

# FCC PART 15 SUBPART C TEST REPORT

Issued By: Dongguan New Testing Centre Co., Ltd

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7. As for test verdict, “—” means is “no need for judgment” “N/A” means is “not applicable”, “P” means “pass”, “F” means “fail”.

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## TEST REPORT DECLARE

|                             |  |
|-----------------------------|--|
| <b>FCC ID</b>               | : 2AUJF-27007-T  |
| <b>Applicant</b>            | : Diecast Masters Company Limited  |
| <b>Address</b>              | : Room 1801-5, 18/F., King Palace Plaza, 52A Sha Tsui Road, Tsuen Wan, N.T., Hong Kong                 |
| <b>Equipment under Test</b> | : Wester Star Radio Control 1:16 Scale 49X Dump truck  |
| <b>Model No</b>             | : 27007  |
| <b>Trade Mark</b>           | : Diecast-Masters  |
| <b>Manufacturer</b>         | : Guang Dong Yu Lee Technology Corporation Limited   |
| <b>Address</b>              | : Jinlong Industrial District, Sanzhong Village, Qingxi Town, Dongguan City, Guangdong Province, China |

**Test Standard Used:**

FCC Rules and Regulations Part 15 Subpart C: 2017, ANSI C63.10:2013.

**We Declare:**

The equipment described above is tested by Dongguan New Testing Centre Co., Ltd and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan New Testing Centre Co., Ltd is assumed of full responsibility for the accuracy and completeness of these tests.

**After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC standards.**

|                      |                          |                        |            |
|----------------------|--------------------------|------------------------|------------|
| <b>Report No.:</b>   | NTCER1912024             |                        |            |
| <b>Date of Test:</b> | 2019.12.26 to 2019.12.30 | <b>Date of Report:</b> | 2019.12.31 |

**Prepared By:**

*Jeffrey Zhang*  
**Jeffrey Zhang/Engineer**



**Dave Gao/LAB Manager**

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan New Testing Centre Co., Ltd

## 1. Summary of test results

| Description of Test Item | Standard  | Results |
|--------------------------|---|---------|
| -20dB Bandwidth          | F CC Part 15 Subpart C:2017<br>ANSI C63.10:2013 | PASS    |
| Conducted Emission Test  | F CC Part 15 Subpart C:2017<br>ANSI C63.10:2013 | PASS    |
| Radiated Emission Test   | F CC Part 15 Subpart C:2017<br>ANSI C63.10:2013 | PASS    |

## 2. General test information

### 2.1. Description of EUT

|                          |   |
|--------------------------|---|
| EUT* Name                | : Wester Star Radio Control 1:16 Scale 49X Dump truck |
| Test model               | : 27007   |
| EUT function description | : Please reference user manual of this device         |
| Power supply             | : DC 3V (Battery 1.5V *2Pcs)                          |
| Trade mark               | : Diecast-Masters                                     |
| Operation frequency      | : 2409-2475MHz  |
| Antenna Type             | : Wire antenna  |
| Antenna Gain             | : 0 dBi   |

Note: 1,EUT is the ab. of equipment under test.

Channel List:

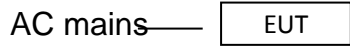
| Channels | Frequency (MHz) | Channels | Frequency (MHz) | Channels | Frequency (MHz) |
|----------|-----------------|----------|-----------------|----------|-----------------|
| 0        | 2409            | 23       | 2432            | 46       | 2455            |
| 1        | 2410            | 24       | 2433            | 47       | 2456            |
| 2        | 2411            | 25       | 2434            | 48       | 2457            |
| 3        | 2412            | 26       | 2435            | 49       | 2458            |
| 4        | 2413            | 27       | 2436            | 50       | 2459            |
| 5        | 2414            | 28       | 2437            | 51       | 2460            |
| 6        | 2415            | 29       | 2438            | 52       | 2461            |
| 7        | 2416            | 30       | 2439            | 53       | 2462            |
| 8        | 2417            | 31       | 2440            | 54       | 2463            |
| 9        | 2418            | 32       | 2441            | 55       | 2464            |
| 10       | 2419            | 33       | 2442            | 56       | 2465            |
| 11       | 2420            | 34       | 2443            | 57       | 2466            |
| 12       | 2421            | 35       | 2444            | 58       | 2467            |
| 13       | 2422            | 36       | 2445            | 59       | 2468            |
| 14       | 2423            | 37       | 2446            | 60       | 2469            |
| 15       | 2424            | 38       | 2447            | 61       | 2470            |
| 16       | 2425            | 39       | 2448            | 62       | 2471            |
| 17       | 2426            | 40       | 2449            | 63       | 2472            |
| 18       | 2427            | 41       | 2450            | 64       | 2473            |
| 19       | 2428            | 42       | 2451            | 65       | 2474            |
| 20       | 2429            | 43       | 2452            | 66       | 2475            |
| 21       | 2430            | 44       | 2453            | /        | /               |
| 22       | 2431            | 45       | 2454            | /        | /               |

**2.2. Detail models**

| Model | Input                      | Note |
|-------|----------------------------|------|
| 27007 | DC 3V (Battery 1.5V *2Pcs) | /    |

### 2.3. Block diagram EUT configuration for test

For EUT Tx mode:



### 2.4. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

|                    |           |
|--------------------|-----------|
| Temperature range: | 21-24°C   |
| Humidity range:    | 40-75%    |
| Pressure range:    | 86-106kPa |

### 2.5. Measurement uncertainty

| Test Item   | Uncertainty            |
|---|------------------------|
| Uncertainty for Conduction emission test                  | 2.44dB                 |
| Uncertainty for Radiation Emission test<br>(30MHz – 1GHz) | 3.14 dB (Polarize: V)  |
|   | 3.16 dB (Polarize: H)  |
| Uncertainty for Radiation Emission test<br>(1GHz – 18GHz) | 4.27 dB (Polarize: V)  |
|   | 4.51 dB (Polarize: H)  |
| Bandwidth   | ±1.2%                  |
| Stop Transmitting Time Test                               | ±0.5%                  |
| Frequency error   | 5.8 x 10 <sup>-8</sup> |

