



FCC DOC TEST REPORT

Declaration of Conformity

According to

47 CFR, Part 2, Part 15, CISPR PUB. 22

Applicant	:	United Integrated Services Co., Ltd.
Address	:	5F, No. 3, Lane 7, Paokao Rd., Hsintien, Taipei Hsien, Taiwan, R.O.C.
Equipment	:	Wireless Console Controller
Model No.	:	WCC-120
Trade Name	:	uis

Laboratory accreditation



- The test result refers exclusively to the test presented test model / sample.
- Without written approval of **Cerpass Technology Corp.**, the test report shall not be reproduced except in full.



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Address : 5F, No. 3, Lane 7, Paokao Rd., Hsintien,
Taipei Hsien, Taiwan, R.O.C.

Equipment : Wireless Console Controller

Model No. : WCC-120

I HEREBY CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4 – 2003** and the energy emitted by this equipment was **passed CISPR PUB. 22, FCC Part 15** in both radiated and conducted emission class B limits.

Testing was carried out on Jul. 16, 2010 at CerpPASS Technology Corp.

Signature

Anson Chou

EMC/RF B.U. Vice General Manager



1. Test Configuration of Equipment under Test

1.1. Feature of Equipment under Test

Frequency Band	2400 ~ 2483.5MHz
Transmit Power	Approx. 300m (open area) For IEEE 802.15.4 Wireless: 15dBm (Typ.)
Receiver Sensitivity	For IEEE 802.15.4 Wireless: -101dBm
Power Input	DC 5V / 1A
Power adapter	Input: AC 100V ~ 240V (47 ~ 63Hz) Output: DC 5V / 1A, 5W MAX.
Power consumption	Operating: 350mA (Max.) Standby: 15mA (Max.)
Battery	2 x alkaline batteries type AA (1.5V*2) at 2200mAh The battery can be maintained for 2 years while supplying power
Operating Voltage	3.3V
Environment	Temperature - Operating: -5 ~ 45 - Non-operating: -20 to 65 Humidity (non-condensing) - Operating: 20% to 85% (RH) - Non-operating: 10% to 90%
Dimensions	157 (L) x 95 (W) x 21.5 (H) mm
Weight	250g (including AAA*2) 203g (non-including AAA*2)

1.2. Test Manner

- a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
- a. The complete test system included EUT for EMI test.
- b. The EUT keeps to transmit and receive data by wireless.
- c. The following test modes were performed for EMI test:
 - Test Mode 1. Link Wireless, power from Adapter
 - Test Mode 2. Link Wireless, power from Battery – only for Radiation test

For conduction test, caused test “mode 1” generates the worst case, it was reported as final result.

For radiation test, caused test “mode 2” generates the worst case, it was reported as final result.



1.3. Description of Test System

No test software was used during testing.

1.4. Connection Diagram of Test System



**1.5. General Information of Test**

Test Site :	Cerpass Technology Corp. 2F-11, No. 3, Yuan Qu St., (Nankang Software Park), Taipei, Taiwan 115, R.O.C.
Test Site Location (OATS1-SD):	No. 7-2, Moshihkeng, Fongtian Village, Shihding Township, Taipei County, Taiwan, R.O.C.
FCC Registration Number :	TW1049, TW1056, 982971, 488071
IC Registration Number :	4934C-1, 4934D-1
VCCI Registration Number :	T-543 for Telecommunication Test C-3328 for Conducted emission test R-3013 for Radiated emission test G-97 for radiated disturbance above 1GHz
Test Voltage:	AC 120V/ 60Hz, DC 3V
Test in Compliance with:	ANSI C63.4-2003 FCC Part 15 Subpart B
Frequency Range Investigated :	Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 6,000 MHz
Test Distance :	The test distance of radiated emission below 1GHz from antenna to EUT is 10 M. The test distance of radiated emission above 1GHz from antenna to EUT is 3 M.

1.6. Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	LINE / NEUTRAL	2.71 dB
Radiated Emission	30 MHz ~ 2GHz	Vertical	3.89 dB
		Horizontal	3.59 dB



2. Test of Conducted Emission

2.1. Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2003 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

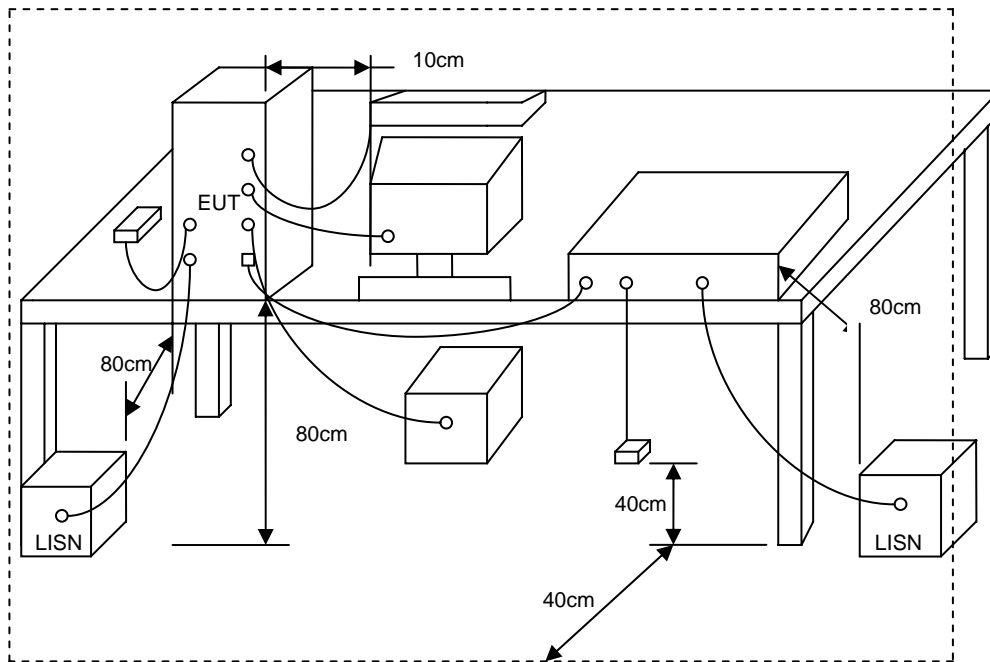
Conducted Emission Limits:

Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

2.2. Test Procedures

- The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- Connect EUT to the power mains through a line impedance stabilization network (LISN).
- All the support units are connecting to the other LISN.
- The LISN provides 50 ohm coupling impedance for the measuring instrument.
- The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- Both sides of AC line were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

2.3. Typical test Setup



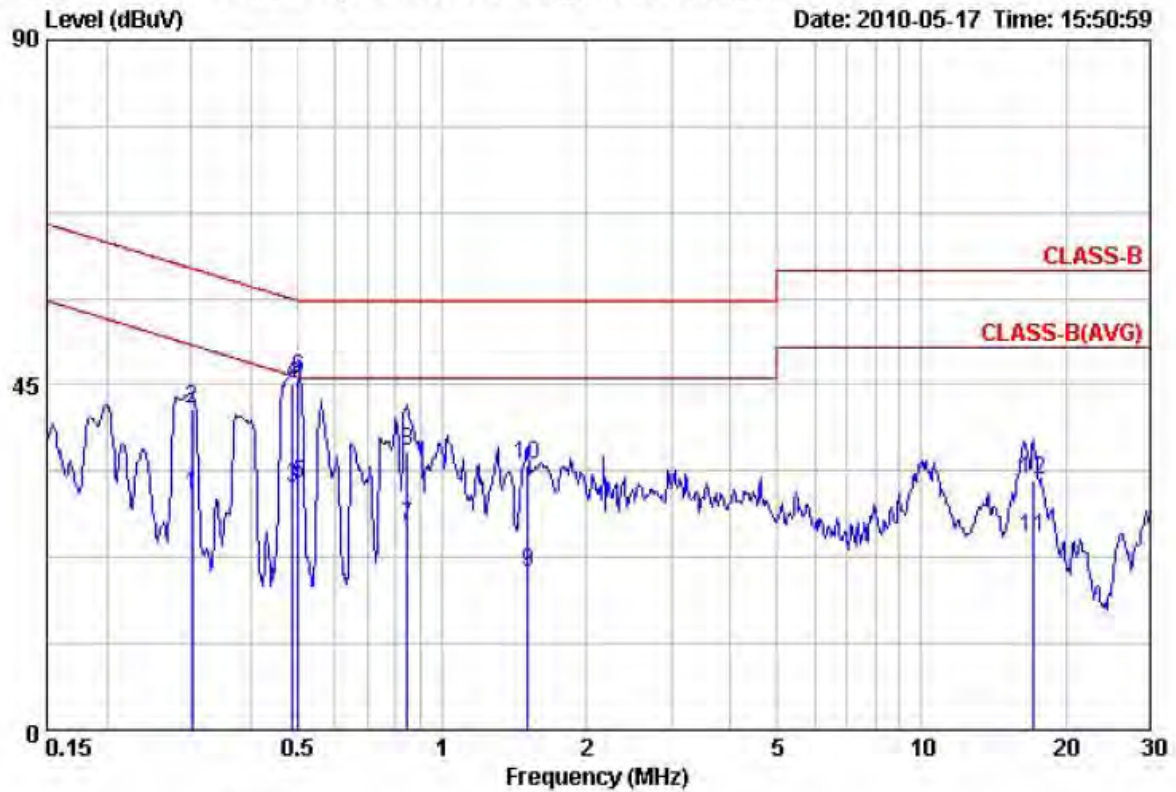
2.4. Measurement Equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
EMI Receiver	R&S	ESCI	100821	2010/01/21	2011/01/20
LISN	Schwarzbeck	NSLK 8127	8127-516	2010/05/14	2011/05/13
LISN	MESS TEC	NNB-2/16Z	02/10191	2009/06/18	2010/06/17



2.5. Test Result and Data

Power	: AC 120V	Pol/Phase	: LINE
Test Mode 1	: Link Wireless, power from Adapter	Temperature	: 21°C
Memo	:	Humidity	: 63%

