

Project No.: TM-2207000268P
Report No.: TMWK2207002919KR

FCC ID: 2AX7S-LN313B

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RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART C

Test Standard	FCC Part 15.247
Product name	E-note device
Brand Name	ITOCHU
Model No.	USMUK4
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:



Shawn Wu
Supervisor

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	September 2, 2022	Initial Issue	ALL	Allison Chen

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1. GENERAL INFORMATION

1.1 EUT INFORMATION

Applicant	AIMobile Co., Ltd. 6F., No. 166, Sec.4, Chengde Rd., Shilin Dist., Taipei City 11167 , Taiwan
Manufacturer	AIMobile Co., Ltd. 6F., No. 166, Sec.4, Chengde Rd., Shilin Dist., Taipei City 11167 , Taiwan
Equipment	E-note device
Model Name	USMUK4
Model Discrepancy	N/A
Brand Name	ITOCHU
Received Date	July 19, 2022
Date of Test	July 29 ~ August 16, 2022
Power Supply	1. Power from Host System. Rechargeable Li-Polymer Battery / LIS1633RDPCA Rating: 2000mAh, 7.4Wh 2. Power from Adapter.

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.

1.2 EUT CHANNEL INFORMATION

Frequency Range	2402MHz-2480MHz
Modulation Type	GFSK for BLE 1 Mbps GFSK for BLE 2 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 Specification	☒ PIFA ☐ PCB ☐ Dipole ☐ Coils
Antenna Gain	Gain: 2.58 dBi
Brand / Model	YAGEO / LN313 (ANTA0ZV1421124554)
Antenna Connector	IPEX

Notes:

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



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1.4 MEASUREMENT UNCERTAINTY

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

Remark:

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

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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.)

CAB identifier: TW1309

Test site	Test Engineer	Remark
AC Conduction Room	Tony Chao	-
Radiation	Ray Li	-
RF Conducted	David Li	-

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

1.6 INSTRUMENT CALIBRATION

AC line Conduction Test Room					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
CABLE	EMCI	CFD300-NL	CERF	06/27/2022	06/26/2023
EMI Test Receiver	R&S	ESCI	100064	06/17/2022	06/16/2023
LISN	SCHAFFNER	NNB 41	03/10013	02/15/2022	02/14/2023
Software	EZ-EMC(CCS-3A1-CE-wugu)				

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

Remark:

- Each piece of equipment is scheduled for calibration once a year.
- N.C.R. = No Calibration Required.

3M 966A Chamber					
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due
Band Reject Filters	MICRO TRONICS	BRM 50702	112	11/23/2021	11/22/2022
Bilog Antenna	Sunol Sciences	JB3	A030105	08/03/2022	08/02/2023
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/23/2022	02/22/2023
Coaxial Cable	Woken	J-1099	201709090004	12/23/2021	12/22/2022
Coaxial Cable	EMCI	EMC105	190914+33953	06/15/2022	06/14/2023
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	12/28/2021	12/27/2022
Horn Antenna	ETS LINDGREN	3116	00026370	11/30/2021	11/29/2022
Horn Antenna	MCTD	1209	DRH13M02003	01/25/2022	01/24/2023
K Type Cable	Huber+Suhner	SUCOFLEX 102	29406/2	12/05/2021	12/04/2022
Pre-Amplifier	EMEC	EM330	060609	02/23/2022	02/22/2023
Pre-Amplifier	HP	8449B	3008A00965	12/24/2021	12/23/2022
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	12/06/2021	12/05/2022
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Software	e3 210616				

Remark:

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

1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT

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

Support Equipment						
No.	Equipment	Brand	Model	Series No.	FCC ID	IC
1	Adapter	Alcatel	UC13US	N/A	N/A	N/A
2	NB(G)	Lenovo	IBM 1951	N/A	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	Pass
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

3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

Operation mode	BLE Mode (1Mbps) BLE Mode (2Mbps)
Test Channel Frequencies	1.Lowest Channel : 2402MHz 2.Middle Channel : 2440MHz 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

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 Notebook
Worst Mode	☒ Mode 1 ☐ Mode 2 ☐ Mode 3 ☐ Mode 4

Remark:

1. The worst mode was record in this test report.
2. AC power line conducted emission and for below 1G radiation emission were performed the EUT transmit at the highest output power channel as

Radiated Emission Measurement Above 1G	
Test Condition	Radiated Emission Above 1G
Power supply Mode	Mode 1: EUT power by Host System
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 Host System
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

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3.3 EUT DUTY CYCLE

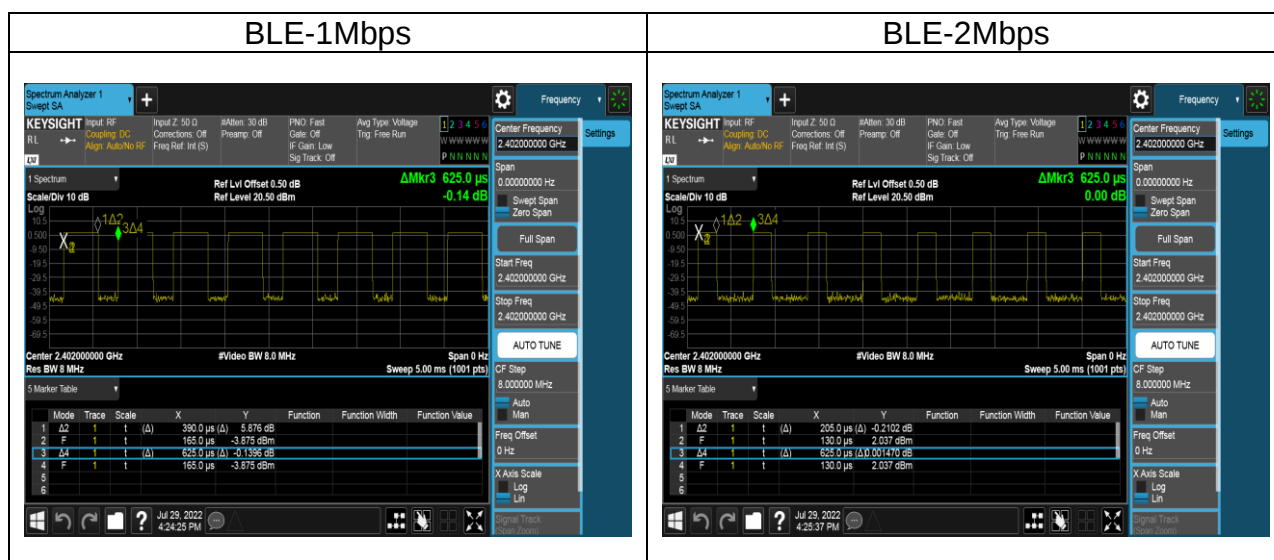
Temperature: 26.4~26.6°C

Test date: July 29~August 1, 2022

Humidity: 50~53% RH

Tested by: David Li

Duty Cycle				
Configuration	Duty Cycle (%) = Ton / (Ton+Toff)	Duty Factor (dB) = 10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
BLE 1M	62.40	2.05	2.56	3.00
BLE 2M	32.80	4.84	4.88	5.00



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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(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

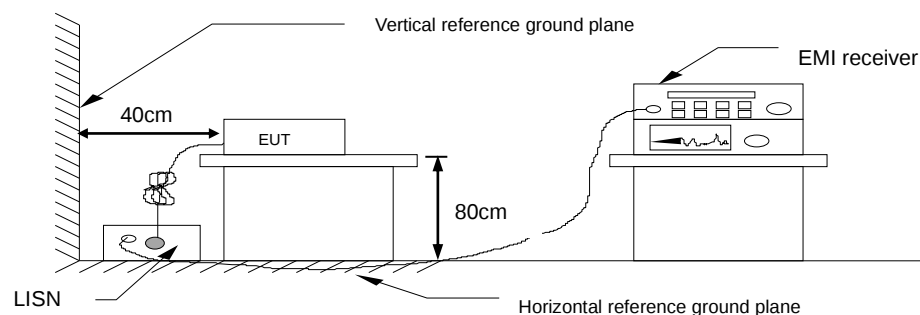
* Decreases with the logarithm of the frequency.

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



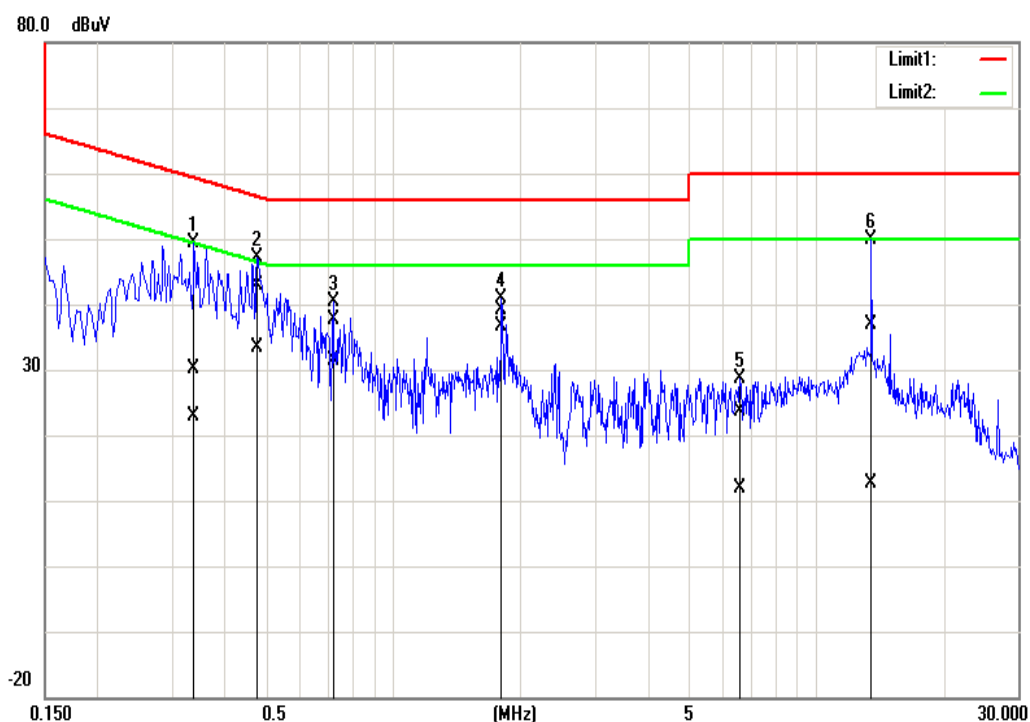
4.1.4 Test Result

Pass.

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Test Data

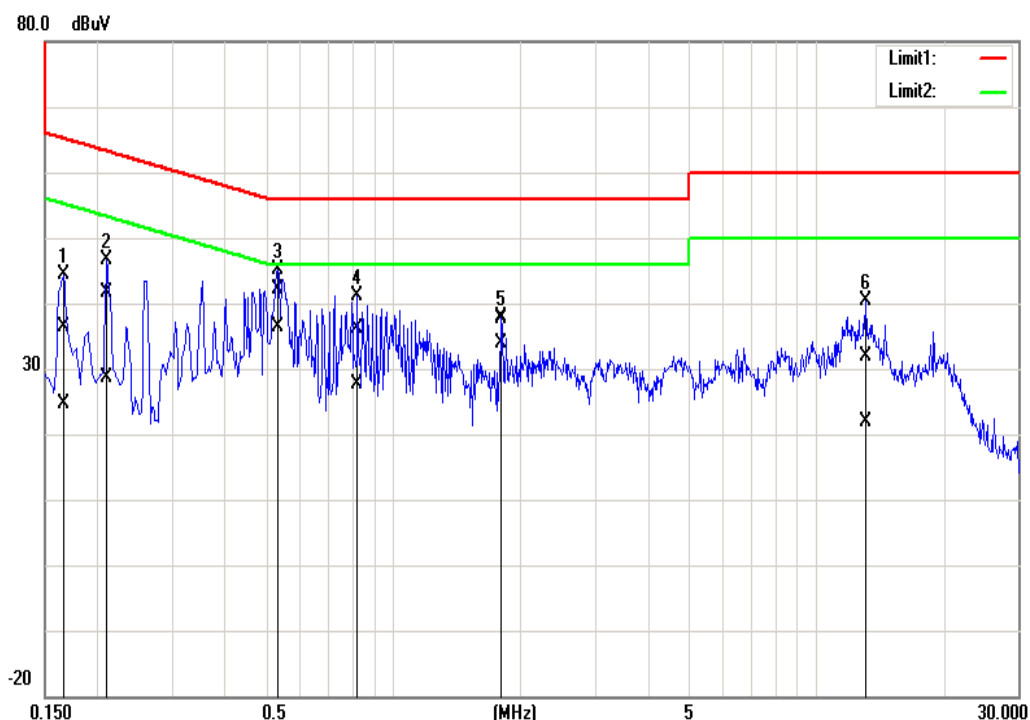
Test Mode:	BLE 1M-1%	Temp/Hum	25.9(°C)/ 50%RH
Phase:	Line	Test Date	August 10, 2022
Test Voltage:	120Vac, 60Hz	Test Engineer	Tony Chao



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
0.3380	19.86	12.73	10.19	30.05	22.92	59.25	49.25	-29.20	-26.33	Pass
0.4780	32.75	23.10	10.19	42.94	33.29	56.37	46.37	-13.43	-13.08	Pass
0.7220	27.30	21.13	10.21	37.51	31.34	56.00	46.00	-18.49	-14.66	Pass
1.8060	28.95	26.35	10.25	39.20	36.60	56.00	46.00	-16.80	-9.40	Pass
6.6100	13.28	1.59	10.32	23.60	11.91	60.00	50.00	-36.40	-38.09	Pass
13.5300	26.52	2.37	10.36	36.88	12.73	60.00	50.00	-23.12	-37.27	Pass

Note: Correction factor = LISN loss + Cable loss.

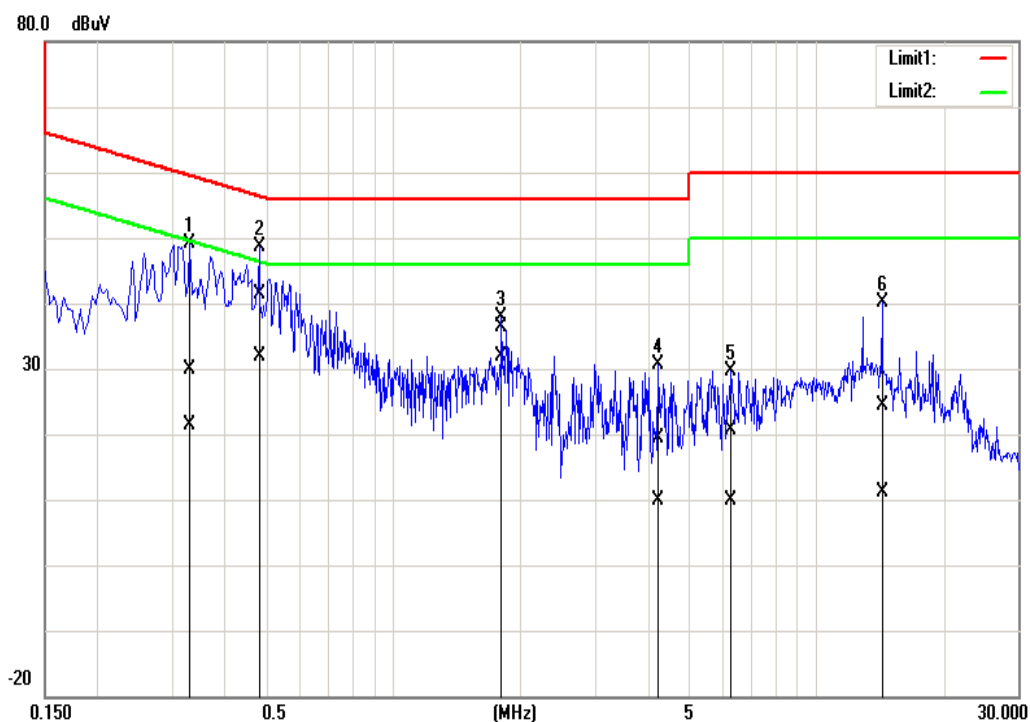
Test Mode:	BLE 1M-1%	Temp/Hum	24.3°C)/ 52%RH
Phase:	Neutral	Test Date	August 16, 2022
Test Voltage:	120Vac, 60Hz	Test Engineer	Tony Chao



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
0.1660	26.32	14.42	10.17	36.49	24.59	65.16	55.16	-28.67	-30.57	Pass
0.2100	31.38	18.56	10.17	41.55	28.73	63.21	53.21	-21.66	-24.48	Pass
0.5340	31.87	26.26	10.18	42.05	36.44	56.00	46.00	-13.95	-9.56	Pass
0.8220	25.83	17.32	10.20	36.03	27.52	56.00	46.00	-19.97	-18.48	Pass
1.8060	27.41	23.58	10.23	37.64	33.81	56.00	46.00	-18.36	-12.19	Pass
13.0660	21.51	11.49	10.37	31.88	21.86	60.00	50.00	-28.12	-28.14	Pass

Note: Correction factor = LISN loss + Cable loss.

