

FCC REPORT

Applicant: MegaGain International Ltd.

Address of Applicant: Rm 1908, Greenfield Tower, Concordia Plaza, 1 Science Museum Road, T.S.T. East. Kowloon Hong Kong China

Equipment Under Test (EUT)

Product Name: TOY STORY RC RC - ALT

Model No.: 1701-COL00566(3327-W)

FCC ID: SIP-3327-W

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.227:2016

Date of sample receipt: December 23, 2016

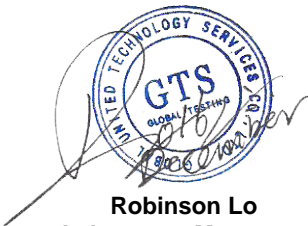
Date of Test: December 24-27, 2016

Date of report issued: December 28, 2016

Test Result : PASS *

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

Authorized Signature:

A circular blue stamp with the text "GLOBAL UNITED TECHNOLOGY SERVICES CO., LTD." around the perimeter and "GTS GLOBAL TESTING" in the center. A handwritten signature in blue ink is written over the stamp.

Robinson Lo

Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the GTS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

| Version No. | Date | Description |
|-------------|-------------------|-------------|
| 00 | December 28, 2016 | Original |
| | | |
| | | |
| | | |
| | | |

Prepared By: Tiger Chen **Date:** December 28, 2016
Project Engineer

Check By: Andy wa **Date:** December 28, 2016
Reviewer

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4 Test Summary

| Test Item | Section in CFR 47 | Result |
|----------------------------------|-------------------|--------|
| Antenna requirement | 15.203 | Pass |
| AC Power Line Conducted Emission | 15.207 | N/A |
| Radiated emission | 15.227 & 15.209 | Pass |
| 20dB Occupied Bandwidth | 15.215 (c) | Pass |

Pass: The EUT complies with the essential requirements in the standard.

N/A: Not applicable

4.1 Measurement Uncertainty

| Test Item | Frequency Range | Measurement Uncertainty | Notes |
|----------------------------------|-----------------|-------------------------|-------|
| Radiated Emission | 9kHz ~ 30MHz | ± 4.34dB | (1) |
| Radiated Emission | 30MHz ~ 1000MHz | ± 4.24dB | (1) |
| Radiated Emission | 1GHz ~ 26.5GHz | ± 4.68dB | (1) |
| AC Power Line Conducted Emission | 0.15MHz ~ 30MHz | ± 3.45dB | (1) |

Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

5 General Information

5.1 Client Information

| | |
|-----------------------|---|
| Applicant: | MegaGain International Ltd. |
| Address of Applicant: | Rm 1908, Greenfield Tower, Concordia Plaza, 1 Science Museum Road, T.S.T. East. Kowloon Hong Kong China |
| Factory: | Ya Lian industrial Co, Ltd. |
| Address of Factory: | Xiechang Road, Caole Village, Xiegang Town, Dongguan, Guangdong, China |

5.2 General Description of EUT

| | |
|----------------------|-----------------------------|
| Product Name: | TOY STORY RC RC - ALT |
| Model No.: | 1701-COL00566(3327-W) |
| Operation Frequency: | 27.145MHz |
| Modulation type: | AM |
| Antenna Type: | Integral antenna |
| Antenna gain: | 0dBi (declare by Applicant) |
| Power supply: | DC 3V 2*1.5AAA |

5.3 Test mode

| | |
|---|--|
| Transmitting mode | Keep the EUT in continuously transmitting mode |
| <i>Remark: During the test, the new battery was used.</i> | |

5.4 Description of Support Units

| |
|------|
| None |
|------|

5.5 Test Facility

| |
|--|
| <p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none">● FCC —Registration No.: 600491 Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 600491, June 22, 2016.● Industry Canada (IC) —Registration No.: 9079A-2 The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, August 15, 2016. |
|--|

5.6 Test Location

| |
|---|
| All tests were performed at: |
| Global United Technology Services Co., Ltd. No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China Tel: 0755-27798480 Fax: 0755-27798960 |

