RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART C

Test Standard	**FCC Part 15.247**
Product name	**Gpacers LoRa module**
Brand Name	**gpacers**
Model No.	**GPM-RF2021**
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:

Kevin Tsai
Deputy Manager

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.
除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。
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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	April 12, 2021	Initial Issue	ALL	Doris Chu
01	April 23, 2021	See the following Note Rev. (01)	P.8, P.12, P.14, P.17, P.18, P.5	Doris Chu

Rev. (01)
1.Added X8 Power bank in section 1.7.
2.Revised duty cycle in section 3.3.
3.Revised section 4.2.2
4.Revised section 4.3.4 limit.
5.Revised section 4.4.2.
6.Revised remark in section 1.3.

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1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	Gpacers Technology 4th Floor, No.168 Yongji Road, Xinyi District, Taipei 110, Taiwan
Manufacturer	Gpacers Technology 4th Floor, No.168 Yongji Road, Xinyi District, Taipei 110, Taiwan
Equipment	Gpacers LoRa module
Model No.	GPM-RF2021
Model Discrepancy	N/A
Trade Name	gpacers
Received Date	January 15, 2021
Date of Test	February 24 ~ March 11, 2021
Power Supply	Power from Power Supply. (DC 5V)

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.

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1.2 EUT CHANNEL INFORMATION

Frequency Range	920.5 MHz-924.5 MHz
Modulation Type	CSS
Number of channels	9 Channels

Remark:
Refer as ANSI C63.10: 2013 clause 5.6.1 Table 4 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

1.3 ANTENNA INFORMATION

Antenna Type	☐ CHIP ☐ PIFA ☐ PCB ☒ Dipole ☐ Coils
Antenna Gain	Gain: 2 dBi
Antenna Connector	N/A

Remark:
1. The industrial epoxy adhesive is used making Antenna connection permanently prior to shipping. It complies with rule 15.203.

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1.4 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.

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1.5 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.)

Test site	Test Engineer	Remark
AC Conduction Room	N/A	Not applicable, because EUT doesn't connect to AC Main Source direct.
Radiation	Ray Li	-
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.

1.6 INSTRUMENT CALIBRATION

RF Conducted Test Site					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Coaxial Cable	Woken	WC12	CC003	06/29/2020	06/28/2021
Signal Analyzer	R&S	FSV 40	101073	09/17/2020	09/16/2021
Power Meter	Anritsu	ML2487A	6K00003260	05/21/2020	05/20/2021
Power Seneor	Anritsu	MA2490A	032910	05/21/2020	05/20/2021
Software	N/A				

3M 966 Chamber Test Site					
Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Date**	**Calibration Due**
Band Reject Filters	MICRO TRONICS	BRM 50702	120	02/25/2021	02/24/2022
Bilog Antenna	Sunol Sciences	JB3	A030105	07/24/2020	07/23/2021
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/25/2021	02/24/2022
Coaxial Cable	EMCI	EMC105	190914+327109/4	09/19/2020	09/18/2021
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	01/06/2021	01/05/2022
double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	09/30/2020	09/29/2021
Loop Ant	COM-POWER	AL-130	121051	03/27/2020	03/26/2021
Pre-Amplifier	EMEC	EM330	060609	02/25/2021	02/24/2022
Pre-Amplifier	HP	8449B	3008A00965	02/25/2021	02/24/2022
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	07/24/2020	07/23/2021
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 6.11-20180413				

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. N.C.R. = No Calibration Required.

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1.7 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**
1	X8 power bank	KXD Electronics Co., Ltd.	X8	N/A	N/A

1.8 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.

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2. TEST SUMMARY

FCC Standard Section	Report Section	Test Item	Result
15.203	1.3	Antenna Requirement	Pass
15.207(a)	4.1	AC Conducted Emission	N/A
15.247(a)(2)	4.2	6 dB Bandwidth	Pass
-	4.2	Occupied Bandwidth (99%)	Pass
15.247(b)(3)	4.3	Output Power Measurement	Pass
15.247(e)	4.4	Power Spectral Density	Pass
15.247(d)	4.5	Conducted Spurious Emission	Pass
15.247(d)	4.5	Conducted Emission	Pass
15.247(d)	4.6	Radiation Band Edge	Pass
15.247(d)	4.6	Radiation Spurious Emission	Pass

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3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	LoRa: 920.5 MHz ~ 924.5 MHz
Test Channel Frequencies	1.Lowest Channel : 920.5 MHz 2.Highest Channel : 924.5 MHz

Remark:

1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.

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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**
Worst Mode	☒ **Mode 1** ☐ **Mode 2** ☐ **Mode 3** ☐ **Mode 4**
Worst Position	☒ **Placed in fixed position at X-Plane (E2-Plane)**

Radiated Emission Measurement Below 1G	
Test Condition	**Radiated Emission Below 1G**
Power supply Mode	**Mode 1: EUT power by Power Supply**
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 axis X and two polarity, for radiated measurement. The worst case(X-Plane) were recorded in this report

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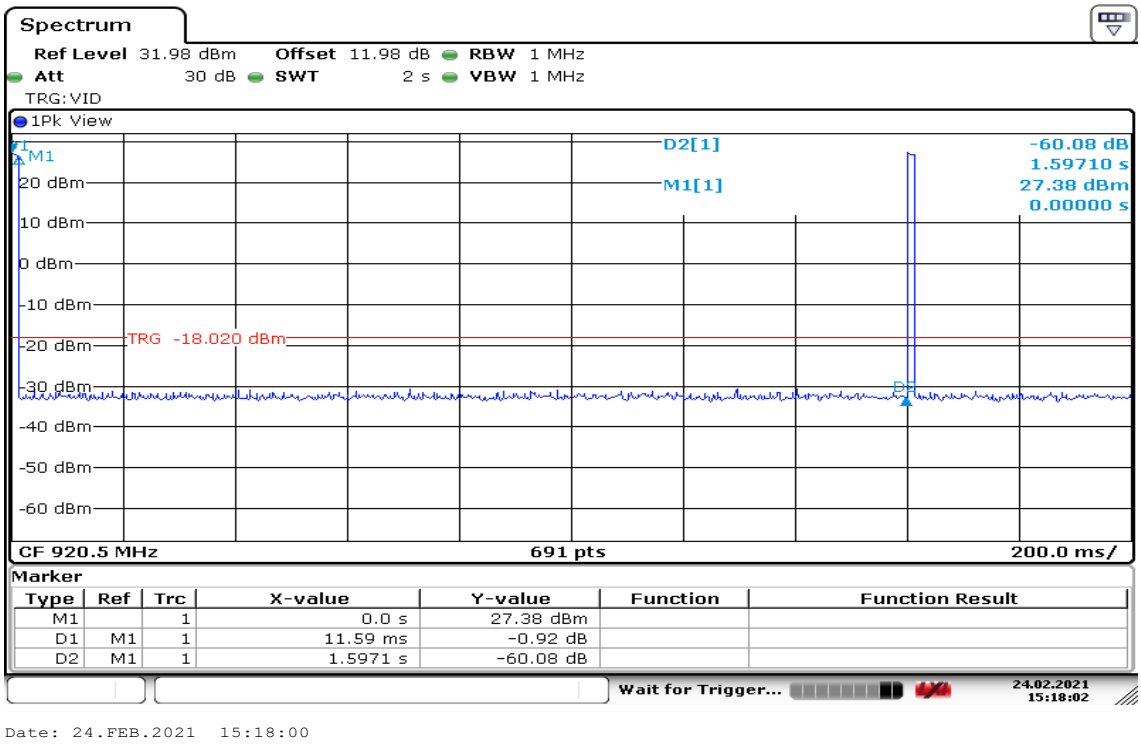
3.3 EUT DUTY CYCLE

Temperature:	22.5℃	**Test Date:**	February 24, 2021
Humidity:	56% RH	**Test by:**	Dally Hong

Duty Cycle				
Configuration	Duty Cycle (%)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
LoRa	0.73	21.37	0.086	1.00

LoRa



Date: 24.FEB.2021 15:18:00

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4. TEST RESULT

4.1 AC POWER LINE CONDUCTED EMISSION

4.1.1 Test Limit

According to §15.207(a),

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

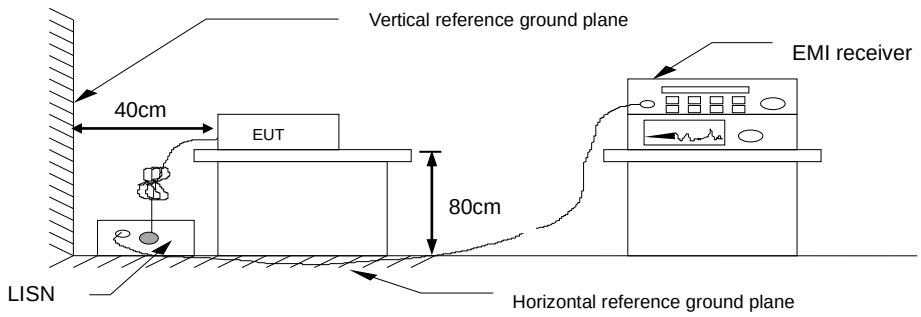
* Decreases with the logarithm of the frequency.

