Lab Code: 200707-0

FCC PART 15 CLASS B

MEASUREMENT AND TEST REPORT

For

SHENZHEN TENDA TECHNOLOGY CO.,LTD.

Tenda Industrial Park, No. 34-1, Shilong Rd., Shiyan Town, Bao'an District, Shenzhen, P.R.China

FCC ID: V7TA30

Report Type:	**Product Type:**
Original Report	300Mbps Wireless Range Extender

Test Engineer:	Bin Jiang
Report Number:	R1DG120507002-00B
Report Date:	2012-05-23
Reviewed By:	Ivan Cao EMC Engineer
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *SHENZHEN TENDA TECHNOLOGY CO.,LTD.*'s product, model number: A30 *(FCC ID: V7TA30) or* ("EUT") in this report is a 300Mbps Wireless Range Extender, which was measured approximately:13.0 cm (L) x8.5cm (W) x17.5cm (H), rated input voltage: DC 9V from adapter, the operating frequency for EUT was 2412-2462MHz.

Adapter information:
Model: TEA09U-09060
Input: 100-240VAC, 50/60Hz, 0.3A
Output: 9V, 0.6A

** All measurement and test data in this report was gathered from production sample serial number:120507002 (Assigned by BACL). The EUT was received on 2012-05-08.*

Objective

This report is prepared on behalf of *SHENZHEN TENDA TECHNOLOGY CO.,LTD.* in accordance with Part 2- Subpart J, Part 15- Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine the compliance of EUT with FCC Part 15 Class B.

Related Submittal(s)/Grant(s)

FCC Part 15C DTS submissions with FCC ID: V7TA30.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) has been fully described in reports and was submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 02, 2012.

The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009. The Federal Communications Commission has the reports on file and is listed under FCC Registration No.:273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).

The current scope of accreditations can be found at http://ts.nist.gov/Standards/scopes/2007070.htm

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a typical mode which is provided by manufacture.

EUT Exercise Software

The test was performed under “Lantest.exe”.

Equipment Modifications

No modification was made to the EUT tested.

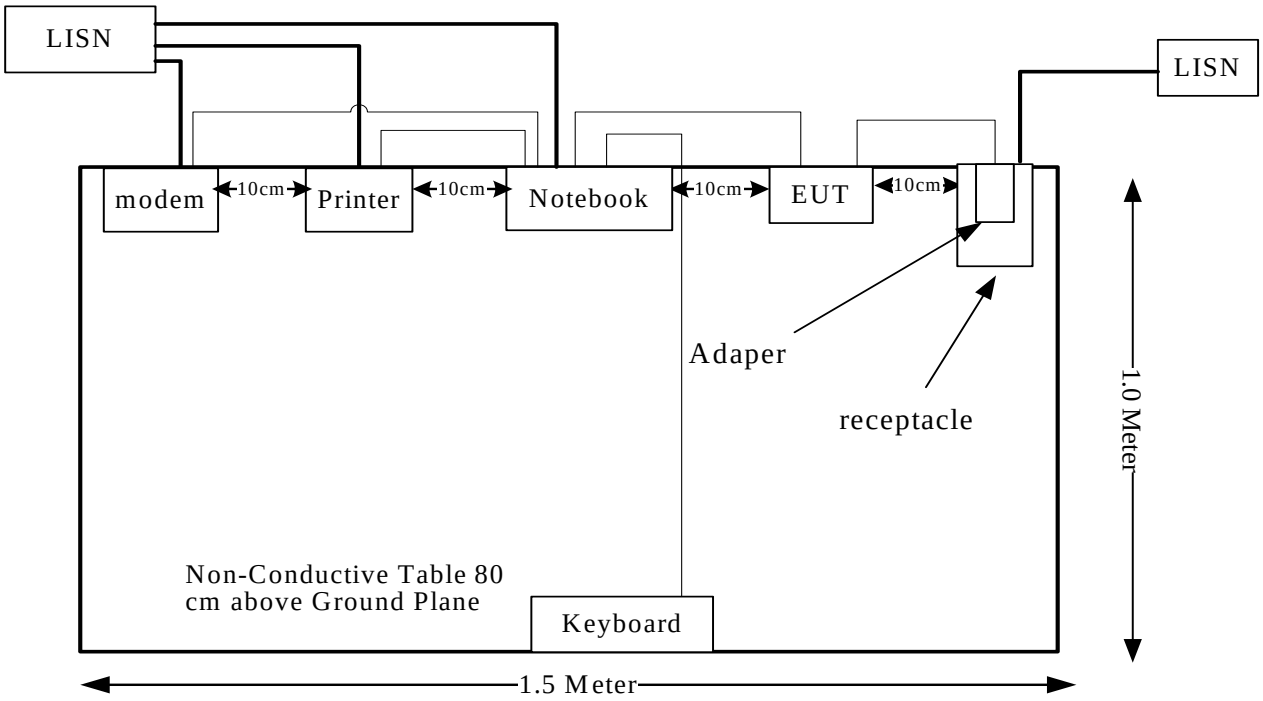
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Dell	Notebook	PP11L	QDS-BRCM1017
DELL	Keyboard	SK-8115	CNOJ46287161652IOYMU
HP	Printer	C3941A	JPTVOB2337
SAST	Modem	AEM-2100	0293

