FCC Part 15B
Measurement and Test Report

For

ARB Corporation Ltd

42-44 Garden St, Kilsyth, Victoria, Australia

FCC ID: 2AA2H-LINXD1

Test Rule(s):	FCC Part 15 Subpart B
Product Description:	LINX DISPLAY
Tested Model:	7450102
Report No.:	STR17058250I-5
Tested Date:	2017-05-18 to 2017-06-03
Issued Date:	2017-06-03
Tested By:	Leo Lee / Engineer
Reviewed By:	Silin Chen / EMC Manager
Approved & Authorized By:	Jandy So / PSQ Manager

Prepared By:

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TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	ARB Corporation Ltd
Address of applicant:	42-44 Garden St, Kilsyth, Victoria, Australia
Manufacturer:	ZXD Technology Development Limited
Address of manufacturer:	Unit 415-418, Building C, Baoan New Generation Technology Information Industry Park, Baoan District, Shenzhen, P.R.China

General Description of EUT	
Product Name:	LINX DISPLAY
Trade Name:	ARB
Model No.:	7450102
Adding Model(s):	/
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC 3.7V by battery
Battery:	2000mAh
Rated Power:	/
Power Adapter Model:	/
Lowest Internal Frequency:	32.768KHz
Highest Internal Frequency:	1.3GHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the ARB Corporation 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 C63.4-2014, 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.: 934118

Shenzhen SEM.Test Technology 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 934118.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

CNAS Registration No.: L4062

Shenzhen SEM.Test Technology 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 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd 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	Charge and Camera mode	/
TM2	Charge and Play mode	/
TM3	Downloading mode	/

Accessories Equipment List and Details			
Description	**Manufacturer**	**Model No.**	**Serial Number**
Adapter	VONINO	VNA-V50JS	/
Notebook	Lenovo	E445	/
Accessories Cable List and Details			
Cable Description	**Length (m)**	**Shielded/Unshielded**	**With Core/Without Core**
/	/	/	/
EUT Cable List and Details			
Cable Description	**Length (m)**	**Shielded/Unshielded**	**With Core/Without Core**
USB cable	1.2	Shielded	Without Core

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	±2.88dB
Transmitter Spurious Emissions	Radiated	±5.1dB

1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2016-06-04	2017-06-03
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2016-06-04	2017-06-03
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2016-06-04	2017-06-03
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2016-06-04	2017-06-03
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2016-06-04	2017-06-03
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2016-06-04	2017-06-03
SEMT-1042	Horn Antenna	ETS	3117	00086197	2016-06-04	2017-06-03
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2016-06-04	2017-06-03
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2016-06-04	2017-06-03
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2016-06-04	2017-06-03
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2016-06-04	2017-06-03

2. SUMMARY OF TEST RESULTS

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

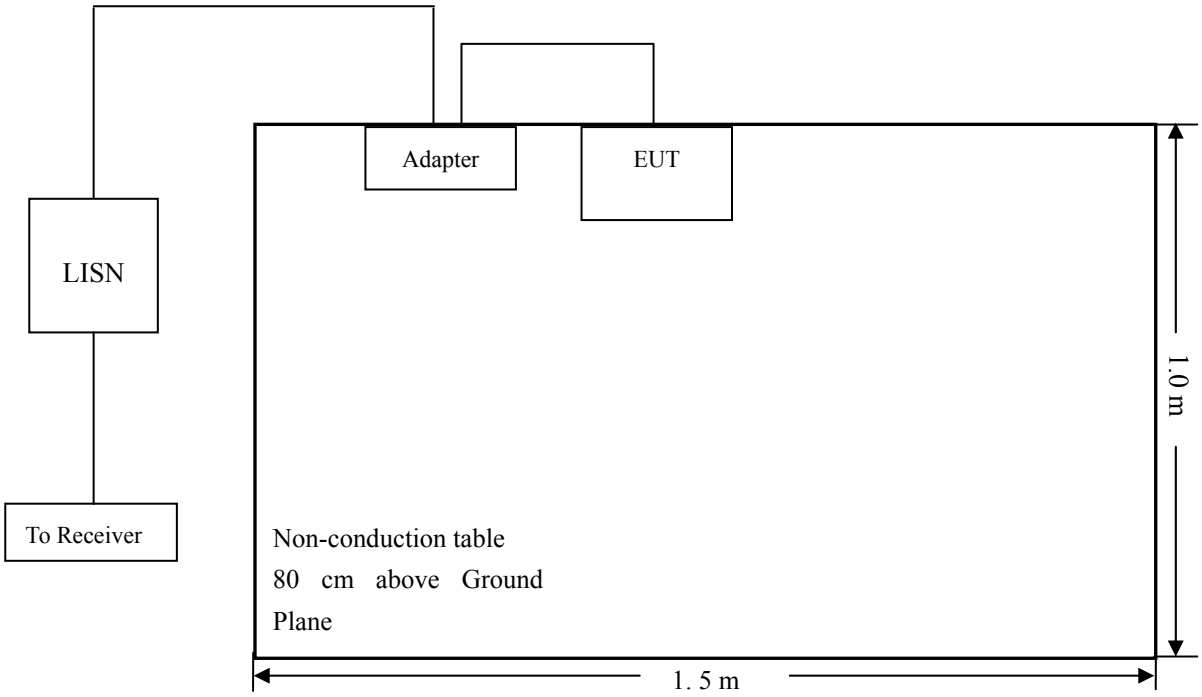
N/A: not applicable

3. Conducted Emissions

3.1 Test Procedure

Test is conducting under the description of ANSI C63.4-2014, 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.

3.2 Basic Test Setup Block Diagram



3.3 Environmental Conditions

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

3.4 Summary of Test Results/Plots

According to the data in section 3.5, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