5.7 Other Information Requested by the Customer

| |
|-------|
| None. |
|-------|

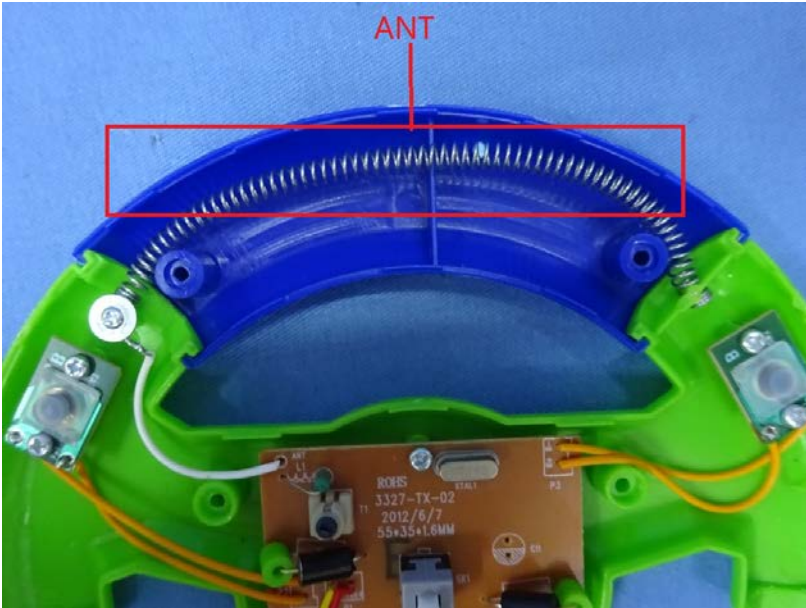
6 Test Instruments list

| Radiated Emission: | | | | | | |
|--------------------|-------------------------------|--------------------------------|-----------------------------|---------------|---------------------|-------------------------|
| Item | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1 | 3m Semi- Anechoic Chamber | ZhongYu Electron | 9.0(L)*6.0(W)* 6.0(H) | GTS250 | July. 03 2015 | July. 02 2020 |
| 2 | Control Room | ZhongYu Electron | 6.2(L)*2.5(W)* 2.4(H) | GTS251 | N/A | N/A |
| 3 | Spectrum Analyzer | Agilent | E4440A | GTS533 | Jun. 29 2016 | Jun. 28 2017 |
| 4 | EMI Test Receiver | Rohde & Schwarz | ESU26 | GTS203 | Jun. 29 2016 | Jun. 28 2017 |
| 5 | Loop Antenna | Zhinan | ZN30900A | GTS534 | June. 29 2016 | Jun. 28 2017 |
| 6 | BiConiLog Antenna | SCHWARZBECK MESS-ELEKTRONIK | VULB9163 | GTS214 | Jun. 29 2016 | Jun. 28 2017 |
| 7 | Double -ridged waveguide horn | SCHWARZBECK MESS-ELEKTRONIK | 9120D-829 | GTS208 | Jun. 29 2016 | Jun. 28 2017 |
| 8 | Horn Antenna | ETS-LINDGREN | 3160 | GTS217 | Jun. 29 2016 | Jun. 28 2017 |
| 9 | EMI Test Software | AUDIX | E3 | N/A | N/A | N/A |
| 10 | Coaxial Cable | GTS | N/A | GTS213 | Jun. 29 2016 | Jun. 28 2017 |
| 11 | Coaxial Cable | GTS | N/A | GTS211 | Jun. 29 2016 | Jun. 28 2017 |
| 12 | Coaxial cable | GTS | N/A | GTS210 | Jun. 29 2016 | Jun. 28 2017 |
| 13 | Coaxial Cable | GTS | N/A | GTS212 | Jun. 29 2016 | Jun. 28 2017 |
| 14 | Amplifier(100kHz-3GHz) | HP | 8347A | GTS204 | Jun. 29 2016 | Jun. 28 2017 |
| 15 | Amplifier(2GHz-20GHz) | HP | 8349B | GTS206 | Jun. 29 2016 | Jun. 28 2017 |
| 16 | Amplifier (18-26GHz) | Rohde & Schwarz | AFS33-18002 650-30-8P-44 | GTS218 | Jun. 29 2016 | Jun. 28 2017 |
| 17 | Band filter | Amindeon | 82346 | GTS219 | Jun. 29 2016 | Jun. 28 2017 |

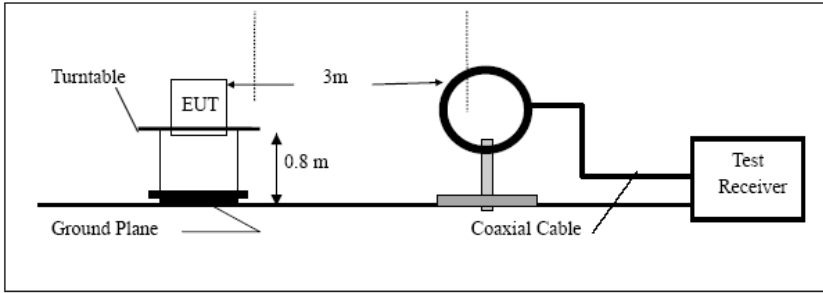
| General used equipment: | | | | | | |
|-------------------------|----------------|--------------|-----------|---------------|---------------------|-------------------------|
| Item | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1 | Barometer | ChangChun | DYM3 | GTS257 | Jun. 29 2016 | Jun. 28 2017 |

