FCC Part 15.225

TEST REPORT

For

CHENG UEI PRECISION INDUSTRY CO., LTD

No.18, Chung Shan Road, Tu Cheng District, New Taipei City, Taiwan, R.O.C.

FCC ID: M6E-RD1CW

Report Type:	**Product Type:**
Original Report	Access Reader

Report Producer : Peggy Su

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Revision History

Revision	No.	Report Number	Issue Date	Description	Author/ Revised by
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1 General Information

1.1 Product Description for Equipment under Test (EUT)

Applicant	CHENG UEI PRECISION INDUSTRY CO., LTD
	No.18, Chung Shan Road, Tu Cheng District, New Taipei City, Taiwan, R.O.C.
Brand(Trade) Name	N/A
Product (Equipment)	Access Reader
Main Model Name	RD1CW
Series Model Name	CRD1-CW
Model Discrepancy	The major electrical and mechanical constructions of series models are identical to the basic model. The model, RD1CW is the testing sample, and the final test data are shown on this test report. Please refer to the difference declaration letter provided by the Applicant.
Frequency Range	13.56 MHz
E-field Strength	72.01 dBuV/m@3m
Modulation Technique	ASK
Power Operation	12Vdc
Sample Received Date	2025/04/23

*All measurement and test data in this report was gathered from production sample serial number: RXZ250423085-1 (Assigned by BACL, New Taipei Laboratory).

1.2 Objective

This report is prepared on behalf of *Cheng Uei Precision Industry Co Ltd* in accordance with Part 2-Subpart J, and Part 15-Subparts A and C of the Federal Communication Commission's rules
The objective is to determine the compliance of the EUT with FCC rules, section 15.203, 15.205, 15.207, 15.209, 15.215 and 15.225.

1.3 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.

1.4 Statement

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

1. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (New Taipei Laboratory).
2. 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.
3. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.
4. 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.
5. 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.

1.5 Measurement Uncertainty

Parameter		Uncertainty
AC Mains		+/- 3.02 dB
Frequency stability		+/- 0.00 ppm
Occupied Bandwidth		+/- 0.09 %
Unwanted Emissions, conducted		+/- 1.09 dB
Emissions, radiated	9 kHz~30 MHz	+/- 3.20 dB
	30 MHz~1 GHz	+/- 3.30 dB
Temperature		+/- 0.76 °C
Humidity		+/- 0.41 %

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.

1.6 Environmental Conditions

Test Site	Test Date	Temperature (℃)	Relative Humidity (%)	Test Engineer
AC Line Conducted Emissions	2025/5/26	20.3	46	Jing
Radiation Spurious Emissions	2025/5/14	23.7	63	Wayne
Frequency Stability	2025/4/24	25.5	54	Wayne
Emission Bandwidth	2025/4/24	25.5	54	Wayne

1.7 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 221, 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.

2 System Test Configuration

2.1 Description of Test Configuration

The system was configured for testing in a typical fashion (as normally used by a typical user).

2.2 Equipment Modifications

No modification was made to the EUT.

2.3 EUT Exercise Software

No test software was used.

2.4 Support Equipment List and Details

Description	Manufacturer	Model Number
DC Power Supply	KIKUSUI	PMC35-2
Fixture	Luminys	AC02B3