External I/O Cable

Cable Description	Length (m)	From Port	To
Shielded Detachable Printer Cable	1.2	Parallel Port of Notebook	Printer
Shielded Detachable Serial Cable	1.2	Serial Port of Notebook	Modem
RJ45 cable	1.0	RJ45 port of Notebook	EUT
Shielded Detachable USB Cable	1.5	USB Port of Notebook	Keyboard

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emissions	Compliance
§15.109	Radiated Emissions	Compliance

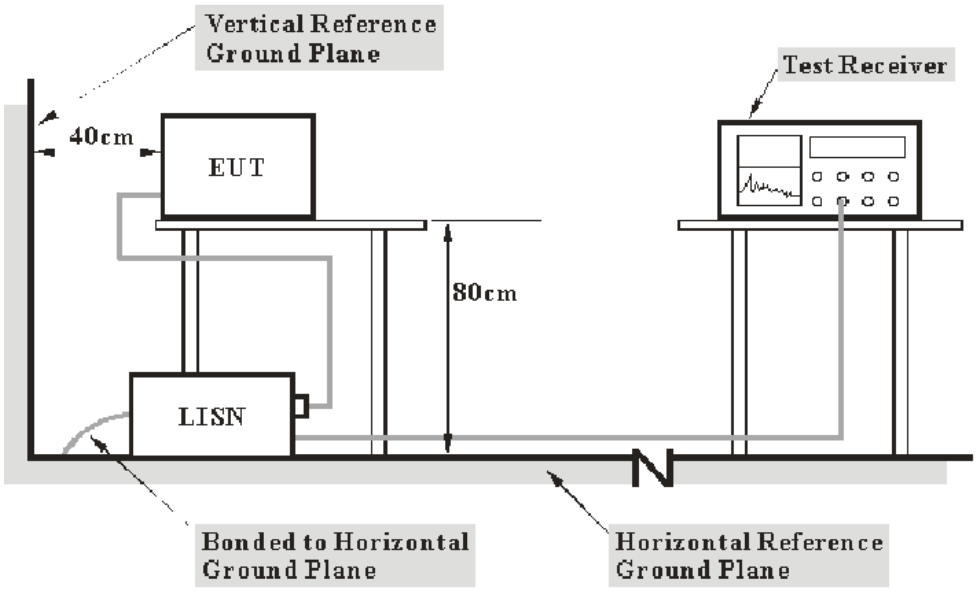
FCC §15.107 – AC LINE CONDUCTED EMISSIONS

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on CISPR 16-4-2, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is 2.4 dB.(k=2, 95% level of confidence)

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2009 measurement procedure. The specification used was with the FCC Part 15.107 Class B limits.

