

FCC Part 15.247

TEST REPORT

For

M2communication INC.

17F.-3, No. 32, Gaotie 2nd Rd., Zhubei City, Hsinchu County ,Taiwan (R.O.C.)

FCC ID: 2AFXU-EF27-S2

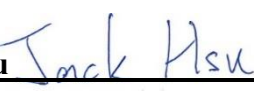
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Electronic Shelf Label

Report Producer : Jojo Lu

Report Number : RLK260421066RF01

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Reviewed By: Jack Hsu 

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Revision History

Revision	No.	Report Number	Issue Date	Description	Author/ Revised by
0.0	RLK260421066	RLK260421066RF01	2026-05-26	Original Report	Jojo Lu

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1 General Information

1.1 Product Description for Equipment under Test (EUT)

Applicant	M2communication INC.
	17F.-3, No. 32, Gaotie 2nd Rd., Zhubei City, Hsinchu County ,Taiwan (R.O.C.)
Manufacturer	M2communication INC.
	No. 17, Guangfu Rd., Hukou Township, Hsinchu County 303036, Taiwan (R.O.C.)
	microview electronics
	Room 1005, Block B, Building 5, Huaqiang Creative Industry Park, Guanhua Road, Guangming District, Shenzhen, Guangdong, China
Brand(Trade) Name	M2COMM
Product (Equipment)	Electronic Shelf Label
Main Model Name	EF27-S2
Frequency Range	903 ~ 927 MHz
Output Power	12.26 dBm
Modulation Technique	GFSK
Power Operation (Voltage Range)	DC 3V from battery
Received Date	2026/4/30
Date of Test	2026/5/6~2026/5/14

*All measurement and test data in this report was gathered from production sample serial number:

RLK260421066-01 (Assigned by BAACL, Linkou Laboratory).

1.2 Objective

This report is prepared on behalf of M2communication INC. in accordance with Part 2, Subpart J, Part 15, Subparts A and C of the Federal Communication Commission's rules.

The objective is to determine compliance with FCC Part 15.247 rules for Output Power, Antenna Requirements, 6 dB Bandwidth, Power Spectral Density, 100 kHz Bandwidth of Band Edges Measurement, Conducted and Radiated Spurious Emissions.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2020+COR.1-2023, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices and KDB 558074 D01 15.247 Meas Guidance v05r02.

1.4 Statement of Compliance

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

The measurement results in this report were performed at Bay Area Compliance Laboratories Corp. (Linkou Laboratory)

Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

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. (Linkou Laboratory) is not responsible for the authenticity of the information provided by the applicant that affects the test results.

1.5 Measurement Uncertainty

Parameter		Uncertainty
AC Mains		±3.01 (dB)
RF output power, conducted		±1.75 (dB)
Occupied Bandwidth		±2.34 (%)
Unwanted Emissions, conducted		±2.57 (dB)
Power Spectral Density, conducted		±1.88 (dBm/kHz)
Duty Cycle		±0.22 (ms)
Temperature		±1.73 (°C)
Humidity		±0.92 (%)
Emissions, radiated	9 kHz~30 MHz	±3.15 (dB)
	30 MHz~1 GHz	±3.42 (dB)
	1 GHz~18 GHz	±5.12 (dB)
	18 GHz~40 GHz	±4.43 (dB)

1.6 Environmental Conditions

Test Site	Test Data	Temperature (°C)	Relative Humidity (%)	Test Engineer
AC Line Conducted Emissions	N/A	N/A	N/A	N/A
Radiation Spurious Emissions	2026/5/8~2026/5/14	19.7~21.1	46~47	Derek Chen
Conducted Spurious Emissions	2026/5/12	23.9	44	Alan Huang
6 dB Emission Bandwidth	2026/5/12	23.9	44	Alan Huang
Maximum Output Power	2026/5/6	23.9	30	Alan Huang
100 kHz Bandwidth of Frequency Band Edge	2026/5/12	23.9	44	Alan Huang
Power Spectral Density	2026/5/12	23.9	44	Alan Huang

1.7 Test Facility

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

☒ No.6, Wende 2Rd., Guishan Dist., Taoyuan City 33382, Taiwan (R.O.C.).

Bay Area Compliance Laboratories Corp. (Linkou Laboratory) Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 3546) by Mutual Recognition Agreement (MRA). 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. The FCC Registration No.: 0027578244. Designation No.: TW3546. The Test Firm Registration No.: 181430.

Note: It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Linkou Laboratory)

2 System Test Configuration

2.1 Description of Test Configuration

For LoRa mode, 97 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	903.00	26	909.25	51	915.50	76	921.75
2	903.25	27	909.50	52	915.75	77	922.00
3	903.50	28	909.75	53	916.00	78	922.25
4	903.75	29	910.00	54	916.25	79	922.50
5	904.00	30	910.25	55	916.50	80	922.75
6	904.25	31	910.50	56	916.75	81	923.00
7	904.50	32	910.75	57	917.00	82	923.25
8	904.75	33	911.00	58	917.25	83	923.50
9	905.00	34	911.25	59	917.50	84	923.75
10	905.25	35	911.50	60	917.75	85	924.00
11	905.50	36	911.75	61	918.00	86	924.25
12	905.75	37	912.00	62	918.25	87	924.50
13	906.00	38	912.25	63	918.50	88	924.75
14	906.25	39	912.50	64	918.75	89	925.00
15	906.50	40	912.75	65	919.00	90	925.25
16	906.75	41	913.00	66	919.25	91	925.50
17	907.00	42	913.25	67	919.50	92	925.75
18	907.25	43	913.50	68	919.75	93	926.00
19	907.50	44	913.75	69	920.00	94	926.25
20	907.75	45	914.00	70	920.25	95	926.50
21	908.00	46	914.25	71	920.50	96	926.75
22	908.25	47	914.50	72	920.75	97	927.00
23	908.50	48	914.75	73	921.00		
24	908.75	49	915.00	74	921.25		
25	909.00	50	915.25	75	921.50		

Were tested with channel 1, 49 and 97.

2.2 Equipment Modifications

No modification was made to the EUT.

2.3 EUT Exercise Software

The test software was used “Tera Term V5.5.1”

The system was configured for testing in engineering mode, which was provided by Applicant.

Test Frequency		Low	Middle	High
Power Level Setting	LoRa	16	16	16

2.4 Test Mode

Mode 1: Full System (model: EF27-S2) for all test item.

2.5 Support Equipment List and Details

Description	Manufacturer	Model Number
Notebook	DELL	E6410
Test fixture	M2COMM	M2C

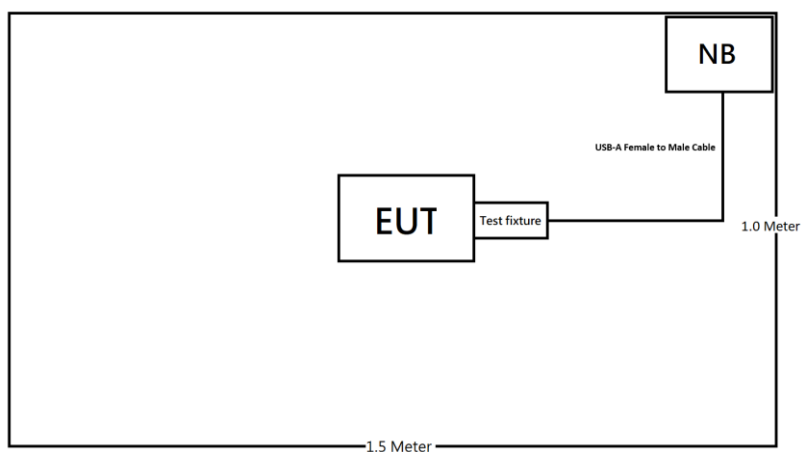
2.6 External Cable List and Details

Description	Manufacturer	Model
USB-A Female to Male Cable	BACL	1.6m
Battery*2	Ommergy	CR2450

