TEST REPORT

Applicant Name :	Shenzhen Xin Yuan Electronic Technology Co., Ltd.
Address :	401 4F Bldg.building B. No.5, 1st Rd Bantianshangxue Technology Park ,Bantian St, Longgang Dist.,Shenzhen Guangdong China
Report Number :	SZNS220330-11519E-RF-00C
FCC ID:	2ASYE-T3-V1-6-1

Test Standard (s)

FCC PART 15.247

Sample Description

Product Type:	T3 V1.6.1
Model No.:	T3 V1.6.1
Multiple Model(s) No.:	N/A
Trade Mark:	LILYGO
Date Received:	2022/03/30
Report Date:	2022/07/05

Test Result:	Pass*

* In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Ting Lü

EMC Engineer

Approved By:

Robert Li

EMC Engineer

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★ ".
Shenzhen Accurate Technology Co., Ltd. is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk '*'. Customer model name, addresses, names, trademarks etc. are not considered data.
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Frequency Range	915 MHz
Maximum Conducted Peak Output Power	10.83dBm
Modulation Technique	LoRa/Chirp Spread Spectrum
Antenna Specification*	2.0dBi(provided by the applicant)
Voltage Range	DC 3.7V from battery or DC 5V from usb port
Sample serial number	SZNS220330-11519E-RF-S2 for Conducted and Radiated Emissions SZNS220330-11519E-RF-S1 for RF Conducted Test (Assigned by ATC)
Sample/EUT Status	Good condition

Objective

This test report is in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commission's rules .

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices .

And KDB 558074 D01 15.247 Meas Guidance v05r02.

All emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
RF Frequency		$0.082*10^{-7}$
RF output power, conducted		0.73dB
Unwanted Emission, conducted		1.6dB
AC Power Lines Conducted Emissions		2.72dB
Emissions, Radiated	9kHz - 30MHz	2.66dB
	30MHz - 1GHz	4.28dB
	1GHz - 18GHz	4.98dB
	18GHz - 26.5GHz	5.06dB
	26.5GHz - 40GHz	4.72dB
Temperature		1℃
Humidity		6%
Supply voltages		0.4%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189. Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 429 7.01.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0016.

Listed by Innovation, Science and Economic Development Canada (ISEDC), the Registration Number is 5077A.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in engineering mode.

Channel List

Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	915	/	/

Equipment Modifications

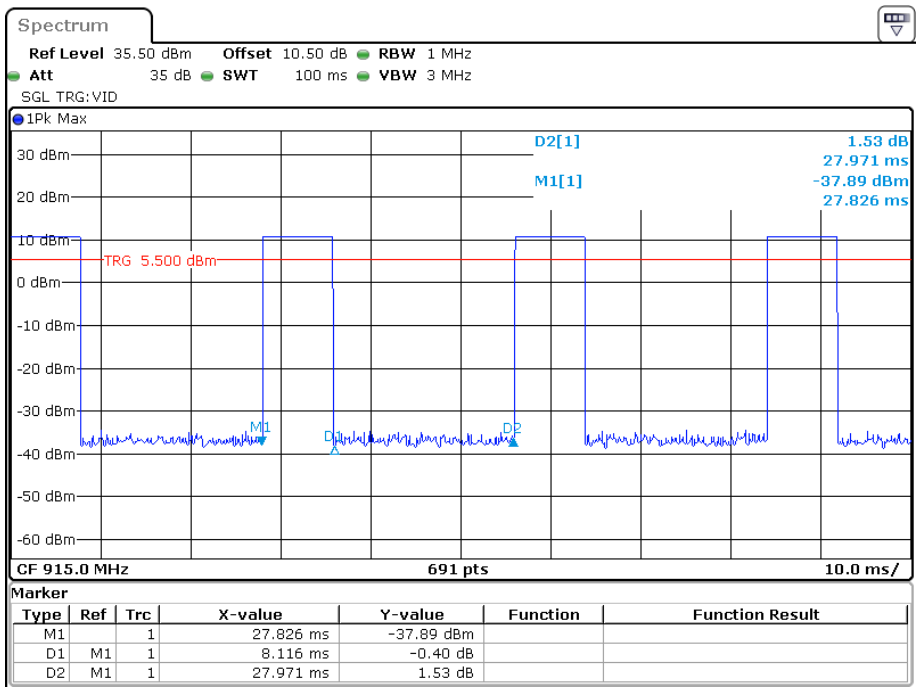
No modification was made to the EUT tested.

EUT Exercise Software

"ESP32 DOWNLOAD Tool V3.9.2.exe"*exercise software was used. and the power level is default*. The power level was provided by applicant.

Duty cycle

Mode	T_{on} (ms)	T_{on+off} (ms)	Duty Cycle (%)
DTS	8.116	27.971	29.02



Support Equipment List and Details

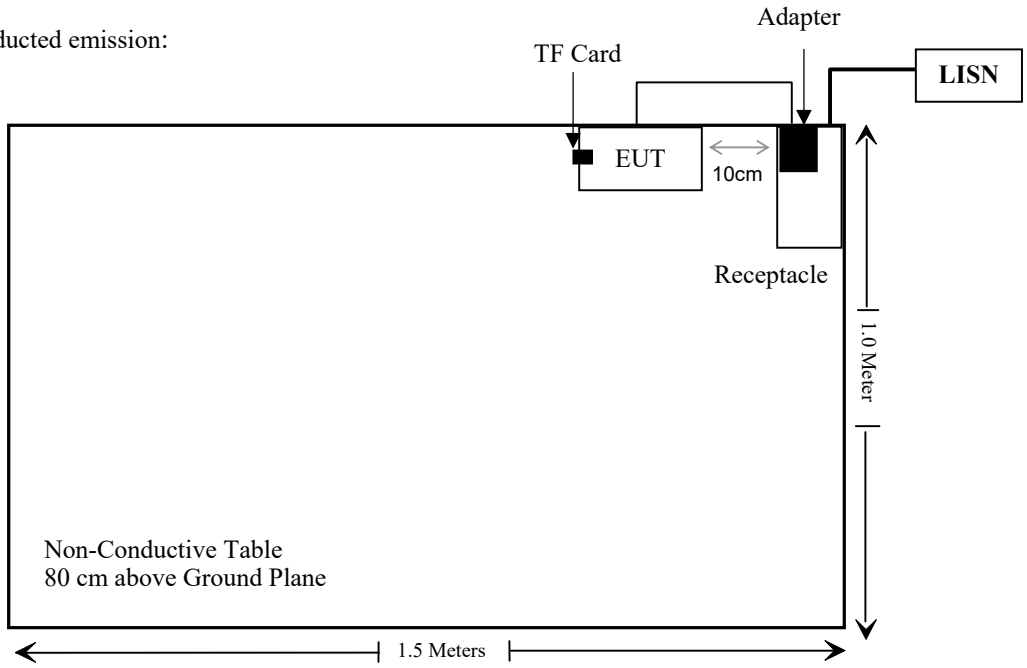
Manufacturer	Description	Model	Serial Number
TECNO	Adapter	U180TSA	8JD07016222119
Aigo	TF Card	U312	Unknown

