

HYUNDAI CALIBRATION & CERTIFICATION TECH. CO., LTD.



PRODUCT COMPLIANCE DIVISION
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VERIFICATION

HYUNDAI CURITEL INC.

SAN 136-1, AMI-RI, BUBAL-EUP, ICHEON-SI,
KYOUNGKI-DO, 467-701, KOREA

FRN: 0006278469

Date of Issue: April 9, 2005

Test Report No.: HCT-SAR05-0403

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

FRN: 0005866421

MODEL

:

PC-7100

Classification/ Standard(s): FCC PART 15 CLASS B / CISPR 22 CLASS B

Equipment (EUT) Type: Single- Mode CDMA Phone - Prototype

Trade Name/Model(s): HYUNDAI / PC-7100

Port/ Connector(s): DC Input Port / Ear Phone 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 : Ki-Soo Kim
Manager of Product Compliance Team



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1. GENERAL INFORMATION

1.1 Product Description

The Hyundai Curitel Inc.PC-7100 Single-Mode CDMA phone. Its basic purpose is used for communications. It transmits from CDMA (824.70~848.31) MHz and receives from CDMA (869.70~893.31) MHz. The RF power is rated at CDMA (0.285W).

FCC ID	PP4PC-7100
EUT Type	Single-mode CDMA Phone - Prototype
Model	PC-7100
TX Frequency	824.70 — 848.31 MHz (CDMA)
RX Frequency	869.70 — 893.31 MHz (CDMA)
FCC Classification	Licensed Portable Transmitter Held to Ear (PCE)
Max RF. Output Power	0.285W ERP CDMA (24.6dBm)
Modulation	CDMA
Power Voltage	Input AC: AC 100-240V/ 0.2A 50/60Hz/ Output DC: DC 5.0V/ 1.0mA

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	FCC ID / DoC	CONNECTED TO
Single- Mode CDMA Phone	HYUNDAI CURITEL INC.	PC-7100	PP4PC-7100	Adaptor/ P.C
Adaptor	HYUNDAI CURITEL INC.	CNR4	N/A	CDMA Phone

1.4 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.

1.5 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 23, 2003(Registration Number: 90661)

2.SYSTEM TEST CONFIGURATION

2.1 Cable Description

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

	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (M)
CDMA PHONE	N/A	N/A	-
EAR PHONE	N/A	N	1.0(D)
Adapter	N	N/A	1.8(P)

2.2 Noise Suppression Parts on Cable.

	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
CDMA PHONE	N	N/A	N/A	Adapter END
EAR PHONE	N	N/A	Y	CDMA PHONE
Adapter	N	N/A	Y	CDMA PHONE

2.3 EUT exercise Software

The EUT was tested on the charging battery during the radiated and conducted emission testing

