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FEDERAL COMMUNICATIONS COMMISSION

Registration number: 282399

Report No.: GLEMO09040100201

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FCCID:V8JFT85106210S

## TEST REPORT

**Application No. :** GLEMO090401002RF  
**Applicant:** SHANTOU CITY CHENGHAI DISTRICT FEITENG PLASTIC TOYS CO., LTD  
**FCC ID:** V8JFT85106210S  
**Fundamental Frequency :** 27.145MHz (internal modulation)  
**Equipment Under Test (EUT):**  
**EUT Name:** RC HELICOPTER SERIES  
735-73, 735-75, 735-76, 735-73A, 735-75A, 735-76A, 735-74,  
**Model No.:** 735-74A, 735-44, 735-45, 735-19, 735-19B, 735-19C, 735-78, 735-79, 735-80♣  
♣ Please refer to section 3 of this report which indicates which Item was actually tested and which were electrically identical.  
**Standards:** FCC PART 15C: 2008  
**Date of Receipt:** April 20, 2009  
**Date of Test:** April 21, 2009 to June 26, 2009  
**Date of Issue:** June 26, 2009

|                      |               |
|----------------------|---------------|
| <b>Test Result :</b> | <b>PASS *</b> |
|----------------------|---------------|

\* In the configuration tested, the EUT detailed in this report complied with the standards specified above. Please refer to section 3 of this report for further details.

Authorized Signature:

Stephen Guo  
Lab Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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### 3 Test Summary

| Test               | Test Requirement  | Standard Paragraph | Result |
|--------------------|-------------------|--------------------|--------|
| Radiated Emission  | FCC PART 15 :2008 | Section 15.227     | PASS   |
| Occupied Bandwidth | FCC PART 15 :2008 | Section 15.215     | PASS   |

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

RF: In this whole report RF means Radiated Frequency.

Remark:

♣ Item No.:

735-73, 735-75, 735-76, 735-73A, 735-75A, 735-76A, 735-74, 735-74A, 735-44, 735-45, 735-19, 735-19B, 735-19C, 735-78, 735-79, 735-80

Only the Item 735-75 was tested, since the electrical circuit design, PCB layout, components used and internal wiring were identical for the above items, only the outer decoration, color and item numbers were different according to the conformation from the applicant (manufacturer).



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## 5 General Information

### 5.1 Client Information

Applicant Name: SHANTOU CITY CHENGHAI DISTRICT FEITENG PLASTIC TOYS CO., LTD

Applicant Address: Lianshang Industrial, Chenghai Shan Tou, 515833 China

### 5.2 Details of E.U.T.

EUT Name: RC HELICOPTER SERIES

Item No.: 735-73, 735-75, 735-76, 735-73A, 735-75A, 735-76A, 735-74, 735-74A, 735-44, 735-45, 735-19, 735-19B, 735-19C, 735-78, 735-79, 735-80

Power Supply: DC 12V (Size "AA" 1.5V x 8)

Power Cord: N/A

### 5.3 Description of Support Units

The EUT was tested as an independent unit: 27.145MHz radio transmitter.

### 5.4 Standards Applicable for Testing

The customer requested FCC tests for the EUT.

The standard used was FCC PART 15, SUBPART C: 2008.

### 5.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory,  
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,  
Guangzhou, China 510663

Tel: +86 20 82155555

Fax: +86 20 82075059

No tests were sub-contracted.

### 5.6 Other Information Requested by the Customer

None.

## 5.7 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

- **FCC (Registration No.: 282399)**

SGS-CSTC Standards Technical Services Co., Ltd., 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 our files. Registration 282399, May 31, 2002.

- **Industry Canada (Registration No.: 4620B-1)**

The 3m/10m Alternate Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering of Industry Canada for radio equipment testing with Registration No. 4620B-1.

Date of Registration: February 18, 2009. Valid until February 18, 2011.