2.5 External Cable List and Details

Description	Cable length	From	To
4-pin cable	0.5m	EUT	Fixture

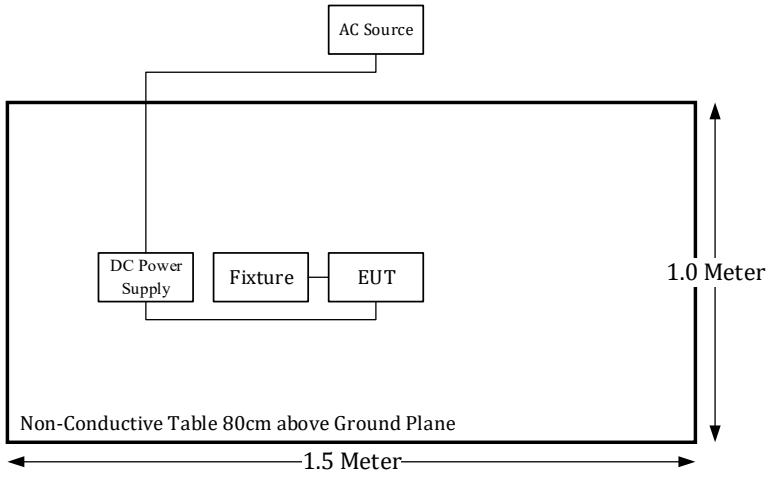
2.6 Test Mode

Full System (Model : RD1CW) for all test item.

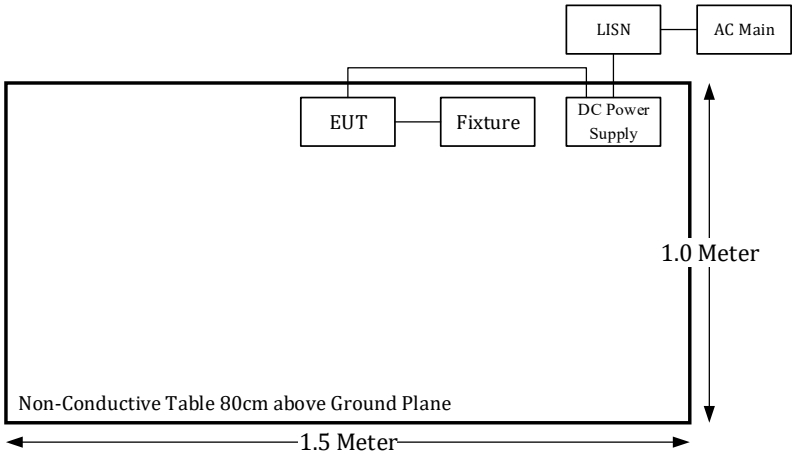
2.7 Block Diagram of Test Setup

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

Radiation:



Conduction:



3 Summary of Test Results

Rules	Description of Test	Results
FCC §15.203	Antenna Requirement	Compliance
FCC §15.207(a)	AC Line Conducted Emissions	Compliance
FCC §15.205, §15.209, §15.225	Radiated Emissions	Compliance
FCC §15.225(e)	Frequency Stability	Compliance
FCC §15.215 (c)	20 dB Emission Bandwidth	Compliance

4 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
AC Line Conduction Room (CON-A)					
LISN	Rohde & Schwarz	ENV216	101612	2025/2/17	2026/2/17
EMI Test Receiver	Rohde & Schwarz	ESR	102759	2024/9/19	2025/9/19
RF Cable	EMEC	EM-CB5D	1	2024/6/5	2025/6/5
Software	AUDIX	E3	V9.150826k	N.C.R	N.C.R
Radiation 3M Room (966-A)					
Active Loop Antenna	ETS-Lindgren	6502	35796	2025/3/27	2026/3/27
Bilog Antenna with 6 dB Attenuator	SUNOL SCIENCES & MINI-CIRCUITS	JB6/UNAT-6+	A050115/15542_01	2025/1/16	2026/1/16
Preamplifier	Sonoma	310N	130602	2024/6/18	2025/6/18
Spectrum Analyzer	Rohde & Schwarz	FSV40	101939	2025/3/27	2026/3/27
EMI Test Receiver	Rohde & Schwarz(R&S)	ESR3	102099	2024/6/24	2025/6/24
Microflex Cable	UTIFLEX	UFB197C-1-2362-70U-70U	225757-001	2024/12/20	2025/12/20
Coaxial Cable	UTIFLEX	UFB311A-Q-1440-300300	220490-006	2024/12/20	2025/12/20
Coaxial Cable	COMMATE	PEWC	8Dr	2024/12/20	2025/12/20
Cable	EMC	EMC105-SM-SM-10000	201003	2024/12/20	2025/12/20
Coaxial Cable	JUNFLON	J12J102248-00-B-5	AUG-07-15-044	2024/12/20	2025/12/20
Software	AUDIX	E3	18621a	N.C.R	N.C.R
Conducted Room					
Active Loop Antenna	ETS-Lindgren	6502	35796	2025/3/27	2026/3/27
Spectrum Analyzer	Rohde & Schwarz(R&S)	FSV40	101204	2024/5/30	2025/5/30
Cable	UTIFLEX	UFA210A	9435	2024/10/1	2025/10/1
Temperature and Humidity Chamber	BACL	BTH-150-40	30028	2025/1/13	2026/1/13

