FCC Part 22H, Part 24E

TEST REPORT

For

Jiangsu Lynkworld IOT Technology Co., Ltd.

18th Floor No.1 Building Gusu Cloud Park Gusu District Suzhou China

FCC ID: 2A4FJLW1G-5CL

Report Type:	**Product Name:**
Original Report	GNSS/GSM TERMINAL

Report Producer : Coco Lin

Report Number : RXZ220629001RF01

Report Date : 2022-08-19

Reviewed By: Andy Shih Andy. Shih

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Revision History

Revision	No.	Report Number	Issue Date	Description	Author/ Revised by
0.0	RXZ220629001	RXZ220629001RF01	2022.08.19	Original Report	Coco Lin

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General Information

Product Description for Equipment under Test (EUT)

Applicant	Jiangsu Lynkworld IOT Technology Co., Ltd.
	18th Floor No.1 Building Gusu Cloud Park Gusu District Suzhou China
Manufacturer	Jiangsu Lynkworld IOT Technology Co., Ltd.
	18th Floor No.1 Building Gusu Cloud Park Gusu District Suzhou China
Brand(Trade) Name	N/A
Product (Equipment)	GNSS/GSM TERMINAL
Main Model Name	LW2G-5CL
Series Model Name	LW2G-4C, LW2G-4CL, LW2G-5C, LW2G-4Z, LW2G-4ZL, LW2G-5Z, LW2G-5ZL, BTT100
Model Discrepancy	Please review the series of declaration letters
Frequency Range	Cellular: 824.2 - 848.8 MHz (GPRS) PCS: 1850.2 - 1909.8 MHz (GPRS)
Modulation Technique	GMSK
Antenna Specification	Celluar 850 Brand: Lynkworld. Model: LW2G-4C PCB Antenna Gain : -2.02 dBi PCS 1900 Brand: Lynkworld. Model: LW2G-4C PCB Antenna Gain : -2.16 dBi
Output Voltage	☐ AC Type ☐ Adapter ☐ By AC Power Cord ☐ PoE
	☒ DC Type: 12-24Vdc , Battery: 3.7Vdc ☐ DC Power Supply ☐ External from USB Cable ☐ External DC Adapter
Received Date	Jul. 04, 2022
Date of Test	Jul. 18, 2022 ~ Jul. 20, 2022

**All measurement and test data in this report was gathered from production sample serial number: RXZ220629001-01~04 (Assigned by BACL, New Taipei Laboratory).*

Objective

This report is prepared on behalf of Jiangsu Lynkworld IOT Technology Co., Ltd. in accordance with Part 2, Part 22-Subpart H and Part 24-Subpart E of the Federal Communication Commission's rules.

Related Submittal(s)/Grant(s)

N/A

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2-Subpart J as well as the following parts:

Part 22 Subpart H –Public Mobile Services

Part 24 Subpart E – Personal Communications Services

Applicable Standards: ANSI C63.26-2015.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Statement

Decision Rule: No, (The test results do not include MU judgment)

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

The determination of the test results does not require consideration of the uncertainty of the measurement, unless the assessment is required by customer agreement, regulation or standard document specification.

Bay Area Compliance Laboratories Corp. (New Taipei Laboratory) is not responsible for the authenticity of the information provided by the applicant that affects the test results.

Measurement Uncertainty

Parameter		Uncertainty
RF output power, conducted		+/- 0.9 dBm
Frequency stability		+/- 0.02 MHz
Occupied Bandwidth		+/- 0.35 MHz
Unwanted Emissions, conducted		+/- 2.16 dBm
Emissions, radiated	30 MHz~1GHz	+/- 5.22 dB
	1 GHz~18 GHz	+/- 6.12 dB
	18 GHz~40 GHz	+/- 4.99 dB
Temperature		+/- 1.27 °C
Humidity		+/- 3 %

Environmental Conditions

Test Site	Test Date	Temperature (℃)	Relative Humidity (%)	ATM Pressure (hPa)	Test Engineer
Radiation Spurious Emissions	2022/7/18~2022/07/20	23.5~27.7	47~67	1010	Andy.Cheng
Conducted Spurious Emissions	2022/7/18~2022/07/19	26.5~26.7	40~42	1010	Andy.Cheng
Emission Bandwidth	2022/07/18	26.7	42	1010	Andy.Cheng
Maximum Output Power	2022/07/18	26.7	42	1010	Andy.Cheng
Band Edge	2022/07/18	26.7	42	1010	Andy.Cheng
Frequency stability	2022/07/18	26.7	42	1010	Andy.Cheng

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (New Taipei Laboratory) to collect test data is located on

☒70, Lane 169, Sec. 2, Datong Road, Xizhi Dist., New Taipei City 22183, Taiwan, R.O.C.

Bay Area Compliance Laboratories Corp. (New Taipei Laboratory) is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 3732) and the FCC designation No.TW3732 under the Mutual Recognition Agreement (MRA) in FCC Test.

System Test Configuration

Description of Test Configuration

The EUT was configured for testing according to ANSI C63.26-2015.

The final qualification test was performed with the EUT operating at normal mode.

Equipment Modifications

No modification was made to the EUT.

EUT Exercise Software

N/A.

Test Mode

Pre-scan

Radiated Spurious Emissions

Mode 1: LW2G-5CL (Sample serial number: RXZ220616003-01).

Mode 2: LW2G-5C (Sample serial number: RXZ220616003-02).

Mode 3: LW2G-4CL (Sample serial number: RXZ220616003-03).

Mode 4: LW2G-4C (Sample serial number: RXZ220616003-04).

Worst case is the LW2G-5CL

Model : LW2G-5CL for all test item.

Other series model test Radiated Spurious Emissions below 1GHz.

Support Equipment List and Details

Description	Manufacturer	Model Number	S/N
DC Power Supply	KIKUSUI	PMC35-2	MK002127

External Cable List and Details

Description	Length	From	To
Power Cable	1m	EUT	DC Power Supply

Summary of Test Results

FCC Rules	Description of Test	Result
§1.1310 , §1.1307(b)(3)(i)	RF Exposure	Compliance
§2.1046; §22.913 (a); §24.232(c)	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; §22.905; §22.917; §24.238	Occupied Bandwidth	Compliance
§ 2.1051; §22.917(a); §24.238(a)	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053; §22.917(a); §24.238(a)	Field Strength of Spurious Radiation	Compliance
§22.917(a); §24.238(a)	Band Edge	Compliance
§ 2.1055; §22.355; §24.235	Frequency stability	Compliance

Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Radiation 3M Room (966-A)					
Bilog Antenna with 6 dB Attenuator	SUNOL SCIENCES & MINI-CIRCUITS	JB6/UNAT-6+	A050115/15542_01	2022/02/14	2023/02/13
Bilog Antenna with 6 dB Attenuator	Sunol Sciences & EMEC	JB3 &EM-ATT18-6-NN	A061204 /ATT-09-003	2022/2/16	2023/2/15
Horn Antenna	EMCO	SAS-571	1983	2022/5/25	2023/5/24
Horn Antenna	EMCO	SAS-571	1020	2022/5/25	2023/5/24
Horn Antenna	ETS-Lindgren	3116	62638	2021/8/11	2022/8/10
Preamplifier	Sonoma	310N	130602	2022/6/8	2023/6/7
Preamplifier	A.H. system Inc.	PAM-0118P	466	2021/11/4	2022/11/3
Microware Preamplifier	EM Electronics Corporation	EM18G40G	60656	2021/12/27	2022/12/26
Spectrum Analyzer	Rohde & Schwarz	FSV40	101435	2021/12/27	2022/12/26
EMI Test Receiver	Rohde & Schwarz	ESR7	101419	2021/11/9	2022/11/8
Sweep Signal Generator	Agilent	MXG N5183A	MY50140407	2021/12/27	2022/12/26
Micro flex Cable	UTIFLEX	UFB197C-1-2362-70U-70U	225757-001	2022/1/24	2023/1/23
Coaxial Cable	COMMATE	PEWC	8Dr	2021/12/24	2022/12/23
Coaxial Cable	UTIFLEX	UFB311A-Q-1440-300300	220490-006	2022/1/24	2023/1/23
Coaxial Cable	JUNFLON	J12J102248-00-B-5	AUG-07-15-044	2021/12/24	2022/12/23
Cable	EMC	EMC105-SM-SM-10000	201003	2022/1/24	2023/1/23
Coaxial Cable	ROSNOL	K1K50-UP0264-K1K50-450CM	160309-1	2022/1/24	2023/1/23
Coaxial Cable	ROSNOL	K1K50-UP0264-K1K50-50CM	15120-1	2022/1/18	2023/1/17
Software	Audix	e3	18621a bacl	N.C.R	N.C.R
Conducted Room					
Spectrum Analyzer	Rohde & Schwarz	FSV40	101140	2022/2/18	2023/2/17
Cable	UTIFLEX	UFA210A	9435	2021/10/5	2022/10/4
Attenuator	MINI-CIRCUITS	BW-S10W5+	1419	2022/2/11	2023/2/10
Power Splitter	Mini-Circuits	ZFRSC-183-S+	S F448201614	2022/6/23	2023/6/22
Wideband Radio Communcation Tester	Rohde & Schwarz	CMW500	149170	2022/5/9	2023/5/8
Temp & Humidity Chamber	BACL	BTH-150	30028	2022/1/25	2023/1/24

***Statement of Traceability:** BACL Corp. attests that all of the calibrations on the equipment items listed above were traceable to the SI System of Units via the R.O.C. Center for Measurement Standards of the Electronics Testing Center, Taiwan (ETC) or to another internationally recognized National Metrology Institute (NMI), and were compliant with the current Taiwan Accreditation Foundation (TAF) requirements.*

FCC §1.1310, §1.1307(b)(3)(i) – RF Exposure

Applicable Standard

According to subpart 1.1310 and subpart §1.1307(b)(3)(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

For single RF sources (*i.e.,* any single fixed RF source, mobile device, or portable device, as defined in paragraph (b)(2) of this section): A single RF source is exempt if:

(A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);

(B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold *Pth* (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). *Pth* is given by:

$$P_{th}\ (\text{mW}) = \begin{cases} ERP_{20\ cm}(d/20\ \text{cm})^{x} & d \le 20\ \text{cm} \\ ERP_{20\ cm} & 20\ \text{cm} < d \le 40\ \text{cm} \end{cases}$$

Where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\ cm}\sqrt{f}}\right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20\ cm}\ (\text{mW}) = \begin{cases} 2040f & 0.3\ \text{GHz} \le f < 1.5\ \text{GHz} \\ 3060 & 1.5\ \text{GHz} \le f \le 6\ \text{GHz} \end{cases}$$

(C) Or using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	1,920 R^2.
1.34-30	3,450 R^2/f^2.
30-300	3.83 R^2.
300-1,500	0.0128 R^2f.
1,500-100,000	19.2R^2.

The sequence to apply for single portable RF sources includes the following steps:

1) determination of 1 mW blanket exemption under § 1.1307(b)(3)(i)(A)

2) determination of exemption under the MPE-based § 1.1307(b)(3)(i)(C) if 1) is not met

3) determination of exemption under the SAR-based § 1.1307(b)(3)(i)(B) if both 1) and 2) are not met

RF Exposure Evaluation Result:

Mode	Tune-up Conducted Power (dBm)				Time based Average Power (dBm)			
	1 slot	2 slot	3 slot	4 slot	1 slot	2 slot	3 slot	4 slot
GPRS 850	32.5	31	28.6	27.5	23.5	**25**	24.34	24.5
GPRS 1900	28.5	27	24.5	22.5	19.5	**21**	20.24	19.5

Project info

Band	Freq (MHz)	Turn-up Power (dBm)	Ant Gain (dBi)	Distances (mm)	Turn-up Power (mW)	ERP (dBm)	ERP (mW)
GPRS 850	849	25	-2.02	200	316.23	20.83	121.06
GPRS 1900	1910	21	-2.16	200	125.89	16.69	46.67

§ 1.1307(b)(3)(i)(A) methid os not applicable.

§ 1.1307(b)(3)(i)(C)

Band	Freq (MHz)	λ/2π (mm)	ERP Limit (mW)	Ratio	Result Option C
GPRS 850	849	56.24	434.69	0.73	exempt
GPRS 1900	1910	25	768.00	0.16	exempt

The minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates

ERP (watts) is no more than the calculated value prescribed for that frequency

R must be at least $\lambda/2\pi$

λ is the free-space operating wavelength in meters

Result: The EUT meets exemption requirement- RF exposure evaluation greater than **20cm** distance.

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H & 24E, there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

FCC § 2.1046, § 22.913 (A) & § 24.232 (C) - RF Output Power

Applicable Standard

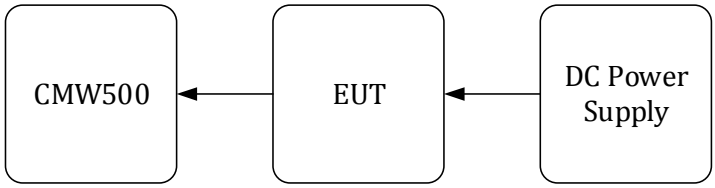
According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (C), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to §24.232 (d) Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

According to FCC §2.1046 and §27.50 (d), (4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bandsmust employ a means for limiting power to the minimum necessary for successful communications.

Block Diagram of Test Setup



Test Procedure

For Conducted method:

The RF output of the transmitter was connected to the CMW500 through sufficient attenuation

For ERP measurement:

ERP can be calculated by below formula from KDB 412172 D01.

$EIRP=P_T + G_T - L_C$

P_T = transmitter output power, in dBm.

G_T = gain of the transmitting antenna, in dBi (EIRP).

L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

ERP = EIRP – 2.15 dB.

Test Results

Cellular Band (Part 22H)

Mode	Test Condition	Channel	Frequency (MHz)	Burst Average Output Power (dBm)				Limit (dBm)
				1 slot	2 slot	3 slot	4 slot	
GPRS	Normal	128	824.2	31.78	30.65	28.42	27.13	38.45
		190	836.6	31.84	30.75	28.50	27.05	
		251	848.8	32.01	30.83	28.49	27.22	

PCS Band (Part 24E)

Mode	Test Condition	Channel	Frequency (MHz)	Burst Average Output Power (dBm)				Limit (dBm)
				1 slot	2 slot	3 slot	4 slot	
GPRS	Normal	512	1850.2	28.47	26.73	24.49	22.23	33
		661	1880.0	27.75	25.69	23.55	22.18	
		810	1909.8	27.46	25.00	22.96	22.05	

ERP/EIRP

Cellular Band (Part 22H)

Antenna Gain (dBi):	-2.02	Antenna Gain (dBd):	-4.17	Lc (dB):	0

Mode	Test Condition	Channel	Frequency (MHz)	Maximum Average Output Power (dBm)	Maximum ERP (dBm)	Limit (dBm)
GPRS	Normal	128	824.2	31.78	27.61	38.45
		190	836.6	31.84	27.67	
		251	848.8	32.01	27.84	

ERP=Conducted Power (dBm) – Lc (dB) + Antenna Gain (dBd)

PCS Band (Part 24E)

Antenna Gain (dBi):	-2.16	Lc (dB):	0

Mode	Test Condition	Channel	Frequency (MHz)	Maximum Average Output Power (dBm)	Maximum EIRP (dBm)	Limit (dBm)
GPRS	Normal	512	1850.2	28.47	26.31	33
		661	1880.0	27.75	25.59	
		810	1909.8	27.46	25.30	

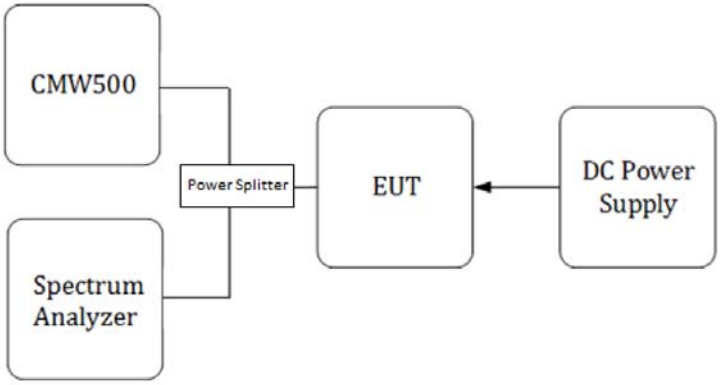
EIRP=Conducted Power (dBm) - Lc (dB) + Antenna Gain (dBi)

FCC §2.1049, §22.917, §22.905 & §24.238 – Occupied Bandwidth

Applicable Standard

FCC §2.1049, §22.917, §22.905, §24.238,

Block Diagram of Test Setup



Test Procedure

The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 1% to 5% of the anticipated emission bandwidth and the 26 dB & 99% bandwidth was recorded.

Test Results

Test Mode: Transmitting

Test Result: Compliant.

Please refer to the following table and plots.