External I/O Cable

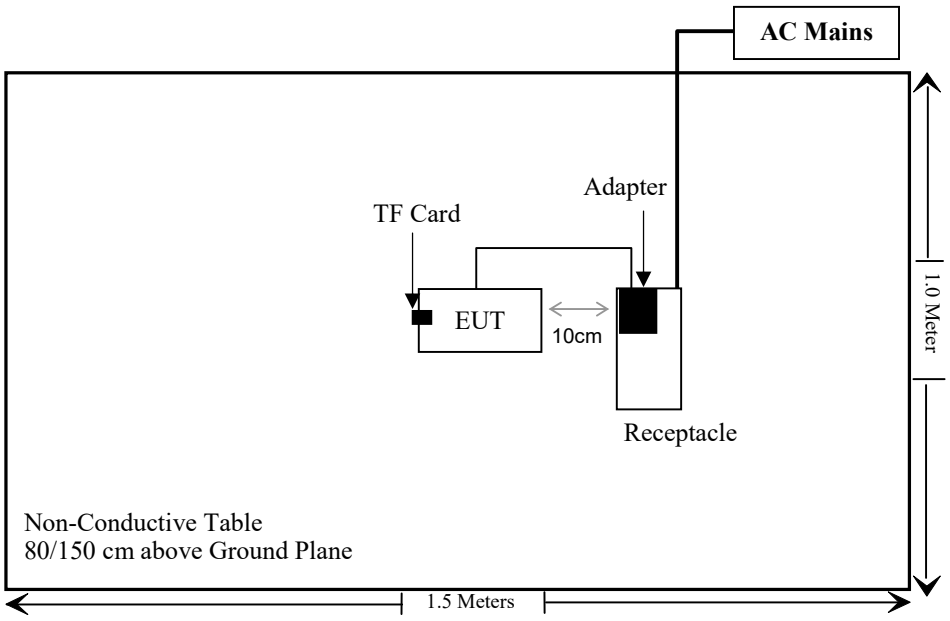
Cable Description	Length (m)	From Port	To
Un-shielding Detachable USB Cable	1.0	EUT	Adapter

Block Diagram of Test Setup

For conducted emission:



For radiated emission:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i) & §1.1307 (b) (3)	RF Exposure Evaluation	Compliant
FCC §15.203	Antenna Requirement	Compliant
FCC §15.207(a)	AC Line Conducted Emissions	Compliant
FCC §15.205, §15.209, §15.247(d)	Spurious Emissions	Compliant
FCC §15.247 (a)(2)	6 dB Emission Bandwidth & Occupied Bandwidth	Compliant
FCC §15.247(b)(3)	Maximum Conducted Output Power	Compliant
FCC §15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliant
FCC §15.247(e)	Power Spectral Density	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emissions Test					
Rohde& Schwarz	EMI Test Receiver	ESCI	100784	2021/12/13	2022/12/12
Rohde & Schwarz	L.I.S.N.	ENV216	101314	2021/12/13	2022/12/12
Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2021/12/13	2022/12/12
Unknown	RF Coaxial Cable	No.17	N0350	2021/12/14	2022/12/13
Radiated Emissions Test					
Rohde& Schwarz	Test Receiver	ESR	102725	2021/12/13	2022/12/12
Rohde&Schwarz	Spectrum Analyzer	FSV40	101949	2021/12/13	2022/12/12
SONOMA INSTRUMENT	Amplifier	310 N	186131	2021/11/09	2022/11/08
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2021/11/09	2022/11/08
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2020/01/05	2023/01/04
Radiated Emission Test Software: e3 19821b (V9)					
Unknown	RF Coaxial Cable	No.10	N050	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.11	N1000	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.12	N040	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.13	N300	2021/12/14	2022/12/13
Unknown	RF Coaxial Cable	No.14	N800	2021/12/14	2022/12/13
Wainwright	High Pass Filter	WHKX3.6/18 G-10SS	5	2021/12/14	2022/12/13
RF Conducted Test					
Rohde&Schwarz	Spectrum Analyzer	FSV-40	101948	2021/12/13	2022/12/12
WEINSCHEL	10dB Attenuator	5324	AU 3842	2021/12/14	2022/12/13

*** Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §15.247 (i) &§1.1307 (b) (3) - RF EXPOSURE EVALUATION

Applicable Standard

According to subpart 15.247 (i) and §1.1307(b) (3), systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

According to KDB 447498 D04 Interim General RF Exposure Guidance

SAR-Based Exemption:

SAR-based thresholds are derived based on frequency, power, and separation distance of the RF source. The formula defines the thresholds in general for either available maximum timeaveraged power or maximum time-averaged ERP, whichever is greater.

Per § 1.1307(b)(3)(i)(B), 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:

the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (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). P_{th} is given by:

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

Where

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

and

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

d = the separation distance (cm);

Result

For worst case:

Mode	Frequency (MHz)	P_{th}		Maximum tune-up conducted power	Exemption
		(mW)	(dBm)	(dBm)	
Lora	915	1867	32.71	11.0	Compliant

Note: 1. The tune up conducted power was declared by the applicant.
2. The antenna gain is 2.0dBi(-0.15dBd),so the conducted power was used for evaluation
3. The Lora, BT and 2.4G Wi-Fi can't transmit at the same time.

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

Result: Compliant.

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, 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 user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.
And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT has a unique antenna port arrangement for LoRa, which was employed the antenna maximum gain is 2.0dBi, fulfill the requirement of this section. Please refer to the EUT photos.

