Testing Laboratory 1332

FCC DOC TEST REPORT

According to

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

Applicant	:	Partner Tech Corp.
Address	:	10FL, 233-2, Baoqiao Road, Xindian, New Taipei City, Taiwan
Equipment	:	Handheld Terminal
Model No.	:	OT-110
Trade Name	:	Partner

- 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.

Contents

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Address	:	10FL, 233-2, Baoqiao Road, Xindian, New Taipei City, Taiwan
Equipment	:	Handheld Terminal
Model No.	:	OT-110

I **HEREBY** CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4 – 2009** 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 Jun. 23, 2011 at Cerpass Technology Corp.

Signature

Hill Chen
EMC/RF B.U. Chief of Engineering Dept.

1. Test Configuration of Equipment under Test

1.1. Feature of Equipment under Test

CPU	CPU Samsung S3C 6410 667MHz
Memory	Mobile DDR 128MB, NAND flash 256MB
LCD	4.3” widescreen (resolution 272*480)
Connection Interface	WLAN 802.11 b/g, Mini USB 2.0 (Client) / 1.1 (Host)
Audio	Speaker, Internal microphone, earphone jack, microphone jack
Storage	Micro SD Card (support SDHC)
Special features	Vibrator motor (for alerts) 4-way direction sensor Ambient light sensor Backup restore utility
Battery	Li-ion 2200mAh (with Gas Gauge)
Ruggedness	IP54, 1.2 meter drop test
Operating System	Windows CE 6.0
Dimensions	133 * 82 * 19 mm(H x W x D)
Option	Sunlight-readable panel with power-saving function MSR Track 1, 2, 3 Barcode Scanner 1D/2D RFID 13.56MHz (Mifare)
Weight	Approx. 220g with battery
Adapter	CWT \ KPC-010B Touch \ M8-10US05R

1.2. Test Manner

a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.

b. The complete test system included PC, Monitor, Keyboard, Mouse, Printer, Modem, Earphone, Micro SD Card and EUT for EMI test.

c. The result of Conduction test as follow:
Test Mode 1. PC Link, EUT + Module: RFID + Adapter: CWT \ KPC-010B
Test Mode 2. PC Link, EUT + Module: RFID + Adapter: Touch \ M8-10US05R
Test Mode 3. PC Link, EUT + Module: BCR-1D + Adapter: CWT \ KPC-010B
Test Mode 4. PC Link, EUT + Module: BCR-2D + Adapter: CWT \ KPC-010B
Test Mode 5. PC Link, EUT + Module: MSR + Adapter: CWT \ KPC-010B
Test Mode 6. EUT with Cradle: Single Set, Module: BCR-2D + Adapter: CWT \ KPC-010B
Test Mode 7. EUT with Cradle: Multi Set, Module: BCR-2D + Adapter: CWT \ KPC-010B
cause “Test Mode 4” generated the worst test result, it was reported as final data.

d. The result of Radiation test as follow:
Test Mode 1. PC Link, EUT + Module: BCR-1D + Adapter: Touch \ M8-10US05R
Test Mode 2. PC Link, EUT + Module: BCR-2D + Adapter: Touch \ M8-10US05R
Test Mode 3. PC Link, EUT + Module: MSR + Adapter: Touch \ M8-10US05R
Test Mode 4. PC Link, EUT + Module: RFID + Adapter: Touch \ M8-10US05R
Test Mode 5. PC Link, EUT + Module: BCR-2D + Adapter: CWT \ KPC-010B
Test Mode 6. EUT with Cradle: Single Set, Module: BCR-2D + Adapter: CWT \ KPC-010B
Test Mode 7. EUT with Cradle: Multi Set, Module: BCR-2D + Adapter: CWT \ KPC-010B
Test Mode 8. EUT with Earphone, Power from Battery
For 30MHz ~ 1Gbps, cause “Test Mode 5” generated the worst test result, it was reported as final data.
For 1Gbps ~ 6Gpbs, cause “Test Mode 3” generated the worst test result, it was reported as final data.

e. An executive program, “Active Sync” under WIN 7 was executed to keep sending signals.

f. An executive program, “Media Player” under WIN 7 was executed to play music.

g. An executive program, “Word Pad” under WIN 7 was executed to display the message sent from EUT.

h. The EUT was executed to keep transmitting and receiving data via Wireless and Bluetooth.

1.3. Description of Support Unit

Device	Manufacturer	Model No.	Description
PC	DELL	DIMENSION -4600	Power Cable, Adapter Unshielding 1.8m
Monitor	DELL	U2410f	Power Cable, Unshielding, 1.8m VGA, Shielding 1.35m
Keyboard	DELL	SK-8175	USB, Shielding 1.85m
Mouse	DELL	M-UV83	USB, Shielding 1.85m
Printer	hp	D2660	Power Cable, Unshielding, 1.8m USB, Shielding 1.6m
Modem	ACEEX	DM-1414	Power Cable, Unshielding, 1.8m RS232, Shielding 1.35m
Earphone	MIC	MIC-4	Audio, Shielding 1.35m
Micro SD Card	Kingston	2GB	N/A

Use Cable:

Cable	Quantity	Description
USB	1	Unshielding, 1.8m

1.4. 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 (OATS2-SD) :	No.68-1, Shihbachongsi, Shihding Township, Taipei City 223, Taiwan, R.O.C.
FCC Registration Number :	TW1049, TW1061, 488071, 390316
IC Registration Number :	4934B-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
Test in Compliance with:	ANSI C63.4-2009 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.

1.5. Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	LINE / NEUTRAL	2.71dB
Radiated Emission	30 MHz ~ 1,000 MHz	Vertical	3.52 dB
		Horizontal	3.39 dB
	1,000 MHz ~ 18,000 MHz	Vertical	4.39 dB
		Horizontal	5.25 dB

1.6. History of this test report

■ ORIGINAL.

☐ Additional attachment as following record:

Attachment No.	Issue Date	Description

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 C63.4-2009 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.

