M. Flom Associates, Inc. - Global Compliance Center
3356 North San Marcos Place, Suite 107, Chandler, Arizona 85225-7176
www.mflom.com general@mflom.com (480) 926-3100, FAX: 926-3598

Transmitter Certification

of

FCC ID: P7QRHV-1
Model: Type RHV-1

to

Federal Communications Commission

Rule Part(s) 24E, Confidentiality

Date Of Report: August 21, 2003

On the Behalf of the Applicant:

Vertu Ltd.

At the Request of: P.O. E68-1002896/06/25/2003

Vertu Ltd.
Beacon Hill Road
Church Crookham, Hampshire GU52 8DY UK

Attention of: Mark Pope, Certification and Compliance Manager
+44 1252 611135; FAX: -611302
Mobile: +44 7774 8158594
mark.pope@vertu.com

Supervised By: Morton Flom, P. Eng.

The applicant has been cautioned as to the following:

15.21 Information to User.

The users manual or instruction manual for an intentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

15.27(a) Special Accessories.

Equipment marketed to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed. Where special accessories, such as shielded cables and/or special connectors are required to enable an unintentional or intentional radiator to comply with the emission limits in this part, the equipment must be marketed with, i.e. shipped and sold with, those special accessories. However, in lieu of shipping or packaging the special accessories with the unintentional or intentional radiator, the responsible party may employ other methods of ensuring that the special accessories are provided to the consumer, without additional charge.

Information detailing any alternative method used to supply the special accessories for a grant of equipment authorization or retained in the verification records, as appropriate. The party responsible for the equipment, as detailed in § 2.909 of this chapter, shall ensure that these special accessories are provided with the equipment. The instruction manual for such devices shall include appropriate instructions on the first page of text concerned with the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.

Table of Contents

Required information per ISO/IEC Guide 25-1990, paragraph 13.2:

a) **Test Report**

b) Laboratory: (FCC: 31040/SIT) (Canada: IC 2044)	M. Flom Associates, Inc. 3356 N. San Marcos Place, Suite 107 Chandler, AZ 85225
c) Report Number:	d0380042
d) Client:	Vertu Ltd. Beacon Hill Road Church Crookham, Hampshire GU52 8DY UK
e) Identification:	Type RHV-1 FCC ID: P7QRHV-1 Serial Numbers: 179460/2 and 179454/5
Description:	GSM1900 PCS
f) EUT Condition:	Not required unless specified in individual tests.
g) Report Date:	August 21, 2003
EUT Received:	July 28, 2003
h, j, k):	As indicated in individual tests.
i) Sampling method:	No sampling procedure used.
l) Uncertainty:	In accordance with MFA internal quality manual.

m) Supervised by:

Morton Flom, P. Eng.

n) Results:	The results presented in this report relate only to the item tested.
o) Reproduction:	This report must not be reproduced, except in full, without written permission from this laboratory.

Product Introduction

The P7QRHV-1 Mobile phone combines PCS technology and performance with design and craftsmanship to produce a product available in a number of cosmetic finishes. As this is restricted to cosmetics all will have the same Model, Type and FCCID.

The Electrical design is particularly robust and incorporates a self-contained, multiplayer, double-sided screened board with screening of the digital, base band and RF circuitry.

Cosmetic finishing of the phone allows some variation of the Ceramic and Leather components, as well as levels of polishing and finishing and Colour, using these materials.

The 2 cosmetic Finishes tested here i.e. Plain Black Finish and Silver coloured Finish, are selected as the most dis- similar versions of the product. Test results demonstrate the equivalence of products tested and the independence of these finishing components from electrical performance in any mix/match combination

List of General Information Required for Certification

In Accordance with FCC Rules and Regulations,
Volume II, Part 2 and to

24E, Confidentiality

Sub-Part 2.1033
(c)(1): **Name and Address of Applicant**:

Vertu Ltd.
Beacon Hill Road
Church Crookham, Hampshire GU52 8DY UK

Manufacturer:

Applicant

(c)(2): **FCC ID**: P7QRHV-1

Model: Type RHV-1

(c)(3): **Instruction Manual(s)**:

Please See Attached Exhibits

(c)(4): **Type of Emission**: 256KGXW

(c)(5): **FREQUENCY RANGE, MHz**: 1850.2 to 1909.8

(c)(6): **Power Rating, Watts**: 1

____ Switchable ____ Variable _x_ N/A

FCC Grant Note: BC - The output power is continuously variable from the value listed in this entry to 5%-10% of the value listed.

(c)(7): **Maximum Power Rating, Watts**: 1

Subpart 2.1033 (continued)

(c)(8): Voltages & Currents in All Elements in Final RF Stage, Including Final Transistor or Solid State Device:

Collector Current, A	=	per manual
Collector Voltage, Vdc	=	per manual
Supply Voltage, Vdc	=	3.6

(c)(9): **Tune-Up Procedure**:

Please See Attached Exhibits

(c)(10): **Circuit Diagram/Circuit Description**:
Including description of circuitry & devices provided for determining and stabilizing frequency, for suppression of spurious radiation, for limiting modulation and limiting power.

