

RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART C

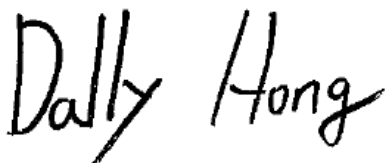
Test Standard	FCC Part 15.247
Product name	Kapture Door Sensor
Brand Name	Pamex
Model No.	KP1-DS
Test Result	Pass
Statements of Conformity	Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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:



Dally Hong
Sr. 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.

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。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com.tw/Terms-and-Conditions> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com.tw/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.



Report No.: TMWK2112001576KR

Page: 2 / 44

Rev.: 00

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	January 20, 2022	Initial Issue	ALL	Doris Chu

Table of contents

1.	GENERAL INFORMATION	4
1.1	EUT INFORMATION	4
1.2	EUT CHANNEL INFORMATION	5
1.3	ANTENNA INFORMATION	5
1.4	MEASUREMENT UNCERTAINTY.....	6
1.5	FACILITIES AND TEST LOCATION	7
1.6	INSTRUMENT CALIBRATION	7
1.7	SUPPORT AND EUT ACCESSORIES EQUIPMENT	9
1.8	TEST METHODOLOGY AND APPLIED STANDARDS	9
2.	TEST SUMMARY	10
3.	DESCRIPTION OF TEST MODES.....	11
3.1	THE WORST MODE OF OPERATING CONDITION	11
3.2	THE WORST MODE OF MEASUREMENT	12
3.3	EUT DUTY CYCLE	13
4.	TEST RESULT	14
4.1	AC POWER LINE CONDUCTED EMISSION	14
4.2	OUTPUT POWER MEASUREMENT	19
4.3	POWER SPECTRAL DENSITY	22
4.4	CONDUCTED BAND EDGE AND SPURIOUS EMISSION	25
4.5	RADIATION BANDEDGE AND SPURIOUS EMISSION	29
APPENDIX 1 - PHOTOGRAPHS OF EUT		



Report No.: TMWK2112001576KR

1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	Pamex Inc. 4680 Vinita Court, Chino, CA, 91710, United States
Manufacturer	ALZK Co., Ltd. 9F., No. 36, Sec. 3, Bade Rd., Songshan Dist., Taipei City, Taiwan
Equipment	Kapture Door Sensor
Model No.	KP1-DS
Model Discrepancy	N/A
Trade Name	Pamex
Received Date	December 22, 2021
Date of Test	January 7 ~ 11, 2022
Power Supply	Power from Battery. (DC 3V)
HW Version	V0.0.4
SW Version	00.00.01

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.



Report No.: TMWK2112001576KR

1.2 EUT CHANNEL INFORMATION

Frequency Range	2402MHz-2480MHz
Modulation Type	GFSK for BLE 1 Mbps
Number of channels	40 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	☐ FPC ☒ PCB ☐ Dipole ☐ Coils
Antenna Gain	Gain :5.3 dBi

Remark:

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.

1.4 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 1.2575
Emission bandwidth, 6dB bandwidth	+/- 0.0014
RF output power, conducted	+/- 1.14
Power density, conducted	+/- 1.40
3M Semi Anechoic Chamber / 30 MHz ~1 GHz (Horizontally)	+/- 3.91
3M Semi Anechoic Chamber / 30 MHz ~1 GHz (Vertically)	+/- 4.57
3M Semi Anechoic Chamber / 1 GHz ~ 6 GHz	+/- 5.20
3M Semi Anechoic Chamber / 6 GHz ~ 18 GHz	+/- 5.18
3M Semi Anechoic Chamber / 18 GHz ~ 40 GHz	+/- 3.68

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.

Report No.: TMWK2112001576KR

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.)

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	-
RF Conducted	Jack Chen	-

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

1.6 INSTRUMENT CALIBRATION

RF Conducted Test Site					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
EXA Signal Analyzer	KEYSIGHT	N9010B	MY55460167	05/25/2021	05/24/2022
Power Meter	Anritsu	ML2496A	2136002	12/06/2021	12/05/2022
Power Seneor	Anritsu	MA2411B	1911387	08/19/2021	08/18/2022
Power Seneor	Anritsu	MA2411B	1911386	08/19/2021	08/18/2022
DC Power Supplies	GW Instek	SPS-3610	GPE880163	12/21/2021	12/20/2022
Software	Radio Test Software Ver. 21				

Conducted Emission Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
N/A					

Report No.: TMWK2112001576KR

3M 966 Chamber Test Site					
Equipment	Manufacturer	Model	Serial Number	Cal Date	Cal 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	02/24/2021	02/23/2022
Coaxial Cable	EMCI	EMC105	190914+1111	09/17/2021	09/16/2022
Coaxial Cable	Woken	J-1099	201709090004	12/21/2021	12/20/2022
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	ETS LINDGREN	3117	00055165	07/29/2021	07/28/2022
Loop Ant	COM-POWER	AL-130	121051	04/07/2021	04/06/2022
Pre-Amplifier	EMEC	EM330	060609	02/24/2021	02/23/2022
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 6.11-20180413				

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



Report No.: TMWK2112001576KR

Page: 9 / 44

Rev.: 00

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	IC
1	NB(L)	Toshiba	PORTEGE R30-A	N/A	PD97260H	1000M-7260H

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 and FCC KDB 558074.

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 Band Edge	Pass
15.247(d)	4.5	Conducted Spurious Emission	Pass
15.247(d)	4.6	Radiation Band Edge	Pass
15.247(d)	4.6	Radiation Spurious Emission	Pass



Report No.: TMWK2112001576KR

Page: 11 / 44

Rev.: 00

3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	BLE Mode (1Mbps)
Test Channel Frequencies	1.Lowest Channel : 2402MHz 2.Middle Channel : 2442MHz 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.

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 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)

Radiated Emission Measurement Below 1G	
Test Condition	Radiated Emission Below 1G
Power supply Mode	Mode 1: 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, for radiated measurement. The worst case(X-Plane) were recorded in this report

Report No.: TMWK2112001576KR

3.3 EUT DUTY CYCLE

Temperature: 20.6°C

Humidity: 53% RH

Tested by: Jack Chen

Test date: January 7, 2022

Duty Cycle				
Configuration	Duty Cycle (%)	Duty Factor (dB)	1/T (kHz)	VBW Setting (kHz)
BLE-1Mbps	100.00	0.00	0.33	0.01

BLE-1Mbps



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(dB μ V)	
	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

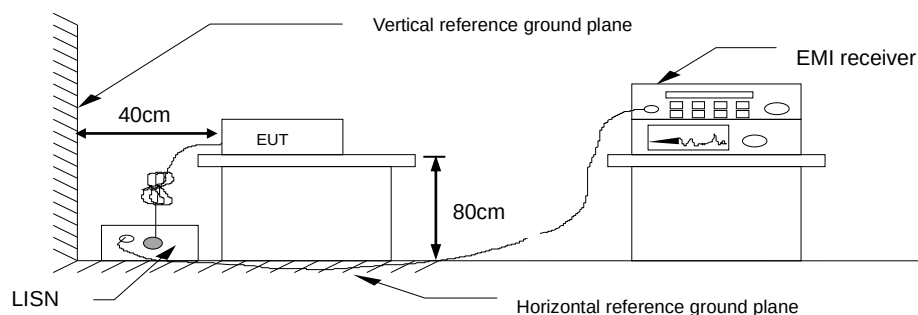
* Decreases with the logarithm of the frequency.

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 doesn't connect to AC Main Source direct.

4.1.5 Test Limit

According to §15.247(a)(2)

6 dB Bandwidth :

Limit	Shall be at least 500kHz
-------	--------------------------

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

4.1.6 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 = 100KHz, VBW = 300KHz and Detector = Peak, to measurement 6dB 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 6 dB Bandwidth and 99% Bandwidth. in the test report.

