



ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT



EUT Description Sparrow Wi-Fi Module
Applicant: BOTS UNLIMITED LLC
Manufacturer: BOTS UNLIMITED LLC
Product Name: Sparrow Wi-Fi Module
Brand Name: Bots Unlimited
Model No./ISED HVIN: SP-01-100
ISED PMN: SP-01-100
Report Number: TERF2506001927ER
FCC ID 2BPPF-SP01
IC: 34356-SP01
Date of EUT Received: June 6, 2025
Date of Test: June 9, 2025~August 1, 2025
Issue Date: August 26, 2025

Approved By

Jim Chang

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 C63.10:2020 and the energy emitted by the sample EUT comply with FCC rule part §15.247, ISED RSS-247.

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

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.
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Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
TERF2506001927ER	00	Original	Aug. 26, 2025	Candice Li	

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

EUT Description	Sparrow Wi-Fi Module
Brand Name	Bots Unlimited
Model No./ISED HVIN	SP-01-100
Hardware Version	1
Firmware Version	W16.88.10.p173-16.26.10.p173-C4X16698_V4
EUT Series No.	254WSP-01-EVKAAAA101000001
Power Supply	3.3 Vdc, 1.8 Vdc
Test Software (Name/Version)	Dut labtool

1.2 RF Specification

Radio Technology	BLE
Frequency Range	2402 – 2480MHz
Channel number	40 channels
Modulation type	GFSK
Transmit Power	BLE 1M: 7.53 dBm BLE 2M: 7.52 dBm

1.3 Antenna Designation

Antenna Type	Supplier	Antenna Part No.	Freq. (MHz)	Peak Antenna Gain (dBi)
Flexible Printed Circuit	ABRACON	AFG4507W2	2400 - 2500	6.62

Note:

1. Pre-scanned was done on the above antennas, measurements were demonstrated by using the antenna with the highest gain as the worst case scenarios.
2. The antenna information is provided by the applicant. The laboratory does not verify the accuracy of this information, and all test results related to antenna characteristics are based solely on the data supplied. Responsibility for the authenticity and accuracy of these specifications rests entirely with the party who provided the information.
3. The antenna complies with part 15.203 requirement and no consideration of replacement. Please see EUT photo for details.

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1.4 Operating Frequencies

2400~2483.5 MHz

CH	Freq. (MHz)	CH	Freq. (MHz)	CH	Freq. (MHz)	CH	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

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1.5 EUT Availability and The Worst Test Modes

1. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.
2. The field strength of radiation 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.
3. Investigation has been done on all the possible configurations for searching the worst case.

The given UE is pre-scanned among below modes.

CONDUCTED TEST				
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)
Bluetooth LE	0 to 39	0,20,39	GFSK	1
Bluetooth LE	0 to 39	0,20,39	GFSK	2
TRANSMIT RADIATED EMISSION TEST (BELOW 1 GHz)				
Bluetooth LE_1M	0 to 39	20	GFSK	1
TRANSMIT RADIATED EMISSION TEST (ABOVE 1 GHz)				
Bluetooth LE_1M	0 to 39	0,20,39	GFSK	1
Bluetooth LE_2M	0 to 39	0,20,39	GFSK	2

Note: The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for channel Low, Mid and High, the worst case position was reported.

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2 SUMMARY OF TEST RESULTS

FCC Rules	ISED Rules	Description Of Test	Result
§15.207(a)	RSS-Gen §8.8	AC Power Line Conducted Emission	Compliant
§15.247(b) (3)	RSS-247 §6.3.2	Peak Output Power	Compliant
§15.247(a)(2)	RSS-247 §6.3.1.a RSS-Gen §6.7	Emission Bandwidth	Compliant
§15.205 §15.209 §15.247(d)	RSS-247 §6.6 RSS-Gen §8.9 RSS-Gen §8.10	Out of Band Emission	Compliant
§15.205 §15.209 §15.247(d)	RSS-247 §6.6 RSS-Gen §8.9 RSS-Gen §8.10	Unwanted Emission	Compliant
§15.247(e)	RSS-247 §6.3.1.b	Power Spectral Density	Compliant
§15.203	N/A	Antenna Requirement	Compliant

2.1 Test Methodology of Applied Standards

1. FCC Part 15, Subpart C §15.247
2. FCC KDB 558074 D01 15.247 Meas Guidance v05r02
3. ISED RSS-247 issue 4 July 2025
4. ISED RSS-Gen, Issue 5 April 2018, Amendment 2 (February 2021)
5. ANSI C63.10:2020
6. ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024

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2.2 Measurement Uncertainty

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 1.54 dB
Output Power measurement	+/- 0.97 dB
Emission Bandwidth	+/- 1.38 Hz
Conducted emission measurement	+/- 0.77 dB
Peak Power Density	+/- 0.61 dB
Temperature	+/- 0.60 °C
Humidity	+/- 3.00 %
DC / AC Power Source	+/- 1.00 %

Radiated Spurious Emission Measurement Uncertainty		
Polarization: Vertical	+/- 1.89 dB	9kHz - 30MHz
	+/- 4.10 dB	30MHz - 1000MHz
	+/- 3.37 dB	1GHz - 18GHz
	+/- 3.83 dB	18GHz - 40GHz
Polarization: Horizontal	+/- 1.89 dB	9kHz - 30MHz
	+/- 4.10 dB	30MHz - 1000MHz
	+/- 3.37 dB	1GHz - 18GHz
	+/- 3.83 dB	18GHz - 40GHz
Radiated Spurious Emission	+/- 2.00 dB	33GHz - 50GHz
	+/- 1.59 dB	50GHz - 60GHz
	+/- 1.71 dB	60GHz - 90GHz
	+/- 1.64 dB	90GHz - 140GHz
	+/- 3.84 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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2.3 Test Facility

Laboratory	Test Site Address	Test Site Name	FCC Designation number / Registration 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 SAC 2 SAC 3 Conduction 1 Conducted 1 Conducted 2 Conducted 3 Conducted 4 Conducted 5 Conducted 6	TW0027 / 891563	TW3702
	No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333	Conduction C SAC C SAC D SAC G Conducted A Conducted B Conducted C Conducted D Conducted E Conducted F Conducted G	TW0028 / 200037	

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.

Temperature:	20-23	°C	Relative Humidity:	48-79	%
Test site	Conducted 2		Test Start:	07/15/2025	
Test Engineer:	Dannis Chen		Test Done:	08/01/2025	

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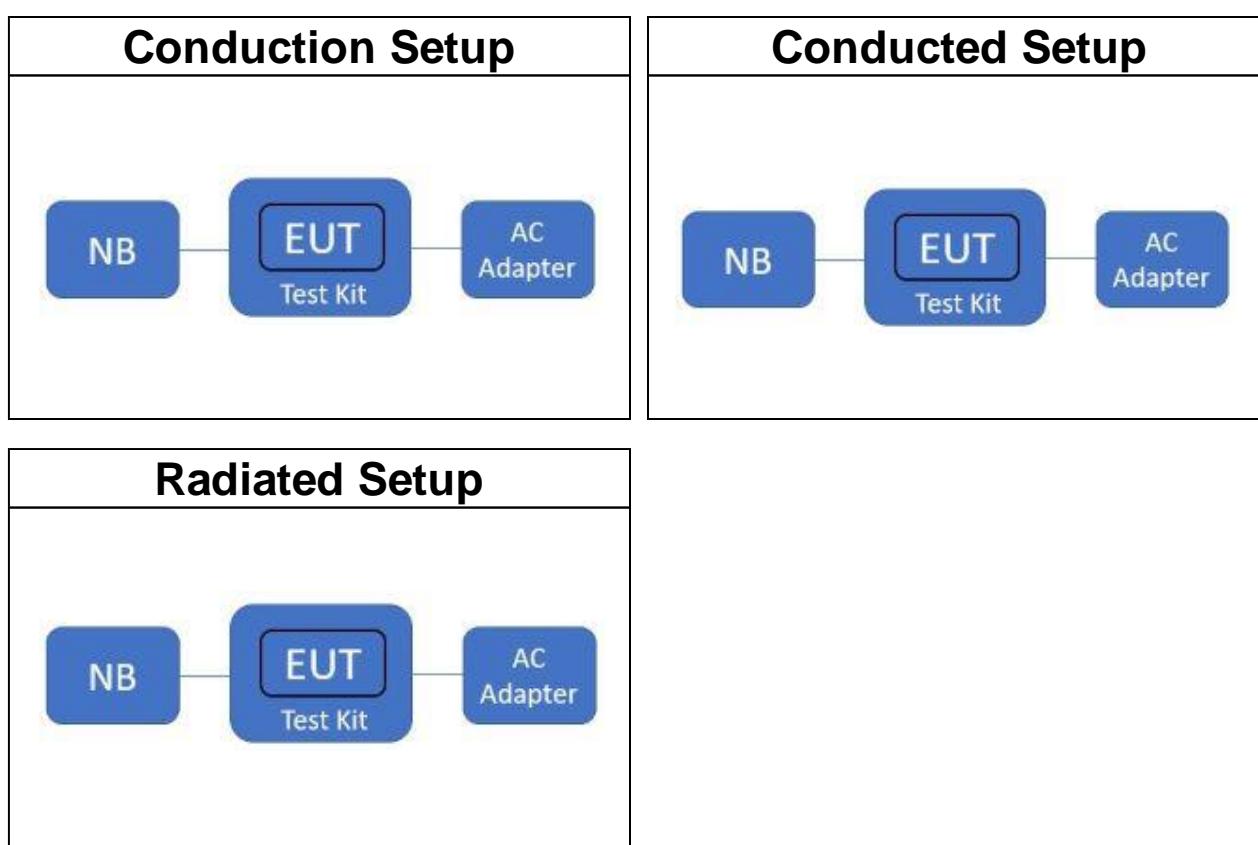
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3 CONTROL UNIT(S) AND PERIPHERAL(S)

3.1 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. 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.

3.2 Diagrams



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3.3 List

AC Power-Line Conducted Emission Test Site: Conduction 1					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
AC Adapter	Tri-Mag, LLC	L6R24-120	N/A	N/A	N/A
Test Kit	Bots Unlimited	SP-01-EVK	N/A	N/A	N/A
Notebook	HP	HSN-Q35C-4	5CD238GDV5	N/A	N/A
Conducted Emission Test Site: Conducted 2					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
AC Adapter	Tri-Mag, LLC	L6R24-120	N/A	N/A	N/A
Test Kit	Bots Unlimited	SP-01-EVK	N/A	N/A	N/A
Notebook	HP	HSN-Q35C-4	5CD238GDV5	N/A	N/A
Radiated Emission Test Site: SAC 3					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
AC Adapter	Tri-Mag, LLC	L6R24-120	N/A	N/A	N/A
Test Kit	Bots Unlimited	SP-01-EVK	N/A	N/A	N/A
Notebook	HP	HSN-Q35C-4	5CD238GDV5	N/A	N/A

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4 TEST INSTRUMENT

4.1 Conducted Measurement

Conducted Emission Test Site: Conducted 2					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
Attenuator	Mini-Circuits	BW-S10W2+	4	12/11/2024	12/10/2025
DC Block	Titan	T0610A00127A	SNK47008	12/11/2024	12/10/2025
MXA Spectrum Analyzer	KEYSIGHT	N9021B	MY62242004	06/11/2025	06/10/2026
Power Meter	Anritsu	ML2496A	2138003	10/09/2024	10/08/2025
Power Sensor	Anritsu	MA2411B	1911393	10/09/2024	10/08/2025
Power Sensor	Anritsu	MA2411B	1911394	10/09/2024	10/08/2025
Test Software	SGS	Radio Test Software	Ver. 21	N.C.R	N.C.R

4.2 Radiated Measurement

Radiated Emission Test Site: SAC 3					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
4G High Pass Filter	WI	WFKX4.0	22	12/11/2024	12/10/2025
Attenuator	Mini-Circuits	BW-S10W2+	16	12/11/2024	12/10/2025
Band Reject Filter 2400-2483.5	EWT	EWT-14-0166	M2	12/11/2024	12/10/2025
Bi-log Antenna	SCHWARZBECK	VULB9168	378	08/09/2024	08/08/2025
Coaxial Cables	EMCI+Huber Suhner	EMC107-SM-SM-1000 +SUCOFLEX 104PEA +EMC107-SM-SM-1500 +SUCOFLEX 106	RX Cable 9K-18G (221110+MY4251/4PEA+221106+76096/6)	07/14/2025	07/13/2026
Coaxial Cables	Huber Suhner	SUCOFLEX 102	RX Cable 18G-40G MY2630/2+805062/2	07/14/2025	07/13/2026
EMI Test Receiver	R&S	ESCI 7	100759	08/28/2024	08/27/2025
EXA Spectrum Analyzer	KEYSIGHT	N9010B	MY63440386	02/05/2025	02/04/2026
Horn Antenna	SCHWARZBECK	BBHA9170	184	12/20/2024	12/19/2025
Horn Antenna	SCHWARZBECK	BBHA9120D	1441	09/23/2024	09/22/2025
Loop Antenna	COM-POWER	AL-130R	10160104	12/19/2024	12/18/2025
Pre-Amplifier	EMCI	EMC118A45SEE	980868	07/14/2025	07/13/2026
Pre-Amplifier	EMCI	EMC184045SEE	9080939	07/14/2025	07/13/2026
Pre-Amplifier	HP	8447D	2944A07676	07/14/2025	07/13/2026
Site Cal	SGS	SAC 3	N/A	07/14/2025	07/13/2026
Test Software	Audix	e3	Ver. 9.210616	N.C.R	N.C.R

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4.3 Emission from AC power line

AC Power-Line Conducted Emission Test Site: Conduction 1					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL. (mm/dd/yyyy)	CAL DUE. (mm/dd/yyyy)
Coaxial Cables	EMC Instruments Corp.	EMCCFD300-BM-BM-3000	161207	06/22/2025	06/21/2026
EMI Test Receiver	R&S	ESCI 7	100759	08/28/2024	08/27/2025
LISN	SCHWARZBECK	NSLK 8127	1040	09/07/2024	09/06/2025
Pulse Limiter	SCHWARZBECK	VTSD 9561F-N	793	06/22/2025	06/21/2026
Test Software	Audix	e3	Ver. 9.210616	N.C.R	N.C.R

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

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5 REGULATORY REQUIREMENTS

5.1 Emission Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

5.2 Duty Cycle

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.

5.3 Maximum Output Power

FCC

For systems using digital modulation in the 2400-2483.5 MHz bands, the limit for peak output power is 1Watt.

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.

ISED

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, except a) and b).

- a. Fixed point-to-point systems are permitted to have an e.i.r.p. higher than 4 W provided that the higher e.i.r.p. is achieved by employing higher gain directional antennas and not higher transmitter output powers.
- b. Point-to-multipoint, omnidirectional applications and multiple co-located transmitters, transmitting the same information are prohibited from exceeding an e.i.r.p. of 4 W. However, remote stations of point-to-multipoint systems shall be permitted to operate at an e.i.r.p. greater than 4 W under the same conditions as for fixed point-to-point systems under a).

5.4 Maximum Power Spectral Density

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission. The power spectral density shall be determined using the same method as is used to determine the maximum conducted output power.

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5.5 Out of Band Emission

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. If the transmitter complies with the conducted power limits based on the use of RMS aver-aging over a time interval, the attenuation required under this paragraph shall be 30 dB in-stead of 20 dB.

In addition, radiated emissions which fall in restricted bands must also comply with the radiated emission limits applicable to those bands.

5.6 Unwanted Emissions

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. 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 in-stead of 20 dB.

In addition, radiated emissions which fall in the restricted bands must also comply with the applicable radiated emission limits as defined in the general emission limit tables.

Moreover, for an intentional radiator operating below 10 GHz, the frequency range of measurements shall extend up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, 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: The lower limit shall apply at the transition frequencies.

