FCC TEST REPORT

FCC ID	: M7UDWH47
Applicant	: BRK Brands Inc
Address	: 3901 Liberty Street Road, Aurora, Illinois, 60504, United States

Equipment Under Test (EUT) :

Product Name	: 4 CHANNEL WIRELESS 7" LCD DVR
Model No.	: DWH-47, DWH-471, DWH-472

Rules	: FCC CFR47 Part 15 Section 15.107:2010 FCC CFR47 Part 15 Section 15.109:2010
Date of Test	: September 17, 2012 ~ September 25, 2012
Date of Issue	: September 26, 2012
Test Engineer	: Zero Zhou / Engineer
Reviewed By	: Philo zhong / Manager

Test Result	**: PASS ***

Prepared By:

Waltek Services (Shenzhen) Co., Ltd.
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✧ The sample detailed above has been tested to the requirements of Council Directives ANSI C63.4:2003. The test results have been reviewed against the Directives above and found to meet their essential requirements.

2 Test Summary

Test Items	Test Requirement	Test Method	Result
Radiated Emission	FCC Part 15.109:2009	ANSI C63.4: 2003	PASS
Conducted Emission	FCC Part 15.107:2009	ANSI C63.4: 2003	PASS

3 Contents

4 General Information

4.1 Client Information

Applicant	: BRK Brands Inc
Address of Applicant	: 3901 Liberty Street Road, Aurora, Illinois, 60504, United States
Manufacturer	: BRK Brands Inc
Address of Manufacturer	: 3901 Liberty Street Road, Aurora, Illinois, 60504, United States

4.2 General Description of E.U.T.

Product Name	: 4 CHANNEL WIRELESS 7" LCD DVR
Model No.	: DWH-47, DWH-471, DWH-472
Difference Description	All models are exactly the same except for different color and appearance.

4.3 Details of E.U.T.

Technical Data	: 5.0V AC/DC Adapter or 3.7V Li-ion Rechargeable Battery. Three kinds of adapter could be used and the test result carried out by using three adapter were passed, and the data show in the report is the adapter 1's.
Adapter 1	: KSAS0060500100VUD (Ktec) Input: 100 – 240VAC, 50/60Hz, 0.18A Output: 5.0VDC, 1.0A
Adapter 2	: MU05B7050100-A1 (LEI) Input: 100 – 240VAC, 50/60Hz, 0.3A MAX Output: 5.0VDC, 1.0A
Adapter 3	: CS6D050100FUF (Csec) Input: 100 – 240VAC, 50/60Hz, 0.2A Output: 5.0VDC, 1.0A
Operation Frequency	: 2414.25MHz ~ 2461.50MHz
Antenna Gain	: 2 dBi

4.4 Description of Support Units

The EUT has been tested as an independent unit.

4.5 Standards Applicable for Testing

The customer requested FCC tests for a Digital Wireless Surveillance System. The rules used were FCC Part 15 Section 15.107:2009 and Section 15.109:2009.

4.6 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: IC7760A**
  Waltek Services(Shenzhen) Co., Ltd. has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration 7760A, August 3, 2010.

- **FCC – Registration No.: 880581**
  Waltek Services(Shenzhen) 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. Registration 880581, May 26, 2011.

4.7 Test Location

All the tests were performed at:
Waltek Services(Shenzhen) Co., Ltd. at 1/F, Fukangtai Building, West Baima Rd.,Songgang Street, Baoan District, Shenzhen, China.

