FCC Part 15B

Measurement and Test Report

For

Shenzhen Zenithink Technologies Co., Ltd

2nd Floor, Building M-3, Maqueling Industrial zone, Nanshan District,

Shenzhen, P.R. China

FCC ID: ZAXZT-18010AR

Report Concerns: Original Report	**Equipment Type:** MID
Model:	ZT-180 10AR
Report No.:	STR11028080I-2
Test Date:	2010-12-24 to 2011-03-09
Issue Date:	2011-03-11
Tested By:	Jason chen/ Engineer
Reviewed By:	Lahm Peng / EMC Manager
Approved & Authorized By:	Jandy so/PSQ Manager

Prepared By:

SEM.Test Compliance Service Co., Ltd
3/F, Jinbao Commerce Building, Xin'an Fanshen Road,
Bao'an District, Shenzhen, P.R.C.（518101）
Tel.: +86-755-33663308 Fax.: +86-755-33663309 Website: www.semtest.com.cn

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Shenzhen Zenithink Technologies Co., Ltd
Address of applicant:	2nd Floor, Building M-3, Maqueling Industrial zone, Nanshan District, Shenzhen, P.R. China
Manufacturer:	Shenzhen Zenithink Technologies Co., Ltd
Address of manufacturer:	2nd Floor, Building M-3, Maqueling Industrial zone, Nanshan District, Shenzhen, P.R. China

General Description of E.U.T

Items	Description
EUT Description:	MID
Trade Name:	ZENITHIINK
Model No.:	ZT-180 10AR, ZT-180 10AC
Rated Voltage:	DC 7.4V with DC 9V power adaptor
Rated Current:	2A
Size:	27x18x1.5cm

The test data is gathered from a production sample, provided by the manufacturer. The others models listed in the report have different appearance only of ZT-180 10AR without circuit and electronic construction changed, declared by the manufacturer.

1.2 Test Standards

The following report is prepared on behalf of the Shenzhen Zenithink Technologies Co., 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.

The equipment under test (EUT) was configured to measure its highest possible susceptibility against the tested

phenomena. The test modes were adapted accordingly in reference to the Operating Instructions.

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 Exercise Software

The EUT exercise program used during the testing was designed to exercise the system components.

1.6 Accessories Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	ASUS	XR55	/
LCD TV	BenQ	UP2212	QLD2900124032

1.7 EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	1.15	Unshielded	Without Core
HDMI Cable	1	Shielded	Without Core

2. SUMMARY OF TEST RESULTS

Description of Test	Result
§15.107 (a) Conducted Emission	Compliant
§15.109(a) Radiated Emission	Compliant

3. §15.107 (a) 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

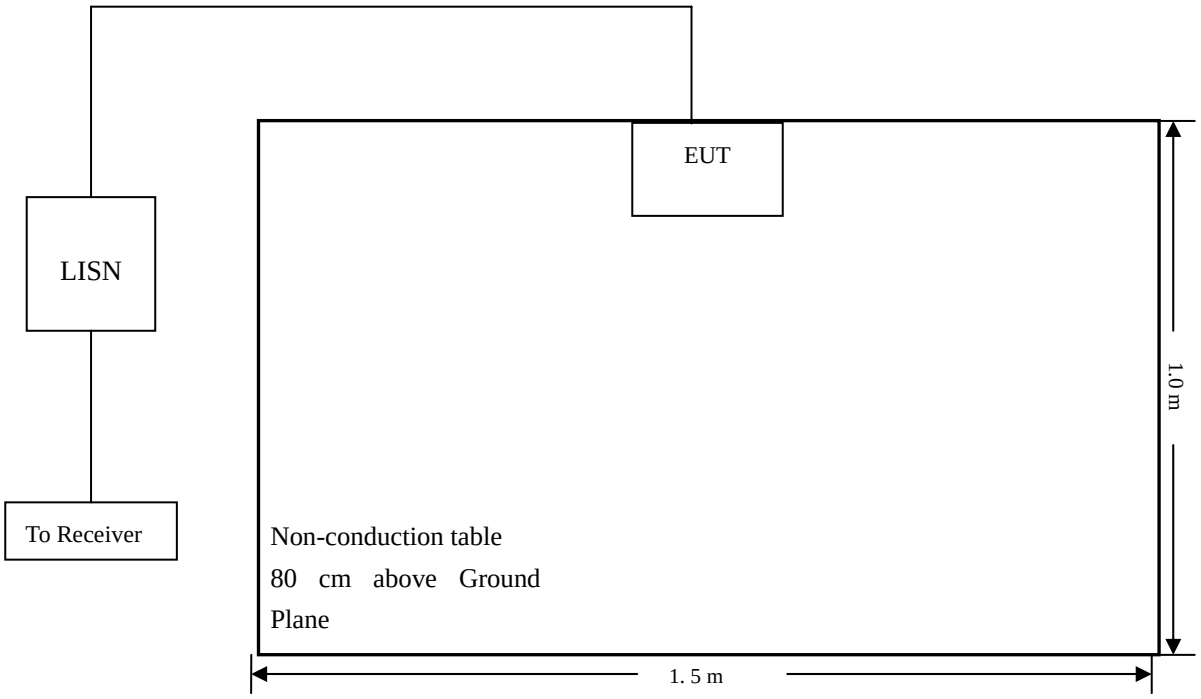
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2010-12-20	2011-12-19
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2010-12-20	2011-12-19
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2010-12-20	2011-12-19

