

F C C - TEST REPORT

REPORT NO.: 39762/4/600F

FCC – Test Report

Date: 2004-12-09

No. 39762/4/600F

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

Product : Jukebox Radio with 3CD Player

Product Class :
- FM Broadcast Receiver and
Class B Digital Devices and
Peripherals (Part 15 Subpart
B)
- Part 18 Consumer Device

Model : CR12-3

Brand name : CROSLEY

Applicant : HONG KONG MODERN
MARKETING MANUFACTURING
LIMITED

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LABORATORY - REPORT

APPLICANT: HONG KONG MODERN MARKETING MANUFACTURING LIMITED
ADDRESS: Room 1024, 10/F., Beverley Commercial Centre
87-105 Chatham Road
Tsimshatsui, Kowloon
HONG KONG

DATE OF SAMPLE RECEIVED: 2004-09-07

DATE OF TESTING: 2004-10-08 to 2004-10-11

DESCRIPTION OF SAMPLE:

Product: Jukebox Radio with 3CD Player
Product class: - FM Broadcast Receiver and Class B Digital Devices and
Peripherals (Part 15 Subpart B)
- Part 18 Consumer Device
Model number: CR12-3
Brand name: CROSLEY
Rating: AC 120V 60Hz

INVESTIGATIONS REQUESTED:

Measurements to the relevant clauses of F.C.C. Rules and Regulations :
Part 15 Subpart B -- Unintentional Radiators
Part 18 – Industrial, Scientific, and Medical Equipment

RESULTS: See the attached test 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.

Note : The conducted emissions test (if applicable) has considered the limits in Sections 15.107 and 18.307 adopted under FCC 02-157 (ETDocket 98-80). The product may be marketed after July 11, 2005, and is not affected by the 18.123 transition provisions.

Authorized Signature

Remark: Purpose of those tests in this report is to provide the applicant with the necessary test data of their device for the submission to FCC with application for Equipment Authorization under the FCC Equipment Authorization Program. The tests themselves are not Approval Tests

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Summary of Test Results

Interference Radiation:

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

Interference Voltage:

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

PHOTOGRAPH OF THE SAMPLE



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TEST EQUIPMENT LIST

Equipment	Manufacturer	Model	Serial No.	Remark
Test Receiver	Rohde & Schwarz	ESH 3	863497/015	150KHz – 30MHz
Test Receiver	Rohde & Schwarz	ESH 3	892580/006	9KHz – 30MHz
Test Receiver	Rohde & Schwarz	ESVP	860688/022	25MHz – 1,000 MHz
Test Receiver	Rohde & Schwarz	ESVP	863512/012	25MHz – 1,000 MHz
Test Receiver	Rohde & Schwarz	ESHS30	839667/002	9KHz – 30MHz
Test Receiver	Rohde & Schwarz	ESVS30	828525/006	25MHz – 1000MHz
Spectrum Analyzer with Q. Peak	Advantest	R3132	140101852	9KHz – 3GHz
Spectrum Analyzer with Q. Peak	Tektronix	2712	B023006	0.15MHz – 1000MHz
Interface for Spectrum 2712	Tektronix	TD3F14A	--	--
Impulse Limiter	Rohde & Schwarz	ESH-3-Z2	--	--
Artificial Mains Network (LISN)	Schwarzbeck	NSLK 8127	8127312	2 x 10A, 50Ω, 50μH 9KHz-30MHz
Artificial Mains Network (LISN)	Schwarzbeck	NSLK 8127	8127309	2 x 10A, 50Ω, 50μH 9KHz-30MHz
Antenna System	Schwarzbeck	BBA 9106 / UHALP 9107	--	30MHz – 1000MHz
Antenna Mast System	Schwarzbeck	AM9104	--	Max. 4 meters height
Loop Antenna	Rohde & Schwarz	HFH2-Z2	871336/48	9KHz-30MHz
Turntable with Controller	Drehtisch	DT312	--	φ120 cm

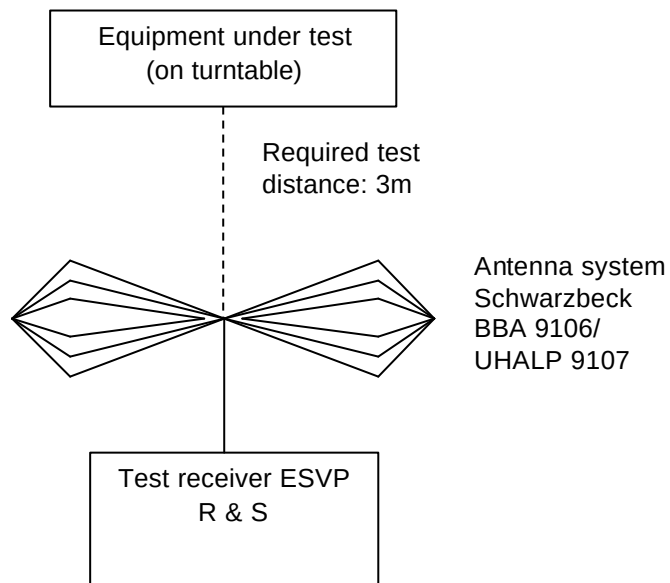
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Radiated Emission Test Procedure (> 30MHz)



