



Test Report

Date : 2025-06-16

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No. : HMD25050008

Applicant : RMS INTERNATIONAL (USA) INC
39 High Street, North Andover, Massachusetts, USA 01845

Supplier / Manufacturer : RMS INTERNATIONAL (USA) INC
39 High Street, North Andover, Massachusetts, USA 01845

Description of Sample(s) : Submitted sample(s) said to be
Product: RC Bumper Car Competition
Brand Name: N/A
Model No.: US101-1774
FCC ID: 2ATYAUS101-1774

Date Samples Received : 2025-06-09

Date Tested : 2025-06-10 to 2025-06-13

Investigation Requested : Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15 and ANSI C63.10: 2013 for FCC Certification.

Conclusions : The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

Remarks : For additional model(s) details, please see page 3.

Test by : Susu


Dr.CHAN Kwok Hung, Brian
Authorized Signatory

The Hong Kong Standards and Testing Centre Limited

10 Dai Wang Street, Taipo Industrial Estate, Tai Po, N.T., Hong Kong

Tel: +852 2666 1888 Fax: +852 2664 4353 Email: hkstc@stc.group Website: www.stc.group

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1.0 General Details

1.1 Equipment Under Test [EUT] Description of Sample(s)

Product: RC Bumper Car Competition
Manufacturer: RMS INTERNATIONAL (USA) INC
39 High Street, North Andover, Massachusetts, USA 01845
Brand Name: N/A
Model Number: US101-1774
Additional model number: US-101-1774/MEN, SKU#2752290
Rating: remote control: DC 3V ("AA" Battery *2)

1.1.1 Description of EUT Operation

The Equipment Under Test (EUT) is a RC Bumper Car Competition transceiver. It is a transceiver operating at 2404Hz~2478MHz and the RF signal was modulated by IC.

1.2 RF Module Details

Module Model Number: N/A
Module FCC ID: N/A
Modulation: GFSK
Frequency Range: 2404-2478MHz

1.3 Antenna Details

Antenna Type: Integrated antenna
Antenna Gain: 0.17dBi

1.4 Date of Order

2025-05-28

1.5 Submitted Sample(s):

1 Sample

1.6 Test Duration

2025-06-10 to 2025-06-13

1.7 Country of Origin

China

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1.8 Channel List

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2404	22	2451
1	2405	23	2452
2	2406	24	2453
3	2407	25	2454
4	2408	26	2455
5	2409	27	2456
6	2410	28	2457
7	2411	29	2458
8	2412	30	2460
9	2413	31	2461
10	2414	32	2462
11	2418	33	2466
12	2419	34	2467
13	2421	35	2468
14	2425	36	2469
15	2435	37	2470
16	2436	38	2472
17	2440	39	2474
18	2445	40	2475
19	2446	41	2476
20	2449	42	2477
21	2450	43	2478

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2.0 Technical Details

2.1 Investigations Requested

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15 Regulations and ANSI C63.10: 2013 for FCC Certification.
The device was realized by engineering mode.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary						
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result		
				Pass	Failed	N/A
Field Strength of Fundamental & Harmonics Emissions	FCC 47CFR 15.249	ANSI C63.10: 2013	N/A	☒	☐	☐
Radiated Emissions	FCC 47CFR 15.209 FCC 47CFR 15.205	ANSI C63.10: 2013	N/A	☒	☐	☐
AC Mains Conducted Emissions	FCC 47CFR 15.207	ANSI C63.10: 2013	N/A	☐	☐	☒
Antenna requirement	FCC 47CFR 15.203	N/A	N/A	☒	☐	☐
20dB Emission bandwidth	FCC 47CFR 15.215(c)	ANSI C63.10: 2013	N/A	☒	☐	☐

Note: N/A - Not Applicable



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3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions

Ambient temperature 25°C

Relative humidity 57%

Test Requirement:	FCC 47CFR 15.249 & FCC 47CFR 15.209
Test Method:	ANSI C63.10:2013
Test Date:	2025-06-10
Mode of Operation:	Tx mode

Test Method:

For emission measurements at or below 1 GHz, the sample was placed 0.8m above the ground plane of semi-anechoic Chamber*. For emission measurements above 1 GHz, the sample was placed 1.5m above the ground plane of semi-anechoic Chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

- * Semi-Anechoic chamber located on the G/F of The Hong Kong Standards and Testing Centre Ltd. with
Registration Number: HK0001
Test Firm Registration Number: 367672

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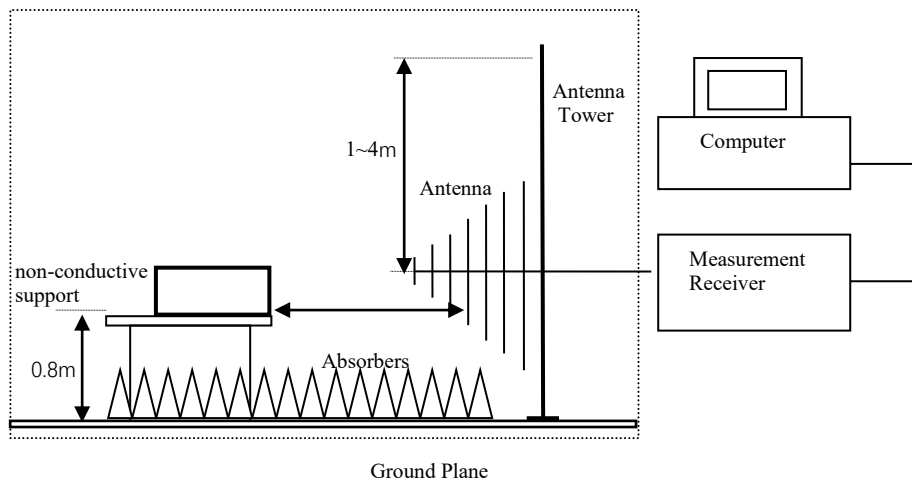
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Spectrum Analyzer Setting:

9KHz – 30MHz (Pk & Av)	RBW:	10kHz
	VBW:	30kHz
	Sweep:	Auto
	Span:	Fully capture the emissions being measured
	Trace:	Max. hold
30MHz – 1GHz (QP)	RBW:	120kHz
	VBW:	120kHz
	Sweep:	Auto
	Span:	Fully capture the emissions being measured
	Trace:	Max. hold
Above 1GHz (Pk & Av) (Other than Fundamental Emissions)	RBW:	1MHz
	VBW:	1MHz
	Sweep:	Auto
	Span:	Fully capture the emissions being measured
	Trace:	Max. hold

Test Setup:



- Absorbers placed on top of the ground plane are for measurements above 1000MHz only.
- Measurements between 30MHz to 1000MHz made with Bi-log antennas, above 1000MHz horn antennas are used.

