

CERTIFICATE OF COMPLIANCE FCC PART 24(E) EIRP MEASUREMENTS

Test Lab

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Applicant Information

HITACHI LTD.
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Chiyoda-ku, Tokyo 101
Japan

Test Procedure(s):	ANSI/TIA/EIA-603-A-2001
FCC Classification:	Part 24 Licensed Portable Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§24(E), §2
FCC ID:	ABLSP20
Model(s):	SH-P300 (#10)
Equipment Type:	Single-Mode PCS CDMA Phone
Tx Frequency Range:	1851.25 - 1908.75 MHz
Rx Frequency Range:	1931.25 - 1988.75 MHz
Max. EIRP Measured:	0.158 Watts
Conducted Power Tested:	22.7 dBm (1851.25 MHz)
	22.3 dBm (1880.00 MHz)
	22.5 dBm (1908.75 MHz)
Antenna Type:	Retractable
Battery Type:	3.7V Lithium-Ion (1000mAh)

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947.

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.

This test report shall not be reproduced partially, or in full, without the prior written approval of Celltech Research Inc. The results and statements contained in this report pertain only to the device(s) evaluated.



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Celltech Research Inc.



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FCC PART 24(E) EIRP MEASUREMENT REPORT

1.1 SCOPE

Measurement and determination of electromagnetic emissions (EME) from radio frequency devices for compliance with the technical rules and regulations of the Federal Communications Commission.

1.2 GENERAL INFORMATION - §2.1033(a)

<u>APPLICANT</u> HITACHI LTD. 6 Kanda Surugadai 4 Chome Chiyoda-ku, Tokyo 101 Japan	
FCC ID	ABLSP20
Model(s)	SH-P300 (#10)
EUT Type	Single-Mode PCS CDMA Phone
Classification	Part 24 Licensed Portable Transmitter Held to Ear (PCE)
Rule Part(s)	§24(E), §2
Test Procedure(s)	ANSI/TIA/EIA-603-A-2001
Max. EIRP Measured	0.158 Watts
RF Conducted Output Power Tested	22.7 dBm (1851.25 MHz) 22.3 dBm (1880.00 MHz) 22.5 dBm (1908.75 MHz)
Tx Freq. Range	1851.25 - 1908.75 MHz
Rx Freq. Range	1931.25 - 1988.75 MHz
Modulation	PCS CDMA
Battery Type(s)	3.7V Lithium-Ion (1000mAh)
Antenna Type	Retractable

2.1 MEASUREMENT PROCEDURES

2.2 RF OUTPUT POWER MEASUREMENT - §2.1046

The conducted power was measured with a Gigatronics 8650A Universal Power Meter using modulated average power mode. An offset was entered into the power meter to correct for the losses of the attenuator and cable installed before the sensor input. The transmitter terminal was coupled to the power meter and the EUT was placed into test mode using an Agilent E8285A base station simulator at a full data rate in the “always up” power control mode. All subsequent tests were performed using the same tune up procedures.

2.3 EFFECTIVE ISOTROPIC RADIATED POWER OUTPUT - §24.232(b)

EIRP Measurements by Substitution Method:

The EUT was placed into test mode using an Agilent E8285A base station simulator at a full rated power. The EUT was placed on a turntable 3-meters from the receive antenna. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters.

The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A horn antenna was substituted in place of the EUT. A CDMA signal with the same bandwidth as the EUT was generated, amplified, and fed through a directional coupler. The height and direction of the horn antenna was adjusted in order to give the field of maximum intensity. The power to the antenna was adjusted in order to give the same field strength reading as previously recorded for the EUT. The power at the coupler port was recorded at this point. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The EIRP level was determined by adding the horn forward conducted power and the horn antenna gain in dB.