Please See Attached Exhibits

(c)(11): **Label Information**:

Please See Attached Exhibits

(c)(12): **Photographs**:

Please See Attached Exhibits

(c)(13): **Digital Modulation Description**:

___ Attached Exhibits
_x_ N/A

(c)(14): **Test and Measurement Data**:

Follows

M. Flom Associates, Inc. is accredited by the American Association for Laboratory Association (A2LA) as shown in the scope below.

THE AMERICAN
ASSOCIATION
FOR LABORATORY
ACCREDITATION

ACCREDITED LABORATORY

A2LA has accredited

M. FLOM ASSOCIATES, INC.
Chandler, AZ

for technical competence in the field of

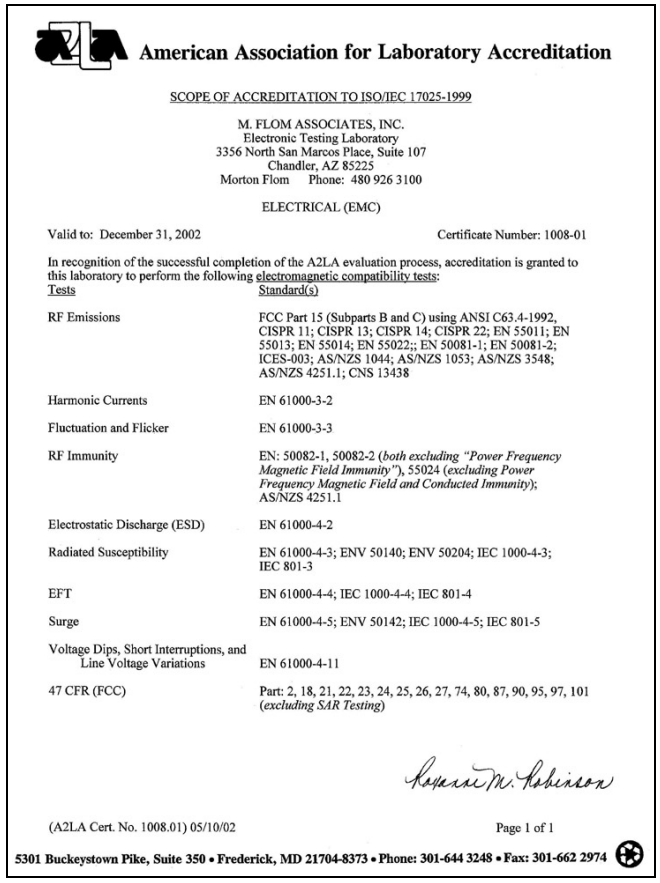
Electrical (EMC) Testing

The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration Laboratories" and any additional program requirements in the identified field of testing. Testing and calibration laboratories that comply with this International Standard also operate in accordance with ISO 9001 or ISO 9002.

Presented this 2nd day of March, 2001.

President
For the Accreditation Council
Certificate Number 1008.01
Valid to December 31, 2002

For tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical (EMC) Scope of Accreditation



American Association for Laboratory Accreditation

SCOPE OF ACCREDITATION TO ISO/IEC 17025-1999

M. FLOM ASSOCIATES, INC.
Electronic Testing Laboratory
3356 North San Marcos Place, Suite 107
Chandler, AZ 85225
Morton Flom Phone: 480 926 3100

ELECTRICAL (EMC)

Valid to: December 31, 2002 Certificate Number: 1008-01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following electromagnetic compatibility tests:

Tests	Standard(s)
RF Emissions	FCC Part 15 (Subparts B and C) using ANSI C63.4-1992, CISPR 11; CISPR 13; CISPR 14; CISPR 22; EN 55011; EN 55013; EN 55014; EN 55022;; EN 50081-1; EN 50081-2; ICES-003; AS/NZS 1044; AS/NZS 1053; AS/NZS 3548; AS/NZS 4251.1; CNS 13438
Harmonic Currents	EN 61000-3-2
Fluctuation and Flicker	EN 61000-3-3
RF Immunity	EN: 50082-1, 50082-2 (*both excluding "Power Frequency Magnetic Field Immunity"*), 55024 (*excluding Power Frequency Magnetic Field and Conducted Immunity*); AS/NZS 4251.1
Electrostatic Discharge (ESD)	EN 61000-4-2
Radiated Susceptibility	EN 61000-4-3; ENV 50140; ENV 50204; IEC 1000-4-3; IEC 801-3
EFT	EN 61000-4-4; IEC 1000-4-4; IEC 801-4
Surge	EN 61000-4-5; ENV 50142; IEC 1000-4-5; IEC 801-5
Voltage Dips, Short Interruptions, and Line Voltage Variations	EN 61000-4-11
47 CFR (FCC)	Part: 2, 18, 21, 22, 23, 24, 25, 26, 27, 74, 80, 87, 90, 95, 97, 101 (*excluding SAR Testing*)

(A2LA Cert. No. 1008.01) 05/10/02 Page 1 of 1

5301 Buckeystown Pike, Suite 350 • Frederick, MD 21704-8373 • Phone: 301-644 3248 • Fax: 301-662 2974

"This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this report have been determined in accordance with the laboratory's terms of accreditation unless stated otherwise in the report."