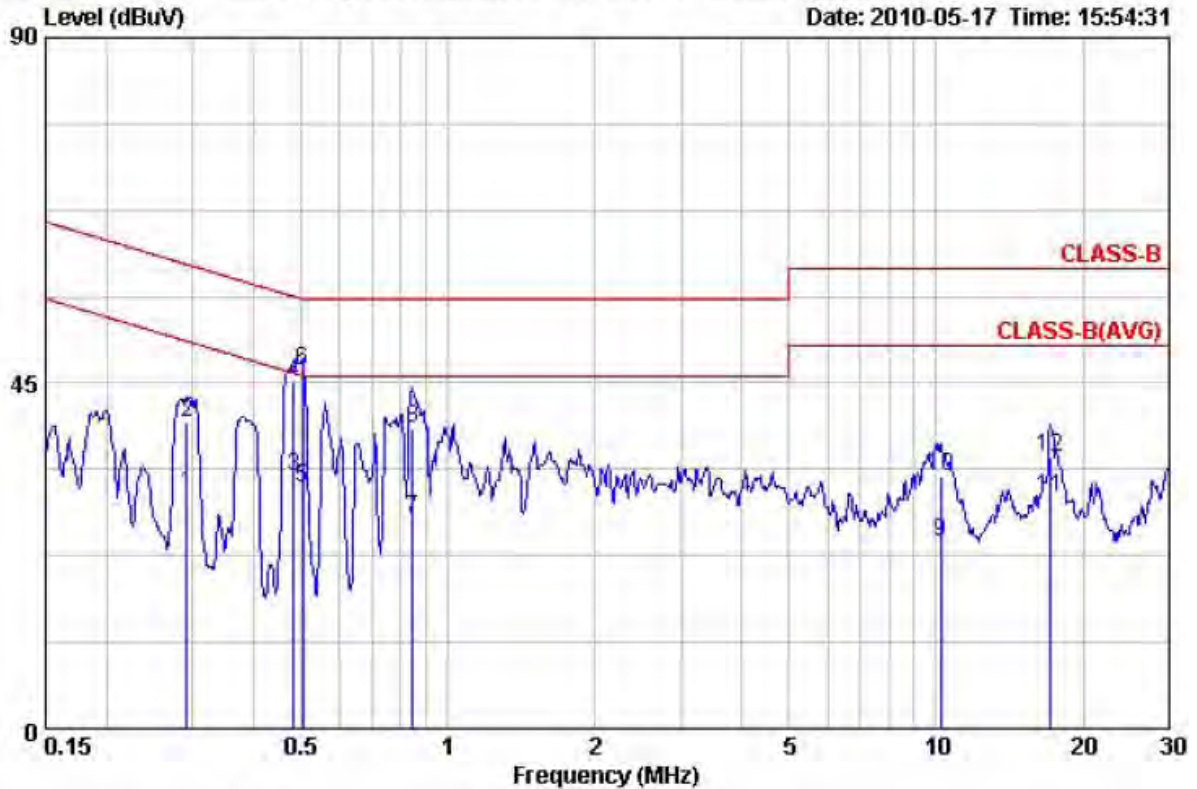


Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
1	0.302	30.534	0.076	30.610	50.191	-19.581	Average
2	0.302	41.674	0.076	41.750	60.191	-18.441	QP
3	0.487	31.625	0.084	31.709	46.212	-14.503	Average
4	0.487	44.991	0.084	45.075	56.212	-11.137	QP
5	0.501	31.934	0.085	32.019	46.000	-13.981	Average
6	0.501	45.843	0.085	45.928	56.000	-10.072	QP
7	0.848	26.584	0.096	26.680	46.000	-19.320	Average
8	0.848	36.251	0.096	36.347	56.000	-19.653	QP
9	1.509	20.376	0.122	20.498	46.000	-25.502	Average
10	1.509	34.441	0.122	34.563	56.000	-21.437	QP
11	17.109	24.549	0.509	25.058	50.000	-24.942	Average
12	17.109	32.119	0.509	32.628	60.000	-27.372	QP

Remarks: 1. Result = Read Value + Factor
2. Factor = LISN(ISN) Factor + Cable Loss



Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode 1	: Link Wireless, power from Adapter	Temperature	: 21°C
Memo	:	Humidity	: 63%



Item	Freq MHz	Read Value dBuV	Factor dB	Result dBuV	Limit dBuV	Margin dBuV	Remark
1	0.292	30.396	0.075	30.471	50.455	-19.984	Average
2	0.292	39.779	0.075	39.854	60.455	-20.601	QP
3	0.484	32.847	0.084	32.931	46.274	-13.343	Average
4	0.484	44.984	0.084	45.068	56.274	-11.206	QP
5	0.503	31.315	0.085	31.400	46.000	-14.600	Average
6	0.503	46.623	0.085	46.708	56.000	-9.292	QP
7	0.848	27.226	0.096	27.322	46.000	-18.678	Average
8	0.848	38.982	0.096	39.078	56.000	-16.922	QP
9	10.233	23.909	0.387	24.296	50.000	-25.704	Average
10	10.233	32.470	0.387	32.857	60.000	-27.143	QP
11	17.109	29.671	0.487	30.158	50.000	-19.842	Average
12	17.109	34.828	0.487	35.315	60.000	-24.685	QP

Remarks: 1. Result = Read Value + Factor
 2. Factor = LISN(ISN) Factor + Cable Loss

Test engineer: Dean



2.6. Test Photographs

Front View



Rear View





3. Test of Radiated Emission

3.1. Test Limit

Radiated emissions from 30 MHz to 6,000 MHz were measured with a bandwidth of 120 kHz according to the methods defines in ANSI C63.4-2003. The EUT was placed on a nonmetallic stand in the open-field site, 0.8 meter above the ground plane, as shown in section 3.2. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions. For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance Meters	Radiated (μ V / M)	Radiated (dB μ V / M)
30-88	3	100	40.0
88-216	3	150	43.5
216-960	3	200	46.0
Above 960	3	500	54.0

For unintentional device, according to CISPR PUB.22, for Class B digital devices, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 10 meters shall not exceed the below table.

