toll-free: (866)311-3268 http://www.flomlabs.com info@flomlabs.com

Date: November 15, 2006

Federal Communications Commission

Via: Electronic Filing

Attention: **Authorization & Evaluation Division**

Applicant: Safe Zone, Inc. Equipment: CTD-1000 FCC ID: UQA CTD1000 FCC Rules: 90 Subpart F

Gentlemen:

On behalf of the Applicant, enclosed please find Application Form 731, Engineering Test Report and all pertinent documentation, the whole for approval of the referenced equipment as shown.

We trust the same is in order. Should you need any further information, kindly contact the writer who is authorized to act as agent.

Sincerely yours,

Hoosamuddin S. Bandukwala, Lab Director

enclosure(s) cc: Applicant HSB/hsb

http://www.flomlabs.com info@flomlabs.com

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On behalf of the Applicant, enclosed please find Application Form 731, Engineering Test Report and all pertinent documentation, the whole for approval of the referenced equipment as shown i.e.:

- a) Application Form
- b) Test Report (if applicable)
- c) Filing Fees
- d) Copy of Original Grant
- e) Expository Statement and/or letter by Applicant
- f) Photos (if applicable)
- g) Label Drawing (if changes have been made)

We trust the same is in order. Should you need any further information, kindly contact the writer who is authorized to act as agent.

Sincerely yours,

Hoosamuddin S. Bandukwala, Lab Director

enclosure(s) cc: Applicant HSB/hsb



http://www.flomlabs.com info@flomlabs.com

Transmitter Certification

of

Model: CTD-1000

to

Federal Communications Commission

Rule Part(s) 90 Subpart F

Date of report: November 15, 2006 Date of Revised Report: July 27, 2007

On the Behalf of the Applicant:

Safe Zone, Inc.

At the Request of:

Safe Zone, Inc. 7700 Ouray NW

Albuquerque, NM 87120

Attention of: Coda C. Roberson

President 505/833-1840 505/833-1842 FAX

c.roberson@robersonhomesabq.com

Supervised by:

Hoosamuddin S. Bandukwala, Lab Director



http://www.flomlabs.com info@flomlabs.com

List of Exhibits

(FCC Certification (Transmitters) - Revised 9/28/98)

Applicant: Safe Zone, Inc.

FCC ID: UQA CTD1000

By Applicant:

- 1. Letter of Authorization
- 2. Confidentiality Request: 0.457 And 0.459
- 3. Part 90.203(e) & (g) Attestation
- 4. Identification Drawings, 2.1033(c)(11)

Label

Location of Label

Compliance Statement

Location of Compliance Statement

- 5. Photographs, 2.1033(c)(12)
- 6. Documentation: 2.1033(c)
 - (3) User Manual
 - (9) Tune Up Info
 - (10)Schematic Diagram
 - (10)Circuit Description

Block Diagram

Parts List

Active Devices

7. RF Exposure - See User and Operational Manual.

By M.F.A. Inc.:

Α. **Testimonial & Statement of Certification**

Flom Test Labs 3356 North San Marcos Place, Suite 107 Chandler, Arizona 85225-7176 (866) 311-3268 phone, (480) 926-3598 fax



The Applicant has been cautioned as to the following:

15.21 **Information to the 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

Rule	Description	Page
2.1033(c)(14)	Rule Summary	2
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2.1046(a)	ERP Carrier Power (Radiated)	8
2.1046(a)	RF Power Output (Radiated)	8
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2.1053(a)	Field Strength of Spurious Radiation	13
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Required information per ISO/IEC Guide 25-1990, paragraph 13.2:

a) Test Report

b) Laboratory: M. Flom Associates, Inc.

(FCC: 31040/SIT) 3356 N. San Marcos Place, Suite 107

(Canada: IC 2044) Chandler, AZ 85225

c) Report Number: d06b0019

d) Client: Safe Zone, Inc.

7700 Ouray NW

Albuquerque, NM 87120

e) Identification: CTD-1000

EUT Description: Concealed Threat Detector (Radar)

f) EUT Condition: Not required unless specified in individual tests.

g) Report Date: November 15, 2006, revised July 3, 2007

EUT Received:

h, j, k): As indicated in individual tests.

i) Sampling method: No sampling procedure used.

I) Uncertainty: In accordance with MFA internal quality manual.

m) Supervised by:

Hoosamuddin S. Bandukwala, Lab Director

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.