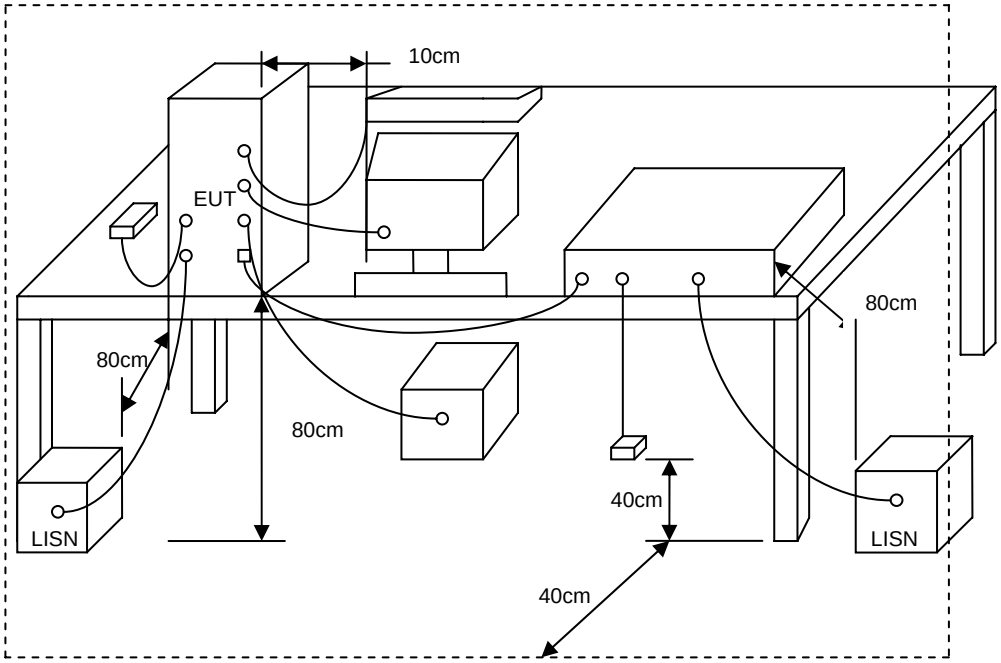
Conducted Emission Limits:

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

a. 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.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connecting to the other LISN.
d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
f. Both sides of AC line were checked for maximum conducted interference.
g. The frequency range from 150 kHz to 30 MHz was searched.
h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

2.3. Typical test Setup

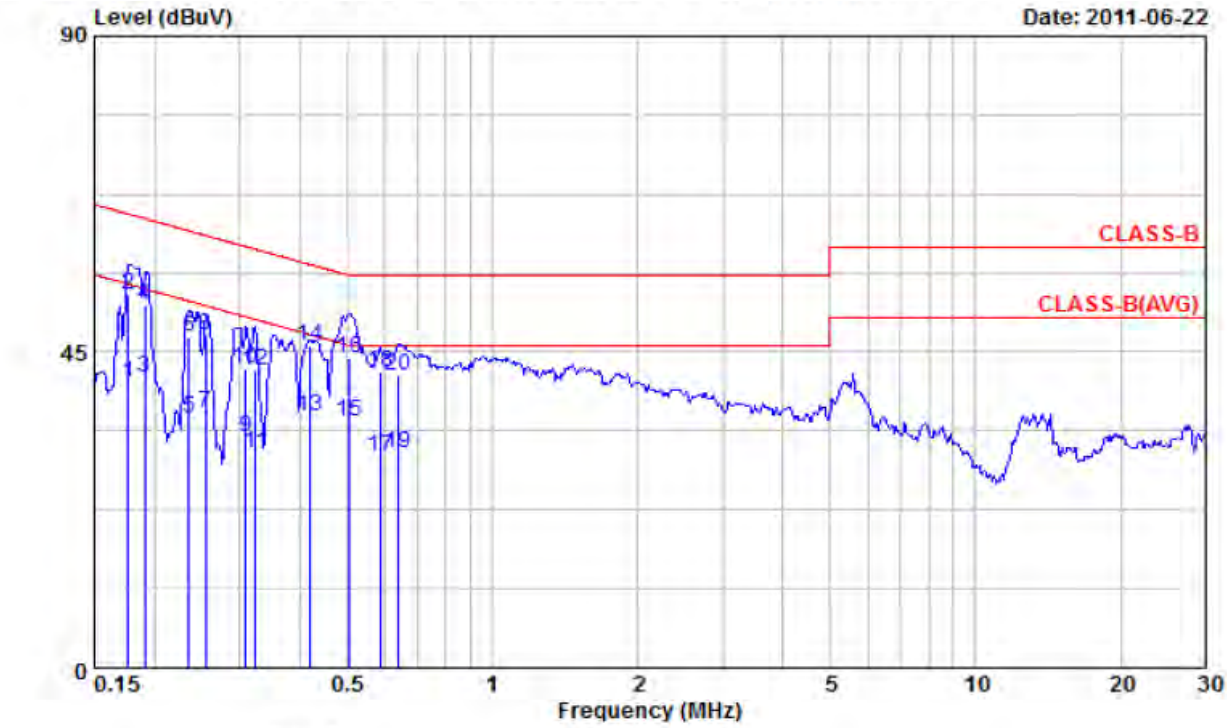


2.4. Measurement Equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
EMI Receiver	R&S	ESCI	100443	2011/02/08	2012/02/07
LISN	Schwarzbeck	NSLK 8127	8127-516	2011/05/05	2012/05/04
LISN	MessTec	NNS-2/16L	02/10191	2010/07/19	2011/07/18

2.5. Test Result and Data

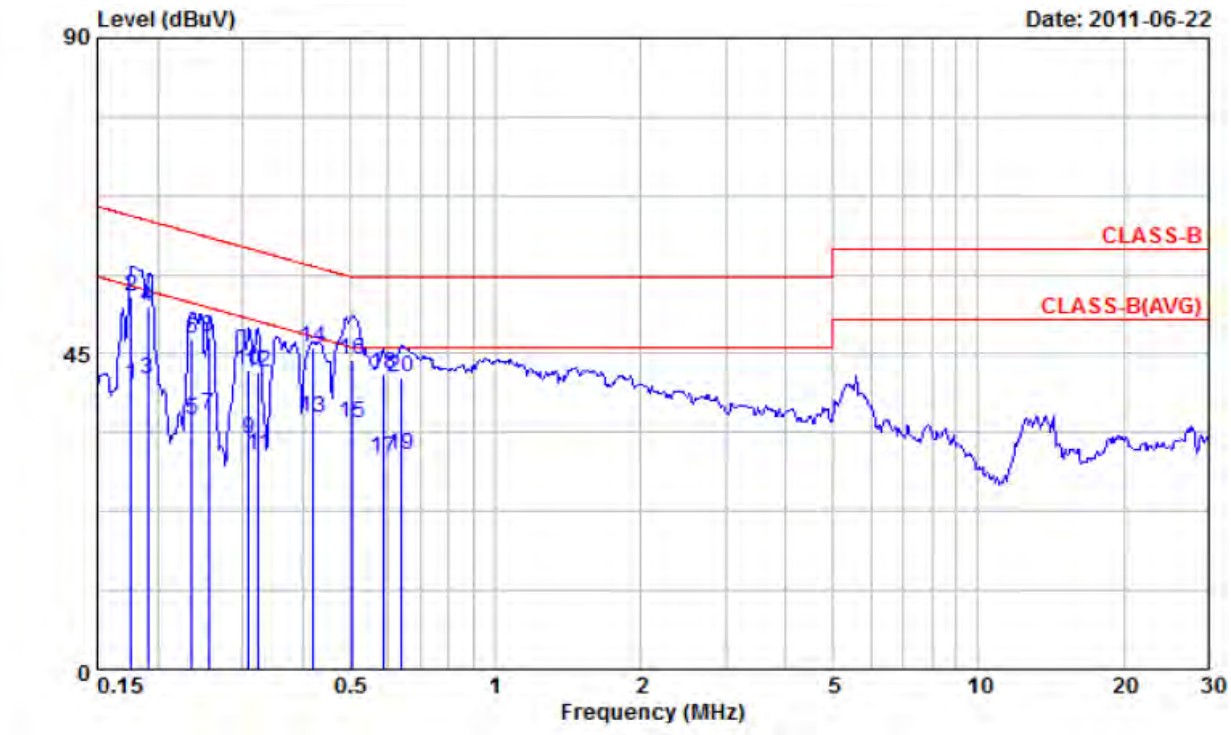
Power	:	AC 120V	Pol/Phase	:	LINE
Test Mode 4	:	PC Link, EUT + Module: BCR-2D + Adapter: CWT \ KPC-010B	Temperature	:	25 °C
Memo	:		Humidity	:	50 %



Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
1	0.176	40.380	0.118	40.498	54.680	-14.182	Average
2	0.176	53.048	0.118	53.166	64.680	-11.514	QP
3	0.190	41.133	0.119	41.252	54.020	-12.768	Average
4	0.190	51.645	0.119	51.764	64.020	-12.256	QP
5	0.235	35.572	0.122	35.694	52.259	-16.565	Average
6	0.235	47.118	0.122	47.240	62.259	-15.019	QP
7	0.255	36.291	0.123	36.414	51.599	-15.185	Average
8	0.255	47.165	0.123	47.288	61.599	-14.311	QP
9	0.308	32.669	0.125	32.794	50.015	-17.221	Average
10	0.308	42.490	0.125	42.615	60.015	-17.400	QP
11	0.323	30.525	0.125	30.650	49.619	-18.969	Average
12	0.323	42.140	0.125	42.265	59.619	-17.354	QP
13	0.419	35.750	0.129	35.879	47.463	-11.584	Average
14	0.419	45.842	0.129	45.971	57.463	-11.492	QP
15	0.505	35.070	0.136	35.206	46.000	-10.794	Average

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

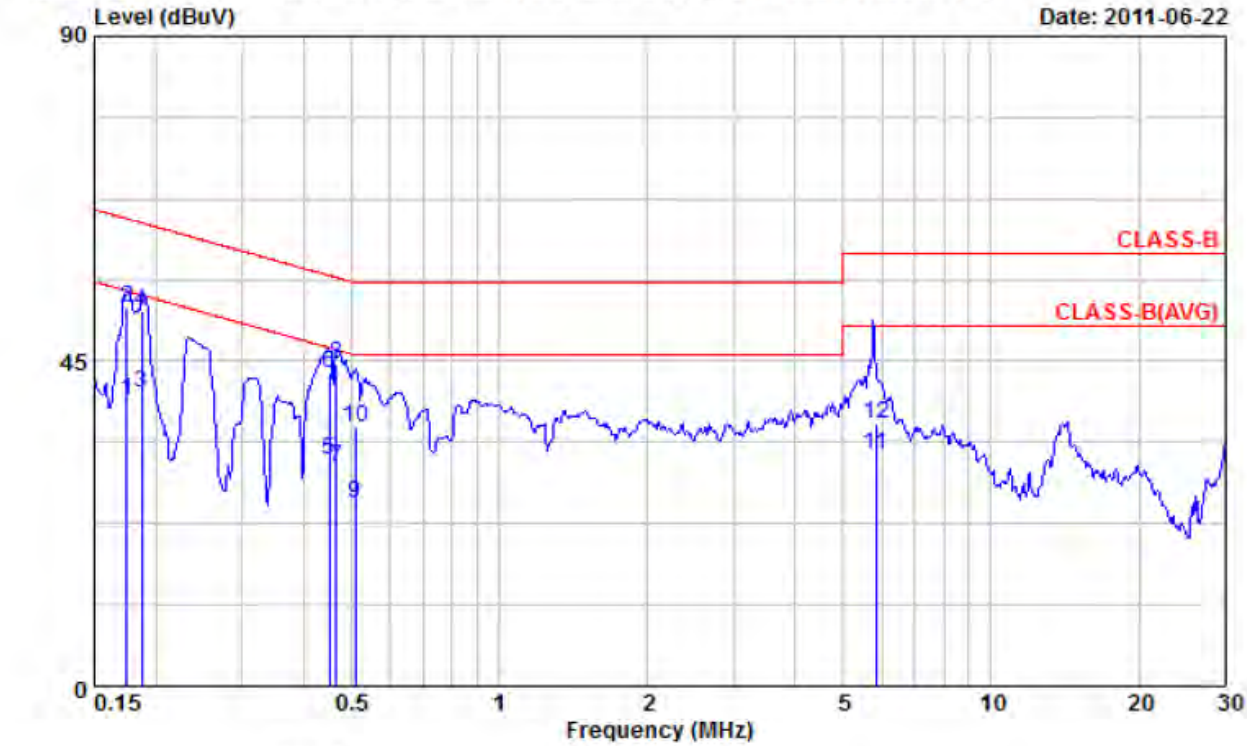
Power	:	AC 120V	Pol/Phase	:	LINE
Test Mode 4	:	PC Link, EUT + Module: BCR-2D + Adapter: CWT \ KPC-010B	Temperature	:	25 °C
Memo	:		Humidity	:	50 %



Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
16	0.505	44.034	0.136	44.170	56.000	-11.830	QP
17	0.585	29.903	0.148	30.051	46.000	-15.949	Average
18	0.585	42.067	0.148	42.215	56.000	-13.785	QP
19	0.641	30.495	0.156	30.651	46.000	-15.349	Average
20	0.641	41.481	0.156	41.637	56.000	-14.363	QP

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

Power	:	AC 120V	Pol/Phase	:	NEUTRAL
Test Mode 4	:	PC Link, EUT + Module: BCR-2D + Adapter: CWT \ KPC-010B	Temperature	:	25 °C
Memo	:		Humidity	:	50 %