4.1.7 Test Setup





Report No.: TMWK2112001576KR

Page: 16 / 44

Rev.: 00

4.1.8 Test Result

Temperature: 20.6°C

Humidity: 53% RH

Tested by: Jack Chen

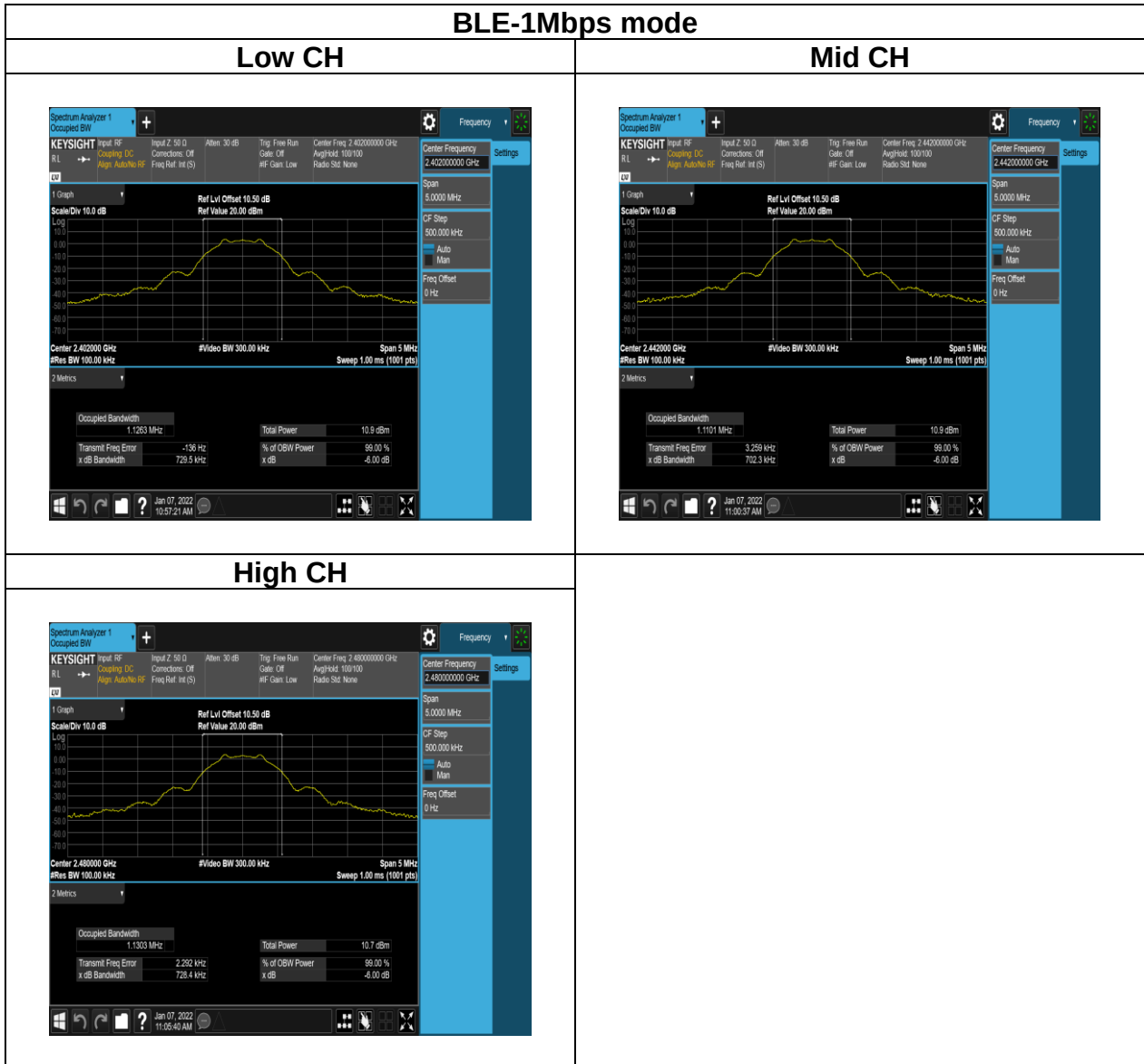
Test date: January 7, 2022

Test mode: BLE-1Mbps mode / 2402-2480 MHz				
Channel	Frequency (MHz)	OBW (99%) (MHz)	6dB BW (MHz)	6dB limit (kHz)
Low	2402	1.0918	0.7295	≥500
Mid	2442	1.0796	0.7023	
High	2480	1.0917	0.7284	

Report No.: TMWK2112001576KR

Test Data

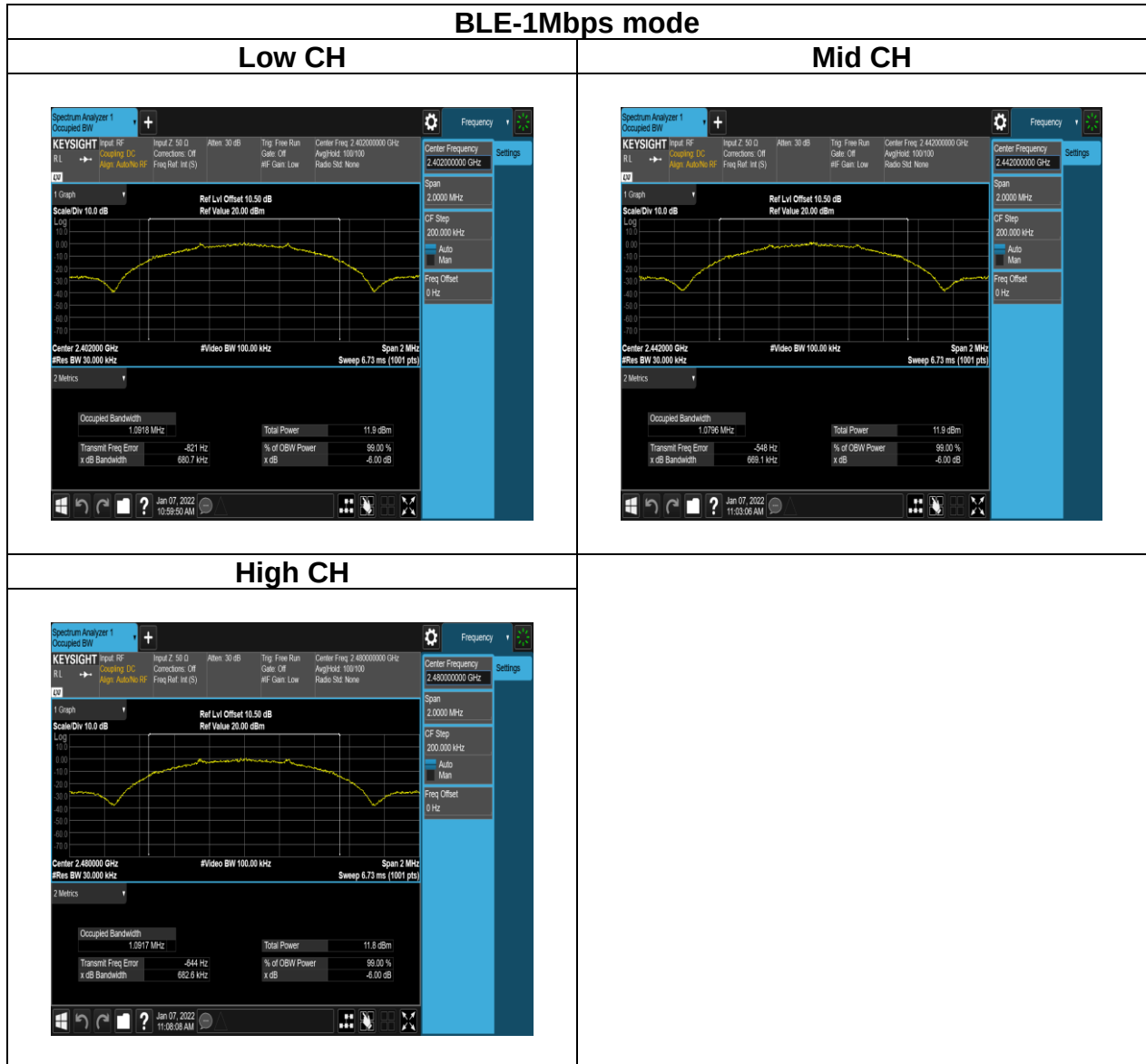
6dB BANDWIDTH



Report No.: TMWK2112001576KR

Test Data

BANDWIDTH (99%)



4.2 OUTPUT POWER MEASUREMENT

4.2.1 Test Limit

According to §15.247(b)(3)

Peak output power :

FCC

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement,

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

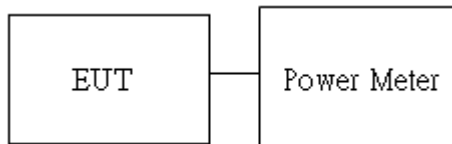
Average output power : For reporting purposes only.

4.2.2 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 Peak output power and Average output power. in the test report.

