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APPLICANT: SB TELCOM CO., LTD.

FCC ID: OTVSBTFR531-2

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2.1033(c)(1)(2)SB TELCOM CO., LTD.will manufacture the
FCCID: OTVSBTFR531-2 FAMILY RADIO SERVICES 14 CHANNEL
TRANSCEIVER in quantity, for use under FCC RULES
PART 95. The UUT is a PTT Radio with a maximum duty
cycle of 50%.

SB TELCOM CO., LTD.
#25-49, Juan5-Dong
Nam-Ku, Incheon, Korea

2.1033(c)(3) Instruction book. A draft copy of the instruction manual is included as EXHIBIT 6A-6D.

$$\begin{aligned} B_n &= 2M + 2DK \\ M &= 3000 \\ D &= 2.0K \\ B_n &= 2(3.0) + 2(2.3) = 10.6K \end{aligned}$$

2.1033(c)(5) Frequency Range:

1. 462.5625	8. 467.5625
2. 462.5875	9. 467.5875
3. 462.6125	10. 467.6125
4. 462.6375	11. 467.6375
5. 462.6625	12. 467.6625
6. 462.6875	13. 467.6875
7. 462.7125	14. 467.7125 MHz

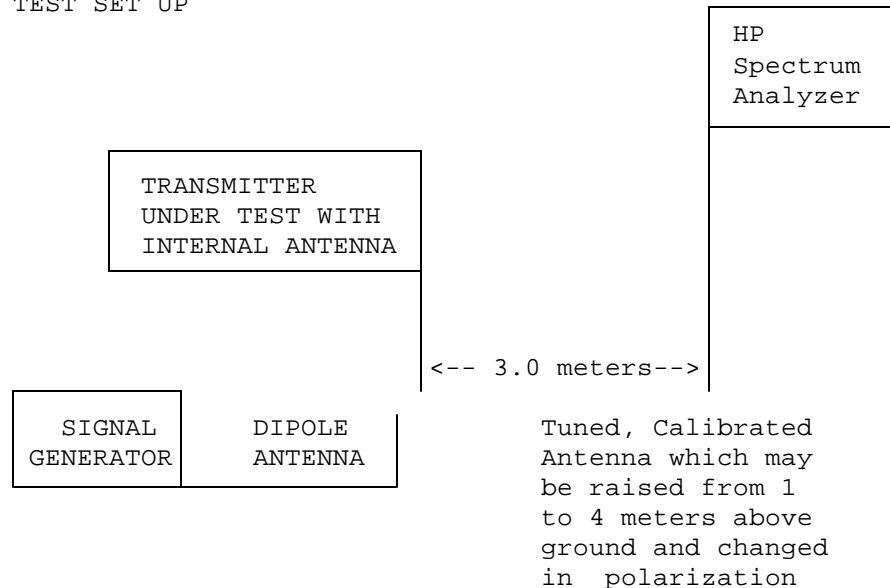
95.647 The antenna is an intergral part to the unit, it cannot be removed without rendering the unit inoperative. In order to remove the antenna the case must unscrewed, then the PCB assemblies must be removed then the antenna can be removed.

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- 2.1033(c)(9) Tune-up procedure. The tune-up procedure is included in the IN Exhibit 8A-8B.
- 2.1033(c)(10) Complete Circuit Diagrams: The circuit diagram is included as EXHIBIT 5A-5B of this report. The block diagram is included as EXHIBIT 4 of this report.
- 2.1033(c)(11) A photograph or a drawing of the equipment identification label is included as exhibit No. 1.
- 2.1033(c)(12) Photographs(8"X10") of the equipment of sufficient clarity to reveal equipment construction and layout, including meters, labels for controls, including any view under shields - See EXHIBIT 3A-3D.
- 2.1033(c)(13) Digital modulation is not allowed.
- 2.1033(c)(14) The data required by 2.1046 through 2.1057 is submitted below.
- 2.1046(a) RF_power_output.
- 95.639 RF power is measured by measuring the radiated power at 3 meters and then replacing the transmitter with a signal generator to determine the effective radiated power. The ERP shall not exceed 0.500 Watts.

