FCC Part 15B
Measurement and Test Report

For

Spheris Digital Ltd

Flat Rm A21, Blk A, 4/F, Sheung Shui Plaza, 3 Ka Fu Close, Sheung Shui, Hong Kong

FCC ID: YHO-PXT51014

Test Standards:	FCC Part 15 Subpart B
Product Description:	Wireless Digital Display
Tested Model:	PXT510WR04D
Report No.:	STR13088051I-2
Tested Date:	2013-08-03 to 2013-08-19
Issued Date:	2013-08-19
Tested By:	Lebron Wang / Engineer
Reviewed By:	Lahm Peng / EMC Manager
Approved & Authorized By:	Jandy so / PSQ Manager

Prepared By:

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Spheris Digital Ltd
Address of applicant:	Flat Rm A21, Blk A, 4/F, Sheung Shui Plaza, 3 Ka Fu Close, Sheung Shui, Hong Kong
Manufacturer:	Spheris Digital Ltd
Address of manufacturer:	Flat Rm A21, Blk A, 4/F, Sheung Shui Plaza, 3 Ka Fu Close, Sheung Shui, Hong Kong

General Description of EUT	
Product Name:	Wireless Digital Display
Trade Name:	Pix-Star
Model No.:	PXT510WR04D
Adding Model(s):	PXT510VR02D, PXT510GR02D, PXT510WR02D, PXT510VR04D, PXT510GR04D
Note: The test data is gathered from a production sample, provided by the manufacturer. The appearance of others models listed in the report is different from main-test model PXT510WR04D, but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC 5V
Rated Current:	2A
Power Adapter Model:	GFP151U-050250B-1
Lowest Internal Frequency:	32.768kHz
Highest Internal Frequency:	27MHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the Spheris Digital Ltd in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart B, and section 15.205, 15.107, and 15.109 rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

1.4 Test Facility

- **FCC – Registration No.: 994117**
  SEM.Test Compliance Services Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 994117.

- **Industry Canada (IC) Registration No.: 7673A**
  The 3m Semi-anechoic chamber of SEM.Test Compliance Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 7673A.

- **CNAS Registration No.: L4062**
  Shenzhen SEM.Test Electronics Service Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C (518101)

1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List		
Test Mode	Description	Remark
TM1	Playing	U-disk/SD Card input

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
AC Power Cable	1.8	Unshielded	With Ferrite

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
SD Card	Kingston	SD/2GB	/
U-disk	Sandisk	1GB	/

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 15.107 (a)	Conducted Emissions	Compliant
§ 15.109 (a)	Radiated Emissions	Compliant

N/A: not applicable

3. Conducted Emissions

3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 2.88 dB.

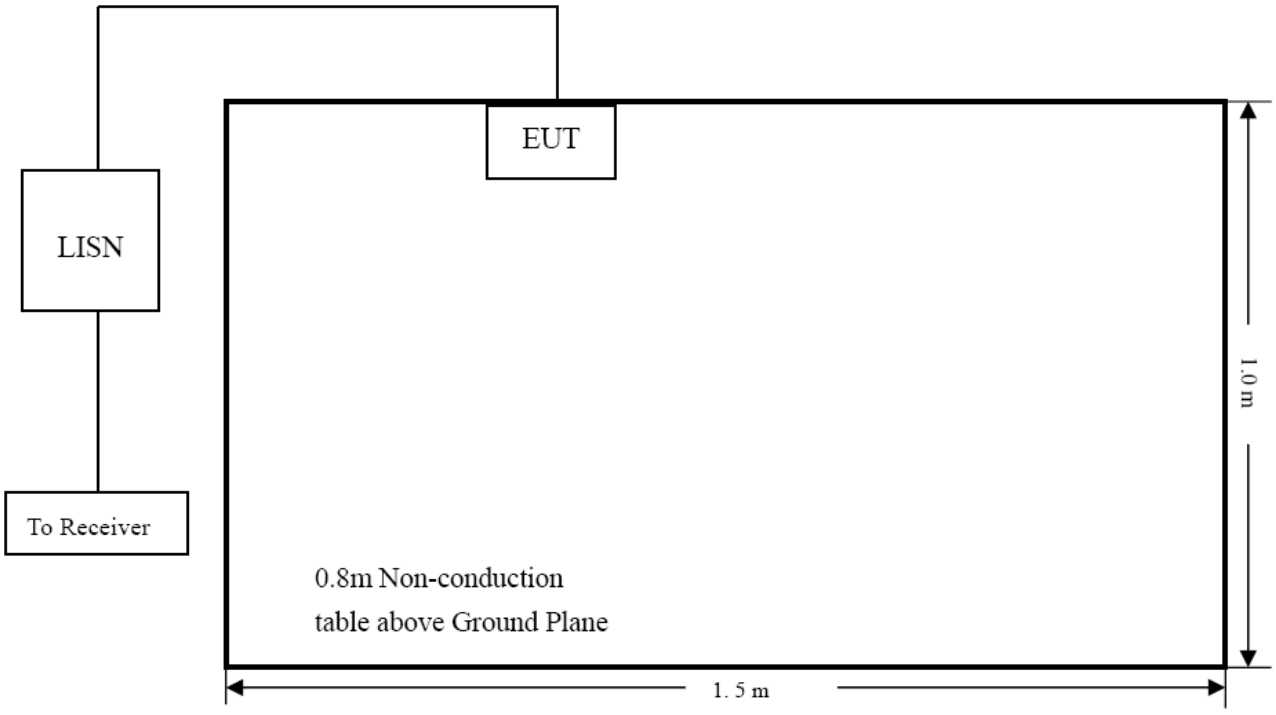
3.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2013-05-07	2014-05-06
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2013-05-07	2014-05-06
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2013-05-07	2014-05-06