Cellular Band (Part 22H)

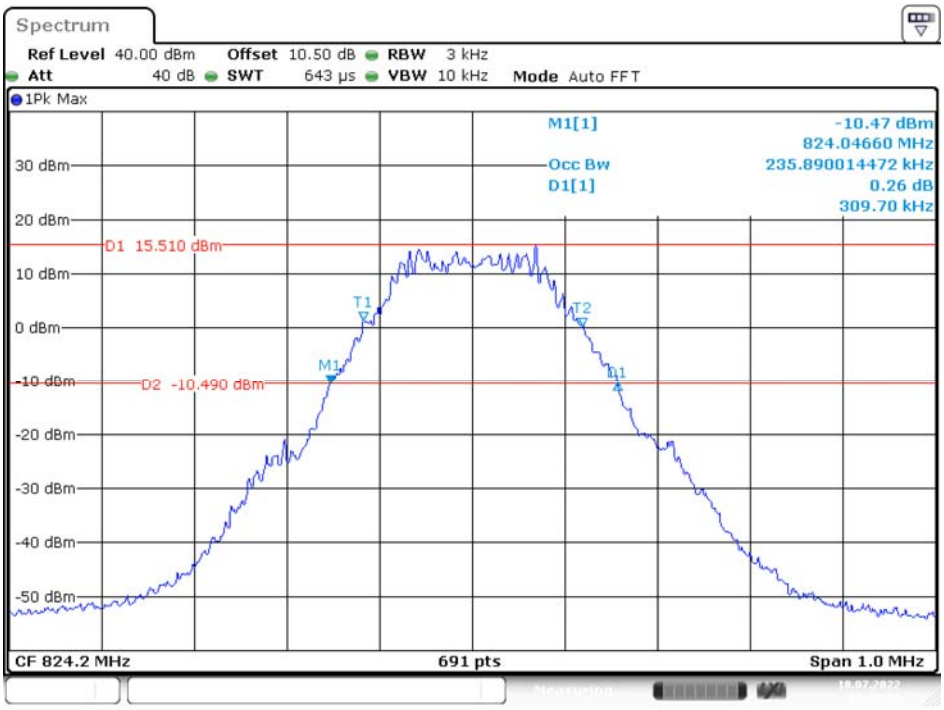
Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GPRS	824.2	235.89	309.70
	836.6	235.89	309.10
	848.8	234.44	309.70

PCS Band (Part 24E)

Mode	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emission Bandwidth (kHz)
GPRS	1850.2	231.55	309.70
	1880.0	231.55	311.10
	1909.8	231.55	309.70

Cellular Band (Part 22H)

99% Occupied & 26 dB Emissions Bandwidth for GPRS Low channel



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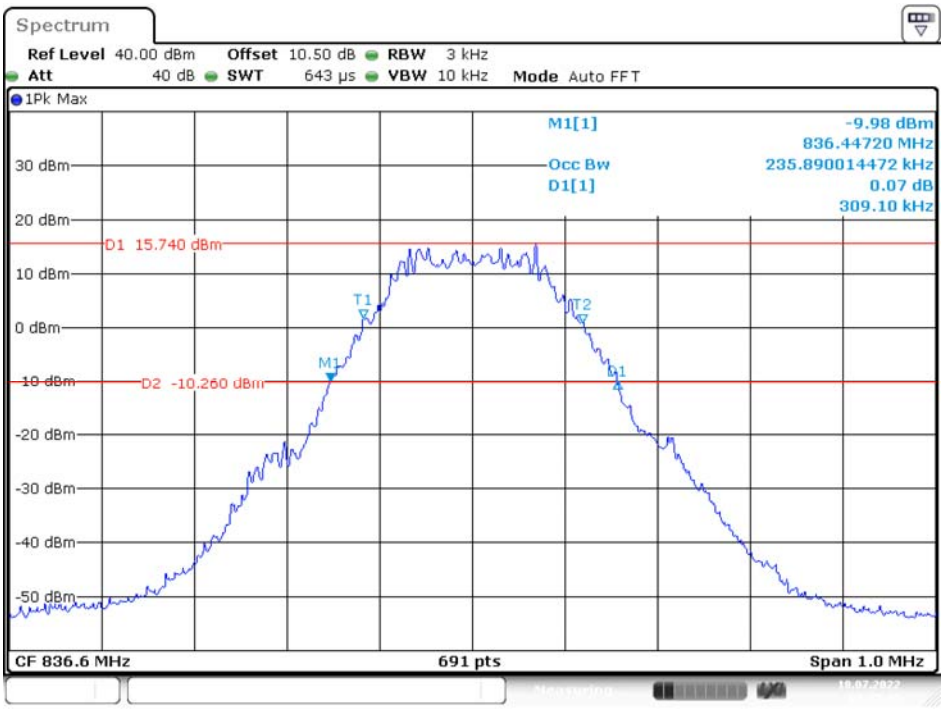
99% Occupied & 26 dB Emissions Bandwidth for GPRS Middle channel



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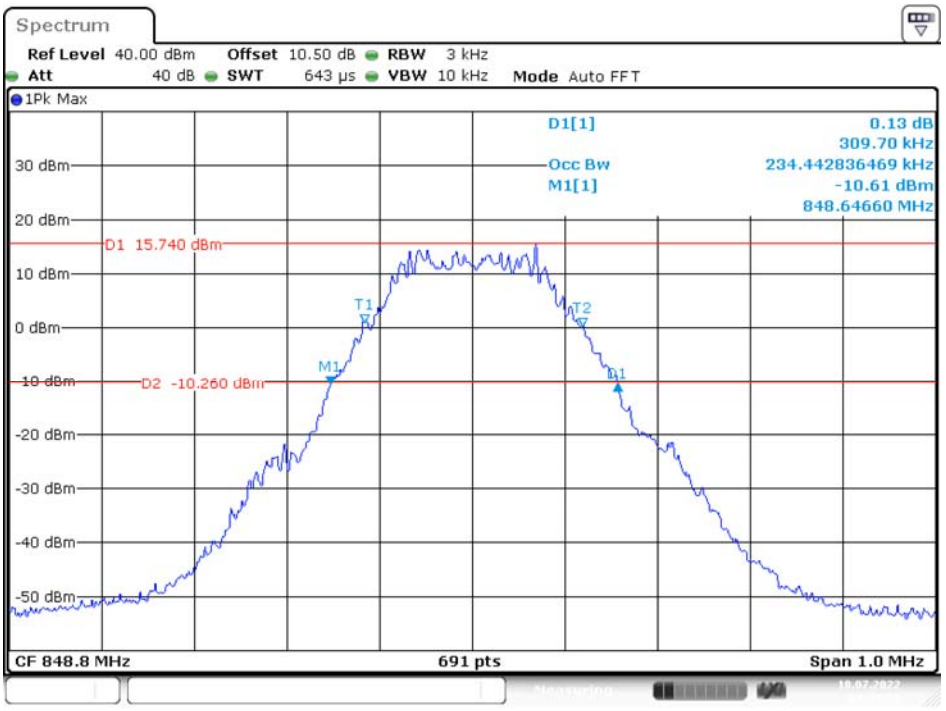
99% Occupied & 26 dB Emissions Bandwidth for GPRS High channel



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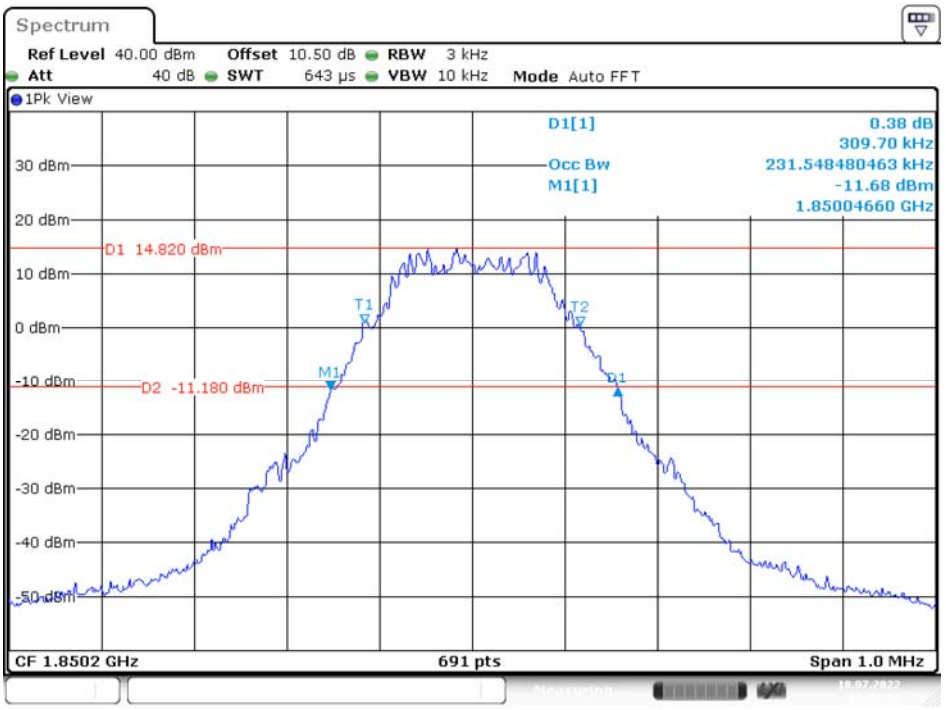
PCS Band (Part 24E)

99% Occupied & 26 dB Emissions Bandwidth for GPRS Low channel



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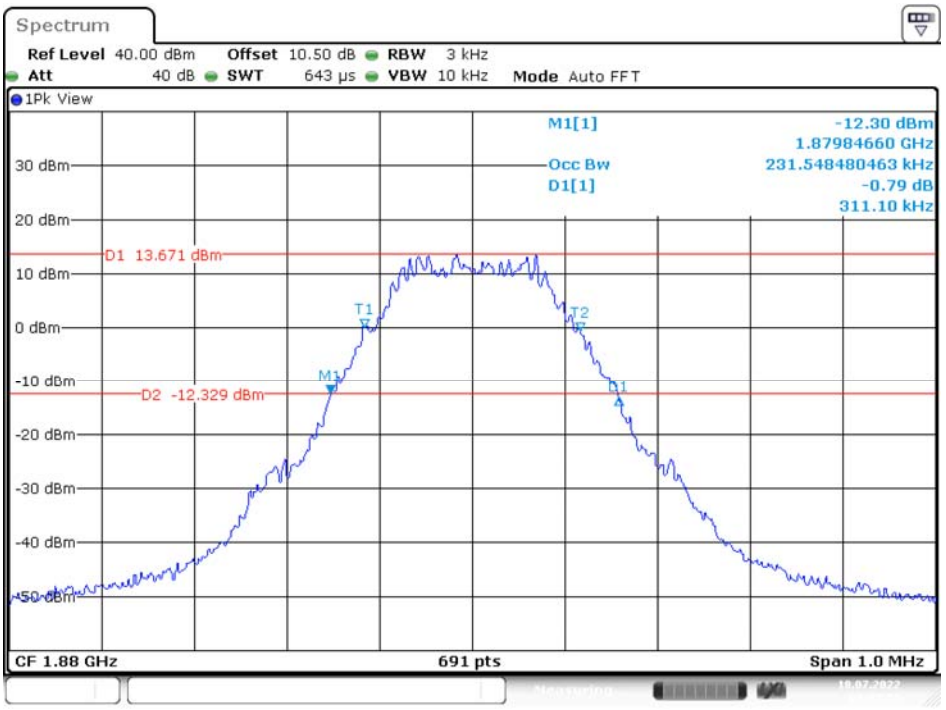
99% Occupied & 26 dB Emissions Bandwidth for GPRS Middle channel



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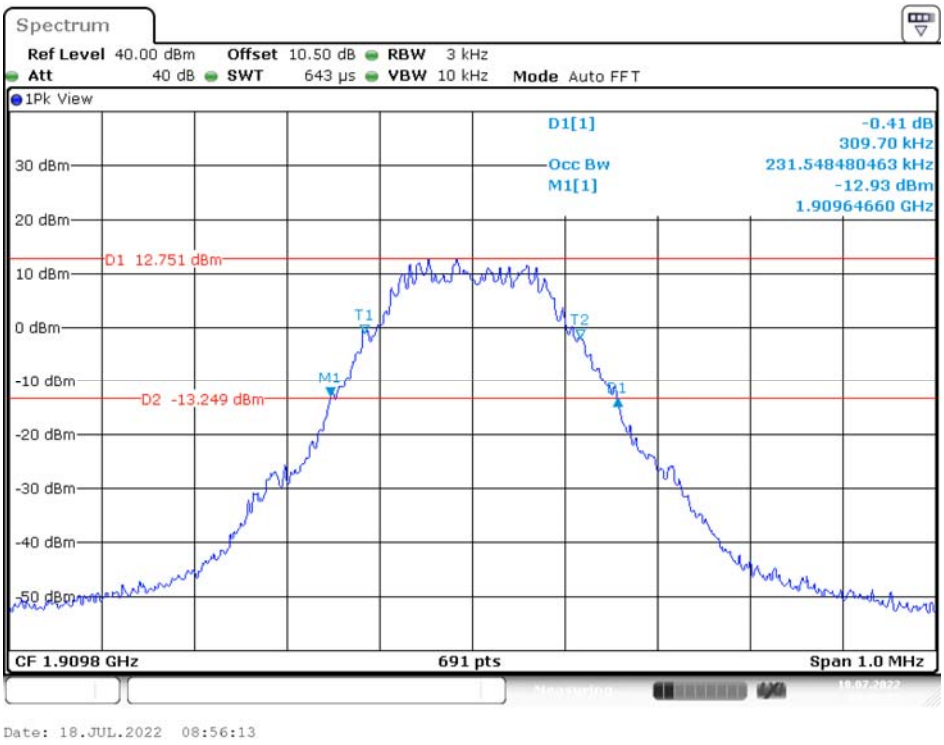
99% Occupied & 26 dB Emissions Bandwidth for GPRS High channel



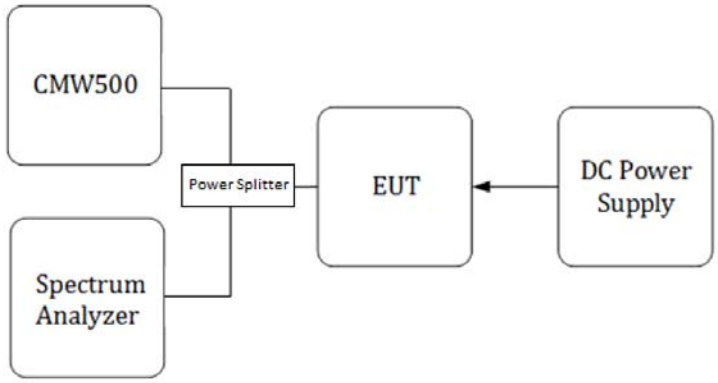
Date: 18.JUL.2022 08:56:13

FCC§2.1051, §22.917(a) & §24.238(a) – Spurious Emissions At Antenna Terminals

Applicable Standard

FCC § 2.1051, §22.917, § 24.238,

Block Diagram of Test Setup



Test Procedure

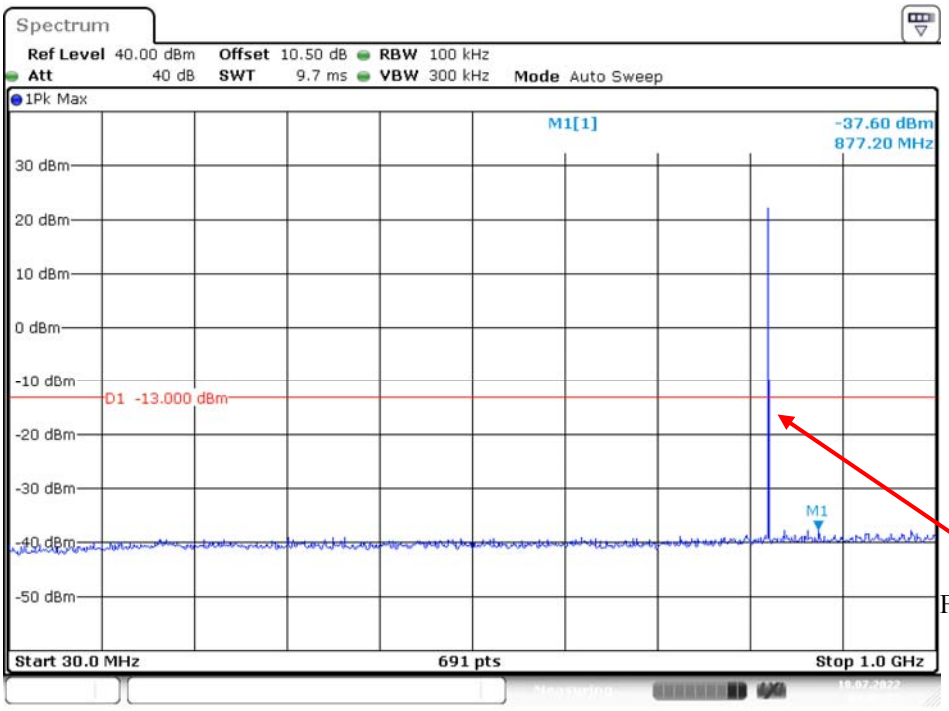
The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.
The resolution bandwidth of the spectrum analyzer was set at 100 kHz for below 1GHz & 1MHz for above 1GHz.

Test Results

Please refer to the following plots

Cellular Band (Part 22H)

30 MHz – 1GHz (GPRS Mode) Low Channel



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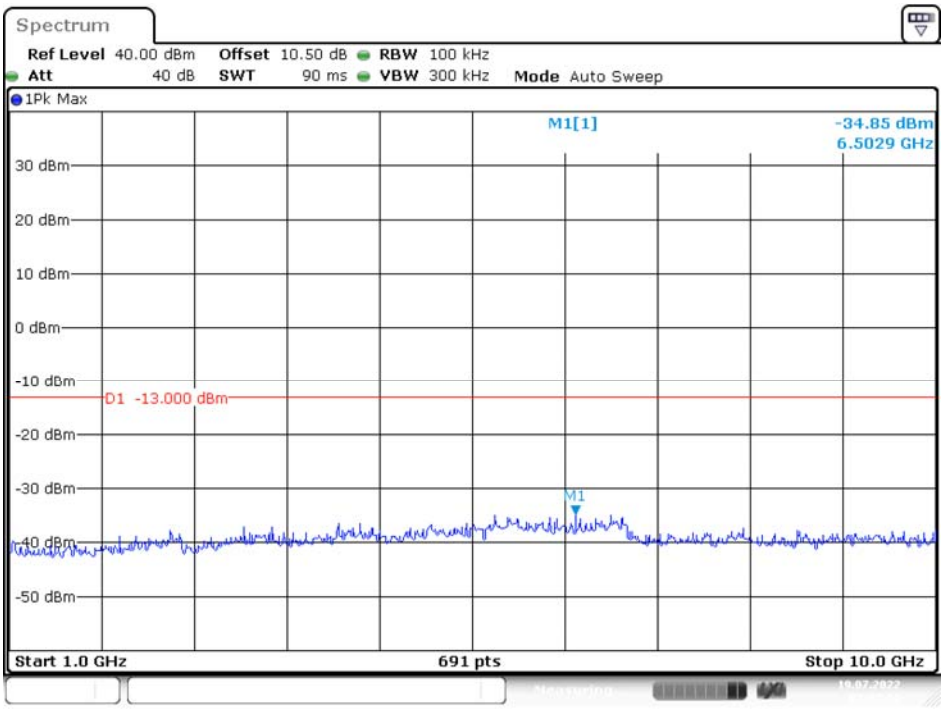
1 GHz – 10 GHz(GPRS Mode) Low Channel



