

## EXHIBIT 8

FIELD STRENGTH OF SPURIOUS RADIATION, Part 2.1053(b) (2)ALLOWABLE LIMIT, Per 80.211(f)

The attenuation referenced to amplitude P required on any frequency beyond 250 percent of the authorized bandwidth is  $43 + 10 \log(P)$ , where P = the mean power in watts in the authorized band. For the maximum rated power for this service (25 watts or +44 dBm), this formula results in an absolute spurious power limit of -13 dBm. [ $10 \log(25) = 14$ ,  $+ 43 = 57$ . Mean power (25 watts) = +44 dBm. +44 dBm - 57 dB = -13 dBm.]

FREQUENCY RANGE OF MEASUREMENTS, Part 2.1057:

Given that: (1) The spurious emissions tests of Exhibit 7 revealed no significant energy conducted to the antenna port below 20 MHz, (2) The device under test does not facilitate effective radiators for energy below 20 MHz (wavelength >15 m) and, (3) Measuring antennas are somewhat impractical for use below 20 MHz, the tester limited the search for spurious radiation to frequencies above 20 MHz. The test equipment used was capable of measurements up to 2000 MHz, which was the upper limit of the measurements made.

TEST PROCEDURE USED, Part 2.947(a) (2), 2.1041:

EIA/TIA SP-2218 Clause 2.2.12, (Similar to section 5 of EIA-152-B).

TEST EQUIPMENT LIST, 2.947(d):

See ACME site equipment list (Figure 8.6, Page 8-18).

MEASUREMENT PROCEDURE

General: Radiated spurious emissions are emissions from the equipment when transmitting into a non-radiating load on a frequency or frequencies which are outside a defined occupied bandwidth.

RADIATION TEST SITE INFORMATION: Please see Figure 8.4 (Page 8-7) for the radiation test site plan. Tests were performed at ACME Testing (Acme, WA) with the equipment inside of a 75-foot diameter (23m) non-metallic radome shelter. The site was on a level surface of uniform electrical characteristics, clear of metal objects and overhead wires. The site was situated in a rural area, largely free of undesired signals such as ignition noise and other transmitter emissions. The

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device under test (DUT) was placed on a 1 meter high platform resting on a turntable essentially flush with the groundplane. The platform was remotely controllable so the tester was able to search different radials about the device for undesired emissions. A conductive ground plane extended well beyond 3 meters away from both the DUT and the measuring antenna pole.

**MEASURING ANTENNA INFORMATION:** The measuring antenna in use was mounted to a non-conductive pole with a moveable horizontal boom. The boom permitted the tester to raise and lower the center of the measuring antenna from 1m to 4m above ground level. The pole was spaced such that the measuring antenna would be 3 meters from the DUT while the antenna was 1 meter above the groundplane. The measuring antenna feedline cable was laid horizontally with the boom back to the supporting mast where it continued downward to the spectrum analyzer positioned under the groundplane. A tabulation of attenuation versus frequency for the cables connected between the spectrum analyzer and the measuring antenna was prepared prior to testing. No reflecting objects were within 3 meters of either the DUT or the measuring antenna while measurements were made. Three different antennas were used for searching each frequency band of spurious measurements (See test equipment list). Each antenna used was linearly polarized and correlated to an equivalent dipole.

**EQUIPMENT INSTALLATION:** Please see Figure 8.5 (Page 8-8) for the equipment test setup. The transmitter had been tuned up on the desired test frequency. A 50 watt, 50 ohm dummy load was connected directly to the RF output port of the transmitter. This combined equipment was placed on the platform and power was applied. The power cable was draped over the platform and extended to within 0.1 meter of the groundplane. The power supply used to power the transmitter rested at ground level on the turntable.

**TEST FREQUENCIES:** Spurious radiation was examined with the transmitter operating on three separate frequencies. The lowest standard operating frequency (Chn 1A), a mid-band frequency (Chn 19) and the highest standard operating frequency (Chn 88). The respective frequencies were:

Channel 1A (156.050 MHz)  
Channel 19 (156.950 MHz)  
Channel 88 (157.425 MHz)

TEST PROCEDURE: For each frequency band of spurious measurement, the appropriate measuring antenna was installed. Testing for spurious emissions was performed at a distance of 3 meters. (At 3 meters, no spurious products were detectable in the range 20 to 156 MHz, so no 10 meter measurements were necessary.) For each spurious frequency of interest, the measuring antenna was raised and lowered on the mast to obtain a maximum reading on the spectrum analyzer with the measuring antenna horizontally polarized. The turntable was rotated to obtain a maximum reading. Each maximum reading was recorded. This process was repeated with the measuring antenna vertically polarized. All levels were recorded in dB<sub>V/m</sub> and then mathematically converted to the dipole equivalent ERP. The test site 3 meter field strength calibration is maintained on a regular basis by ACME Testing personnel in accordance with ANSI C63.4.

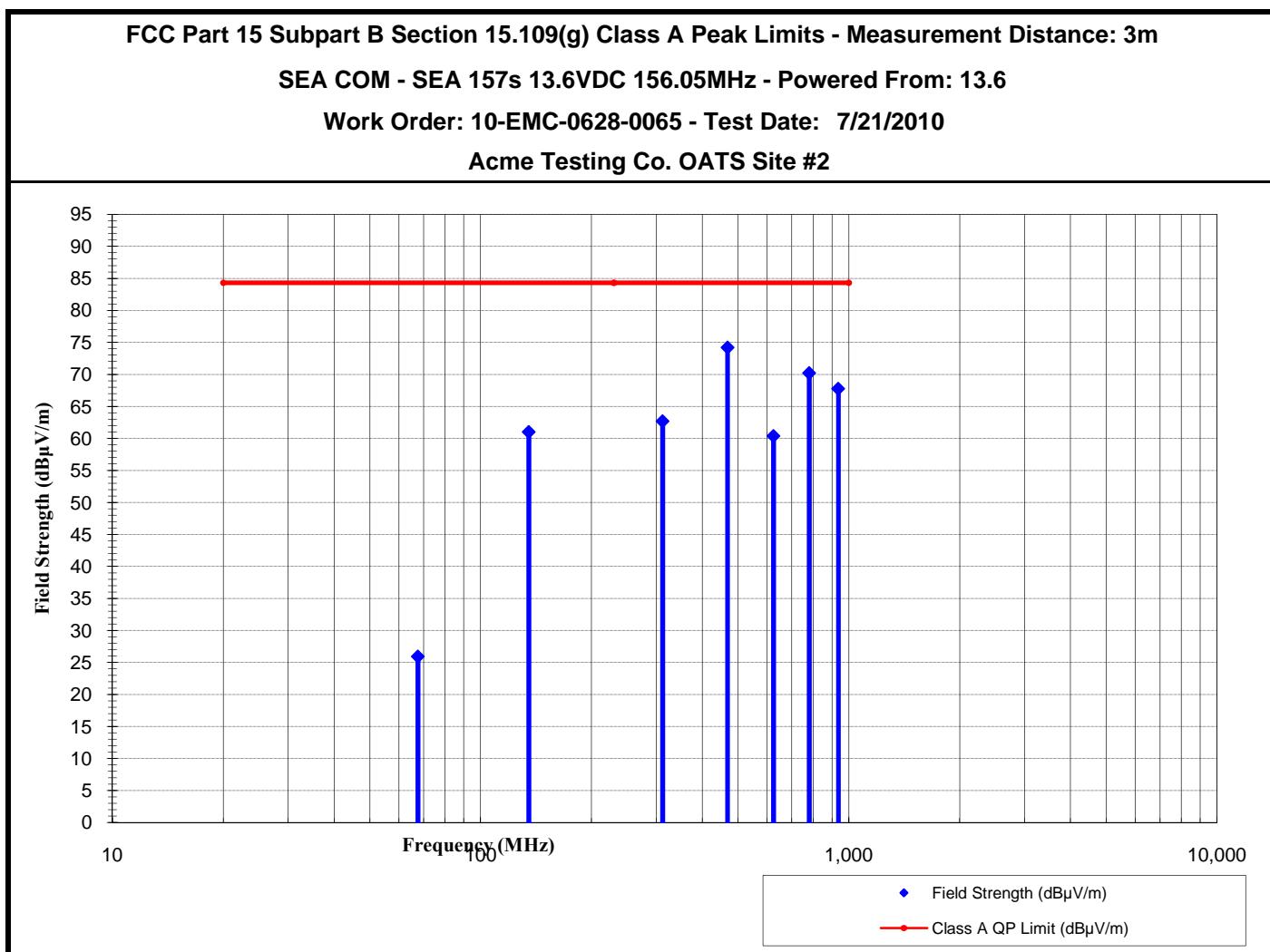
Frequencies investigated included but were not limited to the following:

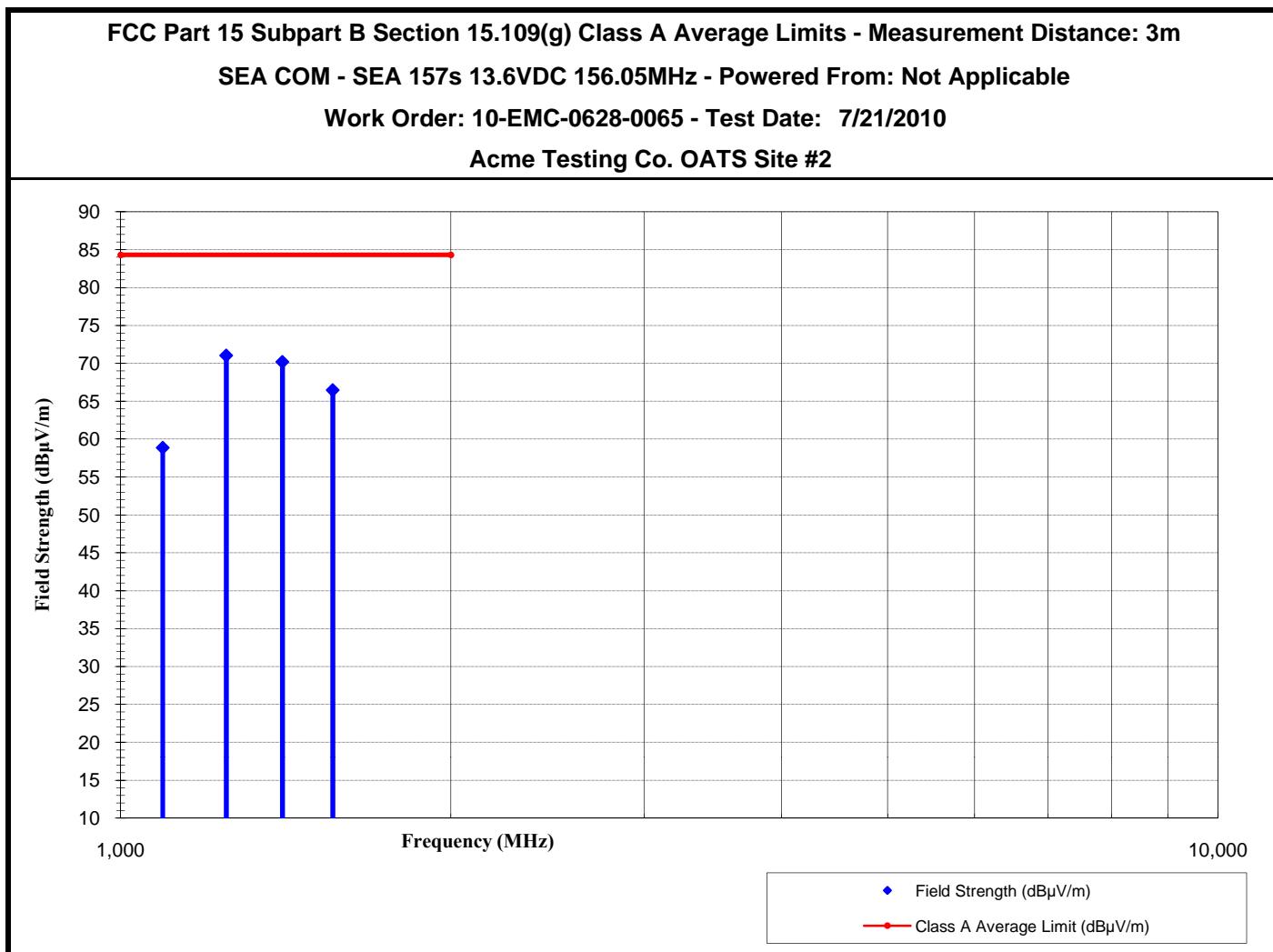
<u>Frequency</u>	<u>Description</u>
43.7, 65.55 MHz, etc.	Harmonics of master crystal oscillator
2fo, 3fo, etc.	Harmonics of the desired channel frequency up to the 9th
fo/2, fo/3, etc.	Subharmonics of the desired channel

RESULTS:

The pages 8-4 through 8-15 below are the Acme Testing computer generated printouts of the spurious signals found at the ACME testing site. Pages 8-4 thru 8-7 depict the spurious signals generated by Channel 1A (156.050 MHz), Pages 8-8 thru 8-11 illustrate similar data for Channel 19 (156.950 MHz) and Pages 8-12 thru 8-15 show data for Channel 88 (157.425 MHz).

