

# **FCC TEST REPORT**

for

## **47 CFR, Part 15, Subpart B**

Equipment : VoIP Phone Set

Model No. : IP705

FCC ID : TD6ATGN-IP705-06

Filing Type : Certification

Applicant : **AltiGen Communications, Inc.**  
4555 Cushing Parkway, Fremont, CA94538 USA

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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: Feb. 20, 2006

☒ No additional attachment.

☐ Additional attachment were issued as following record:

Attachment No.	Issue Date	Description

# **CERTIFICATE OF COMPLIANCE**

for

47 CFR, Part 15, Subpart B

Equipment : VoIP Phone Set

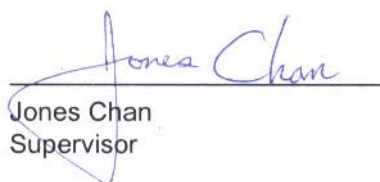
Model No. : IP705

FCC ID : TD6ATGN-IP705-06

Applicant : **AltiGen Communications, Inc.**  
4555 Cushing Parkway, Fremont, CA94538 USA

**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 **Feb. 14, 2006** at **SPORTON International Inc. LAB.**

 Feb 21, 2006  
Jones Chan  
Supervisor

***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 USA

### **1.2. Manufacturer**

**BCM Communication Co., Ltd.**

7F-3, No. 66, Sec. 2, Nan-Kan Rd., Lu-Chu Hsiang, Taoyuan Hsien, 338 Taiwan

### **1.3. Basic Description of Equipment under Test**

Equipment	: VoIP Phone Set
Model No.	: IP705
FCC ID.	: TD6ATGN-IP705-06
Trade Name	: Altigen
Earphone Cable	: Non-Shielded, 1.2m
LAN Cable	: Non-Shielded, 10m
LAN Cable	: Non-Shielded, 1.0m
Power Supply Type	: Switching (Adapter)
AC Power Cord	: Non-Shielded, 1.8m, 3 pin
DC Power Cable	: Non-Shielded, 1.6m, 2 pin

### **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 COMPAQ PC, VIEWSONIC Monitor, LOGITECH PS/2 Mouse, ACER PS/2 Keyboard, EPSON Printer, ACEEX Modem, ZyXEL POE, WONDA Earphone, PLANTRONICS Headset and EUT for EMI test. The remote workstation is COMPAQ Notebook.
- c. The following test modes were performed:  
Mode 1. PC LINK (EUT + Adapter)  
Mode 2. PC LINK, POE Mode (POE + Adapter)  
cause "Mode 1" generated the worst test result, it was reported as final data.
- 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. – Monitor (VIEWSONIC)**

FCC ID	: N/A
Model No.	: E55
Power Supply Type	: Switching
Power Cord	: Non-Shielded
Serial No.	: SP0005
Data Cable	: Shielded, 1.7m
Remark	: This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

#### **Support Unit 2. -- Modem (ACEEX)**

FCC ID	: IFAXDM1414
Model No.	: DM1414
Power Supply Type	: Linear
Power Cord	: Non-Shielded
Serial No.	: SP0016
Data Cable	: Shielded, 1.15m

## Support Unit 3. -- PS/2 Keyboard (ACER)

FCC ID : N/A  
Model No. : 6311-TA  
Serial No. : SP0011  
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. -- PS/2 Mouse (LOGITECH)

FCC ID : N/A  
Model No. : M-S34  
Serial No. : SP0013  
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. -- Earphone (WONDA)

FCC ID : N/A  
Model No. : TS168S-03206N-VM-02  
Serial No. : SP0036  
Remark : This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

## Support Unit 6. -- Printer (EPSON)

FCC ID : N/A  
Model No. : EPSON STYLUS C61  
Power Supply Type : Linear  
Power Cord : Non-Shielded  
Serial No. : SP0015  
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 7. – Personal Computer (COMPAQ)

Model No. : Evo D380mx  
Power Supply Type : Switching  
Power Cord : Non-Shielded  
Serial No. : SP0002  
Remark : This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

