



<b>Prüfbericht-Nr.:</b> <i>Test report no.:</i>	50041194 003	<b>Auftrags-Nr.:</b> <i>Order no.:</i>	238543987	Seite 1 von 24 Page 1 of 24
<b>Kunden-Referenz-Nr.:</b> <i>Client reference no.:</i>	N/A	<b>Auftragsdatum:</b> <i>Order date:</i>	2022-05-26	
<b>Auftraggeber:</b> <i>Client:</i>	Microchip Technology Inc., 2355 West Chandler Blvd. Chandler, Arizona 85224-6199, United States			
<b>Prüfgegenstand:</b> <i>Test item:</i>	Bluetooth Module			
<b>Bezeichnung / Typ-Nr.:</b> <i>Identification / Type no.:</i>	BM64SPKS1MC1			
<b>Auftrags-Inhalt:</b> <i>Order content:</i>	FCC Part 15C / ISED RSS-247 Test report (BLE)			
<b>Prüfgrundlage:</b> <i>Test specification:</i>	FCC 47CFR Part 15: Subpart C Section 15.247 ISED RSS-247 Issue 2 March 2017			
<b>Wareneingangsdatum:</b> <i>Date of sample receipt:</i>	2022-01-12			
<b>Prüfmuster-Nr.:</b> <i>Test sample no.:</i>	A003199127-005 A003199127-004			
<b>Prüfzeitraum:</b> <i>Testing period:</i>	2022-10-07 - 2022-10-19			
<b>Ort der Prüfung:</b> <i>Place of testing:</i>	EMC/RF Taipei Testing Site			
<b>Prüflaboratorium:</b> <i>Testing laboratory:</i>	Taipei Testing Laboratories			
<b>Prüfergebnis*:</b> <i>Test result*:</i>	Pass			
<b>zusammengestellt von:</b> <i>compiled by:</i>	 Ryan Chen	<b>genehmigt von:</b> <i>authorized by:</i>	 Brenda Chen	
<b>Datum:</b> <i>Date:</i>	2022-11-02	<b>Ausstellungsdatum:</b> <i>Issue date:</i>	2022-11-02	
<b>Stellung / Position:</b>	Senior Project Manager	<b>Stellung / Position:</b>	Senior Project Manager	
<b>Sonstiges / Other:</b>	This report (C2PC) is to cover the 2nd source crystal change. Only the conducted power, RSE and Mains Conducted Emission tests were evaluated. The other test results are referred to the original report no.: 50041194 002.			
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of the test item at delivery:</i>	Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend N/A = nicht anwendbar	4 = ausreichend N/T = nicht getestet
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory N/A = not applicable	4 = sufficient N/T = not tested
<b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b> <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

V05

## TEST SUMMARY

Report Section	FCC Clause	ISED Clause	Test Item	Result
5.1.1	15.247(b) & 15.203	RSS-Gen	Antenna Requirement	Pass
5.1.2	15.247(b)(3)	RSS-247 5.4(d)	Peak Output Power	Pass
5.1.3	15.247(d) & 15.205 & 15.209	RSS-247 5.5	Radiated Spurious Emissions and Band Edges	Pass
5.2.1	15.207	RSS-Gen	Mains Conducted Emission	

**Note:** Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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**APPENDIX A - TEST RESULT OF RADIATED EMISSIONS & MAINS CONDUCTED EMISSION**

**APPENDIX SP - PHOTOGRAPHS OF TEST SETUP**

**APPENDIX EP - PHOTOGRAPHS OF EUT**

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## HISTORY OF THIS TEST REPORT

Report No.	Description	Date Issued
50041194 003	Original Release	2022-11-02

## 1. General Remarks

### 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

**Appendix A - Test Result of Radiated Emissions & Mains Conducted Emission**

**Appendix SP - Photographs of Test Setup**

**Appendix EP - Photographs of EUT**

### Applied Standard and Test Levels

Radio
FCC 47CFR Part 15: Subpart C Section 15.247
FCC 47CFR Part 2: Subpart J Section 2.1049
ISED RSS-247 Issue 2 March 2017
ISED RSS-247 Issue 5, Amendment 1 + Amendment 2, February 2021
ANSI C63.10:2013
KDB 558074 D01 15.247 Meas Guidance v05r02

### 1.2 Decision Rule of Conformity

The decision rule of conformity of this test report is following the requirements of the requested standard in the quotation, and agreed among testing laboratory and manufacturer (applicant) to exclude the consideration of Measurement Uncertainty, unless it is required by the specific standard.

## 2. Test Sites

### 2.1 Test Laboratory

Taipei Testing Laboratories

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.  
Taipei City 105  
Taiwan (R.O.C.)

### 2.2 Test Facility

Taipei Testing Laboratories

No.458-18, Sec. 2, Fenliao Rd., Linkou Dist.,  
New Taipei City 244  
Taiwan (R.O.C.)  
FCC Registration No.: 180491  
ISED Registration No.: 25563

## 2.3 Traceability

All measurement equipment calibrations are traceable to NML(Taiwan)/NIST(USA) or where calibration is performed outside Taiwan, to equivalent nationally recognized standards organizations.

## 2.4 Calibration

Equipment requiring calibration is calibrated periodically in a suitably accredited Calibration Lab. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

## 2.5 Measurement Uncertainty

All measurement uncertainty values are shown with a coverage factor of  $k=2$  to indicate a 95% level of confidence.