4.1.2 Test Procedure

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

1. The EUT was placed 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 not connect to AC Main Source direct.

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4.2 6dB BANDWIDTH AND OCCUPIED BANDWIDTH (99%)

4.2.1 Test Limit

According to §15.247(a)(2),

6 dB Bandwidth ：

Limit	Shall be at least 500kHz

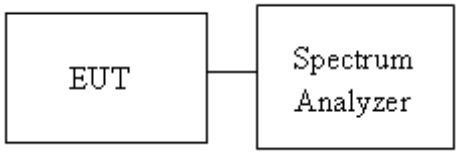
Occupied Bandwidth(99%) ： For reporting purposes only.

4.2.2 Test Procedure

Test method Refer as ANSI C63.10: 2013 clause 6.9.2,

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 = three times the RBW and Detector = Peak, to measurement 99% Bandwidth and 6dB Bandwidth.
4. Measure and record the result of 6 dB Bandwidth and 99% Bandwidth. in the test report.

4.2.3 Test Setup



4.2.4 Test Result

Temperature:	22.1℃	**Test Date:**	March 9, 2021
Humidity:	54% RH	**Test by:**	Dally Hong

Test mode: LoRa mode / 920-925 MHz				
Channel	**Frequency (MHz)**	**OBW (99%) (MHz)**	**6dB BW (MHz)**	**6dB limit (kHz)**
Low	920.5	0.6165	0.5152	>500
High	924.5	0.6223	0.5123	

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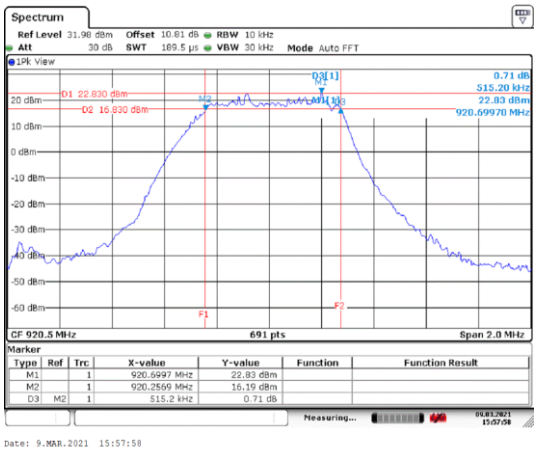
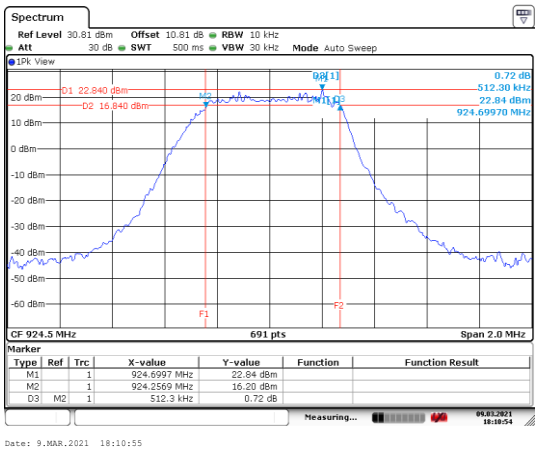
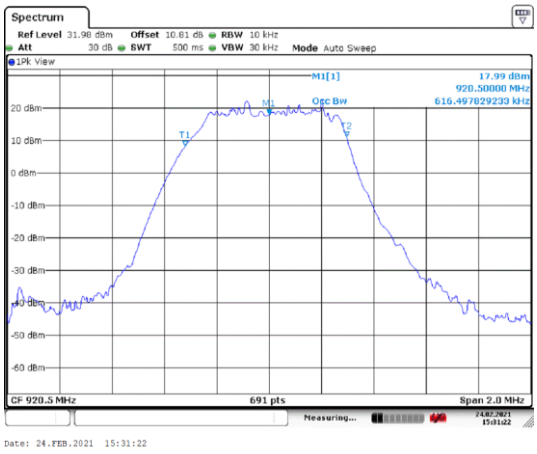
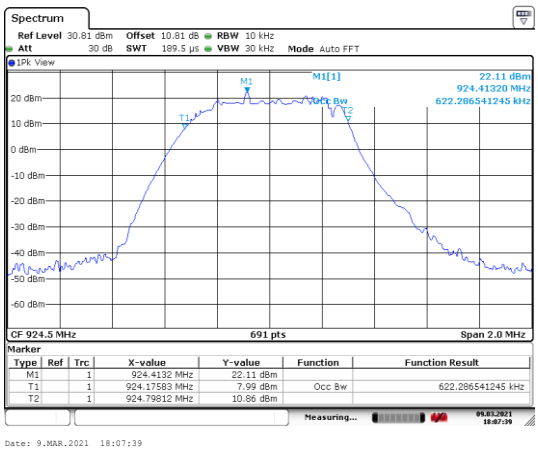
6dB BANDWIDTH Test Data

LoRa	
Low CH	**High CH**
	

BANDWIDTH (99%) Test Data

LoRa	
Low CH	**High CH**
	

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4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

According to §15.247(b)(3).

Peak output power：

For systems using digital modulation in the 902-928 MHz: 1 Watt(30 dBm), base on the use of antennas with directional gain not exceed 6 dBi If transmitting antennas of directional gain greater than 6dBi are used the peak output power the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

Limit	☒ Antenna not exceed 6 dBi：30dBm ☐ Antenna with DG greater than 6 dBi [Limit = 30 – (DG – 6)] ☐ Point-to-point operation

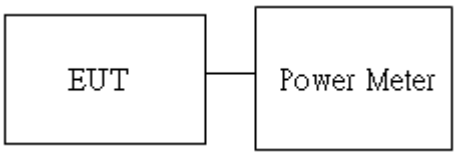
Average output power：For reporting purposes only.

4.3.2 Test Procedure

Test method Refer as ANSI C63.10:2013.

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 Average output power. in the test report.

4.3.3 Test Setup



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4.3.4 Test Result

Temperature:	22.1℃	**Test Date:**	March 9, 2021
Humidity:	54% RH	**Test by:**	Dally Hong

Average output power：

LoRa Mode						
Config.	**CH**	**Freq. (MHz)**	**Power Setting**	**AVG Power (dBm)**	**AVG Power (W)**	**Limit (dBm)**
920~925M	Low	920.5	30	26.12	0.4093	30
	High	924.5	30	26.23	0.4198	

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4.4 POWER SPECTRAL DENSITY

4.4.1 Test Limit

According to §15.247(e),

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

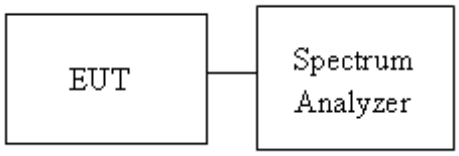
Limit	☒ Antenna not exceed 6 dBi：8dBm ☐ Antenna with DG greater than 6 dBi [Limit = 8 – (DG – 6)] ☐ Point-to-point operation：

4.4.2 Test Procedure

Test method Refer as ANSI C63.10:2013.

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 3kHz, VBW = 10kHz, Span = 1.5 times DTS Bandwidth (6 dB BW), Detector = Peak, Sweep Time = Auto and Trace = Max hold.
4. The path loss and Duty Factor were compensated to the results for each measurement by SA.
5. Mark the maximum level.
6. Measure and record the result of power spectral density. in the test report.

