

ELECTROMAGNETIC EMISSIONS
COMPLIANCE TEST REPORT

Applicant: CASTLES TECHNOLOGY CO., LTD.
6F, NO. 207-5, SEC. 3, BEIXIN RD., XINDIAN DISTRICT,
NEW TAIPEI CITY 231030, TAIWAN (R.O.C)

Manufacturer: CASTLES TECHNOLOGY CO., LTD.
6F, NO. 207-5, SEC. 3, BEIXIN RD., XINDIAN DISTRICT,
NEW TAIPEI CITY 231030, TAIWAN (R.O.C)

Product Name: Smart module

Brand Name: 

Model No.: SLM500

Report Number: TERF2408002259E2

FCC ID WIYSLM500QA

IC: 27350-SLM500QA

Date of EUT Received: August 1, 2024

Date of Test: August 12, 2024~September 3, 2024

Issue Date: October 8, 2024

Approved By

Arno Hsieh

Arno Hsieh

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT comply with FCC rule part §15.247, ISSED RSS-247.

The results of this report relate only to the sample identified in this report.

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Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
TERF2408002259E2	00	Original	September 5, 2024	Susan Lin	
TERF2408002259E2	01	Update section 8.2	October 8, 2024	Susan Lin	*

Note:

- 1、The remark "*" indicates modification of the report upon requests from certification body.

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1 GENERAL INFORMATION

1.1 Product Description

Product Name:	Smart module
Brand Name:	 CASTLES TECHNOLOGY
Model No.:	SLM500
Hardware Version:	V1F.00
Firmware Version:	N/A
EUT Series No.:	196242025224
Product Name of Host:	POS Terminal
Brand Name of Host:	 CASTLES TECHNOLOGY
Model No. of Host:	S1E2-UPT
Power Supply:	9Vdc from Adapter
Test Software (Name/Version):	Qualcomm Radio Control Tool 4.0.00161.0

1.2 RF Specification

Radio Technology:	BLE
Frequency Range:	2402 – 2480MHz
Channel number:	40 channels
Modulation type:	GFSK
Transmit Power:	BLE 1M: 3.20 dBm

1.3 Antenna Designation

Antenna Type	Supplier	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)
Dipole	ADVANCED WIRELESS & ANTENNA INC.	S1E2-UPT-WiFi	2402~2480	2.42

Note: Antenna information is provided by the applicant.

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1.4 Test Methodology of Applied Standards

FCC Part 15, Subpart C §15.247

FCC KDB 558074 D01 DTS Meas. Guidance v05r02

RSS-247 issue 3 Aug. 2023

RSS-Gen, Issue 5 April 2018

ANSI C63.10:2013

1.5 Test Facility

Laboratory	Test Site Address	Test Site Name	FCC Designa- tion number	IC CAB identifier
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan.	SAC 1	TW0027	TW3702
		SAC 2		
		SAC 3		
		Conduction 1		
		Conducted 1		
		Conducted 2		
		Conducted 3		
		Conducted 4		
		Conducted 5		
		Conducted 6		
	No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333	Conduction C	TW0028	
		SAC C		
		SAC D		
		SAC G		
		Conducted A		
		Conducted B		
		Conducted C		
		Conducted D		
		Conducted E		
		Conducted F		
Conducted G				
Note: Test site name is remarked on the equipment list in each section of this report as an indication where measurements occurred in specific test site and address.				

1.6 Special Accessories

There are no special accessories used while test was conducted.

1.7 Equipment Modifications

There was no modification incorporated into the EUT.

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2 SYSTEM TEST CONFIGURATION

2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT Exercise

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

2.3 Test Procedure

2.3.1 Conducted Test (RF)

The active antenna port of the unlicensed wireless device is connected to the spectrum analyzer with attenuator to protect the instrumentation. If a second antenna port is available, it is tested at one operating frequency, with other port(s) appropriately terminated, to verify it has similar output characteristics as the fully tested port.

2.3.2 Radiated Emissions

The EUT is placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

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2.4 Measurement Results Explanation Example

2.4.1 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

Radiated emission below 30MHz is measured in a 9m*6m*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

2.4.2 For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

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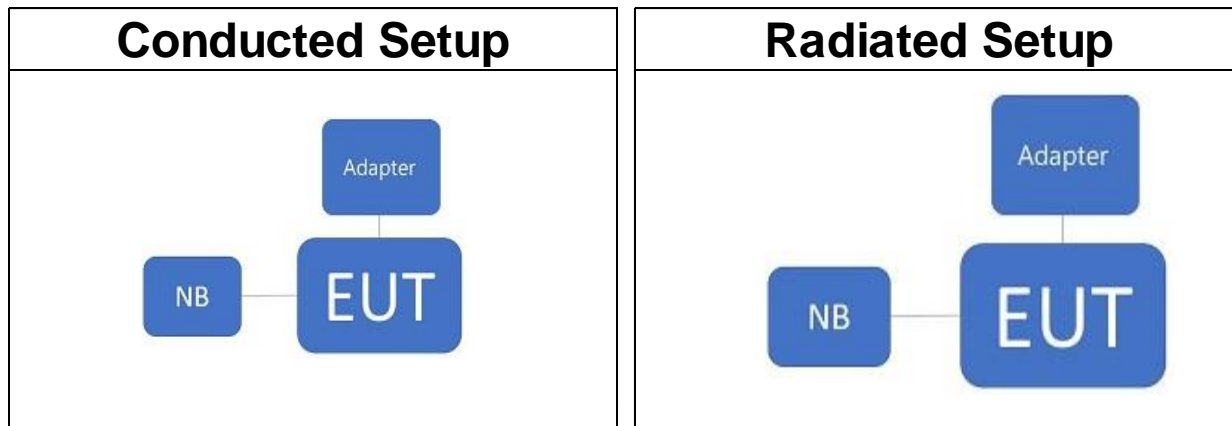
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2.5 Test Configuration



2.6 Control Unit(s)

Conducted Emission Test Site: Conducted D					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
USB Cable	I Max	USB-C1200	N/A	N/A	N/A
AC Adapter	Castles	PW04-945A	N/A	N/A	N/A
Cable	HOMESHUN	CABLE FOR S1U2 HSG 4.2PITCH 2X3P FEMALE AND RJ45 8P8C FEMALE X2 TO HSG 2X10P 2.0PITCH L:750MM	N/A	N/A	N/A
Cable	TAI-CHING	CABLE FOR MARS1000 DC JACK	N/A	N/A	N/A
Notebook	Lenovo	T470	P0001293	N/A	N/A