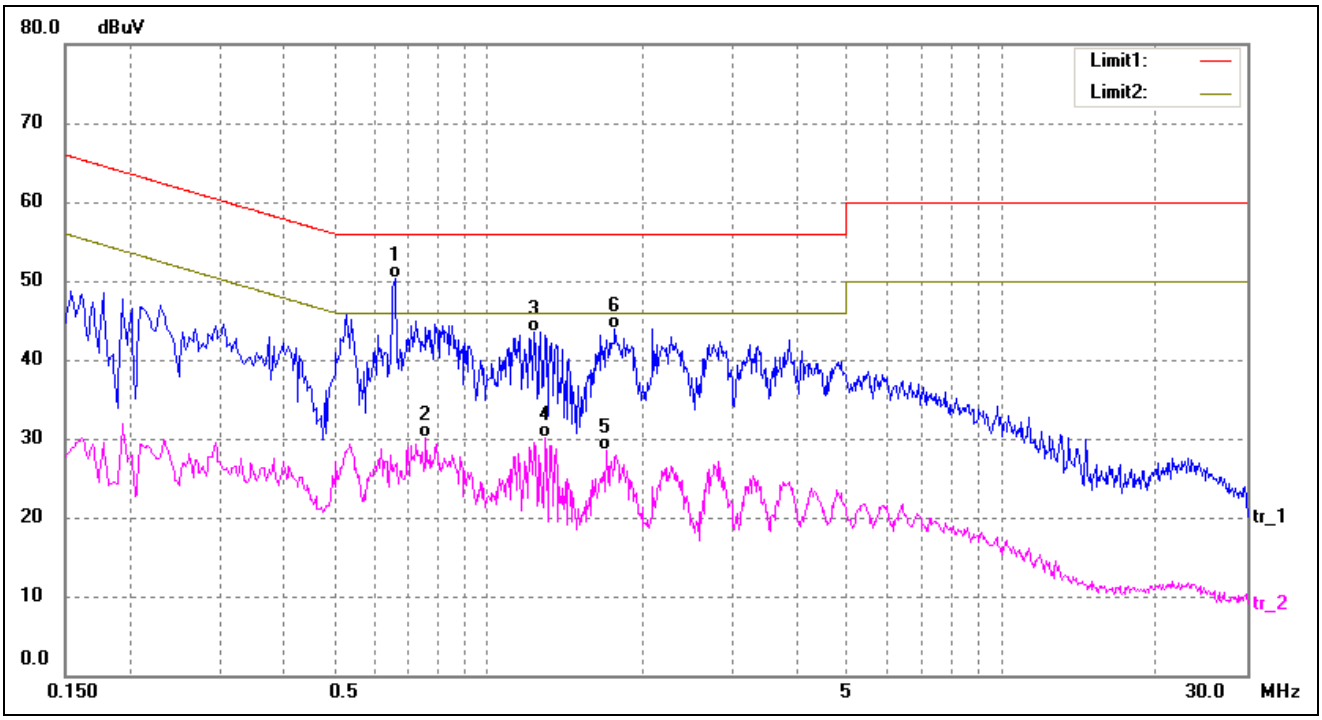
-5.04 dB at **0.2060 MHz** in the **Line**, **QP** detector, **TM3** mode, 0.15-30MHz

3.5 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

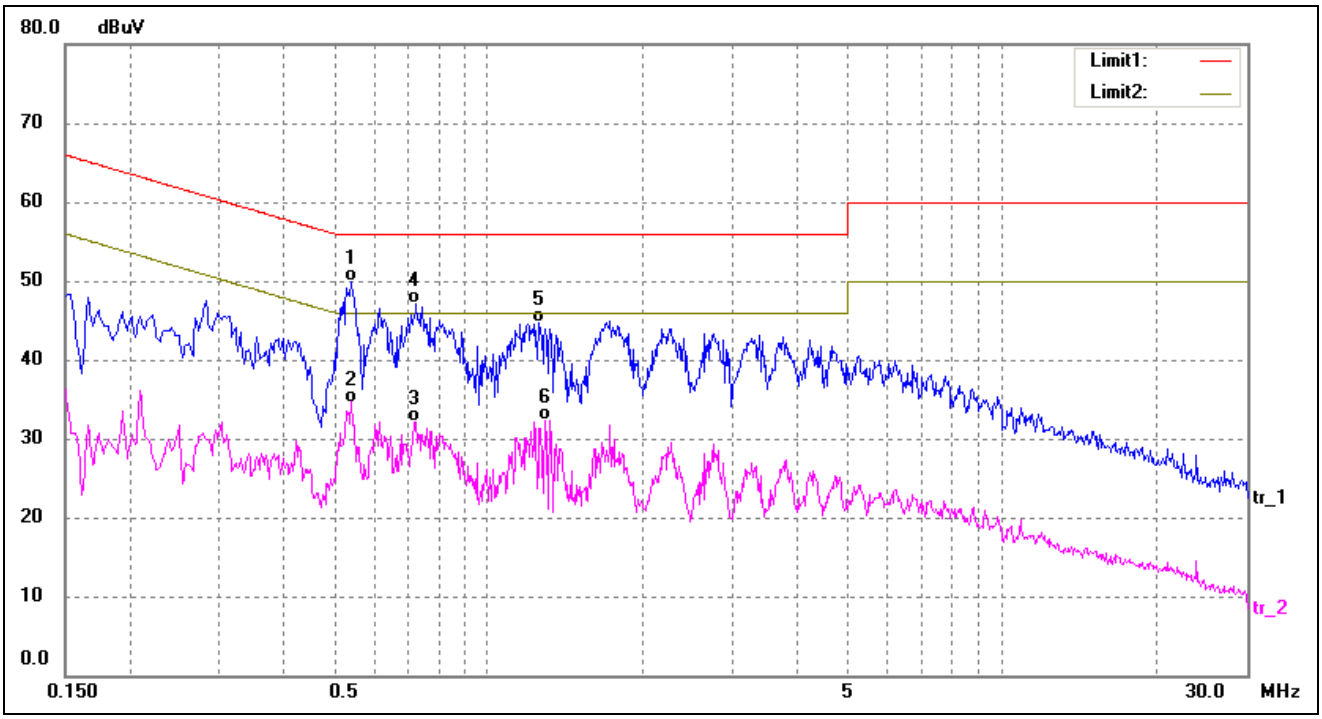
EUT: *LINX DISPLAY*
Tested Model: *7450102*
Operating Condition: *TM1*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.6580	40.58	9.79	50.37	56.00	-5.63	QP
2	0.7580	20.40	9.78	30.18	46.00	-15.82	AVG
3	1.2260	33.67	9.75	43.42	56.00	-12.58	QP
4	1.2940	20.36	9.75	30.11	46.00	-15.89	AVG
5	1.7020	18.71	9.74	28.45	46.00	-17.55	AVG
6	1.7700	34.24	9.74	43.98	56.00	-12.02	QP