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

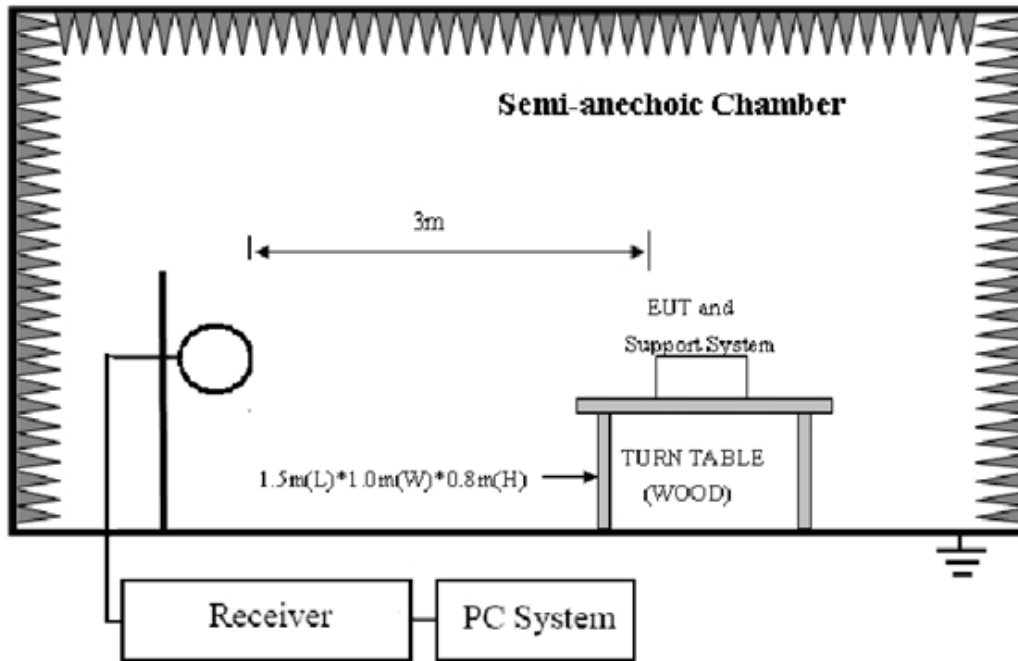
### 3. Radiated emission test

#### 3.1. Test equipment

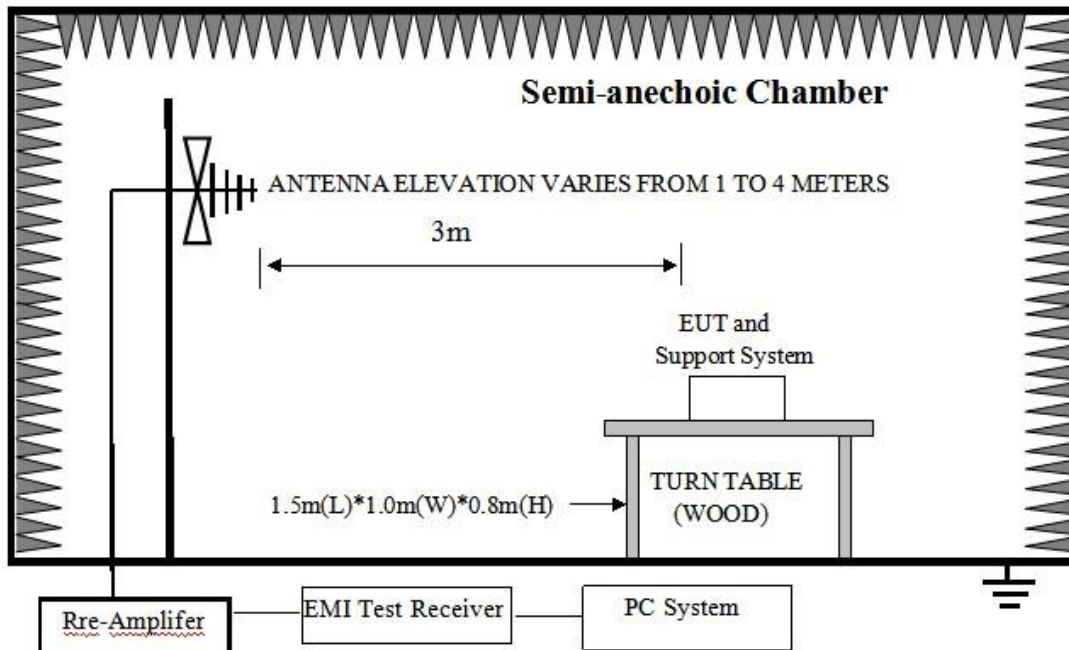
| Item | Equipment                  | Manufacturer | Model No.               | Serial No.                     | Last Cal.  | Cal. Interval |
|------|----------------------------|--------------|-------------------------|--------------------------------|------------|---------------|
| 1    | EMI Test Receiver          | R&S          | ESR                     | 7250-30406<br>7528             | 2019-04-30 | 1 Year        |
| 2    | Trilog Broadband Antenna   | Schwarzbeck  | VULB9168                | 00969                          | 2019-06-14 | 2 Year        |
| 3    | Pre-amplifier              | R&S          | 8447F                   | 3113A04553                     | 2019-05-13 | 1 Year        |
| 4    | Active Loop antenna        | Schwarzbeck  | FMZB-1519               | 1519-038                       | 2019-05-23 | 1 Year        |
| 5    | Horn antenna               | Schwarzbeck  | BBHA9120D               | 453                            | 2019-05-23 | 2 Year        |
| 6    | Double Ridged Horn Antenna | A.H. System  | SAS-574                 | 584                            | 2019-05-23 | 1 Year        |
| 7    | Pre-amplifier              | R&S          | SCU18                   | 105326                         | 2019-05-23 | 1 Year        |
| 8    | RF Cable                   | GORE         | OSQ01Q010<br>78.7       | SN1545847<br>3                 | 2019-05-23 | 1 Year        |
| 9    | RF Cable                   | GORE         | OSQ01Q010<br>78.7       | SN1545847<br>4                 | 2019-05-14 | 1 Year        |
| 10   | RF Cable                   | ESCO         | ETS-LINGR<br>EN         | RFC-SMS-1<br>00-SMS-340<br>-IN | 2019-05-23 | 1 Year        |
| 11   | Measurement software       | Farad        | EZ-EMC(VE<br>R:1.1.4.2) | N/A                            | N/A        | N/A           |

### 3.2. Block diagram of test setup

In 3m Anechoic Chamber Test Setup Diagram for 9KHz to 30MHz:

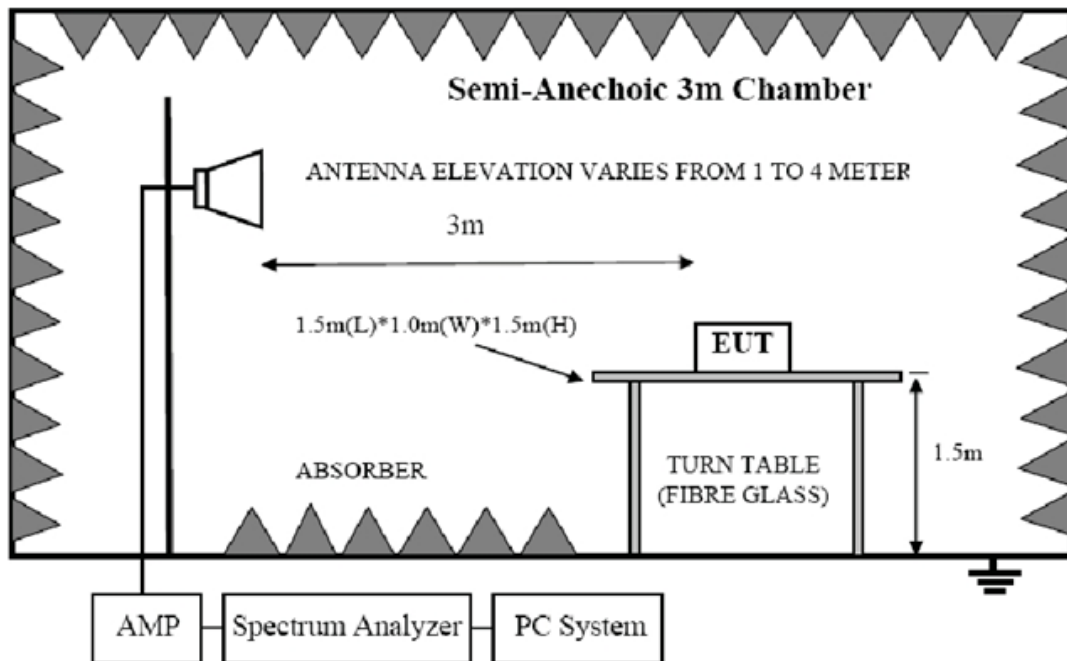


In 3m Anechoic Chamber Test Setup Diagram for 30MHz to 1GHz:





In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz:



### 3.3. Limit

FCC 15.205 Restricted frequency band:

| MHz                        | MHz                   | MHz             | GHz              |
|----------------------------|-----------------------|-----------------|------------------|
| 0.090 - 0.110              | 16.42 - 16.423        | 399.9 - 410     | 4.5 - 5.15       |
| <sup>1</sup> 0.495 - 0.505 | 16.69475 - 16.69525   | 608 - 614       | 5.35 - 5.46      |
| 2.1735 - 2.1905            | 16.80425 - 16.80475   | 960 - 1240      | 7.25 - 7.75      |
| 4.125 - 4.128              | 25.5 - 25.67          | 1300 - 1427     | 8.025 - 8.5      |
| 4.17725 - 4.17775          | 37.5 - 38.25          | 1435 - 1626.5   | 9.0 - 9.2        |
| 4.20725 - 4.20775          | 73 - 74.6             | 1645.5 - 1646.5 | 9.3 - 9.5        |
| 6.215 - 6.218              | 74.8 - 75.2           | 1660 - 1710     | 10.6 - 12.7      |
| 6.26775 - 6.26825          | 108 - 121.94          | 1718.8 - 1722.2 | 13.25 - 13.4     |
| 6.31175 - 6.31225          | 123 - 138             | 2200 - 2300     | 14.47 - 14.5     |
| 8.291 - 8.294              | 149.9 - 150.05        | 2310 - 2390     | 15.35 - 16.2     |
| 8.362 - 8.366              | 156.52475 - 156.52525 | 2483.5 - 2500   | 17.7 - 21.4      |
| 8.37625 - 8.38675          | 156.7 - 156.9         | 2690 - 2900     | 22.01 - 23.12    |
| 8.41425 - 8.41475          | 162.0125 - 167.17     | 3260 - 3267     | 23.6 - 24.0      |
| 12.29 - 12.293             | 167.72 - 173.2        | 3332 - 3339     | 31.2 - 31.8      |
| 12.51975 - 12.52025        | 240 - 285             | 3345.8 - 3358   | 36.43 - 36.5     |
| 12.57675 - 12.57725        | 322 - 335.4           | 3600 - 4400     | ( <sup>2</sup> ) |

FCC 15.109 Limit

| Frequency (MHz) | Distance (Meters) | Field Strengths Limits dB(μV)/m |
|-----------------|-------------------|---------------------------------|
| 30--88          | 3                 | 40.0                            |
| 88--216         | 3                 | 43.5                            |
| 216--960        | 3                 | 46.0                            |
| 960--1000       | 3                 | 54.0                            |
| Above 1GHz      | 3                 | Peak: 74.0                      |
|                 | 3                 | Average:54.0                    |

Note: (1) The smaller limit shall apply at the cross point between two frequency bands.

(2)Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

(3)The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9-90KHz, 110-490KHz and above 1000MHz.Radiated emissions limits in these three bands are based on measurements employing an average detector.

(4) At frequencies below 30MHz, measurement may be performed at a distance closer then that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$\text{Limit}_{3m}(\text{dBuV}/\text{m}) = \text{Limit}_{30m}(\text{dBuV}/\text{m}) + 40\text{Log}(30\text{m}/3\text{m})$$

(5)All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.109, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.109 limits.

### 3.4. Test Procedure

#### Procedure of Preliminary Test

Configuration EUT to simulate typical usage as described in clause 2.3 and test equipment as described in clause 4.2 of this report.

Mains cables, telephone lines or other connections to auxiliary equipment located outside the test are shall drape to the floor, be fitted with ferrite clamps or ferrite tubes placed on the floor at the point where the cable reaches the floor and then routed to the place where they leave the turntable. No extension cords shall be used to mains receptacle.

EUT height should be 0.8m for below 1GHz and 1.5m for above 1GHz at ground with absorbers.

The antenna was placed at 3 meter away from the EUT as stated in ANSI C63.10. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.

The Analyzer / Receiver quickly scanned from 30MHz to 18GHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

The X, Y, Z three axial are tested and the report only the worst case.

The emissions from 9KHz to 1GHz, QP or average values were measured with EMI receiver with below RBW:

| Frequency band | RBW    |
|----------------|--------|
| 9KHz-150KHz    | 200Hz  |
| 150KHz-30MHz   | 9KHz   |
| 30MHz-1GHz     | 120KHz |

For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz, VBW is set at 3MHz for Peak measure; RMS detector RBW 1MHz VBW 3MHz for Average measure.

### 3.5. Test result

#### **PASS. (See below detailed test result)**

All the emissions except fundamental emission from 9 KHz to 40GHz were comply with FCC PART 15.109 limits limit.