Radiated Emission Test Site: SAC G					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
USB Cable	ASUS	ASUS USB-C Cable	N/A	N/A	N/A
Cable	HOMESHUN	CABLE FOR S1U2 HSG 4.2PITCH 2X3P FEMALE AND RJ45 8P8C FEMALE X2 TO HSG 2X10P 2.0PITCH L:750MM	N/A	N/A	N/A
Cable	TAI-CHING	CABLE FOR MARS1000 DC JACK	N/A	N/A	N/A
AC Adapter	Castles	PW04-945A	N/A	N/A	N/A
Notebook	Lenovo	T420	S0012599	N/A	N/A

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3 SUMMARY OF TEST RESULTS

FCC Rules	ISED Rules	Description Of Test	Result
§15.247(b) (3)	RSS-247 §5.4 d	Peak Output Power	Compliant
§15.247(d) §15.205 §15.209	RSS-247 §5.5 RSS-Gen §8.9 RSS-Gen §8.10	Radiated Band Edge and Spurious Emission	Compliant

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4 DESCRIPTION OF TEST MODES

4.1 Operated in 2400 ~ 2483.5MHz Band

ITEM	FREQUENCY	ITEM	FREQUENCY	ITEM	FREQUENCY
1	2402 MHz	15	2430 MHz	29	2458 MHz
2	2404 MHz	16	2432 MHz	30	2460 MHz
3	2406 MHz	17	2434 MHz	31	2462 MHz
4	2408 MHz	18	2436 MHz	32	2464 MHz
5	2410 MHz	19	2438 MHz	33	2466 MHz
6	2412 MHz	20	2440 MHz	34	2468 MHz
7	2414 MHz	21	2442 MHz	35	2470 MHz
8	2416MHz	22	2444 MHz	36	2472 MHz
9	2418 MHz	23	2446 MHz	37	2474 MHz
10	2420 MHz	24	2448 MHz	38	2476 MHz
11	2422 MHz	25	2450 MHz	39	2478 MHz
12	2424 MHz	26	2452 MHz	40	2480 MHz
13	2426 MHz	27	2454 MHz		
14	2428 MHz	28	2456 MHz		

4.2 The Worst Test Modes and Channel Details

1. The EUT has been tested under operating condition.
2. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.
3. The field strength of radiated emission was measured as the EUT positioned in different orthogonal planes (E1/E2/H) based on actual usage of the EUT to pre-scan the emissions for determining the worst case scenario.
4. Investigation has been done on all the possible configurations for searching the worst case.

CONDUCTED TEST				
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
Bluetooth LE	0 to 39	0,19,39	GFSK	1

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TRANSMIT RADIATED EMISSION TEST (BELOW 1 GHz)				
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
Bluetooth LE	0 to 39	19	GFSK	1
TRANSMIT RADIATED EMISSION TEST (ABOVE 1 GHz)				
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
Bluetooth LE	0 to 39	0,19,39	GFSK	1

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5 MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
Output Power measurement	+/- 0.97 dB
Conducted emission measurement	+/- 0.77 dB
Temperature	+/- 0.6 °C
Humidity	+/- 3 %
DC / AC Power Source	+/- 1 %

Radiated Spurious Emission Measurement Uncertainty			
Polarization: Vertical	+/-	1.89 dB	9kHz~30MHz
	+/-	4.15 dB	30MHz - 1000MHz
	+/-	3.43 dB	1GHz - 18GHz
	+/-	3.86 dB	18GHz - 40GHz
Polarization: Horizontal	+/-	1.89 dB	9kHz~30MHz
	+/-	4.02 dB	30MHz - 1000MHz
	+/-	3.43 dB	1GHz - 18GHz
	+/-	3.86 dB	18GHz - 40GHz
Radiated Spurious Emission	+/-	2 dB	33GHz-50GHz
	+/-	1.59 dB	50GHz-60GHz
	+/-	1.7 dB	60GHz-90GHz
	+/-	1.64 dB	90GHz-140GHz
	+/-	3.83 dB	140GHz-220GHz

Note:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

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6 MEASUREMENT EQUIPMENT USED

6.1 Conducted Measurement

Conducted Emission Test Site: Conducted D					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Attenuator	Marvelous	MVE2213-10	RF10	11/15/2023	11/14/2024
DC Block	MITEQ	W70289-5108	RF159	11/15/2023	11/14/2024
Power Meter	Anritsu	ML2496A	1804002	04/26/2024	04/25/2025
Power Sensor	Anritsu	MA2411B	1726105	04/26/2024	04/25/2025
Power Sensor	Anritsu	MA2411B	1726106	04/26/2024	04/25/2025
Spectrum Analyzer	KEYSIGHT	N9010A	MY57120290	04/10/2024	04/09/2025
Test Software	SGS Taiwan	Dynamic Frequency Selection Test	Ver. 22.01.24	N.C.R	N.C.R

6.2 Radiated Measurement

Radiated Emission Test Site: SAC G					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
3m Site NSA	SGS	966 chamber G	N/A	03/30/2024	03/29/2025
Active Loop Antenna	COM-POWER	AL-130R	10160105	12/04/2023	12/03/2024
Broadband Antenna	SCHWARZBECK	VULB 9168	1208	07/17/2024	07/16/2025
Coaxial Cable	EMC Instruments	EMC104-SM-SM-8000-5000-5000	210219 、 210220 、 210221	03/13/2024	03/12/2025
Coaxial Cable	EMC Instruments	EMCCFD400-NM-NM-8000-5000-2000	210216 、 210217 、 210218	03/13/2024	03/12/2025
High Pass Filter	WI	WHKX10-2624-3200-18000-80SS	RF210	11/15/2023	11/14/2024
Horn Antenna	RF SPIN	DRH18-E	210105A18E	04/12/2024	04/11/2025
Horn Antenna	Schwarzbeck	BBHA9170	184	12/28/2023	12/27/2024
Lowpass Filter	Woken	EWI-56-0019	RF173	11/15/2023	11/14/2024
Pre-Amplifier	EMC Instruments	EMC118A45SE	980815	05/08/2024	05/07/2025
Pre-Amplifier	EMC Instruments	EMC18405SEE	980881	11/15/2023	11/14/2024
Pre-Amplifier	EMC Instruments	EMC330N	980781	03/13/2024	03/12/2025
Spectrum Analyzer	KEYSIGHT	N9010B	MY63440390	02/16/2024	02/15/2025
Test Software	audix	e3	E3 20923 SGS Ver.9 (C)	N.C.R	N.C.R

NOTE: N.C.R refers to Not Calibrated Required.

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7 PEAK OUTPUT POWER MEASUREMENT

7.1 Standard Applicable:

For systems using digital modulation in the 2400-2483.5 MHz bands, the limit for peak output power is 1Watt and the e.i.r.p. shall not exceed 4 W.

If the transmitting antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6dBi.