- **VCCI (Registration No.: R-2460 and C-2584)**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2460 and C-2584 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2005, the Basic Rules, IEC 61010-1:2006-10 and Rules of procedure IEC 61010-2:2006-10, and the relevant IEC 61010-2:2006-10 Scheme Operational documents.

This certificate was issued Dec.04.2006 and valid until Oct.12.2009.



## 6 Equipments Used during Test

| RE in Chamber |                               |                   |               |            |                      |                         |
|---------------|-------------------------------|-------------------|---------------|------------|----------------------|-------------------------|
| No:           | Test Equipment                | Manufacturer      | Model No.     | Serial No. | Cal. Date (dd-mm-yy) | Cal.Due date (dd-mm-yy) |
| EMC0525       | Compact Semi-Anechoic Chamber | ChangZhou ZhongYu | N/A           | N/A        | N/A                  | N/A                     |
| EMC0522       | EMI Test Receiver             | Rohde & Schwarz   | ESIB26        | 100249     | 28-01-2009           | 28-01-2010              |
| EMC0056       | EMI Test Receiver             | Rohde & Schwarz   | ESCI          | 10036      | 14-07-2008           | 14-07-2009              |
| N/A           | EMI Test Software             | Audix             | E3            | N/A        | N/A                  | N/A                     |
| EMC0514       | Coaxial cable                 | SGS               | N/A           | N/A        | 04-12-2008           | 04-12-2009              |
| EMC0524       | Bi-log Type Antenna           | Schaffner -Chase  | CBL6112B      | 2966       | 12-08-2008           | 12-08-2009              |
| EMC0519       | Bilog Type Antenna            | Schaffner -Chase  | CBL6143       | 5070       | 12-08-2008           | 12-08-2009              |
| EMC0517       | Horn Antenna                  | Rohde & Schwarz   | HF906         | 100095     | 12-08-2008           | 12-08-2009              |
| EMC0040       | Spectrum Analyzer             | Rohde & Schwarz   | FSP30         | 100324     | 05-12-2008           | 05-12-2009              |
| EMC0520       | 0.1-1300 MHz Pre-Amplifier    | HP                | 8447D OPT 010 | 2944A06252 | 11-03-2009           | 11-03-2010              |
| EMC0521       | 1-26.5 GHz Pre-Amplifier      | Agilent           | 8449B         | 3008A01649 | 11-03-2009           | 11-03-2010              |
| EMC0075       | 310N Amplifier                | Sonama            | 310N          | 272683     | 10-09-2008           | 10-09-2009              |
| EMC0523       | Active Loop Antenna           | EMCO              | 6502          | 00042963   | 09-08-2008           | 09-08-2010              |
| EMC0530       | 10m Semi- Anechoic Chamber    | ETS               | N/A           | N/A        | 10-08-2008           | 10-08-2009              |

| General used equipment |                |              |           |            |                      |                         |
|------------------------|----------------|--------------|-----------|------------|----------------------|-------------------------|
| No:                    | Test Equipment | Manufacturer | Model No. | Serial No. | Cal. Date (dd-mm-yy) | Cal.Due date (dd-mm-yy) |
| EMC0006                | DMM            | Fluke        | 73        | 70681569   | 23-12-2008           | 23-12-2009              |
| EMC0007                | DMM            | Fluke        | 73        | 70671122   | 23-12-2008           | 23-12-2009              |

## 7 Test Results

### 7.1 E.U.T. test conditions

Requirements: **15.31(e)** :For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

Power supply: 12V DC (New batteries)

Type of antenna: Integral

Operating Environment:

Temperature: 22-25.0 °C

Humidity: 48-55% RH

Atmospheric Pressure: 1001-1010 mbar

Test frequencies: According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

| Frequency range over which device operates | Number of frequencies | Location in the range of operation          |
|--|-----------------------|---|
| 1 MHz or less                              | 1                     | Middle                                      |
| 1 to 10 MHz                                | 2                     | 1 near top and 1 near bottom                |
| More than 10 MHz                           | 3                     | 1 near top, 1 near middle and 1 near bottom |