## Support Unit 8. -- POE (ZyXEL)

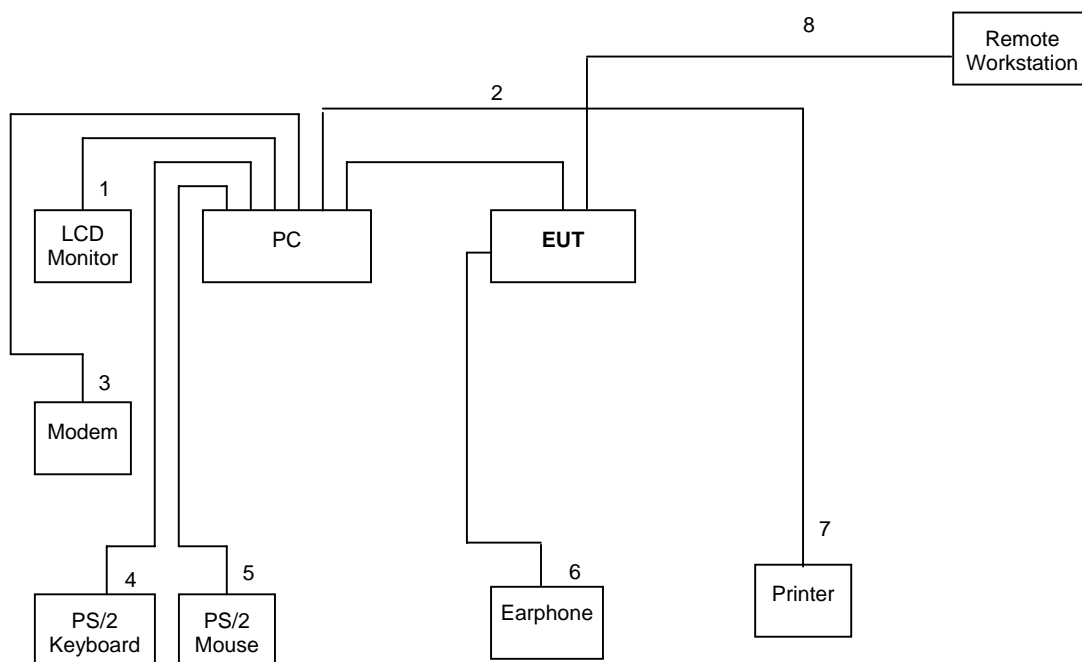
FCC ID : N/A  
Model No. : NPI-01  
Serial No. : SP0037  
Remark : This support device was tested to comply with FCC standards and authorized under a declaration of conformity.

## Support Unit 9. -- Notebook (COMPAQ) – for remote workstation

FCC ID : N/A  
Model No. : Presario 1500  
Serial No. : SP0003  
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 LAN cable is connected from EUT to the PC.
3. The I/O cable is connected from PC to the support unit 2.
4. The I/O cable is connected from PC to the support unit 3.
5. The I/O cable is connected from PC to the support unit 4.
6. The Earphone cable is connected from PC to the EUT.
7. The I/O cable is connected from PC to the support unit 5.
8. The LAN 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 192.168.0.7" was executed to link with the remote workstation to receive and transmit data via RJ45 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.

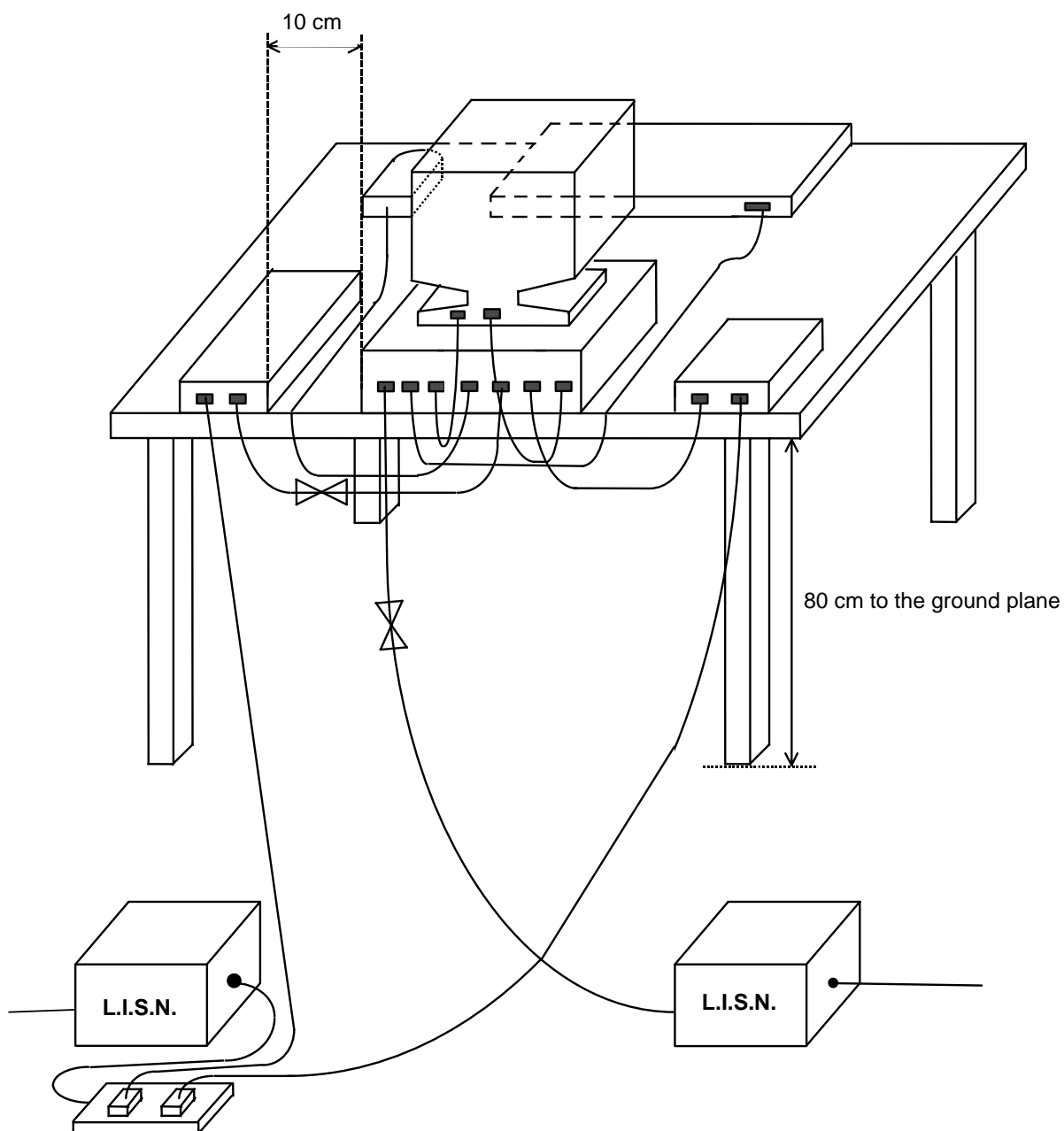
### **5.1. Major Measuring Instruments**