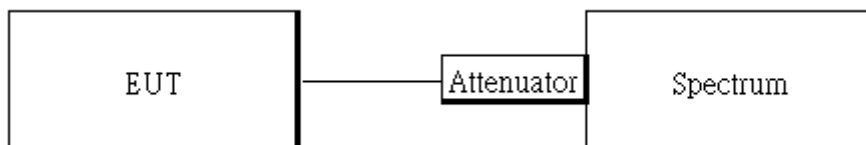
In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of Antenna exceeds 6dBi.

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

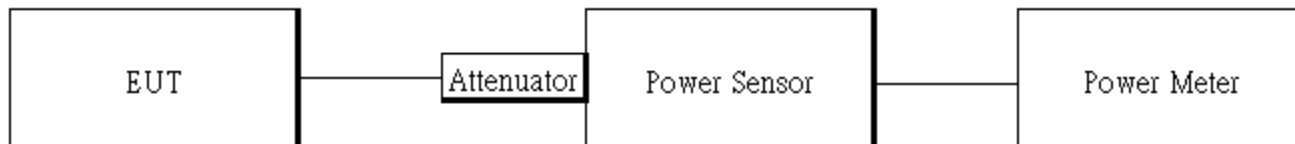
All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

7.2 Test Setup

7.2.1 Duty Cycle



7.2.2 Output Power



7.3 Measurement Procedure:

7.3.1 Duty Cycle

1. Place the EUT on the table and set it in transmitting mode.
2. Set span = Zero

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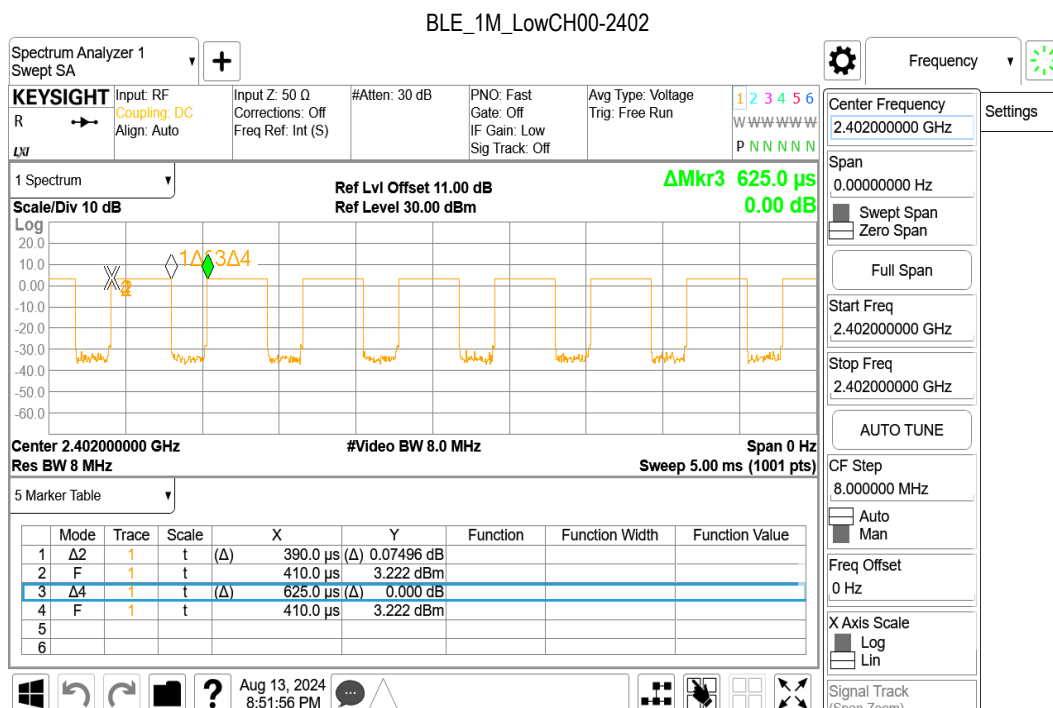
3. RBW = 8MHz, VBW = 8MHz,
4. Detector = Peak

7.3.2 Output Power

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter.
4. Record the max. Reading as observed from Power Meter.
5. Repeat above procedures until all test default channel measured was complete.

7.4 Duty Factor:

	Duty Cycle (%) = Ton / (Ton+Toff)	Duty Factor (dB) =10*log (1/Duty Cycle)	1/T (kHz)	VBW setting (kHz)
BLE 1M	66.00	1.80	2.56	3.00



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7.5 Output Power:

7.5.1 Peak & Avg

BLE 1M mode:

CH	Frequency (MHz)	Power Setting	Peak Output Power (dBm)	Required Limit (dBm)
0	2402	default	3.20	30
19	2440	default	2.76	30
39	2480	default	2.47	30
CH	Frequency (MHz)	Power Setting	Avg. Output Power (dBm)	Required Limit (dBm)
0	2402	default	2.84	30
19	2440	default	2.39	30
39	2480	default	2.05	30

***Note:**

1. Measured by power meter, cable loss 11 dB + Duty cycle factor has been offset to the power meter for Avg. power and cable loss has been offset for Peak power measurement.

7.5.2 EIRP

EIRP BLE 1M mode

CH	Frequency (MHz)	Power Setting	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit
0	2402	default	2.84	2.42	5.26	4W= 36 dBm
19	2440	default	2.39	2.42	4.81	4W= 36 dBm
39	2480	default	2.05	2.42	4.47	4W= 36 dBm

*** Note:** EIRP = Average Power + Gain

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8 SPURIOUS EMISSION MEASUREMENT

8.1 Standard Applicable

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands must also comply with the §15.209 and RSS-Gen §8.9 Table 5 and 6 limit as below.

And according to §15.33(a) (1) & RSS-Gen §6.13.2.a for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, whichever is lower.

Frequency (MHz)	Field strength (microvolts/meter)	Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Note:

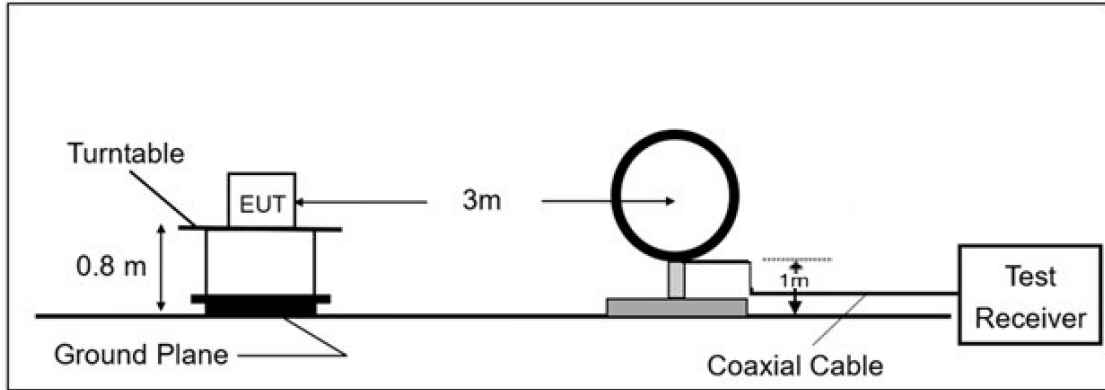
1. The lower limit shall apply at the transition frequencies.

