FCC TEST REPORT

for

47 CFR, Part 15, Subpart B

Equipment	:	VoIP Phone
Model No.	:	IP710
FCC ID	:	TD6ATGN-IP710-05
Filing Type	:	Certification
Applicant	:	**Altigen Communications, Inc.** 4555 Cushing Parkway, Fremont CA94538, U.S.A.

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SPORTON International Inc.

6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

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History of this test report

Original Report Issue Date: Jul. 29, 2005

■ No additional attachment.

☐ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

Certificate No. : FC560329

CERTIFICATE OF COMPLIANCE

for

47 CFR, Part 15, Subpart B

Equipment	:	VoIP Phone
Model No.	:	IP710
FCC ID	:	TD6ATGN-IP710-05
Applicant	:	**Altigen Communications, Inc.** 4555 Cushing Parkway, Fremont CA94538, U.S.A.

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*** **FCC Part 15 in** both radiated and conducted emission class B limits. Testing was carried out on **Jul. 19, 2005** at **SPORTON International Inc.** LAB.

Alex Chen
Manager

SPORTON International Inc.
6F, No.106, Sec. 1, Hsin Tai Wu Rd., Hsi Chih, Taipei Hsien, Taiwan, R.O.C.

1. General Description of Equipment under Test

1.1. Applicant

Altigen Communications, Inc.
4555 Cushing Parkway, Fremont CA94538, U.S.A.

1.2. Manufacturer

BCM Communication Co., Ltd.
7F-3, No. 66, Sec. 2, Nan-Kan Rd., Lu-Chu Hsiang,
Taoyuan Hsien, 338, Taiwan, R.O.C.

1.3. Basic Description of Equipment under Test

Equipment	: VoIP Phone
Model No.	: IP710
FCC ID.	: TD6ATGN-IP710-05
Trade Name	: Altigen
TP Cable	: Non-Shielded, 10m
TP Cable	: Non-Shielded, 2.0m
Power Supply Type	: Switching
AC Power Cord	: Non-Shielded, 1.8m, 3pin
DC Power Cable	: Non-Shielded, 1.2m, 2pin

1.4. Feature of Equipment under Test

Please refer to user manual.

2. Test Configuration of Equipment under Test

2.1. Test Manner

a. The EUT has been associated with personal computer and peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner which tended to maximize its emission characteristics in a typical application.

b. The complete test system included remote COMPAQ Notebook, COMPAQ PC, VIEWSONIC LCD Monitor, COMPAQ PS/2 Mouse, COMPAQ PS/2 Keyboard, EPSON Printer, ACEEX Modem, ZyXEL POE, WONDA Earphone, PLANTRONICS Headset and EUT for EMI test.

c. The following test modes were performed:
Mode 1. PC LINK
Mode 2. PC LINK, POE Mode (Radiation Emission Test Only)

d. Frequency range investigated: conduction 150 kHz to 30 MHz, radiation 30 MHz to 1,000 MHz.

2.2. Description of Test System

Support Unit 1. – LCD Monitor (VIEWSONIC) – for local workstation

FCC ID	: N/A
Model No.	: VLCDS6104-3W
Power Supply Type	: Switching
Power Cord	: Non-Shielded
Serial No.	: SP0067
Data Cable	: Shielded, 1.8m
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 2. -- PS/2 Keyboard (COMPAQ) – for local workstation

FCC ID	: N/A
Model No.	: 6511-VA
Serial No.	: SP0054
Data Cable	: Shielded, 1.8m
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 3. -- PS/2 Mouse (COMPAQ) – for local workstation

FCC ID	: N/A
Model No.	: M-S69
Serial No.	: SP0108
Data Cable	: Shielded, 1.8m
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 4. -- Printer (EPSON) – for local workstation

FCC ID	: N/A
Model No.	: EPSON STYLUS C61
Power Supply Type	: Linear
Power Cord	: Non-Shielded
Serial No.	: SP0048
Data Cable	: Shielded, 1.8m
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 5. -- Modem (ACEEX) – for local workstation

FCC ID	: IFAXDM1414
Model No.	: DM1414
Power Supply Type	: Linear
Power Cord	: Non-Shielded
Serial No.	: SP0015
Data Cable	: Shielded, 1.8m

Support Unit 6. – Personal Computer (COMPAQ) – for local workstation

FCC ID	: N/A
Model No.	: Evo D380mx
Power Supply Type	: Switching
Power Cord	: Non-Shielded
Serial No.	: SP0051
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 7. -- POE (ZyXEL) – for local workstation

FCC ID	: N/A
Model No.	: NPI-01
Serial No.	: SP0107
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 8. -- Earphone (WONDA) – for local workstation

FCC ID	: N/A
Model No.	: TS168S-03206N-VM-02
Serial No.	: SP0103
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

