

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



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
2F, 1 wing, No. 8, Linyuan Road East, Futian Borough, Shenzhen,
Guangdong Province, China
Tel: 86-755-83112512 Fax: 86-755-83104083

Manufacturer: SHENZHEN GALLOP INDUSTRY CO., LTD
2F, 1 wing, No. 8, Linyuan Road East, Futian Borough, Shenzhen,
Guangdong Province, China
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
FCC Registration Number: 662850

Laboratory Address: Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China
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
Tony Wu

Checked by:

Jimmy Li
Jimmy Li

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

Authorized by:

Nike Wang
Authorized Signature(s)



Table of Contents

	Page
1. General Information.....	1
1.1 FCC ID Number.....	1
1.2 Test Standards.....	1
1.3 EUT(Equipment Under Test)Information.....	1
1.4 Test Uncertainty.....	2
1.5 Ambient Condition for Test.....	2
1.6 Principle of Configuration Selection.....	2
1.7 Test Summary.....	2
1.8 Test Location.....	2
2. Radiated Emission Test.....	3
2.1 Test Standards.....	3
2.2 Diagram of Test Setup.....	3
2.3 Test Equipment Used.....	3
2.4 Test Description.....	3
2.5 Test Results.....	4
Appendix(Test Data).....	5
3. Emissions Within Band Edges	9
3.1 Test Standards.....	9
3.2 Diagram of Test Setup.....	9
3.3 Test Equipment Used.....	9
3.4 Test Description.....	9
3.5 Test Results or Comments.....	10
Appendix(Test Data).....	11
4. Configuration Photographs.....	12
4.1 Photo of Radiated Emission Test.....	12
4.2 Photo of Emission within Band Edges Test.....	12
4.3 Outline framework and components photos of EUT.....	13
4.4 Report End.....	15



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

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

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)

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 \pm 30PPM



1.4 Test Uncertainty

Radiated Emission Test: $\pm 4.22\text{dB}$

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.

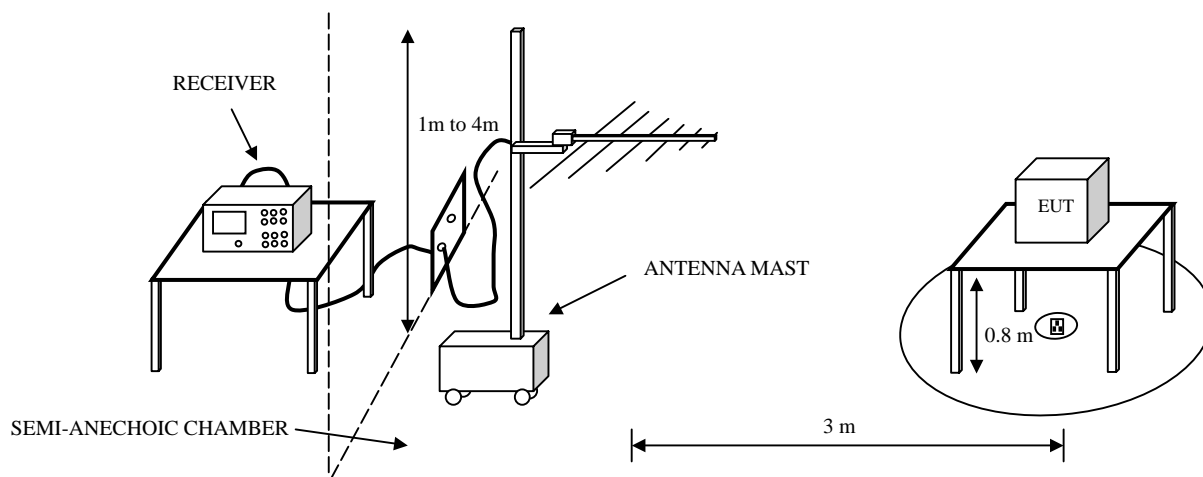


2 Radiated Emission Test

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 (dB μ V/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(μ V/m))		FCC Limit (dB(μ V/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(μ V/m)



