深圳华通威国际检验有限公司
SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION Co., Ltd

# FCC TEST REPORT

**Report number: TR04070024**
**Issue date: Aug 16, 2004**

**The device, as described herewith, was tested pursuant to applicable test procedure and complies with the requirements of:**

**FCC Rules and Regulations Part 15 Subpart C**

| | |
|---|---|
| **Applicant:** | **SHENZHEN GALLOP INDUSTRY CO., LTD**<br>**2F, 1 wing, No. 8, Linyuan Road East, Futian Borough, Shenzhen, Guangdong Province,China**<br>**Tel: 86-755-83112512 Fax: 86-755-83104083** |
| **Manufacturer:** | **SHENZHEN GALLOP INDUSTRY CO., LTD**<br>**2F, 1 wing, No. 8, Linyuan Road East, Futian Borough, Shenzhen, Guangdong Province,China**<br>**Tel: 86-755-83112512 Fax: 86-755-83104083** |
| **Equipment under test:** | **R/C Hovercraft (Transmitter)** |
| **Model number:** | **GA11601(B1601) Remark: representative sample for test** |
| **Listed Model:** | **GA11602, GA11603, GA11604, GA11605, GA11606, GA11607, GA11608** |
| **FCC ID No.:** | **R8ZSZGALLOPRC-003** |
| **Laboratory Name:** | **Shenzhen Huatongwei International Inspection Co., Ltd**<br>**FCC Registration Number: 662850** |
| **Laboratory Address:** | **Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China**<br>**Tel: 86-755-26748099 Fax:86-755-26748089** |

**The results in this report are applicable only to the equipment tested.**
**This report shall not be re-produced except in full without the written approval of Shenzhen Huatongwei International Inspection Co., Ltd.**

**Compiled by:** Tony Wu **Checked by:** Jimmy Li
**Tony Wu** **Jimmy Li**

**For and on behalf of**
**Shenzhen Huatongwei International Inspection Co., Ltd.**

**Authorized by:**

Mike Wang
**Authorized Signature(s)**

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# 1. General Information

## 1.1 FCC ID No.: R8ZSZGALLOPRC-003

## 1.2 Test Standards

All the test Procedure are strictly according to the requirement of the following standards:

FCC Rules and Regulations Part 15 Subpart C –Intentional Radiators

## 1.3 EUT(Equipment Under Test) Information

1.3.1 Client Information

| | |
|---|---|
| Applicant: | **SHENZHEN GALLOP INDUSTRY CO., LTD** |
| Address of applicant: | 2F, 1 wing, No.8, Linyuan Road East, Futian Borough, Shenzhen, Guangdong Province,China<br>Tel: 86-755-83112512 Fax: 86-755-83104083 |
| Manufacturer: | **SHENZHEN GALLOP INDUSTRY CO., LTD** |
| Address of manufacturer: | 2F, 1 wing, No.8, Linyuan Road East, Futian Borough, Shenzhen, Guangdong Province,China<br>Tel: 86-755-83112512 Fax: 86-755-83104083 |

1.3.2 General Description of E.U.T.

| | |
|---|---|
| Name: | R/C Hovercraft (Transmitter) |
| Model No.: | GA11601(B1601)<br>Remark: Representative sample for test |
| Listed Model: | GA11602, GA11603, GA11604, GA11605, GA11606, GA11607, GA11608 |
| Power Supply: | DC 9.0V |
| Product Class: | Low Power Communication Device Transmitter |
| Working Frequency: | 27.145MHz±30PPM |

## 1.4 Test Uncertainty

Radiated Emission Test: ±4.22dB

## 1.5 Ambient condition for test

| Item | Required | Actual |
|---|---|---|
| Temperature ( ℃ ) | 15~35 | 22~23 |
| Humidity ( %RH ) | 25~75 | 50~54 |
| Barometric Pressure ( mbar ) | 860~1060 | 950~1000 |

## 1.6. Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.

## 1.7 Test Summary

| Test Items | Test Result |
|---|---|
| Conducted Emission | Pass |
| Radiated Emission | Pass |
| Emissions within Band Edges | Pass |

## 1.8 Test Location

The device described above is tested by

**Shenzhen Huatongwei International Inspection Co., Ltd** at: Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China ( FCC Registration Number: 662850 )

The maximum emission levels emanating from the device are compared to the **FCC Rules and Regulations Part 15 Subpart C –Intentional Radiators** limits for radiated emissions and the measurement results contained in this test report show that EUT is to be technically compliant with FCC requirements.