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5.7 AC Power Line Conducted Emission

Frequency range within 150kHz to 30MHz shall not exceed the Limit table as below.

Frequency range MHz	Limits (dBuV)	
	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

Note

- 1.The lower limit shall apply at the transition frequencies
- 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

5.8 Antenna Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§ 15.211, 15.213, 15.217, 15.219, 15.221, or § 15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

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6 TEST CONFIGURATION

6.1 Emission Bandwidth



Place the EUT on the table and set it in transmitting mode.

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

6dB BW measurements

The testing is performed in accordance with the applicable regulatory measurement procedure.

Set the spectrum analyzer as

RBW= 100 kHz,

VBW = 3 X RBW,

Span= 2 to 5 times of the OBW,

Sweep=Auto, Detector = Peak, and Trace mode = Max Hold.

Mark the upper and lower frequencies of -6dB.

Repeat above procedures until all test default channel is completed.

99% BW measurements

The testing is performed in accordance with the applicable regulatory measurement procedure.

Set the spectrum analyzer as

RBW= 1 % to 5% of 99% Bandwidth,

VBW \geq 3 X RBW

Span= large enough to capture all products of the modulation process

Sweep=Auto, Detector = Peak, and Trace mode = Max Hold.

Mark the upper and lower frequencies of 99%. Repeat above procedures until all test default channel is completed.

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6.2 Maximum Output Power

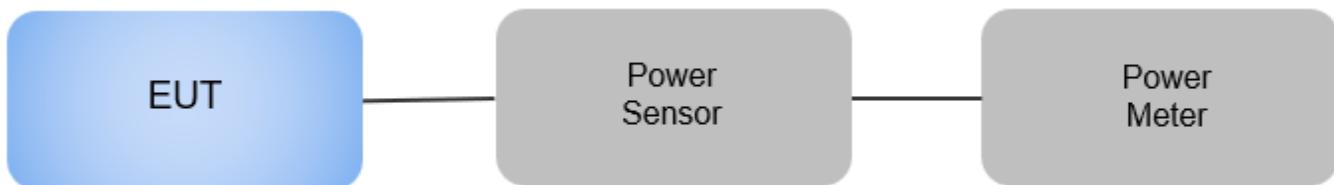
6.2.1 Duty Cycle



Set the spectrum analyzer as

Span = Zero,
RBW = 8 MHz,
VBW = 8 MHz,
Detector = Peak,

6.2.2 Output Power



Place the EUT on the table and set it to transmit mode.

The testing was performed in accordance with the applicable measurement procedure.

Remove the antenna from the EUT and connect a low-loss RF cable from the antenna port to the power meter.

Record the maximum reading as observed from the power meter.

Repeat the above procedures until all default test channels have been measured.

Note: The duty cycle factor is applied to obtain the average measurement corrected to its maximum equivalent.

Note: when the antenna gain is greater than 6 dBi, the power limit attenuated accordingly.

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6.3 Maximum Power Spectral Density



The test is conducted in accordance with the applicable regulatory measurement procedure.

Set spectrum analyzer center frequency to DTS channel center frequency.

Set the span to 1.5 times the DTS channel bandwidth.

Set the RBW = 3 kHz and VBW = 10 kHz.

Detector = Peak.

Sweep time = Auto Couple.

Trace mode = Max Hold.

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level.

*Note: When the antenna gain is greater than 6 dBi, the power spectral density limit attenuated accordingly.

6.4 Out of Band Emission



6.4.1 Reference Level of Emission Limit

The testing is performed in accordance with the applicable measurement procedure.

Set the analyzer center frequency to the DTS channel center frequency.

Set the span to 1.5 times the DTS channel bandwidth.

Set RBW = 100 kHz and VBW = 300 kHz.

Detector = Peak.

Sweep time = Auto Couple.

Trace mode = Max Hold.

Allow the trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level.

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6.4.2 Conducted Band Edge

The testing is performed in accordance with the applicable measurement procedure.

Connect the antenna port of the EUT to the spectrum analyzer.

Remove the antenna from the EUT and connect a low-loss RF cable from the antenna port to the spectrum analyzer.

Set the start frequency and stop frequency of the spectrum analyzer to encompass the spectrum to be examined.

Configure the spectrum analyzer as follows:

RBW = 100 kHz

VBW = 300 kHz

Detector = Peak

Sweep = Auto

Mark the highest reading of the emission as the reference level.

Set the display limit as: reference level marker reading minus 20 dBm.

Mark the highest emissions observed outside of the 2400 MHz to 2483.5 MHz band.

Repeat the above procedure for each default test channel (low, middle, and high).

6.4.3 Conducted Spurious Emission:

The testing is performed in accordance with the applicable measurement procedure.

Connect the antenna port of the EUT to the spectrum analyzer.

Configure the spectrum analyzer as follows:

RBW = 100 kHz

VBW = 300 kHz

Detector = Peak

Sweep = Auto.

Allow the trace to fully stabilize.

Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental emission bandwidth (EBW).

Repeat the above procedures until all default test channels (low, middle, and high) have been measured.

6.5 Unwanted Emission

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.

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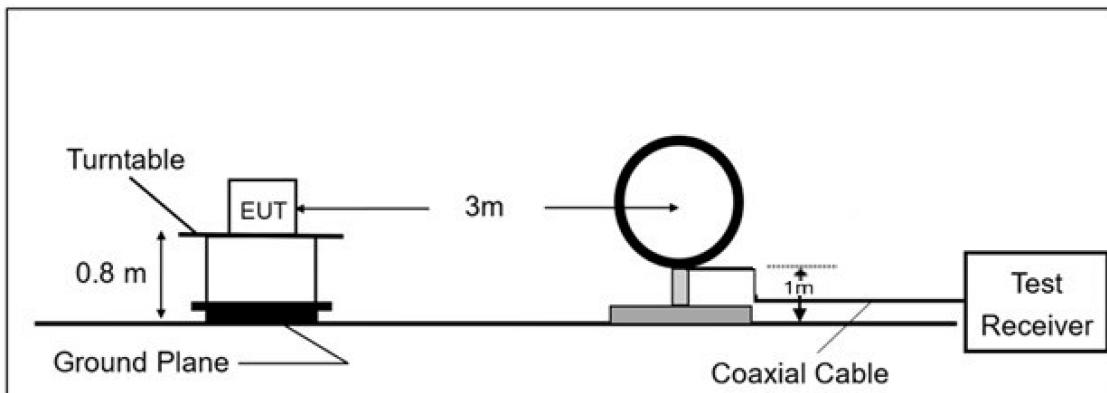
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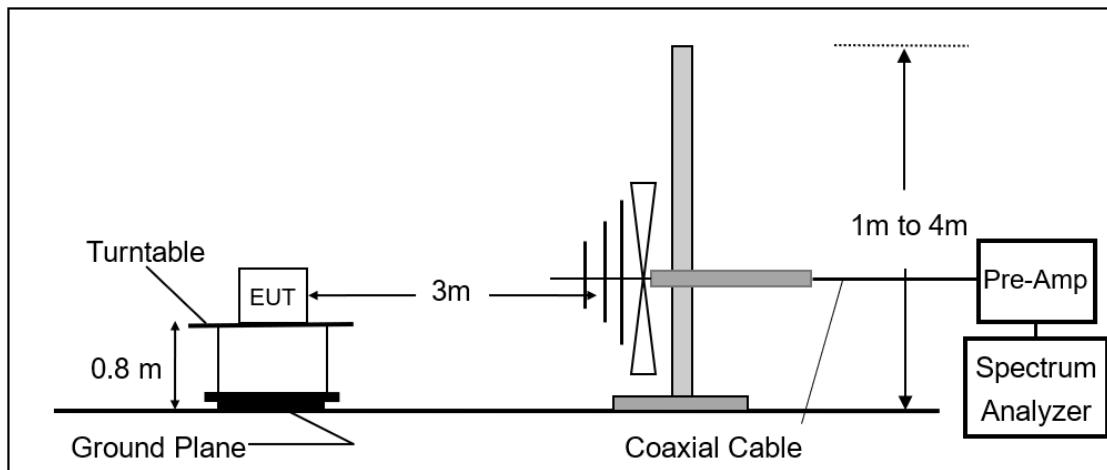
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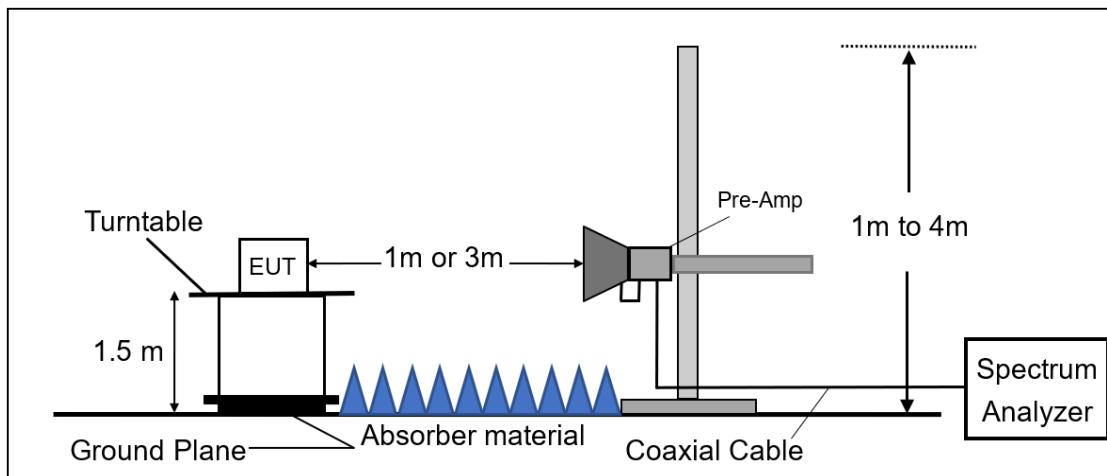
Radiated Emission Test Set-Up, Frequency Below 30MHz.



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



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



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Radiated emissions below 30 MHz were measured in a 9 m x 6 m x 6 m semi-anechoic chamber. The measurement results are equivalent to those obtained at an open-area test site (OATS).

A comparison between data measured at the open-area test site and the semi-anechoic chamber shows very similar results.

1. The testing was performed in accordance with the applicable radiated emission measurement procedure.
2. The EUT was placed on a turntable at a height of 0.8 m for frequencies below 1 GHz and 1.5 m for frequencies above 1 GHz.
3. The turntable was rotated 360 degrees to determine the position of the maximum emission level.
4. The EUT was positioned 3 meters away from the receiving antenna, which was varied in height from 1 m to 4 m to locate the highest emissions.
5. The spectrum analyzer was set with RBW = 100 kHz and VBW = 300 kHz, using a Peak detector for frequencies between 30 MHz and 1 GHz.
6. A receiver mode with RBW = 120 kHz was used for Quasi-Peak (QP) measurements between 30 MHz and 1 GHz.
7. For frequencies above 1 GHz, the spectrum analyzer was set with RBW = 1 MHz, VBW = 3 MHz, and Detector = Peak for maximum emission measurements.
8. For average emission measurements above 1 GHz where the duty cycle (D) is $\geq 98\%$, the analyzer was set with RBW = 1 MHz, VBW = 3 MHz, and the RMS detector with correction factor $[10 \log(1/D)]$. If the emission is continuous ($D \geq 98\%$) and does not switch ON/OFF with the transmit cycle, then no duty cycle correction is required.
9. For average emission measurements above 1 GHz where $D < 98\%$, the analyzer was set with RBW = 1 MHz and VBW $\geq 1/T$.
10. When measuring radiated emissions above 1 GHz, the receiving antenna was maintained within the "cone of radiation" and pointed at the emission source in both azimuth and elevation, with polarization oriented for maximum response, ensuring it remained within the 3 dB illumination beamwidth of the measurement antenna.
11. The six highest emissions were fully maximized using the above procedures to ensure EUT compliance.
12. Each emission was further maximized by changing the receiving antenna polarization between horizontal and vertical.
13. Repeat the above procedures until all default test channels (low, middle, and high) are measured.

Note: Emissions from 9 kHz to 30 MHz were pre-scanned and found to be at least 20 dB below the applicable limits, and are therefore not reported.

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6.5.1 Field Strength Calculation

The field strength is calculated by adding the antenna factor and cable loss, then subtracting the amplifier gain and any applicable duty cycle correction factor from the measured reading.

The basic equation and an example calculation are as follows:

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

Where:

FS = Field Strength (dB μ V/m)

RA = Reading Amplitude (dB μ V)

AF = Antenna Factor (dB/m)

CL = Cable Loss (dB)

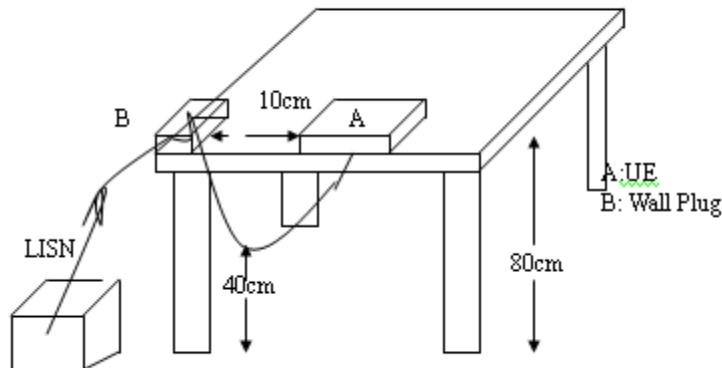
AG = Amplifier Gain (dB)

The emission limit is expressed in dB μ V/m, which corresponds to the logarithmic conversion of $20 \times \log_{10} (\mu\text{V}/\text{m})$.

Actual Field Strength (dB μ V/m) = Spectrum Analyzer Reading (dB μ V) + Total Factor (dB)

Total Factor (dB) = Antenna Factor (dB) + Cable Loss (dB) - Preamplifier Gain (dB)

6.6 AC Power Line Conducted Emission



The conducted emission tests were performed at the designated test site using a setup in accordance with the applicable version of ANSI C63.10.

1. The EUT was placed on a non-conductive table that is 0.8 meters above the ground plane. Conducted emissions were measured in the frequency range from 0.15 MHz to 30 MHz using CISPR Quasi-Peak and Average detector modes. Two LISNs were used to provide 50 μ H / 50 ohm coupling impedance to the measuring instrument. Both lines of the AC power mains connected to the EUT were evaluated to identify the maximum conducted interference.
2. The AC/DC power adapter of the EUT was connected to the LISN. The EUT was positioned flush with the rear edge of the table, maintaining at least 0.4 meters of separation from the shielding wall.

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3. The LISNs were connected to the power source and configured in accordance with the test requirements.
4. The maximum emission levels were investigated for each operating mode. The six highest emissions were further maximized to ensure compliance.
5. The above procedures were repeated for all applicable power supply configurations of the EUT.