● 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.

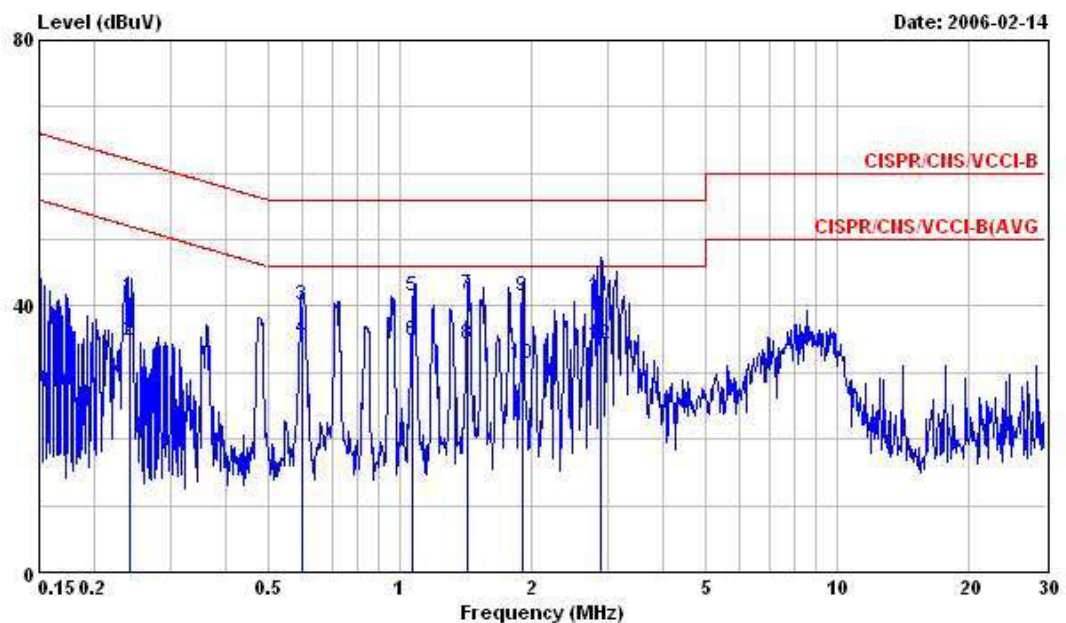
### 5.3. Typical Test Setup Layout of Conducted Powerline