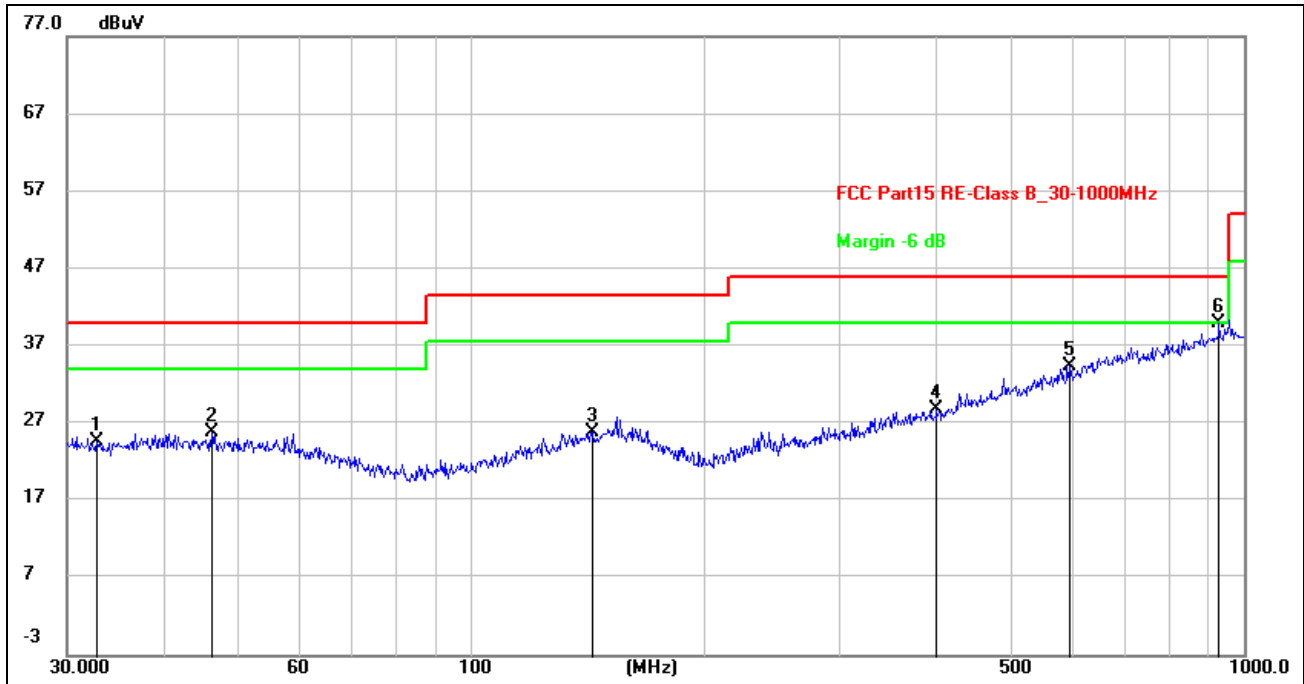
Note1: According exploratory test no any obvious emission were detected from 9KHz to 30MHz and

18GHz to 40GHz, so the final test was performed with frequency range from 30MHz to 18GHz and recorded in below.

Note2: For emissions above 1GHz. If peak results comply with AV limit, AV Result is deemed to comply with AV limit.

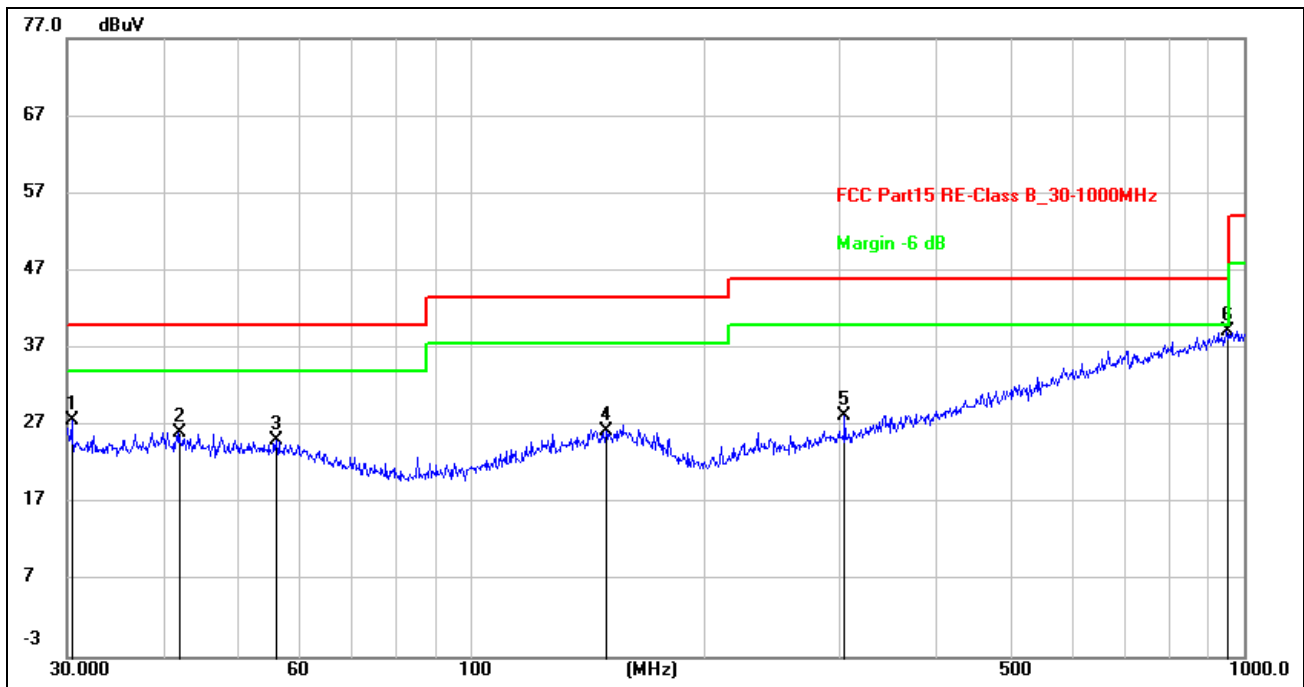
Note3: Level = Reading Level + Factor, Margin= Level-Limit

## Radiated Emission Test Result



|               |  |                        |                     |
|---------------|--|------------------------|---------------------|
| <b>Site:</b>  | 966 LAB  | <b>Antenna::</b>       | Vertical            |
| <b>Limit:</b> | FCC Part15 RE-Class B_3m                               | <b>Temperature(C):</b> | 24(C)               |
| <b>EUT:</b>   | Wester Star Radio Control 1:16 Scale<br>49X Dump truck | <b>Humidity(%):</b>    | 60%                 |
| <b>M/N.:</b>  | 27007  | <b>Test Time:</b>      | 2019/10/17 11:06:13 |
| <b>Mode:</b>  | Tx mode  | <b>Power Rating:</b>   | DC 3V               |
| <b>Note:</b>  |  | <b>Test Engineer:</b>  |                     |