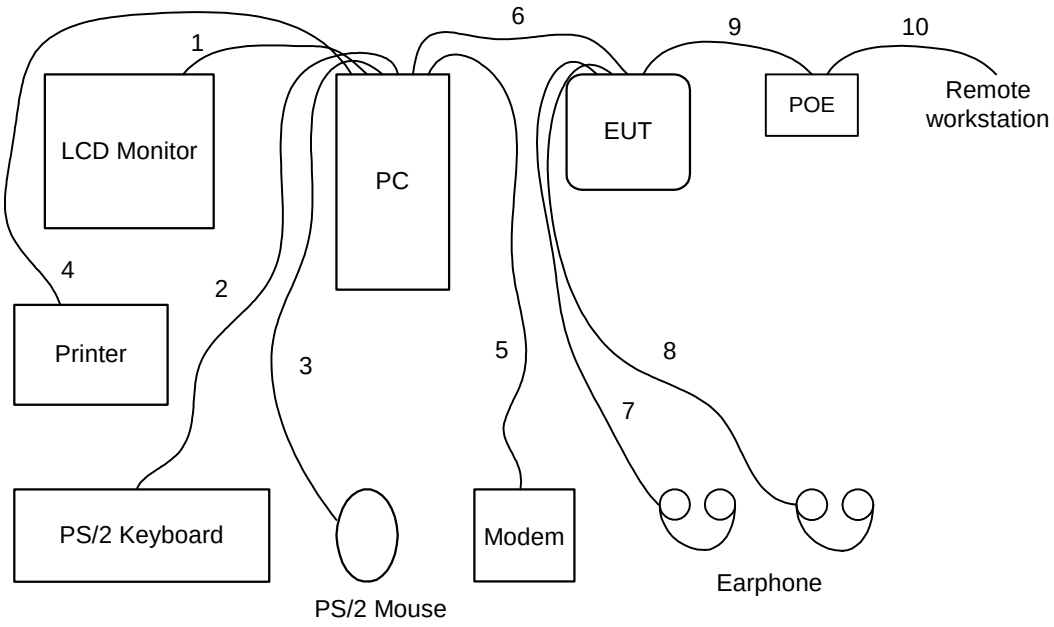
Support Unit 9. -- Headset (PLANTRONICS) – for local workstation

FCC ID	: N/A
Model No.	: H101N
Serial No.	: SP0104
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

Support Unit 10. -- Notebook (COMPAQ) – for remote workstation

FCC ID	: N/A
Model No.	: Presario 1500
Serial No.	: SP0198
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

2.3. Connection Diagram of Test System



1. The I/O cable is connected from PC to the support unit 1.
2. The I/O cable is connected from PC to the support unit 2.
3. The I/O cable is connected from PC to the support unit 3.
4. The I/O cable is connected from PC to the support unit 4.
5. The I/O cable is connected from PC to the support unit 5.
6. The TP cable is connected from PC to the EUT.
7. The I/O cable is connected from EUT to the support unit 8.
8. The I/O cable is connected from EUT to the support unit 9.
9. The I/O cable is connected from EUT to the support unit 7.
10. The TP cable is connected from EUT to the remote workstation.

3. Test Software

An executive program, ″EMCTEST.EXE ″ under Win XP, which generates a complete line of continuously repeating "H" pattern was used as the test software.

The program was executed as follows:

a. Turn on the power of all equipment.
b. The PC reads the test program from the hard disk drive and runs it.
c. The PC sends " H" messages to the monitor, and the monitor displays " H" patterns on the screen.
d. The PC sends " H" messages to the printer, then the printer prints them on the paper.
e. The PC sends " H" messages to the modem.
f. The PC sends " H" messages to the internal Hard Disk, and the Hard Disk reads and writes the message.
g. Repeat the steps from c to e.

At the same time, “Ping.exe” was executed to link with the remote workstation to receive and transmit data by TP cable.

4. General Information of Test

4.1. Test Facility

Test Site Location : No. 30-2, Lin 6, Diing-Fwu Tsuen, Lin-Kou-Hsiang,
Taipei Hsien, Taiwan, R.O.C.
TEL: 886-2-2601-1640
FAX: 886-2-2601-1695

Test Site No. : CO02-LK, OS06-LK

4.2. Test Voltage

110V/60Hz

4.3. Standard for Methods of Measurement

ANSI C63.4-2003

4.4. Test in Compliance with

FCC Part 15, Subpart B

4.5. Frequency Range Investigated

a. Conduction: from 150 kHz to 30 MHz
b. Radiation: from 30 MHz to 1,000 MHz

4.6. Test Distance

The test distance of radiated emission from antenna to EUT is 10 M.

5. Test of Conducted Powerline

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz 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 5.3. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