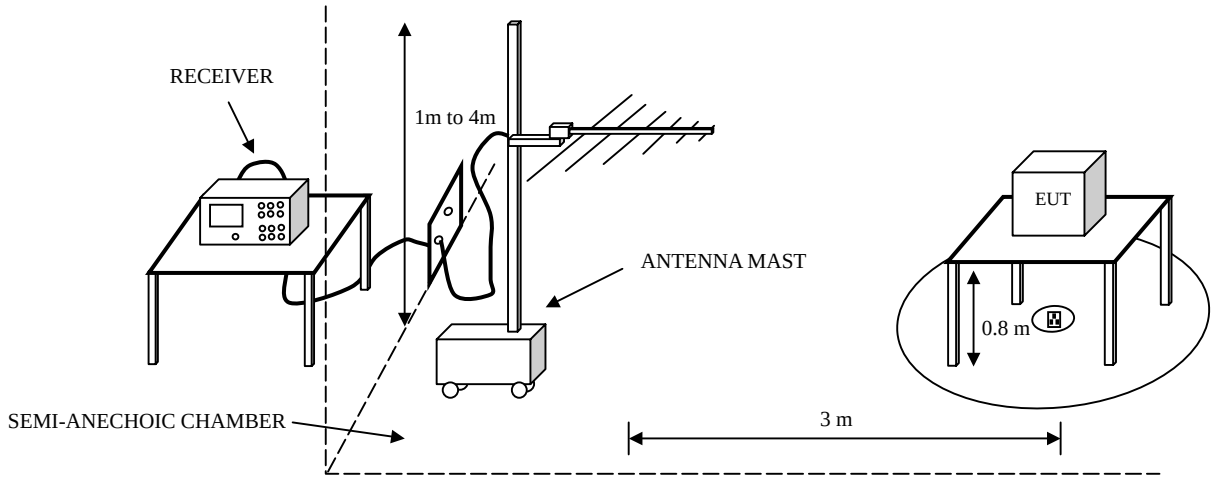
Shenzhen Huatongwei International Inspection Co., Ltd will assumed full responsibility for the accuracy and completeness of these measurements.

# 2 Radiated Emission Test

## 2.1 Test Standards

FCC Rules and Regulations Part 15 Subpart C –Intentional Radiators

## 2.2 Diagram of Test Setup




## 2.3 Test Equipments Used

| EQP. Description | Manufacturer | Model No. | Serial No. | Last Cal |
|---|---|---|---|---|
| ULTRA-BROADBAND ANTENNA | ROHDE & SCHWARZ | HL562 | 100015 | 2003/11 |
| EMI TEST RECEIVER | ROHDE & SCHWARZ | ESI 26 | 100009 | 2003/11 |
| RF TEST PANEL | ROHDE & SCHWARZ | TS / RSP | 335015/ 0017 | N/A |
| TURNTABLE | ETS | 2088 | 2149 | N/A |
| ANTENNA MAST | ETS | 2075 | 2346 | N/A |
| EMI TEST SOFTWARE | ROHDE & SCHWARZ | ESK1 | NA | N/A |

## 2.4 Test Description

2.4.1 Configuration of Instruments

Test Receiver Setting:

－Detector: Quasi-Peak

－Band Width:120KHz

－Frequency Range: 30MHz to 1000MHz

Remark: Because the intentional radiator operates below 10GHz, the scanned frequency range is only set from 30MHz to 1000MHz. (Refer to FCC Rules and Regulations Part 15 Subpart A section 15.33 )

－Turntable Rotated: 0 to 360 degrees

Antenna Position:

－Height: 1m to 4m

－Polarity: Horizontal and Vertical

Arrangement of EUT:

－During the test, EUT was operated at rating power supply voltage. Maximum emission configuration was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

2.4.2 Radiated Emission Limit

| **Frequency (MHz)** | **Distance (Meters)** | **Field Strengths Limits (dBμV/m)** |
|---|---|---|
| 30 ~ 88 | 3 | 40 |
| 88~216 | 3 | 43.5 |
| 216 ~ 960 | 3 | 46 |
| 960~1000 | 3 | 54 |

Remark: (1) The tighter limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

2.4.3 Test Procedure

EUT is tested in Semi-Anechoic Chamber. EUT is placed on a nonmetal table which is 0.8 meter above a grounded turntable. The turntable can rotate 360 degrees to determine the azimuth of the maximum emission level. EUT is set 3 meters away from the center of receiving antenna, The antenna can move up and down from 1 to 4 meter to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna are set on the test. (Details refer to the relevant sections of the standard ANSI C63.4-1992 'Methods of Measurement of Radio Noise Emissions from Low –Voltage Electrical and Electronic Equipment in the Range of 9KHz to 40GHz'.)

## 2.5 Test Results

**Test Results: PASS**

**Test data see following pages**

Remark: When PK reading is less than relevant limit 20dB, the QP reading will not be recorded.