The spacing between the peripherals was 10 cm.

The adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	***IF BW***
150 kHz – 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	100176	2011-11-24	2012-11-23
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2011-11-17	2012-11-16
Com-Power	L.I.S.N.	LI-200	12005	N/A	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratory Corp. attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the first LISN, the printer, notebook and modem were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.107, with the worst margin reading of:

11.51 dB at **3.975 MHz** in the **Neutral** conducted mode

Test Data

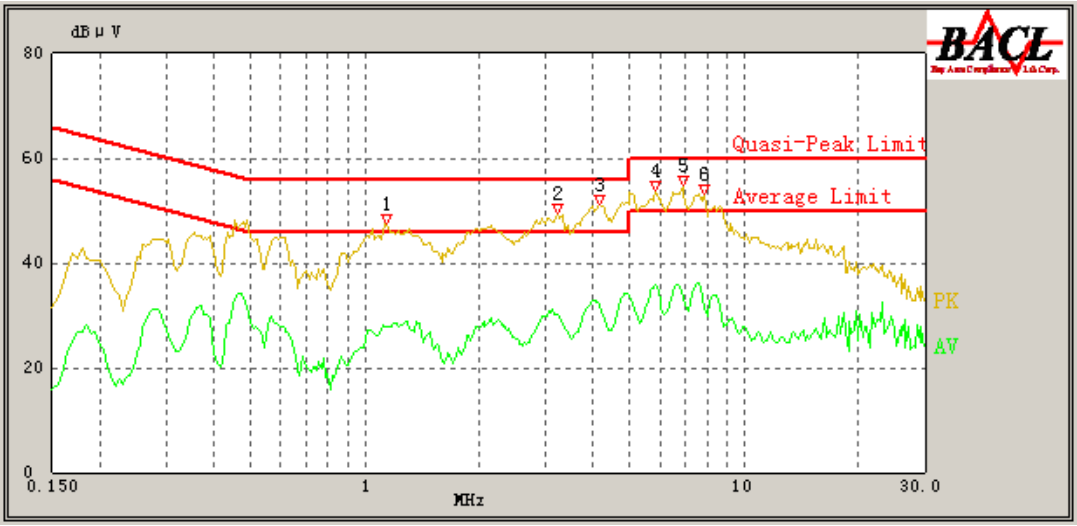
Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	48 %
ATM Pressure:	100.0 kPa

The testing was performed by Bin Jiang on 2012-05-11.