Test Specification: *Line*

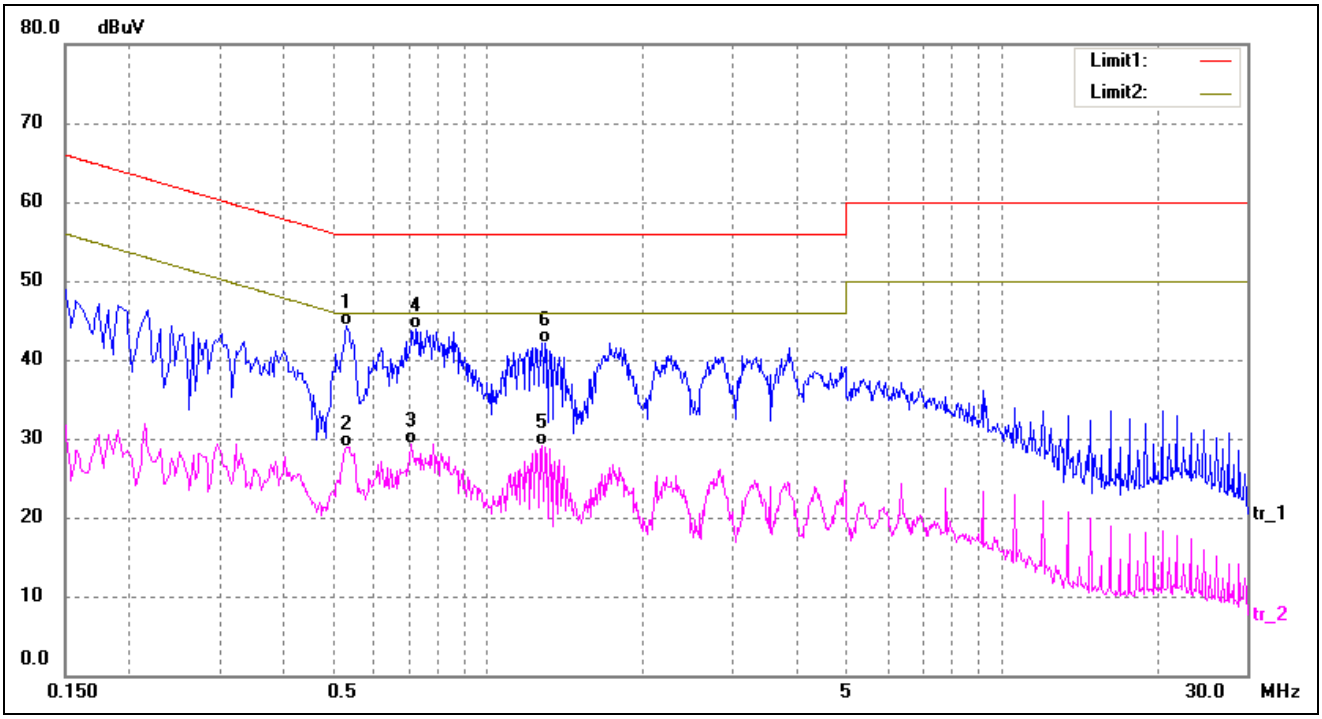


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.5420	40.02	9.80	49.82	56.00	-6.18	QP
2	0.5420	24.80	9.80	34.60	46.00	-11.40	AVG
3	0.7180	22.40	9.78	32.18	46.00	-13.82	AVG
4	0.7260	37.31	9.78	47.09	56.00	-8.91	QP
5	1.2580	34.96	9.75	44.71	56.00	-11.29	QP
6	1.2940	22.57	9.75	32.32	46.00	-13.68	AVG

Plot of Conducted Emissions Test Data

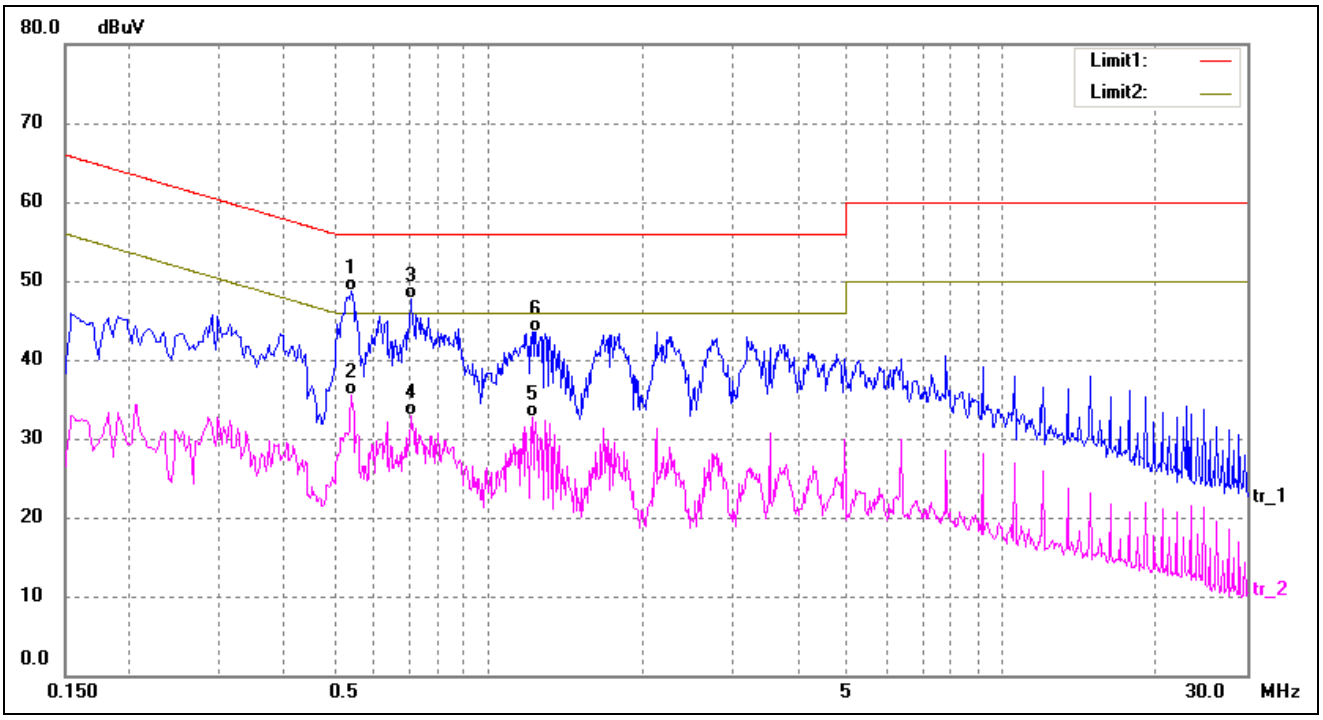
EUT: *LINX DISPLAY*
Tested Model: *7450102*
Operating Condition: *TM2*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.5300	34.46	9.80	44.26	56.00	-11.74	QP
2	0.5300	19.17	9.80	28.97	46.00	-17.03	AVG
3	0.7100	19.61	9.78	29.39	46.00	-16.61	AVG
4	0.7260	34.13	9.78	43.91	56.00	-12.09	QP
5	1.2700	19.39	9.75	29.14	46.00	-16.86	AVG
6	1.2940	32.45	9.75	42.20	56.00	-13.80	QP