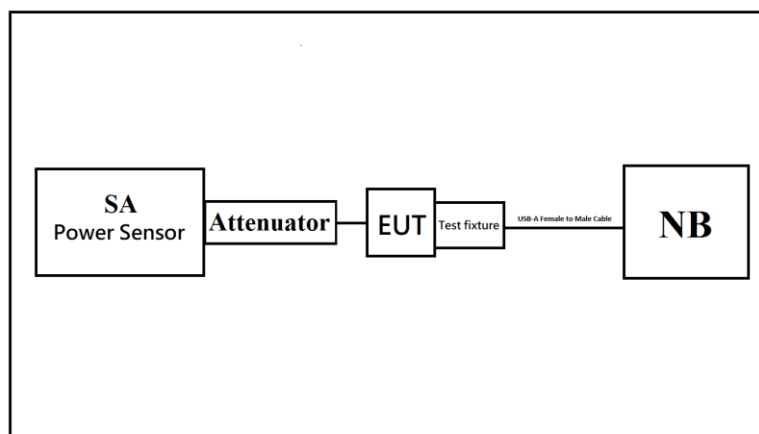
2.7 Block Diagram of Test Setup

See test photographs attached in setup photos for the actual connections between EUT and support equipment.

Radiation:



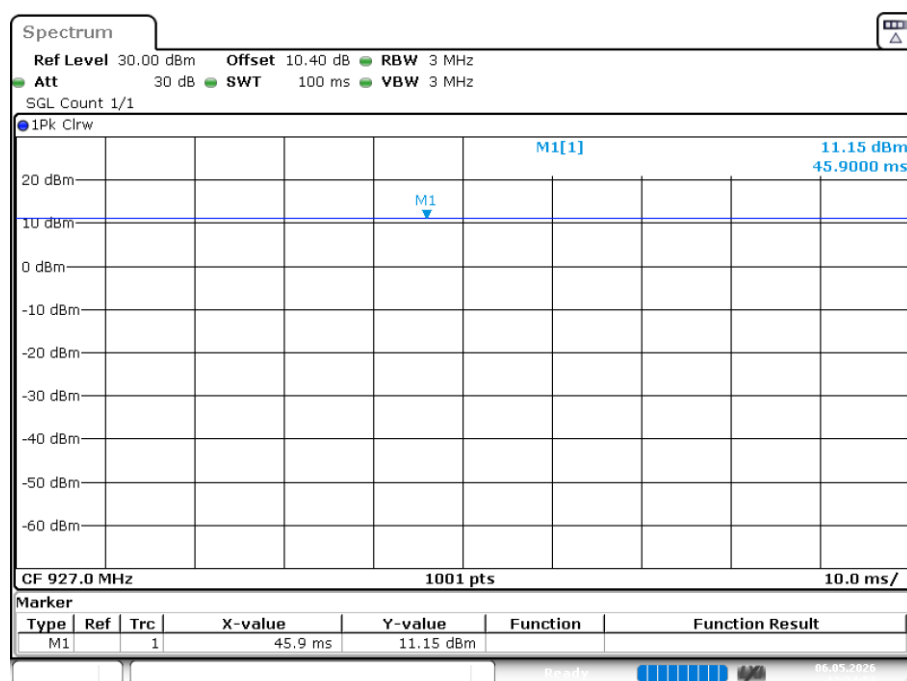
Conducted:



2.8 Duty Cycle

Radio Mode	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	1/T (kHz)	VBW setting (Hz)
LoRa	100	100	100	/	10

LoRa Mode



ProjectNo.:RLK260421066 Tester:Alan Huang

Date: 6.MAY.2026 12:24:54

3 Summary of Test Results

FCC Rules	Description of Test	Results
§15.203	Antenna Requirement	Compliance
§15.207(a)	AC Line Conducted Emissions	Not Applicable ^{Note 1}
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliance
§15.247(a)(2)	6 dB Emission Bandwidth	Compliance
§15.247(b)(3)	Maximum Peak Output Power	Compliance
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance
§15.247(e)	Power Spectral Density	Compliance

The subject sample is only employing battery power for operation. Therefore, this test is not applicable.

4 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Radiation 3M Room (966-C)					
Bilog Antenna & 6 dB Attenuator	SunAR RF Motion & EMCI	JB1 & N-6-06	A092619 & AT-N0669	2025/12/15	2026/12/15
Active Loop Antenna	ETS-Lindgren	6502	0001-3322	2026/04/16	2027/04/16
Broadband Horn Antenna	Astro Antenna Ltd	AHA-118S	3011	2025/12/17	2026/12/17
1-18GHz Preamplifier	GLOBAL	1313-A0118G	5091032	2025/12/03	2026/12/03
9k-1GHz Amplifier	Sonoma	310N	250609	2025/09/12	2026/09/12
ESR EMI Test Receiver	Rohde & Schwarz	ESR3	102430	2026/04/22	2027/04/22
Signal and Spectrum Analyzer	Rohde & Schwarz	FSV40	101457	2025/09/02	2026/09/02
Microflex Cable (2m)	Micro-coax	UFA210B-0-0720-300300	99G1475	2025/09/12	2026/09/12
Microflex Cable (3m)	EMCI	EMC106-SM-SM-3000	180518	2025/09/12	2026/09/12
Microflex Cable (8m)	EMCI	EMC104-3.5M-3.5M-10000	221113	2025/09/12	2026/09/12
Conducted Room					
Reference Cable	MTJ	MT40S	620620-MT40S-100	2026/01/05	2027/01/05
Signal and Spectrum Analyzer (with B21)	Rohde & Schwarz	FSV40	101938	2025/12/03	2026/12/03
USB Wideband Power Sensor	AGILENT	U2021XA	MY54080011	2025/08/26	2026/08/26
Real-Time Peak Power Sensor	Boonton	RTP5006	11037	2025/05/16	2026/05/16
Constant Temperature and Humidity Chamber	BACL	BTH-408-60	30073	2025/09/15	2026/09/15
10dB Attenuator	MCL	BW-S10W5+	605	2026/04/30	2027/04/30

***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

5 FCC §15.203 – Antenna Requirements

5.1 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.

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 does not exceed 6dBi.

5.2 Antenna List and Details

Manufacturer	Model	Type	Antenna Gain	Impedance
M2COMM	ARK2-2.7	PCB Antenna	-5.1 dBi	50Ω

For further details, please refer to the antenna specifications.