# Radiation Measurement below 30MHz

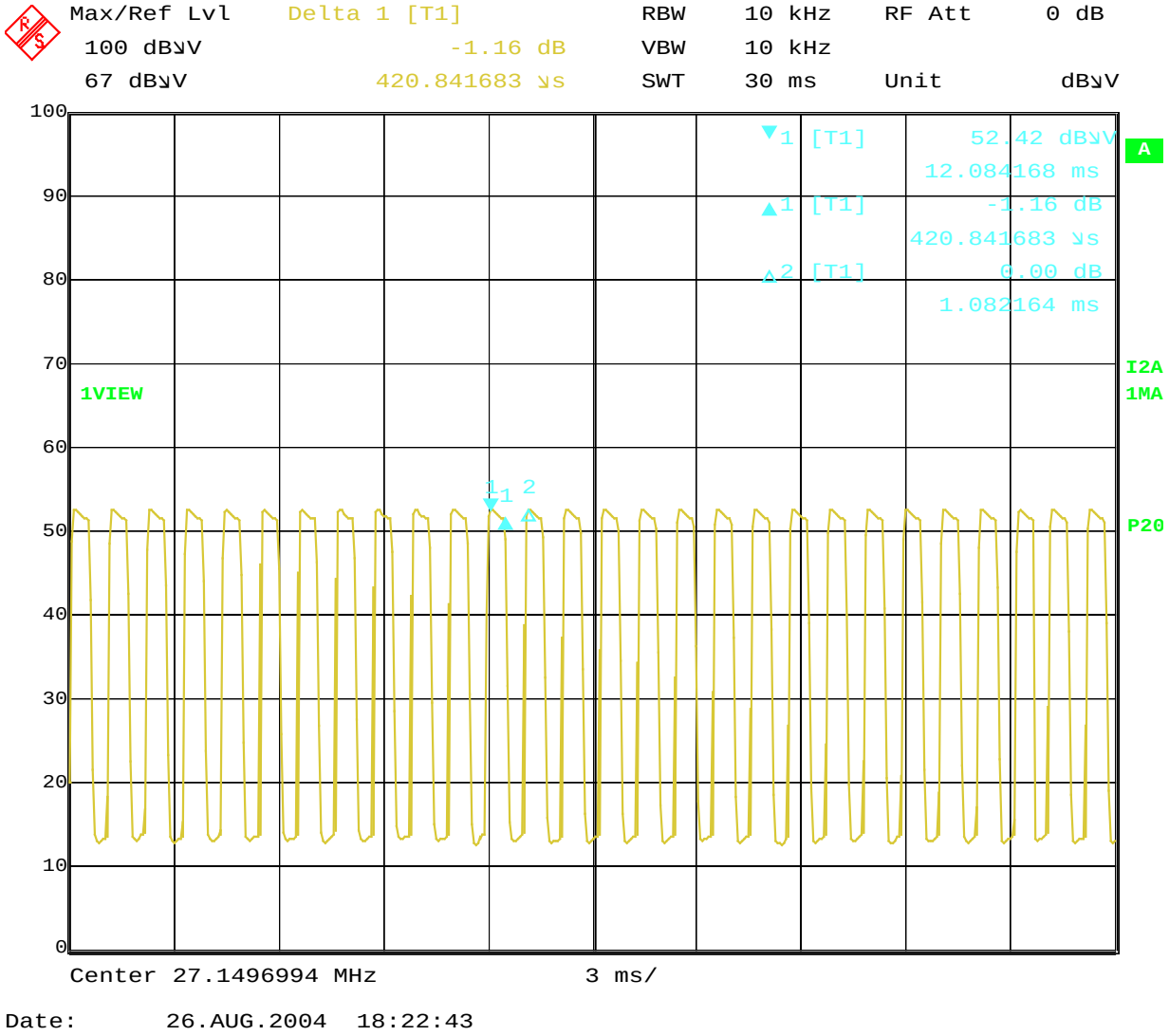
**a. Fundamental Frequency**

| Frequency (MHz) | Maximum Test Result (dB(μV/m)) | | FCC Limit (dB(μV/m)) | |
|---|---|---|---|---|
| | Peak | Average* | Peak | Average |
| **27.145** | **51.88** | **43.65** | **100** | **80** |

**Remark : 1)The above peak value is the maximum value of the measurement in 3 orthogonal planes**

**2)* Caculation for radiation(average) from the below time domain plot:**

Measured duty cycle(average) = 0.421 / 1.082=0.388
Radiation(average)= 51.88+20*log(0.388)=43.65 dB(μV/m)