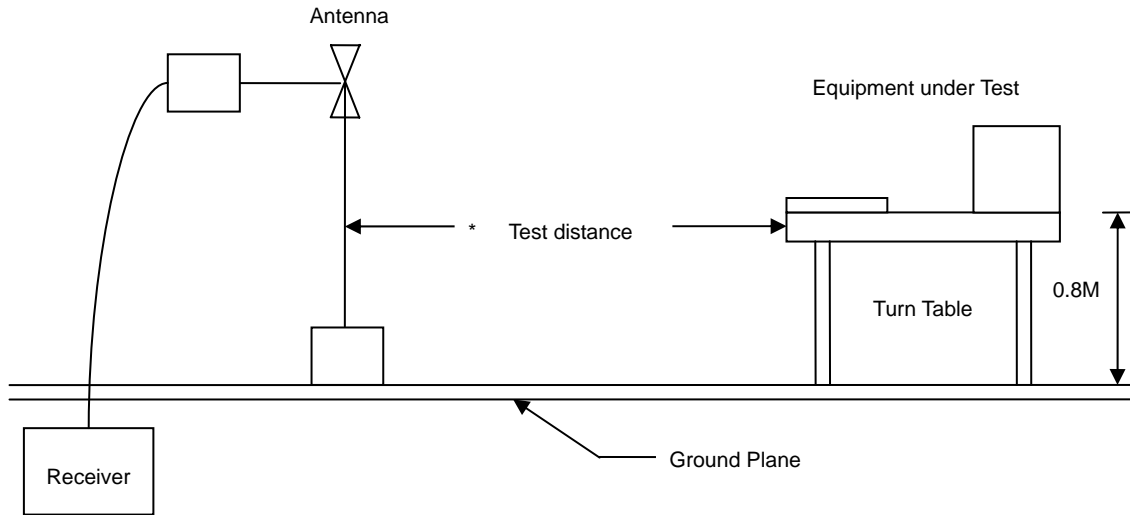
Frequency (MHz)	Distance Meters	Radiated (dB μ V / M)
30-230	10	30
230-1000	10	37

3.2. Test Procedures

- a. The EUT was placed on a Rota table top 0.8 meter above ground.
- b. The EUT was set 10 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a half wave dipole and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 6 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 6 dB margin will be repeated one by one using the quasi-peak method and reported.



3.3. Typical test Setup



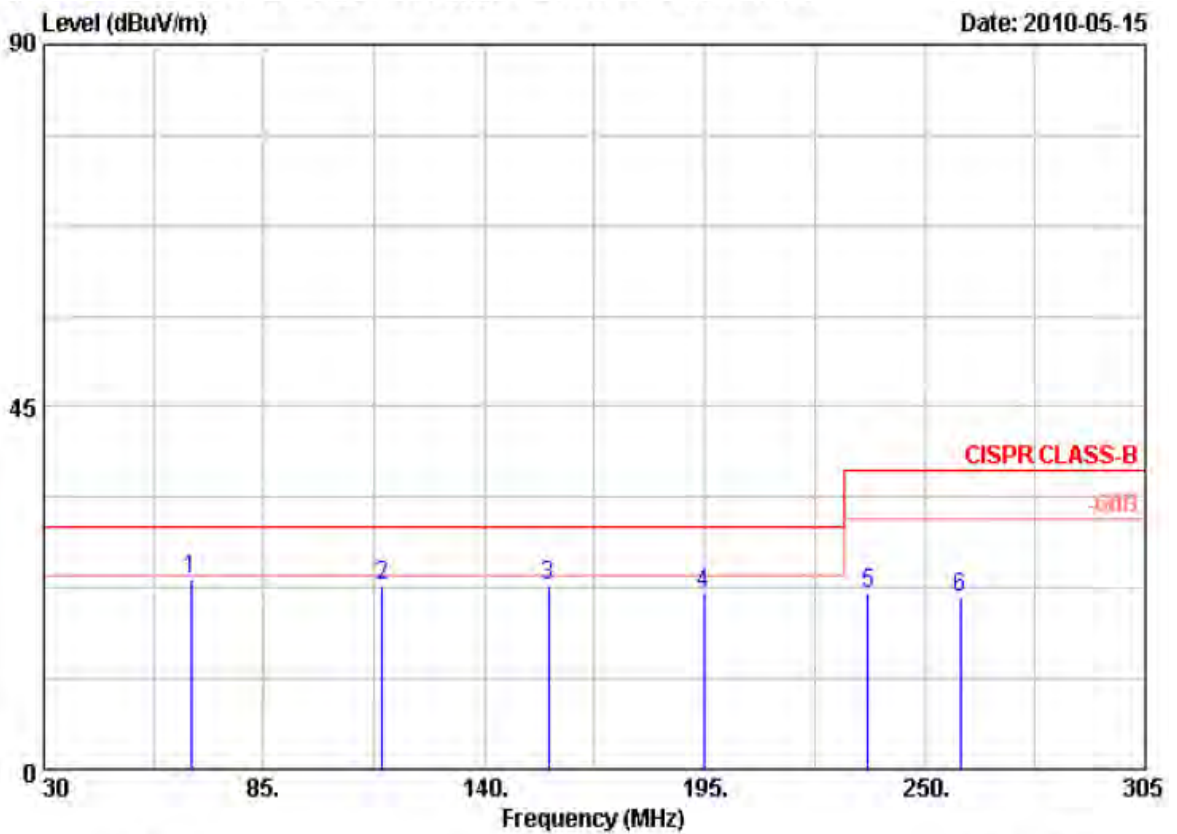
3.4. Measurement Equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Bilog Antenna	Schaffner	CBL6112D	22242	2010/02/05	2011/02/04
Amplifier	Agilent	8447D	2944A10593	2009/05/21	2010/05/20
Signal Generator	HP	8648B	3629U00612	2009/12/23	2010/12/22
EMI Receiver	HP	8546A	3807A00454	2009/10/23	2010/10/22
RF Filter Section	HP	85460A	3704A00386	2009/10/23	2010/10/22
SPECTRUM ANALYZER	R&S	FSP40	100219	2009/11/20	2010/11/19
HORN ANTENNA	EMCO	3115	31589	2010/05/04	2011/05/03
Preamplifier	Agilent	8449B	3008A01954	2010/02/26	2011/02/25



