F C C -

TEST REPORT

REPORT NO.: 45595

FCC listed testlab
acc. to Section 2.948 of the FCC - Rules

in compliance with the requirements of
ANSI C63.4 - 2003

Product	**:**	Radio Control Car - Knight Rider (Transmitter)
Product Class	**:**	Low Power Communication Device - Transmitter
Brand Name	**:**	Hitari
Model	**:**	8244
Applicant	**:**	HITARI LTD.

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LABORATORY - REPORT

APPLICANT: HITARI LTD.

ADDRESS: Random House, 14 Hall Drive
Bramhope, Leeds
LS16 9 JE, United Kingdom

DATE OF SAMPLE RECEIVED: 2006-06-22

DATE OF TESTING: 2006-06-23 to 2006-06-26

DESCRIPTION OF SAMPLE:

Product:	Radio Control Car - Knight Rider (Transmitter)
Product class:	Low Power Communication Device - Transmitter
Model number:	8244
Rating:	DC 9V ('6F22' Size Battery x 1)

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.

INTERNATIONAL ELECTRICAL CERTIFICATION CENTRE LTD. IECC 國際電器認證中心有限公司

Authorized Signature

Test Location

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

Summary of Test Results

Radiated Emission:

Test result: O.K.
Test data: See attached data sheet

Conducted Emission:

Test result: N.A.
Test data: N.A.

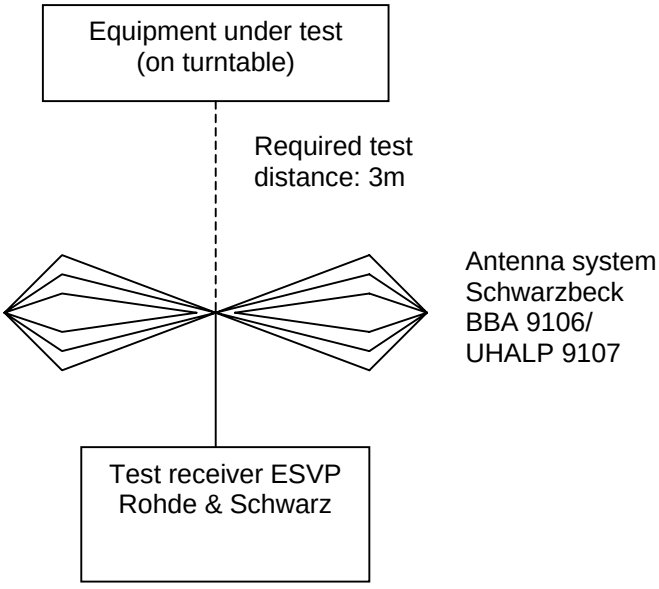
Measurement of Emissions within Band Edges

