

FCC PART 15 CLASS B
MEASUREMENT AND TEST REPORT

For

Intelligent Technology Inc.

Yuanhe 3 Street, Tongsha Industrial Zone, Dongchen Area, Dongguan , Guangdong, China.

FCC ID: ZVY-UD121B

Report Type: Original Report	Product Type: USB 11n Wireless Adapter
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* This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk “*”

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

This test and measurement report was prepared on behalf of *Intelligent Technology Inc.* and their product, *model:* UD121B, which will henceforth be referred to as the EUT (Equipment Under Test). The EUT is a USB 11n Wireless Adapter, which was measured approximately 2.0 cm (L) x 1.5 cm (W) x 0.8 cm (H). rated input voltage: DC 5V from Notebook.

** All measurement and test data in this report was gathered from production sample serial number: 1202102 (Assigned by BACL, Shenzhen). The EUT was received on 2012-02-13.*

Objective

This report is prepared on behalf of *Intelligent Technology Inc.* 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 DSS submissions with FCC ID: ZVY-UD121B.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp.(Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports 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 December 06, 2010. 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.: 382179. 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 “Lan test.exe”

Equipment Modifications

No modification was made to the EUT tested.

Local Support Equipment List and Details

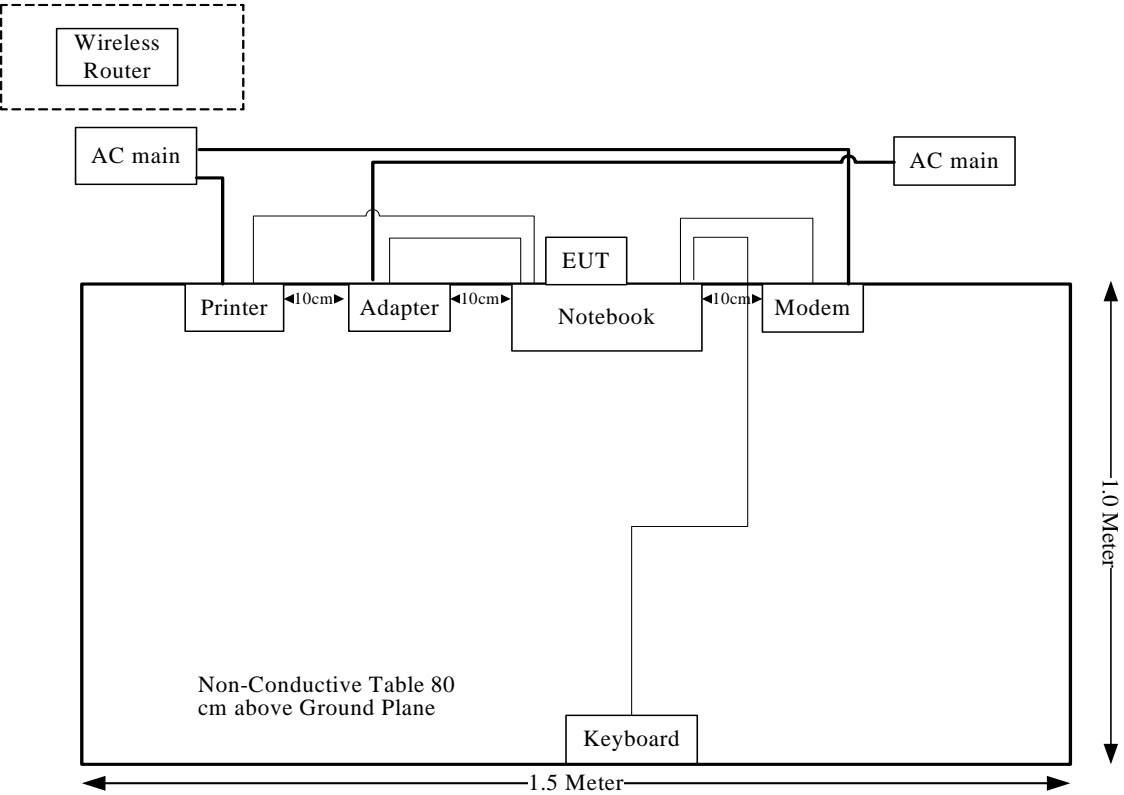
Manufacturer	Description	Model	Serial Number
DELL	Laptop	PP05L	CN-OX2034-48643-39U-7096
SAST	Modem	AEM-2100	6588D51200013
HP	Printer	C3941A	JPTVOB2337
TP-LINK	Router	TL-WR740N	N/A
HP	Keyboard	L100	N/A