Figure 8.1





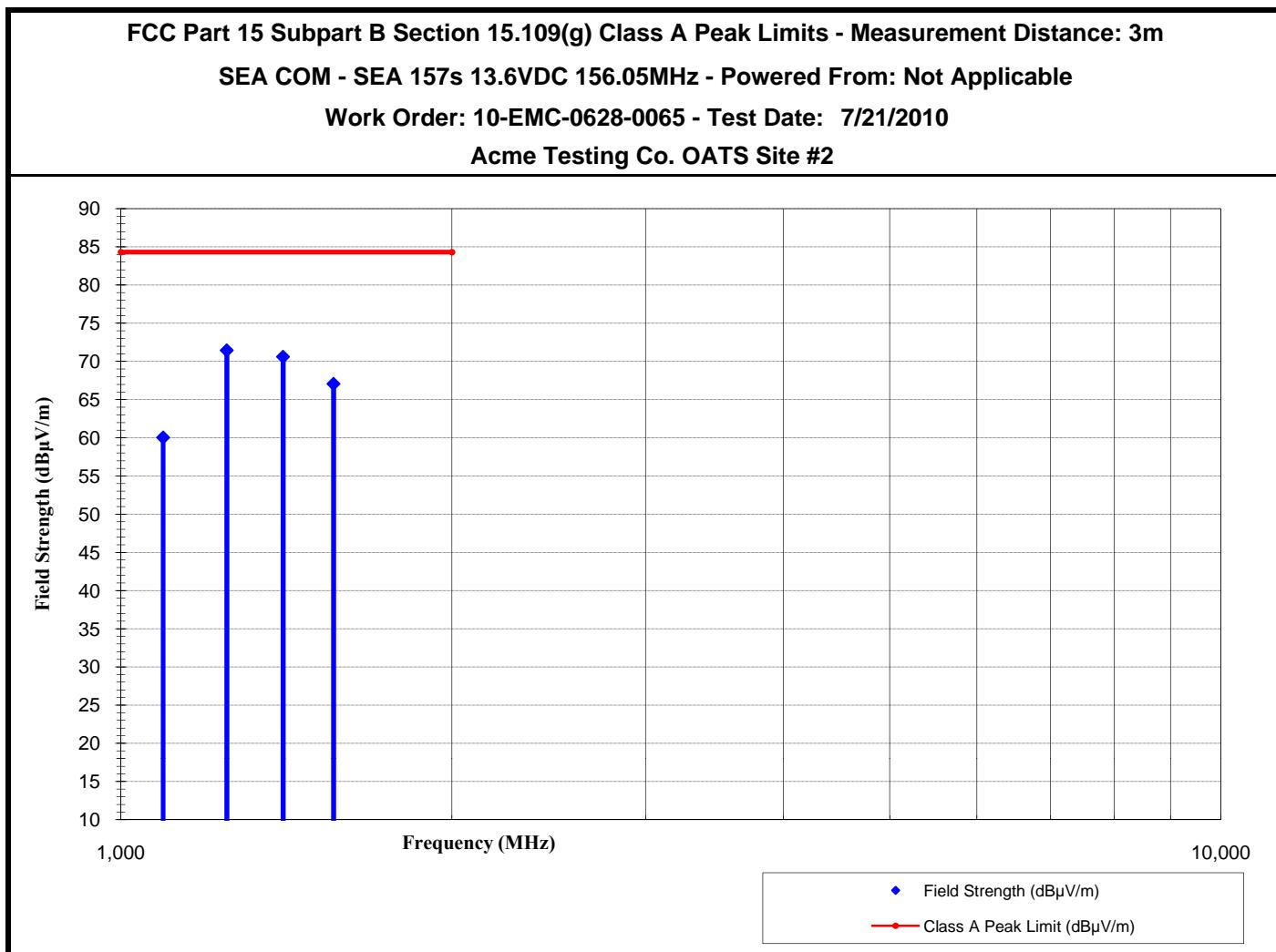
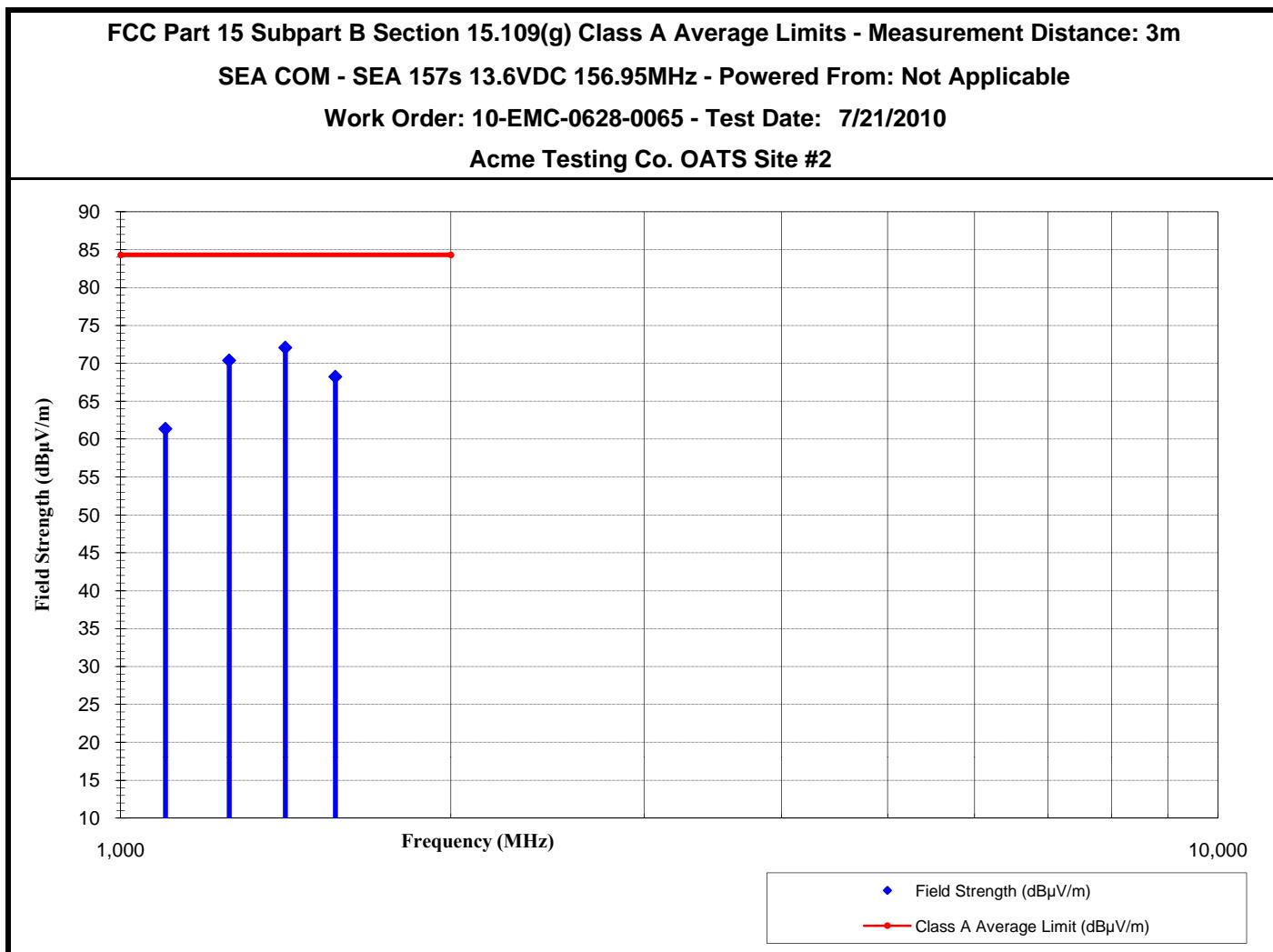