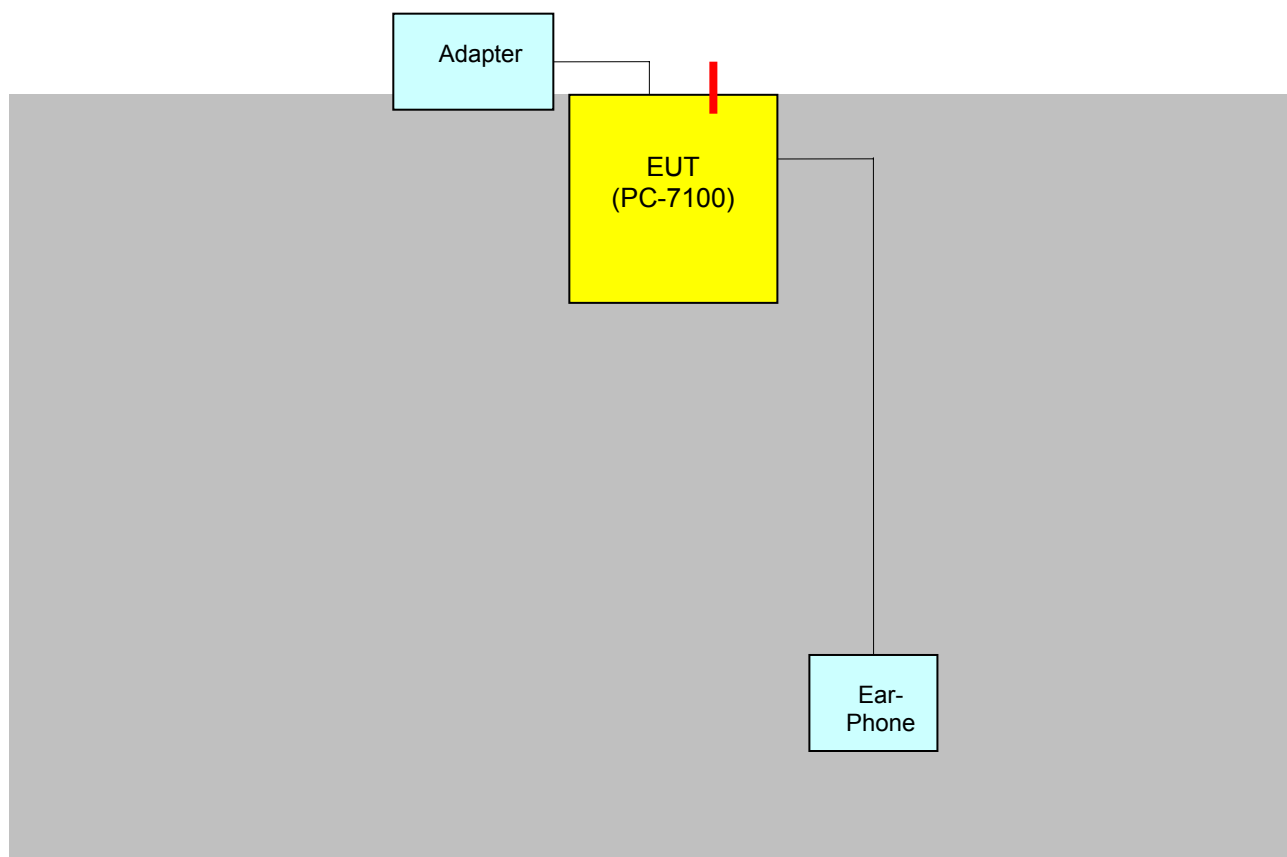
2.4 Equipment Modifications

N/A

2.5 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 to determine the worse operating conditions.

Radiated Emission Test : Preliminary Radiated Emissions tests were conducted using the procedure in ANSI C63.4/2003 to determine the worse pirating condition. Final Radiated Emission tests were conducted at 3 meter open area test site.



[Configuration of Tested System]

3. CONDUCTED AND RADIATED EMISSION TESTS SUMMARY

3.1 Conducted Emissions Tests

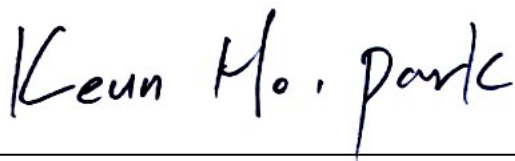
The following table shows the highest levels of conducted emissions on both polarization of hot and neutral line.

=====

Humidity Level	: 29 %	Temperature	: 23.5 °C
Limit apply to	: CISPR 22 CLASS B		
Result	: PASSED BY – 7.9 dB		
Operating Condition	: CHARGING BATTERY		
Detector	: CISPR Quasi-Peak (6 dB Bandwidth: 9 KHz)		

Power Line Conducted Emissions				FCC Class B	
Frequency (MHz)	Amplitude (dBuV)	Conductor	Result	Limit (dBuV)	Margin (dB)
0.361	46.8	HOT	Quasi-Peak	58.7	-11.9
0.361	40.8	HOT	Average	48.7	-7.9
0.181	51.2	NEUTRAL	Quasi-Peak	64.4	-13.2
0.181	40.7	NEUTRAL	Average	54.4	-13.7