### Emission Measurement Uncertainty

Parameter	Uncertainty
Radiated Emission (9 kHz ~ 30 MHz)	$\pm 1.15$ dB
Radiated Emission (30 MHz ~ 200 MHz)	$\pm 1.30$ dB
Radiated Emission (200 MHz ~ 1 GHz)	$\pm 1.30$ dB
Radiated Emission (1 GHz ~ 18 GHz)	$\pm 1.54$ dB
Radiated Emission (18 GHz ~ 40 GHz)	$\pm 2.52$ dB
Mains Conducted Emission	$\pm 1.65$ dB



### 3. General Product Information

#### 3.1 Product Function and Intended Use

The EUT is a Bluetooth Module. It contains a Bluetooth compatible module enabling the user to communicate data through a Wireless interface.

For details refer to the User Guide, Data Sheet and Circuit Diagram.

#### 3.2 System Details and Ratings

##### Basic Information of EUT

Item	EUT information
Kind of Equipment/Test Item	Bluetooth Module
Type Identification	BM64SPKS1MC1
FCC ID	A8TBM64S1
IC	12246A-BM64S1
HVIN	BM64SPKS1MC1

##### Technical Specification of EUT

Item	EUT information
Operating Frequency	2402 MHz ~ 2480 MHz
Channel Number	40
Data Rate	1Mbps
Operation Voltage	3.2Vdc ~ 4.2Vdc (Tested at 3.3Vdc)
Modulation	GFSK
Antenna Information	Refer to 5.1.1
Accessory Device	Refer to 4.4

### **3.3 Noise Generating and Noise Suppressing Parts**

Refer to the Circuit Diagram.

### **3.4 Submitted Documents**

- Circuit Diagram
- Instruction Manual
- Rating Label
- Technical Description

## 4. Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

The test modes were adapted accordingly in reference to the instructions for use. During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output expected by the customer and is going to be fixed on the firmware of the final end product.

**Table for Parameters of Test Software Setting**

Frequency (MHz)	Power Setting
2402	Max-5
2440	Max-5
2480	Max-5

### 4.2 Carrier Frequency and Channel

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

### 4.3 Test Operation and Test Software

Setup for testing: Test samples are provided with data interface which makes it possible to control them through a test software installed on a notebook computer.

This software was running on the laptop computer connected to the EUT. It was used to enable the operation modes listed as below.

Test Software	ISRT_V2.1.32.5667
---------------	-------------------

The samples were used as follows:

A003199127-005

A003199127-004

Full test was applied on all test modes, but only worst case was shown.

EUT Configure Mode	Applicable To			Description	
	Output Power	Radiated Spurious Emissions above 1 GHz	Radiated Spurious Emissions below 1 GHz		Mains Conducted Emission
-	√	√	√	√	-

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when position on **Z-plane**.
2. "-" means no effect.

#### Output Power

- Pre-Scan full test was applied on all test modes, but only worst case was shown.
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)	Date Rate (Mbps)
-	2402 to 2480	2402, 2440, 2480	1

#### Radiated Spurious Emissions (Above 1 GHz)

- Pre-Scan full test was applied on all test modes, but only worst case was shown.
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)	Date Rate (Mbps)
-	2402 to 2480	2402, 2480	1

#### Radiated Spurious Emissions (Below 1 GHz)

- Pre-Scan full test was applied on all test modes, but only worst case was shown.
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)	Date Rate (Mbps)
-	2402 to 2480	2402	1

#### Mains Conducted Emission

- Pre-Scan full test was applied on all test modes, but only worst case was shown.
- Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Frequency (MHz)	Tested Frequency (MHz)	Date Rate (Mbps)
-	2402 to 2480	2402	1

**Test Condition**

Test Item	Ambient Temperature	Relative Humidity	Tested by
Output Power	18-23 °C	58-69 %	Nick Hsu
Radiated Spurious Emissions above 1 GHz	23.7-24.5 °C	55-56 %	Ivan Chiang
Radiated Spurious Emissions below 1 GHz	23.7-24.5 °C	55-56 %	Ivan Chiang
Mains Conducted Emission	21.9 °C	59 %	Ray Huang