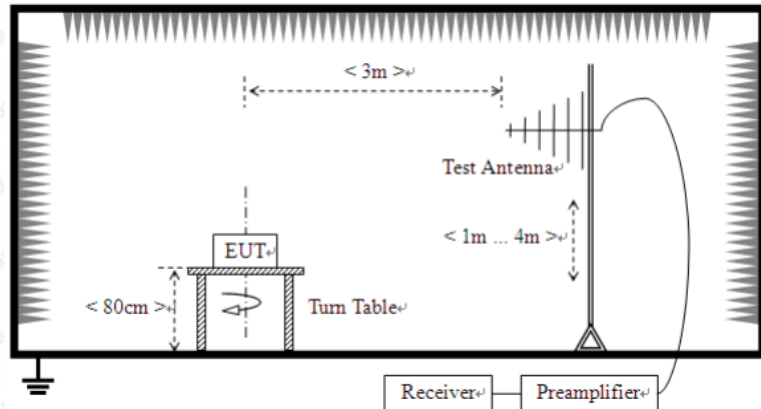
7 Test results and Measurement Data

7.1 Antenna requirement

| | |
|--|-----------------------------|
| Standard requirement: | FCC Part15 C Section 15.203 |
| 15.203 requirement: 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, 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. | |
| EUT Antenna: <i>The antenna is integral antenna, the best case gain of the antenna is 0dBi.</i> | |
|  | |

7.2 Radiated Emission

| | | | | | |
|--|--|--------------------|---------|----------------------|------------|
| Test Requirement: | FCC Part15 C Section 15.209 | | | | |
| Test Method: | ANSI C63.4:2014 | | | | |
| Test Frequency Range: | 9kHz to 1GHz | | | | |
| Test site: | Measurement Distance: 3m | | | | |
| Receiver setup: | Frequency | Detector | RBW | VBW | Value |
| | 9KHz-150KHz | Quasi-peak | 200Hz | 600Hz | Quasi-peak |
| | 150KHz-30MHz | Quasi-peak | 9KHz | 30KHz | Quasi-peak |
| | 30MHz-1GHz | Quasi-peak | 120KHz | 300KHz | Quasi-peak |
| | Above 1GHz | Peak | 1MHz | 3MHz | Peak |
| Peak | | 1MHz | 10Hz | Average | |
| Limit: (Field strength of the fundamental signal) | Frequency | Limit (dBuV/m @3m) | | Remark | |
| | 26.96MHz ~ 27.28MHz | 80.00 | | Average Value | |
| | | 100.00 | | Peak Value | |
| Limit: (Spurious Emissions) | Frequency | Limit (uV/m) | Value | Measurement Distance | |
| | 0.009MHz-0.490MHz | 2400/F(KHz) | QP | 300m | |
| | 0.490MHz-1.705MHz | 24000/F(KHz) | QP | 300m | |
| | 1.705MHz-30MHz | 30 | QP | 30m | |
| | 30MHz-88MHz | 100 | QP | 3m | |
| | 88MHz-216MHz | 150 | QP | | |
| | 216MHz-960MHz | 200 | QP | | |
| | 960MHz-1GHz | 500 | QP | | |
| | Above 1GHz | 500 | Average | | |
| | | 5000 | Peak | | |
| Limit: (band edge) | 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 Section 15.209, whichever is the lesser attenuation. | | | | |
| Test setup: | <p>Below 30MHz</p>  <p>Below 1GHz</p> | | | | |



Test Procedure:

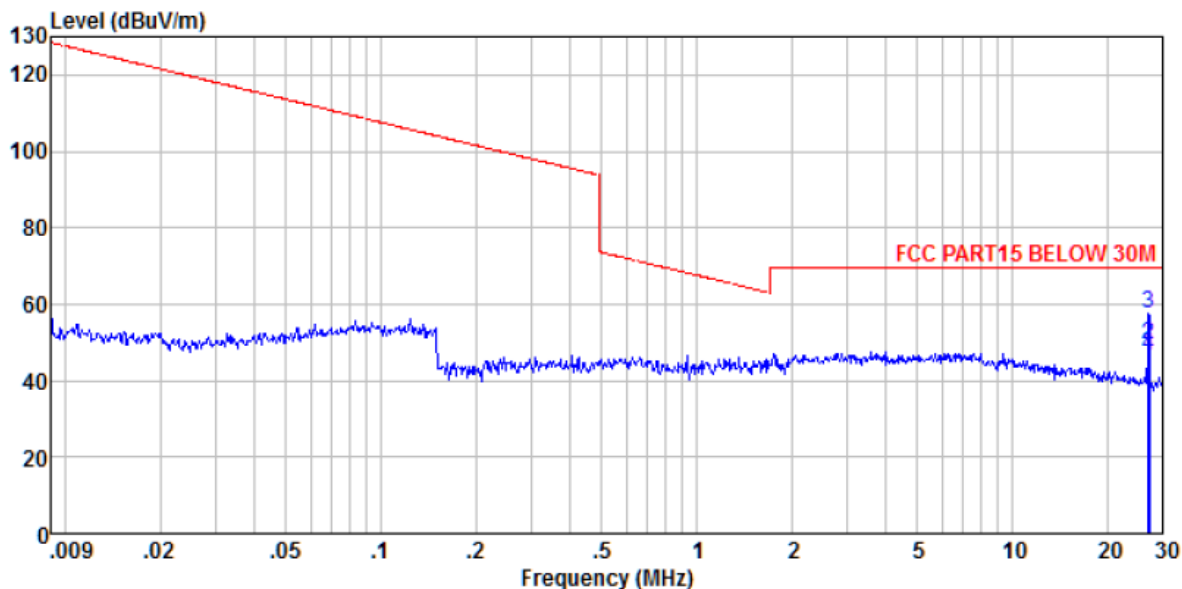
1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
7. For the radiated emission test above 1GHz:
Place the measurement antenna away from each area of the EUT

| | |
|-------------------|---|
| | <p>determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.</p> <p>For the test above 1GHz, when radiated measurements are made at the measurement distance and the measurement antenna does not completely encompass a large EUT at that distance, additional measurements at a greater distance may be necessary to demonstrate that emissions were at maximum at the limit distance.</p> |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Pass |

Measurement data:

Note: Limit dBuV/m @3m = Limit dBuV/m @300m+ 80

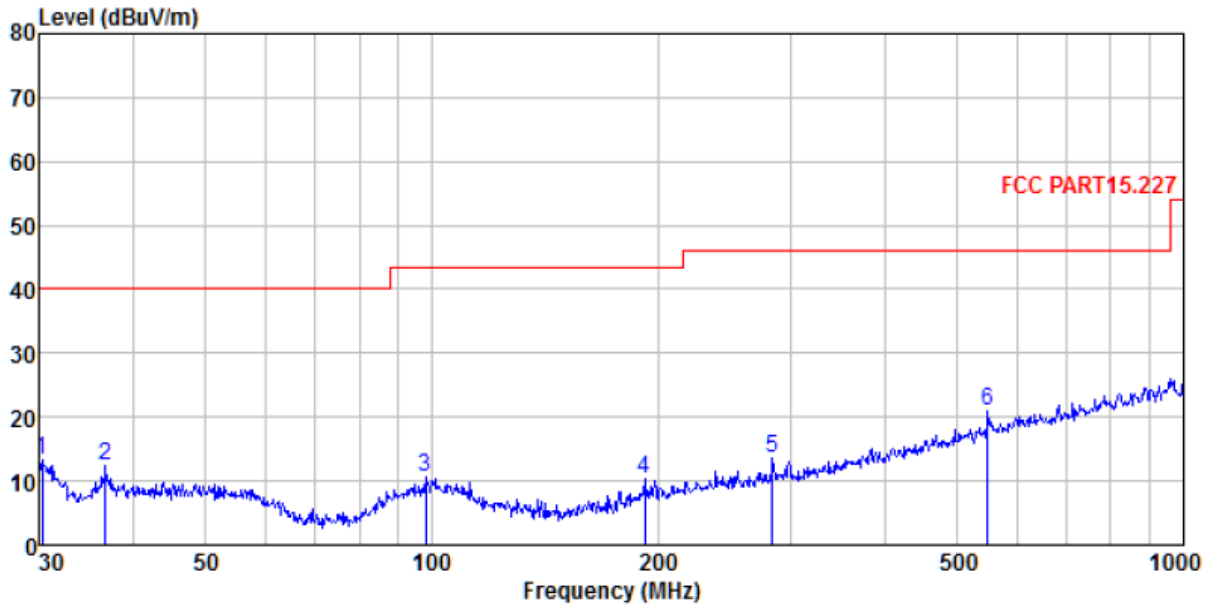
Limit dBuV/m @3m = Limit dBuV/m @30m + 40



| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Level (dBuV/m) | Limit @3m (dBuV/m) | Over Limit (dB) | Detector |
|-----------------|-------------------|-----------------------|-----------------|----------------|--------------------|-----------------|----------|
| 26.960 | 24.29 | 22.62 | 0.55 | 47.46 | 69.54 | -22.08 | QP |
| 27.145 | 26.47 | 22.61 | 0.55 | 49.63 | 80.00 | -30.37 | Ave. |
| 27.145 | 34.30 | 22.61 | 0.55 | 57.46 | 100.00 | -42.54 | Peak |
| 27.280 | 23.24 | 22.61 | 0.55 | 46.40 | 69.54 | -23.14 | QP |