3.3 Test Procedure

Test is conducting under the description of ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

3.4 Basic Test Setup Block Diagram



3.5 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

3.6 Summary of Test Results/Plots

According to the data in section 3.7, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

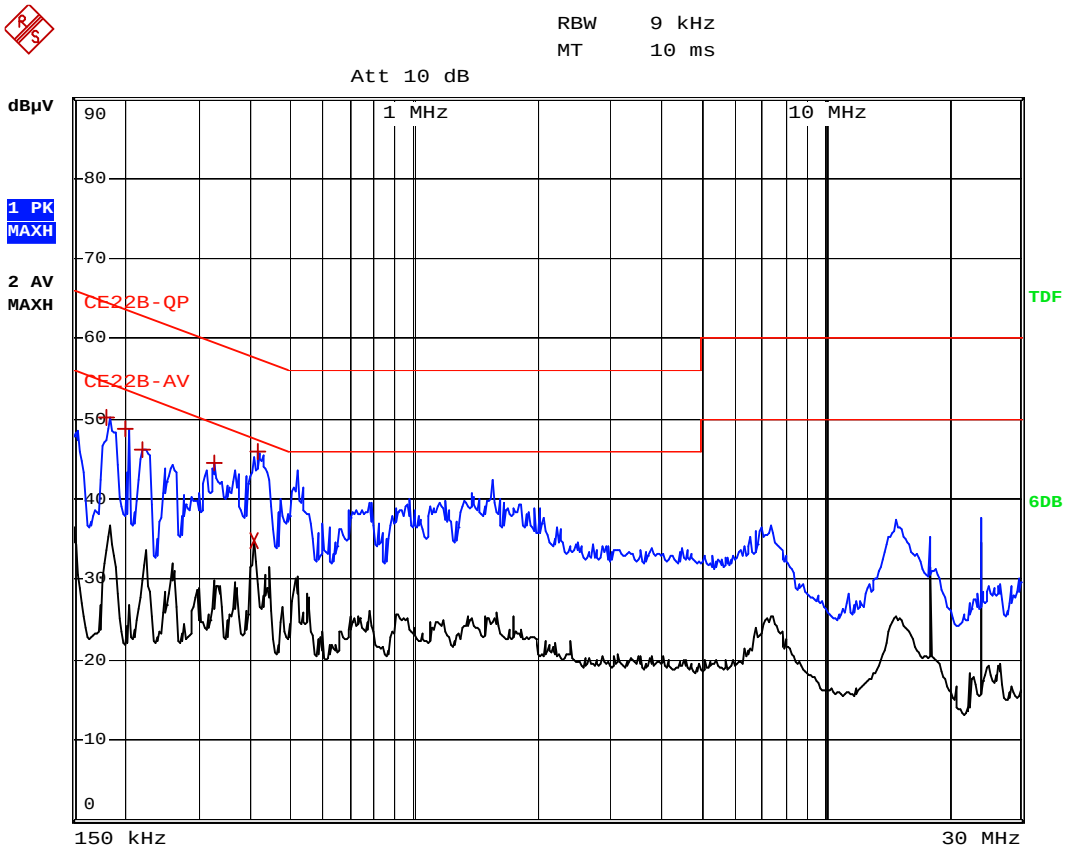
-11.69 dB at 0.414 MHz in the **Line** mode**, Peak** detector, **0.15-30MHz**

