



TCP Dr. Genz (HK) Co., Ltd.

Test Report

FCC RULES 47CFR PART 15 / SUBPART B

Test report no.: H1M20811-7091-P-15

FCC ID: OD9IK1RX

Accredited Laboratory by:



TEST REPORT

Summary | FCC RULES 47CFR PART 15 / SUBPART B

Test Report No.: H1M20811-7091-P-15

Date of issue: 27.11.2008

Testing Laboratory name: TCP Dr. Genz (HK) Co., Ltd.

Address: 26/F., Tamson Plaza, 161 Wai Yip Street,
Kwun Tong, Kowloon, Hong Kong

Applicant's name.....: Techwall Electronics Co., Ltd.

Address: 24/F., Tower 1, Tern Center, 237 Queen's Road,
Central, Hong Kong

Manufacturer's name: Techwall Electronics Co., Ltd.

Address: 24/F., Tower 1, Tern Center, 237 Queen's Road,
Central, Hong Kong

Test specification

Standard(s) applied.....: FCC Rules 47 CFR Part15 Subpart B : 2008

Test item description: Baby Monitor

Brand Name: Ikea Family

Model and/or type reference...: IK-1RX

Rating(s).....: 110VAC (9VDC AC/DC Adaptor)

Summary of Test Results

Pass

The Summary of Test Results based on a technical opinion belongs to the applied standard(s).

Disclaimer

Further details of testing are provided in particular chapters of this Test Report.

This document base on General Terms and Conditions of TCP Dr. Genz (HK) Co., Ltd., which the applicant accepted with order confirmation.

Emphasized conditions or project related conditions:

Released Test Reports apply only to the specific samples tested under stated test conditions. It is the applicant's responsibility to assure that additional production units of the tested model(s) are manufactured in same construction and with identical electrical and mechanical components to meet the same quality as tested model(s). The applicant/manufacturer/importer is responsible for any modifications made to the production units which result in non-compliance to the applied and/or relevant regulations. TCP Dr. Genz (HK) Co., Ltd. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from any kind of issued reports. Reports are confidential property of the client. As a mutual protection to the applicant, the clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval.

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1. General Information

1.1 Tester

Operator:
27.11.2008

Mr. Scott Li



Date

Test engineer

Signature

Approved by:

27.11.2008

Mr. F. Schulz



Date

Laboratory Manager

Signature

1.2 Testing laboratory

Name : TCP Dr. Genz (HK) Co., Ltd.
Street : 26/F., Tamson Plaza, 161 Wai Yip Street
Town : Kwun Tong, Kowloon
Country : Hong Kong
Telephone : +852 2389 2200
Fax : +852 2389 3073

Note: Test environment and test equipment available in accordance to ISO/IEC/EN 17025 requirements. Accreditation certificates for confirmation can be shown on request.

A2LA Accredited Testing Laboratory

Testing Cert# 2762.01

Name : Hong Kong Productivity Council
Street : EMC Centre, LG1, HKPC Building, 78 Tat Chee Avenue
Town : Kowloon
Country : Hong Kong

Note: Test environment and test equipment available in accordance to ISO/IEC/EN 17025 requirements. Accreditation certificates for confirmation can be shown on request.

The Hong Kong Laboratory Accreditation Scheme (HOKLAS)

Reg. No.082

FCC registered measurement facility

Reg. No.90656

1.3 Details of applicant

Name : : Techwall Electronics Co., Ltd.
Street : : 24/F., Tower 1, Tern Center, 237 Queen's Road
Town : : Central
Country : : Hong Kong
Telephone : : +852 2850 6860
Fax : : +852 2850 6936
E-mail : : twallhk@netvigator.com

Contact : : Mr. S.M. Wong
Telephone : : +852 2850 6860

1.4 Application details

Date of receipt of application : 04.11.2008
Date of receipt of test item : 04.11.2008
Date of test : 05.11. – 12.11.2008

1.5 Manufacturer (if different from applicant in point 1.3)

Name :
Street :
Town :
Country :

1.6 Test item

Description of test item

Description of test item	Baby Monitor
Type identification	IK-1RX
Brand Name	Ikea Family
Operation Frequency	49.83 MHz
Number of Channel	2
Channel 1	49.83 MHz with 40 Hz pilot tone
Channel 2	49.83 MHz with 110 Hz pilot tone
Operation mode	simplex
Type of antenna	integral
Power supply	110VAC (9VDC AC/DC Adaptor) or 4 batteries AA size

2 Technical test

2.1 Summary of test results

Following conclusion has to be considered as technical opinion belongs to the applied standard(s).