Calculation Formula:

Level = Read Level + Factor

Factor = LISN/ISN/Current Probe Factor + Cable Loss + Attenuator

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7 TEST RESULTS

7.1 Emission Bandwidth

7.1.1 6dB BW measurements

BLE 1M mode

Frequency (MHz)	6dB BW (MHz)	Required BW (MHz)	Result
2402	0.6969	≥ 0.5	PASS
2442	0.6908	≥ 0.5	PASS
2480	0.7035	≥ 0.5	PASS

BLE 2M mode

Frequency (MHz)	6dB BW (MHz)	Required BW (MHz)	Result
2402	1.157	≥ 0.5	PASS
2442	1.157	≥ 0.5	PASS
2480	1.158	≥ 0.5	PASS

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7.1.2 99% Bandwidth

BLE 1M mode

Frequency (MHz)	99%Bandwidth (MHz)
2402	1.0225
2442	1.0230
2480	1.0224

BLE 2M mode

Frequency (MHz)	99%Bandwidth (MHz)
2402	2.0400
2442	2.0394
2480	2.0390

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7.2 Duty Factor:

Mode	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	33.60	4.74	4.76	5.00



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7.3 Maximum Output Power

7.3.1 Peak & Avg

BLE 1M mode:

CH	Frequency (MHz)	Power Setting	Peak Output Power (dBm)	Required Limit (dBm)
0	2402	13	7.53	29.38
20	2442	13	7.31	29.38
39	2480	13	7.24	29.38
CH	Frequency (MHz)	Power Setting	Avg. Output Power (dBm)	Required Limit (dBm)
0	2402	13	7.42	29.38
20	2442	13	7.23	29.38
39	2480	13	7.14	29.38

*Note:

1. **Measured by power meter, cable loss 10.88 dB + Duty cycle factor has been offset to the power meter for Avg. power and cable loss has been offset for Peak power measurement.**
2. **The antenna gain is grater than 6 dBi, therefore the power limit attenuation has been applied in the test results. 30-(antenna gain-6)=29.38**

BLE 2M mode:

CH	Frequency (MHz)	Power Setting	Peak Output Power (dBm)	Required Limit (dBm)
0	2402	13	7.52	29.38
20	2442	13	7.37	29.38
39	2480	13	7.34	29.38
CH	Frequency (MHz)	Power Setting	Avg. Output Power (dBm)	Required Limit (dBm)
0	2402	13	7.23	29.38
20	2442	13	7.11	29.38
39	2480	13	7.09	29.38

*Note:

1. **Measured by power meter, cable loss 10.88 dB + Duty cycle factor has been offset to the power meter for Avg. power and cable loss has been offset for Peak power measurement.**
2. **The antenna gain is grater than 6 dBi, therefore the power limit attenuation has been applied in the test results. 30-(antenna gain-6)=29.38**

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7.3.2 EIRP

EIRP BLE 1M mode

CH	Frequency (MHz)	Power Setting	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit
0	2402	13	7.42	6.62	14.04	4W= 35.38 dBm
20	2442	13	7.23	6.62	13.85	4W= 35.38 dBm
39	2480	13	7.14	6.62	13.76	4W= 35.38 dBm

* Note: EIRP = Average Power + Gain

EIRP BLE 2M mode

CH	Frequency (MHz)	Power Setting	Avg. Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit
0	2402	13	7.23	6.62	13.85	4W= 35.38 dBm
20	2442	13	7.11	6.62	13.73	4W= 35.38 dBm
39	2480	13	7.09	6.62	13.71	4W= 35.38 dBm

* Note: EIRP = Average Power + Gain

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7.4 Maximum Power Spectral Density

BLE 1M mode

Frequency (MHz)	RF Power Density (dBm/3kHz)	Maximum Limit (dBm/3kHz)	Result
2402	-8.12	7.38	PASS
2442	-8.36	7.38	PASS
2480	-8.44	7.38	PASS

***Note:**

1. *cable loss as 10.88dB that offsets in the spectrum*
2. *The antenna gain is grater than 6 dBi, therefore the power density limit attenuation has been applied in the test results. 8-(antenna gain-6)=7.38*

BLE 2M mode

Frequency (MHz)	RF Power Density (dBm/3kHz)	Maximum Limit (dBm/3kHz)	Result
2402	-11.20	7.38	PASS
2442	-11.46	7.38	PASS
2480	-11.48	7.38	PASS

***Note:**

1. *cable loss as 10.88dB that offsets in the spectrum*
2. *The antenna gain is grater than 6 dBi, therefore the power density limit attenuation has been applied in the test results. 8-(antenna gain-6)=7.38*

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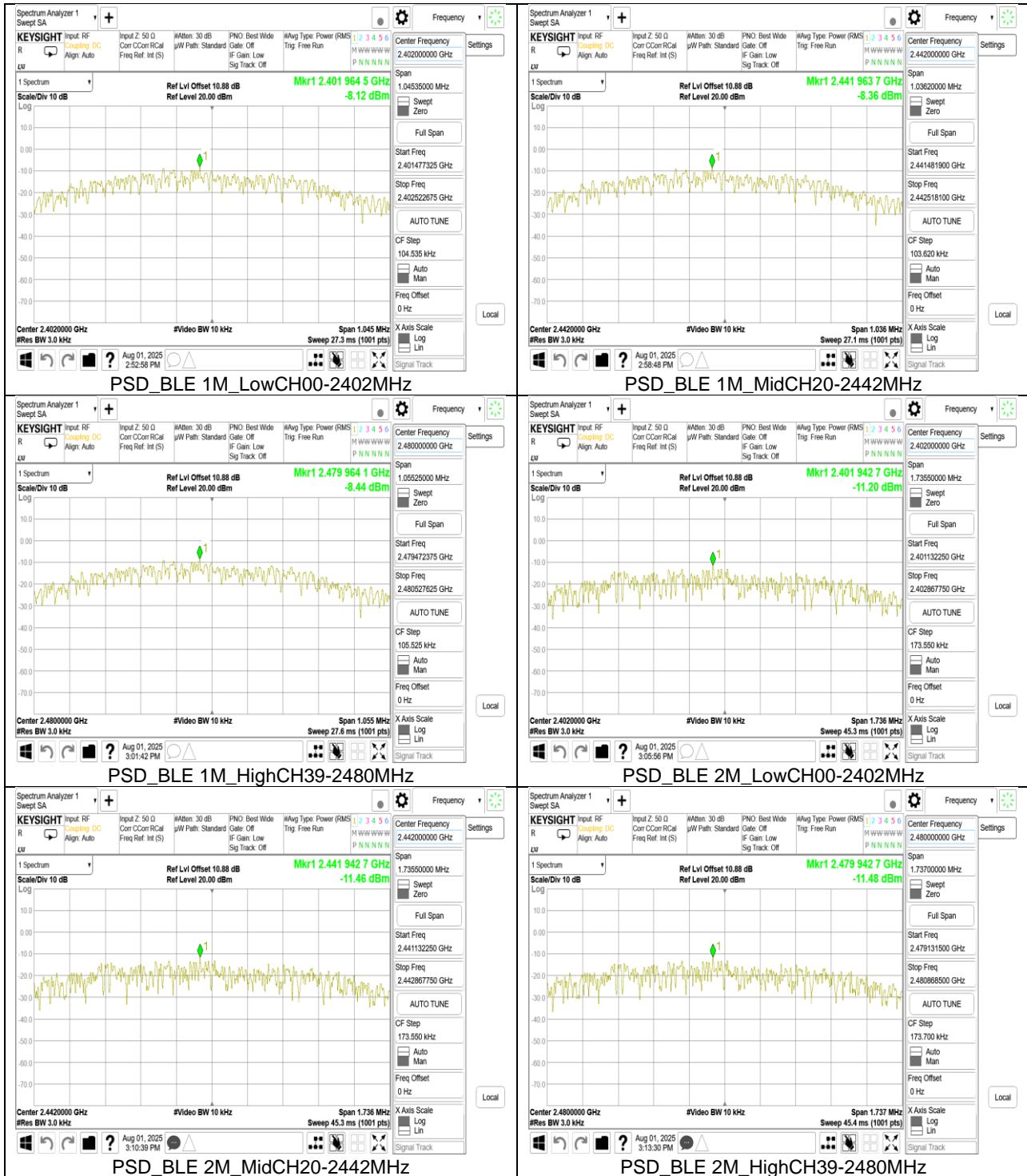
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7.5 Out of Band Emission

BLE 1M_Reference Level of Limit

Frequency (MHz)	RF Power Density (dBm)	Reference Level of Limit = PSD - 20dB (dBm)
2402	6.59	-13.41
2442	6.46	-13.54
2480	6.33	-13.67

*Note:

- 1.cable loss as 10.88dB that offsets in the spectrum
- 2.Refer to next page for plots.

BLE 2M_Reference Level of Limit

Frequency (MHz)	RF Power Density (dBm)	Reference Level of Limit = PSD - 20dB (dBm)
2402	6.62	-13.38
2442	6.44	-13.56
2480	6.39	-13.61

*Note:

- 1.cable loss as 10.88dB that offsets in the spectrum
- 2.Refer to next page for plots.

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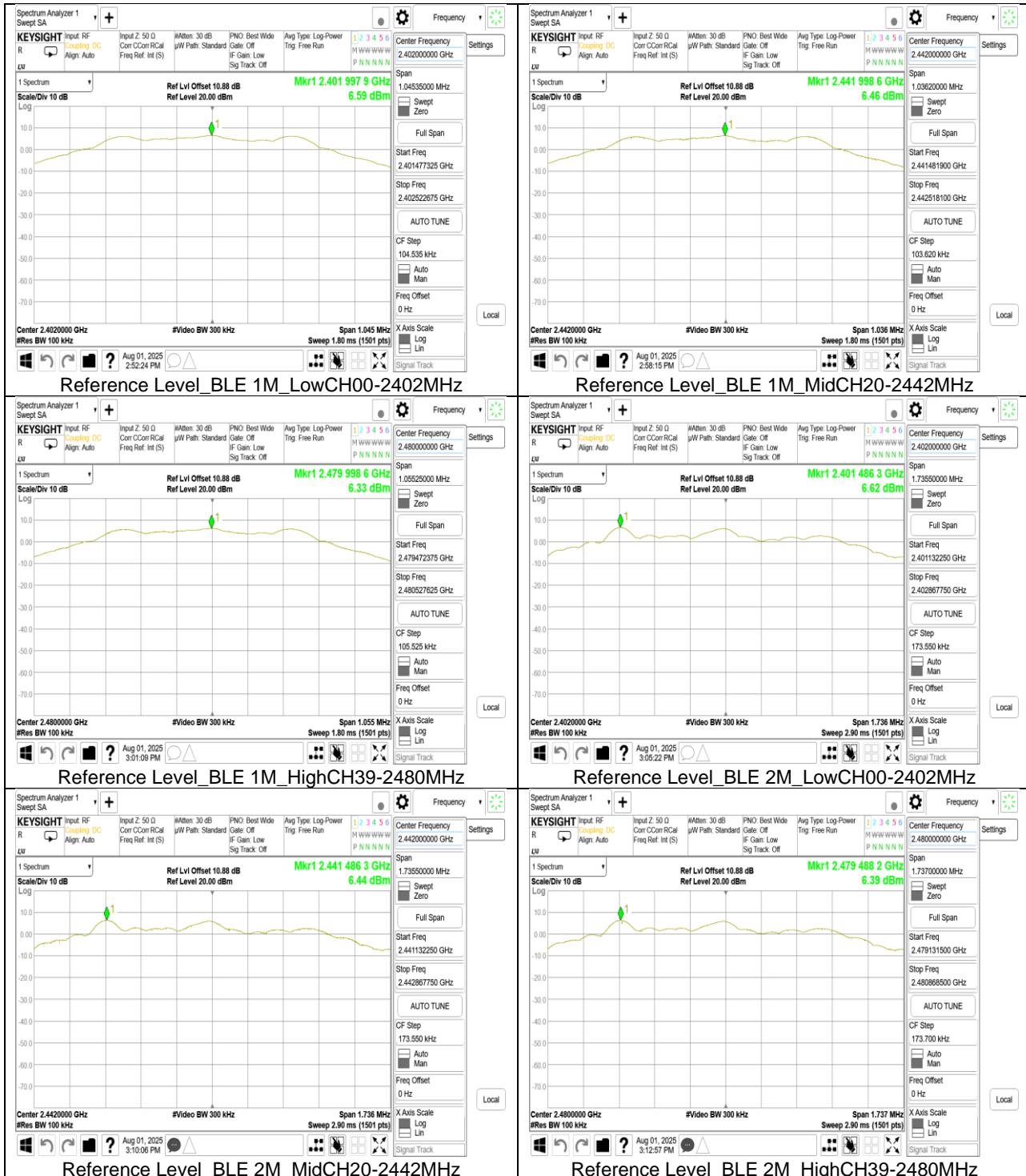
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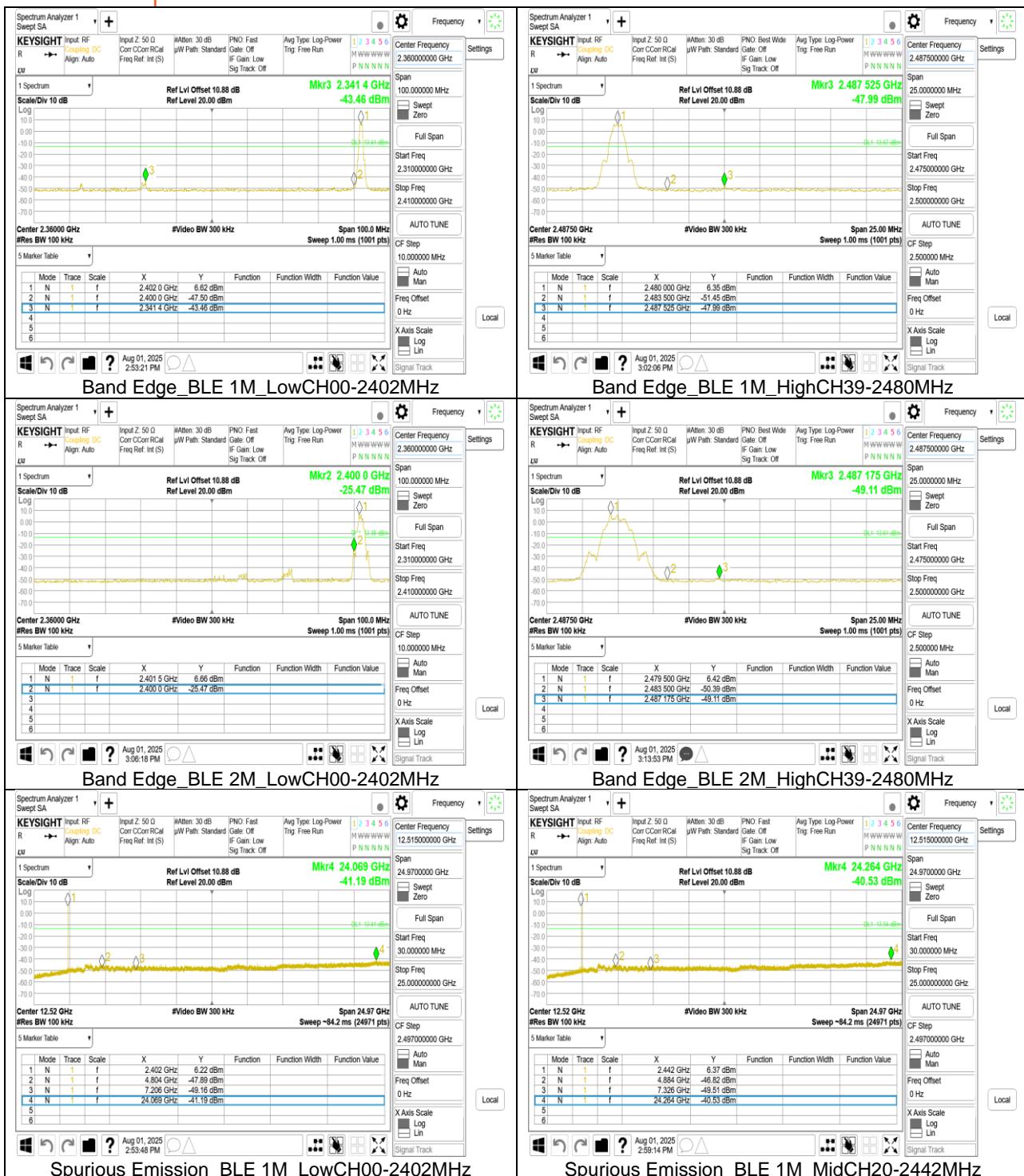
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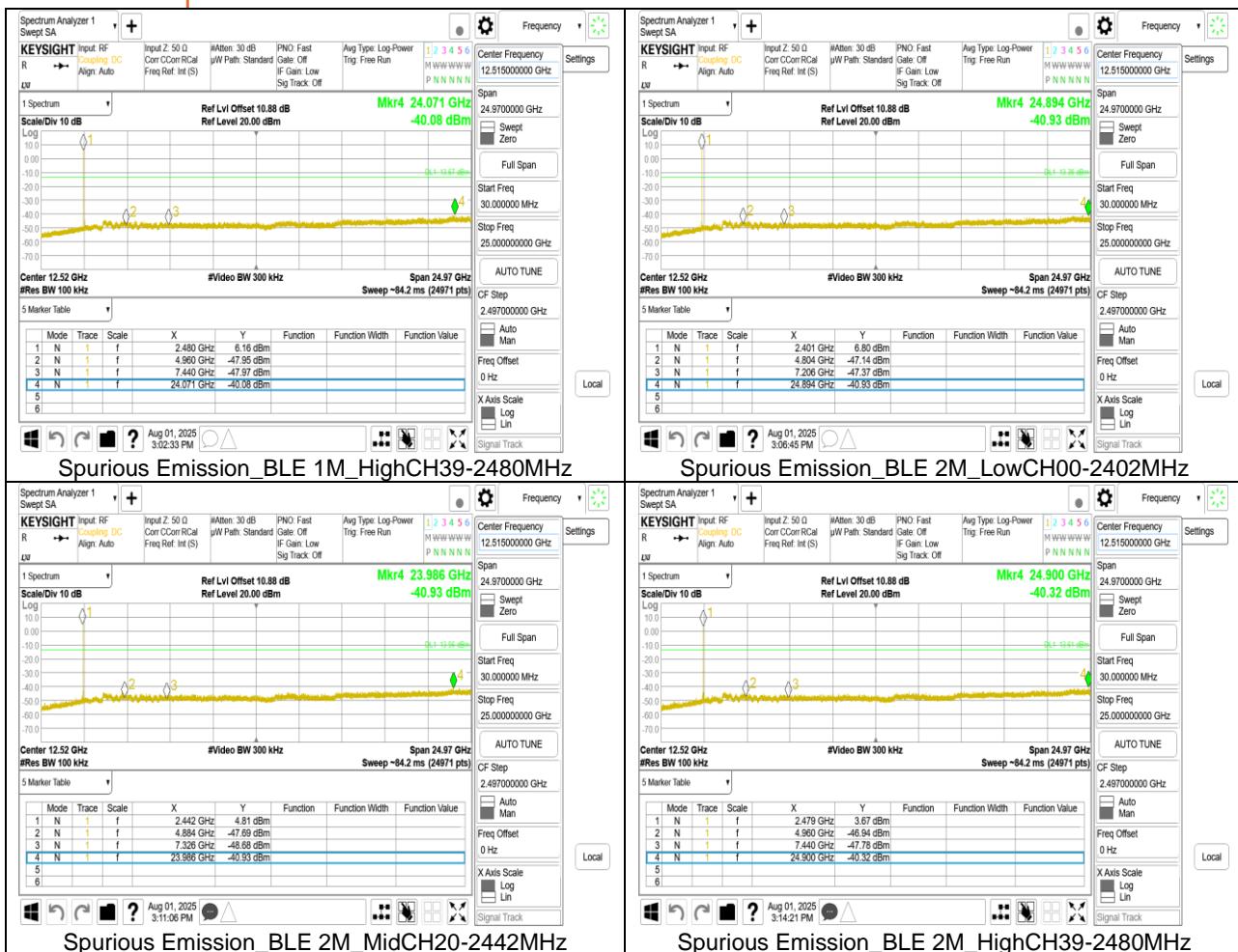
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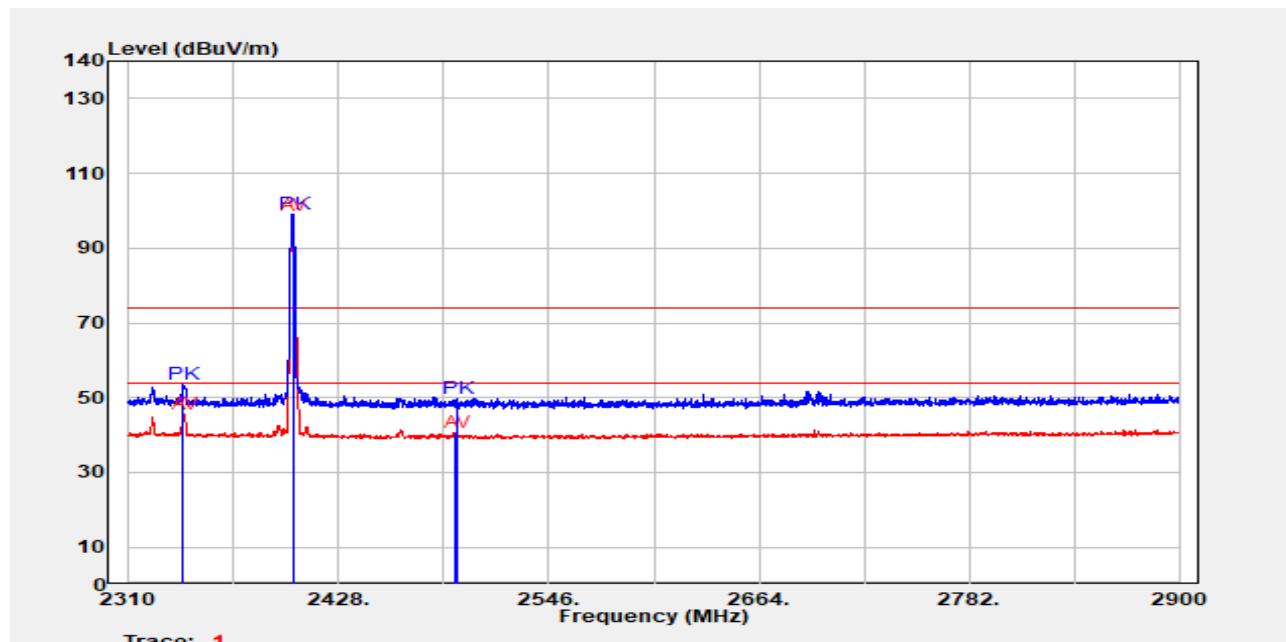
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7.6 Unwanted Emissions