Result: Compliance

6 FCC §15.207(a) – AC Line Conducted Emissions

6.1 Applicable Standard

According to §15.207

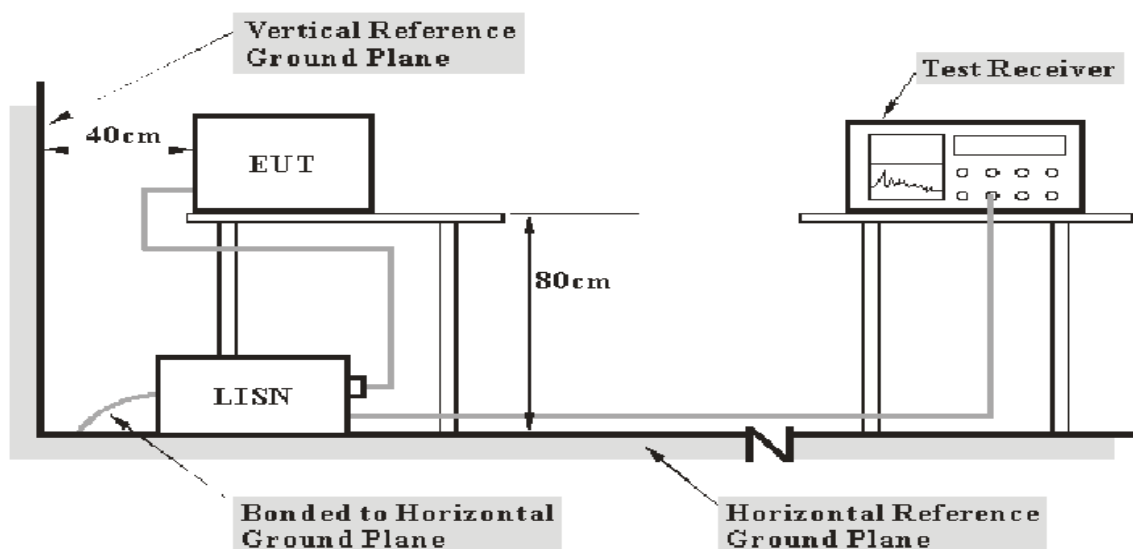
For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56 Note 1	56 to 46 Note 2
0.5-5	56	46
5-30	60	50

Note 1: Decreases with the logarithm of the frequency.

Note 2: A linear average detector is required

6.2 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 C63.10-2020+COR.1-2023 measurement procedure. The specification used was with the FCC Part 15.207 limits.

6.3 EMI Test Receiver Setup

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

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

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

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

6.5 Corrected Factor & Margin Calculation

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

$$\text{Factor} = \text{LISN VDF} + \text{Cable Loss} + \text{Transient Limiter Attenuation}$$

The “Over Limit” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an over limit of -7 dB means the emission is 7 dB below the limit. The equation for Over Limit calculation is as follows:

$$\text{Over Limit} = \text{Level} - \text{Limit Line}$$

6.6 Test Results

The subject sample is only employing battery power for operation. Therefore, this test is not applicable.

7 FCC §15.209, §15.205 , §15.247(d) – Spurious Emissions

7.1 Applicable Standard

As per FCC §15.35(d): Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1MHz.

As Per FCC §15.205(a) except as show in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	608 – 614	4. 5 – 5. 15
0.495 – 0.505	16.69475 – 16.69525	960 – 1240	5. 35 – 5. 46
2.1735 – 2.1905	16.80425 – 16.80475	1300 – 1427	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1435 – 1626.5	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1645.5 – 1646.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1660 – 1710	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1718.8 – 1722.2	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	2200 – 2300	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2310 – 2390	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2483.5 – 2500	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2690 – 2900	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	3260 – 3267	22.01 – 23.12
8.41425 – 8.41475	162.0125 – 167.17	3.332 – 3.339	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3 3458 – 3 358	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3.600 – 4.400	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4		Above 38.6
13.36 – 13.41	399.9 – 410		

As per FCC §15.209(a): Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (micro volts/meter)	Measurement Distance (meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100**	3
88 - 216	150**	3
216 - 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

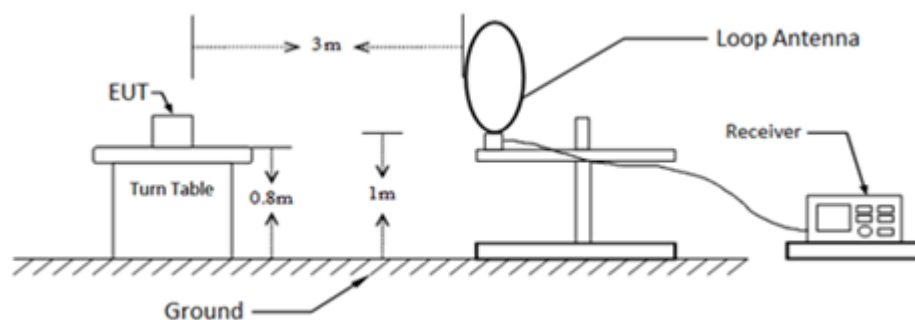
According to ANSI C63.10-2020+COR.1-2023, section 5.3.3

Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field, and the emissions to be measured can be detected by the measurement equipment (see 4.3.4). Measurements shall not be performed at a distance greater than 30 m for frequencies above 30 MHz, unless it can be further demonstrated that measurements at a distance of 30 m or less are impractical. Measurements from 18 GHz to 40 GHz are typically made at distances significantly less than 3 m from the EUT. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade of distance (inverse of linear distance for field-strength measurements or inverse of linear distance-squared for power-density measurements).

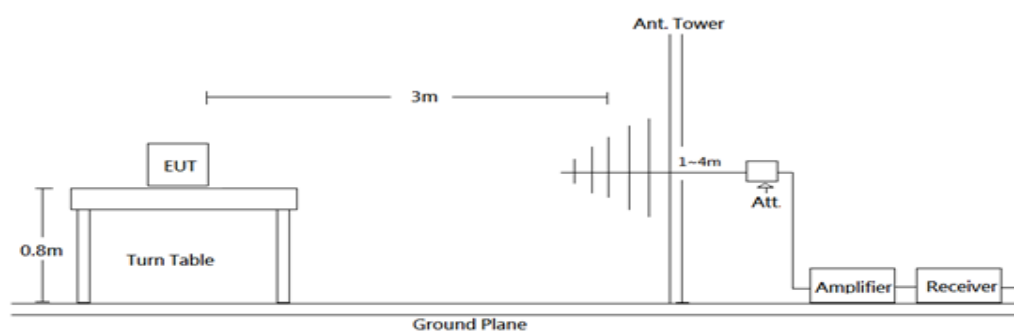
As per FCC §15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the 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)).

7.2 EUT Setup

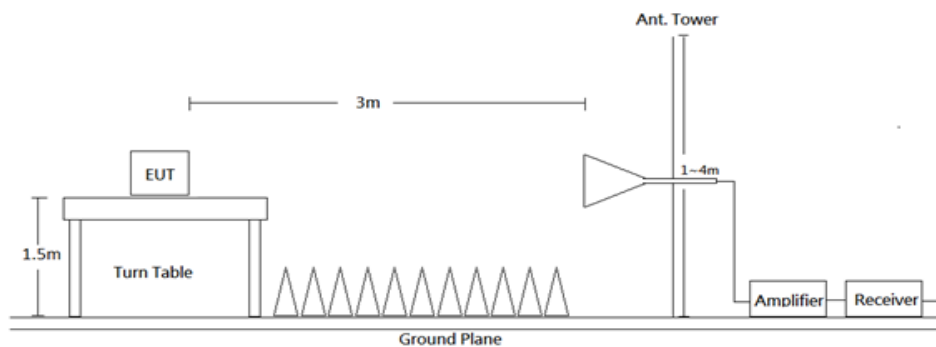
9kHz-30MHz:



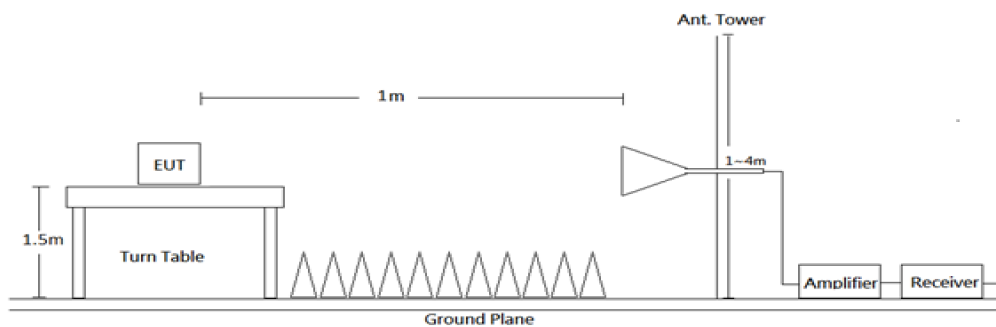
30MHz-1GHz:



1-18 GHz:



18-26.5 GHz:



Radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2020+COR.1-2023. The specification used was the FCC Part 15.209 and FCC 15.247 Limits.