Should this report contain any data for tests for which we are not accredited, or which have been undertaken by a subcontractor that is not A2LA accredited, such data would not covered by this laboratory's A2LA accreditation.

Sub-part
2.1033(c)(14): Test and Measurement Data

All tests and measurement data shown were performed in accordance with FCC Rules and Regulations, Volume II; Part 2, Sub-part J, Sections 2.947, 2.1033(c), 2.1041, 2.1046, 2.1047, 2.1079, 2.1051, 2.1053, 2.1055, 2.1057 and the following individual Parts:

_____ 21 – Domestic Public Fixed Radio Services
_____ 22 – Public Mobile Services
_____ 22 Subpart H - Cellular Radiotelephone Service
_____ 22.901(d) - Alternative technologies and auxiliary services
_____ 23 – International Fixed Public Radiocommunication services
_x_ 24 – Personal Communications Services
_____ 74 Subpart H - Low Power Auxiliary Stations
_____ 80 – Stations in the Maritime Services
_____ 80 Subpart E - General Technical Standards
_____ 80 Subpart F - Equipment Authorization for Compulsory Ships
_____ 80 Subpart K - Private Coast Stations and Marine Utility Stations
_____ 80 Subpart S - Compulsory Radiotelephone Installations for Small Passenger Boats
_____ 80 Subpart T - Radiotelephone Installation Required for Vessels on the Great Lakes
_____ 80 Subpart U - Radiotelephone Installations Required by the Bridge-to-Bridge Act
_____ 80 Subpart V - Emergency Position Indicating Radiobeacons (EPIRB'S)
_____ 80 Subpart W - Global Maritime Distress and Safety System (GMDSS)
_____ 80 Subpart X - Voluntary Radio Installations
_____ 87 – Aviation Services
_____ 90 – Private Land Mobile Radio Services
_____ 94 – Private Operational-Fixed Microwave Service
_____ 95 Subpart A - General Mobile Radio Service (GMRS)
_____ 95 Subpart C - Radio Control (R/C) Radio Service
_____ 95 Subpart D - Citizens Band (CB) Radio Service
_____ 95 Subpart E - Family Radio Service
_____ 95 Subpart F - Interactive Video and Data Service (IVDS)
_____ 97 - Amateur Radio Service
_____ 101 – Fixed Microwave Services

Standard Test Conditions
and
Engineering Practices

Except as noted herein, the following conditions and procedures were observed during the testing:

In accordance with ANSI C63.4-1992/2000 Draft, section 6.1.9, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst case measurements.

For PCS Equipment:

Pursuant to Section 24.51(d), the EUT complies with IEEE C95.1-1991, "IEEE Standards for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz."

The EUT uses digital modulation, as such, measurements of the modulation characteristics are not applicable. The applicant has provided a description of the modulation particular to the EUT.

Pursuant to Section 24.238(c), the EUT was tested at it's lowest and highest possible tuned frequencies.

Guides:

This device was tested using the following Guide(s):

TIA/EIA 603-1992

Name of Test: Carrier Output Power (Conducted)

Specification: 47 CFR 2.1046(a)

Guide: ANSI/TIA/EIA-603-1992, Paragraph 2.2.1

Test Equipment: As per attached page

Measurement Procedure

1. The EUT was connected to a resistive coaxial attenuator of normal load impedance, and the unmodulated output power was measured by means of an RF Power Meter.

2. The attenuator was measured at 30.85 dB at the test frequency. Associates cables and connectors added an additional 0.35 dB. Total path attenuation of 31.20dB.

3. Measurement accuracy is ±3%.

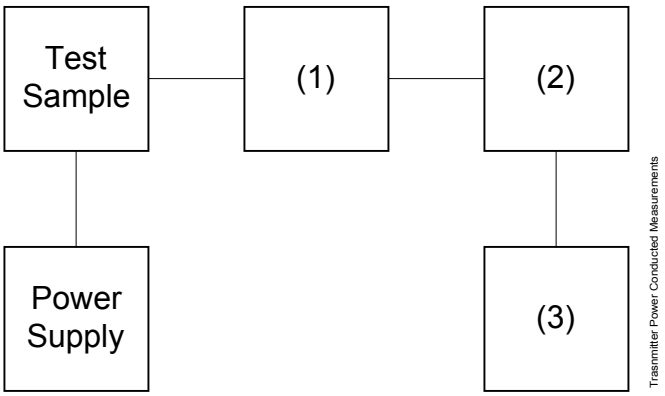
Measurement Results

(Worst case)