**b. The measured radiation outside the operation band was negligible.**

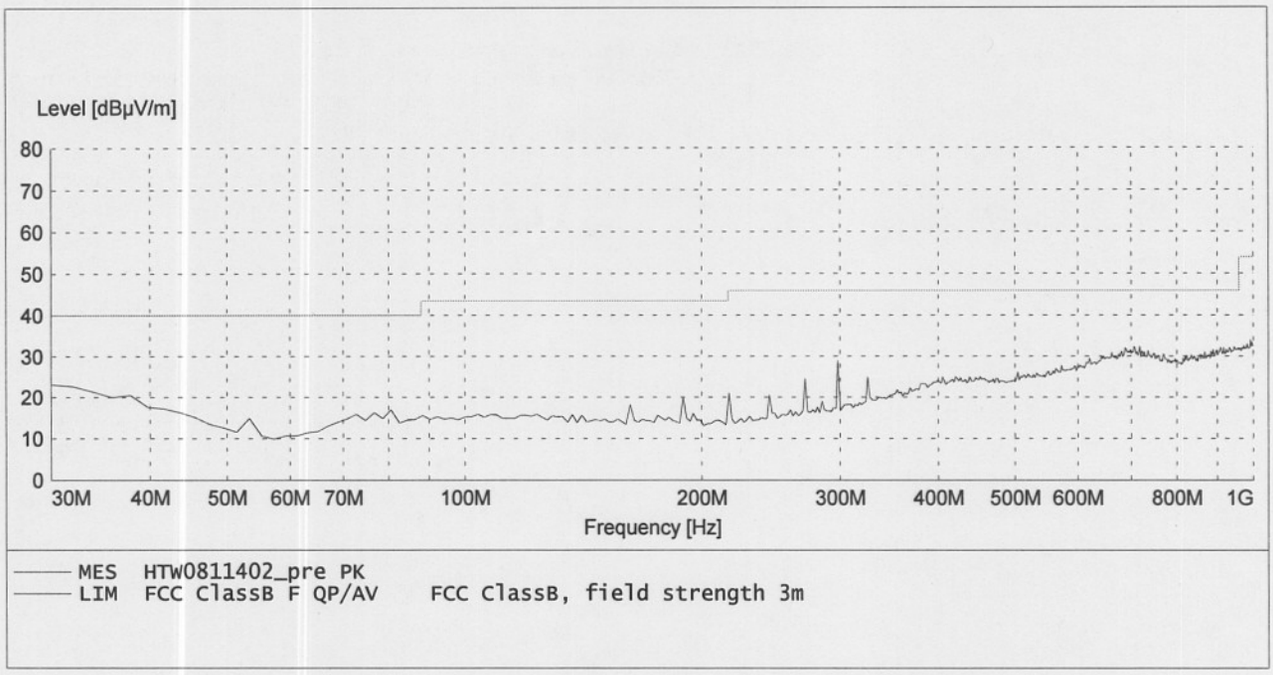
## *Radiated Emission FCC PART 15 B*

| | |
|---|---|
| EUT: | R/C HOVERCRAFT M/N:GA11601(B1601) TX |
| Manufacturer: | SEHN ZHEN CALLOP INDUSTRY CO.,LTD |
| Operating Condition: | ON |
| Test Site: | 3m CHAMBER |
| Operator: | EAST |
| Test Specification: | DC 3V |
| Comment: | Polarization:H<br>Temp:22'C Humi:50% |

### *SCAN TABLE: "test Field(30M-1G)"*

Short Description: Field Strength(30M-1G)

| Start Frequency | Stop Frequency | Step Width | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|---|
| 30.0 MHz | 1.0 GHz | 60.0 kHz | QuasiPeak | 1.0 s | 120 kHz | HL562new |

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## *Shenzhen Huatongwei International Inspection CO.,Ltd*

