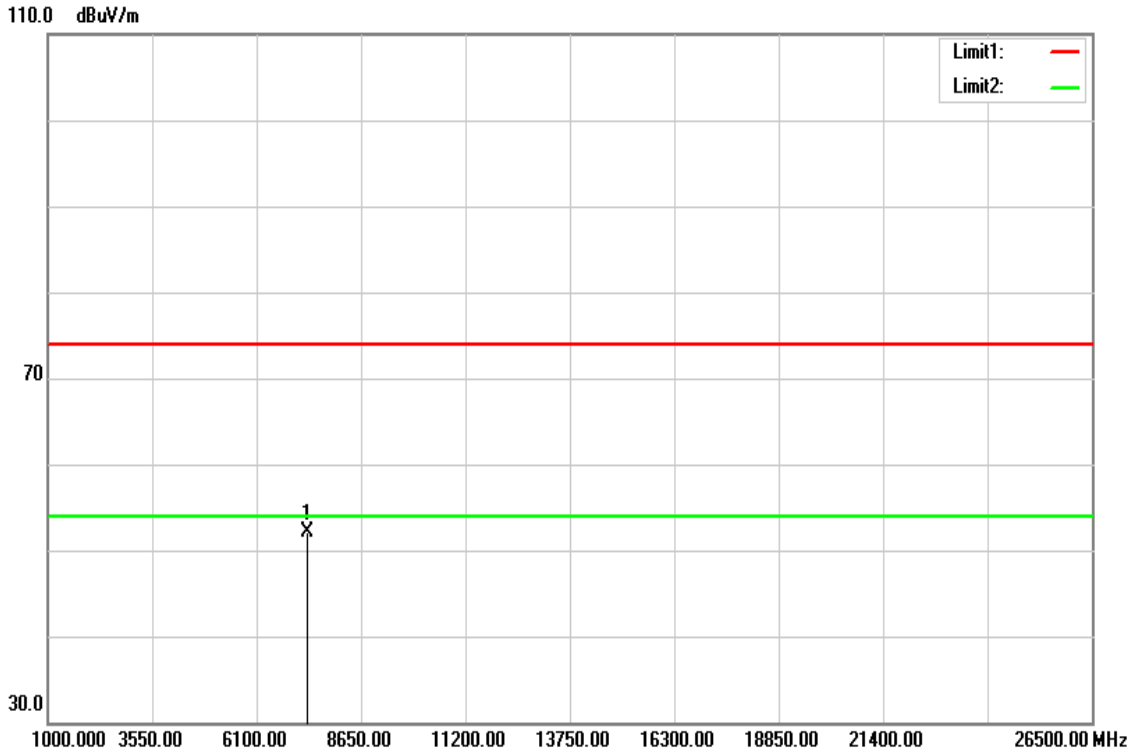
Test Mode:	GFSK_BR-1Mbps Mid CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Harmonic	Test Date	November 9, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
7326.000	41.67	10.48	52.15	74.00	-21.85	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