***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 use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§ 15.211, 15.213, 15.217, 15.219, 15.221, or § 15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

5.2 Antenna Information

Manufacturer	Type	Antenna Gain	Input impedance
Luminys Systems Corporation	PCB	Unknown	50Ω

Antenna was permanently attached to the unit.

Result: Compliance.

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

6.1 Applicable Standard

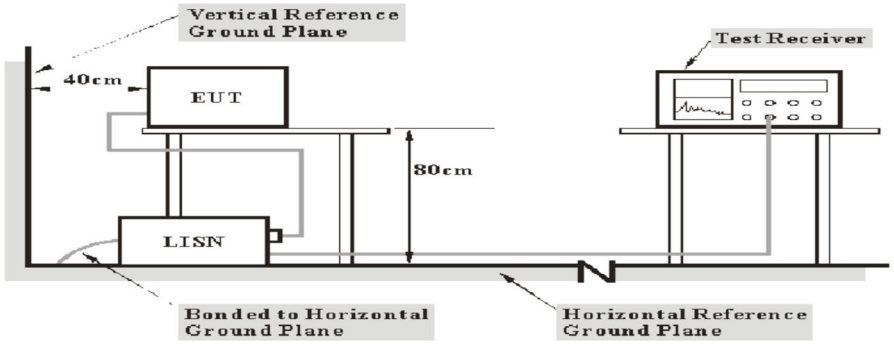
According to FCC §15.207 for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/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.

For an EUT that connects to the AC power lines indirectly, through another device, the requirement for compliance with the limits in table 4 shall apply at the terminals of the AC power-line mains cable of a representative support device, while it provides power to the EUT. The lower limit applies at the boundary between the frequency ranges. The device used to power the EUT shall be representative of typical applications.

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

Note 1: Decreases with the logarithm of the frequency.

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 C63.10-2013 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	RBW	VBW
150kHz – 30MHz	9kHz	30kHz

6.4 Test Procedure

During the conducted emission test, the DC Power Supply 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 Factor & Over Limit