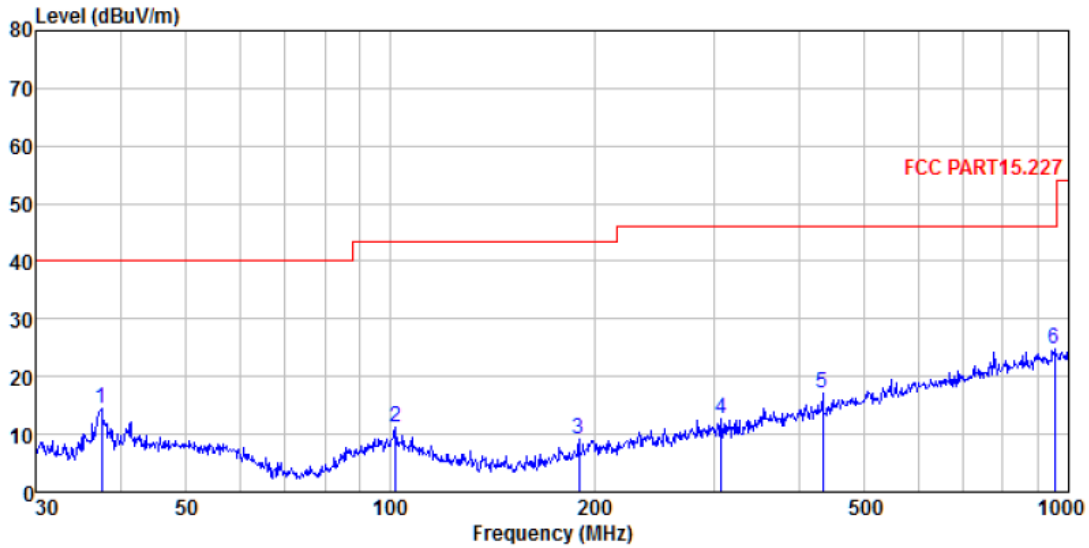
Remark:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*



Site : 3m chamber
 Condition : FCC PART15.227 3m HORIZONTAL
 Job No. : GTS201612000129
 Test Mode : TX on mode
 Test Engineer: Chen

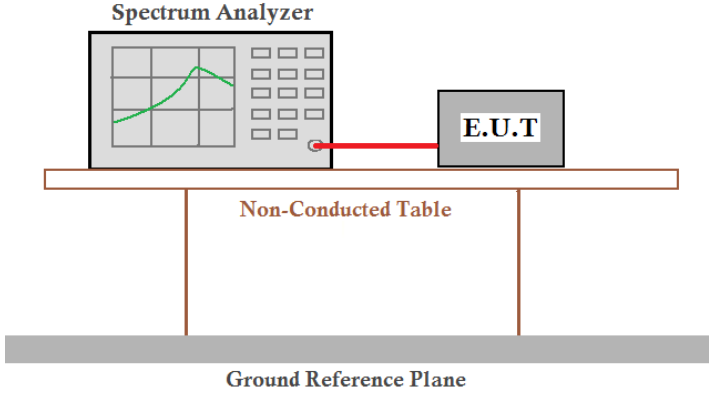
| | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit Line | Over Limit | Remark |
|---|---------|------------|----------------|---------------|------------|--------|------------|------------|--------|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 30.317 | 31.43 | 11.30 | 30.10 | 0.55 | 13.18 | 40.00 | -26.82 | QP |
| 2 | 36.766 | 30.81 | 11.20 | 30.10 | 0.63 | 12.54 | 40.00 | -27.46 | QP |
| 3 | 98.142 | 27.41 | 11.73 | 29.82 | 1.18 | 10.50 | 43.50 | -33.00 | QP |
| 4 | 191.745 | 28.28 | 9.70 | 29.44 | 1.80 | 10.34 | 43.50 | -33.16 | QP |
| 5 | 283.979 | 28.35 | 13.01 | 30.08 | 2.29 | 13.57 | 46.00 | -32.43 | QP |
| 6 | 549.020 | 28.54 | 18.40 | 29.45 | 3.52 | 21.01 | 46.00 | -24.99 | QP |