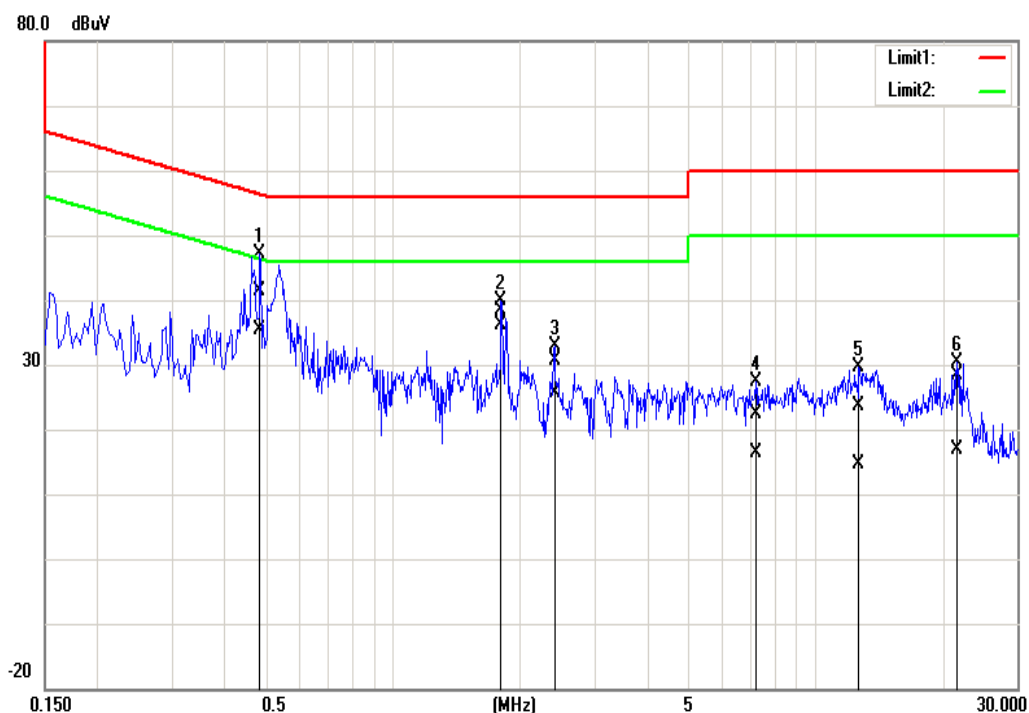
Test Mode:	BLE 1M -50%	Temp/Hum	25.9(°C)/ 50%RH
Phase:	Line	Test Date	August 10, 2022
Test Voltage:	120Vac, 60Hz	Test Engineer	Tony Chao



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
0.3300	19.66	11.14	10.19	29.85	21.33	59.45	49.45	-29.60	-28.12	Pass
0.4820	31.18	21.80	10.19	41.37	31.99	56.30	46.30	-14.93	-14.31	Pass
1.8020	26.10	21.73	10.25	36.35	31.98	56.00	46.00	-19.65	-14.02	Pass
4.2300	9.06	-0.51	10.30	19.36	9.79	56.00	46.00	-36.64	-36.21	Pass
6.2980	10.29	-0.38	10.32	20.61	9.94	60.00	50.00	-39.39	-40.06	Pass
14.3220	14.13	0.89	10.36	24.49	11.25	60.00	50.00	-35.51	-38.75	Pass

Note: Correction factor = LISN loss + Cable loss.

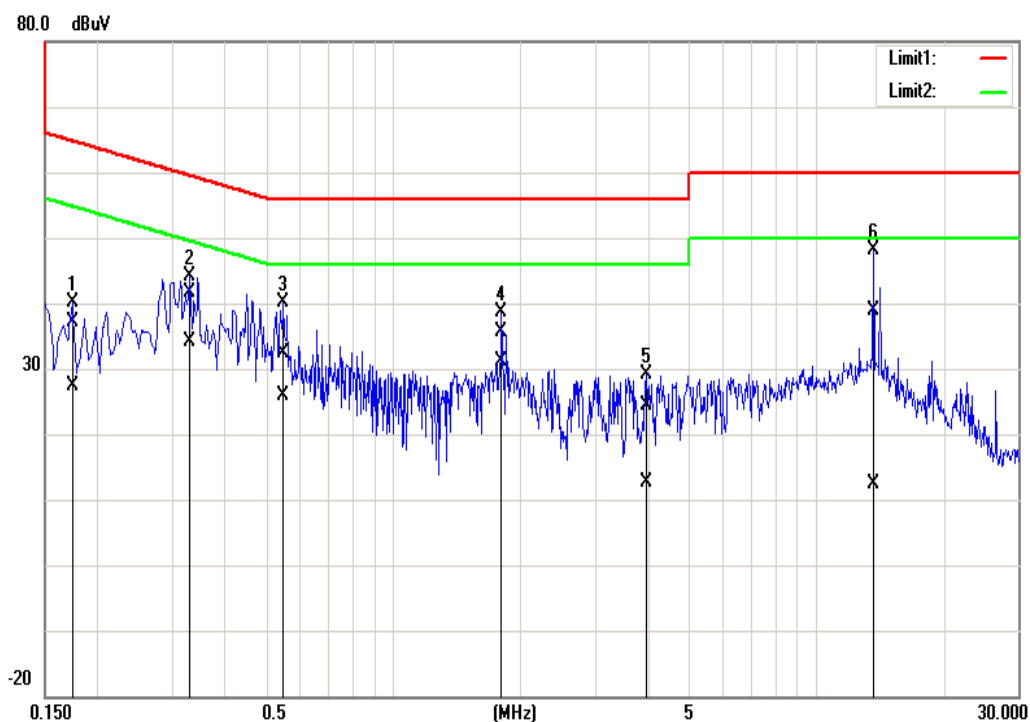
Test Mode:	BLE 1M-50%	Temp/Hum	25.9(°C)/ 50%RH
Phase:	Neutral	Test Date	August 10, 2022
Test Voltage:	120Vac, 60Hz	Test Engineer	Tony Chao



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
0.4860	31.10	25.28	10.18	41.28	35.46	56.24	46.24	-14.96	-10.78	Pass
1.8060	28.09	25.86	10.23	38.32	36.09	56.00	46.00	-17.68	-9.91	Pass
2.4100	20.46	15.47	10.24	30.70	25.71	56.00	46.00	-25.30	-20.29	Pass
7.2460	12.12	6.14	10.32	22.44	16.46	60.00	50.00	-37.56	-33.54	Pass
12.6860	13.30	4.27	10.37	23.67	14.64	60.00	50.00	-36.33	-35.36	Pass
21.7100	17.99	6.43	10.44	28.43	16.87	60.00	50.00	-31.57	-33.13	Pass

Note: Correction factor = LISN loss + Cable loss.

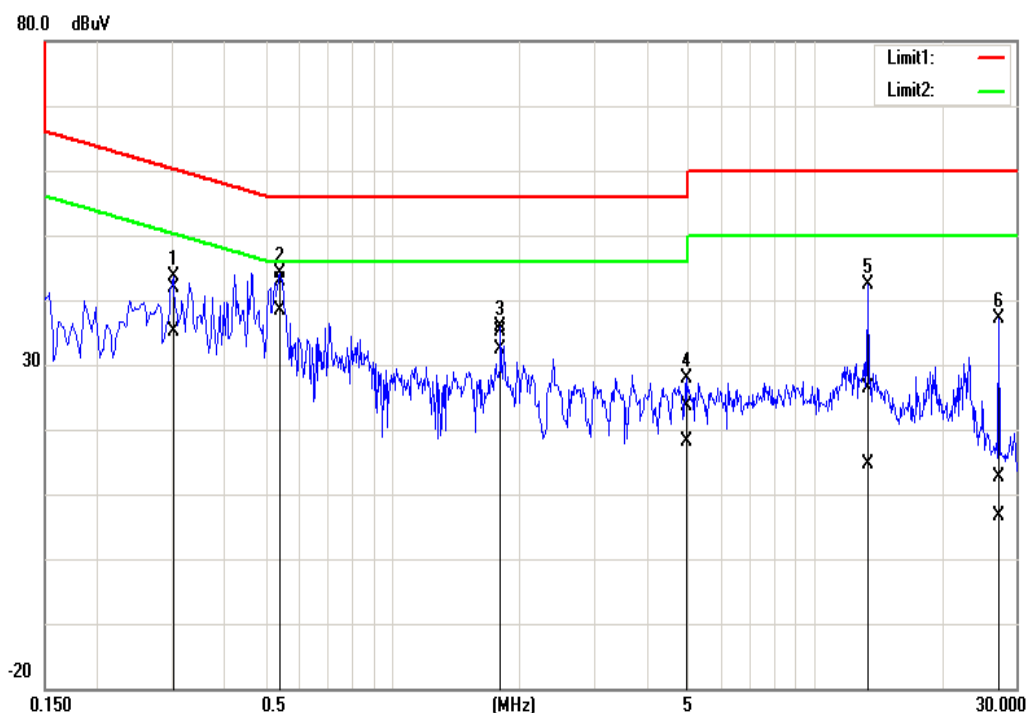
Test Mode:	BLE 1M-99%	Temp/Hum	25.9(°C)/ 50%RH
Phase:	Line	Test Date	August 10, 2022
Test Voltage:	120Vac, 60Hz	Test Engineer	Tony Chao



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
0.1740	26.84	17.12	10.17	37.01	27.29	64.77	54.77	-27.76	-27.48	Pass
0.3300	31.39	23.83	10.19	41.58	34.02	59.45	49.45	-17.87	-15.43	Pass
0.5500	22.31	15.72	10.19	32.50	25.91	56.00	46.00	-23.50	-20.09	Pass
1.8060	25.38	20.93	10.25	35.63	31.18	56.00	46.00	-20.37	-14.82	Pass
3.9660	13.97	2.21	10.30	24.27	12.51	56.00	46.00	-31.73	-33.49	Pass
13.6500	28.47	1.95	10.37	38.84	12.32	60.00	50.00	-21.16	-37.68	Pass

Note: Correction factor = LISN loss + Cable loss.

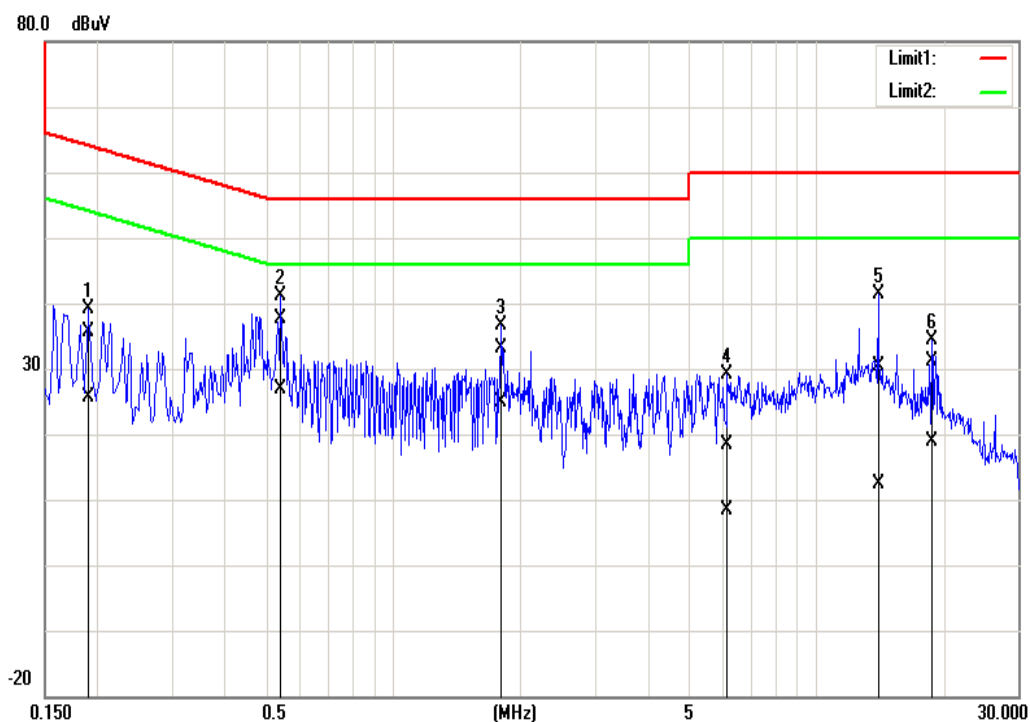
Test Mode:	BLE 1M-99%	Temp/Hum	25.9(°C)/ 50%RH
Phase:	Neutral	Test Date	August 10, 2022
Test Voltage:	120Vac, 60Hz	Test Engineer	Tony Chao



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
0.3020	31.73	24.84	10.18	41.91	35.02	60.19	50.19	-18.28	-15.17	Pass
0.5420	32.71	28.27	10.18	42.89	38.45	56.00	46.00	-13.11	-7.55	Pass
1.8020	24.89	22.09	10.23	35.12	32.32	56.00	46.00	-20.88	-13.68	Pass
4.9700	13.41	7.84	10.29	23.70	18.13	56.00	46.00	-32.30	-27.87	Pass
13.3580	16.08	4.35	10.37	26.45	14.72	60.00	50.00	-33.55	-35.28	Pass
27.2940	2.10	-3.88	10.54	12.64	6.66	60.00	50.00	-47.36	-43.34	Pass

Note: Correction factor = LISN loss + Cable loss.

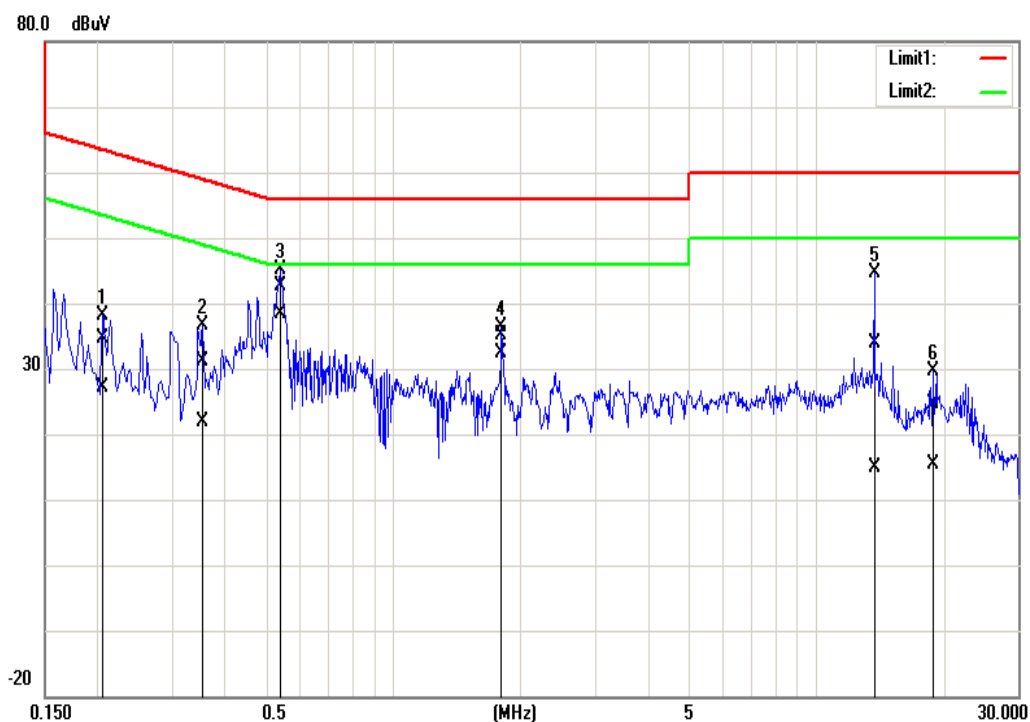
Test Mode:	BLE 2M-1%	Temp/Hum	25.9(°C)/ 50%RH
Phase:	Line	Test Date	August 10, 2022
Test Voltage:	120Vac, 60Hz	Test Engineer	Tony Chao



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
0.1900	25.41	15.52	10.18	35.59	25.70	64.04	54.04	-28.45	-28.34	Pass
0.5420	27.47	16.61	10.19	37.66	26.80	56.00	46.00	-18.34	-19.20	Pass
1.7980	22.88	14.58	10.25	33.13	24.83	56.00	46.00	-22.87	-21.17	Pass
6.1620	8.08	-1.85	10.32	18.40	8.47	60.00	50.00	-41.60	-41.53	Pass
14.0580	19.98	2.03	10.37	30.35	12.40	60.00	50.00	-29.65	-37.60	Pass
18.8020	20.68	8.44	10.37	31.05	18.81	60.00	50.00	-28.95	-31.19	Pass

Note: Correction factor = LISN loss + Cable loss.

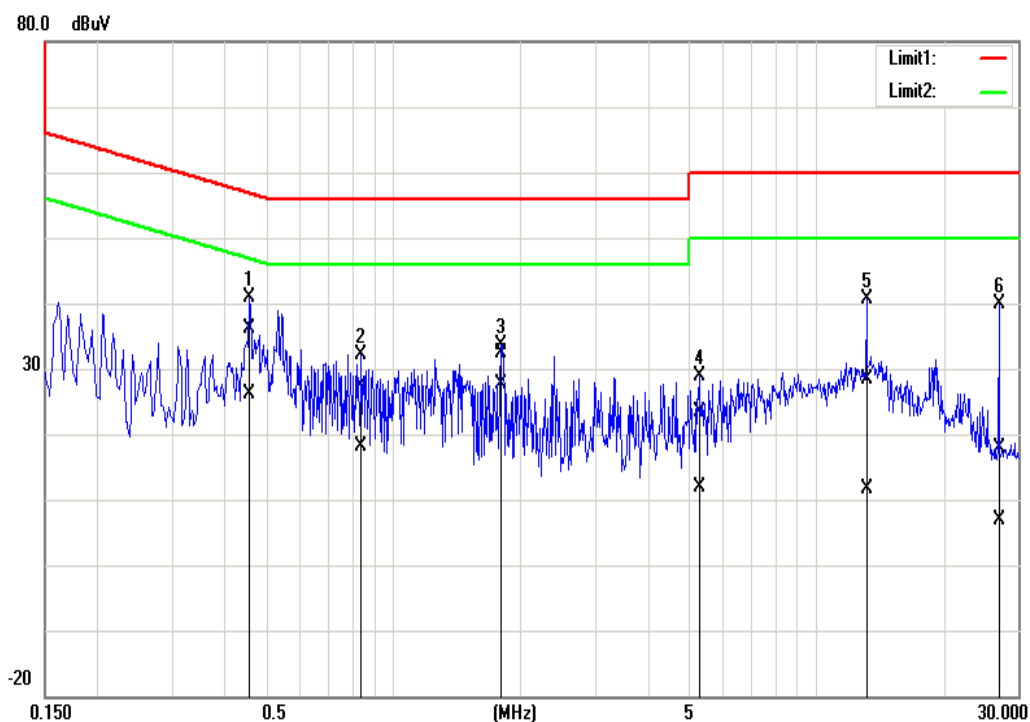
Test Mode:	BLE 2M-1%	Temp/Hum	25.9(°C)/ 50%RH
Phase:	Neutral	Test Date	August 10, 2022
Test Voltage:	120Vac, 60Hz	Test Engineer	Tony Chao



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
0.2060	24.47	16.91	10.17	34.64	27.08	63.37	53.37	-28.73	-26.29	Pass
0.3540	20.94	11.71	10.18	31.12	21.89	58.87	48.87	-27.75	-26.98	Pass
0.5420	32.50	28.13	10.18	42.68	38.31	56.00	46.00	-13.32	-7.69	Pass
1.8020	24.87	22.06	10.23	35.10	32.29	56.00	46.00	-20.90	-13.71	Pass
13.7020	23.56	4.40	10.38	33.94	14.78	60.00	50.00	-26.06	-35.22	Pass
18.8820	14.27	4.95	10.40	24.67	15.35	60.00	50.00	-35.33	-34.65	Pass

Note: Correction factor = LISN loss + Cable loss.