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Det. | Height (cm) | Azimuth (deg) | Remark |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|------|-------------|---------------|--------|
| 1   | 32.7486         | 10.67          | 14.03       | 24.70        | 40.00        | -15.30      | peak | 100         | 105           |        |
| 2   | 46.1779         | 11.58          | 14.40       | 25.98        | 40.00        | -14.02      | peak | 200         | 268           |        |
| 3   | 143.8295        | 10.88          | 15.03       | 25.91        | 43.50        | -17.59      | peak | 100         | 277           |        |
| 4   | 400.4318        | 12.03          | 16.76       | 28.79        | 46.00        | -17.21      | peak | 200         | 236           |        |
| 5   | 595.1327        | 13.70          | 20.78       | 34.48        | 46.00        | -11.52      | peak | 200         | 129           |        |
| 6 * | 929.0081        | 14.79          | 25.24       | 40.03        | 46.00        | -5.97       | peak | 200         | 81            |        |



|        |  |                     |                      |
|--------|--|---------------------|----------------------|
| Site:  | 966 LAB  | Antenna::Horizontal | Temperature(C):24(C) |
| Limit: | FCC Part15 RE-Class B_3m                               |                     | Humidity(%):60%      |
| EUT:   | Wester Star Radio Control 1:16 Scale<br>49X Dump truck | Test Time:          | 2019/10/17 11:09:39  |
| M/N.:  | 27007  | Power Rating:       | DC 3V                |
| Mode:  | Tx mode  | Test Engineer:      |                      |
| Note:  |  |                     |                      |

| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Det. | Height (cm) | Azimuth (deg) | Remark |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|------|-------------|---------------|--------|
| 1   | 30.4238         | 13.72          | 13.94       | 27.66        | 40.00        | -12.34      | peak | 200         | 35            |        |
| 2   | 41.8596         | 11.47          | 14.68       | 26.15        | 40.00        | -13.85      | peak | 200         | 103           |        |
| 3   | 56.0007         | 11.14          | 13.91       | 25.05        | 40.00        | -14.95      | peak | 100         | 191           |        |
| 4   | 149.4857        | 10.87          | 15.42       | 26.29        | 43.50        | -17.21      | peak | 100         | 276           |        |
| 5   | 304.6099        | 13.54          | 14.68       | 28.22        | 46.00        | -17.78      | peak | 100         | 128           |        |
| 6 * | 948.7610        | 13.66          | 25.43       | 39.09        | 46.00        | -6.91       | peak | 100         | 215           |        |

|               |  |                       |                             |
|---------------|--|-----------------------|-----------------------------|
| <b>Site:</b>  | <b>966 LAB</b>   | <b>Antenna::H / V</b> | <b>Temperature(C):24(C)</b> |
| <b>Limit:</b> | <b>FCC Part 15.249</b>   |                       | <b>Humidity(%):60%</b>      |
| <b>EUT:</b>   | <b>Wester Star Radio Control 1:16<br/>Scale 49X Dump truck</b> | <b>Test Time:</b>     | <b>2019/12/27</b>           |
| <b>M/N.:</b>  | <b>27007</b>   | <b>Power Rating:</b>  | <b>DC 3V</b>                |
| <b>Mode:</b>  | <b>Tx mode (2409MHz)</b>                                       | <b>Test Engineer:</b> |                             |
| <b>Note:</b>  |  |                       |                             |

| Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Pre-amp (dB) | Cable lost (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detect | Antenna polarization |
|-----------------|----------------|---------------|--------------|-----------------|-----------------|----------------|-------------|--------|----------------------|
| 2409.00         | 98.45          | 26.39         | 40.19        | 8.51            | 93.16           | 114.00         | -20.84      | Peak   | H                    |
| 2409.00         | 92.72          | 26.39         | 40.19        | 8.51            | 87.43           | 94.00          | -6.57       | AVG    | H                    |
| 2390.00         | 54.45          | 26.33         | 40.23        | 8.46            | 49.01           | 74.00          | -24.99      | Peak   | H                    |
| 2390.00         | 47.48          | 26.33         | 40.23        | 8.46            | 42.04           | 54.00          | -11.96      | AVG    | H                    |
| 2400.00         | 52.67          | 26.38         | 40.20        | 8.49            | 47.34           | 74.00          | -26.66      | Peak   | H                    |
| 2400.00         | 47.82          | 26.38         | 40.20        | 8.49            | 42.49           | 54.00          | -11.51      | AVG    | H                    |
| 4818.00         | 57.58          | 31.00         | 40.19        | 9.53            | 57.92           | 74.00          | -16.08      | Peak   | H                    |
| 4818.00         | 50.28          | 31.00         | 40.19        | 9.53            | 50.62           | 54.00          | -3.38       | AVG    | H                    |
| 2409.00         | 86.12          | 26.39         | 40.19        | 8.51            | 80.83           | 114.00         | -33.17      | Peak   | V                    |
| 2409.00         | 81.15          | 26.39         | 40.21        | 8.51            | 75.84           | 94.00          | -18.16      | AVG    | V                    |
| 2390.00         | 48.28          | 26.33         | 40.23        | 8.46            | 42.84           | 74.00          | -31.16      | Peak   | V                    |
| 2390.00         | 40.98          | 26.33         | 40.23        | 8.46            | 35.54           | 54.00          | -18.46      | AVG    | V                    |
| 2400.00         | 47.71          | 26.38         | 40.20        | 8.49            | 42.38           | 74.00          | -31.62      | Peak   | V                    |
| 2400.00         | 45.26          | 26.38         | 40.20        | 8.49            | 39.93           | 54.00          | -14.07      | AVG    | V                    |
| 4818.00         | 53.14          | 31.00         | 40.19        | 9.53            | 53.48           | 74.00          | -20.52      | Peak   | V                    |
| 4818.00         | 46.87          | 31.00         | 40.19        | 9.53            | 47.21           | 54.00          | -6.79       | AVG    | V                    |

Note: 1. Result Level = Reading Level + Antenna Factor + Cable loss – Pre-amp Factor.