4.2.3 Test Setup



Report No.: TMWK2112001576KR

Page: 21 / 44

Rev.: 00

4.2.4 Test Result

Temperature: 20.6°C

Humidity: 53% RH

Tested by: Jack Chen

Test date: January 7, 2022

Peak output power :

BLE 1M mode:

CH	Frequency (MHz)	Power set	Peak Power Output (dBm)	Required Limit (dBm)
Low	2402	5	4.44	30
Mid	2442	5	4.36	30
High	2480	5	4.19	30

Average output power :

BLE 1M mode:

CH	Frequency (MHz)	Power set	Max. Avg. Output include tune up tolerance Power (dBm)	Required Limit (dBm)
Low	2402	5	4.37	30
Mid	2442	5	4.29	30
High	2480	5	4.12	30

4.3 POWER SPECTRAL DENSITY

4.3.1 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.

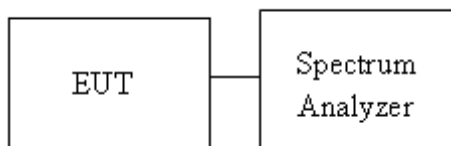
Limit	☒ Antenna not exceed 6 dBi : 8dBm ☐ Antenna with DG greater than 6 dBi [Limit = 8 – (DG – 6)] ☐ Point-to-point operation :
-------	---

4.3.2 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.

4.3.3 Test Setup





Report No.: TMWK2112001576KR

Page: 23 / 44
Rev.: 00

4.3.4 Test Result

Temperature: 20.6°C

Humidity: 53% RH

Tested by: Jack Chen

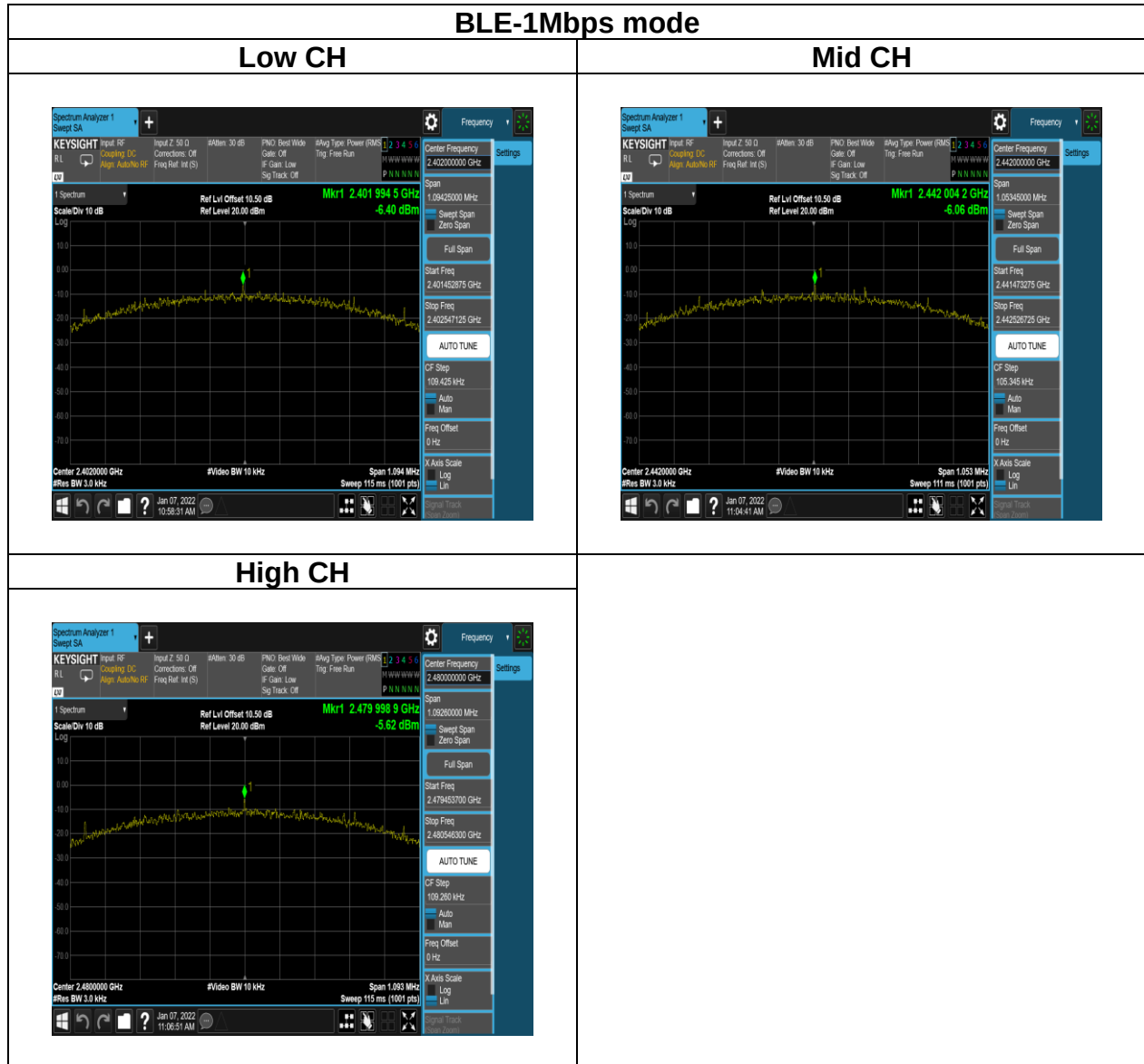
Test date: January 7, 2022

BLE 1M mode

Frequency (MHz)	RF Power Density (dBm/3kHz)	Maximum Limit (dBm/3kHz)	Result
2402	-6.40	8	PASS
2442	-6.06	8	PASS
2480	-5.62	8	PASS

Report No.: TMWK2112001576KR

Test Data



4.4 CONDUCTED BAND EDGE AND SPURIOUS EMISSION

4.4.1 Test Limit

According to §15.247(d)

FCC: In any 100 kHz bandwidth outside the authorized frequency band,

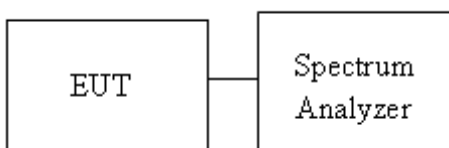
Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

4.4.2 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.