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Limits for Field Strength of Fundamental & Harmonics Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [microvolts/meter]	Field Strength of Harmonics Emission [microvolts/meter]
902-928	50,000 [Quasi-Peak]	500 [Average]
2400-2483.5	50,000 [Average]	500 [Average]

Remarks:

No additional spurious emissions found between lowest internal used/generated frequency and 30 MHz

Calculated measurement uncertainty
(9kHz-30MHz): 2.0dB
(30MHz -1GHz): 4.9dB
(1GHz -6GHz): 4.02dB
(6GHz -26.5GHz): 4.03dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

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Results of Tx mode (Lowest Frequency Channel-2404 MHz): Pass

Field Strength of Fundamental Emissions						
Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2404.00	89.9	-4.8	85.1	17,906.1	500,000	Vertical
2404.00	100.7	-4.7	96.0	63,387.0	500,000	Horizontal

Field Strength of Fundamental Emissions						
Average Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2404.00	65.9	-4.8	61.1	1,128.5	50,000	Vertical
2404.00	76.1	-4.7	71.4	3,706.8	50,000	Horizontal

Field Strength of Harmonics Emission						
Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
4808.0	54.6	0.8	55.4	589.5	5,000	Vertical
4808.0	57.0	0.5	57.5	749.9	5,000	Horizontal
7212.0	48.5	7.0	55.5	595.7	5,000	Vertical
7212.0	50.2	6.5	56.7	683.9	5,000	Horizontal
9616.0	46.2	8.5	54.7	543.3	5,000	Vertical
9616.0	47.0	8.3	55.3	582.1	5,000	Horizontal
12020.0	45	10.9	55.9	623.7	5,000	Vertical
12020.0	45.3	10.8	56.1	638.3	5,000	Horizontal

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Field Strength of Harmonics Emission Average Value						
Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
4808.0	40.1	0.8	40.9	110.9	500	Vertical
4808.0	41.1	0.5	41.6	120.2	500	Horizontal
7212.0	34.3	7.0	41.3	116.1	500	Vertical
7212.0	35.3	6.5	41.8	123.0	500	Horizontal
9616.0	33.1	8.5	41.6	120.2	500	Vertical
9616.0	33.2	8.3	41.5	118.9	500	Horizontal
12020.0	30.5	10.9	41.4	117.5	500	Vertical
12020.0	29.9	10.8	40.7	107.8	500	Horizontal

Results of Tx mode (Middle Frequency Channel- 2445MHz): Pass

Field Strength of Fundamental Emissions Peak Value						
Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
2445.00	90.8	-4.8	86.0	19,838.1	500,000	Vertical
2445.00	100.4	-4.7	95.7	61,023.9	500,000	Horizontal

Field Strength of Fundamental Emissions Average Value						
Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
2445.00	66.1	-4.8	61.3	1,161.4	50,000	Vertical
2445.00	75.1	-4.7	70.4	3,311.3	50,000	Horizontal

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Field Strength of Harmonics Emission Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
4890.0	54.1	0.8	54.9	557.2	5,000	Vertical
4890.0	56.8	0.5	57.3	732.8	5,000	Horizontal
7335.0	47.2	7.0	54.2	512.9	5,000	Vertical
7335.0	49.8	6.5	56.3	653.1	5,000	Horizontal
9780.0	46.4	8.5	54.9	555.9	5,000	Vertical
9780.0	47.0	8.3	55.3	582.1	5,000	Horizontal
12225.0	45.2	10.9	56.1	638.3	5,000	Vertical
12225.0	44.7	10.8	55.5	595.7	5,000	Horizontal

Field Strength of Harmonics Emission Average Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
4890.0	40.2	0.8	41.0	112.5	500	Vertical
4890.0	41.8	0.5	42.3	130.3	500	Horizontal
7335.0	34.1	7.0	41.1	113.5	500	Vertical
7335.0	35.3	6.5	41.8	123.0	500	Horizontal
9780.0	33.0	8.5	41.5	118.9	500	Vertical
9780.0	33.4	8.3	41.7	121.6	500	Horizontal
12225.0	30.1	10.9	41.0	112.2	500	Vertical
12225.0	29.4	10.8	40.2	102.3	500	Horizontal

Results of Tx mode (Highest Frequency Channel – 2478MHz): Pass

Field Strength of Fundamental Emissions Peak Value						
Frequency MHz	Measured Level @3m dB μ V/m	Correction Factor dB μ V/m	Field Strength dB μ V/m	Field Strength μ V/m	Limit @3m μ V/m	E-Field Polarity
2478.00	89.7	-4.8	84.9	17,538.8	500,000	Vertical
2478.00	97.6	-4.7	92.9	44,055.5	500,000	Horizontal

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Field Strength of Fundamental Emissions						
Average Value						
Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
2478.00	65.4	-4.8	60.6	1,071.5	50,000	Vertical
2478.00	72.8	-4.7	68.1	2,541.0	50,000	Horizontal

Field Strength of Harmonics Emission						
Peak Value						
Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
4956.0	54.6	0.8	55.4	590.2	5,000	Vertical
4956.0	56.5	0.5	57.0	707.9	5,000	Horizontal
7434.0	47.9	7.0	54.9	555.9	5,000	Vertical
7434.0	49.3	6.5	55.8	616.6	5,000	Horizontal
9912.0	46.2	8.5	54.7	543.3	5,000	Vertical
9912.0	47.0	8.3	55.3	582.1	5,000	Horizontal
12390.0	45.2	10.9	56.1	638.3	5,000	Vertical
12390.0	45.0	10.8	55.8	616.6	5,000	Horizontal