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

Factor = LISN VDF + Cable Loss + Transient Limiter Attenuation

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

Over Limit = Result – Limit Line

6.6 Test Results

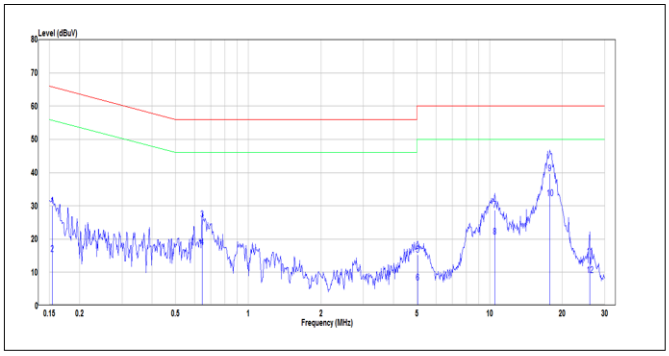
Test Mode: Transmitting

Main: AC120V, 60Hz

Line

Description: BLE,RBW:9kHz/VBW:30kHz

2025-05-26 18:30:27

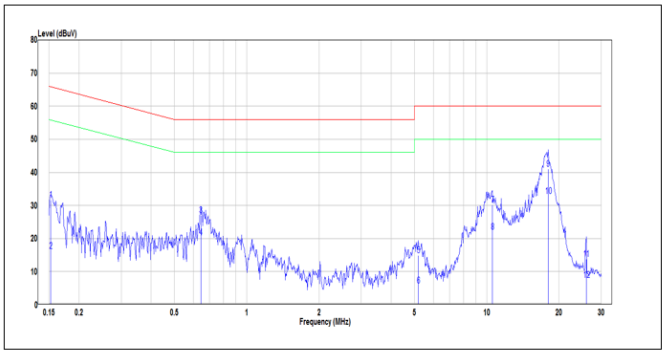


No.	Frequency	Reading	Correct Factor	Result	Limit	Over limit	Remark	Phase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.154	20.02	10.04	30.06	65.78	-35.72	QP	Line
2	0.154	5.54	10.04	15.58	55.78	-40.20	Average	Line
3	0.644	15.44	10.45	25.89	56.00	-30.11	QP	Line
4	0.644	7.01	10.45	17.46	46.00	-28.54	Average	Line
5	5.031	4.67	10.56	15.23	60.00	-44.77	QP	Line
6	5.031	-3.68	10.56	6.88	50.00	-43.12	Average	Line
7	10.508	18.08	10.64	28.72	60.00	-31.28	QP	Line
8	10.508	10.06	10.64	20.70	50.00	-29.30	Average	Line
9	17.755	28.87	10.77	39.64	60.00	-20.36	QP	Line
10	17.755	21.58	10.77	32.35	50.00	-17.65	Average	Line
11	26.001	4.04	10.77	14.81	60.00	-45.19	QP	Line
12	26.001	-1.67	10.77	9.10	50.00	-40.90	Average	Line

Neutral

Description: BLE,RBW:9kHz/VBW:30kHz

2025-05-26 18:32:21



No.	Frequency	Reading	Correct Factor	Result	Limit	Over limit	Remark	Phase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.152	21.81	9.99	31.80	65.87	-34.07	QP	Neutral
2	0.152	6.23	9.99	16.22	55.87	-39.65	Average	Neutral
3	0.644	16.68	10.40	27.08	56.00	-28.92	QP	Neutral
4	0.644	9.88	10.40	20.28	46.00	-25.72	Average	Neutral
5	5.194	4.33	10.53	14.86	60.00	-45.14	QP	Neutral
6	5.194	-4.76	10.53	5.77	50.00	-44.23	Average	Neutral
7	10.564	19.64	10.61	30.25	60.00	-29.75	QP	Neutral
8	10.564	11.49	10.61	22.10	50.00	-27.90	Average	Neutral
9	18.039	30.23	10.72	40.95	60.00	-19.05	QP	Neutral
10	18.039	22.16	10.72	32.88	50.00	-17.12	Average	Neutral
11	26.001	3.12	10.73	13.85	60.00	-46.15	QP	Neutral
12	26.001	-3.29	10.73	7.44	50.00	-42.56	Average	Neutral

Note:

Result = Reading + Factor

Over Limit = Result – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

7 FCC §15.205, §15.209 , §15.225 - Radiated Emissions

7.1 Applicable Standard

According to FCC §15.225(a)

(a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

(b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

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

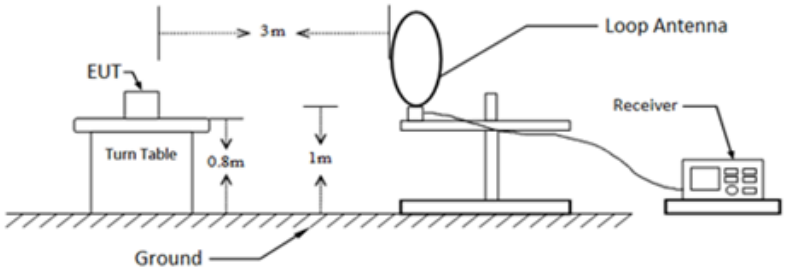
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this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

