HYUNDAI CALIBRATION & CERTIFICATION TECH. CO., LTD.

HCT
Hyundai Calibration & Certification Technologies Co., Ltd.

PRODUCT COMPLIANCE DIVISION
SAN 136-1, AMI-RI , BUBAL-EUP, ICHEON-SI, KYOUNGKI-DO, 467-701, KOREA
TEL : +82 31 639 8518 FAX : +82 31 639 8525 www.hct.co.kr

EMI REPORT (DoC)

PANTECH&CURITEL COMMUNICATIONS, INC.

110-1, ONGJEONG-RI, TONGJIN-EUP, GIMPO-SI, GYOUNGGI-DO, 415-865, KOREA

Date of Issue: July 03, 2007
Test Report No.: HCT-F07-0701

Test Site: HYUNDAI CALIBRATION & CERTIFICATION TECHNOLOGIES CO., LTD.

MODEL: **L1**

Classification/ Standard(s):	FCC PART 15 Subpart B / CISPR 22 CLASS B
Equipment (EUT) Type:	CDMA Dual Band
Trade Name/Model(s):	PANTECH&CURITEL COMMUNICATIONS, INC. / L1
Port/ Connector(s):	DC Input Port

The device bearing the trade name and model specified above, has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2003.(See Test Report if any modifications were made for compliance)

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

HYUNDAI C-Tech. certifies that no party to application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse of 1988,21 U.S.C.853(a).

Report prepared by	**Approved by**
: Doo Hwan Ryu	**: Sang Jun Lee**
Test engineer of EMC Tech.Part	**Manager of EMC Tech.Part**

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1 Product Description

The PANTECH&CURITEL COMMUNICATIONS, INC. L1 CDMA Dual Band. Its basic purpose is used for communications. It transmits from CDMA 835 (824.7 – 848.31) MHz, PCS1900 (1851.25 – 1908.75) MHz and receives from CDMA 835 (869.70 – 893.31) MHz, PCS1900 (1931.25 – 1988.75) MHz.

MODEL	L1
EUT Type	CDMA Dual Band
TX Frequency	824.70 – 848.31(CDMA 835) 1851.25 – 1908.75(PCS 1900)
RX Frequency	869.70 – 893.31(CDMA 835) 1931.25 – 1988.75(PCS 1900)
Modulation	CDMA 835/ PCS 1900

1.2 Related Submittal(s) / Grant(s)

ORIGINAL SUBMITTAL ONLY

1.3 Tested System Details

The Model names for all equipment, plus descriptions used in the tested system (including inserted cards) are:

DEVICE TYPE	MANUFACTURER	MODEL NUMBER/ PART NUMBER	FCC ID / DoC	CONNECTED TO
CDMA Dual Band (EUT)	PANTECH&CURITEL COMMUNICATIONS, INC.	L1	L1	-
Adaptor	UTSTARCOM	PTA-5070C4US	-	EUT
PC	DELL	OPTIPLEX GX620	-	-
Monitor	DELL	1704FPTt	-	PC
Mouse	DELL	MO56U0	-	PC
Keyboard	DELL	SK-8115	-	PC
Printer	H.P	C4569A	-	PC

1.4 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (M)
CDMA Dual Band (EUT)	DC In	N	N/A	1.8 (P)
	USB	N/A	Y	1.2 (D)
PC	USB (Mouse)	N/A	Y	1.8 (D)
	USB (Keyboard)	N/A	Y	1.8 (D)
	D-Sub	N/A	Y	16 (D)
	Parallel (Printer)	N/A	Y	1.8 (D)
	AC In	N	N/A	1.8 (P)
Monitor	AC In	N	N/A	1.8 (P)
Printer	AC In	N	N/A	1.8 (P)

The marked "(D)" means the Data Cable and "(P)" means the Power Cable.

1.5 Noise Suppression Parts on Cable. (I/O CABLE)

Product Name	Port	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
CDMA Dual Band (EUT)	DC In	N	-	N	-
	USB	Y	PC end	Y	PC end
PC	D-Sub	Y	Both end	Y	Both end
	USB (Keyboard)	N	-	Y	PC end
	USB (Mouse)	N	-	Y	PC end
	Parallel (Printer)	N	-	Y	Both end

1.6 Test Methodology

Both conducted and radiated testing were performed according to the procedures in ANSI C63.4/2003. Radiated testing was performed at an antenna to EUT distance of 3 meters.