VIEW

I2A 1MA P20

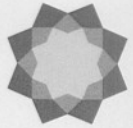
1 [T1] 52.42 dBm
12.084168 ms

1 [T1] -1.16 dB
420.841683 ns

2 [T1] 0.00 dB
1.082164 ms

Center 27.1496994 MHz 3 ms/

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

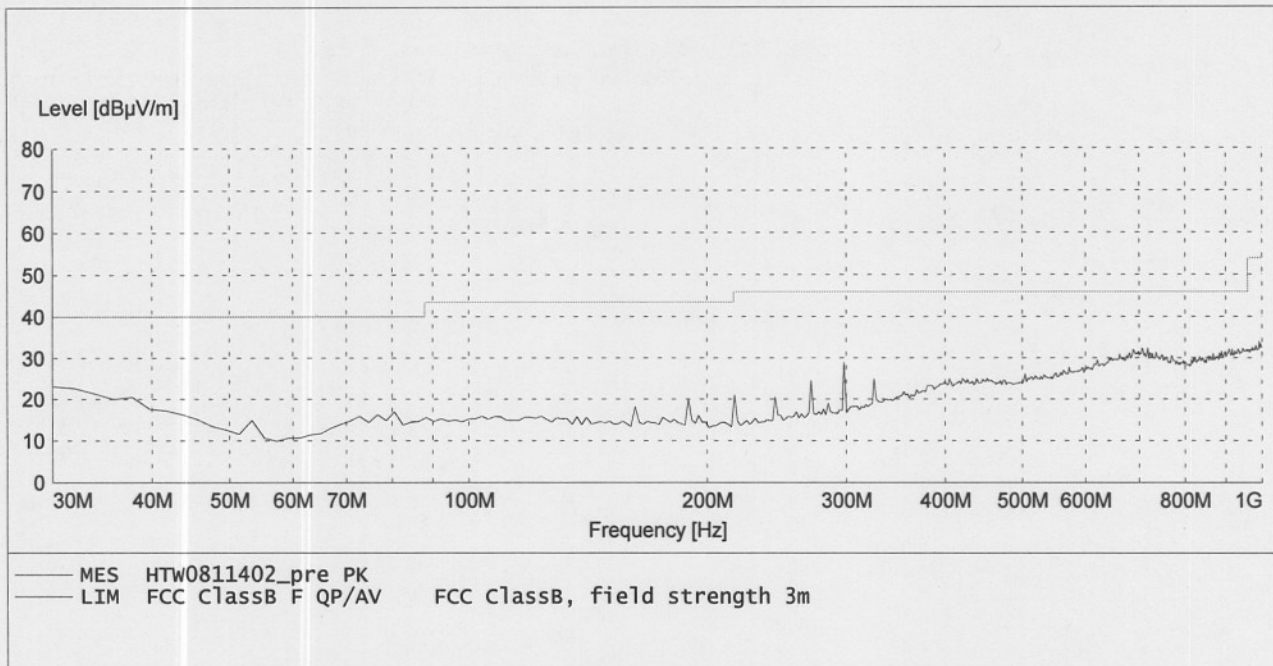


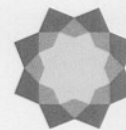
Radiated Emission FCC PART 15 B

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
 Temp:22'C Humi:50%

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

Short Description:		Field Strength(30M-1G)				
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
Frequency	Frequency	width				
30.0 MHz	1.0 GHz	60.0 kHz	QuasiPeak	1.0 s	120 kHz	HL562new