3.5. Test Result and Data

Power	: DC 3V	Pol/Phase	: VERTICAL
Test Mode 2	: Link Wireless, power from Battery	Temperature	: 23 °C
Memo	:	Humidity	: 69 %

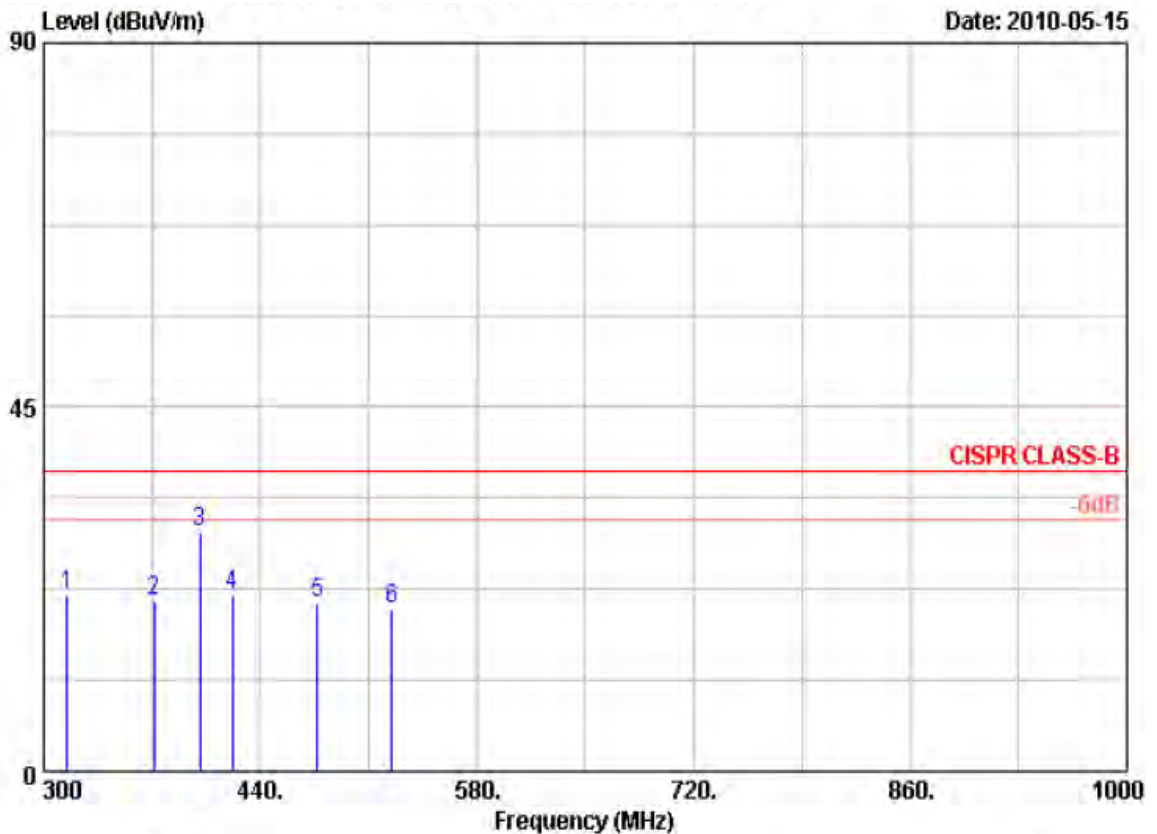


Item	Freq MHz	Read Value dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Ant Pos cm	Tab Pos Deg
1	66.850	45.433	-21.781	23.652	30.000	-6.348	Peak	400	0
2	114.425	40.586	-17.662	22.924	30.000	-7.076	Peak	400	0
3	155.950	40.910	-18.072	22.838	30.000	-7.162	Peak	400	0
4	194.725	41.491	-19.647	21.844	30.000	-8.156	Peak	400	0
5	235.700	40.570	-18.660	21.910	37.000	-15.090	Peak	400	0
6	258.800	37.390	-16.076	21.314	37.000	-15.686	Peak	400	0

Remarks: 1. Result = Read Value + Factor
 2. Factor = Antenna factor + Cable loss - Amplifier factor



Power	: DC 3V	Pol/Phase	: VERTICAL
Test Mode 2	: Link Wireless, power from Battery	Temperature	: 23 °C
Memo	:	Humidity	: 69 %