Test result: O.K.
Test data: See attached data sheet

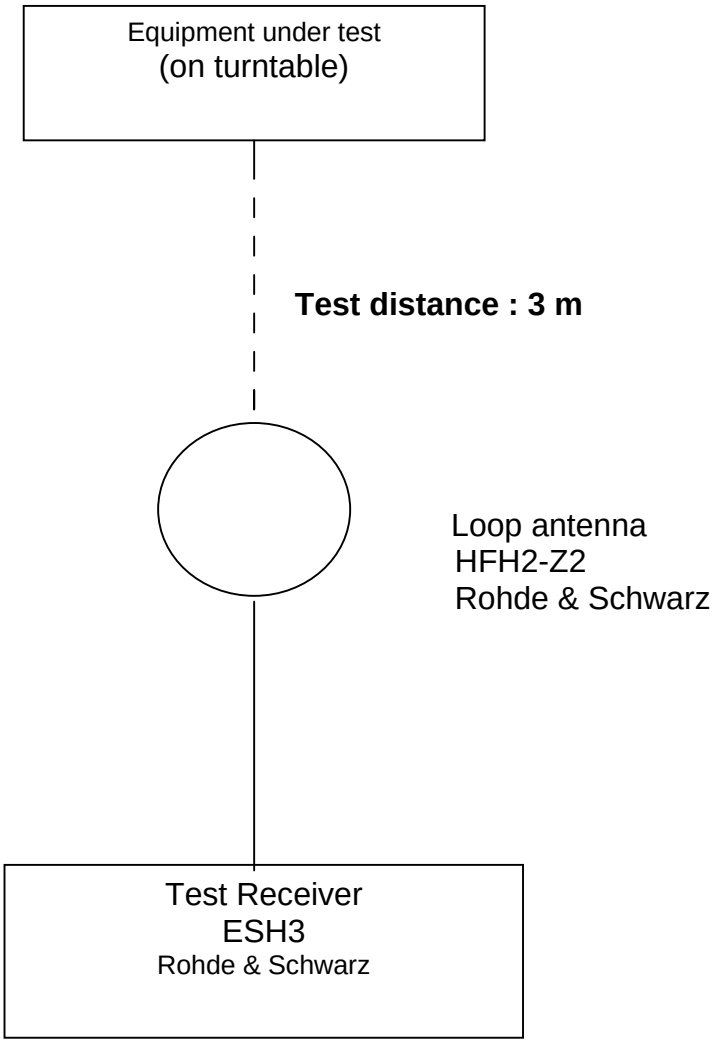
TEST EQUIPMENT LIST

Equipment	Manufacturer	Model	Serial No.	Last Calibration Date	Next Calibration Date
Test Receiver	Rohde & Schwarz	ESVP	860688/022	14/11/2005	13/11/2006
Test Receiver	Rohde & Schwarz	ESH 3	863497/015	14/11/2005	13/11/2006
Antenna	Schaffner	CBL6111C	2791	25/05/2005	24/05/2008
Antenna	Schwarzbeck	BBA 9106 / UHALP 9107	--	29/03/2005	28/03/2008
Antenna Mast System	Schwarzbeck	AM9104	--	--	--
Loop Antenna	Rohde & Schwarz	HFH2-Z2	871336/48	03/12/2003	02/12/2006
Turntable with Controller	Drehtisch	DT312	--	--	--
Spectrum Analyzer with Q. Peak	Advantest	R3132	140101852	16/11/2005	15/11/2006

Radiated Emission Test Configuration (> 30MHz)



Radiated Emission Test Configuration (9kHz – 30MHz)



Test Results

Radiated Emission :

Test Requirement:	FCC Part 15 Subpart C Section 15.227, 15.209
Test Method:	ANSI C63.4 : 2003
Frequency Range:	9kHz – 1000MHz
Measurement Distance:	3 m
Detector:	Peak (Measurement within the operation band) Quasi-Peak (Measurement outside the operation band)

Sample Operation and Measurement :

The sample was tested under normal operation with supply from new batteries. An initial pre-scan was performed in the Open Aera Test Site to find out the maximum emission level of the sample placed at 3 orthogonal planes. Final measurement was then performed and the measurement data were shown in page 10 -13.

Refer to page 14 for notes for radiation measurement.

The operation frequency of the sample was checked to within the specified band 26.96 – 27.28 MHz. The band edge plot was shown in page 15.

Radiated Emission

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

IECC Ref:	45595
Model:	8244
Applicant:	HITARI LTD.
Sample No.:	1
Set under test:	Radio Control Car - Knight Rider
Connected sets:	-
Operating mode:	Operate

Test Equipment
Receiver: ESVP 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	75.0	68.3	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 = (6x1.56 + 10x0.540) / 32.04 = 0.4607