7.6.1 Radiated Band Edge Measurement Result

Report Number	:TERF2506001927ER	Test Site	:SAC 3
Operation Mode	:BLE 1M	Test Date	:2025-07-29
Test Frequency	:2402 MHz	Temp./Humi.	:24.3°C/65%
Test Mode	:Bandedge	Antenna Pol.	:Vertical
EUT Pol	:H Plane	Engineer	:Nick Lin



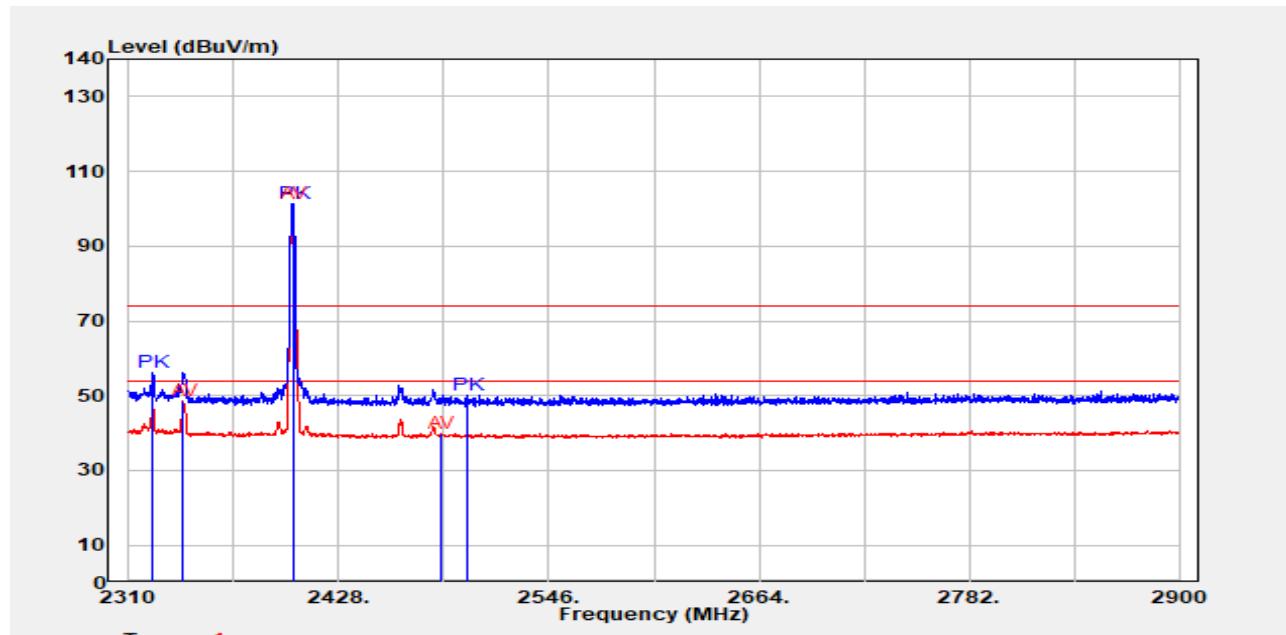
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
2340.49	Peak	58.02	-4.36	53.66	74.00	-20.34
2340.49	Average	49.77	-4.36	45.41	54.00	-8.59
2402.00	Peak	103.37	-4.50	98.87	-	-
2402.00	Average	103.24	-4.50	98.74	-	-
2493.55	Average	45.33	-4.78	40.55	54.00	-13.45
2493.95	Peak	54.65	-4.78	49.87	74.00	-24.13

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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 1M Test Date :2025-07-29
 Test Frequency :2402 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Bandedge Antenna Pol. :Horizontal
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
2323.57	Peak	60.60	-4.33	56.27	74.00	-17.73
2340.49	Average	52.78	-4.36	48.42	54.00	-5.58
2402.00	Peak	105.97	-4.50	101.47	-	-
2402.00	Average	105.69	-4.50	101.19	-	-
2485.49	Average	44.55	-4.77	39.78	54.00	-14.22
2499.65	Peak	54.84	-4.78	50.06	74.00	-23.94

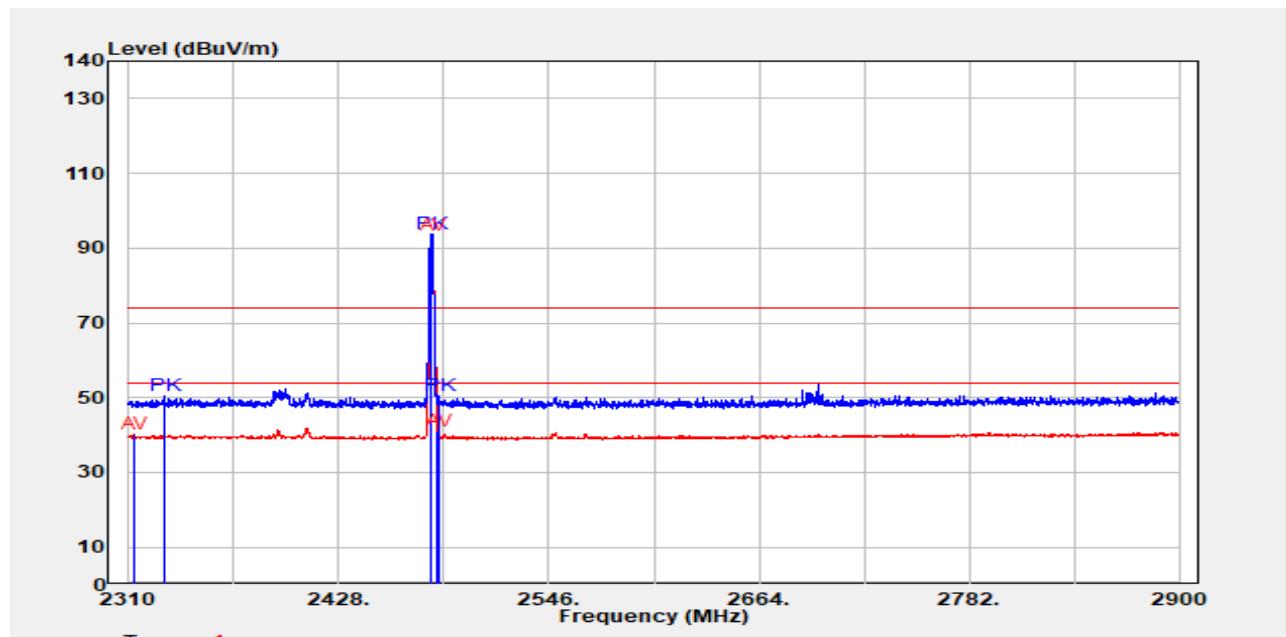
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 1M Test Date :2025-07-29
 Test Frequency :2480 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Bandedge Antenna Pol. :Vertical
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
2312.56	Average	44.49	-4.30	40.19	54.00	-13.81
2329.48	Peak	54.92	-4.33	50.59	74.00	-23.41
2480.00	Peak	98.39	-4.76	93.63	-	-
2480.00	Average	98.15	-4.76	93.39	-	-
2483.50	Average	45.77	-4.77	41.00	54.00	-13.00
2484.31	Peak	55.07	-4.77	50.30	74.00	-23.70

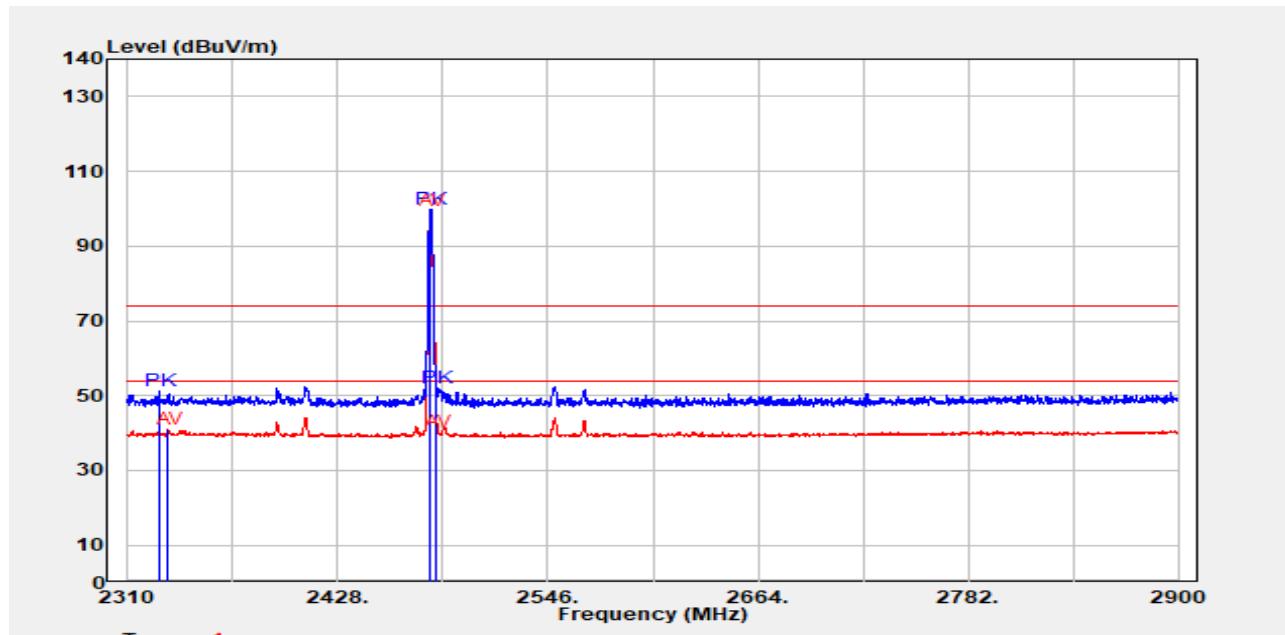
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 1M Test Date :2025-07-29
 Test Frequency :2480 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Bandedge Antenna Pol. :Horizontal
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
2327.51	Peak	55.50	-4.33	51.17	74.00	-22.83
2332.62	Average	45.33	-4.35	40.98	54.00	-13.02
2480.00	Peak	104.39	-4.76	99.63	-	-
2480.00	Average	104.04	-4.76	99.28	-	-
2483.50	Peak	56.67	-4.77	51.90	74.00	-22.10
2483.50	Average	44.95	-4.77	40.18	54.00	-13.82