Test Specification: *Line*

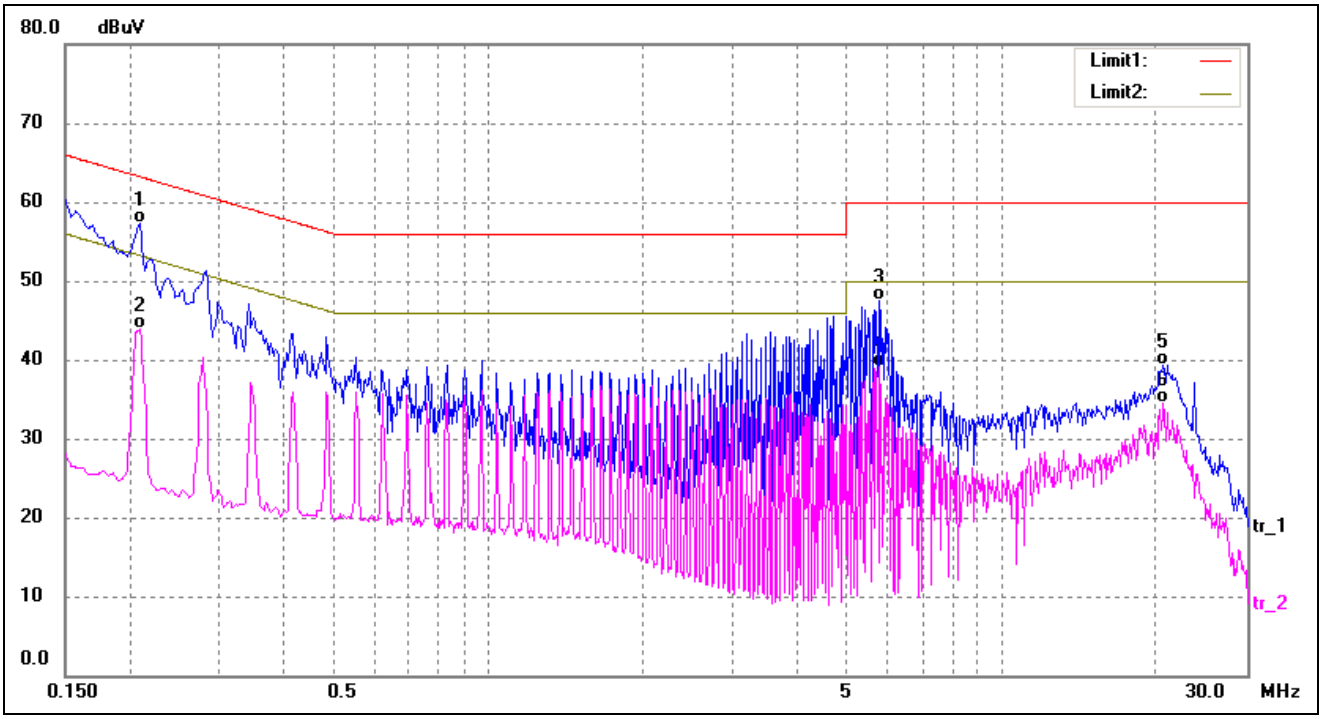


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.5420	38.98	9.80	48.78	56.00	-7.22	QP
2	0.5420	25.77	9.80	35.57	46.00	-10.43	AVG
3	0.7060	37.91	9.78	47.69	56.00	-8.31	QP
4	0.7060	23.05	9.78	32.83	46.00	-13.17	AVG
5	1.2180	23.00	9.75	32.75	46.00	-13.25	AVG
6	1.2420	33.84	9.75	43.59	56.00	-12.41	QP

Plot of Conducted Emissions Test Data

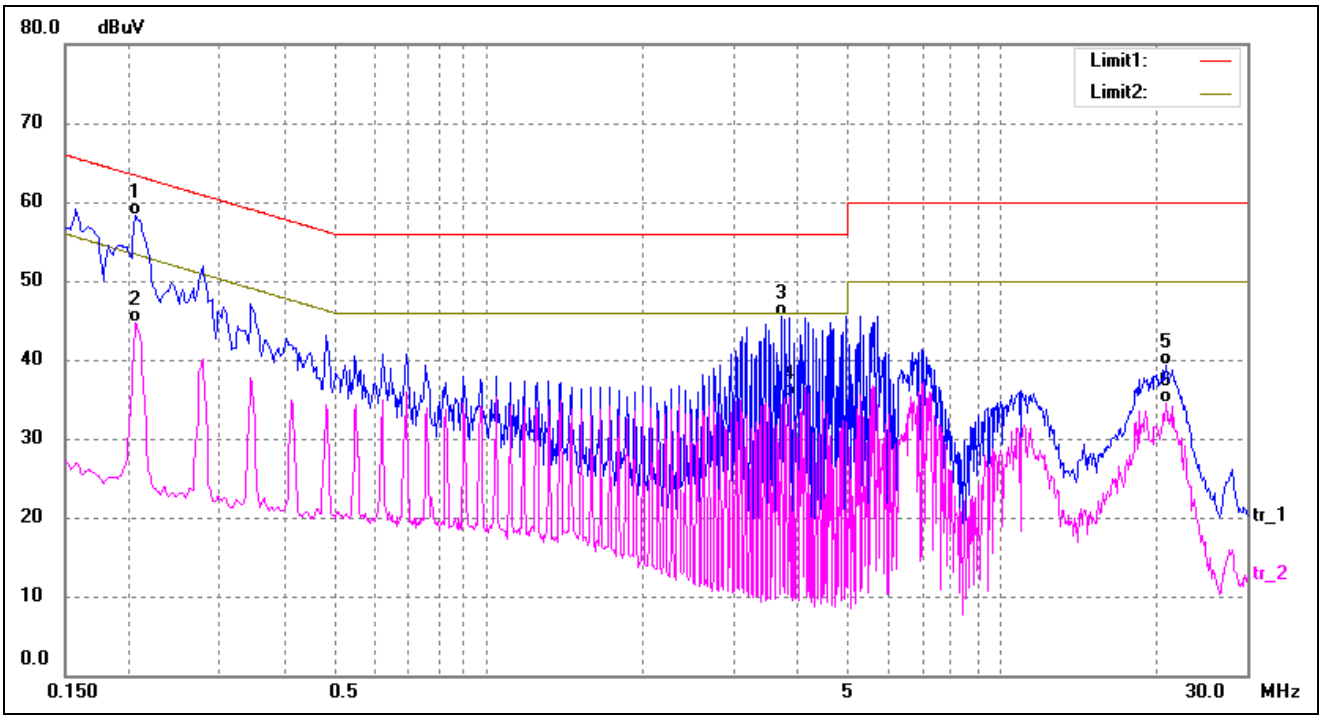
EUT: *LINX DISPLAY*
Tested Model: *7450102*
Operating Condition: *TM3*
Comment: *AC 120V/60Hz; USB 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.2100	47.48	9.80	57.28	63.21	-5.93	QP
2	0.2100	34.08	9.80	43.88	53.21	-9.33	AVG
3	5.7500	37.77	9.64	47.41	60.00	-12.59	QP
4	5.7500	29.51	9.64	39.15	50.00	-10.85	AVG
5	20.6540	29.63	9.68	39.31	60.00	-20.69	QP
6	20.6540	24.86	9.68	34.54	50.00	-15.46	AVG