Figure 8.2





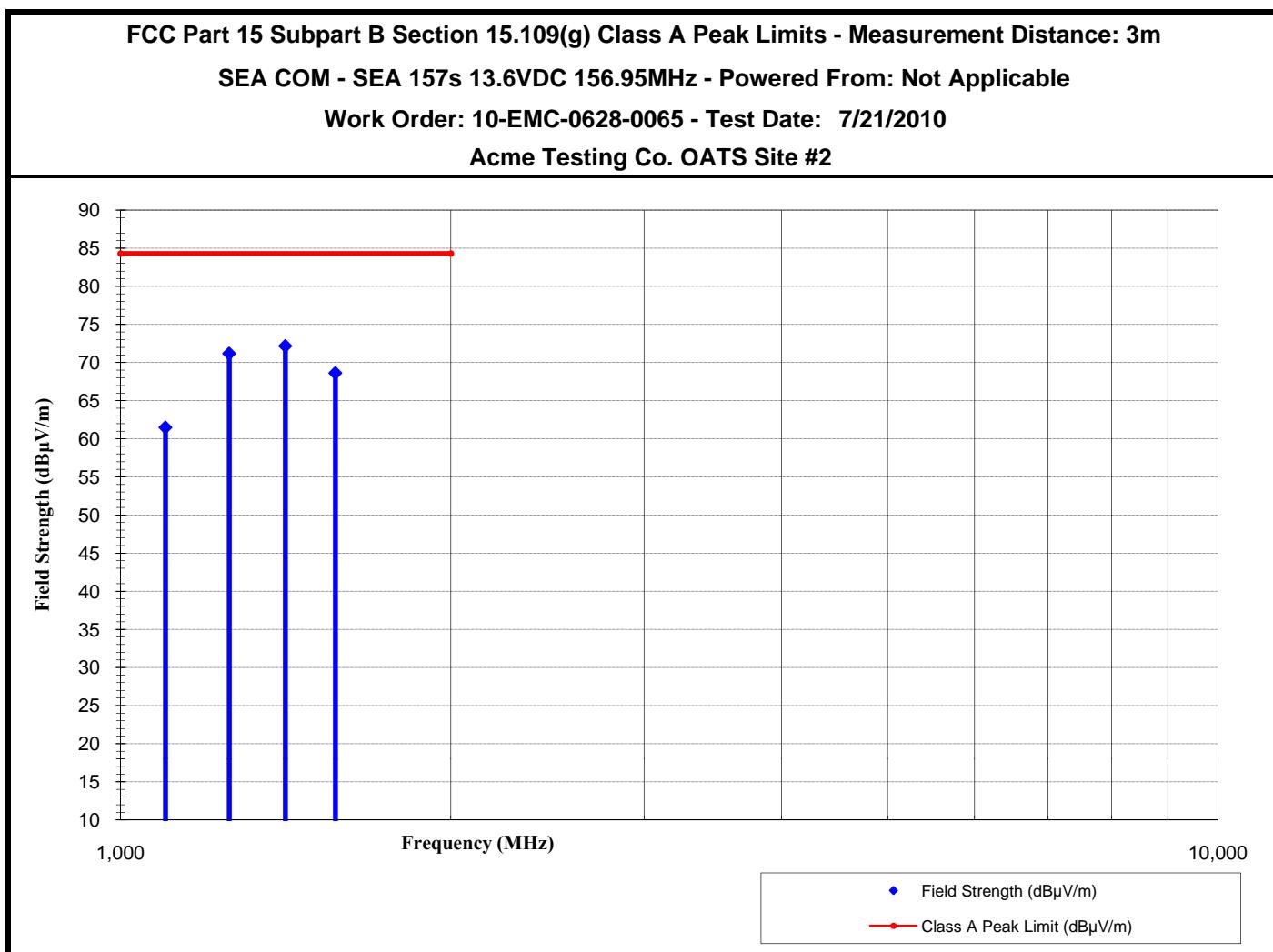
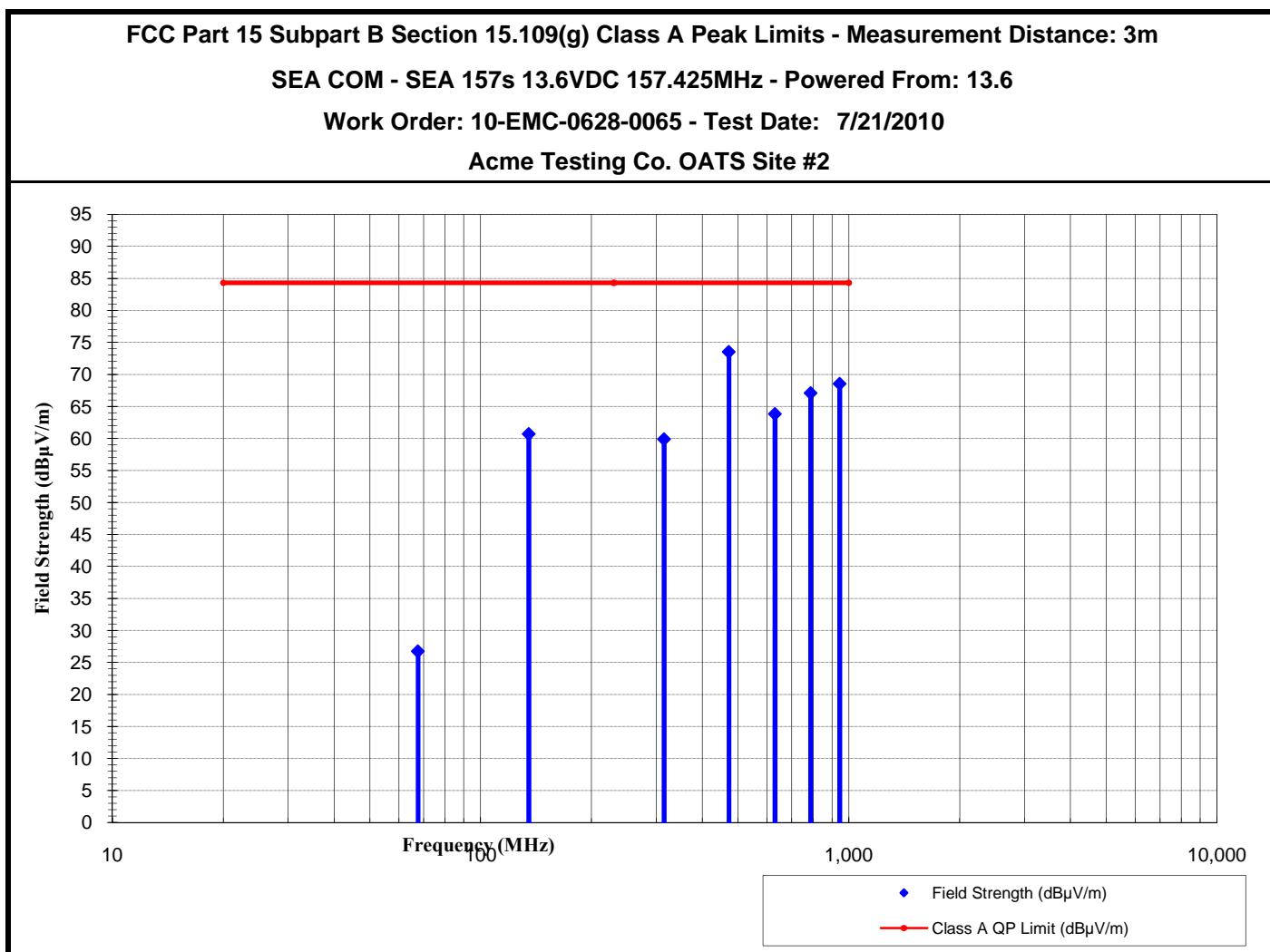


Figure 8.3

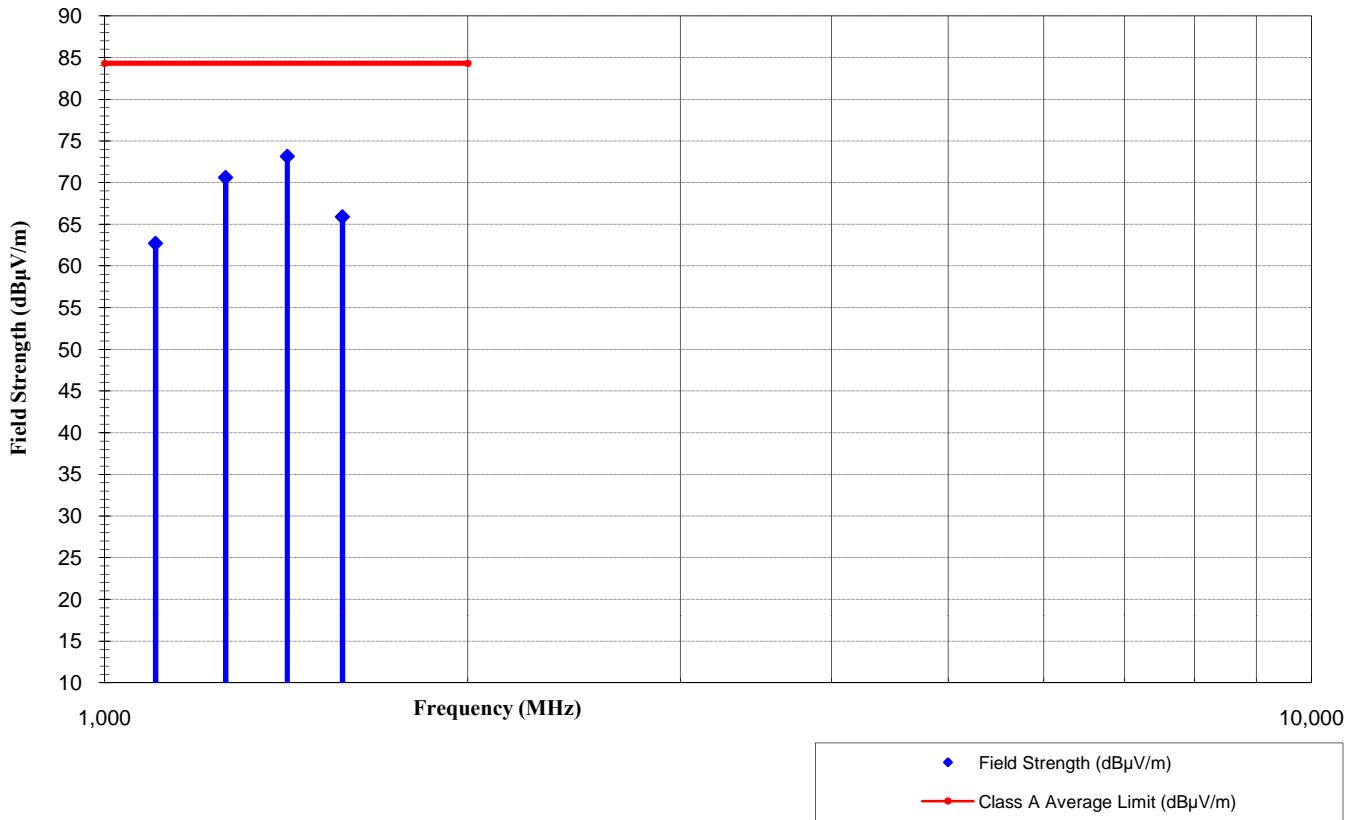


FCC Part 15 Subpart B Section 15.109(g) Class A Average Limits - Measurement Distance: 3m