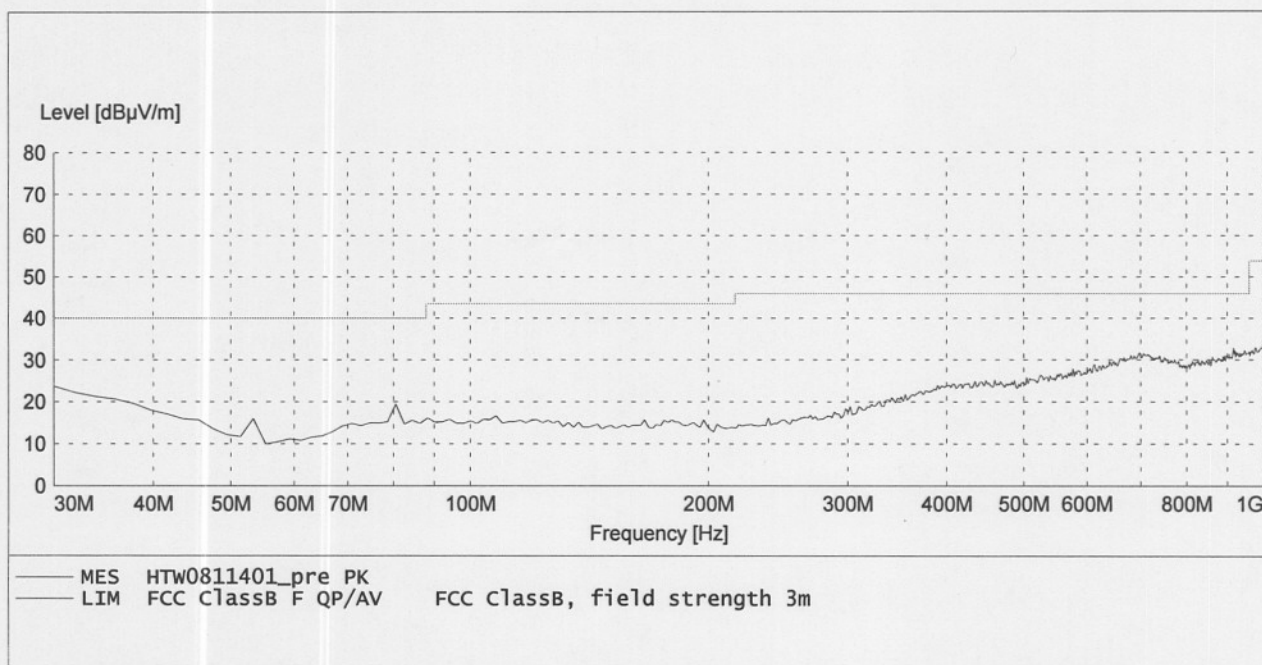


Radiated Emission FCC PART 15 B

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



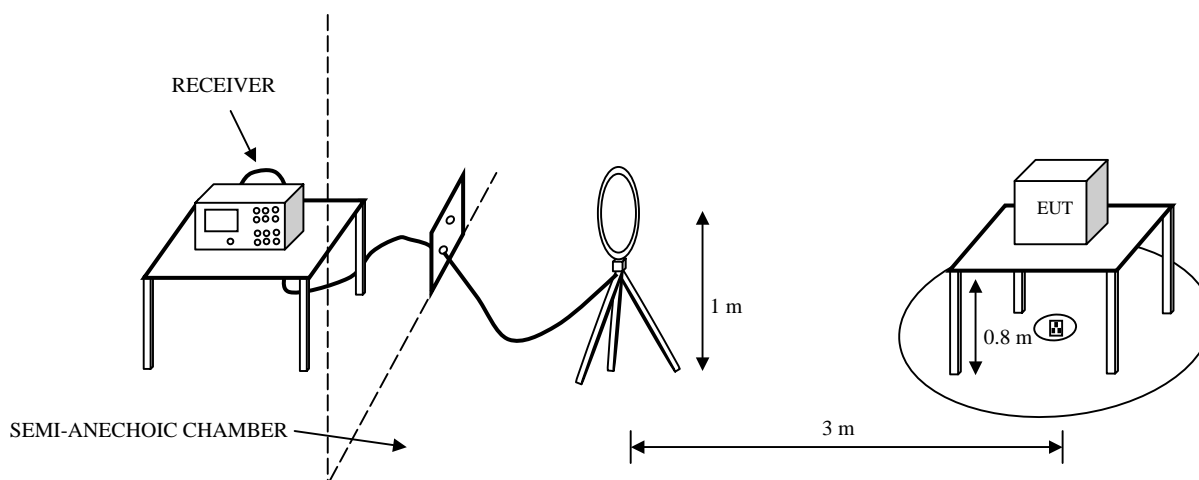


3 Emissions within Band Edges

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'.)