External I/O Cable

Cable Description	Length (m)	From/Port	To
Shielded Detachable Printer Cable	1.8	Laptop	Printer
Shielded Detachable Serial Cable	1.8	Laptop	Modem
Unshielded Detachable USB Cable	1.0	Keyboard	Laptop

Block Diagram of Test Setup

USB R&W mode:



SUMMARY OF TEST RESULTS

Standard	Description of Test	Result
FCC §15.107	AC Line Conducted Emissions	Compliant
FCC §15.109	Radiated Emissions	Compliant

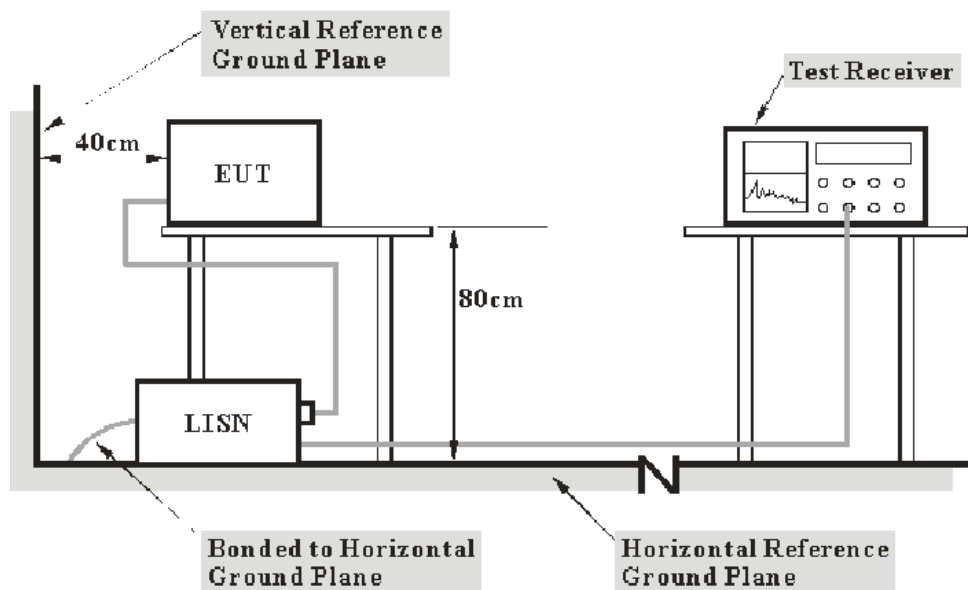
FCC §15.107 – AC LINE CONDUCTED EMISSIONS

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)

1.1 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 Notebook 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:

<u>Frequency Range</u>	<u>IF B/W</u>
150 kHz – 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	1.1.1.1.1 Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2011-03-03	2012-03-02
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2011-03-09	2012-03-08
Com-Power	L.I.S.N.	LI-200	12005	N/A	N/A
Com-Power	L.I.S.N.	LI-200	12208	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 Notebook was connected to the outlet of the first LISN, the printer, monitor 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:

9.89 dB at 0.545 MHz in the Line conducted mode

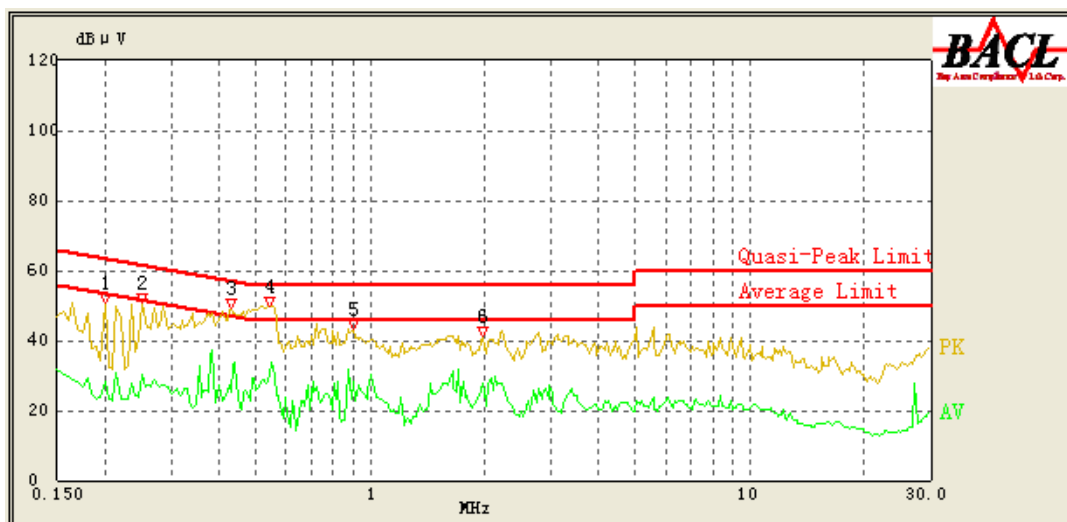
Test Data

Environmental Conditions

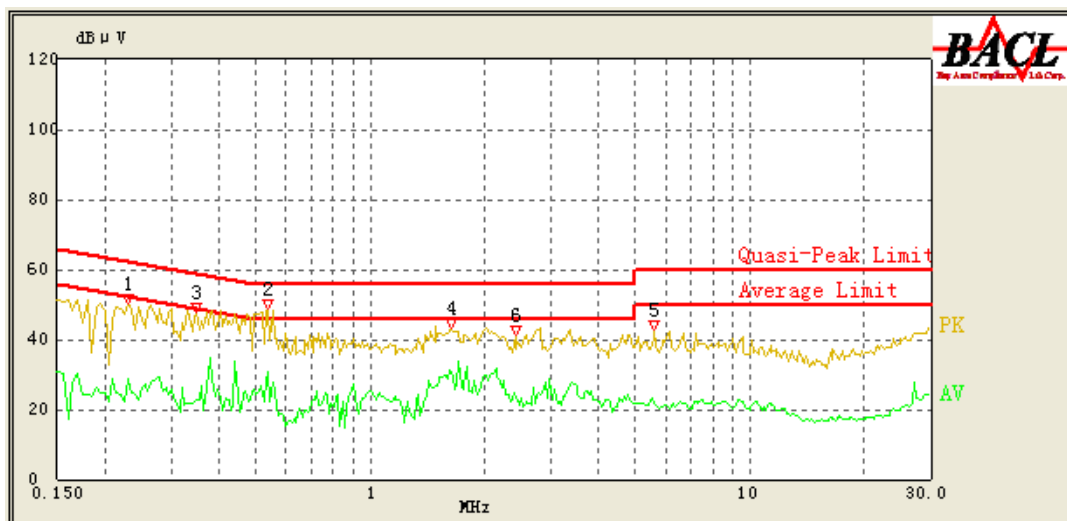
Temperature:	25 °C
Relative Humidity:	48 %
ATM Pressure:	102.3 kPa

The testing was performed by Bin Jiang on 2012-02-16.