4.4.3 Test Setup



4.4.4 Test Result

Temperature:	22.1℃	**Test Date:**	March 9, 2021
Humidity:	54% RH	**Test by:**	Dally Hong

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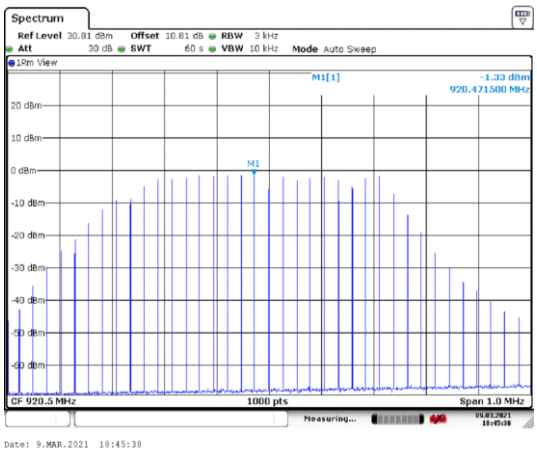
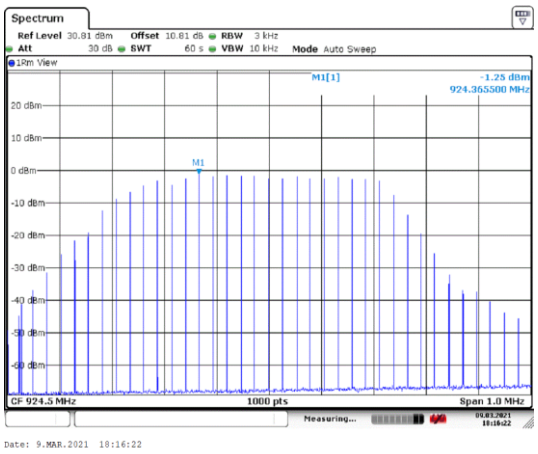
Test mode: LoRa mode / 920-925 MHz			
Channel	**Frequency (MHz)**	**PSD (dBm)**	**FCC limit (dBm)**
Low	920.5	-1.33	8
High	924.5	-1.25	

Test Data

LoRa mode	
Low CH	**High CH**
	

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4.5 CONDUCTED BAND EDGE AND SPURIOUS EMISSION

4.5.1 Test Limit

According to §15.247(d),

In any 100 kHz bandwidth outside the authorized frequency band,

Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

4.5.2 Test Procedure

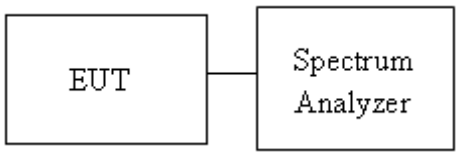
Test method Refer as ANSI C63.10:2013.

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. In any 100 kHz bandwidth outside the authorized frequency band, shall be attenuated at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when conducted power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

4.5.3 Test Setup



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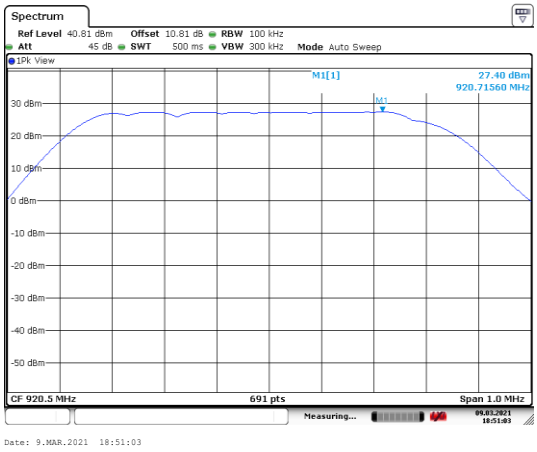
4.5.4 Test Result

Temperature:	22.1℃	**Test Date:**	March 9, 2021
Humidity:	54% RH	**Test by:**	Dally Hong

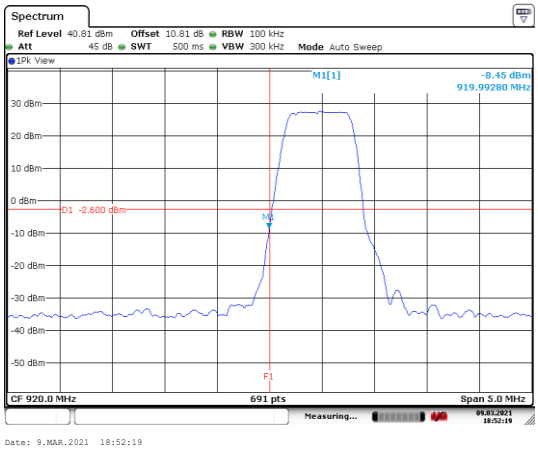
Test Data

LoRa mode Low CH

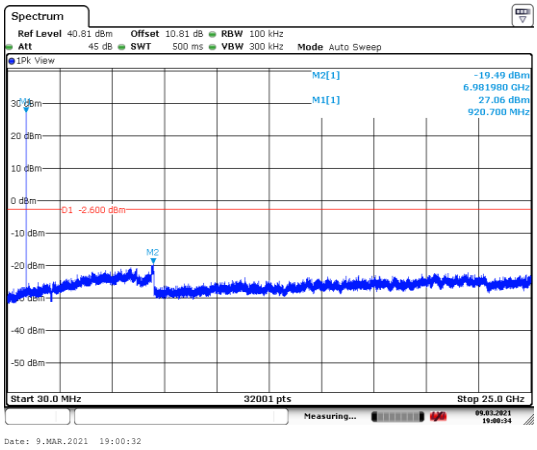
Reference Level of PSD in 100kHz



Band Edge



Spurious Emission 30MHz-25GHz



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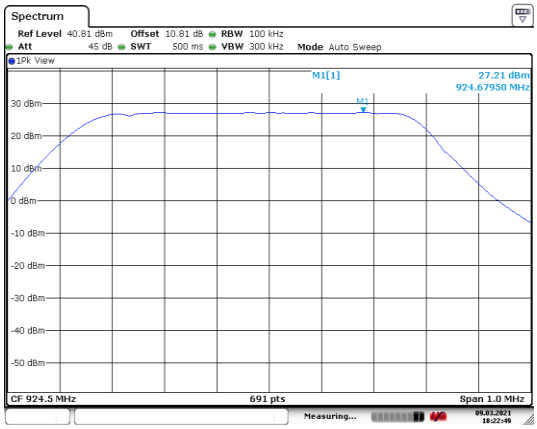
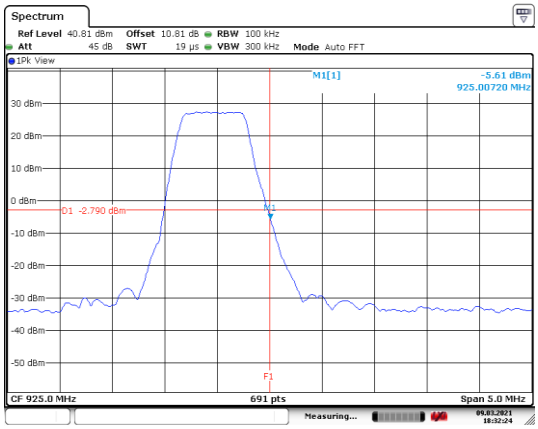
LoRa mode High CH

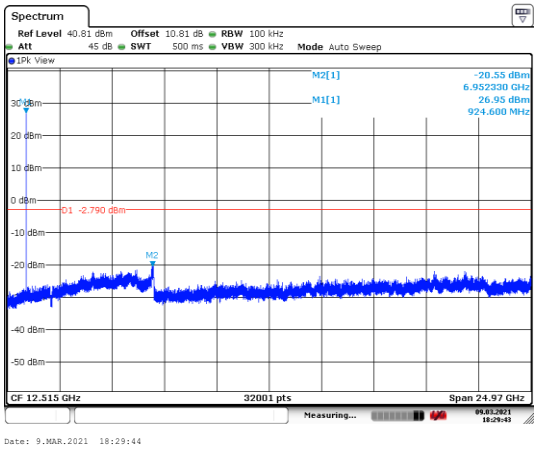
Reference Level of PSD in 100kHz



Band Edge



Spurious Emission 30MHz-25GHz



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4.6 RADIATION BANDEDGE AND SPURIOUS EMISSION

4.6.1 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.

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4.6.2 Test Procedure

Test method Refer as ANSI C63.10:2013.

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.

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 414788.
2. No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).

4. 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.