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

EUT: *Wireless Digital Display*
Tested Model: *PXT510WR04D*
Operating Condition: *Playing*
Comment: *AC 120V/60Hz*

Test Specification: *Line*

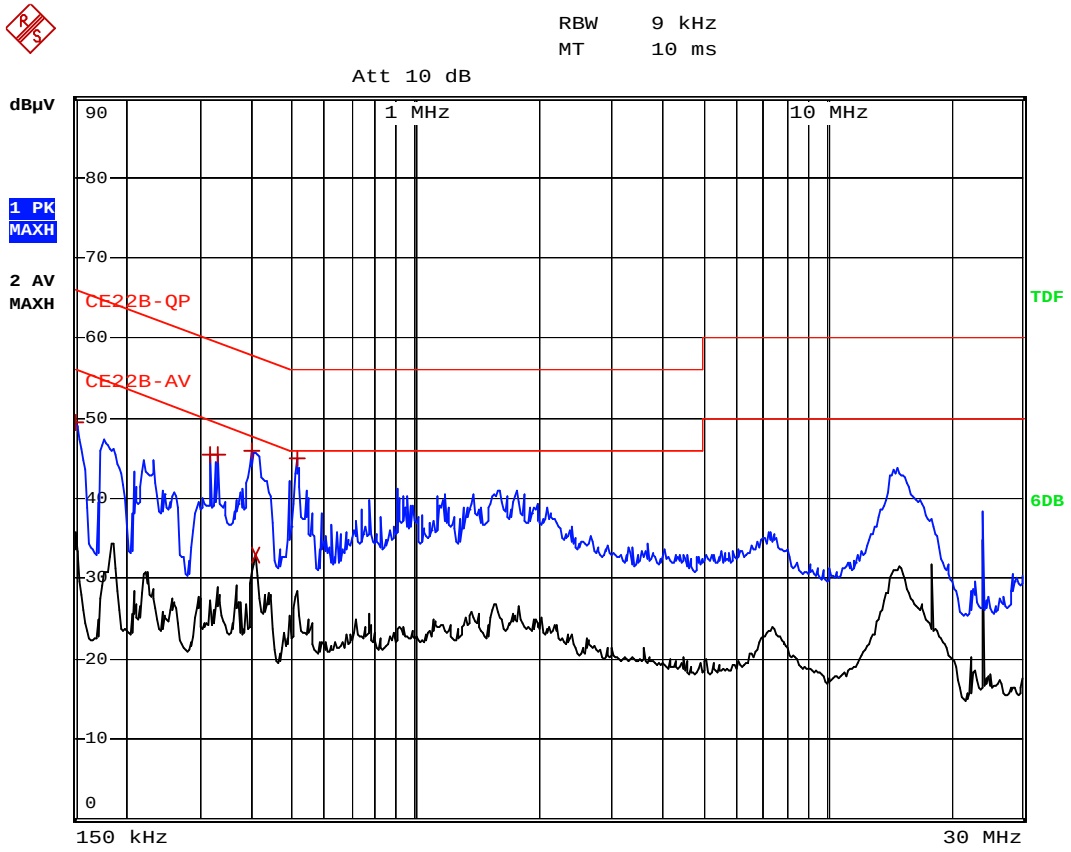


EDIT PEAK LIST (Prescan Results)

Trace1:	CE22B-QP
Trace2:	CE22B-AV
Trace3:	---

TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	182 kHz	50.12	-14.27
1 Max Peak	202 kHz	48.82	-14.70
1 Max Peak	222 kHz	46.22	-16.52
1 Max Peak	326 kHz	44.64	-14.91
2 Average	406 kHz	34.81	-12.91
1 Max Peak	414 kHz	45.87	-11.69

