CERTIFICATE OF COMPLIANCE
FCC PART 24 CERTIFICATION

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Applicant Information:

VTECH MOBILE (ASIA) LIMITED
Block 1, 23/F, Tai Ping Industrial Center
57 Ting Kok Road, Tai Po
Hong Kong, China

FCC Classification:	**Part 24 Licensed Portable Transmitter Held to Ear (PCE)**
FCC Rule Part(s):	**§24(E), §2**
FCC ID:	**P5680-5196-00**
Model(s):	**A700**
Equipment Type:	**Single-Mode PCS GSM Phone**
Tx Frequency Range:	**1850.2 - 1909.8 MHz**
Max. RF Output Power:	**1.32 Watts (EIRP)**
Frequency Tolerance:	**150 Hz**
Antenna Type:	**Helical Stubby (1/4l)**

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.

Shawn McMillen
General Manager
Celltech Research Inc.

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FCC PART 24 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)

APPLICANT:

VTECH MOBILE (ASIA) LIMITED
Block 1, 23/F, Tai Ping Industrial Center
57 Ting Kok Road, Tai Po
Hong Kong, China

FCC ID	**P5680-5196-00**
Model(s)	**A700**
EUT Type	**Single-Mode PCS GSM Phone**
Classification	**Licensed Portable Transmitter Held to Ear (PCE)**
Rule Part(s)	**§24(E) , §2**
Max. RF Output Power	**1.32 Watts (EIRP)**
Tx Freq. Range	**1850.2 - 1909.8 MHz**
Frequency Tolerance	**± 150 Hz**
Modulation	**PCS GSM**
Battery Type(s)	**Lithium-Ion Battery Standard: 4.2V 540mAh Extended: 4.2V 700mAh**
Antenna Type	**Helical Stubby (1/4l)**

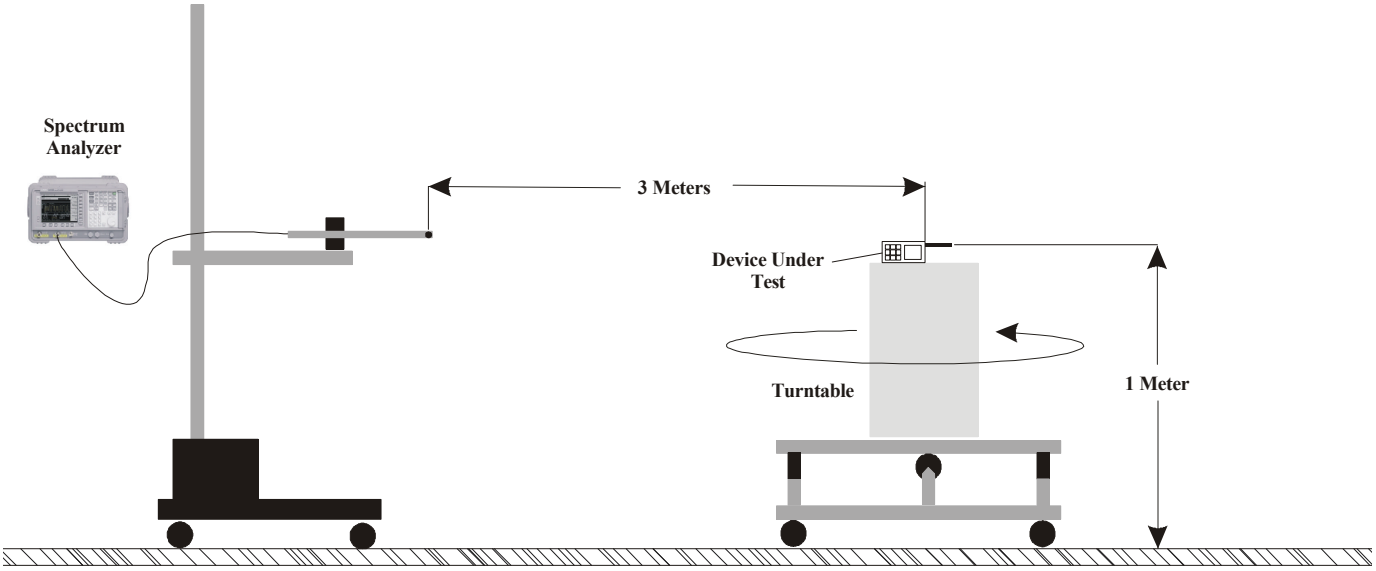
2.1 MEASUREMENT PROCEDURES

2.2 RF OUTPUT POWER MEASUREMENT - §2.1046

The conducted power was measured using a Gigatronics 8650A Universal Power Meter in modulated average power mode. An offset value in dB 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 via keypad access at a full data rate in the "always up" power control mode. All subsequent tests were performed using the same tune up procedures.