#### 5.4. Test Result of AC Powerline Conducted Emission

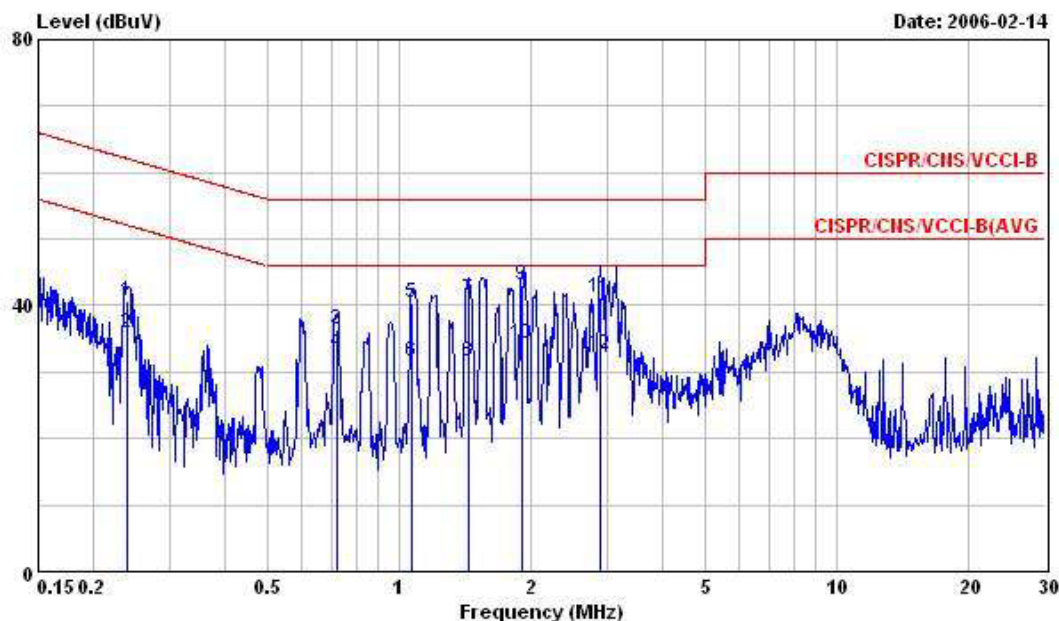
- Frequency Range of Test: from 0.15 MHz to 30 MHz
- Temperature: 23 °C
- Relative Humidity: 51 %
- All emissions not reported here are more than 10 dB below the prescribed limit.
- Corrected Reading (dBuV) = LISN Factor + Cable Loss + Read Level = Level

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



Site : CO02-LK  
 Condition : CISPR/CIS/VCCI-B LISN02/10070-940902 LINE  
 EUT: : IP Phone  
 MODEL: : IP 705B  
 POWER: : 120Vac60Hz  
 MEMO: : Ping IP : 192.168.0.7

	Freq	Level	Over Limit	Limit Line	Read Level	Cable Factor	Cable Loss	LISN Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.242	41.44	-20.59	62.03	41.34	0.10	0.00	0.10	QP
2	0.242	34.65	-17.38	52.03	34.55	0.10	0.00	0.10	Average
3	0.598	40.16	-15.84	56.00	40.06	0.10	0.00	0.10	QP
4	0.598	34.98	-11.02	46.00	34.88	0.10	0.00	0.10	Average
5	1.076	41.53	-14.47	56.00	41.41	0.12	0.02	0.10	QP
6	1.076	34.83	-11.17	46.00	34.71	0.12	0.02	0.10	Average
7	1.433	41.71	-14.29	56.00	41.52	0.19	0.09	0.10	QP
8	1.433	34.37	-11.63	46.00	34.18	0.19	0.09	0.10	Average
9	1.910	41.46	-14.54	56.00	41.34	0.12	0.02	0.10	QP
10	1.910	31.26	-14.74	46.00	31.14	0.12	0.02	0.10	Average
11	2.885	41.47	-14.53	56.00	41.22	0.25	0.10	0.15	QP
12	2.885	34.26	-11.74	46.00	34.01	0.25	0.10	0.15	Average



Site : C002-LK  
 Condition : CISPR/CIS/VCCI-B LISN02/10070-940902 NEUTRAL  
 EUT: : IP Phone  
 MODEL: : IP 705B  
 POWER: : 120Vac60Hz  
 MEMO: : Ping IP : 192.168.0.7

	Freq	Level	Over Limit	Limit Line	Read Level	Factor	Cable Loss	LISN Factor	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	dB	
1	0.241	40.55	-21.52	62.07	40.45	0.10	0.00	0.10	QP
2	0.241	35.82	-16.25	52.07	35.72	0.10	0.00	0.10	Average
3	0.721	36.51	-19.49	56.00	36.41	0.10	0.00	0.10	QP
4	0.721	32.90	-13.10	46.00	32.80	0.10	0.00	0.10	Average
5	1.073	40.42	-15.58	56.00	40.30	0.12	0.02	0.10	QP
6	1.073	31.64	-14.36	46.00	31.52	0.12	0.02	0.10	Average
7	1.440	40.91	-15.09	56.00	40.72	0.19	0.09	0.10	QP
8	1.440	31.62	-14.38	46.00	31.43	0.19	0.09	0.10	Average
9	1.910	43.09	-12.91	56.00	42.97	0.12	0.02	0.10	QP
10	1.910	34.18	-11.82	46.00	34.06	0.12	0.02	0.10	Average
11	2.901	41.11	-14.89	56.00	40.86	0.25	0.10	0.15	QP
12	2.901	32.54	-13.46	46.00	32.29	0.25	0.10	0.15	Average