Field Strength of Harmonics Emission						
Average Value						
Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
4956.0	40.6	0.8	41.4	117.8	500	Vertical
4956.0	41.3	0.5	41.8	123.0	500	Horizontal
7434.0	34.0	7.0	41.0	112.2	500	Vertical
7434.0	35.1	6.5	41.6	120.2	500	Horizontal
9912.0	32.6	8.5	41.1	113.5	500	Vertical
9912.0	34.0	8.3	42.3	130.3	500	Horizontal
12390.0	29.5	10.9	40.4	104.7	500	Vertical
12390.0	30.2	10.8	41.0	112.2	500	Horizontal

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Radiated Emissions Measurement:

Limit :

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

Result: RF Radiated Emissions (1GHz-26GHz) (Lowest)

Field Strength of Band-edge Compliance						
Peak Value						
Frequency MHz	Measured Level @3m dBμV	Correction Factor dB/m	Field Strength dBμV/m	Limit @3m dBμV/m	Margin dBμV/m	E-Field Polarity
2400.0	62.7	-4.8	57.9	74.0	16.1	Vertical
2400.0	73.2	-4.7	68.5	74.0	5.5	Horizontal

Field Strength of Band-edge Compliance						
Average Value						
Frequency MHz	Measured Level @3m dBμV	Correction Factor dB/m	Field Strength dBμV/m	Limit @3m dBμV/m	Margin dBμV/m	E-Field Polarity
2400.0	47.7	-4.8	42.9	54.0	11.1	Vertical
2400.0	58.1	-4.7	53.4	54.0	0.6	Horizontal

Result: RF Radiated Emissions (1GHz-26GHz) (Highest)

Field Strength of Band-edge Compliance						
Peak Value						
Frequency MHz	Measured Level @3m dBμV	Correction Factor dB/m	Field Strength dBμV/m	Limit @3m dBμV/m	Margin dBμV/m	E-Field Polarity
2483.5	58.3	-4.8	53.5	74.0	20.5	Vertical
2483.5	66.5	-4.7	61.8	74.0	12.2	Horizontal

Field Strength of Band-edge Compliance						
Average Value						
Frequency MHz	Measured Level @3m dBμV	Correction Factor dB/m	Field Strength dBμV/m	Limit @3m dBμV/m	Margin dBμV/m	E-Field Polarity
2483.5	43.6	-4.8	38.8	54.0	15.2	Vertical
2483.5	51.3	-4.7	46.6	54.0	7.4	Horizontal

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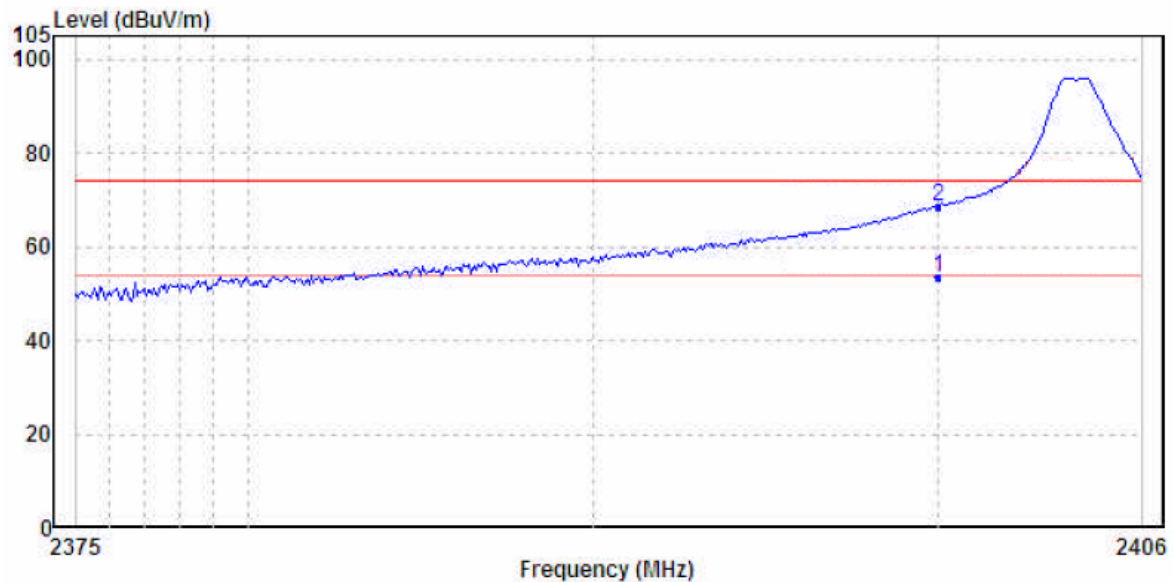
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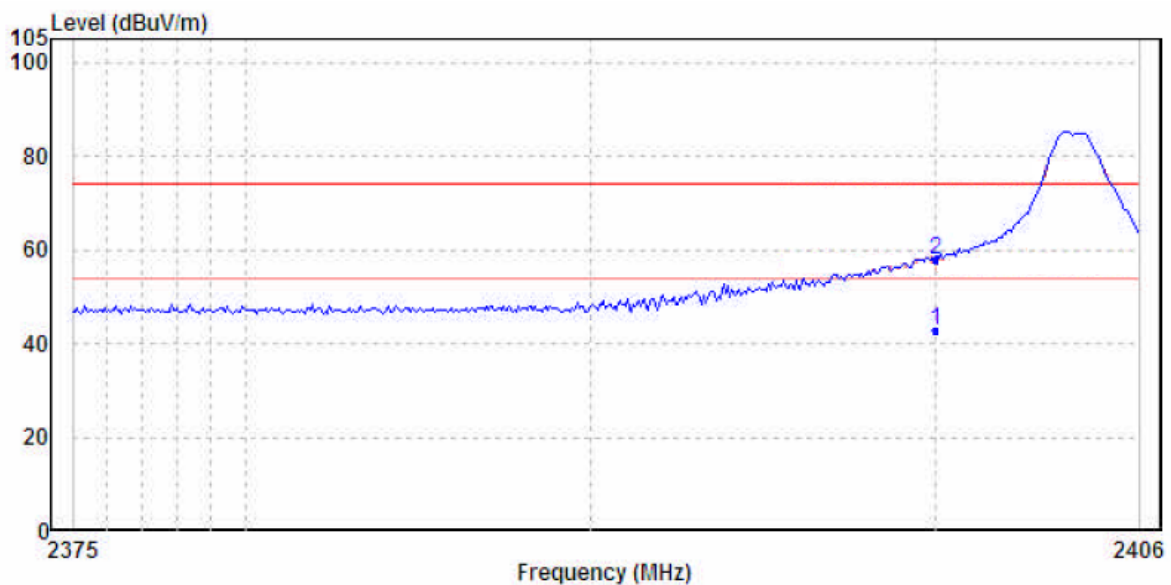
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Emissions radiated outside of the specified frequency bands (Lowest)