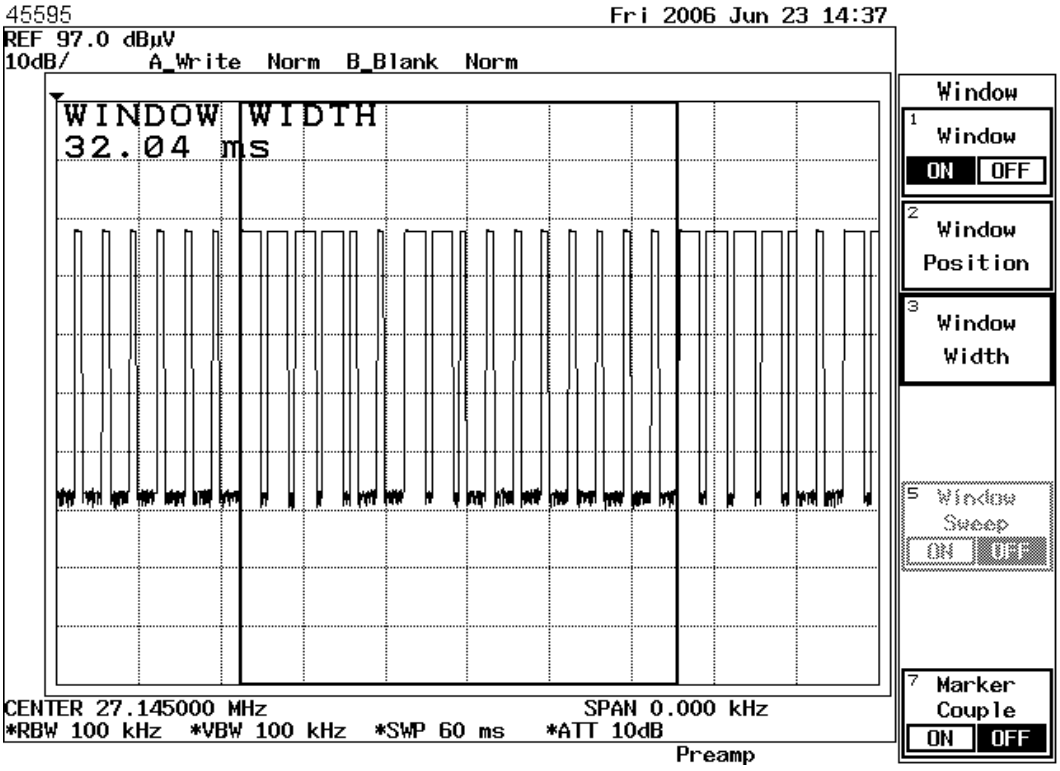
Av correction factor = 20 x log(0.4607) dB
= - 6.73 dB

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

Radiation (average) of the EUT = 75.0 - 6.73 dB(µV/m)
= 68.3 dB(µV/m)

b. The measured radiation outside the operation band were negligible

