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## **VII. Electromagnetic Compatibility Radiated Emissions Requirements**

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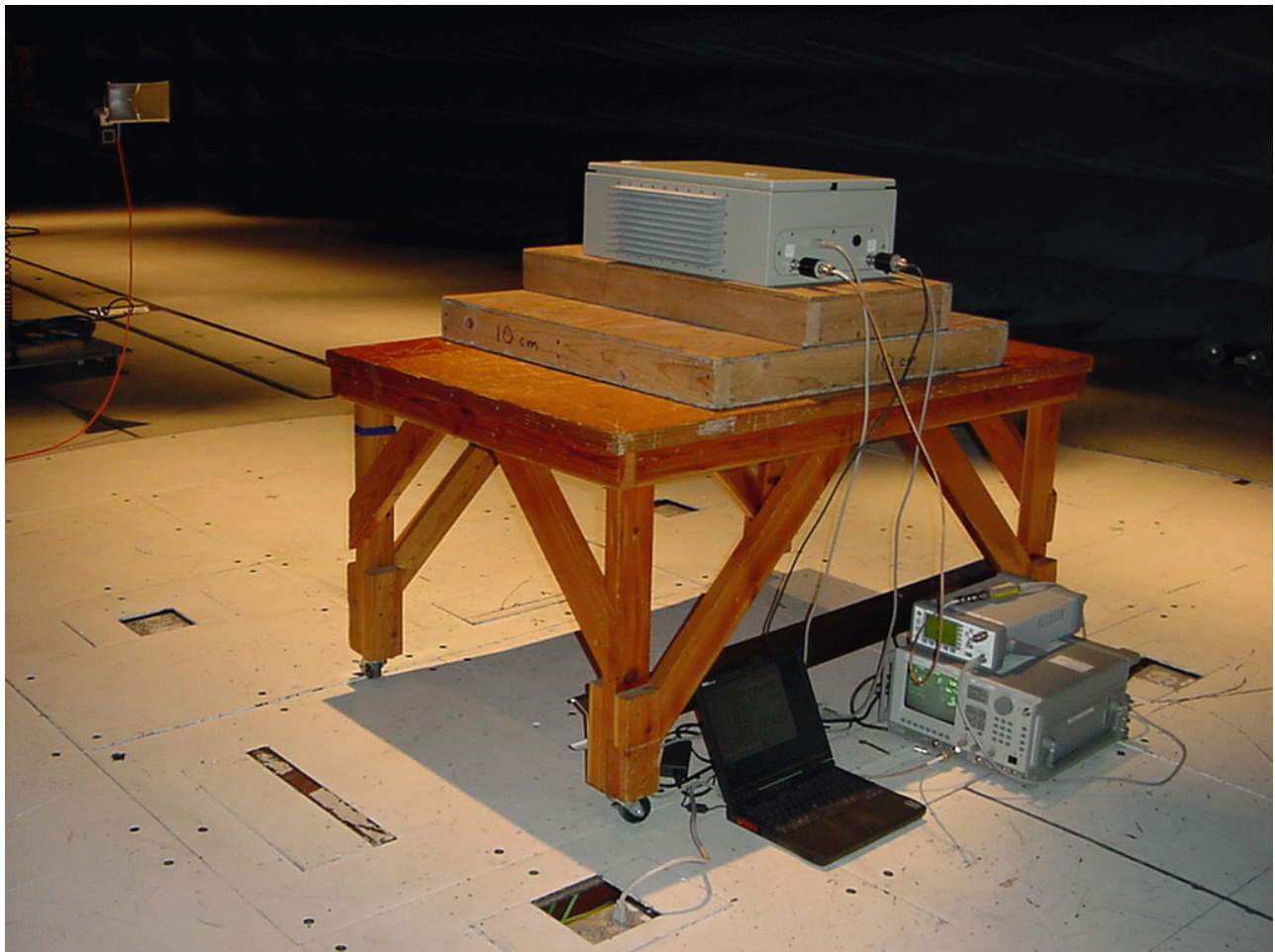
## VII. Electromagnetic Compatibility Radiated Emissions Requirements