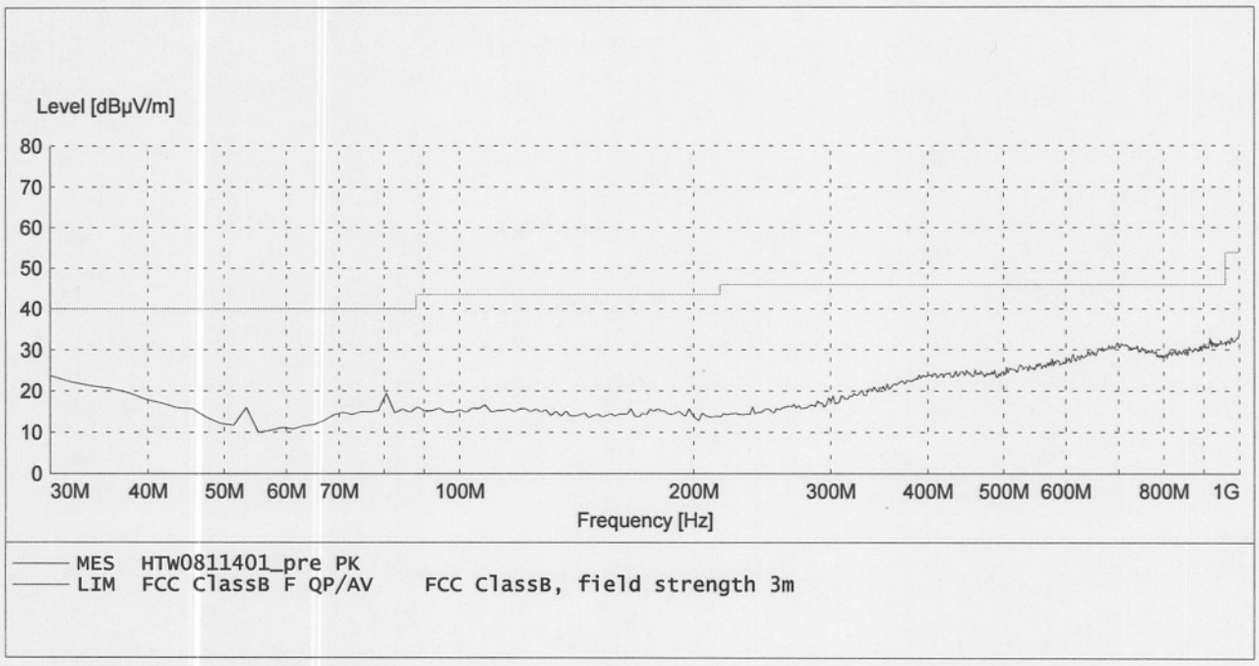
### *Radiated Emission FCC PART 15 B*

EUT: R/C HOVERCRAFT M/N:GA11601(B1601) TX
Manufacturer: SEHN ZHEN CALLOP INDUSTRY CO.,LTD
Operating Condition: ON
Test Site: 3m CHAMBER
Operator: EAST
Test Specification: DC 3V
Comment: Polarization:V
Temp:22'C Humi:50%

***SCAN TABLE: "test Field(30M-1G)"***

Short Description: Field Strength(30M-1G)

| Start Frequency | Stop Frequency | Step Width | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|---|
| 30.0 MHz | 1.0 GHz | 60.0 kHz | QuasiPeak | 1.0 s | 120 kHz | HL562new |

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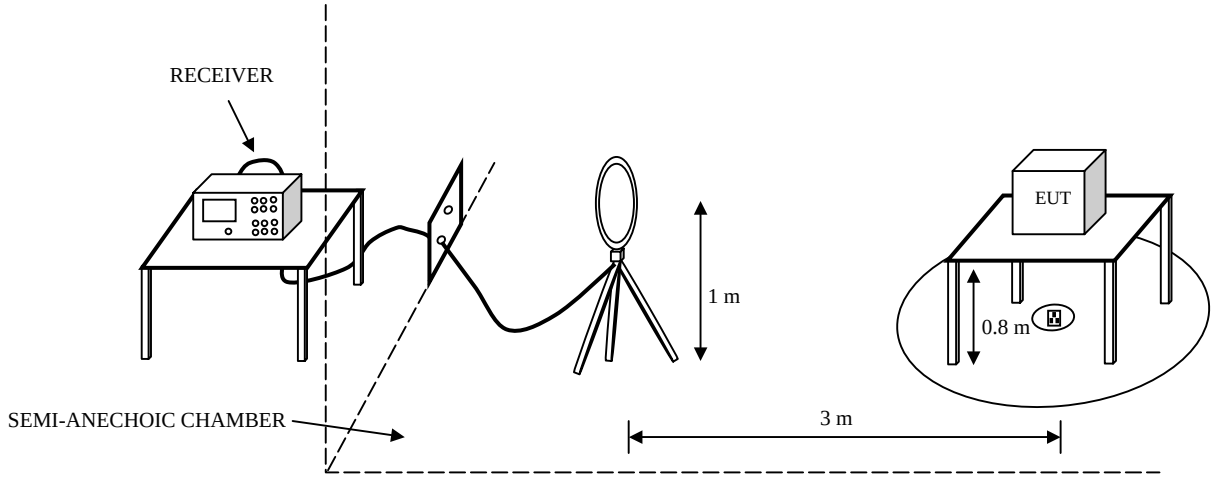
# 3 Emissions within Band Edges

## 3.1 Test Standards

FCC Rules and Regulations Part 15 Subpart C –Intentional Radiators

## 3.2 Diagram of Test Setup




## 3.3 Test Equipments Used

| EQP. Description | Manufacturer | Model No. | Serial No. | Last Cal |
|---|---|---|---|---|
| LOOP ANTENNA | ROHDE & SCHWARZ | HFH2-Z2 | 100020 | 2003/11 |
| EMI TEST RECEIVER | ROHDE & SCHWARZ | ESI 26 | 100009 | 2003/11 |
| RF TEST PANEL | ROHDE & SCHWARZ | TS / RSP | 335015/ 0017 | N/A |
| TURNTABLE | ETS | 2088 | 2149 | N/A |
| ANTENNA MAST | ETS | 2075 | 2346 | N/A |
| EMI TEST SOFTWARE | ROHDE & SCHWARZ | ESK1 | NA | N/A |