MEASURED POWER OUTPUT = 230 milliWatts ERP

R.F. POWER OUTPUT
TEST SET UP

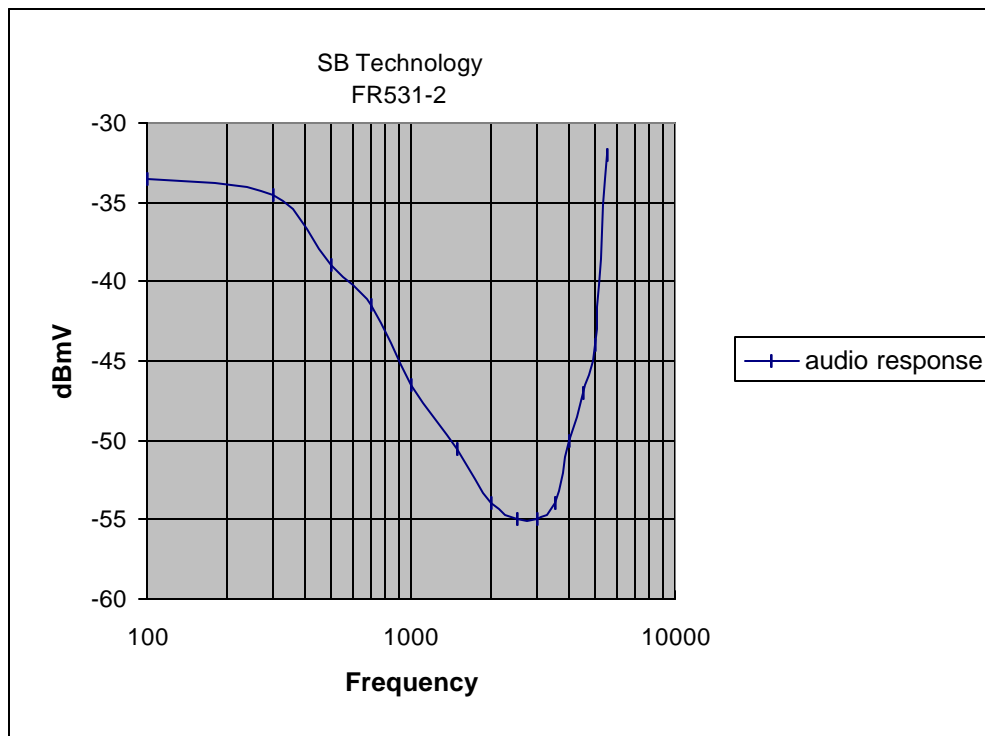


Equipment placed 80cm above ground
on a rotatable platform.

2.1047(a)(b) Modulation_characteristics:

AUDIO_FREQUENCY_RESPONSE

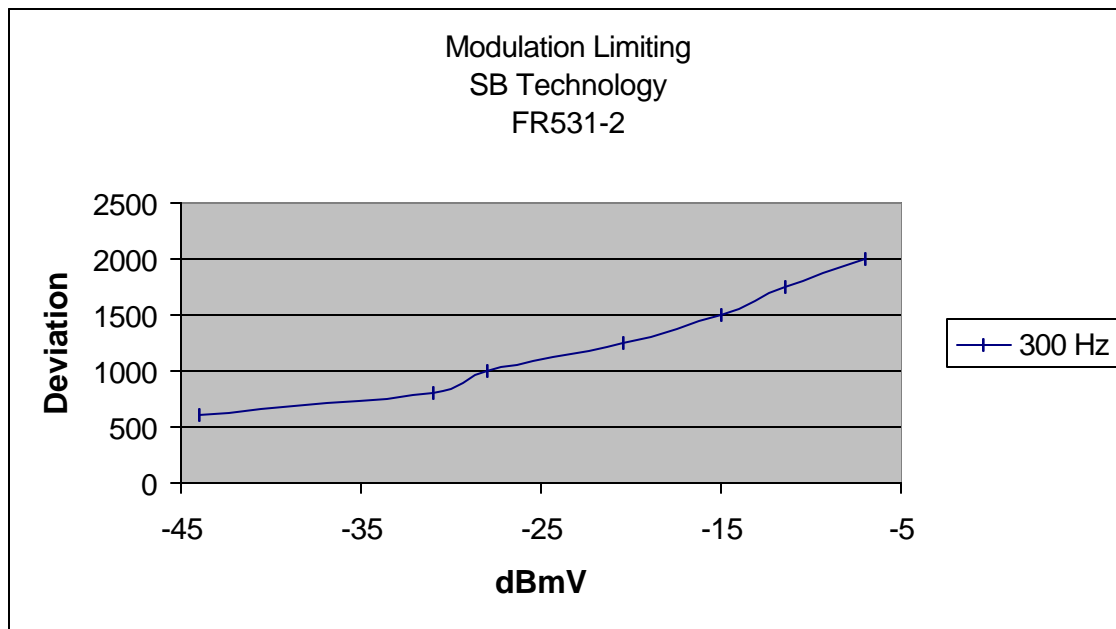
The audio frequency response was measured in accordance with TIA/EIA Specification 603. The audio frequency response curve is shown below. The audio signal was fed into a dummy microphone circuit and into the microphone connector. The input required to produce 30 percent modulation level was measured.



2.1047(b)

Audio_input_versus_modulation

The audio input level needed for a particular percentage of modulation was measured in accordance with TIA/EIA Specification 603. The audio input curves versus modulation are shown in exhibits are shown below. Curves are provided for audio input frequencies of 300, 1000, and 3000 Hz.