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

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 15.107 Conducted margin for a Class B device, with the *worst* margin reading of:

-5.23 dBμV at **0.482 MHz** in the **Neutral**, **Average** detector, 0.15-30MHz

3.7 Conducted Emissions Test Data

LINE CONDUCTED EMISSIONS				FCC 15.107	
Frequency	Amplitude	Detector	Phase	Limit	Margin
MHz	dBμV	QP/Ave/Pk	Line/Neutral	dBμV	dB
0.482	41.07	Ave	Neutral	46.30	-5.23
0.686	39.22	Ave	Line	46.00	-6.77
1.602	38.93	Ave	Line	46.00	-7.06
1.158	38.92	Ave	Neutral	46.00	-7.07
4.49	38.18	Ave	Neutral	46.00	-7.81
0.482	48.33	Pk	Neutral	56.29	-7.96
0.354	40.20	Ave	Neutral	48.86	-8.66
0.354	38.89	Ave	Line	48.86	-9.97
2.27	36.00	Ave	Line	46.00	-9.99
0.506	45.57	Pk	Line	56.00	-10.42
1.026	45.16	Pk	Line	56.00	-10.83
0.170	51.48	Pk	Line	64.96	-13.48

Emission attenuated more than 20dB of the limit is not reported.

Plot of Conducted Emissions Test Data

Conducted Disturbance

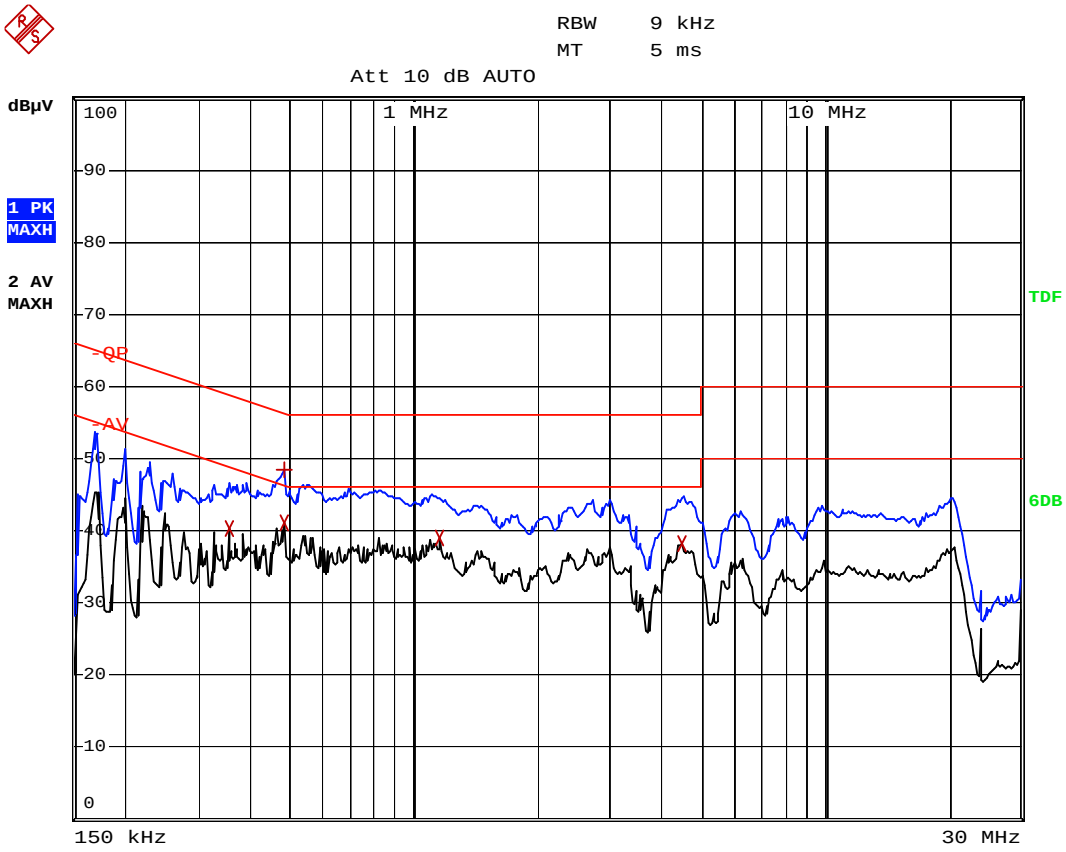
EUT: MID

M/N: ZT-180 10AR

Operating Condition: Wireless Transmitting&Charging

Test Specification: N

Comment: 120V/60Hz; DC 9V



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Plot of Conducted Emissions Test Data