## 4.4 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

**Accessory of EUT**

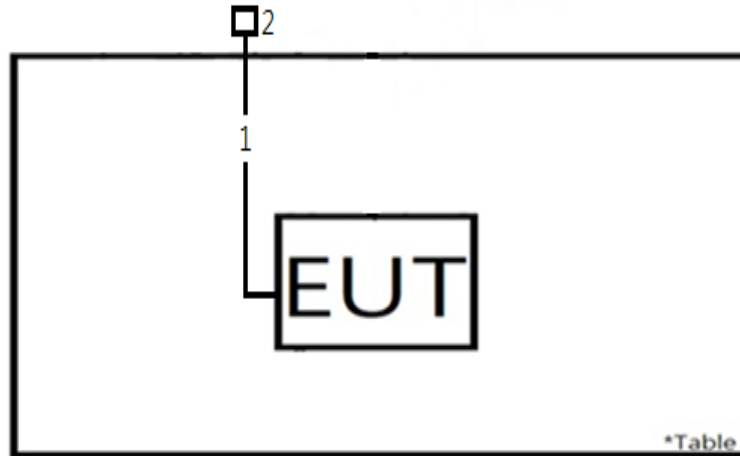
None

**Support Unit**

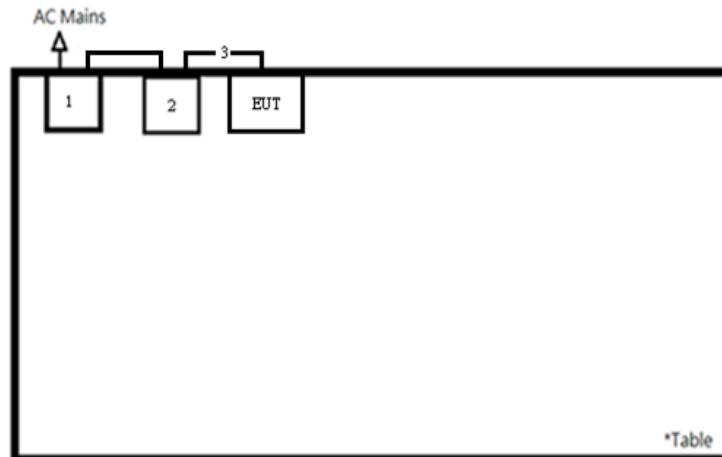
Support Unit								
No	Description	Brand	Model	S/N	Shielded	Ferrite Core (Qty)	Length (cm)	Remark
1	LAN Cable	TUV	TUV-001	NO	YES	NO	300	Radiated
2	Notebook	HP	15s-du0007TX	CND93662WV	-	-	-	
1	Adapter	HP	PPP009D	N/A	YES	NO	179	Mains Conducted
2	Notebook	Lenovo	81BL	MP1DCD6Y	-	-	-	
3	USB to Mirco	TUV	TUV-001	N/A	-	-	-	

### 4.5 Test Setup Diagram

<Radiated Spurious Emissions mode>



<Mains Conducted Emission mode>



## 5. Test Results

### 5.1 Transmitter Requirement & Test Suites

#### 5.1.1 Antenna Requirement

**Requirement** Use of approved antennas only

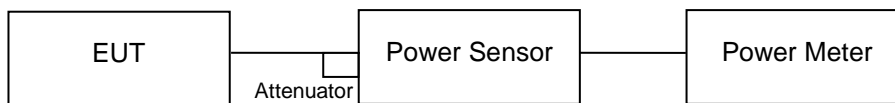
According to the manufacturer declaration, the EUT has an antenna with a directional gain of 1.927 dBi. The antenna is a PCB antenna with no possibility of replacement with a non-approved antenna by the end-user. Therefore, the EUT is considered to comply with this provision.  
Refer to EUT photo for details.

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### 5.1.2 Peak Output Power

**Limit** 1 watt (30 dBm)

**Kind of Test Site** Shielded room

**Test Setup**

**Test Instruments**

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date	Test Date	
						From	Until
Power Meter	Anritsu	ML2495A	1901008	2022/3/15	2023/3/14	2022/10/7	2022/10/7
Power Sensor	Anritsu	MA2411B	1725269	2022/3/15	2023/3/14	2022/10/7	2022/10/7

**Test Procedures**

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.



**Test Result****Peak Output Power**

&lt;1Mbps&gt;

Channel	Channel Frequency	Peak Output Power		Limit (dBm)
	(MHz)	(dBm)	(mW)	
Low Channel	2402	17.41	55.08	30
Middle Channel	2440	16.99	50.00	30
High Channel	2480	16.44	44.06	30

**Average Power (For Reference)**

&lt;1Mbps&gt;

Channel	Channel Frequency	Average Power	
	(MHz)	(dBm)	(mW)
Low Channel	2402	17.08	51.05
Middle Channel	2440	16.70	46.77
High Channel	2480	16.14	41.11

### 5.1.3 Radiated Spurious Emissions and Band Edges

#### Limit

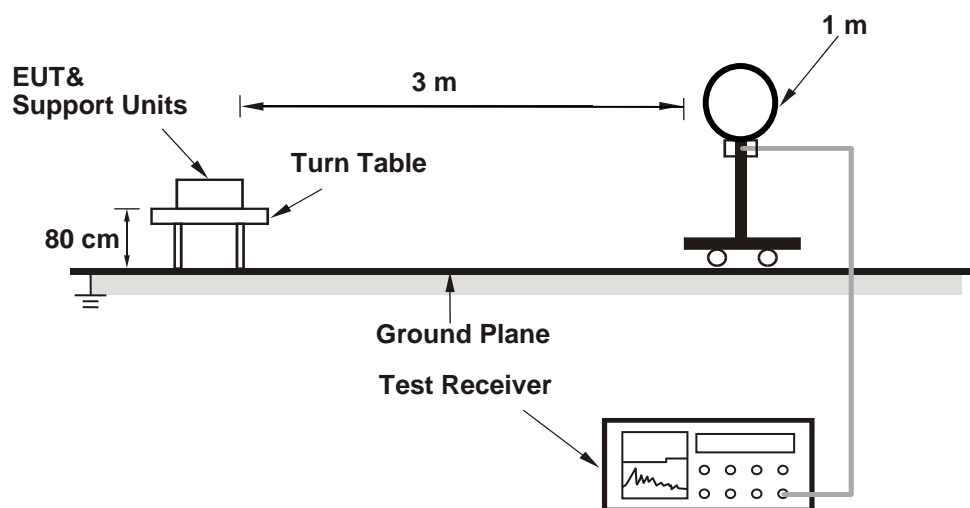
Radiated emissions which fall in the restricted bands, as defined in §15.205(a) and RSS-Gen i5, 8.10 (Table 7), must comply with the radiated emission limits specified in §15.209(a) and RSS-Gen i5, 8.9 (Table 5 and 6).