2.6 FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053

Radiated and harmonic emissions were measured on a 3-meter outdoor site. The EUT was placed on the turntable with the transmitter transmitting into a non-radiating load. A receiving antenna located 3 meters from the turntable received any signal radiated from the transmitter and its operating accessories. The receiving antenna was varied in height from 1 to 4 meters and the polarization was varied (horizontal and vertical) to determine the worst-case emission level.



Radiated Measurement Test Setup Diagram

3.1 TEST DATA

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

PCS GSM MODE

Freq. Tuned	EUT Conducted Power	Maximum Field Strength of EUT (Horiz. Pol.)	Horn Gain	Horn Forward Conducted Power	EIRP of EUT Horn Gain + Horn Forward Conducted Power	
(MHz)	(dBm)	(dBm)	(dBi)	(dBm)	(dBm)	Watts
1850.2	29.17	- 7.362	6.55	24.49	31.04	1.27
1880.0	29.30	- 8.177	6.58	24.20	30.78	1.20
1909.8	29.49	- 8.395	6.61	24.60	31.21	1.32
1909.8	29.49	- 8.143	6.61	24.47	31.08	1.28*

Notes:

1. EIRP Measurements by Substitution Method:

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, and for both EUT antenna polarizations and modes. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. 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, this is 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 forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

2. EIRP measurements were performed with the standard battery and *extended battery.

3.3 FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053

Operating Frequency (MHz):	1850.2
Channel:	512 (Low)
Measured Cond. Pwr. (dBm):	29.17
Measured EIRP (dBm):	31.04
Modulation:	PCS GSM
Distance:	3 Meters
Limit:	43 + 10 log (W) = 38.13 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
3700.40	-92.43	-59.54	6.6	H	-52.94	-55.08	86.12
5550.60	-88.54	-50.74	7.8	H	-42.94	-45.08	76.12
7400.80	-90.85	-54.27	7.8	H	-46.47	-48.61	79.65
9251.00	-91.61	-53.59	7.6	H	-45.99	-48.13	79.17
11101.20	-94.88	-58.52	8.5	H	-50.02	-52.16	83.20
12951.40	-97.53	-59.65	8.8	H	-50.85	-52.99	84.03
14801.60	-98.32	-60.44	9.6	H	-50.84	-52.98	84.02
16651.80	-99.84	-62.01	9.0	H	-53.01	-55.15	86.19
18502.00	-101.57	-65.36	9.3	H	-56.06	-58.20	89.24

Radiated Measurements by Substitution Method:

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 standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. 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, this is 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 forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:
1. All other spurious emissions were found to be below the magnitude of each harmonic.
2. Spurious emissions more than 20 dB below the limit are reported, even though not required per §2.1051.

FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053

Operating Frequency (MHz):	1880.0
Channel:	661 (Mid)
Measured Cond. Pwr. (dBm):	29.30
Measured EIRP (dBm):	30.78
Modulation:	PCS GSM
Distance:	3 Meters
Limit:	43 + 10 log (W) = 38.13 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
3760.00	-90.46	-57.57	6.6	H	-50.97	-53.11	83.89
5640.00	-89.63	-51.83	7.8	H	-44.03	-46.17	76.95
7520.00	-91.12	-54.54	7.8	H	-46.74	-48.88	79.66
9400.00	-92.85	-54.83	7.6	H	-47.23	-49.37	80.15
11280.00	-94.06	-57.70	8.5	H	-49.20	-51.34	82.12
13160.00	-95.55	-57.67	8.8	H	-48.87	-51.01	81.79
15040.00	-97.33	-59.45	9.6	H	-49.85	-51.99	82.77
16920.00	-99.14	-61.31	9.0	H	-52.31	-54.45	85.23
18800.00	-101.61	-65.40	9.3	H	-56.10	-58.24	89.02

Radiated Measurements by Substitution Method:

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 standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. 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, this is 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 forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:
1. All other spurious emissions were found to be below the magnitude of each harmonic.
2. Spurious emissions more than 20 dB below the limit are reported, even though not required per §2.1051.

FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053

Operating Frequency (MHz):	1908.8
Channel:	810 (High)
Measured Cond. Pwr. (dBm):	29.49
Measured EIRP (dBm):	31.21
Modulation:	PCS GSM
Distance:	3 Meters
Limit:	43 + 10 log (W) = 38.13 dBc

Frequency (MHz)	Field Strength of Spurious Radiation (dBm)	Horn Forward Cond. Pwr. (dBm)	Standard Gain Horn Antenna Gain (dBi)	POL (H/V)	EIRP (dBm)	ERP (dBm)	dBc
3817.60	-92.08	-59.19	6.6	H	-52.59	-54.73	85.94
5726.40	-90.37	-52.57	7.8	H	-44.77	-46.91	78.12
7635.20	-91.41	-54.83	7.8	H	-47.03	-49.17	80.38
9544.00	-92.36	-54.34	7.6	H	-46.74	-48.88	80.09
11452.80	-94.26	-57.90	8.5	H	-49.40	-51.54	82.75
13361.60	-96.02	-58.14	8.8	H	-49.34	-51.48	82.69
15270.40	-98.94	-61.06	9.6	H	-51.46	-53.60	84.81
17179.20	-100.43	-62.60	9.0	H	-53.60	-55.74	86.95
19088.00	-102.11	-65.90	9.3	H	-56.60	-58.74	89.95

Radiated Measurements by Substitution Method:

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 standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. 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, this is 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 forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

Notes:
1. All other spurious emissions were found to be below the magnitude of each harmonic.
2. Spurious emissions more than 20 dB below the limit are reported, even though not required per §2.1051.