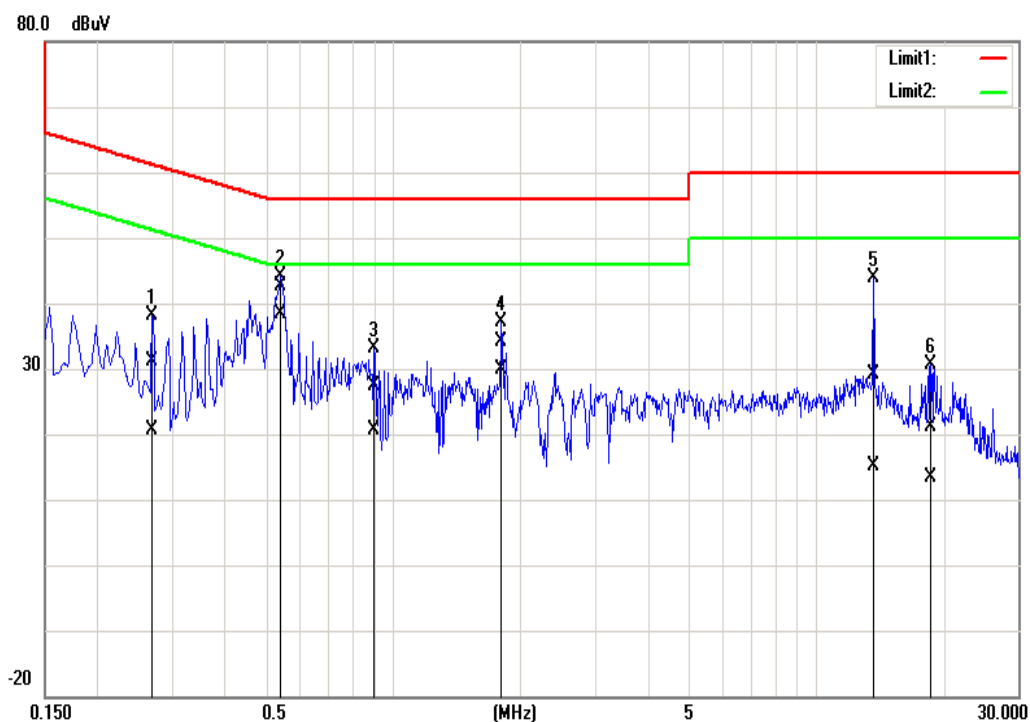
Test Mode:	BLE 2M -50%	Temp/Hum	25.9(°C)/ 50%RH
Phase:	Line	Test Date	August 10, 2022
Test Voltage:	120Vac, 60Hz	Test Engineer	Tony Chao



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
0.4580	25.94	15.83	10.19	36.13	26.02	56.73	46.73	-20.60	-20.71	Pass
0.8420	17.28	7.93	10.21	27.49	18.14	56.00	46.00	-28.51	-27.86	Pass
1.7980	22.22	17.41	10.25	32.47	27.66	56.00	46.00	-23.53	-18.34	Pass
5.3020	13.18	1.57	10.32	23.50	11.89	60.00	50.00	-36.50	-38.11	Pass
13.1300	17.94	1.30	10.36	28.30	11.66	60.00	50.00	-31.70	-38.34	Pass
27.0500	7.75	-3.17	10.15	17.90	6.98	60.00	50.00	-42.10	-43.02	Pass

Note: Correction factor = LISN loss + Cable loss.

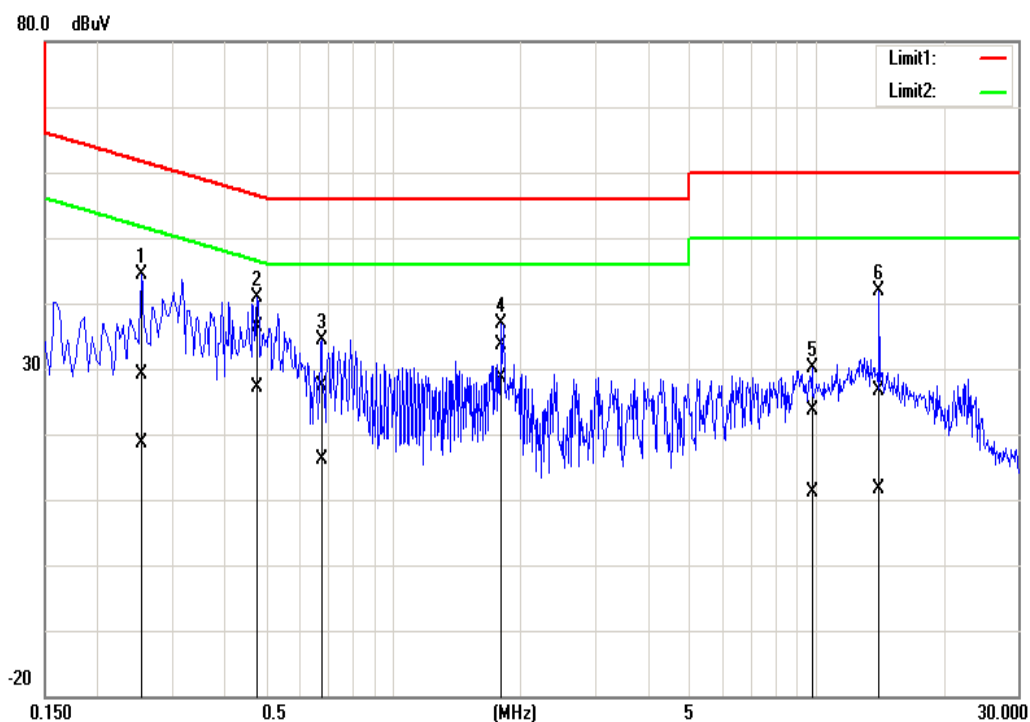
Test Mode:	BLE 2M-50%	Temp/Hum	25.9(°C)/ 50%RH
Phase:	Neutral	Test Date	August 10, 2022
Test Voltage:	120Vac, 60Hz	Test Engineer	Tony Chao



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
0.2700	20.97	10.49	10.17	31.14	20.66	61.12	51.12	-29.98	-30.46	Pass
0.5420	32.49	28.18	10.18	42.67	38.36	56.00	46.00	-13.33	-7.64	Pass
0.9020	17.15	10.52	10.20	27.35	20.72	56.00	46.00	-28.65	-25.28	Pass
1.8060	23.88	19.64	10.23	34.11	29.87	56.00	46.00	-21.89	-16.13	Pass
13.6700	18.65	4.69	10.38	29.03	15.07	60.00	50.00	-30.97	-34.93	Pass
18.7140	10.65	3.06	10.40	21.05	13.46	60.00	50.00	-38.95	-36.54	Pass

Note: Correction factor = LISN loss + Cable loss.

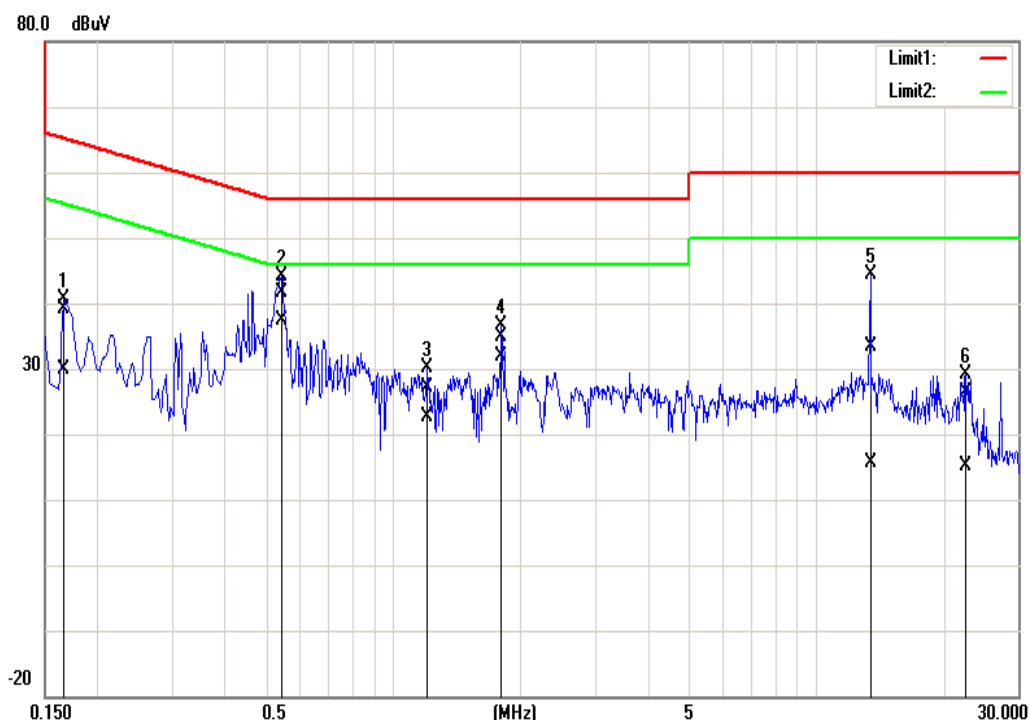
Test Mode:	BLE 2M-99%	Temp/Hum	25.9(°C)/ 50%RH
Phase:	Line	Test Date	August 10, 2022
Test Voltage:	120Vac, 60Hz	Test Engineer	Tony Chao



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
0.2540	18.91	8.34	10.18	29.09	18.52	61.63	51.63	-32.54	-33.11	Pass
0.4780	26.25	17.00	10.19	36.44	27.19	56.37	46.37	-19.93	-19.18	Pass
0.6780	17.23	6.01	10.19	27.42	16.20	56.00	46.00	-28.58	-29.80	Pass
1.8020	23.45	18.41	10.25	33.70	28.66	56.00	46.00	-22.30	-17.34	Pass
9.7820	13.23	0.85	10.36	23.59	11.21	60.00	50.00	-36.41	-38.79	Pass
14.1260	16.17	1.32	10.37	26.54	11.69	60.00	50.00	-33.46	-38.31	Pass

Note: Correction factor = LISN loss + Cable loss.

Test Mode:	BLE 2M-99%	Temp/Hum	25.9(°C)/ 50%RH
Phase:	Neutral	Test Date	August 10, 2022
Test Voltage:	120Vac, 60Hz	Test Engineer	Tony Chao



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
0.1660	28.89	19.61	10.17	39.06	29.78	65.16	55.16	-26.10	-25.38	Pass
0.5460	31.41	27.12	10.18	41.59	37.30	56.00	46.00	-14.41	-8.70	Pass
1.2060	17.04	12.50	10.21	27.25	22.71	56.00	46.00	-28.75	-23.29	Pass
1.8060	24.61	21.55	10.23	34.84	31.78	56.00	46.00	-21.16	-14.22	Pass
13.4100	23.09	5.15	10.37	33.46	15.52	60.00	50.00	-26.54	-34.48	Pass
22.5660	15.91	4.75	10.46	26.37	15.21	60.00	50.00	-33.63	-34.79	Pass

Note: Correction factor = LISN loss + Cable loss.

Report No.: TMWK2207002919KR

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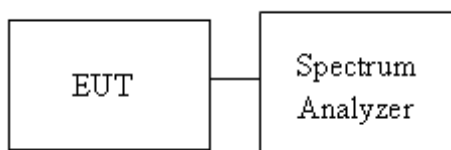
Occupied Bandwidth(99%) : For reporting purposes only.

4.2.2 Test Procedure

Test method Refer as ANSI C63.10: 2013,

1. The EUT RF output connected to the 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.

4.2.3 Test Setup



4.2.4 Test Result

Temperature: 26.4~26.6°C

Test date: July 29~August 1, 2022

Humidity: 50~53% RH

Tested by: David Li

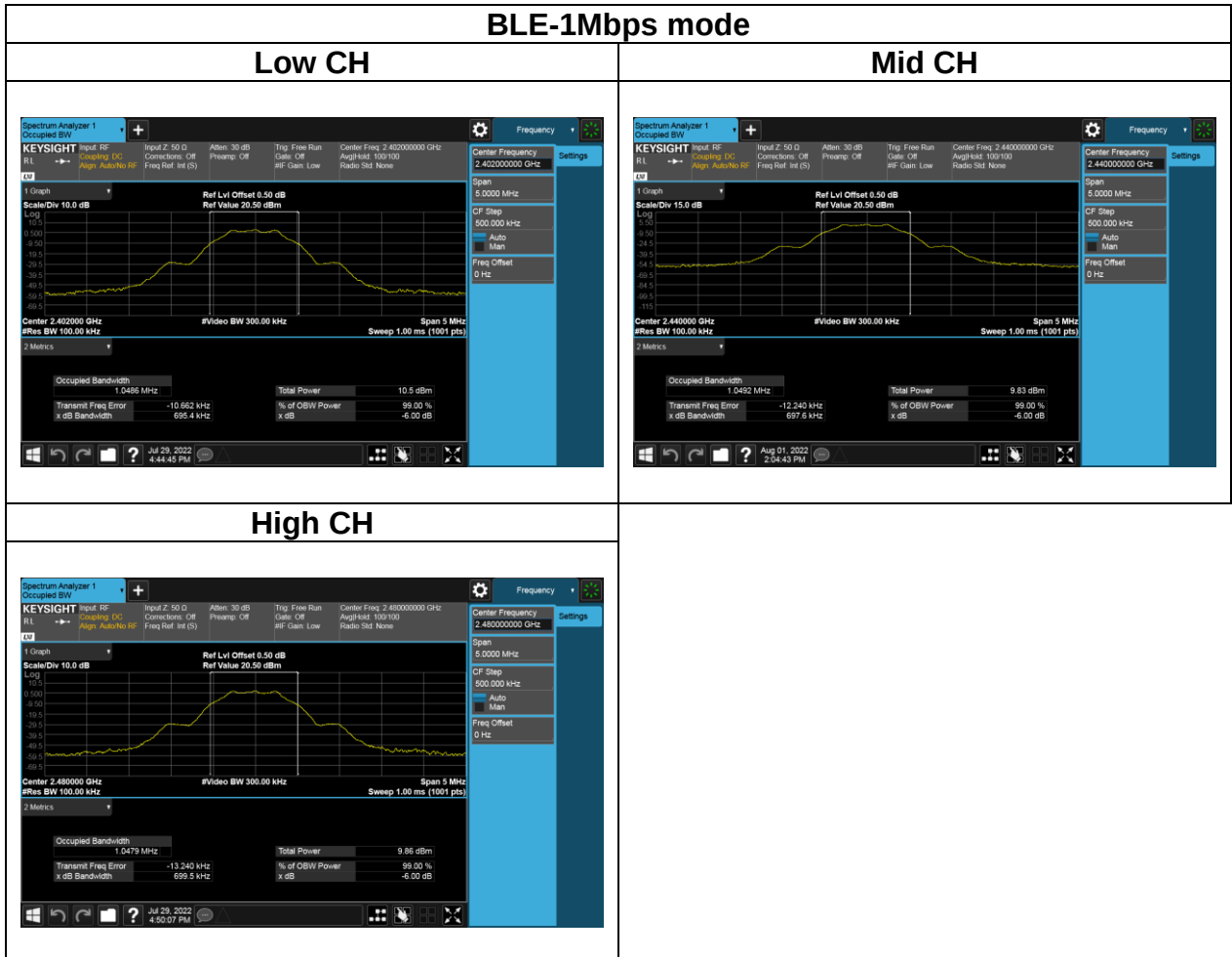
Test mode: BLE-1Mbps mode / 2402-2480 MHz				
Channel	Frequency (MHz)	OBW (99%) (MHz)	6dB BW (MHz)	6dB limit (kHz)
Low	2402	1.0258	0.6954	≥500
Mid	2440	1.0256	0.6976	
High	2480	1.0246	0.6995	

Test mode: BLE-2Mbps mode / 2402-2480 MHz				
Channel	Frequency (MHz)	OBW (99%) (MHz)	6dB BW (MHz)	6dB limit (kHz)
Low	2402	2.0324	1.174	≥500
Mid	2440	2.0345	1.174	
High	2480	2.0360	1.175	