1.7 Test Facility

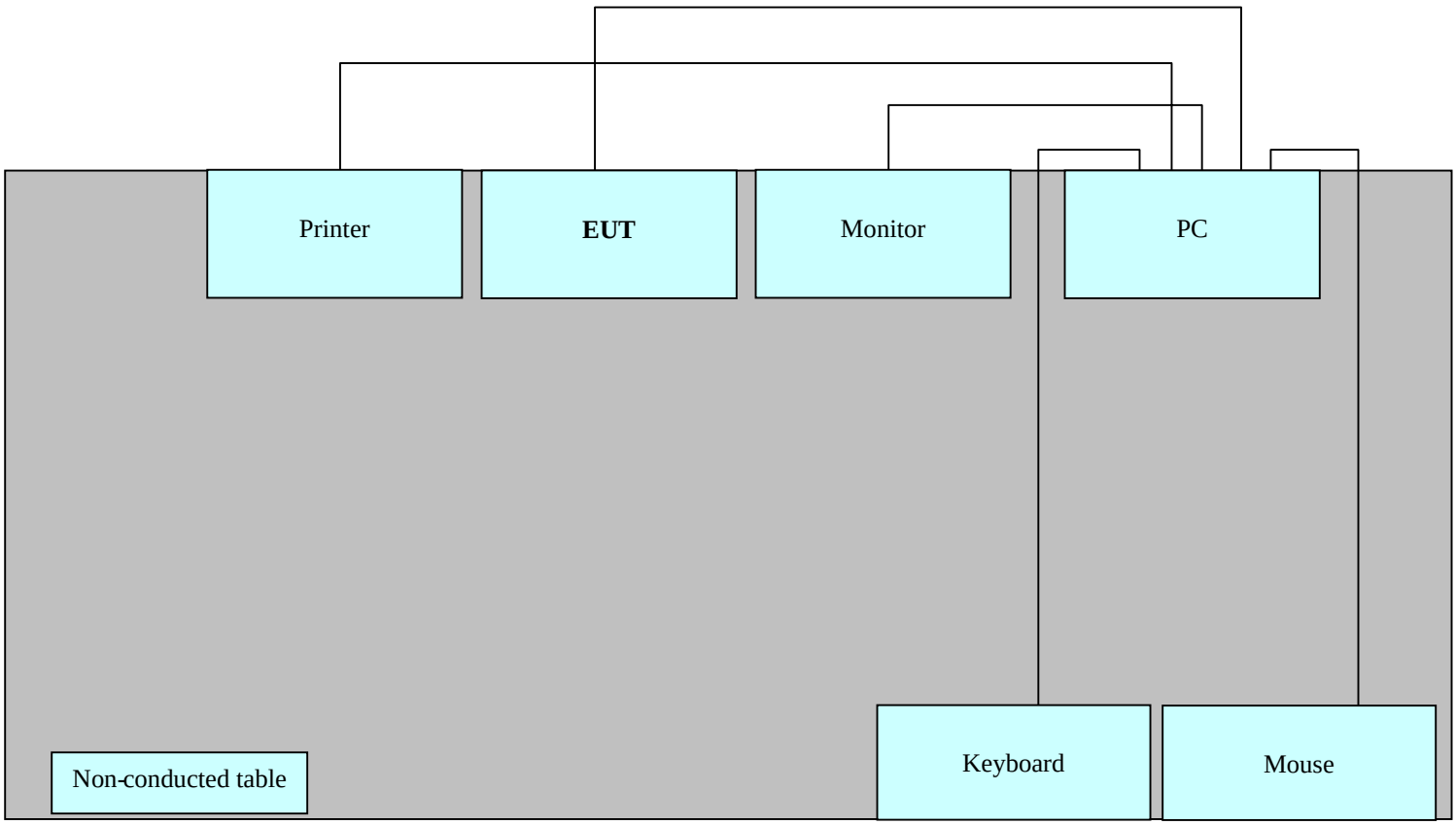
The open area test site and conducted measurement facility used to collect the radiated data are located at the 254-1,Maekok-Ri, Hobup-Myun, Ichon-Si, Kyoungki-Do, 467-701, KOREA. The site is constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated July 6, 2006(Registration Number: 90661)

2. SYSTEM TEST CONFIGURATION

2.1 Configuration of Test system

Line Conducted Test : EUT was connected to LISN, all other supporting equipment were Connected to another LISN. Preliminary Power line Conducted Emission tests were performed by using the procedure in ANSI C63.4/2003 7.2.3 to determine the worst operating conditions.