5 Equipment Used during Test

Equipment Name	Manufacturer Model	Equipment No	Internal No	Specification	Cal. Date	Due Date	Uncertainty
EMC Analyzer	Agilent/ E7405A	MY45114943	W2008001	9k-26.5GHz	Aug.2-2012	Aug.1-2013	±1dB
Trilog Broadband Antenne 30-3000 MHz	SCHWARZBECK MESS-ELEKTROM/ VULB9163	336	W2008002	30-3000 MHz	Aug.2-2012	Aug.1-2013	±1dB
10m Coaxial Cable with N-male Connectors usable up to 18GHz,	SCHWARZBECK MESS-ELEKTROM/ AK 9515 H	-	-	-	Aug.2-2012	Aug.1-2013	-
10m 50 Ohm Coaxial Cable with N-plug, individual length,usable up to 3(5)GHz, Connector	SCHWARZBECK MESS-ELEKTROM/ AK 9513	-	-	-	Aug.2-2012	Aug.1-2013	-
Positioning Controller	C&C LAB/ CC-C-IF	-	-	-	-	-	-
Color Monitor	SUNSPO/ SP-14C	-	-	-	-	-	-
Test Receiver	ROHDE&SCHWARZ/ ESPI	101155	W2005001	9k-3GHz	Aug.2-2012	Aug.1-2013	±1dB
Two-Line V-Network	ROHDE&SCHWARZ/ ENV216	100115	W2005002	50Ω/50μH	Aug.2-2012	Aug.1-2013	±10%
V－LISN	SCHWARZBECK MESS－ELEKTRONIK	NSLK 8128	8128-259	9k-30MHz	Aug.2-2012	Aug.1-2013	-
Absorbing Clamp	ROHDE&SCHWARZ/ MDS-21	100205	W2005003	impandance50 Ω Loss : 17 dB	Aug.2-2012	Aug.1-2013	±1dB
10m 50 Ohm Coaxial Cable with N-plug, individual length,usable up to 3(5)GHz, Connectors	SCHWARZBECK MESS-ELEKTROM/ AK 9514	-	-	-	Aug.2-2012	Aug.1-2013	-

6 FCC Part 15 Subpart B Requirements

6.1 Conducted Emission Data

Test Requirement:	FCC Part 15 Section 15.107
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	150kHz to 30MHz
Class:	Class B
Limit:	66-56 dBμV between 0.15MHz & 0.5MHz
	56 dBμV between 0.5MHz & 5MHz
	60 dBμV between 5MHz & 30MHz
	The tighter limit applies at the band edges.
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)
	Quasi-Peak & Average if maximised peak within 6dB of Average Limit

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25.5 °C

Humidity: 51 % RH

Atmospheric Pressure: 1012 mbar

EUT Operation:

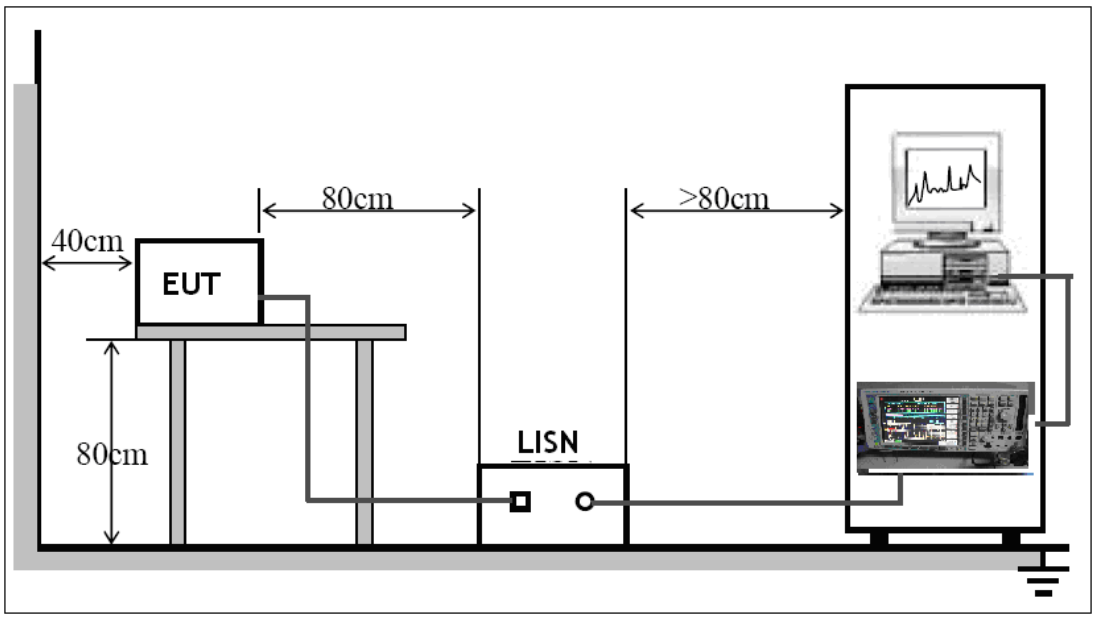
The pre-test was performance on three modes: 1.PC access mode via a base. The worst mode is mode 1, so the data show in the report is that mode's only.

The EUT was tested according to ANSI C63.4:2003. The frequency spectrum from 150kHz to 30MHz was investigated.

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

6.1.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part15 Section 15.107 limits.