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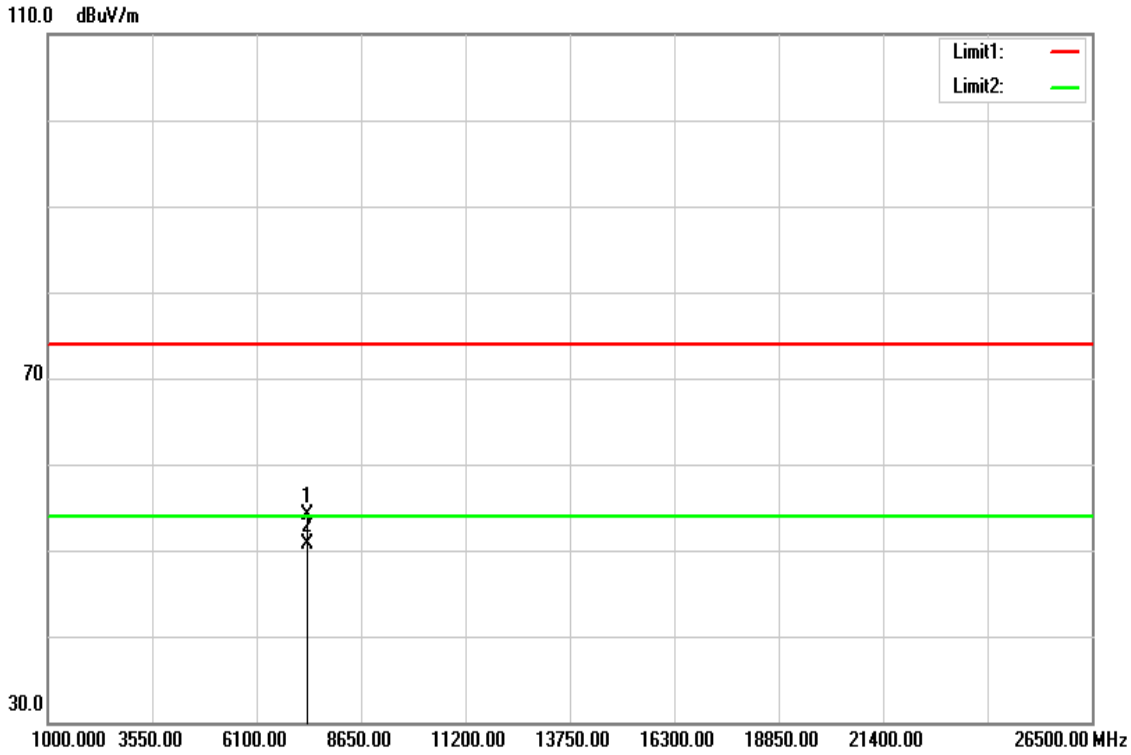
Test Mode:	GFSK_BR-1Mbps Mid CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Harmonic	Test Date	November 9, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
7326.000	43.63	10.48	54.11	74.00	-19.89	peak
7326.000	40.18	10.48	50.66	54.00	-3.34	AVG
N/A						

Remark:

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

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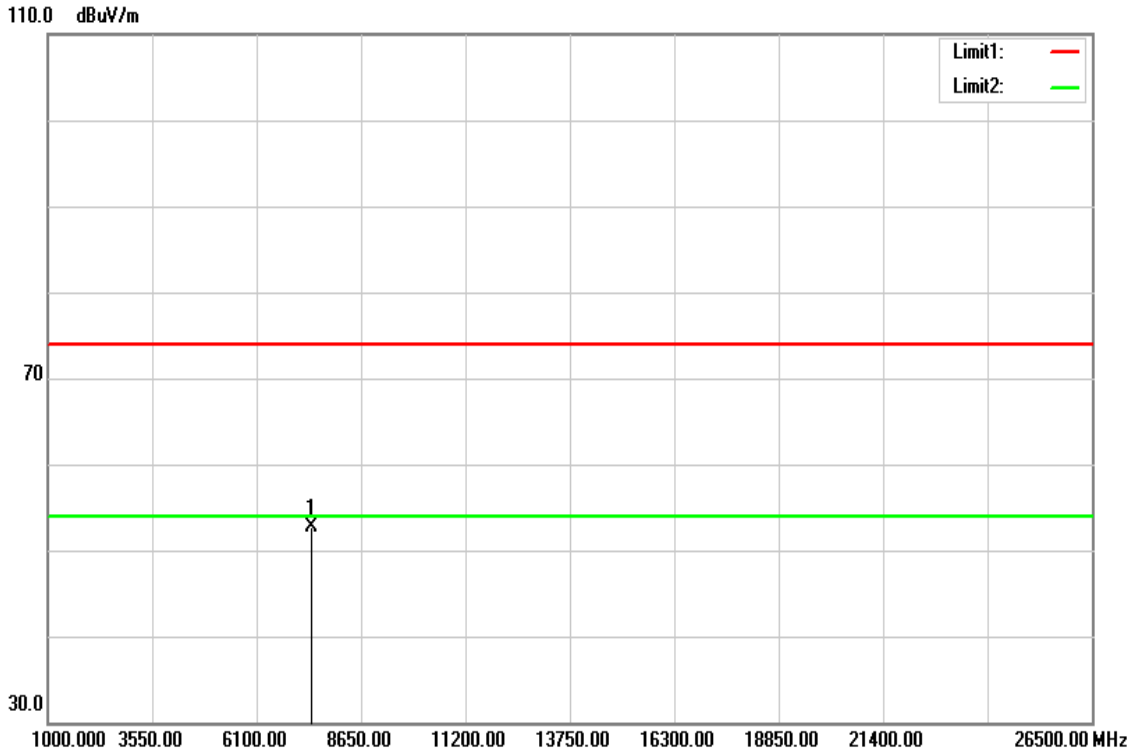
Test Mode:	GFSK_BR-1Mbps High CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Harmonic	Test Date	November 9, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
7438.000	42.27	10.48	52.75	74.00	-21.25	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