Accessories used during testing:

Type Quantity Manufacturer Model Serial No. FCC ID



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, 2.1057, 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 24 - Personal Communications Services 25 - Personal Communications Services 26 - Personal Communications Services 27 - Stations in the Maritime Services 28 - Stations in the Maritime Services 28 - Subpart E - General Technical Standards 28 - Subpart F - Equipment Authorization for Compulsory Ships 28 - Subpart K - Private Coast Stations and Marine Utility Stations 29 - Subpart S - Compulsory Radiotelephone Installations for Small Passenger 29 - Subpart U - Radiotelephone Installations Required for Vessels on the Great 29 - Subpart W - Global Maritime Distress and Safety System (GMDSS) 20 - Aviation Services 21 - Private Operational Fixed Microwave Services	
	23 - International Fixed Public Radiocommunication services	
	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 Grea	
	80 Subpart U - Radiotelephone Installations Required by the Bridge-to-Brid	ge Act
	80 Subpart V - Emergency Position Indicating Radio Beacons (EPIRB'S)	
	80 Subpart W - Global Maritime Distress and Safety System (GMDSS)	
	80 Subpart X - Voluntary Radio Installations	
	87 - Aviation Services	
Х	90 Subpart F - Radiolocation Service	
	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	
	87 - Aviation Services 90 Subpart F - Radiolocation Service 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	
	97 - Amateur Radio Service	
	101 -Fixed Microwave Services	



Standard Test Conditions and Engineering Practices

A2LA

"A2LA has accredited Flom Test Labs, Inc. Chandler, AZ for technical competence in the field of Electrical 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 17025:2005 'General Requirements for the Competence of Testing and Calibration Laboratories' and any additional program requirements in the identified field of testing."

Please refer to www.a2la.org for current scope of accreditation.

Certificate Number: 2152.01



List of General Information Required for Certification

In Accordance with FCC Rules and Regulations, Volume II, Part 2 and to 90F

	rt 2.1033	10. a 0, . a 2 a a			
(c)(1):	(1): Name and Address of Applicant:				
		Safe Zone, Inc. 7700 Ouray NW Albuquerque, NM 87120			
	Manufacturer:				
		Safe Zone, Inc. 7700 Ouray NW Albuquerque, NM 87120			
(c)(2):	FCC ID: UQA CTD1000				
	Model Number:		CTD-1000		
(c)(3):	Instruction Manual(s):				
	Please se	ee attached exhibits			
(c)(4):	Type of Emission:		41M3PNAN		
(c)(5):	Frequency Range, MHz:		9.5 GHz to 10.55GHz		
(c)(6):	Power Rating, Watts: Switchable	Variable	.2 xN/A		
	FCC Grant Note:				
(c)(7):	Maximum Power Rating,	Watts:			
	DUT Results:		Passes x	Fails	



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 = .040 Collector Voltage, Vdc = 12.0 Supply Voltage, Vdc = 12.0

(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



Name of Test: Carrier Output Power (Conducted)

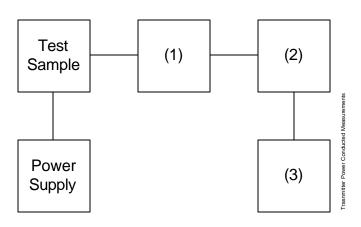
Specification: 47 CFR 2.1046(a)

Guide: TIA/EIA-603-C-2004, Paragraph 2.2.1

Measurement Procedure

- A) 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.
- B) Measurement accuracy is ±3%.

Transmitter Test Set-Up: RF Power Output



	Asset	Description	s/n	Cycle	Last Cal
(1) X	Coaxial i00231/2 i00122/3	Attenuator PASTERNACK PE7021-30 (30 dB) NARDA 766 (10 dB)	231 or 232 7802 or 7802A	N/A N/A	NCR NCR
(2) X	Power N i00321	Meters HP 8901A Power Mode	2239A02170	12 mo.	Sep-06
(3) X	Frequer	ncy Counter HP 8901A Frequency Mode	2239A02170	12 mo.	Sep-06



Name of Test:

Carrier Output Power (Conducted)

Measurement Results

(Worst case)

Frequency of Carrier, MHz

9.5 GHz, 10.14GHz, 10.550GHz

Ambient Temperature 23°C ± 3°C

Power Setting	Measured RF Power, Watts	Specified RF Power, Watts
Low Channel	0.110	0.2
	0.110	0.2
Mid Channel	0.135	0.2
High Channel	0.125	0.2

Performed by: Michael Wyman

Michael D Wyun



Name of Test: RF Power Output (Radiated)

Specification: 47 CFR 2.1046(a)

Test Equipment: As per attached page

Measurement Procedure (Radiated)

- 1. The EUT was placed on an open-field site and its radiated field strength at a known distance was measured by means of a spectrum analyzer. Equivalent loading was calculated from the equation $P_t=((E \times R)^2/49.2)$ watts, where R=3m.
- 2. Measurement accuracy is ±1.5 dB.