## 3.4 Test Description

3.4.1 Configuration of Instruments

3.4.1.1 Test Receiver Setting:

－Detector: Peak and Average

－Band Width: 9KHz

－Frequency Range: 9KHz to 30MHz

－Turntable Rotated: 0 to 360 degrees

3.4.1.2 Arrangement of EUT:

- During the test, EUT was operated at rating power supply voltage. Maximum emission configuration was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

3.4.2 Test Procedure

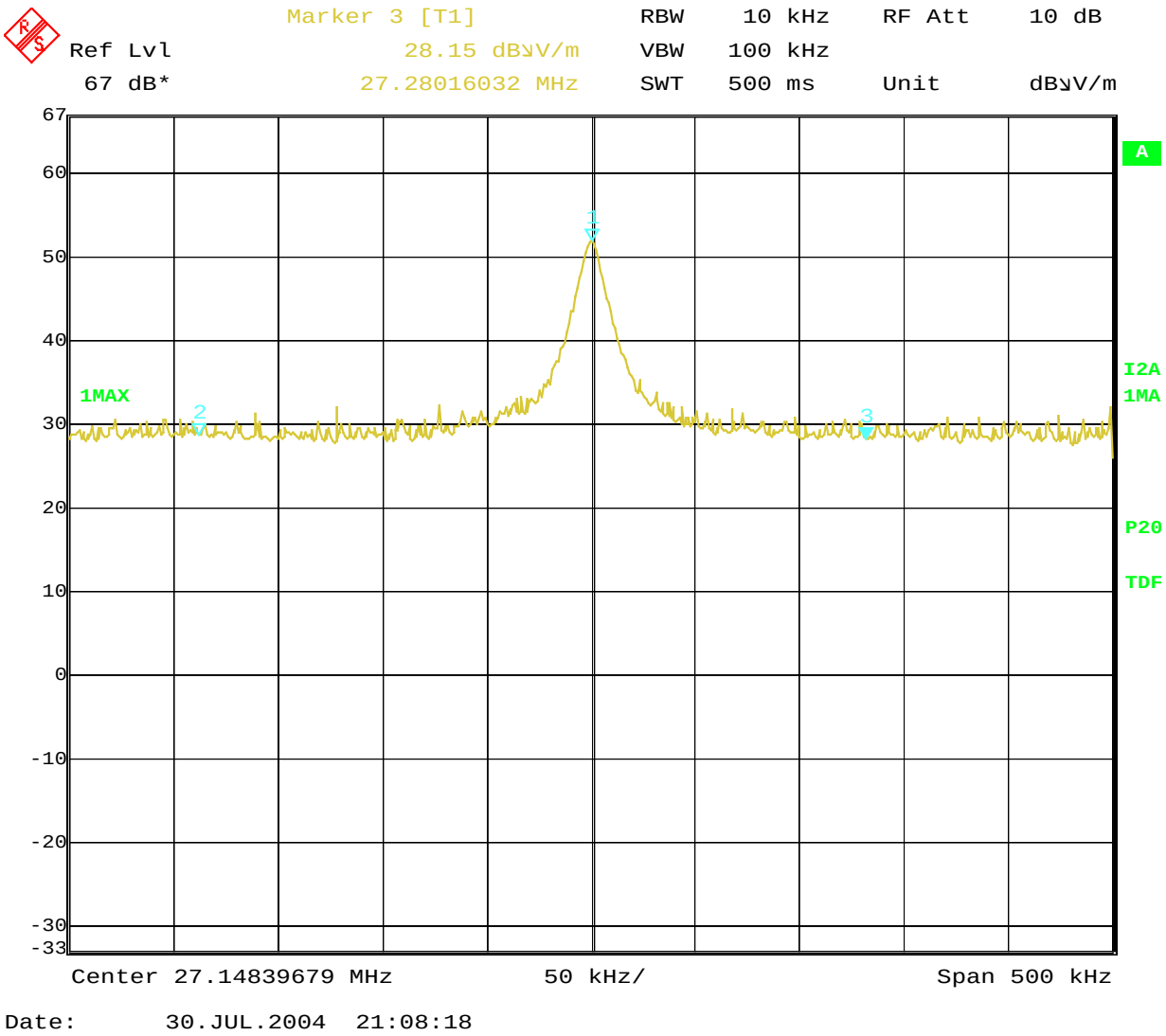
EUT is tested in Semi-Anechoic Chamber. Place the EUT on a nonmetal table which is 0.8 meter above a grounded turntable. The turntable can rotate 360 degrees to determine the azimuth of the maximum emission level. Positioned the loop antenna with its plane vertical at the specified distance of 3 meters between its center and the EUT. The center of the loop antenna is set with 1m above the grounded plane. Then rotated about its vertical axis for finding out the maximum emission level of the EUT. (Details refer to the relevant sections of the standard ANSI C63.4-1992 'Methods of Measurement of Radio Noise Emissions from Low –Voltage Electrical and Electronic Equipment in the Range of 9KHz to 40GHz'.)