Radiated Emission Test : Preliminary Radiated Emissions tests were performed by using the procedure in ANSI C63.4/2003 8.3.1.1 to determine the worst operating condition. Final Radiated Emission tests were performed at 3 meter open area test site.



Power Line: 110V AC

[Configuration of Tested System]

3. PRELIMINARY TEST

3.1 Conducted Emission Test

During Preliminary Tests, the following operating mode was investigated

Operation Mode	The Worst operating condition
Idle (850,1900) Mode	
Camera Mode	X
Bluetooth	
Data Communication Mode	

3. 2 Radiated Emission Test

During Preliminary Test, the Following operation mode was investigated

Operation Mode	The Worst operating condition
Idle (850,1900) Mode	
Camera Mode	X
Bluetooth	
Data Communication Mode	

4. CONDUCETD AND RADIATED EMISSION TESTS SUMMARY

4.1 Conducted Emission Test

The following table shows the highest levels of conducted emissions on both polarization of hot and neutral line.

==========

Limit apply to	: CISPR 22 CLASS B
Result	: PASSED BY – 11.6 dB
Operating Condition	: Camera mode
Detector	: CISPR Quasi-Peak (6 dB Bandwidth: 9 kHz)
Temperature	: 26.0 °C
Humidity Level	: 41.0 %
Test Date	: June 29, 2007

Power Line Conducted Emissions			CISPR 22 Class B		
Frequency (MHz)	Amplitude (dBuV)	Conductor	Result	Limit (dBuv)	Margin (dB)
0.59	44.4	HOT	Quasi-Peak	56.0	-11.6
0.71	29.8	HOT	Average	46.0	-16.2
0.585	39.1	NEUTRAL	Quasi-Peak	56.0	-16.9
0.585	28.1	NEUTRAL	Average	46.0	-17.9

Line Conducted Emission Tabulated Data

HCT

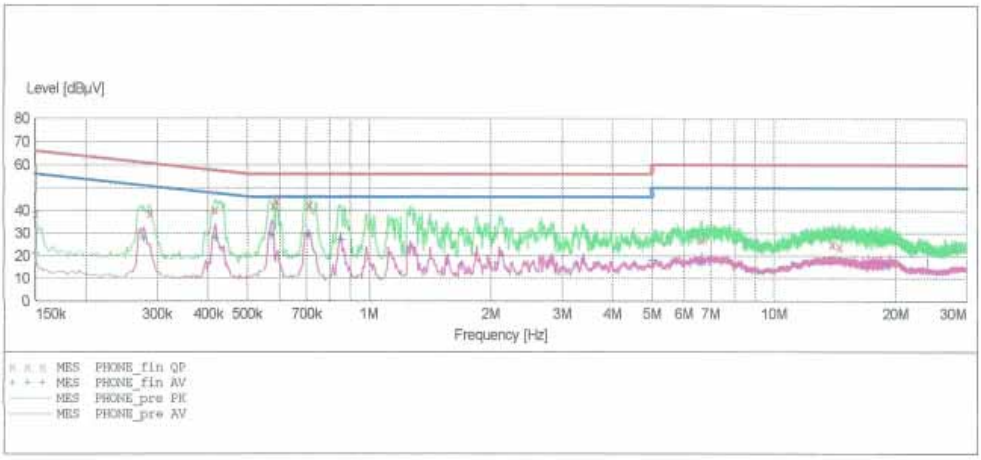
EMC TEST LAB.