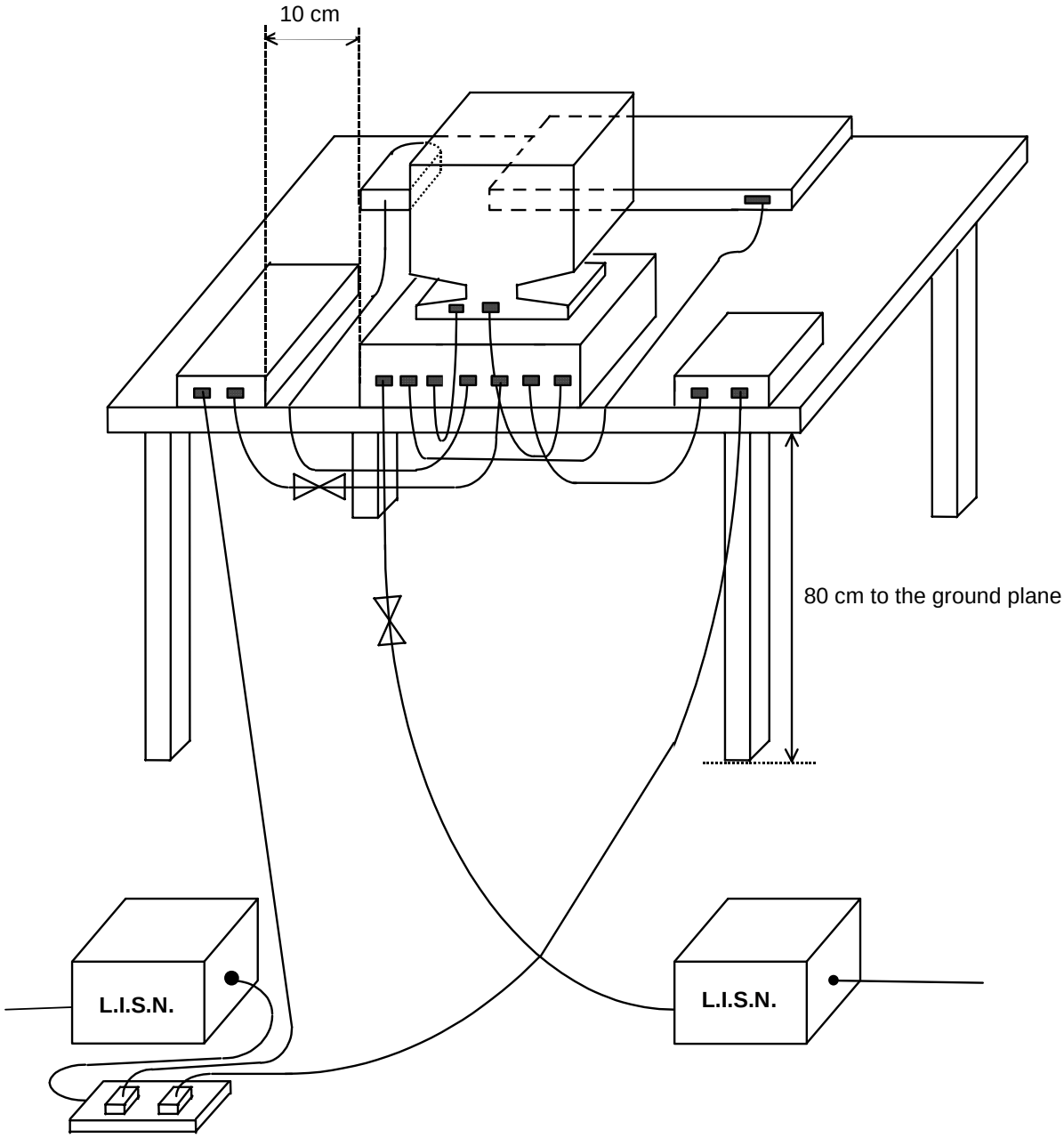
5.1. Major Measuring Instruments

● Test Receiver	(R&S ESCS 30)
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

5.2. 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 connect 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 microhenry 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.