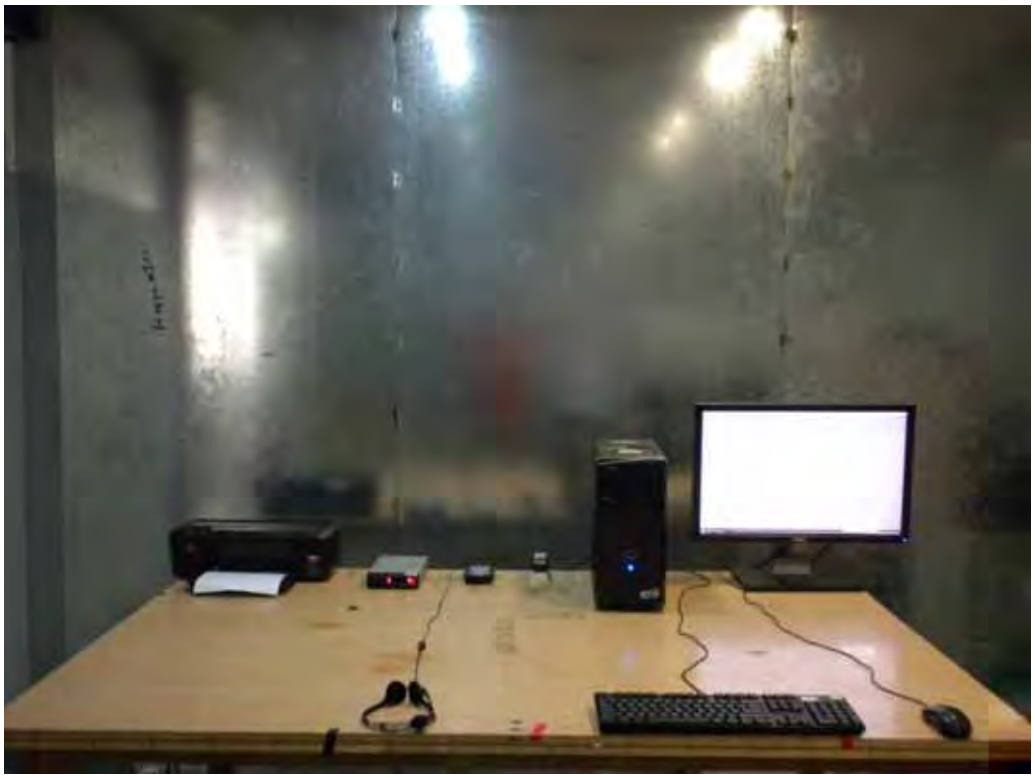
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark
	MHz	dBuV	dB	dBuV	dBuV	dBuV	
1	0.175	39.406	0.099	39.505	54.724	-15.219	Average
2	0.175	52.317	0.099	52.416	64.724	-12.308	QP
3	0.187	40.636	0.100	40.736	54.152	-13.416	Average
4	0.187	51.891	0.100	51.991	64.152	-12.161	QP
5	0.451	31.301	0.116	31.417	46.864	-15.447	Average
6	0.451	43.196	0.116	43.312	56.864	-13.552	QP
7	0.466	30.295	0.116	30.411	46.583	-16.172	Average
8	0.466	44.443	0.116	44.559	56.583	-12.024	QP
9	0.510	25.126	0.119	25.245	46.000	-20.755	Average
10	0.510	35.619	0.119	35.738	56.000	-20.262	QP
11	5.822	31.762	0.387	32.149	50.000	-17.851	Average
12	5.822	35.913	0.387	36.300	60.000	-23.700	QP

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

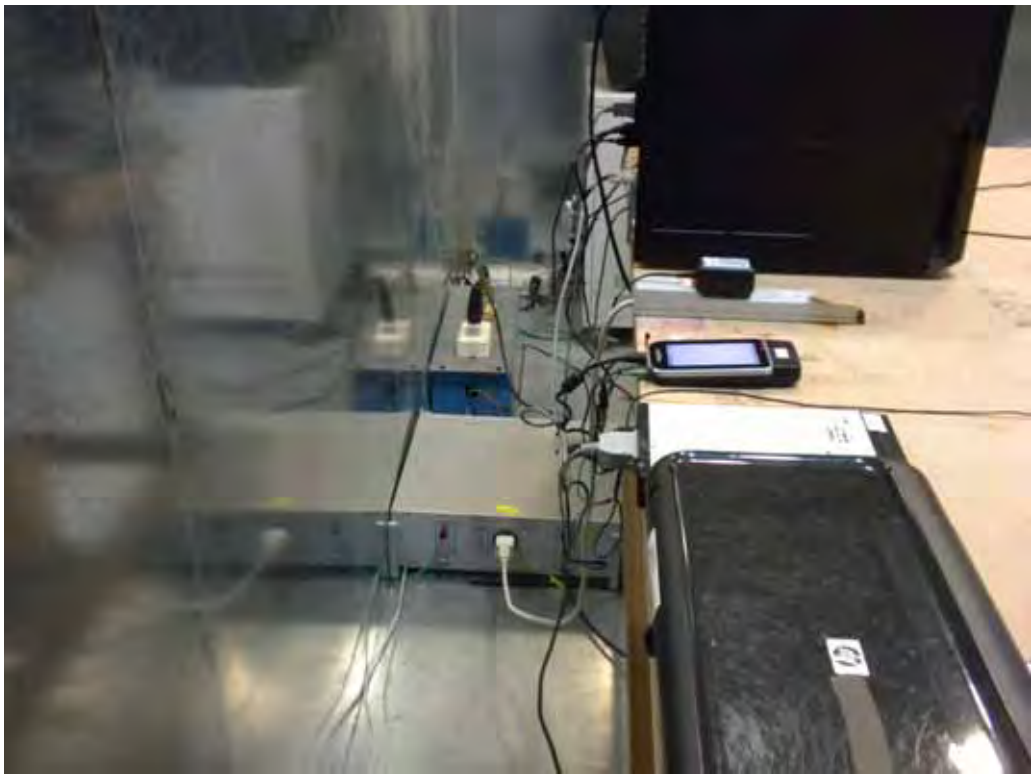
Test engineer: Dian

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 C63.4-2009. 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