7.3 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9 kHz to 26.5 GHz. During the radiated emission test, the EMI test receiver was set with the following configurations measurement method 6.3 in ANSI C63.10.

Frequency Range	RBW	VBW	Duty cycle	Measurement method
9 kHz - 150 kHz	300 Hz	1 kHz	/	QP/AV
150 kHz - 30 MHz	10 kHz	30 kHz	/	QP/AV
30-1000 MHz	100 kHz	300 kHz	/	QP
Above 1 GHz	1 MHz	3 MHz	/	PK
	1 MHz	1/T	<98%	Ave
	1 MHz	10Hz	>98%	Ave

Note: T is minimum transmission duration

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

7.4 Test Procedure

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

All data was recorded in Quasi-peak and average detector mode from 9 kHz to 30 MHz, Quasi-peak detector mode from 30 MHz to 1 GHz and PK and average detector modes for frequencies above 1 GHz.

7.5 Corrected Factor & Margin Calculation

The Correct 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:

$$\text{Correct Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

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:

$$\text{Margin} = \text{Result} - \text{Limit}$$

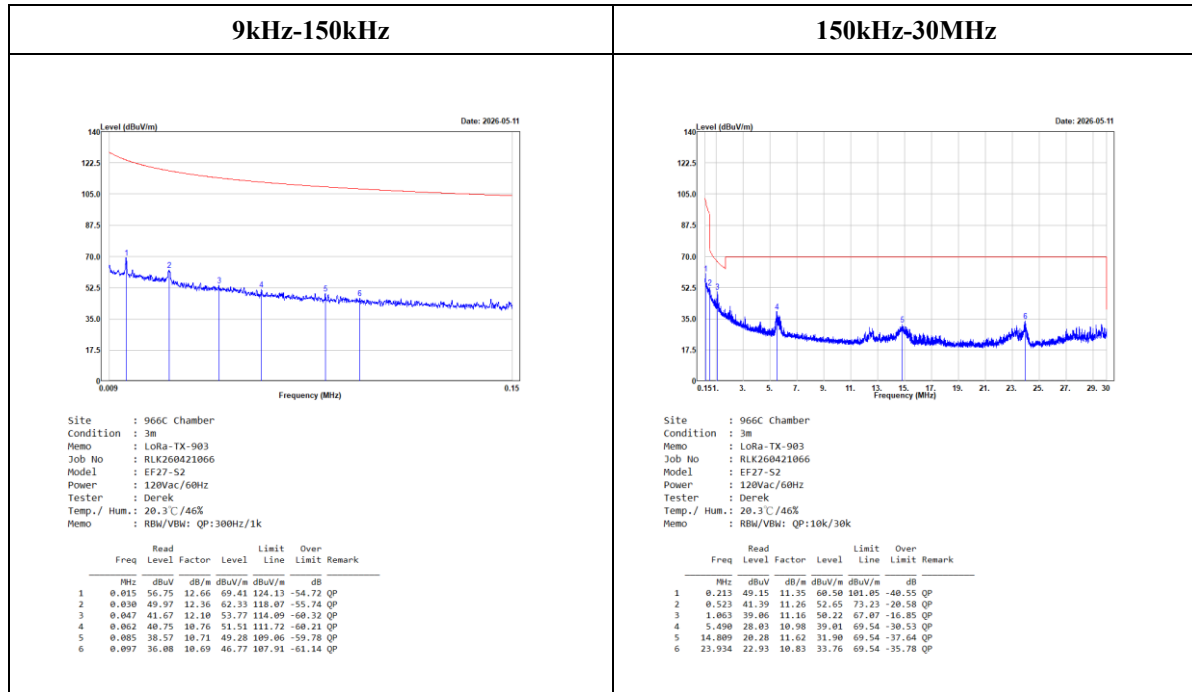
7.6 Test Results

(worst case is low channel)

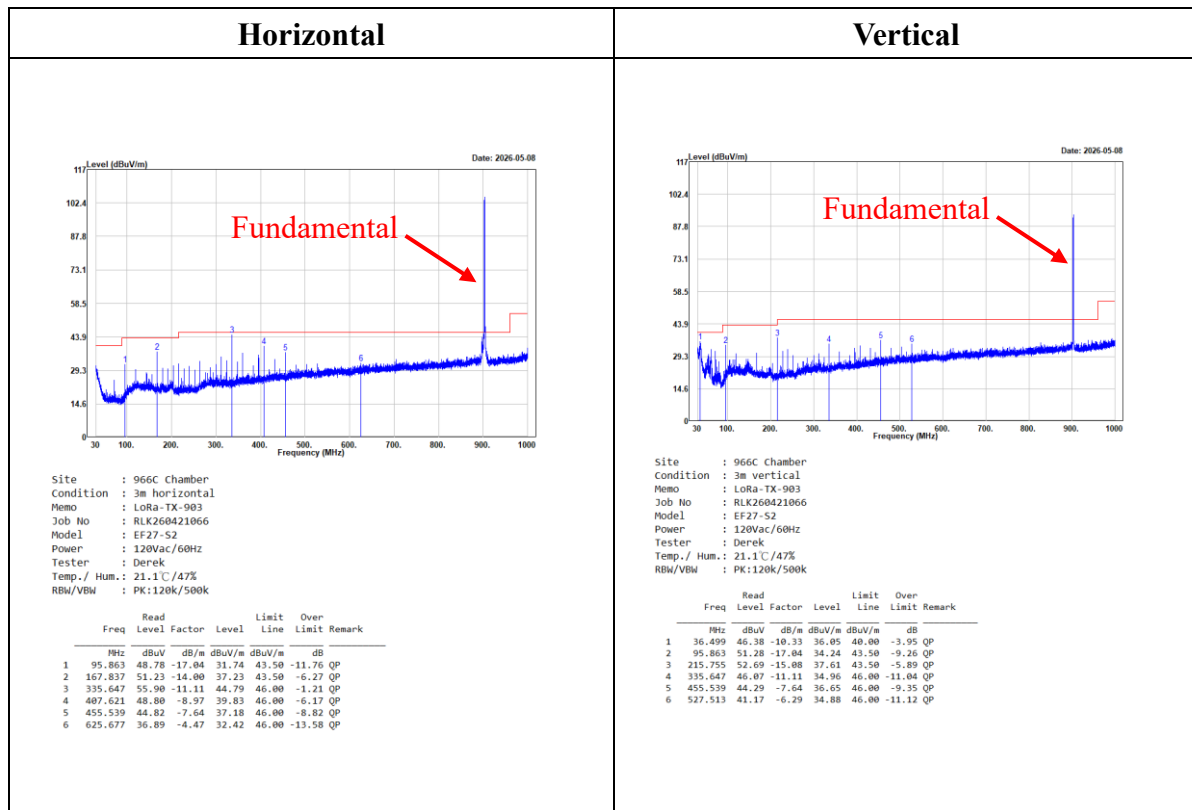
(The EUT is powered via a laptop connected to 120Vac, which is reported as the final power source.)