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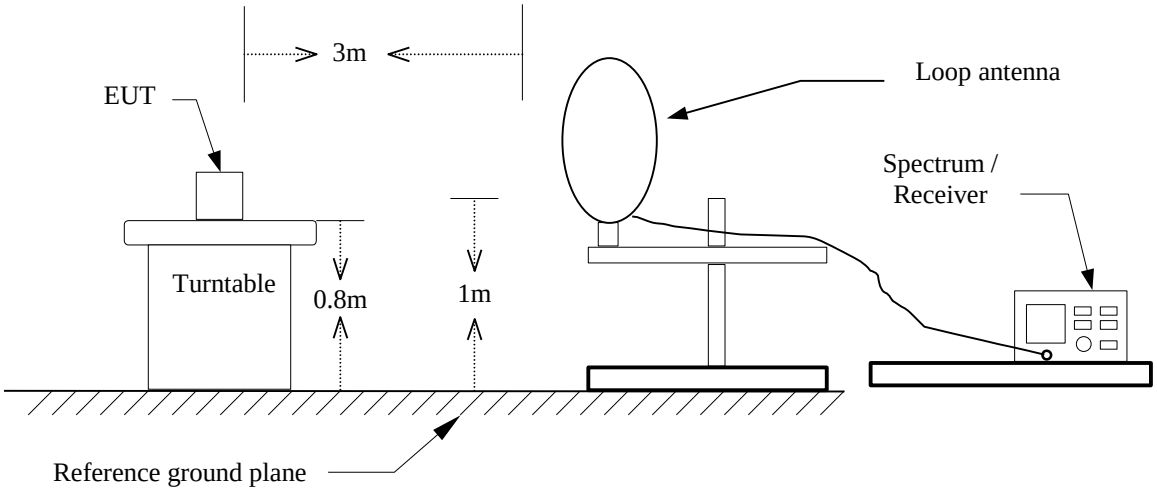
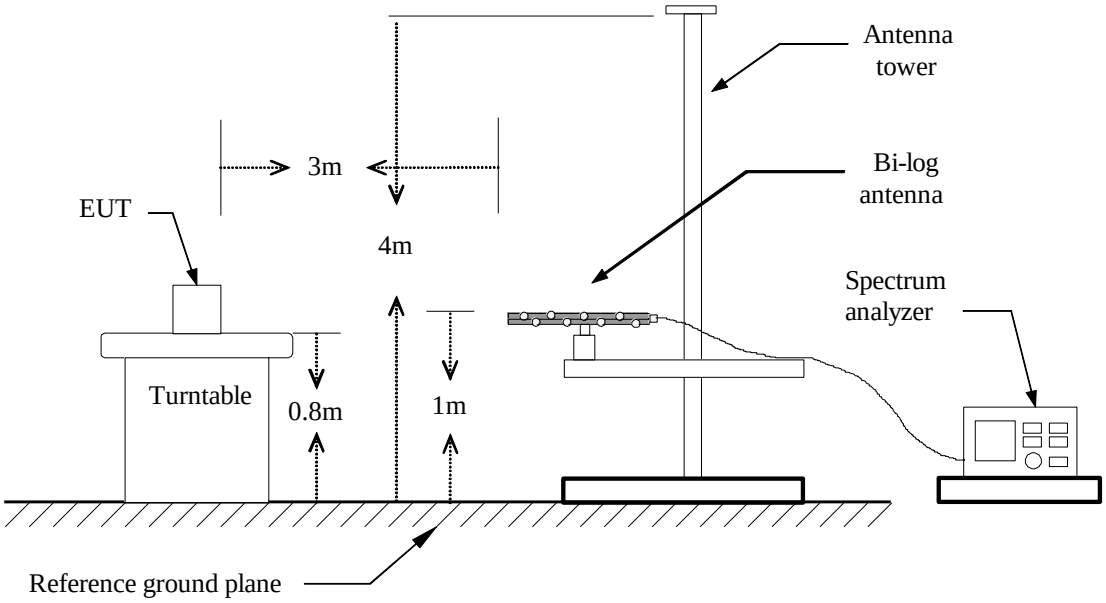
4.6.3 Test Setup

9kHz ~ 30MHz



30MHz ~ 1GHz



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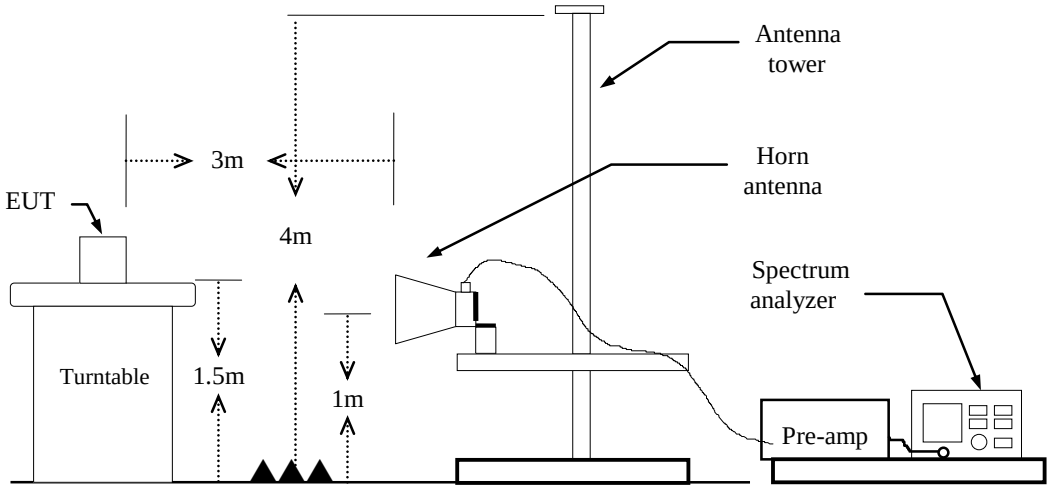
Above 1 GHz



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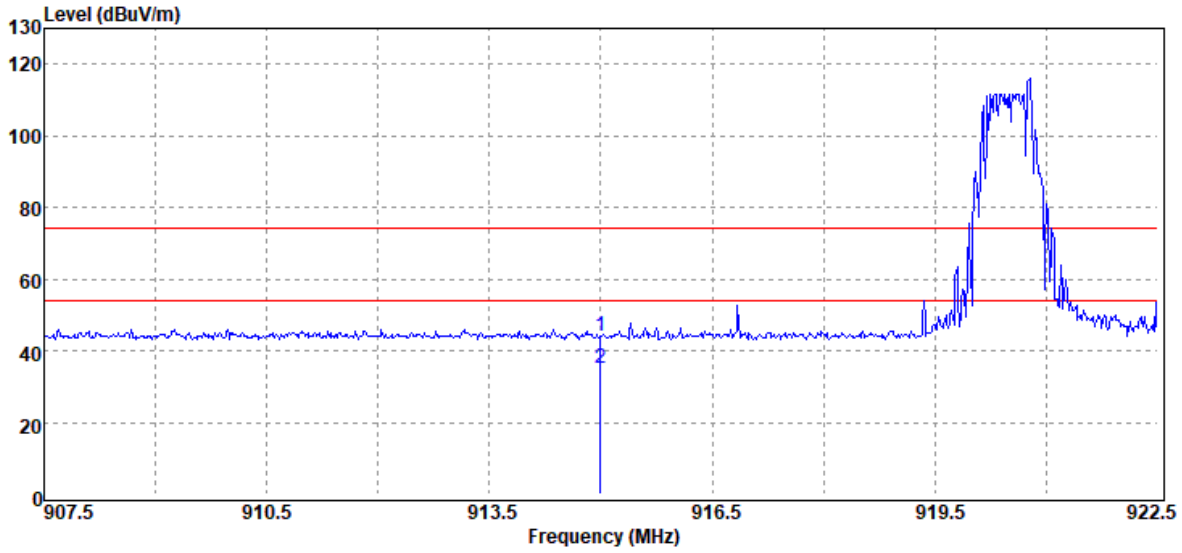
4.6.4 Test Result

Band Edge Test Data

Test Mode	Low CH 920.5 MHz	Temp/Hum	21.4(℃) / 60%RH
Test Item	Band Edge	Test Date	March 11, 2021
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
915.00	Peak	40.60	3.26	43.86	74.00	-30.14
915.00	Average	31.71	3.26	34.97	54.00	-19.03