5.3. Typical Test Setup Layout of Conducted Powerline

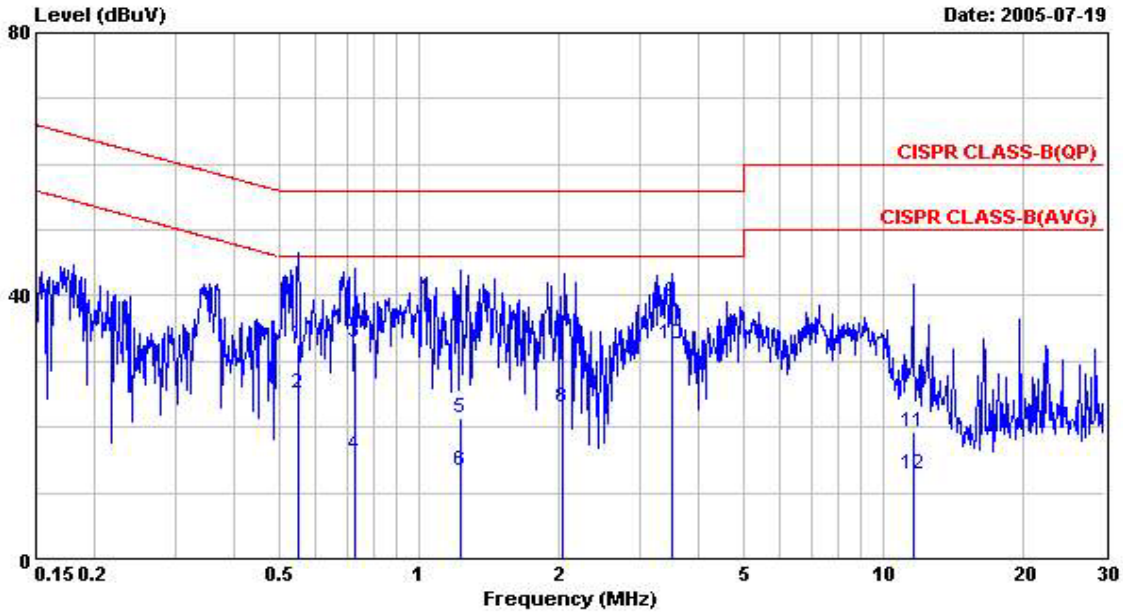


5.4. Test Result of AC Powerline Conducted Emission

5.4.1. Test Mode: Mode 1

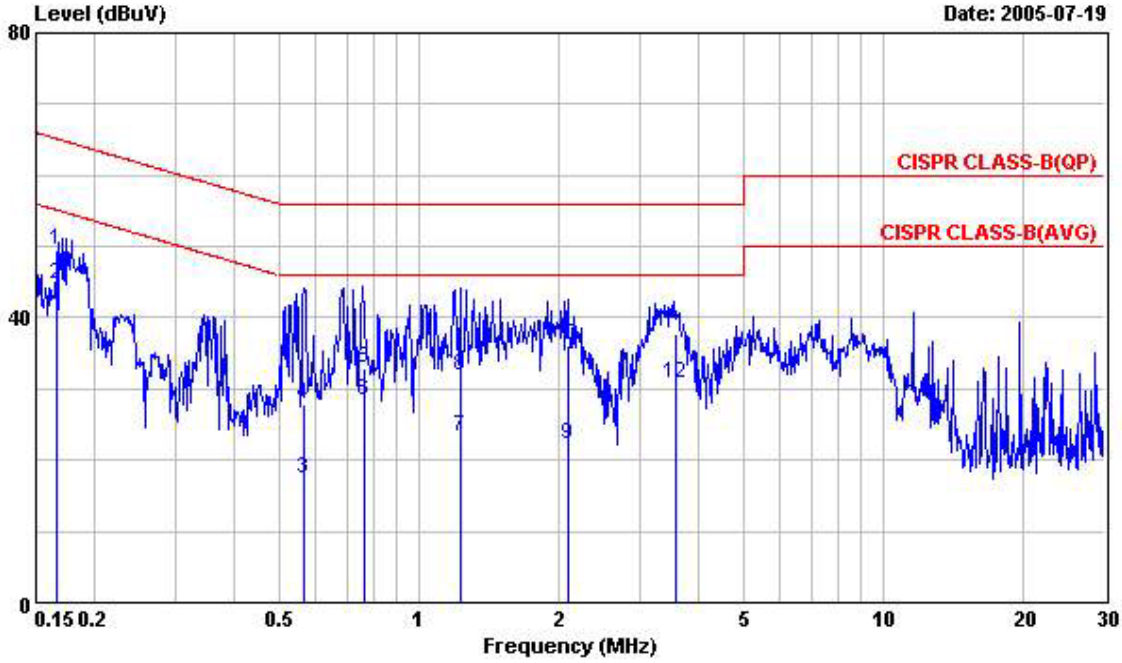
- Frequency Range of Test: from 0.15 MHz to 30 MHz
- Temperature: 26 °C
- Relative Humidity: 57 %
- All emissions not reported here are more than 10 dB below the prescribed limit.
- Corrected Reading (dBuV) = LISN Factor + Cable Loss + Read Level = Level

■ The test was passed at the minimum margin that marked by the frame in the following table



Site : CO02-LK
Condition : CISPR CLASS-B(QP) LISN02/10070-930902 LINE
EUT: : IP PHONE
MODEL: : IP710
POWER: : 120Vac60Hz
MEMO: : PC LINK

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Cable Loss	LISN Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.552	32.71	-23.29	56.00	32.60	0.11	0.01	0.10	QP
2	0.552	25.10	-20.90	46.00	24.99	0.11	0.01	0.10	Average
3	0.731	32.85	-23.15	56.00	32.70	0.15	0.05	0.10	QP
4	0.731	15.73	-30.27	46.00	15.58	0.15	0.05	0.10	Average
5	1.230	21.45	-34.55	56.00	21.25	0.20	0.10	0.10	QP
6	1.230	13.39	-32.61	46.00	13.19	0.20	0.10	0.10	Average
7	2.050	34.04	-21.96	56.00	33.84	0.20	0.10	0.10	QP
8	2.050	23.06	-22.94	46.00	22.86	0.20	0.10	0.10	Average
9	3.510	39.07	-16.93	56.00	38.69	0.38	0.20	0.18	QP
10	3.510	32.67	-13.33	46.00	32.29	0.38	0.20	0.18	Average
11	11.620	19.25	-40.75	60.00	18.55	0.70	0.30	0.40	QP
12	11.620	12.95	-37.05	50.00	12.25	0.70	0.30	0.40	Average



Site : CO02-LK
Condition : CISPR CLASS-B(QP) LISN02/10070-930902 NEUTRAL
EUT: : IP PHONE
MODEL: : IP710
POWER: : 120Vac60Hz
MEMO: : PC LINK

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Cable Loss	LISN Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.167	49.41	-15.70	65.11	49.27	0.14	0.04	0.10	QP
2 @	0.167	44.56	-10.55	55.11	44.42	0.14	0.04	0.10	Average
3	0.567	17.47	-28.53	46.00	17.35	0.12	0.02	0.10	Average
4	0.567	27.70	-28.30	56.00	27.58	0.12	0.02	0.10	QP
5	0.767	32.82	-23.18	56.00	32.66	0.16	0.06	0.10	QP
6	0.767	28.31	-17.69	46.00	28.15	0.16	0.06	0.10	Average
7	1.230	23.33	-22.67	46.00	23.13	0.20	0.10	0.10	Average
8	1.230	31.74	-24.26	56.00	31.54	0.20	0.10	0.10	QP
9	2.100	22.24	-23.76	46.00	22.03	0.21	0.10	0.11	Average
10	2.100	36.05	-19.95	56.00	35.84	0.21	0.10	0.11	QP
11	3.570	37.60	-18.40	56.00	37.23	0.37	0.19	0.18	QP
12	3.570	30.85	-15.15	46.00	30.48	0.37	0.19	0.18	Average

Test Engineer: Alex

Alex

6. Test of Radiated Emission

Radiated emissions from 30 MHz to 1,000 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, 0.8 meter above the ground plane, as shown in section 6.3. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions.