Frequency, MHz	Measure, dBm	RF Power, dBm	RF Power Watts
1880.0	-1.4	29.80	0.99

Performed by: David Lee

Transmitter Power Conducted Measurements



Asset (as applicable)	Description	s/n
(1) **Coaxial Attenuator**		
i00122	Narda 766-10	7802
i00123	Narda 766-10	7802A
i00231	Pasternack PE7021 (30 dB)	
i00232	Pasternack PE7021 (30 dB)	
(2) **Power Meters**		
i00020	HP 8901A Power Mode	2105A01087
(3) **Frequency Counter**		
i00020	HP 8901A Frequency Mode	2105A01087

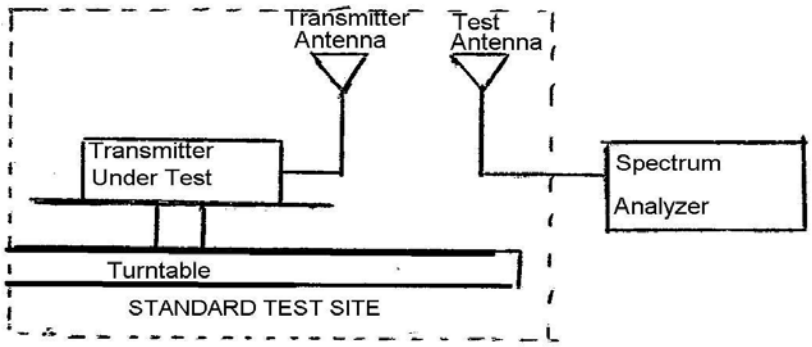
Page Number 9 of 24.

Name of Test: EIRP Carrier Power (Radiated)

Specification: TIA/EIA 603A (Substitution Method)

2.2.17.1 Definition: The average radiated power of a licensed device is the equivalent power required, when delivered to a half-wave dipole or horn antenna, to produce at a distant point the same average received power as produced by the licensed device.

2.2.17.2 Method of Measurement:
a) Connect the equipment as illustrated. Place the transmitter to be tested on the turntable in the standard test site.



b) Raise and lower the test antenna from 1m to 6 m with the transmitter facing the antenna and record the highest received signal in dB as LVL.

c) Repeat step b) for seven additional readings at 45° interval positions of the turntable.

d) Replace the transmitter under test with a half-wave or horn vertically polarized antenna. The center of the antenna should be at the same location as the transmitter under test. Connect the antenna to a signal generator with a known output power and record the path loss in dB or LOSS.

e) Calculate the average radiated output power from the readings in step c) and d) by the following: average radiated power = $10 \log_{10} \Sigma\, 10(LVL - LOSS)/10$ (dBm)

Test results on next page.

Page Number 10 of 24.

Name of Test: EIRP Carrier Power (Radiated)

Silver Coloured Finish Phone Results

	1850.20 MHz		1880.0 MHz		1909.8 MHz	
	LVL, dbm	Path Loss, db	LVL, dbm	Path Loss, db	LVL, dbm	Path Loss, db
0°	24.2	0.8	22.1	-0.1	20.3	0.1
45°	18.9	0.8	23.6	-0.1	24.7	0.1
90°	29.2	0.8	22.6	-0.1	24.0	0.1
135°	29.1	0.8	29.8	-0.1	22.8	0.1
180°	19.9	0.8	26.1	-0.1	30.0	0.1
225°	25.1	0.8	23.1	-0.1	23.0	0.1
270°	24.2	0.8	24.3	-0.1	22.0	0.1
315°	24.2	0.8	22.4	-0.1	25.5	0.1

	1850.20 MHz	1880.0 MHz	1909.8 MHz
Av. Radiated Power:	25.15 dbm	24.15 dbm	24.14 dbm

Plain Black Finish Phone Results

	1850.20 MHz		1880.0 MHz		1909.8 MHz	
	LVL, dbm	Path Loss, db	LVL, dbm	Path Loss, db	LVL, dbm	Path Loss, db
0°	24.7	0.8	24.9	-0.1	25.0	0.1
45°	19.4	0.8	24.6	-0.1	24.8	0.1
90°	23.7	0.8	23.6	-0.1	22.5	0.1
135°	24.1	0.8	24.3	-0.1	21.2	0.1
180°	24.6	0.8	29.9	-0.1	25.0	0.1
225°	23.4	0.8	19.8	-0.1	30.0	0.1
270°	29.1	0.8	24.4	-0.1	25.5	0.1
315°	18.4	0.8	21.3	-0.1	26.0	0.1

	1850.20 MHz	1880.0 MHz	1909.8 MHz
Av. Radiated Power:	21.15 dbm	24.0 dbm	25.1 dbm

Performed by: David Lee

Name of Test: Transmitter Conducted Measurements

Specification: 47 CFR 2.1051: Unwanted (spurious) Emissions
2.1049(c), 24.238(b): Occupied Bandwidth
24: Emissions at Band Edges