Transmitter Emission - Time Domain Plots



Pulse cycle period = 32.04 ms

Radiated Emission

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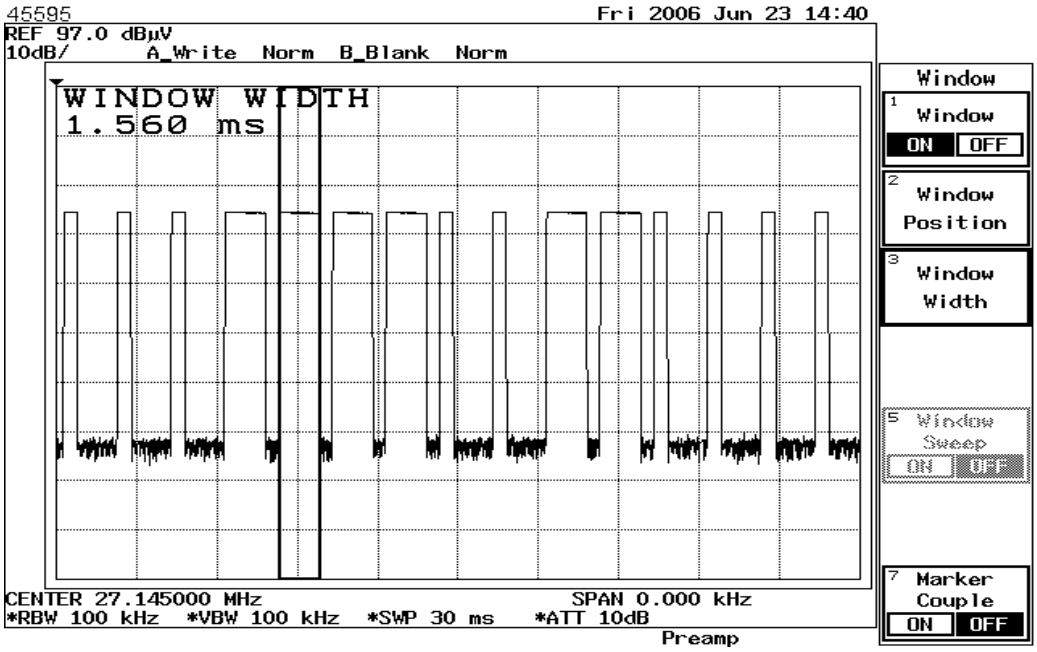
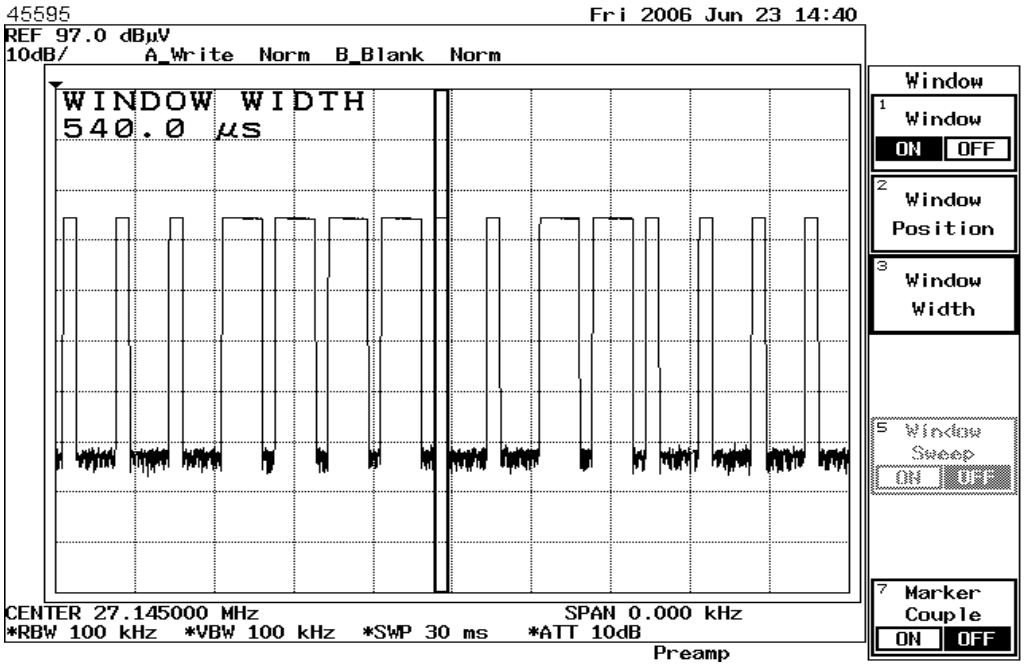
Transmitter Emission - Time Domain Plots