Horizontal



Vertical



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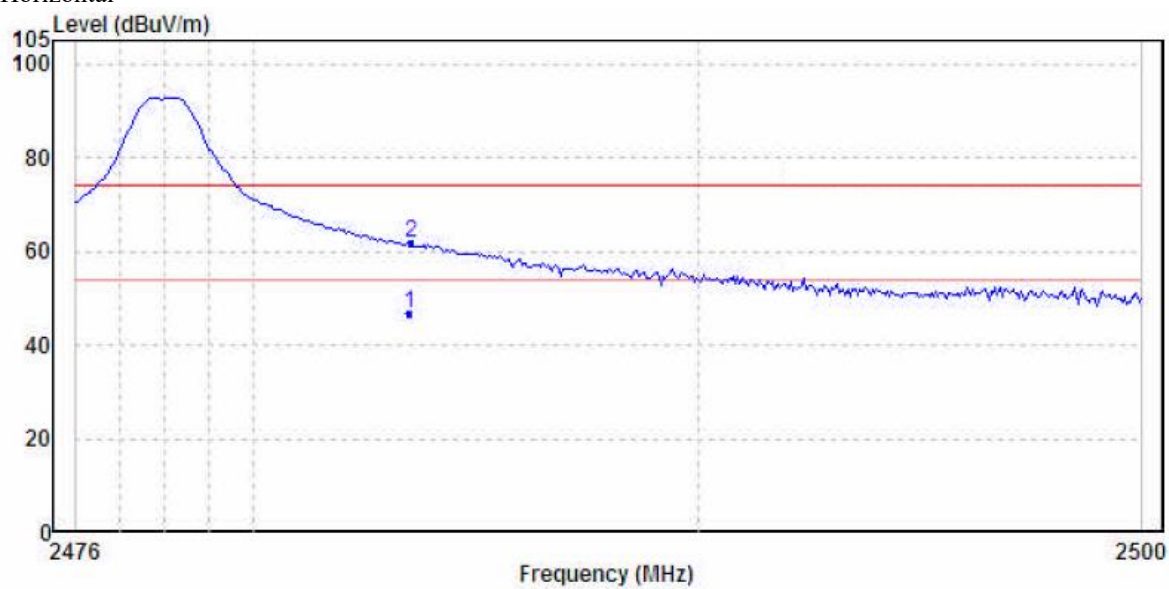
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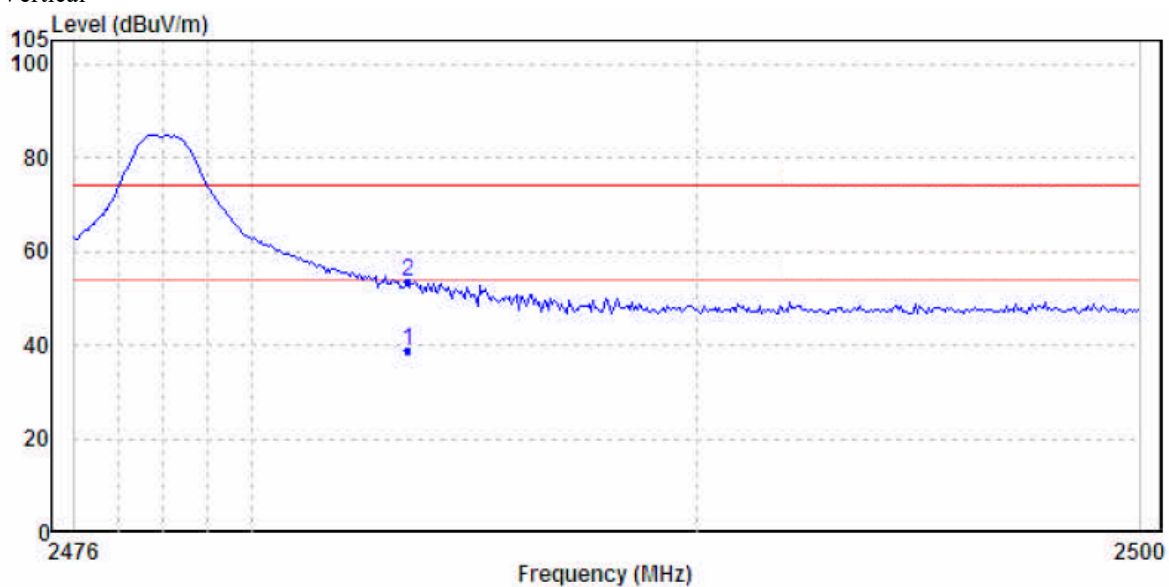
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Emissions radiated outside of the specified frequency bands (Highest)

Horizontal



Vertical



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Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [μV/m]
0.009-0.490	2400/F (kHz)
0.490-1.705	24000/F (kHz)
1.705-30	30
30-88	100
88-216	150
216-960	200
Above960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Remarks:

Calculated measurement uncertainty (9kHz-30MHz): 2.0dB /(30MHz – 1GHz): 4.9dB

Emissions in the vertical and horizontal polarizations have been investigated and the worst-case test results are recorded in this report.