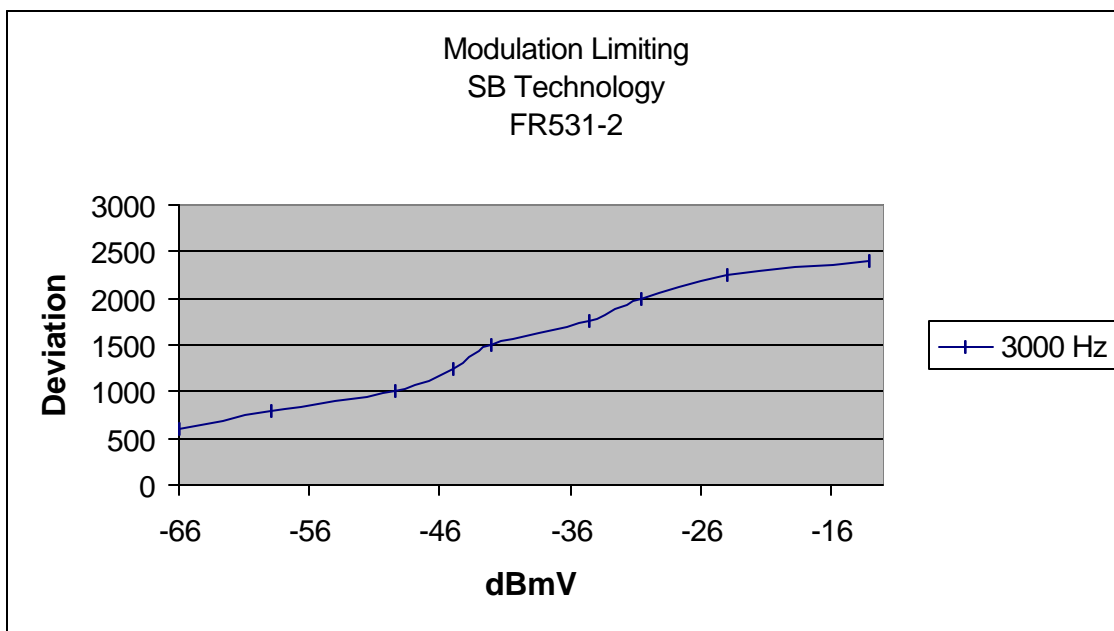
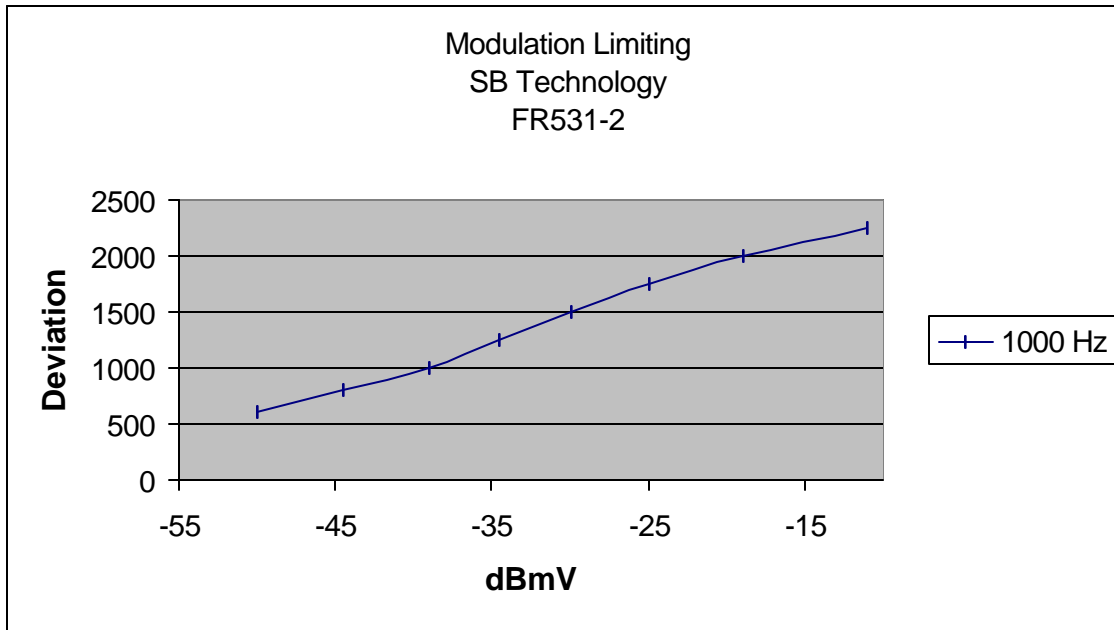


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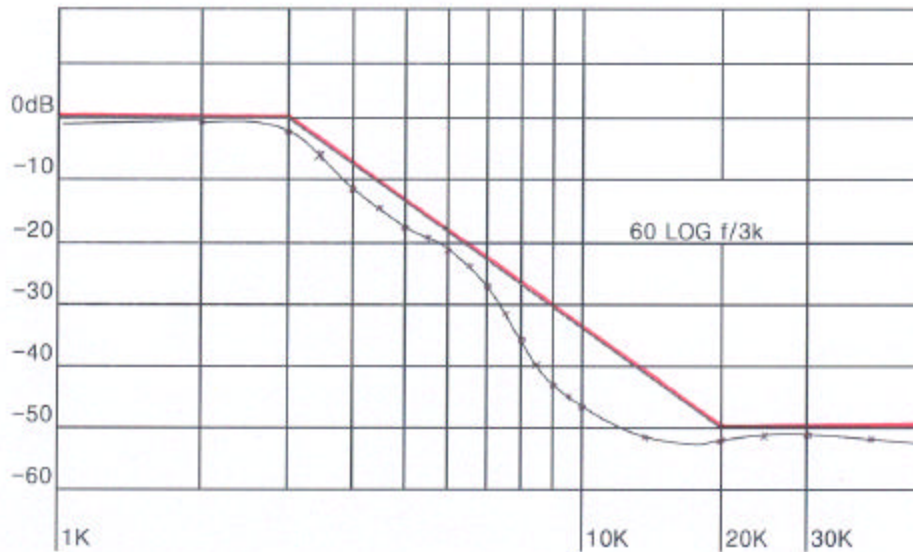
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95.637(b)

Post Limiter Filter The filter must be between the modulation limiter and the modulated stage. At any frequency between 3 & 20KHz the filter must have an attenuation of $60 \log (f/3)$ greater than the attenuation at 1KHz. See the plot below.