Line Conducted Emissions Tabulated Data



Measured by : Keun-Ho Park / Engineer

Date : March 29, 2005

Test

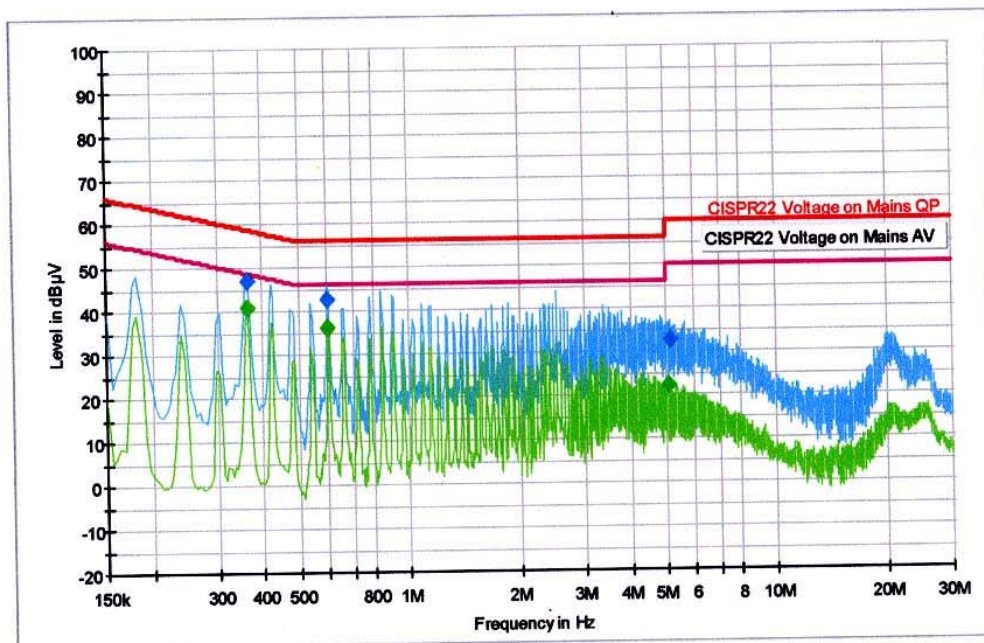
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Conducted Emission Report

Test Information

EUT Name:	PC-7100
Serial Number:	
Test Description:	CDMA PHONE
Operating Conditions:	CHARGING MODE
Operator Name:	KEUN-HO PARK
Comment:	HOT

CISPR22 CLASS B Hot Line



Test

2

Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line
0.361500	46.8	100.000	9.000	GND	L1
0.599000	42.7	100.000	9.000	GND	L1
5.108000	32.5	100.000	9.000	GND	L1

(continuation of the "Final Measurement Detector 1" table from column 6 ...)

Frequency (MHz)	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.361500	9.7	11.9	58.7	
0.599000	9.7	13.3	56.0	
5.108000	10.0	27.5	60.0	

Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line
0.361500	40.8	100.000	9.000	GND	L1
0.599000	36.0	100.000	9.000	GND	L1
5.045000	22.3	100.000	9.000	GND	L1

(continuation of the "Final Measurement Detector 2" table from column 6 ...)

Frequency (MHz)	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.361500	9.7	7.9	48.7	
0.599000	9.7	10.0	46.0	
5.045000	10.0	27.7	50.0	

Test

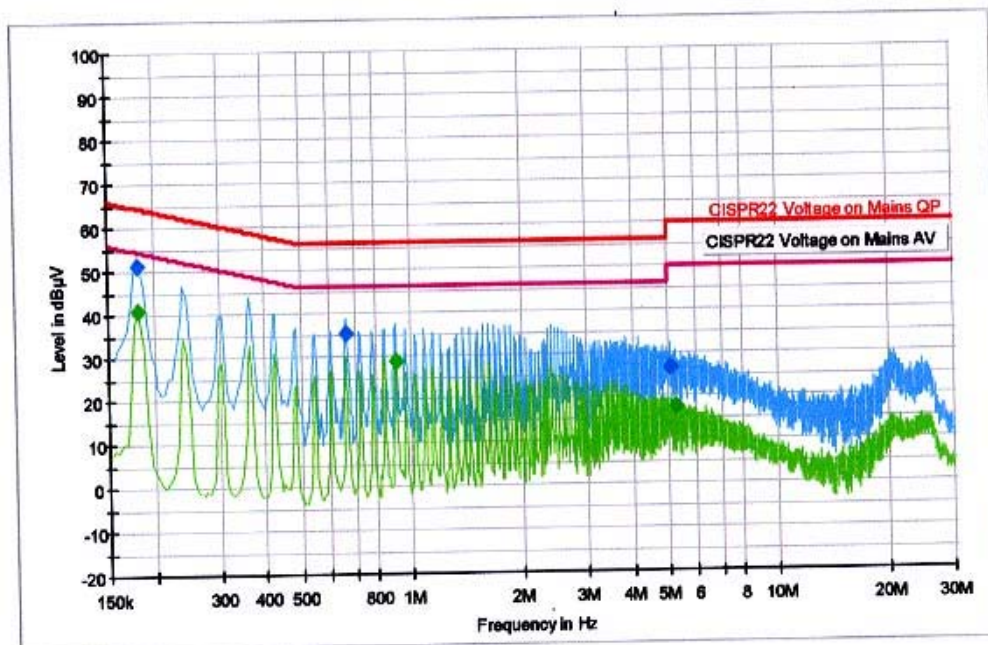
1

Conducted Emission Report

Test Information

EUT Name:	PC-7100
Serial Number:	
Test Description:	CDMA PHONE
Operating Conditions:	CHARGING MODE
Operator Name:	KEUN-HO PARK
Comment:	NEUTRAL

CISPR22 CLASS B Neutral Line



Test

2

Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line
0.181500	51.2	100.000	9.000	GND	N
0.662000	35.2	100.000	9.000	GND	N
5.058500	26.5	100.000	9.000	GND	N

(continuation of the "Final Measurement Detector 1" table from column 6 ...)

