FCC – Test Report

Date: 2009-10-14

No. 52751-1

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: 2009-10-05

DATE OF TESTING: 2009-10-09 to 2009-10-13

DESCRIPTION OF SAMPLE:

Product:	1:64 Scale Lamborghini
Model number:	9331Y
Product class:	Low Power Communication Device - Transmitter
FCC ID number:	XRB9331Y27TX
Rating:	DC 4.5V (AA size battery x 3)

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.
Unit 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

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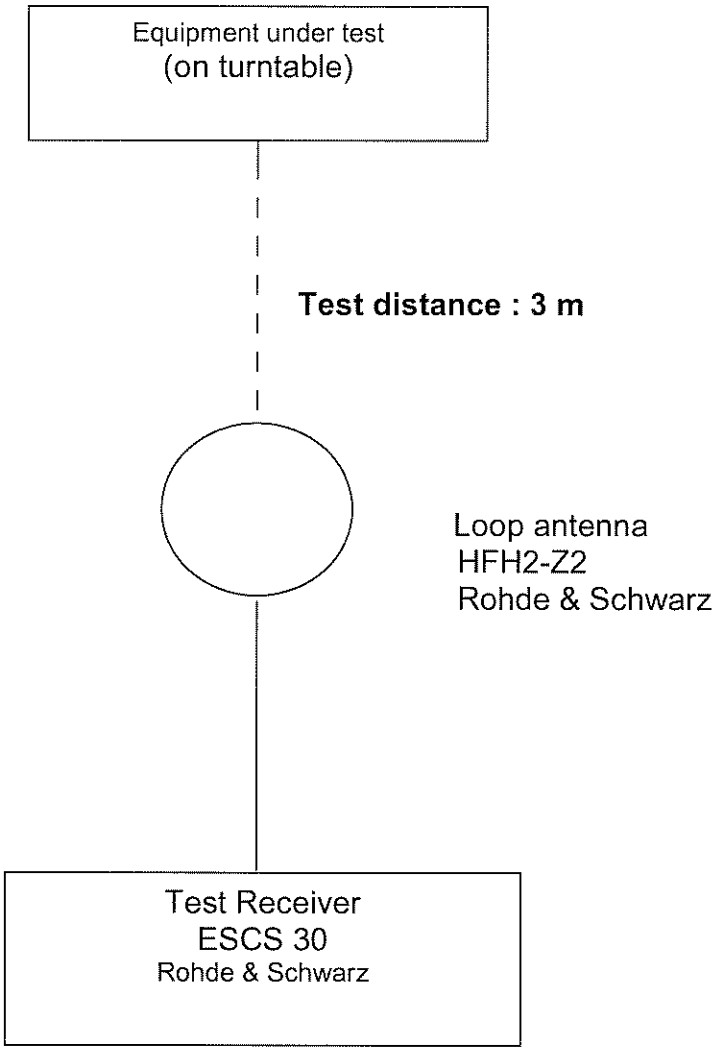
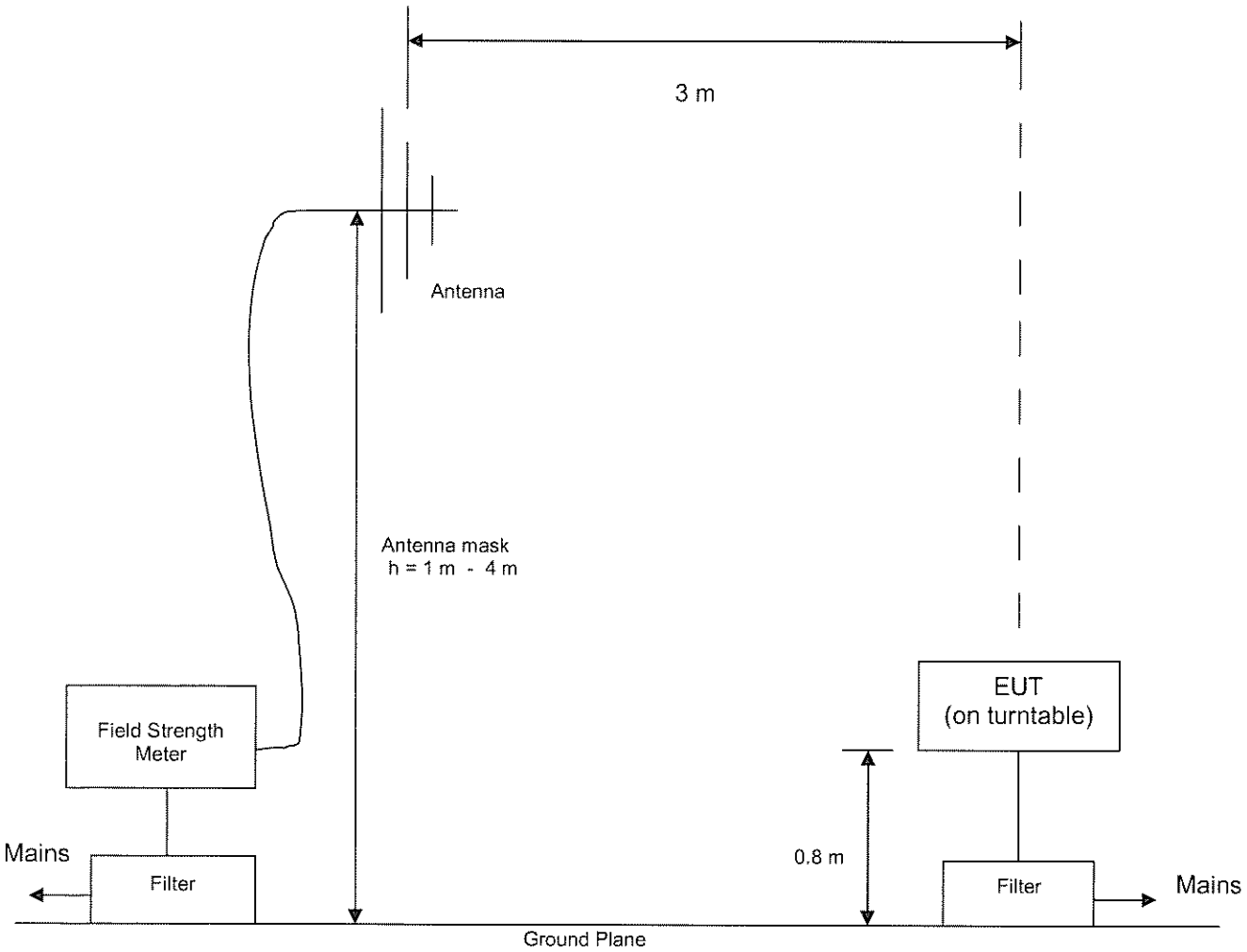
TEST EQUIPMENT LIST