Emissions radiated outside the restricted and authorized frequency bands must either comply with the radiated emission limits specified for the restricted bands or in §15.247(d) and RSS-247 i2, 5.5.

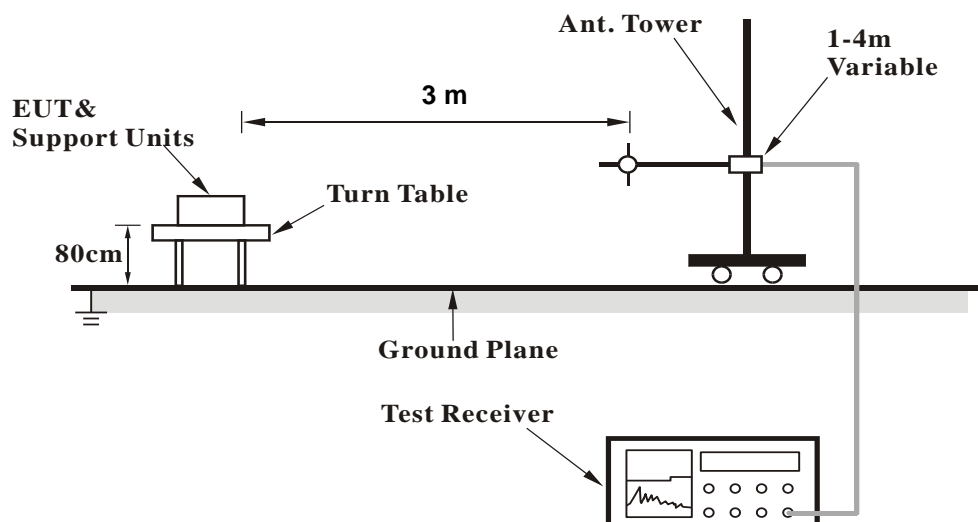
**Kind of Test Site**                      3m Semi-Anechoic Chamber

#### Test Setup

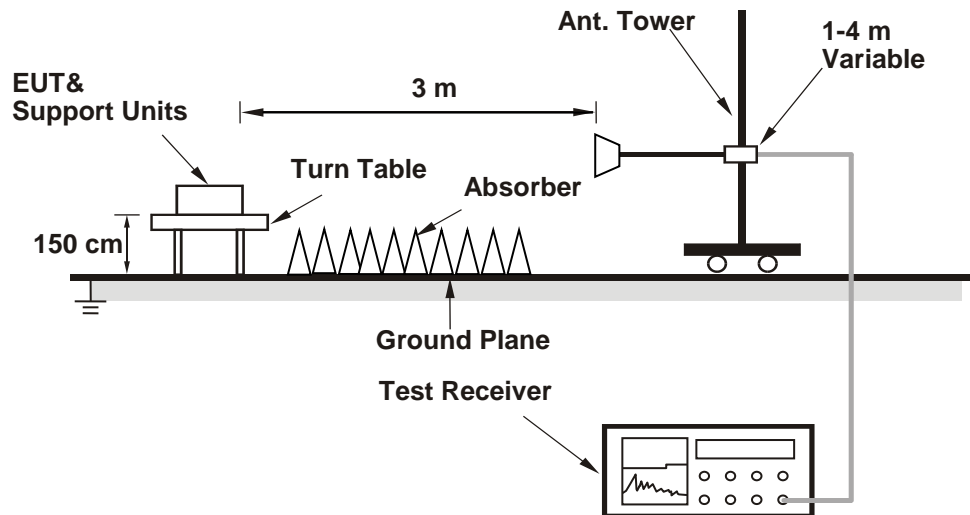
##### <Radiated Emissions below 30 MHz>



##### <Radiated Emissions 30 MHz to 1 GHz>



## &lt;Radiated Emissions above 1 GHz&gt;



For the actual test configuration, please refer to the attached file (Test Setup Photo).

**Test Instruments**

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date
<b>Above 1 GHz</b>					
Signal Analyzer	R&S	FSV40	101508	2022/4/13	2023/4/12
Horn Antenna	ETS-Lindgren	3117	00218929	2021/11/25	2022/11/24
HF-AMP + AC source	EMCI	EMC051845SE	980635	2022/1/20	2023/1/19
HF-AMP + AC source	EMCI	EMC184045SE	980656	2022/1/20	2023/1/19
Horn Antenna	SCHWARZBECK	BBHA 9170	00887	2022/3/29	2023/3/28
Test Software	Audix E3	15914a_20191106 tuv	PK-001087	N/A	N/A
<b>30 MHz ~ 1 GHz</b>					
Receiver	R&S	ESR7	102108	2022/4/28	2023/4/27
Bilog Antenna	SCHWARZBECK	VULB-9168	00950	2022/4/6	2023/4/5
LF-AMP	Agilent	8447D	2944A107722	2022/3/22	2023/3/21
Test Software	Audix E3	15914a_20191106 tuv	PK-001087	N/A	N/A
<b>Below 30 MHz</b>					
Receiver	R&S	ESR7	102108	2022/4/28	2023/4/27
Loop Antenna	SCHWARZBECK	FMZB 1519B	00215	2021/12/8	2022/12/7
Test Software	Audix E3	15914a_20191106 tuv	PK-001087	N/A	N/A