Results of TX mode (9kHz – 30MHz): PASS

Emissions detected are more than 20 dB below the FCC Limits

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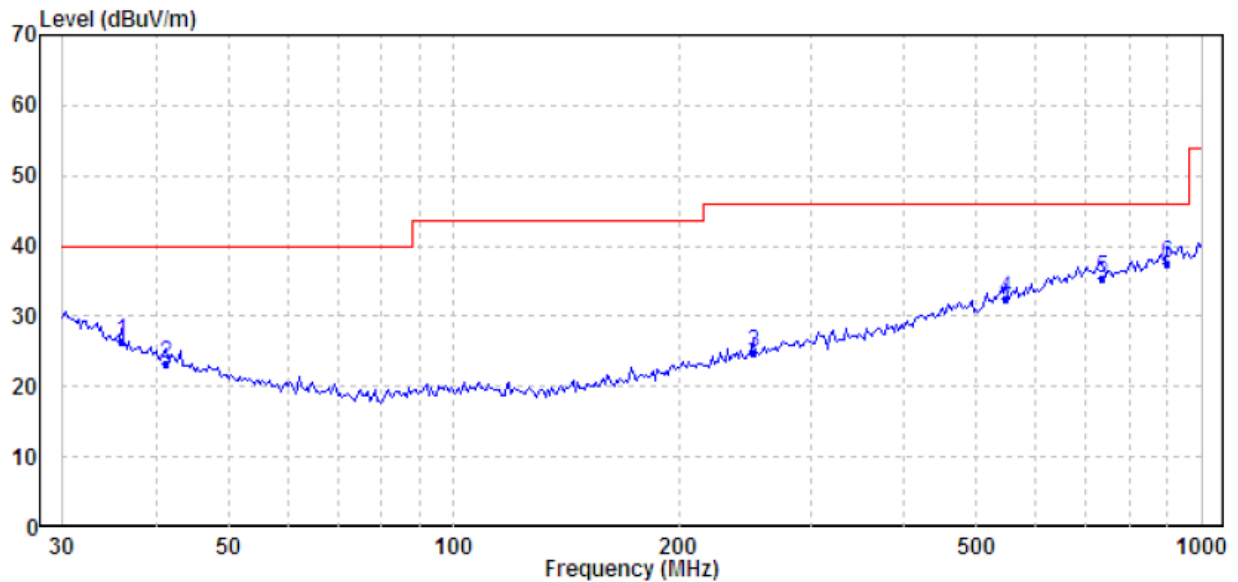
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Results of TX mode (30MHz – 1GHz)(2404MHz worst case): PASS

Horizontal



Ambient Temperature: 26.3C
Relative Humidity : 54.7%
Air Pressure : 100.9kPa

	Freq	Level	Limit	Over		
	MHz	dBuV/m	Line	Limit	Remark	Pol/Phase
1	36.001	26.33	40.00	-13.67	QP	Horizontal
2	41.132	23.36	40.00	-16.64	QP	Horizontal
3	251.180	24.73	46.00	-21.27	QP	Horizontal
4	547.098	32.61	46.00	-13.39	QP	Horizontal
5	734.491	35.39	46.00	-10.61	QP	Horizontal
6	900.147	37.60	46.00	-8.40	QP	Horizontal

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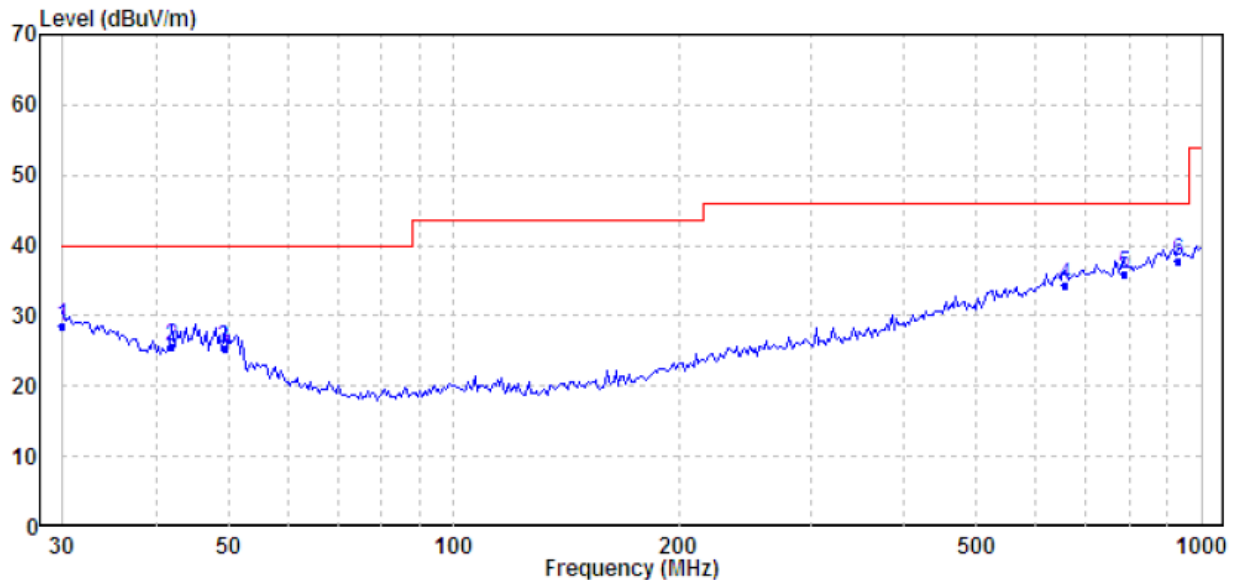
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Results of TX mode (30MHz – 1GHz) (2404MHz worst case): PASS