4.1 TEST EQUIPMENT

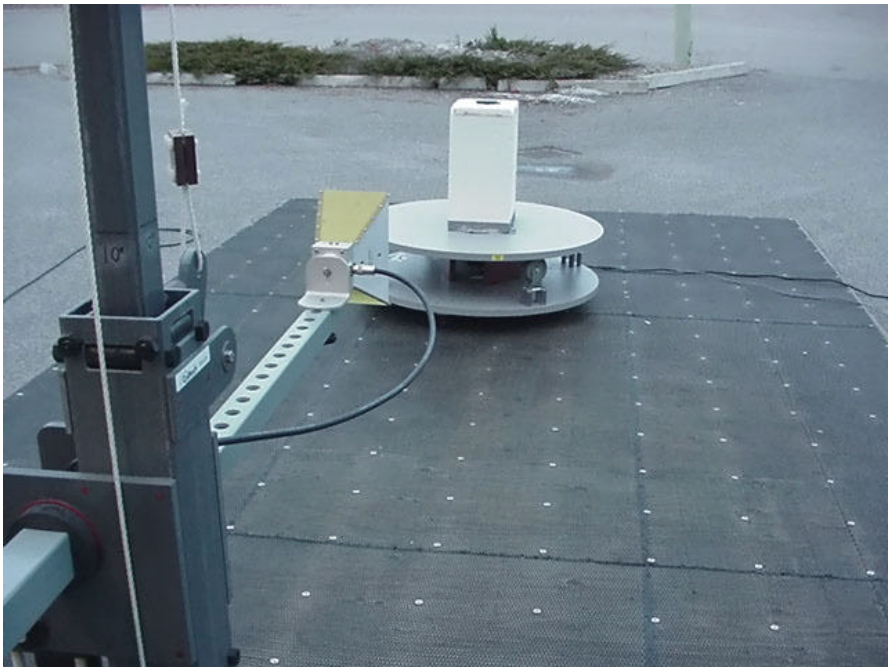
Type	Model	Calib. Due Date	Serial No.
HP Signal Generator	8648D (9kHz-4.0GHz)	Nov 2002	3847A00611
Rohde & Schwarz Signal Generator	SMR40 (10MHz-40GHz)	Nov 2002	835537/022
Gigatronics Power Meter	8652A	Oct 2002	1835272
Gigatronics Power Sensor	80701A (0.05-18GHz)	Sept. 2002	1833535
Gigatronics Power Sensor	80701A (0.05-18GHz)	Sept. 2002	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)	Nov 2002	US38433013
Audio Analyzer	HP 8903B	Nov 2002	3729A18691
Modulation Analyzer	HP 8901A	July 2002	3749A07154
Frequency Counter	HP 53181A (3GHz)	May 2002	3736A05175
DC Power Supply	HP E3611A	N/A	KR83015294
GSM Base Station Simulator	Rohde & Schwarz CMD55	May 2002	832474/043
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)	Oct. 2002	6267
Double Ridged Horn Antenna	ETS 3115 (1-18GHz)	Oct. 2002	6276
Horn Antenna	Chase BBHA 9120-A (0.7-4.8GHz)	Sept 2002	9120A-239
Horn Antenna	Chase BBHA 9120-A (0.7-4.8GHz)	Sept 2002	9120A-240
Roberts Dipoles	Compliance Design (2 sets) 3121C	June 2002	
Spectrum Analyzer	HP 8594E	March 2002	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 (Temperature/Humidity)	Feb 2002	0510154-B

