FCC – Test Report

Date: 2009-11-30

No. 53175-2

LABORATORY - REPORT

APPLICANT: FORMATION LTD.

ADDRESS: Suite 915-918, 9/F., Corporation Square
8 Lam Lok Street
Kowloon Bay, Kowloon
Hong Kong

DATE OF SAMPLE RECEIVED: 2009-11-17

DATE OF TESTING: 2009-11-18 to 2009-11-26

DESCRIPTION OF SAMPLE:

Product:	49MHz Wireless Speaker
Brand name:	FORMATION
Model number:	CEW220
Add. model number:	CEW020, 1626400, 1626399
Product class:	Low Power Communication Device - Receiver
FCC ID number:	UU7CEW220R
Rating:	AC/DC Adaptor – D6500, Input : AC120V, 60Hz 12W; Output : DC6V 500mA or DC6V (C size battery x 4)

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 B – 'Unintentional 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.

REMARK:

Stephen C.N. Wong
Technical Manager

Address 地址: Units 602-605, 6/F., 31 Lok Yip Rd., On Lok Tsuen, Fanling, N.T., Hong Kong 香港新界粉嶺安樂村樂業路31號6樓602-605室
Tel 電話: (852) 2305 2570 Fax 傳真: (852) 2756 4480
E-mail 電子郵件: info@iecc.com.hk Home Page 網頁: http://www.iecc.com.hk

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, 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
E-mail 電子郵件: info@iecc.net.cn Home Page 網頁: http://www.iecc.net.cn

FCC – Test Report

Date: 2009-11-30

No. 53175-2

TABLE OF CONTENTS

Address 地址: Units 602-605, 6/F., 31 Lok Yip Rd., On Lok Tsuen, Fanling, N.T., Hong Kong
香港新界粉嶺安樂村樂業路31號6樓602-605室
Tel 電話: (852) 2305 2570
Fax 傳真: (852) 2756 4480
E-mail 電子郵件: info@iecc.com.hk
Home Page 網頁: http://www.iecc.com.hk

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, 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
E-mail 電子郵件: info@iecc.net.cn
Home Page 網頁: http://www.iecc.net.cn