Measurement Results

g06a0125: 2006-Oct-19 Thu 11:25:00

Ambient Temperature: 23°C ± 3°C

Amps Mode:

	Frequency Tuned,	Frequency Emission,	Meter,	CF, dB	EIRP, dBm	
	MHz	MHz	dBuV/m			
	9500.000000	9500.0	35.04	49.3	-10.9	_
•	10000.000000	10000.0	32.54	49.3	-13.4	
	10550.000000	10550.0	35.74	49.3	-10.2	



Name of Test: Unwanted Emissions (Transmitter Conducted)

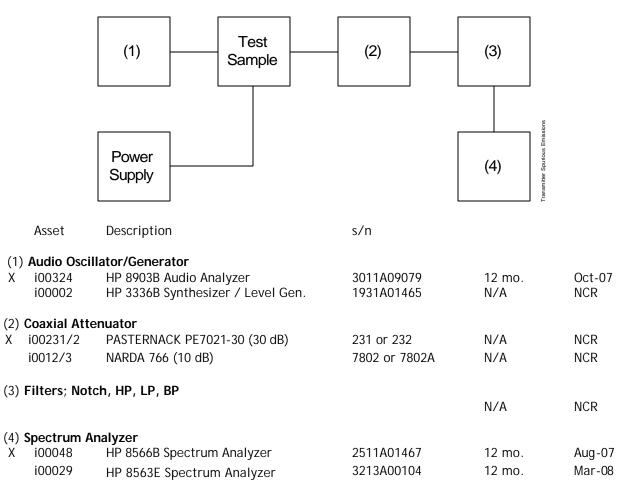
Specification: 47 CFR 2.1051

Guide: EIA-603-C-2004, Paragraph 2.2.13

Measurement Procedure

- A) The emissions were measured for the worst case as follows:
 - 1). within a band of frequencies defined by the carrier frequency plus and minus one channel.
 - 2). from the lowest frequency generated in the EUT and to at least the 10th harmonic of the carrier frequency, or 40 GHz, whichever is lower.
- B) The magnitude of spurious emissions that are attenuated more than 20 dB below the permissible value need not be specified.

Transmitter Test Set-Up: Spurious Emission





Name of Test: Unwanted Emissions (Transmitter Conducted)

Measurement Results

(Worst Case)

Summary:

Frequency of carrier, MHz = 9.5 GHz, 10.55 GHz

Spectrum Searched, GHz = $0 \text{ to } 10 \text{ x } F_C$

All Other Emissions = = 20 dB Below Limit

Limit(s), dBc

Calculations -(43+10xLOG P) (@.135watts) = 34.3 dBc

Tabulated Results follow:

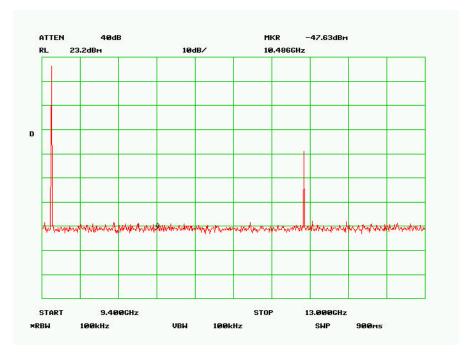
Measurement Results

Name of Test: Emission Masks (Occupied Bandwidth)