No deviations from the technical specification(s) were ascertained in the course of the tests performed.

or

The deviations as specified in 2.4 were ascertained in the course of the tests performed.

2.2 Test environment

Temperature : 23 ± 2 °C

Relative humidity content : 50 ± 2 %

Air pressure : 990 ± 5 hPa

No.	Test equipment	Type	Manufacturer
G003	Humidity/Temperature Meter	TES-1364	TES
E016	Air pressure meter	Standard	Raumklima

2.3 Test equipment utilized

Test Equipment list

Radiated emission

Test equipment	Type	S/N	Manufacturer	Cal Due Date
Semi-anechoic Chamber	Nil	Nil	Frankonia	28 Mai 09
Test Reciever	ESU 26	100050	Rohde & Schwarz	06 Aug 09
Bi-conical Antenna	HK116	841489/016	Rohde & Schwarz	08 Mar 09
Log.-Periodic Antenna	HL223	841516/020	Rohde & Schwarz	28 Feb 09
Horn Antenna	3115	9002-3351	EMCO	27 Feb 10
Active Loop Antenna	6502	9107-2651	EMCO	20 Dec 09

Conducted emission

Test equipment	Type	S/N	Manufacturer	Cal Due Date
Shielded Room	Nil	Nil	Frankonia	28 Mai 09
Pulse limiter	ESH3-Z2	E112	Rohde & Schwarz	06 Aug 09
Two-Line V-Network	ESH3-Z5	E053	Rohde & Schwarz	06 Aug 09
EMI Test receiver	ESHS 10	E002	Rohde & Schwarz	06 Aug 09

2.4 Test procedure

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2003 6.4 using a spectrum analyzer. The bandwidth of the spectrum analyzer was 100 kHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was the 100 kHz and the video bandwidth was 300 kHz.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dB μ V) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB.

Example:

$$\text{Freq (MHz)} \quad \text{METER READING} + \text{ACF} + \text{CABLE LOSS (to the receiver)} = \text{FS}$$

$$20 \text{ dB}\mu\text{V} + 10.36 \text{ dB} + 6 \text{ dB} = 36.36 \text{ dB}\mu\text{V/m @3m}$$

ANSI STANDARD C63.4-2003 6.2.1 MEASUREMENT PROCEDURES: The UUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table). The UUT was placed in the center of the table. The table used for radiated measurements is capable of continuous rotation. The spectrums were scanned from 9 kHz to 30 MHz and 30 MHz to 1GHz.

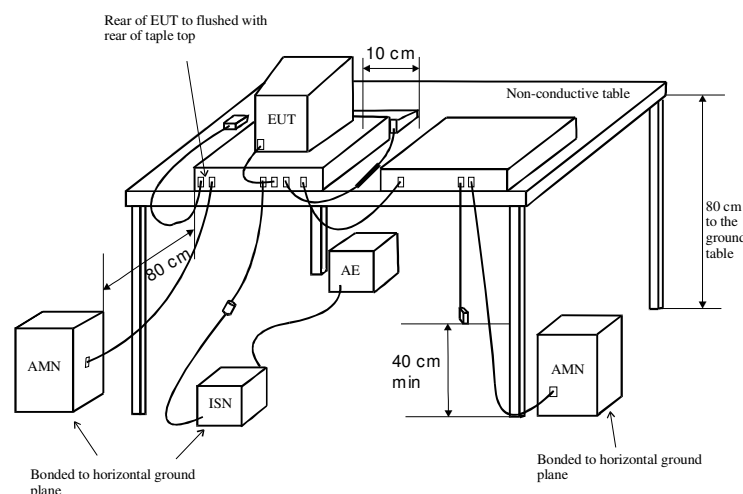
Peak readings were taken in three (3) orthogonal planes and the highest readings. Measurements were made by Hong Kong Productivity Council at the registered test site located at EMC Centre, LG1, HKPC Building, 78 Tat Chee Avenue, Kowloon, Hong Kong. The registration number is 90656.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