Test Specification: *Line*

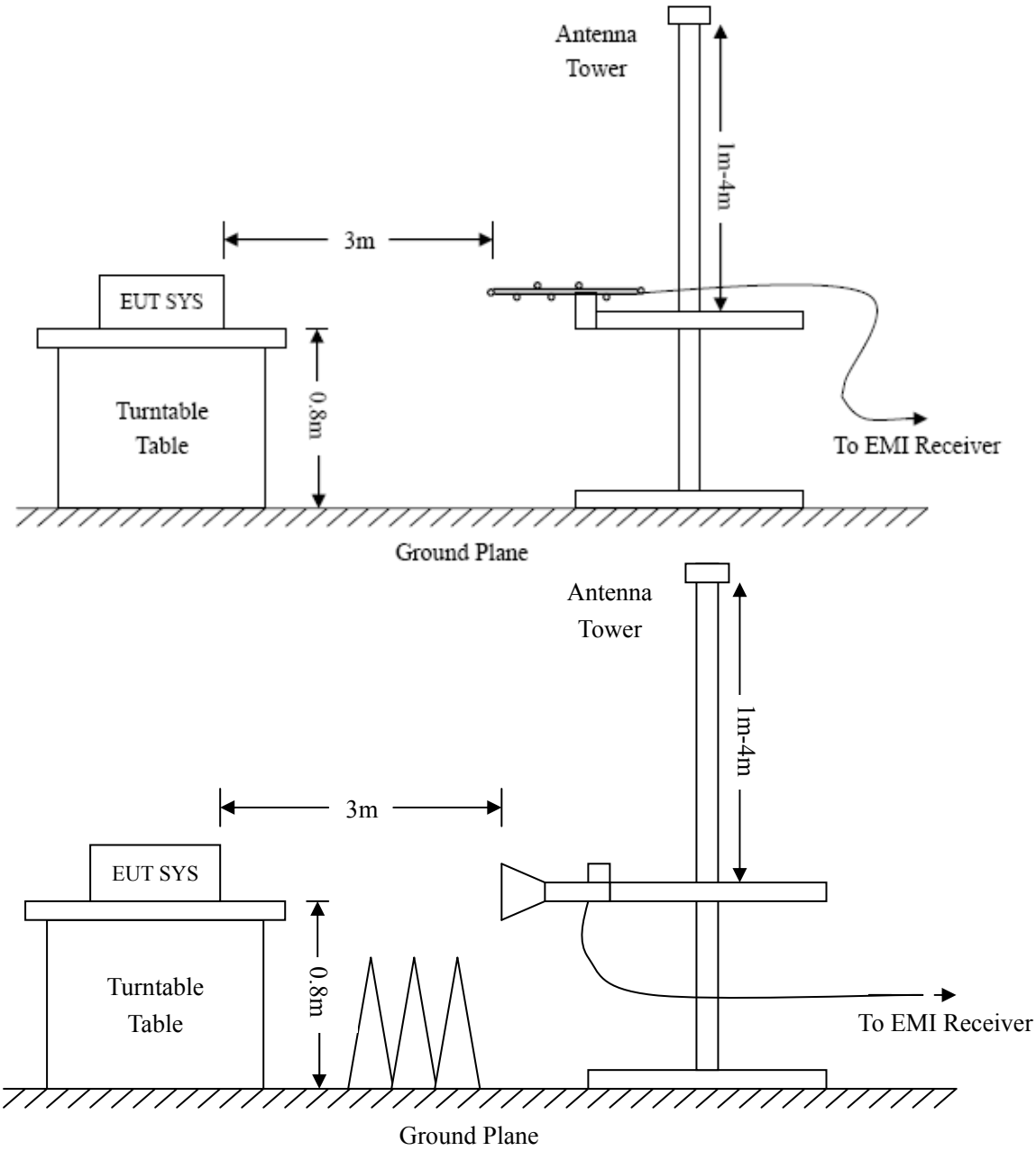


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.2060	48.53	9.80	58.33	63.37	-5.04	QP
2	0.2060	34.84	9.80	44.64	53.37	-8.73	AVG
3	3.7260	35.81	9.69	45.50	56.00	-10.50	QP
4	3.8660	25.67	9.69	35.36	46.00	-10.64	AVG
5	20.8660	29.62	9.68	39.30	60.00	-20.70	QP
6	20.8660	24.81	9.68	34.49	50.00	-15.51	AVG

4. Radiated Emissions

4.1 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 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.



4.2 Test Receiver Setup

Frequency :9kHz-30MHz	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	Detector function = peak, AV

4.3 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

4.4 Environmental Conditions

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

4.5 Summary of Test Results/Plots

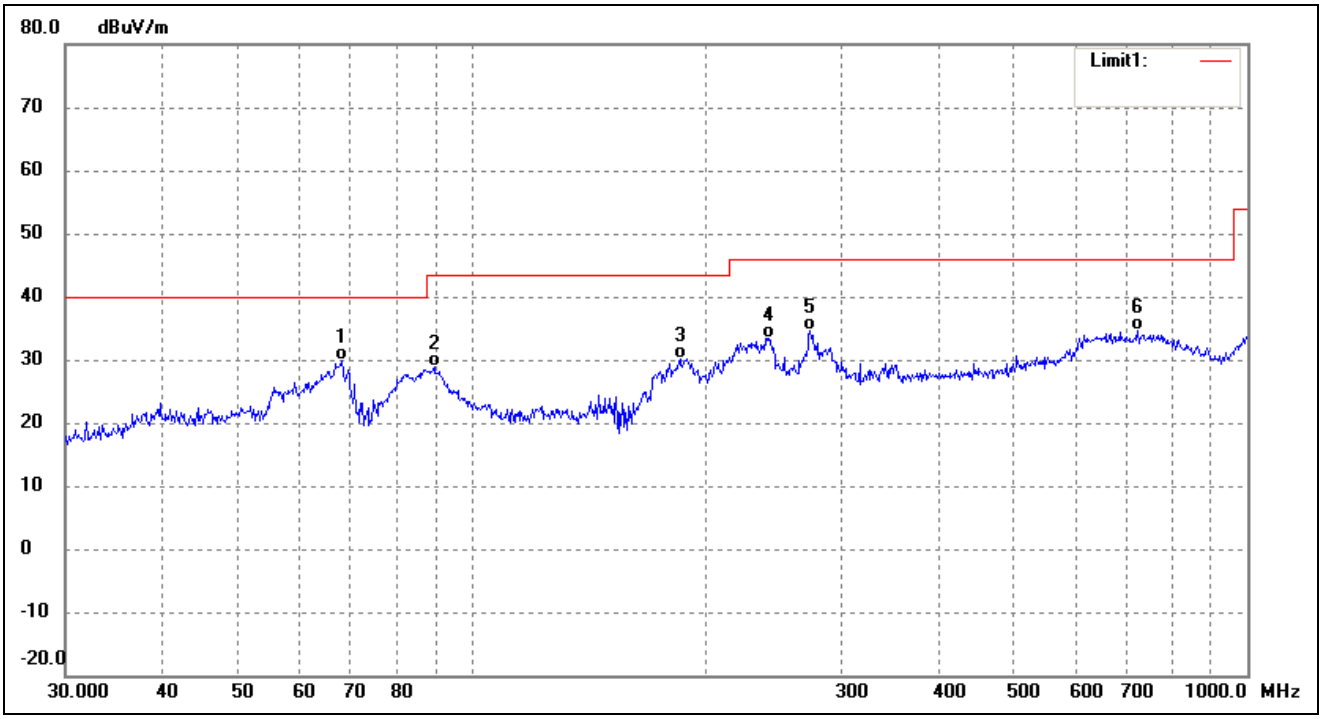
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-3.03 dB at **66.7325 MHz** in the **Vertical** polarization, **TM2** mode, **30MHz** to **12.75 GHz**, **3Meters**