Conducted Disturbance

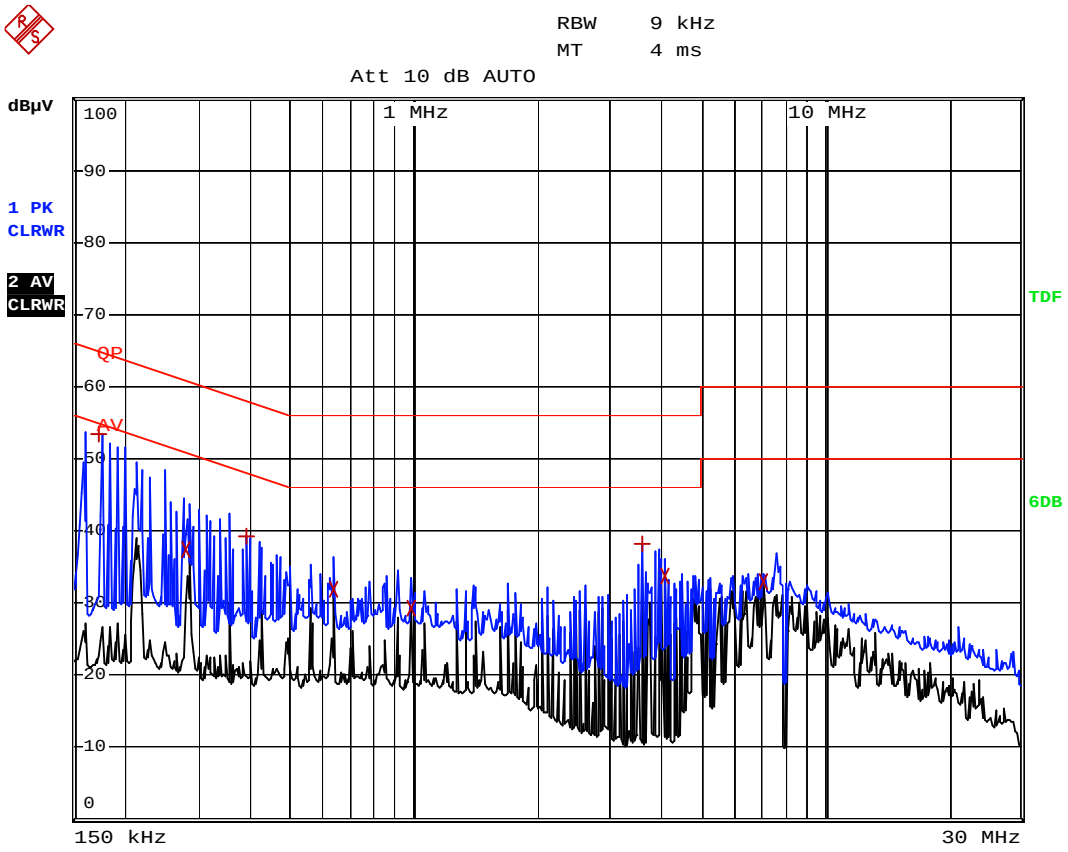
EUT: MID

M/N: ZT-180 10AR

Operating Condition: Wireless Transmitting&Charging

Test Specification: L

Comment: 120V/60Hz; DC 9V



4. §15.109(a)- RADIATED EMISSION

4.1 Measurement Uncertainty

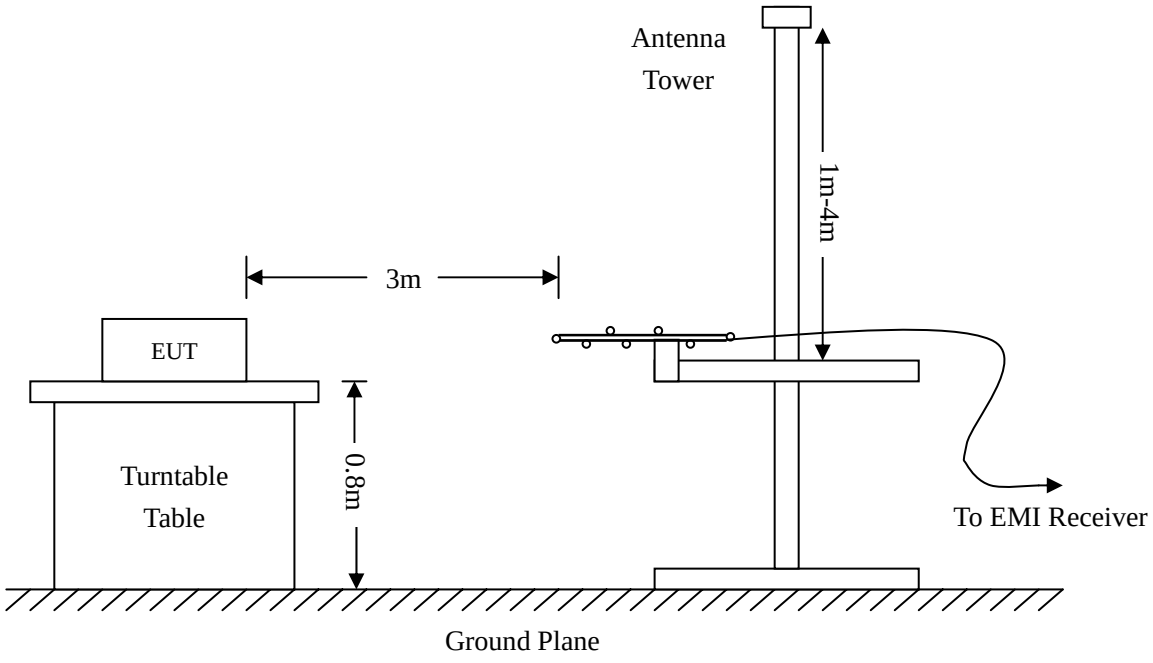
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