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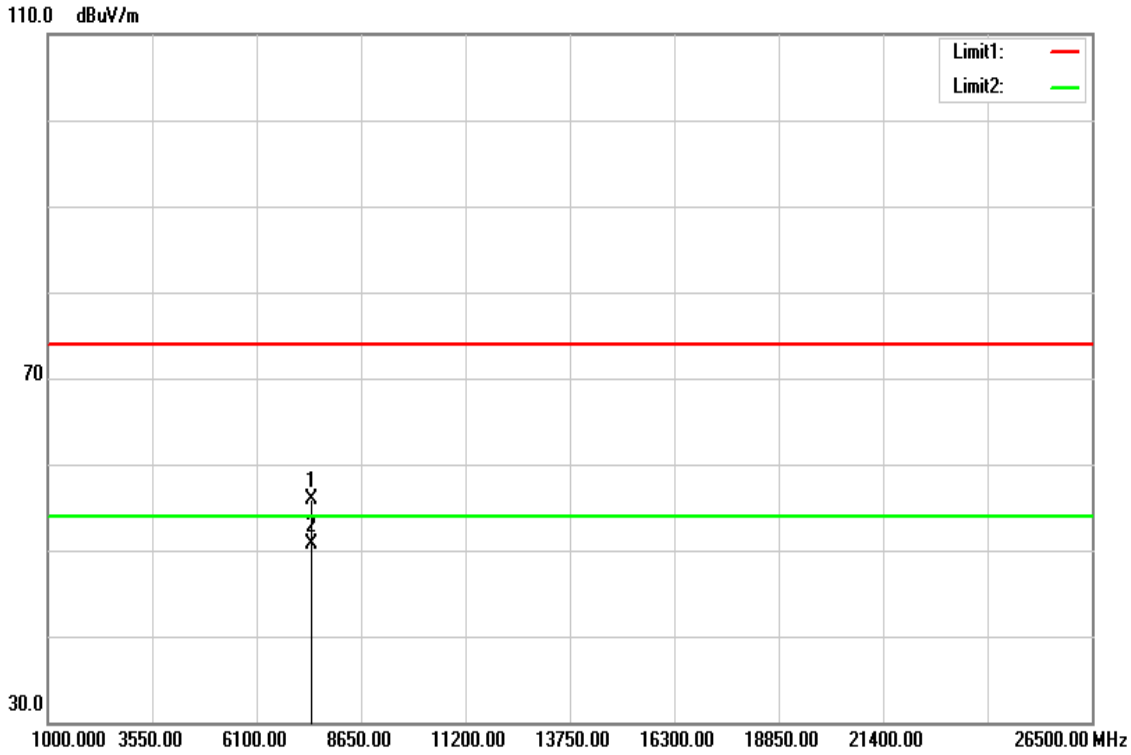
Test Mode:	GFSK_BR-1Mbps High CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Harmonic	Test Date	November 9, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak and Average		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
7438.000	45.37	10.48	55.85	74.00	-18.15	peak
7438.000	40.25	10.48	50.73	54.00	-3.27	AVG
N/A						

Remark:

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

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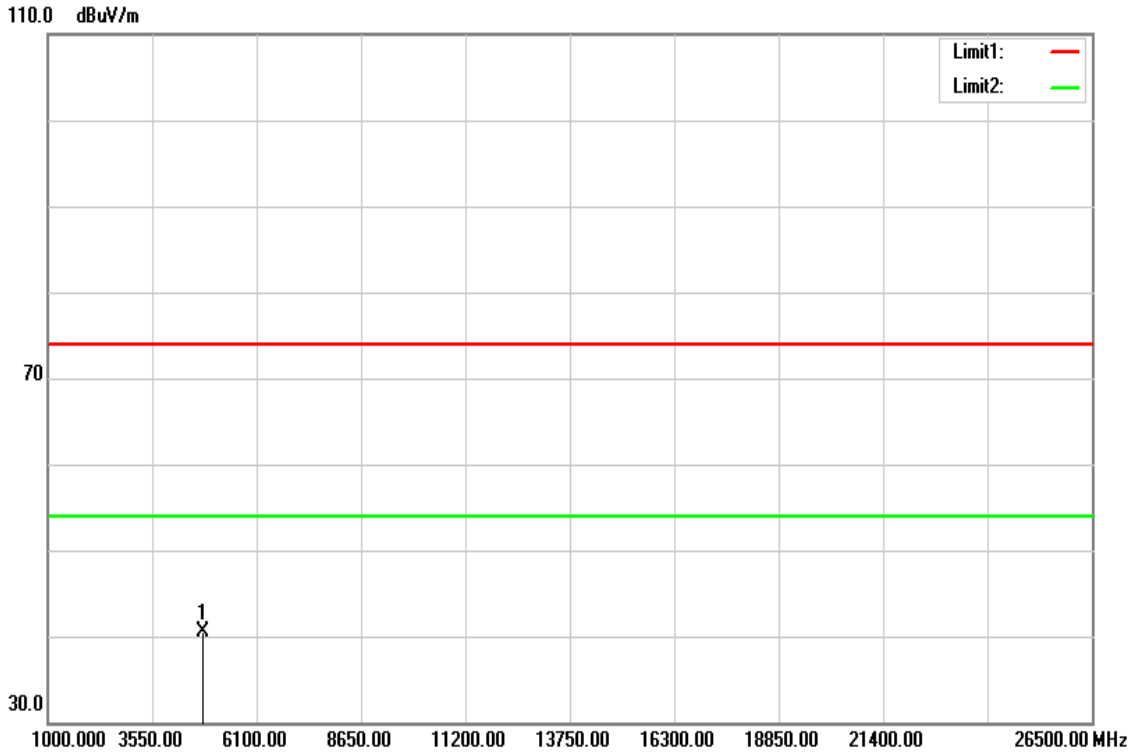
Test Mode	8DPSK_EDR-3Mbps Low CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Harmonic	Test Date	November 9, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4804.000	37.47	3.09	40.56	74.00	-33.44	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

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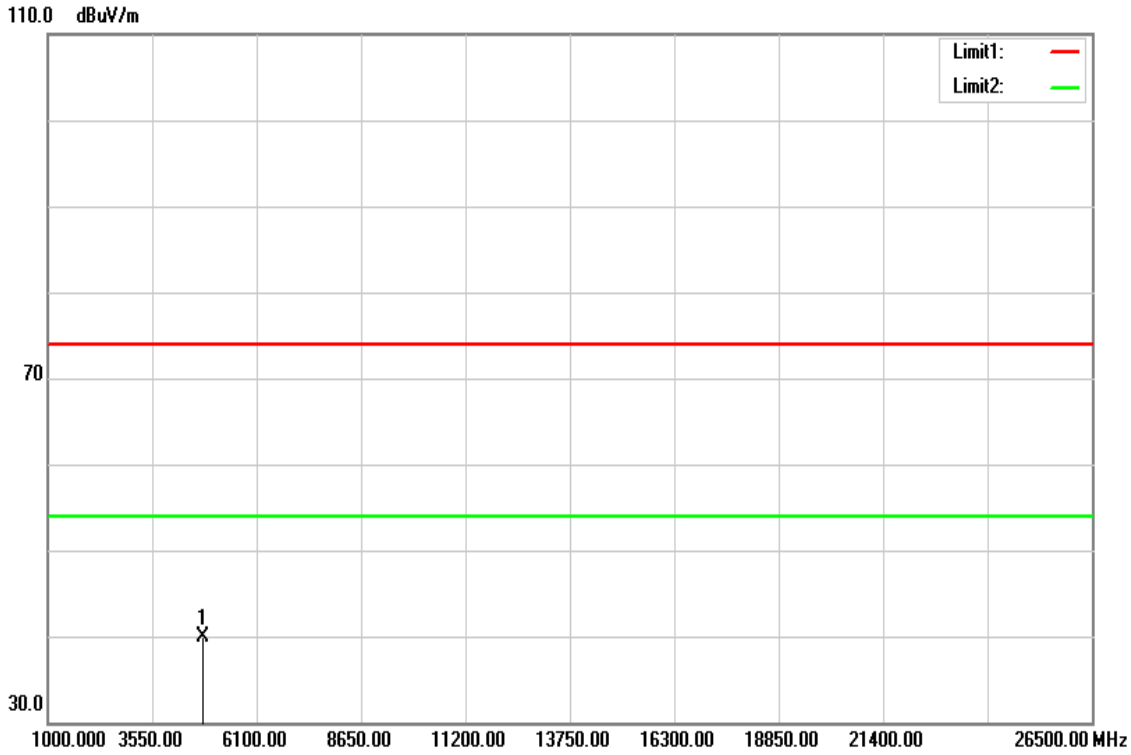
Test Mode	8DPSK_EDR-3Mbps Low CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Harmonic	Test Date	November 9, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4804.000	36.82	3.09	39.91	74.00	-34.09	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