Plot of Radiated Emissions Test Data

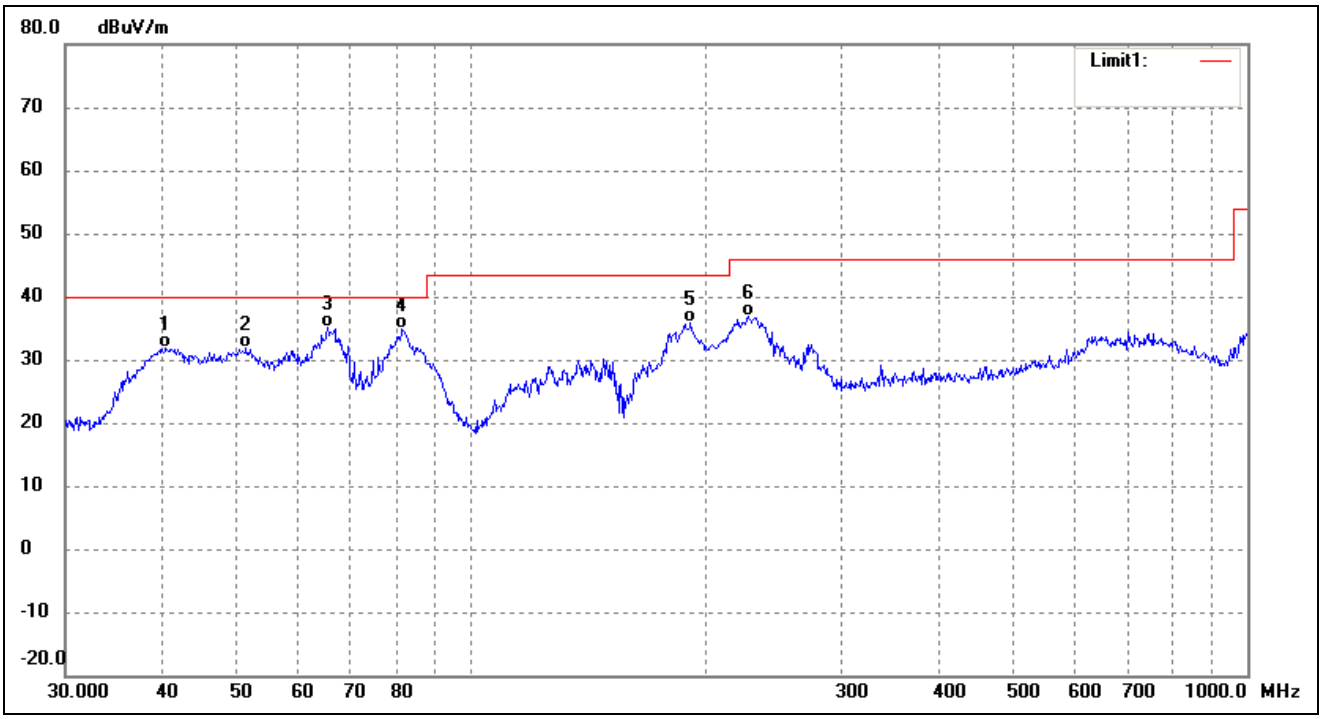
EUT: *LINX DISPLAY*
Tested Model: *7450102*
Operating Condition: *TM1*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	68.1514	26.65	3.29	29.94	40.00	-10.06	314	100	QP
2	89.5900	25.51	3.33	28.84	43.50	-14.66	95	100	QP
3	185.7882	27.36	2.70	30.06	43.50	-13.44	181	100	QP
4	241.6763	24.39	9.00	33.39	46.00	-12.61	97	100	QP
5	273.2341	24.05	10.64	34.69	46.00	-11.31	341	100	QP
6	721.7259	16.81	17.91	34.72	46.00	-11.28	91	100	QP