AC power lines conducted emission test configuration:

The test configuration is contained inside of a shielded chamber and corresponds to the standard ANSI C63.4 /3/. The equipment under test is connected with the artificial mains network (AMN) in a distance of 0,8 m and of 0,4 m from the earth connection and also 0,8 m from other subassembly and metallic area. The measurement receiver is placed in a special room adjacent to the chamber. (See picture1)

The test is carried out with nominal impedance by 50 Ω / 50 μ H of the AMN in a frequency range 150 kHz to 30 MHz. Further information please find in test report.



Picture 1

2.5 Test results Overview

Report-No. : H1M20811-7091-P-15
 Test item : Baby Monitor
 Model No. : IK-1RX
 Brand Name : Ikea Family

1st test test after modification production test

Standard	Description	Remarks	Verdict
FCC Rules 47CFR PART B			
Section 15.109	Radiated spurious emission		P
Section 15.107	Conducted emission to (AC) power lines		P

Important Note: This test device has two channels with one operation frequency, but different pilot tones for each channel. For this reason pre testing measurements was performed on channel 1 and channel 2. All final measurements were done on channel 1 (Worst case).

Test case verdicts

P - Pass *Test item does meet the requirement*
F - Fail *Test item does not meet the requirement*
N.A. - Not Applicable *Test case does not apply to the test object*

3 Receiver parameter

3.1 Radiated Spurious Emissions

Test results Channel 1 (Worst case):

(a) Measurement up to 30 MHz

Note: No Relevant emissions are expected in the frequency range 9 kHz to 30 MHz. Nevertheless a check using a near field probe was performed. No relevant emissions have been observed. Consequently no final measurement was performed.

(b) Measurement above 30 MHz

Calculation of test results:

Such factors like antenna factor and cable loss are already included in the provided measurement results. All results measured with peak detector.

Frequency [MHz]	Antenna Polarization	Results [dBμV/m]	Limit [dBμV/m]	Margin (dB)
50.10	Horizontal	20.00	40.00	20.00
50.10	Vertical	28.99	40.00	11.01
188.41	Horizontal	27.61	43.50	15.89
195.73	Vertical	25.30	43.50	18.20

Note: The limit is met. The measurement was performed up to 1GHz.
For the diagrams see Appendix B.

Limits for Radiated Emission Section15.209

Frequency of Emission [MHz]	Field strength [microvolt/meter]	Field Strength [dB microvolt/meter]
30 – 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.0
Above 960	500	54.0

3.2 AC power lines conducted emission

Test results Channel 1 (Worst case):

Frequency Range	Limit dB μ V		Passed
	Quasi-peak	Average	
150 kHz – 500 kHz AC	66 to 56*	56 to 46*	☒
500 kHz - 5 MHz AC	56	46	☒
5 MHz – 30 MHz AC	60	50	☒

* Decreases with logarithm of the frequency

Instrumentation uncertainty: $U_{lab(rcond)} = 2.50$ dB.

Note: The limit is met. For the diagrams see Appendix C.

4 Disclaimer

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The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate. The complexity of the technical specifications means that full and thorough testing is impractical for both technical and economic reasons. Furthermore, there is no guarantee that a test sample which has passed all the relevant tests conforms to a specification. Neither is there any guarantee that such a test sample will interact with other genuinely open systems. The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that its performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in clause 1.6 of this report. The test report may only be reproduced or published in full.

Reproducing or publishing extracts of the report requires the prior written approval of TCP Dr. Genz (HK) Co., Ltd.

