



國際電器認證中心有限公司 International Electrical Certification Centre Ltd. 提供電器產品測試國際認證及諮詢服務 Technical Services in Electrical Product Testing International Certification & Information







## FCC - Test Report

Date: 2010-10-07

No. 54596-1

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## **LABORATORY - REPORT**

APPLICANT:

EB BRANDS (HK)

ADDRESS:

Unit 705 & 706, Enterprise Square, Phase 1

Tower III, 9 Sheung Yuet Road

Kowloon Bay, Kowloon

Hong Kong

**DATE OF SAMPLE RECEIVED:** 

2010-09-21

**DATE OF TESTING:** 

2010-09-25 to 2010-09-30

**DESCRIPTION OF SAMPLE:** 

Product:

1:24th Scale Lamborghini

Model number:

Product class:

Low Power Communication Device - Transmitter

FCC ID number:

XRB5363YE27RX

Rating:

DC 3V (AA size battery x 2)

CONDITION OF TEST SAMPLE:

The received sample was under good condition.

**INVESTIGATIONS** REQUESTED:

Measurements to the relevant clauses of F.C.C. Rules and Regulations Part

15 Subpart C - Intentional Radiators.

**RESULTS:** 

See the attached sheets.

**CONCLUSIONS:** 

From the measurement data obtained, the tested sample was considered to have COMPLIED with the requirements for the relevant clauses of Federal

Communications Commission Rules as specified above.

Stephen C.N. Wong Technical Manager











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#### **Test Location**

International Electrical Certification Centre Ltd.
Units 602-605, 31 Lok Yip Road, On Lok Tsuen, Fanling, N.T., Hong Kong

Tel: +852 23052570 Fax: +852 27564480 Email: info@iecc.com.hk

## **Summary of Test Results**

#### Radiated Emission:

Test result: O.K.

Test data: See attached data sheet

#### **Conducted Emission:**

Test result: Not Applicable Test data: Not Applicable

#### Measurement of Emissions within Band Edges

Test result: O.K

Test data: See attached data sheet

Address 地址.

Units 602-605, 6/F\_31 Lok Yip Rd , On Lok Tsuen, Fanling. N T\_Hong Kong 香港新界粉積安蠑村樂業路31號6槽602-605室

China 中國: Address 地址 IECC (Guangzhou) Services Co , Ltd. 廣州時並遠技術服務有限公司 Flat A, 2/F.. Block 3, 56 Shuiyin Road, Guangzhou, P.R of China 廣州市水磁路56號3棟2A室 Postcode 郵政衛號: 510075 Tel 朝話 (852) 2305 2570 Fax 每年 (852) 2756 4480

Tel 卓話: (86-20) 8768 4838 Fax 何事 (86-20) 8768 3918 E-mail 广子郵件: info@iecc.com hk Home Page 網頁 http://www.iecc.com.hk

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# **TEST EQUIPMENT LIST**

Equipment	Manufacturer	Model	Serial No.	Last Calibration Date	Next Calibration Date	
Test Receiver	Rohde & Schwarz	ESVS 30	828525/006	20/04/2010	19/04/2011	
Test Receiver	Rohde & Schwarz	ESHS 30	839667/002	19/05/2010	18/05/2011	
Loop Antenna	Rohde & Schwarz	HFH2-Z2	871336/48	17/11/2009	16/11/2012	
Antenna (30 - 300MHz)	Schwarzbeck	BBA9106, VHA9103		02/01/2009	01/01/2012	
Antenna (300 - 1000MHz)	Schwarzbeck	UHALP9107, VHA9103		05/01/2009	04/01/2012	
Antenna Mast System	Schwarzbeck	AM9104	_	_		
Turntable with Controller	Drehtisch	DT312	_			
Spectrum Analyzer with Q. Peak	Advantest	R3132	140101852	20/05/2010	19/05/2011	







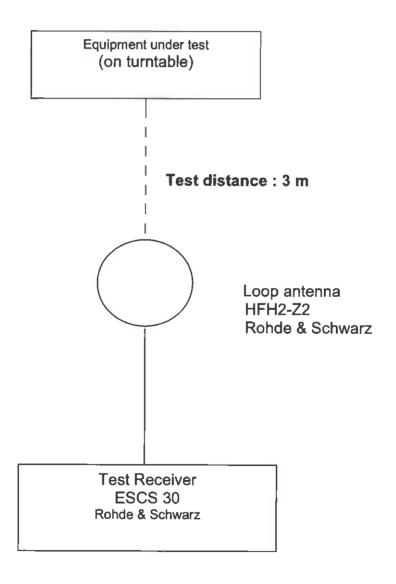


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## Radiated Emission Test Setup (9kHz - 30MHz)