Frequency Response of the Audio Low Pass Filter (FR531-2)



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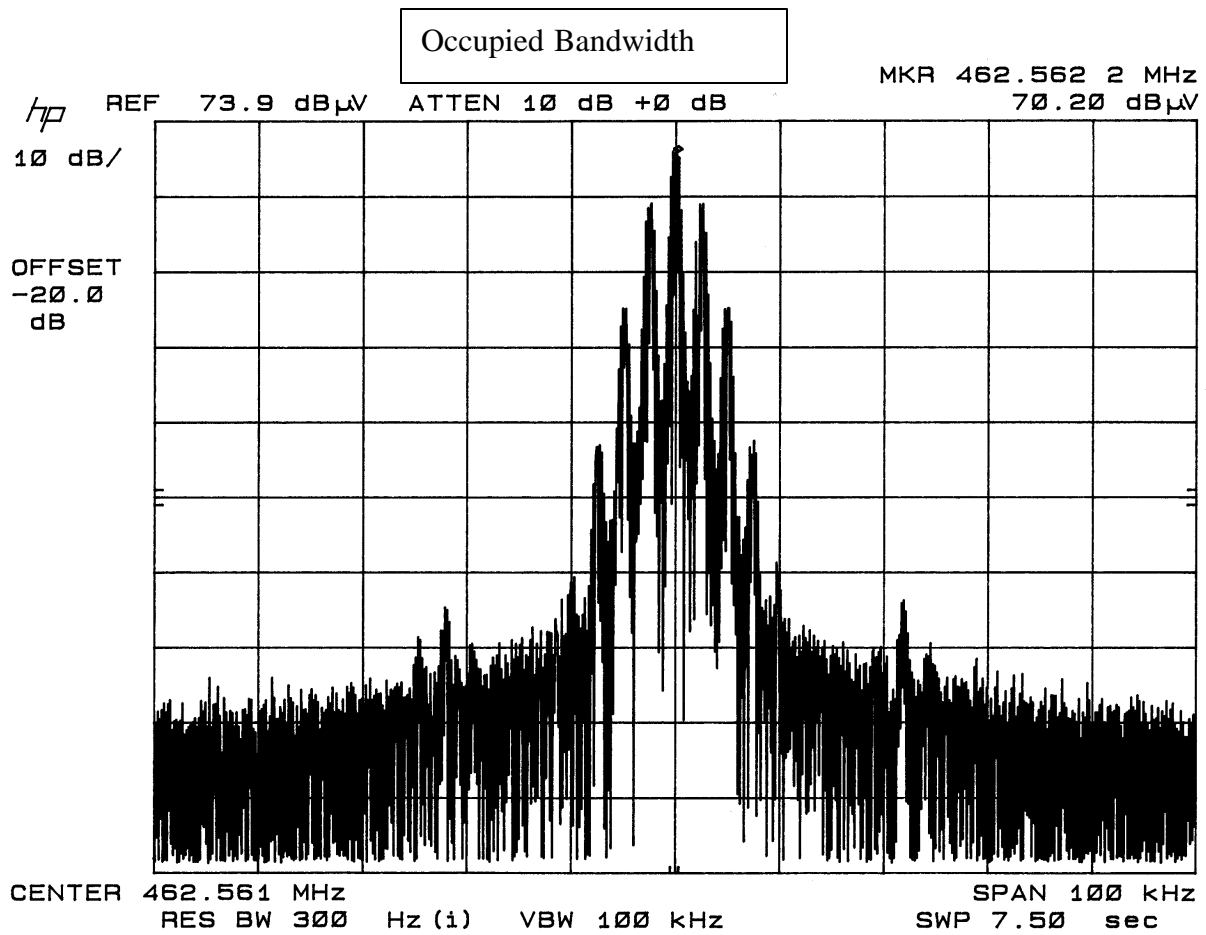