Test nominal frequency: 27.145MHz



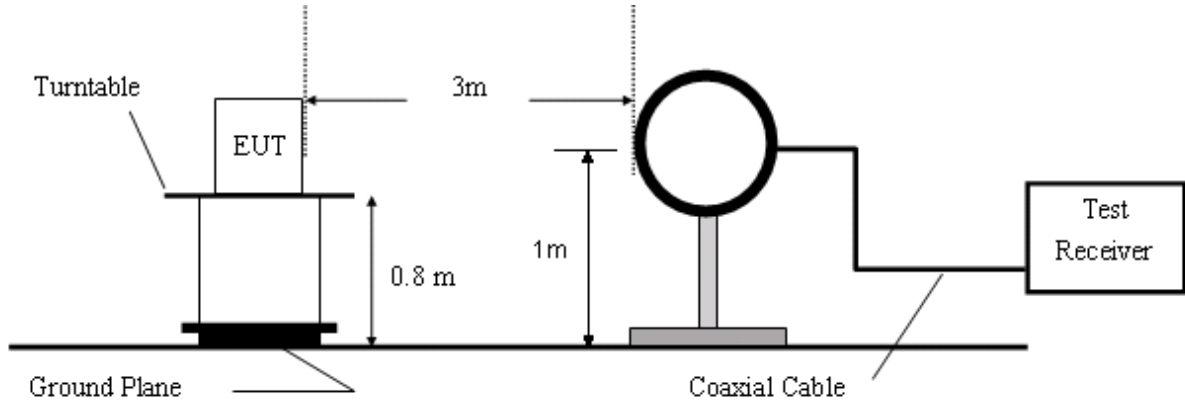


## 7.2 Radiated Emissions

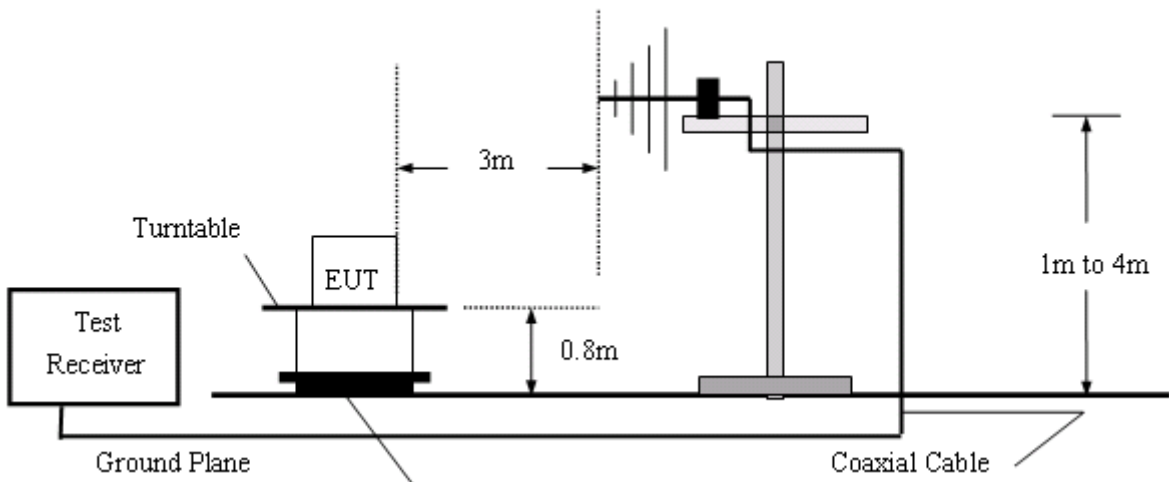
|                              |  |
|------------------------------|--|
| <b>Test Requirement:</b>     | FCC Part15 C Section 15.227  |
| <b>Test Method:</b>          | ANSI C63.4   |
| <b>Test Date:</b>            | May 18, 2009   |
| <b>Measurement Distance:</b> | 3m (Semi-Anechoic Chamber)   |
| <b>Requirements:</b>         | <p><b>15.227(a)</b> :The field strength of any emission within this band shall not exceed 10,000 microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in Section 15.35 for limiting peak emissions apply.</p> <p><b>15.227(b)</b> :The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209.</p> <p>Out of band emissions shall not exceed:</p> <p>40.0 dB<math>\mu</math>V/m between 30MHz &amp; 88MHz<br/>43.5 dB<math>\mu</math>V/m between 88MHz &amp; 216MHz<br/>46.0 dB<math>\mu</math>V/m between 216MHz &amp; 960MHz<br/>54.0 dB<math>\mu</math>V/m above 960MHz</p>  |
| <b>Detector:</b>             | Peak Scan (9kHz resolution bandwidth for 9kHz to 30MHz;<br>120kHz resolution bandwidth for 30MHz to 1000MHz)   |
| <b>Test Procedure:</b>       | <p>1)9K to 30MHz emissions:<br/>For testing performed with the loop antenna, testing was performed in accordance to ANSI C63.4 section 8.2.1. The center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specied distance from the EUT.During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.</p> <p>2)30MHz to 1GHz emissions:<br/>For testing performed with the bi-log type antenna, testing was performed in accordance to ANSI C63.4. The measurement was performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.</p> <p>3)1GHz to 40GHz emissions:<br/>For testing performed with the horn antenna, testing was performed in accordance to ANSI C63.4. The measurement was performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.</p> |