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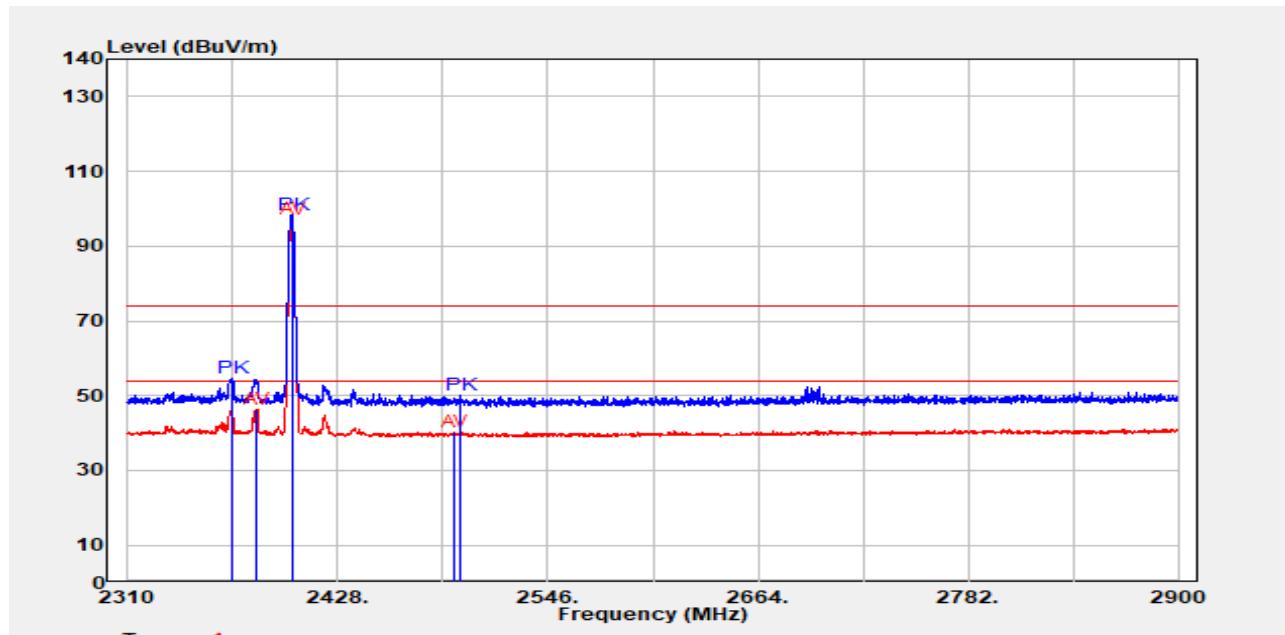
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 2M Test Date :2025-07-29
 Test Frequency :2402 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Bandedge Antenna Pol. :Vertical
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
2369.02	Peak	58.96	-4.43	54.53	74.00	-19.47
2382.00	Average	50.91	-4.45	46.46	54.00	-7.54
2402.00	Peak	102.85	-4.50	98.35	-	-
2402.00	Average	101.82	-4.50	97.32	-	-
2493.35	Average	45.13	-4.78	40.35	54.00	-13.65
2496.31	Peak	54.70	-4.77	49.93	74.00	-24.07

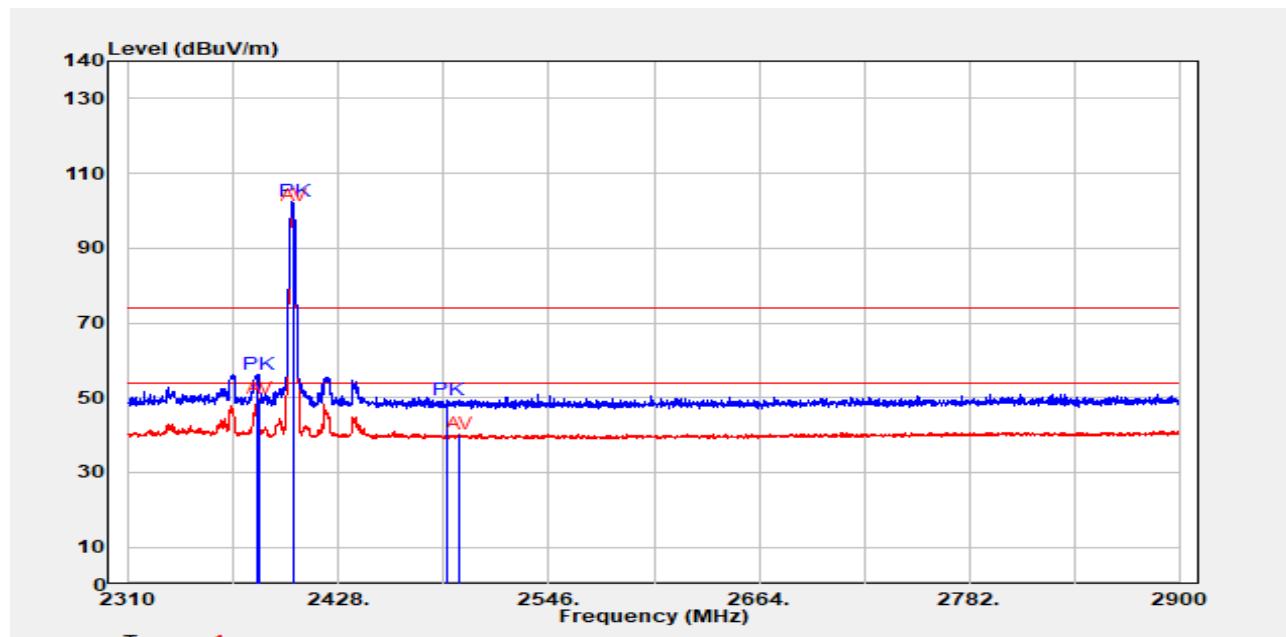
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 2M Test Date :2025-07-29
 Test Frequency :2402 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Bandedge Antenna Pol. :Horizontal
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
2382.40	Peak	60.72	-4.45	56.27	74.00	-17.73
2382.79	Average	54.07	-4.46	49.61	54.00	-4.39
2402.00	Peak	106.78	-4.50	102.28	-	-
2402.00	Average	105.63	-4.50	101.13	-	-
2488.63	Peak	54.25	-4.77	49.48	74.00	-24.52
2495.13	Average	44.99	-4.78	40.21	54.00	-13.79

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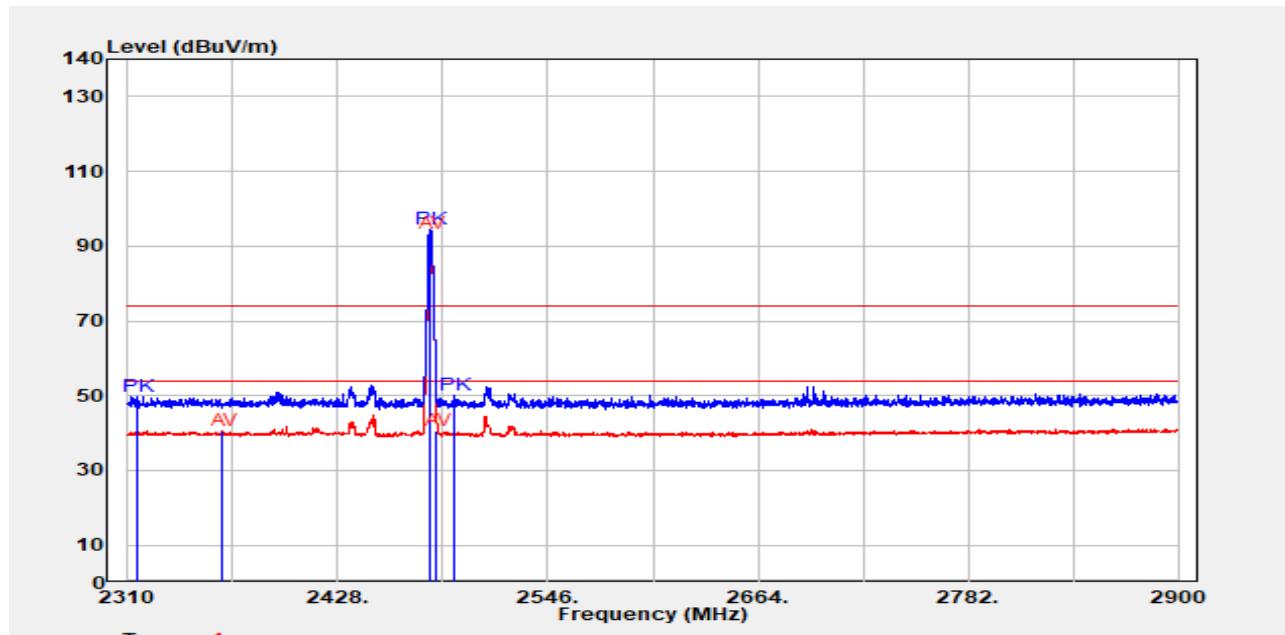
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 2M Test Date :2025-07-29
 Test Frequency :2480 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Bandedge Antenna Pol. :Vertical
 EUT Pol :H Plane Engineer :Nick Lin



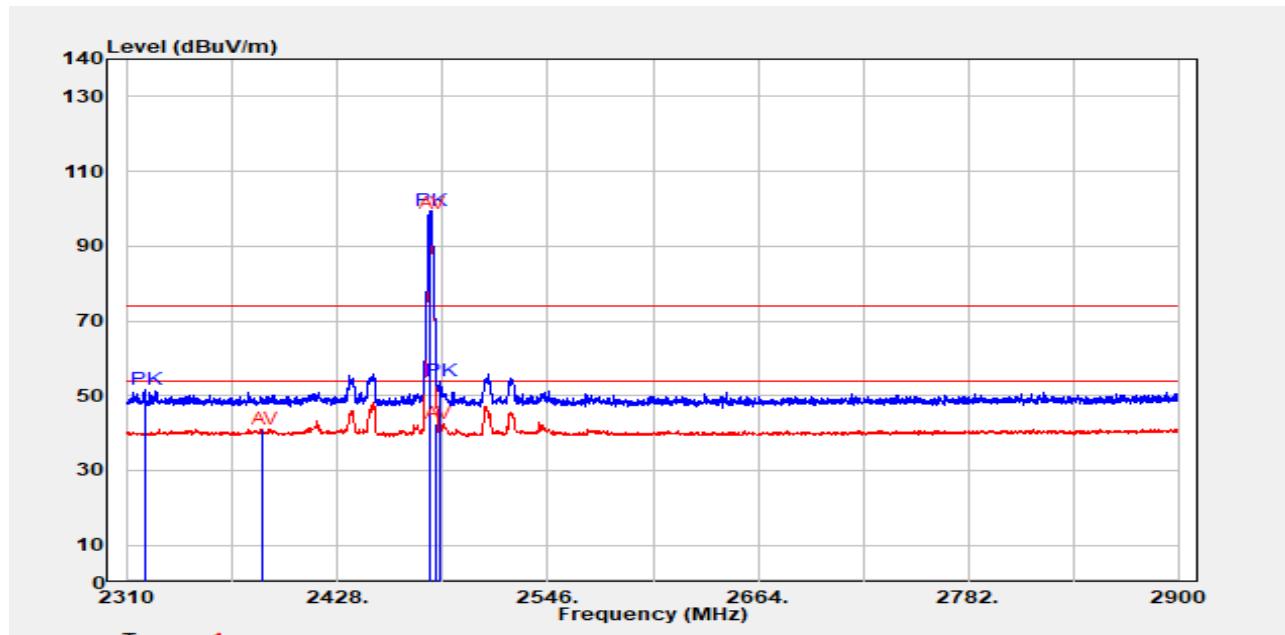
Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
2314.72	Peak	54.07	-4.30	49.77	74.00	-24.23
2363.31	Average	44.97	-4.41	40.56	54.00	-13.44
2480.00	Peak	99.06	-4.76	94.30	-	-
2480.00	Average	98.00	-4.76	93.24	-	-
2483.50	Average	45.42	-4.77	40.65	54.00	-13.35
2493.16	Peak	54.76	-4.78	49.98	74.00	-24.02

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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 2M Test Date :2025-07-29
 Test Frequency :2480 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Bandedge Antenna Pol. :Horizontal
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
2319.84	Peak	55.85	-4.32	51.53	74.00	-22.47
2385.74	Average	45.46	-4.46	41.00	54.00	-13.00
2480.00	Peak	104.32	-4.76	99.56	-	-
2480.00	Average	103.28	-4.76	98.52	-	-
2483.50	Average	47.42	-4.77	42.65	54.00	-11.35
2485.09	Peak	58.77	-4.77	54.00	74.00	-20.00

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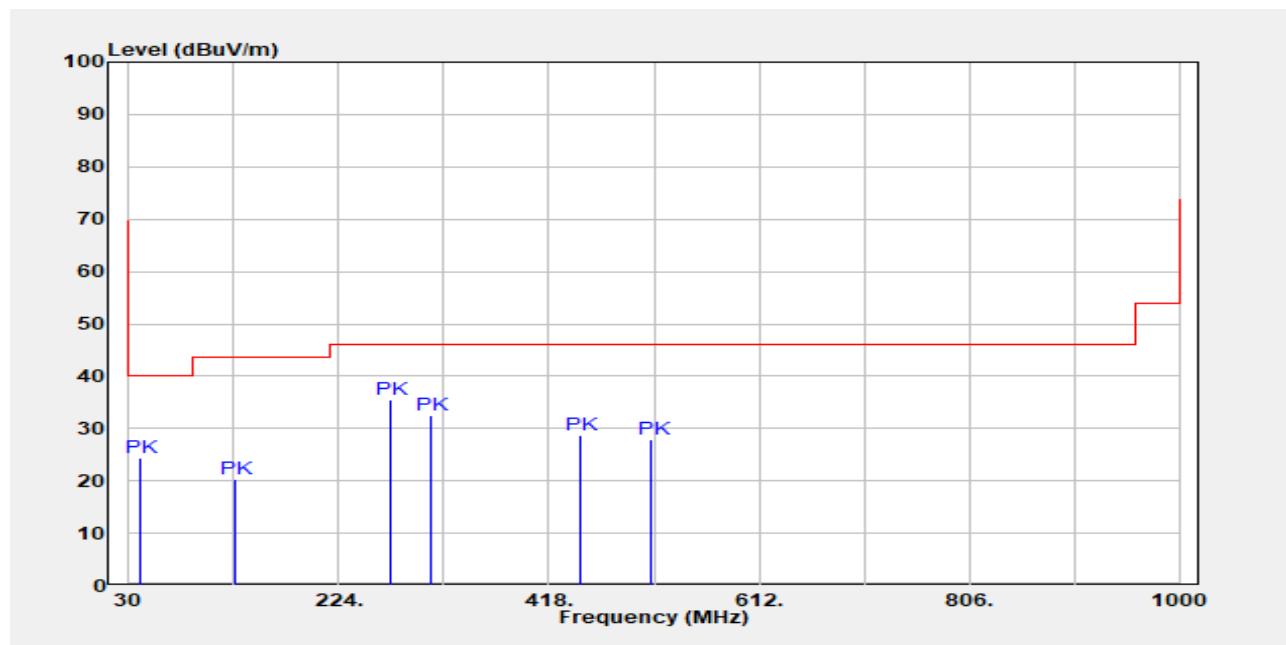
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7.6.2 Spurious Emission