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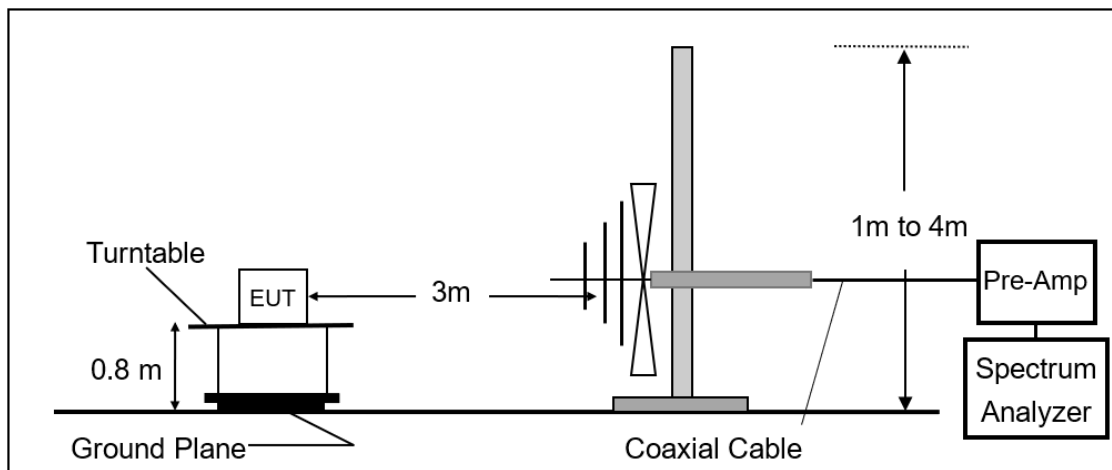
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8.2 Test SET-UP

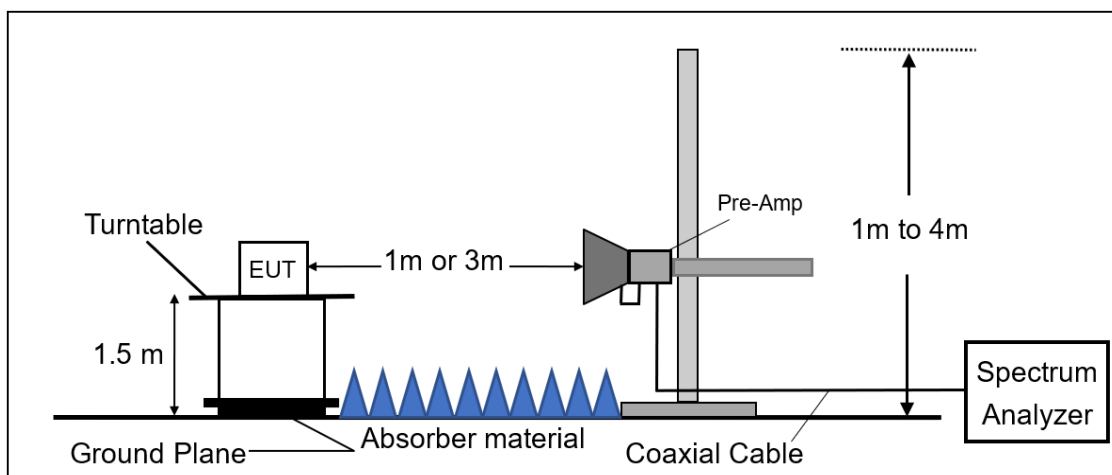
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz.



(B) Radiated Emission Test Set-Up, Frequency From 30MHz to 1000MHz.



(C) Radiated Emission Test Set-Up, Frequency Above 1GHz.



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8.3 Measurement Procedure

1. The testing follows the Measurement Procedure of FCC KDB 558074 D01 DTS Meas. Guidance.
2. The EUT was placed on a turn table with 0.8m for frequency < 1GHz and 1.5m for frequency > 1GHz above ground plane.
3. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
4. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
5. Set the spectrum analyzer as RBW=100 kHz and VBW=300 kHz for Peak Detector (PK) at frequency between 30MHz and 1 GHz.
6. Use receiver mode as RBW=120 kHz for Quasi-peak (QP) at frequency between 30MHz and 1 GHz.
7. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
8. Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
9. When measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna.
10. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
11. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. On spectrum, change spectrum mode in linear display mode, and reduce VBW = 10Hz if average reading is measured.
12. Repeat above procedures until all default test channel measured were complete.

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8.4 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where *FS* = Field Strength

CL = Cable Attenuation Factor (Cable Loss)

RA = Reading Amplitude

AG = Amplifier Gain

AF = Antenna Factor

The limit of the emission level is expressed in dBuV/m, which converts $20 \cdot \log(uV/m)$

Actual FS(dBuV/m) = SPA. Reading level(dBuV) + Factor(dB)

Factor(dB) = Antenna Factor(dBuV/m) + Cable Loss(dB) – Pre_Amplifier Gain(dB)

8.5 Test Results of Radiated Spurious Emissions from 9 kHz to 30 MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit per 15.31(o) & RSS-GEN §6.13.2 was not reported.

8.6 Measurement Result:

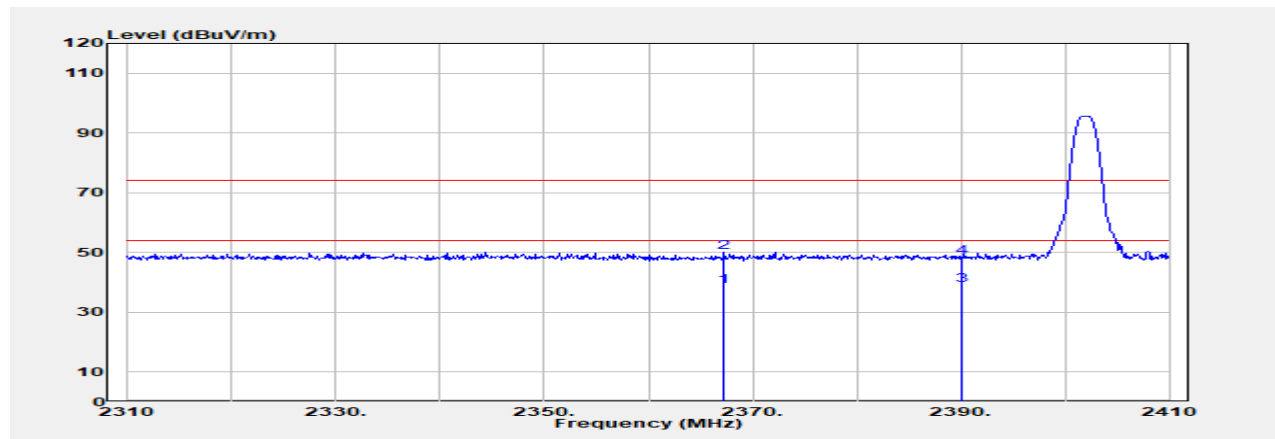
Note: Refer to next page spectrum analyzer data chart and tabular data sheets.