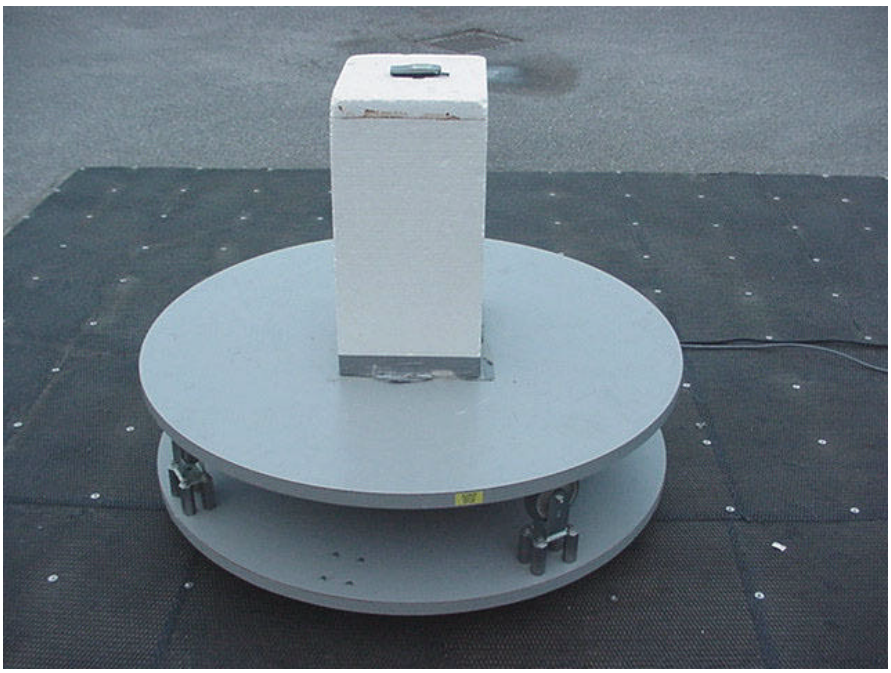
5.1 CONCLUSION

The data in this measurement report shows that the VTECH Engineering Canada, Ltd. Model: A700 Single-Mode PCS GSM Phone FCC ID: P5680-5196-00 complies with the requirements of FCC Rule Parts 2 and 24 referenced in this report.

APPENDIX A - RADIATED TEST SETUP PHOTOGRAPHS

RADIATED TEST SETUP PHOTOGRAPHS





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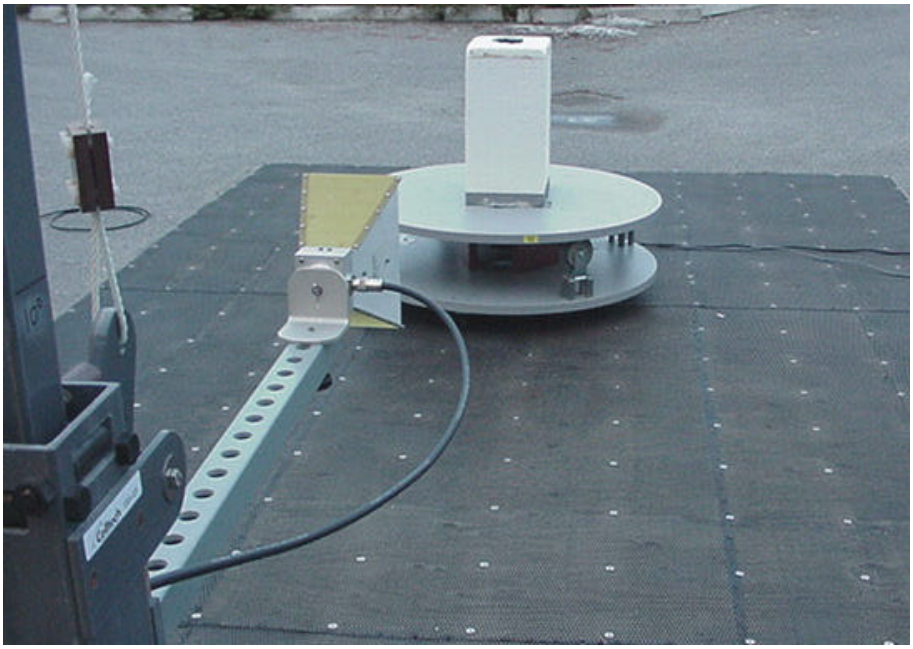