Test Engineer : SAM

Sam Chang



**5.5. Photographs of Conducted Powerline Test Configuration**

- The photographs show the configuration that generates the maximum emission.

FRONT VIEW



REAR VIEW



SIDE VIEW



## 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.

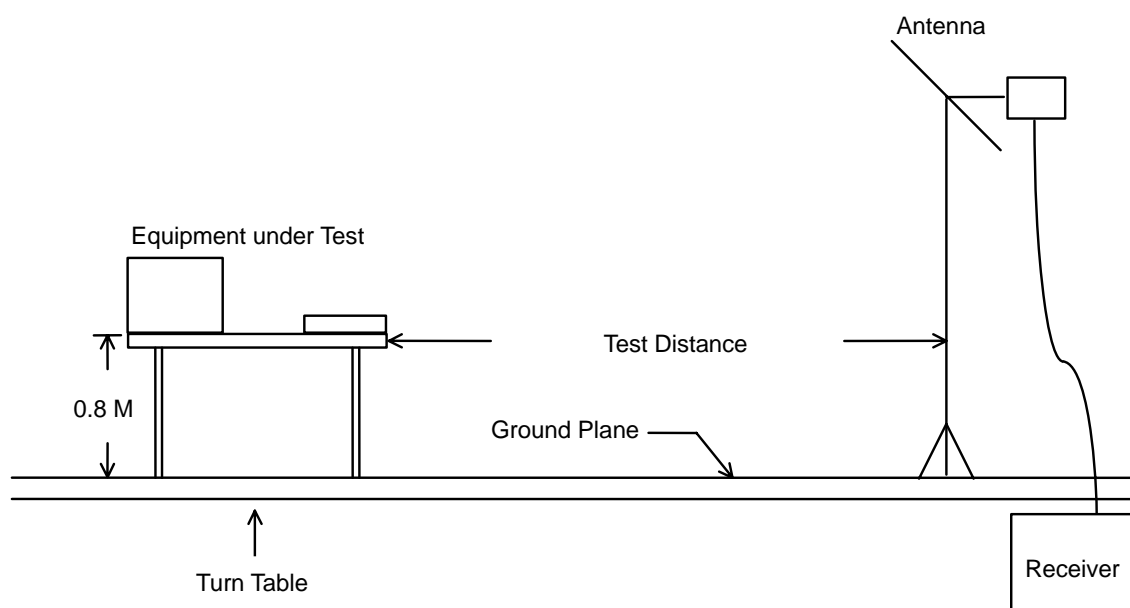
### 6.1. Major Measuring Instruments

- 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**

- c. The EUT was placed on a rotatable table top 0.8 meter above ground.
- d. The EUT was set 10 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- e. The table was rotated 360 degrees to determine the position of the highest radiation.
- f. 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.
- g. 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.
- h. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
- i. 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.

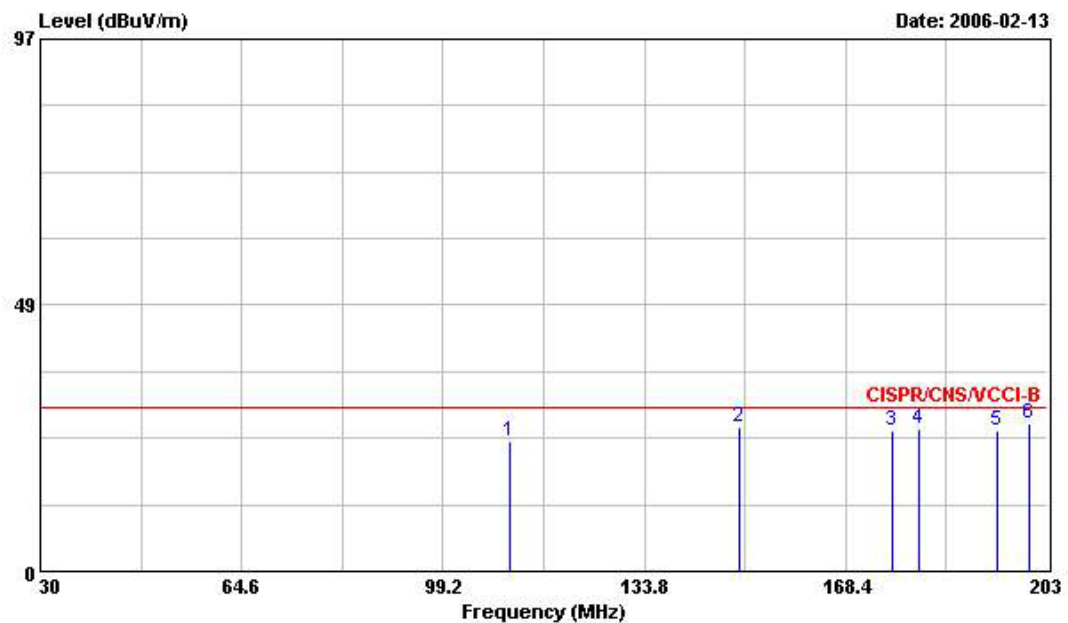
### 6.3. Typical Test Setup Layout of Radiated Emission