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Test Data

6dB BANDWIDTH



BLE-2Mbps mode

Low CH



Mid CH



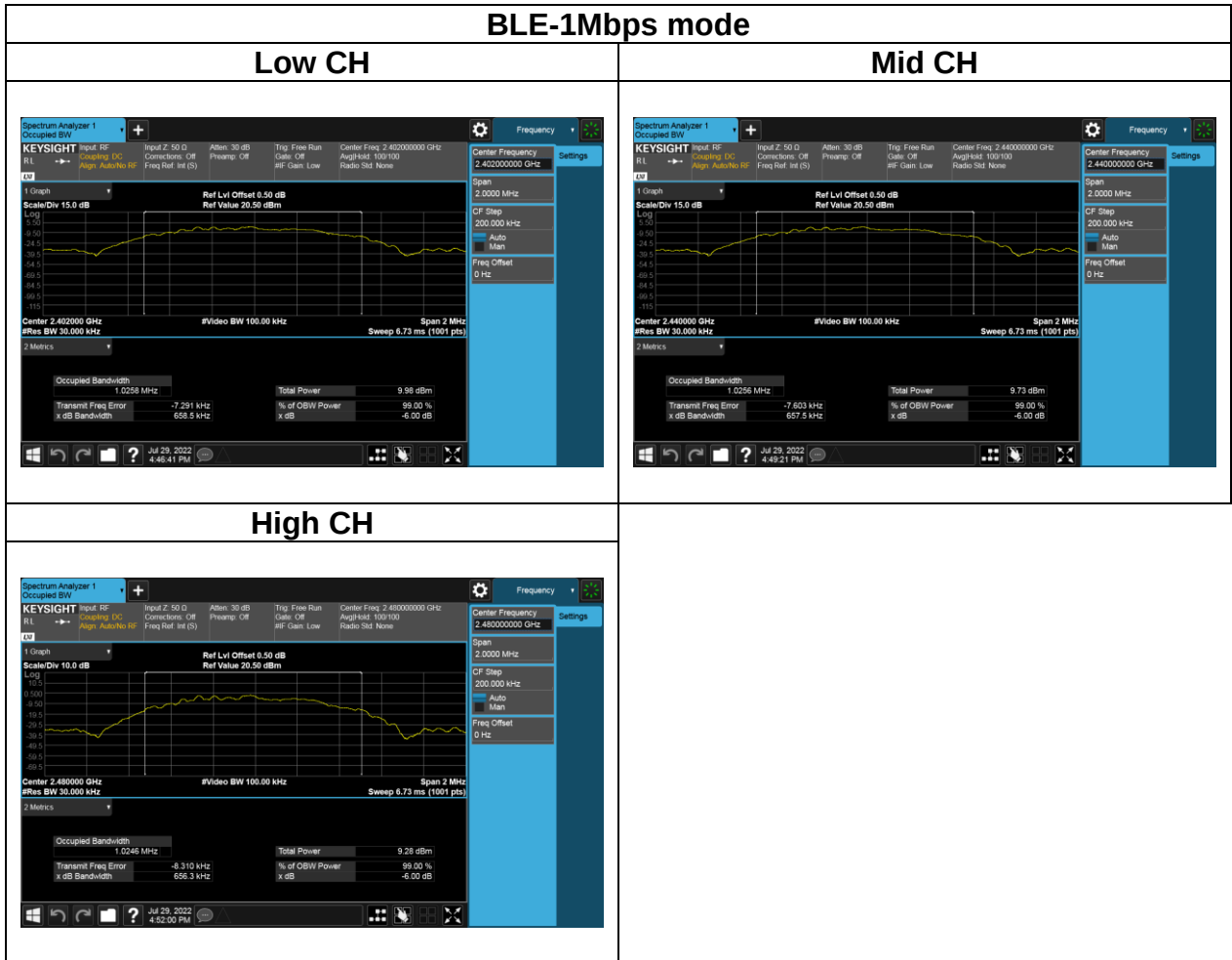
High CH

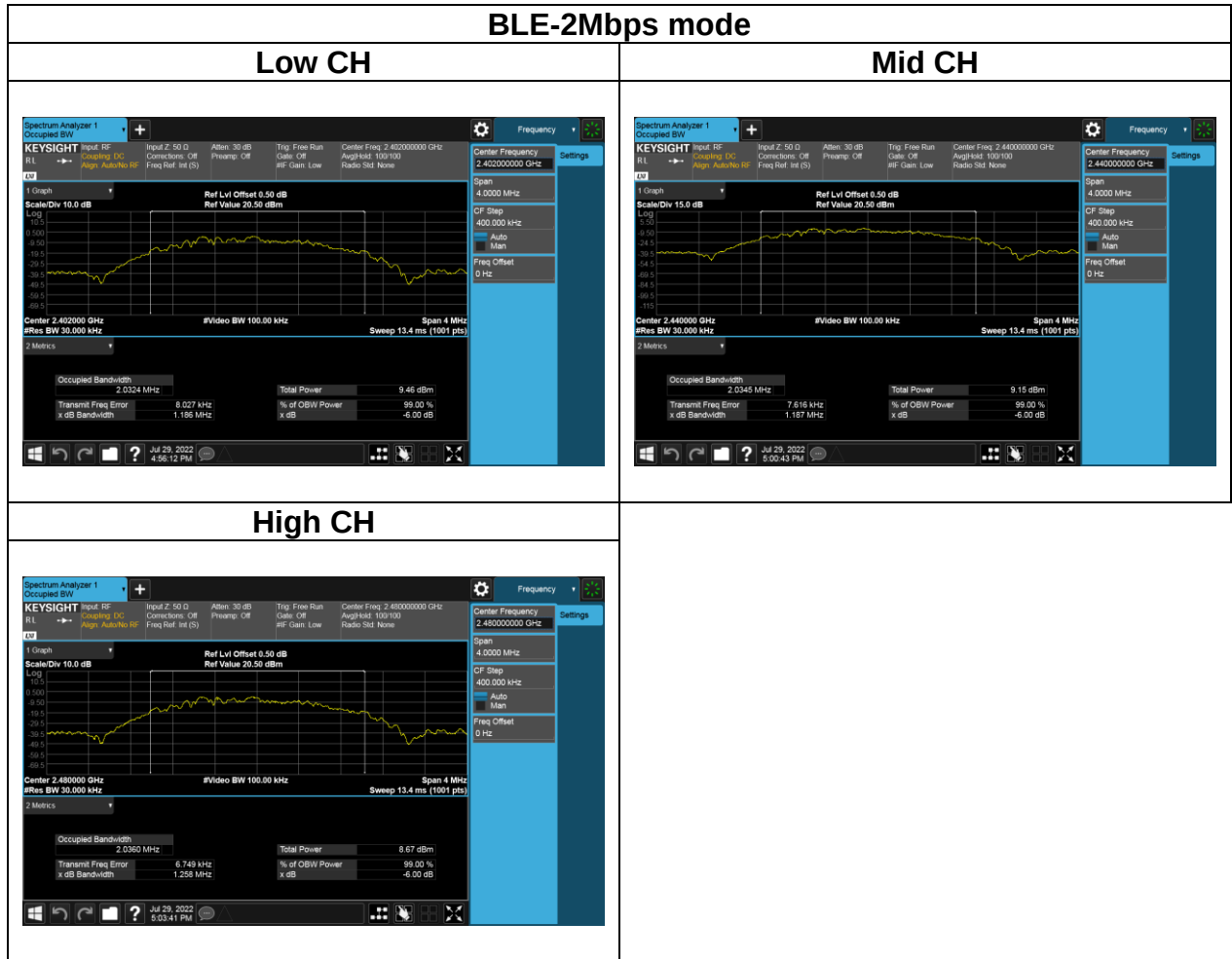


Report No.: TMWK2207002919KR

Test Data

BANDWIDTH (99%)





4.3 OUTPUT POWER MEASUREMENT

4.3.1 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
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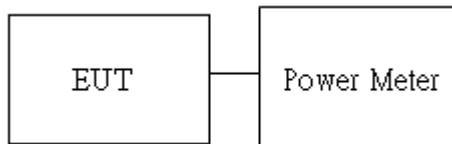
Average output power : For reporting purposes only.

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

4.3.3 Test Setup



Report No.: TMWK2207002919KR

4.3.4 Test Result

Temperature: 26.4~26.6°C

Test date: July 29~August 1, 2022

Humidity: 50~53% RH

Tested by: David Li

Peak output power :

BLE 1M mode:

CH	Frequency (MHz)	Power set	Peak Power Output (dBm)	Required Limit (dBm)
Low	2402	5	4.89	30
Mid	2440	5	4.64	30
High	2480	5	4.58	30

BLE 2M mode:

CH	Frequency (MHz)	Power set	Peak Power Output (dBm)	Required Limit (dBm)
Low	2402	5	4.40	30
Mid	2440	5	4.28	30
High	2480	5	4.35	30

Average output power :

BLE 1M mode:

CH	Frequency (MHz)	Power set	Peak Power Output (dBm)	Required Limit (dBm)
Low	2402	5	3.62	30
Mid	2440	5	3.49	30
High	2480	5	3.45	30

BLE 2M mode:

CH	Frequency (MHz)	Power set	Peak Power Output (dBm)	Required Limit (dBm)
Low	2402	5	3.61	30
Mid	2440	5	3.37	30
High	2480	5	3.48	30

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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.

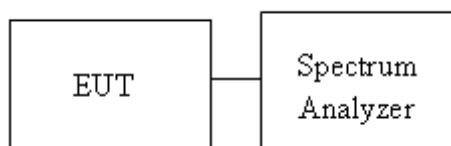
Limit	☒ Antenna not exceed 6 dBi : 8dBm ☐ Antenna with DG greater than 6 dBi [Limit = 8 – (DG – 6)] ☐ Point-to-point operation :
-------	---

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





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4.4.4 Test Result

Temperature: 26.4~26.6°C

Test date: July 29~August 1, 2022

Humidity: 50~53% RH

Tested by: David Li

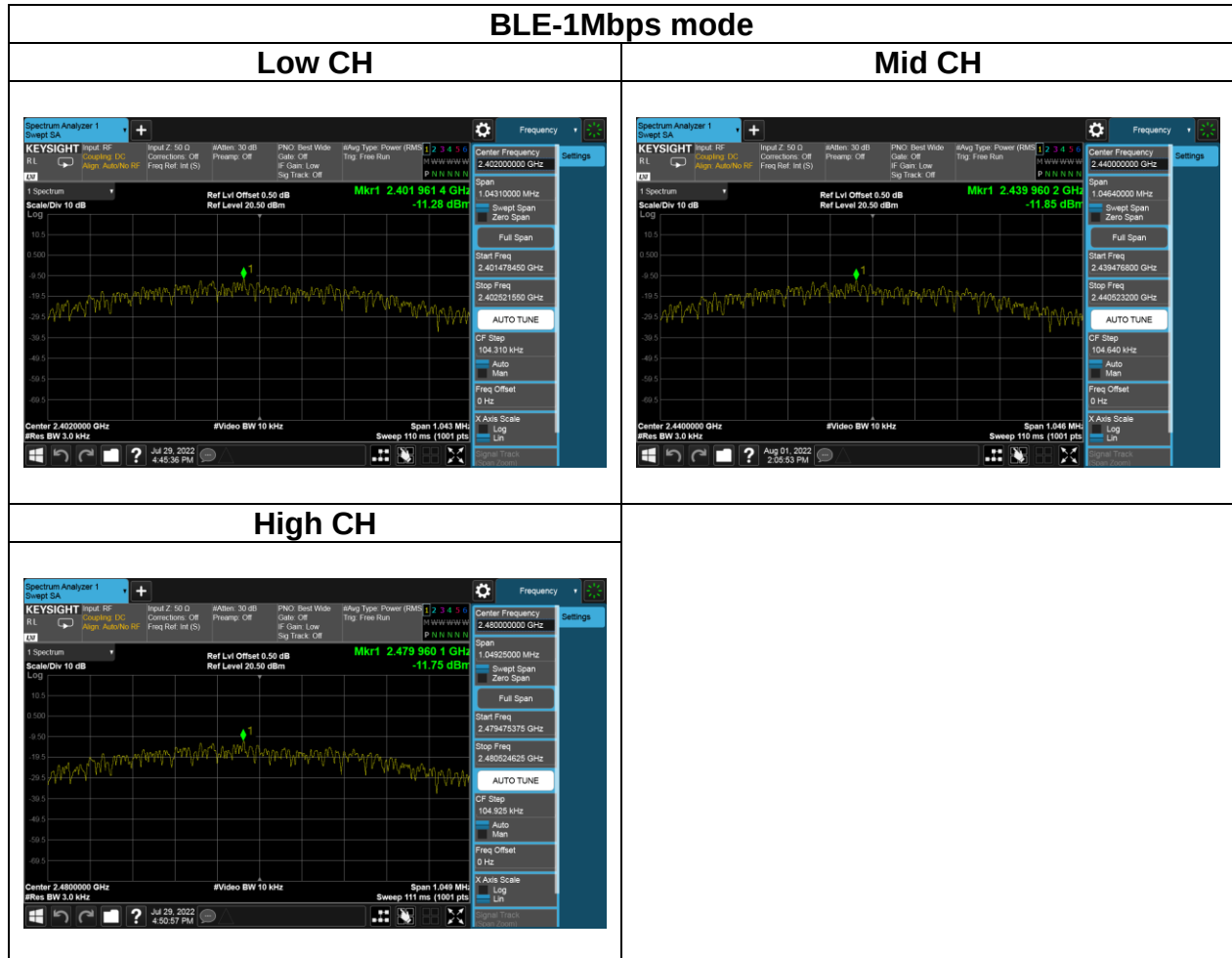
BLE 1M mode

Frequency (MHz)	RF Power Density (dBm/3kHz)	Maximum Limit (dBm/3kHz)	Result
2402	-11.28	8	PASS
2440	-11.85	8	PASS
2480	-11.75	8	PASS

BLE 2M mode

Frequency (MHz)	RF Power Density (dBm/3kHz)	Maximum Limit (dBm/3kHz)	Result
2402	-13.99	8	PASS
2440	-14.19	8	PASS
2480	-14.63	8	PASS

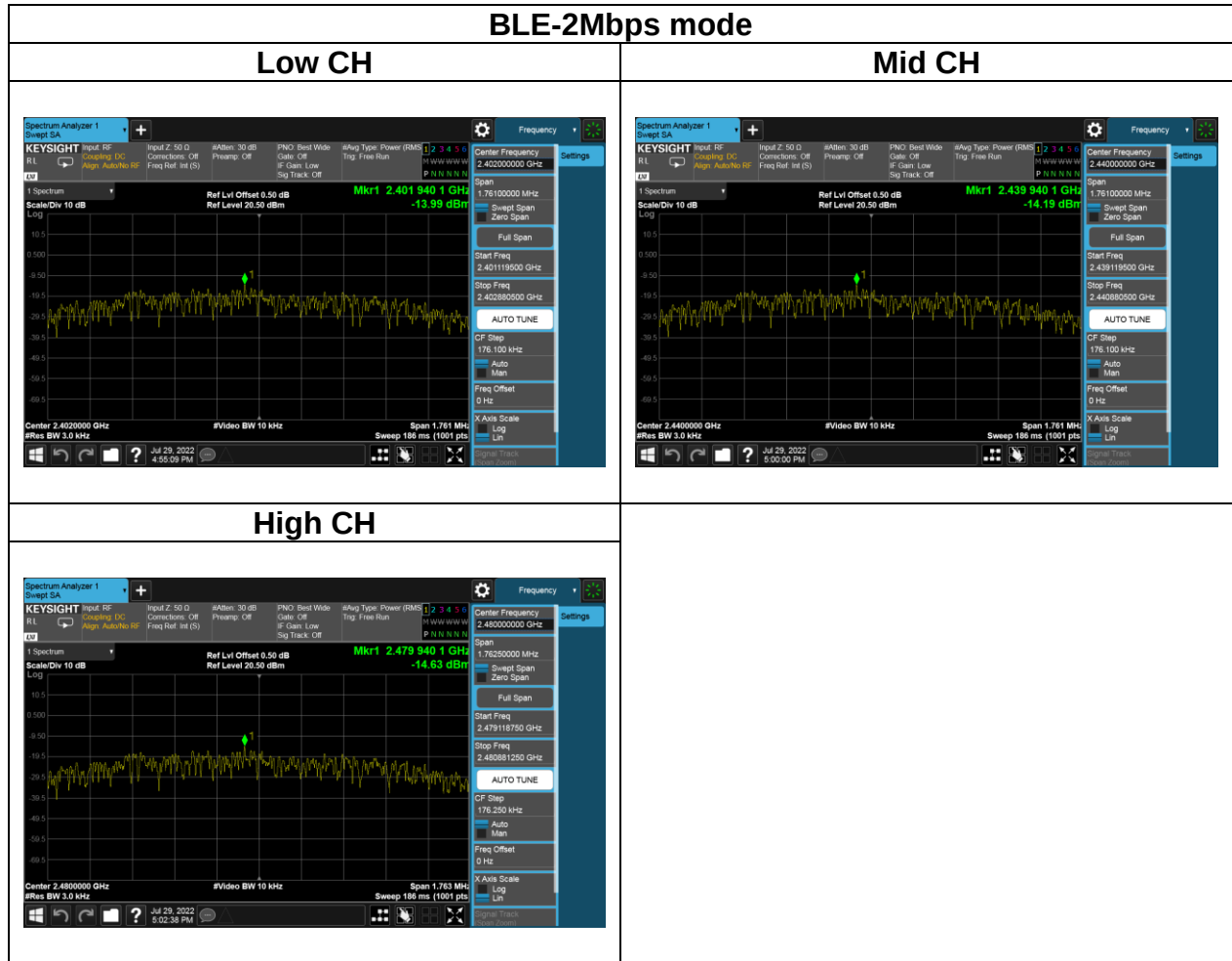
Test Data





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4.5 CONDUCTED BAND EDGE AND SPURIOUS EMISSION

4.5.1 Test Limit

According to §15.247(d)

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

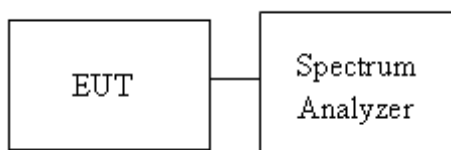
Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