Test Specification: *Neutral*



EDIT PEAK LIST (Prescan Results)

Trace1:	CE22B-QP
Trace2:	CE22B-AV
Trace3:	---

TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	150 kHz	49.50	-16.49
1 Max Peak	314 kHz	45.38	-14.48
1 Max Peak	330 kHz	45.36	-14.09
1 Max Peak	398 kHz	45.90	-11.99
2 Average	406 kHz	33.06	-14.66
1 Max Peak	514 kHz	45.07	-10.92

4. Radiated Emissions

4.1 Measurement Uncertainty

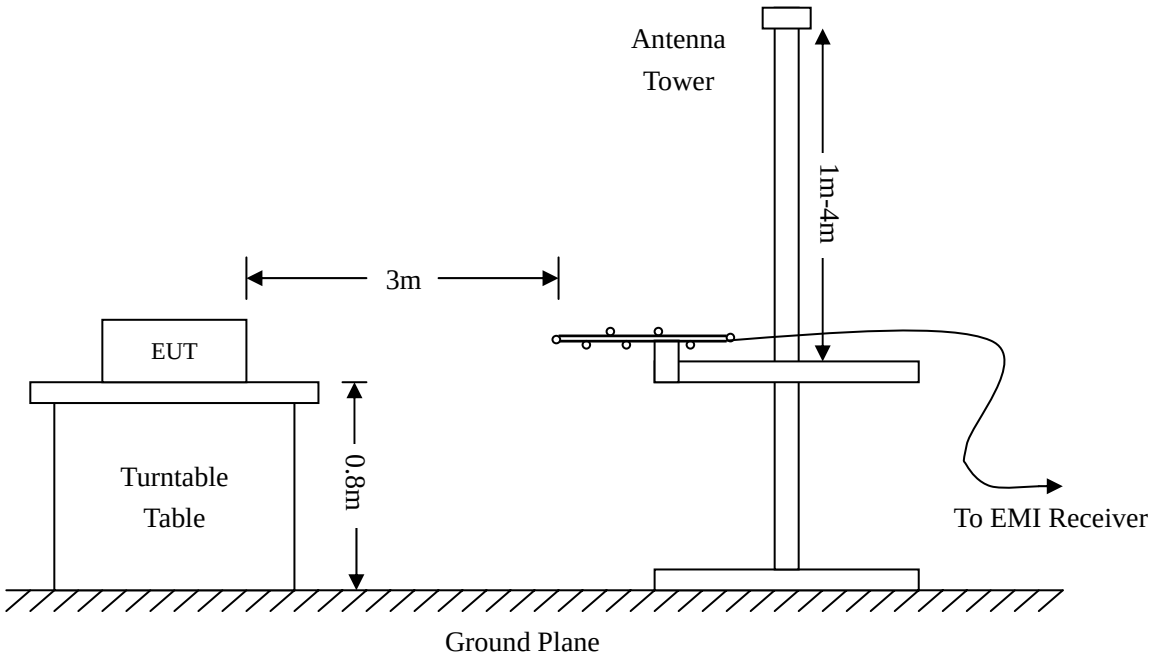
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

4.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2013-05-07	2014-05-06
EMI Test Receiver	R&S	ESVB	825471/005	2013-05-07	2014-05-06
Pre-amplifier	Agilent	8447F	3113A06717	2013-05-07	2014-05-06
Pre-amplifier	Compliance Direction	PAP-0118	24002	2013-05-07	2014-05-06
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2013-04-20	2014-04-19
Horn Antenna	ETS	3117	00086197	2013-04-20	2014-04-19
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2013-04-20	2014-04-19

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.109 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.