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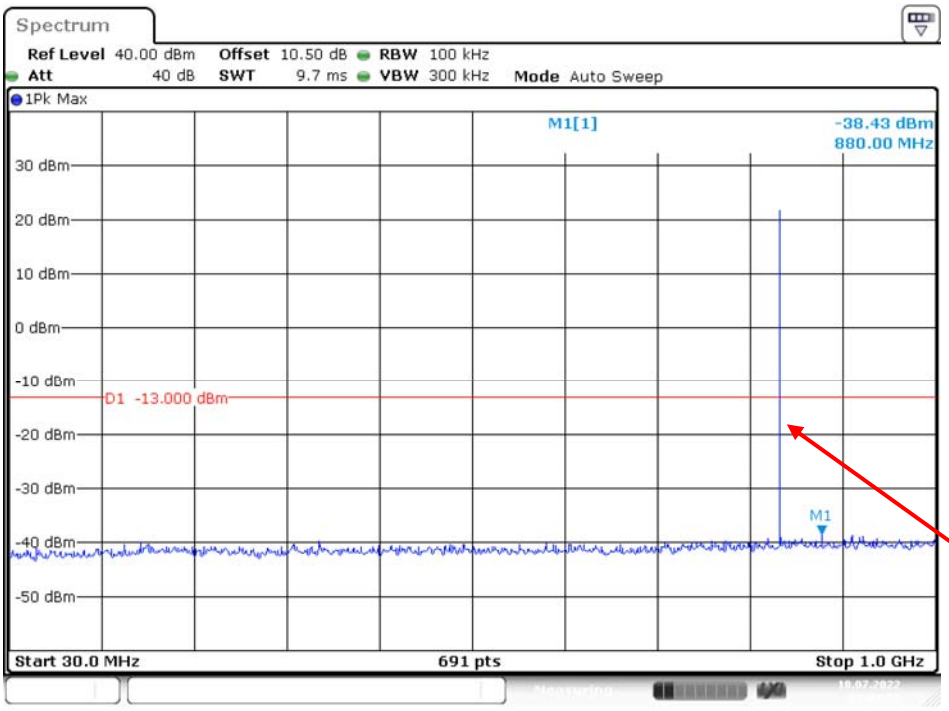
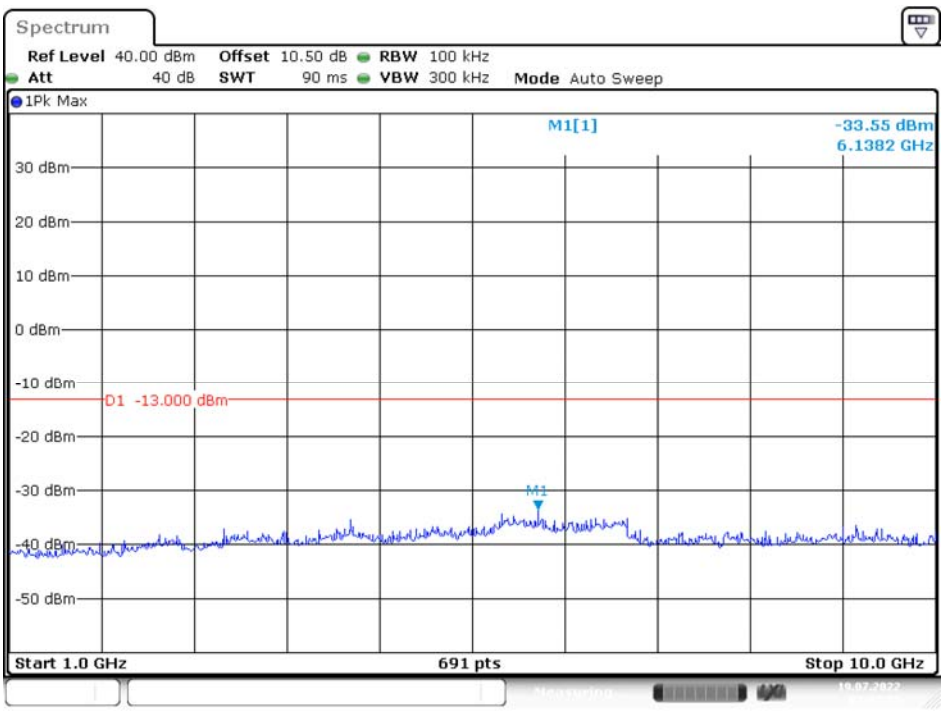
30 MHz – 1GHz (GPRS Mode) Middle Channel



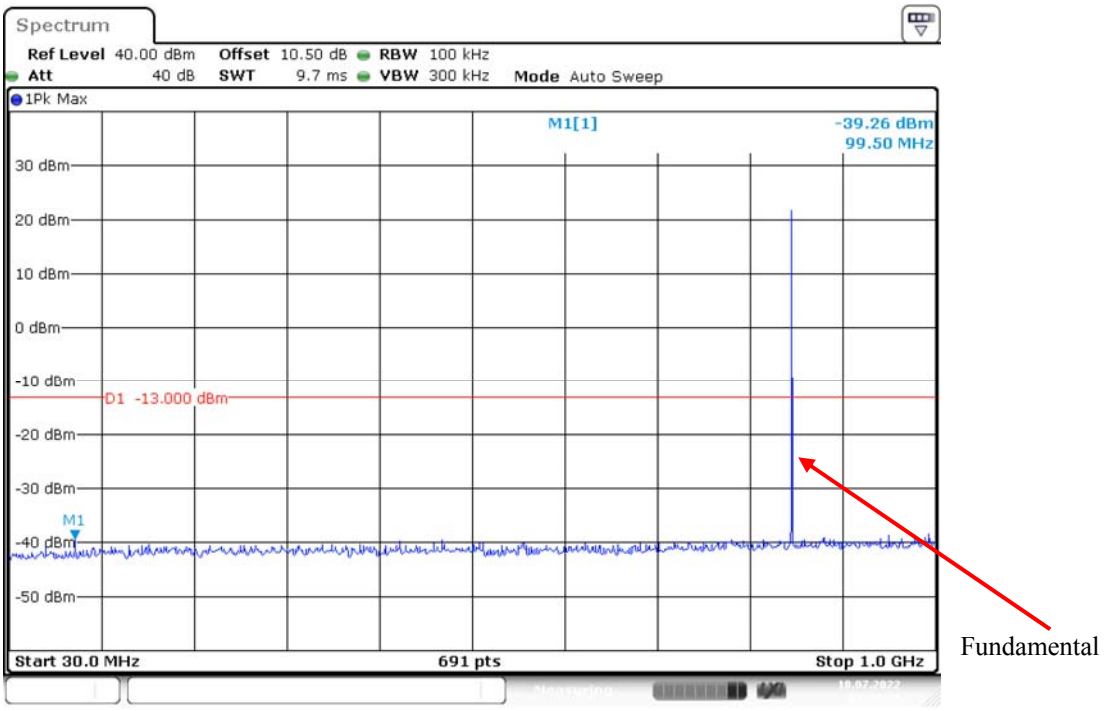
Date: 18.JUL.2022 09:09:59

1 GHz – 10 GHz(GPRS Mode) Middle Channel



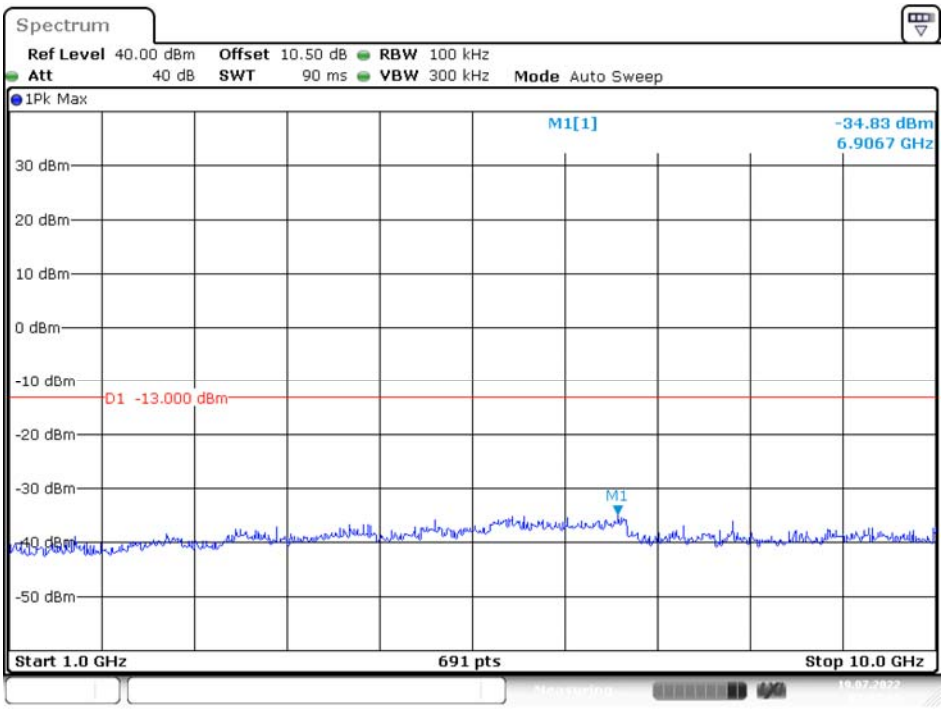
Date: 19.JUL.2022 05:57:34

30 MHz – 1GHz (GPRS Mode) High Channel



Date: 18.JUL.2022 09:10:34

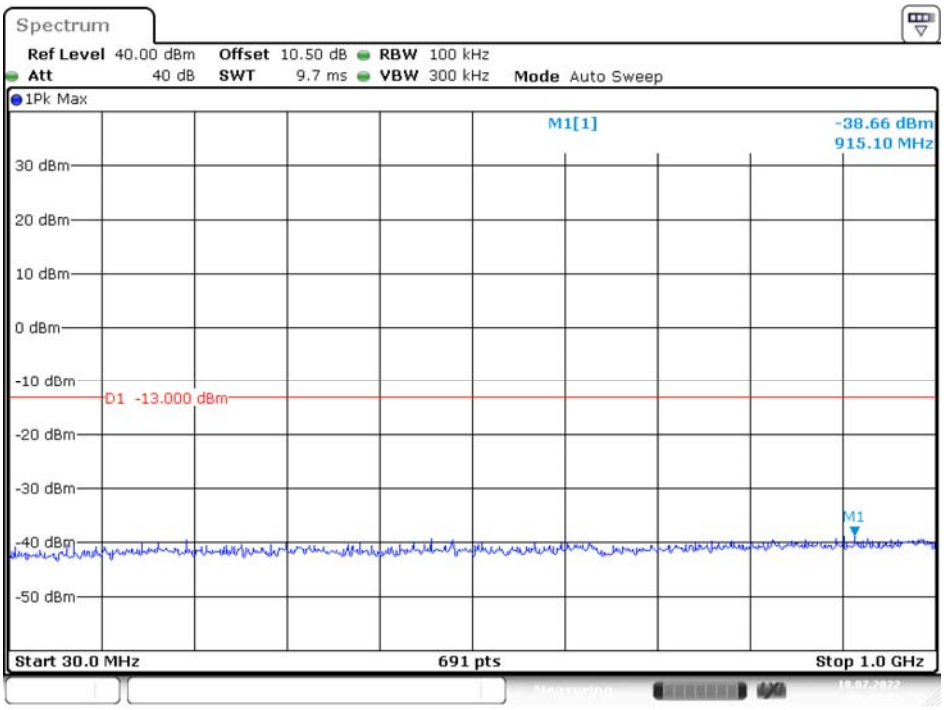
1 GHz – 10 GHz(GPRS Mode) High Channel



Date: 19.JUL.2022 05:57:44

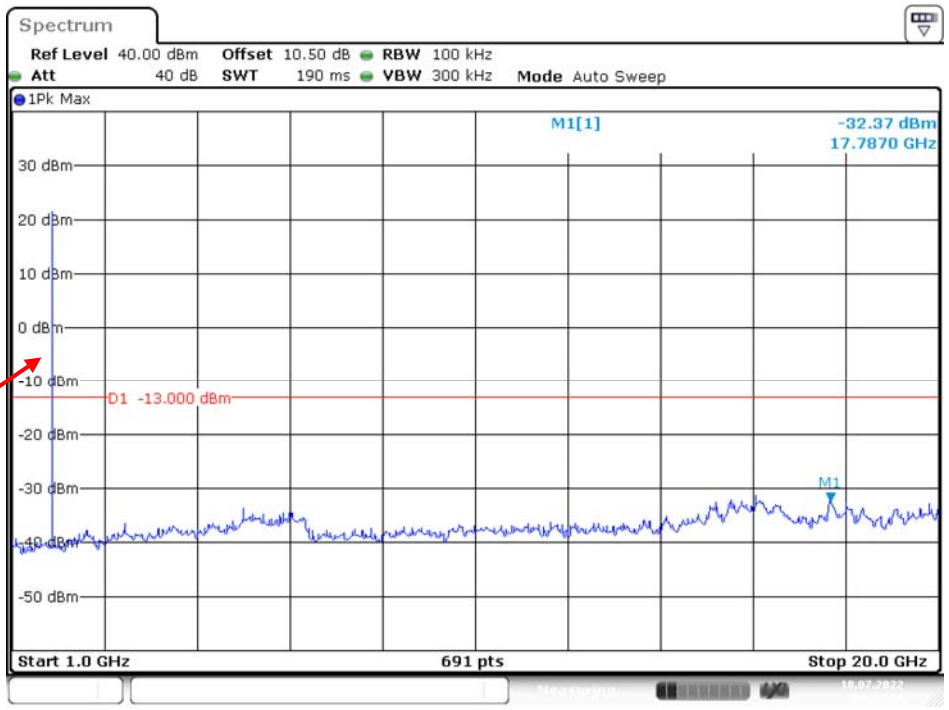
PCS Band (Part 24E)

30 MHz – 1GHz (GPRS Mode) Low Channel



Date: 18.JUL.2022 09:13:37

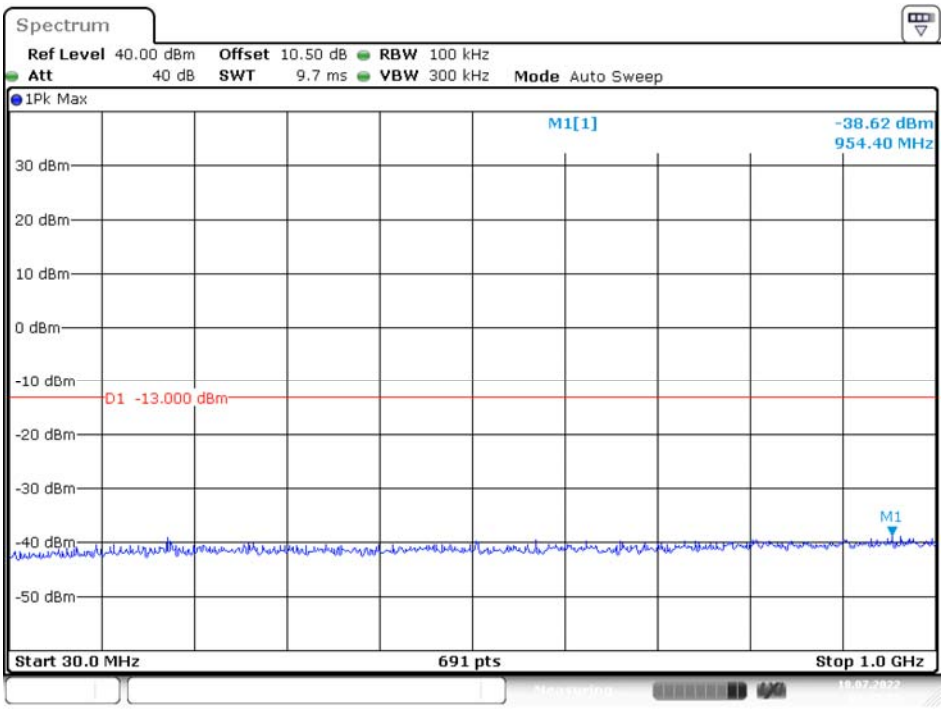
1 GHz – 20 GHz (GPRS Mode) Low Channel



Fundamental

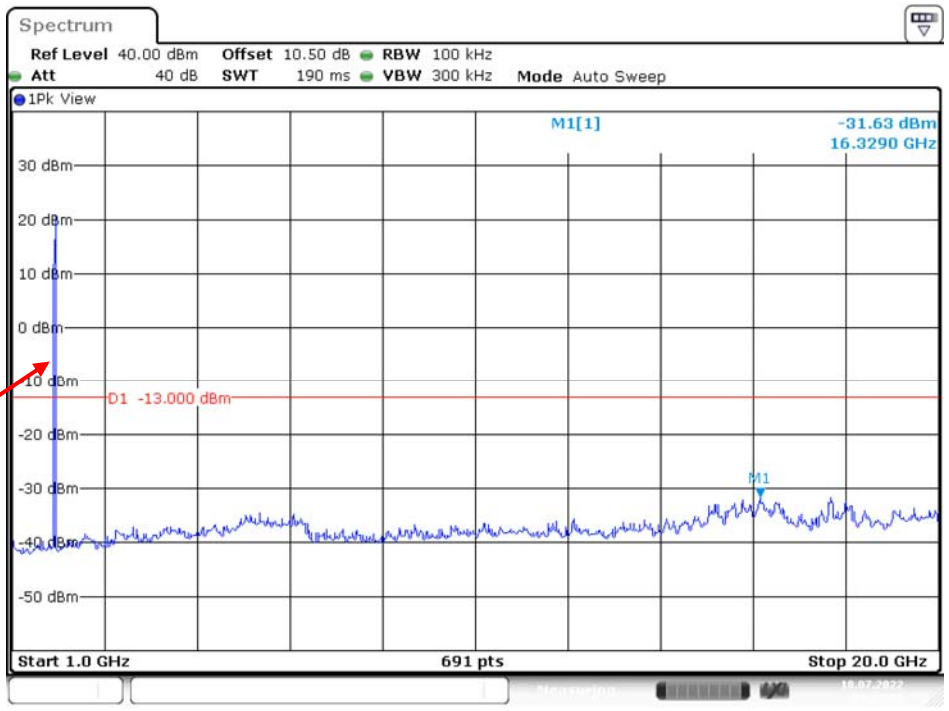
Date: 18.JUL.2022 09:23:04

30 MHz – 1GHz (GPRS Mode) Middle Channel



Date: 18.JUL.2022 09:15:25

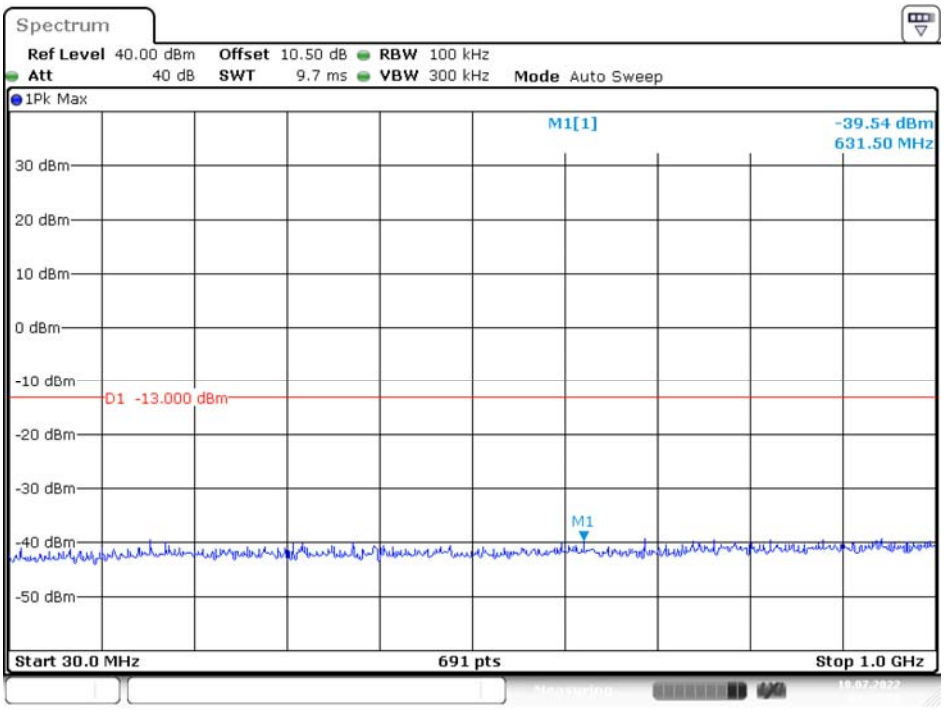
1 GHz – 20 GHz (GPRS Mode) Middle Channel