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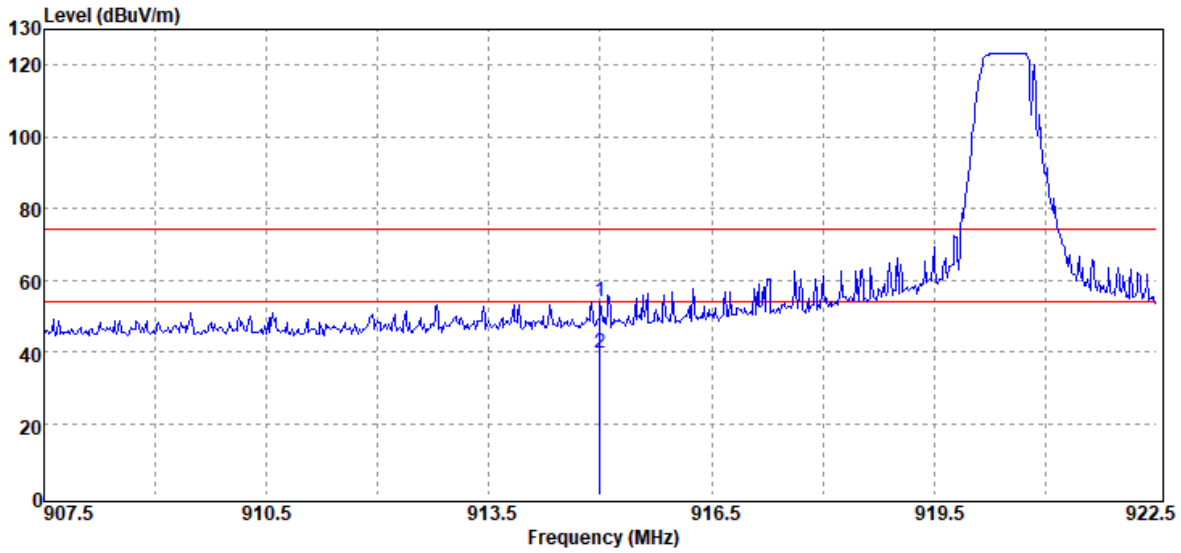
Report No.: T210115W01-RP

Test Mode	Low CH 920.5 MHz	Temp/Hum	21.4(℃) / 60%RH
Test Item	Band Edge	Test Date	March 11, 2021
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
915.00	Peak	50.57	3.26	53.83	74.00	-20.17
915.00	Average	36.43	3.26	39.69	54.00	-14.31

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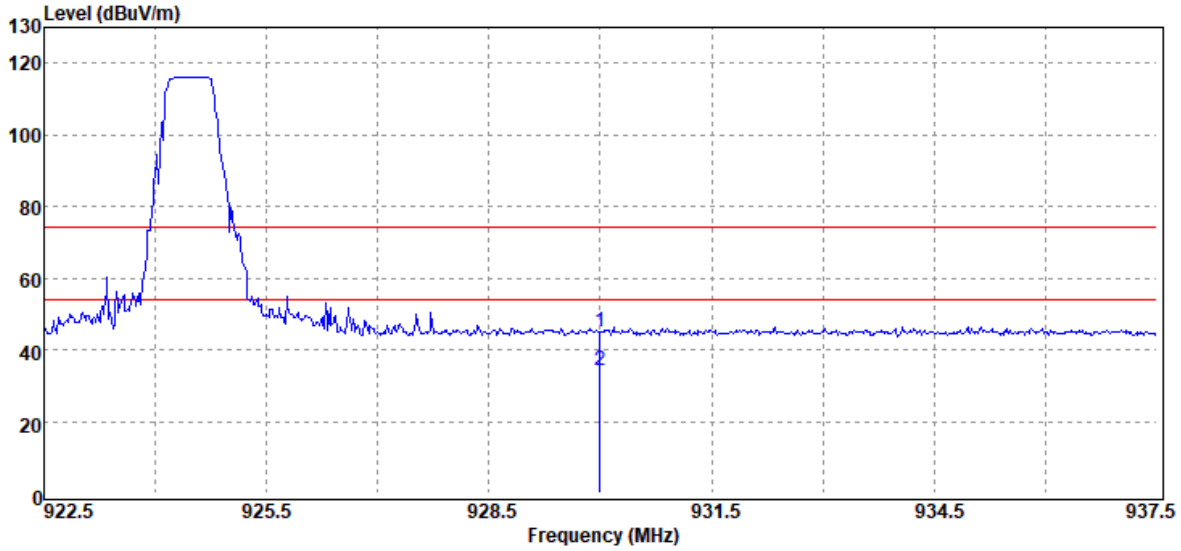
Report No.: T210115W01-RP

Test Mode	High CH 924.5 MHz	Temp/Hum	21.4(℃) / 60%RH
Test Item	Band Edge	Test Date	March 11, 2021
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
930.00	Peak	41.25	3.56	44.81	74.00	-29.19
930.00	Average	30.82	3.56	34.38	54.00	-19.62

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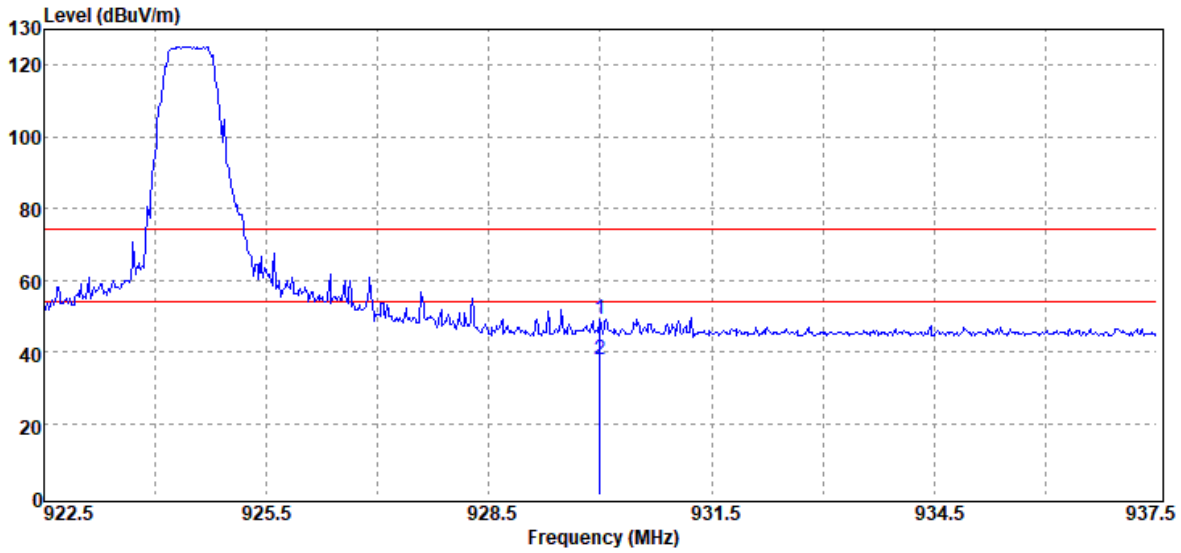
Report No.: T210115W01-RP

Test Mode	High CH 924.5 MHz	Temp/Hum	21.4(℃) / 60%RH
Test Item	Band Edge	Test Date	March 11, 2021
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
930.00	Peak	45.36	3.56	48.92	74.00	-25.08
930.00	Average	34.29	3.56	37.85	54.00	-16.15

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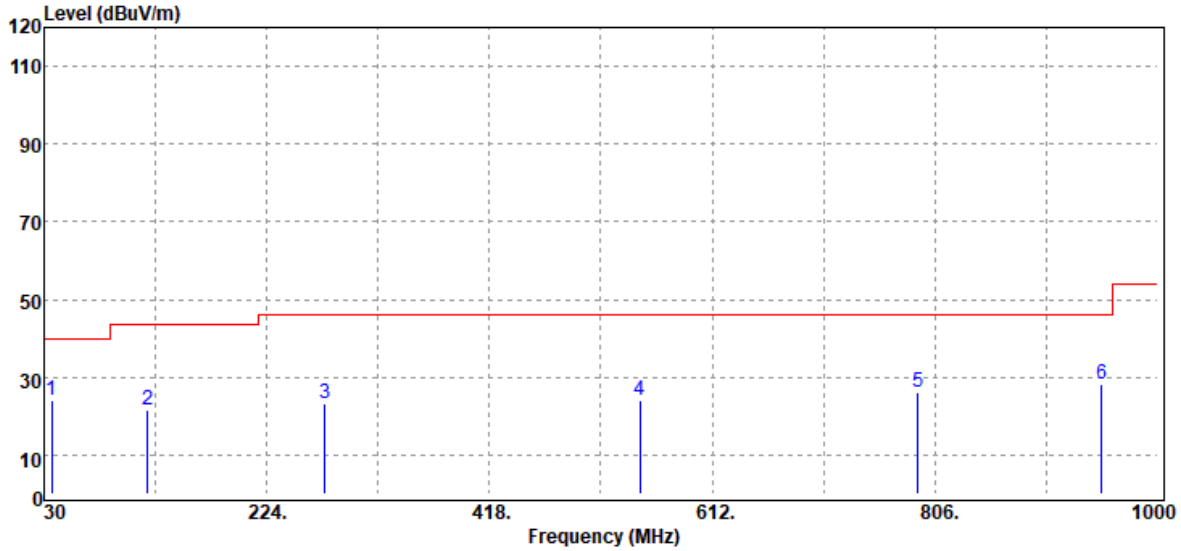
Noramal Link Test Data