SEA COM - SEA 157s 13.6VDC 157.425MHz - Powered From: Not Applicable

Work Order: 10-EMC-0628-0065 - Test Date: 7/21/2010

Acme Testing Co. OATS Site #2



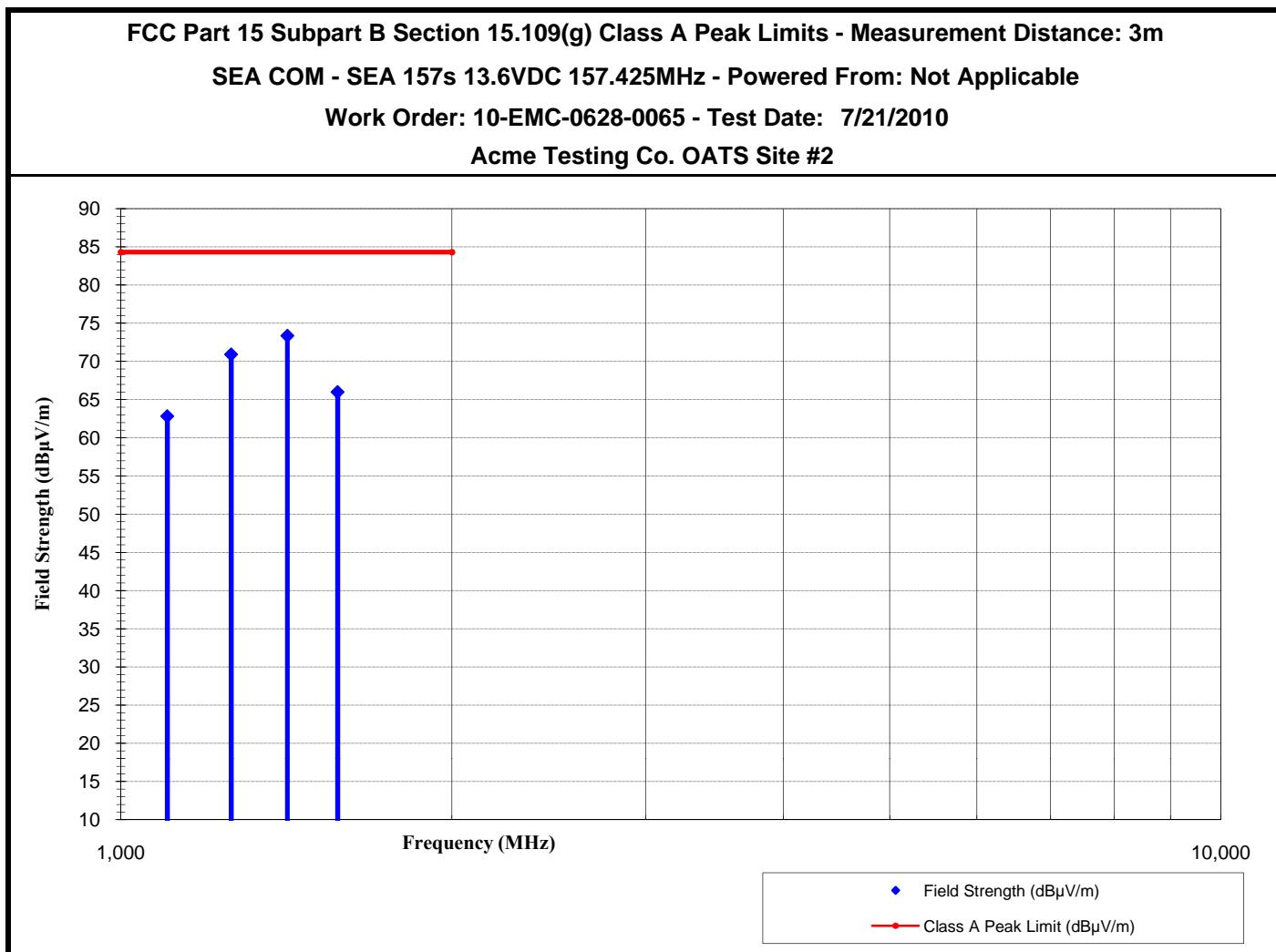


FIGURE 8.4  
ACME SITE PLAN

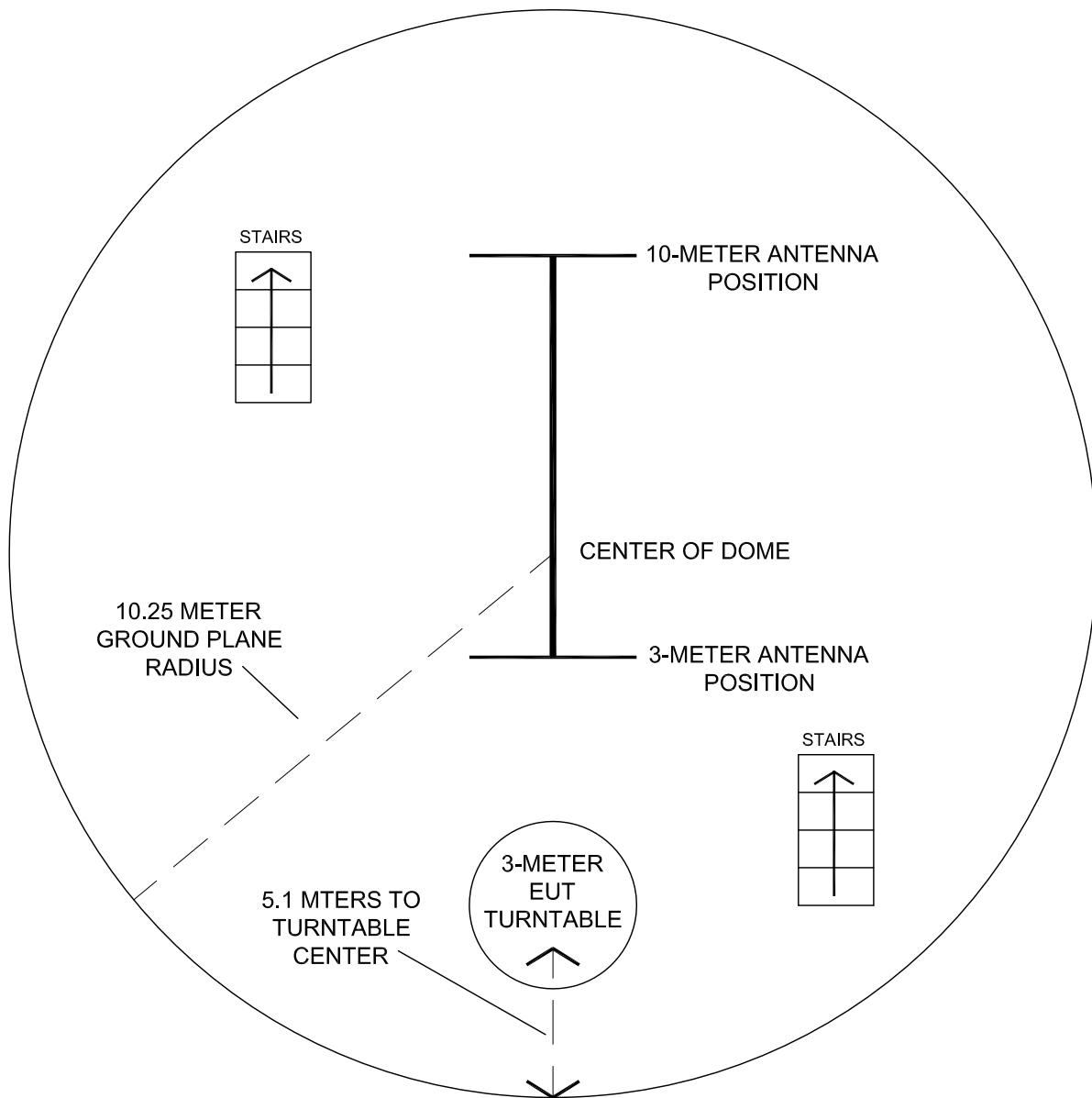
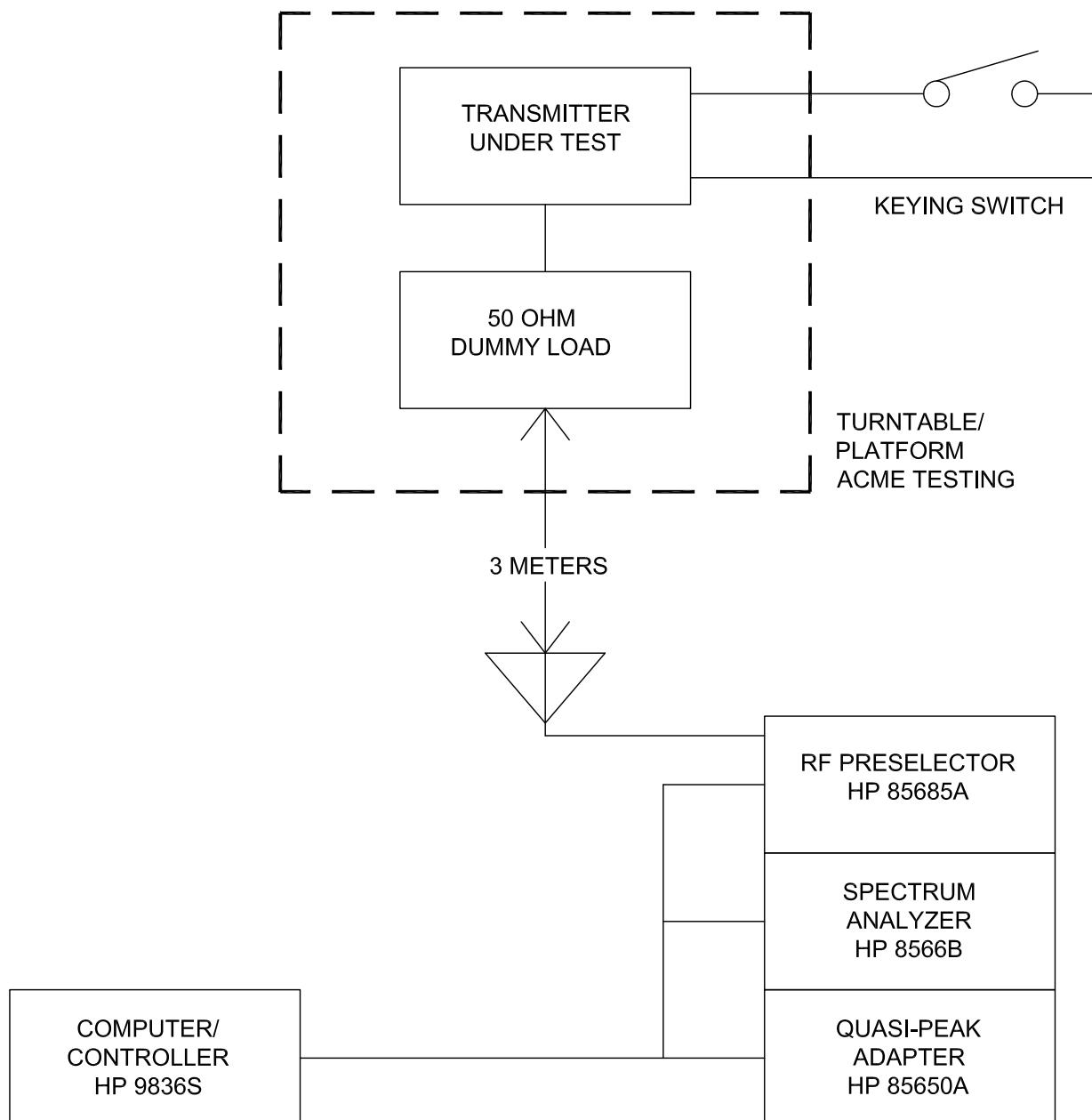


FIGURE 8.5

FIELD STRENGTH OF SPURIOUS RADIATION  
FIELD TEST SETUP  
2.1053



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Figure 8.6

Test Site: ACME TESTING Co.  
2002 Valley Hwy  
Acme, WA 98220

Phone: 888-226-3837  
Fax: 360-595-2722

Test Equipment used for testing SEA COM Corporation  
Model SEA 157S:

HP 8566B Spectrum Analyzer SN: 24103A00168  
Calibration due date: 10, Dec. 2010

HP 8566B Display SN: 2403A06499  
Calibration due date: 10, Dec. 2010

HP 85685A Preselector SN: 2468A00519  
Calibration due date: 10, Dec. 2010

HP Quasi Peak Adapter SN: 2043A00327  
Calibration due date: 10, Dec. 2010

EMCO 3110B Biconical Antenna SN: 9401-1384  
Calibration due date: 4, May 2011

EMCO 3146 Log Periodic Antenna SN: 9008-2852  
Calibration due date: 7, May 2011

ETS-Lindgren 3117 Horn Antenna SN: 75944  
Calibration due date: 6, May 2011

EMCO 1061-3M Turntable Position Controller SN: 9003-1441  
No calibration required

EMCO 1051 Antenna Mast Controller SN: 9002-1457  
No calibration required

FCC IDENTIFIER: YIBSEA157S

EXHIBIT 9

FREQUENCY STABILITY MEASUREMENTS, Part 2.1055

GENERAL:

All frequency stability measurements were performed with a transmitting frequency of 157.000 MHz (Chn 20A). No external modulation was applied to the transmitter. A HP 58503A laboratory frequency standard was connected to the frequency counter for all frequency measurements.

FREQUENCY STABILITY VS. TEMPERATURE, Part 2.1055(a) (b)

APPLICABLE RULE:

Part 80.209(a) : Frequency tolerance: Coast stations, 3 to 100 watts, 5 ppm; ship stations 10 ppm.

Part 90.213(6) : In the 150-174 MHz band, mobile stations designed to operate with a 12.5 kHz channel bandwidth or designed to operate on a frequency specifically designated for itinerant use or designed for low-power operation of two watts or less, must have a frequency stability of 5.0 ppm.

PROCEDURE:

The transmitter was enclosed in the environmental chamber. It was connected to and monitored by the equipment shown in the test setup diagram, Figure 9.1. The chamber was then lowered to -30 degrees C and sufficient time was allowed for the temperature to stabilize. The transmitter was keyed and its output frequency was recorded. The frequency was monitored for a period of time sufficient to observe any significant frequency change due to keying. The procedure was repeated in 10 degree C increments up to and including +55 degrees C. Both the thermometer and the thermocouple temperature sensing equipment indicated the desired temperature within 2 degrees C during all measurements.

RESULTS:

A plot of frequency versus temperature is presented in Figure 9.3 along with 5 ppm limit lines. There were no noticeable effects on the frequency due to keying.