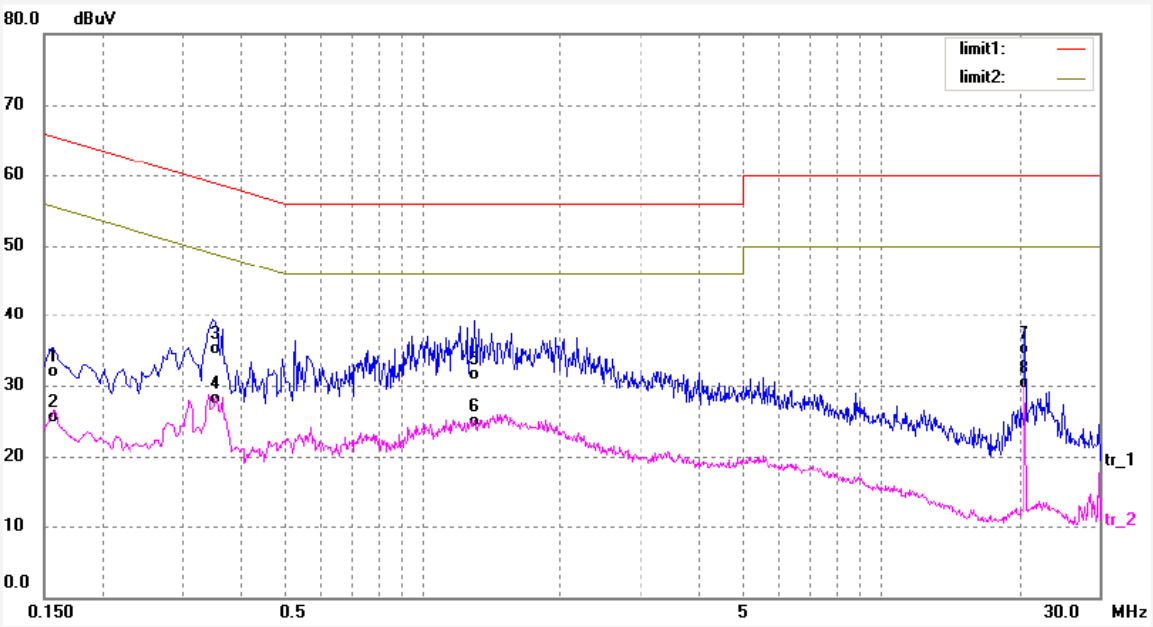


The EUT was placed on the test table in shielding room

6.1.3 Conducted Emission Test Result

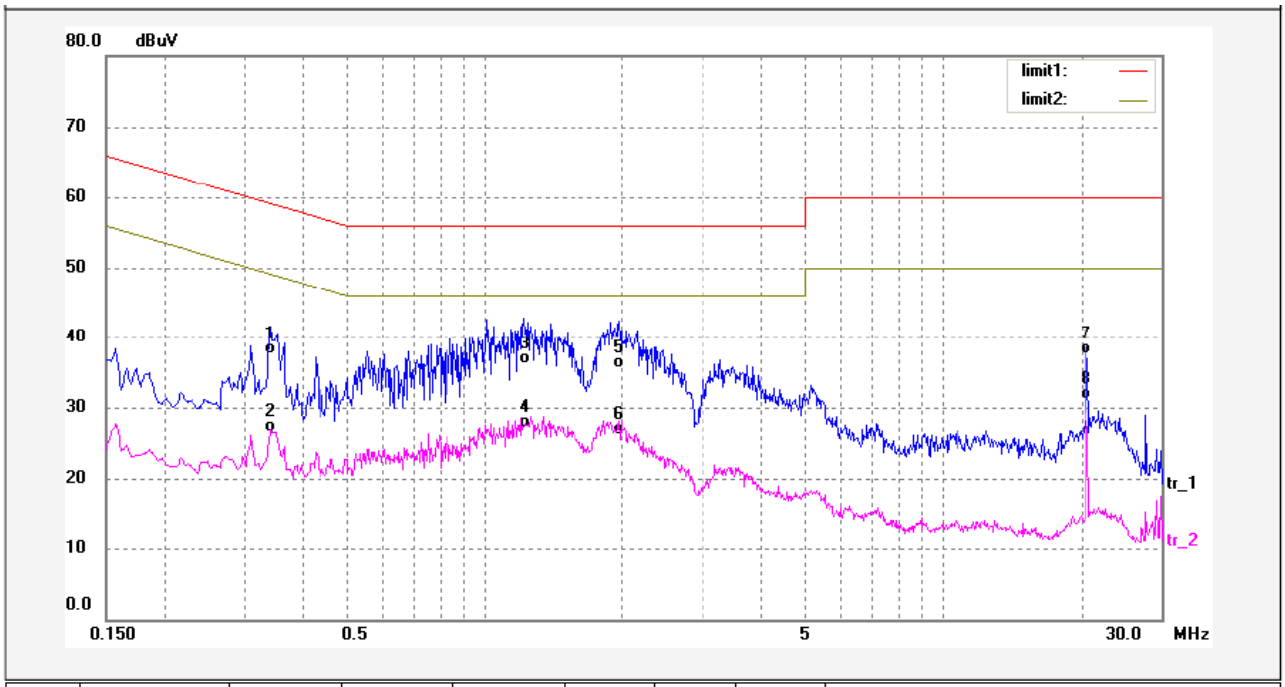
An initial pre-scan was performed on the live and neutral lines.