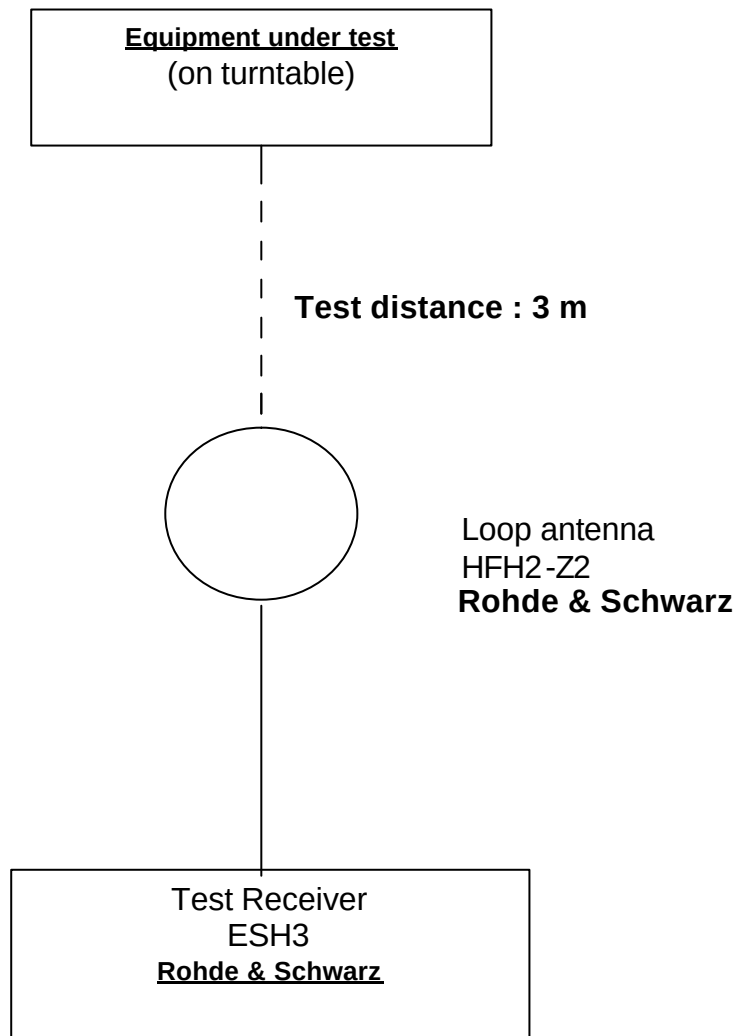
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Radiated Emission Test Procedure (9kHz – 30MHz)



U1

Interference Radiation 30MHz to 1000MHz
According: FCC Part 15 Subpart B

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IECC Ref: 39762/4/200F
Model: CR12-3
Applicant: HONG KONG MODERN MARKETING
MANUFACTURING LIMITED
Ser.Nr.: 1
Oper. Mode: FM Mode
InterFreq: 10.7 MHz

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

Receiving - frequency (MHz)	Oscillator-frequency (MHz)	Har-monics	Reading dBµV	Polari-zation	Correction - factor (dB)	Testresult dBµV/m	Limit dB(µV/m)
89.8	100.5	1	22	H	10.4	32.4	43.5
	201.0	2	20	H	16.5	36.5	43.5
	301.5	3	18	H	16.3	34.3	46.0
	402.0	4	< 16	H	18.3	< 34.3	46.0
	502.5	5	< 16	H	19.7	< 35.7	46.0
	603.0	6	< 16	H	20.9	< 36.9	46.0
	703.5	7	< 16	H	22.4	< 38.4	46.0
	804.0	8	< 16	H	23.8	< 39.8	46.0
	904.5	9	< 16	H	25.1	< 41.1	46.0
98.3	109.0	1	21	H	11.7	32.7	43.5
	218.0	2	20	H	17.0	37.0	46.0
	327.0	3	18	H	16.8	34.8	46.0
	436.0	4	< 16	H	18.8	< 34.8	46.0
	545.0	5	< 16	H	20.2	< 36.2	46.0
	654.0	6	< 16	H	21.7	< 37.7	46.0
	763.0	7	< 16	H	23.2	< 39.2	46.0
	872.0	8	< 16	H	24.7	< 40.7	46.0
	981.0	9	< 16	H	26.2	< 42.2	54.0
108.0	118.7	1	21	H	12.7	33.7	43.5
	237.4	2	20	H	17.4	37.4	46.0
	356.1	3	18	H	17.5	35.5	46.0
	474.8	4	< 16	H	19.4	< 35.4	46.0
	593.5	5	< 16	H	20.8	< 36.8	46.0
	712.2	6	< 16	H	22.6	< 38.6	46.0
	830.9	7	< 16	H	24.1	< 40.1	46.0
	949.6	8	< 16	H	25.8	< 41.8	46.0