Vertical



Ambient Temperature: 26.3C
Relative Humidity : 54.7%
Air Pressure : 100.9kPa

	Freq	Level	Limit	Over		
	MHz	dBuV/m	Line	Limit	Remark	Pol/Phase
1	30.000	28.55	40.00	-11.45	QP	Vertical
2	42.007	25.74	40.00	-14.26	QP	Vertical
3	49.359	25.32	40.00	-14.68	QP	Vertical
4	656.530	34.34	46.00	-11.66	QP	Vertical
5	787.851	36.01	46.00	-9.99	QP	Vertical
6	932.272	37.65	46.00	-8.35	QP	Vertical

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3.1.2 AC Mains Conducted Emissions (0.15MHz to 30MHz)

Test Requirement:	FCC 47CFR 15.207
Test Method:	ANSI C63.10:2013
Test Date:	N/A
Mode of Operation:	TX mode
Test Voltage:	120V a.c. 60Hz

Ambient Temperature: 25°C Relative Humidity: 51% Atmospheric Pressure: 101 kPa

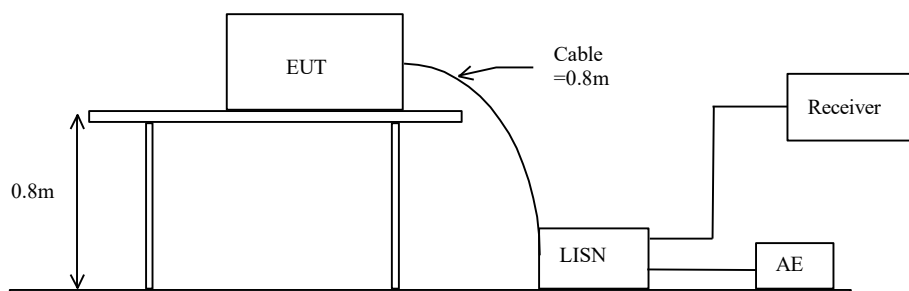
Test Method:

The test was performed in accordance with ANSI C63.10:2013, with the following: an initial measurement was performed in peak and average detection mode on the live line, any emissions recorded within 30dB of the relevant limit line were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

Receiver Setting:

Bandw. = 9 kHz, Meas. Time= 10.0 ms, Step Width = 5.0kHz
 Detector = MaxPeak and CISPR AV

Test Setup:



Limits for Conducted Emissions (FCC 47 CFR 15.207):

Frequency Range [MHz]	Quasi-Peak Limits [dBμV]	Average [dBμV]
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

* Decreases with the logarithm of the frequency.

Remarks:

Calculated measurement uncertainty (0.15MHz – 30MHz): 3.25dB

Results: N/A



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3.1.3 Antenna Requirement

Ambient temperature 25°C

Relative humidity 57%

Test Requirements: § 15.203

Test Specification:

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.

Test Results:

This is Integrated antenna. There is no external antenna, the antenna gain =0.17dBi. User is unable to remove or changed the Antenna.

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3.1.4 20dB Bandwidth of Fundamental Emission

Ambient temperature 25°C

Relative humidity 57%

Test Requirement: FCC 47 CFR 15.249
Test Method: ANSI C63.10:2013
Test Date: 2025-06-12
Mode of Operation: Tx mode

Test Method:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

The measurement bandwidth settings are RBW = 30 kHz
VBW = 100 kHz

Test Setup:

As Test Setup of clause 3.1.1 in this test report.

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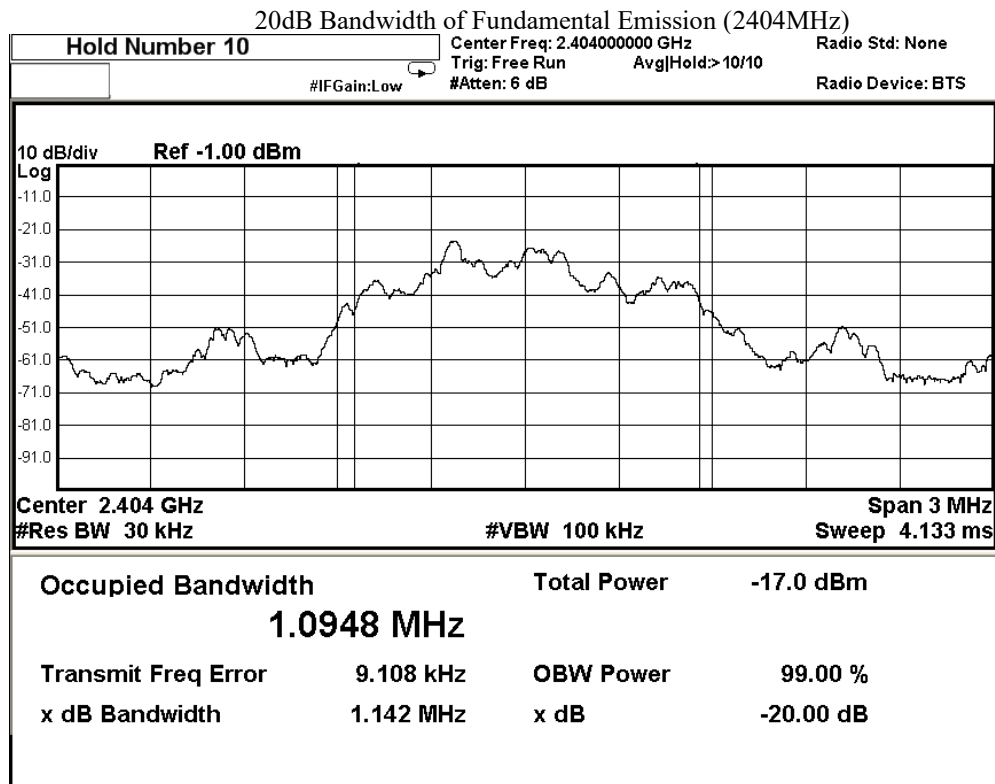
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Limits for 20dB Bandwidth of Fundamental Emission (Low Frequency Channel):