### A. Radiated Emissions (Substitution Method)

**Technical Specifications:** §2.1053 and §90.210

**Test equipment:** Test equipment for Radiated Emissions (Substitution Method) is listed in Section X this report.

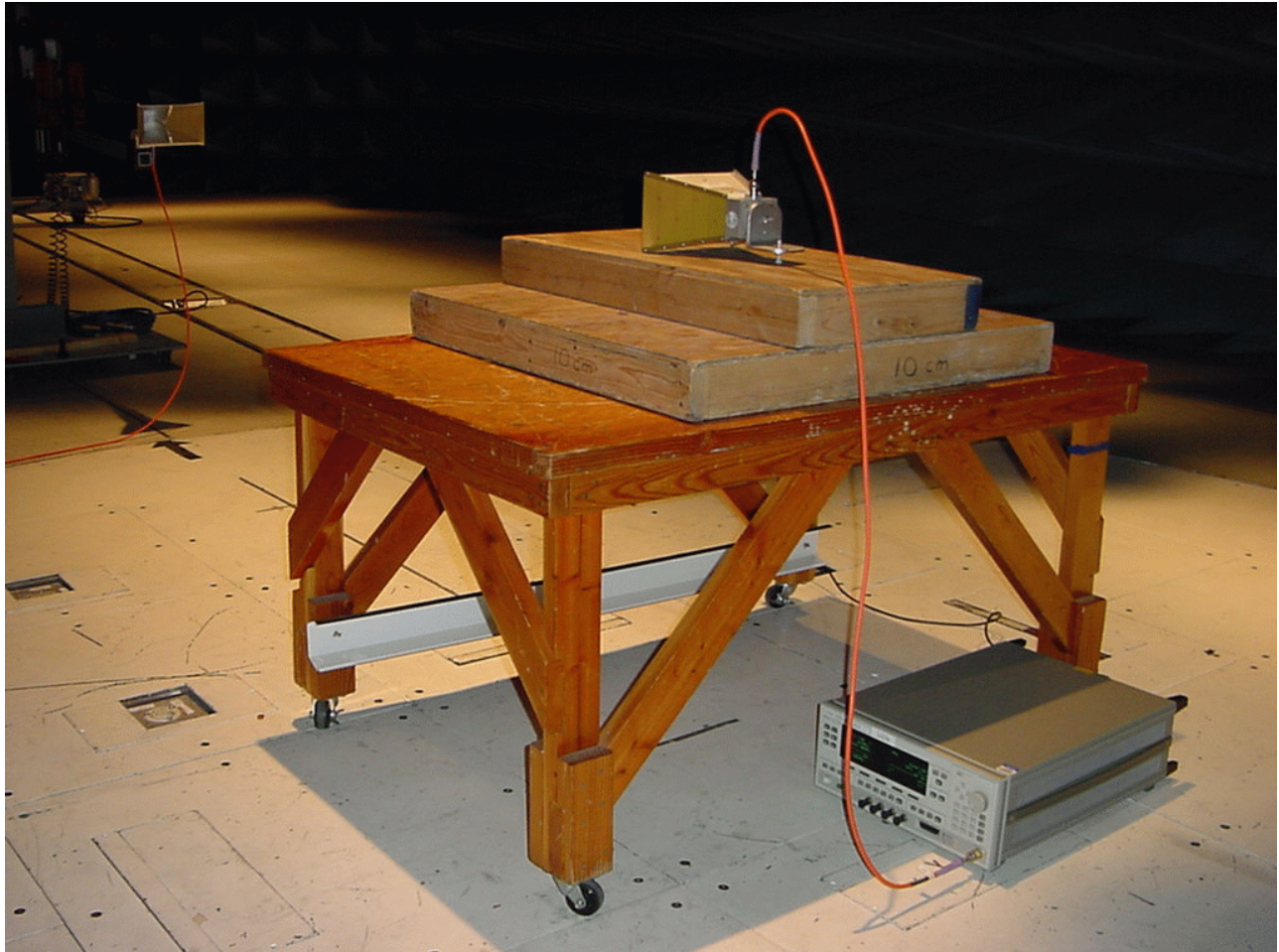
**Photograph:**



Photograph 5. Radiated Emissions Test Setup Photo (Substitution Method)

## VII. Electromagnetic Compatibility Radiated Emissions Requirements

Photograph:



Photograph 6. Radiated Emissions Test Setup Photo (Substitution)



## VII. Electromagnetic Compatibility Radiated Emissions Requirements

### Measurement

**Procedures:** As required by 47 CFR 2.1053, *field strength of radiated spurious measurements* were made in accordance with the procedures of TIA/EIA-603-A-2001 "Land Mobile FM or PM Communications Equipment Measurement and Performance Standards".