Site : 3m chamber
 Condition : FCC PART15.227 3m VERTICAL
 Job No. : GTS201612000129
 Test Mode : TX on mode
 Test Engineer: Chen

| | Freq | Read Level | Antenna Factor | Preamp Factor | Cable Loss | Level | Limit | Over | Remark |
|---|---------|------------|----------------|---------------|------------|--------|--------|--------|--------|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 37.548 | 31.67 | 12.30 | 30.10 | 0.64 | 14.51 | 40.00 | -25.49 | QP |
| 2 | 102.001 | 27.55 | 12.10 | 29.79 | 1.21 | 11.07 | 43.50 | -32.43 | QP |
| 3 | 189.739 | 27.11 | 9.70 | 29.45 | 1.79 | 9.15 | 43.50 | -34.35 | QP |
| 4 | 307.831 | 26.76 | 13.68 | 30.15 | 2.40 | 12.69 | 46.00 | -33.31 | QP |
| 5 | 434.065 | 27.42 | 16.17 | 29.56 | 3.02 | 17.05 | 46.00 | -28.95 | QP |
| 6 | 952.094 | 26.49 | 22.50 | 29.25 | 5.04 | 24.78 | 46.00 | -21.22 | QP |

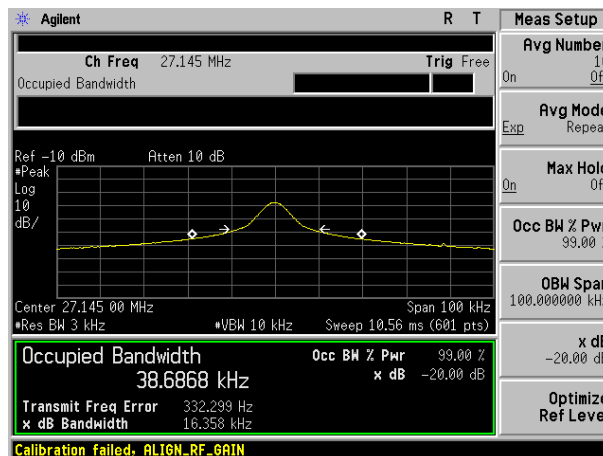
7.3 20dB Occupy Bandwidth

| | |
|-------------------|--|
| Test Requirement: | FCC Part15 C Section 15.227/15.215 |
| Test Method: | ANSI C63.4:2014 |
| Limit: | Operation Frequency range 26.96MHz ~ 27.28MHz |
| Test setup: |  |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Pass |

Measurement Data

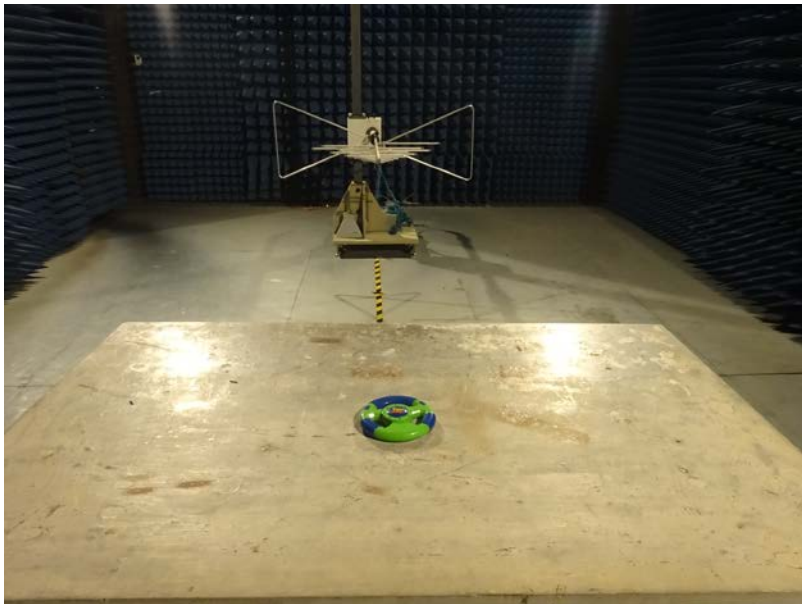
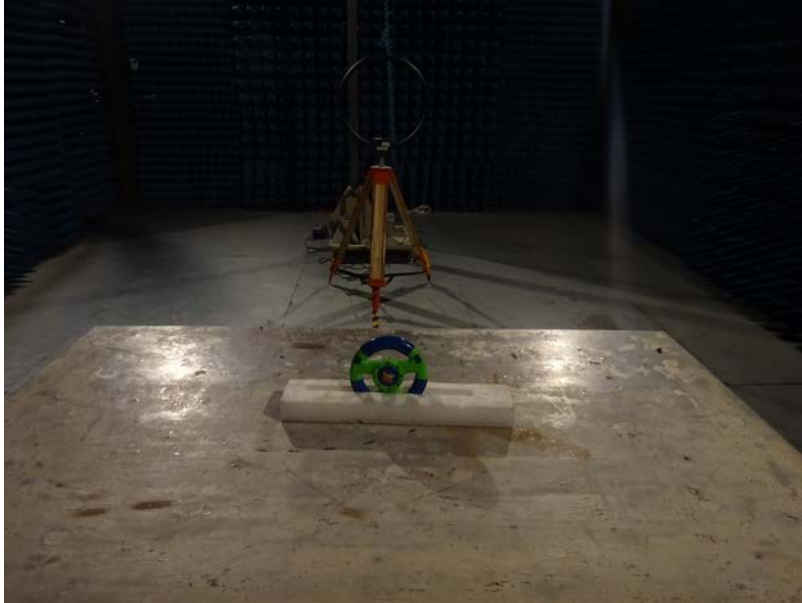
| 20dB bandwidth(MHz) | Result |
|---------------------|--------|
| 0.016358 | Pass |