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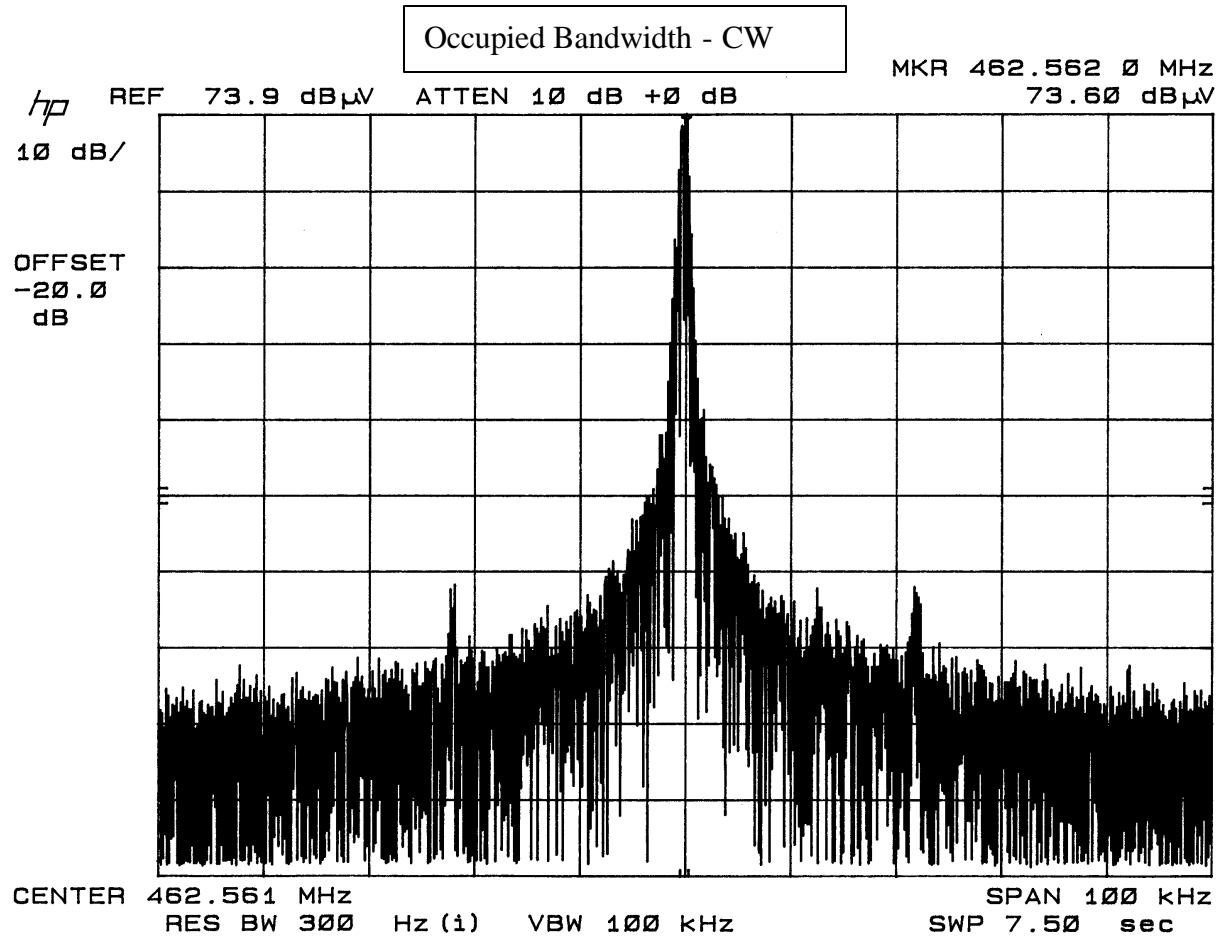
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2.989(c)
95.633(c)