Fundamental

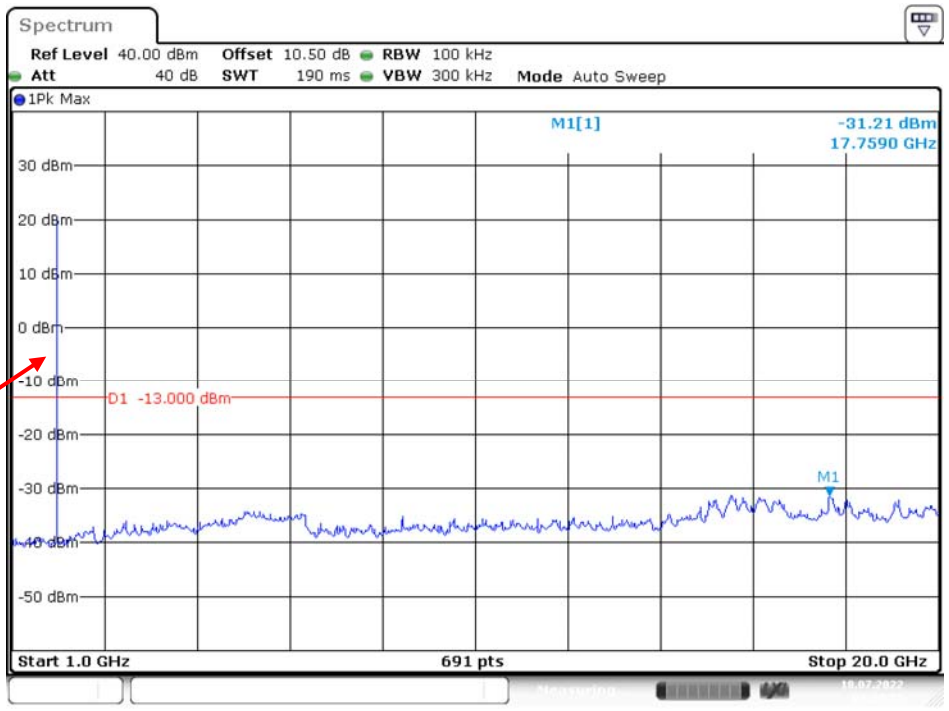
Date: 18.JUL.2022 09:22:06

30 MHz – 1GHz (GPRS Mode) High Channel



Date: 18.JUL.2022 09:17:02

1 GHz – 20 GHz (GPRS Mode) High Channel



Fundamental

Date: 18.JUL.2022 09:20:15

FCC§2.1053, §22.917 & §24.238 – Spurious Radiated Emissions

Applicable Standard

FCC § 2.1053, §22.917, § 24.238

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

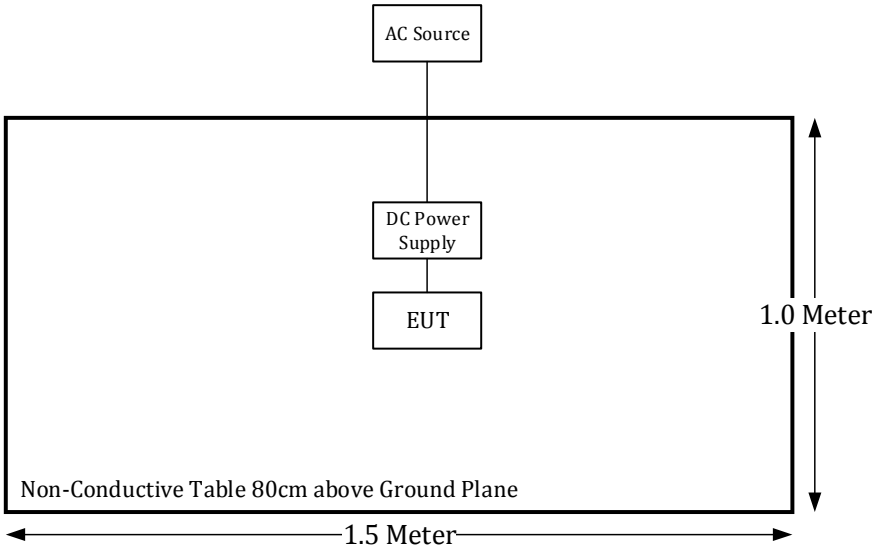
Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

ANSI C63.26-2015 the defined surrogate measurement reproduces the EUT's emission in a two-stage measurement using a well-characterized transmission path. The EUT's transmissions are replicated using alternate antenna settings and the transmit power is calculated using the known characteristics of each transmit's transmit path.

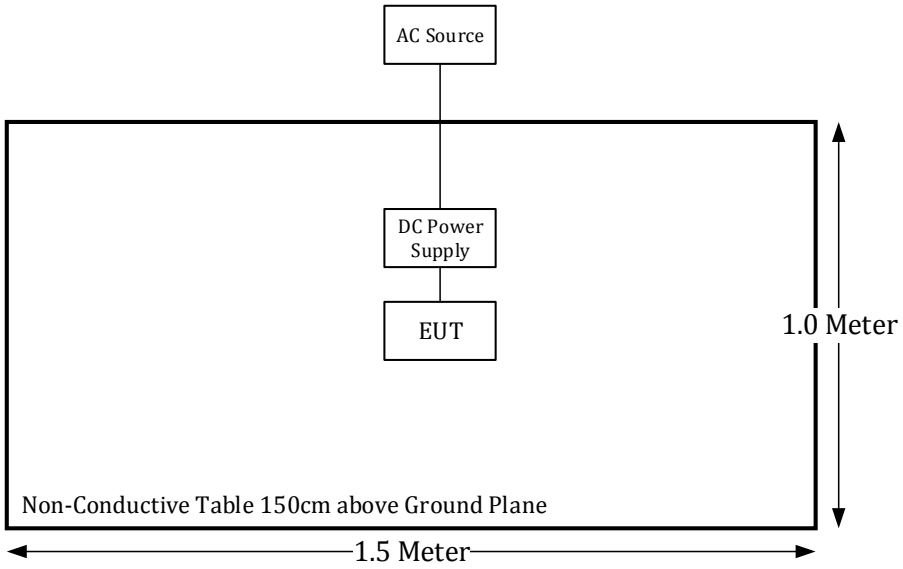
This alternative method uses the same well-characterized transmit path to establish a reference radiated power chosen by the tester to characterize the path loss from the transmit antenna to the measurement receiver. This allows calculation of correction factors that can be used to directly determine EUT emissions without having to perform two-stage measurements for each emissions.

Block Diagram of Test Setup

Below 1GHz:



Above 1GHz:



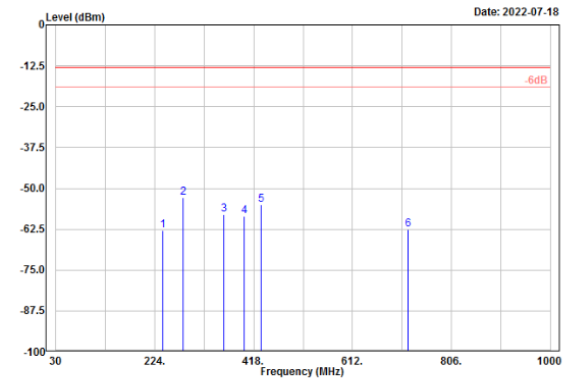
Test Mode: Transmitting

< LW2G-5CL >

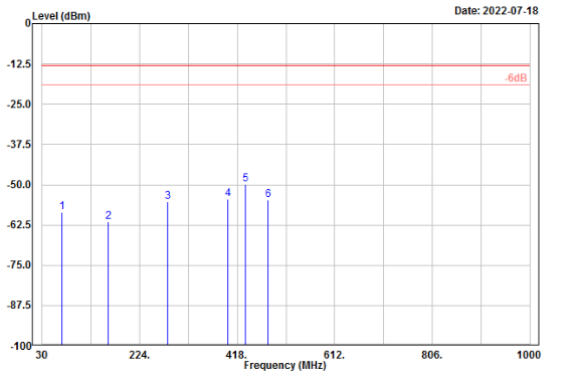
Cellular_Band

30MHz~1GHz

824.2 MHz Horizontal	824.2 MHz Vertical

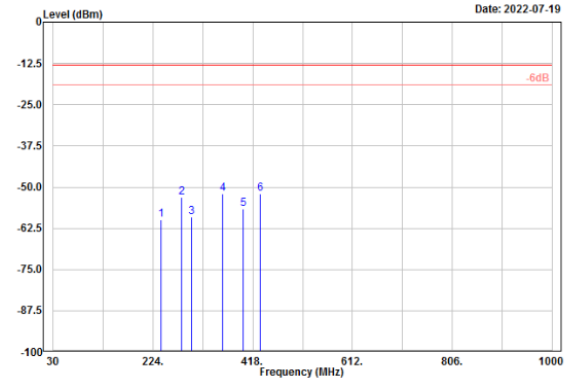


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-60.82	-2.19	-63.01	-13.00	-50.01	100	203	Peak
279.290	-52.57	-0.27	-52.84	-13.00	-39.84	100	6	Peak
359.800	-59.71	1.83	-57.88	-13.00	-44.88	100	350	Peak
399.570	-61.24	2.59	-58.65	-13.00	-45.65	100	180	Peak
432.550	-59.74	4.81	-54.93	-13.00	-41.93	100	157	Peak
720.640	-69.88	7.21	-62.67	-13.00	-49.67	100	209	Peak

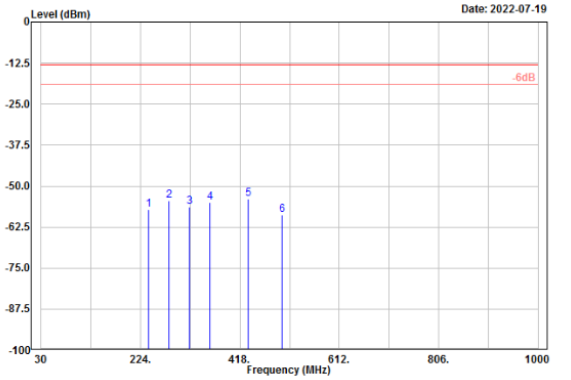


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
69.770	-51.33	-7.33	-58.66	-13.00	-45.66	100	333	Peak
161.920	-58.48	-3.10	-61.58	-13.00	-48.58	100	180	Peak
280.260	-54.97	-0.25	-55.22	-13.00	-42.22	100	301	Peak
399.570	-56.97	2.59	-54.38	-13.00	-41.38	100	197	Peak
434.490	-54.62	4.64	-49.98	-13.00	-36.98	100	187	Peak
480.080	-58.15	3.44	-54.71	-13.00	-41.71	100	151	Peak

836.6 MHz Horizontal	836.6 MHz Vertical



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-57.70	-2.19	-59.89	-13.00	-46.89	100	192	Peak
279.290	-52.95	-0.27	-53.22	-13.00	-40.22	100	182	Peak
298.690	-59.36	0.22	-59.14	-13.00	-46.14	100	176	Peak
359.800	-53.99	1.83	-52.16	-13.00	-39.16	100	182	Peak
399.570	-59.30	2.59	-56.71	-13.00	-43.71	100	155	Peak
432.550	-56.71	4.81	-51.90	-13.00	-38.90	100	208	Peak



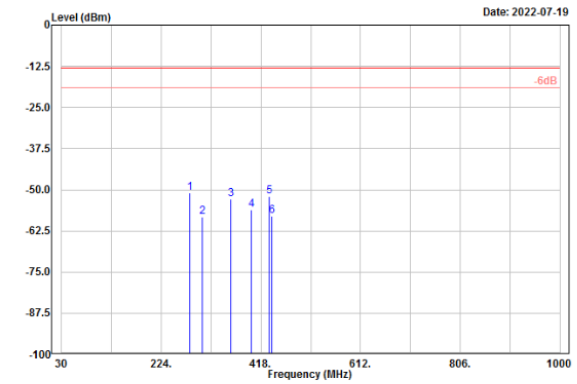
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-55.09	-2.19	-57.28	-13.00	-44.28	100	153	Peak
280.260	-54.20	-0.25	-54.45	-13.00	-41.45	100	310	Peak
320.030	-56.97	0.67	-56.30	-13.00	-43.30	100	100	Peak
359.800	-56.72	1.83	-54.89	-13.00	-41.89	100	104	Peak
434.490	-58.61	4.64	-53.97	-13.00	-40.97	100	15	Peak
500.450	-62.52	3.81	-58.71	-13.00	-45.71	100	336	Peak

EUT emissions correction = Reading

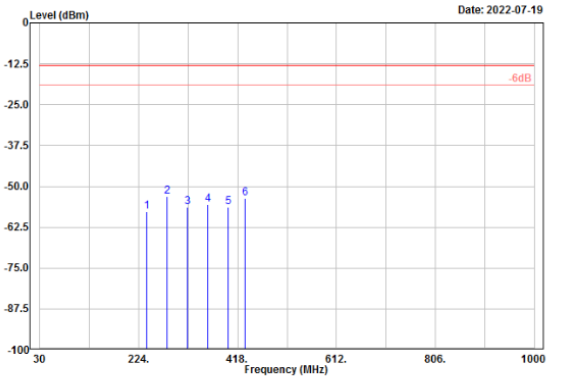
Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

848.8 MHz Horizontal	848.8 MHz Vertical



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
280.260	-50.64	-0.25	-50.89	-13.00	-37.89	100	164	Peak
304.510	-58.48	0.30	-58.18	-13.00	-45.18	100	292	Peak
359.800	-54.72	1.83	-52.89	-13.00	-39.89	100	178	Peak
399.570	-58.75	2.59	-56.16	-13.00	-43.16	100	345	Peak
434.490	-56.58	4.64	-51.94	-13.00	-38.94	100	342	Peak
440.310	-62.21	4.12	-58.09	-13.00	-45.09	100	197	Peak



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-55.51	-2.19	-57.70	-13.00	-44.70	100	159	Peak
279.290	-52.80	-0.27	-53.07	-13.00	-40.07	100	123	Peak
320.030	-57.17	0.67	-56.50	-13.00	-43.50	100	116	Peak
359.800	-57.35	1.83	-55.52	-13.00	-42.52	100	74	Peak
399.570	-59.08	2.59	-56.49	-13.00	-43.49	100	83	Peak
432.550	-58.34	4.81	-53.53	-13.00	-40.53	100	193	Peak

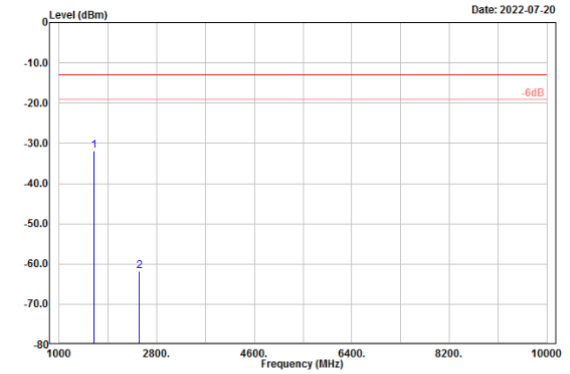
EUT emissions correction = Reading

Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

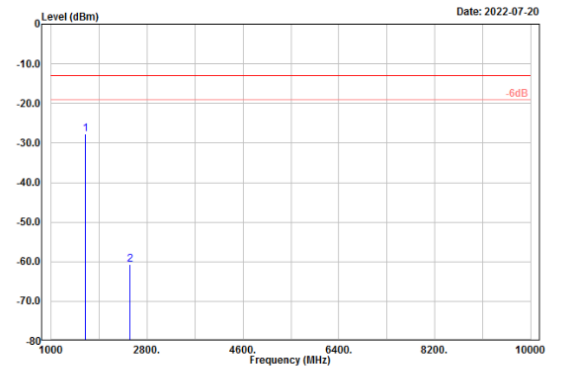
1GHz ~ 10GHz

824.2 MHz Horizontal



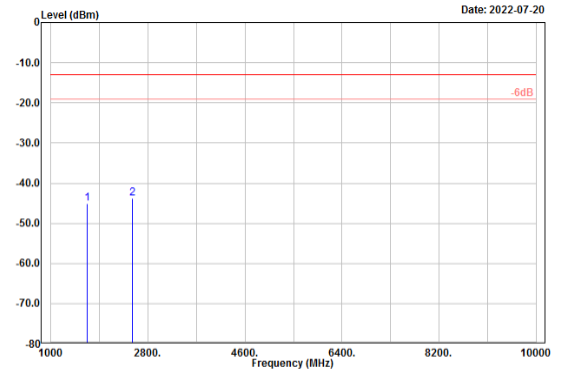
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
1648.400	-29.65	-2.31	-31.96	-13.00	-18.96	170	353	Peak
2472.600	-63.32	1.57	-61.75	-13.00	-48.75	152	79	Peak

824.2 MHz Vertical



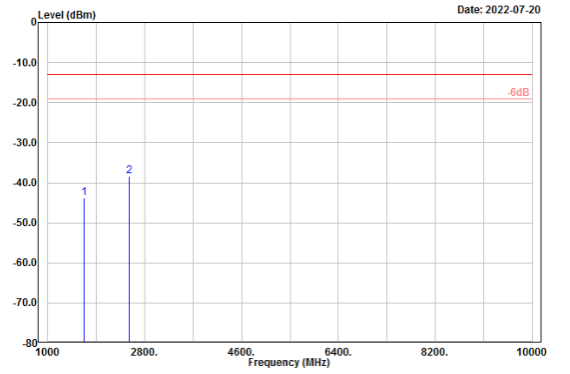
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
1648.400	-25.52	-2.31	-27.83	-13.00	-14.83	166	70	Peak
2472.600	-62.33	1.57	-60.76	-13.00	-47.76	157	360	Peak