Test Mode:	Noramal Link	Temp/Hum	21.4(℃) / 60%RH
Test Item	30MHz-1GHz	Test Date	March 11, 2021
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
36.79	Peak	31.54	-7.36	24.18	40.00	-15.82
120.21	Peak	30.56	-9.11	21.45	43.50	-22.05
274.44	Peak	31.96	-8.80	23.16	46.00	-22.84
548.95	Peak	26.42	-2.44	23.98	46.00	-22.02
791.45	Peak	24.92	1.39	26.31	46.00	-19.69
951.50	Peak	24.03	4.30	28.33	46.00	-17.67

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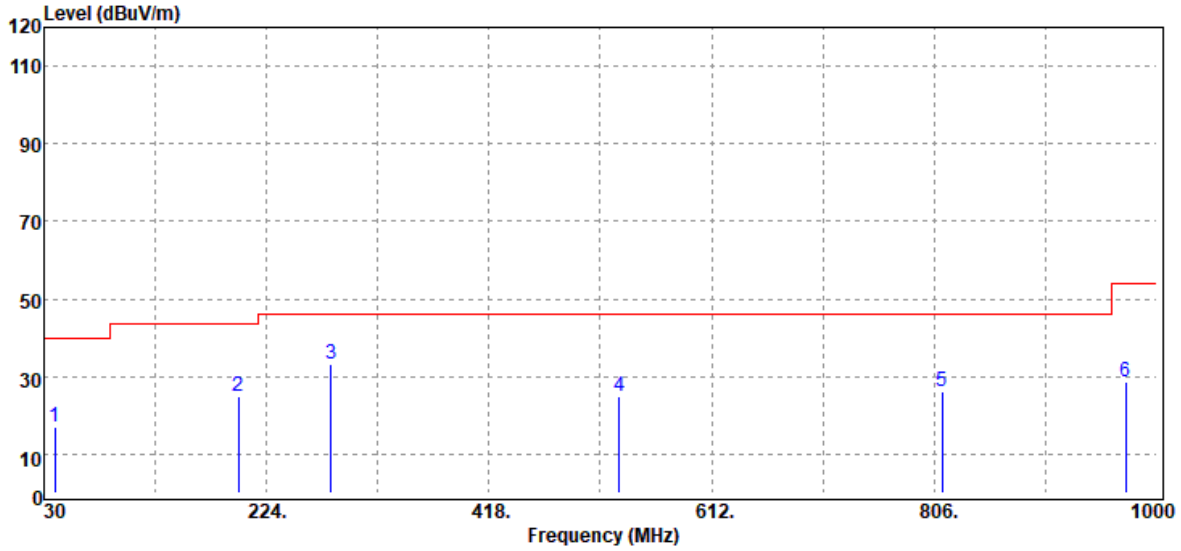
Report No.: T210115W01-RP

Test Mode:	Noramal Link	Temp/Hum	21.4(℃) / 60%RH
Test Item	30MHz-1GHz	Test Date	March 11, 2021
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
39.70	Peak	26.80	-9.65	17.15	40.00	-22.85
199.75	Peak	34.19	-9.48	24.71	43.50	-18.79
280.26	Peak	42.02	-8.67	33.35	46.00	-12.65
531.49	Peak	27.56	-2.70	24.86	46.00	-21.14
812.79	Peak	24.34	1.91	26.25	46.00	-19.75
972.84	Peak	24.61	3.99	28.60	54.00	-25.40

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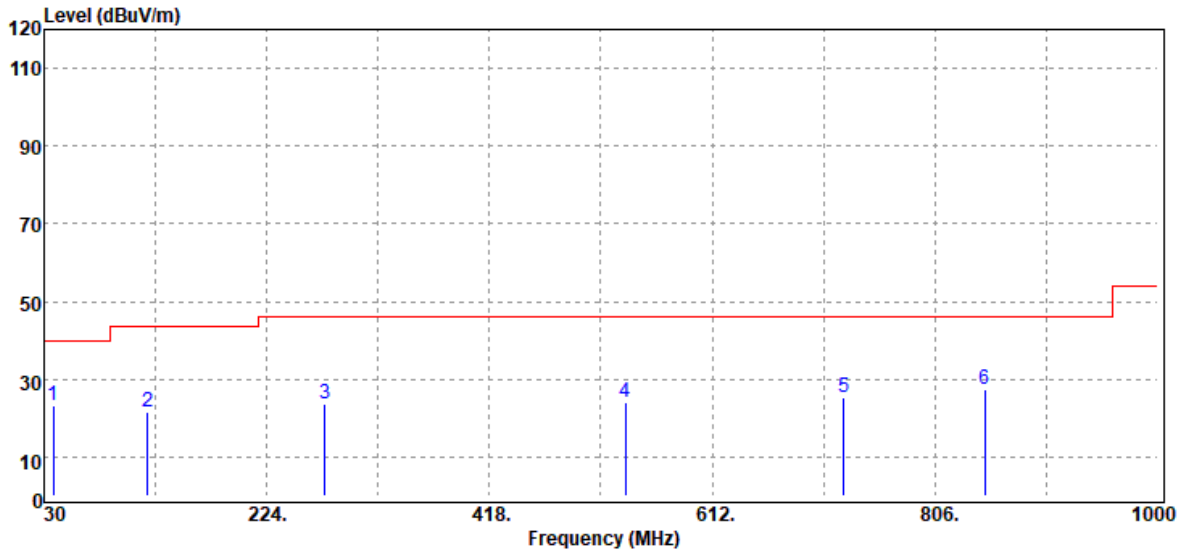
Below 1G Test Data

Test Mode:	Low CH	Temp/Hum	21.4(℃) / 60%RH
Test Item	30MHz-1GHz	Test Date	March 11, 2021
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
37.76	Peak	31.22	-8.16	23.06	40.00	-16.94
120.21	Peak	30.51	-9.11	21.40	43.50	-22.10
274.44	Peak	32.49	-8.80	23.69	46.00	-22.31
536.34	Peak	26.40	-2.51	23.89	46.00	-22.11
726.46	Peak	25.06	0.42	25.48	46.00	-20.52
849.65	Peak	24.87	2.52	27.39	46.00	-18.61

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

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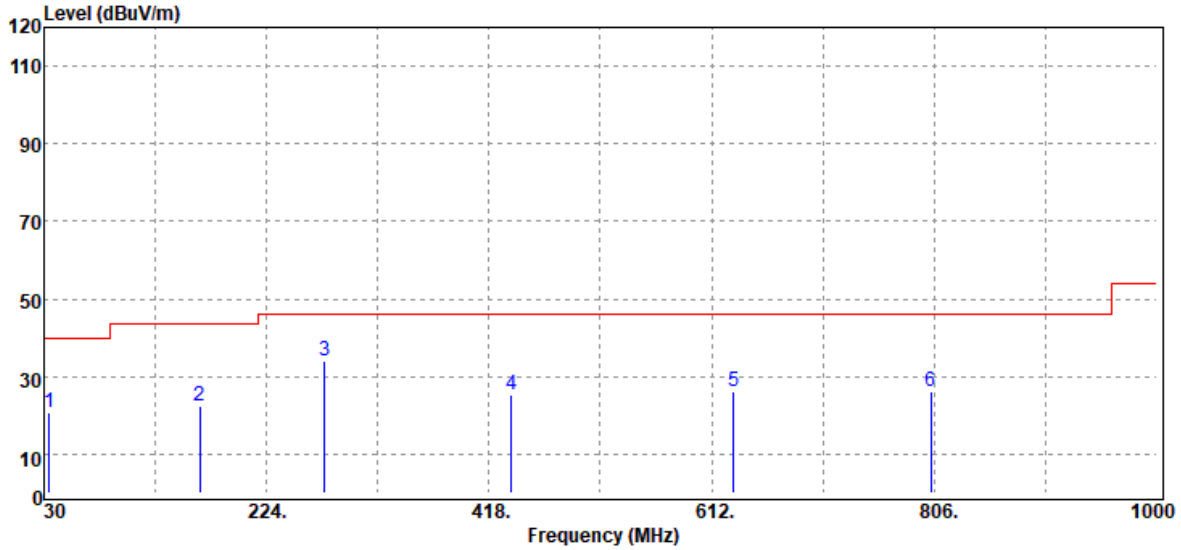
Report No.: T210115W01-RP