#### 6.4. Test Result of Radiated Emission

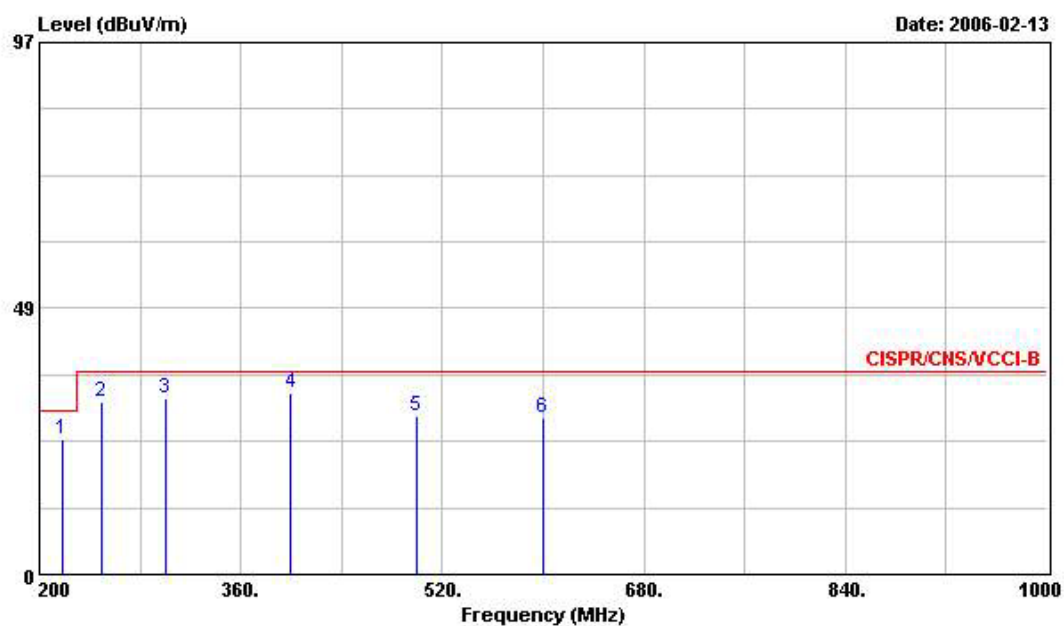
- Frequency Range of Test: from 30 MHz to 5,000 MHz
- Temperature: 18 °C
- Relative Humidity: 68%
- Emission level (dBuV/m) = 20 log Emission level (uV/m)
- Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