Radiated emission measurements were performed inside a 10 meter semi-anechoic chamber (equivalent to an Open Area Test Site). The distance between the EUT and the test antenna is 3 meter. The EUT RF ports was connected with a 1.2 meter SMA cable and terminated to 50 ohm load. The EUT was set to transmit in the middle of the operating frequency range. The iDEN signal generator was adjusted enough to produce maximum output power as specified in the owner's manual. To capture the full power spurious emissions, maximized each frequency by rotating the turntable to 360° and varying the test antenna from 1 to 4 meter height. Once the maximized emission is found, recorded the reading in a tabular format. These steps were repeated with horizontal polarization, for Uplink and Downlink.

Once all emissions are collected and recorded, replaced the EUT with a substitution antenna connected to a 1.5 meter 2.92 mm(K) cable and a signal generator. All test setup on the receiving side should be the same as it was when measuring the emissions of the EUT. Repeat all steps above except that the emissions will be compared with the signal generator's amplitude. Record reading in a tabular format.

The Radiated Spurious Emissions *Limit* is obtained by the following:

Measured Output Power of EUT: 3.55 Watts (PEP; Peak Envelope Power)

Spur limit =  $P_o - (43 + 10\log P_o)$ ;  $P_o = 3.55$  watts or 35.5 dBm

$$35.5\text{dBm} - (43 + 10\log 3.55) = 35.5\text{ dBm} - (48.5\text{ dB}) = -13\text{ dBm}$$

**Results:** Equipment complies with Section 2.1053 and 90.210. The following pages show measurements of emissions data sheet which is recorded below:

**VII. Electromagnetic Compatibility Radiated Emissions Requirements****Subject:** Radiated Emissions (Substitution Method) Test Results**Specification:** FCC Part 90 Subpart I, §2.1053 and §90.210

Frequency	Polarization	Spectrum Analyzer	Signal Generator	Cable Loss	Tx Ant. Gain	Gain	ERP	Limit	Margin
(MHz)	V/H or SNF	(dBuV)	(dBm)	(dB)	(dBi)	(dBd)	(dBm)	(dBm)	(dBm)
1627	V	59.5	-51	1	6.42	4.27	-47.73	-13	-34.73
1627	H	53.2	-57.3	1	6.42	4.27	-54.03	-13	-41.03
2440.5	SNF	-	-	-	-	-	-	-	-
3254	SNF	-	-	-	-	-	-	-	-
4067.5	SNF	-	-	-	-	-	-	-	-
4881	SNF	-	-	-	-	-	-	-	-
5694.5	SNF	-	-	-	-	-	-	-	-
6508	SNF	-	-	-	-	-	-	-	-
7321.5	SNF	-	-	-	-	-	-	-	-
8135	SNF	-	-	-	-	-	-	-	-

**Table 4. Uplink Middle Channel Test Results**

SNF = Spectrum Analyzer Noise Floor; H = Horizontal and V = Vertical

**Gain (dBd)** = Gain (dBi) - 2.15**ERP** = SG reading - CL + Gain (dBd)**Margin** = ERP - Limit**Test Engineer:** Kerwinn Corpuz**Test Date:** 04/24/03

**VII. Electromagnetic Compatibility Radiated Emissions Requirements****Subject:** Radiated Emissions (Substitution Method) Test Results**Specification:** FCC Part 90 Subpart J, §2.1053 and §22.917(e)

Frequency	Polarization	Spectrum Analyzer	Signal Generator	Cable Loss	Tx Ant. Gain	Gain	ERP	Limit	Margin
(MHz)	V/H or SNF	(dBuV)	(dBm)	(dB)	(dBi)	(dBd)	(dBm)	(dBm)	(dBm)
1717	V	57.3	-48	1.01	6.44	4.29	-44.72	-13	-31.72
1717	H	53.7	-53.3	1.01	6.44	4.29	-50.02	-13	-37.02
2575.5	SNF	-	-	-	-	-	-	-	-
3434	SNF	-	-	-	-	-	-	-	-
4292.5	SNF	-	-	-	-	-	-	-	-
5151	SNF	-	-	-	-	-	-	-	-
6009.5	SNF	-	-	-	-	-	-	-	-
6868	SNF	-	-	-	-	-	-	-	-
7726.5	SNF	-	-	-	-	-	-	-	-
8585	SNF	-	-	-	-	-	-	-	-