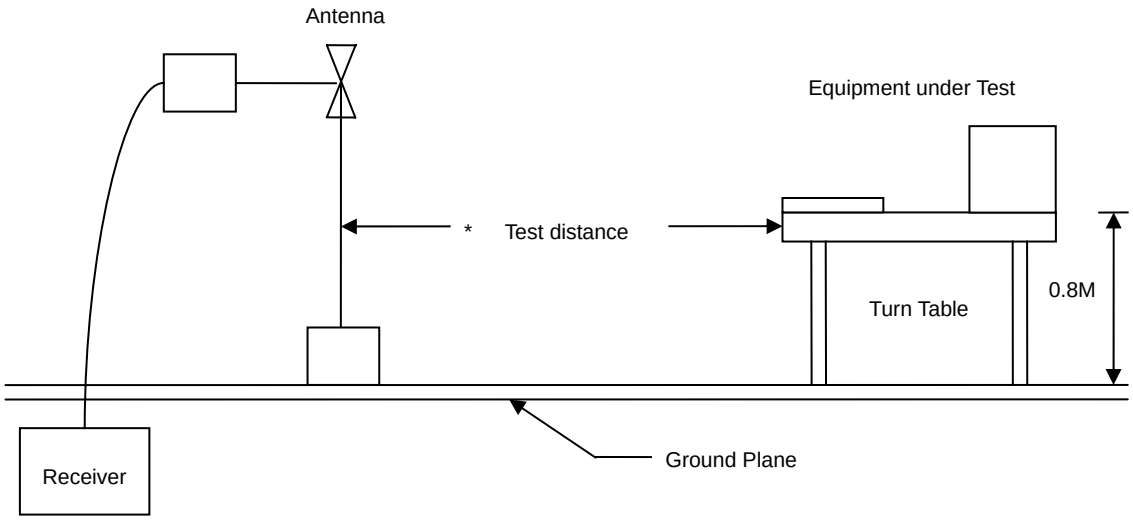
For unintentional device, according to CISPR PUB.22, for Class B digital devices, the general requirement of field strength of radiated emissions from intentional radiators at a distance of 10 meters shall not exceed the below table.

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

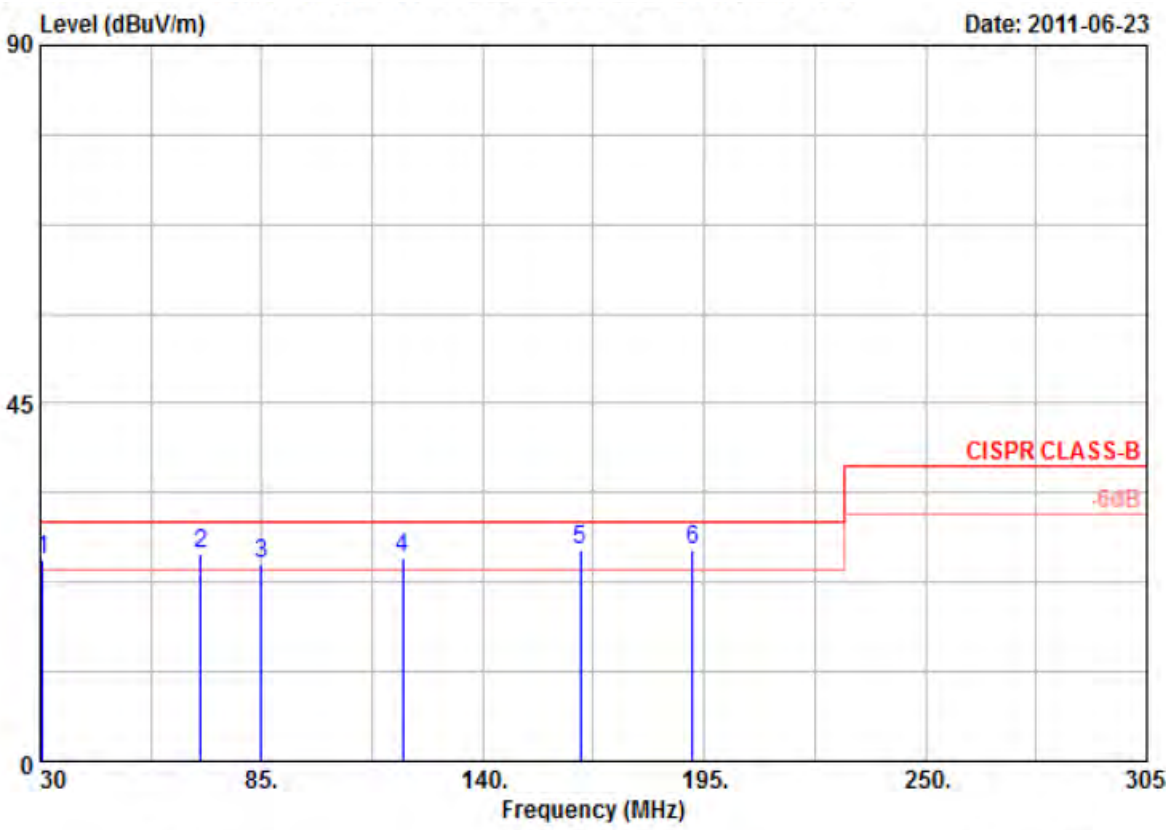


3.4. Measurement Equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Amplifier	Agilent	8447D	2944A10531	2011/01/21	2012/01/20
Bilog Antenna	Schaffner	CBL6112D	22242	2011/02/09	2012/02/08
EMI Receiver	HP	8546A	3807A00454	2010/09/27	2011/09/26
RF Filter Section	HP	85460A	3704A00386	2010/09/27	2011/09/26
SPECTRUM ANALYZER	R&S	FSP40	100219	2010/11/05	2011/11/04
HORN ANTENNA	EMCO	3115	31589	2011/05/02	2012/05/01
Preamplifier	Agilent	8449B	3008A01954	2011/03/02	2012/03/01