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China 中國。 Address 地址: IECC (Guangzhou) Services Co., Ltd 屬州時並護技術服務有限公司 Flat A. 2/F., Block 3. 56 Shuiyin Road, Guangzhou, PR of China 廣州市水幡路56號3棟2A室 Postcode 郵政頻號 510075 Tel 叫話: (852) 2305 2570 Fax 傳奏 (852) 2756 4480

Tel 形話 (86-20) 8768 4838 Fax 傅夢: (86-20) 8768 3918 E-mail (\*)子郵件: info@iecc.com.hk Home Page 網頁 http://www.iecc.com.hk

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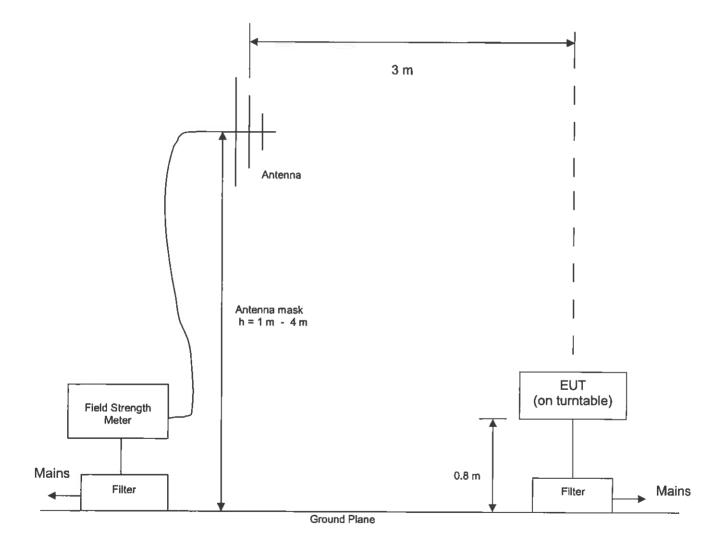


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## Radiated Emission Test Setup (3 m diatance) (> 30MHz)



Flat A, 2/F Block 3, 56 Shuiyin Road, Guangzhou, P.R. of China Address 地址 廣州市水隘路56號3棟2A室 Postcode 郵政指號. 510075





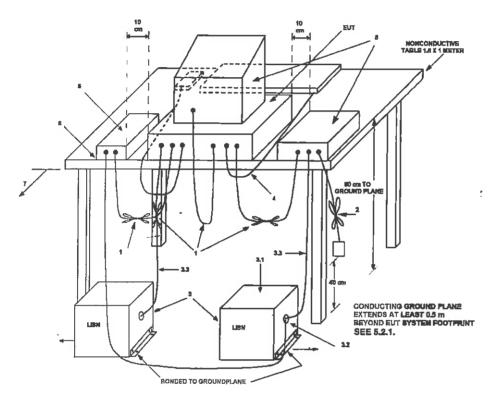




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#### **Conducted Emission Test Setup**



#### LEGEND:

- 1) Interconnecting cables that hang closer than 40 cm to the groundplane shall be folded back and forth in the center forming a bundle 30 to 40 cm long (see 6.1.4 and 11.2.4).
- 2) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m (see 6.1.4).
- 3) EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω. LISN can be placed on top of, or immediately beneath, reference groundplane (see 5.2.3 and 7.2.1).
  - 3.1) All other equipment powered from additional LISN(6).
  - 3.2) Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
  - 3.3) LISN at least 80 cm from nearest part of EUT chassis.
- Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal 4) use (See 6.2.1.3 and 11.2.4).
- Non-EUT components of EUT system being tested (see also Figure 13).
- 6) Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop (see 6.2.1.1 and 6.2.1.2).
- Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the groundplane (see 5.2.2 for options).

Flat A, 2/F, Block 3, 56 Shuiyin Road, Guangzhou, PR. of China. 廢州市水醛路56號3棟2A室 Postcode 郵政編號 510075











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## **Test Procedure**

### Radiated Emission:

The EUT was tested according to ANSI 63.4-2003 for the requirements of FCC Part 15 Subpart C Section 15.209 and 15.227.