Type	Antenna Gain	Impedance
Whip	1dBi	50 Ω

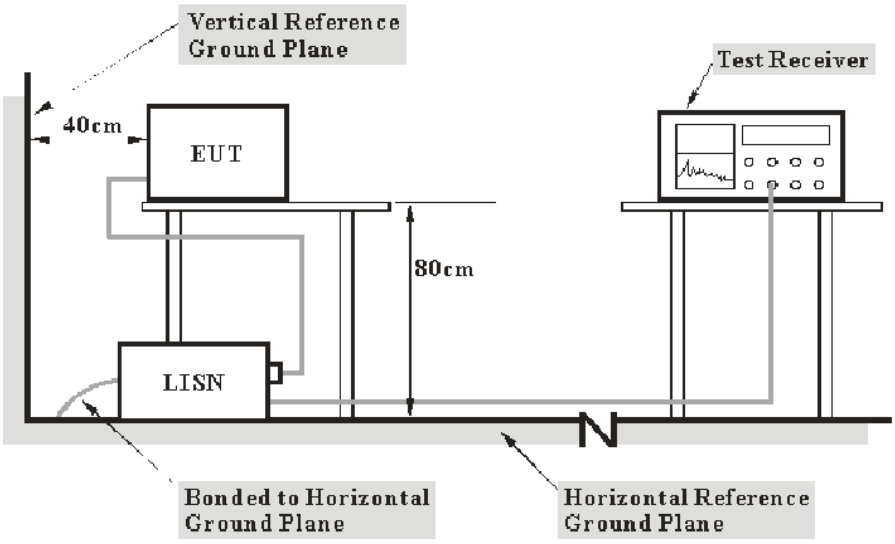
Result: Compliance.

FCC §15.207 (a) &– AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Transd Factor & Margin Calculation

The Transd factor is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

Transd Factor = LISN VDF + Cable Loss

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – level
Level= reading level+ Transd Factor

Test Data

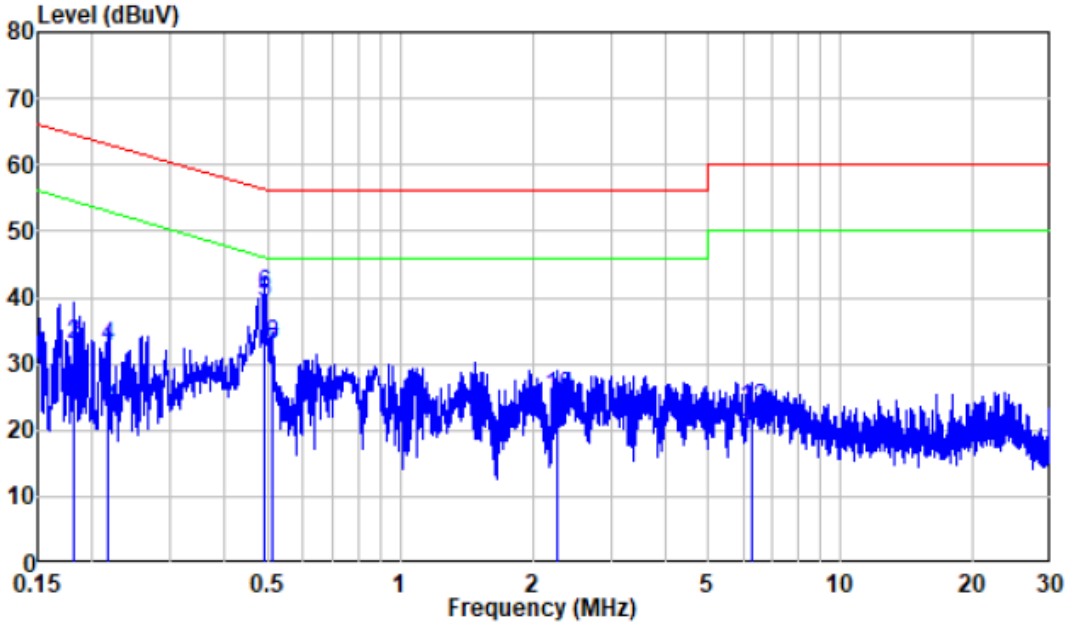
Environmental Conditions

Temperature:	23 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Jason on 2022-06-14.