3.5. Test Result and Data (30MHz ~ 1GHz)

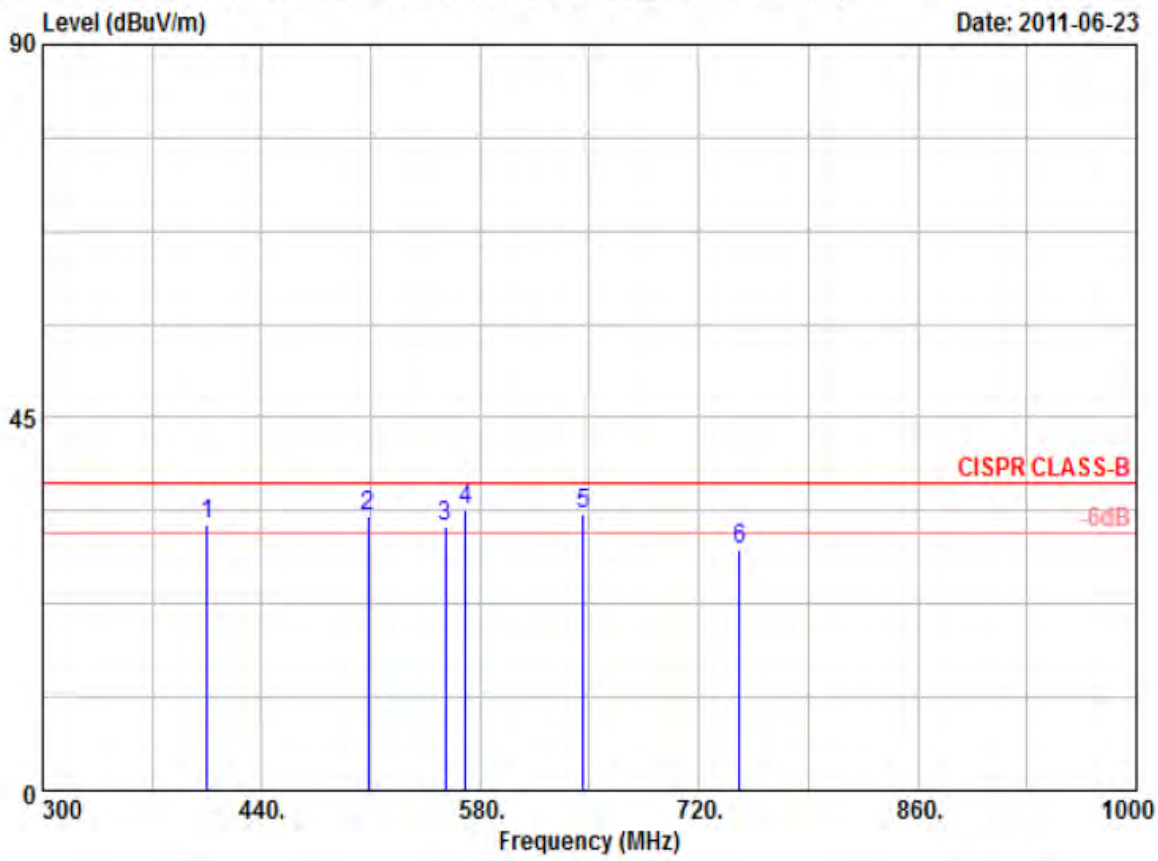
Power	:	AC 110V	Pol/Phase	:	VERTICAL
Test Mode 5	:	PC Link, EUT + Module: BCR-2D + Adapter: CWT \ KPC-010B	Temperature	:	30 °C
Memo	:		Humidity	:	65 %



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	30.550	31.120	-5.893	25.227	30.000	-4.773	QP	400	0
2	69.875	47.820	-21.692	26.128	30.000	-3.872	QP	400	0
3	85.025	42.860	-17.963	24.897	30.000	-5.103	QP	400	0
4	120.200	37.830	-12.328	25.502	30.000	-4.498	QP	400	0
5	164.150	43.510	-16.982	26.528	30.000	-3.472	QP	400	0
6	192.000	42.550	-16.054	26.496	30.000	-3.504	QP	400	0

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

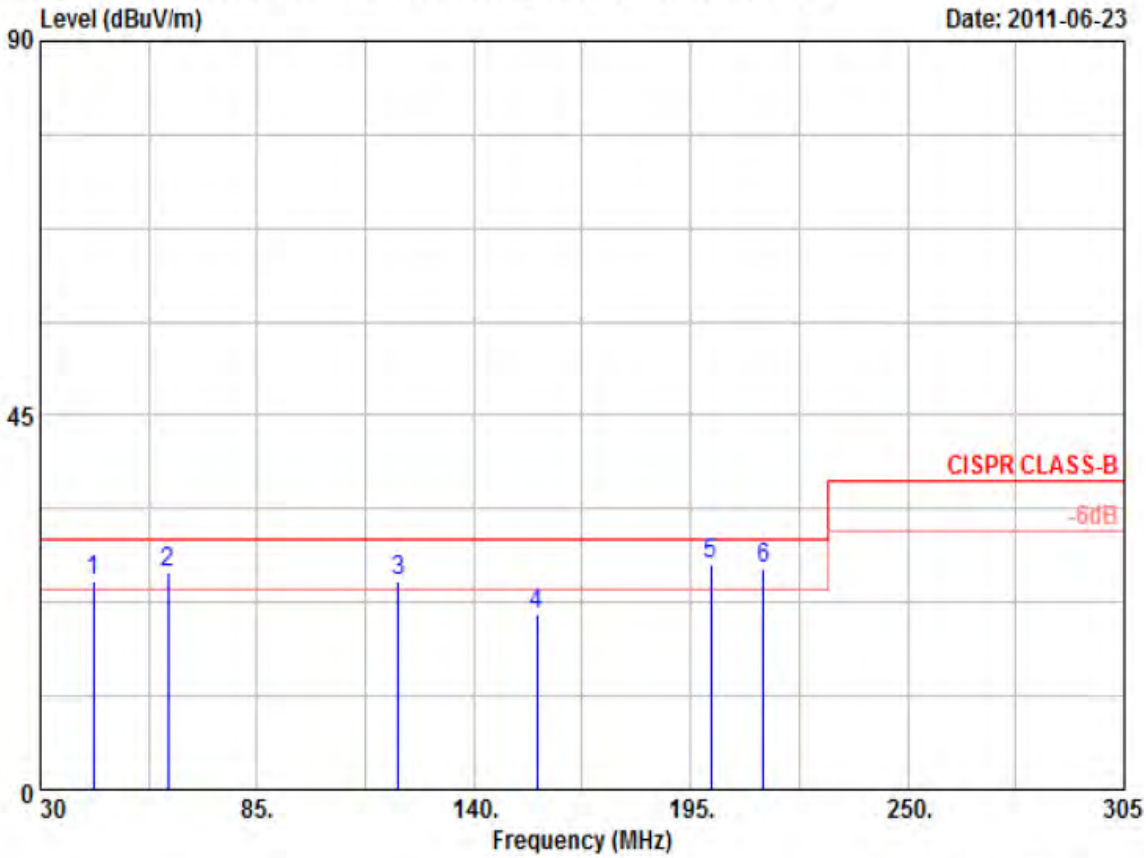
Power	:	AC 110V	Pol/Phase	:	VERTICAL
Test Mode 5	:	PC Link, EUT + Module: BCR-2D + Adapter: CWT \ KPC-010B	Temperature	:	30 °C
Memo	:		Humidity	:	65 %