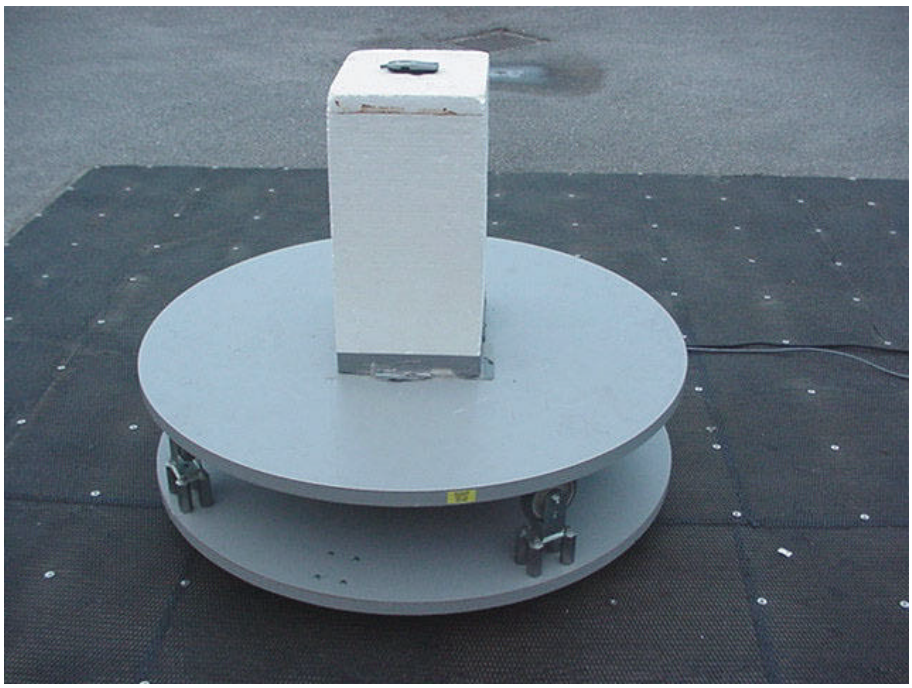

RADIATED TEST SETUP PHOTOGRAPHS

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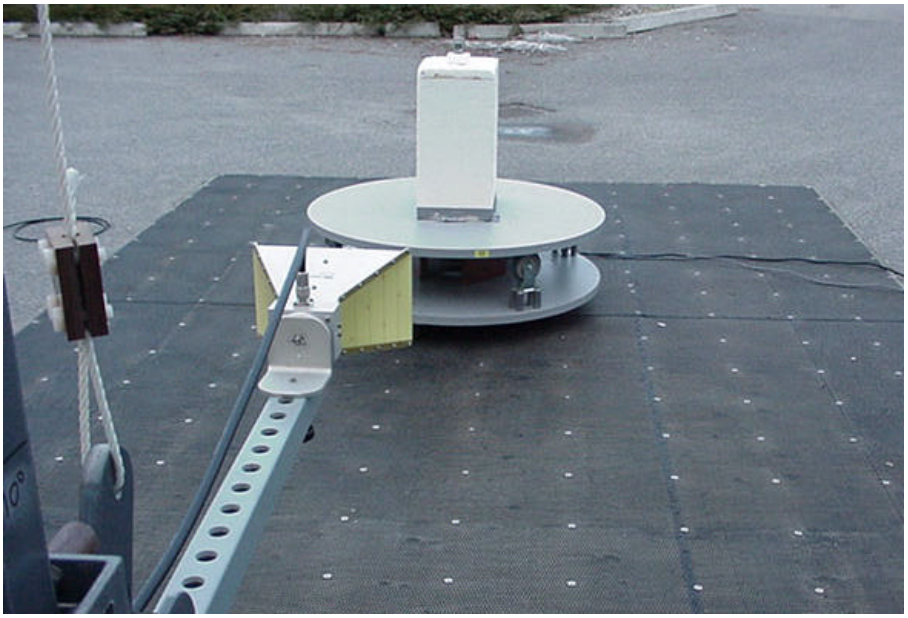