EUT operation mode: Transmitting

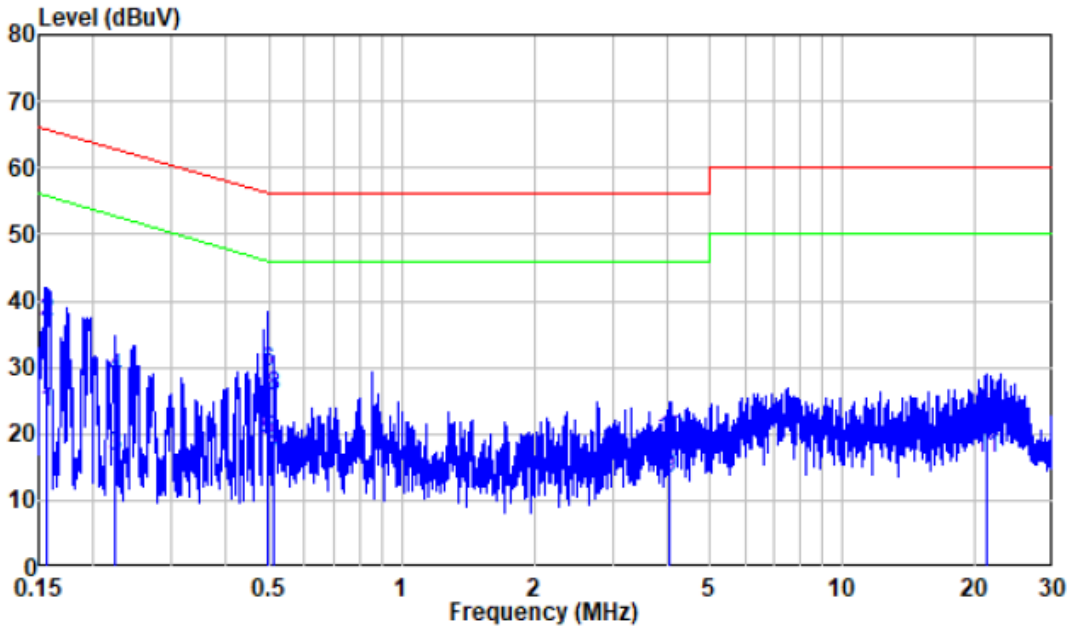
AC 120V/60 Hz, Line



Site : Shielding Room
Condition: Line
Mode : 915MHz
Model : T3 V1.6.1
Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.181	9.80	13.66	23.46	54.42	-30.96	Average
2	0.181	9.80	23.13	32.93	64.42	-31.49	QP
3	0.217	9.80	13.30	23.10	52.95	-29.85	Average
4	0.217	9.80	22.72	32.52	62.95	-30.43	QP
5	0.492	9.80	29.32	39.12	46.13	-7.01	Average
6	0.492	9.80	30.65	40.45	56.13	-15.68	QP
7	0.510	9.81	21.84	31.65	46.00	-14.35	Average
8	0.510	9.81	23.20	33.01	56.00	-22.99	QP
9	2.277	9.82	11.90	21.72	46.00	-24.28	Average
10	2.277	9.82	15.33	25.15	56.00	-30.85	QP
11	6.289	9.86	9.45	19.31	50.00	-30.69	Average
12	6.289	9.86	13.52	23.38	60.00	-36.62	QP

AC 120V/60 Hz, Neutral



Site : Shielding Room
Condition: Neutral
Mode : 915MHz
Model : T3 V1.6.1
Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.157	9.80	13.47	23.27	55.64	-32.37	Average
2	0.157	9.80	26.99	36.79	65.64	-28.85	QP
3	0.224	9.80	6.80	16.60	52.67	-36.07	Average
4	0.224	9.80	18.57	28.37	62.67	-34.30	QP
5	0.497	9.80	9.16	18.96	46.05	-27.09	Average
6	0.497	9.80	19.58	29.38	56.05	-26.67	QP
7	0.513	9.81	6.28	16.09	46.00	-29.91	Average
8	0.513	9.81	15.96	25.77	56.00	-30.23	QP
9	4.046	9.84	3.44	13.28	46.00	-32.72	Average
10	4.046	9.84	9.19	19.03	56.00	-36.97	QP
11	21.175	10.11	6.08	16.19	50.00	-33.81	Average
12	21.175	10.11	12.77	22.88	60.00	-37.12	QP

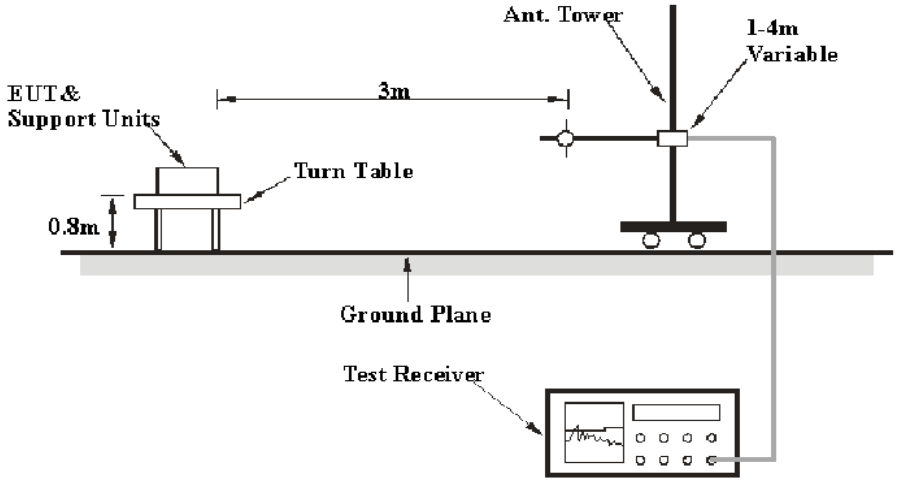
FCC §15.209, §15.205 & §15.247(d) &- SPURIOUS EMISSIONS

Applicable Standard

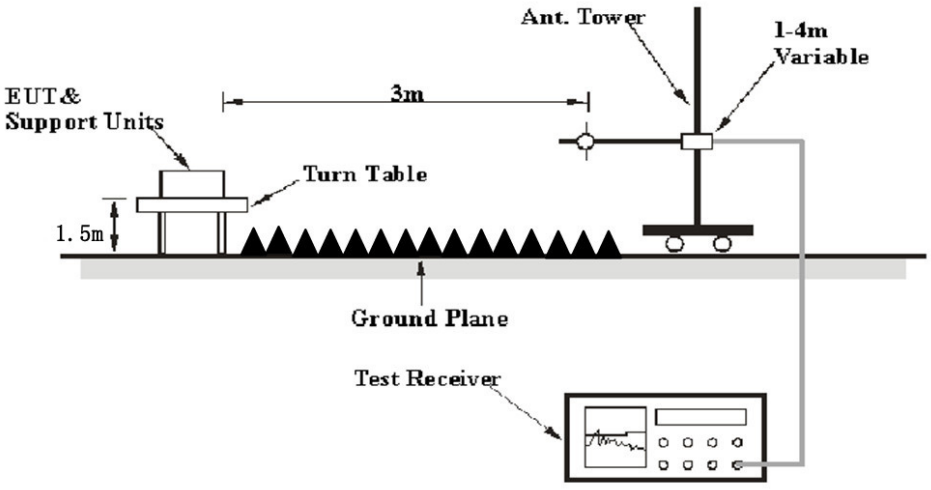
FCC §15.247 (d); §15.209; §15.205;

EUT Setup

Below 1 GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.247 limits.

EMI Test Receiver & Spectrum Analyzer Setup

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz Note 1	/	Average
	1MHz	＞1/T Note 2	/	Average

Note 1: when duty cycle is no less than 98%
Note 2: when duty cycle is less than 98%

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1 GHz, peak and Average detection modes for frequencies above 1 GHz.