Frequency (MHz)	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.181500	10.2	13.2	64.4	
0.662000	9.7	20.8	56.0	
5.058500	10.0	33.5	60.0	

Final Measurement Detector 2

Frequency (MHz)	Average (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	PE	Line
0.181500	40.7	100.000	9.000	GND	N
0.905000	28.8	100.000	9.000	GND	N
5.238500	17.3	100.000	9.000	GND	N

(continuation of the "Final Measurement Detector 2" table from column 6 ...)

Frequency (MHz)	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.181500	10.2	13.7	54.4	
0.905000	9.7	17.2	46.0	
5.238500	10.0	32.7	50.0	

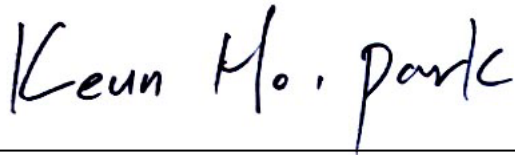
3.2 Radiated Emissions Tests

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

=====

Humidity Level : 29 % Temperature : 23.5 °C
Limit apply to : FCC PART 15 CLASS B
Result : PASSED BY -4.8 dB
Operating Condition : Charging Battery
Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 KHz)

Frequency MHz	Reading dBuV	Ant. Factor dB	Cable Loss dB	ANT POL (H/V)	Total dBuV/m	Limit dBuV/m	Margin dB
52.40	21.5	10.4	1.6	V	33.5	40	-6.5
97.00	24.6	9.7	2.2	V	36.5	43.5	-7.0
189.50	18.4	16.1	3.1	V	37.5	43.5	-6.0
256.30	18.3	17.6	3.6	V	39.5	46	-6.5
328.40	20.7	16.4	4.2	V	41.2	46	-4.8
389.50	17.8	16.8	4.5	V	39.2	46	-6.8
218.40	16.1	16.8	3.3	H	36.2	46	-9.8
328.40	18.1	16.4	4.2	H	38.6	46	-7.4
389.60	16.1	16.8	4.5	H	37.5	46	-8.5
417.20	15.8	17.4	4.7	H	37.9	46	-8.1
429.80	16.4	17.8	4.7	H	38.9	46	-7.1
512.40	12.6	19.4	5.2	H	37.1	46	-8.9



Measured by : Keun-Ho Park / Engineer

Date : March 29, 2005

3.3.1 Conducted Radiated Emission



3.3.2 Radiated Emission



4.1 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 is obtained. The Antenna Factor of 7.4 and a Cable Factor of 1.1 is added. The 30 dBuV/m value was mathematically converted to its corresponding level in uV/m.

$$FS = 21.5 + 7.4 + 1.1 = 30 \text{ dBuV/m}$$

$$\text{Level in uV/m} = \text{Common Antilogarithm} [(30 \text{ dBuV/m})/20] = 31.6 \text{ uV/m}$$

5.1 Test Equipment

Type	Manufacture	Model Number	CAL Date
EMI Test Receiver	Rohde & Schwarz	ESI40	2004.11.16
EMI Test Receiver	Rohde & Schwarz	ESVS30	2004.07.16
LISN	Rohde & Schwarz	ESH2-Z5	2004.07.28
LISN	EMCO	ESH3-Z5	2004.07.28
Attenuator	Rohde & Schwarz	ESH3-Z2	2004.11.16
Amplifier	Hewlett-Packard	8447E	2004.08.23
TRILOG Antenna	Schwarzbeck	9160	2004.04.06
Antenna Position Tower	EMCO	1051-12	N/A
Turn Table	EMCO	1060-06	N/A
Power Analyzer	Voltech	PM 3300	2005.02.15
Reference Network Impedance	Voltech	IEC 555	N/A
AC Power Source	PACIFIC	Magnetic Module	N/A
AC Power Source	PACIFIC	360-AMX	2004.11.25
Controller	HD GmbH	HD 100	N/A
SlideBar	HD GmbH	KMS 560	N/A

6.1 Conclusion

The data collected shows that the **HYUNDAI CURITEL INC.** Single- Mode CDMA Phone. FCC ID: PP4PC-7100. Complies with §15.107 and §15.109 of the FCC Rules.