According to ANSI C63.10-2013, section 5.3.3

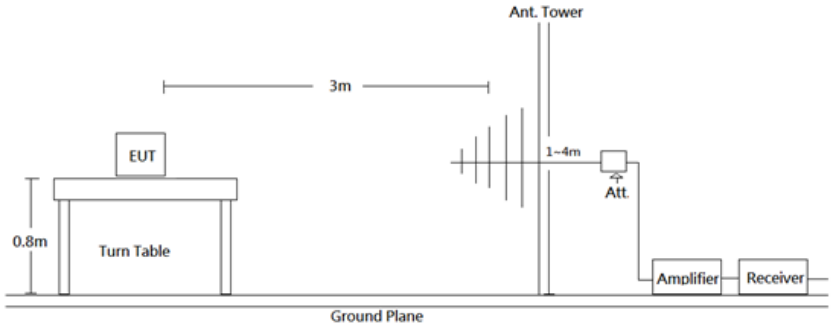
Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field, and the emissions to be measured can be detected by the measurement equipment (see 4.3.4). Measurements shall not be performed at a distance greater than 30 m for frequencies above 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).

7.2 EUT Setup

9kHz-30MHz:



30MHz-1GHz:



Radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013.

7.3 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9 kHz to 1 GHz. During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	VBW	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	120 kHz	300 kHz	QP

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

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:

Correct Factor = 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 -7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

Margin = Level – Limit

7.6 Test Results

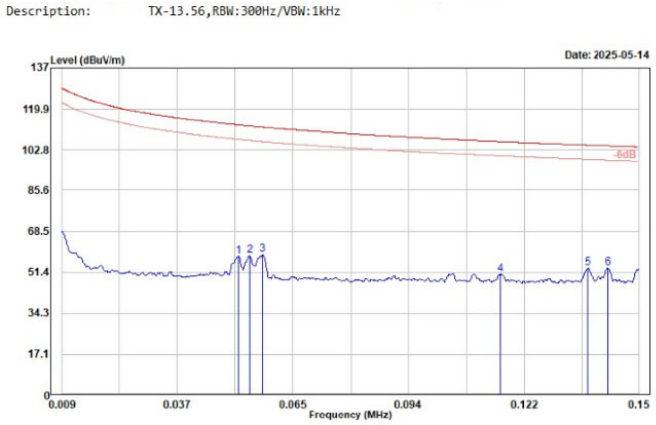
Test Mode: Transmitting

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

9kHz-30MHz:

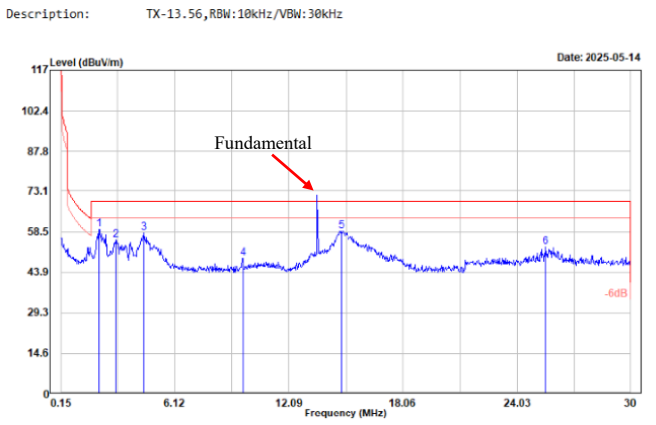
(Pre-scan using three directional polarities, worst case as parallel.)