Factor & Margin Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Factor = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Result-Limit
Result = Reading + Factor

Test Data

Environmental Conditions

Temperature:	29 ℃
Relative Humidity:	57 %
ATM Pressure:	101.0 kPa

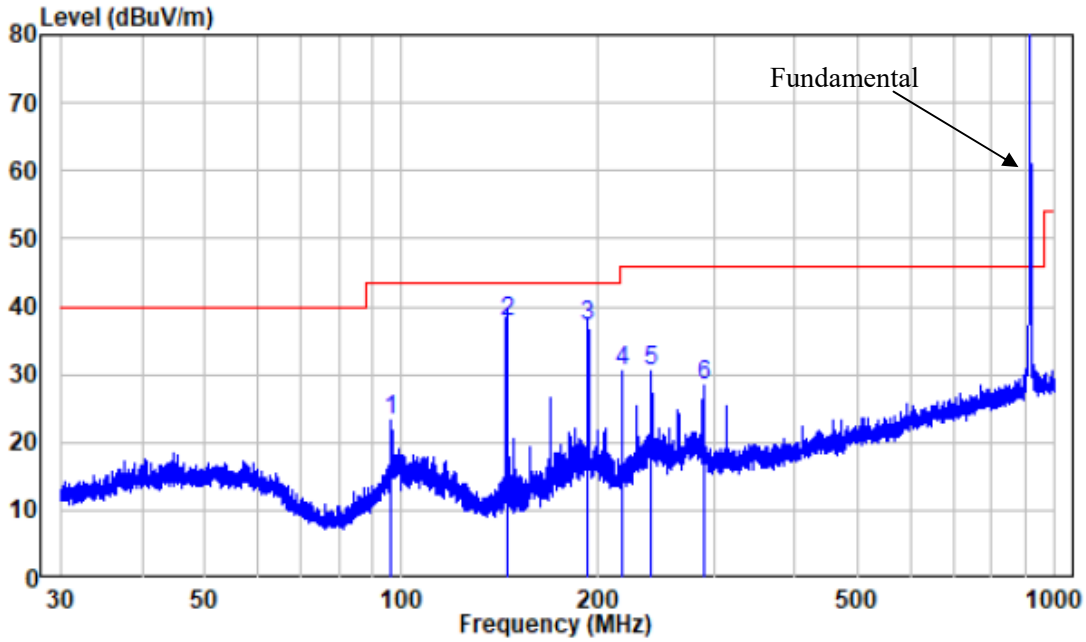
The testing was performed by Level on 2022-06-17 for below 1GHz and Level Li on 2022-06-17 for above 1GHz.

EUT operation mode: Transmitting (Pre-scan the battery power supply and power supply from USB micro port, the worst case usb micro port was recorded)

30MHz-1GHz: *(worst case is 8DPSK Mode, High channel)*

Note: When the test result of Peak was less than the limit of QP, just the peak value was recorded.

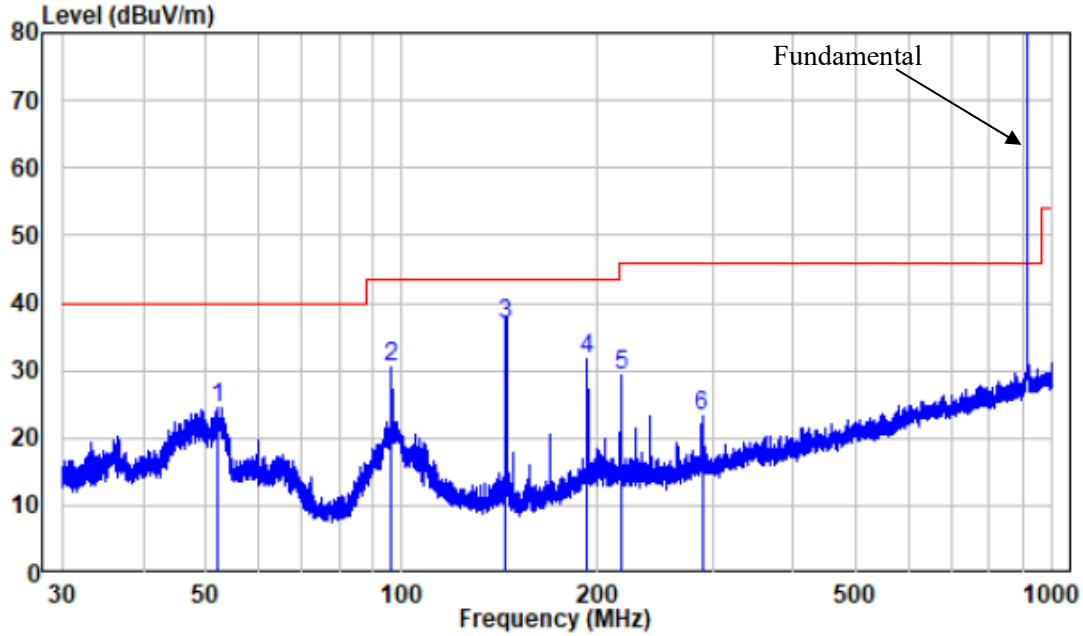
Horizontal:



Site : chamber
Condition: 3m Horizontal
Job No. : SZNS220330-11519E-RF
Test Mode: 915MHz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	96.436	-12.30	35.44	23.14	43.50	-20.36	Peak
2	144.715	-15.51	53.11	37.60	43.50	-5.90	QP
3	192.925	-11.28	48.30	37.02	43.50	-6.48	QP
4	217.068	-11.57	42.06	30.49	46.00	-15.51	Peak
5	241.147	-10.83	41.22	30.39	46.00	-15.61	Peak
6	289.382	-9.32	37.77	28.45	46.00	-17.55	Peak

Vertical



Site : chamber
Condition: 3m VERTICAL
Job No. : SZNS220330-11519E-RF
Test Mode: 915MHz