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1580	20.58	10.61	31.19	65.56	-34.37	QP	
2	0.1580	14.07	10.61	24.68	55.56	-30.88	AVG	
3	0.3500	23.58	10.75	34.33	58.96	-24.63	QP	
4	0.3500	16.63	10.75	27.38	48.96	-21.58	AVG	
5	1.3020	18.59	12.19	30.78	56.00	-25.22	QP	
6	1.3020	11.98	12.19	24.17	46.00	-21.83	AVG	
7	20.7020	22.12	12.16	34.28	60.00	-25.72	QP	
8	20.7020	17.44	12.16	29.60	50.00	-20.40	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.3420	26.73	10.73	37.46	59.15	-21.69	QP	
2	0.3420	15.69	10.73	26.42	49.15	-22.73	AVG	
3	1.2220	23.97	12.19	36.16	56.00	-19.84	QP	
4	1.2220	14.83	12.19	27.02	46.00	-18.98	AVG	
5	1.9700	23.17	12.25	35.42	56.00	-20.58	QP	
6	1.9700	13.92	12.25	26.17	46.00	-19.83	AVG	
7	20.7020	25.34	12.16	37.50	60.00	-22.50	QP	
8	20.7020	18.86	12.16	31.02	50.00	-18.98	AVG	

6.2 Radiation Emission Data

Test Requirement:	FCC Part 15 Section 15.109
Test Method:	ANSI C63.4:2003
Test Result:	PASS
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Class:	Class B
Limit:	40.0 dBμV/m between 30MHz & 88MHz
	43.5 dBμV/m between 88MHz & 216MHz
	46.0 dBμV/m between 216MHz & 960MHz
	54.0 dBμV/m above 960MHz
	The tighter limit applies at the band edges.
Detector:	Peak for pre-scan (120kHz resolution bandwidth)
	Quasi-Peak if maximised peak within 6dB of limit

6.2.2 E.U.T. Operation

Operating Environment:

Temperature: 25.5 °C

Humidity: 51 % RH

Atmospheric Pressure: 1012 mbar

EUT Operation:

The pre-test was performance on three modes: 1. PC access mode via a base.The worst mode is mode 1, so the data show in the report is that mode's only.