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8.6.1 Radiated Band Edge Measurement Result

Report Number	:TERF2408002259E2	Test Site	:SAC G Chamber
Operation Mode	:BLE 1M	Test Date	:2024-08-19
Test Frequency	:2402 MHz	Temp./Humi.	:21.2°C/65%
Test Mode	:Bandedge	Antenna Pol.	:Vertical
EUT Pol	:H Plane	Engineer	:Jacky Chen



Freq. MHz	Detector Mode PK/QP/AVG	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
2367.300	Average	42.03	-3.24	38.78	54.00	-15.22
2367.300	Peak	53.46	-3.24	50.22	74.00	-23.78
2390.000	Average	42.17	-3.28	38.90	54.00	-15.10
2390.000	Peak	51.68	-3.28	48.40	74.00	-25.60

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Report Number :TERF2408002259E2

Test Site :SAC G Chamber

Operation Mode :BLE 1M

Test Date :2024-08-19

Test Frequency :2402 MHz

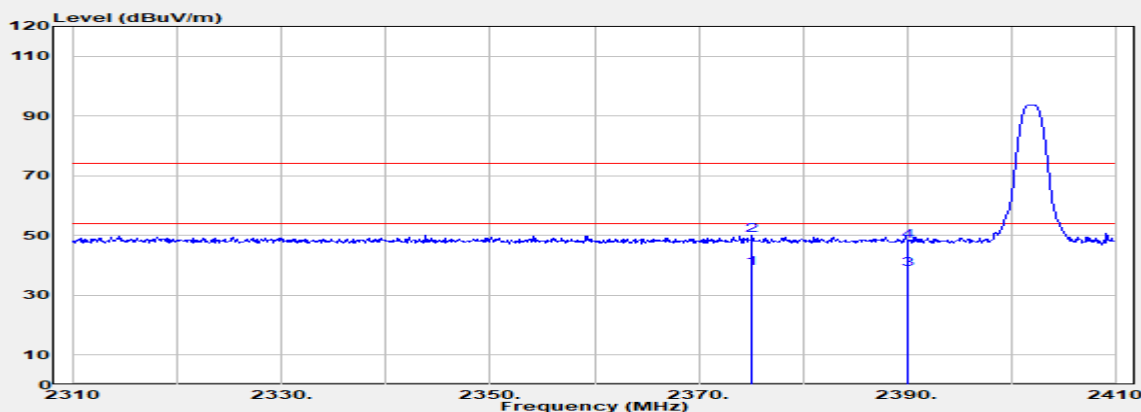
Temp./Humi. :21.2°C/65%

Test Mode :Bandedge

Antenna Pol. :Horizontal

EUT Pol :H Plane

Engineer :Jacky Chen



Freq. MHz	Detector Mode PK/QP/AVG	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
2375.100	Average	42.26	-3.25	39.01	54.00	-14.99
2375.100	Peak	53.25	-3.25	50.00	74.00	-24.00
2390.000	Average	42.08	-3.28	38.80	54.00	-15.20
2390.000	Peak	51.30	-3.28	48.02	74.00	-25.98

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Report Number :TERF2408002259E2

Test Site :SAC G Chamber

Operation Mode :BLE 1M

Test Date :2024-08-19

Test Frequency :2480 MHz

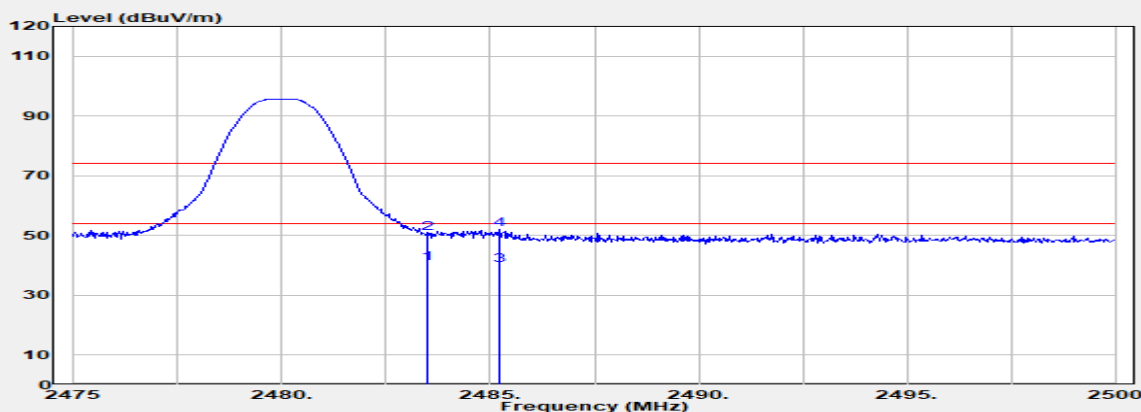
Temp./Humi. :21.2°C/65%

Test Mode :Bandedge

Antenna Pol. :Vertical

EUT Pol :H Plane

Engineer :Jacky Chen



Freq. MHz	Detector Mode PK/QP/AVG	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
2483.500	Average	43.88	-3.31	40.57	54.00	-13.43
2483.500	Peak	54.08	-3.31	50.77	74.00	-23.23
2485.200	Average	43.30	-3.31	39.99	54.00	-14.01
2485.200	Peak	55.24	-3.31	51.93	74.00	-22.07