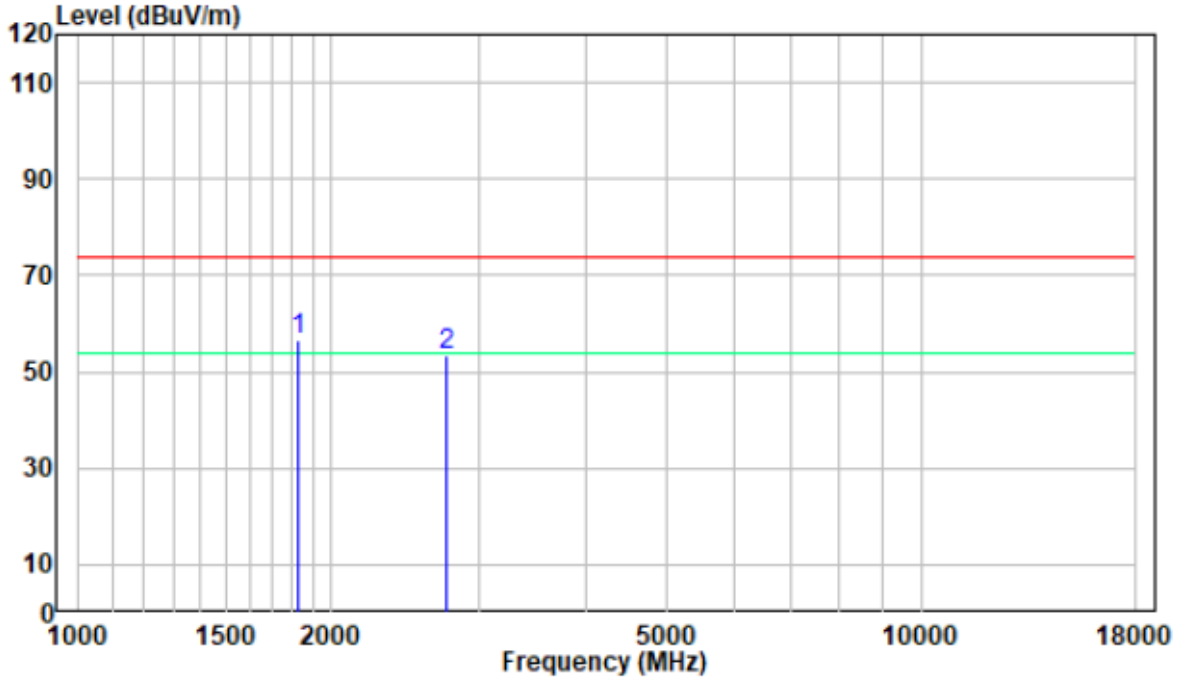
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	52.048	-9.98	34.45	24.47	40.00	-15.53	Peak
2	96.436	-12.30	42.71	30.41	43.50	-13.09	Peak
3	144.588	-15.51	52.43	36.92	43.50	-6.58	QP
4	192.925	-11.28	42.91	31.63	43.50	-11.87	Peak
5	217.068	-11.57	40.98	29.41	46.00	-16.59	Peak
6	289.256	-9.32	32.69	23.37	46.00	-22.63	Peak

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/QP/AV		Height (m)	Polar (H/V)				
915MHz									
915	93.74	PK	76	1.4	H	1.55	95.29	/	/
915	102.51	PK	58	1.8	V	1.55	104.06		//
1830	59.05	PK	275	2.1	H	-8.53	50.52	75.29	-24.77
1830	65.13	PK	250	1.1	V	-8.53	56.60	84.06	-27.46
2745	56.82	PK	46	2	H	-6.6	50.22	74	-23.78
2745	60.00	PK	42	2.4	V	-6.6	53.40	74	-20.60

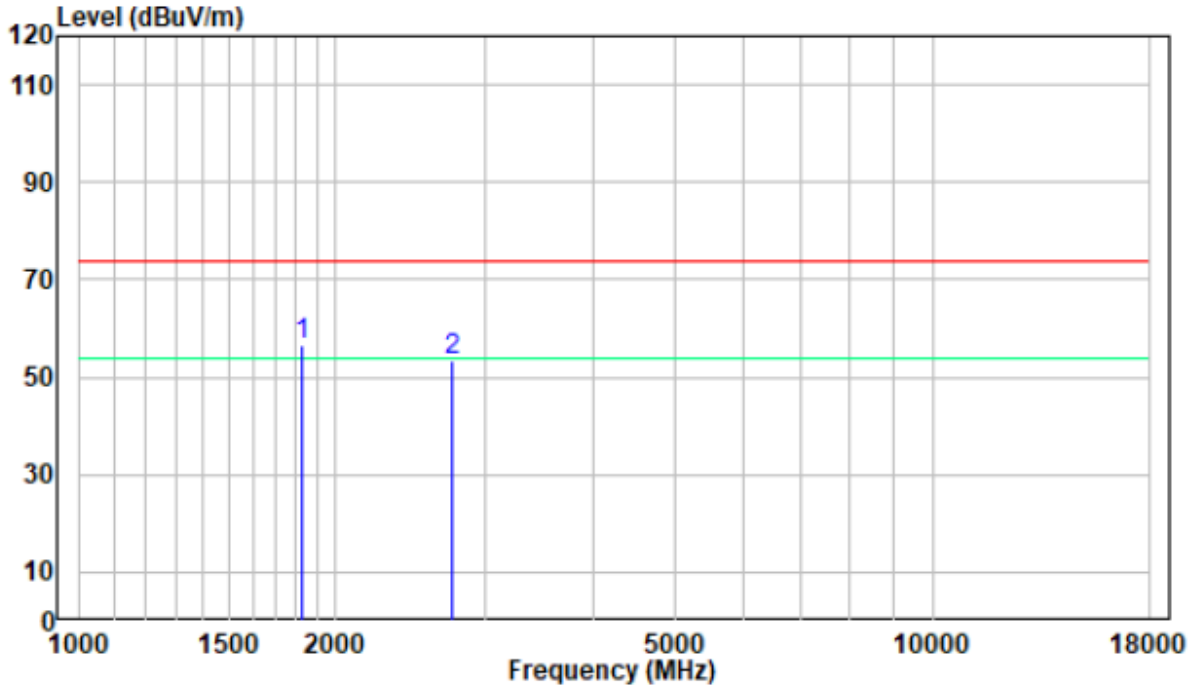
Note:
Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
Corrected Amplitude = Corrected Factor + Reading
Margin = Corrected. Amplitude - Limit
The other spurious emission which is in the noise floor level was not recorded.
The test result of peak was less than the limit of average, so just peak value were recorded.

1-18GHz

Horizontal:



Vertical:



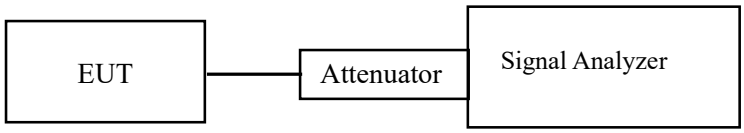
FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH & OCCUPIED BANDWIDTH

Applicable Standard

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.