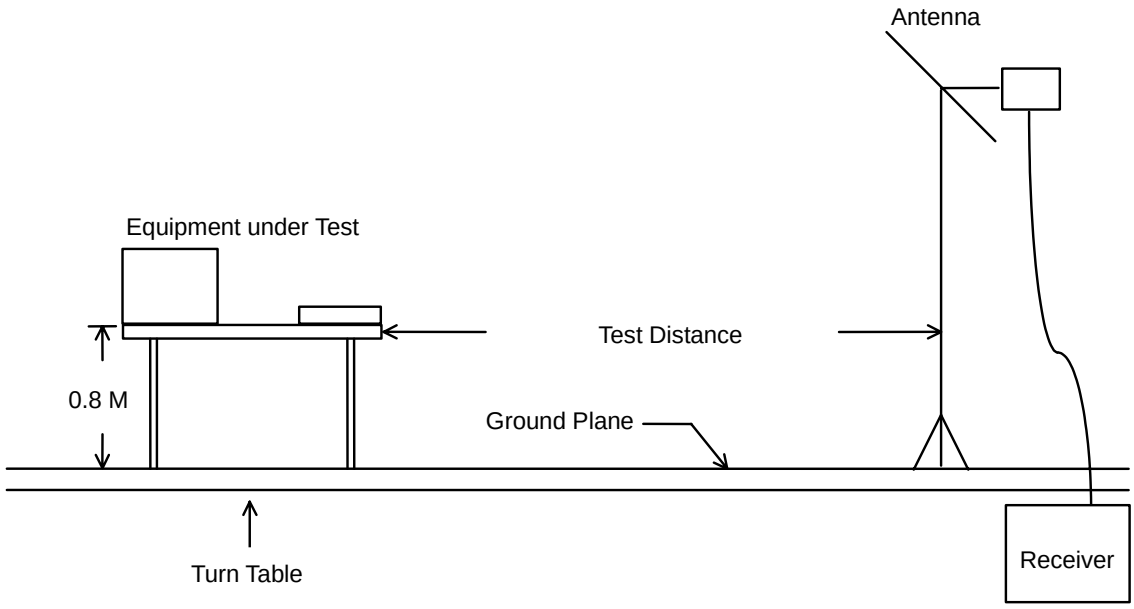
6.1. Major Measuring Instruments

● Amplifier	(HP 8447D)
RF Gain	25 dB
Signal Input	100kHz – 1.3GHz
● Spectrum Analyzer	(R&S FSP7)
Attenuation	10 dB
Start Frequency	30 MHz
Stop Frequency	1000 MHz
Resolution Bandwidth	120 kHz
Signal Input	9 kHz – 7 GHz
● Test Receiver	(R&S ESCS 30)
Resolution Bandwidth	120 kHz
Frequency Band	9 kHz – 2.75 GHz
Quasi-Peak Detector	ON for Quasi-Peak Mode
	OFF for Peak Mode

6.2. Test Procedures

a. The EUT was placed on a rotatable 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 3 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 3 dB margin will be repeated one by one using the quasi-peak method and reported.