9kHz-150kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
0.052	44.85	13.19	58.04	113.28	-55.24	100	312	Average
0.055	45.40	12.74	58.14	112.82	-54.68	100	244	Average
0.058	46.40	12.25	58.65	112.35	-53.70	100	127	Average
0.116	38.87	11.68	50.55	106.31	-55.76	100	79	Average
0.137	41.47	11.75	53.22	104.85	-51.63	100	166	Average
0.142	41.35	11.77	53.12	104.53	-51.41	100	27	Average

150kHz-30MHz

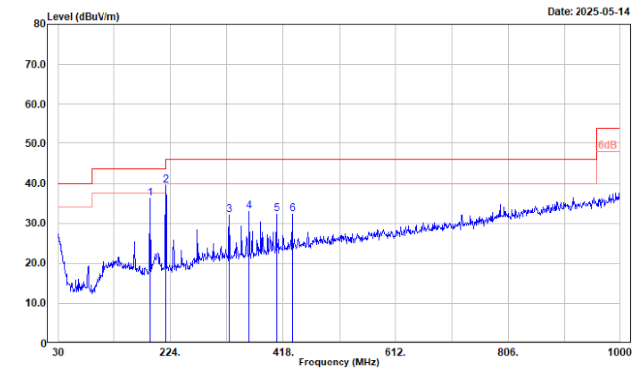


Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
2.120	48.58	10.81	59.39	69.54	-10.15	100	88	QP
3.045	44.98	10.66	55.64	69.54	-13.90	100	143	QP
4.508	47.20	10.81	58.01	69.54	-11.53	100	245	QP
9.672	37.37	11.49	48.86	69.54	-20.68	100	343	QP
14.806	47.20	11.60	58.80	69.54	-10.74	100	101	QP
25.523	41.01	11.84	52.85	69.54	-16.69	100	6	QP

30MHz-1GHz:

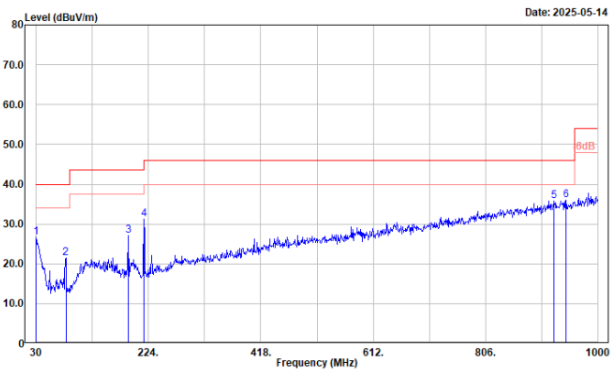
Horizontal	Vertical

Description: TX-13.56,RBW:100kHz/VBW:300kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
189.080	47.53	-11.32	36.21	43.50	-7.29	100	78	QP
216.240	51.07	-11.53	39.54	46.00	-6.46	100	78	QP
324.880	39.64	-7.63	32.01	46.00	-13.99	100	86	QP
359.800	40.07	-7.04	33.03	46.00	-12.97	100	70	QP
406.360	37.75	-5.53	32.22	46.00	-13.78	100	144	QP
433.520	36.84	-4.57	32.27	46.00	-13.73	100	128	QP

Description: TX-13.56,RBW:100kHz/VBW:300kHz



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
30.000	28.88	-2.28	26.60	40.00	-13.40	100	244	QP
81.410	37.05	-15.59	21.46	40.00	-18.54	100	325	QP
189.080	38.38	-11.32	27.06	43.50	-16.44	100	155	QP
216.240	42.70	-11.53	31.17	46.00	-14.83	100	168	QP
923.370	30.30	5.56	35.86	46.00	-10.14	100	159	QP
944.710	30.02	5.93	35.95	46.00	-10.05	100	313	QP