Equipment	Manufacturer	Model	Serial No.	Last Calibration Date	Next Calibration Date
Test Receiver	Rohde & Schwarz	ESCS 30	100388	10/9/2009	9/9/2010
Test Receiver	Rohde & Schwarz	ESHS 30	839667/002	07/01/2009	06/01/2010
Loop Antenna	Rohde & Schwarz	HFH2-Z2	871336/48	7/12/2006	6/12/2009
Antenna	Schaffner	CBL6111C	2791	22/07/2008	21/07/2010
Antenna Mast System	Schwarzbeck	AM9104	--	--	--
Turntable with Controller	Drehtisch	DT312	--	--	--
Spectrum Analyzer with Q. Peak	Advantest	R3132	140101852	1/06/2009	31/05/2010

Radiated Emission Test Setup (9kHz – 30MHz)



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



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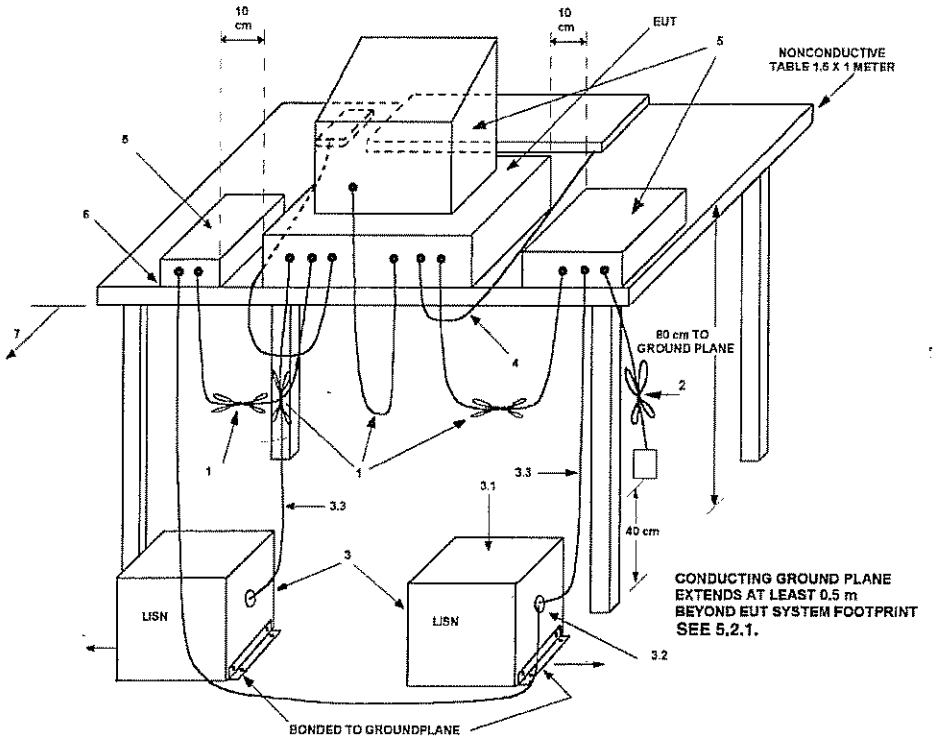
Conducted Emission Test Setup



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(s).
   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.
4) Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use (See 6.2.1.3 and 11.2.4).
5) 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).
7) 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).

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.

1. 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

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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

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E-mail 電子郵件: info@iecc.com.hk Home Page 網頁: http://www.iecc.com.hk
China 中國: IECC (Guangzhou) Services Co., Ltd. 國際時宜檢測技術服務有限公司
Address 地址: Flat A, 2/F., Block 3, 56 Shuyin 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 電話: (86-20) 8768 4838 Fax 傳真: (86-20) 8768 3918
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Radiated Emission

Measurement of Radiated Emissions
FCC Part 15 Subpart C (15.227)

IECC Ref:	52751-1
Model:	9331Y
Applicant:	EB BRANDS (HK)
Sample No.:	1
Set under test:	1:64 Scale Lamborghini
Connected sets:	-
Operating mode:	Operate

Test Equipment
Receiver: ESCS 30 Rohde & Schwarz
Antenna: HFH2-Z2 Rohde & Schwarz

Radiation Measurement (3 m) below 30MHz

a. Fundamental Frequency

Frequency (MHz)	Maximum Test Result (dB(μV/m))		FCC Limit (dB(μV/m))	
	Peak	Average *	Peak	Average
27.145	61.0	57.5	100	80

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 = (4x1.5 + 10x0.54) / 16.98 = 0.67