**Table 5. Downlink Middle Channel Test Results**

SNF = Spectrum Analyzer Noise Floor; H = Horizontal and V = Vertical

**Gain (dBd)** = Gain (dBi) - 2.15**ERP** = SG reading - CL + Gain (dBd)**Margin** = ERP - Limit**Test Engineer:** Kerwinn Corpuz**Test Date:** 04/24/03



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## **VIII. Electromagnetic Compatibility Frequency Stability Requirements**

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## VIII. Electromagnetic Compatibility Frequency Stability Requirements

### A. Frequency Stability

**Technical Specifications:** §2.1055 and §90.213

**Test equipment:** Test equipment for Frequency Stability is listed in Section X of this report.

**Photograph:**



Photograph 7. Frequency Stability (Temperature Variation) Test Setup Photo

## VII. Electromagnetic Compatibility Frequency Stability Requirements

Photograph:



Photograph 8. Frequency Stability (Voltage Variation) Test Setup Photo



## VIII. Electromagnetic Compatibility Frequency Stability Requirements

### Measurement

**Procedures:** As required by 47 CFR 2.1055 and 90.213, *frequency stability measurements* were made at the RF output terminals using a 25-watt 30 dB attenuator connected with 1.5 meter 2.92 mm(K) cable to a Spectrum Analyzer.

EUT was placed in the Temperature Chamber and support equipments are outside the chamber on a table. Set a 50.7 dB Reference Level Offset and RBW = VBW = 100 Hz to Spectrum Analyzer. BW was set to 100 Hz to show the frequency values in hertz from the Spectrum Analyzer. A CW signal generator was substituted from an iDEN generator. The EUT was set to transmit in the middle of the operating frequency range. The CW signal generator was adjusted enough to produce maximum output power as specified in the owner's manual. Frequency drift was investigated for every 10°C increment until the unit is stabilized then recorded the reading in tabular format with the temperature range of -30° to 60°C.

Voltage supplied to EUT is 120 Vac.

Reference temperature was done at 20°C with frequency of 813.5 MHz (Uplink) and 858.5 MHz (Downlink) with power output of 35.5 dBm (PEP).

Mobile Transmitter Limit:  $2.5\text{ppm} * 813.5 \text{ MHz} = 2033.75 \text{ Hz}$   
 $2.5\text{ppm} * 858.5 \text{ MHz} = 2146.25 \text{ Hz}$   
 $1.5\text{ppm} * 813.5 \text{ MHz} = 1220.25 \text{ Hz}$   
 $1.5\text{ppm} * 858.5 \text{ MHz} = 1287.75 \text{ Hz}$

**Results:** Equipment complies with Sections 2.1055 and 90.213. The following pages show measurements of frequency drift data sheet which is recorded below:

**VIII. Electromagnetic Compatibility Frequency Stability Requirements****Subject:** Frequency Stability Test Results**Specification:** FCC Part 90 Subpart I, §2.1055 and §90.213

Reference Power: 813.500151 MHz (Middle Channel) at 20°C

Temperature	Measured Freq.	Drift	Drift
(Celsius)	(MHz)	(Hz)	(ppm)
60	813.500143	-8	-0.010
50	813.500143	-8	-0.010
40	813.500143	-8	-0.010
30	813.500143	-8	-0.010
20	Reference		
10	813.500146	-5	-0.006
0	813.500146	-5	-0.006
-10	813.500150	-1	-0.001
-20	813.500150	-1	-0.001
-30	813.500148	-3	-0.004

**Table 6. Temperature Vs. Frequency Test Results**

Reference Frequency: 813.500151 MHz (Middle Channel) at 20°C

Temperature	Measured Freq.	Drift	Drift
(Celsius)	(MHz)	(Hz)	(ppm)
60	858.500156	6	0.007
50	858.500156	6	0.007
40	858.500151	1	0.001
30	858.50015	0	0.000
20	Reference		
10	858.500150	0	0.000
0	858.500150	0	0.000
-10	858.500150	0	0.000
-20	858.500150	0	0.000
-30	858.500150	0	0.000