4.4.3 Test Setup



Report No.: TMWK2112001576KR

4.4.4 Test Result

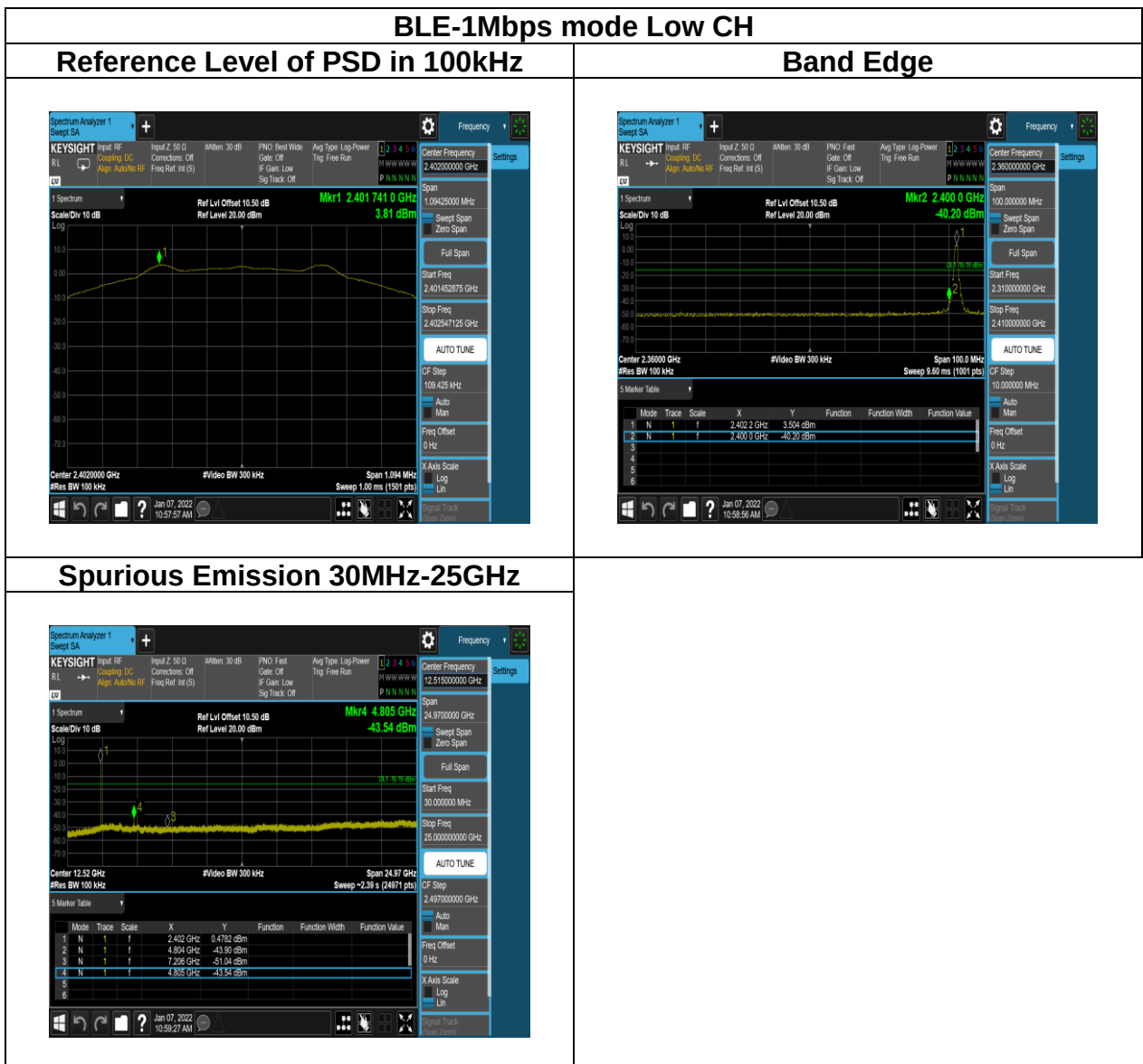
Test Data

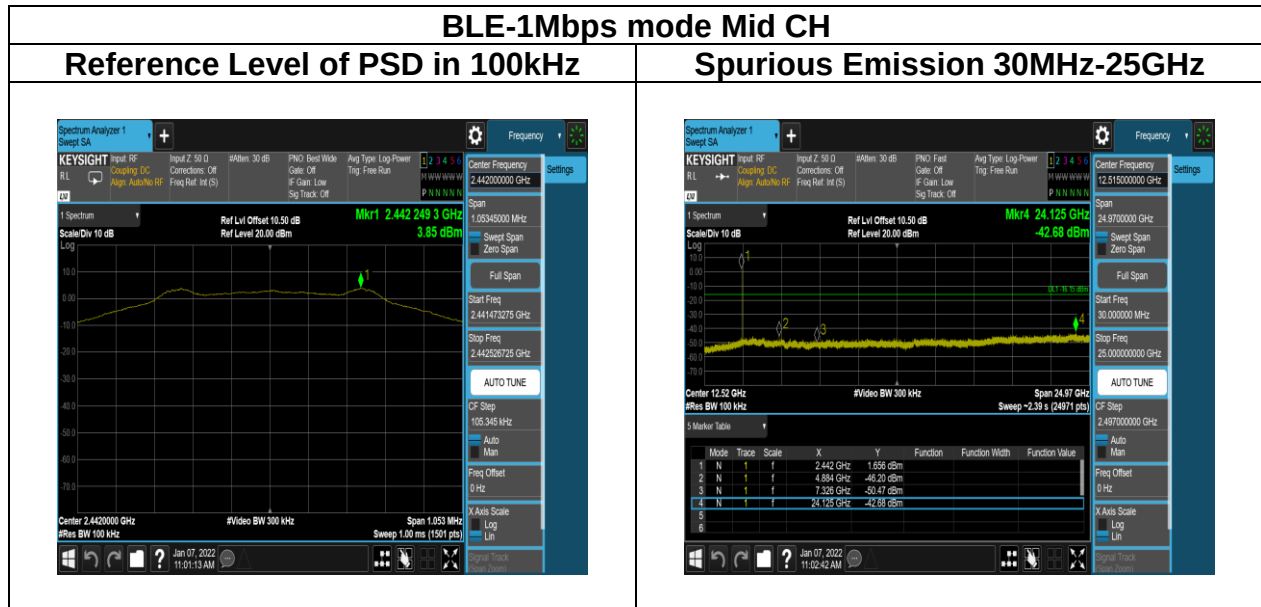
Temperature: 20.6°C

Humidity: 53% RH

Tested by: Jack Chen

Test date: January 7, 2022





Report No.: TMWK2112001576KR

BLE-1Mbps mode High CH

Reference Level of PSD in 100kHz



Band Edge



Spurious Emission 30MHz-25GHz



4.5 RADIATION BANDEDGE AND SPURIOUS EMISSION

4.5.1 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 area 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.

4.5.2 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).

3. The SA setting following :

- (1) Below 1G : RBW = 100kHz, VBW $\geq$ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.
- (2) Above 1G :
 - (2.1) For Peak measurement : RBW = 1MHz, VBW $\geq$ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.
 - (2.2) For Average measurement : RBW = 1MHz, VBW
If Duty Cycle $\geq$ 98%, VBW=10Hz.
If Duty Cycle < 98%, VBW=1/T.