Frequency Range [MHz]	20dB Bandwidth [MHz]
2404.0	1.142



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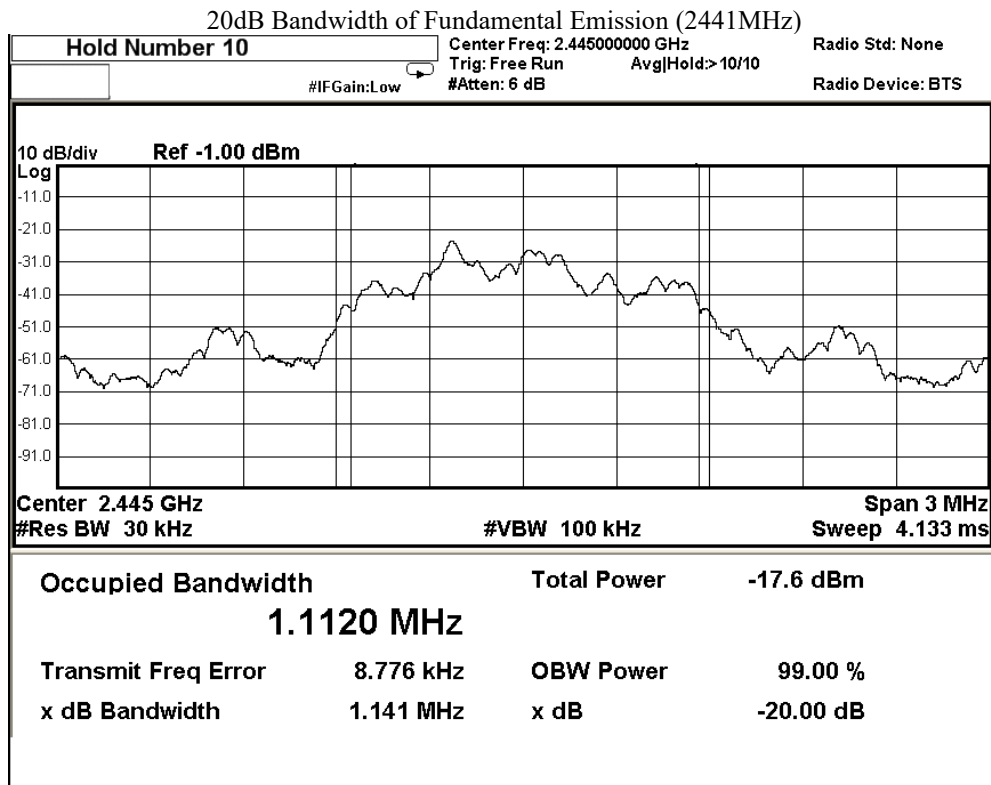
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Limits for 20dB Bandwidth of Fundamental Emission (Middle Frequency Channel):

Frequency Range [MHz]	20dB Bandwidth [MHz]
2445.0	1.141



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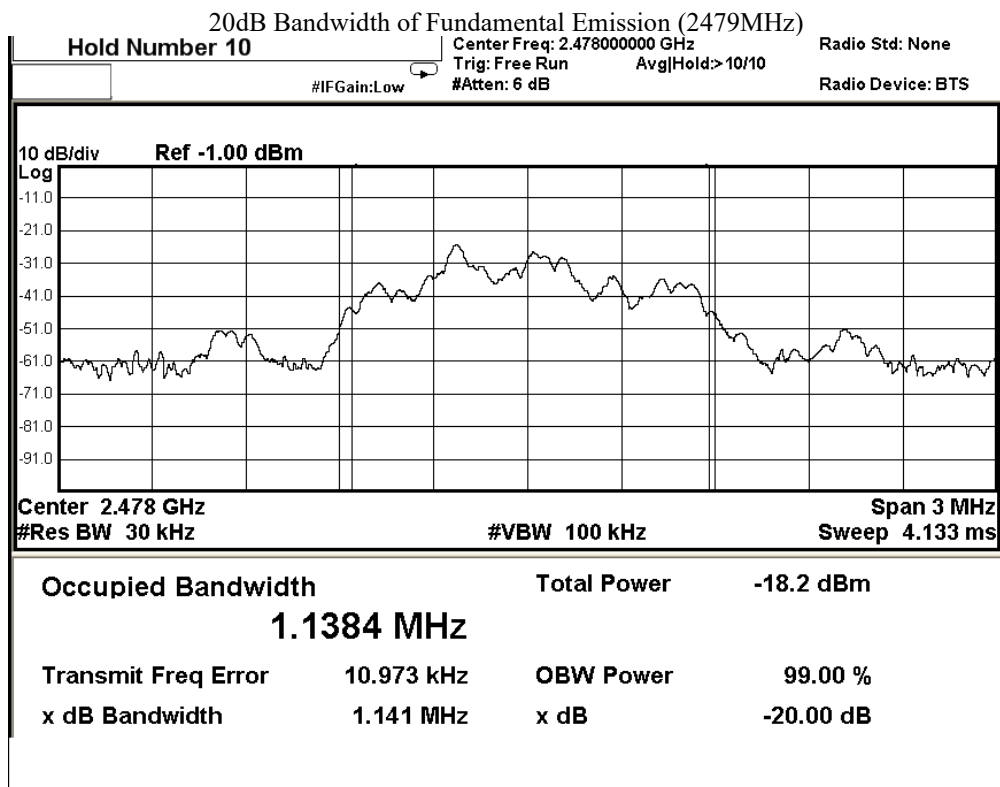
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Limits for 20dB Bandwidth of Fundamental Emission (High Frequency Channel):