Test Mode:	Low CH	Temp/Hum	21.4(℃) / 60%RH
Test Item	30MHz-1GHz	Test Date	March 11, 2021
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
34.85	Peak	26.74	-6.07	20.67	40.00	-19.33
165.80	Peak	33.15	-10.71	22.44	43.50	-21.06
274.44	Peak	42.66	-8.80	33.86	46.00	-12.14
437.40	Peak	30.10	-4.57	25.53	46.00	-20.47
631.40	Peak	26.78	-0.68	26.10	46.00	-19.90
803.09	Peak	24.40	1.69	26.09	46.00	-19.91

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

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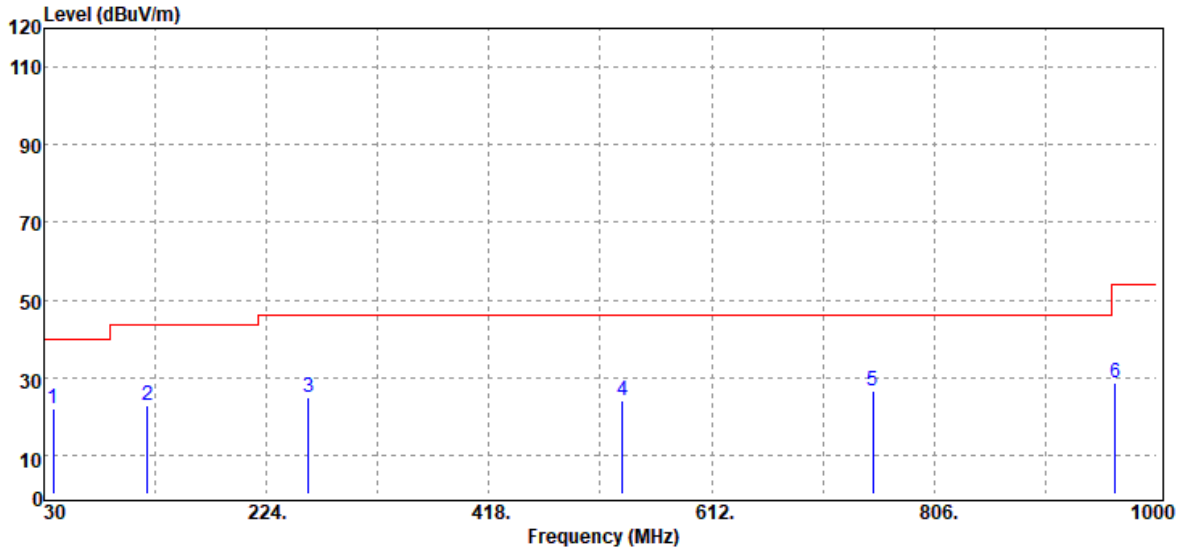
Report No.: T210115W01-RP

Test Mode:	High CH	Temp/Hum	21.4(℃) / 60%RH
Test Item	30MHz-1GHz	Test Date	March 11, 2021
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
37.76	Peak	30.16	-8.16	22.00	40.00	-18.00
120.21	Peak	31.96	-9.11	22.85	43.50	-20.65
260.86	Peak	34.94	-9.99	24.95	46.00	-21.05
534.40	Peak	26.67	-2.57	24.10	46.00	-21.90
752.65	Peak	25.68	0.83	26.51	46.00	-19.49
964.11	Peak	24.98	3.65	28.63	54.00	-25.37

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

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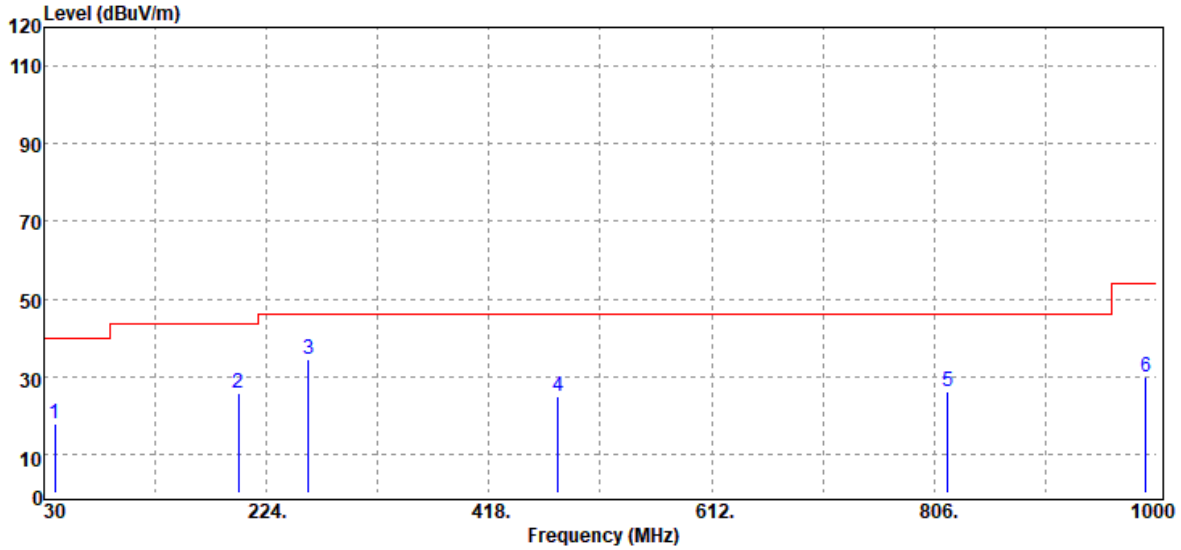
Report No.: T210115W01-RP

Test Mode:	High CH	Temp/Hum	21.4(℃) / 60%RH
Test Item	30MHz-1GHz	Test Date	March 11, 2021
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
39.70	Peak	27.70	-9.65	18.05	40.00	-21.95
199.75	Peak	35.38	-9.48	25.90	43.50	-17.60
260.86	Peak	44.66	-9.99	34.67	46.00	-11.33
478.14	Peak	28.43	-3.40	25.03	46.00	-20.97
817.64	Peak	24.23	1.98	26.21	46.00	-19.79
990.30	Peak	25.43	4.29	29.72	54.00	-24.28

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

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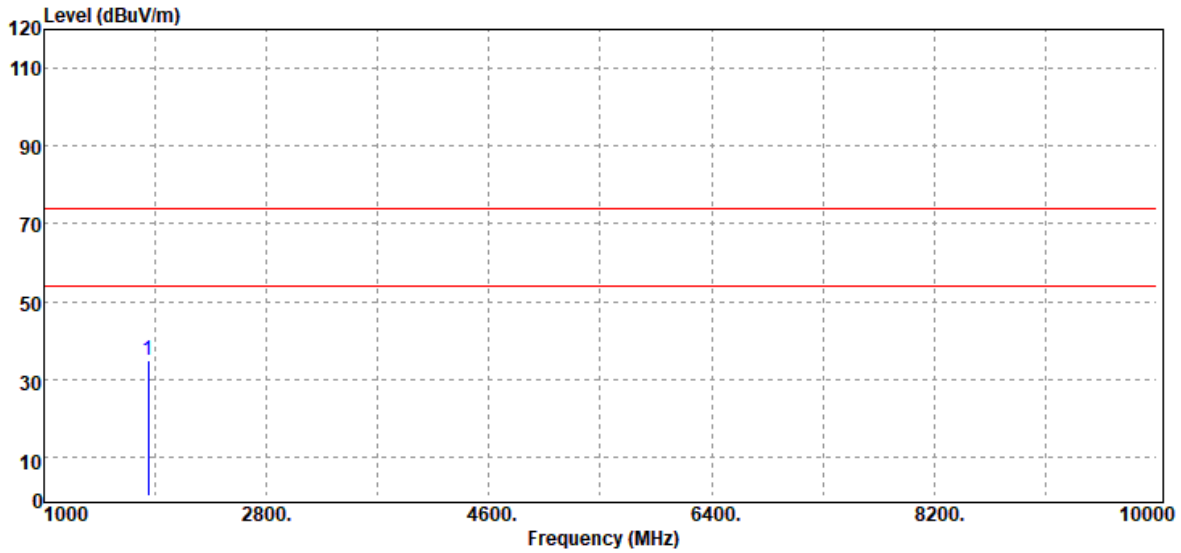
Above 1G Test Data