2. Antenna polarization: “H” means Horizontal, “V” means Vertical.

|               |  |                       |                             |
|---------------|--|-----------------------|-----------------------------|
| <b>Site:</b>  | <b>966 LAB</b>   | <b>Antenna::H / V</b> | <b>Temperature(C):24(C)</b> |
| <b>Limit:</b> | <b>FCC Part 15.249</b>   |                       | <b>Humidity(%):60%</b>      |
| <b>EUT:</b>   | <b>Wester Star Radio Control 1:16<br/>Scale 49X Dump truck</b> | <b>Test Time:</b>     | <b>2019/12/27</b>           |
| <b>M/N.:</b>  | <b>27007</b>   | <b>Power Rating:</b>  | <b>DC 3V</b>                |
| <b>Mode:</b>  | <b>Tx mode (2442MHz)</b>                                       | <b>Test Engineer:</b> |                             |
| <b>Note:</b>  |  |                       |                             |

| Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Pre-amp (dB) | Cable lost (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detect | Antenna polarization |
|-----------------|----------------|---------------|--------------|-----------------|-----------------|----------------|-------------|--------|----------------------|
| 2442.00         | 97.82          | 26.43         | 40.21        | 8.53            | 92.57           | 114.00         | -21.43      | Peak   | H                    |
| 2442.00         | 92.69          | 26.43         | 40.21        | 8.53            | 87.44           | 94.00          | -6.56       | AVG    | H                    |
| 4884.00         | 58.82          | 31.04         | 40.19        | 9.59            | 59.26           | 74.00          | -14.74      | Peak   | H                    |
| 4884.00         | 49.82          | 31.04         | 40.19        | 9.59            | 50.26           | 54.00          | -3.74       | AVG    | H                    |
| 2442.00         | 88.65          | 26.43         | 40.21        | 8.53            | 83.40           | 114.00         | -30.60      | Peak   | V                    |
| 2442.00         | 83.19          | 26.43         | 40.21        | 8.53            | 77.94           | 94.00          | -16.06      | AVG    | V                    |
| 4884.00         | 49.25          | 31.04         | 40.19        | 9.59            | 49.69           | 74.00          | -24.31      | Peak   | V                    |
| 4884.00         | 46.65          | 31.04         | 40.19        | 9.59            | 47.09           | 54.00          | -6.91       | AVG    | V                    |

Note: 1. Result Level = Reading Level + Antenna Factor + Cable loss – Pre-amp Factor.

2. Antenna polarization: “H” means Horizontal, “V” means Vertical.

|               |  |                       |                             |
|---------------|--|-----------------------|-----------------------------|
| <b>Site:</b>  | <b>966 LAB</b>   | <b>Antenna::H / V</b> | <b>Temperature(C):24(C)</b> |
| <b>Limit:</b> | <b>FCC Part 15.249</b>   |                       | <b>Humidity(%):60%</b>      |
| <b>EUT:</b>   | <b>Wester Star Radio Control 1:16<br/>Scale 49X Dump truck</b> | <b>Test Time:</b>     | <b>2019/12/27</b>           |
| <b>M/N.:</b>  | <b>27007</b>   | <b>Power Rating:</b>  | <b>DC 3V</b>                |
| <b>Mode:</b>  | <b>Tx mode (2475MHz)</b>                                       | <b>Test Engineer:</b> |                             |
| <b>Note:</b>  |  |                       |                             |

| Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Pre-amp (dB) | Cable lost (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detect | Antenna polarization |
|-----------------|----------------|---------------|--------------|-----------------|-----------------|----------------|-------------|--------|----------------------|
| 2475.00         | 98.24          | 26.50         | 40.21        | 8.54            | 93.07           | 114.00         | -20.93      | Peak   | H                    |
| 2475.00         | 93.82          | 26.50         | 40.21        | 8.54            | 88.65           | 94.00          | -5.35       | AVG    | H                    |
| 2483.50         | 52.92          | 26.56         | 40.29        | 8.65            | 47.84           | 74.00          | -26.16      | Peak   | H                    |
| 2483.50         | 42.37          | 26.56         | 40.29        | 8.65            | 37.29           | 54.00          | -16.71      | AVG    | H                    |
| 4950.00         | 55.69          | 31.02         | 40.19        | 9.62            | 56.14           | 74.00          | -17.86      | Peak   | H                    |
| 4950.00         | 50.12          | 31.02         | 40.19        | 9.62            | 50.57           | 54.00          | -3.43       | AVG    | H                    |
| 2475.00         | 92.02          | 26.50         | 40.21        | 8.54            | 86.85           | 114.00         | -27.15      | Peak   | V                    |
| 2475.00         | 85.41          | 26.50         | 40.21        | 8.54            | 80.24           | 94.00          | -13.76      | AVG    | V                    |
| 2483.50         | 49.43          | 26.56         | 40.29        | 8.65            | 44.35           | 74.00          | -29.65      | Peak   | V                    |
| 2483.50         | 36.90          | 26.56         | 40.29        | 8.65            | 31.82           | 54.00          | -22.18      | AVG    | V                    |
| 4950.00         | 53.11          | 31.02         | 40.19        | 9.62            | 53.56           | 74.00          | -20.44      | Peak   | V                    |
| 4950.00         | 48.25          | 31.02         | 40.19        | 9.62            | 48.70           | 54.00          | -5.30       | AVG    | V                    |

Note: 1. Result Level = Reading Level + Antenna Factor + Cable loss – Pre-amp Factor.

2. Antenna polarization: “H” means Horizontal, “V” means Vertical.

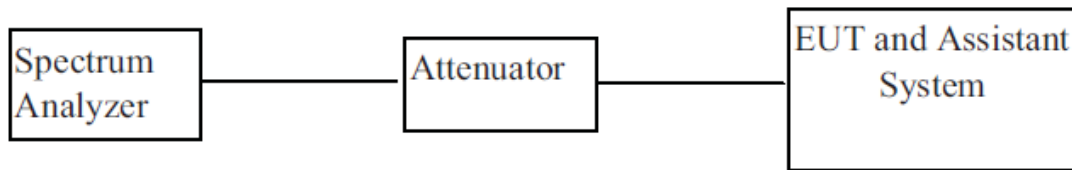


## 4. -20dB & 99% Bandwidth

### 4.1. Test equipment

| Item | Equipment       | Manufacturer | Model No. | Serial No. | Last Cal.  | Cal. Interval |
|------|-----------------|--------------|-----------|------------|------------|---------------|
| 1    | Signal Analyzer | Agilent      | N9020A    | MY54510476 | 2019-06-21 | 1 Year        |

### 4.2. BLOCK DIAGRAM OF TEST SETUP



### 4.3. Limit

Intentional radiators operating under the alternative provisions to the general emission limits, as contained