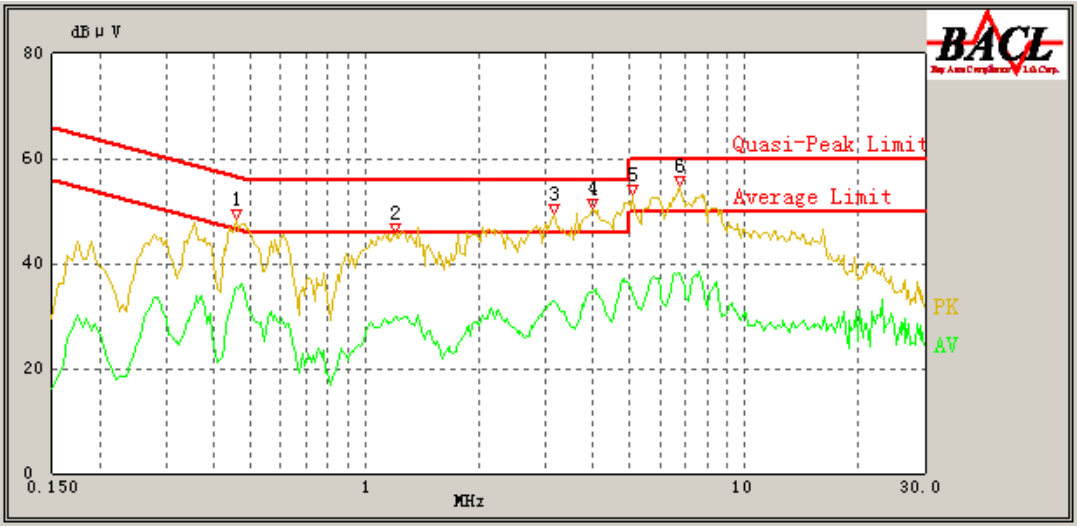
Test Mode: Ping

120 V, 60 Hz, Line:



Frequency (MHz)	Corrected Result (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK /QP/Ave.)
4.160	32.13	0.50	46.00	13.87	Ave.
5.840	35.73	0.52	50.00	14.27	Ave.
4.160	41.42	0.50	56.00	14.58	QP
5.845	44.92	0.52	60.00	15.08	QP
6.810	34.62	0.54	50.00	15.38	Ave.
6.890	44.24	0.54	60.00	15.76	QP
3.235	30.17	0.49	46.00	15.83	Ave.
3.235	39.51	0.49	56.00	16.49	QP
7.880	42.72	0.58	60.00	17.28	QP
1.145	37.84	0.45	56.00	18.16	QP
1.150	27.83	0.45	46.00	18.17	Ave.
7.880	31.59	0.58	50.00	18.41	Ave.

120V, 60 Hz, Neutral:



Frequency (MHz)	Corrected Result (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK /QP/Ave.)
3.975	34.49	0.50	46.00	11.51	Ave.
0.460	35.42	0.42	47.14	11.72	Ave.
6.735	38.27	0.54	50.00	11.73	Ave.
3.135	32.96	0.49	46.00	13.04	Ave.
3.980	42.61	0.50	56.00	13.39	QP
6.800	46.22	0.54	60.00	13.78	QP
0.460	42.26	0.42	57.14	14.88	QP
3.150	40.56	0.49	56.00	15.44	QP
5.090	34.22	0.51	50.00	15.78	Ave.
1.200	29.71	0.46	46.00	16.29	Ave.
5.105	42.34	0.51	60.00	17.66	Ave.
1.200	38.17	0.46	56.00	17.83	Ave.

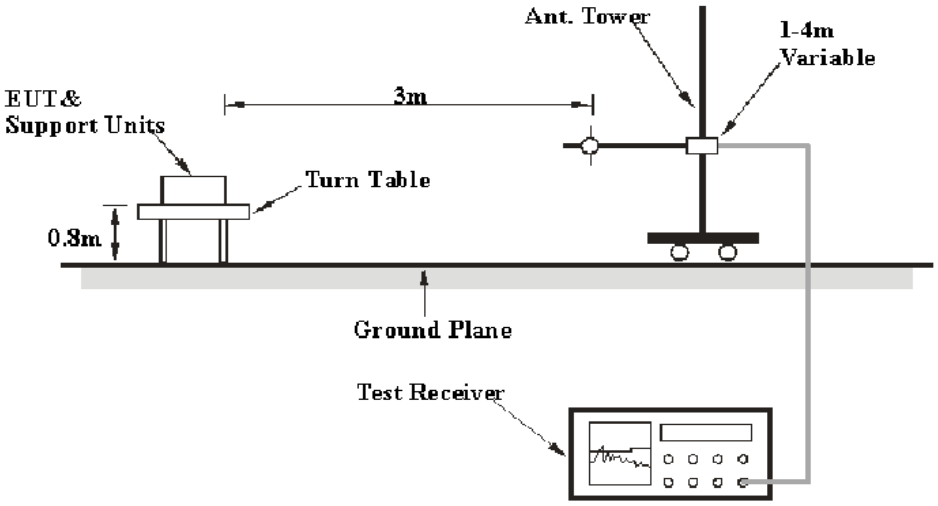
FCC §15.109 - RADIATED EMISSIONS

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in 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 CISPR 16-4-2, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is ±4.0 dB. (k=2, 95% level of confidence)

EUT Setup



The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC Part 15.109 C**lass B** limits.