EMISSION BANDWIDTH:

Data in the plots shows that the sidebands from greater than 50% to 100% of the authorized bandwidth must be attenuated by at least 25dB and from 100 to 250% the sidebands must be attenuated by at least 35dB. Beyond 250% the sidebands must be attenuated by at least $43 + \log_{10}(TP)$. The transmitter was modulated with 2500 Hz, adjusted for 50% modulation plus 16 dB. The spectrum analyzer was set with the unmodulated carrier at the top of the screen. The test procedure diagram follows. See the occupied bandwidth plots see below.

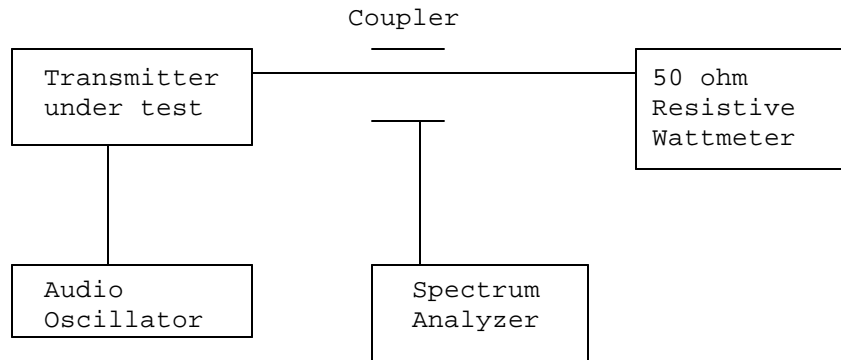




Radiotelephone transmitter with modulation limiter.

Test procedure diagram

OCCUPIED BANDWIDTH MEASUREMENT



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2.1051 Not Applicable, no antenna terminal allowed.

2.1053 UNWANTED_RADIATION:
95.635(b)(4)

REQUIREMENTS: Emissions must be attenuated by at least the following below the output of the transmitter.

$$43 + 10\log(TP) = 43 + 10\log(0.23) = 36.62 \text{ dB}$$

TEST DATA:

Emission Frequency MHz	Attn. dBc	Margin dB
462.66	0.00	0.00
925.20	42.47	5.85
1387.80	52.98	16.36
1850.40	59.41	22.79
2312.90	52.93	16.31
2775.60	67.81	31.19
3238.10	64.57	27.95
3700.70	66.59	29.97
4163.30	59.24	22.62
4625.90	54.68	18.06

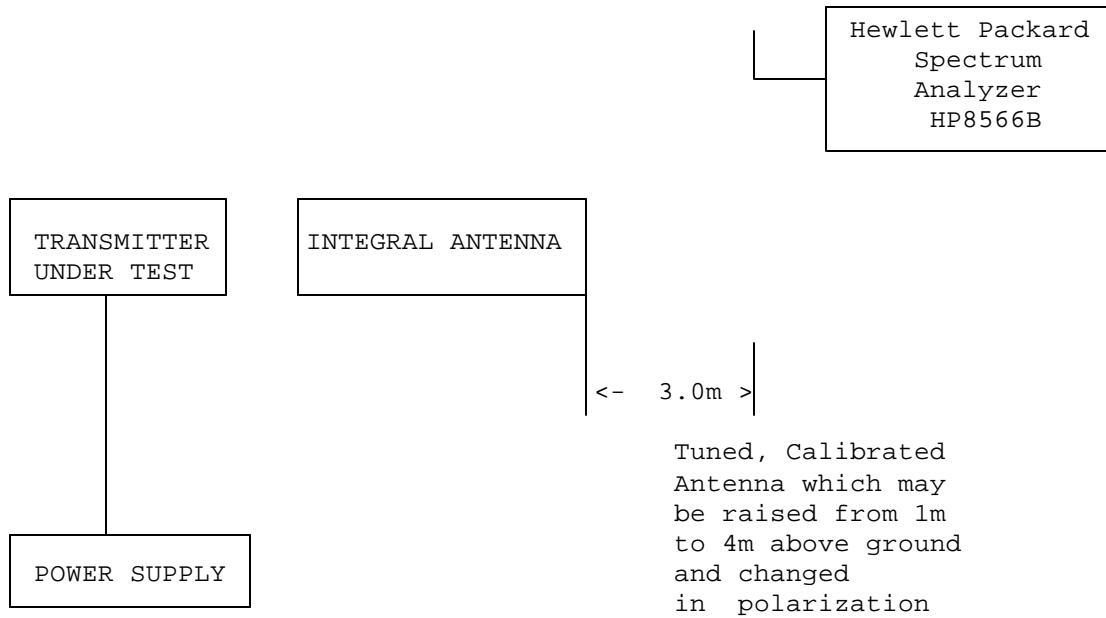
MARGIN = (Field strength of Fund - 36.62dB) - FS OF EMISSION