FREQUENCY STABILITY VS. ELAPSED TIME AFTER PRIMARY VOLTAGE APPLICATION, Part 2.1055(c)

PROCEDURE:

The transmitter and associated test equipment were set up as shown in Figure 9.1. Primary power to the transmitter was removed. Chamber temperature was lowered to -20 degrees C and sufficient time was allowed for the temperature to stabilize. Primary power was applied to the transmitter. The transmitter was keyed and frequency measurements made every 30 seconds after power application until sufficient measurements were obtained to indicate clearly that the frequency had stabilized within the allowable tolerance. The procedure was repeated at 0 degrees C and +30 degrees C. The chamber temperature was maintained within 2 degrees C of the desired test temperature during all measurements.

RESULTS:

Please see Figures 9.4, 9.5, and 9.6 which are plots of frequency vs. time for -20 degrees C, 0 degrees C and +30 degrees C, respectively. Limit lines at 5 ppm are shown for convenience. As can be seen from the data, the frequency stability is immediately within acceptable limits and no transmitter warm-up time is required

FREQ. STABILITY VS. PRIMARY SUPPLY VOLTAGE, Part 2.1055(d)

PROCEDURE:

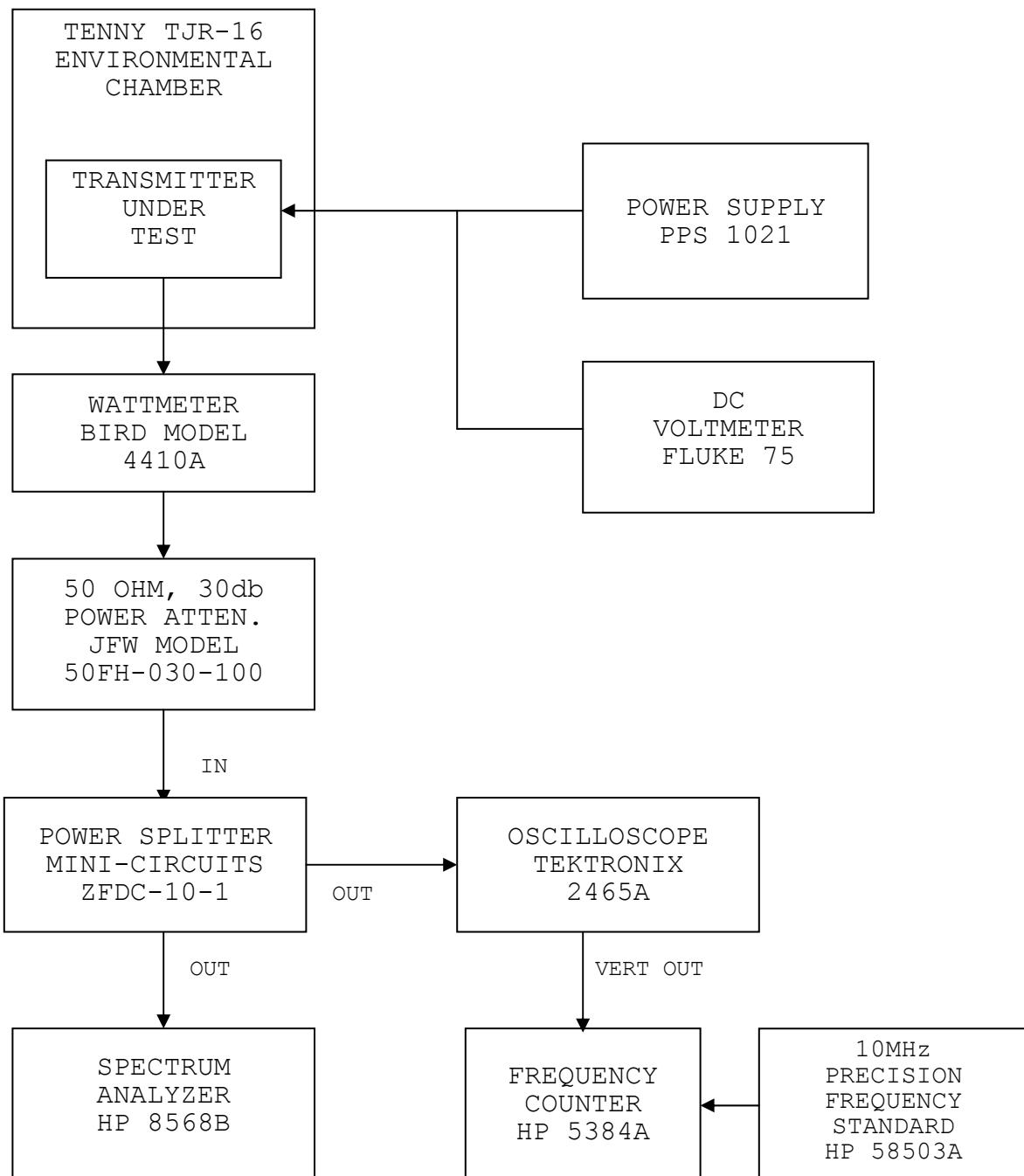
The transmitter and associated test equipment were setup as shown in Figure 9.2. The power cable normally supplied with the equipment was connected between the power supply and the transmitter. The power supply was set to 100% of the nominal 13.6Vdc supply voltage, the transmitter was keyed and the frequency recorded. The primary supply voltage was then varied from 85% to 115% of the nominal supply voltage in 5% increments. The time required for the transmitter frequency to stabilize after setting the power supply to each new voltage was negligible.

RESULTS:

Please refer to Figure 9.7 for the plot of frequency versus voltage. Once again, +/-5ppm limit lines are included on the plot. There were no noticeable effects on the frequency stability due to keying and un-keying of the transmitter.

FIGURE 9.1

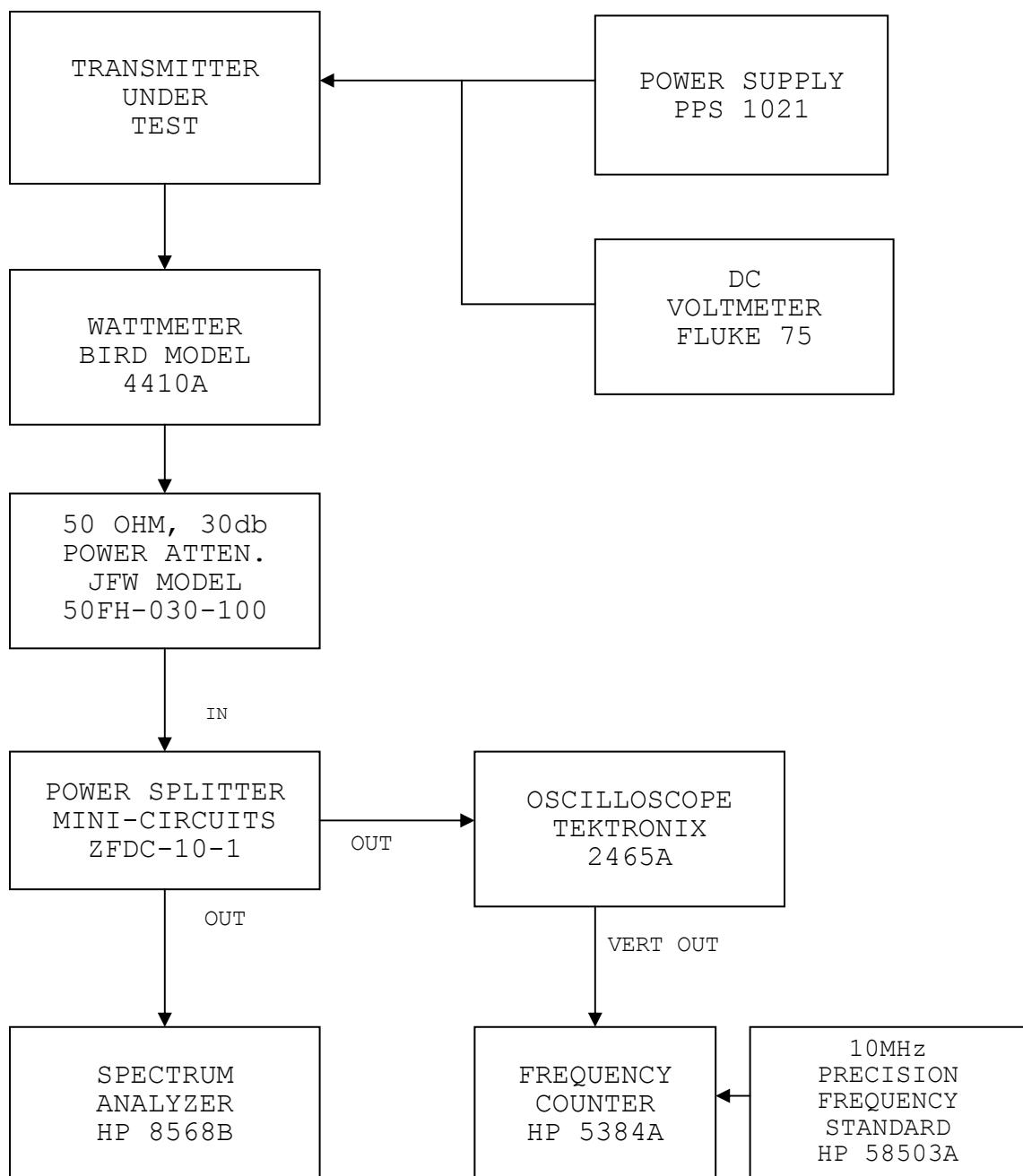
TEST SETUP  
FREQUENCY STABILITY VERSUS  
TEMPERATURE AND TIME  
80.209(a)