5 Normative references

- /1/ FCC Rules 47 CFR PART 15: 2008
Radio Frequency Devices
- /2/ CISPR 22:2005
Limits and Methods of Measurement of Radio Interference Characteristics of Information
Technology Equipment
- /3/ ANSI C63.4-2003
Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and
Electronic Equipment in the Range of 9 kHz to 40 GHz

Appendix

- A Pictures
- B Radiated Spurious Emissions
- C AC power Line Conducted Emissions

Appendix B

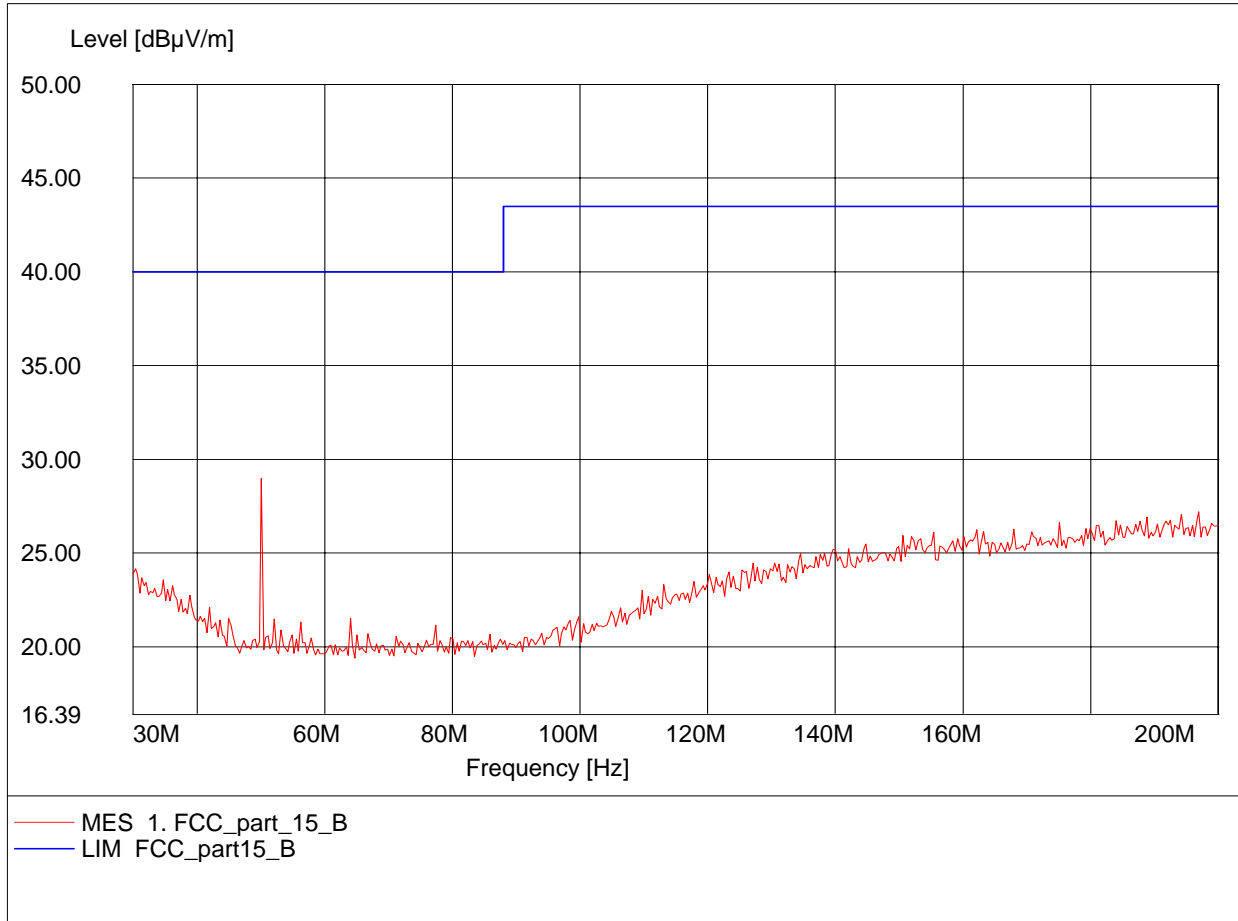