Measurement Results

g06b0042: 2006-Nov-09 Thu 11:14:00 Conducted Spurious 9.4 - 13.0 GHz

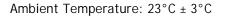
Ambient Temperature: 23°C ± 3°C

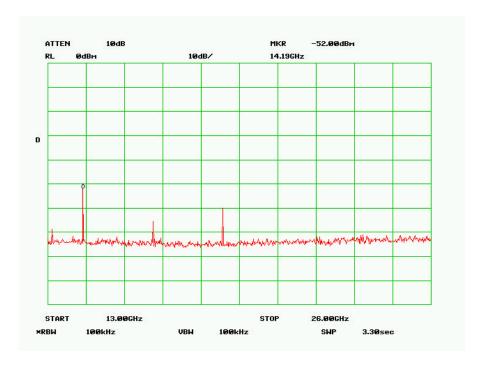


Power: HIGH Modulation: CW



g06b0042: 2006-Nov-09 Thu 11:14:00 Conducted Spurious 13.0 26.0 GHz



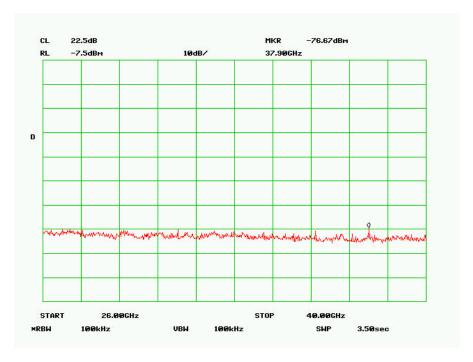


Power: HIGH Modulation: CW



g06b0042: 2006-Nov-09 Thu 11:14:00 Conducted Spurious 26.0 40.0 GHz

Ambient Temperature: 23°C ± 3°C



Power: Modulation: HIGH CW

Performed by:

Michael Boysel



Name of Test: Field Strength of Spurious Radiation

Specification: 47 CFR 2.1053(a)

Guide: TIA/EIA-603-C-2004, Paragraph 1.2.12 and Table 16,

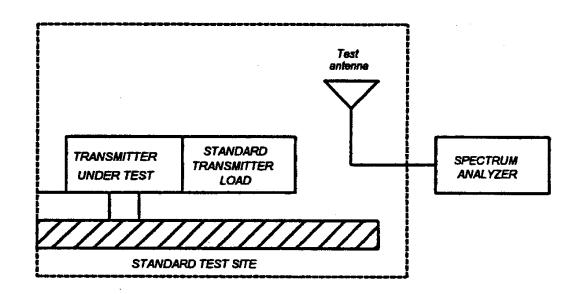
Measurement Procedure

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.

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 that is placed on the turntable. The RF cable to this load should be of minimum length.

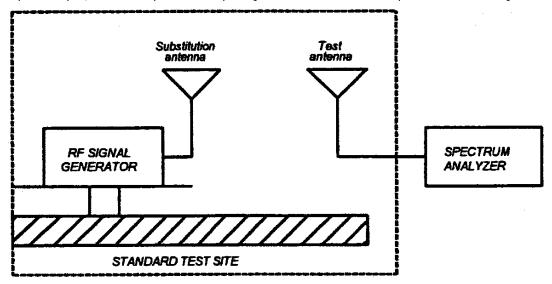




Name of Test:

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 \pm 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 =

10log₁₀(TX power in watts/0.001) - the levels in step I)

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

Test Equipment

	Asset	Description	s/n	Cycle	Last Cal
Trai	nsducer				
	88000i	EMCO 3109-B 25MHz-300MHz	2336	12 mo.	Oct-07
Χ	i00089	Aprel 2001 200MHz-1GHz	001500	12 mo.	Oct-07
Χ	i00103	EMCO 3115 1GHz-18GHz	9208-3925	12 mo.	Sep-06
Am	Amplifier				
Χ	i00028	HP 8449A	2749A00121	12 mo.	Jun-06
Spe	ctrum Analy	zer			
X	i00029	HP 8563E	3213A00104	12 mo.	Jan-06
Χ	i00033	HP 85462A	3625A00357	12 mo.	Oct-06
Substitution Generator					
Χ	i00067	HP 8920A Communication TS	3345U01242	12 mo.	Jun-07
	i00207	HP 8753D Network Analyzer	3410A08514	12 mo.	May-07



Name of Test:

Field Strength of Spurious Radiation

Measurement Results

STATE: Ambient Temperature: 23°C ± 3°C

Frequency Tuned, MHz Frequency Emission, MHz ERP, dBm ERP, dBc

Note: All emissions were at

least 20dB or more below the limit.