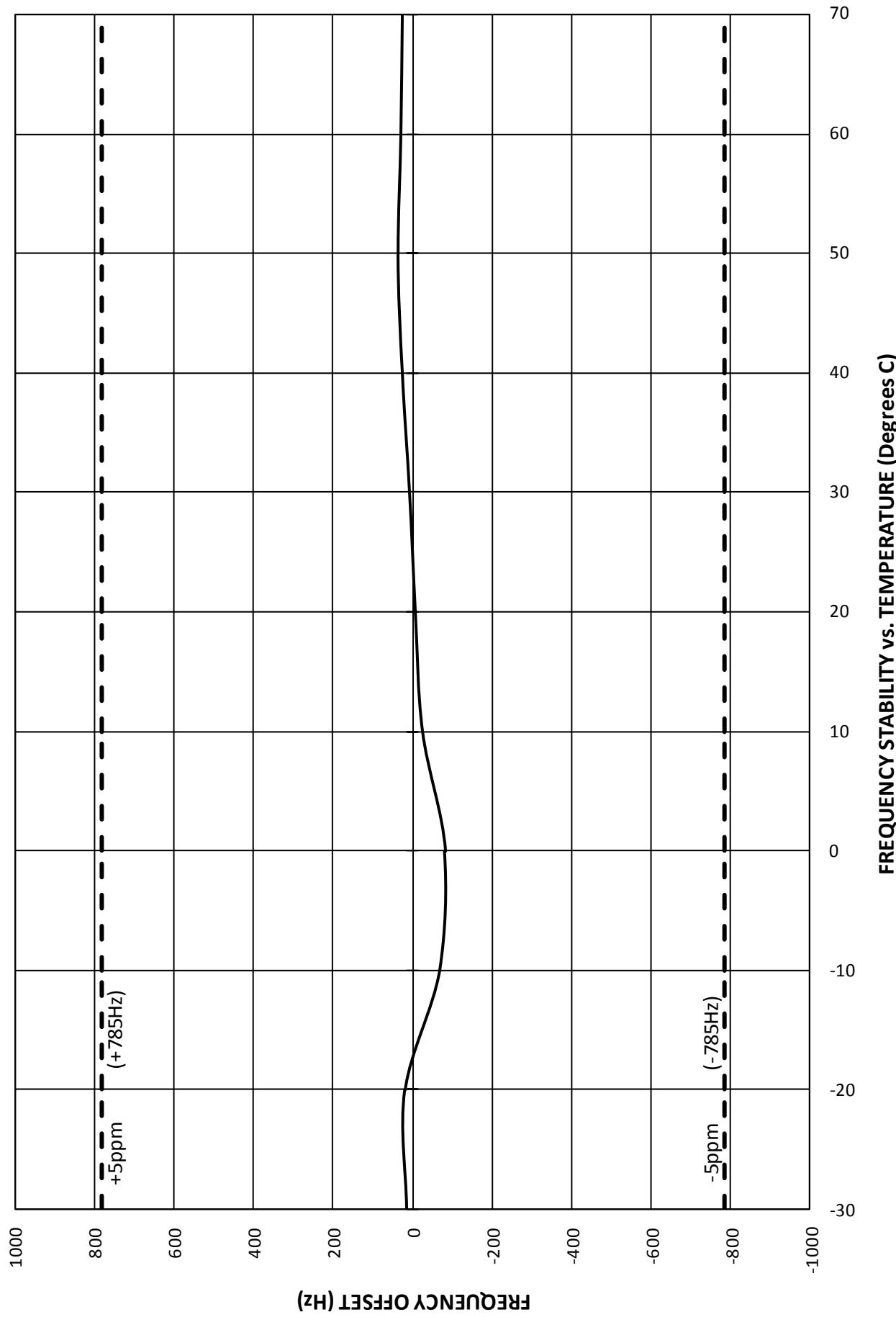


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FIGURE 9.2

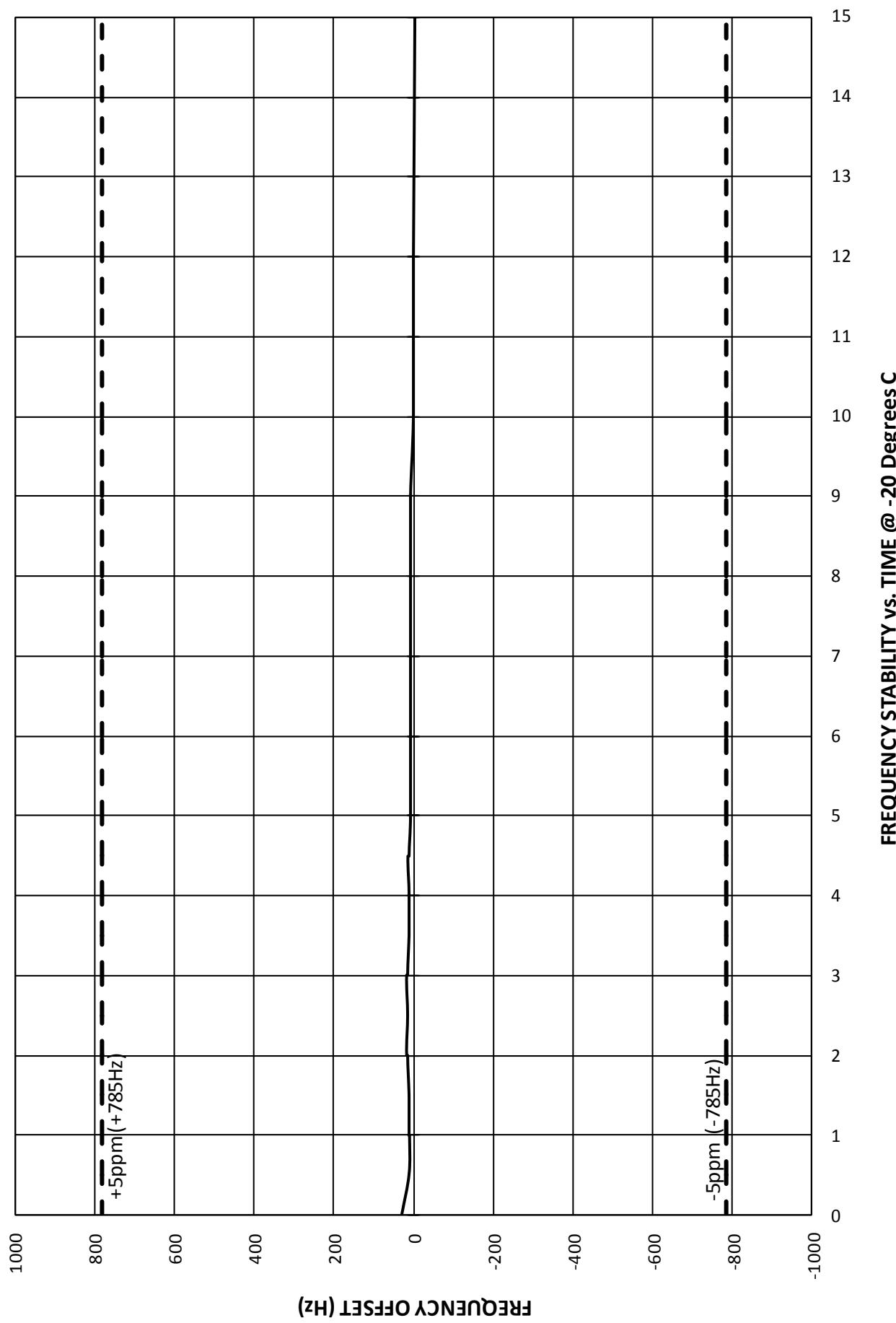
TEST SETUP  
FREQUENCY STABILITY VERSUS  
PRIMARY SUPPLY VOLTAGE  
2.1055(d)





FCC IDENTIFIER: YIBSEA157S

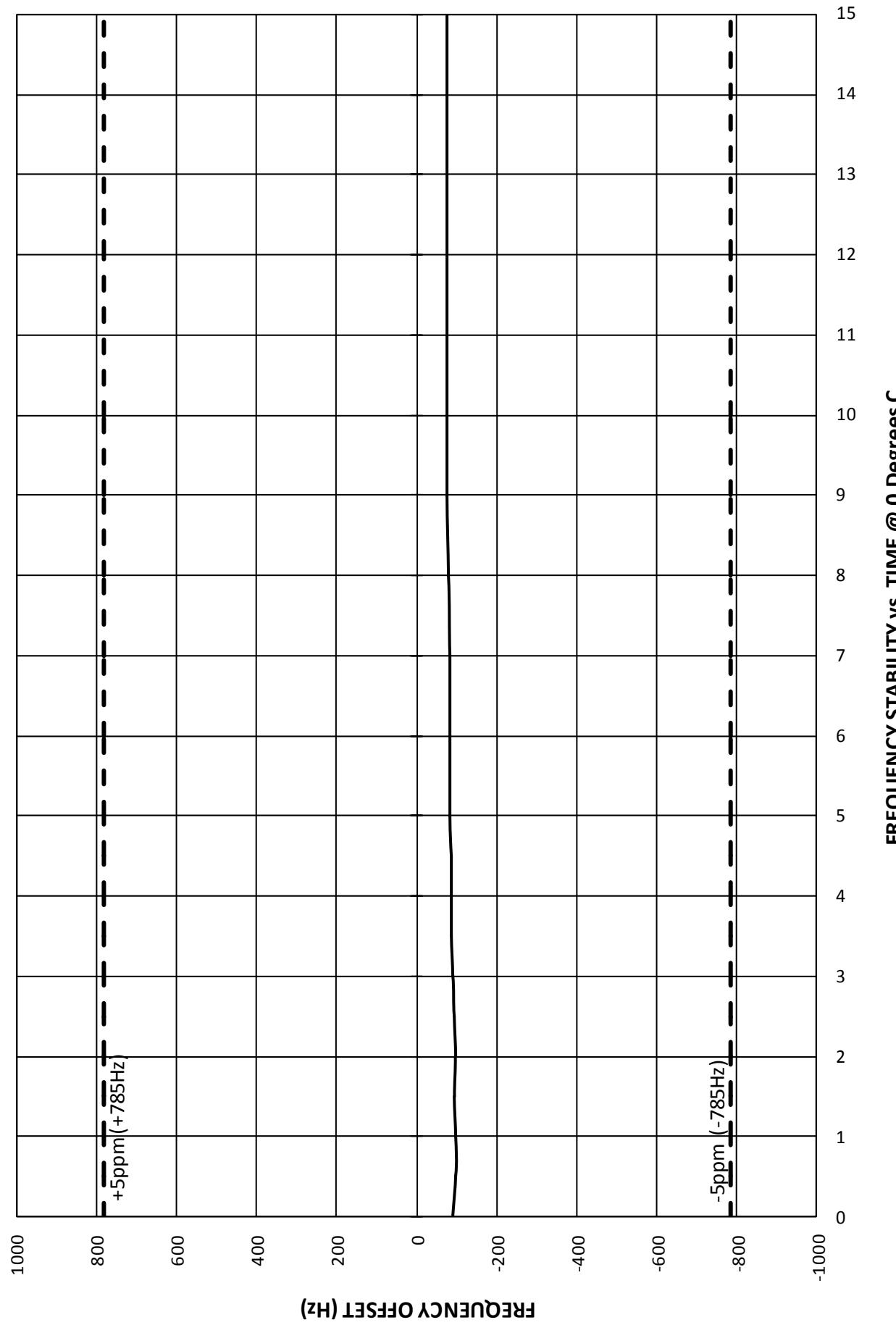
Figure 9.3



FCC IDENTIFIER: YIBSEA157s

Figure 9.4

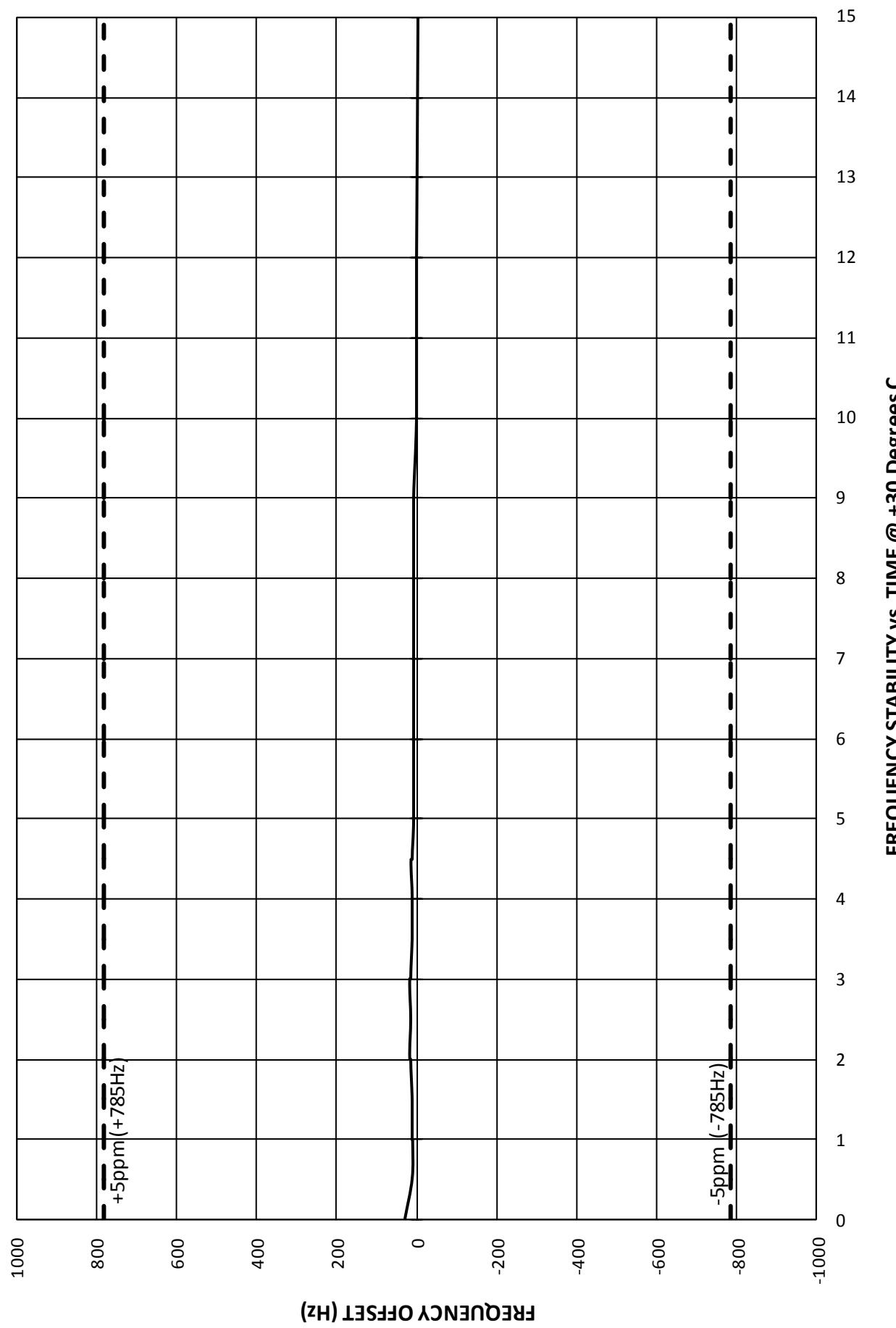
FCC PART 2.1055 (c)