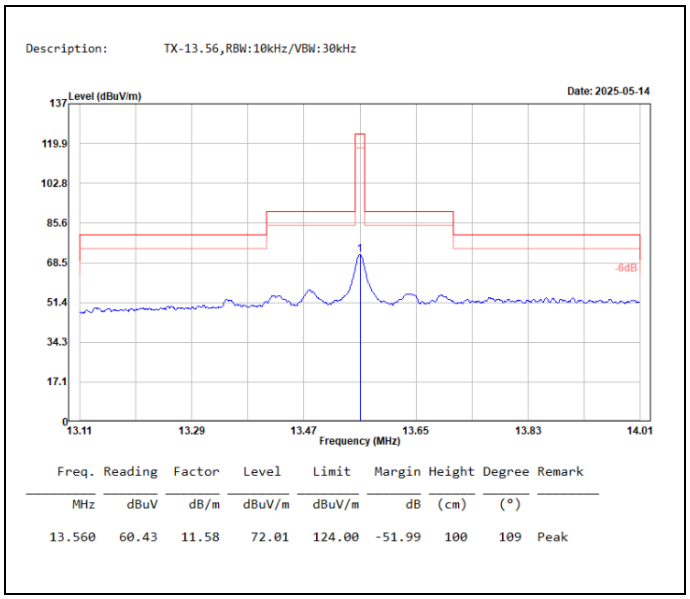
Level = Reading + Factor.

Margin = Level – Limit.

Factor = Antenna Factor + Cable Loss – Amplifier Gain.

Fundamental:

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



Freq.	Reading	Factor	Level	Limit	Margin	Height	Degree	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	(cm)	(°)	
13.560	60.43	11.58	72.01	124.00	-51.99	100	109	Peak

Level = Reading + Factor.

Margin = Level – Limit.

Factor = Antenna Factor + Cable Loss – Amplifier Gain.

8 FCC §15.225(e) - Frequency Stability

8.1 Applicable Standard

According to FCC §15.225(e)

The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency over a temperature variation of −20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery

8.2 Test Procedure

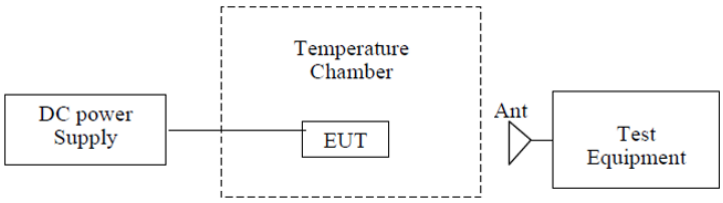
According to ANSI C63.10-2013 Section 6.8

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power.

The EUT was placed inside the temperature chamber.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the Spectrum Analyzer.

Frequency Stability vs. Voltage: An external variable DC power supply Source. The voltage was set to the end point of the battery. The output frequency was recorded for each voltage.



8.3 Test Results

Test Mode: Transmitting

Temperature (°C)	Voltage (Vdc)	Measured Frequency (MHz)	Frequency Error (%)	Limit (%)	Result
-20	12	13.56050	0.00369	±0.01	Pass
-10	12	13.56067	0.00494	±0.01	Pass
0	12	13.56064	0.00472	±0.01	Pass
10	12	13.56060	0.00442	±0.01	Pass
20	12	13.56058	0.00428	±0.01	Pass
30	12	13.56063	0.00465	±0.01	Pass
40	12	13.56049	0.00361	±0.01	Pass
50	12	13.56064	0.00472	±0.01	Pass
20	10.2	13.56052	0.00383	±0.01	Pass
	13.8	13.56061	0.00450	±0.01	Pass