4.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2010-12-20	2011-12-19
EMI Test Receiver	R&S	ESVB	825471/005	2010-12-20	2011-12-19
Positioning Controller	C&C	CC-C-1F	N/A	2010-12-20	2011-12-19
RF Switch	EM	EMSW18	SW060023	2010-12-20	2011-12-19
Pre-amplifier	Agilent	8447F	3113A06717	2010-12-20	2011-12-19
Pre-amplifier	Compliance Direction	PAP-0118	24002	2010-12-20	2011-12-19
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2011-01-09	2012-01-08
Horn Antenna	ETS	3117	00086197	2011-01-09	2012-01-08

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2009 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.



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 Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15B 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 15B Class B standards, and had the worst margin of:

-1.31 dBμV at **578.6698 MHz** in the **Horizontal** polarization, **Playing** mode, **30 MHz to 1 GHz, 3Meters**
-2.35 dBμV at **578.6699 MHz** in the **Horizontal** polarization, **Downloading** mode, **30 MHz to 1 GHz, 3Meters**
-2.00 dBμV at **434.0650 MHz** in the **Vertical** polarization, **HDMI OUT** mode, **30 MHz to 1 GHz, 3Meters**

Plot of Radiation Emissions Test

Radiated Disturbance

EUT: MID

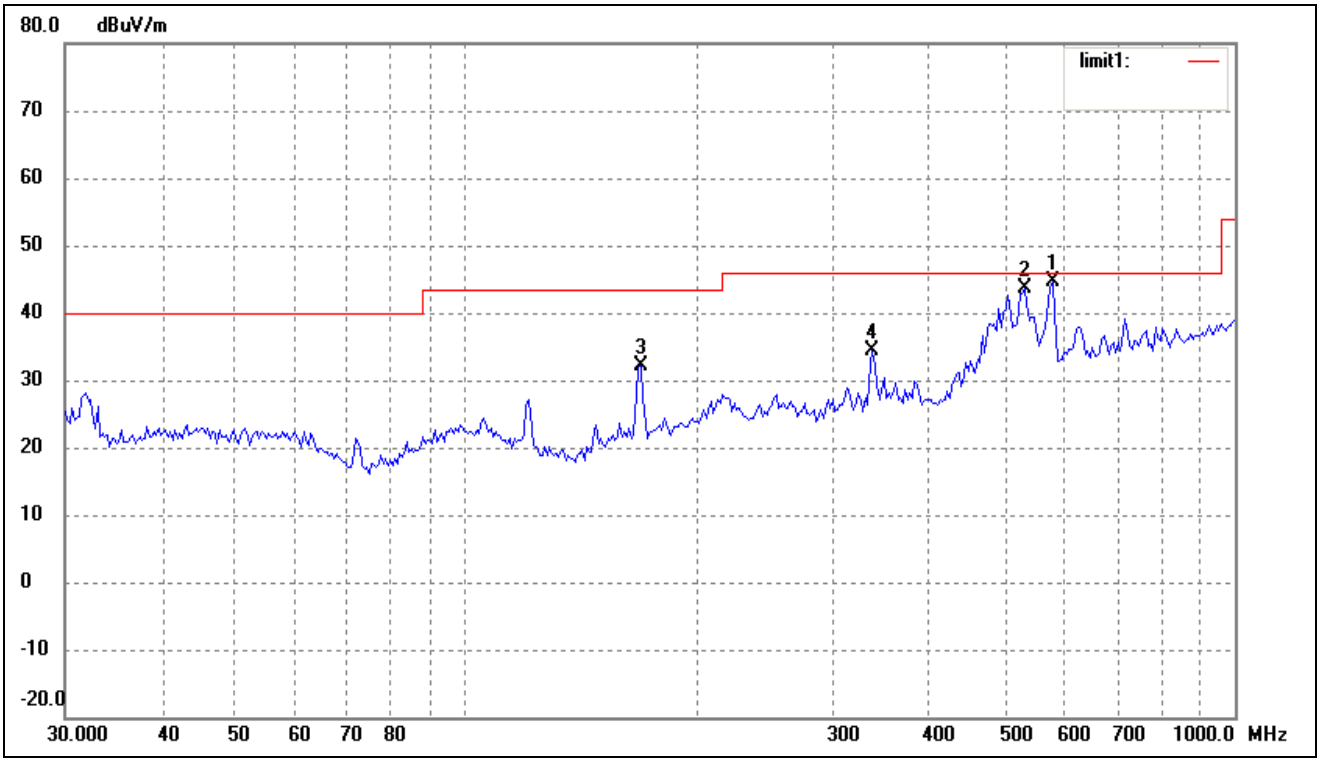
M/N: ZT-180 10AR

Operating Condition: Playing&Charging

Test Specification: Horizontal & Vertical

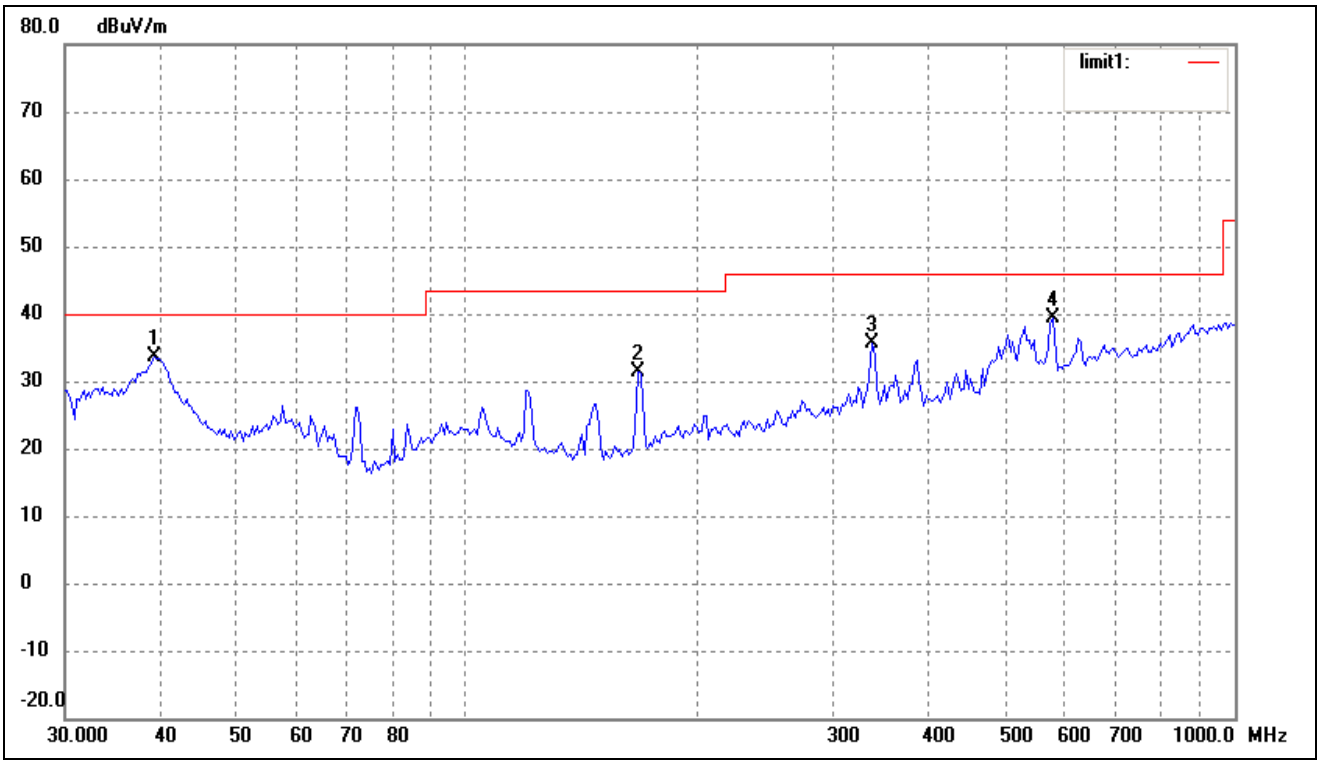
Comment: AC 120V/60Hz DC 9V

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	578.6698	28.51	16.18	44.69	46.00	-1.31	209	114	QP
2	531.9634	28.50	15.12	43.62	46.00	-2.38	223	146	QP
3	168.4138	27.31	4.84	32.15	43.50	-11.35	215	100	peak
4	337.2155	24.04	10.37	34.41	46.00	-11.59	108	100	peak

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	39.1616	25.66	7.91	33.57	40.00	-6.43	360	100	peak
2	167.2368	26.62	4.79	31.41	43.50	-12.09	360	100	peak
3	337.2155	25.14	10.37	35.51	46.00	-10.49	360	100	peak
4	578.6699	23.17	16.18	39.35	46.00	-6.65	0	200	peak