**Table 7. Temperature Vs. Frequency Test Results****Test Engineer:** Kerwinn Corpuz**Test Date:** 04/25/03

**VIII. Electromagnetic Compatibility Frequency Stability Requirements****Subject:** Frequency Stability Test Results**Specification:** FCC Part 90 Subpart I, §2.1055 and §90.213

Reference Power: 35.5 dBm @ 813.500124 MHz with 120 Vac at 20°C

Measured Voltage(ac)	Measured Freq.	Drift	Drift	Measured Power
+/-15% of nominal	(MHz)	(Hz)	(ppm)	(dBm)
138	813.500131	7	0.009	35.5
102	813.500134	10	0.012	35.3

**Table 8. Frequency Vs. Voltage Test Results**

Reference Power: 35.5 dBm @ 858.500153 MHz with 120 Vac at 20°C

Measured Voltage(ac)	Measured Freq.	Drift	Drift	Measured Power
+/-15% of nominal	(MHz)	(Hz)	(ppm)	(dBm)
138	858.500150	-3	-0.003	35.5
102	858.500163	10	0.012	35.4

**Table 9. Frequency Vs. Voltage Test Results****Test Engineer:** Kerwinn Corpuz**Test Date:** 04/24/03



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## **IX. Electromagnetic Compatibility Transient Frequency Behavior Requirements**

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## IX. Electromagnetic Compatibility Transient Frequency Behavior Requirements

### A. Transient Frequency Behavior

**Technical Specifications:** §90.214

**Test equipment:** Test equipment for Transient Frequency Behavior is listed in Section X of this report.

**Measurement Procedures:** As required by 47 CFR 90.214, *Transient Frequency Behavior measurements* were made at the ON/OFF switch terminal.

**Results:** EUT is not required for this test. The EUT operating frequency is at 800 MHz.



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## **X. Test Equipment**

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**X. Test Equipment**

Calibrated test equipment utilized during testing was maintained in a current state of calibration per the requirements of ANSI/NCSL Z540-1-1994 and ANSI/ISO/IEC 17025:2000.

Test Name: RF Power Output				Test Date(s): 4/16/03	
MET ID #	EQUIPMENT	MANUFACTURER	MODEL #	LAST CAL	CAL DUE
-	LAPTOP	DELL	Latitude CPt	N/A	N/A
CUSTOMER EQUIPMENT	iDEN GENERATOR	MOTOROLA	R-2660	SEE NOTE	
CUSTOMER EQUIPMENT	iDEN GENERATOR	MOTOROLA	R-2660	SEE NOTE	
CUSTOMER EQUIPMENT	POWER DIVIDER	MINI CIRCUIT	15542	SEE NOTE	
CUSTOMER EQUIPMENT	25W 30dB ATTENUATOR	WEINSCHEL CORP.	46-30-34	SEE NOTE	
CUSTOMER EQUIPMENT	25W 30dB ATTENUATOR	WEINSCHEL CORP.	46-30-34	SEE NOTE	
1S2041	BI-DIRECTIONAL	NARDA	3020A	SEE NOTE	
1S2276	POWER METER	HEWLETT PACKARD	E4418B	28-AUG-02	28-AUG-03
1S2275	POWER SENSOR	HEWLETT PACKARD	8485A	26-AUG-02	26-AUG-03
1S2293	SPECTRUM ANALYZER	HEWLETT PACKARD	8564E	27-AUG-02	27-AUG-03
Test Name: Occupied Bandwidth				Test Date(s): 4/18/03	
MET ID #	EQUIPMENT	MANUFACTURER	MODEL #	LAST CAL	CAL DUE
-	LAPTOP	DELL	Latitude CPt	N/A	N/A
CUSTOMER EQUIPMENT	iDEN GENERATOR	MOTOROLA	R-2660	SEE NOTE	
CUSTOMER EQUIPMENT	iDEN GENERATOR	MOTOROLA	R-2660	SEE NOTE	
CUSTOMER EQUIPMENT	POWER DIVIDER	MINI CIRCUIT	15542	SEE NOTE	
CUSTOMER EQUIPMENT	25W 30dB ATTENUATOR	WEINSCHEL CORP.	46-30-34	SEE NOTE	
CUSTOMER EQUIPMENT	25W 30dB ATTENUATOR	WEINSCHEL CORP.	46-30-34	SEE NOTE	
1S2041	BI-DIRECTIONAL	NARDA	3020A	SEE NOTE	
1S2276	POWER METER	HEWLETT PACKARD	E4418B	28-AUG-02	28-AUG-03
1S2275	POWER SENSOR	HEWLETT PACKARD	8485A	26-AUG-02	26-AUG-03
1S2293	SPECTRUM ANALYZER	HEWLETT PACKARD	8564E	27-AUG-02	27-AUG-03
Test Name: Unwanted Emissions				Test Date(s): 4/21/03	
MET ID #	EQUIPMENT	MANUFACTURER	MODEL #	LAST CAL	CAL DUE
-	LAPTOP	DELL	Latitude CPt	N/A	N/A
CUSTOMER EQUIPMENT	iDEN GENERATOR	MOTOROLA	R-2660	SEE NOTE	
CUSTOMER EQUIPMENT	iDEN GENERATOR	MOTOROLA	R-2660	SEE NOTE	