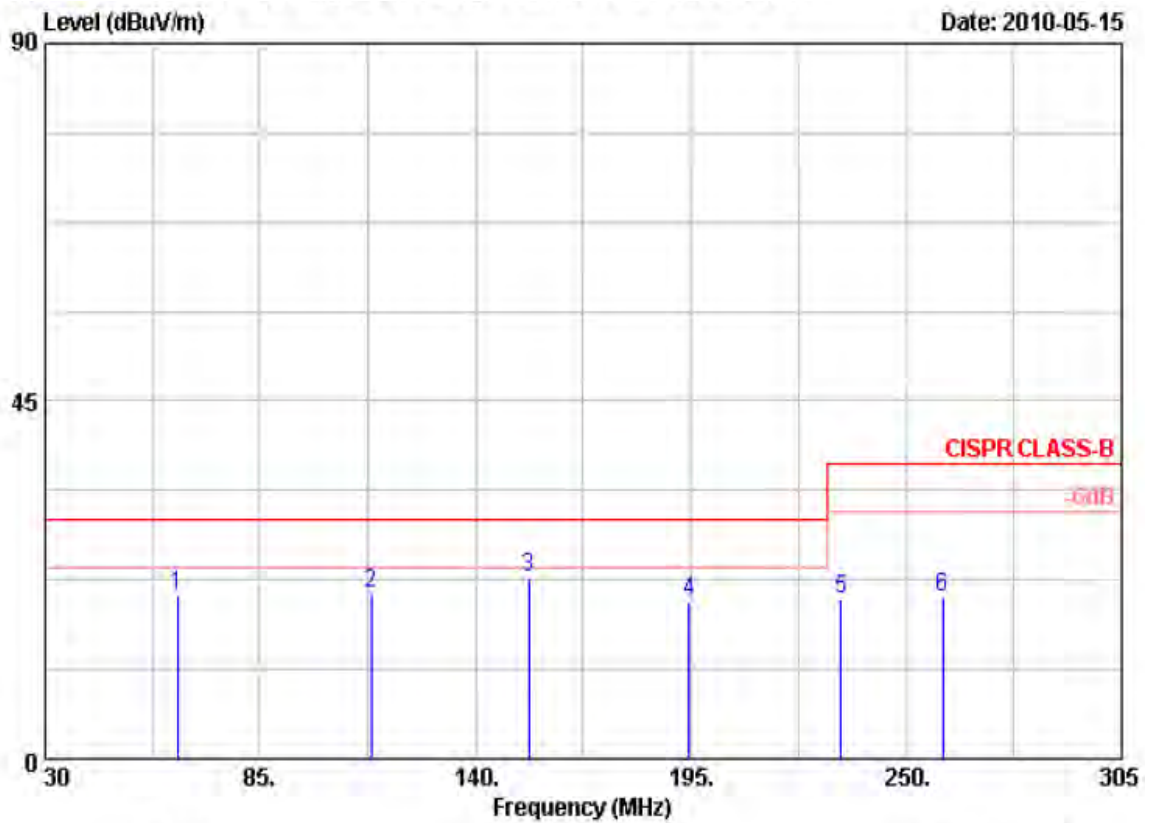


Item	Freq MHz	Read Value dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Ant Pos cm	Tab Pos Deg
1	315.400	34.450	-12.725	21.725	37.000	-15.275	Peak	100	0
2	371.400	30.280	-9.222	21.058	37.000	-15.942	Peak	100	0
3	400.800	36.960	-7.327	29.633	37.000	-7.367	Peak	100	0
4	421.800	29.303	-7.458	21.845	37.000	-15.155	Peak	100	0
5	477.100	28.380	-7.449	20.931	37.000	-16.069	Peak	100	0
6	524.700	27.320	-7.283	20.037	37.000	-16.963	Peak	100	0

Remarks: 1. Result = Read Value + Factor
2. Factor = Antenna factor + Cable loss - Amplifier factor



Power	: DC 3V	Pol/Phase	: HORIZONTAL
Test Mode 2	: Link Wireless, power from Battery	Temperature	: 23 °C
Memo	:	Humidity	: 69 %