6.3. Typical Test Setup Layout of Radiated Emission

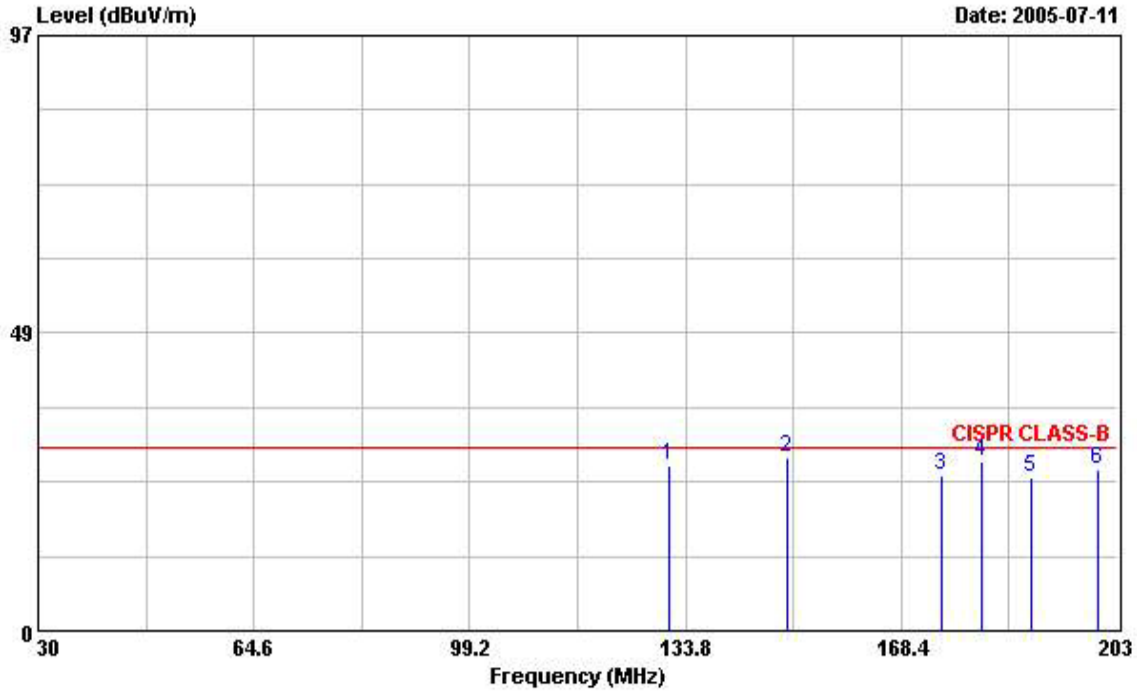


6.4. Test Result of Radiated Emission

6.4.1. Test Mode: Mode 2

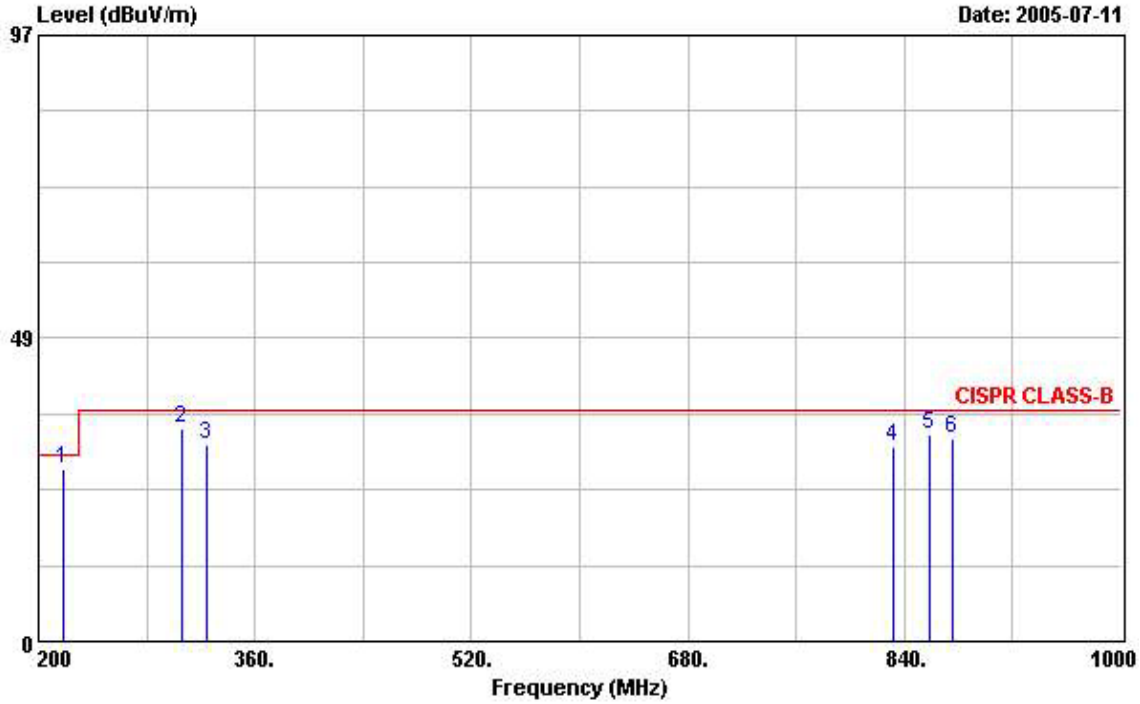
- Temperature: 29 °C
- Relative Humidity: 54 %
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

■ The test was passed at the minimum margin that marked by the frame in the following test record