Radiated Spurious Emissions

Test Report No.: H1M20811-7091-P-15

Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

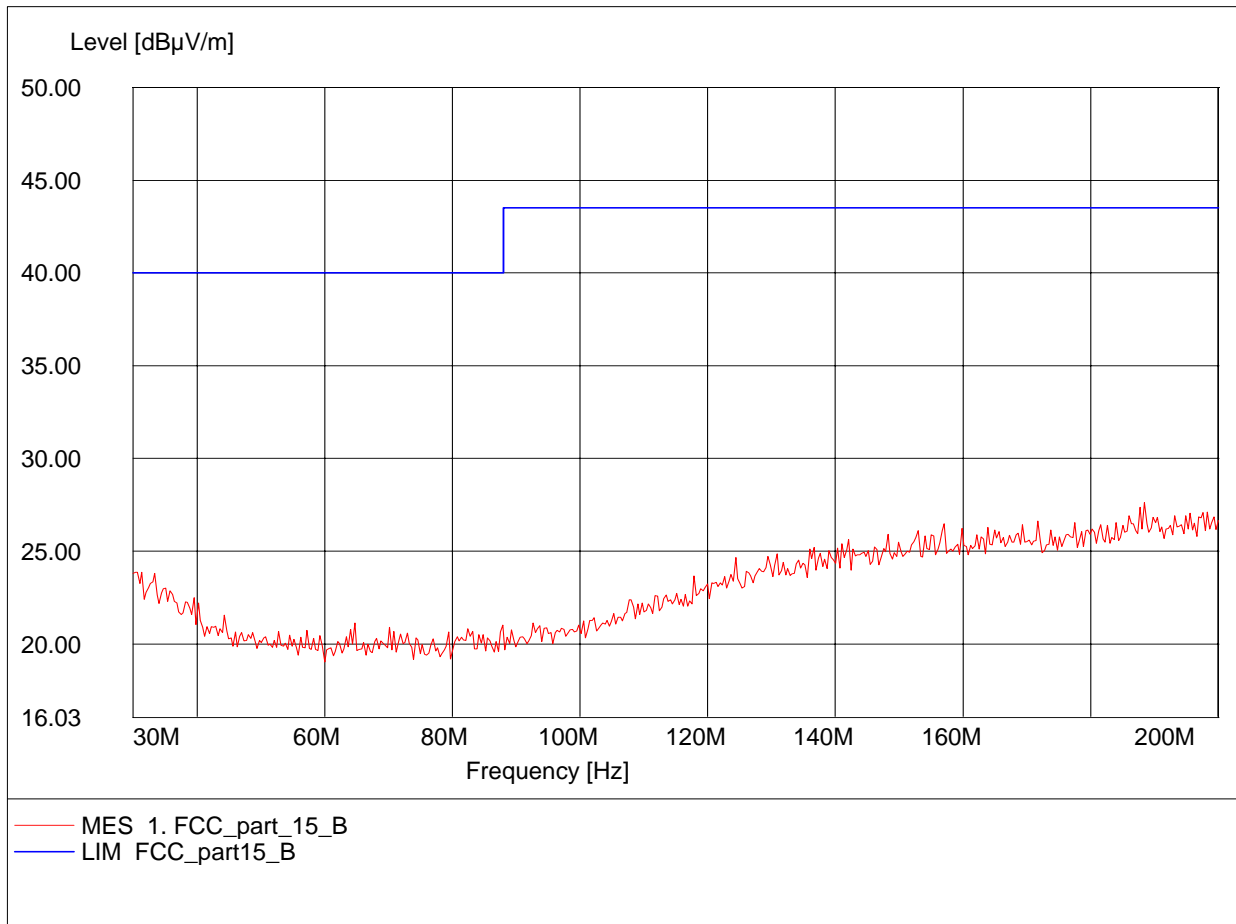
Project No.: H1M208011-7091
Test Site / Operator: HKPC / Mr. SCOTT
Temperature/Voltage: Temp.: 23°C/ Unom.: 110VAC (9VDC AC/DC Adaptor)
Test Specification: according to subpart B
Comment 1: Dist.: 3m, Ant.: HK 116
Freq:50.100MHz Emax:28.99dBµV/m RBW: 100 kHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