EUT Operation Mode: ping

120V, 60 Hz – Line

No.	Frequency (MHz)	Reading (dBμV)	Correction (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/AV/QP)
1	0.200	35.21	1.10	64.57	29.36	QP
2	0.200	28.30	1.10	54.57	26.27	Ave
3	0.250	40.14	1.10	63.14	23.00	QP
4	0.250	30.38	1.10	53.14	22.76	Ave
5	0.430	40.59	1.10	58.00	17.41	QP
6	0.430	25.02	1.10	48.00	22.98	Ave
7	0.545	46.11	1.10	56.00	9.89	QP
8	0.545	30.28	1.10	46.00	15.72	Ave
9	0.900	34.67	1.10	56.00	21.33	QP
10	0.905	28.29	1.10	46.00	17.71	Ave
11	1.985	30.05	1.10	56.00	25.95	QP
12	1.985	27.97	1.10	46.00	18.03	Ave

120V, 60Hz – Neutral

No.	Frequency (MHz)	Reading (dBμV)	Correction (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/AV/QP)
1	0.230	35.19	1.10	63.71	28.52	QP
2	0.230	28.96	1.10	53.71	24.75	Ave
3	0.535	43.92	1.10	56.00	12.08	QP
4	0.535	30.97	1.10	46.00	15.03	Ave
5	0.350	38.04	1.10	60.29	22.25	QP
6	0.350	22.70	1.10	50.29	27.59	Ave
7	1.635	35.89	1.10	56.00	20.11	QP
8	1.645	29.83	1.10	46.00	16.17	Ave
9	5.620	29.57	1.10	60.00	30.43	QP
10	5.600	21.97	1.10	50.00	28.03	Ave
11	2.415	28.40	1.10	56.00	27.60	QP
12	2.395	24.60	1.10	46.00	21.40	Ave

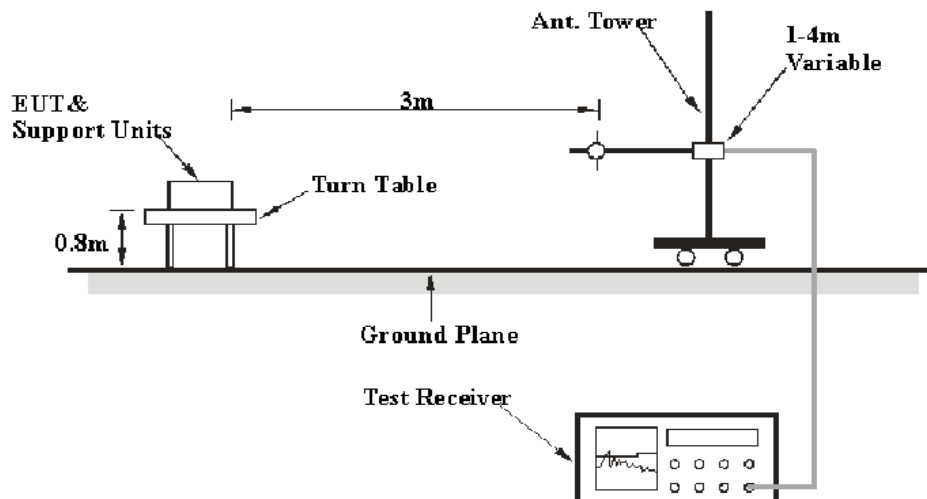
FCC §15.109 – RADIATED EMISSIONS

1.2 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 **Class 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 Notebook was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 1000 MHz.

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

<i>Frequency</i>	<i>RB/W</i>	<i>VB/W</i>	<i>IF B/W</i>	<i>Detection</i>
30 MHz-1 GHz	100 kHz	300 kHz	120 kHz	Quasi-peak

Test Procedure

During the radiated emissions test, the 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 installation 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	2011-08-02	2012-08-02
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2011-11-11	2012-11-10
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-07-05	2012-07-04

* **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:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

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:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

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:

4.73 dB at 133.7900 MHz in the Horizontal polarization

Test Data

Environmental Conditions

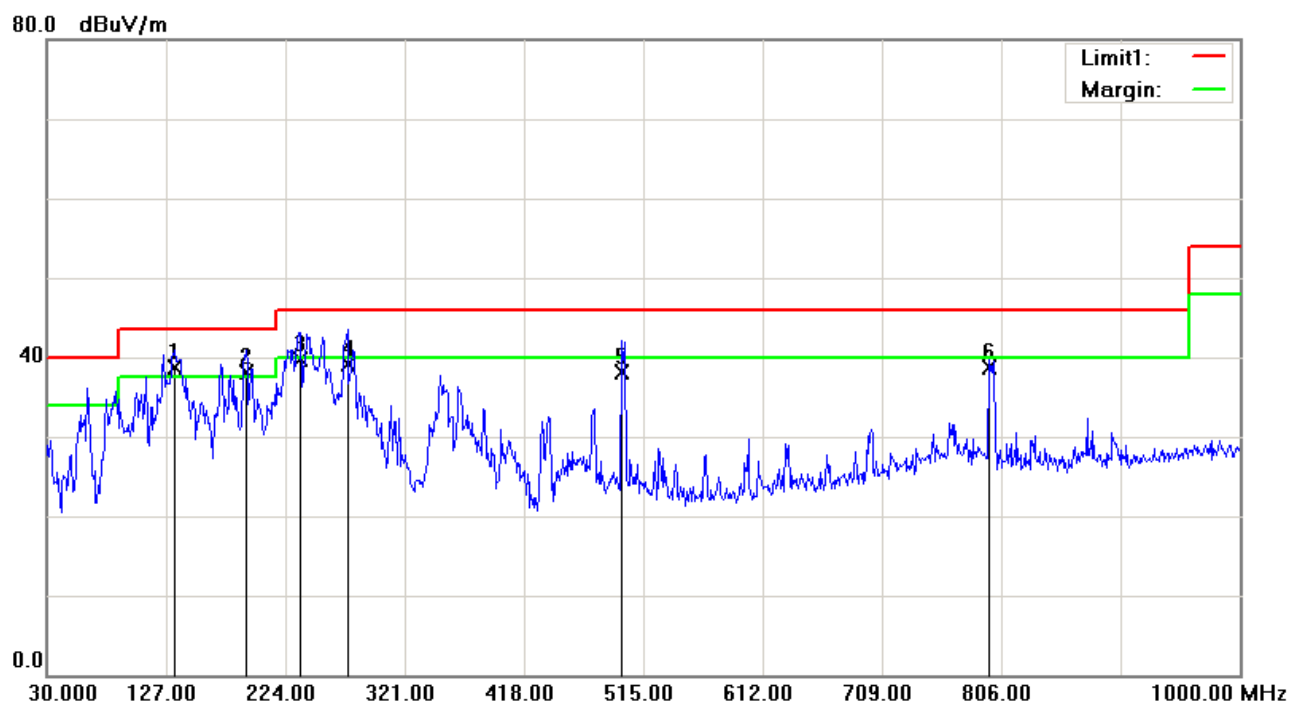
Temperature:	26°C
Relative Humidity:	60%
ATM Pressure:	101.3 kPa

The testing was performed by Bin Jiang on 2012-02-16.