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



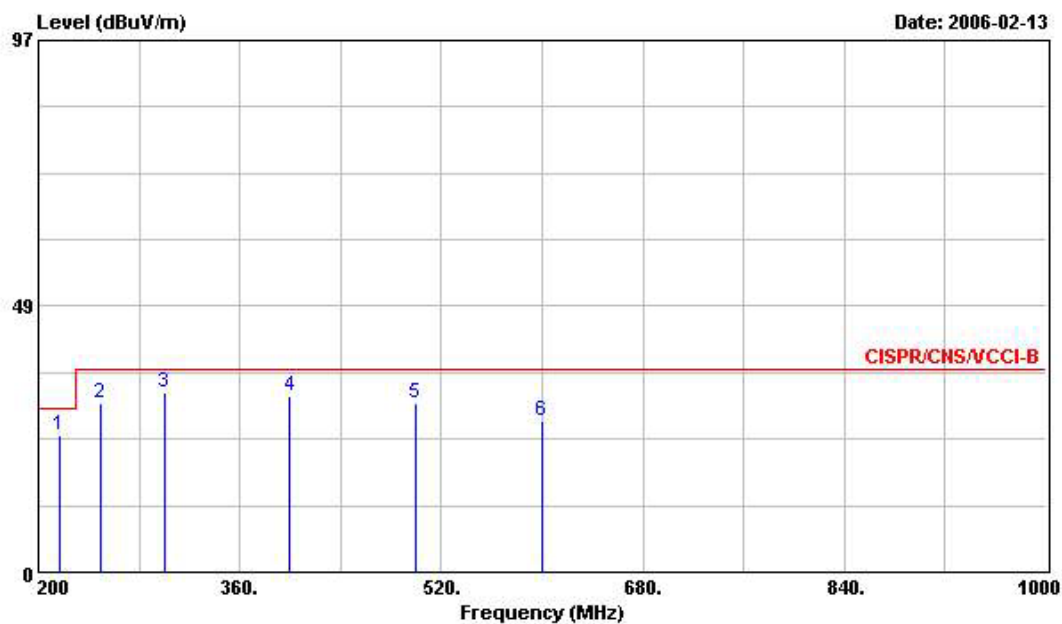
Site : OS06-LK  
 Condition : CISPR/CNS/VCCI-B 10m OS6CBL6111C2722-9406 VERTICAL  
 EUT : IP PHONE  
 POWER : 120Vac60Hz  
 MODEL : IP705  
 MEMO : PING IP:192.168.0.7

	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	110.600	23.55	-6.45	30.00	38.39	11.02	1.50	27.36	---	---	Peak
2	150.000	26.26	-3.74	30.00	40.70	10.95	1.81	27.20	---	---	QP
3	176.270	25.48	-4.52	30.00	41.43	9.13	2.01	27.09	---	---	Peak
4	181.110	25.79	-4.21	30.00	41.22	9.60	2.04	27.07	---	---	Peak
5	194.340	25.69	-4.31	30.00	40.70	9.85	2.16	27.02	---	---	QP
6	200.000	26.78	-3.22	30.00	41.60	9.97	2.21	27.00	100	166	QP



Site : OS06-LK  
 Condition : CISPR/CNS/VCCI-B 10m OS6CBL6111 C2722-9406 VERTICAL  
 EUT : IP PHONE  
 POWER : 120Vac60Hz  
 MODEL : IP705  
 MEMO : PING IP:192.168.0.7

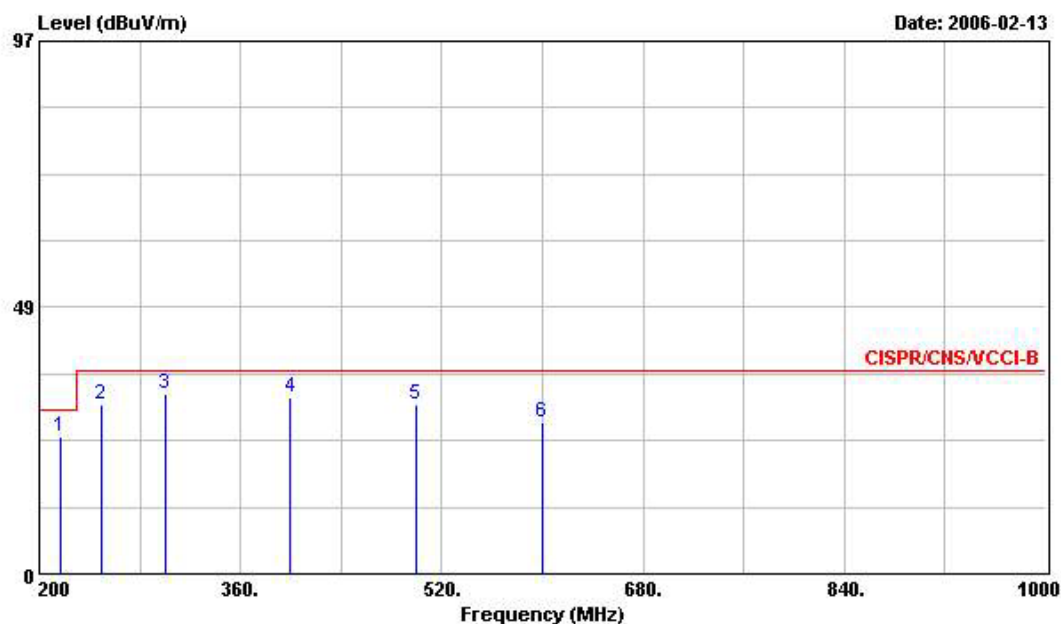
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	218.760	24.58	-5.42	30.00	38.11	11.12	2.33	26.98	---	---	Peak
2	250.010	31.31	-5.69	37.00	42.80	12.95	2.51	26.95	---	---	QP
3	299.990	32.16	-4.84	37.00	42.90	13.30	2.86	26.90	---	---	QP
4	400.000	32.93	-4.07	37.00	40.50	16.60	3.43	27.60	---	---	QP
5	500.010	28.72	-8.28	37.00	35.47	17.30	4.05	28.10	---	---	Peak
6	599.990	28.64	-8.36	37.00	31.29	21.00	4.75	28.40	---	---	Peak