Report Number :TERF2506001927ER
 Operation Mode :BLE 1M
 Test Frequency :2442 MHz
 Test Mode :Tx
 EUT Pol :H Plane

Test Site :SAC 3
 Test Date :2025-07-29
 Temp./Humi. :24.3°C/65%
 Antenna Pol. :Vertical
 Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
40.67	Peak	34.01	-9.53	24.48	40.00	-15.52
127.97	Peak	30.68	-10.29	20.39	43.50	-23.11
272.50	Peak	43.63	-8.16	35.47	46.00	-10.53
308.39	Peak	39.70	-7.09	32.61	46.00	-13.39
446.13	Peak	33.09	-4.46	28.63	46.00	-17.37
513.06	Peak	31.68	-3.66	28.02	46.00	-17.98

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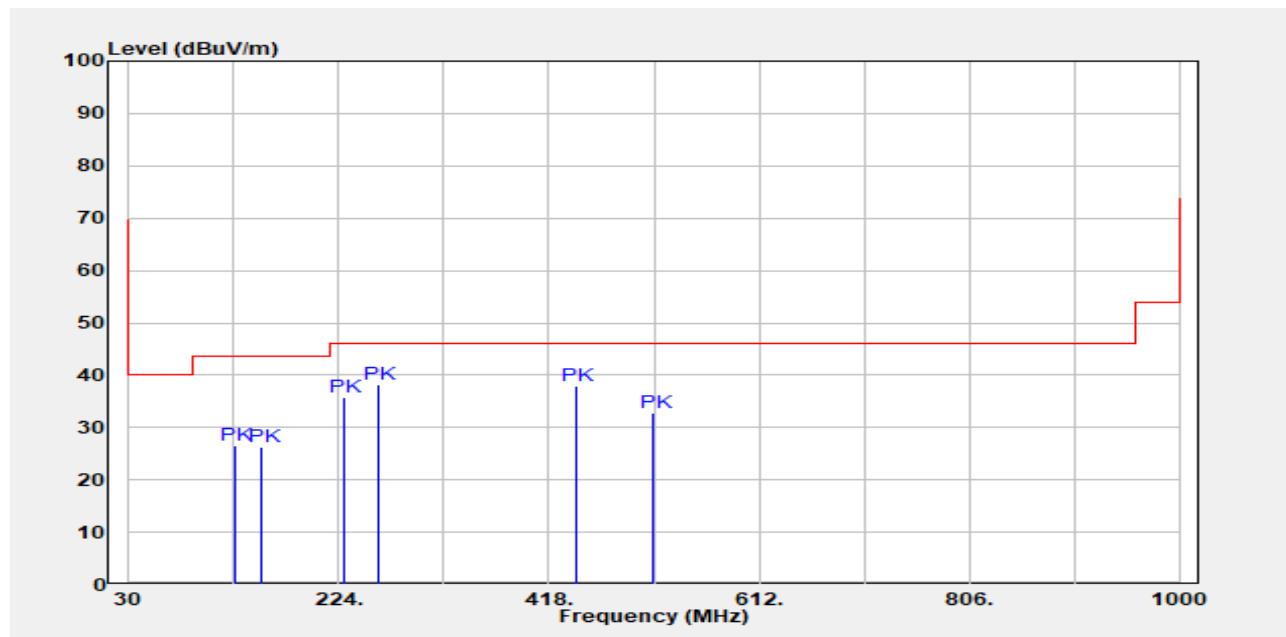
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 1M Test Date :2025-07-29
 Test Frequency :2442 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Tx Antenna Pol. :Horizontal
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
127.97	Peak	36.86	-10.29	26.57	43.50	-16.93
153.19	Peak	34.69	-8.42	26.27	43.50	-17.23
227.88	Peak	45.82	-9.94	35.88	46.00	-10.12
259.89	Peak	46.86	-8.62	38.24	46.00	-7.76
443.22	Peak	42.43	-4.52	37.91	46.00	-8.09
515.00	Peak	36.37	-3.63	32.74	46.00	-13.26

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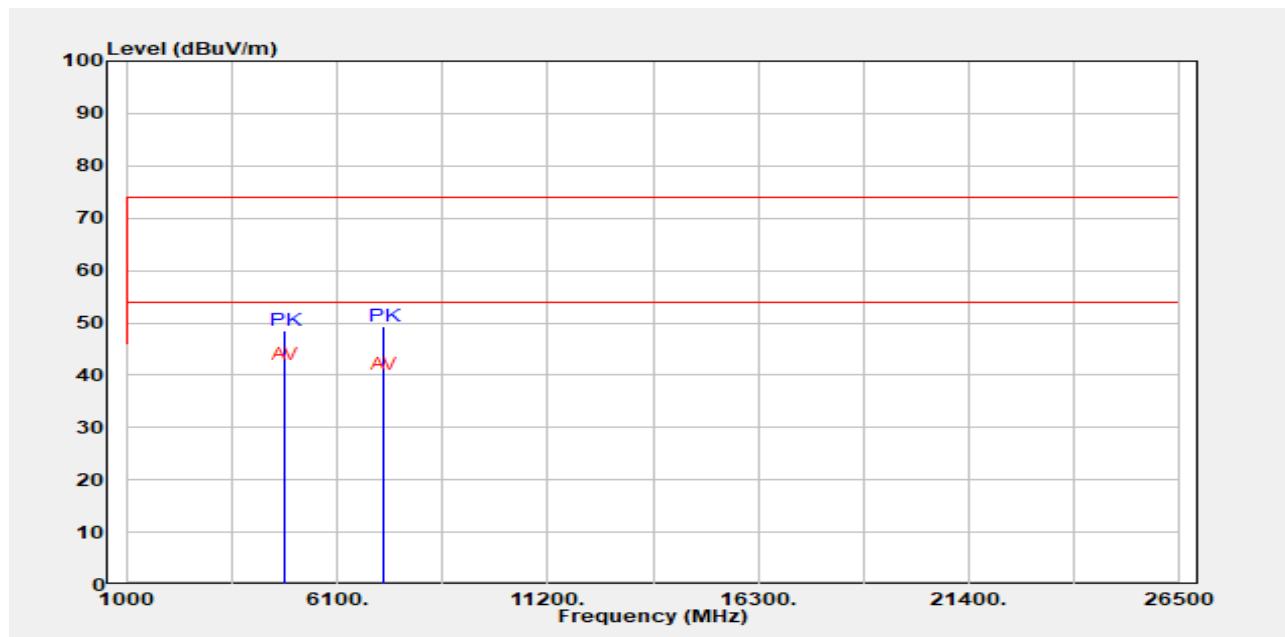
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 1M Test Date :2025-07-29
 Test Frequency :2402 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Tx Antenna Pol. :Vertical
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4804.00	Peak	48.18	0.20	48.38	74.00	-25.62
4804.00	Average	41.67	0.20	41.87	54.00	-12.13
7206.00	Peak	43.88	5.47	49.35	74.00	-24.65
7206.00	Average	34.55	5.47	40.02	54.00	-13.98

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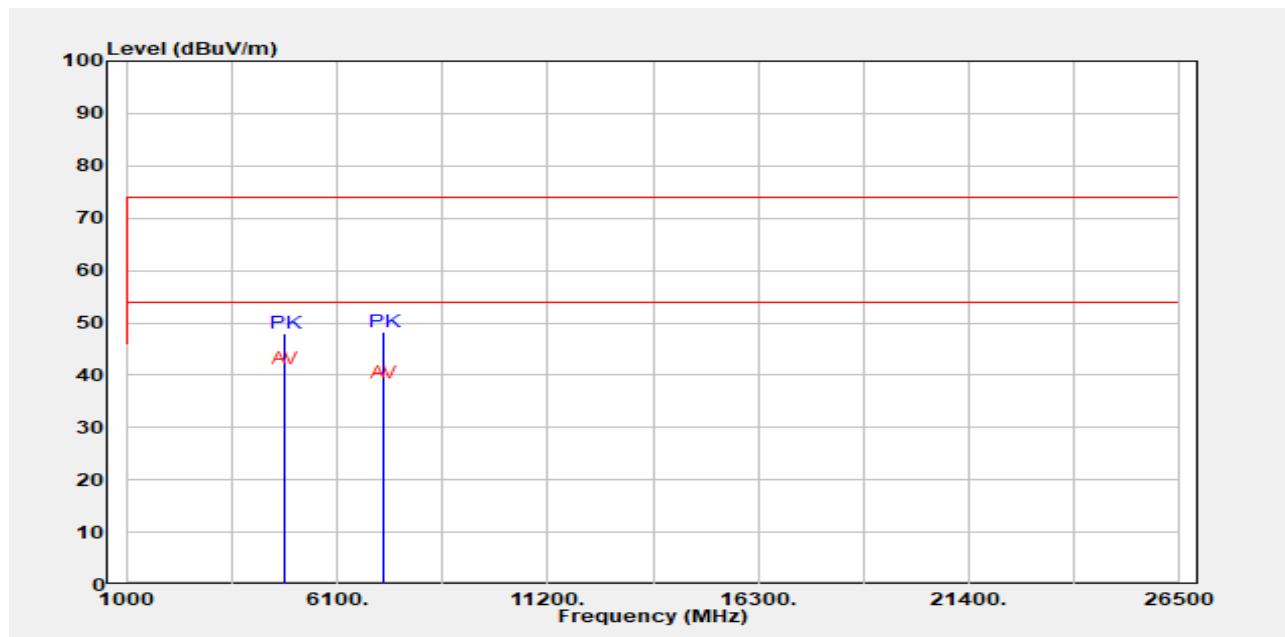
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 1M Test Date :2025-07-29
 Test Frequency :2402 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Tx Antenna Pol. :Horizontal
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4804.00	Peak	47.80	0.20	48.00	74.00	-26.00
4804.00	Average	40.88	0.20	41.08	54.00	-12.92
7206.00	Peak	42.88	5.47	48.35	74.00	-25.65
7206.00	Average	32.95	5.47	38.42	54.00	-15.58

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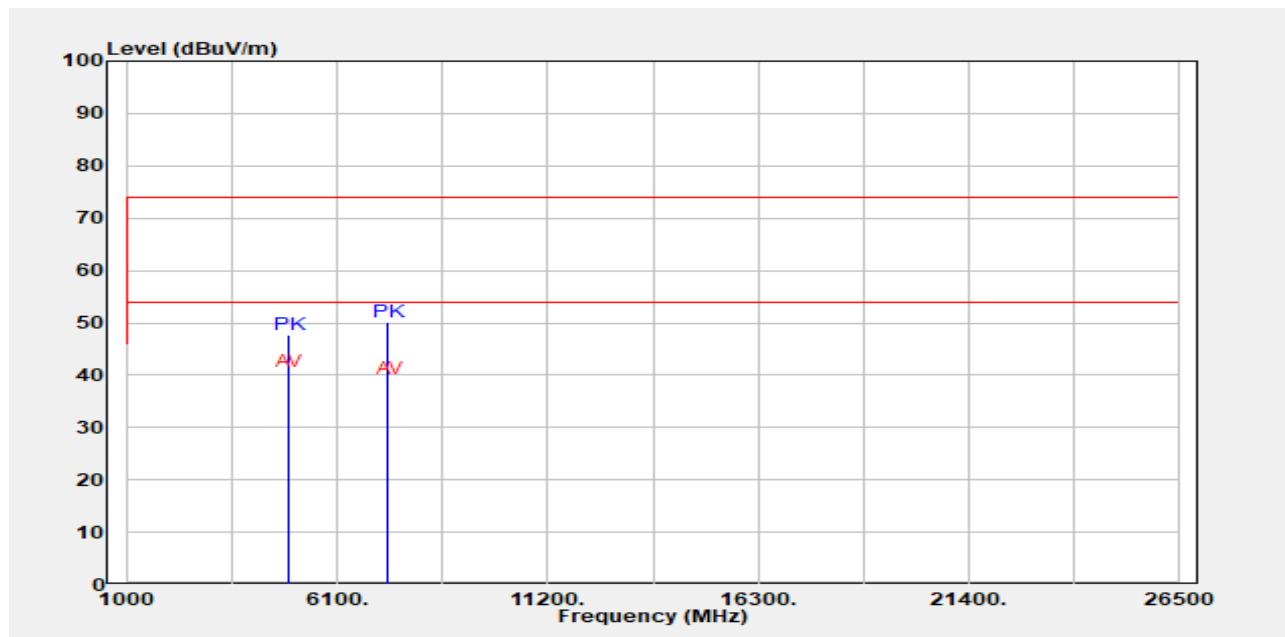
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 1M Test Date :2025-07-29
 Test Frequency :2442 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Tx Antenna Pol. :Vertical
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4884.00	Peak	47.32	0.29	47.61	74.00	-26.39
4884.00	Average	40.38	0.29	40.67	54.00	-13.33
7326.00	Peak	44.33	5.70	50.03	74.00	-23.97
7326.00	Average	33.72	5.70	39.42	54.00	-14.58

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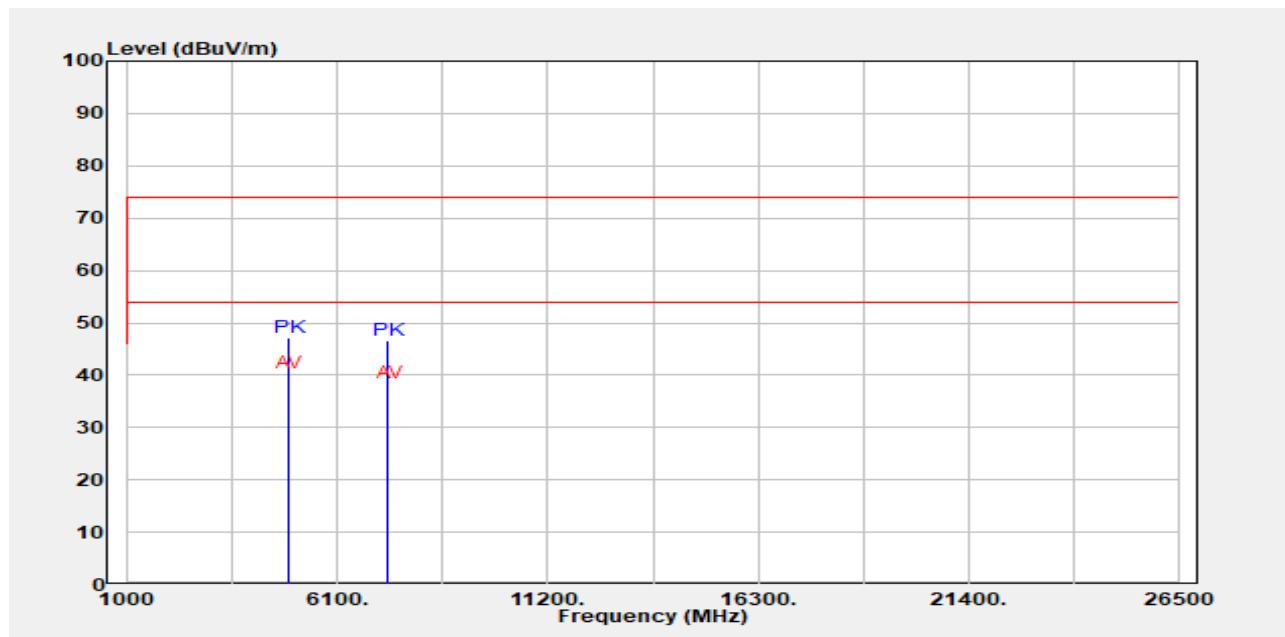
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 1M Test Date :2025-07-29
 Test Frequency :2442 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Tx Antenna Pol. :Horizontal
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4884.00	Peak	46.84	0.29	47.13	74.00	-26.87
4884.00	Average	39.96	0.29	40.25	54.00	-13.75
7326.00	Peak	40.92	5.70	46.62	74.00	-27.38
7326.00	Average	32.68	5.70	38.38	54.00	-15.62