Test Name: Unwanted Emissions					Test Date(s): 4/21/03
MET ID #	EQUIPMENT	MANUFACTURER	MODEL #	LAST CAL	CAL DUE
CUSTOMER EQUIPMENT	POWER DIVIDER	MINI CIRCUIT	15542	SEE NOTE	
CUSTOMER EQUIPMENT	25W 30dB ATTENUATOR	WEINSCHL CORP.	46-30-34	SEE NOTE	
CUSTOMER EQUIPMENT	25W 30dB ATTENUATOR	WEINSCHL CORP.	46-30-34	SEE NOTE	
1S2041	BI-DIRECTIONAL	NARDA	3020A	SEE NOTE	
1S2276	POWER METER	HEWLETT PACKARD	E4418B	28-AUG-02	28-AUG-03
1S2275	POWER SENSOR	HEWLETT PACKARD	8485A	26-AUG-02	26-AUG-03
1S2293	SPECTRUM ANALYZER	HEWLETT PACKARD	8564E	27-AUG-02	27-AUG-03
Test Name: Radiated Emissions (Substitution Method)					Test Date(s): 4/24/03
MET ID #	EQUIPMENT	MANUFACTURER	MODEL #	LAST CAL	CAL DUE
1S2293	SPECTRUM ANALYZER 9 kHz - 40 GHz	HEWLETT PACKARD	8564E	27-AUG-02	27-AUG-03
1S2278	SWEPT SIGNAL GENERATOR	AGILENT	83650B	27-AUG-02	27-AUG-03
1S2208	HORN ANTENNA	EMCO	3115	SEE NOTE	
1S2198	HORN ANTENNA	EMCO	3115	17-MAY-02	17-MAY-03
1S2121	PRE AMPLIFIER	HEWLETT PACKARD	8449B	16-SEP-02	16-SEP-03
--	HPF	MICRO-TRONICS	HPM13145	SEE NOTE	
1S2276	POWER METER	HEWLETT PACKARD	E4418B	28-SEP-02	28-SEP-03
1S2275	POWER SENSOR	HEWLETT PACKARD	8485A	26-SEP-02	26-SEP-03
CUSTOMER EQUIPMENT	iDEN GENERATOR	MOTOROLA	R-2660	SEE NOTE	
Test Name: Frequency Stability					Test Date(s): 4/24/03 & 4/25/03
MET ID #	EQUIPMENT	MANUFACTURER	MODEL #	LAST CAL	CAL DUE
--	LAPTOP	DELL	LATITUDE CPt	N/A	N/A
1S2293	SPECTRUM ANALYZER 9 kHz-40 GHz	HEWLETT PACKARD	8564E	27-AUG-02	27-AUG-03
1S2278	SWEPT SIGNAL GENERATOR	AGILENT	83650B	27-AUG-02	27-AUG-03
1S2276	POWER METER	HEWLETT PACKARD	E4418B	28-AUG-02	28-AUG-03
1S2275	POWER SENSOR	HEWLETT PACKARD	8485A	26-AUG-02	26-AUG-03
1S2041	COUPLER BI DIRECTIONAL COAXIAL	NARDA	N/A	SEE NOTE	
1S2066	VARIABLE TRANSFORMER	STACO	3PN2210	SEE NOTE	
1S2100	SERIES II MULTIMETER	FLUKE	77	18-SEP-02	18-SEP-03
1S2393	THERMO-HYGRO	RADIO SHACK	63-1031	14-OCT-02	14-OCT-03

**Table 10. Test Equipment**

Note: Functionally tested equipment is verified using calibrated instrumentation at the time of testing.