4.5.2 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

Test Data

Temperature: 26.4~26.6°C

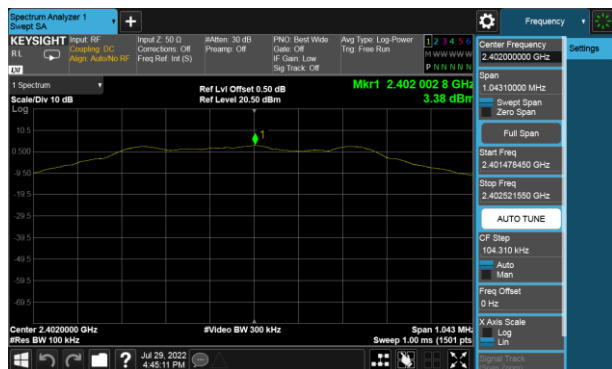
Test date: July 29~August 1, 2022

Humidity: 50~53% RH

Tested by: David Li

BLE-1Mbps mode Low CH

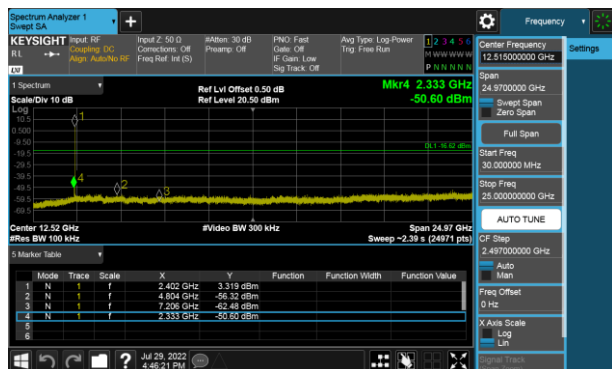
Reference Level

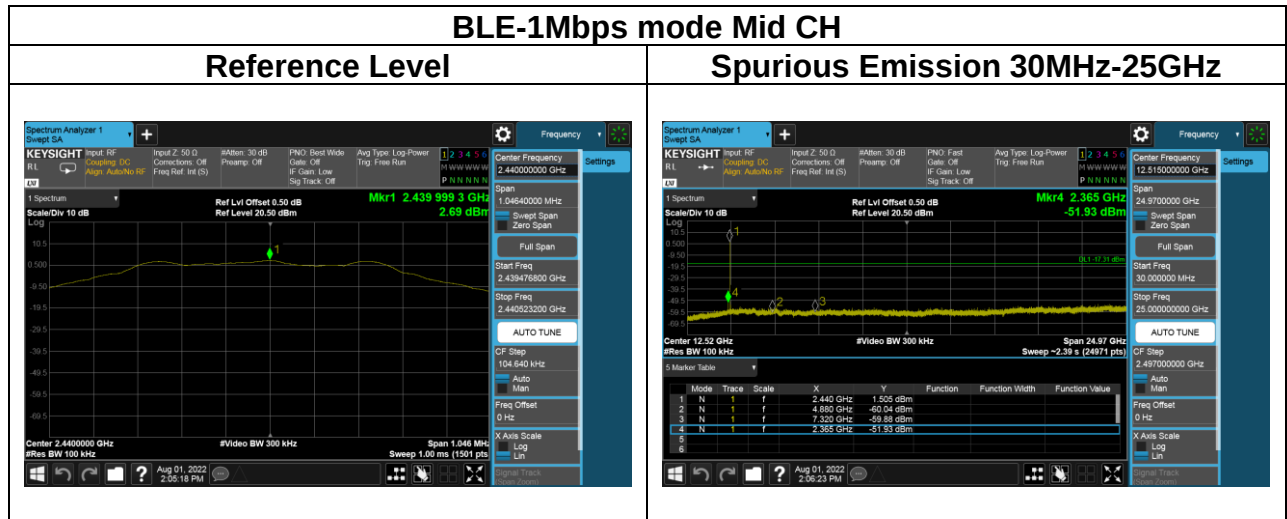


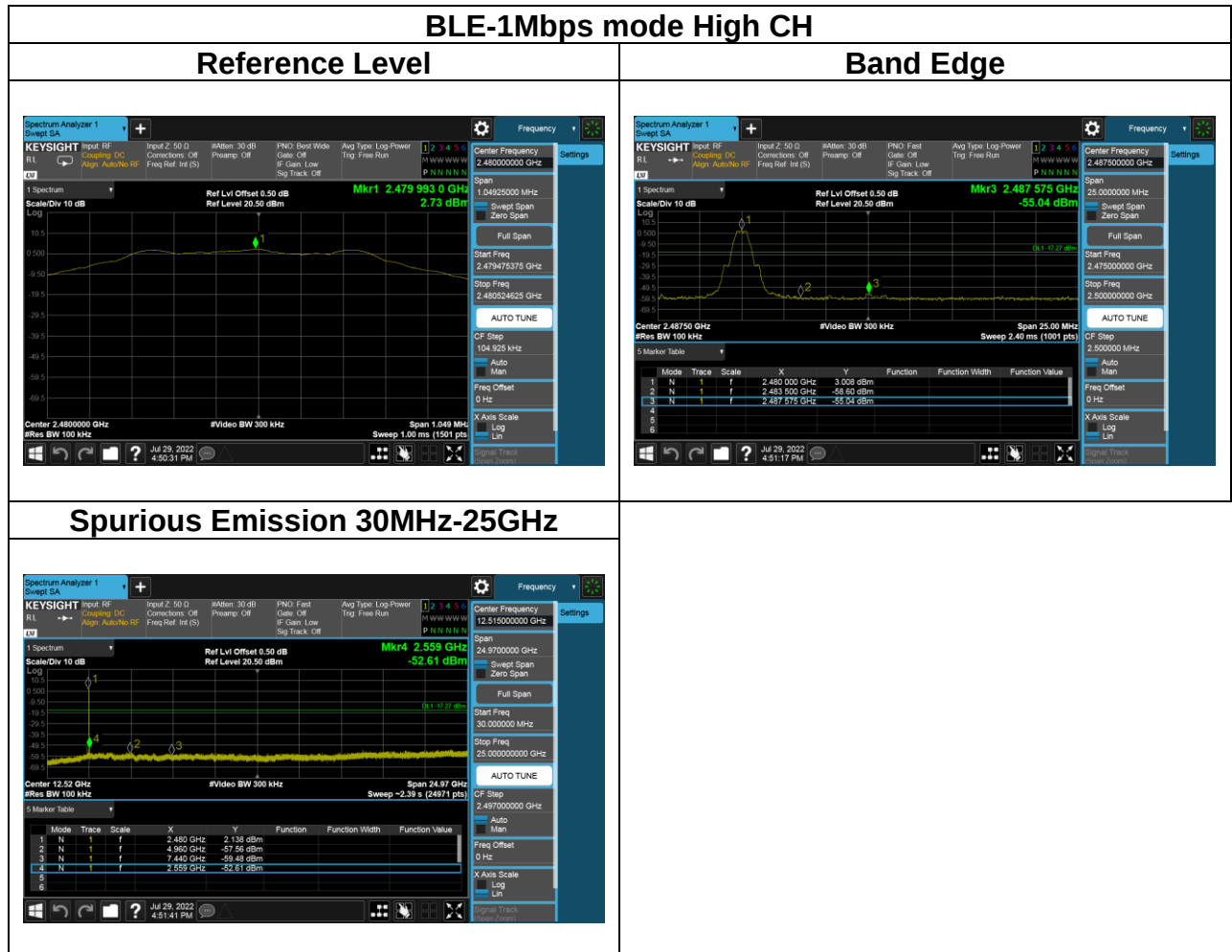
Band Edge

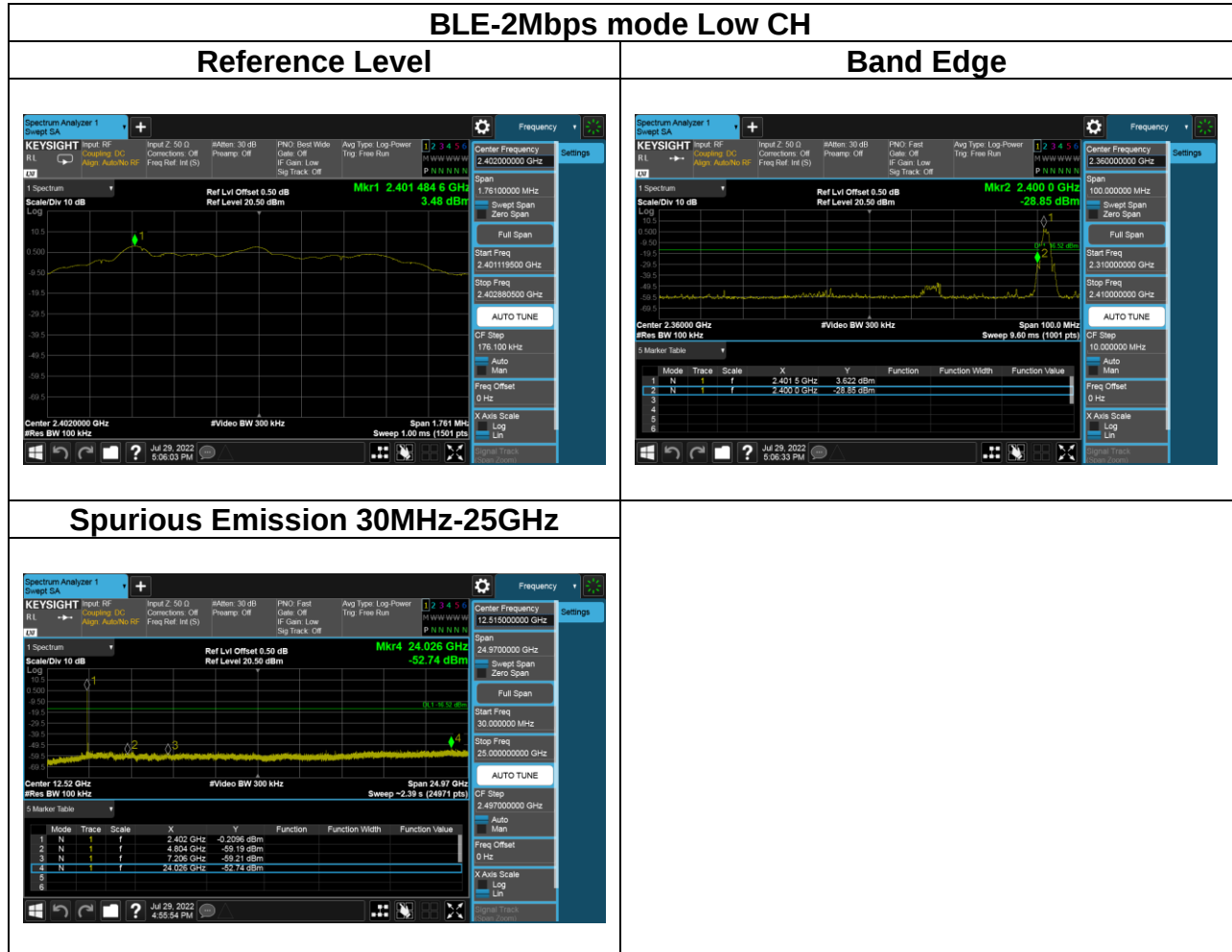


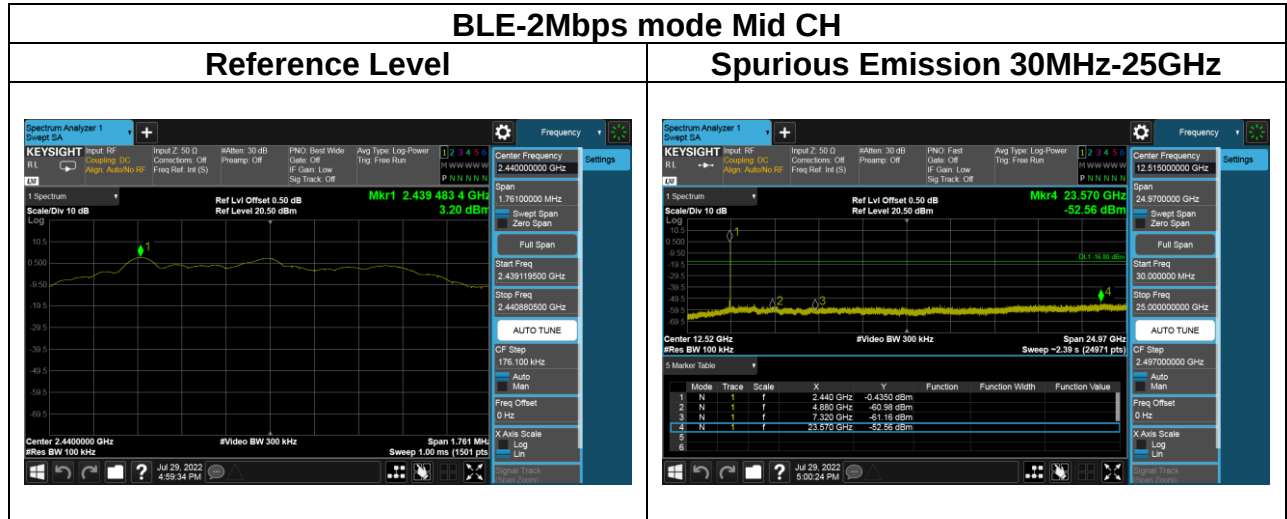
Spurious Emission 30MHz-25GHz

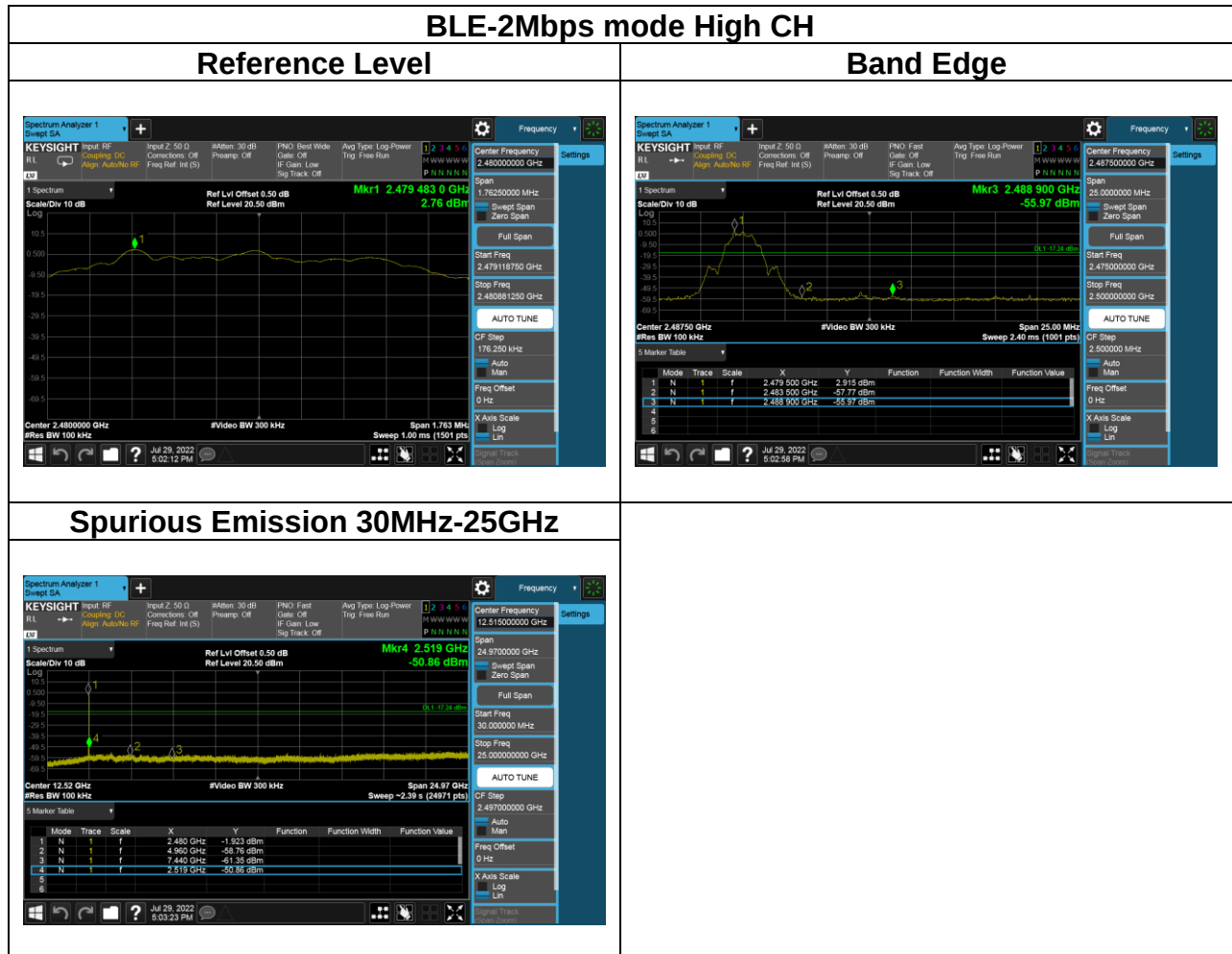












4.6 RADIATION BANDEDGE AND SPURIOUS EMISSION

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 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.

4.6.2 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).

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.