Test plot as follows:

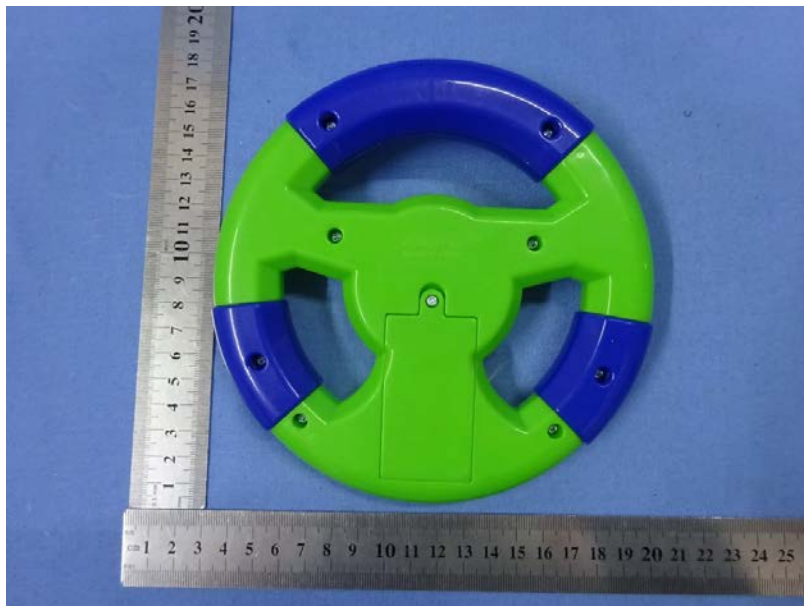


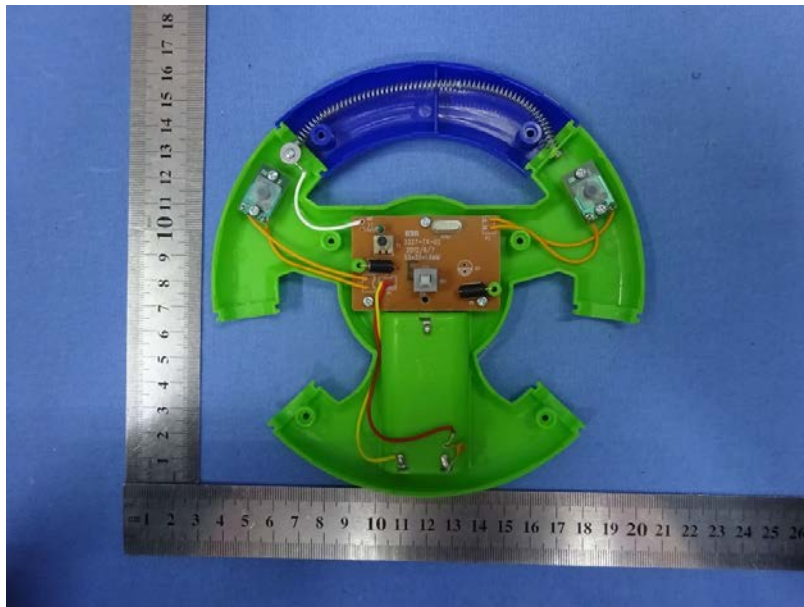
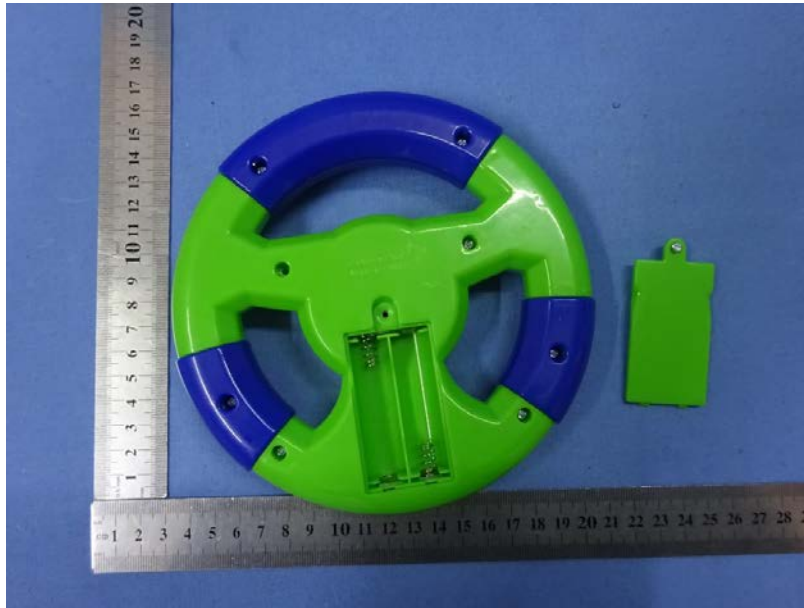
8 Test Setup Photo