**Test Configuration:**

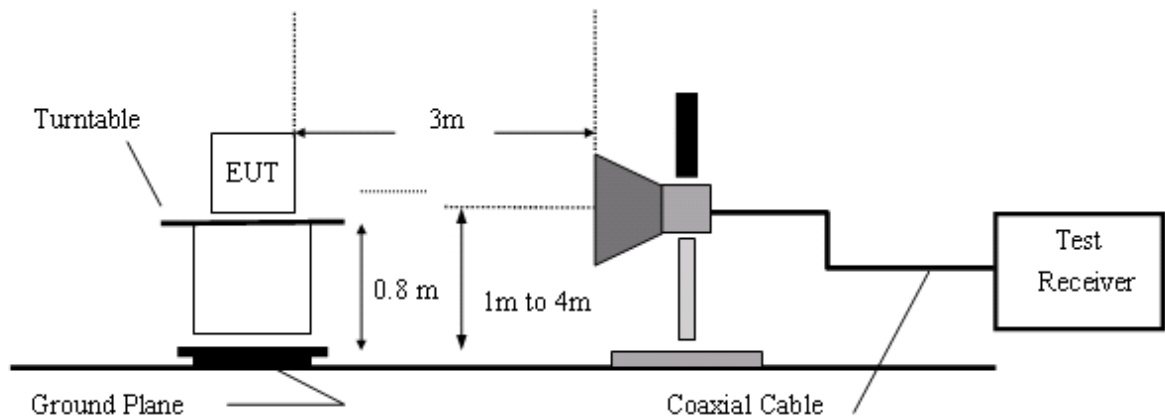
- 1) 9K to 30MHz emissions:



- 2) 30MHz to 1GHz emissions:



- 3) 1GHz to 40GHz emissions:





1) Emissions below 30MHz:

Vertical:

| Test Frequency<br>(MHz) | Peak (dBµV/m)    |       |       | Limits<br>(dBµV/m) | Margin (dB) |       |       |
|-------------------------|------------------|-------|-------|--------------------|-------------|-------|-------|
|                         | X                | Y     | Z     |                    | X           | Y     | Z     |
| 27.145                  | 72.35            | 61.40 | 56.89 | 100.0              | 27.65       | 38.60 | 43.11 |
| Test Frequency<br>(MHz) | Average (dBµV/m) |       |       | Limits<br>(dBµV/m) | Margin (dB) |       |       |
|                         | X                | Y     | Z     |                    | X           | Y     | Z     |
| 27.145                  | 71.99            | 60.80 | 55.56 | 80.0               | 8.01        | 19.20 | 24.44 |

Y: EUT as Radiated Emission test setup photograph in section 8 of this report.