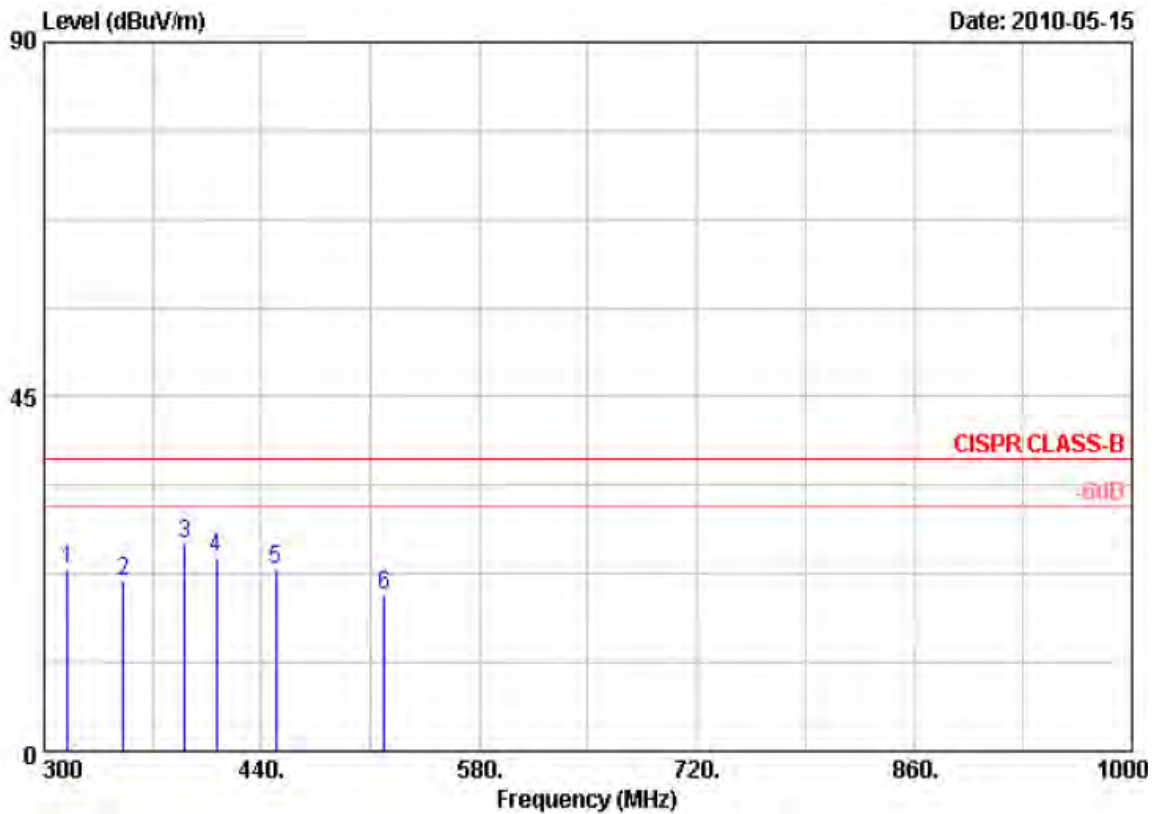


Item	Freq MHz	Read Value dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Ant Pos cm	Tab Pos Deg
1	63.825	40.055	-19.609	20.446	30.000	-9.554	Peak	400	0
2	113.325	38.441	-17.735	20.706	30.000	-9.294	Peak	400	0
3	153.475	41.715	-18.777	22.938	30.000	-7.062	Peak	400	0
4	194.450	39.390	-19.581	19.809	30.000	-10.191	Peak	400	0
5	233.225	38.846	-18.806	20.040	37.000	-16.960	Peak	400	0
6	259.350	36.227	-15.985	20.242	37.000	-16.758	Peak	400	0

Remarks: 1. Result = Read Value + Factor
2. Factor = Antenna factor + Cable loss - Amplifier factor



Power	: DC 3V	Pol/Phase	: HORIZONTAL
Test Mode 2	: Link Wireless, power from Battery	Temperature	: 23 °C
Memo	:	Humidity	: 69 %

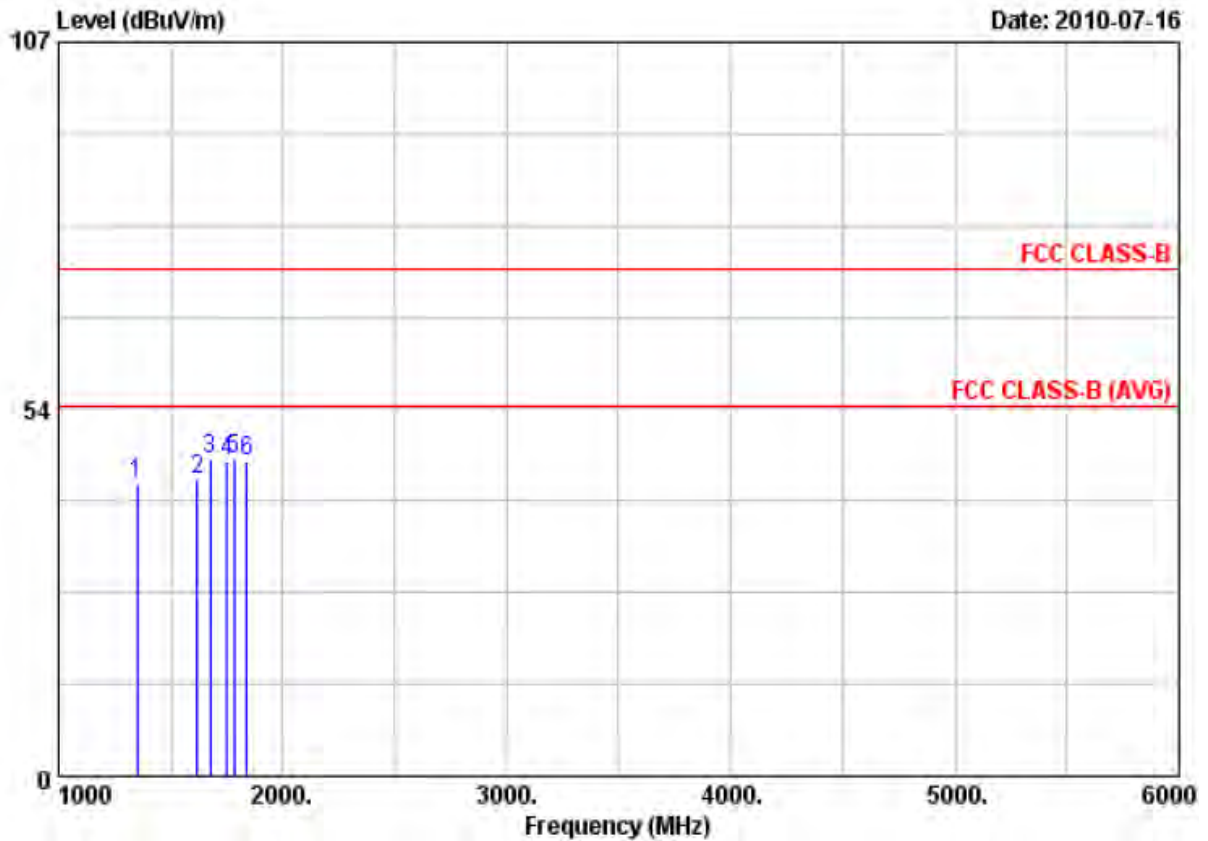


Item	Freq MHz	Read Value dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Ant Pos cm	Tab Pos Deg
1	315.400	35.700	-12.725	22.975	37.000	-14.025	Peak	100	0
2	351.100	32.113	-10.568	21.545	37.000	-15.455	Peak	100	0
3	390.300	34.396	-7.967	26.429	37.000	-10.571	Peak	100	0
4	410.600	32.010	-7.387	24.623	37.000	-12.377	Peak	100	0
5	449.100	30.793	-7.632	23.161	37.000	-13.839	Peak	100	0
6	519.100	27.189	-7.286	19.903	37.000	-17.097	Peak	100	0