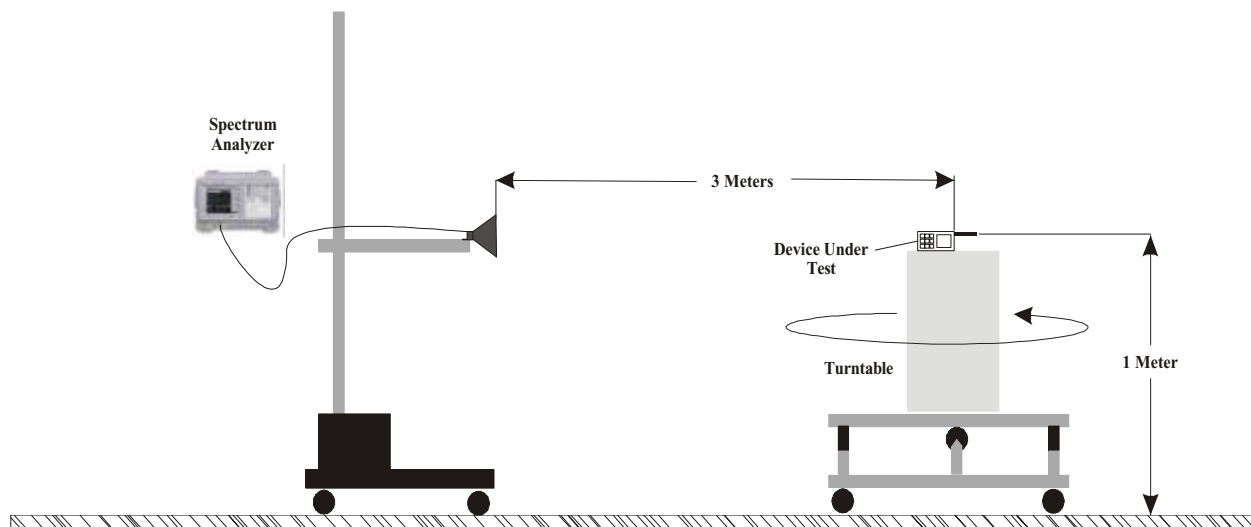


Figure 1. Radiated Measurement Test Setup Diagram

3.1 TEST DATA

3.2 EFFECTIVE ISOTROPIC RADIATED POWER OUTPUT - §24.232(b)

Freq. Tuned	EUT Measured Conducted Power	Max. Field Strength of EUT (dBm) (Horizontal Polarization)		Horn Gain	Horn Forward Conducted Power	EIRP of EUT Horn Gain + Horn Forward Conducted Power	
		Antenna Retracted	Antenna Extended			(dBm)	(Watts)
1851.25	22.7	-	- 16.21	6.55	14.50	21.05	0.127
1880.00	22.3	- 16.72	- 16.05	6.58	15.41	21.99	0.158
1908.75	22.5	-	- 17.00	6.61	14.23	20.84	0.121

Notes:

1. Both horizontal and vertical antenna polarizations were investigated and the highest levels are reported.
2. Both retracted and extended antenna modes were investigated and the highest levels are reported.
3. EIRP measurements were performed using the standard battery, which is the only battery option for this phone.

4.1 TEST EQUIPMENT LIST

<u>Type</u>	<u>Model</u>	<u>Calibration Due Date</u>	<u>Serial No.</u>
HP Signal Generator	8648D (9kHz-4.0GHz)	Feb 2003	3847A00611
Rohde & Schwarz Signal Gen.	SMR40 (10MHz-40GHz)	Nov 2002	835537/022
Gigatronics Power Meter	8652A	Feb 2003	1835272
Gigatronics Power Sensor	80701A (0.05-18GHz)	Feb 2003	1833535
Gigatronics Power Sensor	80701A (0.05-18GHz)	March 2003	1833542
Amplifier Research Power Amp.	5S1G4 (5W, 800MHz-4.2GHz)	N/A	26235
Microwave System Amplifier	HP 83017A (0.5-26.5GHz)	N/A	3123A00587
Network Analyzer	HP 8753E (30kHz-3GHz)	Feb 2003	US38433013
Audio Analyzer	HP 8903B	Nov 2002	3729A18691
Modulation Analyzer	HP 8901A	July 2003	3749A07154
Frequency Counter	HP 53181A (3GHz)	May 2003	3736A05175
DC Power Supply	HP E3611A	N/A	KR83015294
CDMA Base Station Simulator	Agilent E8285A	Feb. 2003	US40332926
Multi-Device Controller	EMCO 2090	N/A	9912-1484
Mini Mast	EMCO 2075	N/A	0001-2277
Turntable	EMCO 2080-1.2/1.5	N/A	0002-1002
Double Ridged Horn Antenna	ETS 3115 (1-18GHz)	Nov 2002	6267
Double Ridged Horn Antenna	ETS 3115 (1-18GHz)	Nov 2002	6276
Horn Antenna	Chase BBHA 9120-A (0.7-4.8GHz)	Nov 2002	9120A-239
Horn Antenna	Chase BBHA 9120-A (0.7-4.8GHz)	Nov 2002	9120A-240
Roberts Dipoles	Compliance Design (2 sets) 3121C	Nov 2002	
Spectrum Analyzer	HP 8594E	Feb 2003	3543A02721
Spectrum Analyzer	HP E4408B	Nov 2002	US39240170
Shielded Screen Room	Lindgren R.F. 18W-2/2-0	N/A	16297
Environmental Chamber	ESPEC ECT-2 (Temp./Humidity)	Feb 2003	0510154-B

5.1 CONCLUSION

The data in this measurement report shows that the Hitachi Ltd. Model: SH-P300 (#10) Single-Mode PCS CDMA Phone FCC ID: ABLSP20 complies with the FCC requirements specified in §24.232(b).

APPENDIX A - TEST SETUP PHOTOGRAPHS

EIRP TEST SETUP PHOTOGRAPHS with Substitution Antenna



EIRP TEST SETUP PHOTOGRAPHS

Horizontal Polarization



Antenna Retracted



Antenna Retracted



Antenna Extended



Antenna Extended

EIRP TEST SETUP PHOTOGRAPHS

Vertical Polarization



Antenna Retracted



Antenna Retracted



Antenna Extended



Antenna Extended