X: rotate EUT by 90° clockwise.

Z: rotate EUT by 90° vertically.

According to ANSI Standard C63.4-2003, the portable equipment shall be tested with X, Y, Z axis of the EUT to find the maximum emissions. Other equipment shall be put in normal use status to find the maximum emissions.

2) other emissions

Test Procedure: The procedure used was ANSI Standard C63.4-2003. The receive was scanned from 30MHz to 1000MHz. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. The worst case emissions were reported.

An initial pre-scan was performed in the 3m chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bilog antenna with 2 orthogonal polarities

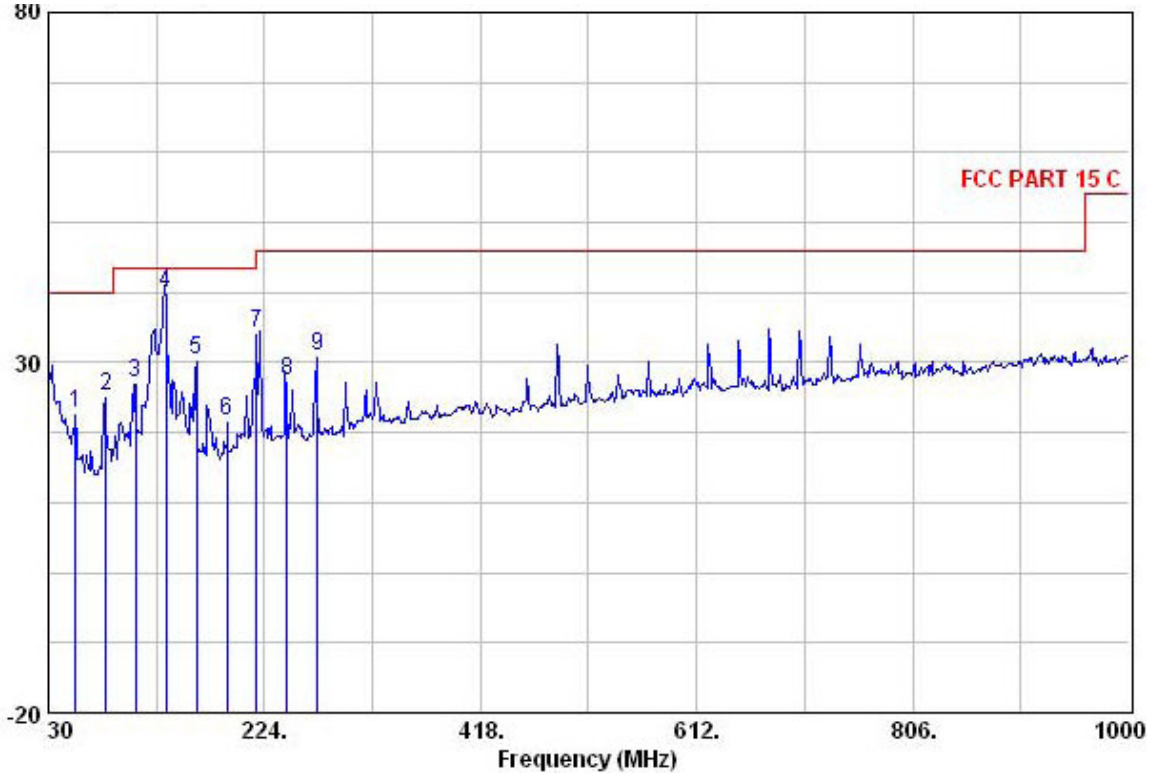
The field strength is calculated by adding the Antenna Factor, Cable Factor & Peramplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Loss –Peramplifier Factor.