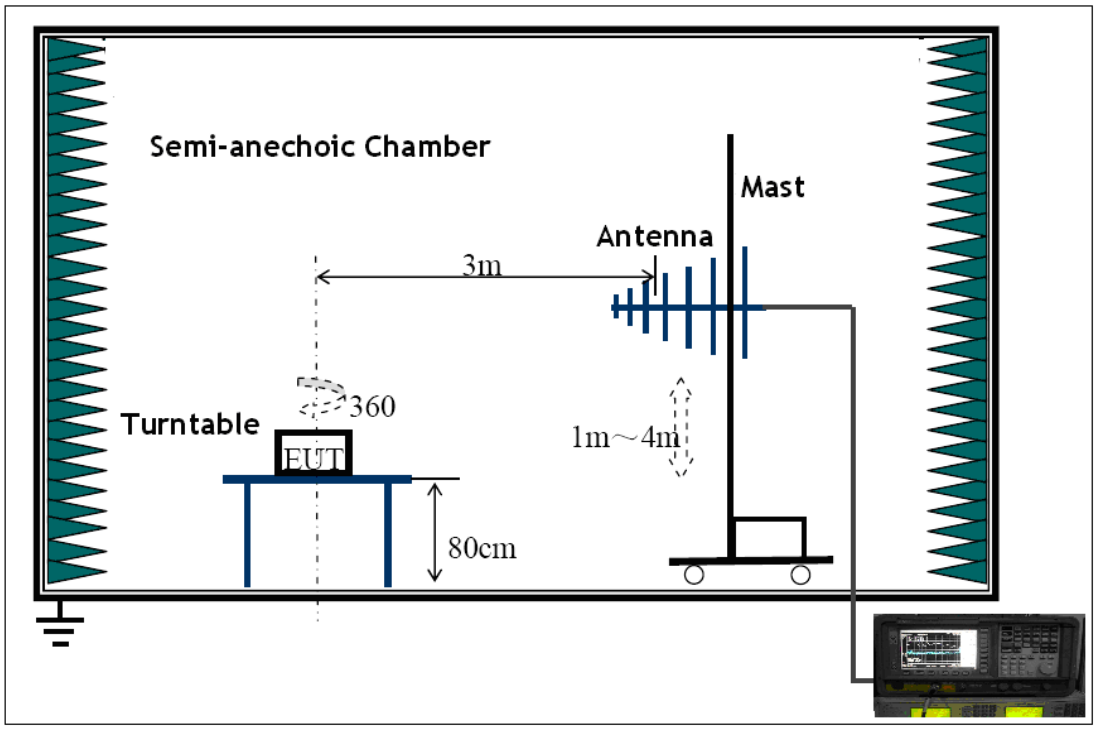
6.2.1 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Waltek EMC Lab is $\pm$5.03dB.

6.2.2 EUT Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4:2003, The specification used in this report was the FCC Part 15 Section 15.109 limits.



6.2.3 Spectrum Analyzer Setup

According to FCC Part15 B Rules, the system was tested 30 to 1000MHz.

30MHz ~ 1GHz

Start Frequency ..... 30 MHz
Stop Frequency..... 1000MHz
Sweep Speed ..... Auto
IF Bandwidth 120 KHz
Video Bandwidth..... 100KHz
Quasi-Peak Adapter Bandwidth ..... 120 KHz
Quasi-Peak Adapter Mode ..... Normal
Resolution Bandwidth..... 100KHz

6.2.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X(normal uses) axis positioning. And all the modes was tested in the report.Only the worst case is shown in the report.

6.2.5 Corrected Amplitude & Margin Calculation

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

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dBμV means the emission is 7dBμV below the maximum limit for Class B. The equation for margin calculation is as follows:

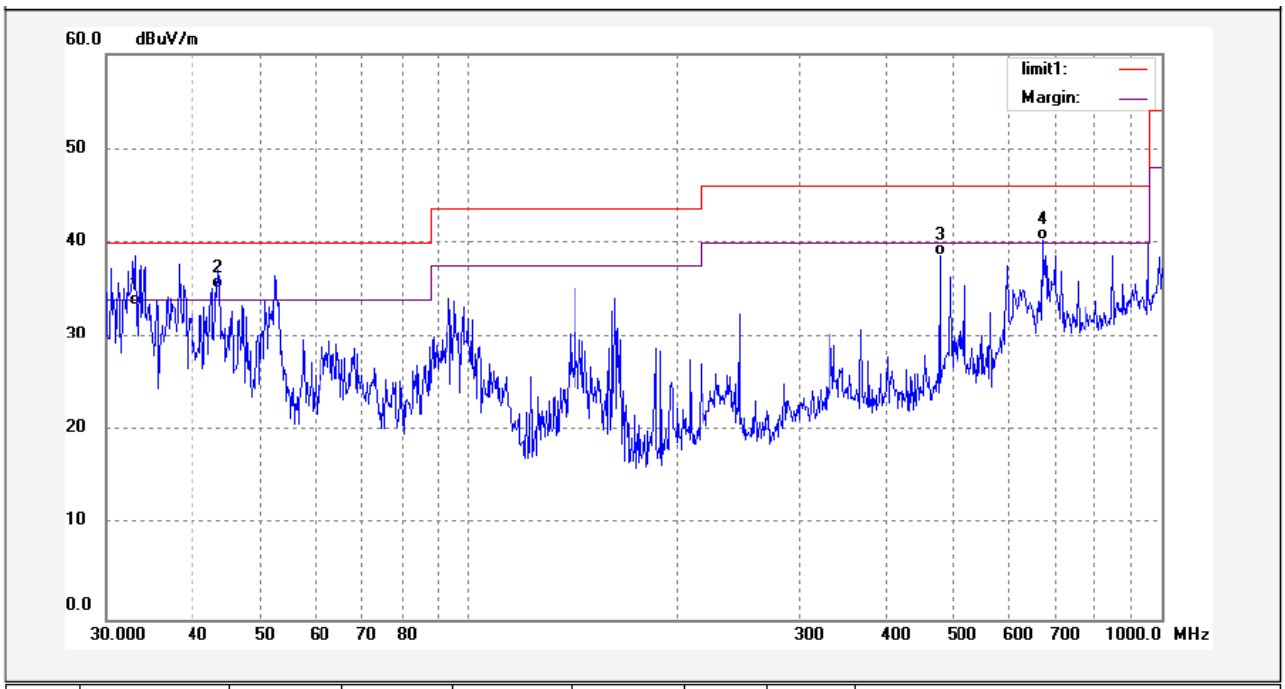
Margin = Corr. Ampl. – Class B Limit

6.2.6 Summary of Test Results

According to the data in this section, the EUT complied with the FCC Part15 Section 15.109 standards.

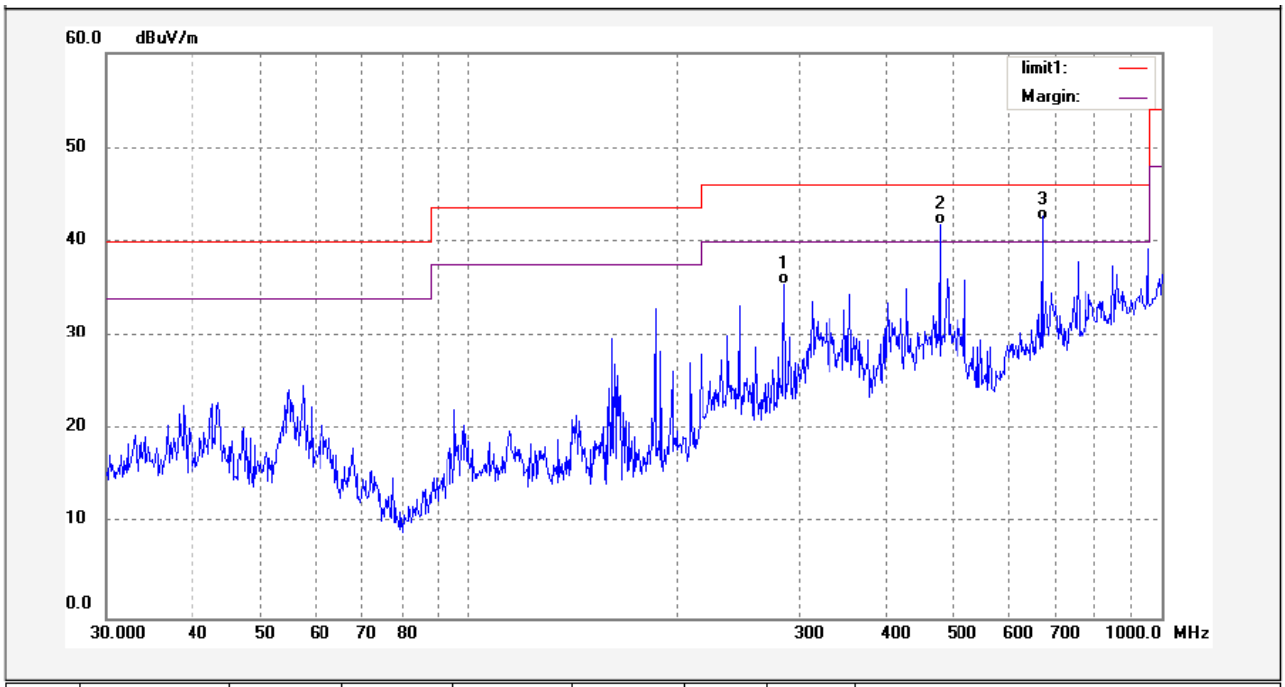
Investigate Frequency: 30MHz ~ 1000MHz

Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	32.9854	16.87	16.57	33.44	40.00	-6.56	QP	
2	43.5380	20.00	15.12	35.12	40.00	-4.88	QP	
3	478.1394	16.11	22.52	38.63	46.00	-7.37	QP	
4	672.3104	14.14	26.19	40.33	46.00	-5.67	QP	

Antenna polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	285.2611	18.94	16.51	35.45	46.00	-10.55	QP	
2	478.1394	19.27	22.52	41.79	46.00	-4.21	QP	
3	672.3104	16.00	26.19	42.19	46.00	-3.81	QP	

==END==