(Pre-scan with three orthogonal axis, and worse case as X axis.)

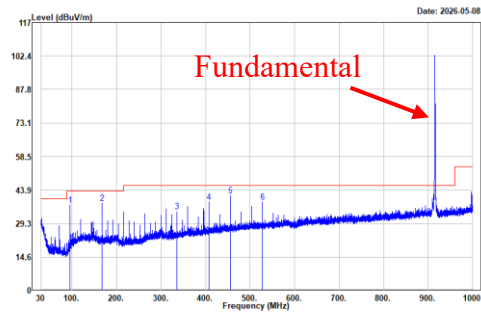
(Pre-scan using three directional polarities, worst case as parallel.)



30MHz-1GHz:



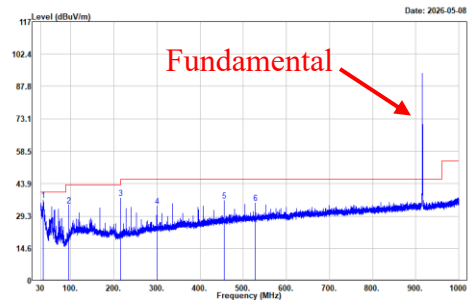
Horizontal



Site : 966C Chamber
Condition : 3m horizontal
Memo : LoRa-TX-915
Job No : RLK260421066
Model : EF27-S2
Power : 120Vac/60Hz
Tester : Derek
Temp./ Hum.: 21.1°C/47%
RBW/VBW : PK:120k/500k

	Read			Limit	Over	
Freq	Level	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	95.863	54.45	-17.04	37.41	43.50	-6.09 QP
2	167.837	52.23	-14.00	38.23	43.50	-5.27 QP
3	335.647	45.80	-11.11	34.69	46.00	-11.31 QP
4	487.524	47.68	-8.97	38.71	46.00	-7.29 QP
5	455.539	49.01	-7.64	41.37	46.00	-4.63 QP
6	527.513	44.94	-6.29	38.65	46.00	-7.35 QP

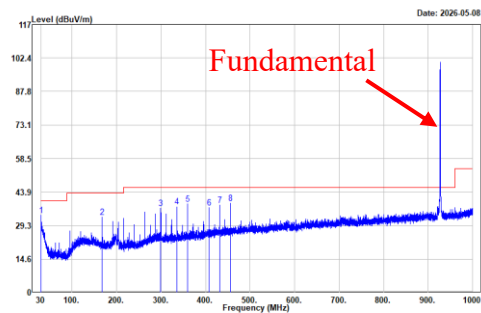
Vertical



Site : 966C Chamber
Condition : 3m vertical
Memo : LoRa-TX-915
Job No : RLK260421066
Model : EF27-S2
Power : 120Vac/60Hz
Tester : Derek
Temp./ Hum.: 21.1°C/47%
RBW/VBW : PK:120k/500k

	Read			Limit	Over	
Freq	Level	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	36.482	46.78	-10.29	36.49	48.00	-3.51 QP
2	95.863	51.23	-17.04	34.19	43.50	-9.31 QP
3	215.755	52.50	-15.08	37.48	43.50	-6.02 QP
4	299.854	45.35	-11.55	33.80	46.00	-12.20 QP
5	455.539	43.99	-7.64	36.35	46.00	-9.65 QP
6	527.513	41.36	-6.29	35.07	46.00	-10.93 QP

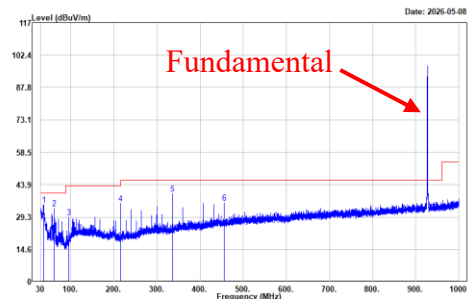
Horizontal



Site : 966C Chamber
Condition : 3m horizontal
Memo : LoRa-TX-927
Job No : RLK260421066
Model : EF27-S2
Power : 120Vac/60Hz
Tester : Derek
Temp./ Hum.: 21.1°C/47%
RBW/VBW : PK:120k/500k

	Read			Limit	Over	
Freq	Level	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	30.388	39.29	-5.64	33.65	40.00	-6.35 QP
2	167.837	46.85	-14.00	32.85	43.50	-10.65 QP
3	298.690	48.26	-11.58	36.68	46.00	-9.32 QP
4	335.647	48.80	-11.11	37.69	46.00	-8.31 QP
5	359.686	49.30	-10.46	38.84	46.00	-7.16 QP
6	487.621	46.06	-8.97	37.09	46.00	-8.91 QP
7	431.580	46.47	-8.16	38.31	46.00	-7.69 QP
8	455.539	46.61	-7.64	38.97	46.00	-7.03 QP