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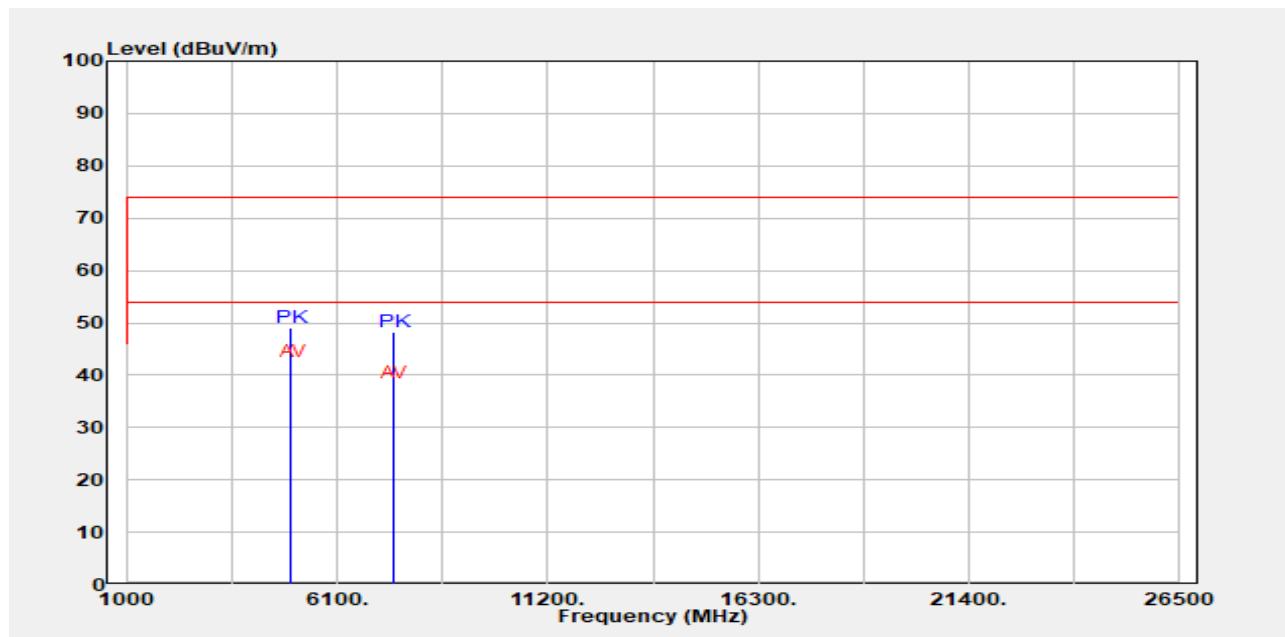
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 1M Test Date :2025-07-29
 Test Frequency :2480 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Tx Antenna Pol. :Vertical
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4960.00	Peak	48.53	0.56	49.09	74.00	-24.91
4960.00	Average	42.00	0.56	42.56	54.00	-11.44
7440.00	Peak	42.60	5.74	48.34	74.00	-25.66
7440.00	Average	32.79	5.74	38.53	54.00	-15.47

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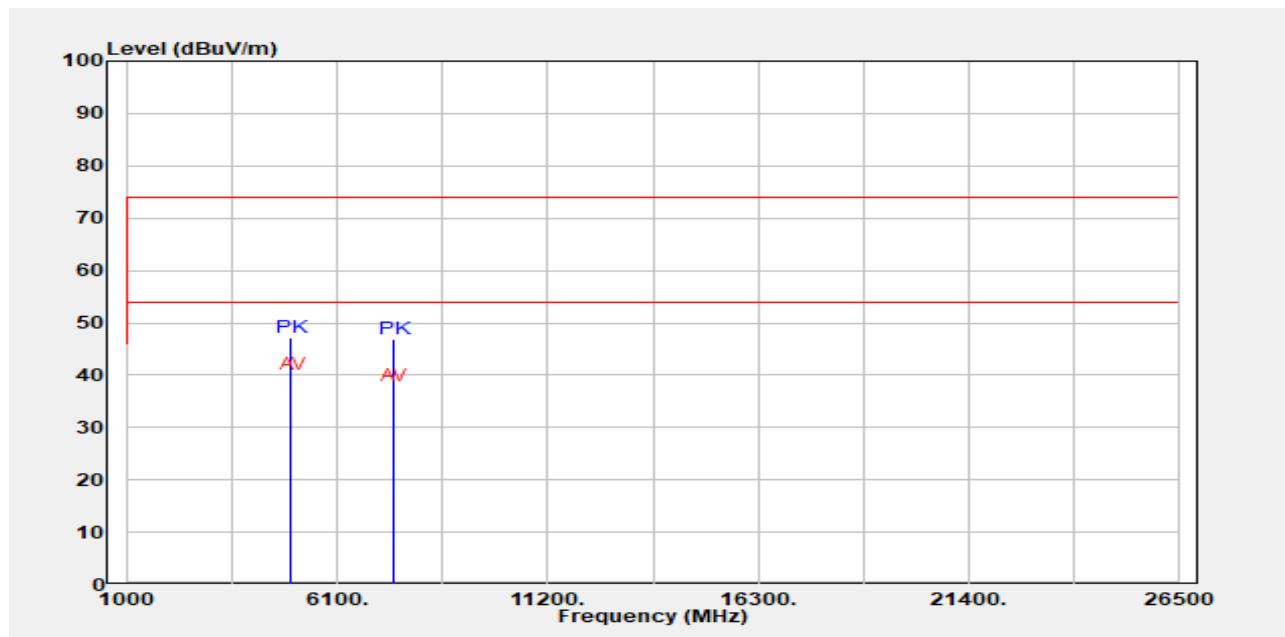
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 1M Test Date :2025-07-29
 Test Frequency :2480 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Tx Antenna Pol. :Horizontal
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4960.00	Peak	46.59	0.56	47.15	74.00	-26.85
4960.00	Average	39.50	0.56	40.06	54.00	-13.94
7440.00	Peak	41.14	5.74	46.88	74.00	-27.12
7440.00	Average	32.29	5.74	38.03	54.00	-15.97

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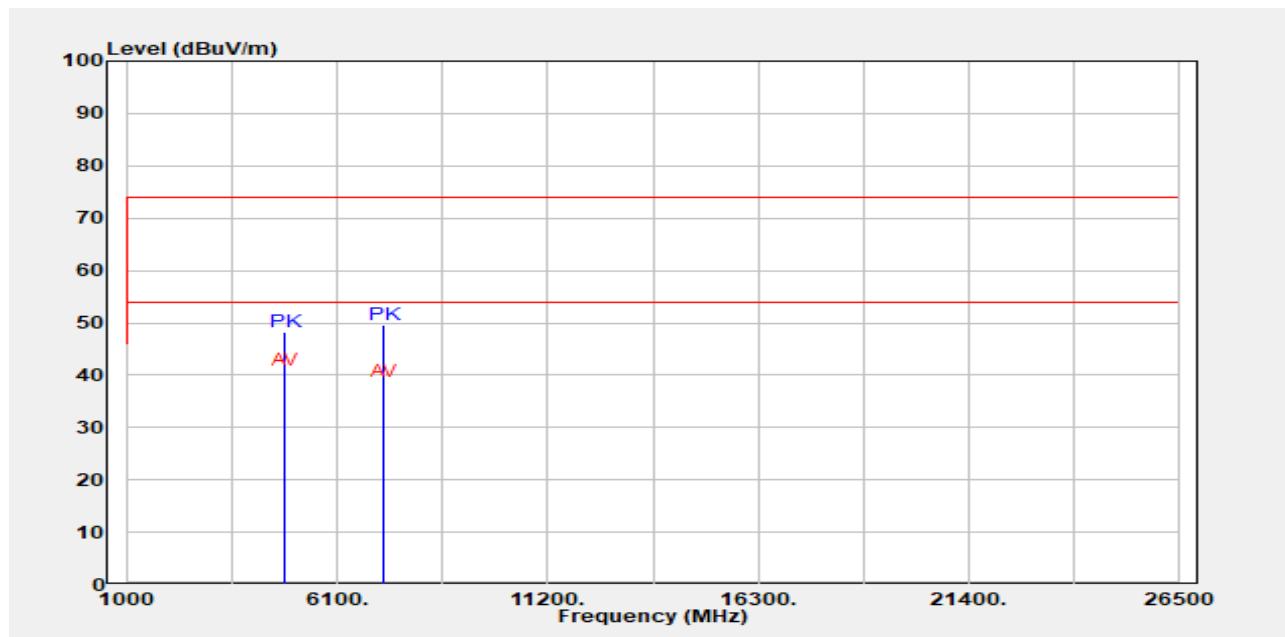
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 2M Test Date :2025-07-29
 Test Frequency :2402 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Tx Antenna Pol. :Vertical
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4804.00	Peak	47.92	0.20	48.12	74.00	-25.88
4804.00	Average	40.69	0.20	40.89	54.00	-13.11
7206.00	Peak	44.25	5.47	49.72	74.00	-24.28
7206.00	Average	33.26	5.47	38.73	54.00	-15.27

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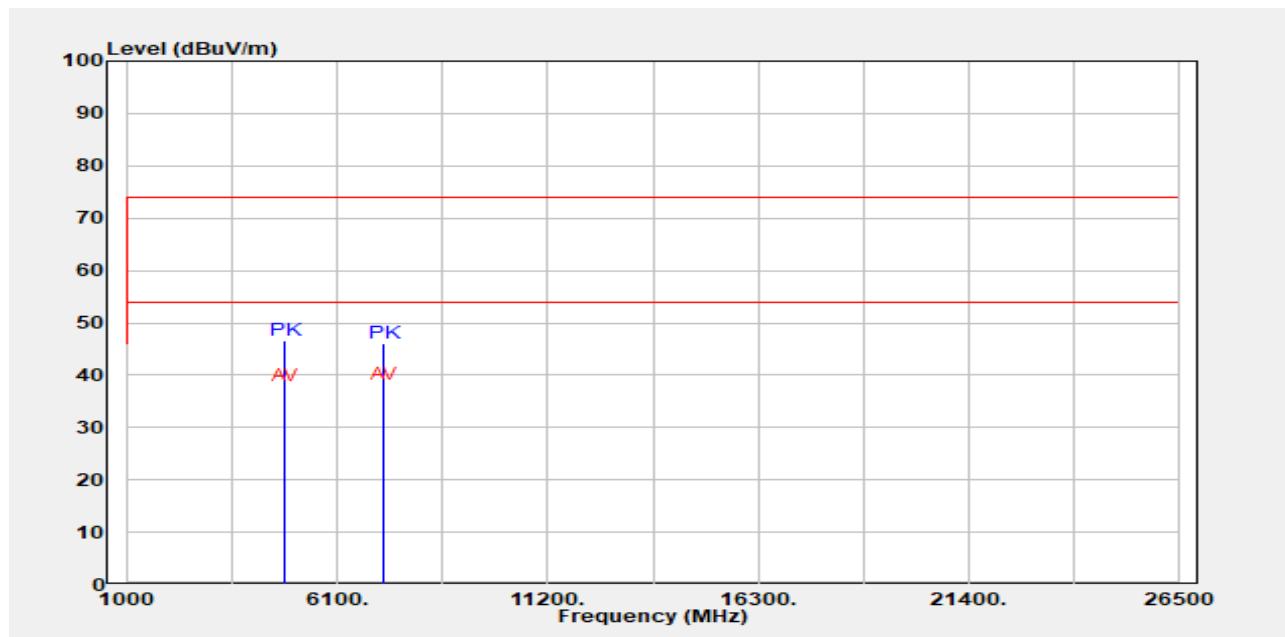
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 Operation Mode :BLE 2M Test Date :2025-07-29
 Test Frequency :2402 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Tx Antenna Pol. :Horizontal
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4804.00	Peak	46.50	0.20	46.70	74.00	-27.30
4804.00	Average	37.87	0.20	38.07	54.00	-15.93
7206.00	Peak	40.63	5.47	46.10	74.00	-27.90
7206.00	Average	32.85	5.47	38.32	54.00	-15.68

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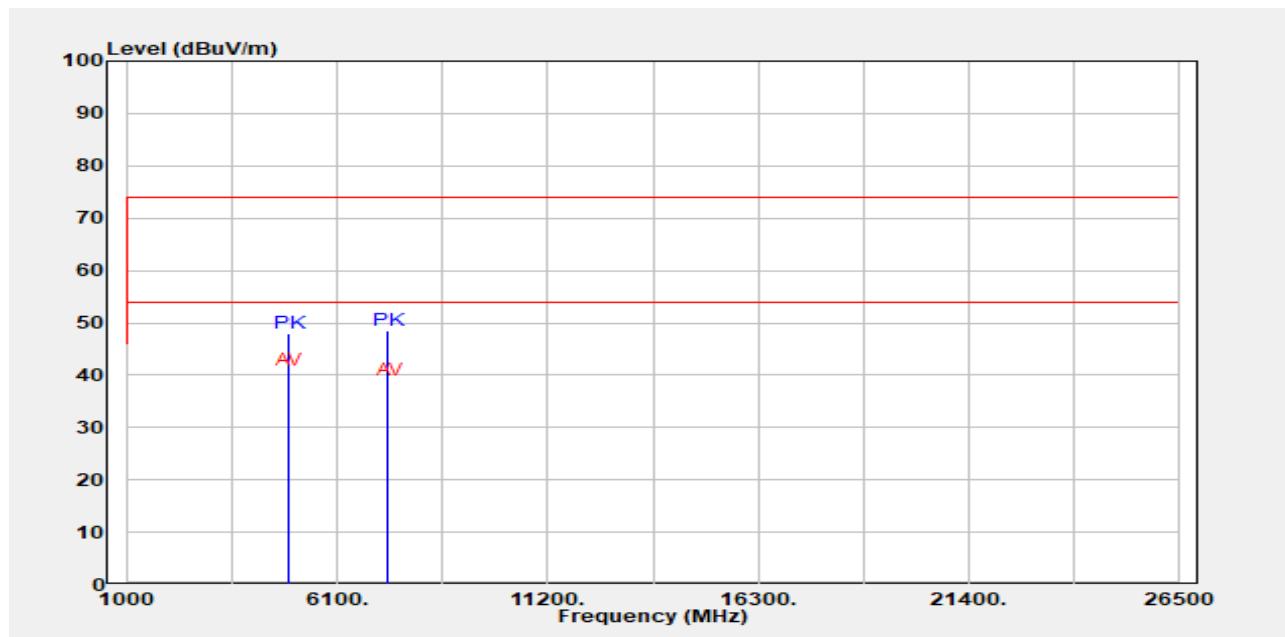
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 2M Test Date :2025-07-29
 Test Frequency :2442 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Tx Antenna Pol. :Vertical
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4884.00	Peak	47.55	0.29	47.84	74.00	-26.16
4884.00	Average	40.71	0.29	41.00	54.00	-13.00
7326.00	Peak	42.81	5.70	48.51	74.00	-25.49
7326.00	Average	33.42	5.70	39.12	54.00	-14.88