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## **XI. Certification Label & User's Manual Information**

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## XI. Certification Label & User's Manual Information

### A. Certification Information

The following is extracted from Title 47 of the Code of Federal Regulations, Part 2, Subpart I — Marketing of Radio frequency devices:

#### § 2.801 Radio-frequency device defined.

As used in this part, a radio-frequency device is any device which in its operation is capable of Emitting radio-frequency energy by radiation, conduction, or other means. Radio- frequency devices include, but are not limited to:

- (a) The various types of radio communication transmitting devices described throughout this chapter.
- (b) The incidental, unintentional and intentional radiators defined in Part 15 of this chapter.
- (c) The industrial, scientific, and medical equipment described in Part 18 of this chapter.
- (d) Any part or component thereof which in use emits radio-frequency energy by radiation, conduction, or other means.

#### § 2.803 Marketing of radio frequency devices prior to equipment authorization.

- (a) Except as provided elsewhere in this chapter, no person shall sell or lease, or offer for sale or lease (including advertising for sale or lease), or import, ship or distribute for the purpose of selling or leasing or offering for sale or lease, any radio frequency device unless:
  - (1) In the case of a device subject to certification, such device has been authorized by the Commission in accordance with the rules in this chapter and is properly identified and labeled as required by §2.925 and other relevant sections in this chapter; or
  - (2) In the case of a device that is not required to have a grant of equipment authorization issued by the Commission, but which must comply with the specified technical standards prior to use, such device also complies with all applicable administrative (including verification of the equipment or authorization under a Declaration of Conformity, where required), technical, labeling and identification requirements specified in this chapter.
- (d) Notwithstanding the provisions of paragraph (a) of this section, the offer for sale solely to business, commercial, industrial, scientific or medical users (but not an offer for sale to other parties or to end users located in a residential environment) of a radio frequency device that is in the conceptual, developmental, design or pre-production stage is permitted prior to equipment authorization or, for devices not subject to the equipment authorization requirements, prior to a determination of compliance with the applicable technical requirements *provided* that the prospective buyer is advised in writing at the time of the offer for sale that the equipment is subject to the FCC rules and that the equipment will comply with the appropriate rules before delivery to the buyer or to centers of distribution.



## XI. Certification Label & User's Manual Information

- (e)(1) Notwithstanding the provisions of paragraph (a) of this section, prior to equipment authorization or determination of compliance with the applicable technical requirements any radio frequency device may be operated, but not marketed, for the following purposes and under the following conditions:
- (i) Compliance testing;
  - (ii) Demonstrations at a trade show provided the notice contained in paragraph (c) of this section is displayed in a conspicuous location on, or immediately adjacent to, the device;
  - (iii) Demonstrations at an exhibition conducted at a business, commercial, industrial, scientific or medical location, but excluding locations in a residential environment, provided the notice contained in paragraphs (c) or (d) of this section, as appropriate, is displayed in a conspicuous location on, or immediately adjacent to, the device;
  - (iv) Evaluation of product performance and determination of customer acceptability, provided such operation takes place at the manufacturer's facilities during developmental, design or pre-production states; or
  - (v) Evaluation of product performance and determination of customer acceptability where customer acceptability of a radio frequency device cannot be determined at the manufacturer's facilities because of size or unique capability of the device, provided the device is operated at a business, commercial, industrial, scientific or medical user's site, but not at a residential site, during the development, design or pre-production stages.
- (e)(2) For the purpose of paragraphs (e)(1)(iv) and (e)(1)(v) of this section, the term *manufacturer's facilities* includes the facilities of the party responsible for compliance with the regulations and the manufacturer's premises, as well as the facilities of other entities working under the authorization of the responsible party in connection with the development and manufacture, but not the marketing, of the equipment.
- (f) For radio frequency devices subject to verification and sold solely to business, commercial, industrial, scientific and medical users (excluding products sold to other parties or for operation in a residential environment), parties responsible for verification of the devices shall have the option of ensuring compliance with the applicable technical specifications of this chapter at each end user's location after installation, provided that the purchase or lease agreement includes a proviso that such a determination of compliance be made and is the responsibility of the party responsible for verification of the equipment.