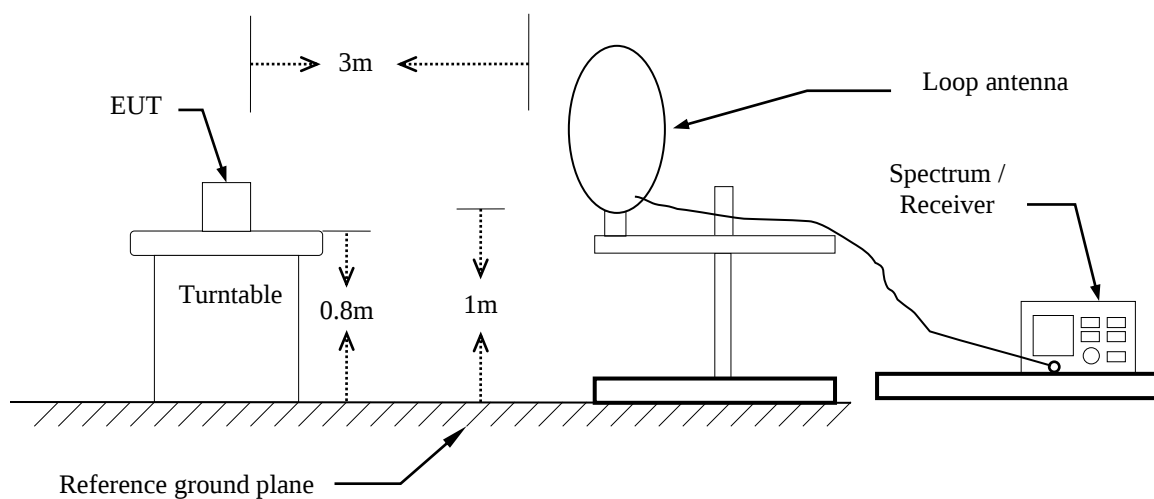
4. Data result

Actual FS=Spectrum Reading Level+Factor

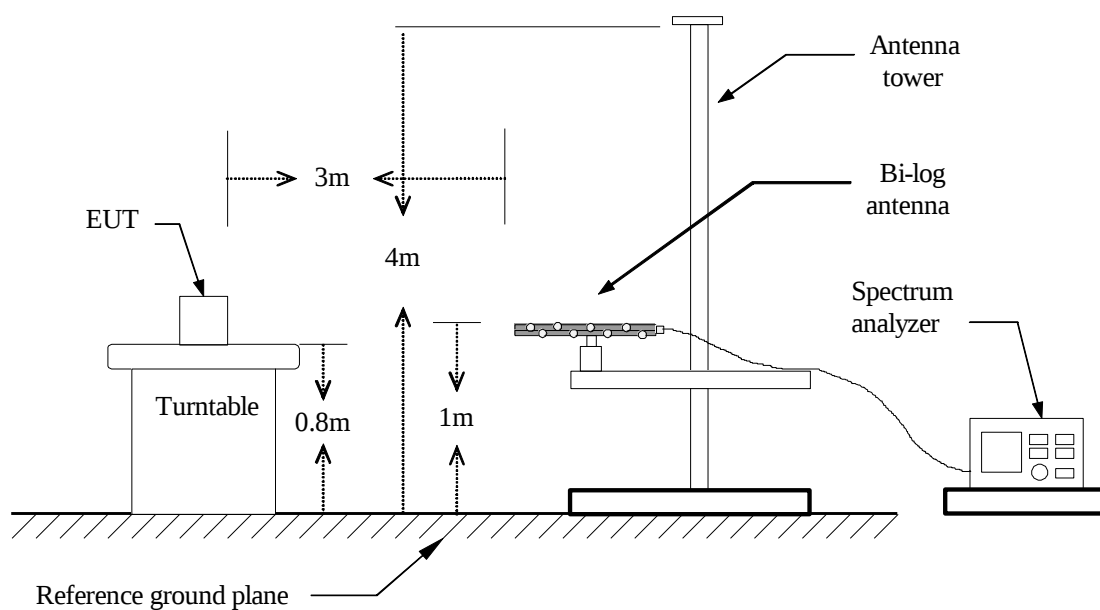
Margin=Actual FS- Limit

4.6.3 Test Setup

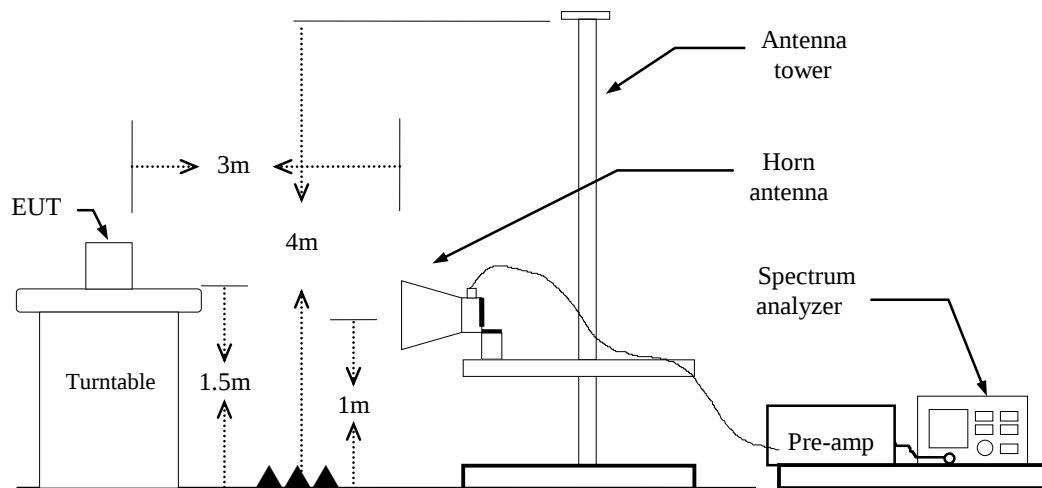
9kHz ~ 30MHz



30MHz ~ 1GHz



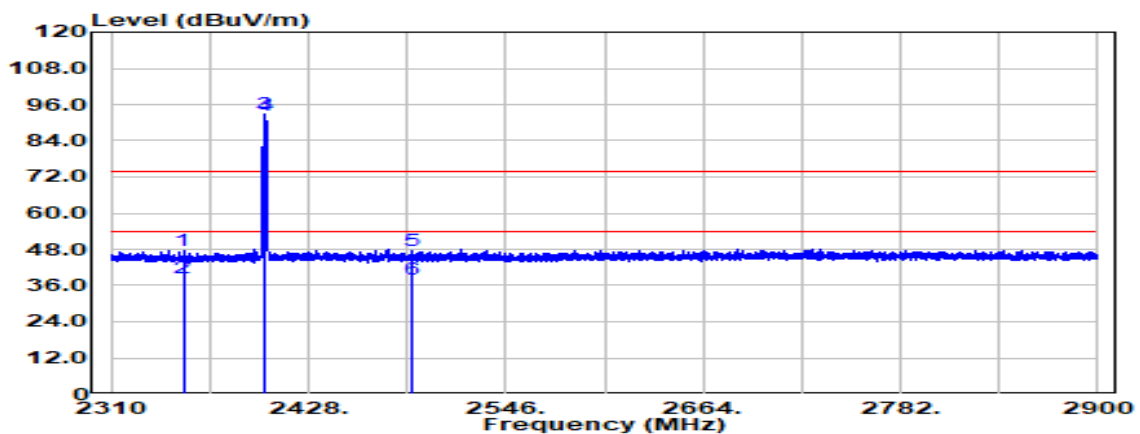
Above 1 GHz



4.6.4 Test Result

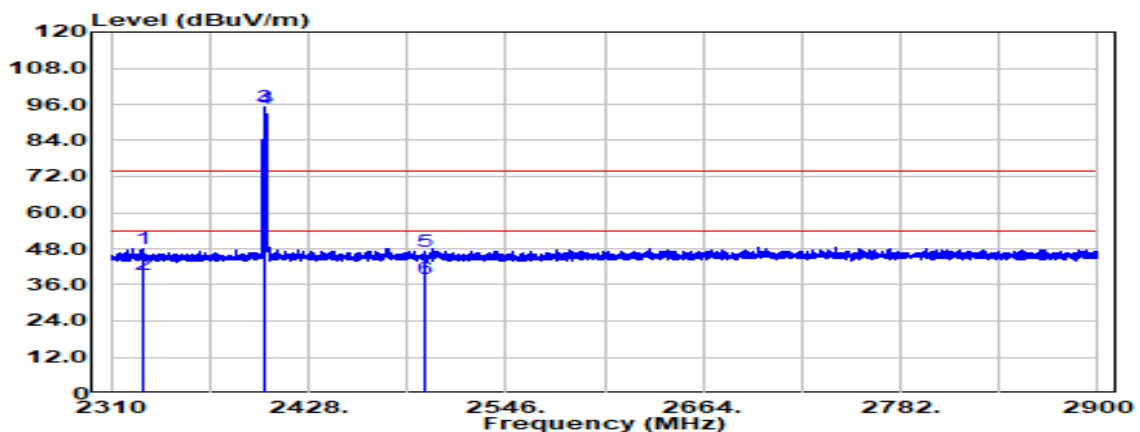
Band Edge Test Data

Test Mode:	BLE-1Mbps Low CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Band Edge	Test Date	August 9, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		



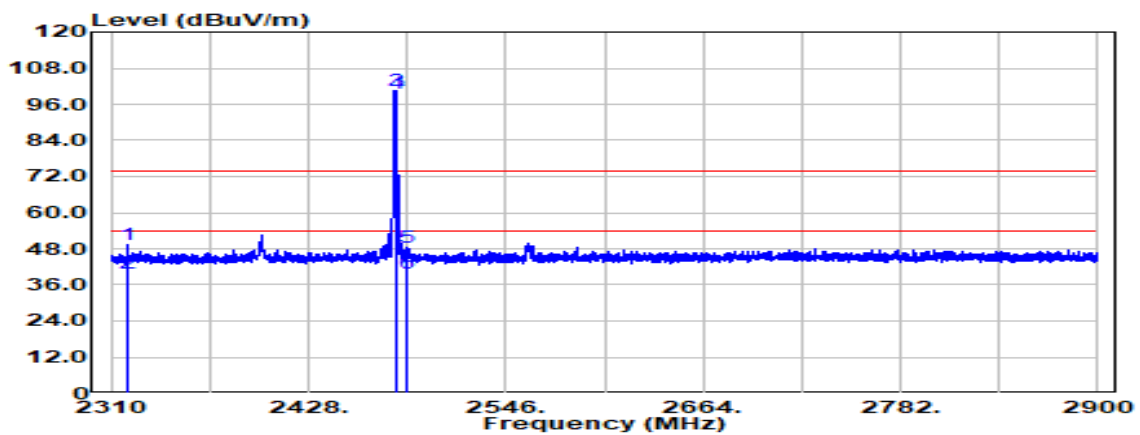
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2353.070	Peak	40.12	7.65	47.76	74.00	-26.24
2353.070	Average	30.79	7.65	38.43	54.00	-15.57
2402.000	Peak	85.19	7.79	92.98	--	--
2402.000	Average	84.69	7.79	92.48	--	--
2489.360	Peak	39.08	8.29	47.37	74.00	-26.63
2489.360	Average	29.74	8.29	38.03	54.00	-15.97

Test Mode:	BLE-1Mbps Low CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Band Edge	Test Date	August 9, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		



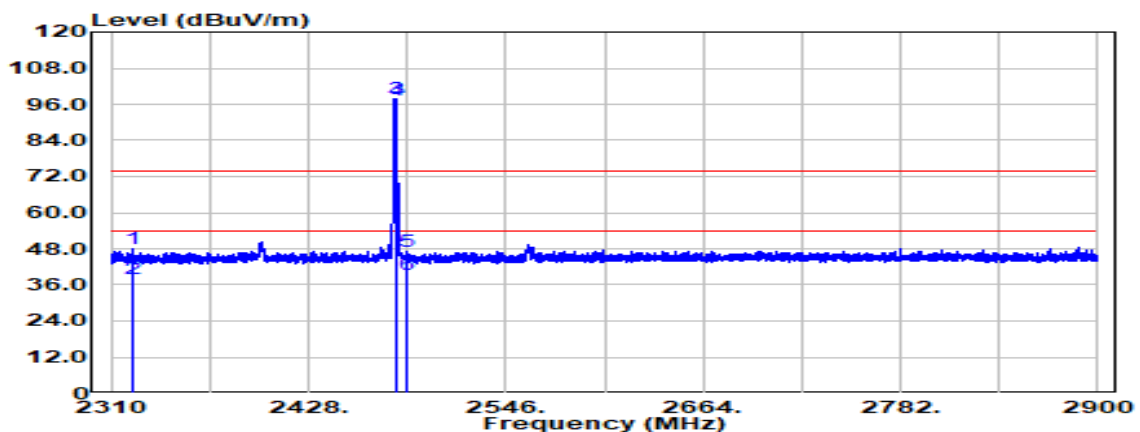
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2328.880	Peak	40.57	7.61	48.18	74.00	-25.82
2328.880	Average	31.82	7.61	39.42	54.00	-14.58
2402.000	Peak	87.21	7.79	95.00	--	--
2402.000	Average	86.73	7.79	94.52	--	--
2497.856	Peak	38.91	8.33	47.24	74.00	-26.76
2497.856	Average	29.75	8.33	38.08	54.00	-15.92

Test Mode:	BLE-1Mbps High CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Band Edge	Test Date	August 9, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		



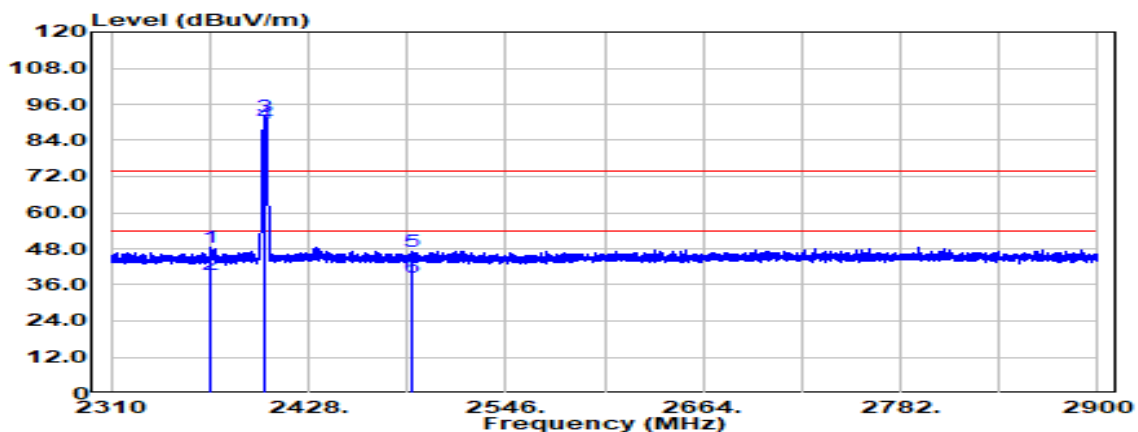
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2320.030	Peak	41.70	7.59	49.29	74.00	-24.71
2320.030	Average	32.15	7.59	39.74	54.00	-14.26
2480.000	Peak	92.31	8.24	100.55	--	--
2480.000	Average	91.58	8.24	99.83	--	--
2487.118	Peak	40.16	8.28	48.44	74.00	-25.56
2487.118	Average	31.71	8.28	39.99	54.00	-14.01

Test Mode:	BLE-1Mbps High CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Band Edge	Test Date	August 9, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		



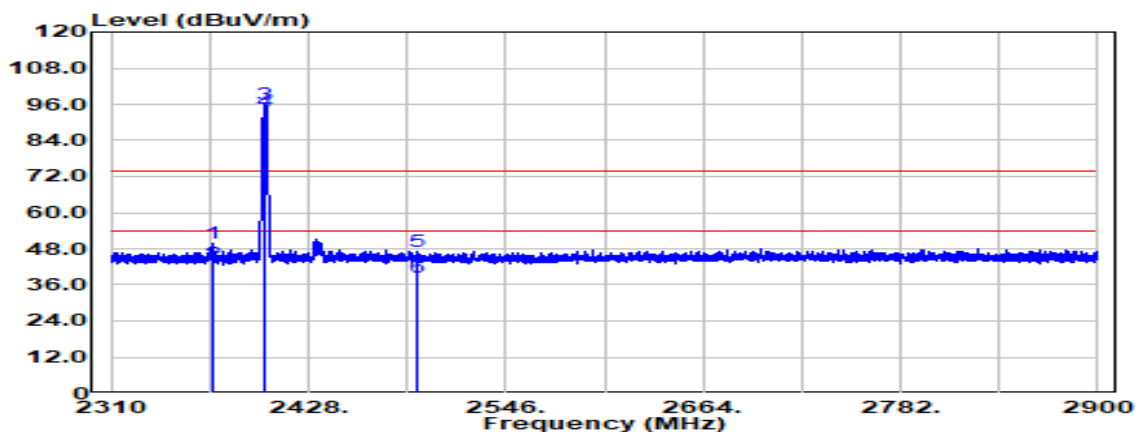
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2323.098	Peak	40.48	7.60	48.08	74.00	-25.92
2323.098	Average	30.48	7.60	38.08	54.00	-15.92
2480.000	Peak	89.60	8.24	97.84	--	--
2480.000	Average	89.09	8.24	97.34	--	--
2487.236	Peak	38.86	8.28	47.14	74.00	-26.86
2487.236	Average	31.26	8.28	39.54	54.00	-14.46

Test Mode:	BLE-2Mbps Low CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Band Edge	Test Date	August 9, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		



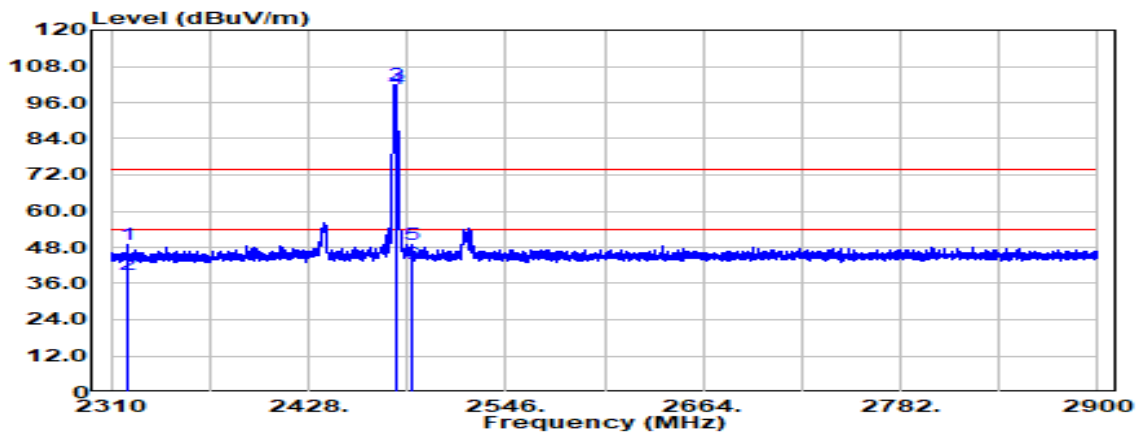
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2369.944	Peak	40.66	7.70	48.35	74.00	-25.65
2369.944	Average	31.83	7.70	39.53	54.00	-14.47
2402.000	Peak	84.01	7.79	91.80	--	--
2402.000	Average	81.97	7.79	89.76	--	--
2489.360	Peak	38.63	8.29	46.92	74.00	-27.08
2489.360	Average	29.99	8.29	38.28	54.00	-15.72

Test Mode:	BLE-2Mbps Low CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Band Edge	Test Date	August 9, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		