Test Data

Environmental Conditions

Temperature:	28 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

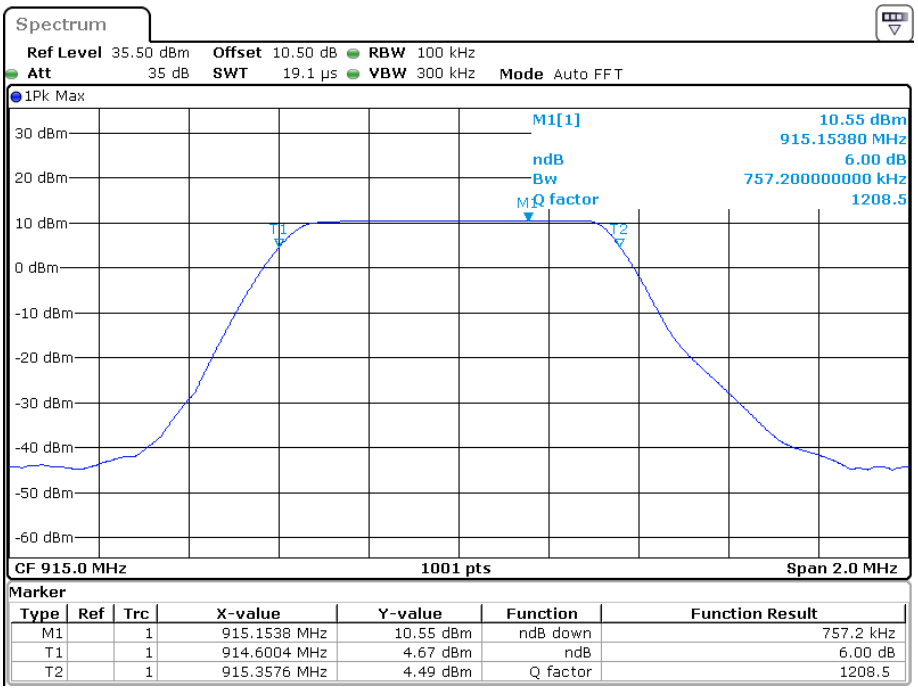
The testing was performed by Andy Yu on 2022-07-04.

EUT operation mode: Transmitting

Test Result: Compliant.

Mode	Frequency (MHz)	DTS BW (MHz)	Limit (MHz)
DTS	915	0.757	0.5

6dB Bandwidth



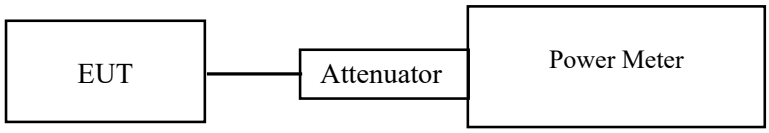
FCC §15.247(b) (3)- MAXIMUM CONDUCTED OUTPUT POWER

Applicable Standard

According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

Test Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
3. Add a correction factor to the display.



Test Data

Environmental Conditions

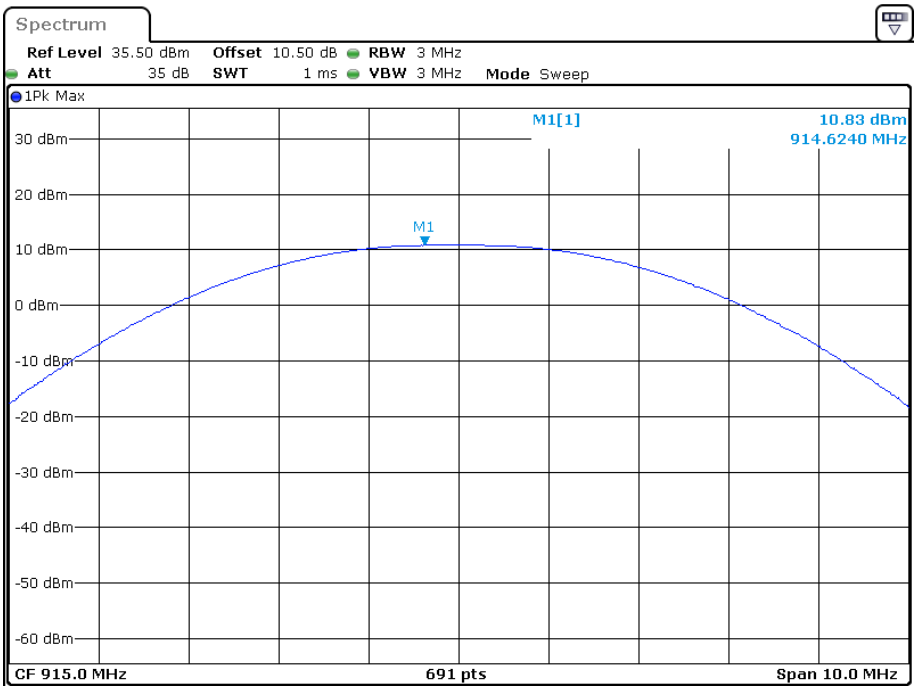
Temperature:	26.8 ℃
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Andy Yu on 2022-06-28.

EUT operation mode: Transmitting

Test Result: Compliant.

Mode	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Limit (dBm)
DTS	915	10.83	30


Spectrum
Ref Level 35.50 dBm Offset 10.50 dB RBW 3 MHz
Att 35 dB SWT 1 ms VBW 3 MHz Mode Sweep
1Pk Max
M1[1] 10.83 dBm
914.6240 MHz
30 dBm
20 dBm
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
M1
CF 915.0 MHz
691 pts
Span 10.0 MHz
Date: 28.JUN.2022 19:51:43

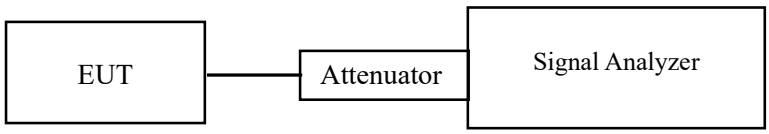
FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

Applicable Standard

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, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.