#### Measurement Frequencies below 30MHz:

During the test, the sample was placed on a turn table and operated under various modes with supply from new batteries. The table is 0.8 meter and can rotate 360 degrees to determine the position of the maximum emission level. A loop antenna for the frequency range 9kHz - 30MHz, connected with 10 meters coaxial cable to the test receiver was used for measurement. The center of the loop was 1 m above the floor, positioned with its plane vertical at the specified distance and rotated about its vertical axis and placed horizontal for maximum response at each azimuth about the EUT.

An initial pre-scan was performed to find out the maximum emission level of the sample placed at 3 orthogonal planes. Final measurement was then performed to record the data for fundamental emission within the operation band and spurious emissions outside the band under worst-case condition for combination of the antenna orientation and turn table position.

Note: Fundamental emission for this pulse modulated device was measured with the peak detector function of the test receiver and was properly adjusted for the duty cycle correction factor as pulse desensitization to calculate the average emission value.

#### 2. Measurement Frequencies 30MHz - 1000 MHz:

During the test, the sample was placed on a turn table and operated with supply from new batteries. The table is 0.8 meter above the reference ground plane on the Open Aera Test Site and can rotate 360 degrees to determine the position of the maximum emission level. A broad-band antenna for the frequency range 30 -1000 MHz, connected with 10 meters coaxial cable to the test receiver was used for measurement. The antenna is capable of measuring both horizontal and vertical polarizations. The antenna was raised from 1 to 4 meters to find out the maximum emission level from the EUT.

An initial pre-scan was performed to find out the maximum emission level of the sample placed at 3 orthogonal planes. Final measurement (30 MHz -1000 MHz) was then performed to record the data for the emissions under worst-case condition for combination of the antenna orientation / height and turn table position.

Note: The Open Aera Test Site located at IECC was placed on file with the FCC Pursuant to Section 2.948 of the FCC Rules (FCC Registration No.: 97774).

#### **Conducted Emission:**

Not Applicable

Address 地址: Units 602-605, 6/F., 31 Lok Yip Rd , On Lok Tsuen Fanling, N.T., Hong Kong

香港新界粉積安樂村樂業路31號6樓602-605室

China 中國 IECC (Guangzhou) Services Co., Ltd. 廣州時並進技術服務有限公司 Flat A, 2/F Block 3, 56 Shuiyin Road, Guangzhou, PR. of China Address 地址: 廣州市水蔭路56號3棟2A室 Postcode 郵政網號 510075 Tet 喊話 (852) 2305 2570 Fax 傳真: (852) 2756 4480

Tel 46% (86-20) 8768 4838

Fax 傳集 (86-20) 8768 3918

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E-mail 荀子新件, info@iecc.net cn Home Page 網頁: http://www.iecc.net.cn











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## **Test Results**

**Radiated Emission:** 

Test Requirement: FCC Part 15 Subpart C Section 15.209 and 15.227

Test Method: ANSI C63.4: 2003

**Deviations from Standard Test Method:** Nil

Frequency Range: 9kHz - 1000MHz

Measurement Distance: 3 m

Detector: Peak (for fundamental frequency)

Quasi-Peak (for frequencies outside the operation band)

Refer to page 10 - 14 for measurement data.

#### **Conducted Emission:**

Not Applicable

Address ऋमां

Address 地址:

IECC (Guangzhou) Services Co., Ltd. 廣州時亚進技術服務有限公司 Flat A. 2/F Block 3, 56 Shuiyin Road Guangzhou, P.R. of China. 廣州市水產路56號3棟2A室 Postcode 郵政網號 510075











## Radiated Emission

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Meal Emissions (27MHz-1000MHz) FC(FCC Part 15 Subpart C

**IECC Ref:** Model:

54596-1 5363

Applicant:

EB BRANDS (HK)

Sample No.:

Set under test: Connected sets: Operating mode: 1:24th Scale Lamborghini

Operate (forward)

Test Equipment

Receiver: ESVS 30 Rohde & Schwarz Antenna: HFH2-Z2 Rohde & Schwarz

Radiation Measurement (3 m) below 30MHz

27.145

a. Fundamental Frequency

Frequency (MHz)

Maximum Test Result (dB(μV/m)) **Peak** Average 73 7 71.75

FCC Limit (dB(µV/m)) Peak <u>Average</u>

100 RN

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

(2) \* Calculation for radiation (average):

Formula:

Duty cycle = (N1L1 + N2L2 + ... + Nn-1Ln-1 + NnLn) / 100 or T

where N1 Is number of type 1 pluse, L1 is length of type 1 pulse, etc. T is the period of the pulse train (if less than 100 ms)