Frequency :9kHz-30MHz
RBW=10KHz,
VBW =30KHz
Sweep time= Auto
Detector function = peak

Frequency :30MHz-1GHz
RBW=120KHz
VBW=300KHz
Sweep time= Auto
Detector function = peak

4.4 Test Receiver Setup

During the radiated emission test for above 1GHz, the test receiver was set with the following configurations:

For peak detector:
RBW = 1000kHz, VBW = 3000kHz, Sweep Time = Auto

For average detector:
RBW = 1000kHz, VBW = 10Hz, Sweep Time = Auto

4.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading – Corr. Factor

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for a Class B device. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15.109(a) Limit

4.6 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	1011 mbar

4.7 Summary of Test Results/Plots

According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

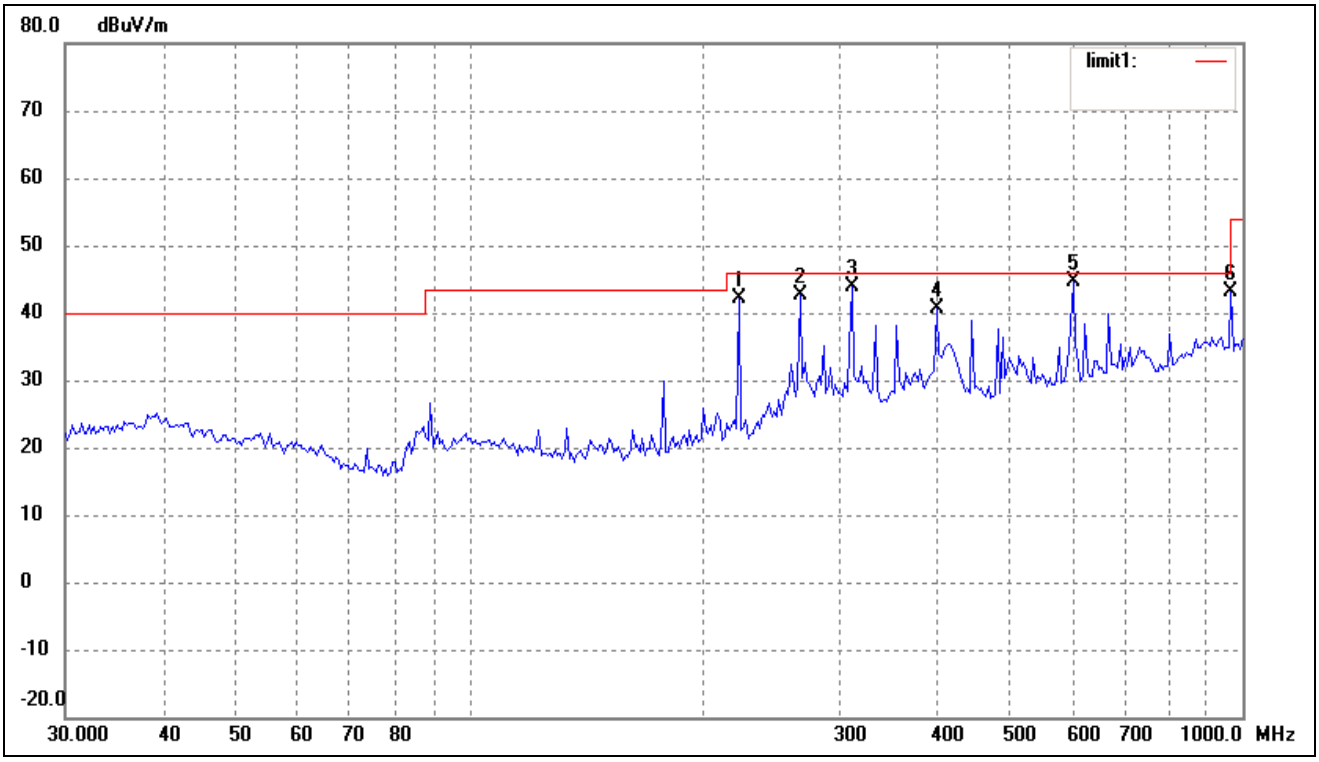
-1.43 dB at **603.5392 MHz** in the **Horizontal** polarization for **Playing Mode**, **9kHz** to **5 GHz**, **3 Meters**

Note: this EUT was tested in 3 orthogonal positions and the worst case position data was reported.