Test Specification: *Vertical*

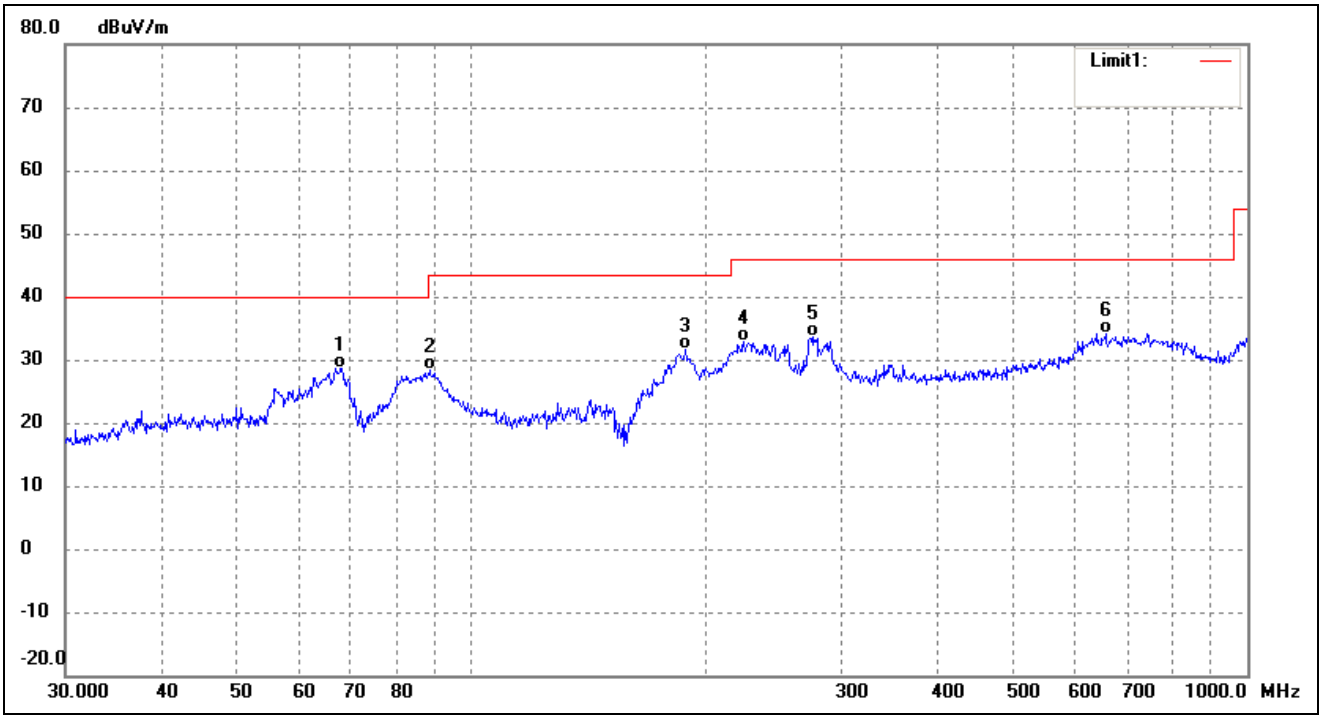


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	40.4172	26.97	4.93	31.90	40.00	-8.10	282	100	QP
2	51.3005	26.97	5.02	31.99	40.00	-8.01	90	100	QP
3	65.3432	31.33	3.90	35.23	40.00	-4.77	209	100	QP
4	81.4970	32.97	1.98	34.95	40.00	-5.05	97	100	QP
5	191.7450	32.95	2.97	35.92	43.50	-7.58	57	100	QP
6	227.6906	28.83	8.14	36.97	46.00	-9.03	216	100	QP

Plot of Radiated Emissions Test Data

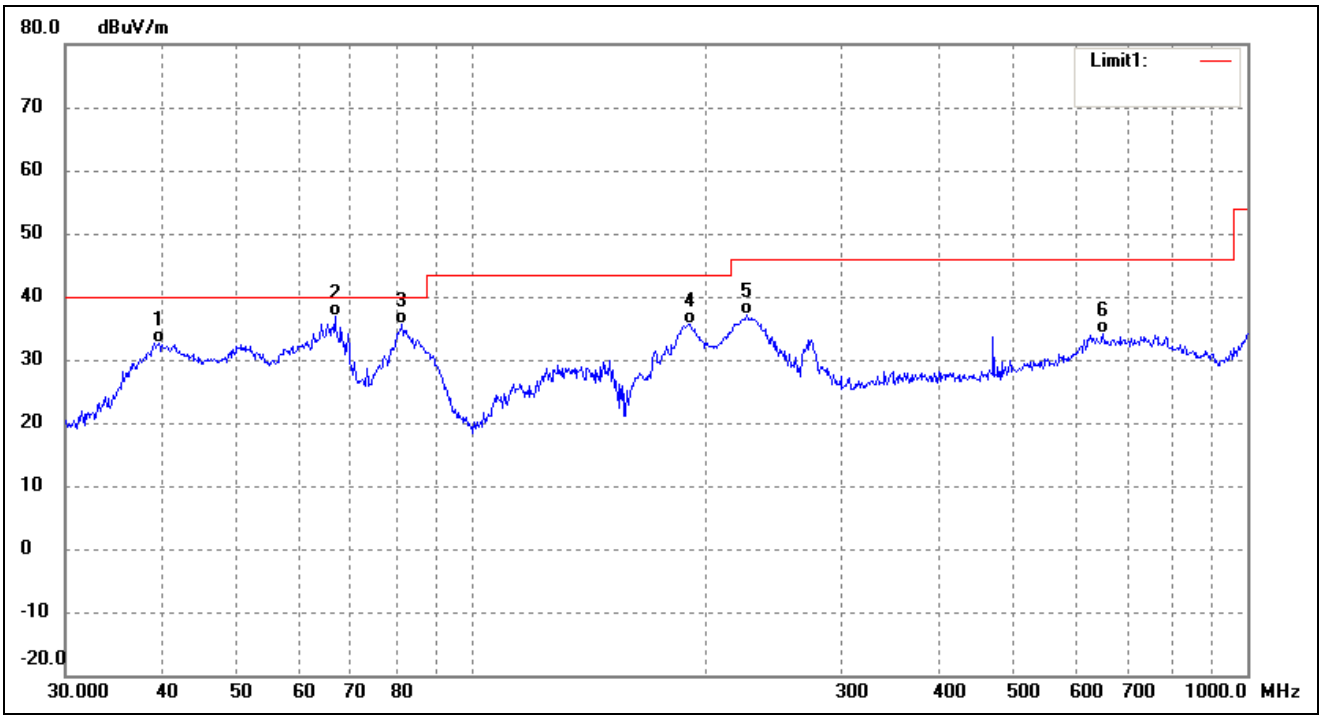
EUT: *LINX DISPLAY*
Tested Model: *7450102*
Operating Condition: *TM2*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	67.9129	25.40	3.34	28.74	40.00	-11.26	90	100	QP
2	88.3421	25.33	3.11	28.44	43.50	-15.06	128	100	QP
3	189.0743	28.87	2.85	31.72	43.50	-11.78	81	100	QP
4	224.5193	25.01	7.95	32.96	46.00	-13.04	348	100	QP
5	276.1236	22.77	10.86	33.63	46.00	-12.37	192	100	QP
6	656.5300	16.53	17.67	34.20	46.00	-11.80	260	100	QP