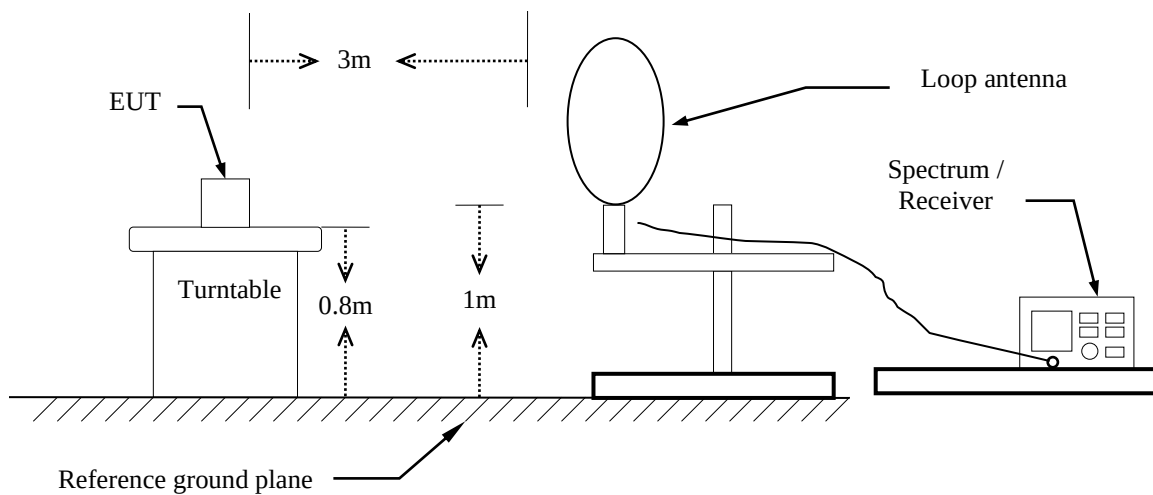
4. Data result

Actual FS=Spectrum Reading Level+Factor

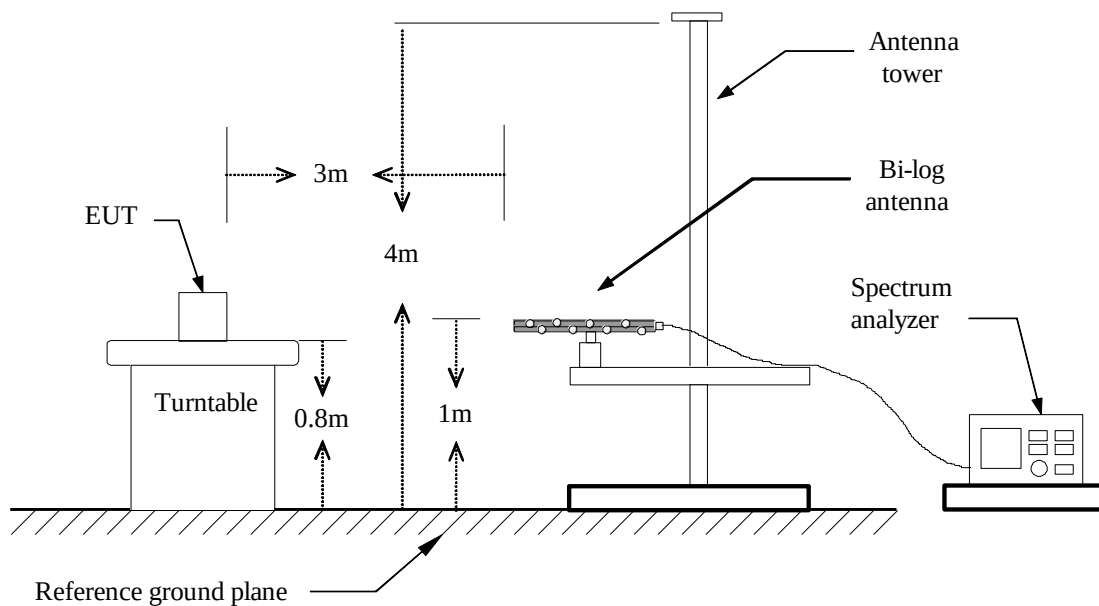
Margin=Actual FS- Limit

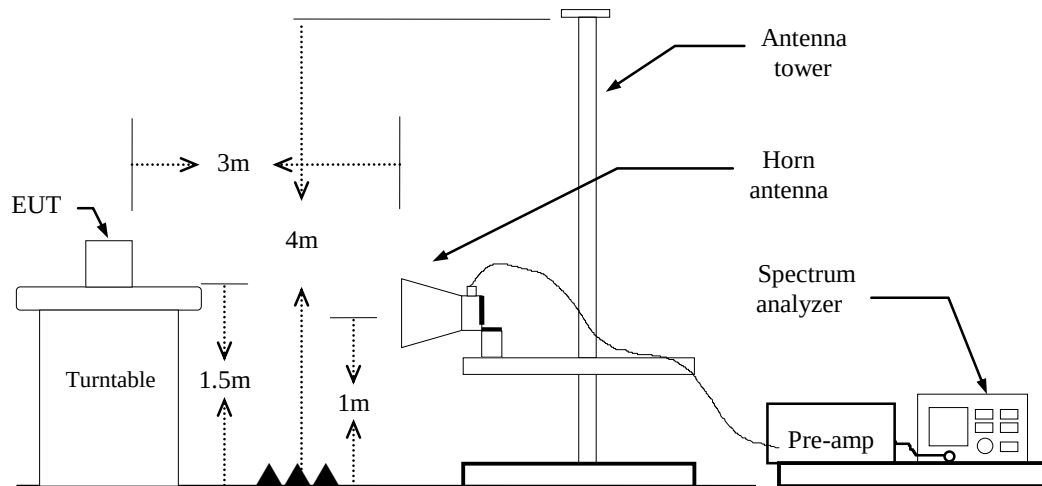
4.5.3 Test Setup

9kHz ~ 30MHz



30MHz ~ 1GHz

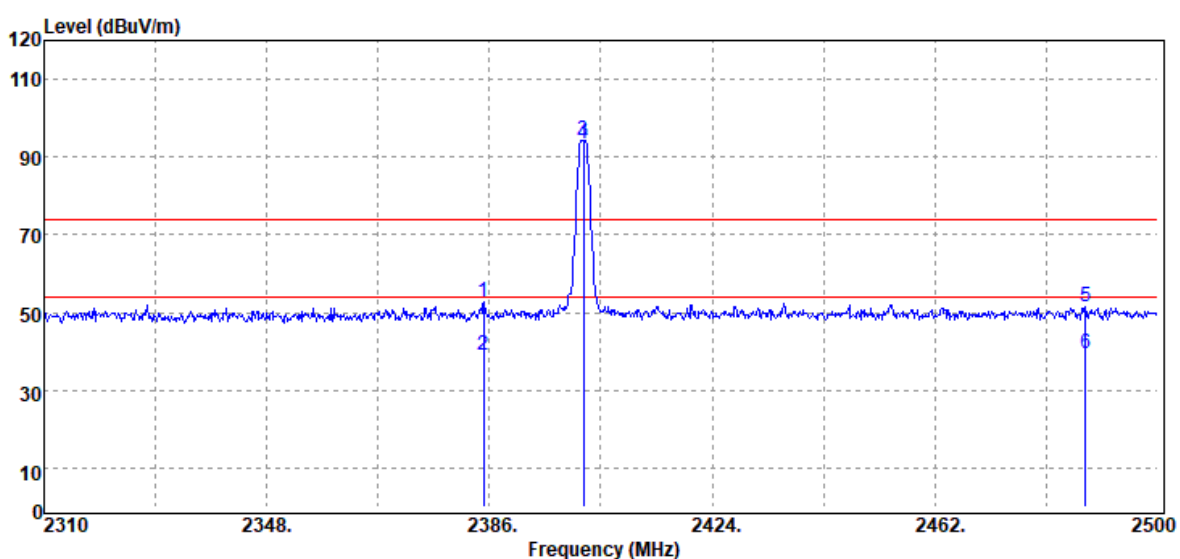


Above 1 GHz

4.5.4 Test Result

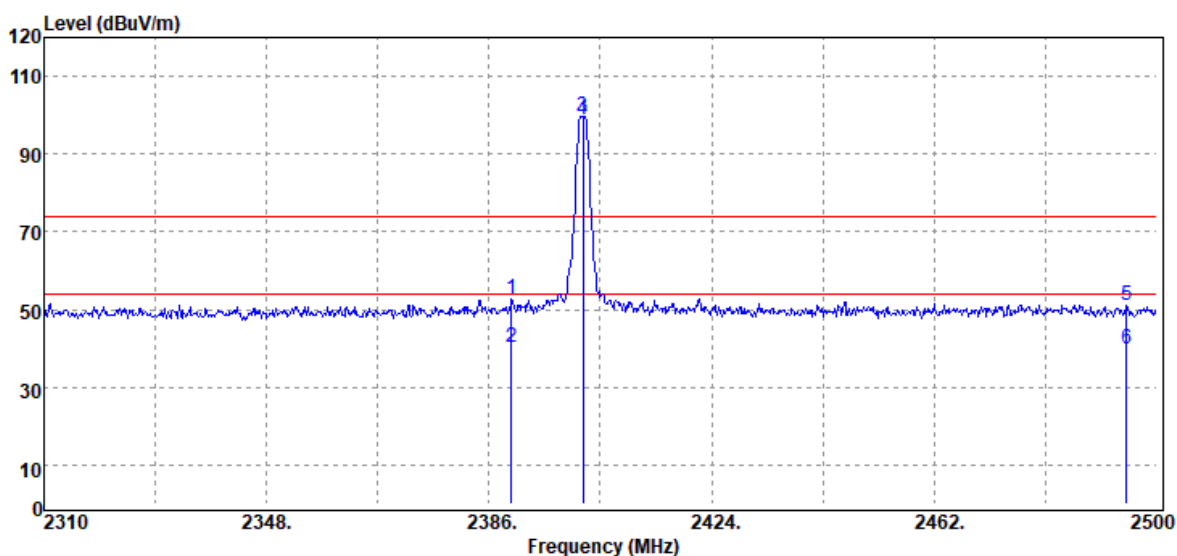
Band Edge Test Data

Test Mode:	BLE-1Mbps Low CH	Temp/Hum	20.4(°C)/ 53%RH
Test Item	Band Edge	Test Date	January 11, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		



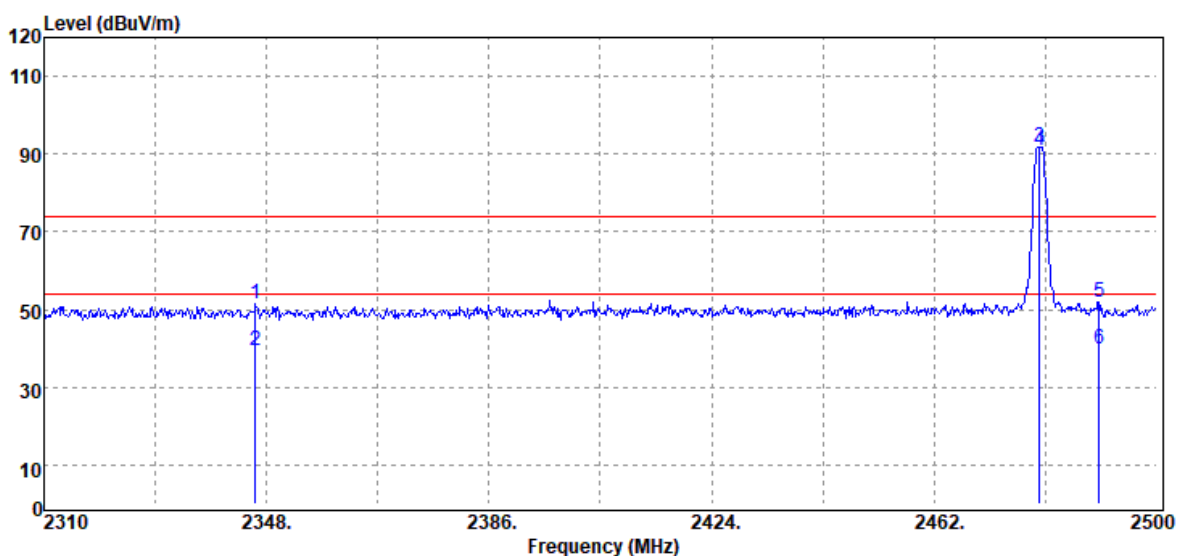
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2385.05	Peak	39.97	12.56	52.53	74.00	-21.47
2385.05	Average	26.64	12.56	39.20	54.00	-14.80
2402.00	Peak	81.59	12.65	94.24	-	-
2402.00	Average	80.61	12.65	93.26	-	-
2487.65	Peak	38.30	13.22	51.52	74.00	-22.48
2487.65	Average	26.19	13.22	39.41	54.00	-14.59