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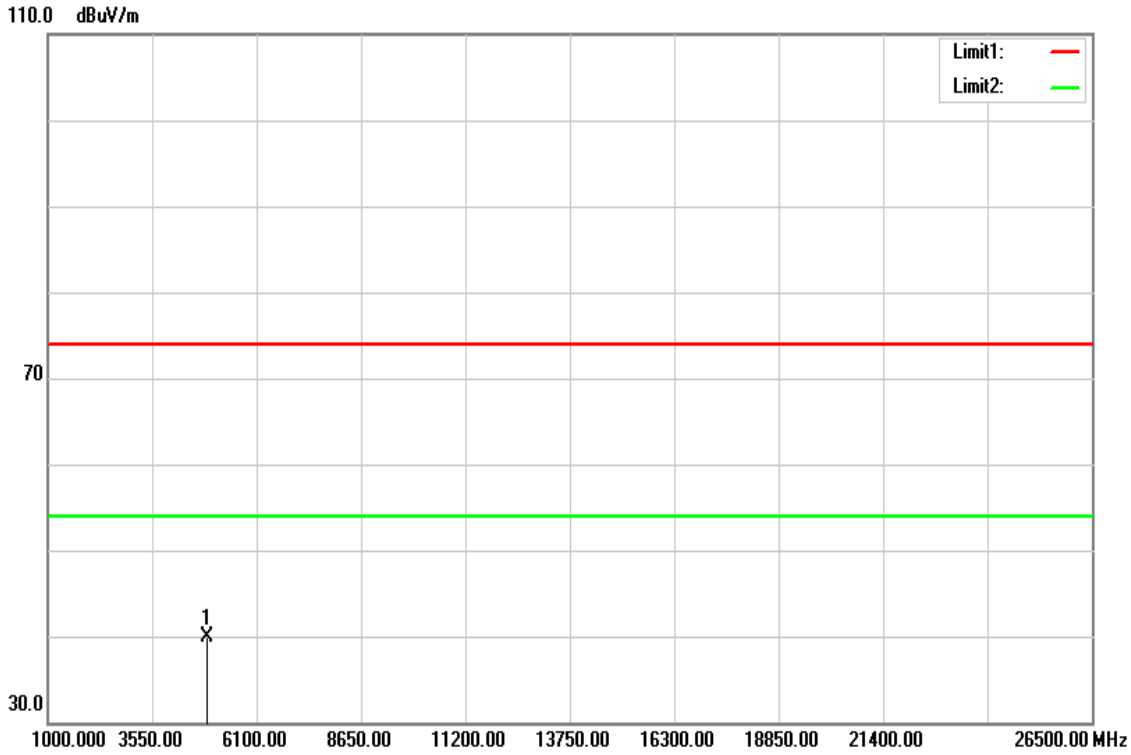
Test Mode	8DPSK_EDR-3Mbps Mid CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Harmonic	Test Date	November 9, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4882.000	36.33	3.61	39.94	74.00	-34.06	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