Plot of Radiated Emissions Test Data

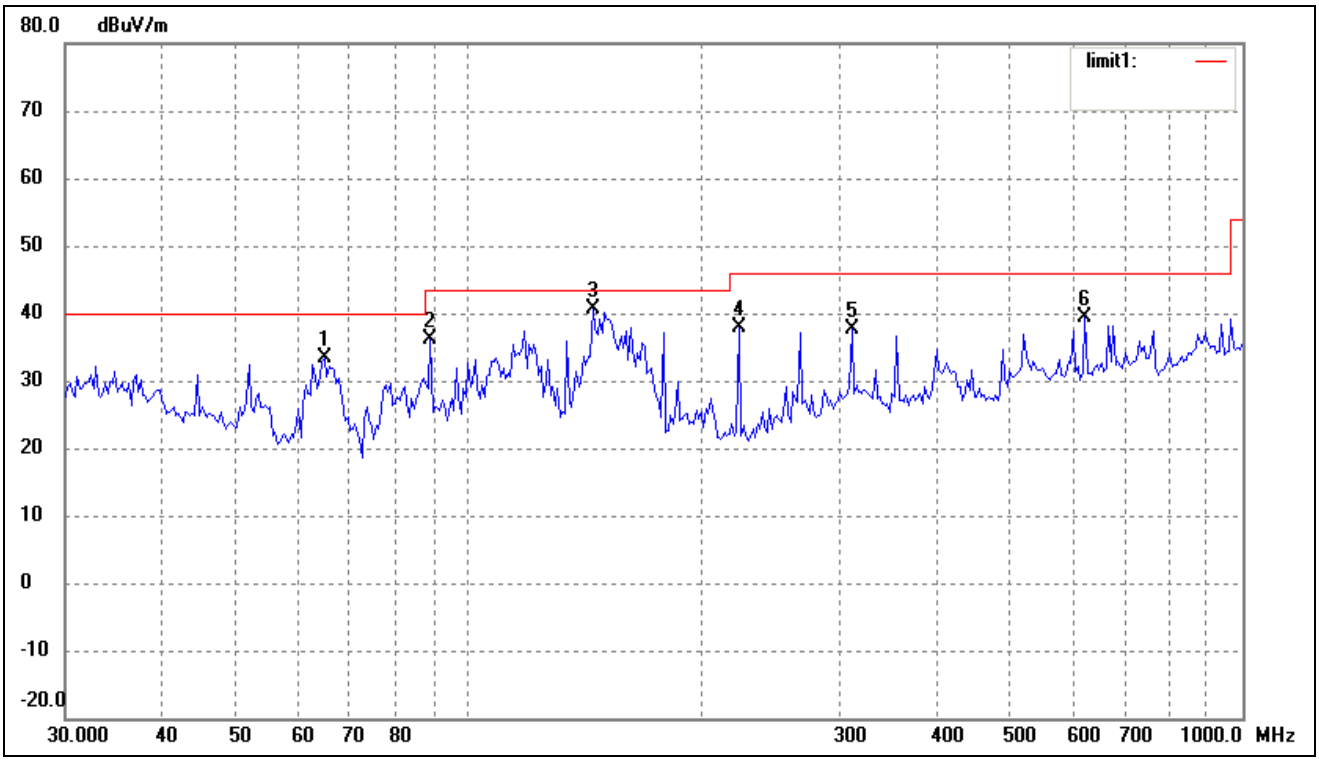
EUT: *Wireless Digital Display*
Tested Model: *PXT510WR04D*
Operating Condition: *Playing*
Comment: *Input: AC120V/60Hz Adapter, Output: DC 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	222.9502	36.16	6.08	42.24	46.00	-3.76	85	150	peak
2	267.5455	34.40	8.28	42.68	46.00	-3.32	125	100	peak
3	312.1794	33.58	10.36	43.94	46.00	-2.06	225	100	peak
4	401.8385	29.21	11.47	40.68	46.00	-5.32	135	150	peak
5	603.5392	29.95	14.62	44.57	46.00	-1.43	150	100	peak
6	965.5421	24.87	18.37	43.24	54.00	-10.76	0	100	peak

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	64.8865	29.13	4.15	33.28	40.00	-6.72	104	150	peak
2	88.9639	32.12	4.11	36.23	43.50	-7.27	55	100	peak
3	144.3348	37.22	3.46	40.68	43.50	-2.82	115	100	peak
4	222.9502	31.69	6.08	37.77	46.00	-8.23	165	150	peak
5	312.1794	27.19	10.36	37.55	46.00	-8.45	123	100	peak
6	625.0780	25.12	14.23	39.35	46.00	-6.65	0	100	peak

Note: Testing is carried out with frequency rang 9kHz to 5GHz, which above 9kHz to 30MHz and above 1GHz spurious are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

******* END OF REPORT *******