The following test results were performed on the EUT.

Test the EUT in transmitting mode.

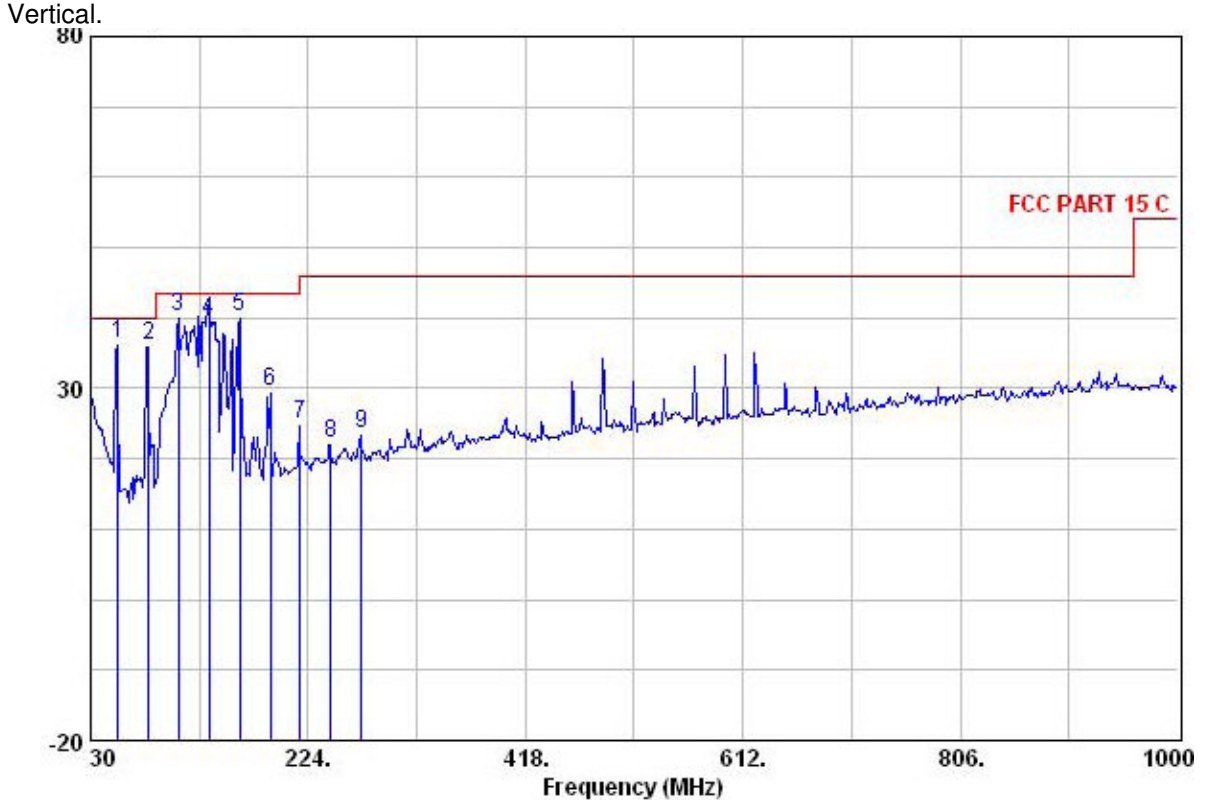
Horizontal.



measure result:

- Remark: : 1. All readings are Quasi-peak values.  
 : 2. Level = Read Level + Antenna Factor +  
 : Cable Loss - Preamp Factor

|     | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Remark |
|-----|---------|------------|----------------|------------|---------------|--------|------------|------------|--------|
|     | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |        |
| 1   | 54.290  | 35.23      | 11.40          | 0.60       | 24.50         | 22.73  | 40.00      | -17.27     | QP     |
| 2   | 81.435  | 42.23      | 6.88           | 0.80       | 24.58         | 25.33  | 40.00      | -14.67     | QP     |
| 3   | 108.580 | 38.71      | 11.94          | 0.90       | 24.50         | 27.05  | 43.50      | -16.45     | QP     |
| 4 @ | 135.725 | 51.62      | 11.78          | 1.00       | 24.40         | 40.00  | 43.50      | -3.50      | QP     |
| 5   | 162.870 | 43.62      | 10.08          | 1.10       | 24.40         | 30.40  | 43.50      | -13.10     | QP     |
| 6   | 190.015 | 34.90      | 10.00          | 1.20       | 24.30         | 21.80  | 43.50      | -21.70     | QP     |
| 7   | 217.160 | 45.28      | 11.66          | 1.30       | 24.10         | 34.14  | 46.00      | -11.86     | QP     |
| 8   | 244.305 | 37.94      | 12.15          | 1.40       | 24.10         | 27.39  | 46.00      | -18.61     | QP     |
| 9   | 271.450 | 41.16      | 12.30          | 1.50       | 24.00         | 30.96  | 46.00      | -15.04     | QP     |



measure result:

Remark: : 1. All readings are Quasi-peak values.  
 : 2. Level = Read Level + Antenna Factor +  
 : Cable Loss - Preamp Factor

|     | Freq    | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level  | Limit Line | Over Limit | Remark |
|-----|---------|------------|----------------|------------|---------------|--------|------------|------------|--------|
|     | MHz     | dBuV       | dB/m           | dB         | dB            | dBuV/m | dBuV/m     | dB         |        |
| 1 @ | 54.290  | 48.80      | 11.40          | 0.60       | 24.50         | 36.30  | 40.00      | -3.70      | QP     |
| 2 @ | 81.435  | 52.96      | 6.88           | 0.80       | 24.58         | 36.06  | 40.00      | -3.94      | QP     |
| 3 @ | 108.580 | 51.80      | 11.94          | 0.90       | 24.50         | 40.14  | 43.50      | -3.36      | QP     |
| 4 @ | 135.725 | 51.23      | 11.78          | 1.00       | 24.40         | 39.61  | 43.50      | -3.89      | QP     |
| 5 @ | 162.870 | 53.52      | 10.08          | 1.10       | 24.40         | 40.30  | 43.50      | -3.20      | QP     |
| 6   | 190.015 | 42.80      | 10.00          | 1.20       | 24.30         | 29.70  | 43.50      | -13.80     | QP     |
| 7   | 217.160 | 36.05      | 11.66          | 1.30       | 24.10         | 24.91  | 46.00      | -21.09     | QP     |
| 8   | 244.305 | 32.82      | 12.15          | 1.40       | 24.10         | 22.27  | 46.00      | -23.73     | QP     |
| 9   | 271.450 | 33.82      | 12.30          | 1.50       | 24.00         | 23.62  | 46.00      | -22.38     | QP     |

Remark:

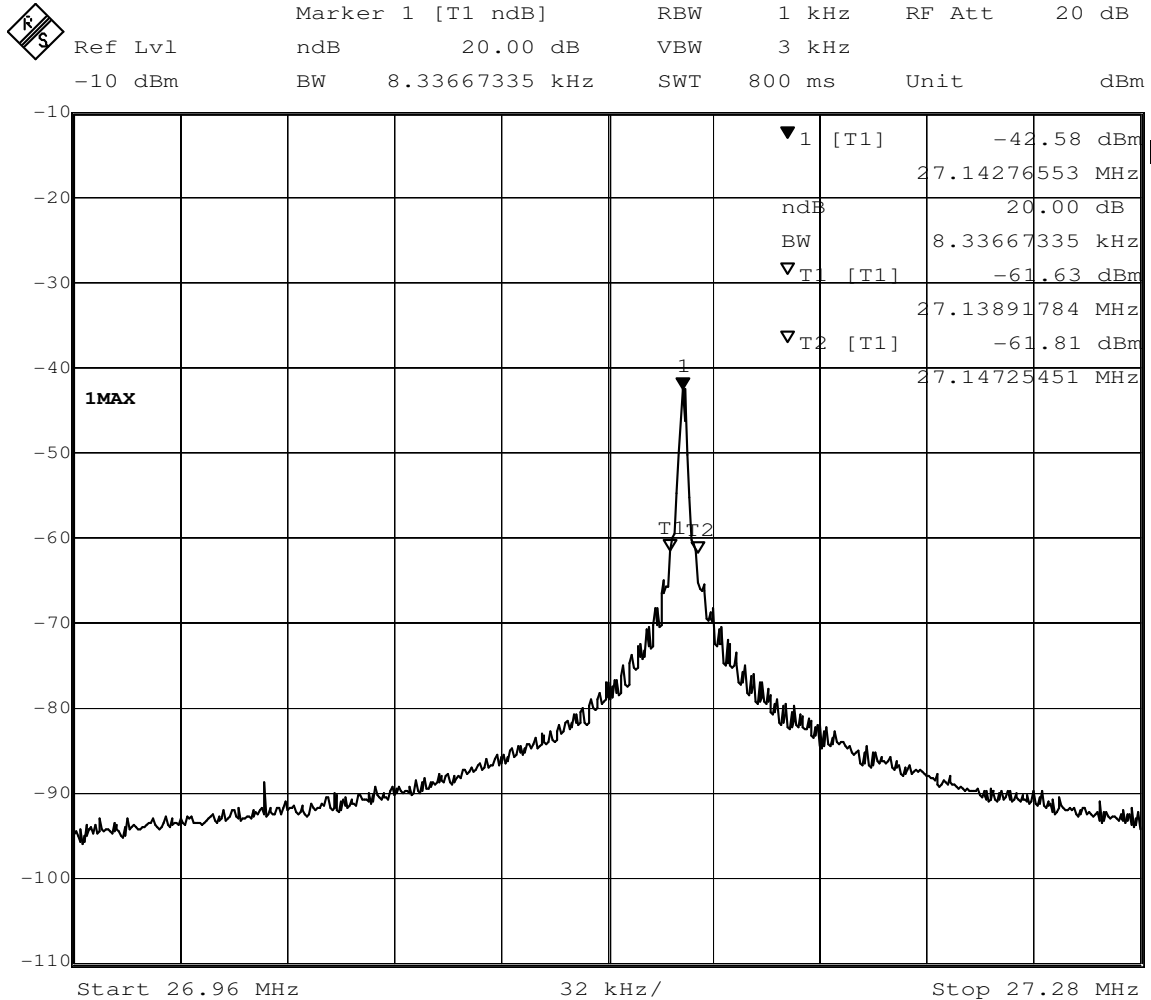
According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules, e.g., see Section 15.255.

**Test Results: The unit does meet the FCC requirements.**



### 7.3 Occupied Bandwidth

|                        |   |
|------------------------|---|
| Test Requirement:      | FCC Part 15 C Section 15.215 (C) and Section 15.227.  |
| Test Method:           | ANSI C63.4  |
| Test Date:             | April 26, 2009  |
| Requirements:          | 15.215(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 is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the 20 dB 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. |
|                        | Operation within the band 26.960 – 27.280 MHz   |
| Method of measurement: | The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector. The vertical Scale is set to 10dB per division. Record the 20 dB bandwidth of the carrier.  |



20dB bandwidth lower frequency : 27.13891784MHz

20dB bandwidth upper frequency : 27.14725451MHz

**The results: The unit does meet the FCC requirements**

**-- End of Report--**