FCC IDENTIFIER: YIBSEA157S

Figure 9.5

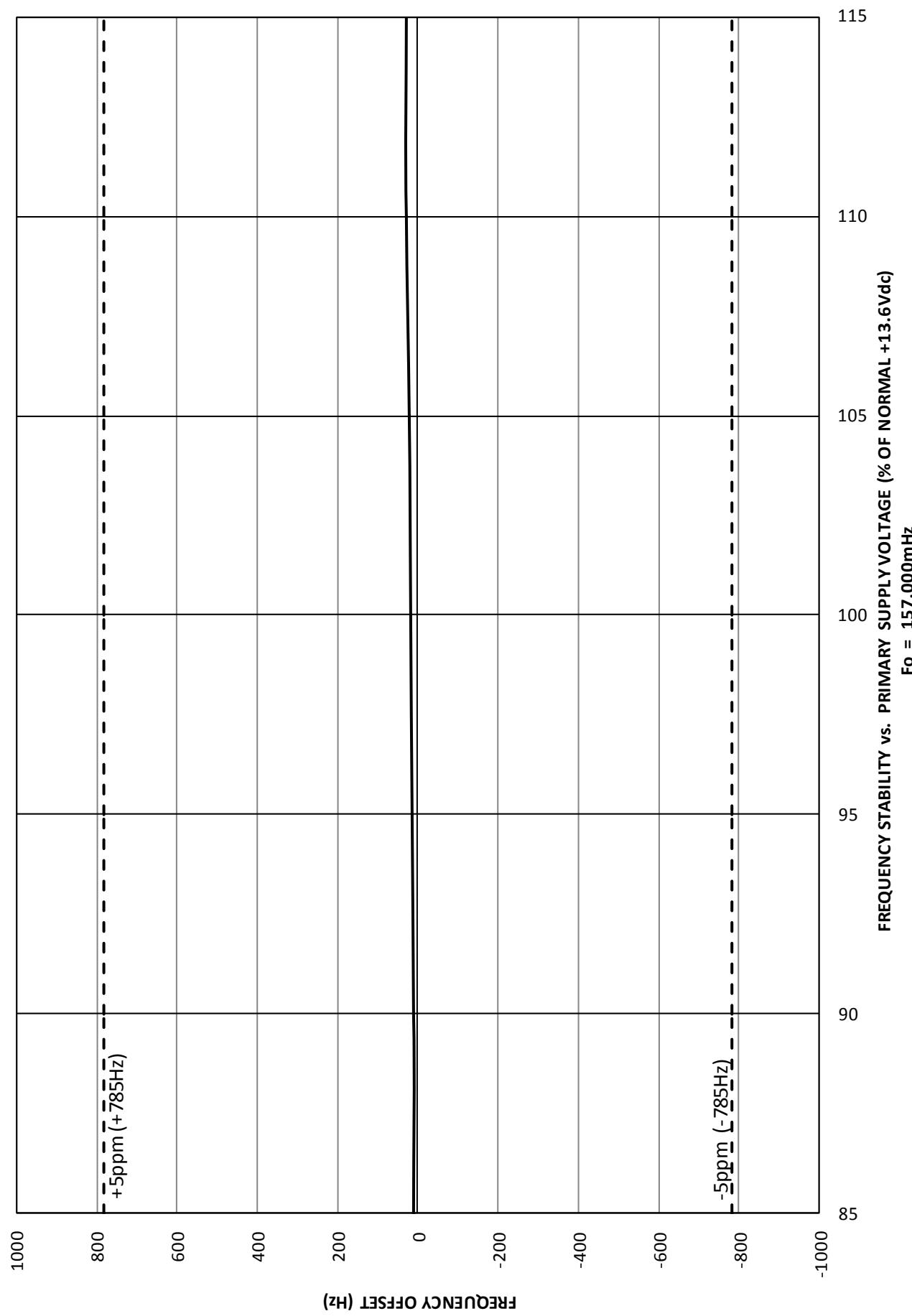
FCC PART 2.1055 (c)



FCC IDENTIFIER: YIBSEA157s

Figure 9.6

FCC PART 2.1055 (c)



FCC IDENTIFIER: YIBSEA157s

Figure 9.7

**FCC PART 2.1055 (d)**

EXHIBIT 10

EQUIPMENT PHOTGRAPHS, Part 2.1033(c) (12)

Four photographs, Figures 10.1 through 10.4, follow this page. They constitute front and rear views of the complete radiotelephone and front and rear views of the Mainboard Assembly (FAB-0157-01) on which the majority of the radiotelephone circuitry is installed.