Radiated Disturbance

EUT: MID

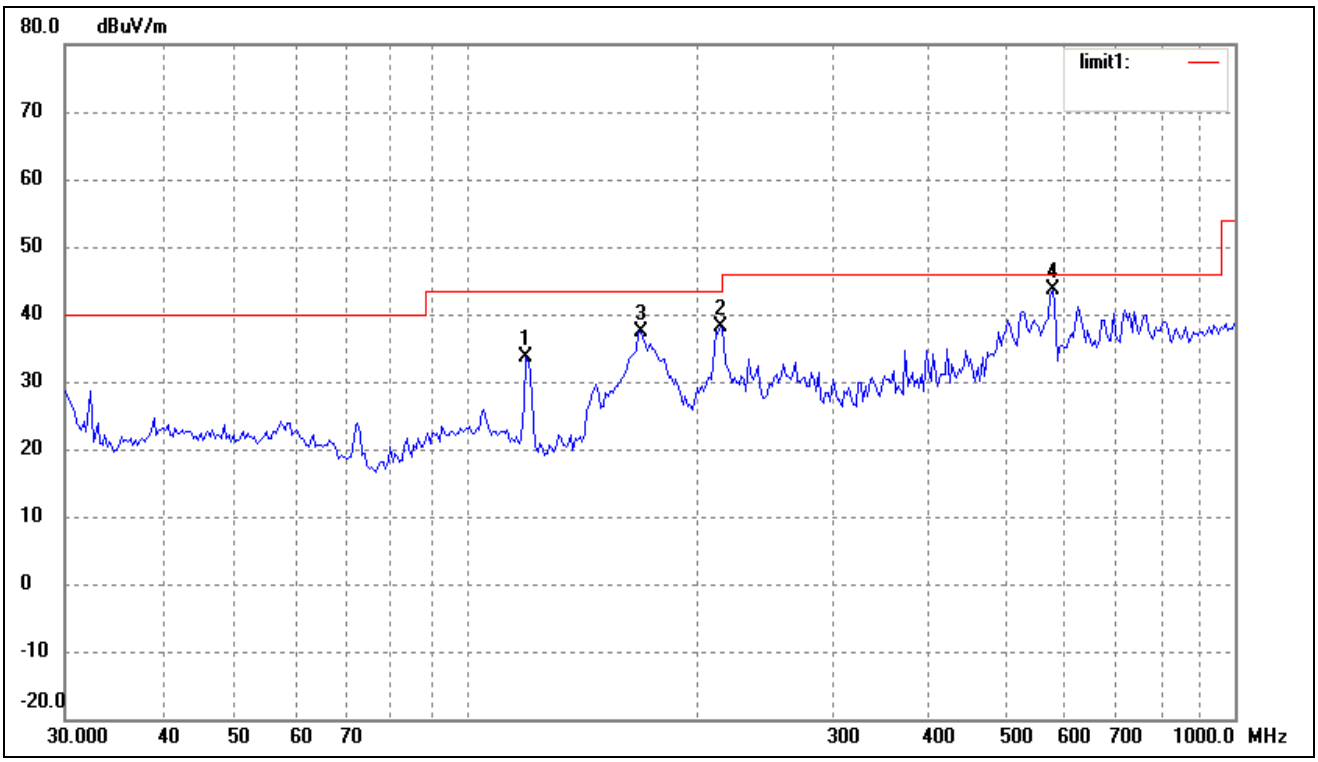
M/N: ZT-180 10AR

Operating Condition: Downloading

Test Specification: Horizontal & Vertical

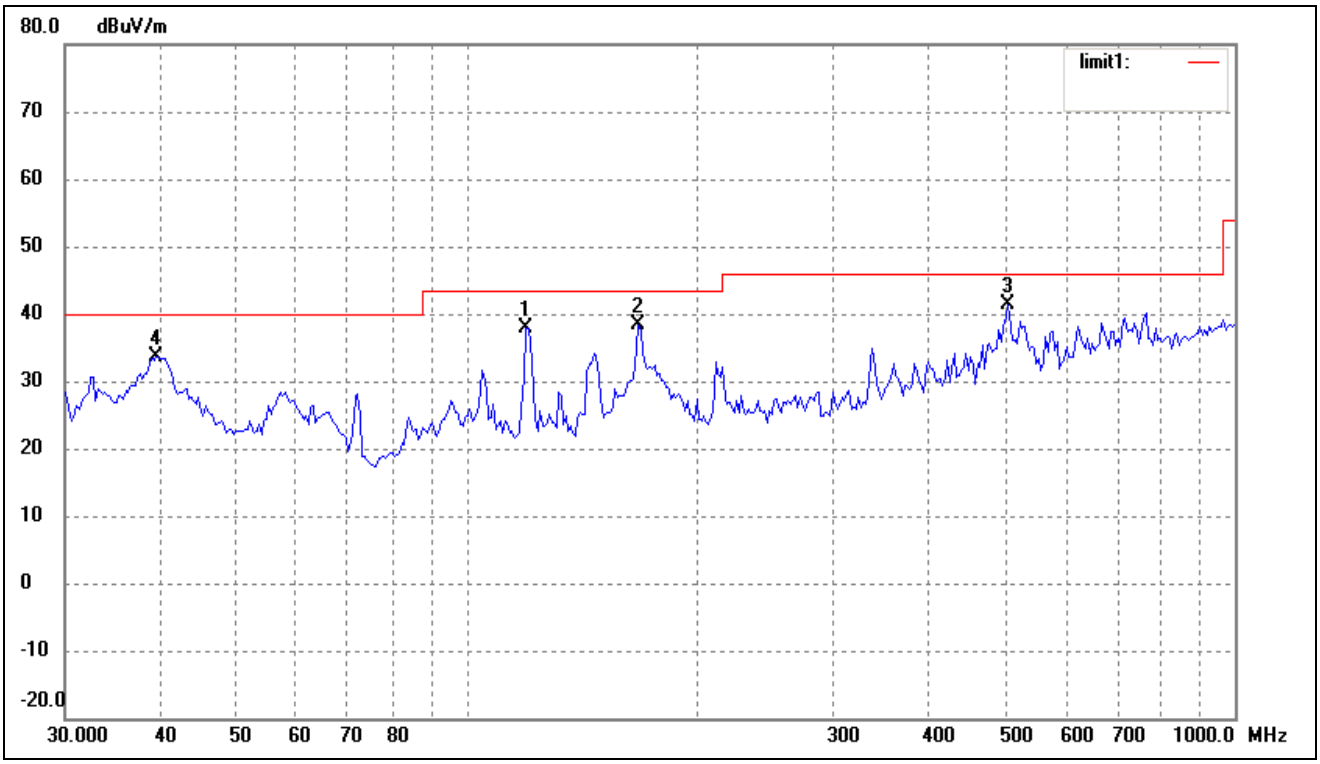
Comment: AC120V/60Hz; Connect to PC, DC 9V