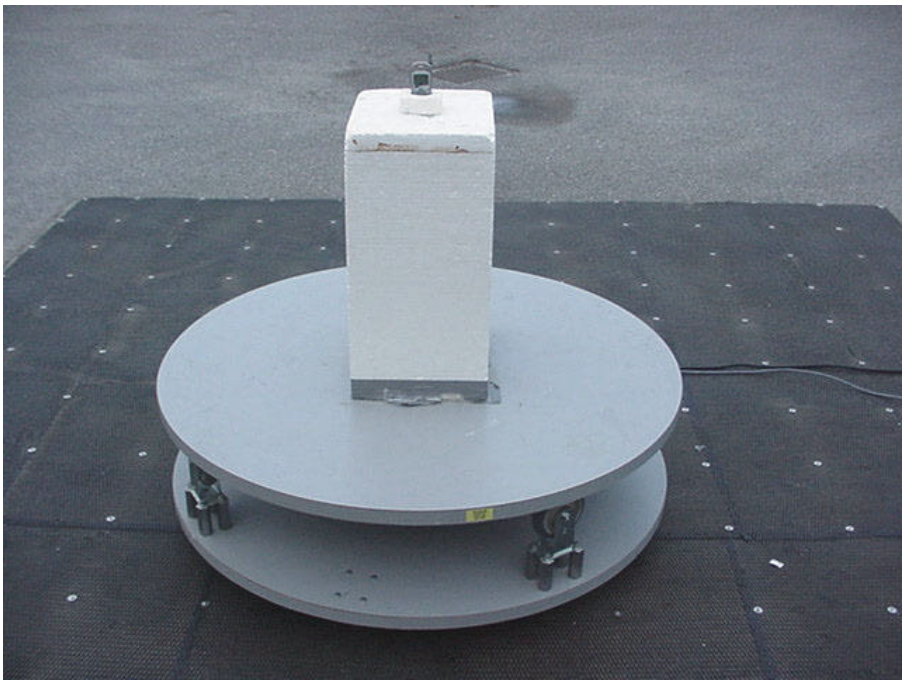
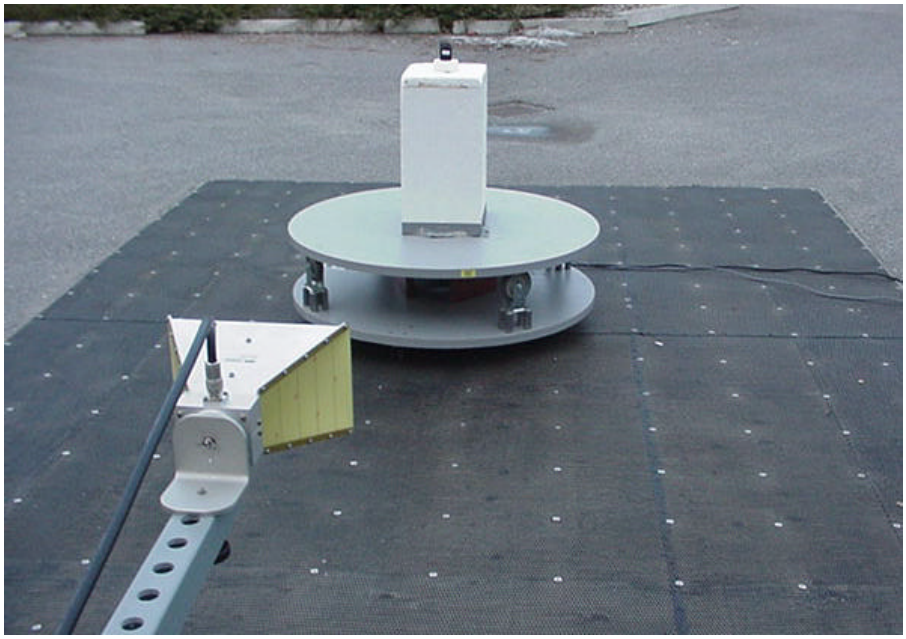
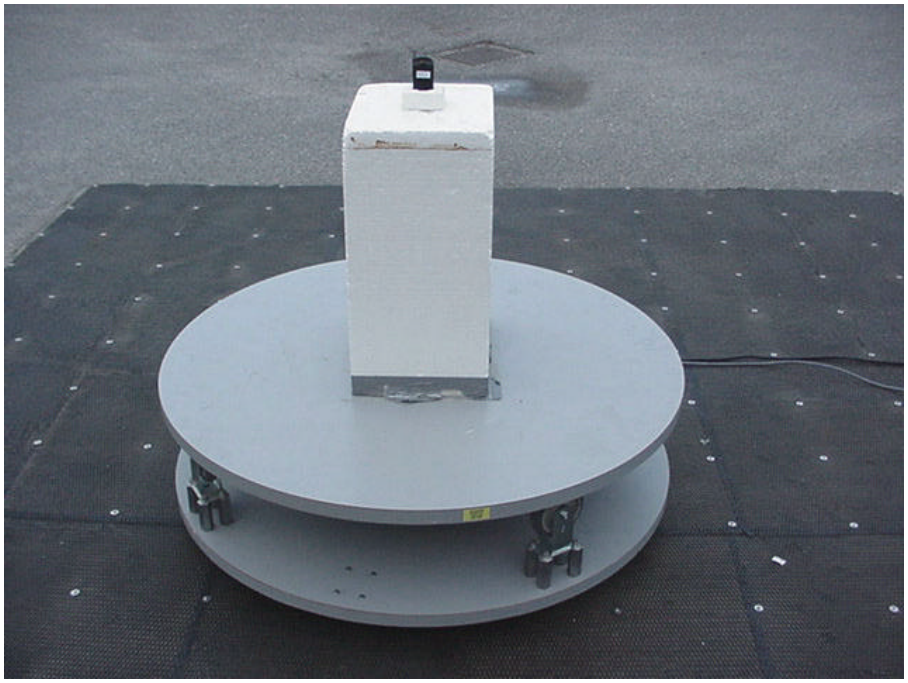