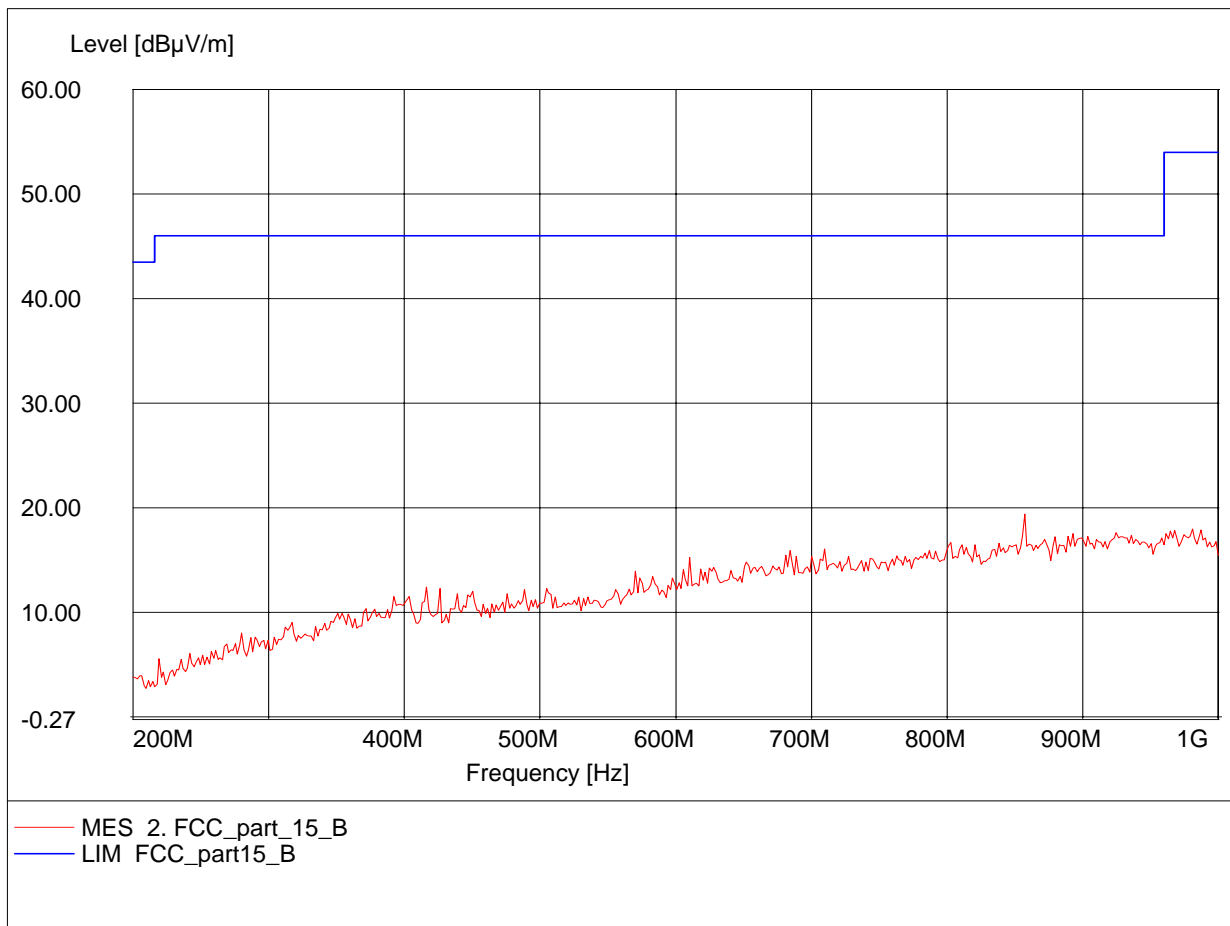
Project No.: H1M208011-7091
Test Site / Operator: HKPC / Mr. SCOTT
Temperature/Voltage: Temp.: 23°C/ Unom.: 110VAC (9VDC AC/DC Adaptor)
Test Specification: according to subpart B
Comment 1: Dist.: 3m, Ant.: HK 116
Freq:188.417MHz Emax:27.61dBµV/m RBW: 100 kHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