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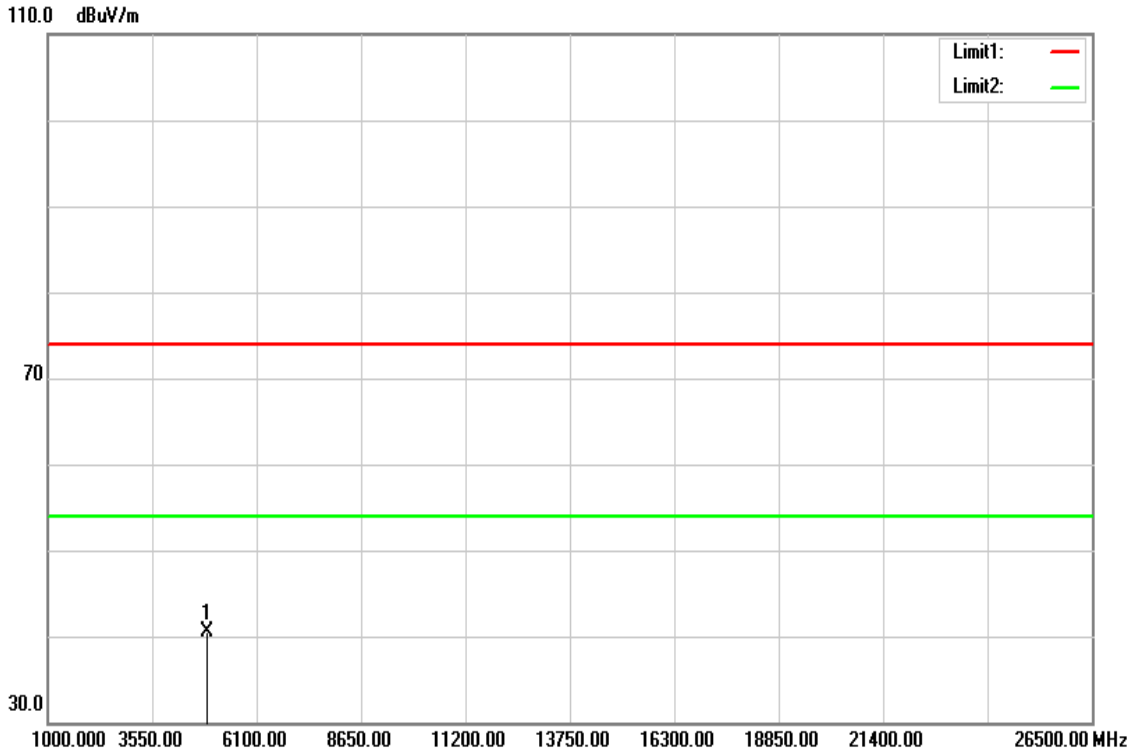
Test Mode	8DPSK_EDR-3Mbps Mid CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Harmonic	Test Date	November 9, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4882.000	36.95	3.61	40.56	74.00	-33.44	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

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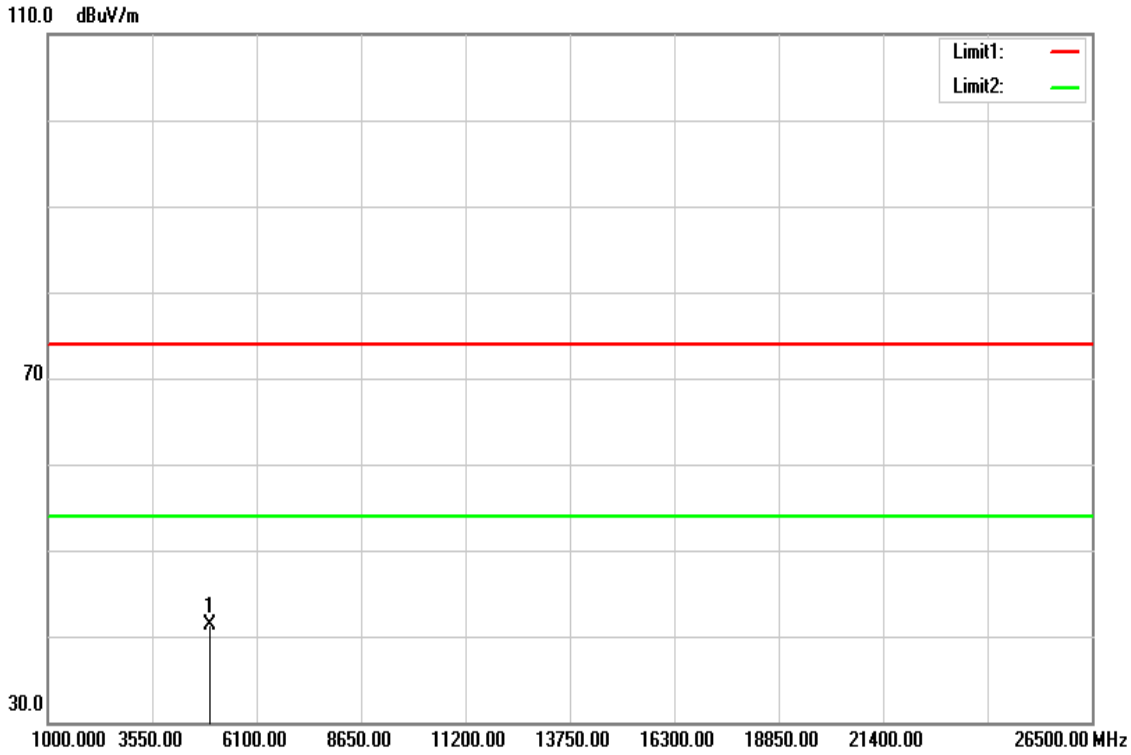
Test Mode	8DPSK_EDR-3Mbps High CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Harmonic	Test Date	November 9, 2018
Polarize	Vertical	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4960.000	37.24	4.14	41.38	74.00	-32.62	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