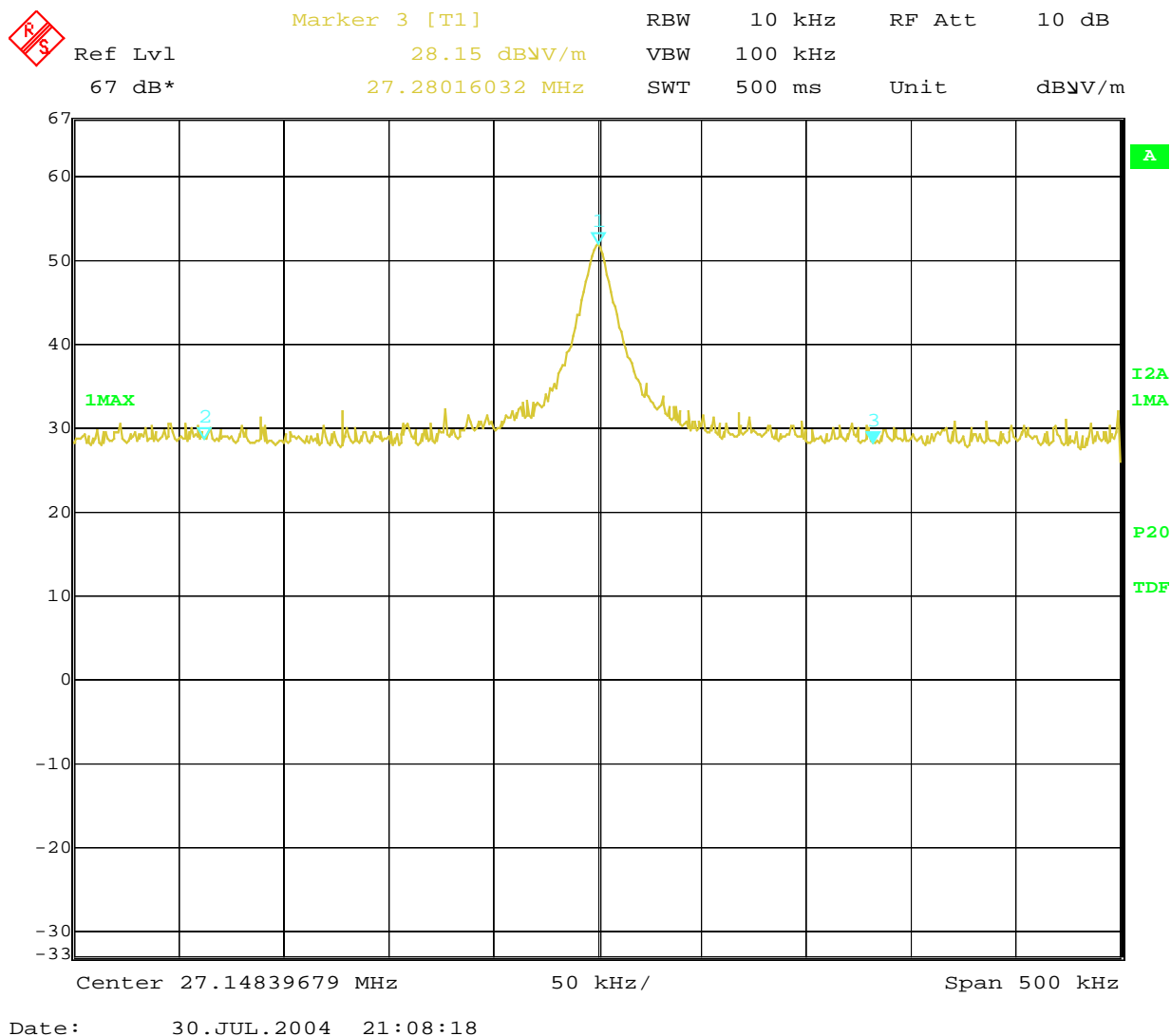
3.5 Test Results

Test Results: PASS

Test data see following pages



Measurement Data of Emissions within Band Edges

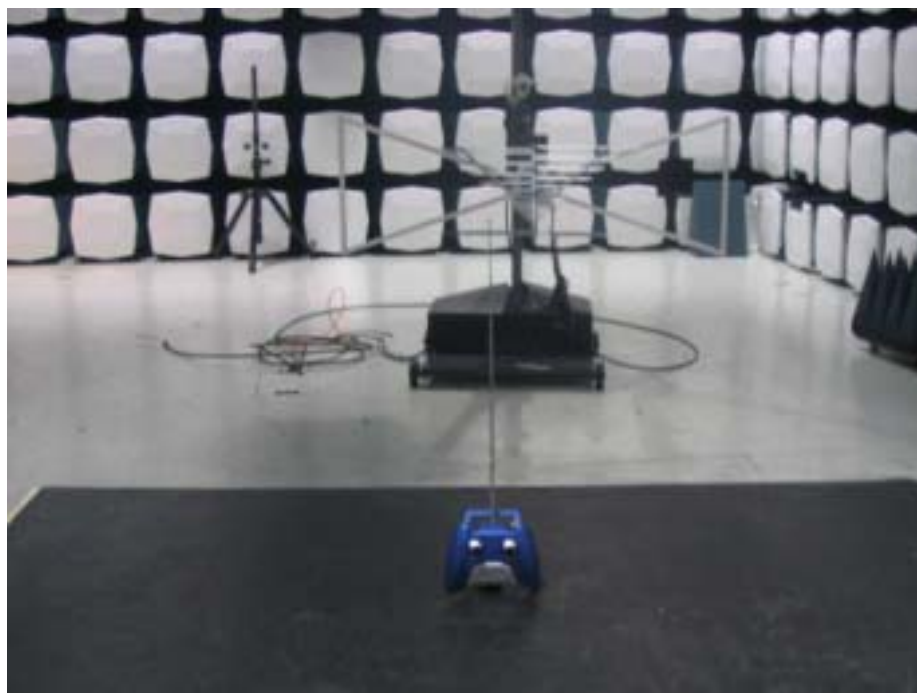


Result: The field strength of any emission within the operation band did not exceed 80dB(μ V/m) for average value or 100 dB(μ V/m) for peak value.