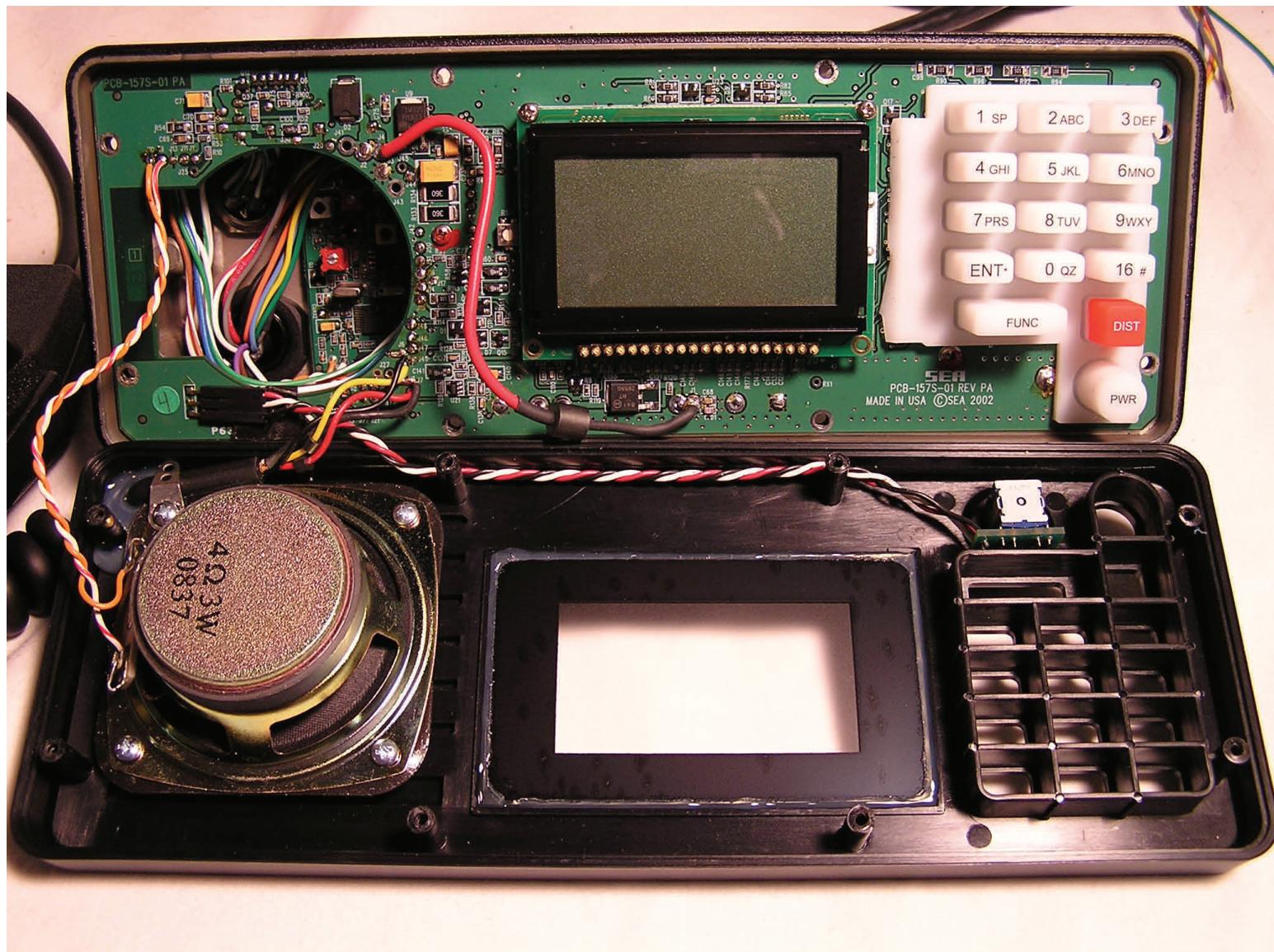
**FCC IDENTIFIER: YIBSEA157s**

**Figure 10.1**



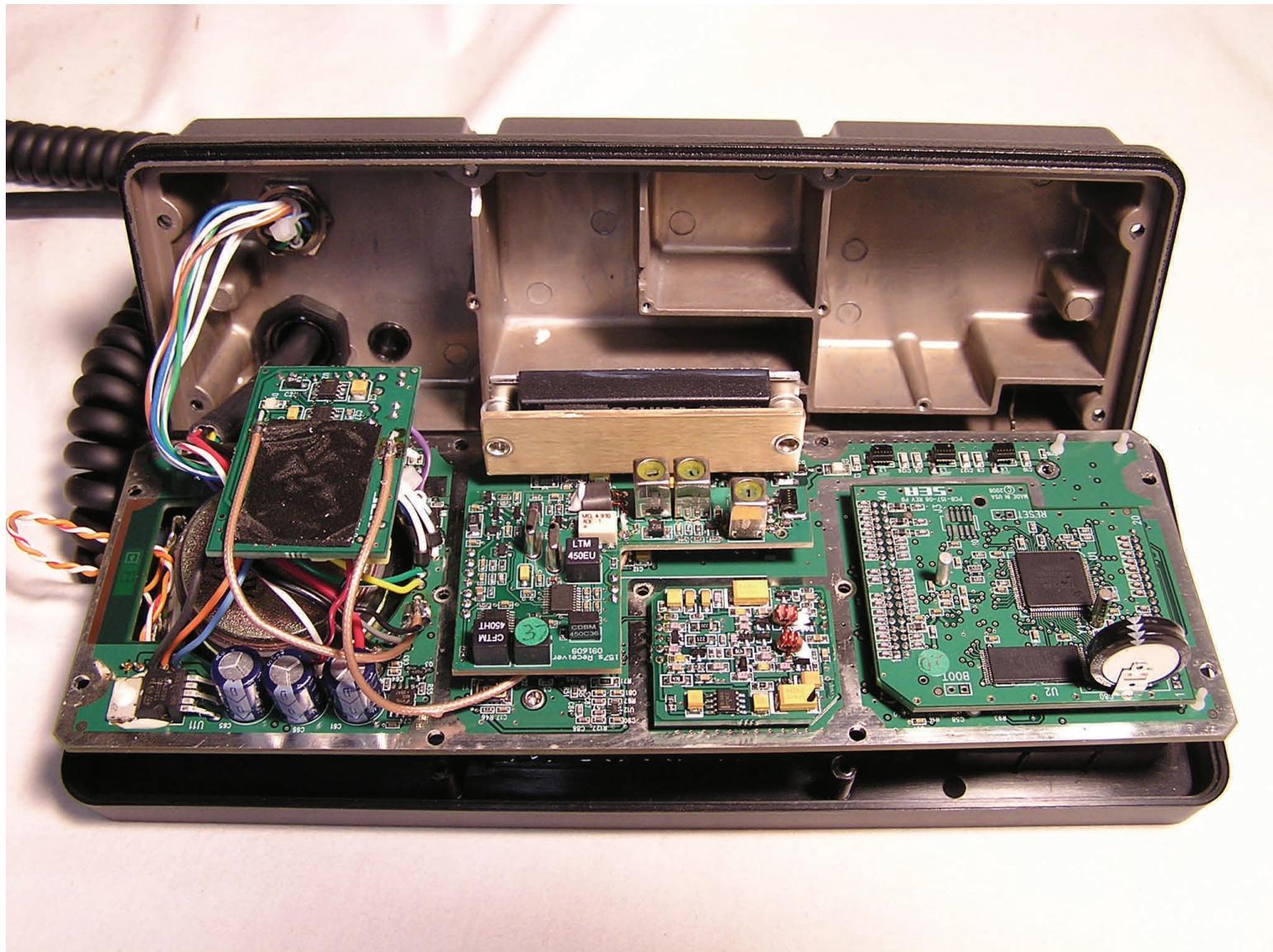
**FCC IDENTIFIER: YIBSEA157s**

**Figure 10.2**



**FCC IDENTIFIER: YIBSEA157s**

**Figure 10.3**



**FCC IDENTIFIER: YIBSEA157s**

**Figure 10.4**

EXHIBIT 11

RECEIVER DATA AND MEASUREMENTS

Note: Please see page 11-3 for additional discussion of the requirements of Part 80.874.

RECEIVER SENSITIVITY, Parts 80.874(b), 80.913(d), 80.961(b)

PROCEDURE:

Please refer to Figure 11.1 for the test setup. The receiver antenna terminals were driven by a frequency modulated signal generator. Its speaker output terminals were connected to a 4 ohm resistive load and to an audio distortion analyzer for measuring SINAD. In each of the following three methods, the receiver was tested on five frequencies, representing the bottom end, channels 6, 13, 16 and a frequency near the top end of the frequency range.

Three measurement methods were used. The first used the method prescribed by EIA RS-204 for determining "reference sensitivity". In this method the signal generator is modulated with a 1 kHz sinusoidal tone at 60% modulation, i.e., 3 kHz peak frequency deviation. Its output amplitude is set so that both 12 dB SINAD and at least 50% rated audio output power (2 watts for the SEA 157S) is obtained simultaneously. The volume control was set near maximum for this test.

The second measurement method is taken from the description in 80.913(f). The signal generator was modulated with a 400 Hz tone to 30%, i.e., 1.5 kHz peak deviation. A six dB signal-to-noise (S/N) is required. It is reasonable to expect the audio output harmonic distortion to be less than the noise at this weak signal level, so it is assumed that  $SINAD = (S+N)/N = S/N + 1$ . Converting to dB, 6 dB S/N is equivalent to 7 dB SINAD. The signal amplitude was therefore adjusted for 7 dB SINAD to make the measurement.

The third measurement method is based on the requirement to measure 20 dB signal-to-noise sensitivity in 80.961(b). Here a 1000 Hertz tone modulated to 60% was used. The decibel difference between SINAD and S/N is negligible at 20 dB SINAD so the RF generator amplitude was adjusted to produce 20 dB SINAD.

RESULTS:

Please refer to the table below. The allowable limit is the last entry in each column.

SENSITIVITY, MICROVOLTS

<u>Frequency</u>	<u>Method 1</u>	<u>Method 2</u>	<u>Method 3</u>
156.050 MHz	.27	.18	.41
156.300 MHz	.27	.18	.39
156.650 MHz	.27	.18	.39
156.800 MHz	.26	.17	.39
162.025 MHz	.27	.18	.41
Limit	.50	1.00	2.00

SUPPRESSION OF INTERFERENCE ABOARD SHIPS, Part 80.217PROCEDURE:

Part 80.217(b) specifies maximum power versus frequency that receivers required by statute or treaty may deliver into an artificial antenna. In this case, the artificial antenna consists of the 50 ohm resistive input impedance of a laboratory spectrum analyzer.

The receiver was operated on two frequencies, 156.05 MHz and 163.275 MHz, representing the upper and lower range of the receiver. The respective local oscillator frequencies for these two receiving frequencies were 177.450mHz and 184.675mHz. The receiver antenna terminals were connected to the 50 ohm input port of the spectrum analyzer.

On each receiver frequency, the spectrum analyzer was tuned slowly across the spectrum from 50 kHz to 1000 MHz using a 100 kHz resolution bandwidth to assure the noise floor would be well below the signal levels specified by the second chart in 80.217(b). The power of each spurious receiver output was checked.

RESULTS:

All spurious receiver signals were well below 400 microwatts which is equivalent to -4 dBm. The strongest output occurred at the receiver local oscillator frequency of 177.450mHz at a level of -59.1dBm.

EXPOSITORY STATEMENTS REGARDING PART 80.874

Reception of F3E emissions, Part 80.874(a): The SEA 157S receiver receives F3E and G2D emissions. This capability is evidenced by the signal generator modulation used in the sensitivity test reported earlier in this exhibit. The channels required by 80.871(d) can be found in the channel charts in the preliminary instruction/service manual. The receiver is designed to be used with typical vertically polarized antennas matched to 50-ohm unbalanced coaxial antenna lead-in cable.

Receiver sensitivity, Part 80.874(b): Please see the results of the Method 1 sensitivity measurements presented earlier in this exhibit. Since no specific measurement method is specified by this rule, it is assumed that the well known sensitivity measurement method specified in EIA RS-204C is suitable.

Audio output power, Part 80.874(c): The EIA RS-204(c) sensitivity measurement method used in Method 1 of the earlier presented Sensitivity Measurements, requires audio output of at least 50% of rated audio power or two watts for the SEA 157S. This serves to demonstrate a reasonable audio output capability. The SEA 157S internal speaker is rated for at least two watts and the external speaker wiring can provide four watts to an external four ohm speaker.

Audio muting, Part 80.874(d): The SEA 157S receiver audio is automatically muted during transmission. Please refer to the Receiver Schematic Diagram and the Mainboard Schematic Diagram in the preliminary maintenance manual. Note that receiver audio from the FM IF System U2 is routed to the mainboard audio power amplifier through the CODEC, U8. The CODEC acts as a sophisticated audio processor under control of the microprocessor U5. During transmission intervals, the CODEC is programmed to mute the receiver audio.

FIGURE 11.1

TEST SETUP  
RECEIVER SENSITIVITY AND LEAKAGE  
FCC PARTS 80.874, 80.217

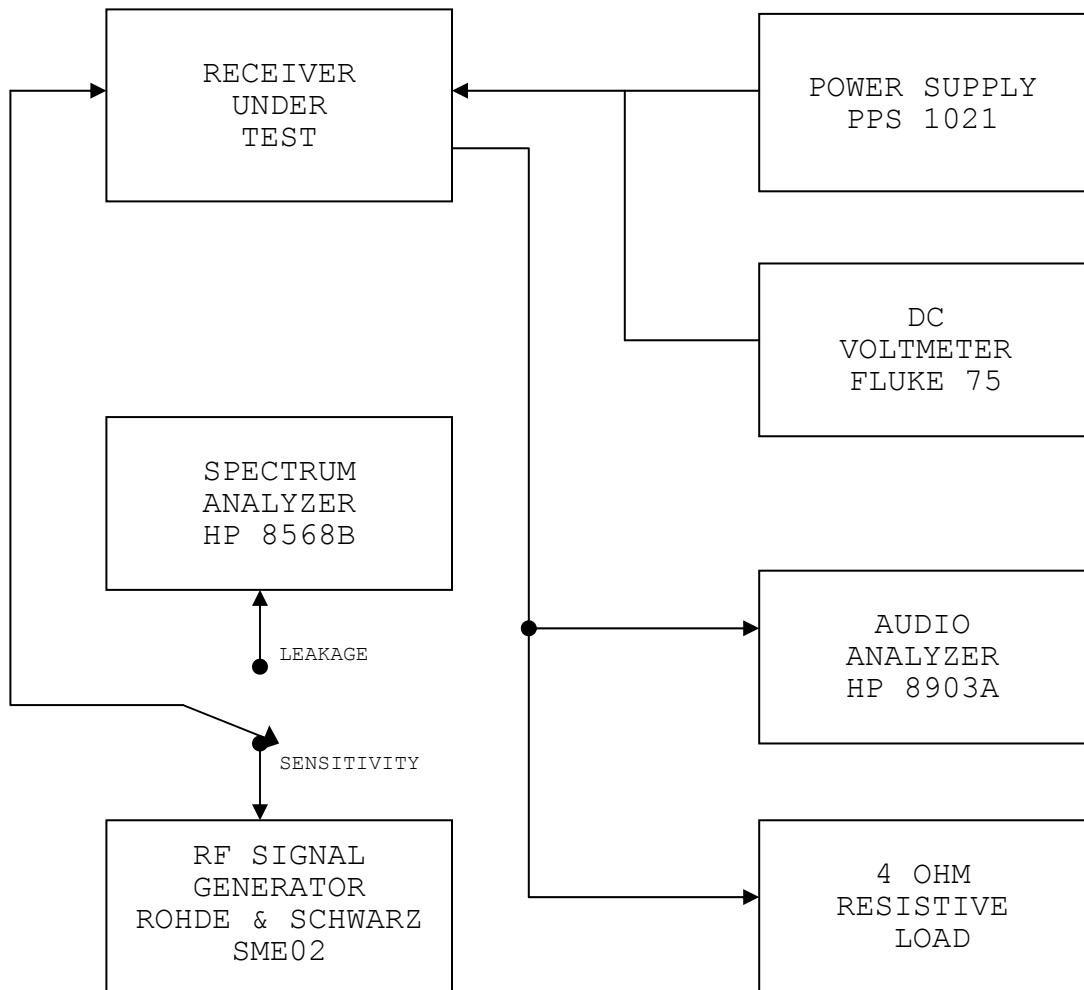


EXHIBIT 12

DECLARATION OF COMPLIANCE FOR SEA 157S DSC CONTROLLER  
FCC PART 80, Subpart W (GMDSS), Part 1101

The SEA 157S VHF Radiotelephone/DSC Controller (FCC IDENTIFIER: YIBSEA157S) incorporates a Class A Digital Selective Calling Controller. The DSC Controller complies with all FCC regulations given in 47 CFR 80.1101(b), 47 CFR 80.1101(c)(2) as well as 47 CFR 80.225. This encompasses compliance with the following documents which are included by reference:

80.1101(b) (1)	IMO Resolution A.694(17)
80.1101(b) (2)	ITU-T Recommendation E.161
80.1101(b) (3)	ITU-T Recommendation Q.11
80.1101(b) (4)	IEC Publication 92-101
80.1101(b) (5)	IEC Publication 533
80.1101(b) (6)	IEC Publication 945
80.1101(c) (2) (i)	IMO Resolution A.609(15)
80.1101(c) (2) (ii)	ITU-R Recommendation M.493-11
80.225(a)	ITU-R Recommendation M.493-Class A

The following documents also cited in the above mentioned paragraphs do not apply to this equipment:

80.1101(b) (7) ISO Standard 3791

Signed,



OCT 21, 2010

Harold G. Middleton  
Project Engineer  
SEA COM Corporation  
7030 220th Street SW  
Mountlake Terrace WA, 98043

Date

FCC IDENTIFIER: YIBSEA157S