According to the time domain plots shown in page 11 & 12: Duty cycle of the EUT = (4x1.72 + 10x0.76) / 18.12 = 0.799

Av correction factor = 20 x log(0,799) dB = -1.95 dB

Radiation (average) = Radiation (peak) + Av correction factor

Radiation (average) of the EUT = 73.7 - 1.95 dB(uV/m) = 71.75 $dB(\mu V/m)$ 

b. The measured radiation outside the operation band were negligible

Address 地址: China 中國

Units 602-605, 6/F, 31 Lok Yip Rd., On Lok Tsuen, Fanling, N.T., Hong Kong. 香港新界粉礦安樂村樂業路31號6樓602-605室 IECC (Guangzhou) Services Co., Ltd. 廣州時並進技術服務有限公司

Address 地址. 廣州市水蔭路56號3棟2A室

Flat A, 2/F., Block 3, 56 Shuiyin Road, Guangzhou, PR of China Postcode 郵政編號. 510075 Tel 弧話: (852) 2305 2570 Fax 49 11: (852) 2756 4480

Tel 電話: (86-20) 8768 4838 Fax (95 (86-20) 8768 3918

E-mail 以子郵件: info@iecc com hk Home Page 網頁, http://www.iecc.com.hk

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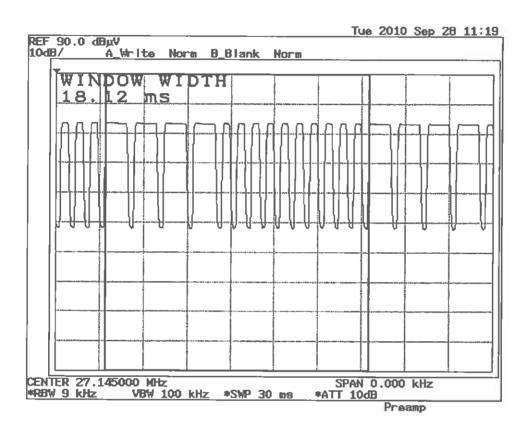




## **Radiated Emission**

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#### Transmitter Emission - Time Domain Plots



Pulse cycle period = 18.12 ms

屬州市水曆路56號3棟2A室

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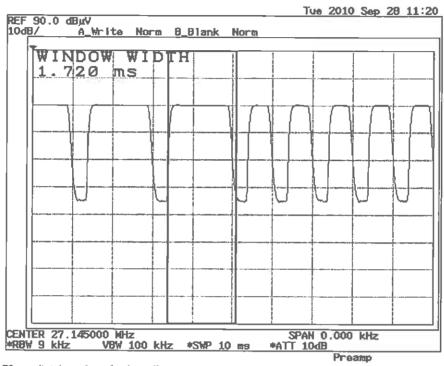




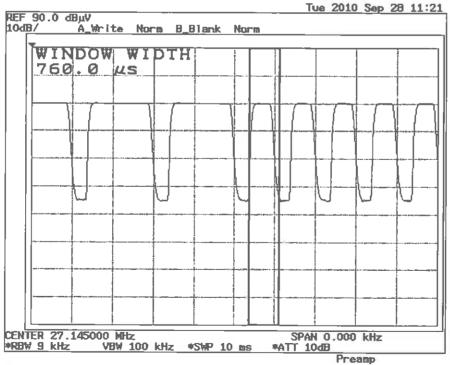
## **Radiated Emission**

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#### Transmitter Emission - Time Domain Plots



Pulse width = 1.72 ms (total number of pulse : 4)



Pulse width = 0.76 ms (total number of pulse : 10)









Nemko

Qualited Indecember Laboratory

## Interference Radiation

Measurement of Radiated Emissions Acc: FCC Part 15 Subpart C (15.227 & 15.209) Date: 2010-10-07

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IECC Ref: 54596-1 Test Equipment

Model: 5363 Receiver. Rohde & Schwarz ESVS 30

Applicant: EB BRANDS (HK) Antenna: Schwarzbeck BBA9106 & UHALP9107

Ser.Nr.: -
Set under test: 1:24th Scale Lamborghini -Operating mode: Operate (forward)

Frequency (MHz)	Н	orz. Reading dB(µV)		Vert. Reading dB(µV)	Corr. Factor (dB)		loriz. Test Result dB(µV/m)	Vert. Test Result dB(µV/m)	Limit dB(µV/m)
30	<	16	<	16	20.2	<	36.2	< 36.2	40.0
54.3	<	16		27.3	9.6	<	25.6	36.9	43.5
119.9		16.1		18.4	13.2		29.3	31.6	46.0
149.9	<	16		17.2	15.0	<	31.0	32.2	46.0
150	<	16	<	16	15.0	<	31.0	< 31.0	46.0
200	<	16	<	16	17.5	<	33.5	< 33.5	46.0
300	<	16	<	16	16.7	<	32,7	< 32.7	54.0
400	<	16	<	16	17.8	<	33.8	< 33.8	46.0
500	<	16	<	16	20.6	<	36.6	< 36.6	46.0
1000	<	16	<	16	27.1	<	43.1	< 43.1	54.0

Note: 1. Unless otherwise Indicated, the recorded readings are in quasi-peak values.