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

FCC – Test Report

Date: 2009-11-30

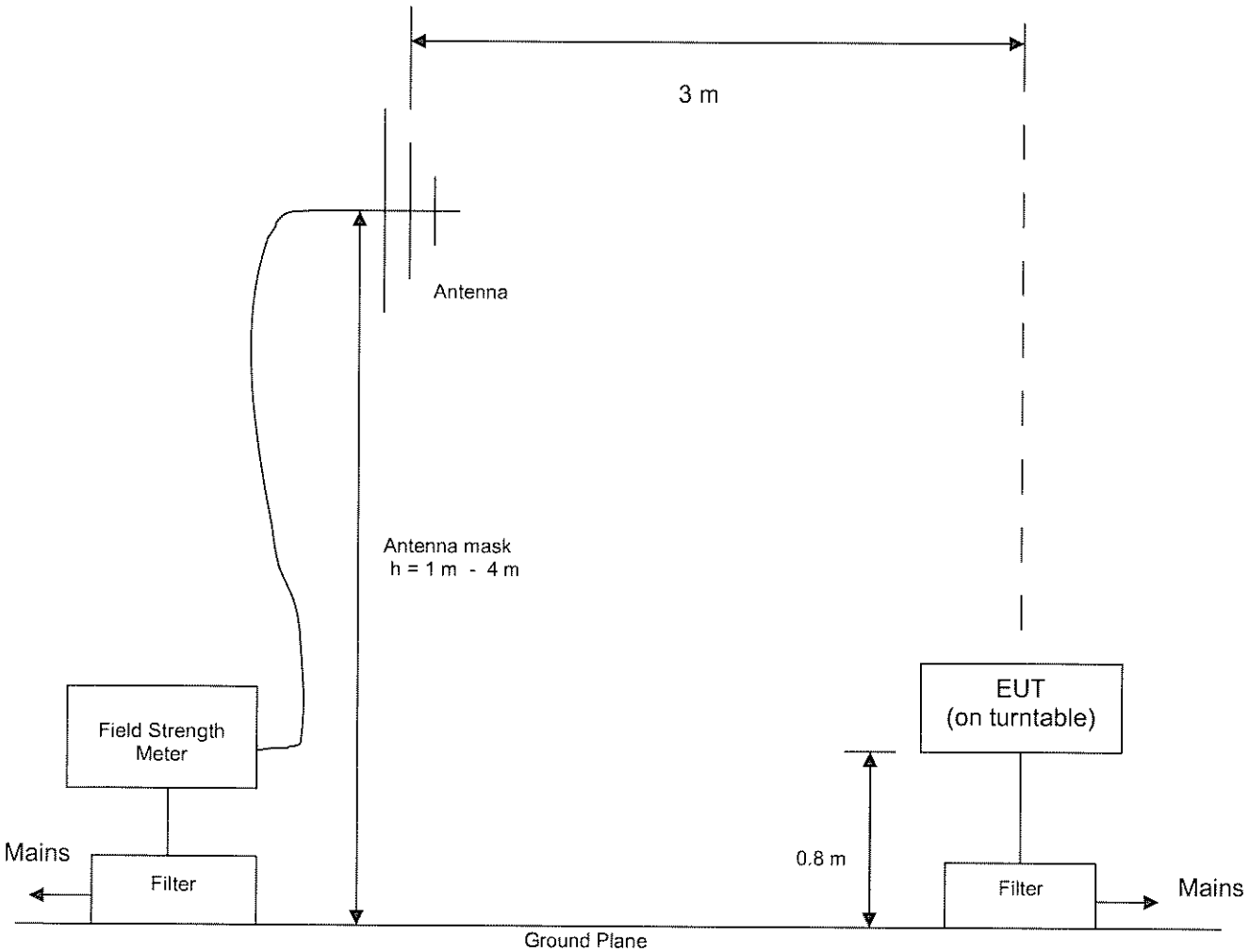
No. 53175-2

TEST EQUIPMENT LIST

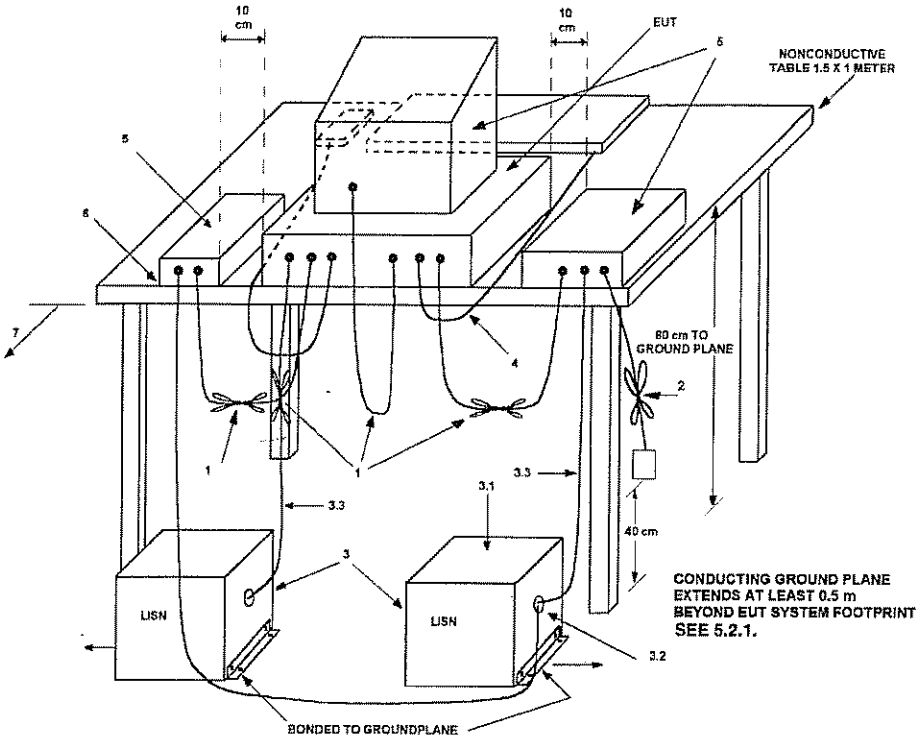
Equipment	Manufacturer	Model	Serial No.	Last Calibration Date	Next Calibration Date
Test Receiver	Rohde & Schwarz	ESCS 30	100388	10/09/2009	09/09/2010
Test Receiver	Rohde & Schwarz	ESHS 30	839667/002	07/01/2009	06/01/2010
Artificial Mains Network (LISN)	Schwarzbeck	NSLK 8127	8127309	11/02/2009	10/02/2010
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	01/06/2009	31/05/2010

FCC – Test Report

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



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 B Section 15.109.