Guide: As indicated on page 6

Test Equipment: As per attached page

Measurement Procedure

1. The EUT and test equipment were set up as shown on the following page with the Spectrum Analyzer connected.

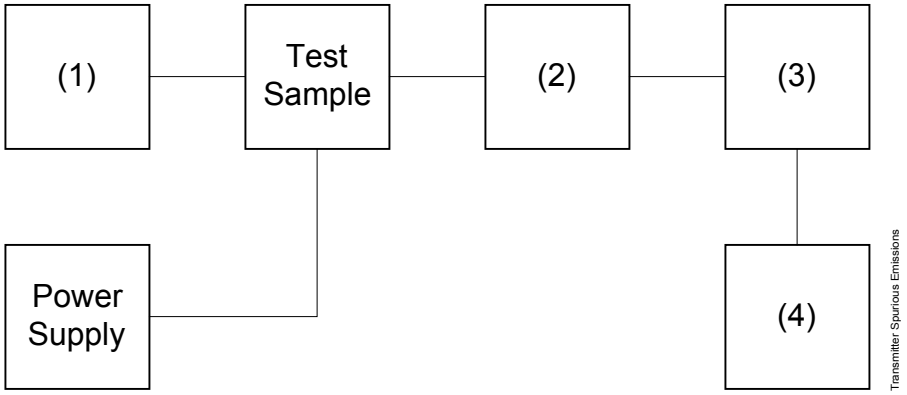
2. The low and high channels for all RF powers within the designated frequency block(s) were measured.

3. Measurement Results: Attached

Performed by: David Lee

Transmitter Spurious Emission

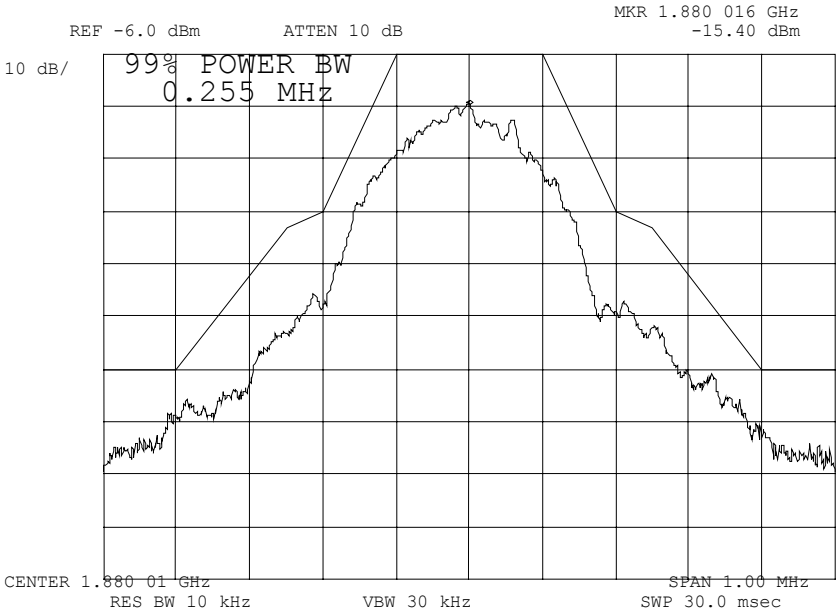
Test A. Occupied Bandwidth (In-Band Spurious)
Test B. Out-of-Band Spurious



Asset (as applicable)	Description	s/n
(1)	**Audio Oscillator/Generator**	
i00017	HP 8903A	2216A01753
(2)	**Coaxial Attenuator**	
i00122	Narda 766-10	7802
i00123	Narda 766-10	7802A
i00069	Bird 8329 (30 dB)	1006
(3)	**Filters; Notch, HP, LP, BP**	
i00126	Eagle TNF-1	100-250
i00125	Eagle TNF-1	50-60
i00124	Eagle TNF-1	250-850
(4)	**Spectrum Analyzer**	
i00048	HP 8566B	2511A01467
i00029	HP 8563E	3213A00104

Page Number 13 of 24.

Name of Test: Emission Masks (Occupied Bandwidth)
g0370048: 2003-Jul-28 Mon 11:41:00
State: 2:High Power