The above results were the worst case results with the sample positioned in all 3 axis during the test.
The worst case data were recorded with the antenna of the sample fully extended. The sample was positioned vertically and horizontally on the table for vertical and horizontal measurement respectively.

Operator: KT

Address 地址.

Units 602-605, 6/F., 31 Lok Yip Rd , On Lok Tsuen, Familing N T., Hong Kong 香港新界粉顎安嶼村樂業路31號6標602-605室

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Tel 礼話: (86-20) 8768 4838 Fax 可算: (86-20) 8768 3918 E-mail 朝子邮件, info@iecc.com.hk Home Page 網頁: http://www.iecc.com.hk

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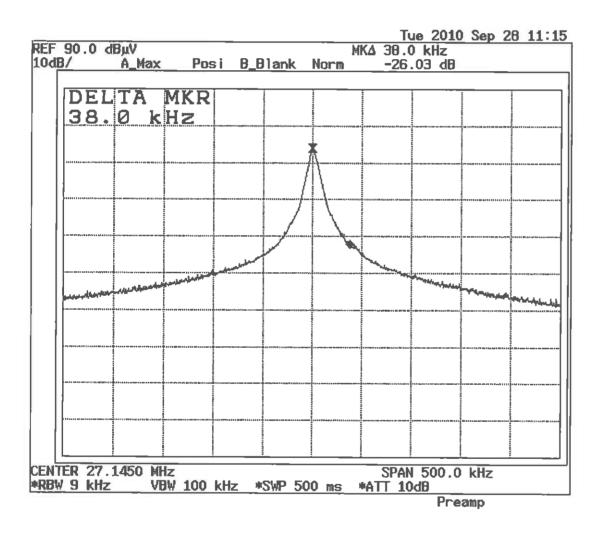


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# Measurement Data of Emissions within Band Edges



Result : The field strength of any emission within the operation band did not exceed 80 dB( $\mu$ V/m) for average value or 100 dB( $\mu$ V/m) for peak value. Refer to page 10 for the recorded value for the emission at the fundamental frequency.

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China 中國: Address 地址 IECC (Guangzhou) Services Co., Ltd. 層州時並進技術服務有限公司 Flat A. 2/F, Block 3, 56 Shuiyin Road. Guangzhou, P.R. of China 廣州市水蔭路56號3棟2A室 Postcode 郵政編號: 510075 Tel 導話 (852) 2305 2570 Fax 專家 (852) 2756 4480

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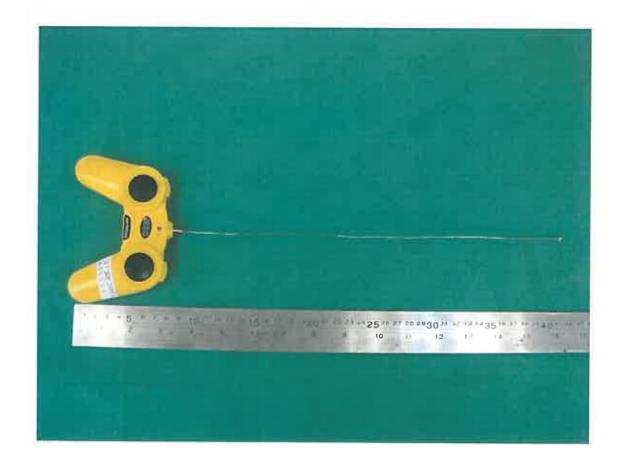


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# **Photo of Sample**



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China 中國: Address 地址 IECC (Guangzhou) Services Co., Ltd. 廣州時並進技術服務有限公司 Flat A. 2/F., Block 3, 56 Shuiyin Road, Guangzhou, PR. of China 廣州市水確路56號3棟2A室 Postcode 郵政網號: 510075 Tel 電話 (852) 2305 2570 Fax 傅晃 (852) 2756 4480

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