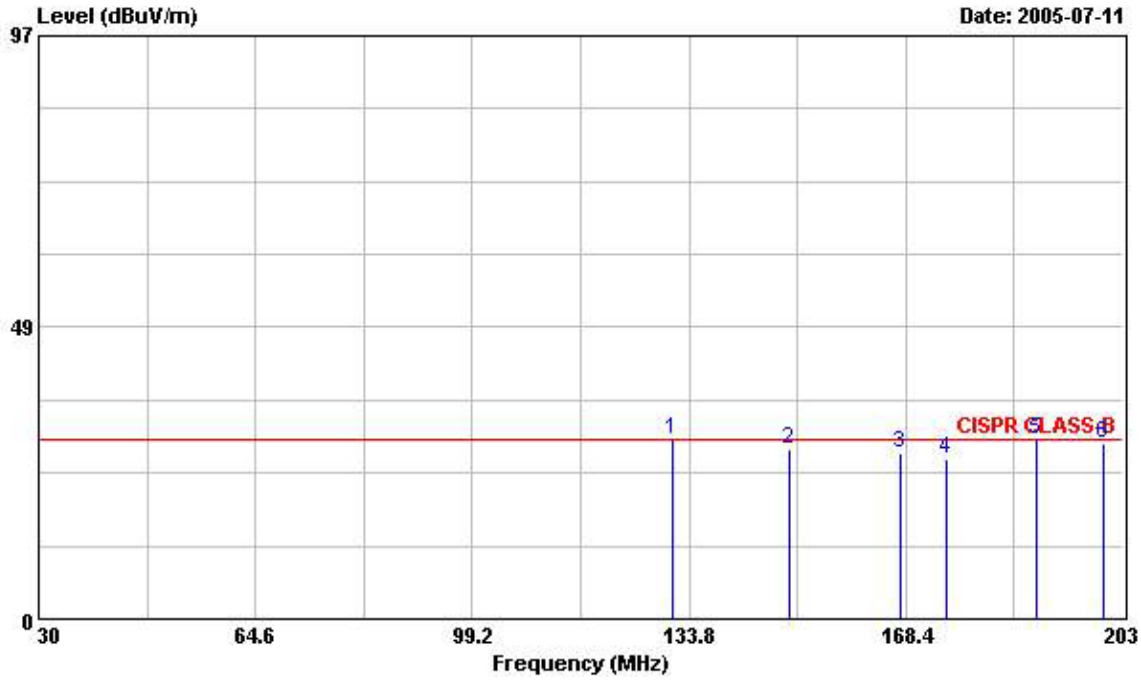
Site : OS06-LK
Condition : CISPR CLASS-B 10m OS6CBL6111C2722-9406 HORIZONTAL
EUT : IP PHONE
POWER : 110Vac60Hz
MODEL : IP710
MEMO : PC LINK
: POE MODE

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	131.240	26.90	-3.10	30.00	40.46	12.23	1.49	27.28	---	---	Peak
2	150.000	28.07	-1.93	30.00	42.70	10.95	1.62	27.20	400	113	QP
3	174.990	25.19	-4.81	30.00	41.70	8.90	1.69	27.10	400	243	QP
4	181.270	27.73	-2.27	30.00	43.49	9.60	1.71	27.07	400	337	QP
5	189.300	24.98	-5.02	30.00	40.49	9.76	1.77	27.04	400	360	QP
6	199.990	26.23	-3.77	30.00	41.40	9.97	1.86	27.00	400	88	QP



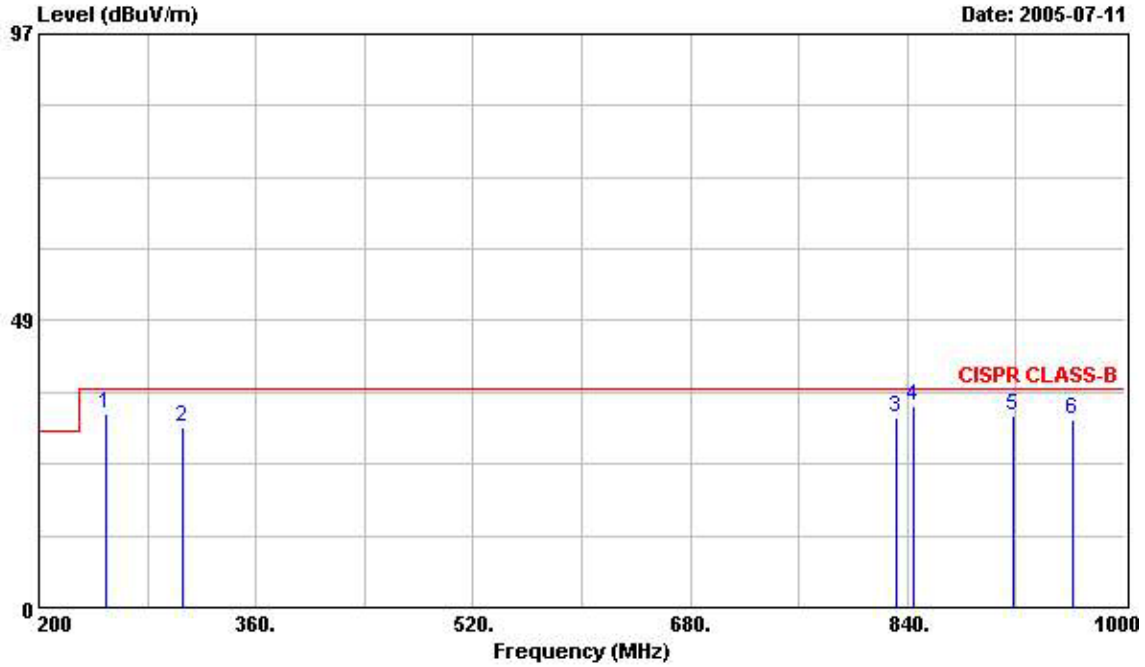
Site : OS06-LK
Condition : CISPR CLASS-B 10m OS6CBL6111C2722-9406 HORIZONTAL
EUT : IP PHONE
POWER : 110Vac60Hz
MODEL : IP710
MEMO : PC LINK
: POE MODE