During the test, the sample was placed on a turn table and operated with supply at rated AC voltage (i.e AC120V 60Hz) to the AC/DC adaptor. 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.

During the test, the transmitter unit was turned on and used to supply a signal to the test sample (receiver) to stabilize the local oscillator of the test sample.

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 :

The EUT was tested according to ANSI 63.4-2003 for the requirements of FCC Part 15 Subpart B Section 15.107.

During the test, the sample was placed on a wooden table and operated under different modes with supply at rated AC voltage (i.e AC120V 60Hz) via the LISN to the AC/DC adaptor. The table is 0.8 meter above the floor. The LISN was connected to the test receiver for conducted emission measurement (150kHz – 30MHz).

During the test, the transmitter unit was turned on and used to supply a signal to the test sample (receiver) to stabilize the local oscillator of the test sample.

Test Results

Radiated Emission :

Test Requirement:	FCC Part 15 Subpart B Section 15.109
Test Method:	ANSI C63.4 : 2003
Deviations from Standard Test Method:	Nil
Frequency Range:	30MHz – 1000MHz
Measurement Distance:	3 m
Detector:	Quasi-Peak

Refer to page 9 for measurement data.

Conducted Emission :

Test Requirement:	FCC Part 15 Subpart B Section 15.107
Test Method:	ANSI C63.4 : 2003
Deviations from Standard Test Method:	Nil
Frequency Range:	150kHz – 30MHz
Detector:	Quasi-Peak / Average

Refer to page 10 - 13 for measurement data.

Interference Radiation

Date : 2009-11-30

Measurement of Radiated Emissions
Acc: FCC Part 15 Subpart B (15.109 Class B)

IECC Ref: 53175-2
Model: CEW220
Applicant: FORMATION LTD.

Ser.Nr.: --

Set under test: 49MHz Wireless Speaker
Connected sets: -
Operating mode: Operate

Test Equipment
Receiver: Rohde & Schwarz ESCS 30
Antenna: Schaffner CBL61111C

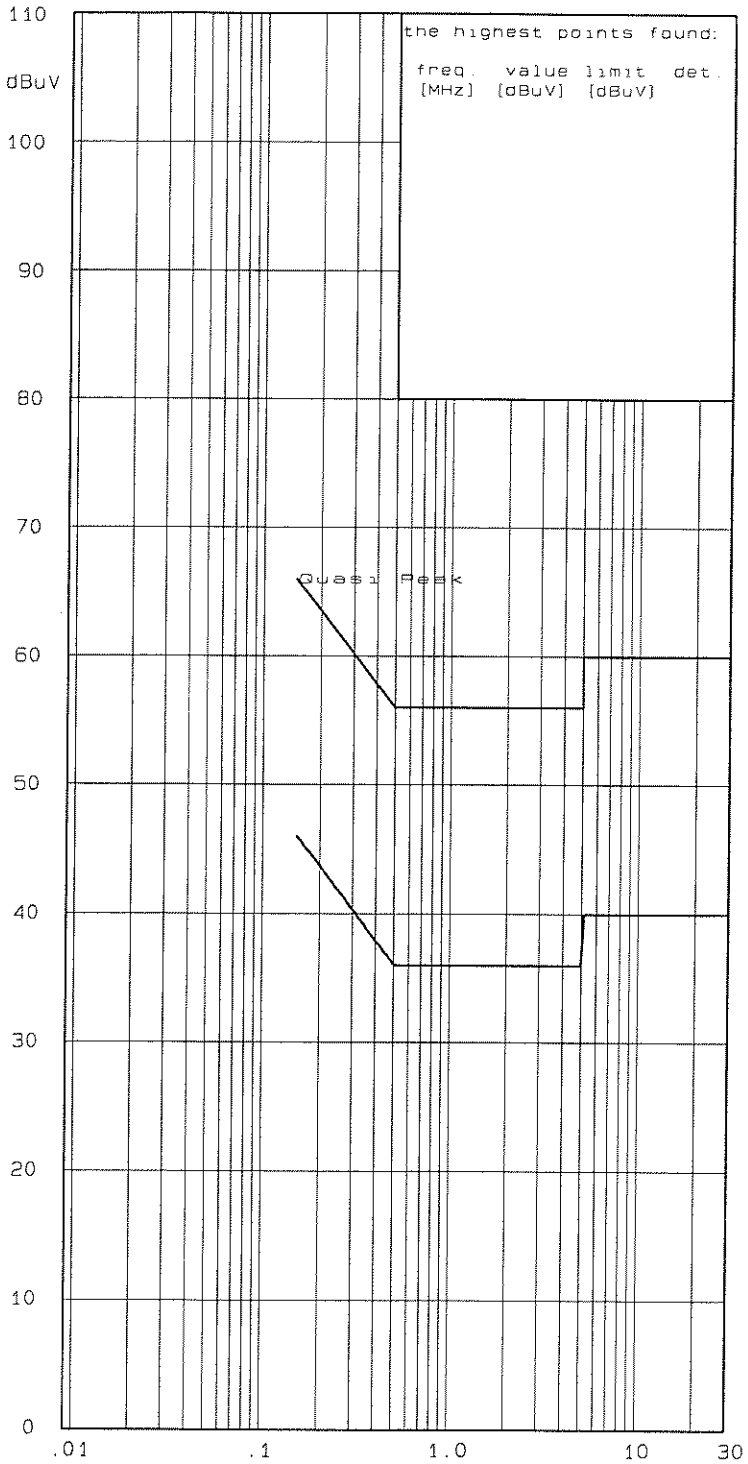
Frequency (MHz)	Horz. Reading dB(μV)	Vert. Reading dB(μV)	Corr. Factor (dB)	Horiz. Test Result dB(μV/m)	Vert. Test Result dB(μV/m)	Limit dB(μV/m)
30	< 16	< 16	19.1	< 35.1	< 35.1	40.0
49.7	< 16	< 16	7.9	< 23.9	< 23.9	40.0
128.2	< 16	19	11.2	< 27.2	30.2	43.5
224.4	16	18	10.2	26.2	28.2	43.5
288.4	16	17	14.4	30.4	31.4	43.5
349.5	< 16	< 16	15.2	< 31.2	< 31.2	43.5
500	< 16	< 16	18.9	< 34.9	< 34.9	43.5
1000	< 16	< 16	26.2	< 42.2	< 42.2	54.0