Performed by:

Michael Boysel



Name of Test: Emission Masks (Occupied Bandwidth)

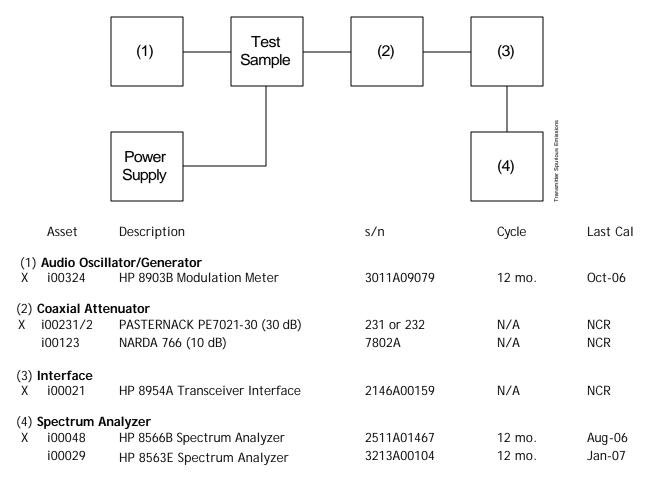
Specification: 47 CFR 2.1049(c)(1)

Guide: TIA/EIA-603-C-2004, Paragraph 2.2.11

Measurement Procedure

- A) The EUT and test equipment were set up as shown below
- B) For EUTs supporting audio modulation, the audio signal generator was adjusted to the frequency of maximum response and with output level set for $\pm 2.5/\pm 1.25$ kHz deviation (or 50% modulation). With level constant, the signal level was increased 16 dB.
- C) For EUTs supporting digital modulation, the digital modulation mode was operated to its maximum extent.
- D) The Occupied Bandwidth was measured with the Spectrum Analyzer controls set as shown on the test results.

Transmitter Test Set-Up: Occupied Bandwidth





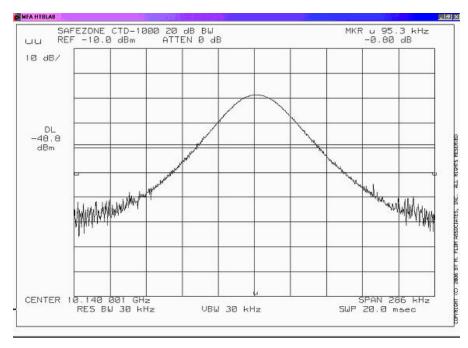
Name of Test:

Emission Masks (Occupied Bandwidth)

Measurement Results

g06b0042: 2006-Nov-09 Thu 11:14:00

Ambient Temperature: 23°C ± 3°C



Power: Modulation: HIGH 99% BW

Performed by:

Michael Boysel



Name of Test: Frequency Stability (Temperature Variation)

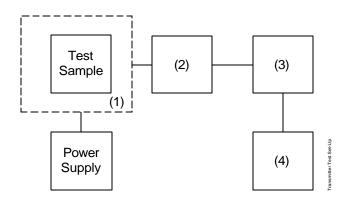
Specification: 47 CFR 2.1055(a)(1)

Guide: ANSI/TIA/EIA-603-C 2004, Paragraph 2.2.2

Measurement Procedure

- A) The EUT and test equipment were set up as shown on the following page.
- B) 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.
- C) 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.
- D) The temperature tests were performed for the worst case.

Transmitter Test Set-Up: Temperature Variation



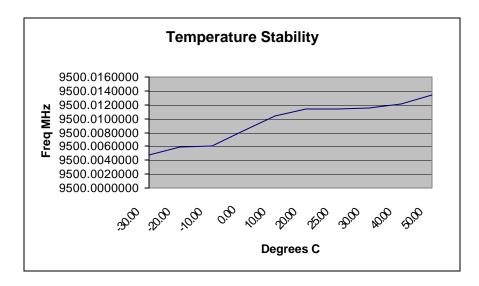
Asset	Description	s/n	Cycle	Last Cal
(1) Temperatu X i00027	re, Humidity, Vibration Tenney Temp. Chamber	9083-765-234	12 mo.	Sep-06
(2) Coaxial Atto X i00231/2 i00122/3	e nuator PASTERNACK PE7021-30 (30 dB) NARDA 766 (10 dB)	231 or 232 7802 or 7802A	N/A N/A	NCR NCR
(3) RF Power X i00067	HP 8920A Communications TS	3345U01242	12 mo.	Jun-07
(4) Frequency X i00067	Counter HP 8920A Communications TS	3345U01242	12 mo.	Jun-07



Name of Test: Frequency Stability (Temperature Variation)

Measurement Results

State: Ambient Temperature: 23°C ± 3°C



Frequency, Hz
9500004771
9500005870
9500006048
9500008259
9500010441
9500011326
9500011372
9500011499
9500012149
9500013461

Frequency 9500 MHz

Power high Modulation CW

END OF TEST REPORT



Testimonial and Statement of Certification

This is to Certify:

- 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:

Hoosamuddin S. Bandukwala, Lab Director