Test Data

Environmental Conditions

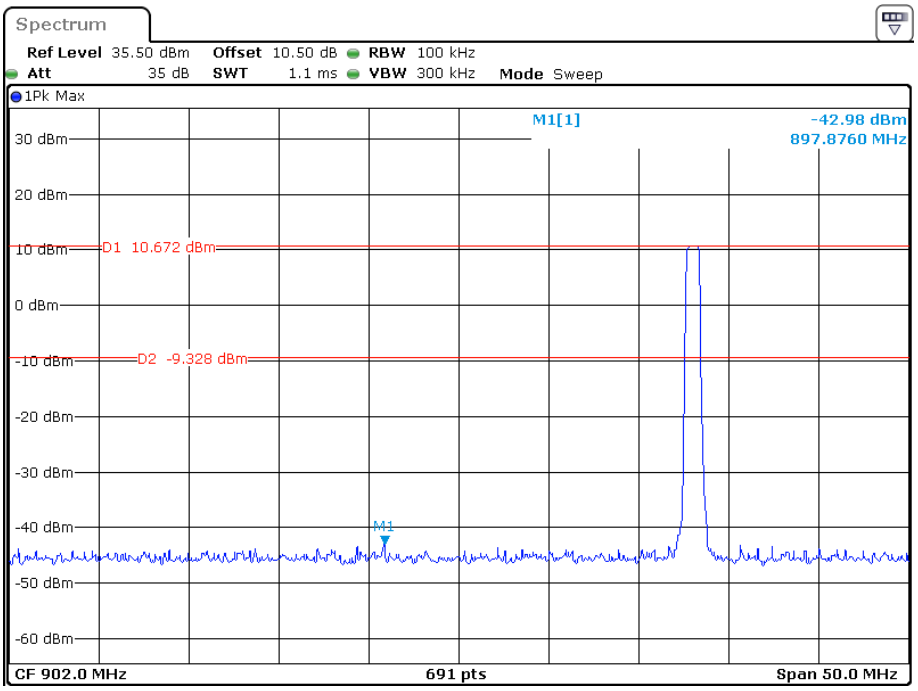
Temperature:	26.8 ℃
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Andy Yu on 2022-06-28.

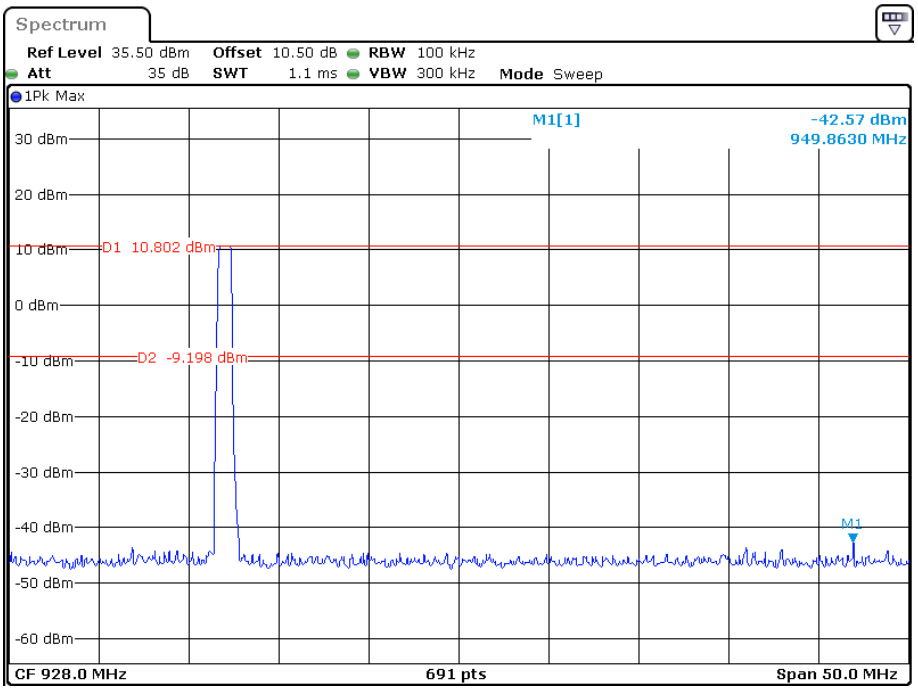
EUT operation mode: Transmitting

Test Result: Compliant.

Band Edge, Left Side



Band Edge, Right Side



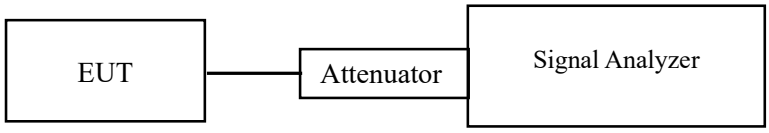
FCC §15.247(e) & - POWER SPECTRAL DENSITY

Applicable Standard

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW to: 3kHz≤ RBW≤100 kHz.
3. Set the VBW ≥ 3×RBW.
4. Set the span to 1.5 times the DTS bandwidth.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.



Test Data

Environmental Conditions

Temperature:	26.8 ℃
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

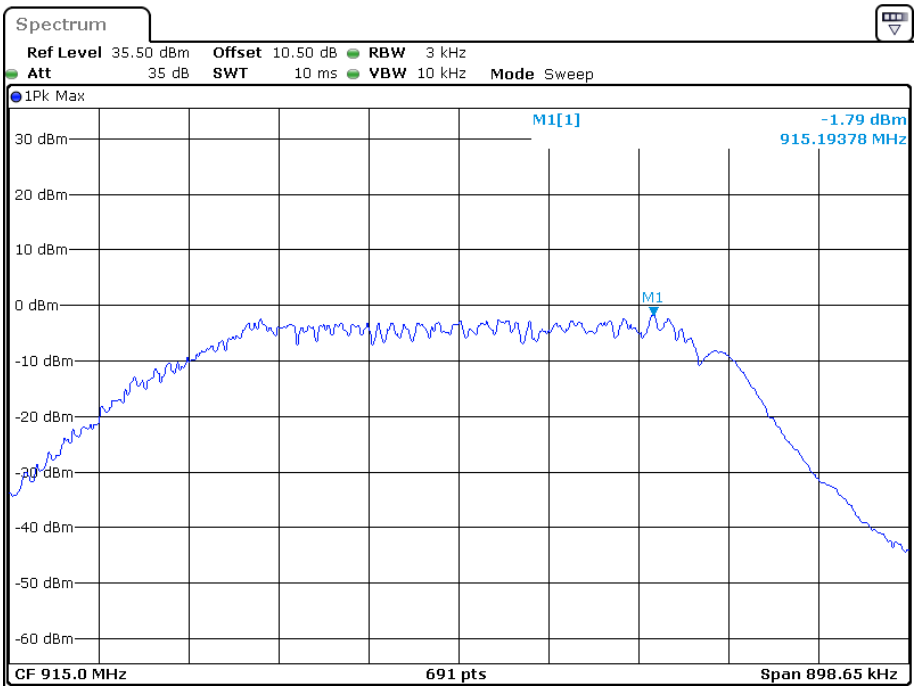
The testing was performed by Andy Yu on 2022-06-28.

EUT operation mode: Transmitting

Test Result: Compliant.

Mode	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
DTS	915	-1.79	≤8

Power Spectral Density



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******* END OF REPORT *******