Av correction factor = 20 x log(0.67) dB
= - 3.48 dB

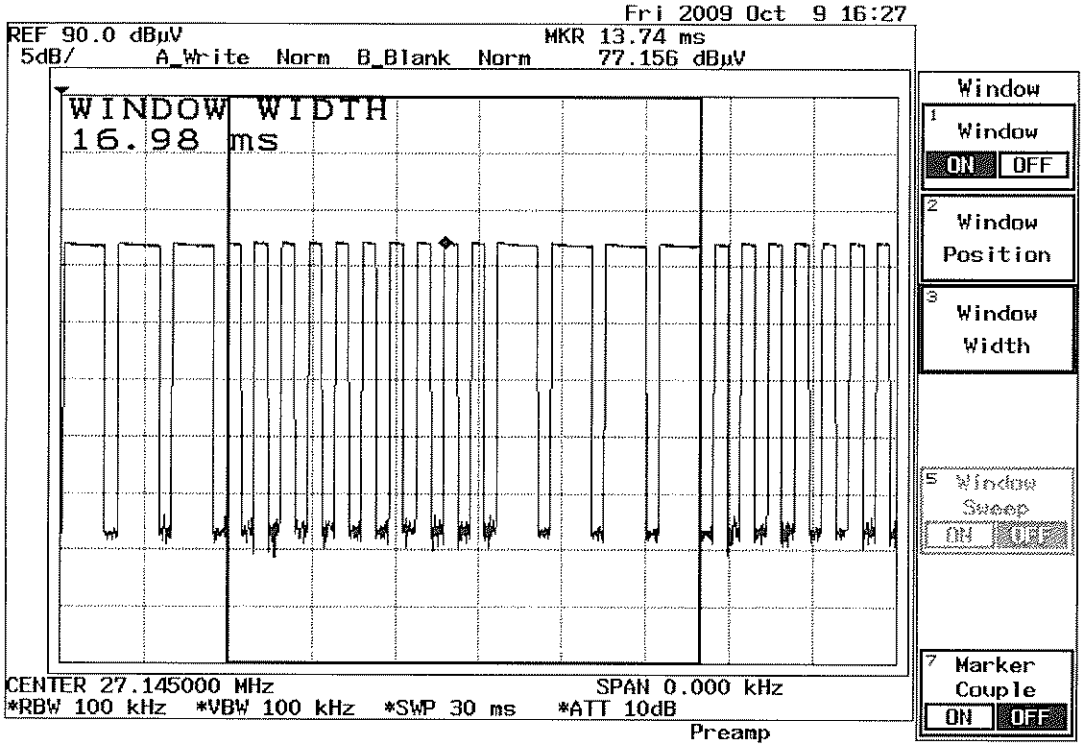
Radiation (average) = Radiation (peak) + Av correction factor

Radiation (average) of the EUT = 61.0 - 3.48 dB(μV/m)
= 57.5 dB(μV/m)

b. The measured radiation outside the operation band were negligible

Radiated Emission

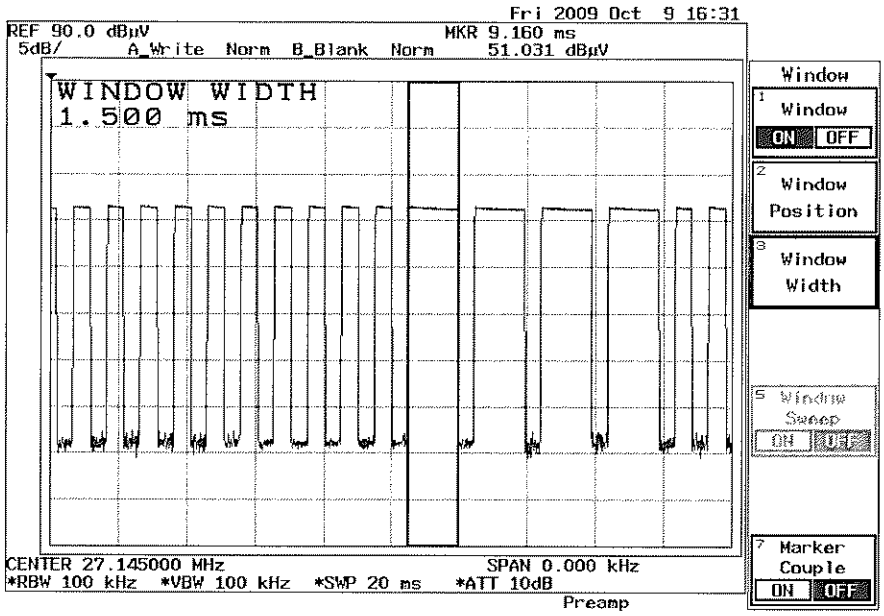
Transmitter Emission - Time Domain Plots