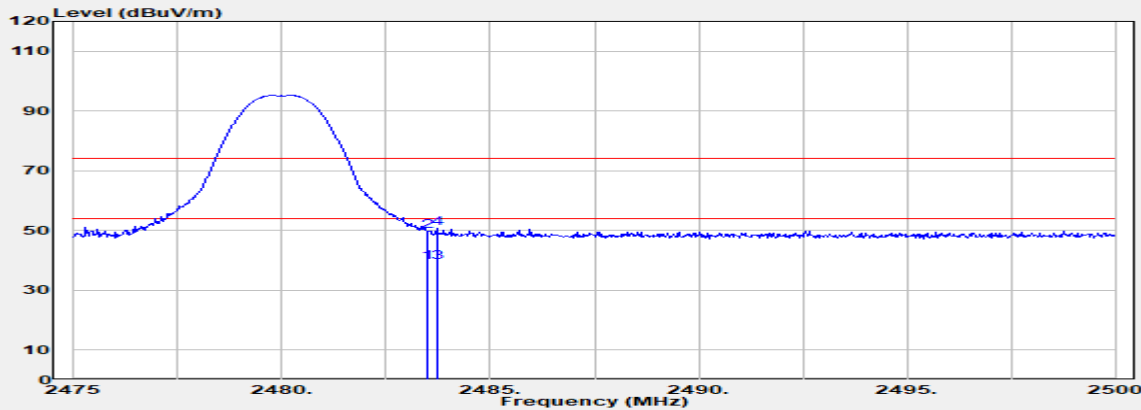
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Report Number :TERF2408002259E2
Operation Mode :BLE 1M
Test Frequency :2480 MHz
Test Mode :Bandedge
EUT Pol :H Plane

Test Site :SAC G Chamber
Test Date :2024-08-19
Temp./Humi. :21.2°C/65%
Antenna Pol. :Horizontal
Engineer :Jacky Chen



Freq. MHz	Detector Mode PK/QP/AVG	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
2483.500	Average	42.58	-3.31	39.27	54.00	-14.73
2483.500	Peak	52.94	-3.31	49.62	74.00	-24.38
2483.725	Average	42.56	-3.31	39.25	54.00	-14.75
2483.725	Peak	54.20	-3.31	50.89	74.00	-23.11

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8.6.2 Radiated Spurious Emission

Report Number :TERF2408002259E2

Test Site :SAC G Chamber

Operation Mode :BLE 1M

Test Date :2024-08-21

Test Frequency :2440 MHz

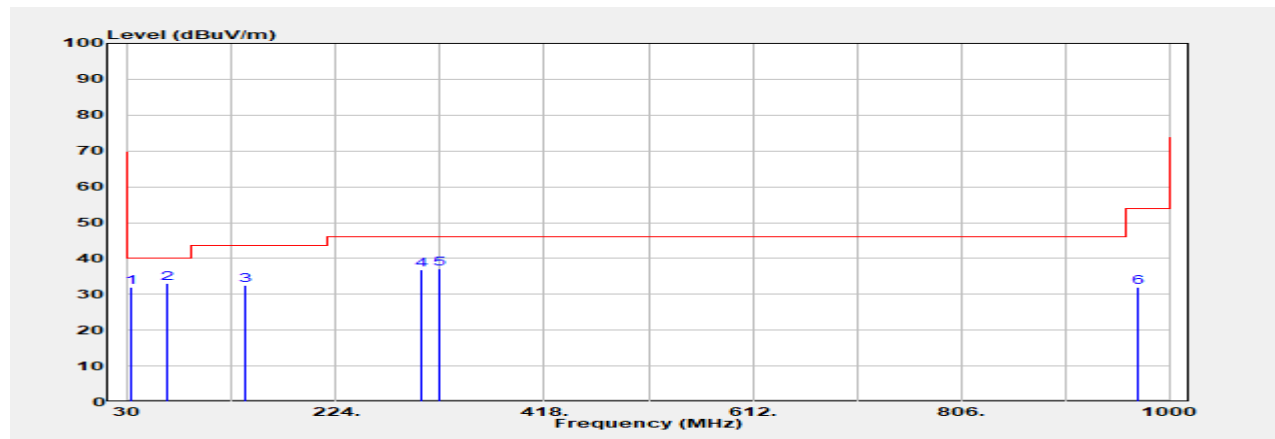
Temp./Humi. :21.5°C/66%

Test Mode :Tx

Antenna Pol. :Vertical

EUT Pol :H Plane

Engineer :Jacky Chen



Freq. MHz	Detector Mode PK/QP/AVG	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
32.910	Peak	46.53	-14.56	31.97	40.00	-8.03
66.860	Peak	47.42	-14.22	33.20	40.00	-6.80
139.610	Peak	46.20	-13.59	32.61	43.50	-10.89
303.540	Peak	48.89	-11.92	36.97	46.00	-9.03
321.000	Peak	48.28	-11.21	37.06	46.00	-8.94
970.900	Peak	30.64	1.26	31.90	54.00	-22.10

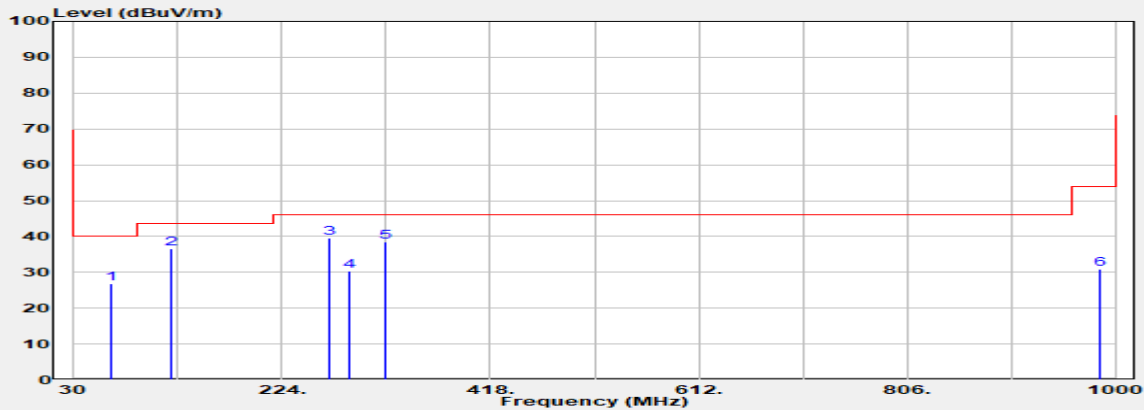
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Report Number :TERF2408002259E2
Operation Mode :BLE 1M
Test Frequency :2440 MHz
Test Mode :Tx
EUT Pol :H Plane

Test Site :SAC G Chamber
Test Date :2024-08-21
Temp./Humi. :21.5°C/66%
Antenna Pol. :Horizontal
Engineer :Jacky Chen



Freq. MHz	Detector Mode PK/QP/AVG	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
64.920	Peak	40.68	-13.81	26.87	40.00	-13.13
121.180	Peak	52.24	-15.54	36.70	43.50	-6.80
268.620	Peak	52.64	-13.01	39.63	46.00	-6.37
286.080	QP	42.60	-12.22	30.38	46.00	-15.62
320.030	Peak	49.79	-11.22	38.57	46.00	-7.43
986.420	Peak	30.21	0.82	31.02	54.00	-22.98

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Report Number :TERF2408002259E2