**The following is extracted from Title 47 of the Code of Federal Regulations, Part 2, Subpart J — Equipment Authorization Procedures:**

### § 2.901 Basis and Purpose

- (a) In order to carry out its responsibilities under the Communications Act and the various treaties and international regulations, and in order to promote efficient use of the radio spectrum, the Commission has developed technical standards for radio frequency equipment and parts or components thereof. The technical standards applicable to individual types of equipment are found in that part of the rules governing the service wherein the equipment is



## **XI. Certification Label & User's Manual Information**

to be operated.<sup>1</sup> In addition to the technical standards provided, the rules governing the service may require that such equipment be verified by the manufacturer or importer, be authorized under a Declaration of Conformity, or receive an equipment authorization from the Commission by one of the following procedures: certification or registration.

- (b) The following sections describe the verification procedure, the procedure for a Declaration of Conformity, or the procedures to be followed in obtaining certification from the Commission and the conditions attendant to such a grant, whichever is applicable.

### **§ 2.907 Certification.**

- (a) Certification is an equipment authorization issued by the Commission, based on representation and test data submitted by the applicant.
- (b) Certification attaches to all units subsequently marketed by the grantee which are identical (see Section 2.908) to the sample tested except for permissive changes or other variations authorized by the Commission pursuant to Section 2.1043.

### **§ 2.948 Description of measurement facilities.**

- (a) Each party making measurements of equipment that is subject to an equipment authorization under Part 15 or Part 18 of this chapter, regardless of whether the measurements are filed with the Commission or kept on file by the party responsible for compliance of equipment marketed within the U.S. or its possessions, shall compile a description of the measurement facilities employed.
  - (1) If the measured equipment is subject to the verification procedure, the description of the measurement facilities shall be retained by the party responsible for verification of the equipment.
  - (i) If the equipment is verified through measurements performed by an independent laboratory, it is acceptable for the party responsible for verification of the equipment to rely upon the description of the measurement facilities retained by or placed on file with the Commission by that laboratory. In this situation, the party responsible for the verification of the equipment is not required to retain a duplicate copy of the description of the measurement facilities.
  - (ii) If the equipment is verified based on measurements performed at the installation site of the equipment, no specific site calibration data is required. It is acceptable to retain the description of the measurement facilities at the site at which the measurements were performed.

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<sup>1</sup>In this case, the equipment is subject to the rules of Part 15. More specifically, the equipment falls under Subpart C (of Part 15), which deals with intentional radiators.



## **XI. Certification Label & User's Manual Information**

- (2) If the equipment is to be authorized by the Commission under the certification procedure, the description of the measurement facilities shall be filed with the Commission's Laboratory in Columbia, Maryland. The data describing the measurement facilities need only be filed once but must be updated as changes are made to the measurement facilities or as otherwise described in this section. At least every three years, the organization responsible for filing the data with the Commission shall certify that the data on file is current.

### **B. Label and User's Manual Information**

The following is extracted from Title 47 of the Code of Federal Regulations, Part 15, Subpart A — General:

#### **§ 15.19 Labeling requirements.**

- (a) In addition to the requirements in Part 2 of this chapter, a device subject to certification or verification shall be labeled as follows:
  - (1) Receivers associated with the operation of a licensed radio service, e.g., FM broadcast under Part 73 of this chapter, land mobile operation under Part 90, etc., shall bear the following statement in a conspicuous location on the device:

This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.
  - (2) A stand-alone cable input selector switch, shall bear the following statement in a conspicuous location on the device:

This device is verified to comply with Part 15 of the FCC Rules for use with cable television service.
  - (3) All other devices shall bear the following statement in a conspicuous location on the device:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
  - (4) Where a device is constructed in two or more sections connected by wires and marketed together, the statement specified under paragraph (a) of this section is required to be affixed only to the main control unit.
  - (5) When the device is so small or for such use that it is not practicable to place the statement specified under paragraph (a) of this section on it, the information required by this paragraph shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed. However, the FCC identifier or the unique identifier, as appropriate, must be displayed on the device.



## **XI. Certification Label & User's Manual Information**

### **§ 15.21 Information to user.**

The users manual or instruction manual for an intentional or unintentional 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.

The following is extracted from Title 47 of the Code of Federal Regulations, Part 15, Subpart B — Unintentional Radiators:

### **§ 15.105 Information to the user.**

- (a) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



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**END OF REPORT**

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