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	119.4361	27.57	6.04	33.61	43.50	-9.89	360	200	peak
2	213.7634	30.96	7.06	38.02	43.50	-5.48	205	112	QP
3	168.4138	32.65	4.84	37.49	43.50	-6.01	0	120	peak
4	578.6699	27.47	16.18	43.65	46.00	-2.35	241	100	QP

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	119.4361	31.84	6.04	37.88	43.50	-5.62	206	103	QP
2	167.2368	33.49	4.79	38.28	43.50	-5.22	221	145	QP
3	506.4791	26.83	14.55	41.38	46.00	-4.62	124	112	QP
4	39.4372	25.73	7.99	33.72	40.00	-6.28	360	200	peak

Radiated Disturbance

EUT: MID

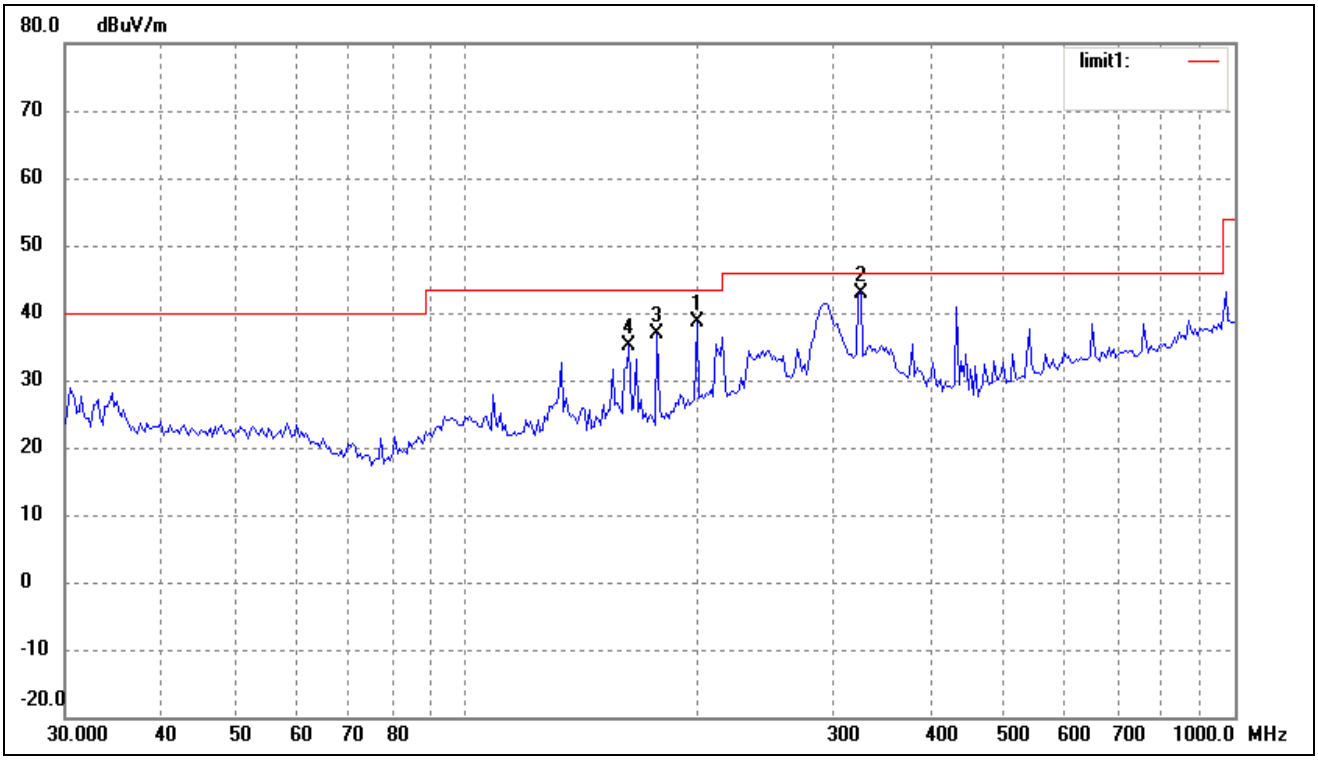
M/N: ZT-180 10AR

Operating Condition: HDMI OUT

Test Specification: Horizontal & Vertical