**Test Procedures****For Radiated Emissions below 30 MHz**

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel (OPEN), perpendicular (CLOSE), and ground-parallel (GROUND) orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

## Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

**For Radiated Emissions above 30 MHz**

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

## Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle < 98 %) or 10 Hz (Duty cycle  $\geq 98$  %) for Average detection (AV) at frequency above 1 GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The Radiated Emissions testing was performed in the X(E1), Y(H) and Z(E2) axis orientation. The worst-case Axis orientation is recorded in this test report.

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**Test Results**

Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB)  
Level (dBuV/m) = Reading (dBuV) + Factor (dB/m)

Please refer to Appendix A.

## 5.2 Mains Emission

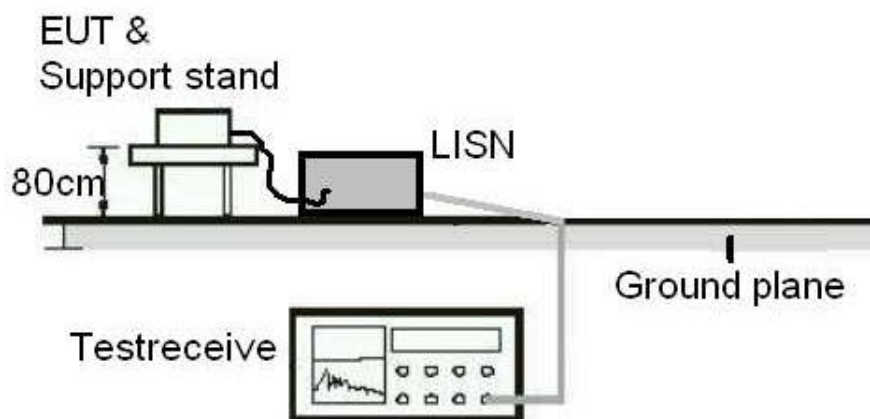
### 5.2.1 Mains Conducted Emission

#### Limit

Mains Conducted Emission as defined in §15.207 and RSS-Gen 8.8 must comply with the mains conducted emission limits.

**Kind of Test Site**                      Shielded room

#### Test Setup



#### Test Instruments

Kind of Equipment	Manufacturer	Type	S/N	Calibration Date	Calibration Due Date
Two-Line V-Network	Rohde & Schwarz	ENV216	101938	2022/9/22	2023/9/21
EMI Test Receiver	R&S	ESCI	1816063	2021/11/15	2022/11/14

### Test Procedures

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz – 30 MHz.

### Test Results

Please refer to Appendix A.