EUT: L1
Manufacturer: PANTECH
Operating Condition: CAMERA MODE
Test Site: SHIELD ROOM
Operator: DH.RYU
Test Specification: CISPR 22 CLASS B
Comment: H

SCAN TABLE: "CISPR 22 Voltage"

Short Description: CISPR 22 Voltage

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.1 kHz	500.0 kHz	2.5 kHz	MaxPeak Average	10.0 ms	9 kHz	None
500.0 kHz	5.0 MHz	5.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
5.0 MHz	30.0 MHz	5.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None



MEASUREMENT RESULT: "PHONE_fin QP"

6/29/2007 11:53AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.150100	38.70	10.0	66	27.3	---	---
0.287600	39.10	10.0	61	21.5	---	---
0.415100	40.30	10.0	58	17.3	---	---
0.580000	42.20	10.1	56	13.8	---	---
0.590000	44.40	10.1	56	11.6	---	---
0.710000	42.40	10.1	56	13.6	---	---
6.615000	27.00	10.8	60	33.0	---	---
13.960000	25.20	11.7	60	34.8	---	---
14.520000	24.00	11.8	60	36.0	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

6/29/2007 11:53AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.150100	21.30	10.0	56	34.7	---	---
0.277600	27.70	10.0	51	23.2	---	---
0.417600	28.00	10.0	48	19.5	---	---
0.575000	29.40	10.1	46	16.6	---	---
0.710000	29.80	10.1	46	16.2	---	---
0.850000	27.20	10.1	46	18.8	---	---
5.000000	18.30	10.6	46	27.7	---	---
6.630000	17.30	10.8	50	32.7	---	---
19.295000	15.30	12.2	50	34.7	---	---

Page 2/2 6/29/2007 11:53AM HCT EMC LAB

HCT

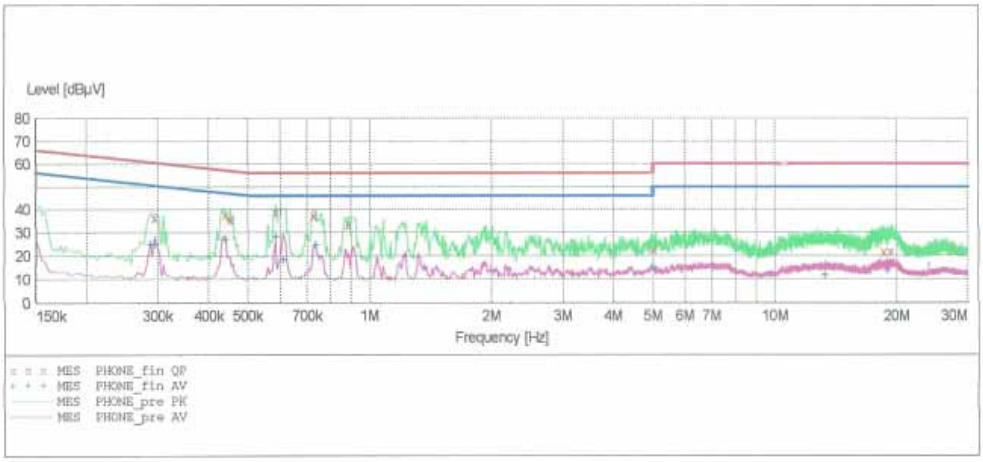
EMC TEST LAB.

EUT: L1
Manufacturer: PANTECH
Operating Condition: CAMERA MODE
Test Site: SHIELD ROOM
Operator: DH.RYU
Test Specification: CISPR 22 CLASS B
Comment: N

SCAN TABLE: "CISPR 22 Voltage"

Short Description: CISPR 22 Voltage

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.1 kHz	500.0 kHz	2.5 kHz	MaxPeak Average	10.0 ms	9 kHz	None
500.0 kHz	5.0 MHz	5.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None
5.0 MHz	30.0 MHz	5.0 kHz	MaxPeak Average	10.0 ms	9 kHz	None



MEASUREMENT RESULT: "PHONE_fin QP"

6/29/2007 11:56AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.295100	36.40	10.0	60	24.0	---	---
0.440100	37.80	10.0	57	19.3	---	---
0.452600	35.80	10.1	57	21.0	---	---
0.585000	39.10	10.1	56	16.9	---	---
0.725000	37.30	10.1	56	18.7	---	---
0.885000	33.60	10.1	56	22.4	---	---
5.000000	22.80	10.6	56	33.2	---	---
18.615000	21.70	12.2	60	38.3	---	---
19.350000	21.70	12.2	60	38.3	---	---