Remarks: 1. Result = Read Value + Factor
2. Factor = Antenna factor + Cable loss - Amplifier factor



Power	: DC 3V	Pol/Phase	: VERTICAL
Test Mode 2	: Link Wireless, power from Battery	Temperature	: 25 °C
Memo	:	Humidity	: 65 %

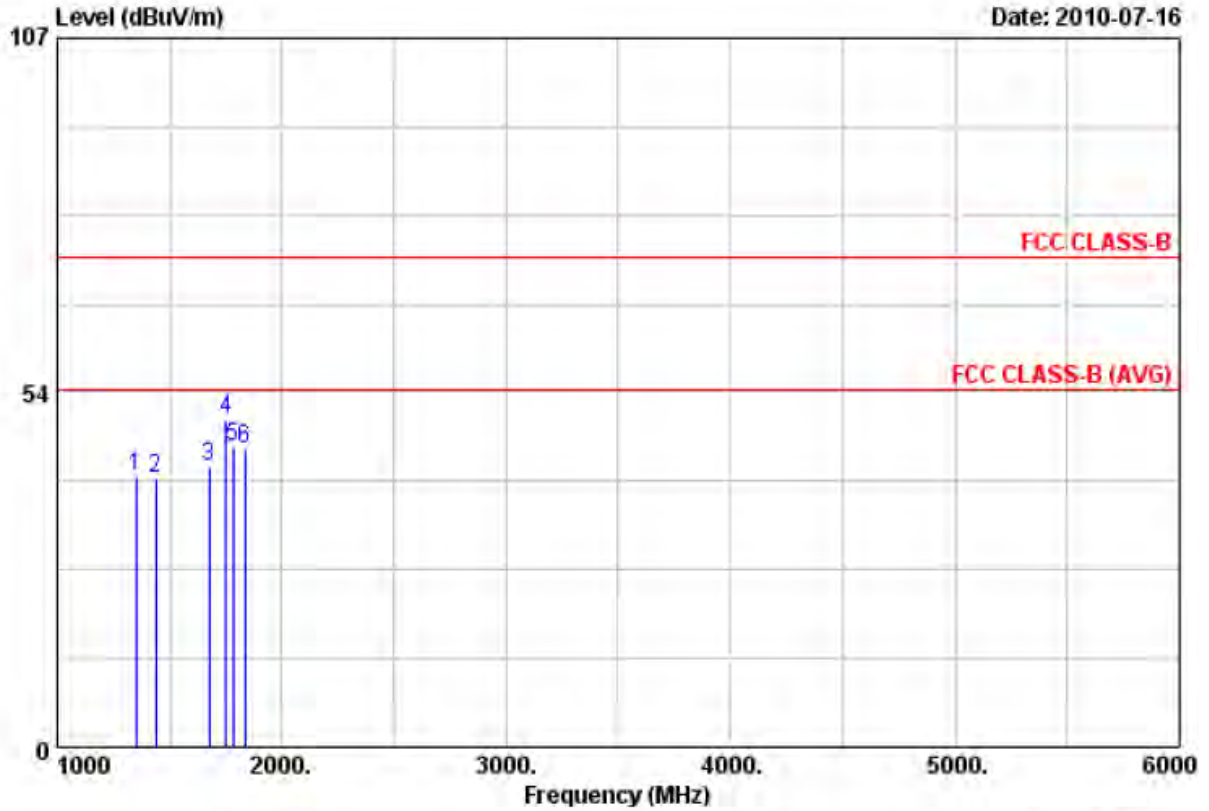


Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	1350.00	59.14	-16.54	42.60	74.00	-31.40	Peak	100	0
2	1620.00	58.32	-15.10	43.22	74.00	-30.78	Peak	100	0
3	1675.00	61.12	-14.82	46.30	74.00	-27.70	Peak	100	0
4	1752.00	60.39	-14.44	45.95	74.00	-28.05	Peak	100	0
5	1782.00	60.45	-14.29	46.16	74.00	-27.84	Peak	100	0
6	1838.00	59.98	-14.01	45.97	74.00	-28.03	Peak	100	0

Remarks: 1. Result = Read Value + Factor
 2. Factor = Antenna factor + Cable loss - Amplifier factor



Power	: DC 3V	Pol/Phase	: HORIZONTAL
Test Mode 2	: Link Wireless, power from Battery	Temperature	: 25 °C
Memo	:	Humidity	: 65 %



Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	1350.00	57.47	-16.54	40.93	74.00	-33.07	Peak	100	360
2	1440.00	56.60	-16.04	40.56	74.00	-33.44	Peak	100	360
3	1675.00	57.05	-14.82	42.23	74.00	-31.77	Peak	100	360
4	1752.00	63.84	-14.44	49.40	74.00	-24.60	Peak	100	360
5	1782.00	59.59	-14.29	45.30	74.00	-28.70	Peak	100	360
6	1835.00	59.11	-14.02	45.09	74.00	-28.91	Peak	100	360

Remarks: 1. Result = Read Value + Factor
 2. Factor = Antenna factor + Cable loss - Amplifier factor

Test engineer: Karp



3.6. Test Photographs

Front View



Rear View





Appendix A. Photographs of EUT