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	405.000	41.330	-9.187	32.143	37.000	-4.857	QP	100	0
2	508.200	39.110	-5.957	33.153	37.000	-3.847	QP	100	0
3	557.520	36.480	-4.592	31.888	37.000	-5.112	QP	100	0
4	570.880	38.420	-4.462	33.958	37.000	-3.042	QP	100	0
5	646.200	37.210	-3.746	33.464	37.000	-3.536	QP	100	0
6	746.200	30.251	-1.293	28.958	37.000	-8.042	QP	100	0

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

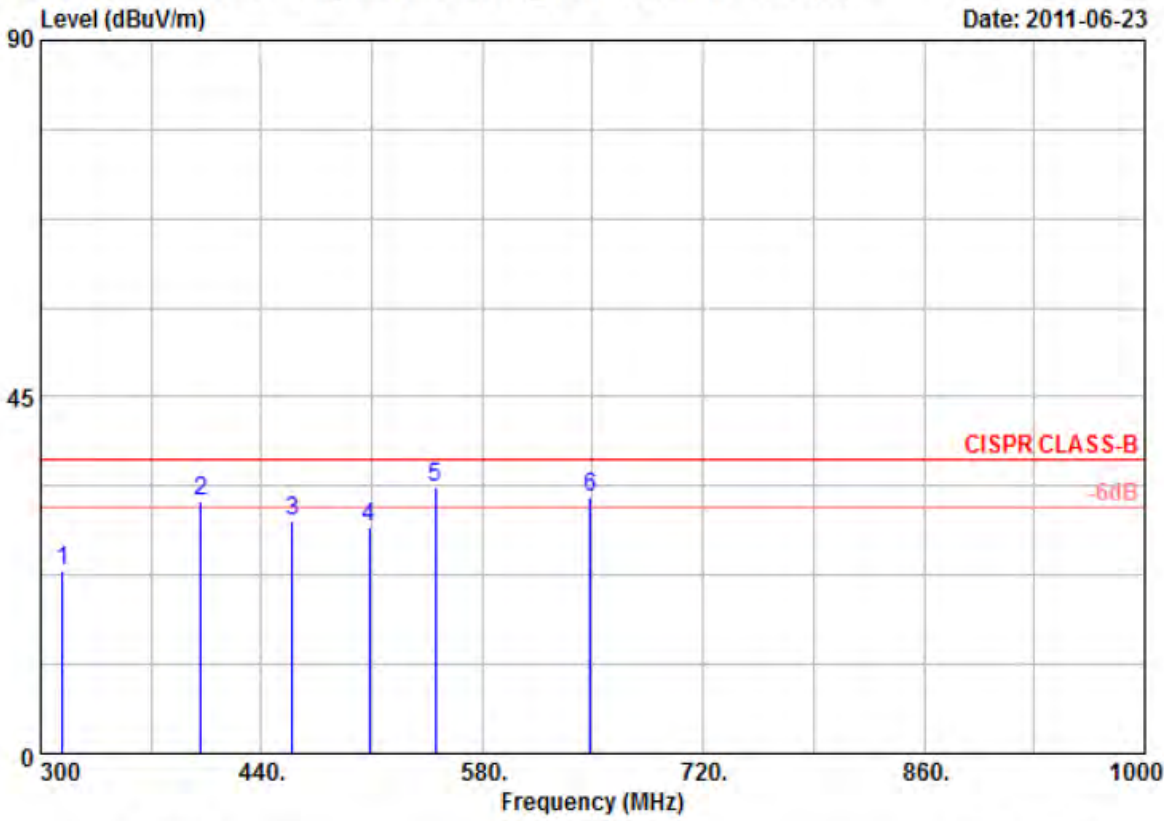
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 5	:	PC Link, EUT + Module: BCR-2D + Adapter: CWT \ KPC-010B	Temperature	:	30 °C
Memo	:		Humidity	:	65 %



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	43.420	39.510	-14.386	25.124	30.000	-4.876	QP	400	0
2	62.380	45.269	-19.155	26.114	30.000	-3.886	QP	400	0
3	120.710	37.589	-12.566	25.023	30.000	-4.977	QP	400	0
4	156.000	36.820	-15.746	21.074	30.000	-8.926	QP	400	0
5	200.000	42.110	-15.060	27.050	30.000	-2.950	QP	400	0
6	213.520	41.950	-15.299	26.651	30.000	-3.349	QP	400	0

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

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 5	:	PC Link, EUT + Module: BCR-2D + Adapter: CWT \ KPC-010B	Temperature	:	30 °C
Memo	:		Humidity	:	65 %



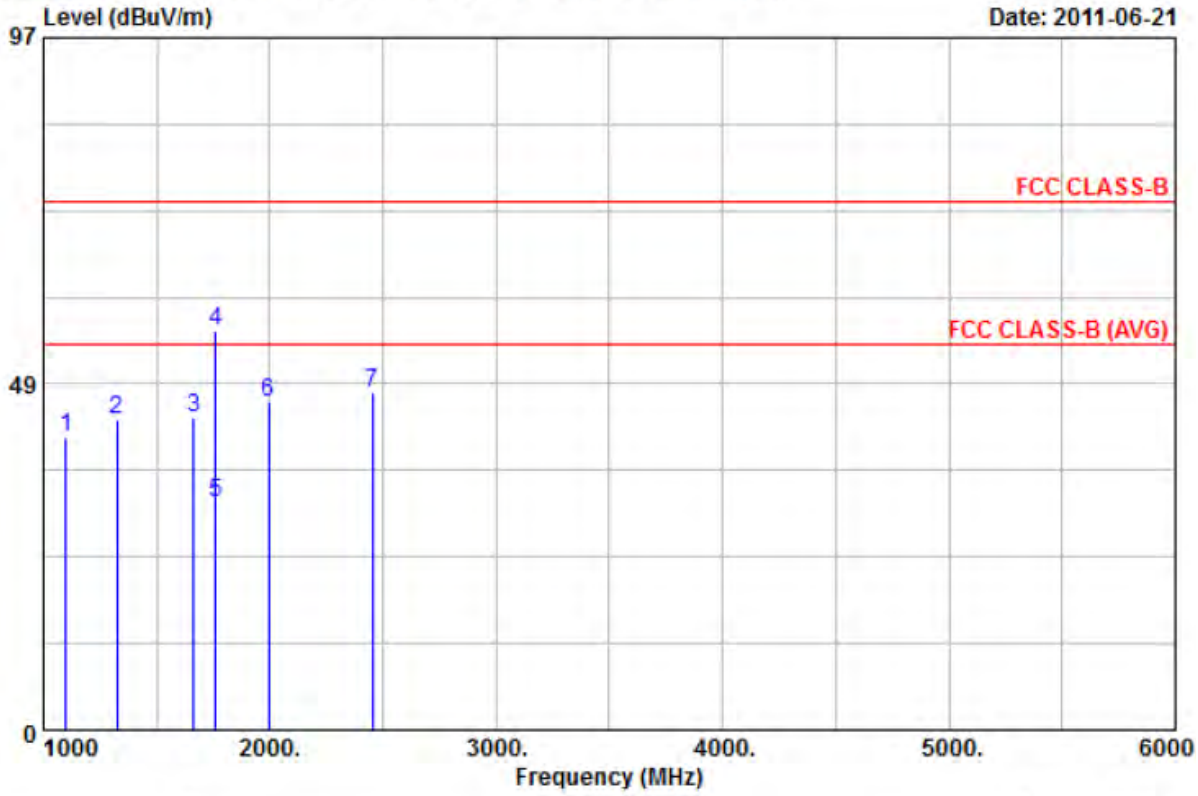
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	314.000	33.899	-10.747	23.152	37.000	-13.848	QP	100	0
2	401.500	40.160	-8.440	31.720	37.000	-5.280	QP	100	0
3	459.600	36.140	-6.910	29.230	37.000	-7.770	QP	100	0
4	508.600	34.320	-5.657	28.663	37.000	-8.337	QP	100	0
5	550.600	38.050	-4.384	33.666	37.000	-3.334	QP	100	0
6	648.600	35.511	-3.090	32.421	37.000	-4.579	QP	100	0