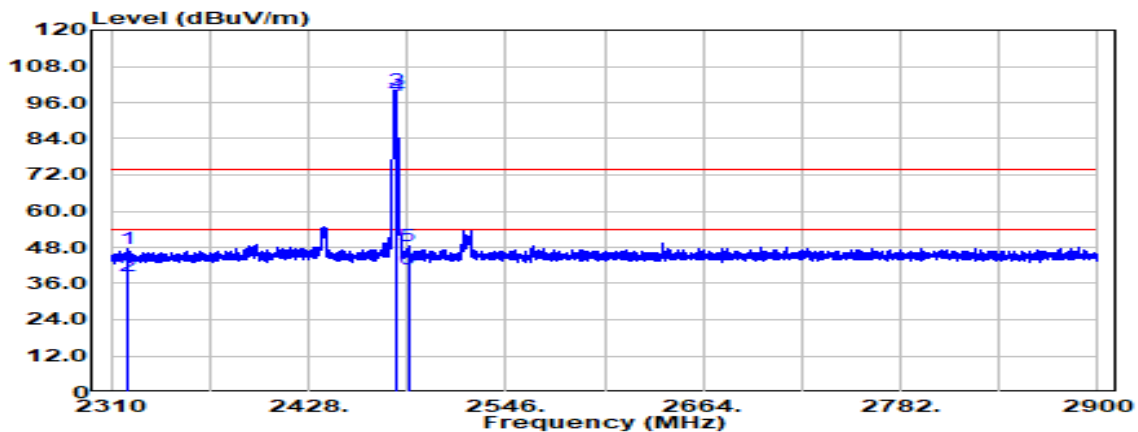
Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2371.124	Peak	42.20	7.70	49.90	74.00	-24.10
2371.124	Average	35.48	7.70	43.18	54.00	-10.82
2402.000	Peak	88.02	7.79	95.81	--	--
2402.000	Average	86.14	7.79	93.94	--	--
2492.546	Peak	38.91	8.30	47.21	74.00	-26.79
2492.546	Average	30.10	8.30	38.41	54.00	-15.59

Test Mode:	BLE-2Mbps High CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Band Edge	Test Date	August 9, 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)
2319.676	Peak	41.23	7.59	48.82	74.00	-25.18
2319.676	Average	31.46	7.59	39.05	54.00	-14.95
2480.000	Peak	93.85	8.24	102.09	--	--
2480.000	Average	92.07	8.24	100.31	--	--
2489.242	Peak	40.81	8.29	49.10	74.00	-24.90
2489.242	Average	34.47	8.29	42.76	54.00	-11.24

Test Mode:	BLE-2Mbps High CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Band Edge	Test Date	August 9, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		

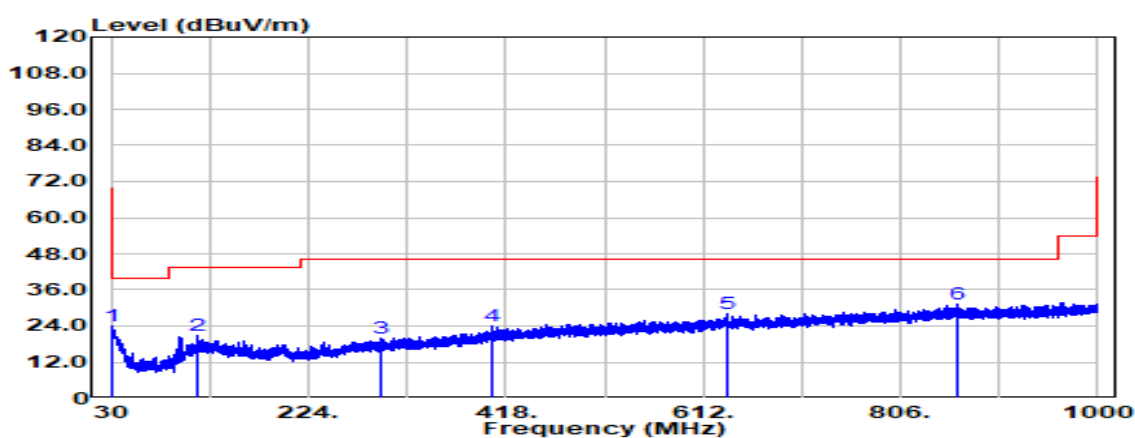


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
2319.794	Peak	39.88	7.59	47.47	74.00	-26.53
2319.794	Average	31.10	7.59	38.69	54.00	-15.31
2480.000	Peak	91.79	8.24	100.03	--	--
2480.000	Average	89.95	8.24	98.20	--	--
2487.590	Peak	40.20	8.28	48.48	74.00	-25.52
2487.590	Average	32.57	8.28	40.85	54.00	-13.15

Report No.: TMWK2207002919KR

Below 1G Test Data

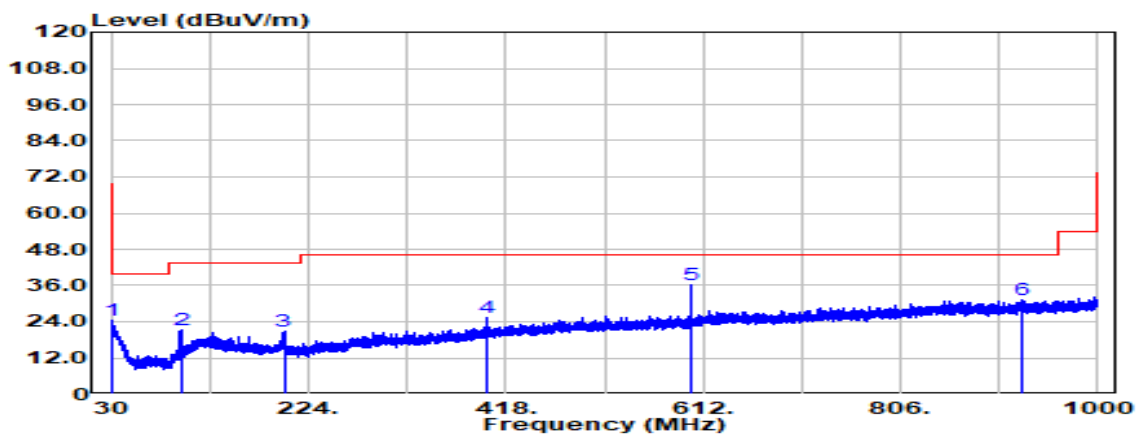
Test Mode:	BLE-1Mbps 2480MHz	Temp/Hum	24.1(°C) / 62%RH
Test Item	30MHz-1GHz	Test Date	August 12, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak		



Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBUV)	Factor (dB)	Actual FS (dBUV/m)	Limit @3m (dBUV/m)	Margin (dB)
30.364	Peak	27.37	-3.48	23.89	40.00	-16.11
115.724	Peak	30.81	-9.90	20.91	43.50	-22.59
296.265	Peak	28.76	-8.91	19.85	46.00	-26.15
404.541	Peak	29.75	-5.82	23.93	46.00	-22.07
636.008	Peak	29.32	-1.03	28.29	46.00	-17.71
860.805	Peak	29.39	2.07	31.46	46.00	-14.54

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

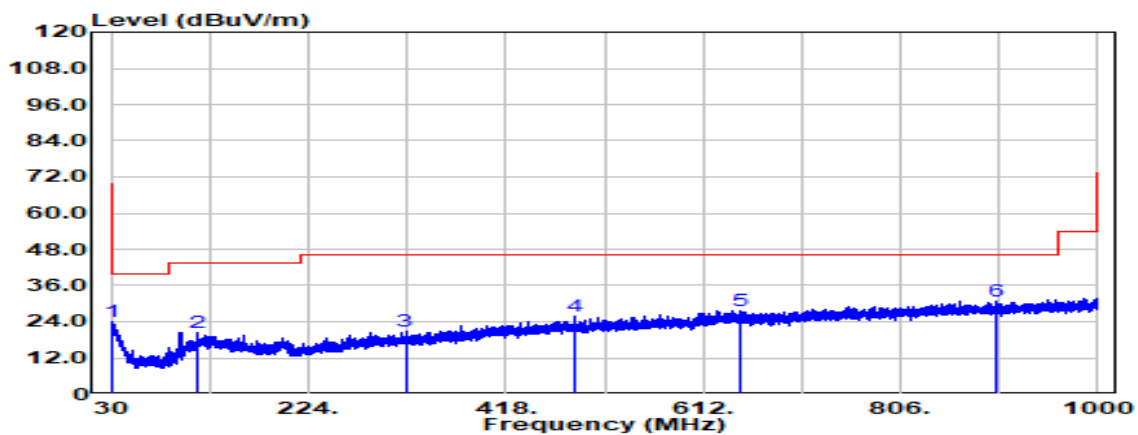
Test Mode:	BLE-1Mbps 2480MHz	Temp/Hum	24.1(°C) / 62%RH
Test Item	30MHz-1GHz	Test Date	August 12, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak		



Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
32.061	Peak	28.26	-3.78	24.48	40.00	-15.52
98.385	Peak	34.65	-13.54	21.11	43.50	-22.39
199.993	Peak	30.69	-9.90	20.79	43.50	-22.71
400.055	Peak	31.24	-5.97	25.27	46.00	-20.73
599.996	Peak	38.84	-2.66	36.18	46.00	-9.82
925.189	Peak	28.10	3.13	31.23	46.00	-14.77

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

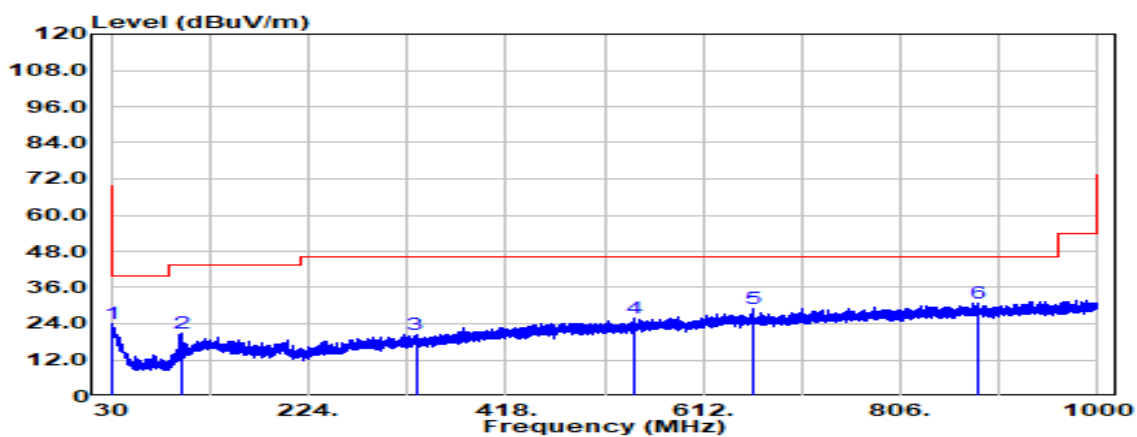
Test Mode:	BLE-2Mbps 2402MHz	Temp/Hum	24.1(°C) / 62%RH
Test Item	30MHz-1GHz	Test Date	August 12, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak		



Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
32.183	Peak	27.82	-3.89	23.93	40.00	-16.07
115.481	Peak	30.24	-9.85	20.39	43.50	-23.11
319.424	Peak	29.06	-8.44	20.61	46.00	-25.39
486.870	Peak	29.44	-3.80	25.63	46.00	-20.37
648.496	Peak	28.49	-0.95	27.54	46.00	-18.46
900.454	Peak	28.30	2.38	30.68	46.00	-15.32

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

Test Mode:	BLE-2Mbps 2402MHz	Temp/Hum	24.1(°C) / 62%RH
Test Item	30MHz-1GHz	Test Date	August 12, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak		

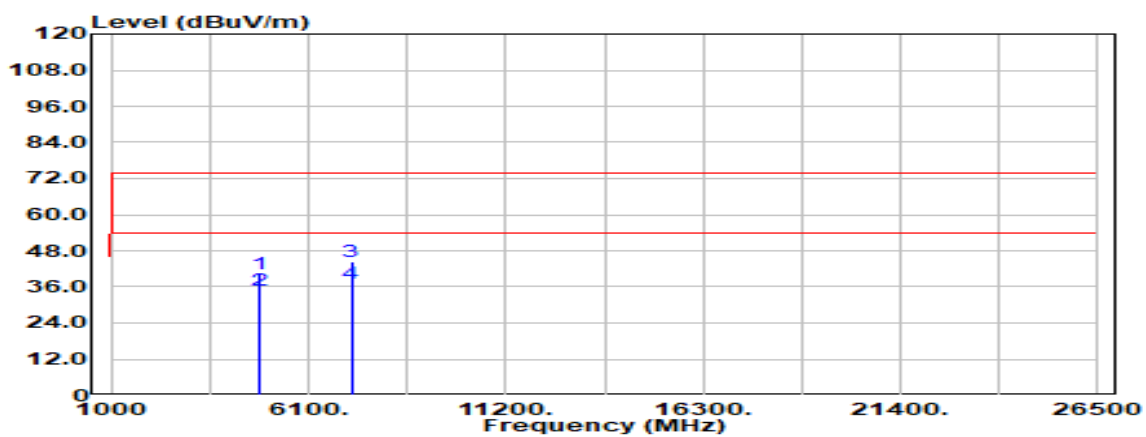


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
30.243	Peak	27.52	-3.39	24.13	40.00	-15.87
98.385	Peak	34.16	-13.54	20.62	43.50	-22.88
329.609	Peak	28.40	-8.20	20.20	46.00	-25.80
544.828	Peak	28.69	-3.02	25.68	46.00	-20.32
661.955	Peak	30.21	-1.03	29.18	46.00	-16.82
882.024	Peak	28.80	2.17	30.97	46.00	-15.03

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	24.4(°C) / 64%RH
Test Item	Harmonic	Test Date	August 9, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		

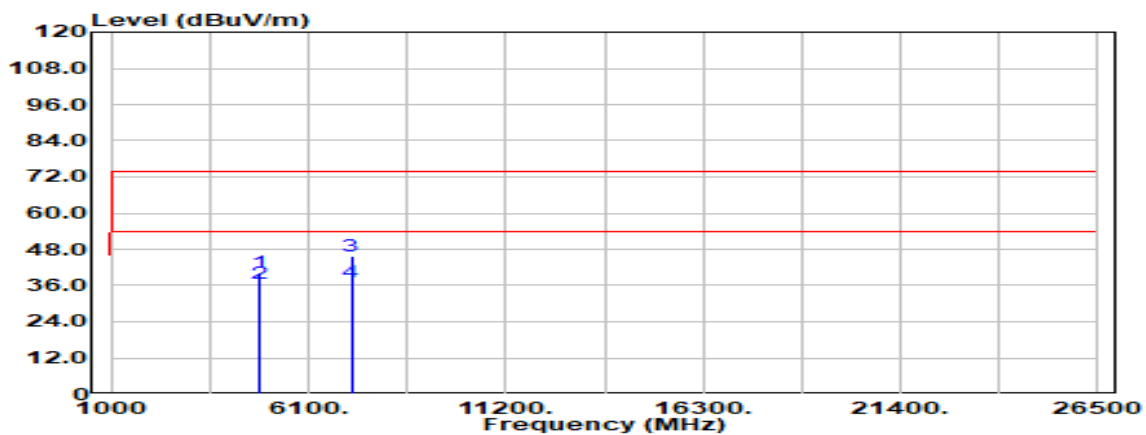


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4804.000	Peak	34.24	5.87	40.11	74.00	-33.89
4804.000	Average	28.79	5.87	34.66	54.00	-19.34
7206.000	Peak	31.13	13.25	44.38	74.00	-29.62
7206.000	Average	23.83	13.25	37.08	54.00	-16.92
N/A						

Remark:

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

Test Mode:	BLE-1Mbps Low CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Harmonic	Test Date	August 9, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		

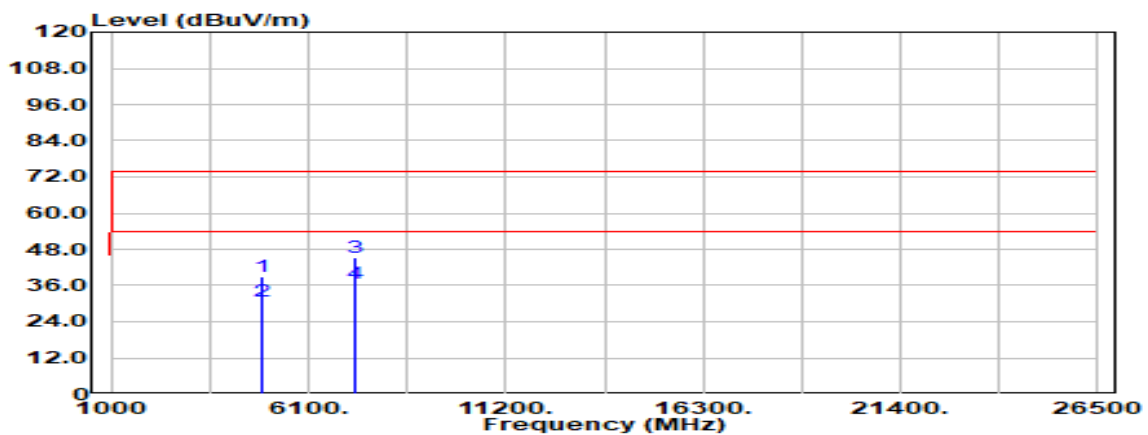


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4804.000	Peak	34.57	5.87	40.43	74.00	-33.57
4804.000	Average	30.77	5.87	36.63	54.00	-17.37
7206.000	Peak	32.54	13.25	45.80	74.00	-28.20
7206.000	Average	23.91	13.25	37.16	54.00	-16.84
N/A						

Remark:

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

Test Mode:	BLE-1Mbps Mid CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Harmonic	Test Date	August 9, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		