RADIATED TEST SETUP PHOTOGRAPHS





RADIATED TEST SETUP PHOTOGRAPHS

APPENDIX B - EXTERNAL EUT PHOTOGRAPHS

EXTERNAL EUT PHOTOGRAPHS

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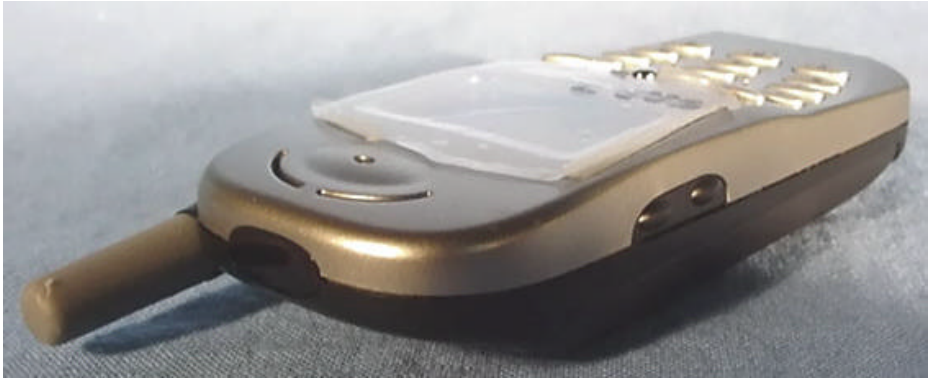
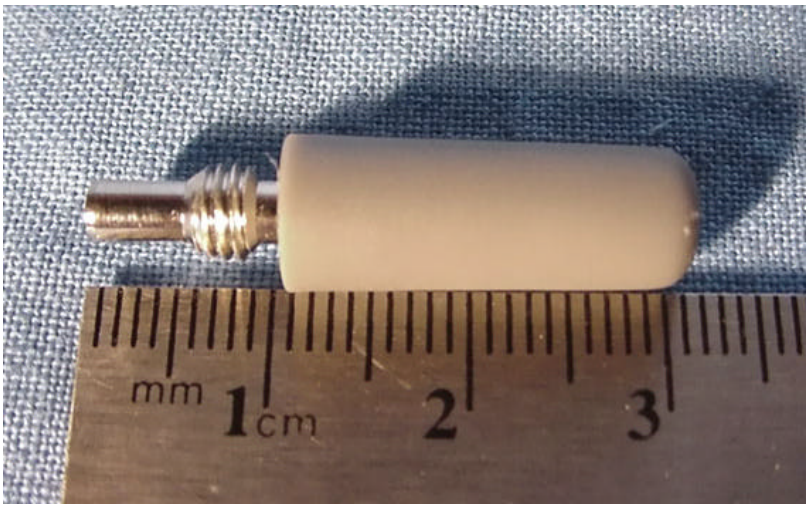
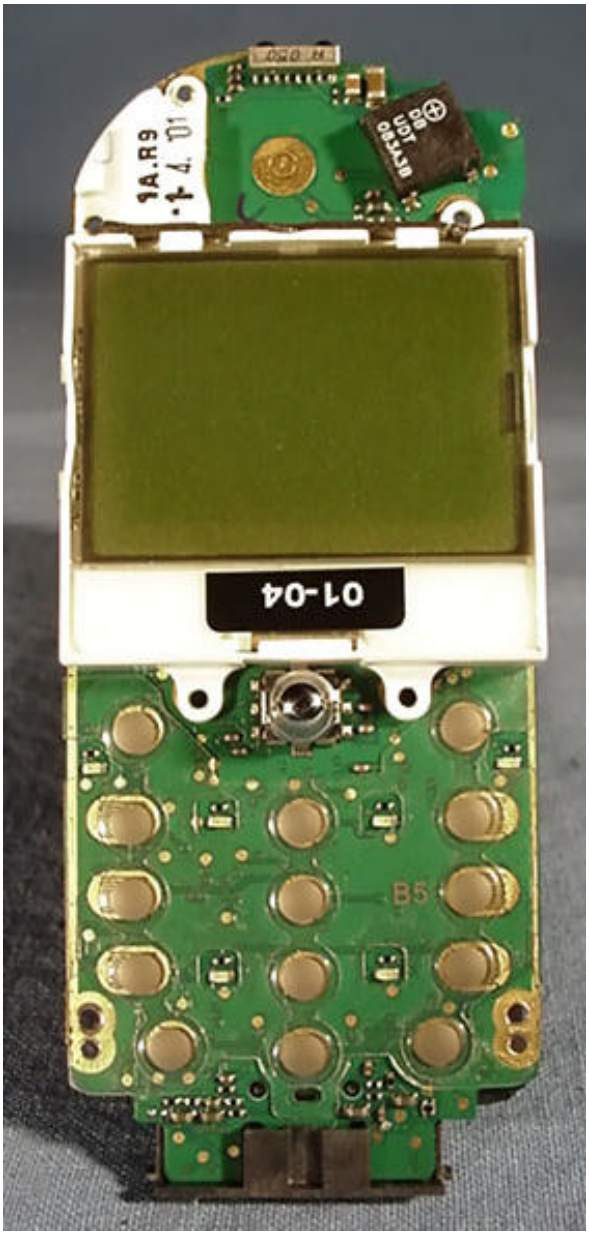