836.6 MHz Horizontal



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
1673.200	-42.81	-2.26	-45.07	-13.00	-32.07	171	236	Peak
2509.800	-45.64	1.75	-43.89	-13.00	-30.89	188	216	Peak

836.6 MHz Vertical



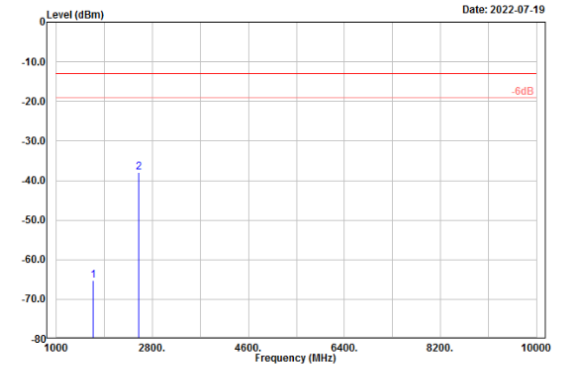
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
1673.200	-41.55	-2.26	-43.81	-13.00	-30.81	210	7	Peak
2509.800	-40.06	1.75	-38.31	-13.00	-25.31	144	298	Peak

EUT emissions correction = Reading

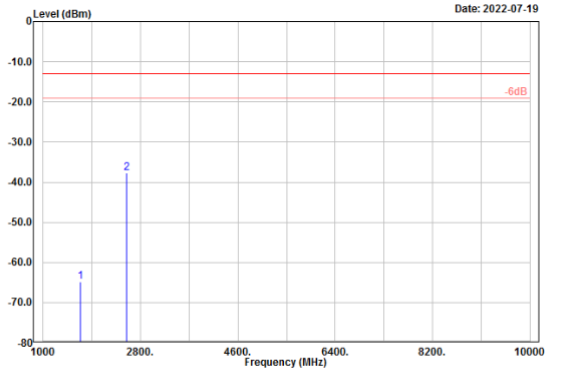
Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

848.8 MHz Horizontal	848.8 MHz Vertical



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
1697.600	-63.03	-2.21	-65.24	-13.00	-52.24	210	48	Peak
2546.400	-39.85	2.00	-37.85	-13.00	-24.85	169	178	Peak



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
1697.600	-62.52	-2.21	-64.73	-13.00	-51.73	167	100	Peak
2546.400	-39.63	2.00	-37.63	-13.00	-24.63	155	307	Peak

EUT emissions correction = Reading

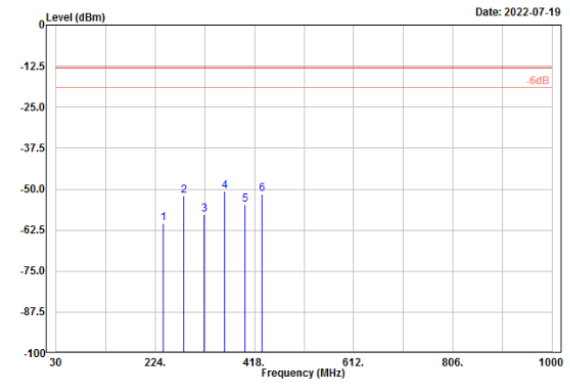
Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

PCS_Band

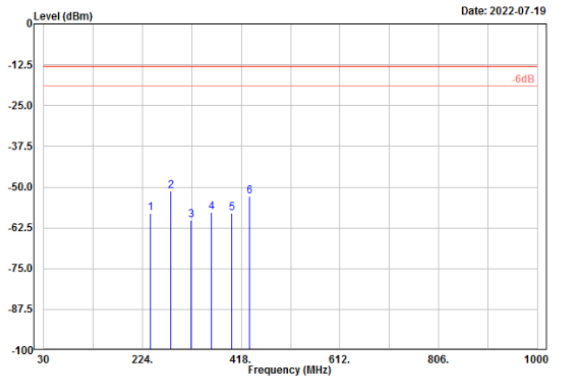
30MHz~1GHz

1850.2 MHz Horizontal



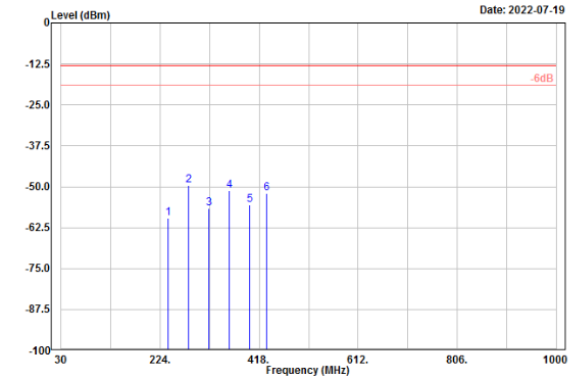
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-58.37	-2.19	-60.56	-13.00	-47.56	100	184	Peak
279.290	-51.87	-0.27	-52.14	-13.00	-39.14	100	191	Peak
320.030	-58.37	0.67	-57.70	-13.00	-44.70	100	177	Peak
359.800	-52.62	1.83	-50.79	-13.00	-37.79	100	171	Peak
399.570	-57.23	2.59	-54.64	-13.00	-41.64	100	164	Peak
432.550	-56.28	4.81	-51.47	-13.00	-38.47	100	151	Peak

1850.2 MHz Vertical



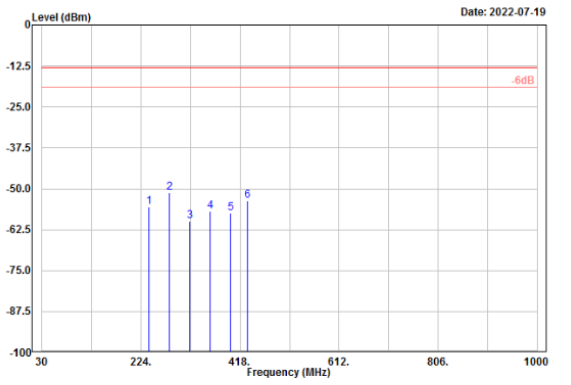
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-55.90	-2.19	-58.09	-13.00	-45.09	100	136	Peak
279.290	-50.93	-0.27	-51.20	-13.00	-38.20	100	73	Peak
320.030	-60.84	0.67	-60.17	-13.00	-47.17	100	87	Peak
359.800	-59.56	1.83	-57.73	-13.00	-44.73	100	67	Peak
399.570	-60.66	2.59	-58.07	-13.00	-45.07	100	44	Peak
434.490	-57.58	4.64	-52.94	-13.00	-39.94	100	6	Peak

1880 MHz Horizontal



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-57.39	-2.19	-59.58	-13.00	-46.58	100	185	Peak
279.290	-49.37	-0.27	-49.64	-13.00	-36.64	100	155	Peak
320.030	-57.36	0.67	-56.69	-13.00	-43.69	100	188	Peak
359.800	-53.04	1.83	-51.21	-13.00	-38.21	100	178	Peak
399.570	-58.14	2.59	-55.55	-13.00	-42.55	100	168	Peak
432.550	-56.77	4.81	-51.96	-13.00	-38.96	100	149	Peak

1880 MHz Vertical



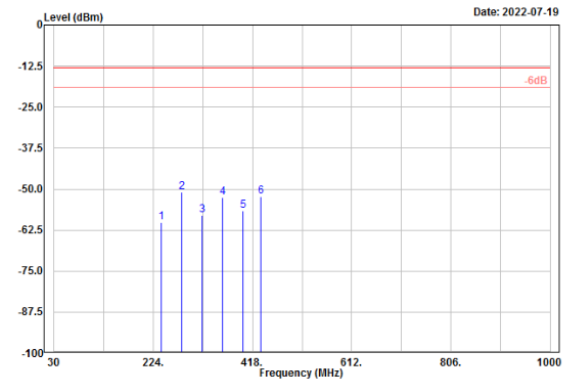
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-53.39	-2.19	-55.58	-13.00	-42.58	100	144	Peak
279.290	-50.90	-0.27	-51.17	-13.00	-38.17	100	287	Peak
320.030	-60.58	0.67	-59.91	-13.00	-46.91	100	92	Peak
359.800	-58.80	1.83	-56.97	-13.00	-43.97	100	68	Peak
399.570	-59.99	2.59	-57.40	-13.00	-44.40	100	244	Peak
432.550	-58.57	4.81	-53.76	-13.00	-40.76	100	4	Peak

EUT emissions correction = Reading

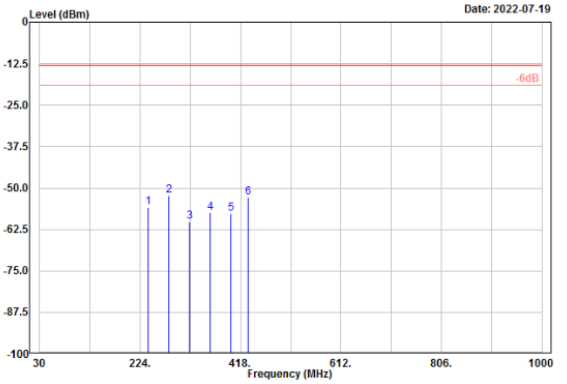
Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

1909.8 MHz Horizontal	1909.8MHz Vertical



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-58.00	-2.19	-60.19	-13.00	-47.19	100	181	Peak
279.290	-50.80	-0.27	-51.07	-13.00	-38.07	100	172	Peak
320.030	-58.73	0.67	-58.06	-13.00	-45.06	100	191	Peak
359.800	-54.37	1.83	-52.54	-13.00	-39.54	100	172	Peak
399.570	-59.19	2.59	-56.60	-13.00	-43.60	100	178	Peak
434.490	-56.81	4.64	-52.17	-13.00	-39.17	100	147	Peak



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-53.77	-2.19	-55.96	-13.00	-42.96	100	145	Peak
279.290	-52.11	-0.27	-52.38	-13.00	-39.38	100	220	Peak
320.030	-60.76	0.67	-60.09	-13.00	-47.09	100	109	Peak
359.800	-59.16	1.83	-57.33	-13.00	-44.33	100	63	Peak
399.570	-60.29	2.59	-57.70	-13.00	-44.70	100	2	Peak
432.550	-57.71	4.81	-52.90	-13.00	-39.90	100	1	Peak

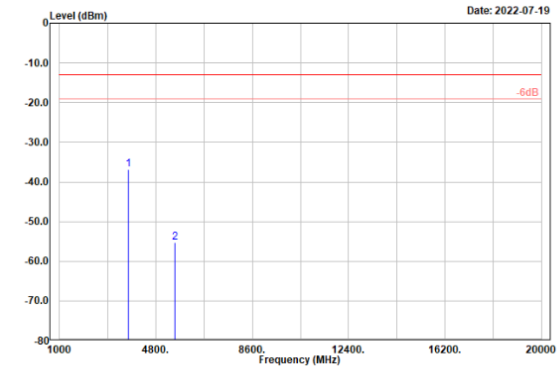
EUT emissions correction = Reading

Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

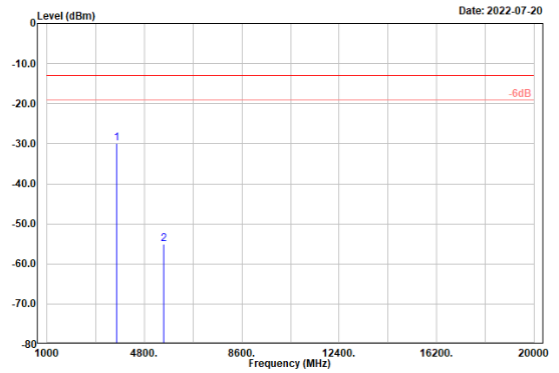
1GHz ~ 20GHz

1850.2 MHz Horizontal



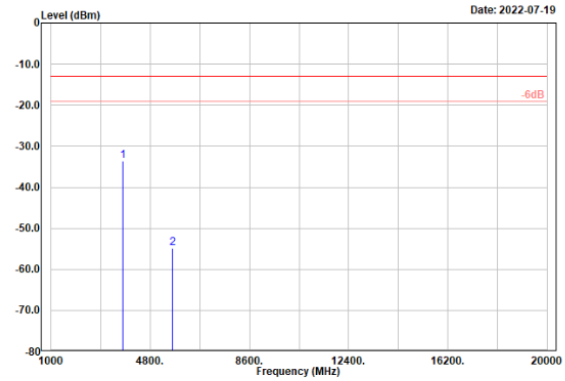
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
3700.400	-41.74	4.92	-36.82	-13.00	-23.82	191	301	Peak
5550.600	-64.01	8.65	-55.36	-13.00	-42.36	188	99	Peak

1850.2 MHz Vertical



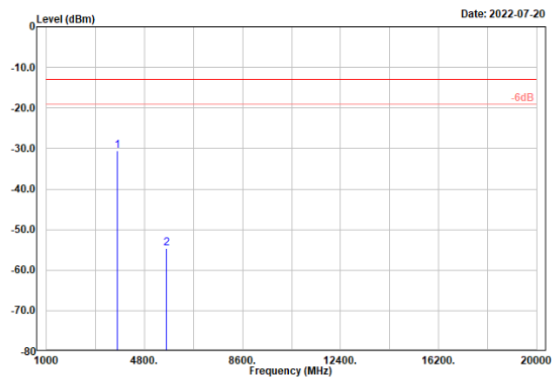
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
3700.400	-34.79	4.92	-29.87	-13.00	-16.87	144	271	Peak
5550.600	-63.72	8.65	-55.07	-13.00	-42.07	183	140	Peak

1880 MHz Horizontal



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
3760.000	-38.76	5.21	-33.55	-13.00	-20.55	220	22	Peak
5640.000	-63.71	8.82	-54.89	-13.00	-41.89	179	232	Peak

1880 MHz Vertical



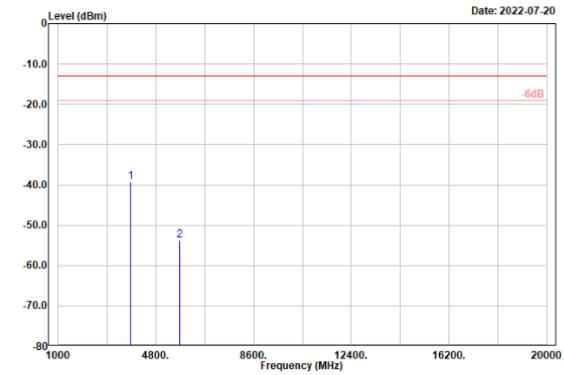
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
3760.000	-35.87	5.21	-30.66	-13.00	-17.66	152	345	Peak
5640.000	-63.52	8.82	-54.70	-13.00	-41.70	147	62	Peak

EUT emissions correction = Reading

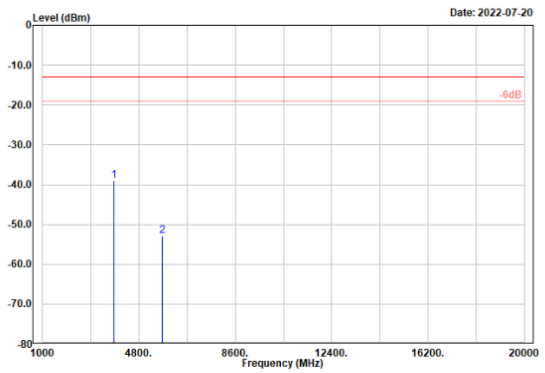
Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

1909.8 MHz Horizontal	1909.8MHz Vertical



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
3819.600	-44.75	5.62	-39.13	-13.00	-26.13	161	60	Peak
5729.400	-62.63	8.79	-53.84	-13.00	-40.84	189	82	Peak



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
3819.600	-44.69	5.62	-39.07	-13.00	-26.07	166	106	Peak
5729.400	-61.68	8.79	-52.89	-13.00	-39.89	171	159	Peak

EUT emissions correction = Reading

Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

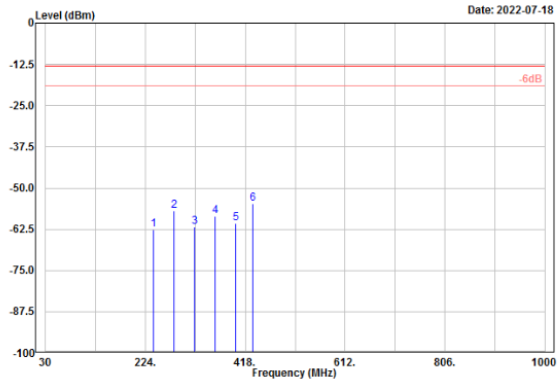
Margin = Level – Limit.