Power: HIGH
Modulation: RANDOM
MASK: FCC, 24, BROADBAND GSM PCS

Performed by: David Lee

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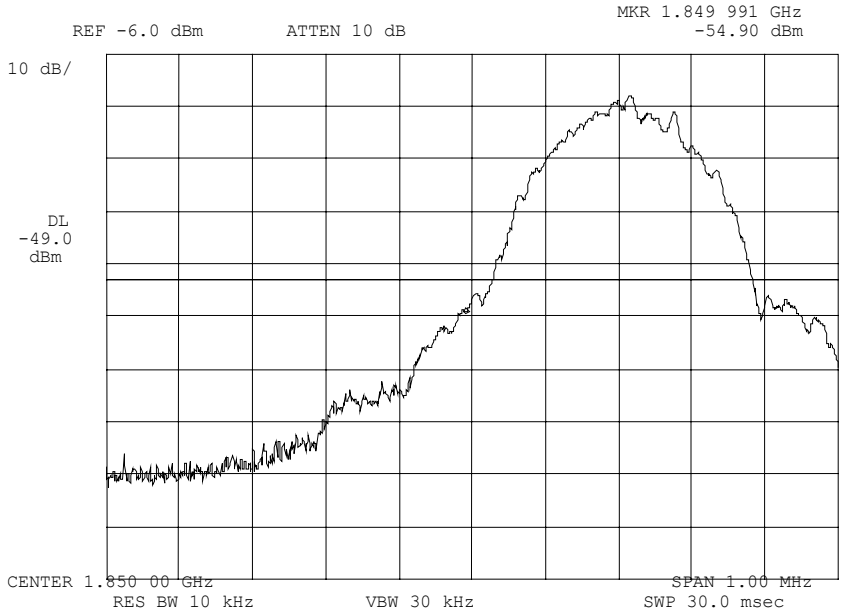
Name of Test: Emission Masks (Occupied Bandwidth)
g0370050: 2003-Jul-28 Mon 11:49:00
State: 2:High Power



Power: HIGH
Modulation: RANDOM
LOWER BAND EDGE

Performed by: David Lee

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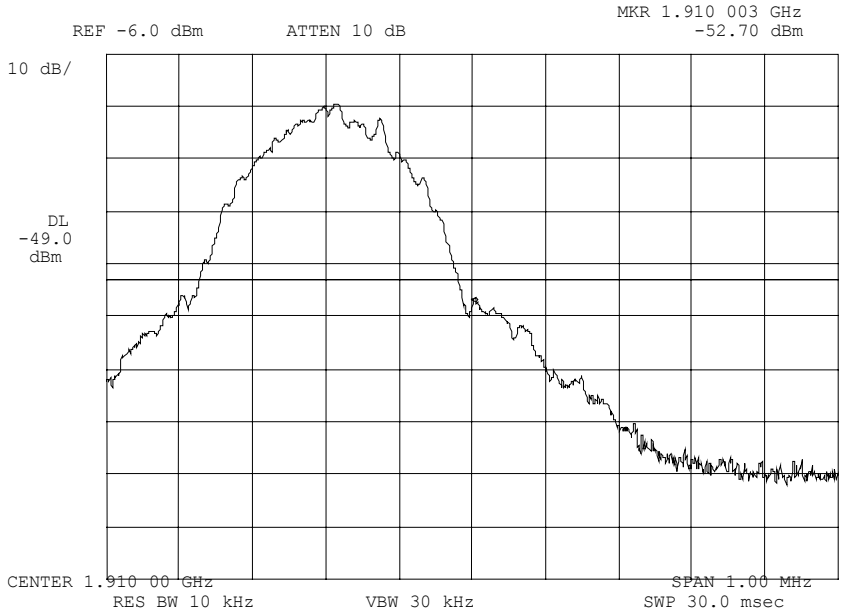
Name of Test: Emission Masks (Occupied Bandwidth)
g0370051: 2003-Jul-28 Mon 11:51:00
State: 2:High Power



Power: HIGH
Modulation: RANDOM
UPPER BAND EDGE

Performed by: David Lee

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Name of Test: Field Strength of Spurious Radiation

Specification: 47 CFR 2.1053(a)

Guide: ANSI/TIA/EIA-603-1992/2001, Paragraph 1.2.12 and Table 16, 47 CFR 22.917

Measurement Procedure

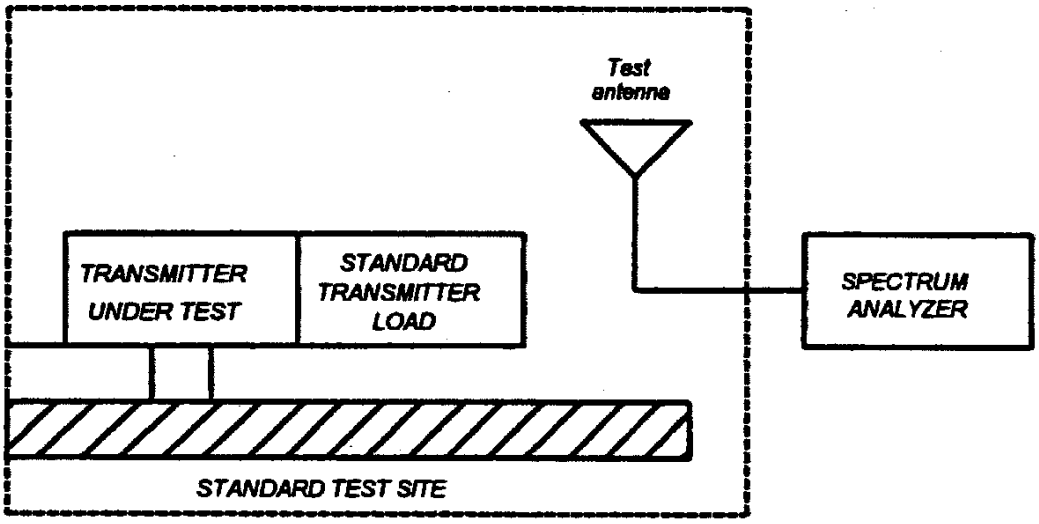
1.2.12.1 Definition: Radiated spurious emissions are emissions from the equipment when transmitting into a non-radiating load on a frequency or frequencies which are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communications desired.