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

Test engineer: Kamp

3.6. Test Result and Data (1GHz ~ 6GHz)

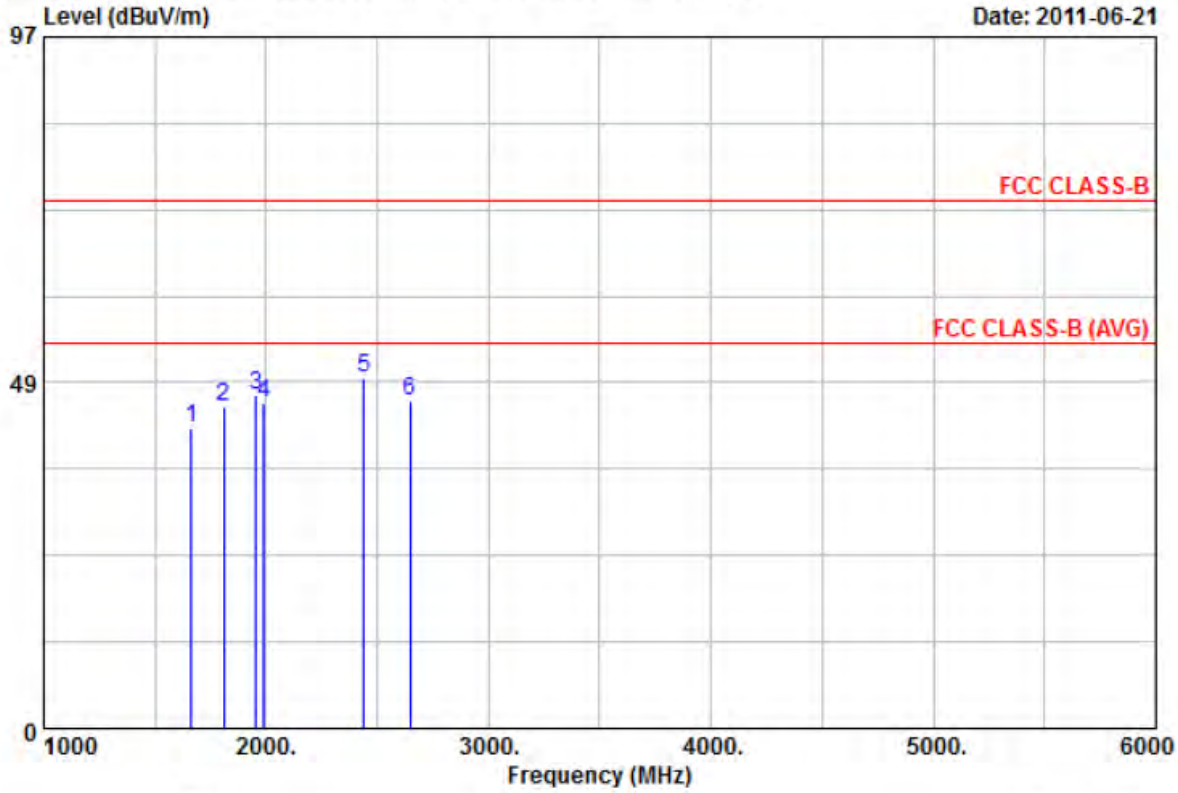
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 3	:	PC Link, EUT + Module: MSR + Adapter: Touch \ M8-10US05R	Temperature	:	25 °C
Memo	:		Humidity	:	43 %



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	1100.00	49.88	-8.77	41.11	74.00	-32.89	Peak	100	360
2	1325.00	50.89	-7.46	43.43	74.00	-30.57	Peak	100	360
3	1665.00	49.17	-5.39	43.78	74.00	-30.22	Peak	100	360
4	1760.00	60.74	-4.80	55.94	74.00	-18.06	Peak	100	360
5	1761.00	36.72	-4.80	31.92	54.00	-22.08	Average	100	360
6	1995.00	49.18	-3.34	45.84	74.00	-28.16	Peak	100	360
7	2455.00	49.06	-1.76	47.30	74.00	-26.70	Peak	100	360

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

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 3	:	PC Link, EUT + Module: MSR + Adapter: Touch \ M8-10US05R	Temperature	:	25 °C
Memo	:		Humidity	:	43 %



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	1665.00	47.63	-5.39	42.24	74.00	-31.76	Peak	100	360
2	1810.00	49.48	-4.49	44.99	74.00	-29.01	Peak	100	360
3	1955.00	50.45	-3.58	46.87	74.00	-27.13	Peak	100	360
4	1990.00	49.05	-3.36	45.69	74.00	-28.31	Peak	100	360
5	2440.00	50.96	-1.81	49.15	74.00	-24.85	Peak	100	360
6	2645.00	46.94	-0.88	46.06	74.00	-27.94	Peak	100	360

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

Test engineer: Kamp

3.7. Test Photographs (30MHz ~ 1GHz)

Front View

Rear View

3.8. Test Photographs (1GHz ~ 6GHz)

Front View

Rear View