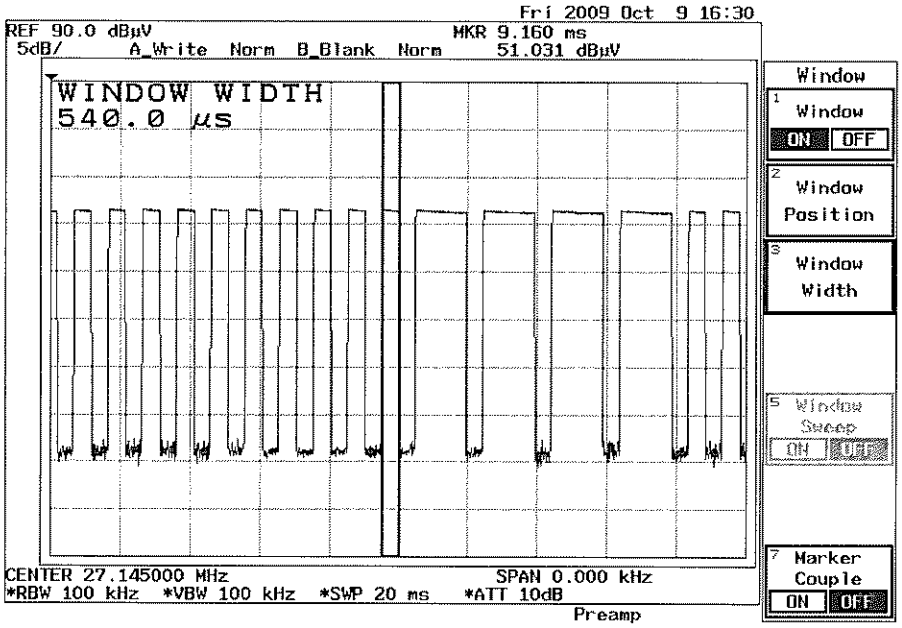
Pulse cycle period = 16.98 ms

Radiated Emission

Transmitter Emission - Time Domain Plots



Pulse width = 1.5 ms (total number of pulse : 4)



Pulse width = 0.54 ms (total number of pulse : 10)

Agency Accredited Laboratory | Network Partner | Nemko Quality Independent Laboratory

Interference Radiation

Date : 2009-10-14

Measurement of Radiated Emissions
Acc: FCC Part 15 Subpart C (15.227 & 15.209)

IECC Ref: 52751-1
Model: 9331Y
Applicant: EB BRANDS (HK)

Ser.Nr.: --

Set under test: 1:64 Scale Lamborghini
Connected sets: -
Operating mode: Operate

Test Equipment
Receiver: Rohde & Schwarz ESCS 30
Antenna: Schaffner CBL6111C

Frequency (MHz)	Horz. Reading dB(μV)	Vert. Reading dB(μV)	Corr. Factor (dB)	Horiz. Test Result dB(μV/m)	Vert. Test Result dB(μV/m)	Limit dB(μV/m)
30	< 16	< 16	19.1	< 35.1	< 35.1	40.0
54.29	19	27	7.0	26.0	34.0	43.5
81.435	< 16	19	8.0	< 24.0	27.0	46.0
108.58	< 16	< 16	10.9	< 26.9	< 26.9	46.0
135.725	< 16	< 16	10.9	< 26.9	< 26.9	46.0
162.87	< 16	< 16	10.7	< 26.7	< 26.7	46.0
190.015	< 16	< 16	9.2	< 25.2	< 25.2	54.0
217.2	< 16	< 16	9.5	< 25.5	< 25.5	46.0
250	< 16	< 16	13.6	< 29.6	< 29.6	46.0
300	< 16	< 16	14.2	< 30.2	< 30.2	46.0
500	< 16	< 16	18.9	< 34.9	< 34.9	46.0
1000	< 16	< 16	26.2	< 42.2	< 42.2	54.0