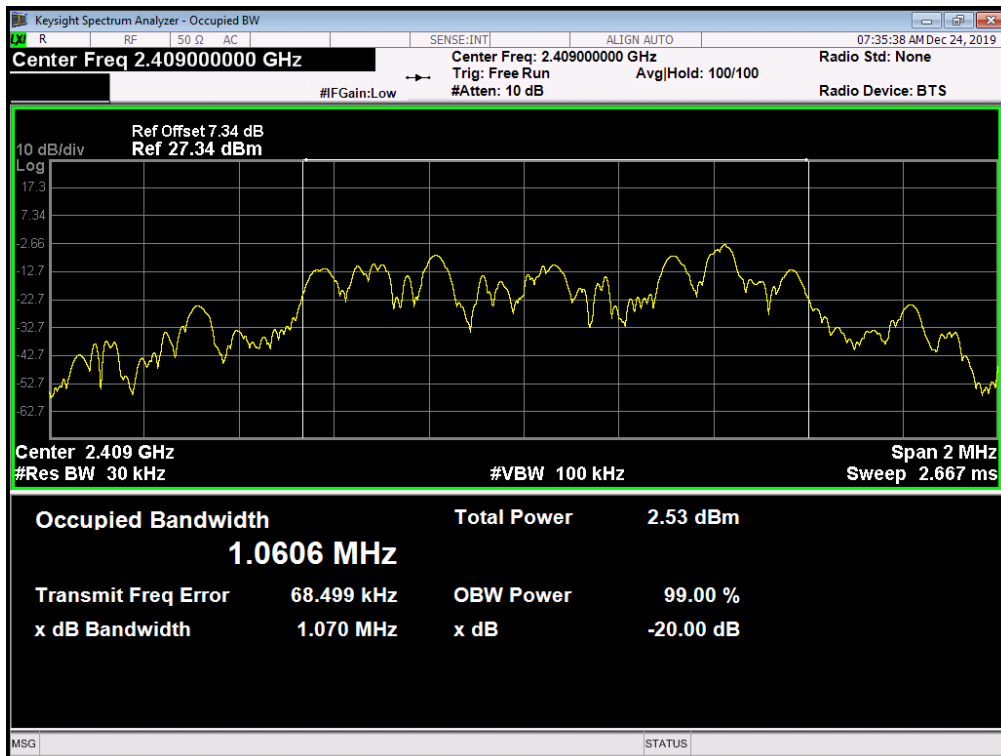
in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

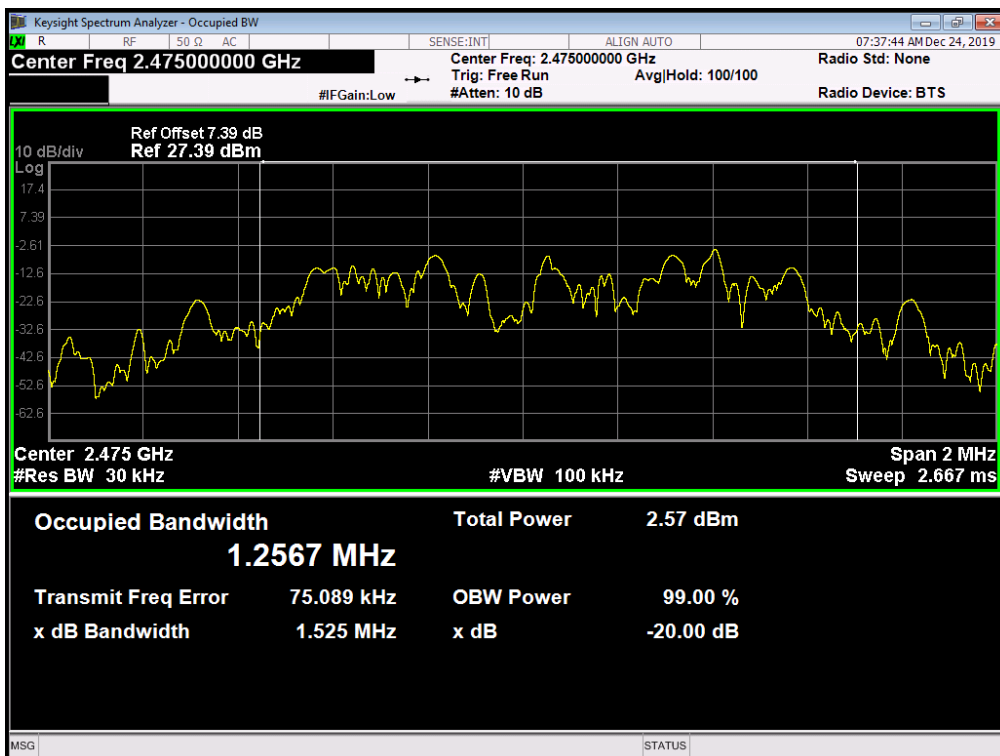
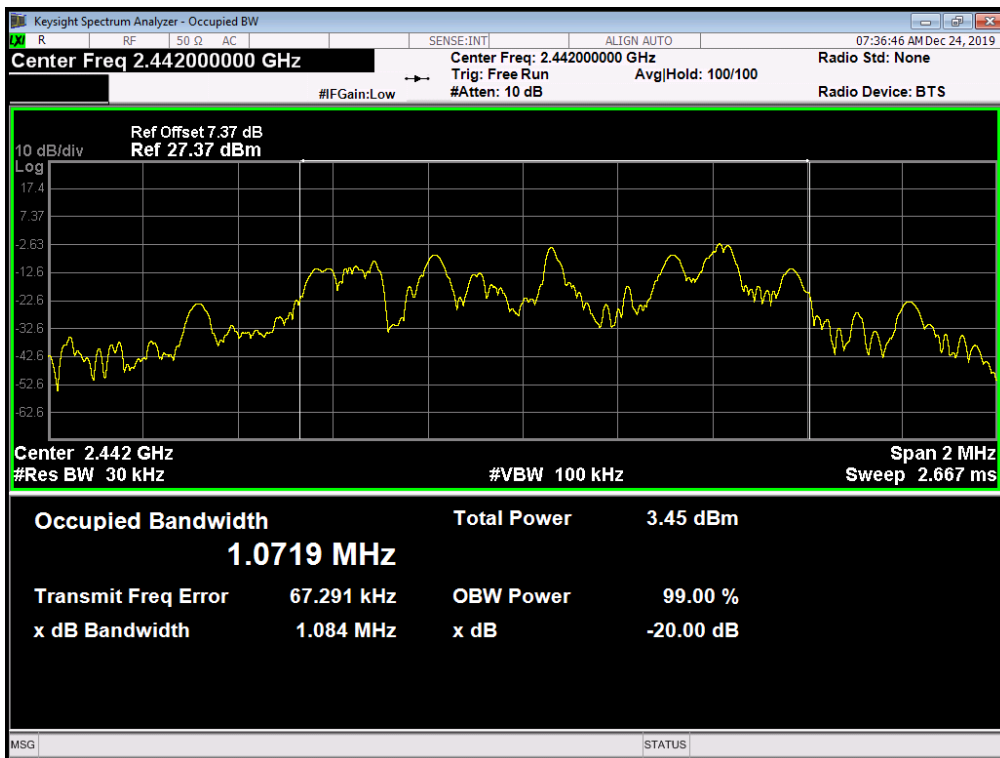
### 4.4. Test Procedure