# Appendix A: Test Results of Radiated Spurious Emissions & Mains Conducted Emission Tests Band Edges, 2.31GHz ~ 2.9GHz

BLE_1M																																																																																																											
Low Channel (Horizontal) Peak	Low Channel (Vertical) Peak																																																																																																										
<p> <small>TUV Rheinland Taiwan Ltd. No. 458-18, Sec. 2, Fenghao, Linkou Dist., New Taipei City 244, Taiwan(R.O.C.) Tel: +886-2172-1000 Fax: +886-2172-1322</small> </p> <p> <small>Date: 2022-10-13</small> </p> <table border="1"> <thead> <tr> <th>1</th> <th>2</th> <th>3</th> </tr> <tr> <th>Freq</th> <th>Level</th> <th>Read</th> <th>Limit</th> <th>Over</th> <th>APos</th> <th>TPos</th> <th>Remark</th> <th>Pol/Phase</th> <th>Note</th> </tr> <tr> <th>MHz</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dBuV/m</th> <th>dB</th> <th>cm</th> <th>deg</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2315.43</td> <td>55.00</td> <td>18.54</td> <td>37.26</td> <td>74.00</td> <td>-18.20</td> <td>100</td> <td>118 Peak</td> <td>Horizontal</td> </tr> <tr> <td>2 *</td> <td>2482.00</td> <td>112.53</td> <td>74.90</td> <td>37.63</td> <td>74.00</td> <td>38.53</td> <td>100</td> <td>118 Peak</td> <td>Horizontal</td> </tr> <tr> <td>3</td> <td>2584.35</td> <td>57.36</td> <td>19.50</td> <td>37.86</td> <td>74.00</td> <td>-16.64</td> <td>100</td> <td>118 Peak</td> <td>Horizontal</td> </tr> </tbody> </table>	1	2	3	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			1	2315.43	55.00	18.54	37.26	74.00	-18.20	100	118 Peak	Horizontal	2 *	2482.00	112.53	74.90	37.63	74.00	38.53	100	118 Peak	Horizontal	3	2584.35	57.36	19.50	37.86	74.00	-16.64	100	118 Peak	Horizontal	<p> <small>TUV Rheinland Taiwan Ltd. No. 458-18, Sec. 2, Fenghao, Linkou Dist., New Taipei City 244, Taiwan(R.O.C.) Tel: +886-2172-1000 Fax: +886-2172-1322</small> </p> <p> <small>Date: 2022-10-13</small> </p> <table border="1"> <thead> <tr> <th>1</th> <th>2</th> <th>3</th> </tr> <tr> <th>Freq</th> <th>Level</th> <th>Read</th> <th>Limit</th> <th>Over</th> <th>APos</th> <th>TPos</th> <th>Remark</th> <th>Pol/Phase</th> <th>Note</th> </tr> <tr> <th>MHz</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dBuV/m</th> <th>dB</th> <th>cm</th> <th>deg</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2374.55</td> <td>54.44</td> <td>16.94</td> <td>37.50</td> <td>74.00</td> <td>-19.56</td> <td>348</td> <td>149 Peak</td> <td>Vertical</td> </tr> <tr> <td>2 *</td> <td>2482.00</td> <td>110.91</td> <td>73.28</td> <td>37.63</td> <td>74.00</td> <td>36.91</td> <td>348</td> <td>149 Peak</td> <td>Vertical</td> </tr> <tr> <td>3</td> <td>2586.71</td> <td>56.76</td> <td>18.90</td> <td>37.86</td> <td>74.00</td> <td>-17.24</td> <td>348</td> <td>149 Peak</td> <td>Vertical</td> </tr> </tbody> </table>	1	2	3	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg			1	2374.55	54.44	16.94	37.50	74.00	-19.56	348	149 Peak	Vertical	2 *	2482.00	110.91	73.28	37.63	74.00	36.91	348	149 Peak	Vertical	3	2586.71	56.76	18.90	37.86	74.00	-17.24	348	149 Peak	Vertical
1	2	3																																																																																																									
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1	2315.43	55.00	18.54	37.26	74.00	-18.20	100	118 Peak	Horizontal																																																																																																		
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1	2374.55	54.44	16.94	37.50	74.00	-19.56	348	149 Peak	Vertical																																																																																																		
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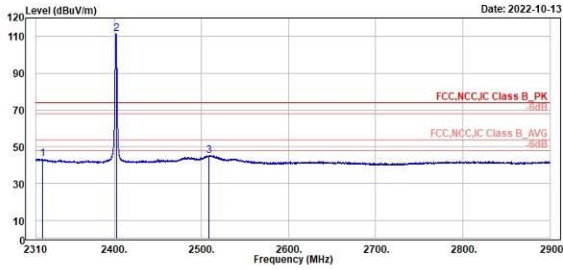
BLE\_1M

Low Channel (Horizontal) Average

Low Channel (Vertical) Average



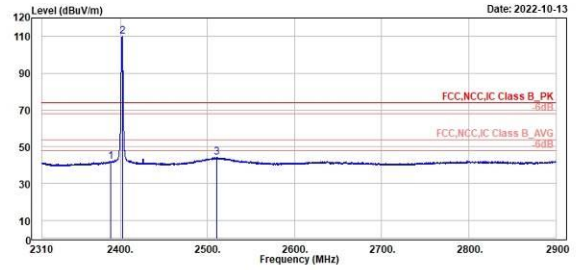
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	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2317.91	43.42	6.14	37.28	54.00	-10.58	100	118 Average	Horizontal	
2 *	2402.00	111.34	73.71	37.63	54.00	57.34	100	118 Average	Horizontal	
3	2508.59	45.35	7.49	37.86	54.00	-8.65	100	118 Average	Horizontal	



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	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2389.30	41.99	4.41	37.58	54.00	-12.01	348	149 Average	Vertical	
2 *	2402.00	109.75	72.12	37.63	54.00	55.75	348	149 Average	Vertical	
3	2510.36	44.27	6.41	37.86	54.00	-9.73	348	149 Average	Vertical	

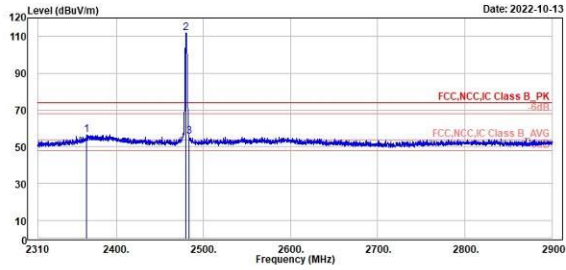
BLE\_1M

High Channel (Horizontal) Peak

High Channel (Vertical) Peak



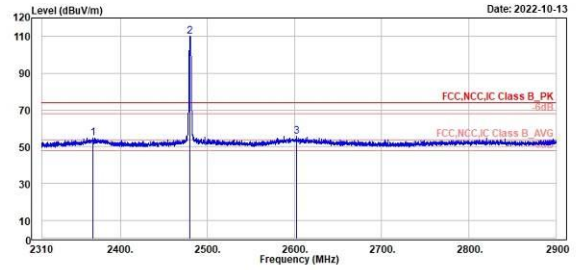
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	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2366.17	56.50	19.05	37.45	74.00	-17.50	100	122 Peak	Horizontal	
2 *	2489.00	111.67	73.88	37.79	74.00	37.67	100	122 Peak	Horizontal	
3	2483.58	55.52	17.72	37.80	74.00	-18.48	100	122 Peak	Horizontal	