30MHz ~ 1GHz

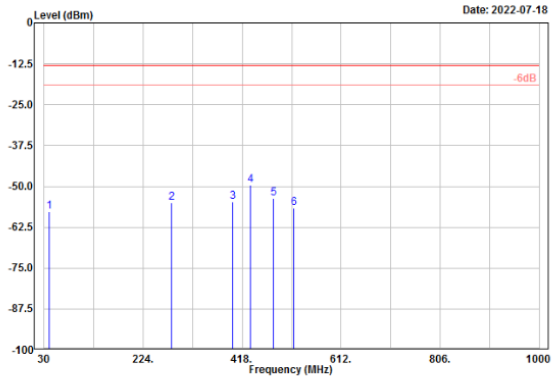
< LW2G-5C >

Cellular_Band

824.2 MHz Horizontal	824.2 MHz Vertical

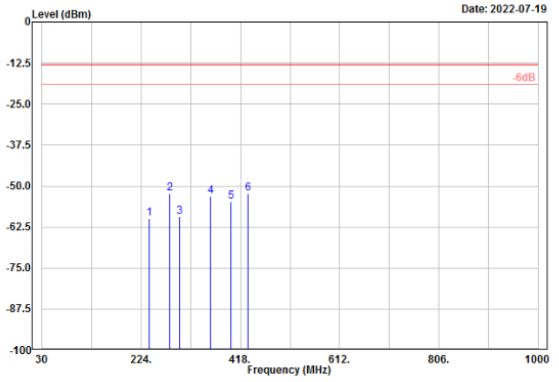


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-60.49	-2.19	-62.68	-13.00	-49.68	100	196	Peak
279.290	-56.71	-0.27	-56.98	-13.00	-43.98	100	150	Peak
320.030	-62.47	0.67	-61.80	-13.00	-48.80	100	72	Peak
359.800	-60.49	1.83	-58.66	-13.00	-45.66	100	64	Peak
399.570	-63.19	2.59	-60.60	-13.00	-47.60	100	196	Peak
432.550	-59.50	4.81	-54.69	-13.00	-41.69	100	163	Peak

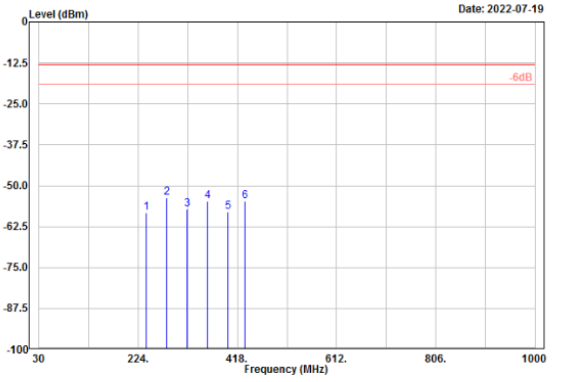


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
40.670	-59.41	1.65	-57.76	-13.00	-44.76	100	160	Peak
280.260	-54.79	-0.25	-55.04	-13.00	-42.04	100	310	Peak
399.570	-57.45	2.59	-54.86	-13.00	-41.86	100	186	Peak
434.490	-54.37	4.64	-49.73	-13.00	-36.73	100	180	Peak
480.080	-56.96	3.44	-53.52	-13.00	-40.52	100	170	Peak
519.850	-60.60	3.96	-56.64	-13.00	-43.64	100	154	Peak

836.6 MHz Horizontal	836.6 MHz Vertical



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-57.81	-2.19	-60.00	-13.00	-47.00	100	207	Peak
279.290	-51.95	-0.27	-52.22	-13.00	-39.22	100	158	Peak
299.660	-59.53	0.26	-59.27	-13.00	-46.27	100	168	Peak
359.800	-54.97	1.83	-53.14	-13.00	-40.14	100	174	Peak
399.570	-57.29	2.59	-54.70	-13.00	-41.70	100	358	Peak
432.550	-57.16	4.81	-52.35	-13.00	-39.35	100	197	Peak



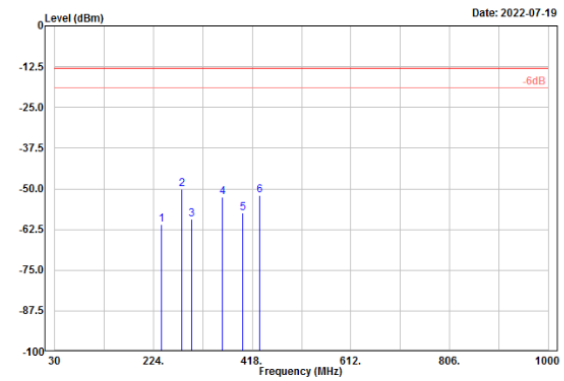
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-56.18	-2.19	-58.37	-13.00	-45.37	100	144	Peak
280.260	-53.46	-0.25	-53.71	-13.00	-40.71	100	289	Peak
320.030	-57.75	0.67	-57.08	-13.00	-44.08	100	125	Peak
359.800	-56.61	1.83	-54.78	-13.00	-41.78	100	82	Peak
399.570	-60.49	2.59	-57.90	-13.00	-44.90	100	147	Peak
432.550	-59.62	4.81	-54.81	-13.00	-41.81	100	193	Peak

EUT emissions correction = Reading

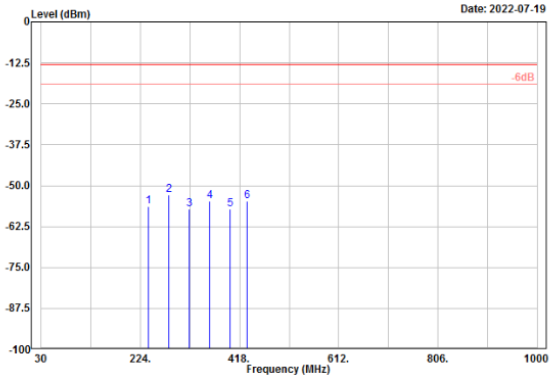
Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

848.8 MHz Horizontal	848.8 MHz Vertical



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-58.72	-2.19	-60.91	-13.00	-47.91	100	195	Peak
279.290	-49.91	-0.27	-50.18	-13.00	-37.18	100	178	Peak
299.660	-59.60	0.26	-59.34	-13.00	-46.34	100	165	Peak
359.800	-54.35	1.83	-52.52	-13.00	-39.52	100	175	Peak
399.570	-60.03	2.59	-57.44	-13.00	-44.44	100	172	Peak
432.550	-56.92	4.81	-52.11	-13.00	-39.11	100	204	Peak



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-54.10	-2.19	-56.29	-13.00	-43.29	100	153	Peak
279.290	-52.63	-0.27	-52.90	-13.00	-39.90	100	147	Peak
320.030	-57.75	0.67	-57.08	-13.00	-44.08	100	114	Peak
359.800	-56.52	1.83	-54.69	-13.00	-41.69	100	84	Peak
399.570	-59.81	2.59	-57.22	-13.00	-44.22	100	91	Peak
432.550	-59.59	4.81	-54.78	-13.00	-41.78	100	12	Peak

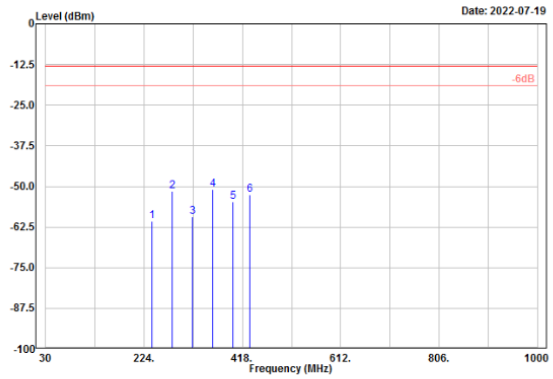
EUT emissions correction = Reading

Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

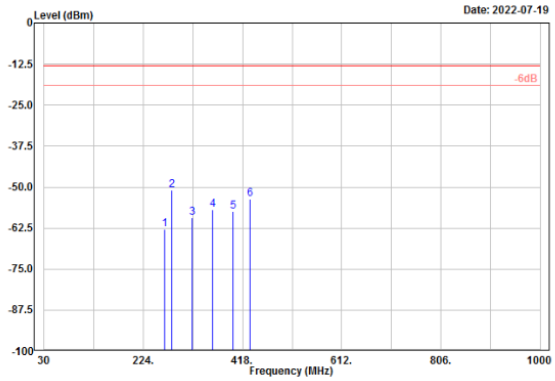
PCS_Band

1850.2 MHz Horizontal



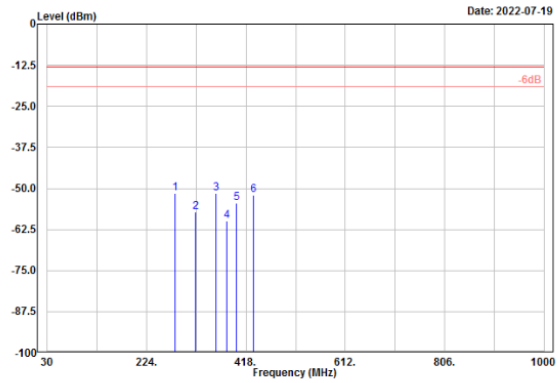
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-58.61	-2.19	-60.80	-13.00	-47.80	100	192	Peak
280.260	-51.23	-0.25	-51.48	-13.00	-38.48	100	166	Peak
320.030	-60.03	0.67	-59.36	-13.00	-46.36	100	172	Peak
359.800	-52.91	1.83	-51.08	-13.00	-38.08	100	169	Peak
399.570	-57.45	2.59	-54.86	-13.00	-41.86	100	176	Peak
432.550	-57.26	4.81	-52.45	-13.00	-39.45	100	153	Peak

1850.2 MHz Vertical



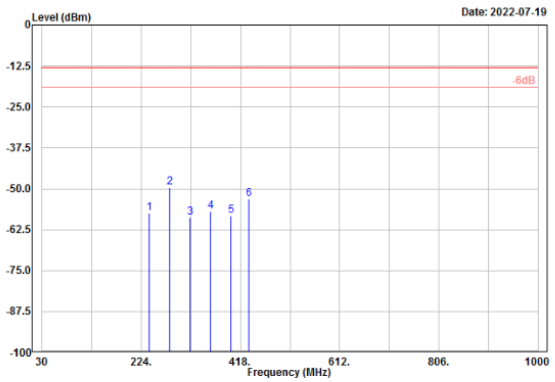
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
265.710	-62.19	-0.79	-62.98	-13.00	-49.98	100	298	Peak
280.260	-50.80	-0.25	-51.05	-13.00	-38.05	100	301	Peak
320.030	-59.95	0.67	-59.28	-13.00	-46.28	100	98	Peak
359.800	-58.87	1.83	-57.04	-13.00	-44.04	100	54	Peak
399.570	-60.08	2.59	-57.49	-13.00	-44.49	100	285	Peak
432.550	-58.36	4.81	-53.55	-13.00	-40.55	100	0	Peak

1880 MHz Horizontal



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
279.290	-51.32	-0.27	-51.59	-13.00	-38.59	100	79	Peak
320.030	-57.82	0.67	-57.15	-13.00	-44.15	100	180	Peak
359.800	-53.43	1.83	-51.60	-13.00	-38.60	100	183	Peak
380.170	-62.02	2.14	-59.88	-13.00	-46.88	100	166	Peak
399.570	-57.18	2.59	-54.59	-13.00	-41.59	100	173	Peak
432.550	-56.86	4.81	-52.05	-13.00	-39.05	100	153	Peak

1880 MHz Vertical



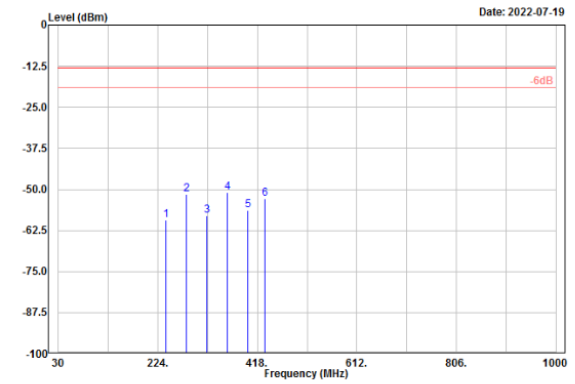
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-55.22	-2.19	-57.41	-13.00	-44.41	100	144	Peak
279.290	-49.40	-0.27	-49.67	-13.00	-36.67	100	253	Peak
320.030	-59.42	0.67	-58.75	-13.00	-45.75	100	97	Peak
359.800	-58.73	1.83	-56.90	-13.00	-43.90	100	58	Peak
399.570	-60.73	2.59	-58.14	-13.00	-45.14	100	213	Peak
434.490	-57.85	4.64	-53.21	-13.00	-40.21	100	2	Peak

EUT emissions correction = Reading

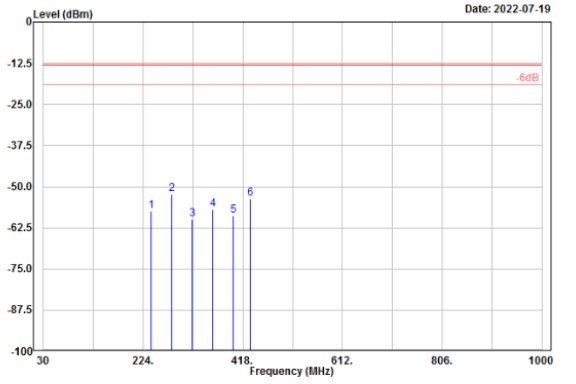
Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

1909.8 MHz Horizontal	1909.8MHz Vertical



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-57.19	-2.19	-59.38	-13.00	-46.38	100	111	Peak
279.290	-51.26	-0.27	-51.53	-13.00	-38.53	100	64	Peak
320.030	-58.74	0.67	-58.07	-13.00	-45.07	100	179	Peak
359.800	-52.85	1.83	-51.02	-13.00	-38.02	100	166	Peak
399.570	-58.94	2.59	-56.35	-13.00	-43.35	100	176	Peak
432.550	-57.69	4.81	-52.88	-13.00	-39.88	100	166	Peak



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-55.25	-2.19	-57.44	-13.00	-44.44	100	154	Peak
279.290	-52.12	-0.27	-52.39	-13.00	-39.39	100	265	Peak
320.030	-60.55	0.67	-59.88	-13.00	-46.88	100	88	Peak
359.800	-58.77	1.83	-56.94	-13.00	-43.94	100	75	Peak
399.570	-61.47	2.59	-58.88	-13.00	-45.88	100	213	Peak
432.550	-58.46	4.81	-53.65	-13.00	-40.65	100	360	Peak

EUT emissions correction = Reading

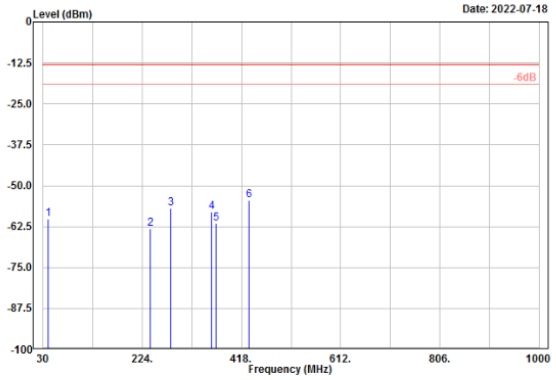
Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

< LW2G-4CL >

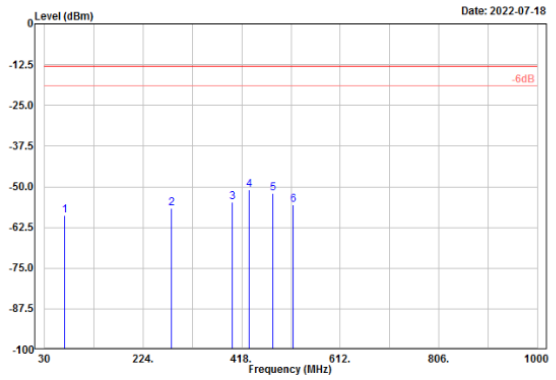
Cellular_Band

824.2 MHz Horizontal



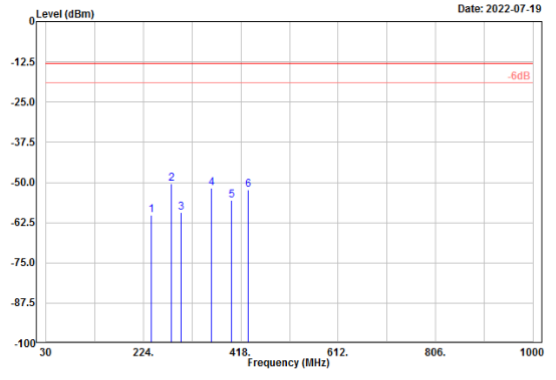
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
40.670	-61.86	1.65	-60.21	-13.00	-47.21	100	25	Peak
239.520	-61.02	-2.19	-63.21	-13.00	-50.21	100	181	Peak
279.290	-56.71	-0.27	-56.98	-13.00	-43.98	100	112	Peak
359.800	-59.83	1.83	-58.00	-13.00	-45.00	100	80	Peak
367.560	-63.45	1.90	-61.55	-13.00	-48.55	100	80	Peak
432.550	-59.33	4.81	-54.52	-13.00	-41.52	100	165	Peak

824.2 MHz Vertical



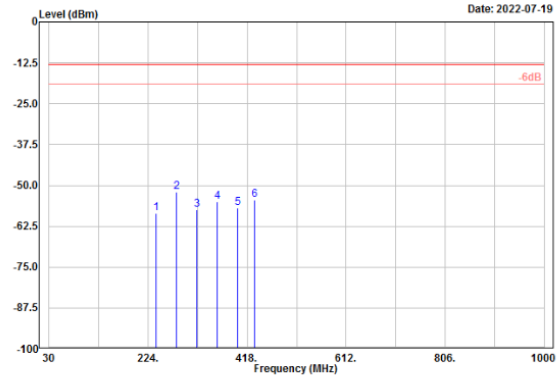
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
69.770	-51.53	-7.33	-58.86	-13.00	-45.86	100	88	Peak
279.290	-56.24	-0.27	-56.51	-13.00	-43.51	100	299	Peak
399.570	-57.35	2.59	-54.76	-13.00	-41.76	100	167	Peak
432.550	-55.72	4.81	-50.91	-13.00	-37.91	100	170	Peak
480.080	-55.58	3.44	-52.14	-13.00	-39.14	100	170	Peak
519.850	-59.62	3.96	-55.66	-13.00	-42.66	100	167	Peak

836.6 MHz Horizontal



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-58.07	-2.19	-60.26	-13.00	-47.26	100	206	Peak
280.260	-50.20	-0.25	-50.45	-13.00	-37.45	100	189	Peak
299.660	-59.57	0.26	-59.31	-13.00	-46.31	100	159	Peak
359.800	-53.60	1.83	-51.77	-13.00	-38.77	100	192	Peak
399.570	-58.12	2.59	-55.53	-13.00	-42.53	100	170	Peak
432.550	-57.22	4.81	-52.41	-13.00	-39.41	100	200	Peak

836.6 MHz Vertical



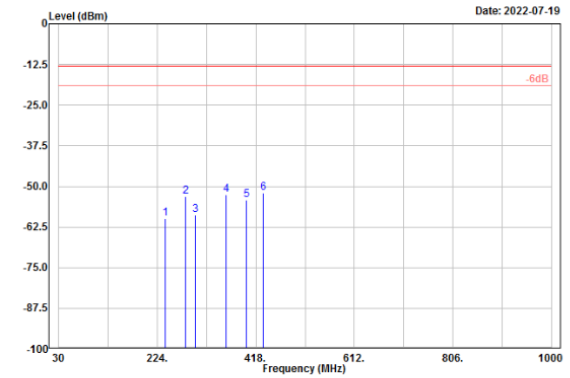
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-56.23	-2.19	-58.42	-13.00	-45.42	100	156	Peak
279.290	-51.87	-0.27	-52.14	-13.00	-39.14	100	77	Peak
320.030	-58.22	0.67	-57.55	-13.00	-44.55	100	113	Peak
359.800	-56.92	1.83	-55.09	-13.00	-42.09	100	97	Peak
399.570	-59.57	2.59	-56.98	-13.00	-43.98	100	87	Peak
432.550	-59.27	4.81	-54.46	-13.00	-41.46	100	17	Peak

EUT emissions correction = Reading

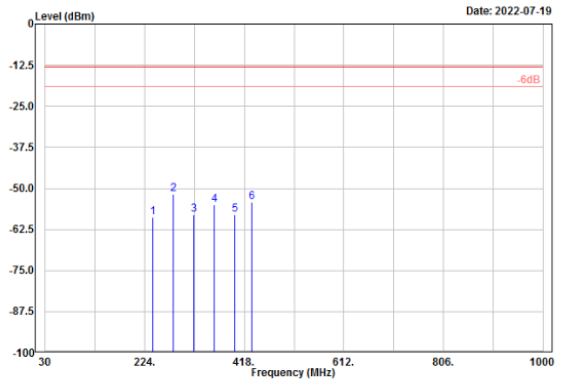
Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