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.

The adapter was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 2000 MHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency	***RBW***	***VBW***	***Detection***
30 MHz-1 GHz	100 kHz	300 kHz	Quasi-peak
Above 1 GHz	1 MHz	3 MHz	PK/Ave.

Test Procedure

During the radiated emissions test, the adapter, notebook, modem and the printer were connected to AC floor outlet

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all Install combinations.

All data was recorded in the Quasi-peak detection mode from 30 MHz to 1 GHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447E	1937A01046	2011-11-24	2012-11-23
Rohde & Schwarz	EMI Test Receiver	ESCI	101122	2011-11-17	2012-11-16
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2012-11-27

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Corrected Amplitude & Margin Calculation

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

Corrected Amplitude = Meter Reading + Antenna Loss + Cable Loss - Amplifier Gain

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

Margin = Limit – Corrected Amplitude

Test Results Summary

According to the data in the following table, the EUT complied with the FCC §15.109 Class B, with the worst margin reading of:

7.60 dB at **500.4500 MHz** in the **Vertical** polarization

Test Data

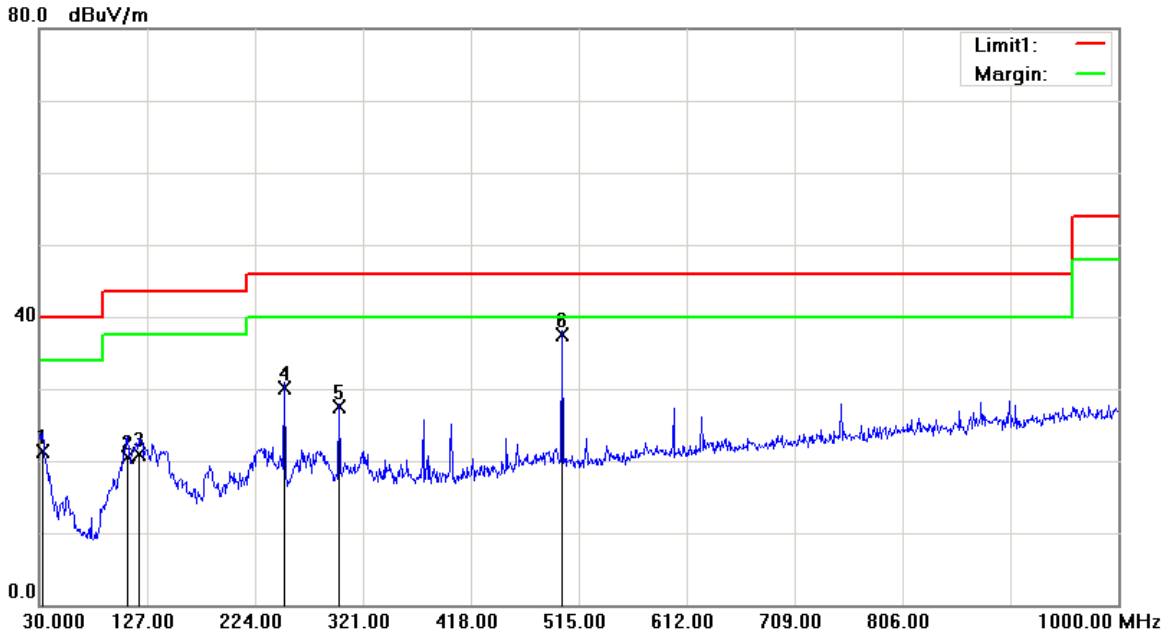
Environmental Conditions

Temperature:	26 °C
Relative Humidity:	60 %
ATM Pressure:	100.0 kPa

The testing was performed by Bin Jiang on 2012-05-11.