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	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2368.29	54.67	17.21	37.46	74.00	-19.33	364	162 Peak	Vertical	
2 *	2489.00	110.05	72.26	37.79	74.00	36.05	364	162 Peak	Vertical	
3	2682.48	55.73	17.76	37.97	74.00	-18.27	364	162 Peak	Vertical	

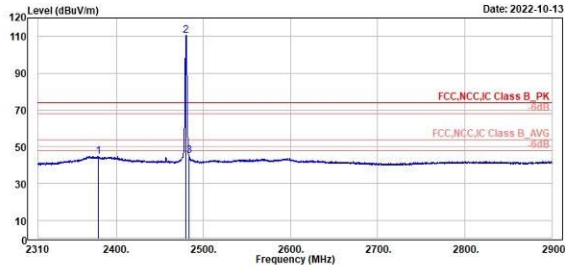
BLE\_1M

High Channel (Horizontal) Average

High Channel (Vertical) Average



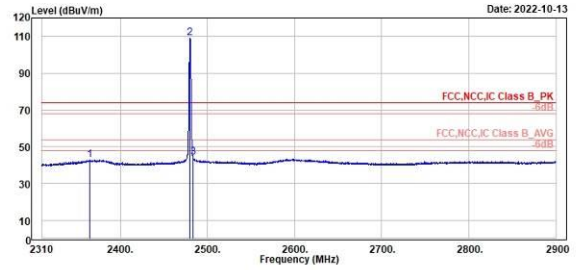
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	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2379.15	44.79	7.26	37.53	54.00	-9.21	100	122 Average	Horizontal	
2 *	2489.00	110.60	72.81	37.79	54.00	56.60	100	122 Average	Horizontal	
3	2483.46	45.24	7.44	37.80	54.00	-8.76	100	122 Average	Horizontal	



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	Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
	MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	2365.22	42.83	5.38	37.45	54.00	-11.17	364	162 Average	Vertical	
2 *	2489.00	108.98	71.19	37.79	54.00	54.98	364	162 Average	Vertical	
3	2483.46	44.19	6.39	37.80	54.00	-9.81	364	162 Average	Vertical	

Spurious Emissions, Tx Mode, 9kHz ~ 30MHz

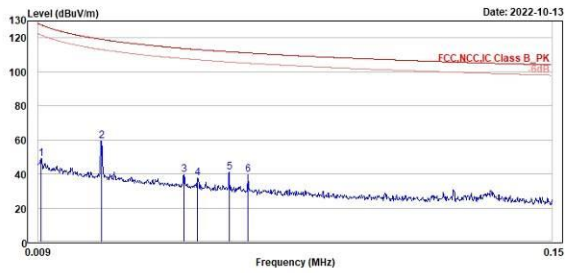
BLE\_1M

Low Channel (Open) 9kHz~150kHz

Low Channel (Open) 150kHz~30MHz



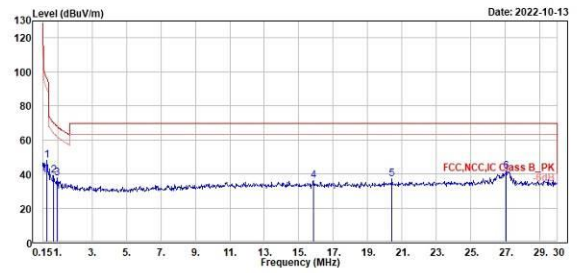
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Peak	Freq (MHz)	Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit Line (dBuV/m)	Over Limit (dB)	APos (cm)	TPos (deg)	Remark	Pol/Phase	Note
1	0.01	48.81	31.05	17.76	127.72	-78.91	100	200	QP	Open	
2	0.03	59.42	40.23	19.19	119.13	-59.71	100	60	QP	Open	
3	0.05	39.36	20.04	19.32	113.78	-74.42	100	221	QP	Open	
4	0.05	37.33	18.08	19.25	113.13	-75.00	100	96	QP	Open	
5	0.06	41.27	22.21	19.06	111.82	-70.55	100	272	QP	Open	
6	0.07	39.39	20.45	18.94	111.12	-71.73	100	191	QP	Open	



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Peak	Freq (MHz)	Level (dBuV/m)	Read Level (dBuV)	Factor (dB/m)	Limit Line (dBuV/m)	Over Limit (dB)	APos (cm)	TPos (deg)	Remark	Pol/Phase	Note
1	0.39	48.15	29.20	18.95	95.81	-47.66	100	195	QP	Open	
2	0.78	39.11	19.98	19.13	69.00	-30.69	100	195	QP	Open	
3	0.99	37.66	18.40	19.26	67.73	-30.07	100	46	QP	Open	
4	15.85	36.06	14.15	21.91	69.50	-33.44	100	58	QP	Open	
5	20.42	36.91	14.69	22.22	69.50	-32.59	100	178	QP	Open	
6	27.04	41.37	18.85	22.52	69.50	-28.13	100	255	QP	Open	

Spurious Emissions, Tx Mode, 30MHz ~ 1GHz

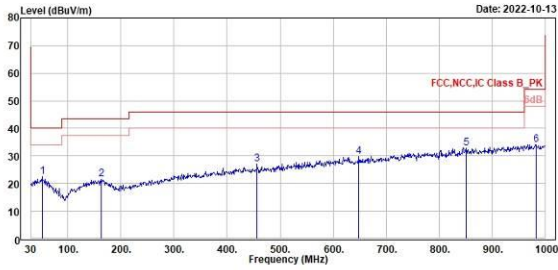
BLE\_1M

Low Channel (Horizontal)