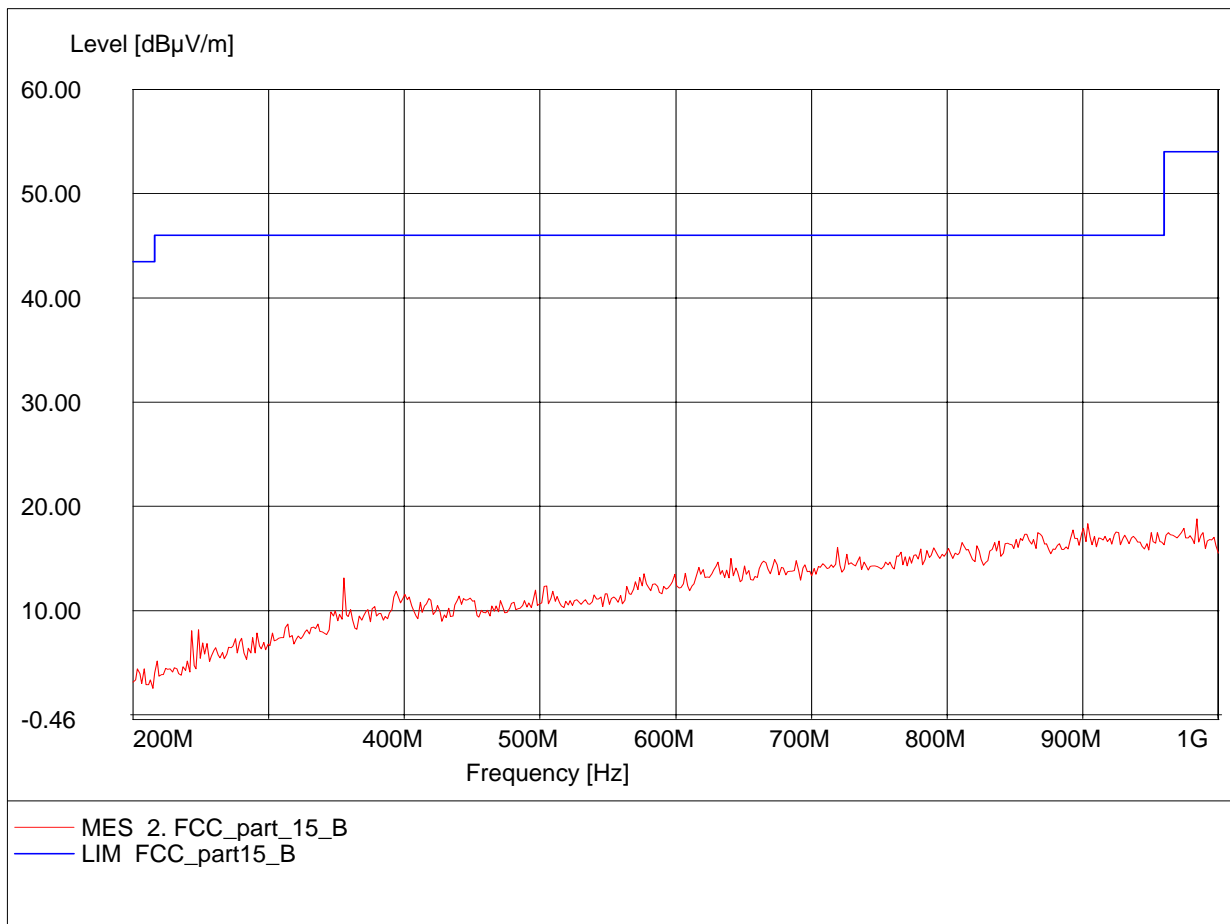
Project No.: H1M208011-7091
Test Site / Operator: HKPC / Mr. SCOTT
Temperature/Voltage: Temp.: 23°C/ Unom.: 110VAC (9VDC AC/DC Adaptor)
Test Specification: according to subpart B
Comment 1: Dist.: 3m, Ant.: HL 223, ampl.
Freq:857.315MHz Emax:19.37dBµV/m RBW: 100 kHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