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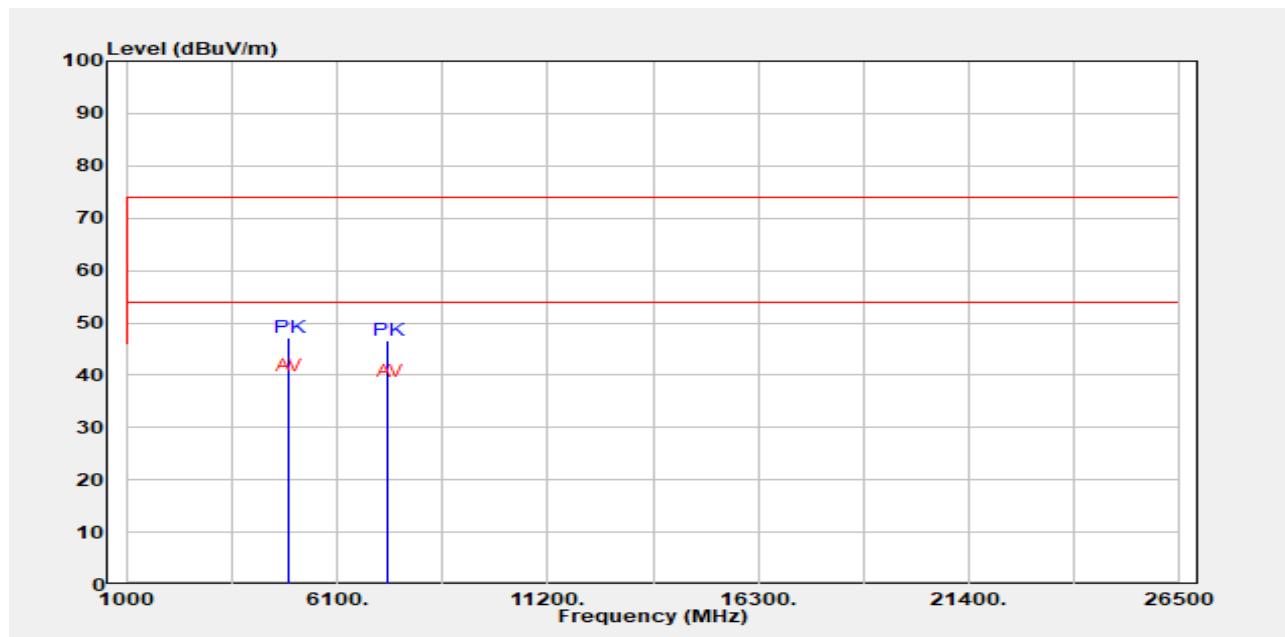
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 2M Test Date :2025-07-29
 Test Frequency :2442 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Tx Antenna Pol. :Horizontal
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4884.00	Peak	46.98	0.29	47.27	74.00	-26.73
4884.00	Average	39.61	0.29	39.90	54.00	-14.10
7326.00	Peak	40.81	5.70	46.51	74.00	-27.49
7326.00	Average	33.12	5.70	38.82	54.00	-15.18

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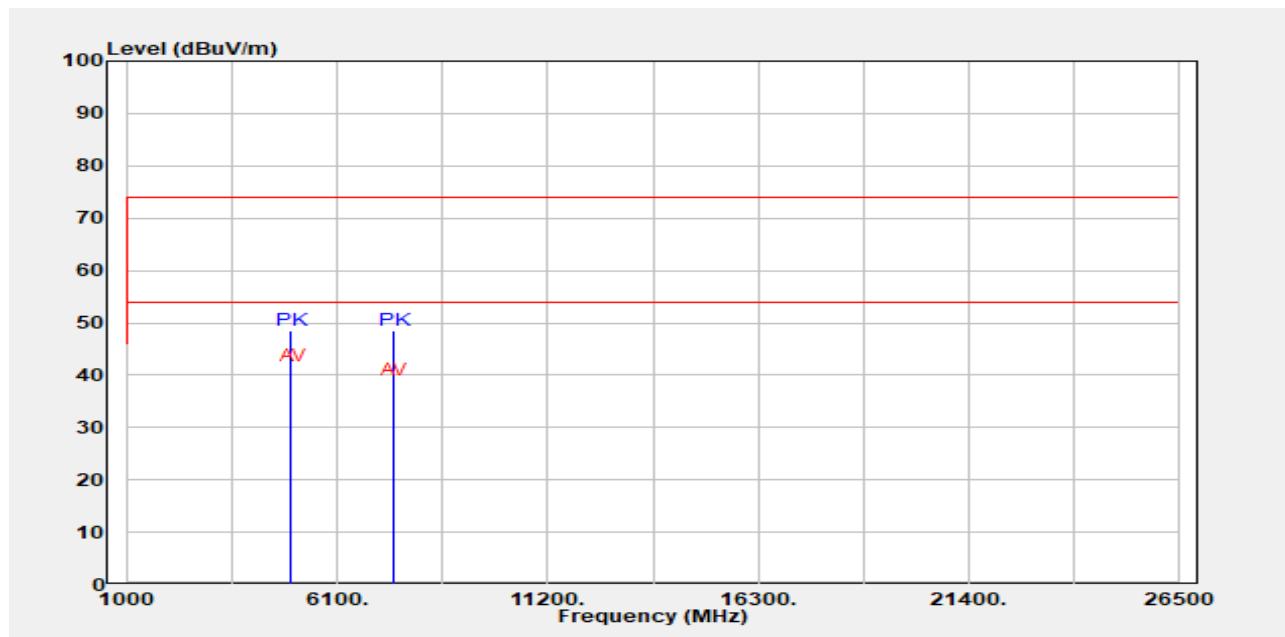
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 2M Test Date :2025-07-29
 Test Frequency :2480 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Tx Antenna Pol. :Vertical
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4960.00	Peak	47.94	0.56	48.50	74.00	-25.50
4960.00	Average	41.23	0.56	41.79	54.00	-12.21
7440.00	Peak	42.68	5.74	48.42	74.00	-25.58
7440.00	Average	33.19	5.74	38.93	54.00	-15.07

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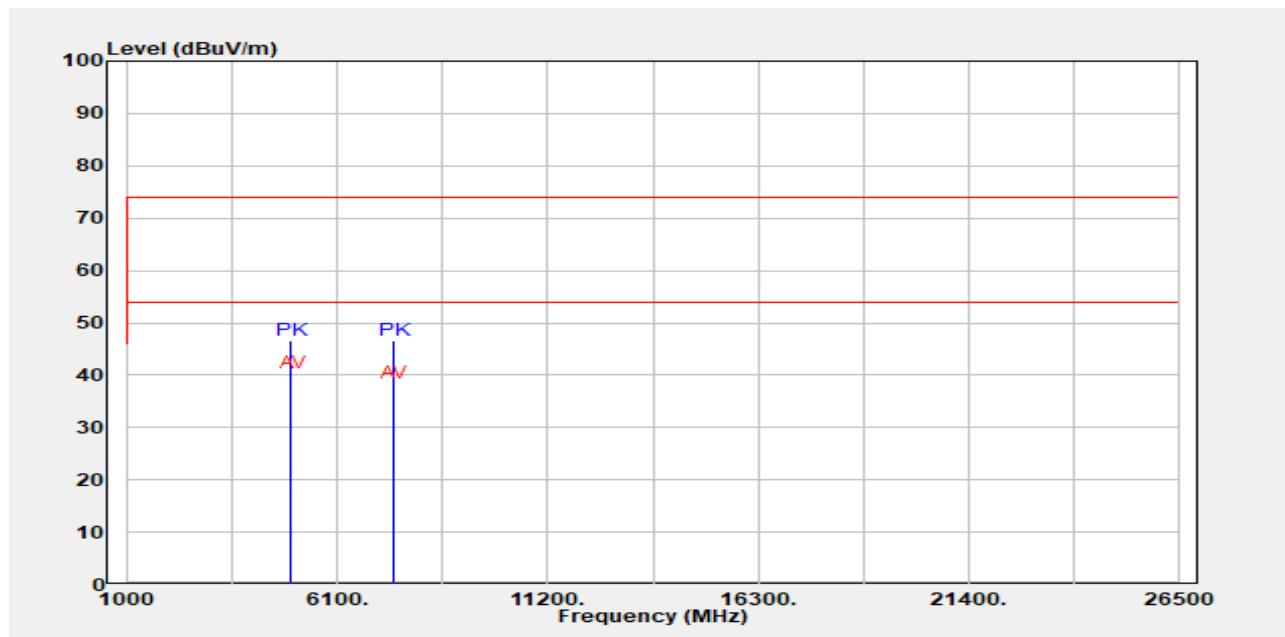
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Report Number :TERF2506001927ER Test Site :SAC 3
 Operation Mode :BLE 2M Test Date :2025-07-29
 Test Frequency :2480 MHz Temp./Humi. :24.3°C/65%
 Test Mode :Tx Antenna Pol. :Horizontal
 EUT Pol :H Plane Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V/m	Limit @3m dB μ V/m	Margin dB
4960.00	Peak	45.99	0.56	46.55	74.00	-27.45
4960.00	Average	39.86	0.56	40.42	54.00	-13.58
7440.00	Peak	40.76	5.74	46.50	74.00	-27.50
7440.00	Average	32.67	5.74	38.41	54.00	-15.59

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7.7 AC Power Line Conducted Emission

Note: The * reveals the worst-case results that closest to the limit.

Report Number :TERF2506001927ER

Test Site :Conduction 1

Operation Mode :BLE

Test Date :2025-07-25

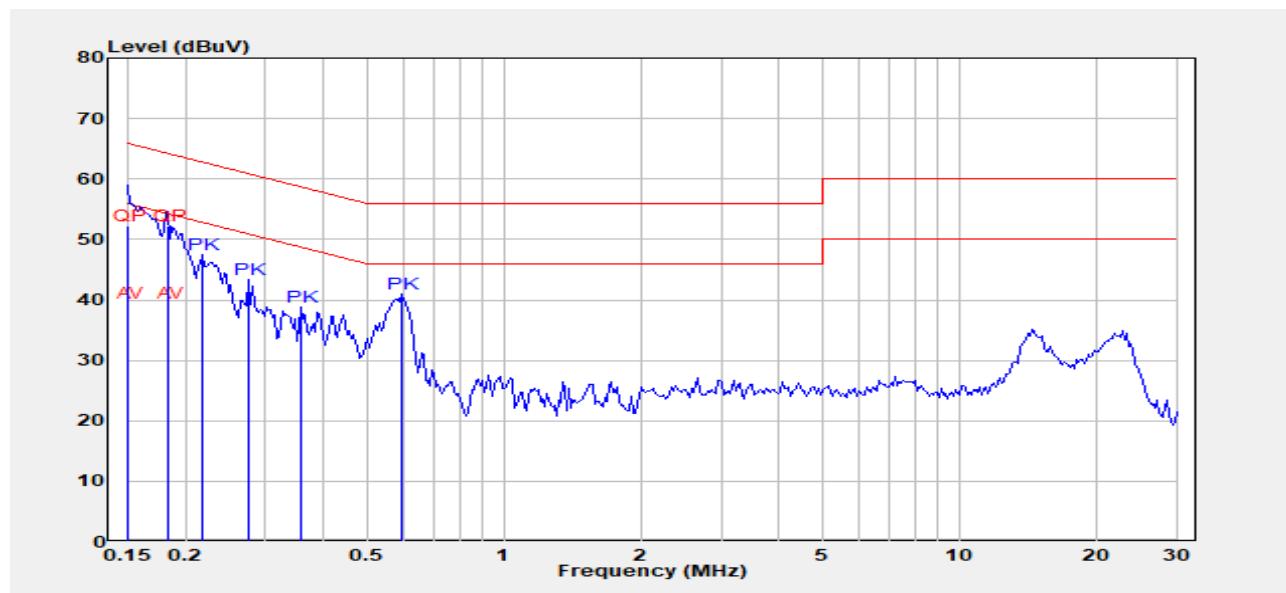
Power :120V/60Hz

Temp./Humi. :25.7°C/60%

Probe :L

Engineer :Nick Lin

Note: :



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V	Limit dB μ V	Margin dB
0.150	Average	29.33	10.13	39.46	56.00	-16.54
0.150	QP	42.11	10.13	52.24	66.00	-13.76
0.183	Average	29.34	10.13	39.47	54.33	-14.86
0.183	QP	42.17	10.13	52.30	64.33	-12.03
0.217	Peak	37.24	10.13	47.37	62.92	-15.54
0.274	Peak	33.29	10.14	43.43	60.98	-17.55
0.358	Peak	28.63	10.15	38.78	58.78	-20.00
0.595	Peak	30.74	10.17	40.91	56.00	-15.09

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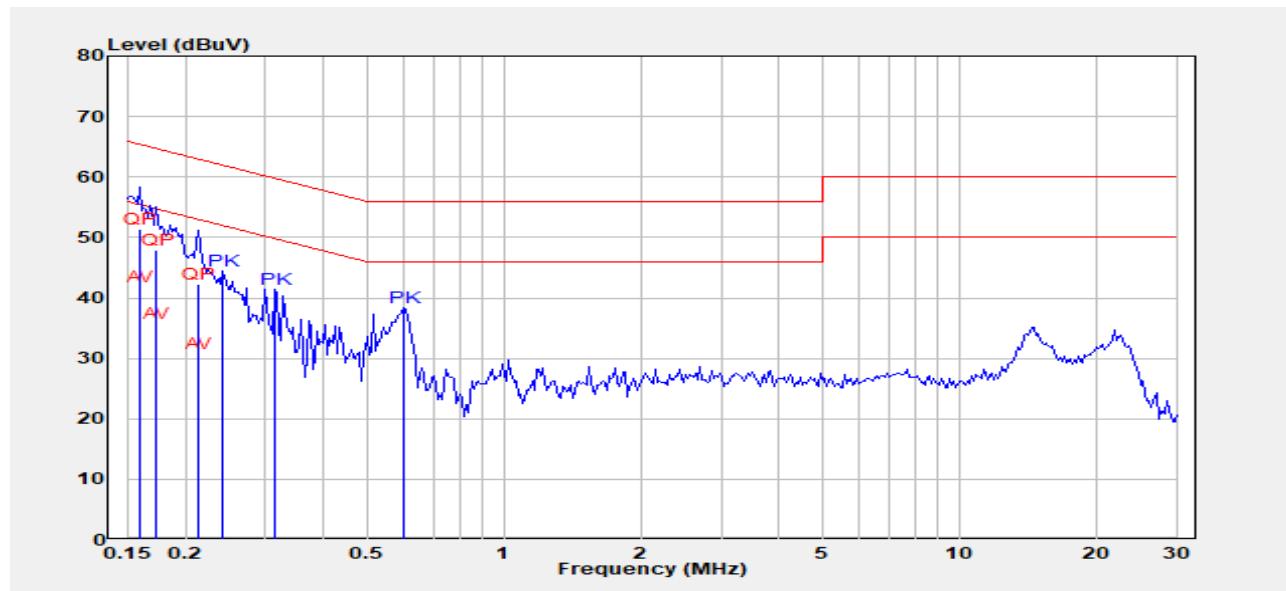
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Report Number :TERF2506001927ER
 Operation Mode :BLE
 Power :120V/60Hz
 Probe :N
 Note: :

Test Site :Conduction 1
 Test Date :2025-07-25
 Temp./Humi. :25.7°C/60%
 Engineer :Nick Lin



Freq. MHz	Detector Mode PK/QP/AV	Spectrum Reading Level dB μ V	Factor dB	Actual FS dB μ V	Limit dB μ V	Margin dB
0.158	Average	31.63	10.15	41.78	55.56	-13.78
0.158	QP	41.28	10.15	51.43	65.56	-14.13
0.172	Average	25.53	10.15	35.68	54.86	-19.18
0.172	QP	37.73	10.15	47.88	64.86	-16.98
0.213	Average	20.53	10.15	30.68	53.10	-22.42
0.213	QP	32.21	10.15	42.36	63.10	-20.74
0.242	Peak	34.22	10.15	44.37	62.04	-17.67
0.315	Peak	31.31	10.15	41.46	59.84	-18.38
0.601	Peak	28.10	10.17	38.27	56.00	-17.73

~ End of Report ~

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