Pulse width = 1.56 ms (total number of pulse : 6)



Pulse width = 0.540 ms (total number of pulse : 10)

Radiated Emission

Measurement of Radiated Emissions
FCC Part 15 Subpart C (15.209)

Date : 2006-06-28

IECC Ref: 45595
Model: 8244
Applicant: HITARI LTD.
LIMITED
Sample No. : 1

Set under test: Radio Control Car - Knight Rider
Connected sets: -
Operating mode: Operate

Test Equipment
Receiver: ESVP Rohde & Schwarz
Antenna: BBA 9106 / UHALP 9107
Schwarzbeck

Fundamental Frequency : 27.145 MHz

Radiation Measurement over 30MHz

	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)
Harm. 2	54.29	< 16	28.5	10.2	< 26.2	38.7	40.0
Harm. 3	81.44	< 16	< 16	7.1	< 23.1	< 23.1	40.0
Harm. 4	108.58	< 16	< 16	11.6	< 27.6	< 27.6	43.5
Harm. 5	135.73	< 16	< 16	14.3	< 30.3	< 30.3	43.5
Harm. 6	162.87	< 16	< 16	15.6	< 31.6	< 31.6	43.5
Harm. 7	190.02	< 16	< 16	16.3	< 32.3	< 32.3	43.5
Harm. 8	217.16	< 16	< 16	16.9	< 32.9	< 32.9	46.0
Harm. 9	244.31	< 16	< 16	17.6	< 33.6	< 33.6	46.0
Harm. 10	271.45	< 16	< 16	18.5	< 34.5	< 34.5	46.0
Harm. 11	298.60	< 16	< 16	19.9	< 35.9	< 35.9	46.0
Harm. 12	325.74	< 16	< 16	16.8	< 32.8	< 32.8	46.0
Harm. 13	352.89	< 16	< 16	17.5	< 33.5	< 33.5	46.0
Harm. 14	380.03	< 16	< 16	18.0	< 34.0	< 34.0	46.0
Harm. 15	407.18	< 16	< 16	18.4	< 34.4	< 34.4	46.0
Harm. 16	434.32	< 16	< 16	18.8	< 34.8	< 34.8	46.0
Harm. 17	461.47	< 16	< 16	19.2	< 35.2	< 35.2	46.0
Harm. 18	488.61	< 16	< 16	19.5	< 35.5	< 35.5	46.0
Harm. 19	515.76	< 16	< 16	19.9	< 35.9	< 35.9	46.0
Harm. 20	542.90	< 16	< 16	20.1	< 36.1	< 36.1	46.0
Harm. 21	570.05	< 16	< 16	20.5	< 36.5	< 36.5	46.0
Harm. 22	597.19	< 16	< 16	20.9	< 36.9	< 36.9	46.0
Harm. 23	624.34	< 16	< 16	21.2	< 37.2	< 37.2	46.0
Harm. 24	651.48	< 16	< 16	21.6	< 37.6	< 37.6	46.0
Harm. 25	678.63	< 16	< 16	22.1	< 38.1	< 38.1	46.0
Harm. 26	705.77	< 16	< 16	22.5	< 38.5	< 38.5	46.0
Harm. 27	732.92	< 16	< 16	22.8	< 38.8	< 38.8	46.0
Harm. 28	760.06	< 16	< 16	23.2	< 39.2	< 39.2	46.0
Harm. 29	787.21	< 16	< 16	23.5	< 39.5	< 39.5	46.0
Harm. 30	814.35	< 16	< 16	23.9	< 39.9	< 39.9	46.0
Harm. 31	841.50	< 16	< 16	24.3	< 40.3	< 40.3	46.0
Harm. 32	868.64	< 16	< 16	24.6	< 40.6	< 40.6	46.0
Harm. 33	895.79	< 16	< 16	24.9	< 40.9	< 40.9	46.0
Harm. 34	922.93	< 16	< 16	25.4	< 41.4	< 41.4	46.0
Harm. 35	950.08	< 16	< 16	25.8	< 41.8	< 41.8	46.0
Harm. 36	977.22	< 16	< 16	26.2	< 42.2	< 42.2	54.0

Remark: All frequencies in the required range have been scanned and only those significant and representative readings are reported above.
All emissions not reported above are all well below the limit.

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

Notes for Radiated Emission Measurement

1. **Measurement facility:**
   Measurement facility located at Fanling (Hong Kong), placed on file with the FCC Pursuant to Section 2.948 of the FCC Rules (FCC Registration No. : 97774).

2. **Distance between the EUT and measuring antenna:**
   3 meters.

3. **Measuring instrumentations:**
   Rohde & Schwarz ESH3 Test Receiver (9kHz – 30MHz), ESVP Test Receiver (20 - 1300 MHz) with a CISPR weighting QP detector, 6 dB bandwidth set at 120 KHz.

4. **Measuring antenna:**
   Broad-band antenna for the frequency range 30 - 1000 MHz, connected with 10 meters coaxial cable. Cable loss of the coaxial cable included in the Antenna Factor for measurement data. 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.