Test Mode:	BLE-1Mbps Low CH	Temp/Hum	20.4(°C)/ 53%RH
Test Item	Band Edge	Test Date	January 11, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		



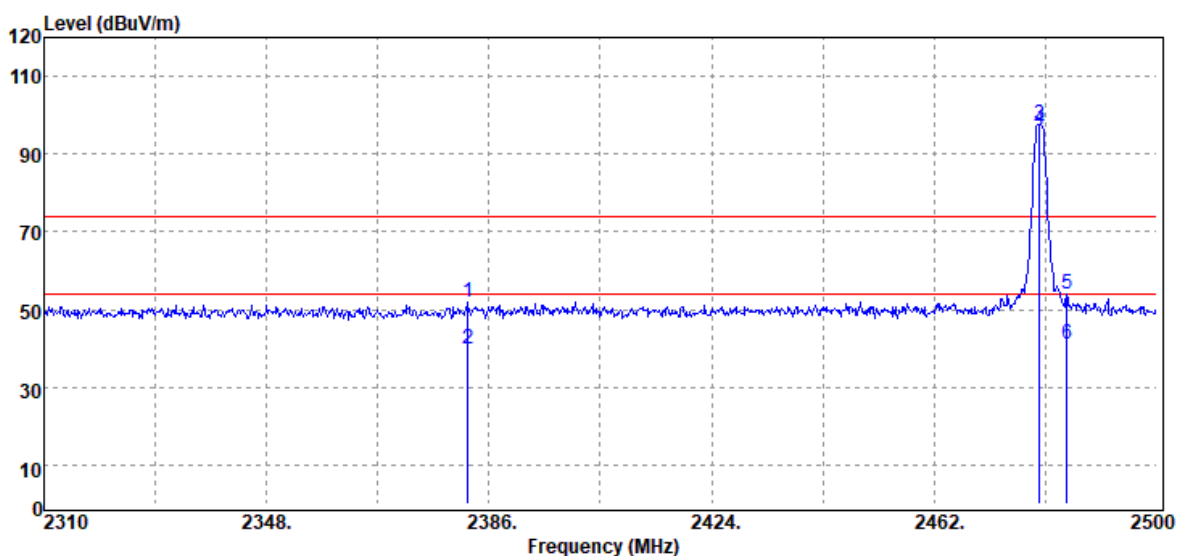
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
2389.80	Peak	40.14	12.59	52.73	74.00	-21.27
2389.80	Average	27.52	12.59	40.11	54.00	-13.89
2402.00	Peak	87.03	12.65	99.68	-	-
2402.00	Average	85.97	12.65	98.62	-	-
2494.87	Peak	38.00	13.27	51.27	74.00	-22.73
2494.87	Average	26.46	13.27	39.73	54.00	-14.27

Test Mode:	BLE-1Mbps High CH	Temp/Hum	20.4(°C)/ 53%RH
Test Item	Band Edge	Test Date	January 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
2346.10	Peak	39.30	12.35	51.65	74.00	-22.35
2346.10	Average	27.14	12.35	39.49	54.00	-14.51
2480.00	Peak	78.76	13.16	91.92	-	-
2480.00	Average	77.66	13.16	90.82	-	-
2490.12	Peak	38.58	13.23	51.81	74.00	-22.19
2490.12	Average	26.70	13.23	39.93	54.00	-14.07

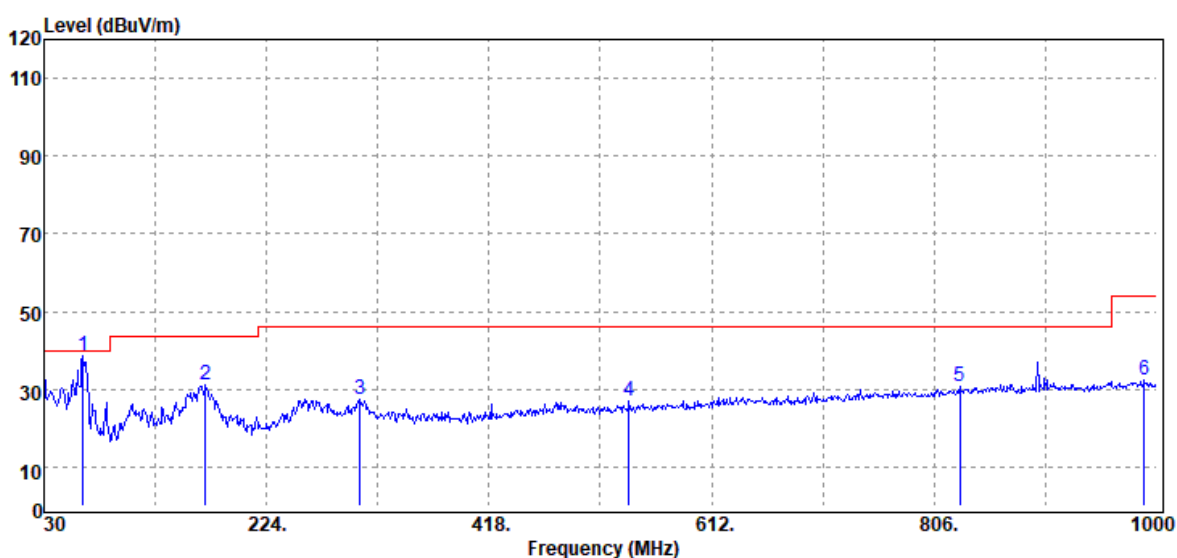
Test Mode:	BLE-1Mbps High CH	Temp/Hum	20.4(°C)/ 53%RH
Test Item	Band Edge	Test Date	January 11, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
2382.39	Peak	39.38	12.55	51.93	74.00	-22.07
2382.39	Average	27.42	12.55	39.97	54.00	-14.03
2480.00	Peak	84.37	13.16	97.53	-	-
2480.00	Average	83.33	13.16	96.49	-	-
2484.61	Peak	40.67	13.20	53.87	74.00	-20.13
2484.61	Average	27.93	13.20	41.13	54.00	-12.87

Below 1G Test Data

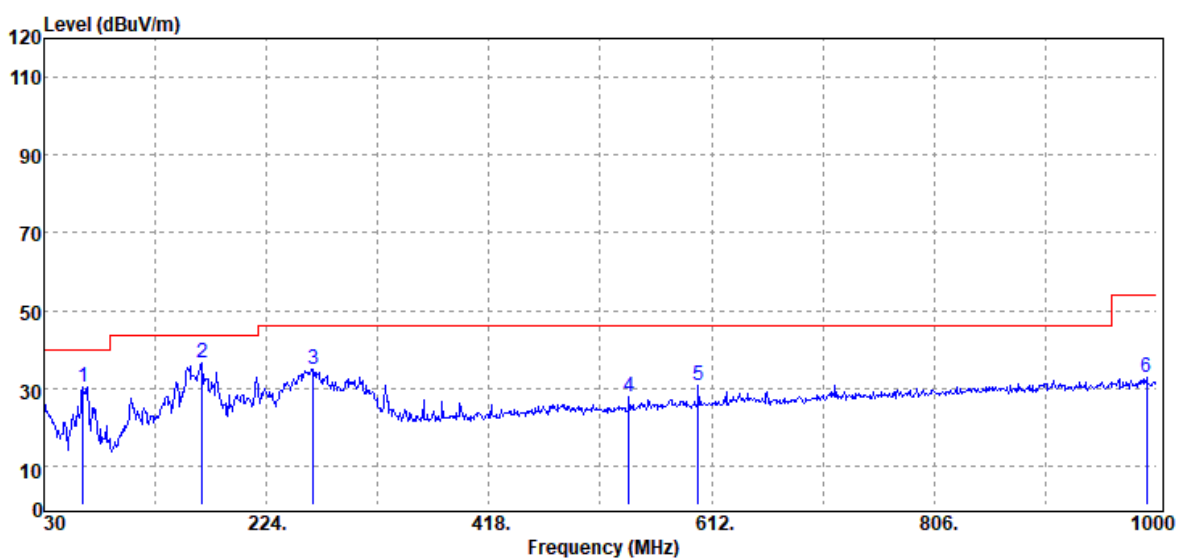
Test Mode:	BLE-1Mbps Mode	Temp/Hum	20.4(°C)/ 53%RH
Test Item	30MHz-1GHz	Test Date	January 11, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak		