Frequency Range [MHz]	20dB Bandwidth [MHz]
2478.0	1.141



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Appendix A

List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM215	MULTIDEVICE CONTROLLER	EMCO	2090	00024676	N/A	N/A
EM217	ELECTRIC POWERED TURNTABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-LINDGREN	FACT-3	--	2024-04-18	2029-04-18
EM356	ANTENNA POSITIONING TOWER	ETS-LINDGREN	2171B	00150346	N/A	N/A
EM293	SPECTRUM ANALYZER	AGILENT TECHNOLOGIES	N9020A	MY50510152	2024-11-07	2025-11-07
EM363	SIGNAL ANALYZER(10HZ- 40GHZ)	R & S	FSV40	101231	2024-01-17	2026-01-17
EM299	BROADBAND HORN ANTENNA	ETS-LINDGREN	3115	00114120	2023-01-25	2026-01-25
EM300	PYRAMIDAL STANDARD GAIN HORN ANTENNA	ETS-LINDGREN	3160-09	00130130	2023-01-16	2026-01-16
EM301	PYRAMIDAL STANDARD GAIN HORN ANTENNA	ETS-LINDGREN	3160-10	00130988	2023-02-15	2026-02-15
EM353	LOOP ANTENNA	ETS_LINDGREN	6502	00206533	2022-09-26	2025-09-26
EM355	BICONILOG ANTENNA	ETS-LINDGREN	3143B	00094856	2022-08-26	2025-08-26
EM200	DUAL CHANNEL POWER METER	R & S	NRVD	100592	2023-08-02	2025-08-02

Remarks:-

N/A Not Applicable or Not Available

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Appendix B

Photographs of EUT

View of the product



View of the product



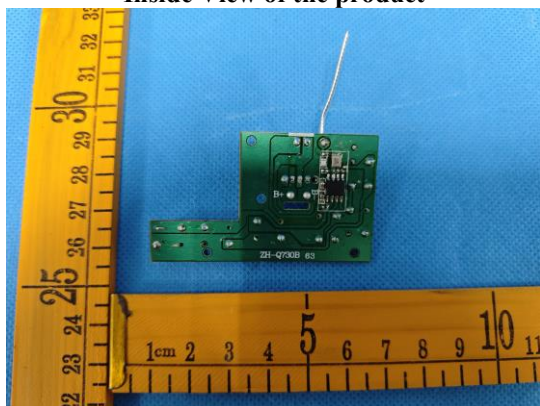
View of the product



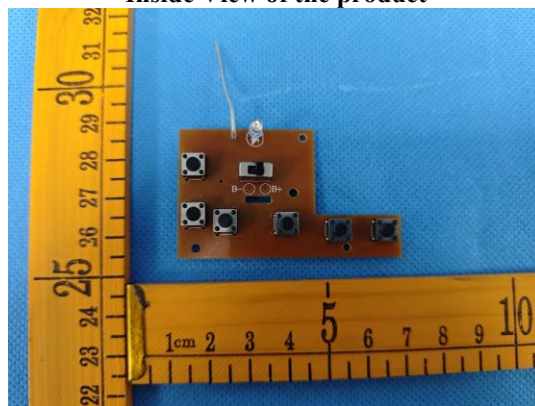
View of the product



Inside View of the product



Inside View of the product



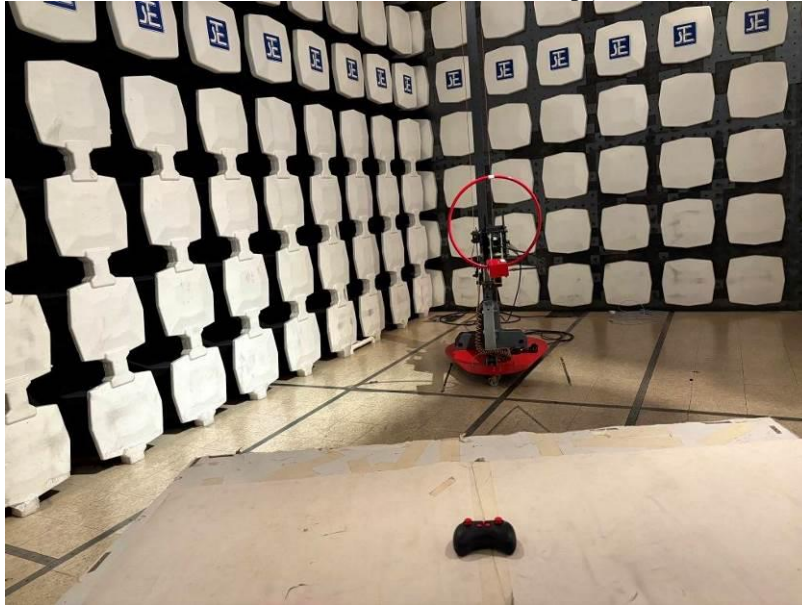
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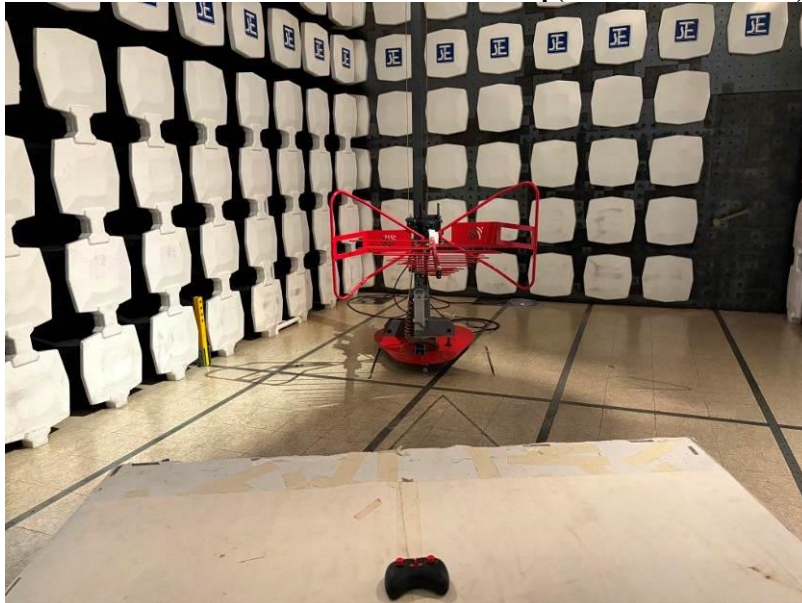
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Photographs of EUT

Measurement of Radiated Emission Test Set Up(9kHz – 30MHz)



Measurement of Radiated Emission Test Set Up(30MHz to 1000MHz)



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Photographs of EUT

Measurement of Radiated Emission Test Set Up(Above 1000MHz)



***** End of Test Report *****

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