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

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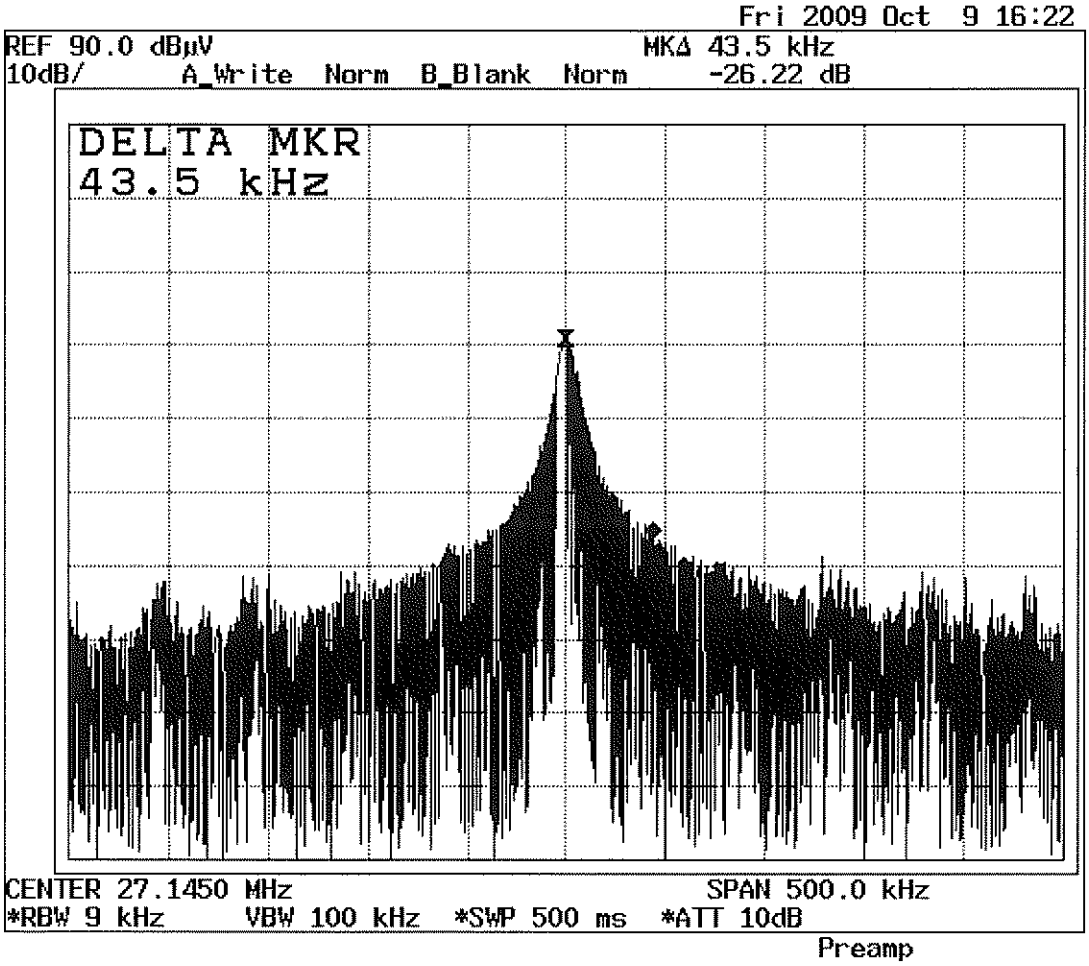
Measurement Data of Emissions within Band Edges