Site : OS06-LK  
 Condition : CISPR/CNS/VCCI-B 10m OS6CBL6111C2722-9406 HORIZONTAL  
 EUT : IP PHONE  
 POWER : 120Vac60Hz  
 MODEL : IP705  
 MEMO : PING IP:192.168.0.7

	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	217.270	25.01	-4.99	30.00	38.68	11.00	2.31	26.98	---	---	Peak
2	250.010	30.77	-6.23	37.00	42.26	12.95	2.51	26.95	---	---	Peak
3	300.000	32.76	-4.24	37.00	43.50	13.30	2.86	26.90	---	---	QP
4	400.000	32.20	-4.80	37.00	39.77	16.60	3.43	27.60	---	---	Peak
5	500.020	30.90	-6.10	37.00	37.65	17.30	4.05	28.10	---	---	Peak
6	600.030	27.42	-9.58	37.00	30.07	21.00	4.75	28.40	---	---	Peak





Site : OS06-LK  
 Condition : CISPR/CNS/VCCI-B 10m OS6CBL6111 C2722-9406 HORIZONTAL  
 EUT : IP PHONE  
 POWER : 120Vac60Hz  
 MODEL : IP705  
 MEMO : PING IP:192.168.0.7

	Freq	Level	Over Limit	Limit Line	ReadAntenna 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	217.270	25.01	-4.99	30.00	38.68	11.00	2.31	26.98	---	---	Peak
2	250.010	30.77	-6.23	37.00	42.26	12.95	2.51	26.95	---	---	Peak
3	300.000	32.76	-4.24	37.00	43.50	13.30	2.86	26.90	---	---	QP
4	400.000	32.20	-4.80	37.00	39.77	16.60	3.43	27.60	---	---	Peak
5	500.020	30.90	-6.10	37.00	37.65	17.30	4.05	28.10	---	---	Peak
6	600.030	27.42	-9.58	37.00	30.07	21.00	4.75	28.40	---	---	Peak

Test Engineer : Fred  
 Fred Yu

**6.5. Photographs of Radiated Emission Test Configuration**

- The photographs show the configuration that generates the maximum emission.

FRONT VIEW



REAR VIEW



## 7. List of Measuring Equipment Used

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Receiver	R&S	ESCS 30	100168	9 kHz - 2.75 GHz	Dec. 15, 2005	Conduction (CO02-LK)
LISN	Rolf Heine	NNB-2/16Z	02/10084	9 kHz - 30 MHz	Oct. 22, 2005	Conduction (CO02-LK)
LISN	Rolf Heine	NNB-2/16Z	02/10070	9 kHz - 30 MHz	Nov. 2, 2005	Conduction (CO02-LK)
RF Cable-CON	Suhner Switzerland	RG223/U	CB018	9 kHz - 30 MHz	Jan. 27, 2006	Conduction (CO02-LK)
Open Area Test Site	SPORTON	OATS-10	OS06-LK	30 MHz - 1 GHz 10m, 3m	Oct. 21, 2005	Radiation (OS06-LK)
Amplifier	HP	8447D	2944A08290	100 kHz - 1.3 GHz	Feb. 24, 2005	Radiation (OS06-LK)
Spectrum Analyzer	R&S	FSP7	100642	9 kHz - 7 GHz	Jun. 28, 2005	Radiation (OS06-LK)
Receiver	R&S	ESCS 30	100167	9 kHz - 2.75 GHz	Dec. 22, 2005	Radiation (OS06-LK)
Bilog Antenna	SCHAFFNER	CBL6111C	2722	30 MHz - 1 GHz	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	30 MHz - 1 GHz	Aug. 09, 2005	Radiation (OS06-LK)
RF Cable-R03m	MIYAZAKI	5DFB	CB016	30 MHz - 1 GHz	Aug. 09, 2005	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
<b>combined standard uncertainty Uc(y)</b>	<b>1.26</b>		
<b>Measuring uncertainty for a level of confidence of 95% U=2Uc(y)</b>	<b>2.52</b>		

### 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
<b>combined standard uncertainty Uc(y)</b>	<b>1.49</b>		
<b>Measuring uncertainty for a level of confidence of 95% U=2Uc(y)</b>	<b>2.98</b>		