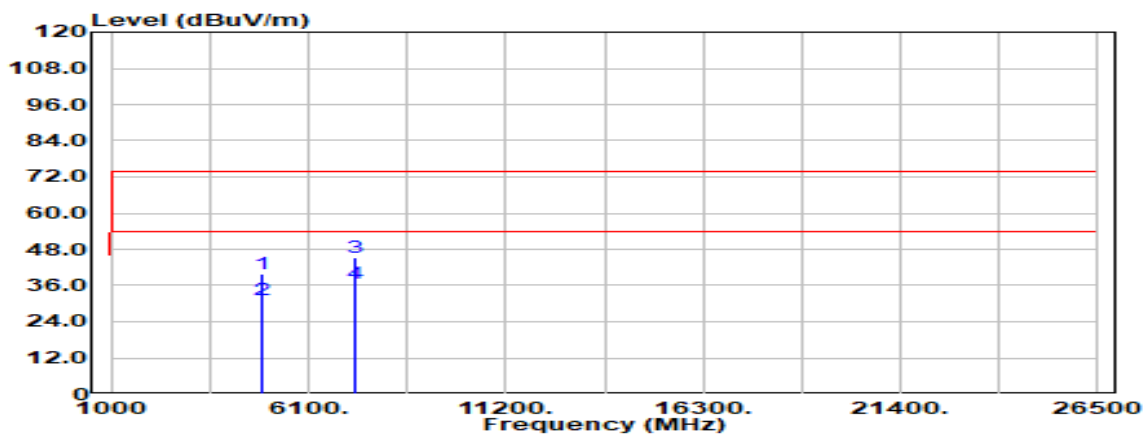


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4884.000	Peak	32.59	6.15	38.74	74.00	-35.26
4884.000	Average	24.80	6.15	30.95	54.00	-23.05
7326.000	Peak	32.13	13.36	45.49	74.00	-28.51
7326.000	Average	23.49	13.36	36.85	54.00	-17.15
N/A						

Remark:

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

Test Mode:	BLE-1Mbps Mid CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Harmonic	Test Date	August 9, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		

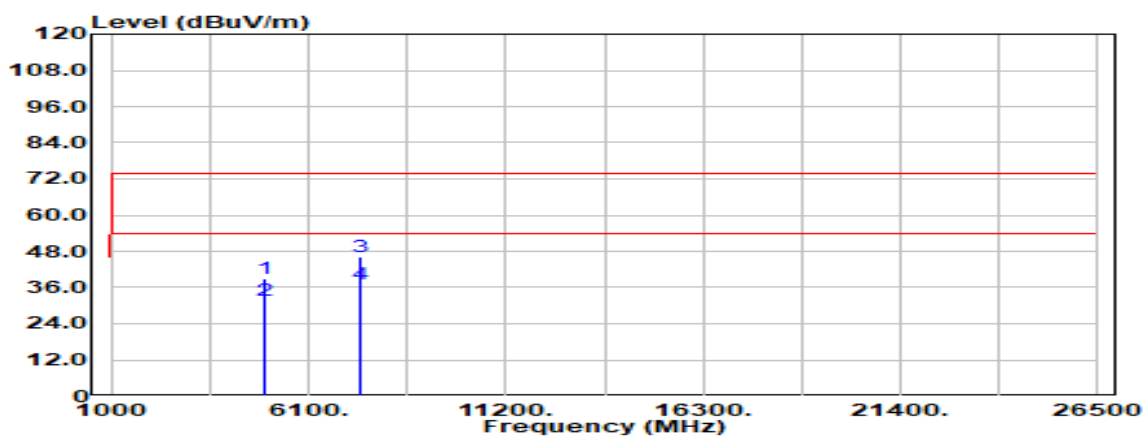


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4884.000	Peak	33.49	6.15	39.64	74.00	-34.36
4884.000	Average	25.11	6.15	31.26	54.00	-22.74
7326.000	Peak	31.76	13.36	45.12	74.00	-28.88
7326.000	Average	23.54	13.36	36.90	54.00	-17.10
N/A						

Remark:

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

Test Mode:	BLE-1Mbps High CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Harmonic	Test Date	August 9, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		

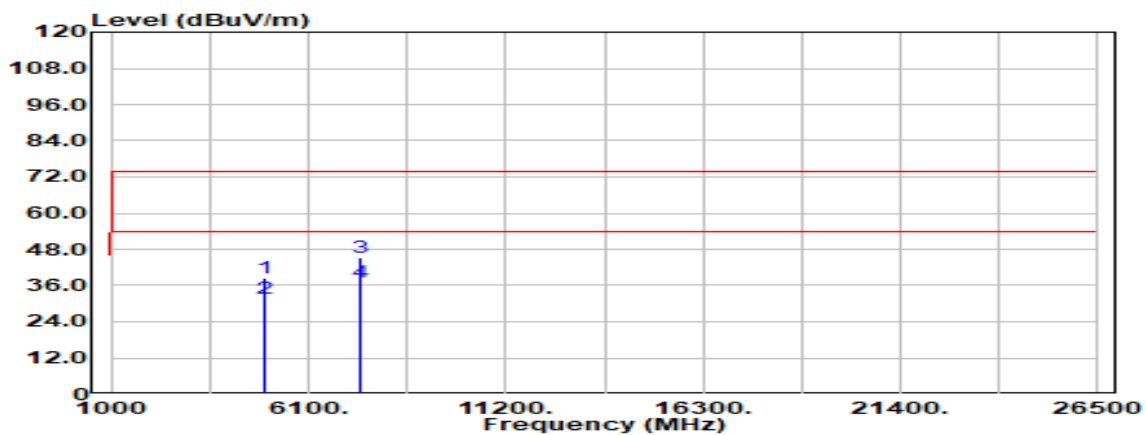


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4960.000	Peak	32.14	6.91	39.05	74.00	-34.95
4960.000	Average	24.67	6.91	31.58	54.00	-22.42
7440.000	Peak	32.94	13.22	46.16	74.00	-27.84
7440.000	Average	24.01	13.22	37.23	54.00	-16.77
N/A						

Remark:

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

Test Mode:	BLE-1Mbps High CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Harmonic	Test Date	August 9, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		

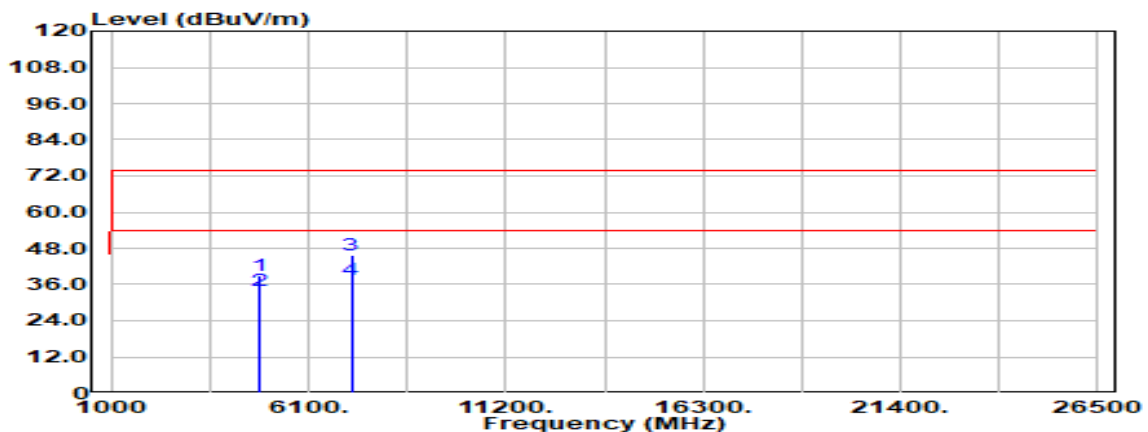


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4960.000	Peak	31.60	6.91	38.51	74.00	-35.49
4960.000	Average	24.71	6.91	31.62	54.00	-22.38
7440.000	Peak	32.11	13.22	45.33	74.00	-28.67
7440.000	Average	23.81	13.22	37.03	54.00	-16.97
N/A						

Remark:

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

Test Mode:	BLE-2Mbps Low CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Harmonic	Test Date	August 9, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		

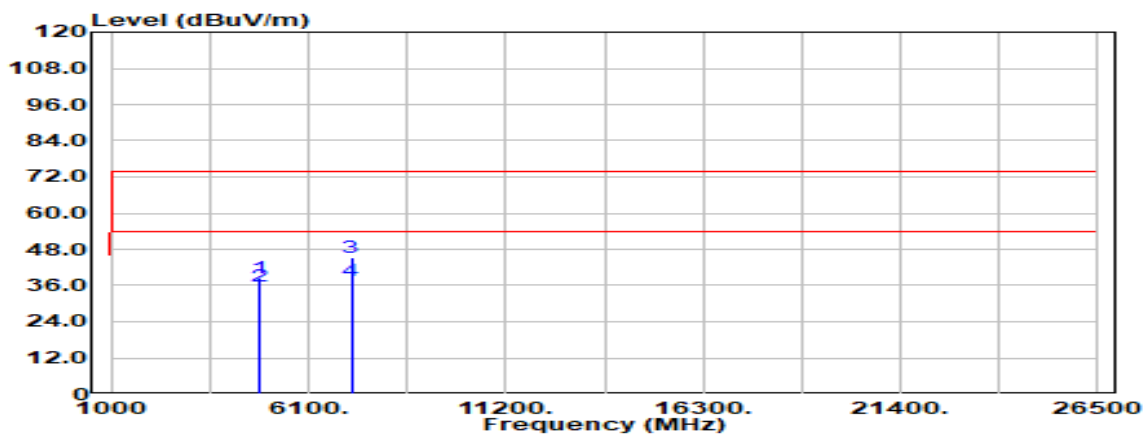


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBUV/m)	Limit @3m (dBUV/m)	Margin (dB)
4804.000	Peak	32.97	5.87	38.83	74.00	-35.17
4804.000	Average	28.26	5.87	34.13	54.00	-19.87
7206.000	Peak	32.62	13.25	45.87	74.00	-28.13
7206.000	Average	24.14	13.25	37.40	54.00	-16.60
N/A						

Remark:

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

Test Mode:	BLE-2Mbps Low CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Harmonic	Test Date	August 9, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		

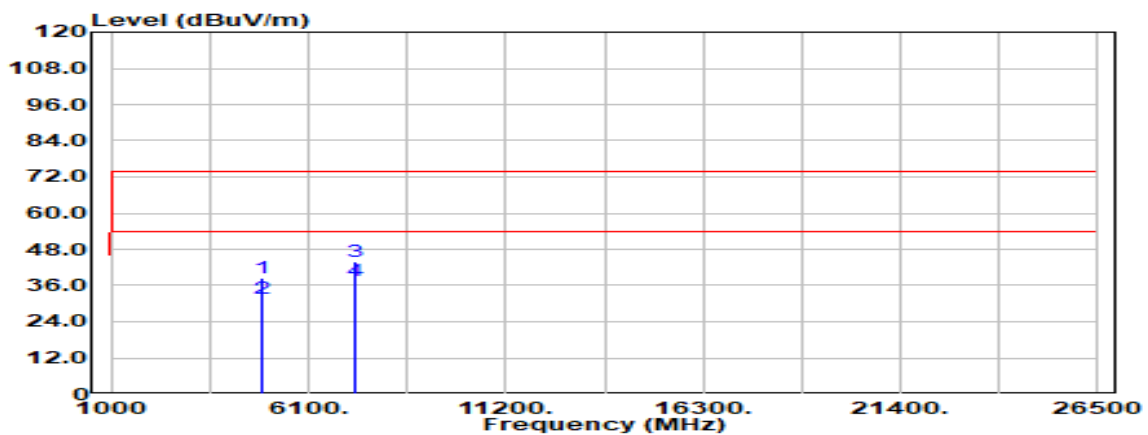


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4804.000	Peak	32.60	5.87	38.46	74.00	-35.54
4804.000	Average	29.79	5.87	35.66	54.00	-18.34
7206.000	Peak	32.24	13.25	45.49	74.00	-28.51
7206.000	Average	24.27	13.25	37.52	54.00	-16.48
N/A						

Remark:

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

Test Mode:	BLE-2Mbps Mid CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Harmonic	Test Date	August 9, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		

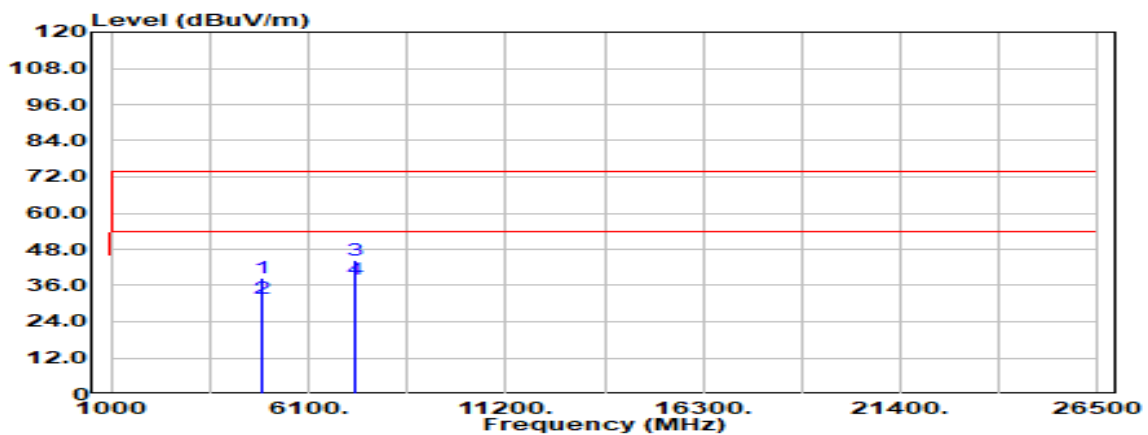


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4884.000	Peak	32.46	6.15	38.61	74.00	-35.39
4884.000	Average	25.33	6.15	31.48	54.00	-22.52
7326.000	Peak	30.75	13.36	44.11	74.00	-29.89
7326.000	Average	24.03	13.36	37.39	54.00	-16.61
N/A						

Remark:

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

Test Mode:	BLE-2Mbps Mid CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Harmonic	Test Date	August 9, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		

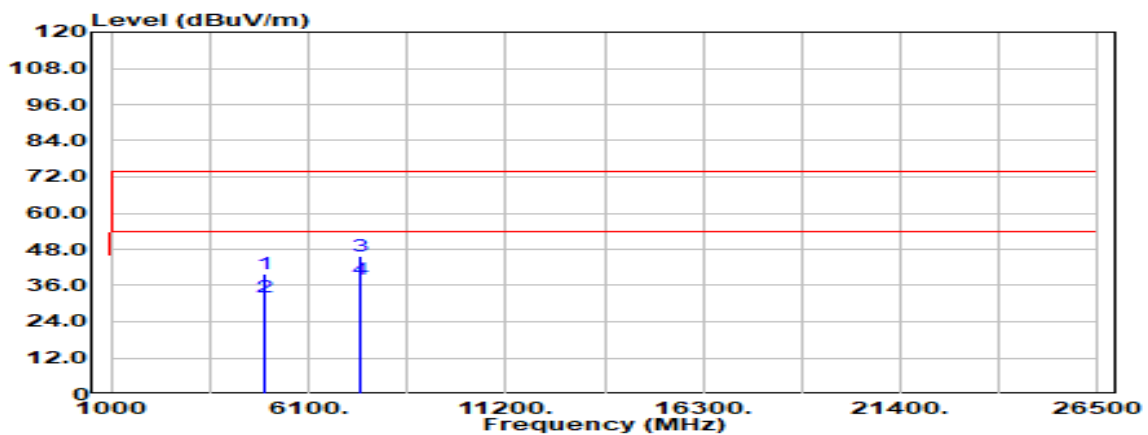


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4884.000	Peak	32.56	6.15	38.71	74.00	-35.29
4884.000	Average	25.32	6.15	31.47	54.00	-22.53
7326.000	Peak	30.88	13.36	44.24	74.00	-29.76
7326.000	Average	24.50	13.36	37.86	54.00	-16.14
N/A						

Remark:

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

Test Mode:	BLE-2Mbps High CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Harmonic	Test Date	August 9, 2022
Polarize	Vertical	Test Engineer	Ray Li
Detector	Peak / Average		

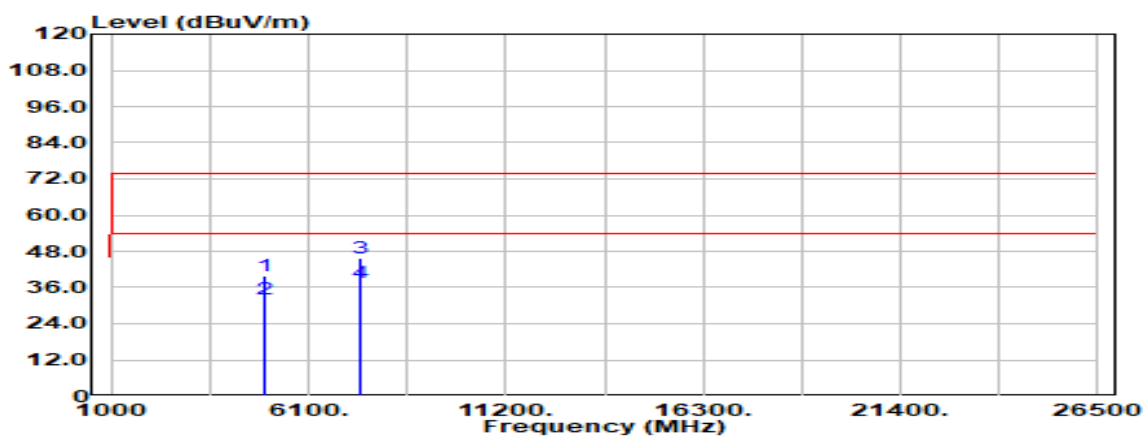


Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4960.000	Peak	32.92	6.91	39.83	74.00	-34.17
4960.000	Average	25.23	6.91	32.15	54.00	-21.85
7440.000	Peak	32.54	13.22	45.76	74.00	-28.24
7440.000	Average	24.98	13.22	38.20	54.00	-15.80
N/A						

Remark:

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

Test Mode:	BLE-2Mbps High CH	Temp/Hum	24.4(°C) / 64%RH
Test Item	Harmonic	Test Date	August 9, 2022
Polarize	Horizontal	Test Engineer	Ray Li
Detector	Peak / Average		



Freq. (MHz)	Detector Mode (PK/QP/AV)	Spectrum Reading Level (dBμV)	Factor (dB)	Actual FS (dBμV/m)	Limit @3m (dBμV/m)	Margin (dB)
4960.000	Peak	33.09	6.91	40.00	74.00	-34.00
4960.000	Average	25.09	6.91	32.00	54.00	-22.00
7440.000	Peak	32.71	13.22	45.93	74.00	-28.07
7440.000	Average	24.43	13.22	37.65	54.00	-16.35
N/A						

Remark:

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

--End of Test Report--