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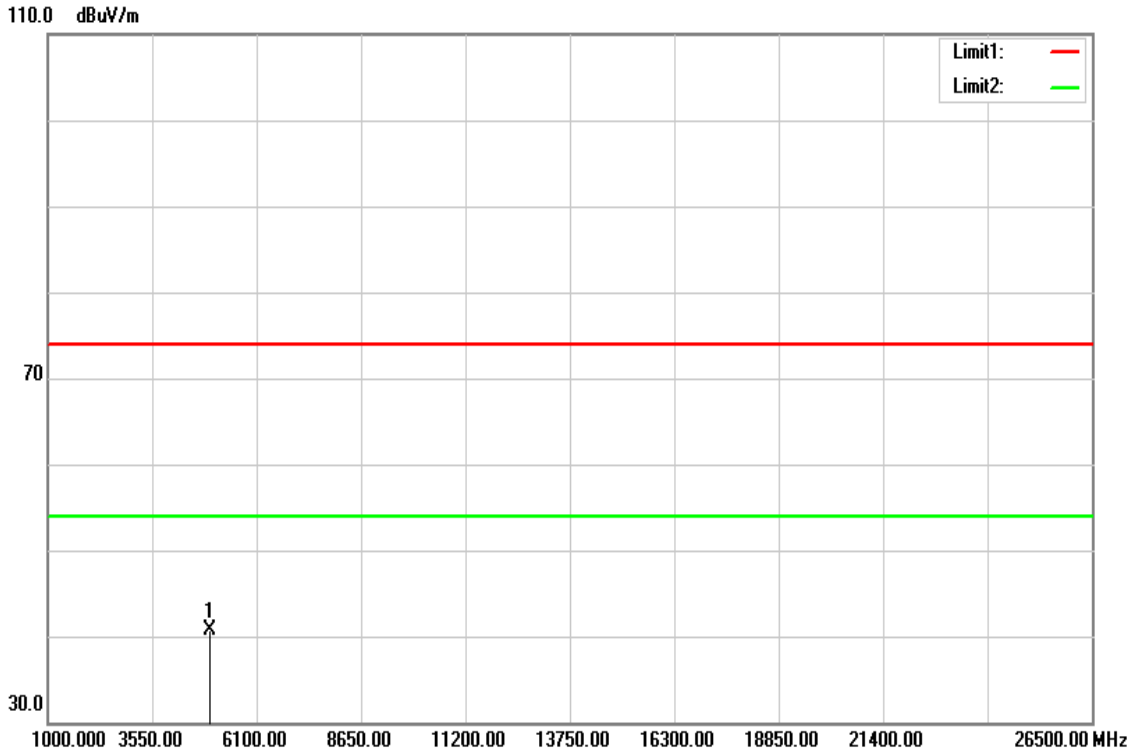
Test Mode	8DPSK_EDR-3Mbps High CH	Temp/Hum	22.3(℃)/ 46%RH
Test Item	Harmonic	Test Date	November 9, 2018
Polarize	Horizontal	Test Engineer	Jerry Chuang
Detector	Peak		



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4960.000	36.59	4.14	40.73	74.00	-33.27	peak
N/A						

Remark:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit*

--End of Test Report--

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