Test Site :SAC G Chamber

Operation Mode :BLE 1M

Test Date :2024-08-19

Test Frequency :2402 MHz

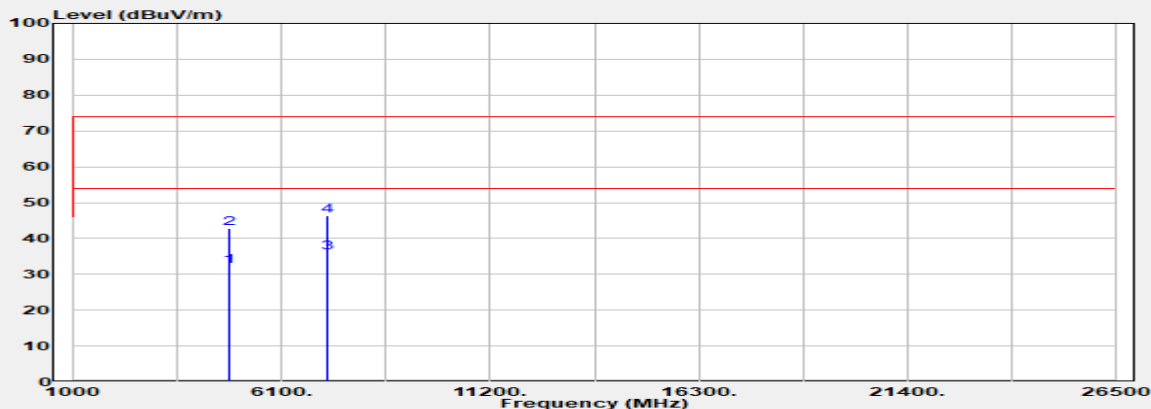
Temp./Humi. :21.2°C/65%

Test Mode :Tx

Antenna Pol. :Vertical

EUT Pol :H Plane

Engineer :Jacky Chen



Freq. MHz	Detector Mode PK/QP/AVG	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
4804.000	Average	28.81	3.33	32.14	54.00	-21.86
4804.000	Peak	39.45	3.33	42.78	74.00	-31.22
7206.000	Average	26.83	9.17	36.00	54.00	-18.00
7206.000	Peak	37.30	9.17	46.47	74.00	-27.53

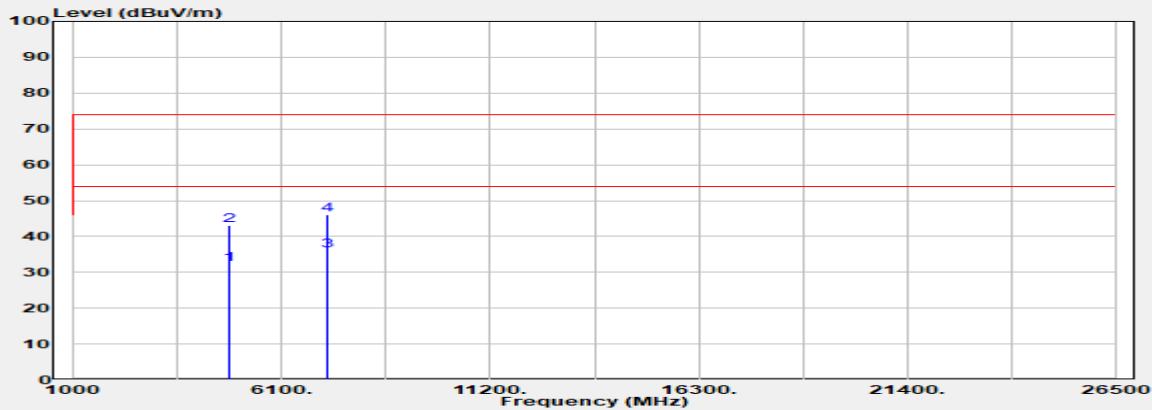
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Report Number :TERF2408002259E2
Operation Mode :BLE 1M
Test Frequency :2402 MHz
Test Mode :Tx
EUT Pol :H Plane

Test Site :SAC G Chamber
Test Date :2024-08-19
Temp./Humi. :21.2°C/65%
Antenna Pol. :Horizontal
Engineer :Jacky Chen



Freq. MHz	Detector Mode PK/QP/AVG	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
4804.000	Average	28.87	3.33	32.20	54.00	-21.80
4804.000	Peak	39.86	3.33	43.19	74.00	-30.81
7206.000	Average	26.78	9.17	35.95	54.00	-18.05
7206.000	Peak	37.03	9.17	46.20	74.00	-27.80

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Report Number :TERF2408002259E2

Test Site :SAC G Chamber

Operation Mode :BLE 1M

Test Date :2024-08-19

Test Frequency :2440 MHz

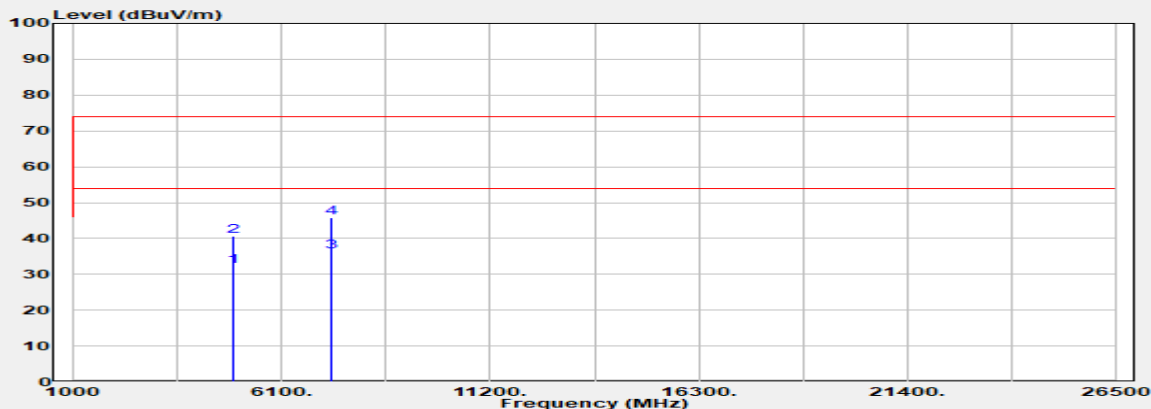
Temp./Humi. :21.2°C/65%

Test Mode :Tx

Antenna Pol. :Vertical

EUT Pol :H Plane

Engineer :Jacky Chen



Freq. MHz	Detector Mode PK/QP/AVG	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4880.000	Average	28.77	3.51	32.28	54.00	-21.72
4880.000	Peak	37.27	3.51	40.78	74.00	-33.22
7320.000	Average	26.55	9.79	36.34	54.00	-17.66
7320.000	Peak	36.03	9.79	45.81	74.00	-28.19

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Report Number :TERF2408002259E2