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
63.95	Peak	54.01	-15.58	38.43	40.00	-1.57
170.65	Peak	42.18	-11.16	31.02	43.50	-12.48
305.48	Peak	36.02	-8.63	27.39	46.00	-18.61
540.22	Peak	29.57	-2.71	26.86	46.00	-19.14
828.31	Peak	28.96	1.95	30.91	46.00	-15.09
989.33	Peak	27.84	4.42	32.26	54.00	-21.74

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

Test Mode:	BLE-1Mbps Mode	Temp/Hum	20.4(°C)/ 53%RH
Test Item	30MHz-1GHz	Test Date	January 11, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak		

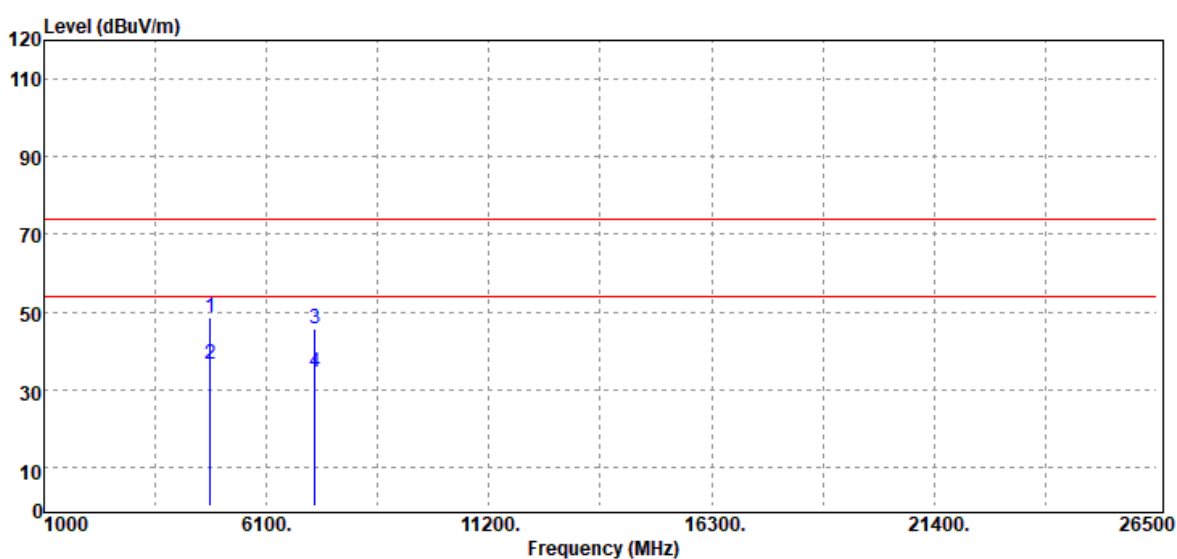


Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
63.95	Peak	45.89	-15.58	30.31	40.00	-9.69
167.74	Peak	47.42	-10.99	36.43	43.50	-7.07
264.74	Peak	44.33	-9.33	35.00	46.00	-11.00
540.22	Peak	30.62	-2.71	27.91	46.00	-18.09
600.36	Peak	33.03	-2.24	30.79	46.00	-15.21
991.27	Peak	28.18	4.43	32.61	54.00	-21.39

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

Above 1G Test Data

Test Mode:	BLE-1Mbps Low CH	Temp/Hum	20.4(°C)/ 53%RH
Test Item	Harmonic	Test Date	January 11, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak & Average		



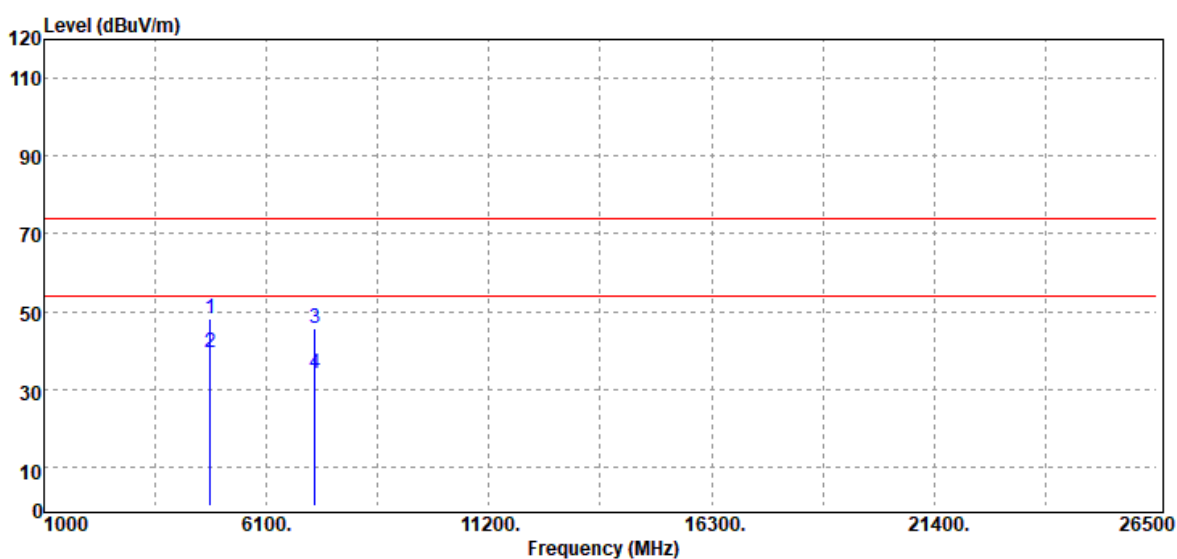
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4804.00	Peak	39.12	9.47	48.59	74.00	-25.41
4804.00	Average	27.20	9.47	36.67	54.00	-17.33
7206.00	Peak	32.28	13.41	45.69	74.00	-28.31
7206.00	Average	20.99	13.41	34.40	54.00	-19.60
N/A						

Remark:

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

Report No.: TMWK2112001576KR

Test Mode:	BLE-1Mbps Low CH	Temp/Hum	20.4(°C)/ 53%RH
Test Item	Harmonic	Test Date	January 11, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak & Average		

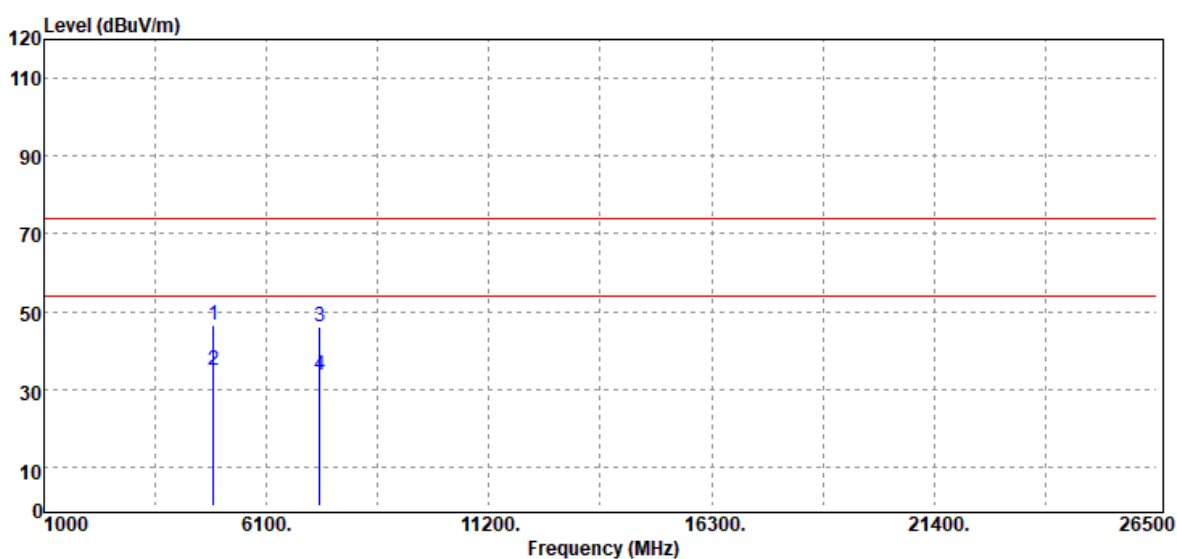


Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4804.00	Peak	38.55	9.47	48.02	74.00	-25.98
4804.00	Average	29.92	9.47	39.39	54.00	-14.61
7206.00	Peak	32.36	13.41	45.77	74.00	-28.23
7206.00	Average	20.45	13.41	33.86	54.00	-20.14
N/A						