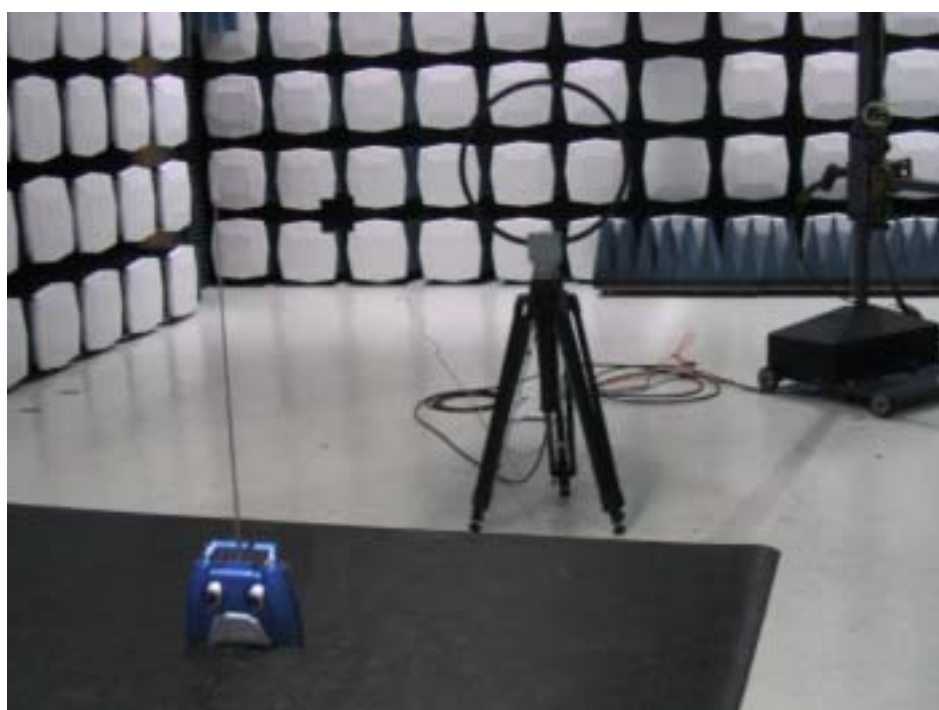


4. Configuration Photographs

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