Test Site :SAC G Chamber

Operation Mode :BLE 1M

Test Date :2024-08-19

Test Frequency :2440 MHz

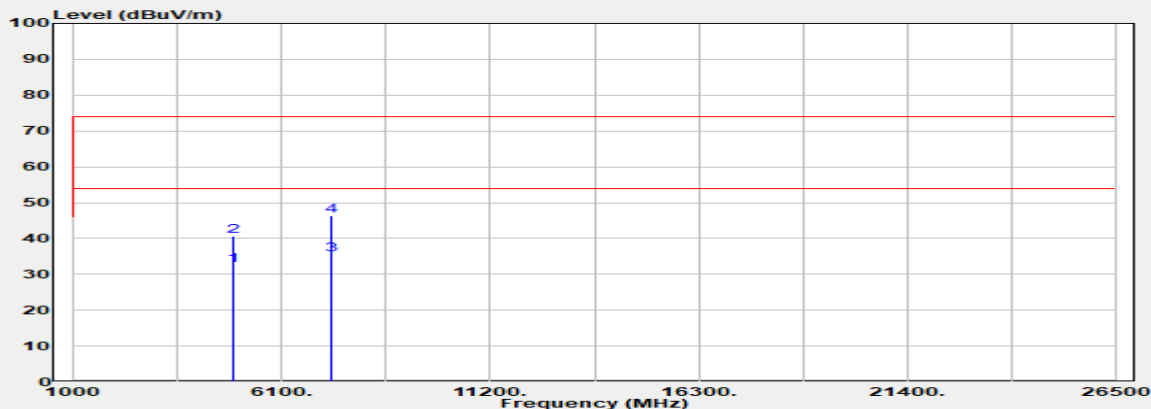
Temp./Humi. :21.2°C/65%

Test Mode :Tx

Antenna Pol. :Horizontal

EUT Pol :H Plane

Engineer :Jacky Chen



Freq. MHz	Detector Mode PK/QP/AVG	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
4880.000	Average	28.92	3.51	32.43	54.00	-21.57
4880.000	Peak	37.09	3.51	40.60	74.00	-33.40
7320.000	Average	25.72	9.79	35.51	54.00	-18.49
7320.000	Peak	36.52	9.79	46.30	74.00	-27.70

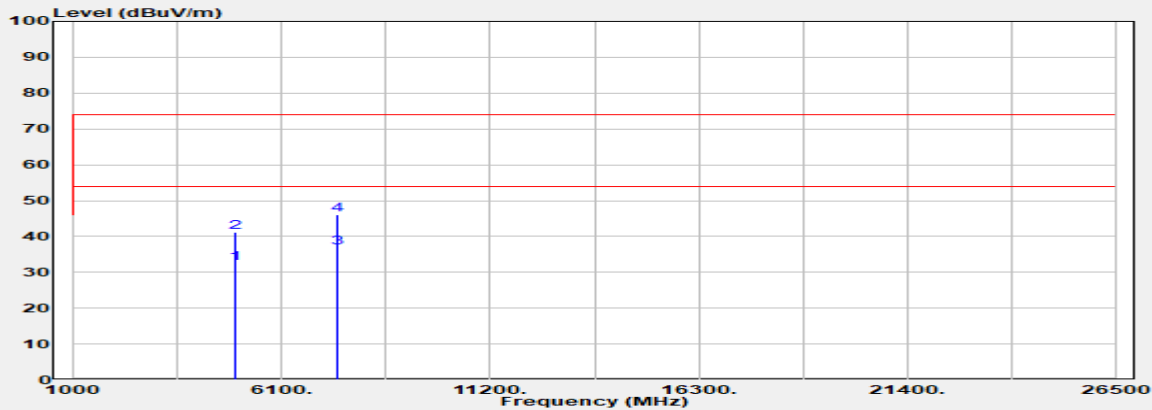
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Report Number :TERF2408002259E2
Operation Mode :BLE 1M
Test Frequency :2480 MHz
Test Mode :Tx
EUT Pol :H Plane

Test Site :SAC G Chamber
Test Date :2024-08-19
Temp./Humi. :21.2°C/65%
Antenna Pol. :Vertical
Engineer :Jacky Chen



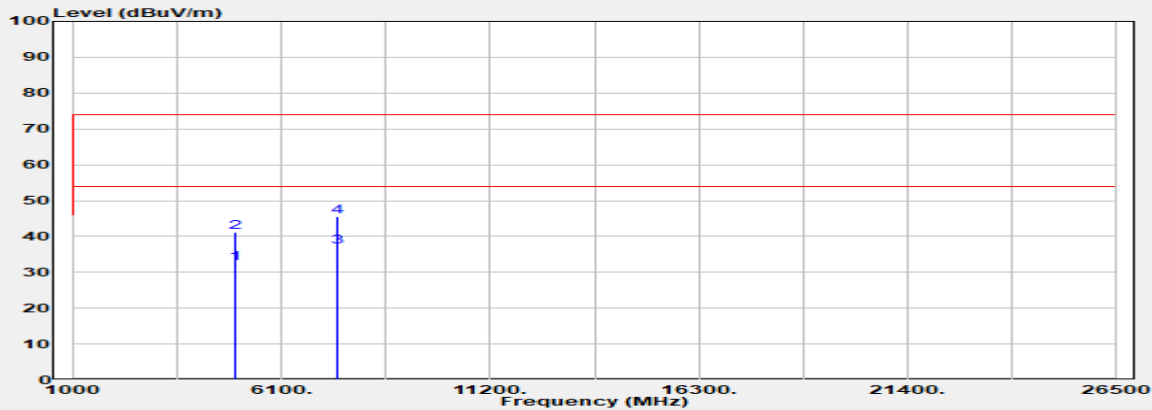
Freq. MHz	Detector Mode PK/QP/AVG	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
4960.000	Average	28.67	3.86	32.53	54.00	-21.47
4960.000	Peak	37.26	3.86	41.12	74.00	-32.88
7440.000	Average	26.77	10.14	36.91	54.00	-17.09
7440.000	Peak	35.81	10.14	45.95	74.00	-28.05

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Report Number :TERF2408002259E2
Operation Mode :BLE 1M
Test Frequency :2480 MHz
Test Mode :Tx
EUT Pol :H Plane

Test Site :SAC G Chamber
Test Date :2024-08-19
Temp./Humi. :21.2°C/65%
Antenna Pol. :Horizontal
Engineer :Jacky Chen



Freq. MHz	Detector Mode PK/QP/AVG	Spectrum Reading Level dBuV	Factor dB	Actual FS dBuV/m	Limit @3m dBuV/m	Margin dB
4960.000	Average	28.69	3.86	32.55	54.00	-21.45
4960.000	Peak	37.34	3.86	41.20	74.00	-32.80
7440.000	Average	26.92	10.14	37.06	54.00	-16.94
7440.000	Peak	35.40	10.14	45.54	74.00	-28.46

~ End of Report ~

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