Test Mode:	Low CH	Temp/Hum	21.4(℃) / 60%RH
Test Item	Harmonic	Test Date	March 11, 2021
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
1841.00	Peak	38.64	-3.70	34.94	74.00	-39.06
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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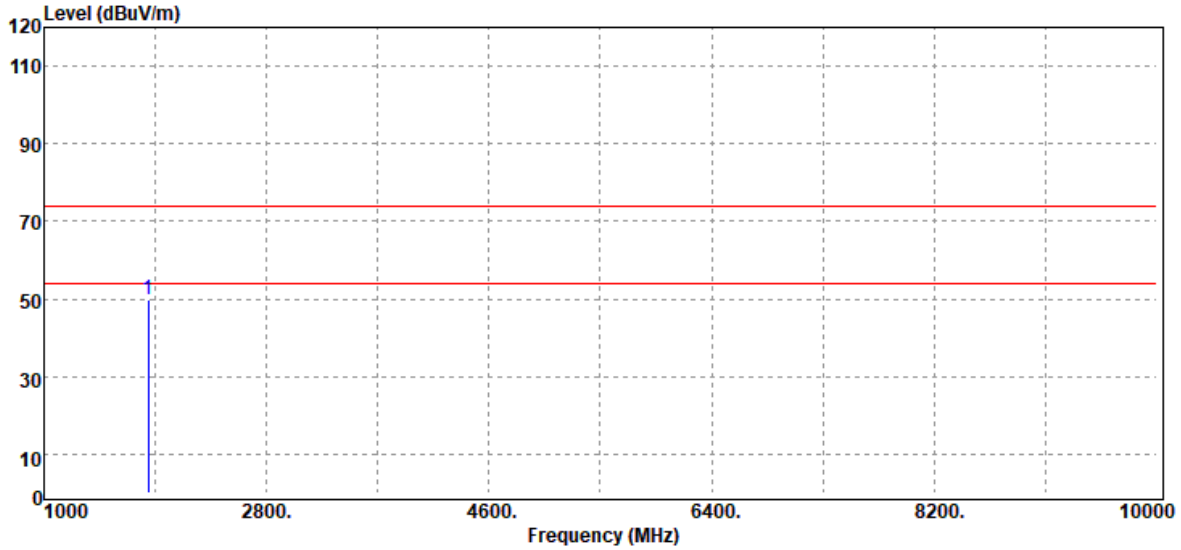
Report No.: T210115W01-RP

Test Mode:	Low CH	Temp/Hum	21.4(℃) / 60%RH
Test Item	Harmonic	Test Date	March 11, 2021
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
1841.00	Peak	53.51	-3.70	49.81	74.00	-24.19
N/A						

Remark:

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

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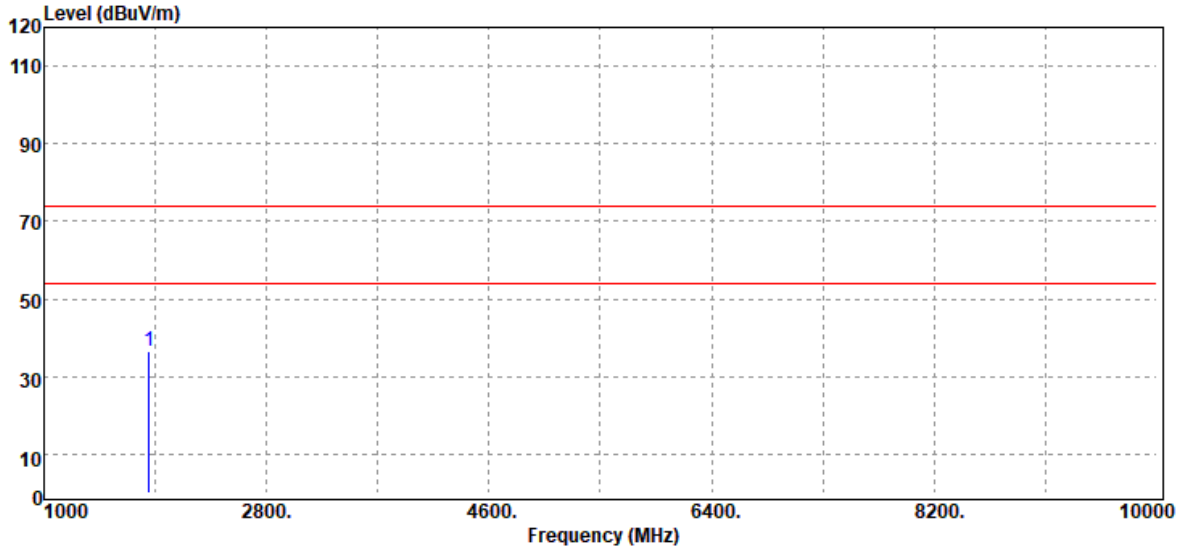
Test Mode:	High CH	Temp/Hum	21.4(℃) / 60%RH
Test Item	Harmonic	Test Date	March 11, 2021
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
1849.00	Peak	40.13	-3.63	36.50	74.00	-37.50
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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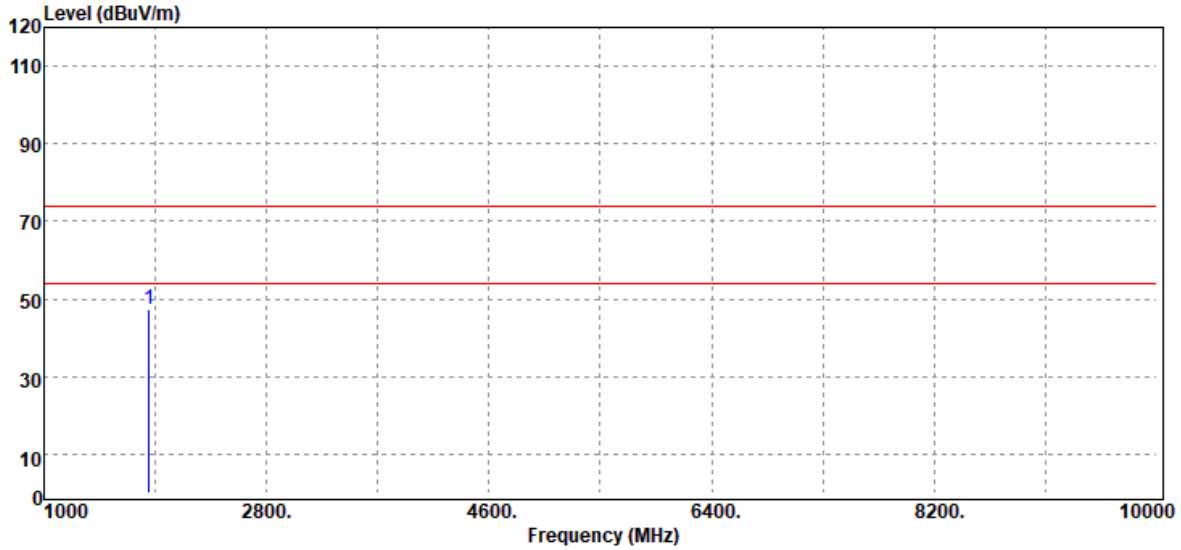
Report No.: T210115W01-RP

Test Mode:	High CH	Temp/Hum	21.4(℃) / 60%RH
Test Item	Harmonic	Test Date	March 11, 2021
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak		



Frequency (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
1849.00	Peak	50.78	-3.63	47.15	74.00	-26.85
N/A						

Remark:

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

--End of Test Report--

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