Project No.: H1M208011-7091
Test Site / Operator: HKPC / Mr. SCOTT
Temperature/Voltage: Temp.: 23°C/ Unom.: 110VAC (9VDC AC/DC Adaptor)
Test Specification: according to subpart B
Comment 1: Dist.: 3m, Ant.: HL 223, ampl.
Freq:983.968MHz Emax:18.78dBµV/m RBW: 100 kHz



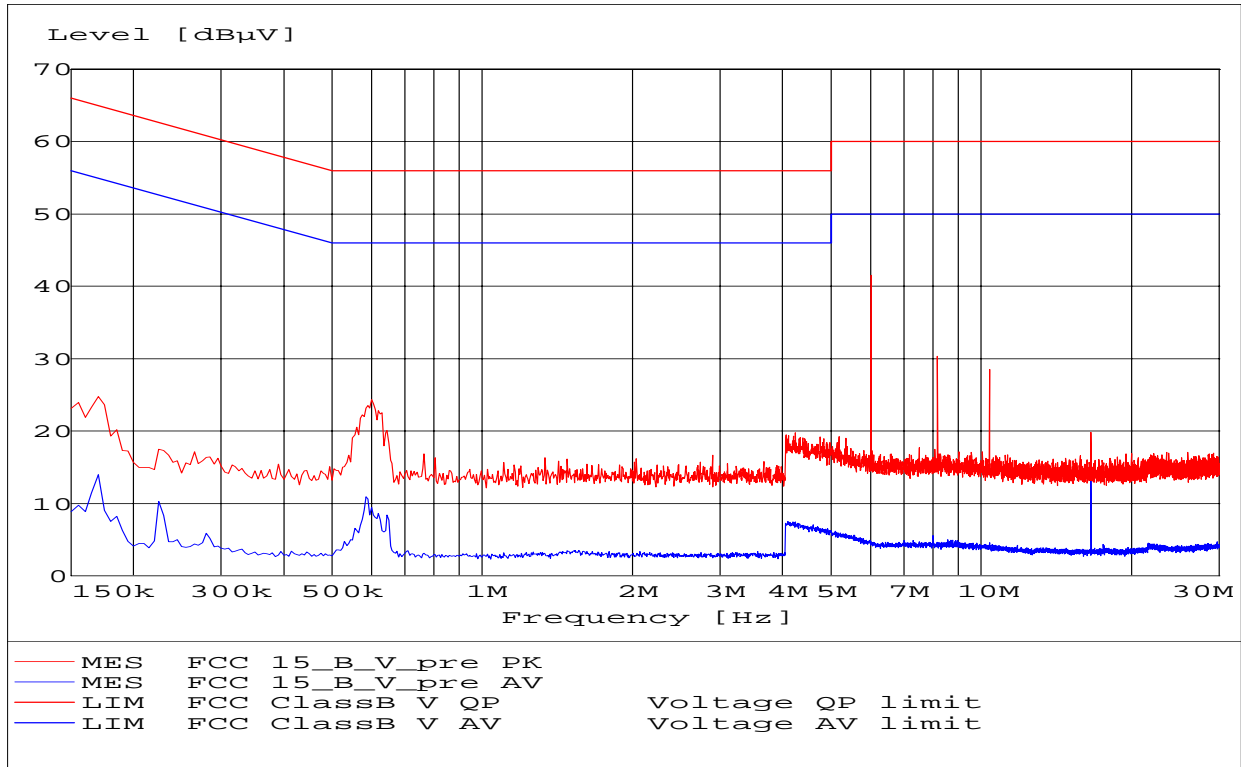
Appendix C

AC power Lines Conducted Emissions

Voltage mains

according to FCC Part 15

Project number: H1M20811-7091
Operating Condition: 22°C /110VAC(9VDC AC/DC Adaptor)
Operator: Mr. SCOTT
Test Specification: FCC Part 15B , un-intentional radiator
Comment: ESHS 10 / ESH3-Z5 (L)
Mode: normal operating



Voltage mains

according to FCC Part 15

Project number: H1M20811-7091
Operating Condition: 22°C / 110VAC(9VDC AC/DC Adaptor)
Operator: Mr. SCOTT
Test Specification: FCC Part 15B , un-intentional radiator
Comment: ESHS 10 / ESH3-Z5 (N)
Mode: normal operating