Note : 1. All 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 sample placed horizontally on the table.

Operator : WH

U 5/6

Interference voltage 150kHz – 30MHz
Acc. FCC Part 15 Subpart B Section 15.107



Model: CEW220

Spl./Ser.No.: 01/--

Client : FORMATION LTD.

Product: WIRELESS SPEAKER

IECC-No.: 53175

Date: 18 Nov 2009

Test equipment:

Rohde & Schwarz ESHS30

Schwarzbeck NSLK8127

Connected sets:

--

Operating mode:

OPERATED W/ AN AUDIO SIGNAL
FROM A HOST MP3 PLAYER
(L)
RX UNIT

RFI suppression parts:
--

* two dB safety margin for
type approval necessary

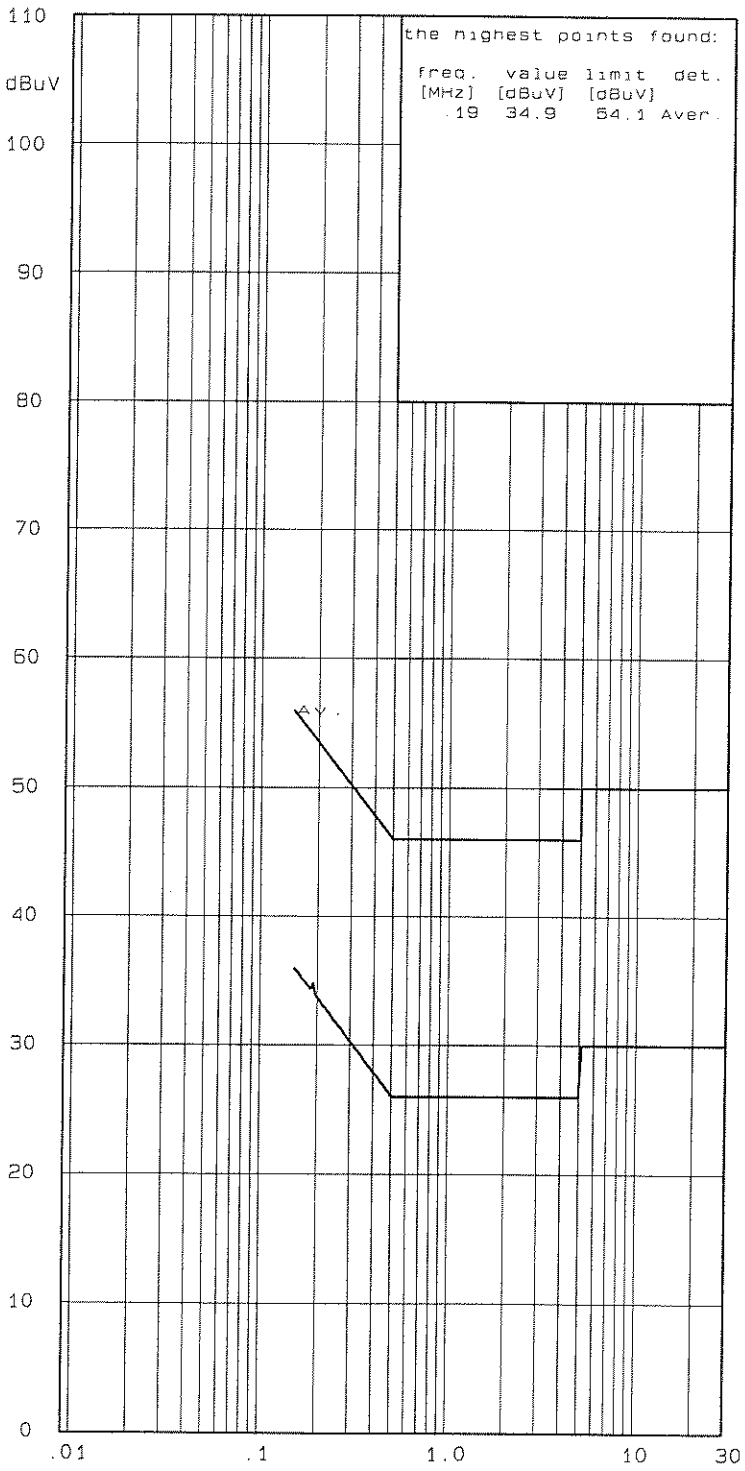
Operator: WH

Result: ok

IECC

U 5/6

Interference voltage 150kHz – 30MHz
Acc. FCC Part 15 Subpart B Section 15.107



Model: CEW220

Spl./Ser.No.: 01/--

Client : FORMATION LTD.

Product: WIRELESS SPEAKER

IECC-No.: 53175

Date: 18 Nov 2009

Test equipment:

Rohde & Schwarz ESHS30

Schwarzbeck NSLK8127

Connected sets:

--

Operating mode:

OPERATED W/ AN AUDIO SIGNAL
FROM A HOST MP3 PLAYER
(L)
RX UNIT

RFI suppression parts:
--

* two dB safety margin for
type approval necessary

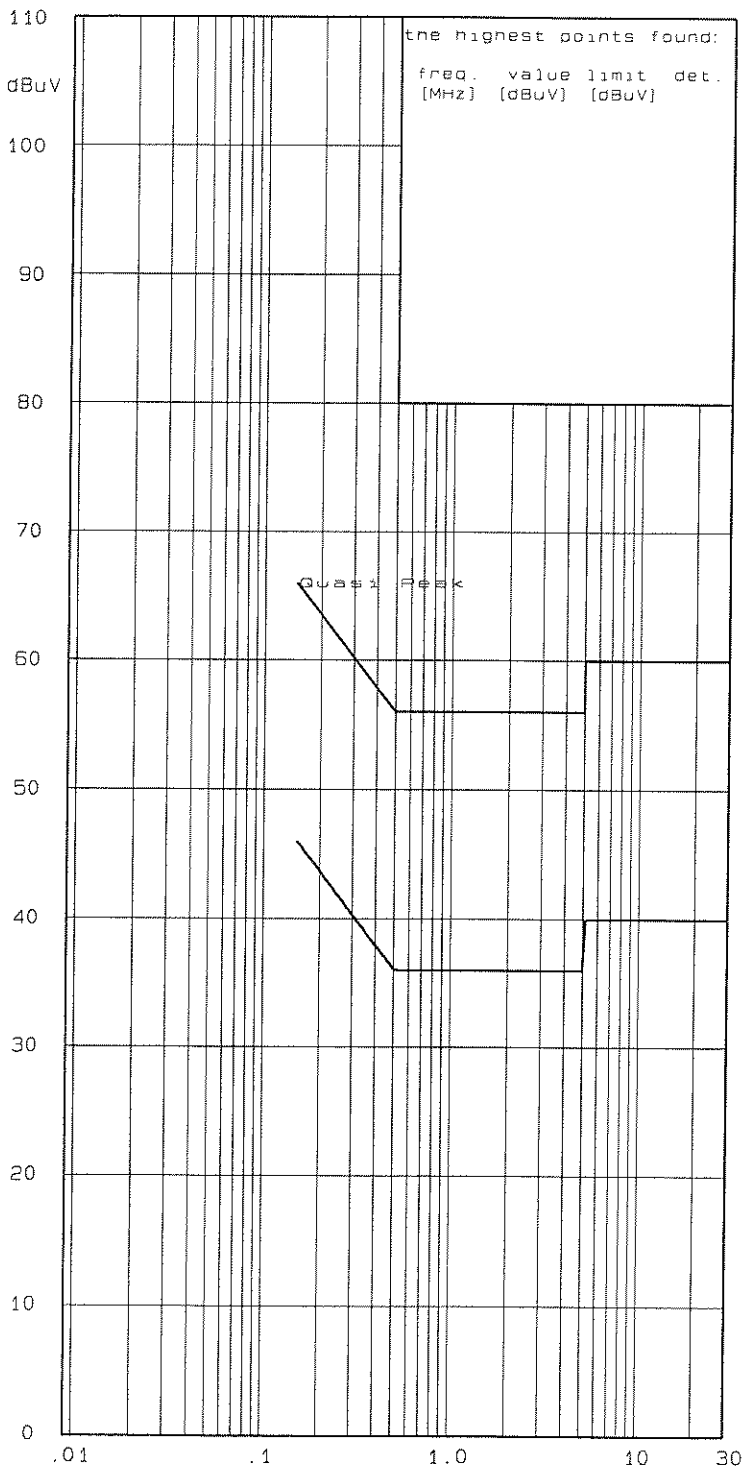
Operator: WH

Result:

IECC

U 5/6

Interference voltage 150kHz – 30MHz
Acc. FCC Part 15 Subpart B Section 15.107



Model: CEW220

Spl./Ser.No.: 01/--

Client : FORMATION LTD.

Product: WIRELESS SPEAKER

IECC-No.: 53175

Date: 18 Nov 2009

Test equipment:

Rohde & Schwarz ESHS30

Schwarzbeck NSLK8127

Connected sets:

--

Operating mode:

OPERATED W/ AN AUDIO SIGNAL
FROM A HOST MP3 PLAYER
(N)
RX UNIT

RFI suppression parts:
--

* two dB safety margin for
type approval necessary

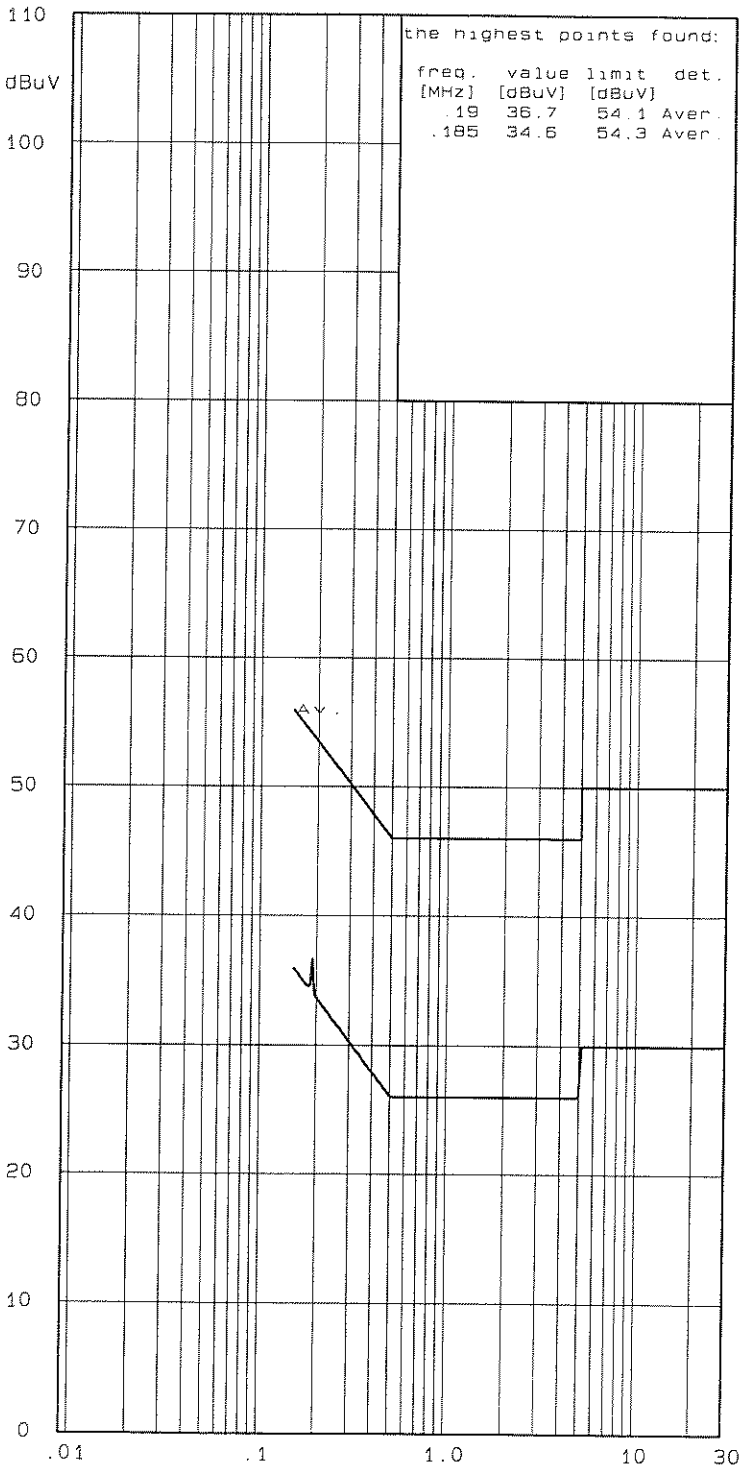
Operator: WH

Result:

IECC

U 5/6

Interference voltage 150kHz – 30MHz
Acc. FCC Part 15 Subpart B Section 15.107



Model: CEW220

Spl./Ser.No.: 01/--

Client : FORMATION LTD.

Product: WIRELESS SPEAKER

IECC-No.: 53175

Date: 18 Nov 2009

Test equipment:

Rohde & Schwarz ESHS30

Schwarzbeck NSLK8127

Connected sets:

--

Operating mode:

OPERATED W/ AN AUDIO SIGNAL
FROM A HOST MP3 PLAYER
(N)
RX UNIT

RFI suppression parts:

--

* two dB safety margin for
type approval necessary

Operator: WH

Result: ok

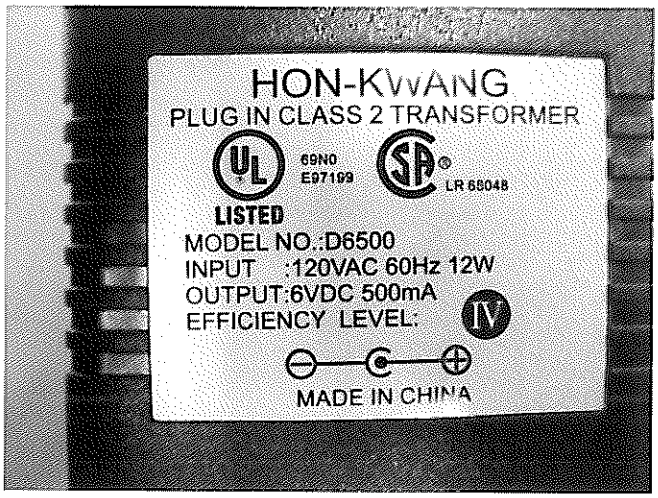
IECC

FCC – Test Report

Date: 2009-11-30

No. 53175-2

Photo of Sample



Address 地址: Units 602-605, 6/F., 31 Lok Yip Rd., On Lok Tsuen, Fanling, N.T., Hong Kong.
香港新界粉嶺安樂村樂業路31號6樓602-605室
Tel 電話: (852) 2305 2570
Fax 傳真: (852) 2758 4480
E-mail 電子郵件: info@iecc.com.hk
Home Page 網頁: http://www.iecc.com.hk

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, 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
E-mail 電子郵件: info@iecc.net.cn
Home Page 網頁: http://www.iecc.net.cn