EXTERNAL EUT PHOTOGRAPHS

APPENDIX C - INTERNAL EUT PHOTOGRAPHS

INTERNAL EUT PHOTOGRAPHS



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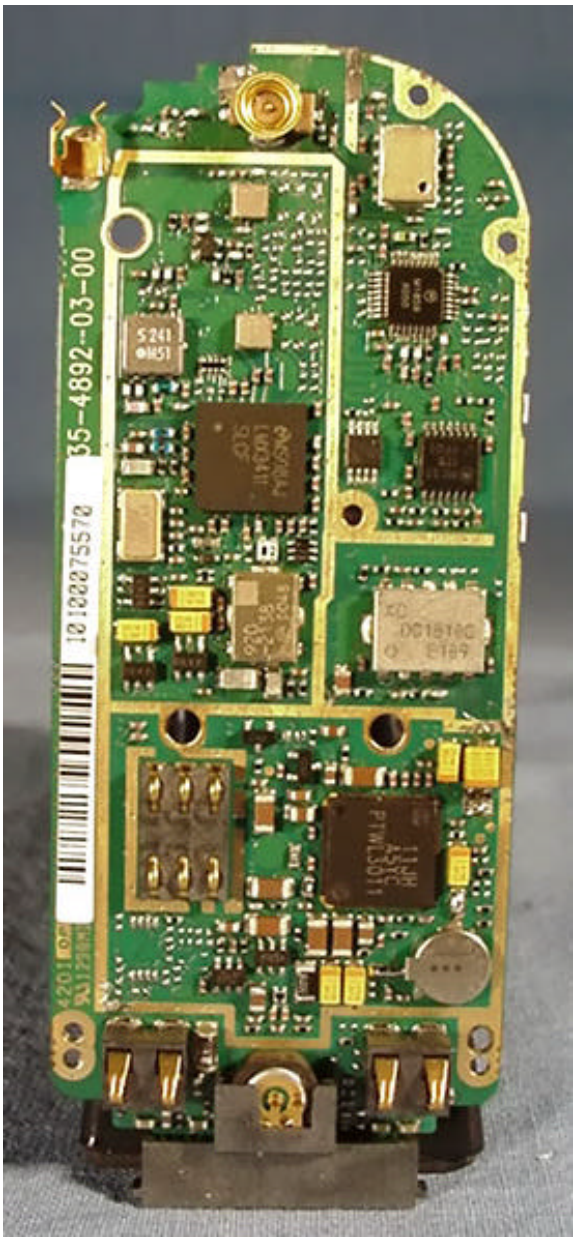

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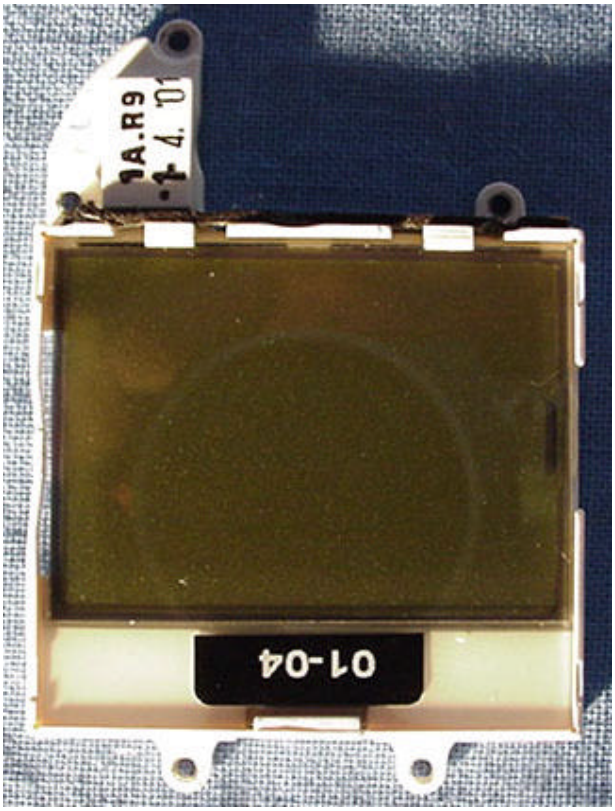

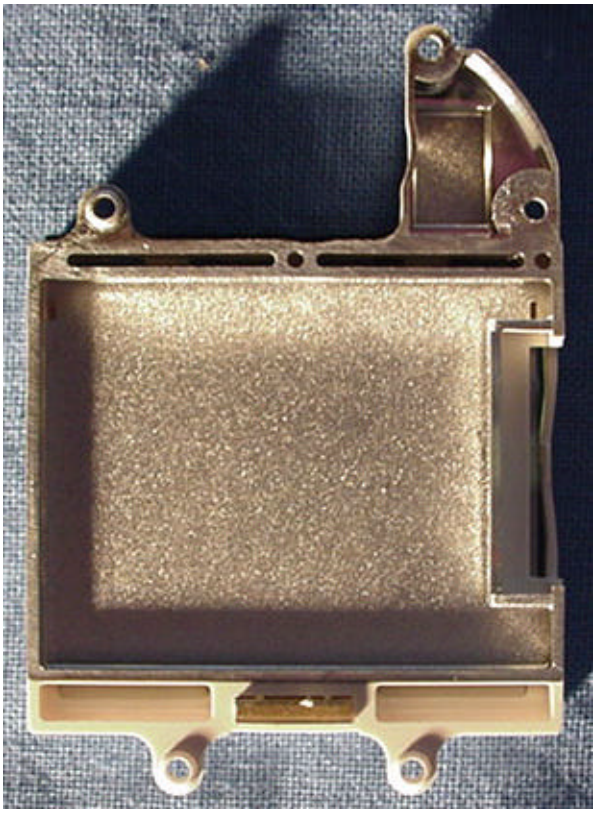

INTERNAL EUT PHOTOGRAPHS