Radiated Emissions 30 MHz to 1000 MHz

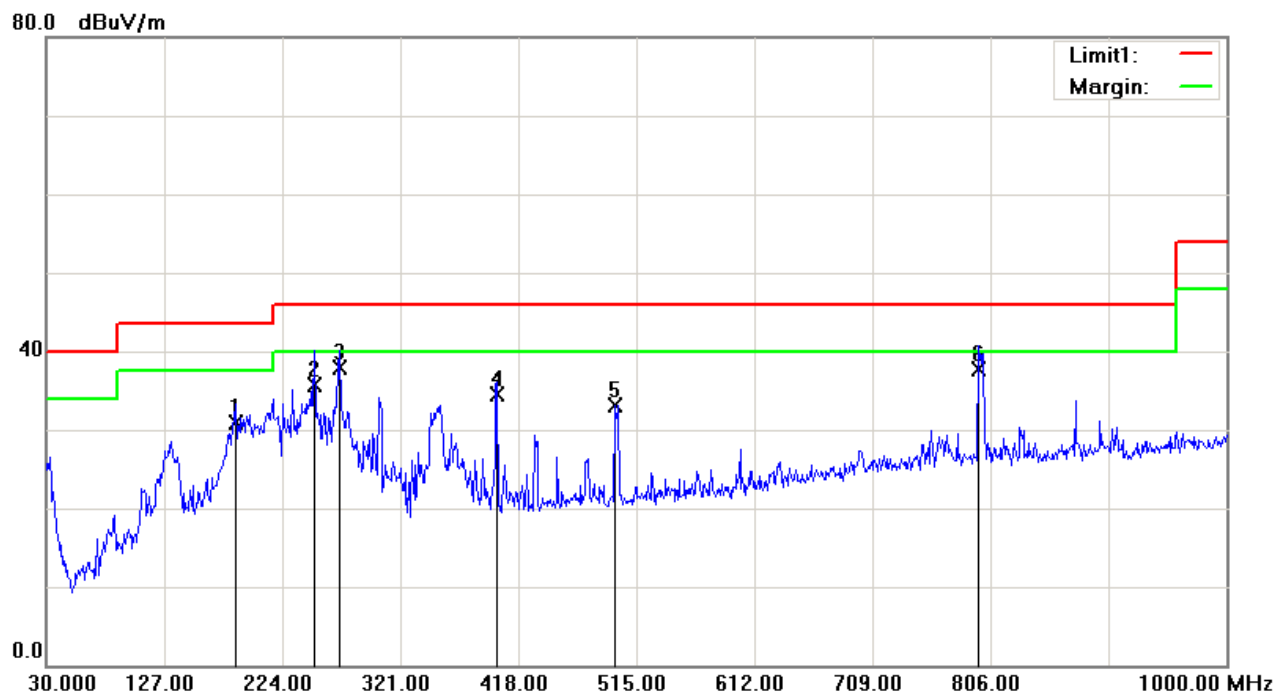
EUT Operation Mode: ping

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	133.7900	44.31	QP	-5.54	38.77	43.50	4.73
2	191.9900	45.62	QP	-7.57	38.05	43.50	5.45
3	235.6400	46.73	QP	-7.00	39.73	46.00	6.27
4	274.4400	44.35	QP	-5.31	39.04	46.00	6.96
5	497.5400	38.64	QP	-0.60	38.04	46.00	7.96
6	796.3000	35.47	QP	3.27	38.74	46.00	7.26

Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	185.2000	38.74	QP	-7.87	30.87	43.50	12.63
2	250.1900	42.63	QP	-6.91	35.72	46.00	10.28
3	270.5600	43.21	QP	-5.37	37.84	46.00	8.16
4	400.5400	36.97	QP	-2.51	34.46	46.00	11.54
5	497.5400	33.73	QP	-0.60	33.13	46.00	12.87
6	796.3000	34.52	QP	3.27	37.79	46.00	8.21

Radiated Emissions above 1000 MHz

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Polarity
1	1468.33	42.34	Peak	17.63	59.97	74	14.03	H
2	1468.33	24.31	AVG	17.63	41.94	54	12.06	H
3	2468.72	37.25	Peak	23.92	61.17	74	12.83	H
4	2468.72	19.34	AVG	23.92	43.26	54	10.74	H
5	1634.67	43.26	Peak	18.32	61.58	74	12.42	V
6	1634.67	21.36	AVG	18.32	39.68	54	14.32	V
7	3197.54	41.79	Peak	24.50	66.29	74	7.71	V
8	3197.54	22.35	AVG	24.50	46.85	54	7.15	V

**within measurement uncertainty*

--- END OF REPORT ---