Page 1/2 6/29/2007 11:56AM HCT EMC LAB

MEASUREMENT RESULT: "PHONE_fin AV"

6/29/2007 11:56AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.287600	25.30	10.0	51	25.3	---	---
0.295100	24.90	10.0	50	25.5	---	---
0.440100	27.10	10.0	47	20.0	---	---
0.585000	28.10	10.1	46	17.9	---	---
0.610000	18.50	10.1	46	27.5	---	---
0.735000	24.60	10.1	46	21.4	---	---
5.000000	15.20	10.6	46	30.8	---	---
13.315000	12.00	11.6	50	38.0	---	---
18.955000	13.70	12.2	50	36.3	---	---

Page 2/2 6/29/2007 11:56AM HCT EMC LAB

4.2 Radiated Emission Test

The following table shows the highest levels of Radiated Emissions on both polarization of horizontal and vertical.

==========

Limit apply to	: FCC PART 15 Subpart B
Result	: PASSED BY –5.2 dB
Operating Condition	: Camera mode
Detector	: CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)
Temperature	: 23.0 °C
Humidity Level	: 55.0 %
Test Date	: July 02, 2007

Frequency MHz	Reading dBuV	Ant. Factor dB	Cable Loss dB	ANT POL (H/V)	Total dBuV/m	Limit dBuV/m	Margin dB
480.0	18.1	16.6	5.2	V	39.9	46.0	-6.1
504.0	17.1	17.0	5.3	V	39.4	46.0	-6.6
528.0	17.8	17.5	5.4	V	40.7	46.0	-5.3
552.0	13.2	17.9	5.5	V	36.6	46.0	-9.4
576.0	16.8	18.4	5.6	V	40.8	46.0	-5.2
624.0	13.7	19.4	5.8	V	38.9	46.0	-7.1

*** For measurement over 1 GHz, noise level is more than 10 dB below the limit.

4.3 Test Setup Photos

4.3.1 Conducted Emission

4.3.2 Radiated Emission

5. Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor.
The basic equation with a sample calculation is as follows:

FS = RA + AF + CF

where FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor

CF = Cable Attenuation Factor

Assume a receiver reading of 21.5 dBuV/m is obtained. The Antenna Factor of 7.4 dB and a Cable Factor of 1.1 dB is added. The 30 dBuV/m value is mathematically converted to its corresponding level in uV/m.

FS = 21.5 + 7.4 + 1.1 = 30 dBuV/m

Radiated emission limits

Frequency of emission	Field strength	
	μV / m	dB μV / m
30 ~ 88	100	40.0
88 ~ 216	150	43.5
216 ~ 960	200	46.0
Above 960	500	54.0

6. Test Equipment

Type	Manufacture	Model Number	Next CAL Date
EMI Test Receiver	Rohde & Schwarz	ESI40	2007.11.06
EMI Test Receiver	Rohde & Schwarz	ESCI	2007.08.24
LISN	Rohde & Schwarz	ESH2-Z5	2008.04.20
LISN	EMCO	3816/2SH	2008.06.13
LISN	Rohde & Schwarz	ESH3-Z6	2008.06.13
Attenuator	Rohde & Schwarz	ESH3-Z2	2007.10.30
TRILOG Antenna	Schwarzbeck	VULB9168	2008.03.19
Communication Antenna	TDK	LPDA-0802	N/A
Antenna Position Tower	HD	MA240	N/A
Turn Table	EMCO	1060	N/A
AC Power Source	PACIFIC	Magnetic Module	N/A
Base Station	Rohde & Schwarz	CMU 200	2008.02.27
Base Station	Hewlett-Packard	8922M	2007.08.12
Band Reject Filter	Microwave Circuits	NO408981	2007.08.12
Band Reject Filter	Wainwright Instrument	WRCG1750/1780-1715/1817-70/8SS	2007.07.10
Horn Antenna	Schwarzbeck	BBHA 9120D	2008.03.31
RF-Amplifier	MITEQ	AMF-6D-00101800-35.20P.PS	2008.01.24

7. Conclusion

The data collected shows that the PANTECH&CURITEL COMMUNICATIONS, INC. CDMA Dual Band. MODEL: L1 Complies with §15.107 and §15.109 of the FCC Rules.