Remark: The above recorded data were the higher values of the horizontal (H) and vertical (V) polarity measurement. All frequencies in the required range were scanned and those significant readings were reported. All emissions not reported above were all well below the limit.

IT 5/6

Interference Radiation 30MHz-1000MHz
Acc: FCC Part 15 Subpart B

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IECC Ref: 39762/4/200F
Model: CR12-3
Applicant: HONG KONG MODERN MARKETING
MANUFACTURING LIMITED
Ser.Nr.: 1
Set under test: Jukebox Radio with 3CD Player
Connected sets: -
Operating mode: CD Mode

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

Frequency (MHz)	Horz. Reading dB(μV)	Vert. Reading dB(μV)	Antenna Factor (dB)	Horiz. Test Result dB(μV/m)	Vert. Test Result dB(μV/m)	Limit dB(μV/m)
30	< 16	< 16	18.4	< 34.4	< 34.4	40.0
49.2	< 16	20	11.9	< 27.9	31.9	40.0
50.8	< 16	< 16	11.4	< 27.4	< 27.4	40.0
67.7	17	24	6.7	23.7	30.7	40.0
84.6	16	27	7.7	23.7	34.7	40.0
100	< 16	< 16	10.3	< 26.3	< 26.3	43.5
200	< 16	< 16	16.5	< 32.5	< 32.5	43.5
220.6	< 16	< 16	17.0	< 33.0	< 33.0	46.0
240	< 16	< 16	17.5	< 33.5	< 33.5	46.0
300	< 16	< 16	20.0	< 36.0	< 36.0	46.0
500	< 16	< 16	19.7	< 35.7	< 35.7	46.0
700	< 16	< 16	22.4	< 38.4	< 38.4	46.0
1000	< 16	< 16	26.5	< 42.5	< 42.5	54.0

Radiation Measurement Data

According to Section 18.309, for products with operation frequency below 1.705 MHz, field strength measurements are conducted up to 30MHz. No field strength limits is specified in Section 18.305 for measurements below 30MHz.

In view of the above, since the test model is operated at 25 kHz, no field strength measurement is required.

Notes for Radiation 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.

2. Distance between the EUT and measuring antenna:

3 meters.

3. Measuring instrumentations:

Rohde & Schwarz ESVP Test Receiver (20 - 1300 MHz) with a CISPR weighting QP detector, 6 dB bandwidth set at 120 KHz.

In the frequency range above 1000 MHz Spectrum Analyzer FMSM26 and Analyzer Display Unit FSA-D are used, bandwidth set at 100 kHz.

4. Measuring antenna:

Broad-band antenna for the frequency range 30 - 300 MHz and frequency range 300 - 1000 MHz, connected with 10 meters coaxial cable. Cable loss of the coaxial cable included in the Antenna Factor for measurement data. The antennas are capable of measuring both horizontal and vertical polarizations.

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.

In the frequency range above 1 GHz horn-antenna RGA 50/60 is used.

5. Frequency range scanned:

The frequency range 9kHz - 1000MHz has 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 operated at rated supply voltage and arranged for maximum emissions. To find the maximum emission (30MHz – 1000MHz), the broad-band antenna was raised from 1 to 4 meters and was stopped at the maximum emission point.

7. Measuring Procedure:

In accordance with the relevant sections of the American National Standards Institute (ANSI) C63.4-2001 ' Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9KHz to 40GHz'.