**3.5 Test Results**

**Test Results: PASS**

**Test data see following pages**

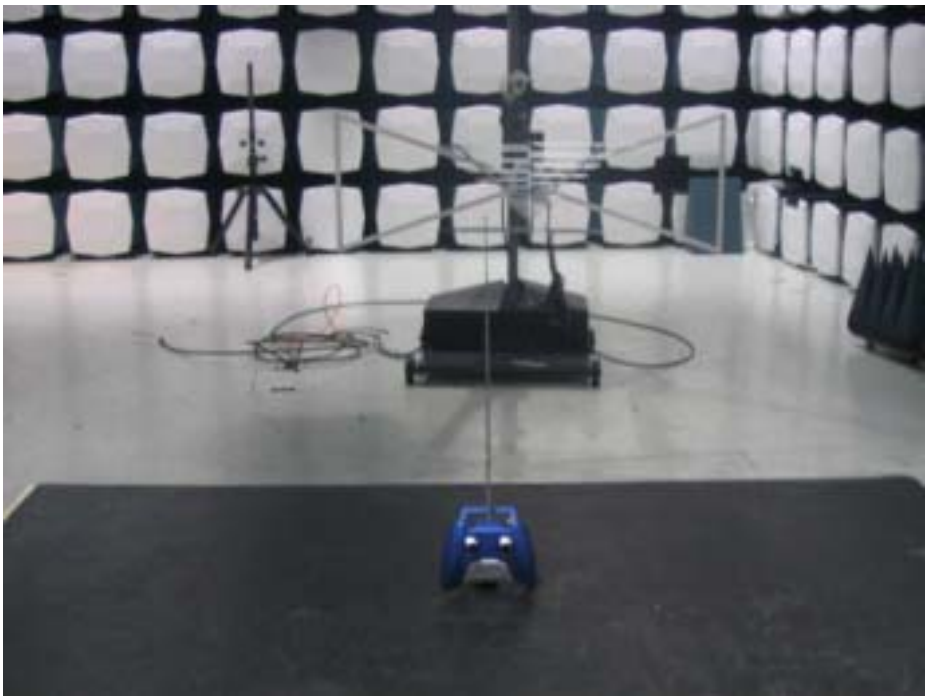
# Measurement Data of Emissions within Band Edges



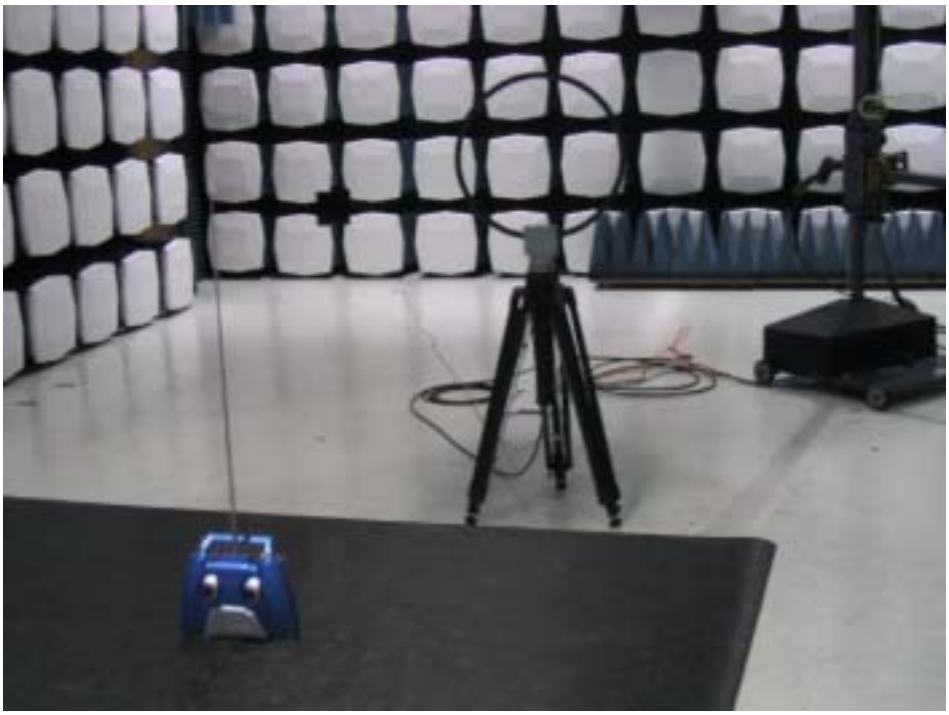

**Result:** The field strength of any emission within the operation band did not exceed 80dB(μV/m) for average value or 100 dB(μV/m) for peak value.