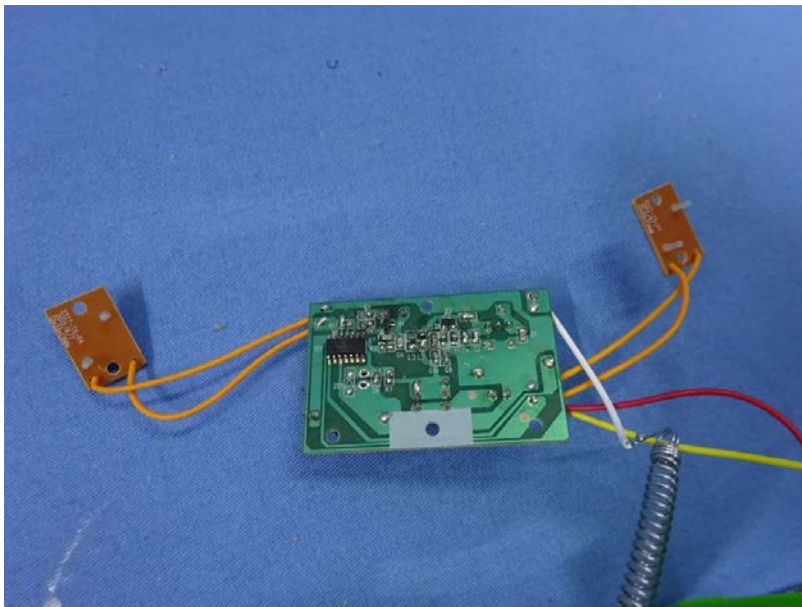
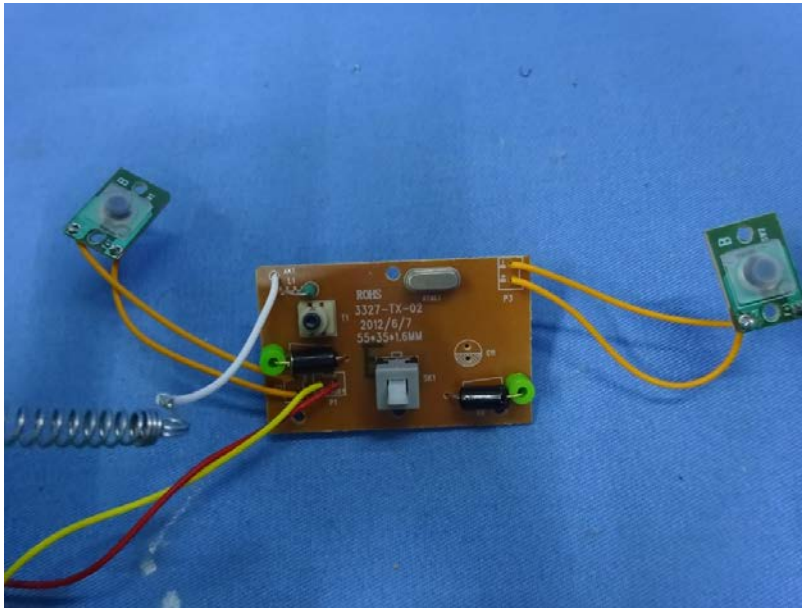
Radiated Emission



9 EUT Constructional Details







-----End-----