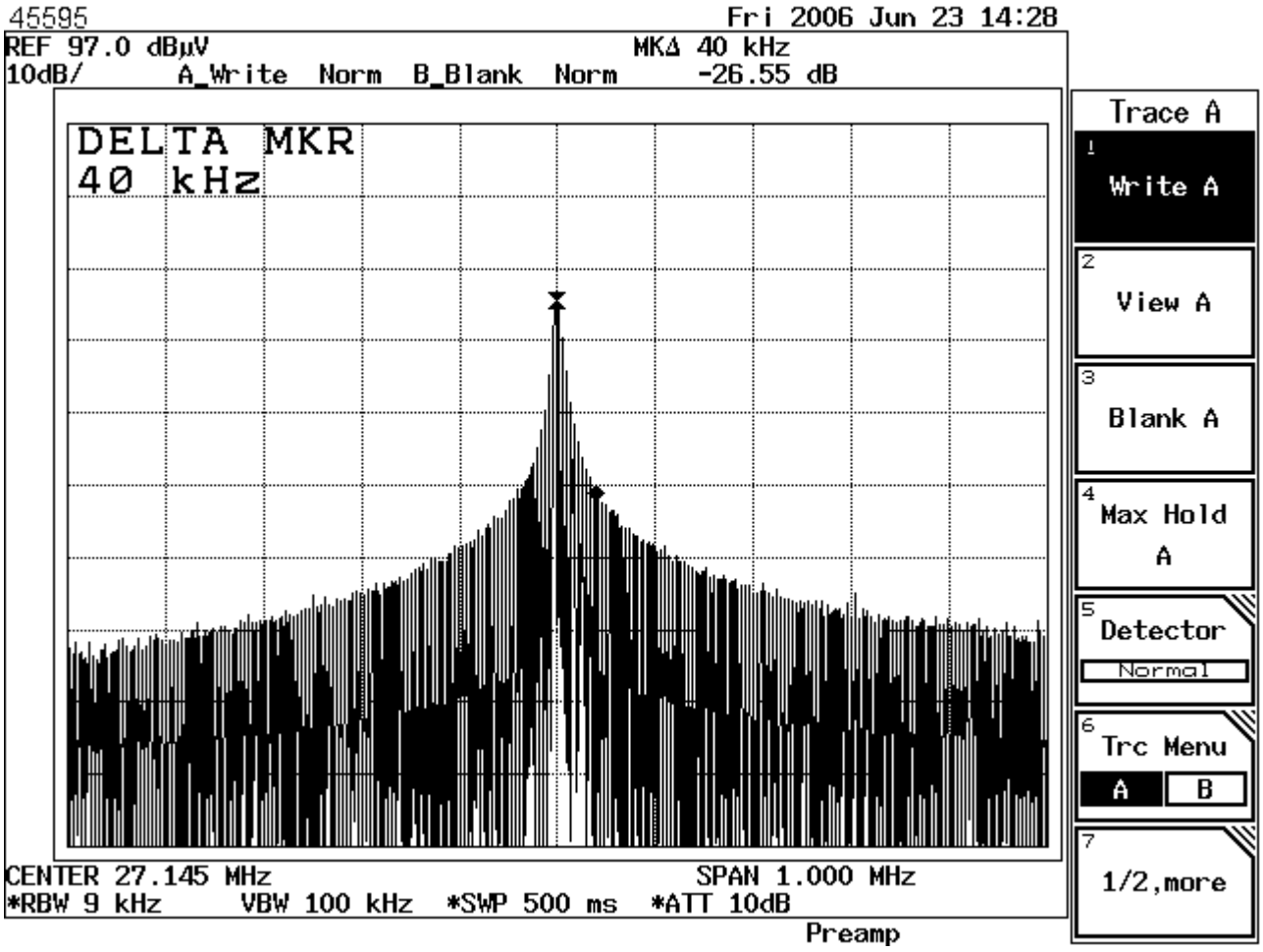
   Loop antenna for the frequency range 9kHz - 30MHz, connected with 10 meters coaxial cable. Cable loss of the coaxial cable included in the measurement data. The center of the loop 1 m above the ground plane, positioned with its plane vertical at the specified distance and rotated about its vertical axis and placed horizontal for maximum response at each azimuth about the EUT.

5. **Frequency range scanned:**
   The frequency ranges 9kHz - 30MHz, 30 - 1000 MHz have been scanned. Readings of the highest emissions relating to the limit were reported as above.

6. **Arrangement of EUT:**
   During the test, the sample was placed on a turn table and operated under various modes at rated supply voltage. The table is 0.8 meter above ground and can rotate 360 degrees to determine the position of the maximum emission level.

7. **Measuring Procedure:**
   In **accordance** with the relevant sections of the American National Standards Institute (ANSI) C63.4-2003 ‘Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9KHz to 40GHz’.

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.

Notes for Measurement of Emissions within

Band Edges

1. **Measurement facility:**
   Measurement facility located at Fanling (Hong Kong) placed on file with the FCC Pursuant to Section 2.948 of the FCC Rules.

2. **Measuring instrumentations:**
   Spectrum Analyzer: Advantest R3132

3. **Frequency range scanned:**
   The frequency range acc. to FCC rules and regulations part 15 subpart C - Intentional Radiators.

4. **Arrangement of EUT:**
   During the test, the sample was operated.

5. **Measuring Procedure:**
   In accordance with the relevant sections of American National Standards Institute (ANSI) C63.4 - 2003 'Methods of Measurement od Radio Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz'.

Photographs

Radiated Emission Test setup

Sample Construction Details

Sample Construction Details