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Interf. Voltage 150 KHz - 30 MHz
Acc: FCC Part 15 Subpart B

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IECC Ref: 39762/4/200F
Model: CR12-3
Applicant: HONG KONG MODERN MARKETING
MANUFACTURING LIMITED
Ser.Nr.: 1
Set under test: Jukebox Radio with 3CD Player
Connected sets: -
Operating mode: FM Mode with Light OFF

Test Equipment
Receiver: Rohde & Schwarz ESH 3
Schwarzbeck NNLA 8119

Frequency (MHz)	Test Result (Quasi-Peak) dB(μV)	Test Result (Average) dB(μV)	Limit (Quasi- Peak) dB(μV)	Limit (Average) dB(μV)
0.15	< 25	< 25	66	56
0.24	< 25	< 25	62	52
0.5	< 25	< 25	56	46
1	< 25	< 25	56	46
5	< 25	< 25	56	46
8.5	< 25	< 25	60	50
10	< 25	< 25	60	50
15	< 25	< 25	60	50
16	< 25	< 25	60	50
16.93	< 25	< 25	60	50
18	< 25	< 25	60	50
20	< 25	< 25	60	50
25	< 25	< 25	60	50
30	< 25	< 25	60	50

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Interf. Voltage 150 KHz - 30 MHz
Acc: FCC Part 15 Subpart B

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IECC Ref: 39762/4/200F
Model: CR12-3
Applicant: HONG KONG MODERN MARKETING
MANUFACTURING LIMITED
Ser.Nr.: 1
Set under test: Jukebox Radio with 3CD Player
Connected sets: -
Operating mode: CD Mode with Light OFF

Test Equipment
Receiver: Rohde & Schwarz ESH 3
Schwarzbeck NNLA 8119

Frequency (MHz)	Test Result (Quasi-Peak) dB(μV)	Test Result (Average) dB(μV)	Limit (Quasi- Peak) dB(μV)	Limit (Average) dB(μV)
0.15	44.5	< 25	66	56
0.24	30	< 25	62	52
0.5	< 25	< 25	56	46
1	< 25	< 25	56	46
5	< 25	< 25	56	46
8.5	< 25	< 25	60	50
10	< 25	< 25	60	50
15	< 25	< 25	60	50
16	28	26	60	50
16.93	29	28.5	60	50
18	< 25	< 25	60	50
20	< 25	< 25	60	50
25	< 25	< 25	60	50
30	< 25	< 25	60	50

ISM 1/2

Interference Voltage Test 450kHz - 30MHz
Acc: FCC Part 18

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IECC Ref: 39762/4/200F
Model: CR12-3
Applicant: HONG KONG MODERN MARKETING
MANUFACTURING LIMITED

Test Equipment
Receiver: Rohde & Schwarz ESH 3
Schwarzbeck NNLA 8119

Ser.Nr.: 1
Set under test: Jukebox Radio with 3CD Player
Connected sets: -
Operating mode: Light ON
Measurement: Line

Frequency (MHz)	Test Result (Quasi-Peak) dB(μV)	Limit (Quasi-Peak) dB(μV)
0.45	35.5	48
0.47	42	48
0.57	39	48
0.78	41	48
0.92	36.5	48
1.04	34.5	48
1.5	33.5	48
2.46	27	48
4.5	29	48
6.6	< 25	48
12.8	26	48
15.6	< 25	48
17	< 25	48
22	< 25	48
25	< 25	48
30	< 25	48

ISM 1/2

Interference Voltage Test 450kHz - 30MHz
Acc: FCC Part 18

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IECC Ref: 39762/4/200F
Model: CR12-3
Applicant: HONG KONG MODERN MARKETING
MANUFACTURING LIMITED
Ser.Nr.: 1
Set under test: Jukebox Radio with 3CD Player
Connected sets: -
Operating mode: Light ON
Measurement: Neutral

Test Equipment
Receiver: Rohde & Schwarz ESH 3
Schwarzbeck NNLA 8119

Frequency (MHz)	Test Result (Quasi-Peak) dB(μV)	Limit (Quasi-Peak) dB(μV)
0.45	38	48
0.47	45	48
0.57	40	48
0.78	44	48
0.92	38.5	48
1.04	39	48
1.5	37	48
2.46	31	48
4.5	31	48
6.6	< 25	48
12.8	30.5	48
15.6	27	48
17	< 25	48
22	< 25	48
25	< 25	48
30	< 25	48

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Notes for Voltage Measurement

1. **LISN (Line Impedance Stabilization Network) used:**
LISN in accordance with IEEE Standard 213.
2. **Measuring instrumentations:**
Rohde & Schwarz ESH3 Test Receiver (9 KHz - 30 MHz) with a CISPR weighting QP detector, 6 dB bandwidth set at 10 KHz.
3. **Frequency range scanned:**
The frequency range 150 kHz - 30 MHz has been scanned. Readings of the highest emissions relating to the limit were reported as above.
4. **Setup of EUT:**
Connection of equipment and operation conditions are the same as those in the Radiation measurement.
5. **Measuring Procedure:**
In accordance with the relevant sections of the American National Standards Institute (ANSI) C63.4-2001 ' Methods of Measurement of Radio Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9KHz to 40GHz'
In accordance with the relevant sections of FCC Measurement Procedure MP-5, ' Methods of Measurement of Radio Noise Emissions from ISM equipment' .