Test Specification: *Vertical*

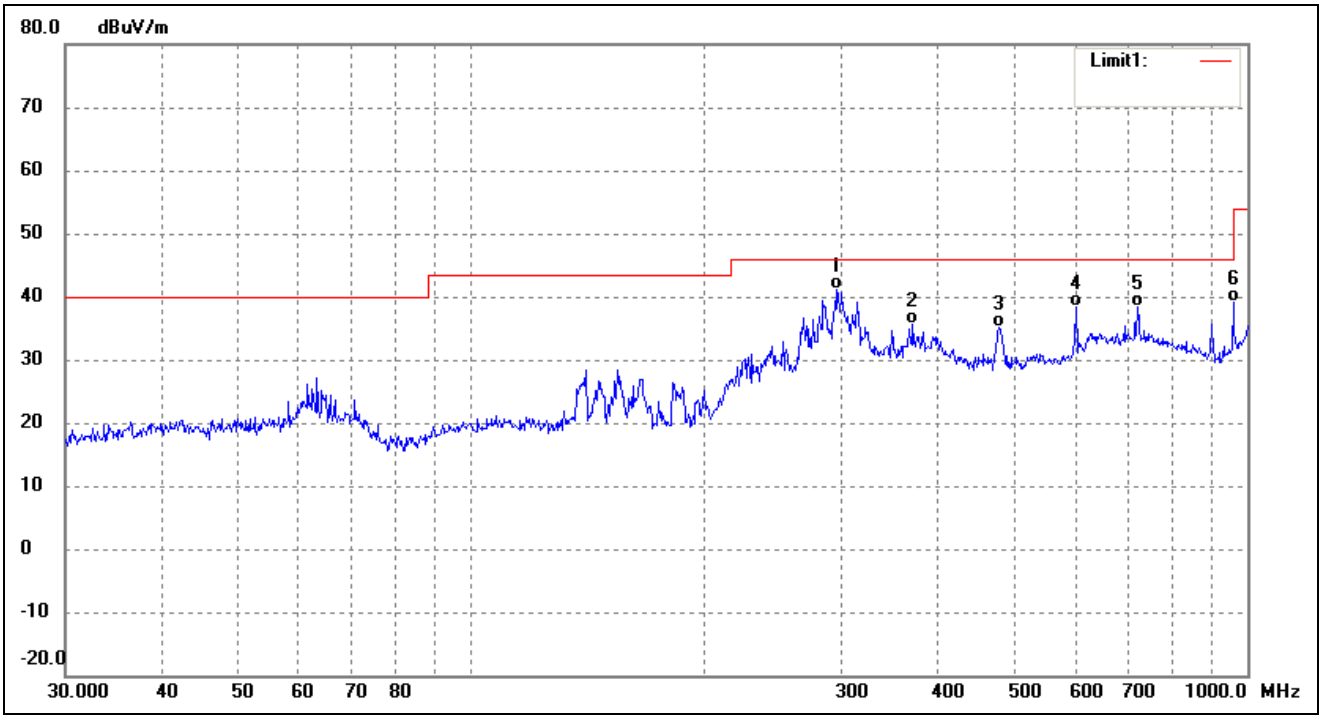


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	39.5757	27.71	4.87	32.58	40.00	-7.42	150	100	QP
2	66.7325	33.36	3.61	36.97	40.00	-3.03	187	100	QP
3	81.4970	33.62	1.98	35.60	40.00	-4.40	52	100	QP
4	191.0738	32.66	2.94	35.60	43.50	-7.90	107	100	QP
5	226.8936	29.09	8.10	37.19	46.00	-8.81	121	100	QP
6	651.9417	16.36	17.77	34.13	46.00	-11.87	287	100	QP

Plot of Radiated Emissions Test Data

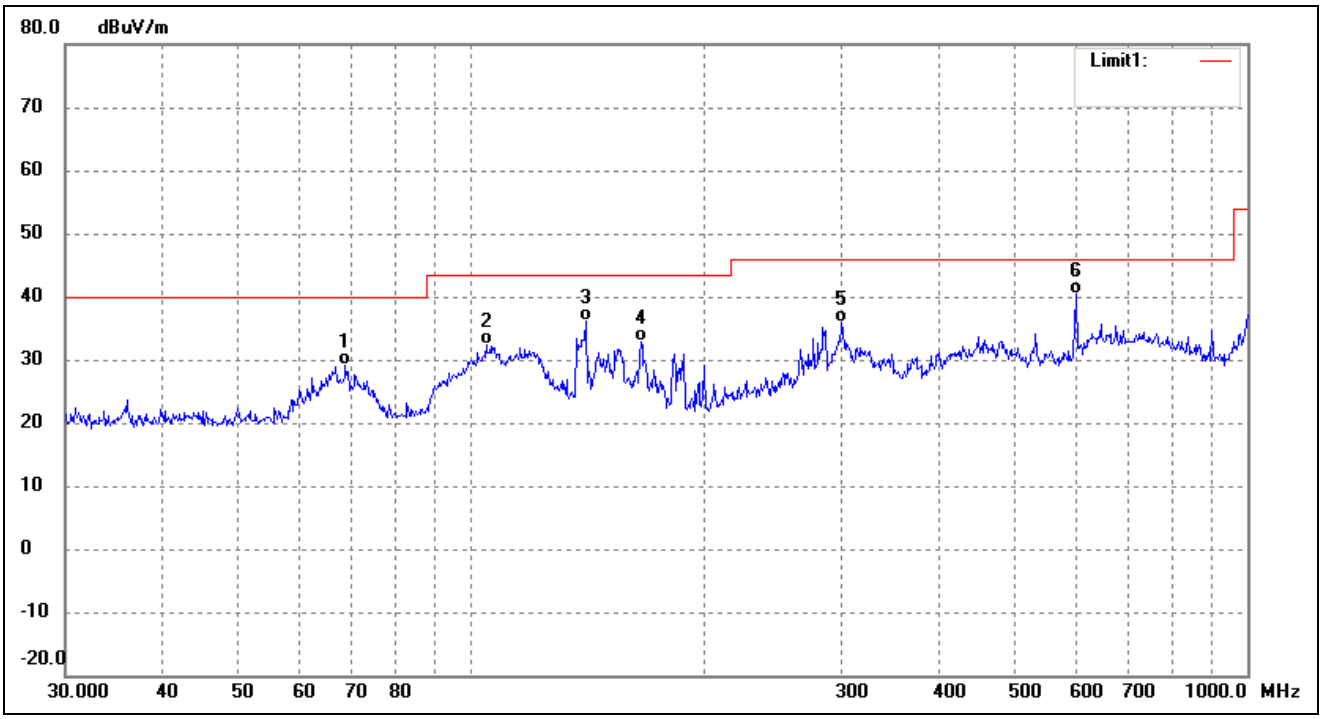
EUT: *LINX DISPLAY*
Tested Model: *7450102*
Operating Condition: *TM3*
Comment: *AC 120V/60Hz; USB 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	296.1836	29.25	11.81	41.06	46.00	-4.94	186	100	QP
2	370.7023	23.85	11.84	35.69	46.00	-10.31	115	100	QP
3	478.8456	22.48	12.59	35.07	46.00	-10.93	113	100	QP
4	601.4265	19.70	18.66	38.36	46.00	-7.64	135	100	QP
5	721.7259	20.44	17.91	38.35	46.00	-7.65	83	100	QP
6	958.7943	24.53	14.63	39.16	46.00	-6.84	305	100	QP

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	68.8721	25.96	3.13	29.09	40.00	-10.91	86	100	QP
2	104.5361	27.52	4.88	32.40	43.50	-11.10	192	100	QP
3	140.3421	32.92	3.14	36.06	43.50	-7.44	100	100	QP
4	165.4867	30.38	2.45	32.83	43.50	-10.67	145	100	QP
5	300.3673	23.97	11.95	35.92	46.00	-10.08	302	100	QP
6	601.4265	21.74	18.66	40.40	46.00	-5.60	193	100	QP

Note: Testing is carried out with frequency rang 30MHz to the 12.75GHz, which above 1GHz are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

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