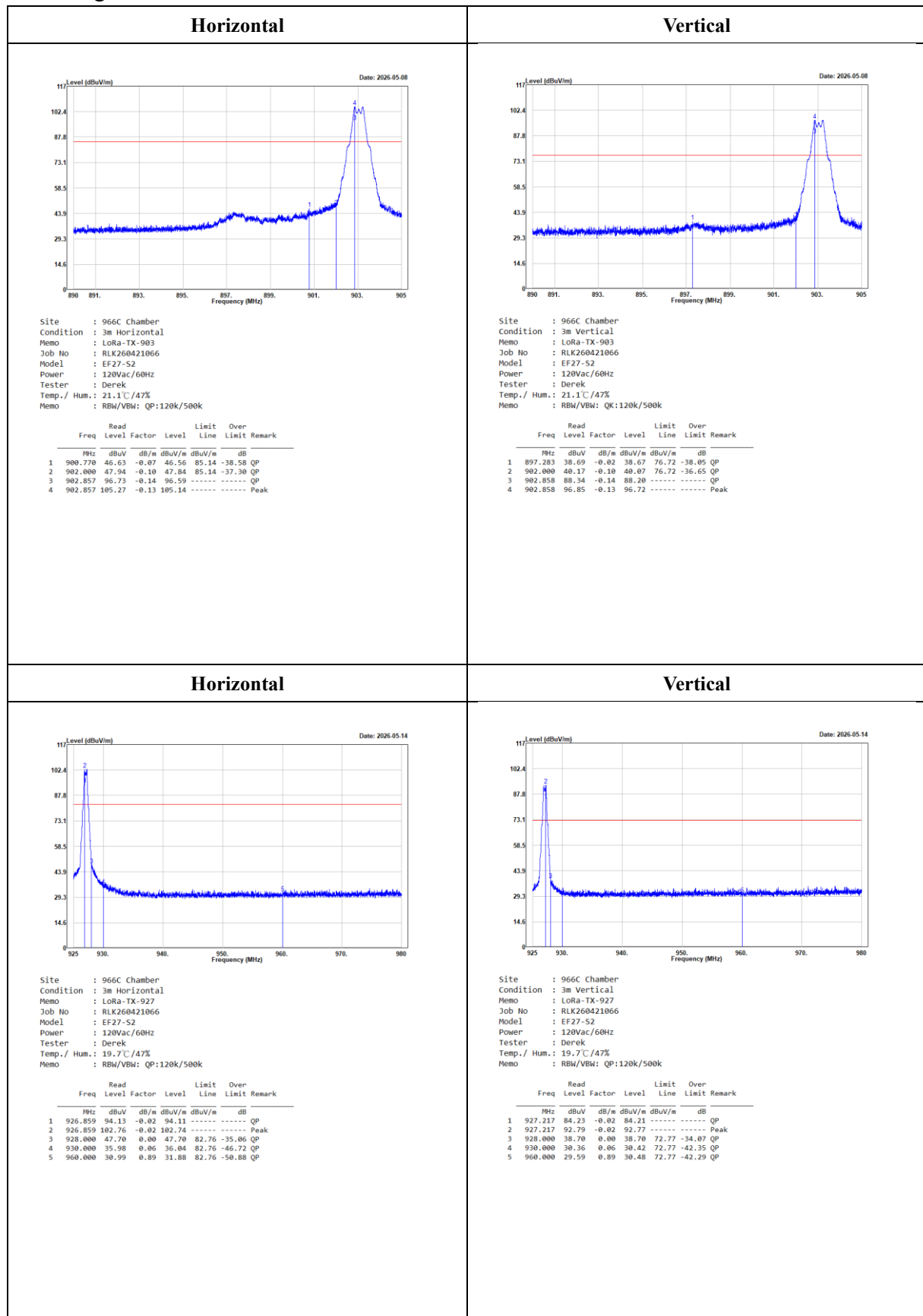
Vertical



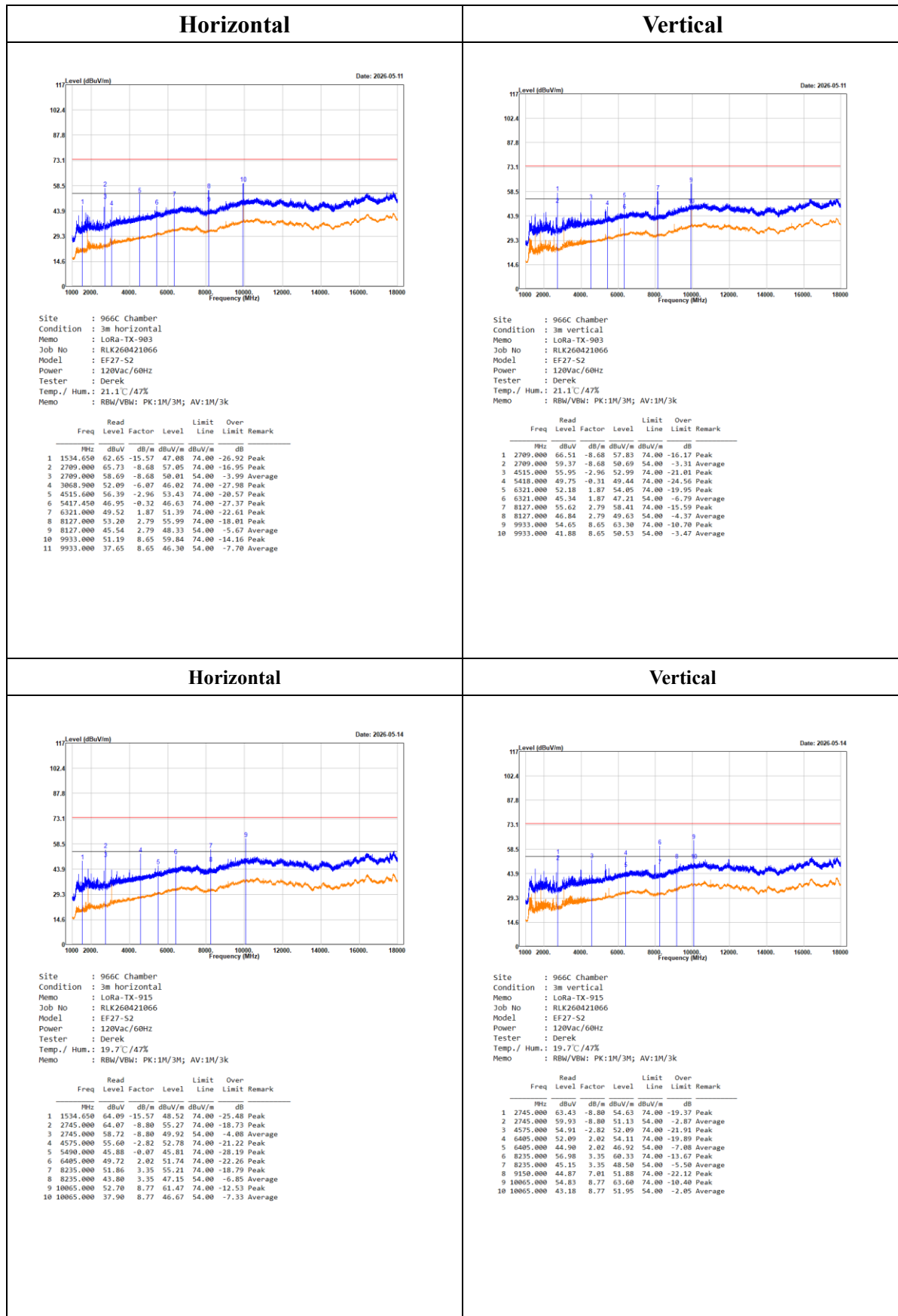
Site : 966C Chamber
Condition : 3m vertical
Memo : LoRa-TX-927
Job No : RLK260421066
Model : EF27-S2
Power : 120Vac/60Hz
Tester : Derek
Temp./ Hum.: 21.1°C/47%
RBW/VBW : PK:120k/500k

	Read			Limit	Over	
Freq	Level	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	37.178	45.44	-10.71	34.75	40.00	-5.25 QP
2	61.525	51.81	-18.70	33.11	40.00	-6.89 QP
3	95.863	46.23	-17.04	29.19	43.50	-14.31 QP
4	215.755	50.59	-15.08	35.51	43.50	-7.99 QP
5	335.647	50.94	-11.11	39.83	46.00	-6.17 QP
6	455.539	43.29	-7.64	35.65	46.00	-10.35 QP

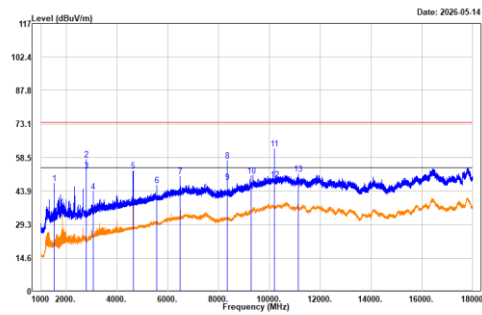
Band-Edge:



1GHz-18GHz:



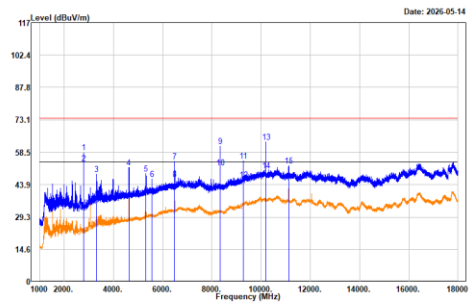
Horizontal



Site : 966C Chamber
Condition : 3m horizontal
Memo : LoRa-TX-927
Job No : RLK260421066
Model : EF27-S2
Power : 120Vac/60Hz
Tester : Derek
Temp./ Hum.: 19.7°C/47%
Memo : RBW/VBW: PK:1M/3M; AV:1M/3k