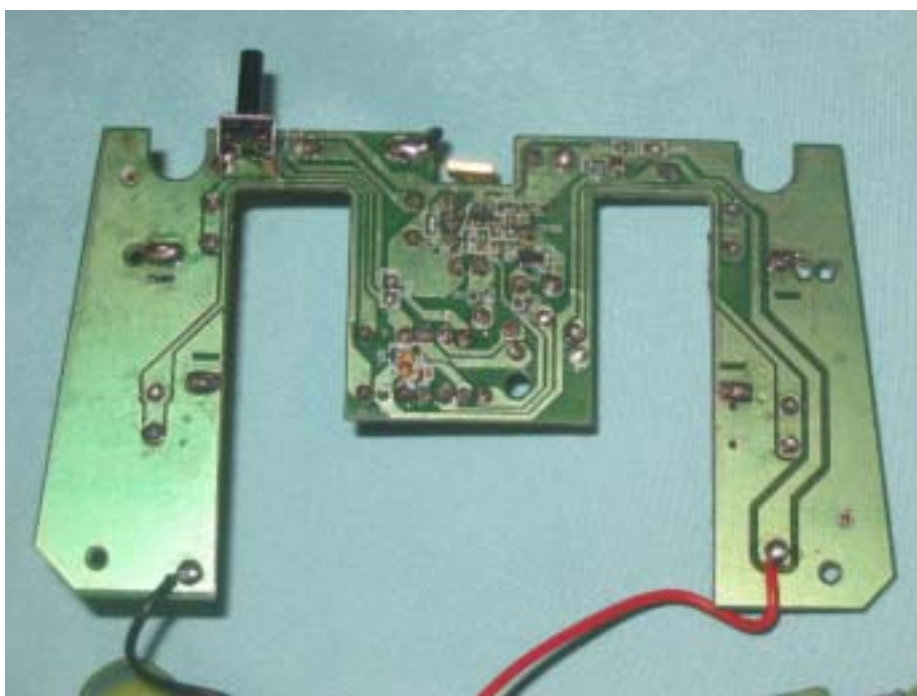
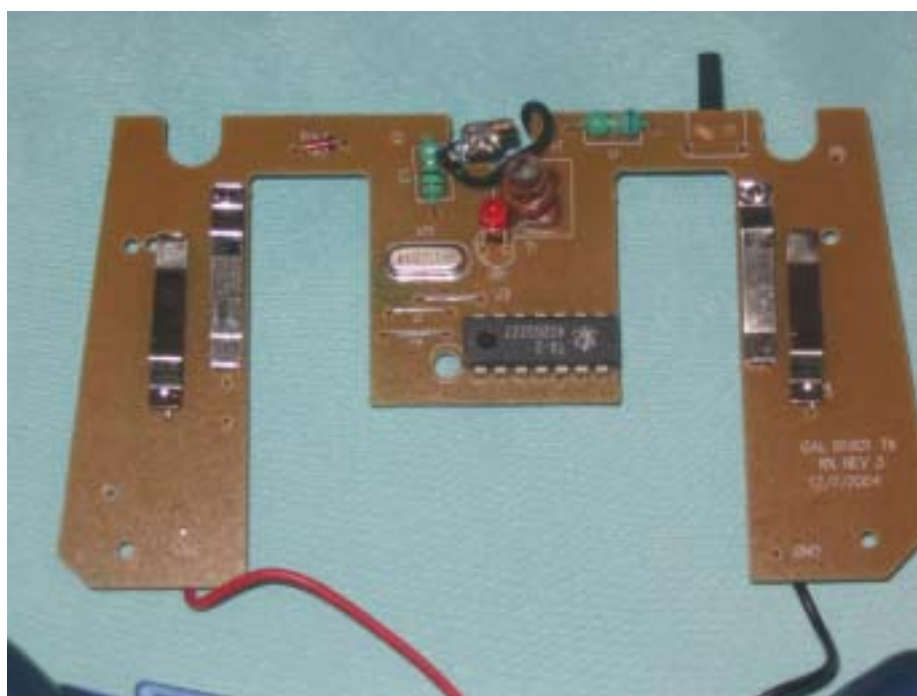
4.3.2 Rear view of EUT





4.3.2 PCB photo of EUT





.....REPORT END.....