# 4. Configuration Photographs

## 4.1 Photo of Radiated Emission Test



## 4.2 Photo of Emissions within Band Edges Test

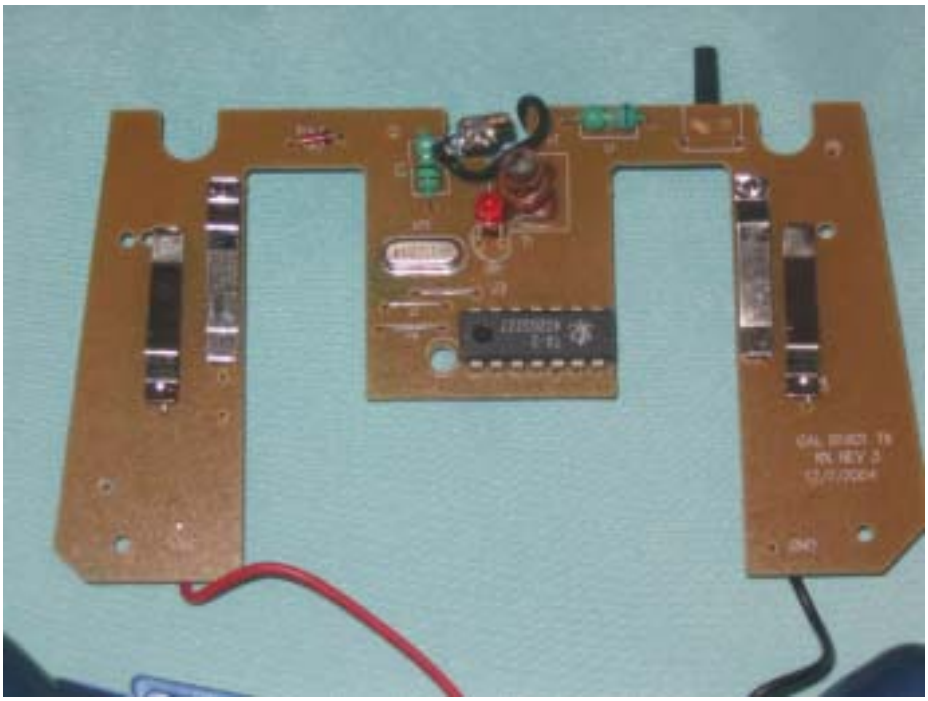


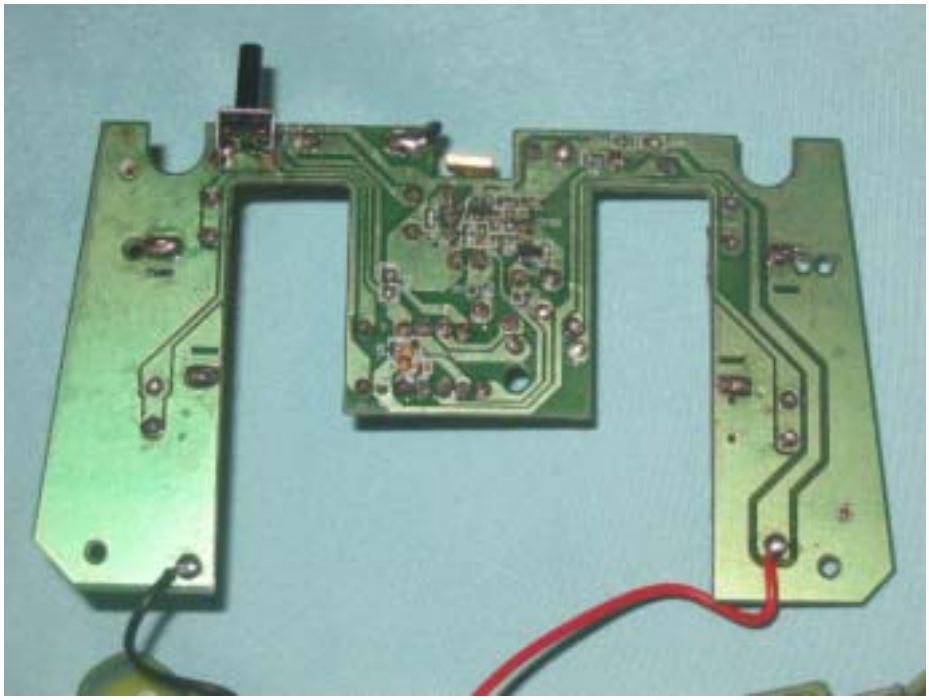
## 4.3 Outline, framework and Components photos of EUT

4.3.1 Front view of EUT

4.3.2 Rear view of EUT

4.3.2 PCB photo of EUT





**……REPORT END……..……**