Read	Level	Factor	Level	Limit	Over
Freq	Level	Factor	Level	Line	Limit Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB
1 1534.650	62.84	-15.57	47.27	74.00	-26.73 Peak
2 2781.000	66.32	-8.78	57.54	74.00	-16.46 Peak
3 2781.000	61.57	-8.78	52.79	54.00	-1.21 Average
4 3868.900	49.84	-6.07	43.77	74.00	-30.23 Peak
5 4635.000	55.34	-2.67	52.67	74.00	-21.33 Peak
6 5562.000	46.37	-0.09	46.28	74.00	-27.72 Peak
7 6489.000	48.02	2.26	50.28	74.00	-23.72 Peak
8 8343.000	53.35	3.83	57.18	74.00	-16.82 Peak
9 8343.000	43.87	3.83	47.70	54.00	-6.30 Average
10 9270.000	43.06	7.47	50.53	74.00	-23.47 Peak
11 10197.000	53.03	9.19	62.22	74.00	-11.78 Peak
12 10197.000	39.60	9.19	48.79	54.00	-5.21 Average
13 11124.000	41.40	9.99	51.39	74.00	-22.61 Peak

Vertical

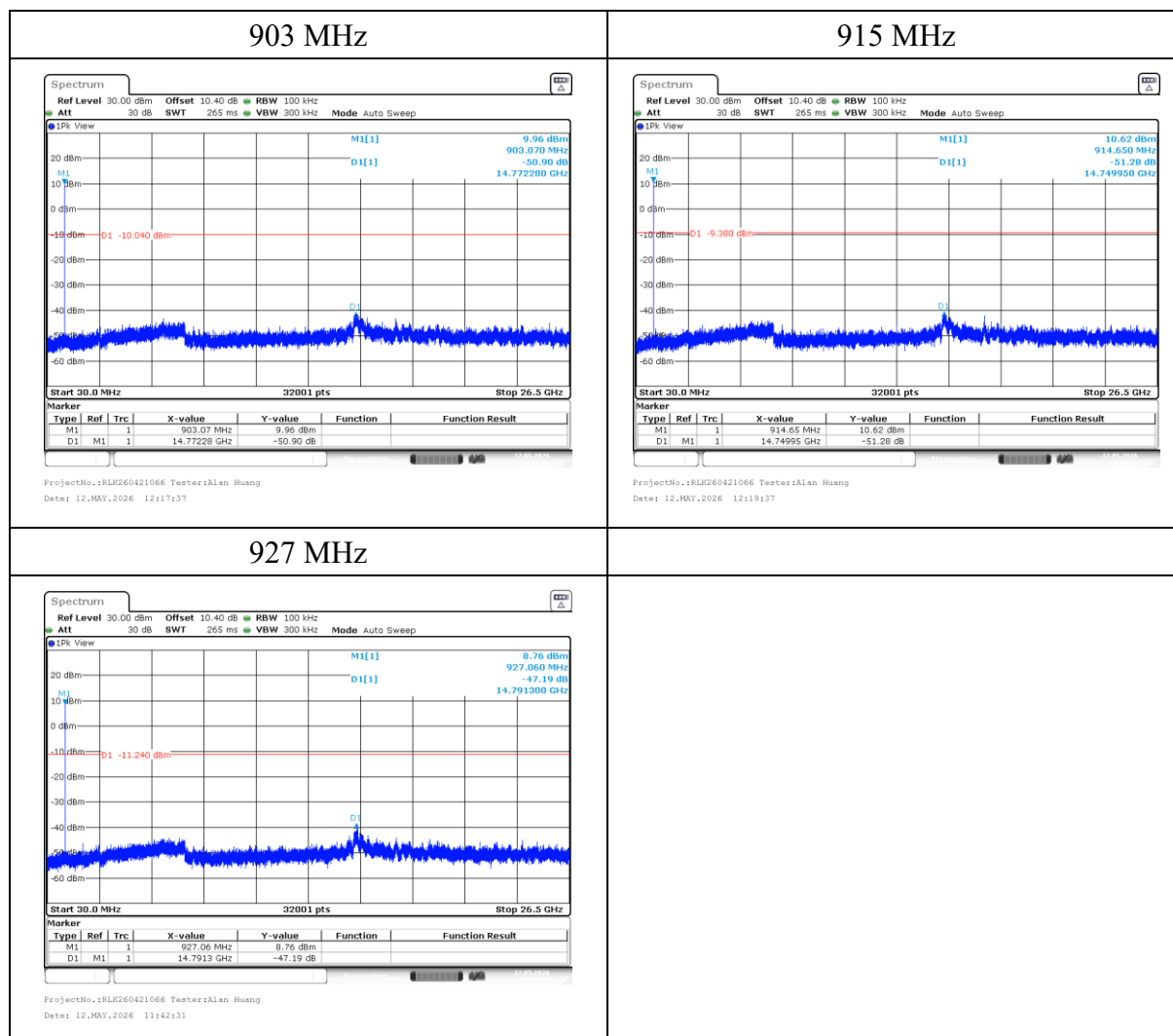


Site : 966C Chamber
Condition : 3m vertical
Memo : LoRa-TX-927
Job No : RLK260421066
Model : EF27-S2
Power : 120Vac/60Hz
Tester : Derek
Temp./ Hum.: 19.7°C/47%
Memo : RBW/VBW: PK:1M/3M; AV:1M/3k

Read	Level	Factor	Level	Limit	Over
Freq	Level	Factor	Level	Line	Limit Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB
1 2781.000	67.26	-8.78	58.48	74.00	-15.52 Peak
2 2781.000	62.34	-8.78	53.56	54.00	-0.44 Average
3 3319.650	54.55	-5.94	48.61	74.00	-25.39 Peak
4 4635.000	54.38	-2.67	51.71	74.00	-22.29 Peak
5 5325.650	49.80	-0.85	48.95	74.00	-25.05 Peak
6 5562.000	46.60	-0.09	46.51	74.00	-27.49 Peak
7 6489.000	52.00	2.26	54.34	74.00	-19.66 Peak
8 6489.000	44.06	2.26	46.32	54.00	-7.68 Average
9 8343.000	57.52	3.83	61.35	74.00	-12.65 Peak
10 8343.000	47.72	3.83	51.55	54.00	-2.45 Average
11 9270.000	47.22	7.47	54.69	74.00	-19.31 Peak
12 9270.000	38.78	7.47	46.25	54.00	-7.75 Average
13 10197.000	53.92	9.19	63.11	74.00	-10.89 Peak
14 10197.000	41.17	9.19	50.36	54.00	-3.64 Average
15 11124.000	42.35	9.99	52.34	74.00	-21.66 Peak

Conducted Spurious Emissions:

Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
903	50.90	≥ 20	PASS
915	51.28	≥ 20	PASS
927	47.19	≥ 20	PASS



8 FCC §15.247(a)(2) – 6 dB Emission Bandwidth

8.1 Applicable Standard

According to FCC §15.247(a)(2).

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.