9 FCC §15.215(c) – 20 dB Bandwidth Testing

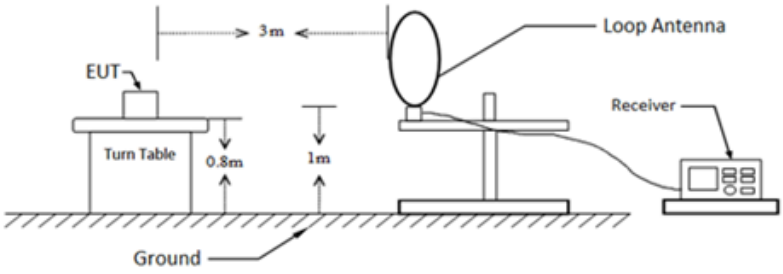
9.1 Applicable Standard

According to FCC §15.225(c)

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. In the case of intentional radiators operating under the provisions of subpart E, the emission bandwidth may span across multiple contiguous frequency bands identified in that subpart. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

9.2 Test Procedure

Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.



According to ANSI C63.10-2013 Section 6.9.2

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW.

b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement.

c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2

d) Steps a) through c) might require iteration to adjust within the specified tolerances.

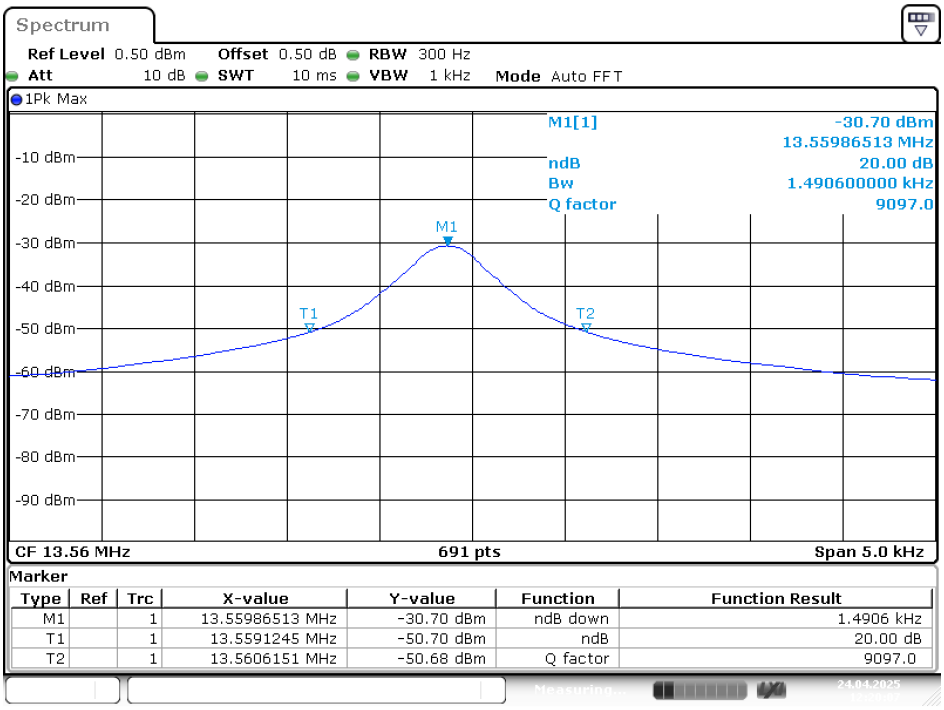
e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target "−xx dB down" requirement; that is, if the requirement calls for measuring the −20 dB OBW, the

instrument noise floor at the selected RBW shall be at least 30 dB below the reference value.
f) Set detection mode to peak and trace mode to max hold.
g) Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).
h) Determine the "−xx dB down amplitude" using [(reference value) − xx]. Alternatively, this calculation may be made by using the marker-delta function of the instrument.
i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j).
j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the "−xx dB down amplitude" determined in step h). If a marker is below this "−xx dB down amplitude" value, then it shall be as close as possible to this value. The occupied bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the "−xx dB down amplitude" determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth.
k) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

9.3 Test Results

Frequency (MHz)	20 dB Emission Bandwidth (kHz)
13.56	1.49

20 dB Emission Bandwidth



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