1.2.12.2 Method of Measurement

A) Connect the equipment as illustrated

B) Adjust the spectrum analyzer for the following settings:
1) Resolution Bandwidth 100 kHz (<1 GHZ), 1 MHZ (> 1GHz).
2) Video Bandwidth ≥ 3 times Resolution Bandwidth, or 30 kHz (22.917)
3) Sweep Speed ≤2000 Hz/second
4) Detector Mode = Mean or Average Power

C) Place the transmitter to be tested on the turntable in the standard test site. The transmitter is transmitting into a non-radiating load which is placed on the turntable. The RF cable to this load should be of minimum length.

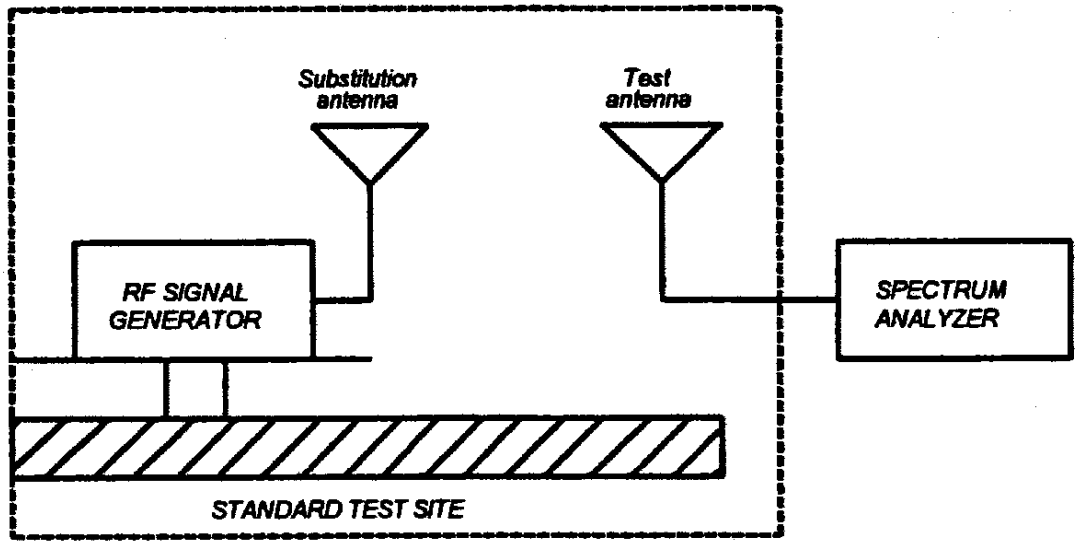


Name of Test: Field Strength of Spurious Radiation (Cont.)

D) For each spurious measurement the test antenna should be adjusted to the correct length for the frequency involved. This length may be determined from a calibration ruler supplied with the equipment. Measurements shall be made from the lowest radio frequency generated in the equipment to the tenth harmonic of the carrier, except for the region close to the carrier equal to ± the test bandwidth (see section 1.3.4.4).

E) For each spurious frequency, raise and lower the test antenna from 1 m to 4 m to obtain a maximum reading on the spectrum analyzer with the test antenna at horizontal polarity. Repeat this procedure to obtain the highest possible reading. Record this maximum reading.

F) Repeat step E) for each spurious frequency with the test antenna polarized vertically.



G) Reconnect the equipment as illustrated.

H) Keep the spectrum analyzer adjusted as in step B).

I) Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter. At lower frequencies, where the substitution antenna is very long, this will be impossible to achieve when the antenna is polarized vertically. In such case the lower end of the antenna should be 0.3 m above the ground.

Name of Test: Field Strength of Spurious Radiation (Cont.)

J) Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a non-radiating cable. With the antennas at both ends horizontally polarized and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.

K) Repeat step J) with both antennas vertically polarized for each spurious frequency.

L) Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps J) and K) by the power loss in the cable between the generator and the antenna and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna.

M) The levels recorded in step L) are absolute levels of radiated spurious emissions in dBm. The radiated spurious emissions in dB can be calculated by the following:

Radiated spurious emissions dB =
$10\log_{10}$(TX power in watts/0.001) – the levels in step l)

NOTE: It is permissible that other antennas provided can be referenced to a dipole.