Remark:

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

Test Mode:	BLE-1Mbps Mid CH	Temp/Hum	20.4(°C)/ 53%RH
Test Item	Harmonic	Test Date	January 11, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak & Average		

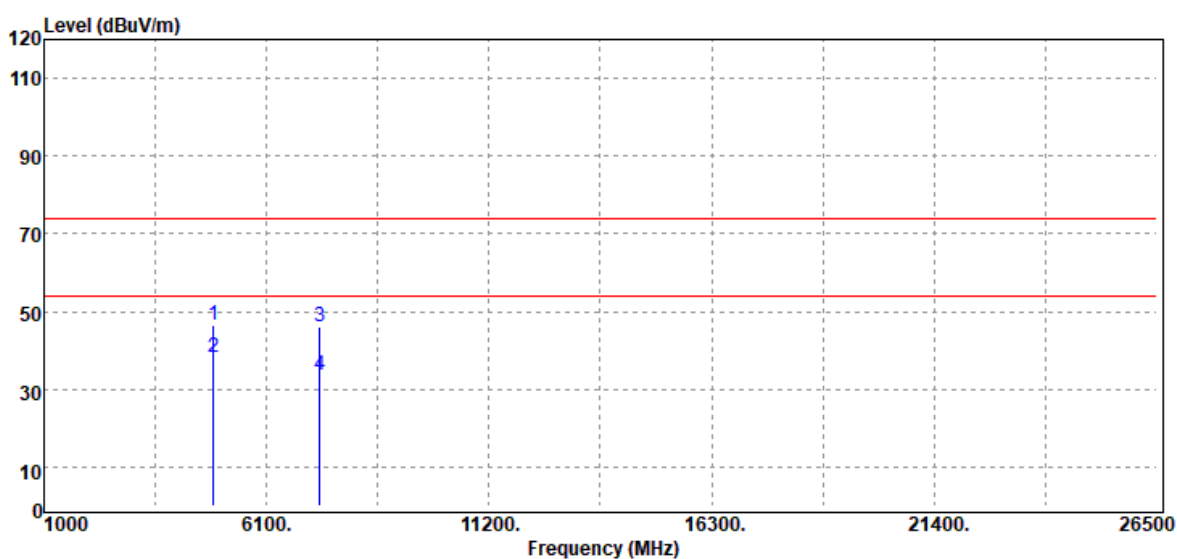


Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4884.00	Peak	37.00	9.58	46.58	74.00	-27.42
4884.00	Average	25.46	9.58	35.04	54.00	-18.96
7326.00	Peak	32.72	13.17	45.89	74.00	-28.11
7326.00	Average	20.42	13.17	33.59	54.00	-20.41
N/A						

Remark:

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

Test Mode:	BLE-1Mbps Mid CH	Temp/Hum	20.4(°C)/ 53%RH
Test Item	Harmonic	Test Date	January 11, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak & Average		



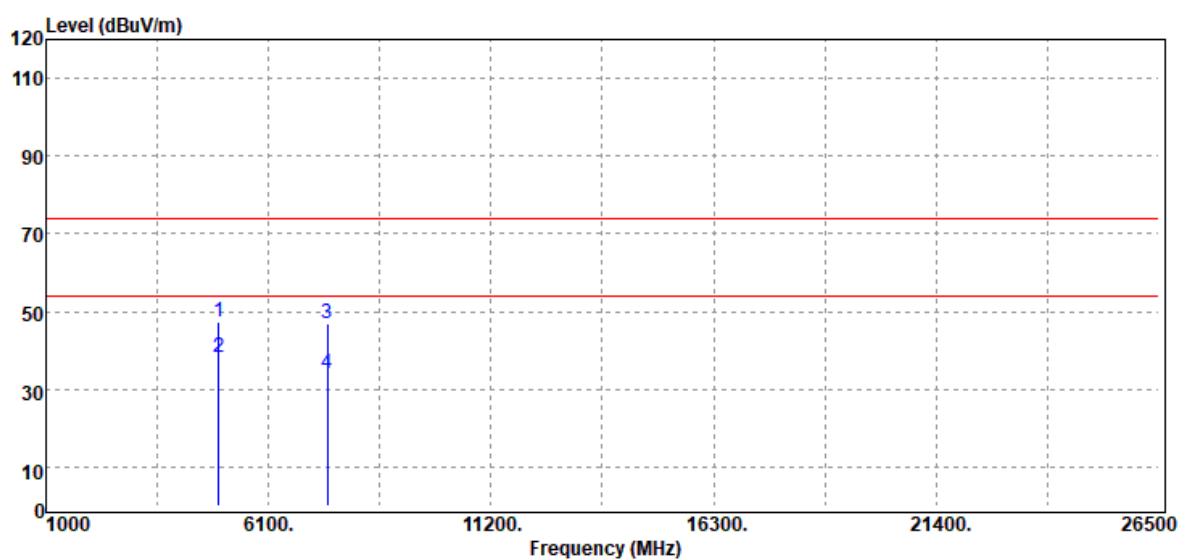
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4884.00	Peak	37.13	9.58	46.71	74.00	-27.29
4884.00	Average	28.43	9.58	38.01	54.00	-15.99
7326.00	Peak	32.93	13.17	46.10	74.00	-27.90
7326.00	Average	20.30	13.17	33.47	54.00	-20.53
N/A						

Remark:

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

Report No.: TMWK2112001576KR

Test Mode:	BLE-1Mbps High CH	Temp/Hum	20.4(°C)/ 53%RH
Test Item	Harmonic	Test Date	January 11, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak & Average		



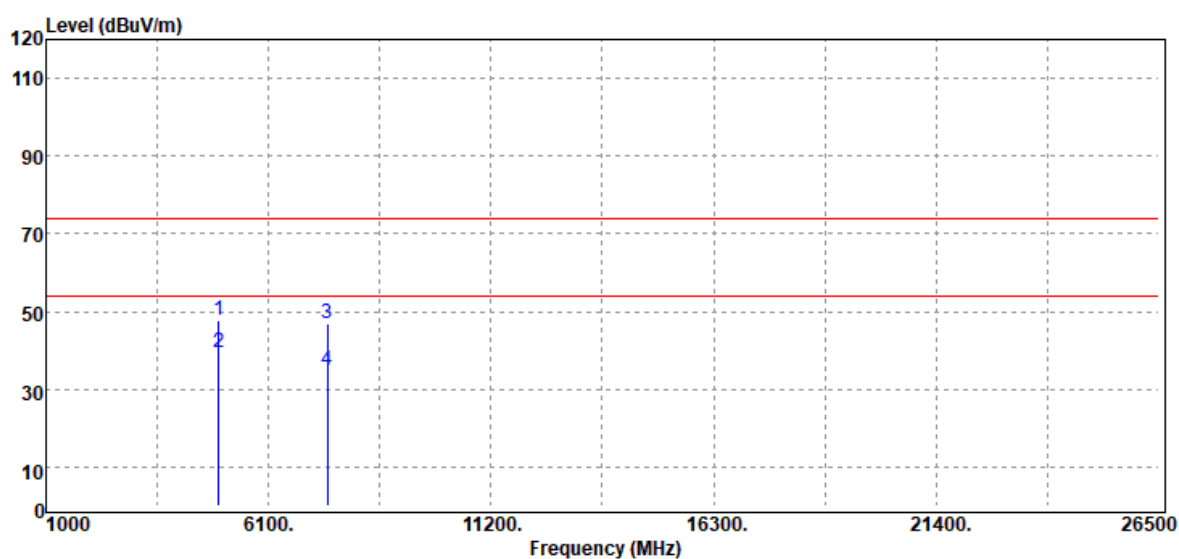
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dBμV	Factor dB	Actual FS dBμV/m	Limit @3m dBμV/m	Margin dB
4960.00	Peak	37.85	9.63	47.48	74.00	-26.52
4960.00	Average	28.42	9.63	38.05	54.00	-15.95
7440.00	Peak	33.37	13.42	46.79	74.00	-27.21
7440.00	Average	20.69	13.42	34.11	54.00	-19.89
N/A						

Remark:

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

Report No.: TMWK2112001576KR

Test Mode:	BLE-1Mbps High CH	Temp/Hum	20.4(°C)/ 53%RH
Test Item	Harmonic	Test Date	January 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
4960.00	Peak	38.22	9.63	47.85	74.00	-26.15
4960.00	Average	30.01	9.63	39.64	54.00	-14.36
7440.00	Peak	33.35	13.42	46.77	74.00	-27.23
7440.00	Average	21.32	13.42	34.74	54.00	-19.26
N/A						

Remark:

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

--End of Test Report--