8.2 Test Procedure

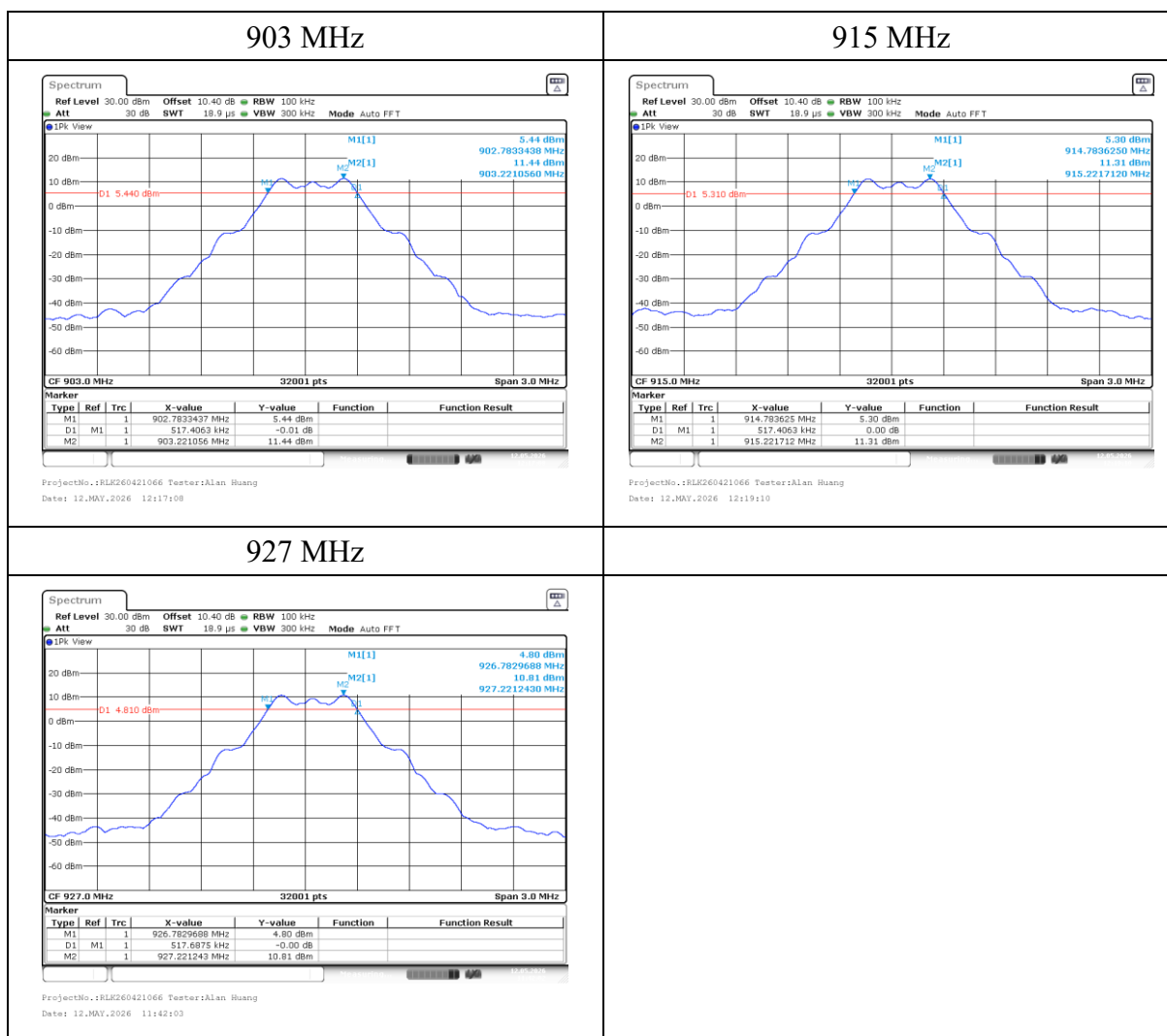
The steps for the first option are as follows:

- a) Set RBW = 100 kHz.
- b) Set the VBW $\geq [3 \times \text{RBW}]$.
- c) Detector = peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

8.3 Test Results

Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (kHz)	Result
903	0.517	> 500	Compliance
915	0.517	> 500	Compliance
927	0.518	> 500	Compliance

Please refer to the following plots



9 FCC §15.247(b)(3) – Maximum Output Power

9.1 Applicable Standard

According to FCC §15.247(b) (3).

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.

9.2 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 measuring equipment.

9.3 Test Results

Frequency (MHz)	Maximum peak Conducted Output Power		Limit	Result
	(dBm)	(W)	(W)	
903	12.26	0.01683	1	PASS
915	12.12	0.01629	1	PASS
927	11.94	0.01563	1	PASS

10 FCC§15.247(d) – 100 kHz Bandwidth of Frequency Band Edge

10.1 Applicable Standard

According to FCC §15.247(d).

In any 100kHz 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 20dB below that in the 100kHz 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 30dB instead of 20dB. 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)).

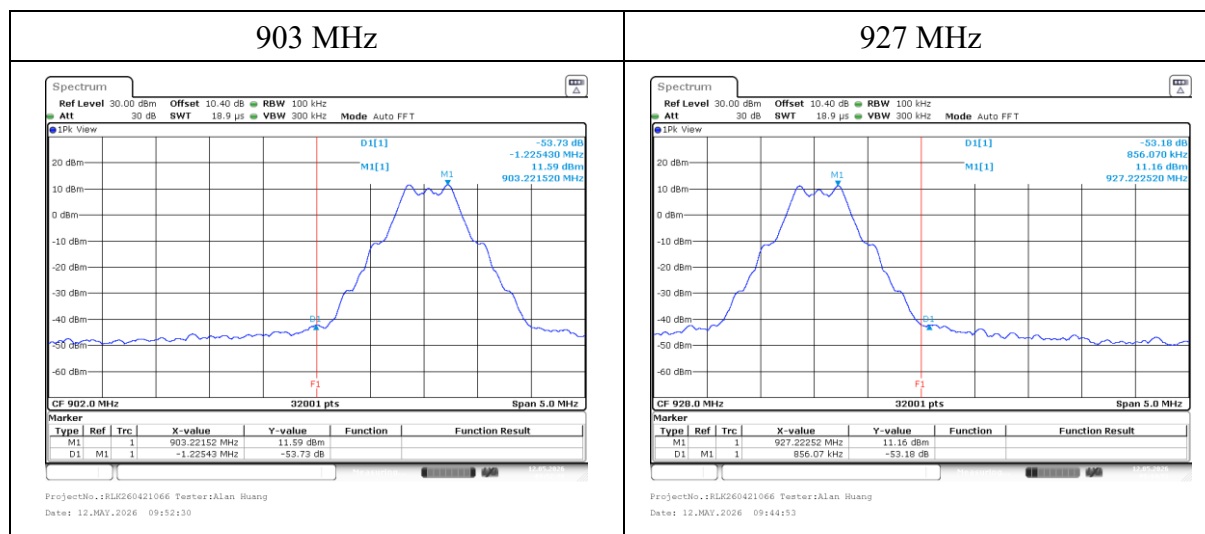
10.2 Test Procedure

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.

10.3 Test Results

Frequency (MHz)	Delta Peak to Band Emission (dBc)	Limit (dBc)	Result
903	53.73	≥ 20	PASS
927	53.18	≥ 20	PASS

Please refer to the following plots.



11 FCC §15.247(e) – Power Spectral Density

11.1 Applicable Standard

According to FCC §15.247(e).

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.

11.2 Test Procedure

According to ANSI C63.10-2020+COR.1-2023

- a) Set analyzer center frequency to DTS channel center frequency.
- b) Set the span to 1.5 times the DTS bandwidth.
- c) Set the RBW to $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- d) Set the VBW $\geq [3 \times \text{RBW}]$.
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum amplitude level within the RBW.
- j) If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat

11.3 Test Results

Frequency (MHz)	Power Spectral Density (dBm/3 kHz)	Limit (dBm/3 kHz)	Result
903	-1.12	8	Compliance
915	-1.25	8	Compliance
927	-1.77	8	Compliance

Please refer to the following plots



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