- (1) Connect EUT's antenna output to spectrum analyzer by RF cable.
- (2) The bandwidth of the fundamental frequency was measured by spectrum analyzer with 30 kHz RBW and 100 kHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

### 4.5. Test result

| Frequency (MHz) | 99% OBW (MHz) | -20 dB Bandwidth (MHz) | Verdict |
|-----------------|---------------|------------------------|---------|
| 2409            | 1.0606        | 1.0702                 | Pass    |
| 2442            | 1.0719        | 1.084                  | Pass    |
| 2475            | 1.2567        | 1.5249                 | Pass    |





## TEST SETUP PHOTOGRAPH

### 6.1. Photos of radiated emission test

30MHz – 1GHz



Above 1GHz

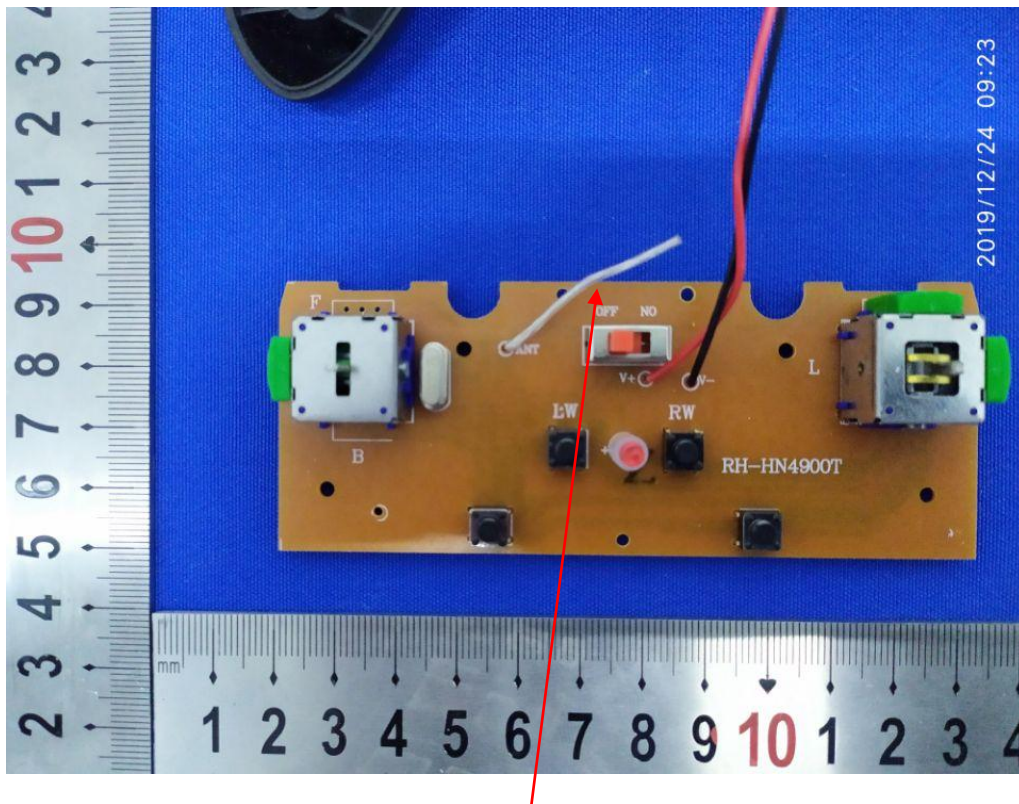


## 5. Photos of the EUT



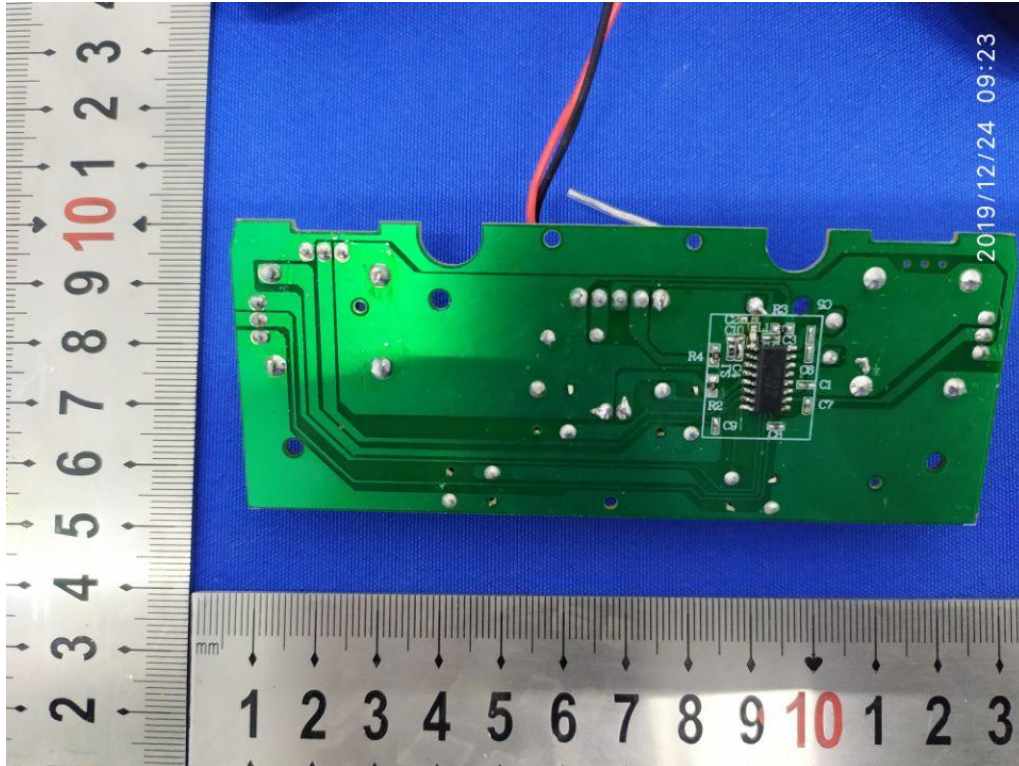






**Antenna**





**--END OF REPORT--**