Low Channel (Vertical)



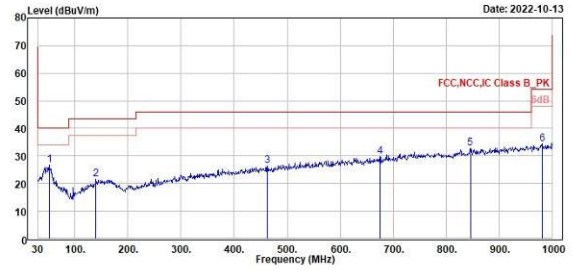
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1	2	3	4	5	6				
Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
51.34	22.52	26.70	-6.18	40.00	-17.48	200	317 QP	Horizontal	
162.89	21.52	27.46	-5.94	43.50	-21.98	200	34 QP	Horizontal	
456.88	27.14	29.22	-2.08	46.00	-18.86	100	200 QP	Horizontal	
648.86	29.66	28.99	0.67	46.00	-16.34	200	264 QP	Horizontal	
858.62	32.86	29.10	3.76	46.00	-13.14	300	94 QP	Horizontal	
982.54	34.28	28.25	5.95	54.00	-19.80	300	314 QP	Horizontal	



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1	2	3	4	5	6				
Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
51.34	26.65	32.83	-6.18	40.00	-13.35	100	217 QP	Vertical	
139.61	21.49	27.85	-6.36	43.50	-22.01	300	325 QP	Vertical	
462.62	26.48	28.46	-1.98	46.00	-19.52	400	167 QP	Vertical	
675.05	29.91	28.96	0.95	46.00	-16.09	400	328 QP	Vertical	
845.77	32.80	29.07	3.73	46.00	-13.20	100	329 QP	Vertical	
981.57	34.51	28.58	5.93	54.00	-19.49	400	15 QP	Vertical	

Spurious Emissions, Tx Mode, 1GHz ~ 26.5GHz

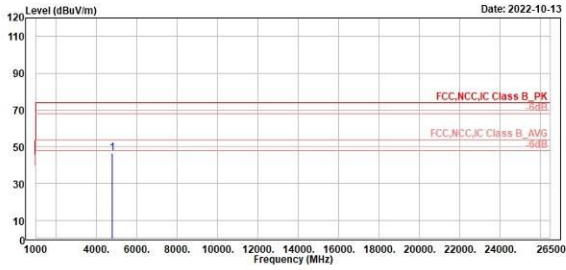
BLE\_1M

Low Channel (Horizontal)

Low Channel (Vertical)



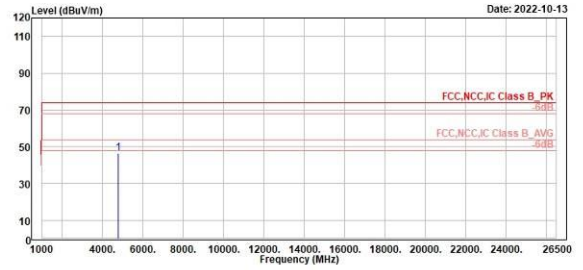
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Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	4884.00	46.67	56.54	-9.87	74.00	-27.33	300	16 Peak	Horizontal



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Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg		
1	4884.00	46.37	56.24	-9.87	74.00	-27.63	400	227 Peak	Vertical

BLE\_1M

Middle Channel (Horizontal)

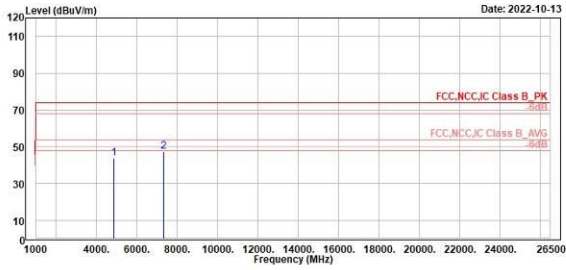
Middle Channel (Vertical)



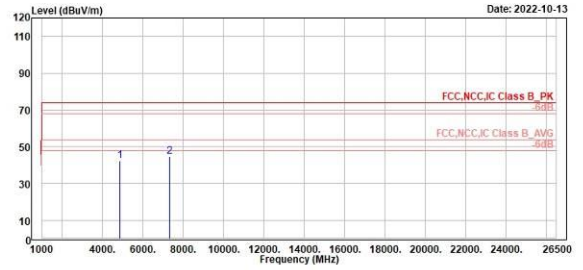
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note										
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg												
4880.00	43.94	53.73	-9.79	74.00	-30.06	263	56 Peak	Horizontal											
7320.00	47.40	54.89	-7.49	74.00	-26.60	100	360 Peak	Horizontal											



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Freq	Level	Read	Limit	Over	APos	TPos	Remark	Pol/Phase	Note										
MHz	dBuV/m	dBuV	dB/m	dBuV/m	dB	cm	deg												
4880.00	42.55	52.34	-9.79	74.00	-31.45	300	240 Peak	Vertical											
7320.00	44.59	52.08	-7.49	74.00	-29.41	400	104 Peak	Vertical											





Mains Conducted Emission, Tx Mode, 150kHz ~ 30MHz