Test Equipment:

Asset (as applicable)	Description	s/n	Cycle Per ANSI C63.4-1992/2000 Draft, 10.1.4	Last Cal
Transducer				
i00103	EMCO 3115 1GHz-18GHz	9208-3925	12 mo.	Sep-02
Amplifier				
i00028	HP 8449A	2749A00121	12 mo.	Mar-03
Spectrum Analyzer				
i00029	HP 8563E	3213A00104	12 mo.	Mar-03

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Name of Test: Field Strength of Spurious Radiation

g0370047: 2003-Jul-28 Mon 14:48:00
State: 2:High Power Silver Coloured Finish Phone

Frequency Tuned, MHz	Frequency Emission, MHz	EIRP, dBm	EIRP, dbc
1880.000000	3759.855833	-47.2	≤ -71.6
1880.000000	5639.820832	-51.7	≤ -71.6
1880.000000	7519.764165	-53.8	≤ -71.6
1880.000000	9399.707498	-48.5	≤ -71.6
1880.000000	11279.650831	-48	≤ -71.6
1880.000000	13159.594164	-48.3	≤ -71.6
1880.000000	15039.537497	-47.6	≤ -71.6
1880.000000	16919.480830	-41.8	≤ -71.6

g0370059: 2003-Jul-29 Tue 12:13:00
State: 2:High Power Plain Black Finish Phone

Frequency Tuned, MHz	Frequency Emission, MHz	EIRP, dBm	EIRP, dbc
1880.000000	3759.840000	-48.4	≤ -71.6
1880.000000	5639.779000	-51.4	≤ -71.6
1880.000000	7519.721000	-51.7	≤ -71.6
1880.000000	9399.721000	-49	≤ -71.6
1880.000000	11279.721000	-48.1	≤ -71.6
1880.000000	13159.721000	-45	≤ -71.6
1880.000000	15039.721000	-48.6	≤ -71.6
1880.000000	16919.721000	-41.8	≤ -71.6

Performed by: David Lee

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Name of Test: Frequency Stability (Temperature Variation)

Specification: 47 CFR 2.1055(a)(1), 24.235

Guide: As indicated on page 6

Test Conditions: As Indicated

Test Equipment: As per previous page

Measurement Procedure

1. The EUT and test equipment were set up as shown on the following page.

2. With all power removed, the temperature was decreased to -30°C and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was noted within one minute.

3. With power OFF, the temperature was raised in 10°C steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change was noted within one minute.

4. The temperature tests were performed for the worst case.

5. Measurement Results: Attached

Transmitter Test Set-Up

Frequency Stability: Temperature Variation

Test Equipment Used:

Environmental Chamber
Thermotron S1.2 Serial no. 30913 NMP Asset reg. 7672
Calibrated 7 Aug, 2002 Due 7 Aug, 2003

Base Station Emulator
Rohde & Schwarz CMU200 Serial no. 100715 NMP Asset reg. 7937
Calibrated 4 Feb, 2003 Due 4 Feb, 2004

Power Supply
Agilent 6632A Serial no. 2924A-02342 NMP Asset reg. 458
Calibrated 20 Aug, 2002 Due 20 Aug, 2003

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Name of Test: Frequency Stability (Temperature Variation)

Temperature (°C)	PCS1900 Frequency Error (Hz) Limit = +/- 185 Hz		
	ch 512	ch 661	ch 810
-30	-23.37	-34.22	-45.64
-20	-23.89	30.48	-30.22
-10	-24.92	31.25	27.96
0	-32.29	-30.09	24.92
10	28.73	-32.8	27.38
20	29.83	29.96	-26.03
30	31.45	-33.38	22.28
40	32.48	-30.28	-35.77
50	-32.35	30.03	-33.58

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Name of Test: Frequency Stability (Voltage Variation)

Specification: 47 CFR 2.1055(d)(1)

Guide: As indicated on page 6

Test Equipment: As per previous page

Measurement Procedure

1. The EUT was placed in a temperature chamber at 25±5°C and connected as for "Frequency Stability - Temperature Variation" test.

2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.

3. The variation in frequency was measured for the worst case.

Results: Frequency Stability (Voltage Variation)

		Frequency Error (Hz) Limit = +/- 185 Hz		
Voltage (%)	Voltage (V)	ch 512	ch 661	ch 810
End Point	<3.2	Tx off	Tx off	Tx off
Nominal	3.8	25.05	21.44	20.34
115% Nominal	4.4	23.12	20.28	19.69
85% Nominal	3.2	-42.36	19.57	21.31

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Name of Test: Necessary Bandwidth and Emission Bandwidth

Specification: 47 CFR 2.202(g)

Modulation = 256KGXW

Necessary Bandwidth:

Necessary Bandwidth (B_N), kHz = 256
(measured at the 99.75% power bandwidth)

Performed by: David Lee

END OF TEST REPORT

Testimonial and Statement of Certification

This is to certify that:

1. **That** the application was prepared either by, or under the direct supervision of, the undersigned.

2. **That** the technical data supplied with the application was taken under my direction and supervision.

3. **That** the data was obtained on representative units, randomly selected.

4. **That**, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.

Certifying Engineer: Morton Flom, P. Eng.