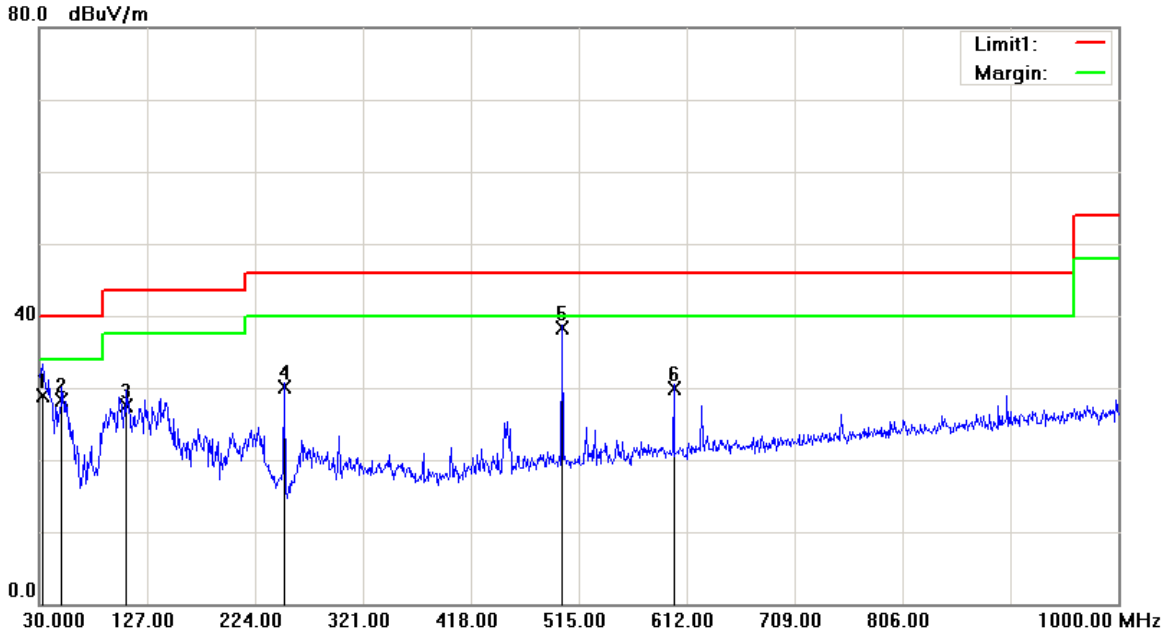
EUT Operation Mode: ping

Horizontal



Frequency (MHz)	Reading (dBµV)	Detector	Correction Factor (dB)	Corrected Amplitude (dBµV/m)	Limit (dBuV/m)	Margin (dB)
500.4500	39.59	QP	-2.09	37.50	46.00	8.50
250.1900	38.16	QP	-7.96	30.20	46.00	15.80
299.6600	33.68	QP	-6.08	27.60	46.00	18.40
32.9100	21.97	QP	-0.67	21.30	40.00	18.70
119.2400	27.08	QP	-6.18	20.90	43.50	22.60
109.5400	28.18	QP	-7.58	20.60	43.50	22.90

Vertical



Frequency (MHz)	Reading (dBµV)	Detector	Correction Factor (dB)	Corrected Amplitude (dBµV/m)	Limit (dBuV/m)	Margin (dB)
500.4500	40.49	QP	-2.09	38.40	46.00	7.60
32.9100	29.57	QP	-0.67	28.90	40.00	11.10
50.3700	40.39	QP	-11.99	28.40	40.00	11.60
250.1900	38.06	QP	-7.96	30.10	46.00	15.90
108.5700	35.28	QP	-7.78	27.50	43.50	16.00
600.3600	31.04	QP	-1.14	29.90	46.00	16.10

Radiated Emissions 1GHz-2GHz.

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Polarity
1	1395	41.03	Peak	17.63	58.66	74	15.34	H
2	1395	24.36	Ave.	17.63	41.99	54	12.01	H
5	1621	43.99	Peak	18.32	62.31	74	11.69	V
6	1621	21.39	Ave.	18.32	39.71	54	14.29	V

* Within measurement uncertainty.

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