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	218.740	27.61	-2.39	30.00	41.49	11.12	1.98	26.98	400	166	QP
2	306.240	33.97	-3.03	37.00	45.00	13.52	2.40	26.95	265	287	QP
3	325.010	31.43	-5.57	37.00	41.86	14.13	2.52	27.08	300	287	QP
4	831.340	31.15	-5.85	37.00	30.66	23.89	4.58	27.98	---	---	Peak
5	857.970	33.01	-3.99	37.00	32.01	24.10	4.77	27.87	---	---	Peak
6	874.980	32.39	-4.61	37.00	31.03	24.23	4.93	27.80	---	---	Peak



Site : OS06-LK
Condition : CISPR CLASS-B 10m OS6CBL6111C2722-9406 VERTICAL
EUT : IP PHONE
POWER : 110Vac60Hz
MODEL : IP710
MEMO : PC LINK
: POE MODE

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1 @	131.260	29.75	-0.25	30.00	43.31	12.23	1.49	27.28	100	94	QP
2	149.830	28.37	-1.63	30.00	43.00	10.95	1.62	27.20	100	121	QP
3	167.640	27.56	-2.44	30.00	43.50	9.51	1.68	27.13	100	147	QP
4	175.000	26.69	-3.31	30.00	43.20	8.90	1.69	27.10	100	131	QP
5 @	189.310	29.78	-0.22	30.00	45.29	9.76	1.77	27.04	100	138	QP
6 @	199.990	29.33	-0.67	30.00	44.50	9.97	1.86	27.00	100	307	QP



Site : OS06-LK
Condition : CISPR CLASS-B 10m OS6CBL6111C2722-9406 VERTICAL
EUT : IP PHONE
POWER : 110Vac60Hz
MODEL : IP710
MEMO : PC LINK
: POE MODE

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	250.030	32.88	-4.12	37.00	44.72	12.95	2.16	26.95	---	---	Peak
2	306.240	30.62	-6.38	37.00	41.65	13.52	2.40	26.95	---	---	Peak
3	831.230	32.05	-4.95	37.00	31.56	23.89	4.58	27.98	224	360	QP
4	844.960	33.94	-3.06	37.00	33.21	24.00	4.65	27.92	---	---	Peak
5	918.270	32.50	-4.50	37.00	30.67	24.37	5.09	27.63	---	---	Peak
6	962.190	31.91	-5.09	37.00	30.20	24.24	4.92	27.45	---	---	Peak

Test Engineer: Fred

Fred

7. List of Measuring Equipment Used

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Receiver	R&S	ESCS 30	100168	9kHz – 2.75GHz	Dec. 09, 2004	Conduction (CO02-LK)
LISN	Rolf Heine	NNB-2/16Z	98087	9kHz – 30MHz	Aug. 30, 2004	Conduction (CO02-LK)
LISN	Rolf Heine	NNB-2/16Z	98009	9kHz – 30MHz	Aug. 30, 2004	Conduction (CO02-LK)
RF Cable-CON	Suhner Switzerland	RG223/U	CB018	9kHz – 30MHz	Feb. 04, 2005	Conduction (CO02-LK)
Open Area Test Site	SPORTON	OATS-10	OS06-LK	30MHz – 1GHz 10m, 3m	Oct. 22, 2004	Radiation (OS06-LK)
Amplifier	HP	8447D	2944A08290	100kHz – 1.3GHz	Feb. 24, 2005	Radiation (OS06-LK)
Spectrum Analyzer	R&S	FSP7	838858/014	9kHz – 7GHz	Sep. 09, 2004	Radiation (OS06-LK)
Receiver	R&S	ESCS 30	100167	9kHz – 2.75GHz	Dec. 15, 2004	Radiation (OS06-LK)
Bilog Antenna	SCHAFFNER	CBL6111C	2722	30MHz – 1GHz	Jun. 04, 2005	Radiation (OS06-LK)
Turn Table	EMCO	1670	N/A	0 – 360 degree	N/A	Radiation (OS06-LK)
Antenna Mast	EMCO	2070-2	2263	1 m – 4 m	N/A	Radiation (OS06-LK)
RF Cable-R10m	MIYAZAKI	5DFB	CB015	30MHz – 1GHz	Aug. 16, 2004	Radiation (OS06-LK)
RF Cable-R03m	MIYAZAKI	5DFB	CB016	30MHz – 1GHz	Aug. 16, 2004	Radiation (OS06-LK)

※ Calibration Interval of instruments listed above is one year.

8. Uncertainty of Test Site

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.15	Normal(k=2)	0.08
Cable loss	0.19	Normal(k=2)	0.10
AMN insertion loss	2.50	Rectangular	0.63
Receiver Spec	1.50	Rectangular	0.43
Site imperfection	1.67	Rectangular	0.96
Mismatch	+0.34/-0.35	U-shape	0.24
combined standard uncertainty Uc(y)	**1.26**		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	**2.52**		

Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Contribution	Uncertainty of x_i		$u(x_i)$
	dB	Probability Distribution	
Receiver reading	0.17	Normal(k=2)	0.09
Antenna factor calibration	1.03	Normal(k=2)	0.52
Cable loss calibration	0.13	Normal(k=2)	0.07
Pre Amplifier Gain calibration	0.13	Normal(k=2)	0.07
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	2.01	Rectangular	1.11
Mismatch	+0.39/-0.41	U-shaped	0.28
combined standard uncertainty Uc(y)	**1.49**		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	**2.98**		