848.8 MHz Horizontal	848.8 MHz Vertical



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-57.80	-2.19	-59.99	-13.00	-46.99	100	192	Peak
279.290	-52.94	-0.27	-53.21	-13.00	-40.21	100	196	Peak
299.660	-58.94	0.26	-58.68	-13.00	-45.68	100	169	Peak
359.800	-54.36	1.83	-52.53	-13.00	-39.53	100	189	Peak
399.570	-56.80	2.59	-54.21	-13.00	-41.21	100	166	Peak
432.550	-56.71	4.81	-51.90	-13.00	-38.90	100	208	Peak



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-56.50	-2.19	-58.69	-13.00	-45.69	100	156	Peak
279.290	-51.47	-0.27	-51.74	-13.00	-38.74	100	77	Peak
320.030	-58.77	0.67	-58.10	-13.00	-45.10	100	84	Peak
359.800	-56.72	1.83	-54.89	-13.00	-41.89	100	97	Peak
399.570	-60.62	2.59	-58.03	-13.00	-45.03	100	91	Peak
432.550	-59.01	4.81	-54.20	-13.00	-41.20	100	196	Peak

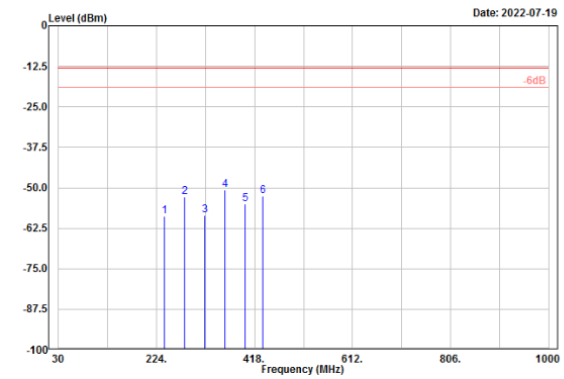
EUT emissions correction = Reading

Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

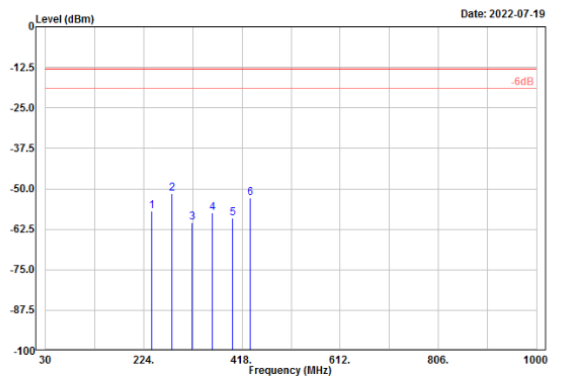
PCS_Band

1850.2 MHz Horizontal



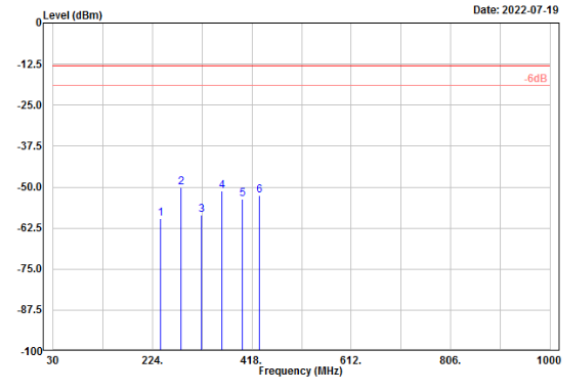
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-56.66	-2.19	-58.85	-13.00	-45.85	100	168	Peak
279.290	-52.60	-0.27	-52.87	-13.00	-39.87	100	177	Peak
320.030	-59.28	0.67	-58.61	-13.00	-45.61	100	191	Peak
359.800	-52.46	1.83	-50.63	-13.00	-37.63	100	184	Peak
399.570	-57.65	2.59	-55.06	-13.00	-42.06	100	151	Peak
434.490	-57.15	4.64	-52.51	-13.00	-39.51	100	154	Peak

1850.2 MHz Vertical



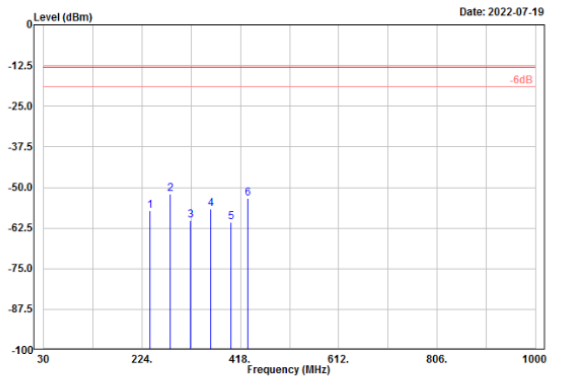
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-54.66	-2.19	-56.85	-13.00	-43.85	100	145	Peak
279.290	-51.27	-0.27	-51.54	-13.00	-38.54	100	73	Peak
320.030	-61.21	0.67	-60.54	-13.00	-47.54	100	86	Peak
359.800	-59.23	1.83	-57.40	-13.00	-44.40	100	50	Peak
399.570	-61.64	2.59	-59.05	-13.00	-46.05	100	300	Peak
434.490	-57.53	4.64	-52.89	-13.00	-39.89	100	1	Peak

1880 MHz Horizontal



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-57.34	-2.19	-59.53	-13.00	-46.53	100	194	Peak
280.260	-49.84	-0.25	-50.09	-13.00	-37.09	100	171	Peak
320.030	-59.20	0.67	-58.53	-13.00	-45.53	100	177	Peak
359.800	-52.96	1.83	-51.13	-13.00	-38.13	100	188	Peak
399.570	-56.31	2.59	-53.72	-13.00	-40.72	100	155	Peak
432.550	-57.27	4.81	-52.46	-13.00	-39.46	100	315	Peak

1880 MHz Vertical



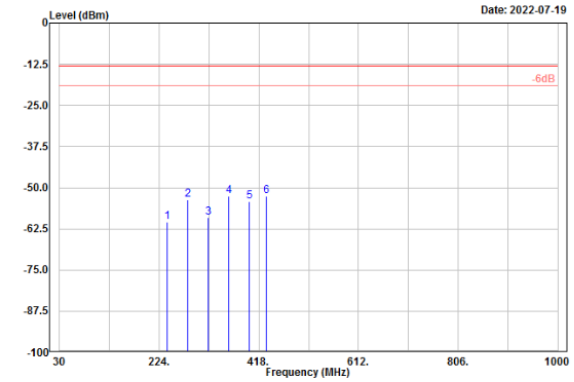
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-55.09	-2.19	-57.28	-13.00	-44.28	100	149	Peak
279.290	-51.82	-0.27	-52.09	-13.00	-39.09	100	218	Peak
320.030	-60.80	0.67	-60.13	-13.00	-47.13	100	83	Peak
359.800	-58.56	1.83	-56.73	-13.00	-43.73	100	60	Peak
399.570	-63.36	2.59	-60.77	-13.00	-47.77	100	10	Peak
432.550	-58.29	4.81	-53.48	-13.00	-40.48	100	359	Peak

EUT emissions correction = Reading

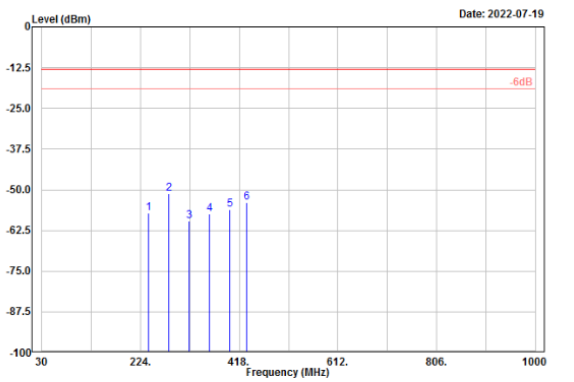
Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

1909.8 MHz Horizontal	1909.8MHz Vertical



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-58.22	-2.19	-60.41	-13.00	-47.41	100	182	Peak
279.290	-53.36	-0.27	-53.63	-13.00	-40.63	100	179	Peak
320.030	-59.65	0.67	-58.98	-13.00	-45.98	100	175	Peak
359.800	-54.35	1.83	-52.52	-13.00	-39.52	100	179	Peak
399.570	-56.71	2.59	-54.12	-13.00	-41.12	100	155	Peak
432.550	-57.27	4.81	-52.46	-13.00	-39.46	100	155	Peak



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-55.03	-2.19	-57.22	-13.00	-44.22	100	155	Peak
279.290	-51.04	-0.27	-51.31	-13.00	-38.31	100	291	Peak
320.030	-60.27	0.67	-59.60	-13.00	-46.60	100	90	Peak
359.800	-59.29	1.83	-57.46	-13.00	-44.46	100	60	Peak
399.570	-58.76	2.59	-56.17	-13.00	-43.17	100	291	Peak
432.550	-58.64	4.81	-53.83	-13.00	-40.83	100	0	Peak

EUT emissions correction = Reading

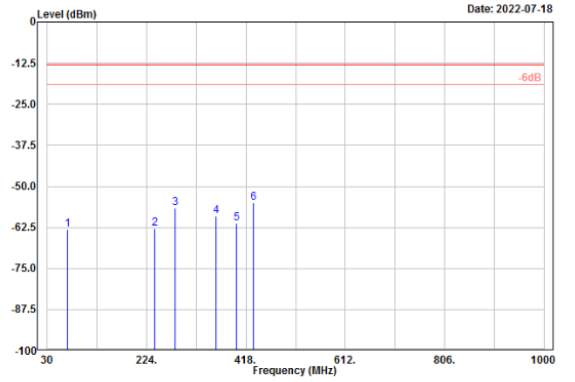
Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

< LW2G-4C >

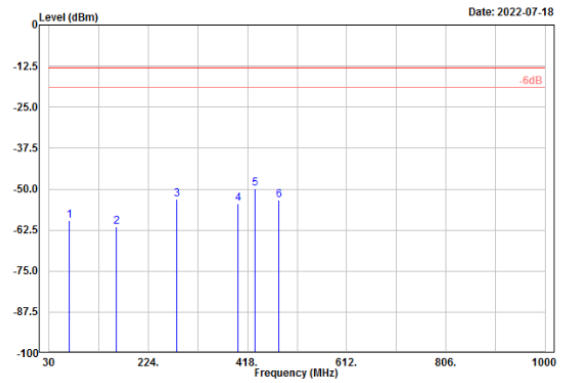
Cellular_Band

824.2 MHz Horizontal



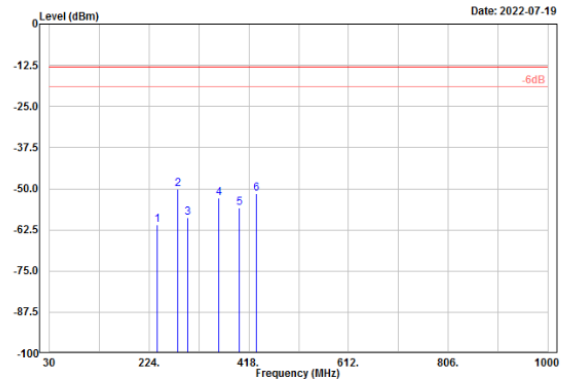
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
69.770	-55.79	-7.33	-63.12	-13.00	-50.12	100	210	Peak
239.520	-60.60	-2.19	-62.79	-13.00	-49.79	100	197	Peak
279.290	-56.45	-0.27	-56.72	-13.00	-43.72	100	0	Peak
359.800	-60.78	1.83	-58.95	-13.00	-45.95	100	188	Peak
399.570	-63.96	2.59	-61.37	-13.00	-48.37	100	220	Peak
432.550	-59.88	4.81	-55.07	-13.00	-42.07	100	168	Peak

824.2 MHz Vertical



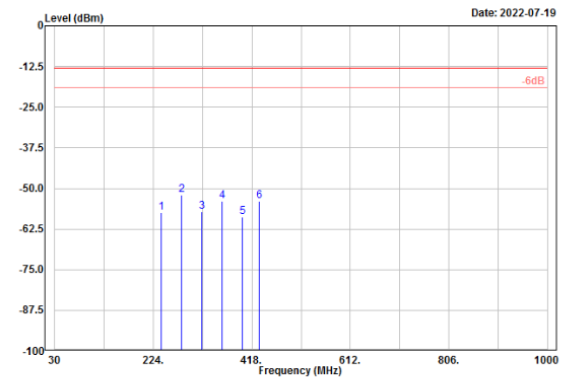
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
69.770	-52.17	-7.33	-59.50	-13.00	-46.50	100	285	Peak
160.950	-58.57	-3.07	-61.64	-13.00	-48.64	100	190	Peak
279.290	-52.84	-0.27	-53.11	-13.00	-40.11	100	83	Peak
399.570	-57.05	2.59	-54.46	-13.00	-41.46	100	173	Peak
432.550	-54.66	4.81	-49.85	-13.00	-36.85	100	190	Peak
480.080	-56.90	3.44	-53.46	-13.00	-40.46	100	164	Peak

836.6 MHz Horizontal



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-58.76	-2.19	-60.95	-13.00	-47.95	100	191	Peak
279.290	-49.77	-0.27	-50.04	-13.00	-37.04	100	177	Peak
299.660	-59.00	0.26	-58.74	-13.00	-45.74	100	171	Peak
359.800	-54.67	1.83	-52.84	-13.00	-39.84	100	171	Peak
399.570	-58.30	2.59	-55.71	-13.00	-42.71	100	180	Peak
432.550	-56.32	4.81	-51.51	-13.00	-38.51	100	200	Peak

836.6 MHz Vertical



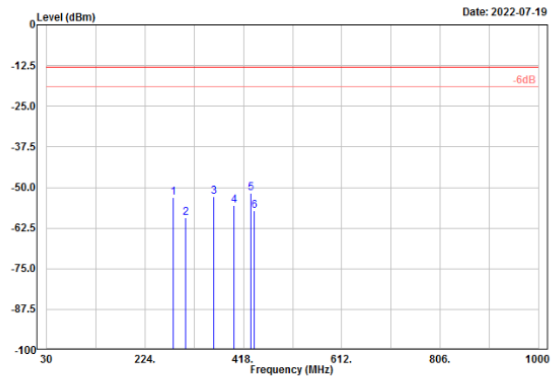
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-55.27	-2.19	-57.46	-13.00	-44.46	100	156	Peak
279.290	-51.87	-0.27	-52.14	-13.00	-39.14	100	64	Peak
320.030	-57.75	0.67	-57.08	-13.00	-44.08	100	77	Peak
359.800	-55.83	1.83	-54.00	-13.00	-41.00	100	84	Peak
399.570	-61.29	2.59	-58.70	-13.00	-45.70	100	287	Peak
432.550	-58.69	4.81	-53.88	-13.00	-40.88	100	195	Peak

EUT emissions correction = Reading

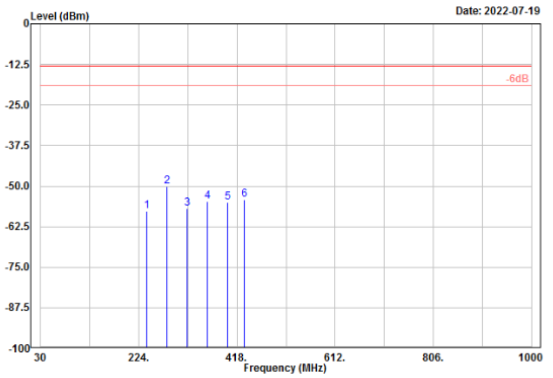
Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

848.8 MHz Horizontal	848.8 MHz Vertical



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
279.290	-52.92	-0.27	-53.19	-13.00	-40.19	100	171	Peak
304.510	-59.58	0.30	-59.28	-13.00	-46.28	100	290	Peak
359.800	-54.60	1.83	-52.77	-13.00	-39.77	100	174	Peak
399.570	-58.18	2.59	-55.59	-13.00	-42.59	100	171	Peak
432.550	-56.64	4.81	-51.83	-13.00	-38.83	100	215	Peak
440.310	-61.43	4.12	-57.31	-13.00	-44.31	100	350	Peak



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-55.55	-2.19	-57.74	-13.00	-44.74	100	159	Peak
279.290	-49.79	-0.27	-50.06	-13.00	-37.06	100	35	Peak
320.030	-57.61	0.67	-56.94	-13.00	-43.94	100	94	Peak
359.800	-56.56	1.83	-54.73	-13.00	-41.73	100	100	Peak
399.570	-57.65	2.59	-55.06	-13.00	-42.06	100	91	Peak
432.550	-58.99	4.81	-54.18	-13.00	-41.18	100	199	Peak

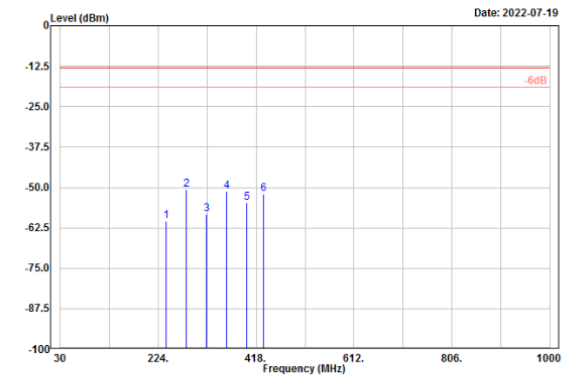
EUT emissions correction = Reading

Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

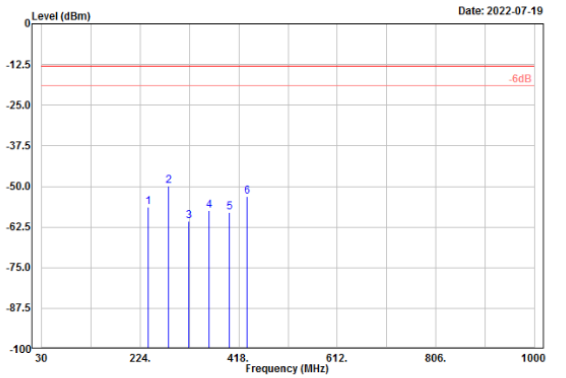
PCS_Band

1850.2 MHz Horizontal



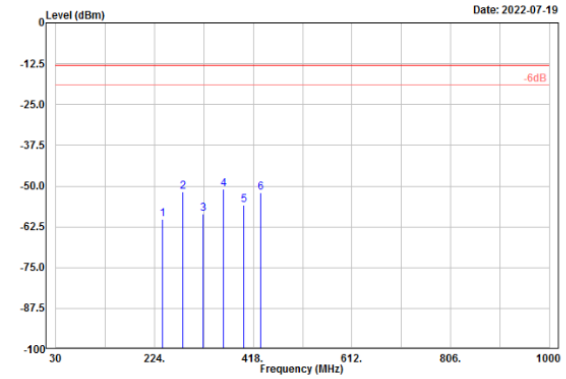
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-58.15	-2.19	-60.34	-13.00	-47.34	100	188	Peak
279.290	-50.41	-0.27	-50.68	-13.00	-37.68	100	185	Peak
320.030	-58.96	0.67	-58.29	-13.00	-45.29	100	185	Peak
359.800	-53.05	1.83	-51.22	-13.00	-38.22	100	179	Peak
399.570	-57.38	2.59	-54.79	-13.00	-41.79	100	149	Peak
432.550	-56.76	4.81	-51.95	-13.00	-38.95	100	149	Peak