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

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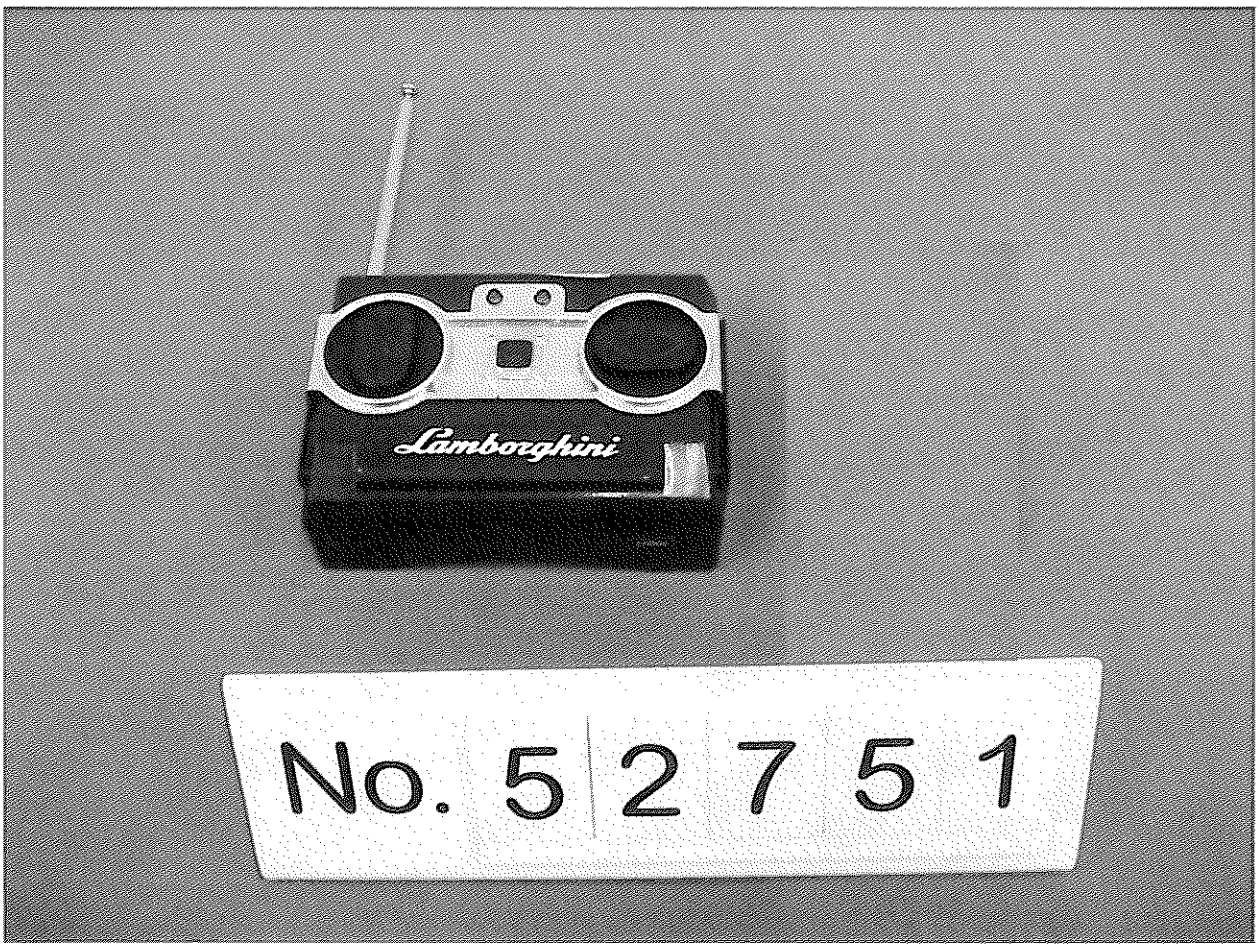
Photo of Sample



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