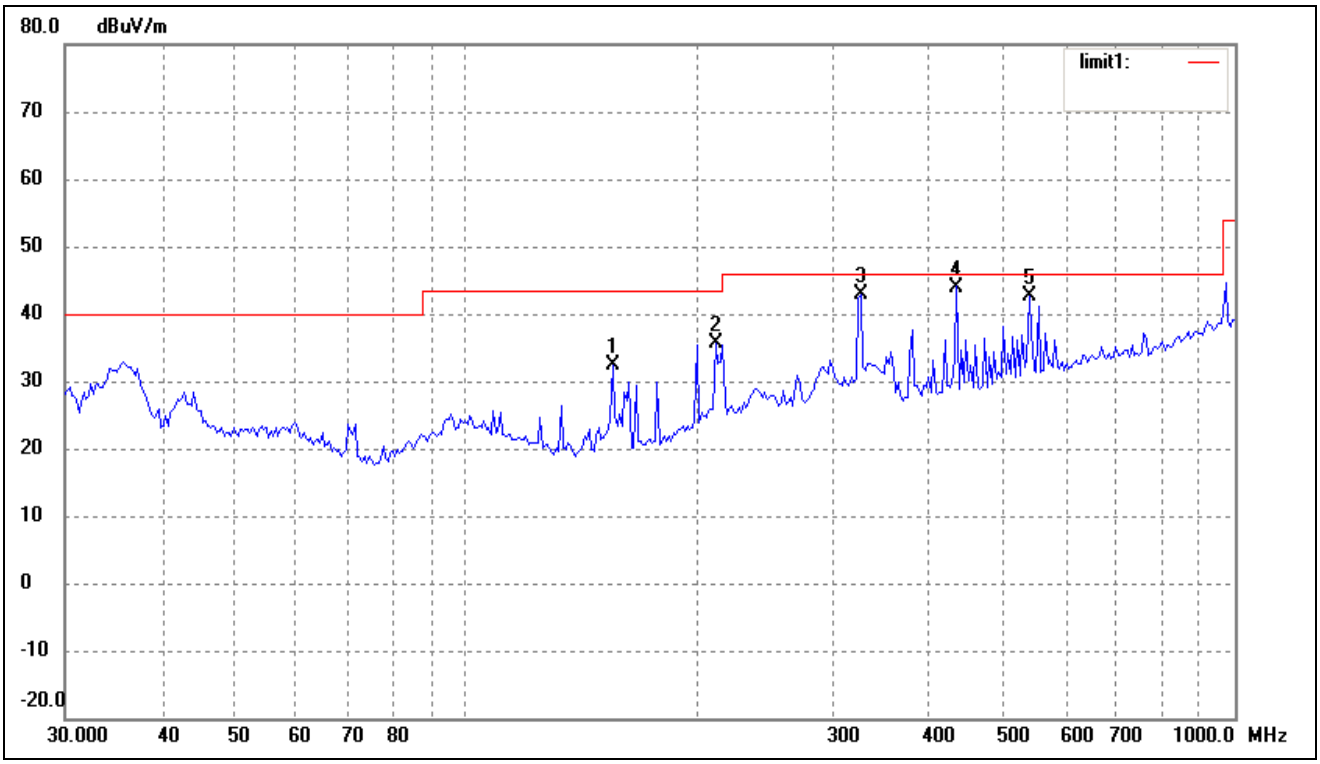
Comment: AC120V/60Hz; Connect to TV DC 9V

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	199.2855	32.13	6.58	38.71	43.50	-4.79	203	150	QP
2	325.5958	32.89	10.11	43.00	46.00	-3.00	224	100	QP
3	176.8878	31.53	5.41	36.94	43.50	-6.56	0	100	peak
4	162.6106	30.38	4.63	35.01	43.50	-8.49	0	100	peak

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	154.8204	28.01	4.30	32.31	43.50	-11.19	360	200	peak
2	210.7860	28.71	6.97	35.68	43.50	-7.82	0	200	peak
3	325.5957	32.68	10.11	42.79	46.00	-3.21	203	112	QP
4	434.0650	32.07	11.93	44.00	46.00	-2.00	224	146	QP
5	539.4774	27.32	15.30	42.62	46.00	-3.38	164	108	QP

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