1850.2 MHz Vertical



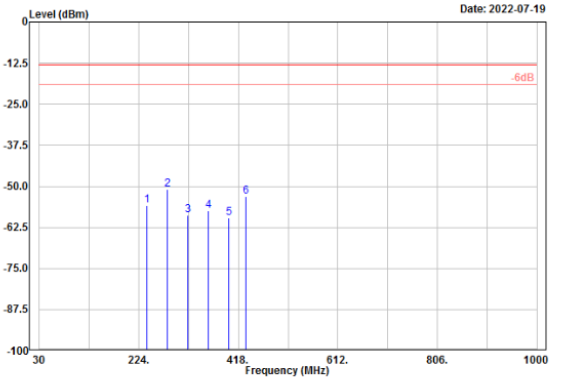
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-54.18	-2.19	-56.37	-13.00	-43.37	100	146	Peak
280.260	-49.67	-0.25	-49.92	-13.00	-36.92	100	291	Peak
320.030	-61.29	0.67	-60.62	-13.00	-47.62	100	108	Peak
359.800	-59.34	1.83	-57.51	-13.00	-44.51	100	52	Peak
399.570	-60.64	2.59	-58.05	-13.00	-45.05	100	288	Peak
434.490	-57.84	4.64	-53.20	-13.00	-40.20	100	2	Peak

1880 MHz Horizontal



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-58.05	-2.19	-60.24	-13.00	-47.24	100	189	Peak
279.290	-51.58	-0.27	-51.85	-13.00	-38.85	100	155	Peak
320.030	-59.08	0.67	-58.41	-13.00	-45.41	100	172	Peak
359.800	-52.76	1.83	-50.93	-13.00	-37.93	100	172	Peak
399.570	-58.38	2.59	-55.79	-13.00	-42.79	100	176	Peak
432.550	-56.82	4.81	-52.01	-13.00	-39.01	100	162	Peak

1880 MHz Vertical



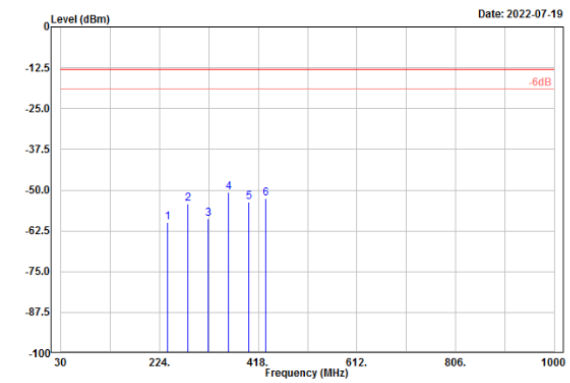
Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-53.60	-2.19	-55.79	-13.00	-42.79	100	153	Peak
279.290	-50.73	-0.27	-51.00	-13.00	-38.00	100	258	Peak
320.030	-59.43	0.67	-58.76	-13.00	-45.76	100	87	Peak
359.800	-59.39	1.83	-57.56	-13.00	-44.56	100	58	Peak
399.570	-62.09	2.59	-59.50	-13.00	-46.50	100	232	Peak
432.550	-57.82	4.81	-53.01	-13.00	-40.01	100	3	Peak

EUT emissions correction = Reading

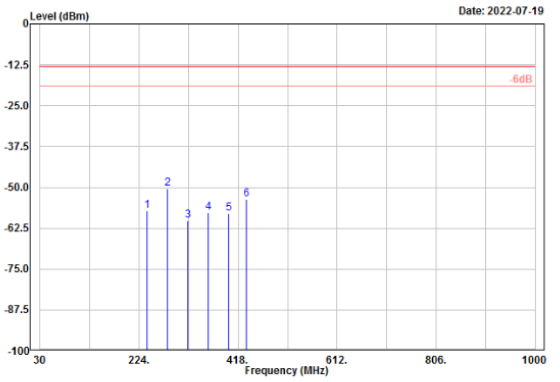
Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

1909.8 MHz Horizontal	1909.8MHz Vertical



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-57.79	-2.19	-59.98	-13.00	-46.98	100	180	Peak
279.290	-53.94	-0.27	-54.21	-13.00	-41.21	100	75	Peak
320.030	-59.43	0.67	-58.76	-13.00	-45.76	100	176	Peak
359.800	-52.62	1.83	-50.79	-13.00	-37.79	100	180	Peak
399.570	-56.38	2.59	-53.79	-13.00	-40.79	100	154	Peak
432.550	-57.30	4.81	-52.49	-13.00	-39.49	100	154	Peak



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBm	dB/m	dBm/m	dBm/m	dB	(cm)	(°)	
239.520	-54.92	-2.19	-57.11	-13.00	-44.11	100	161	Peak
279.290	-50.23	-0.27	-50.50	-13.00	-37.50	100	314	Peak
320.030	-60.71	0.67	-60.04	-13.00	-47.04	100	101	Peak
359.800	-59.48	1.83	-57.65	-13.00	-44.65	100	79	Peak
399.570	-60.65	2.59	-58.06	-13.00	-45.06	100	96	Peak
434.490	-58.19	4.64	-53.55	-13.00	-40.55	100	356	Peak

EUT emissions correction = Reading

Level = Level + Factor (Antenna Factor + Cable Loss – Amplifier Gain.)

Margin = Level – Limit.

FCC§22.917(a) & §24.238(a) – Band Edges

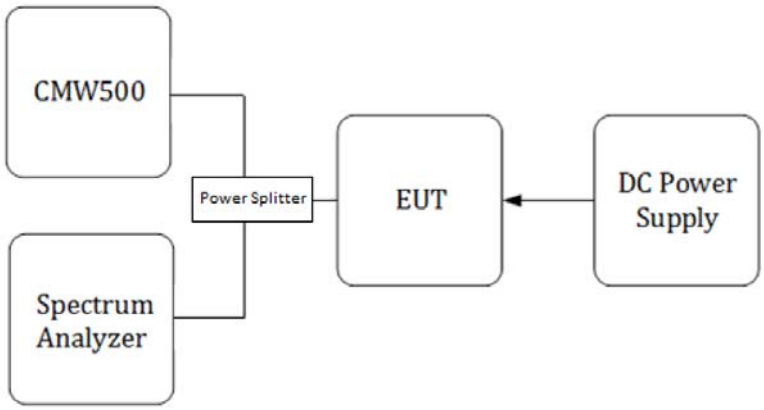
Applicable Standard

FCC §22.917, § 24.238,

According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

Block Diagram of Test Setup



Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

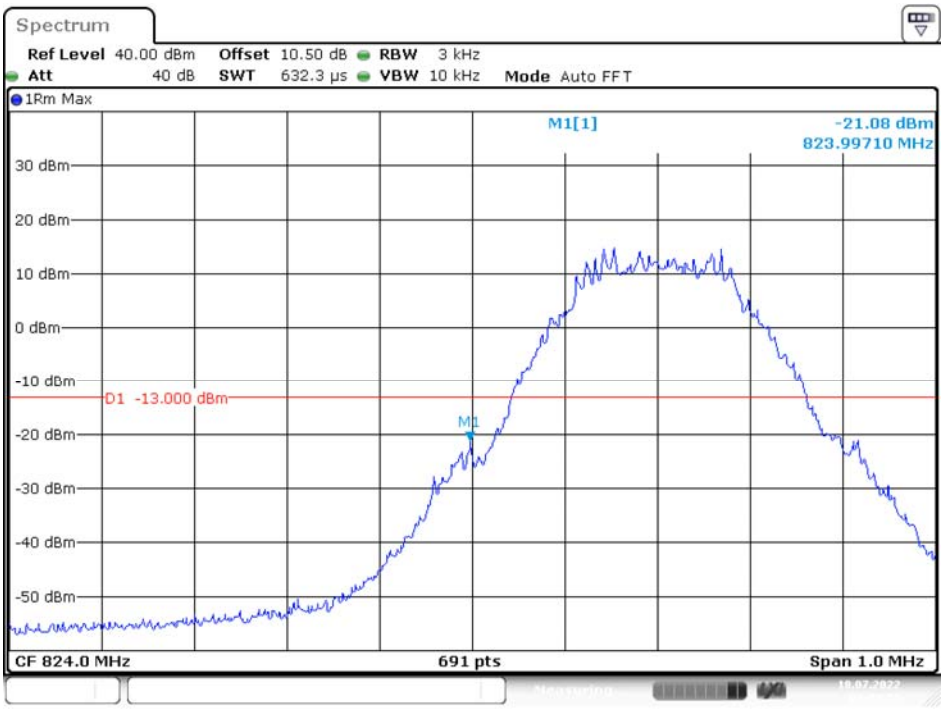
The center of the spectrum analyzer was set to block edge frequency.

Test Results

Please refer to the following plots

Cellular Band (Part 22H)

GPRS Mode, Left Band Edge



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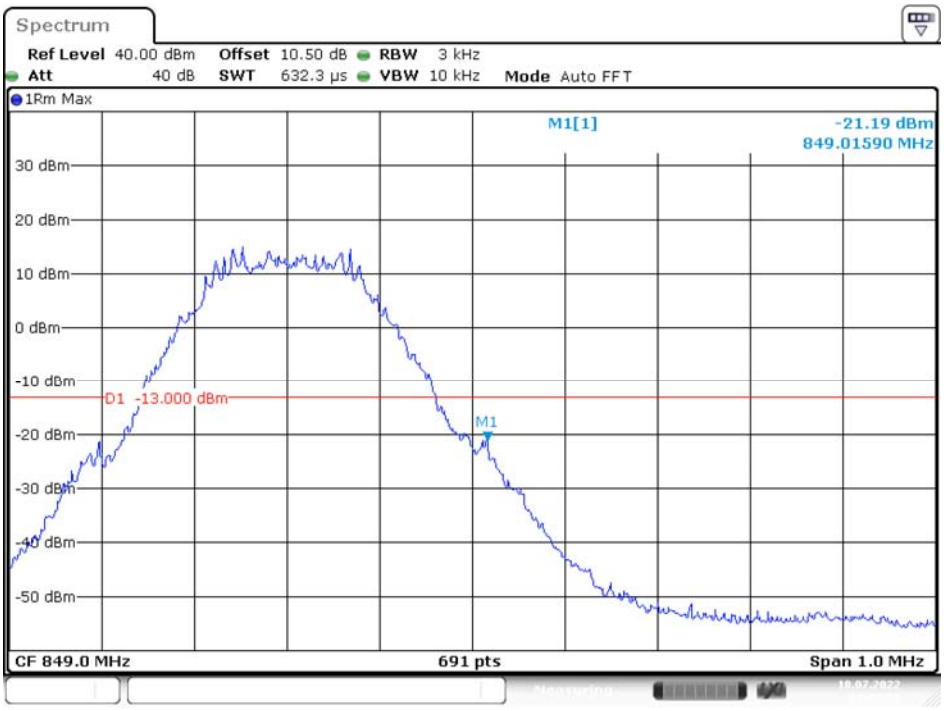
GPRS Mode, Right Band Edge



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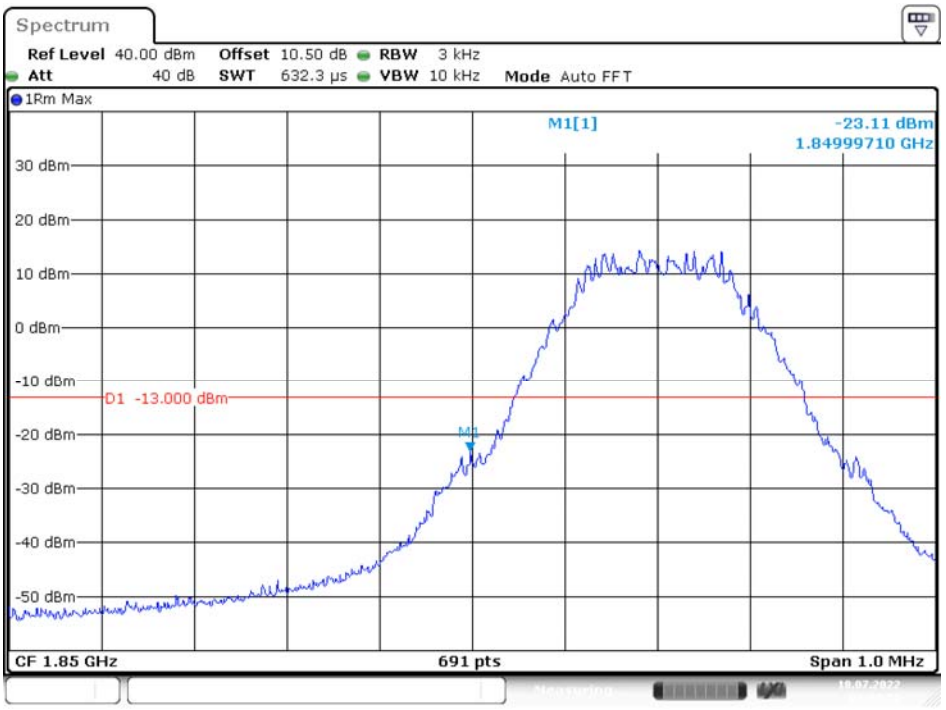
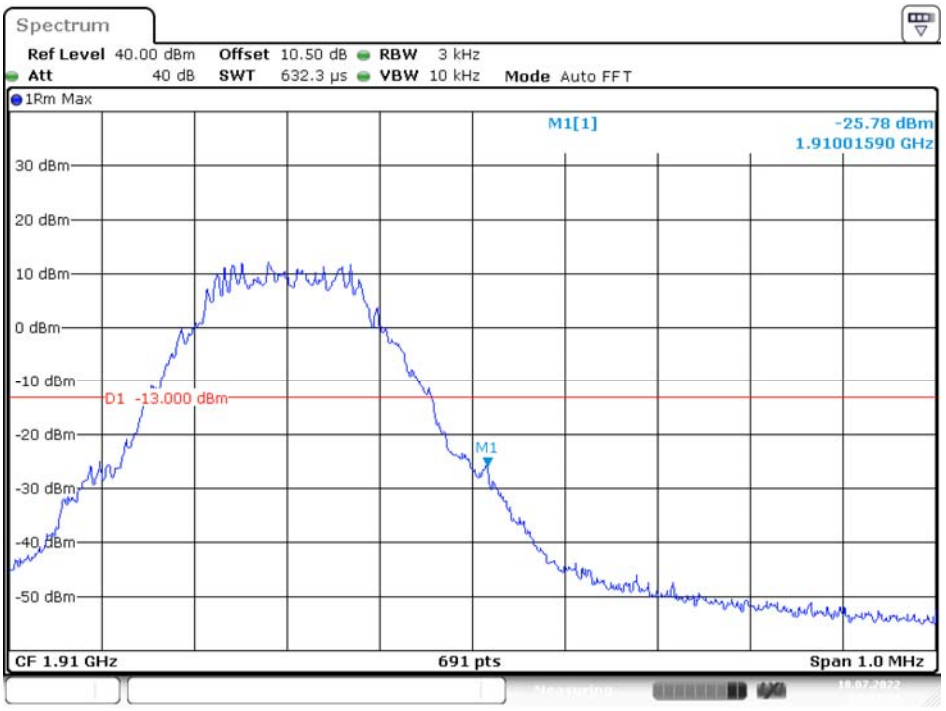
PCS Band (Part 24E)

GPRS Mode, Left Band Edge



Date: 18.JUL.2022 09:50:52

GPRS Mode, Right Band Edge



Date: 18.JUL.2022 09:52:34

FCC §2.1055, §22.355 & §24.235 – FREQUENCY STABILITY

Applicable Standard

FCC § 2.1055 (a)(d), §22.355, §24.235

According to FCC §2.1055, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

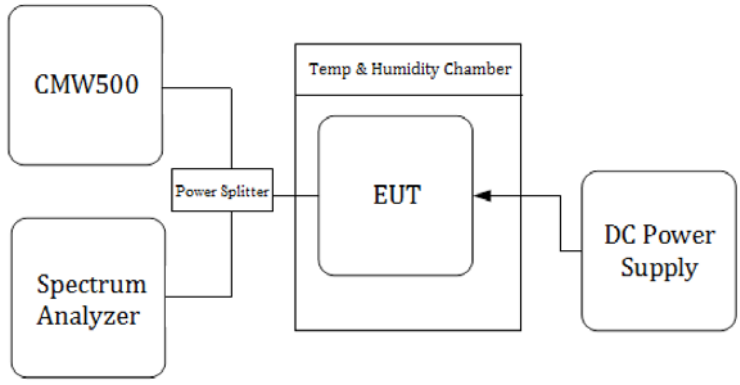
According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile > 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Block Diagram of Test Setup



Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: An external variable DC power supply was connected to the battery terminals of the equipment under test. The voltage was set from 85% to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the battery end point. The output frequency was recorded for each battery voltage.

Test Results

Cellular Band (Part 22H)

GPRS

Middle Channel, fo=836.6MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.7	9.1	0.0109	±2.5
-20		11	0.0131	±2.5
-10		8.6	0.0103	±2.5
0		10.9	0.013	±2.5
10		11.4	0.0136	±2.5
20		9.2	0.011	±2.5
30		11.8	0.0141	±2.5
40		10.4	0.0124	±2.5
50		12.17	0.0145	±2.5
20	V min= 3.1	14.36	0.0172	±2.5
20	V max= 4.3	16	0.0191	±2.5

PCS Band (Part 24E)

GPRS

Middle Channel,fo=1880MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.7	80	0.0426	Pass
-20		76	0.0404	Pass
-10		71	0.0378	Pass
0		75	0.0399	Pass
10		78	0.0415	Pass
20		68	0.0362	Pass
30		80	0.0426	Pass
40		72	0.0383	Pass
50		88	0.0468	Pass
20	V min= 3.1	73	0.0388	Pass
20	V max= 4.3	77	0.041	Pass

----- END OF REPORT -----