METHOD OF MEASUREMENT: The tabulated data shows the results of the radiated field strength of emissions test. The spectrum was scanned from 30 to at least the tenth harmonic of the fundamental. This test was conducted per TIA/EIA STANDARD 603 using the substitution method. Measurements were made at the open field test site of TIMCO ENGINEERING, INC. located at 849 NW State Road 45, Newberry, FL 32669.

2.1053
95.635

UNWANTED_RADIATION:

Method of Measuring Radiated Spurious Emissions



Equipment placed 80cm above ground
on a rotatable platform.

Frequency stability:

Temperature and voltage tests were performed to verify that the frequency remains within the 0.00025%, 2.5 ppm specification limit. The test was conducted as follows: The transmitter was placed in the temperature chamber at 25 degrees C and allowed to stabilize for one hour. The transmitter was keyed ON for one minute during which four frequency readings were recorded at 15 second intervals. The worse case number was taken for temperature plotting. The assigned channel frequency was considered to be the reference frequency. The temperature was then reduced to -20 degrees C after which the transmitter was again allowed to stabilize for one hour. The transmitter was keyed ON for one minute, and again frequency readings were noted at 15 second intervals. The worst case number was recorded for temperature plotting. This procedure was repeated in 10 degree increments up to + 50 degrees C.

Readings were also taken at plus and minus 15% of the battery voltage of 6 VDC.

MEASUREMENT DATA:

Assigned Frequency (Ref. Frequency): 462.562 176

TEMPERATURE_C	FREQUENCY_MHz	PPM
REFERENCE_____	462.562 176	00.00
-20_____	462.562 844	1.44
-10_____	462.562 852	1.46
0_____	462.562 929	1.63
+10_____	462.562 884	1.53
+20_____	462.562 623	0.97
+30_____	462.562 207	0.07
+40_____	462.561 820	-0.77
+50_____	462.561 723	-0.98
BATT. End-Point 5.1V/dc	462.562 170	-0.01
BATT. End-Point 6.9V/dc	462.562 219	0.09

RESULTS OF MEASUREMENTS: The maximum frequency variation over the temperature range was -0.98 to +1.63 ppm. The maximum frequency variation with voltage was +0.09 ppm.

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TEST EQUIPMENT LIST

- 1._X_Spectrum Analyzer: HP 8566B-Opt 462, S/N 3138A07786, w/
preselector HP 85685A, S/N 3221A01400, Quasi-Peak Adapter
HP 85650A, S/N 3303A01690 & Preamplifier HP 8449B-OPT H02,
S/N 3008A00372 Cal. 8/31/01 Due 8/31/02
- 2.___ Biconnical Antenna: Eaton Model 94455-1, S/N 1057,
Cal. 10/1/01 Due 10/1/02
- 3.___ Biconnical Antenna: Electro-Metrics Model BIA-25, S/N 1171
Cal. 4/26/01 Due 4/26/03
- 4.___ Log-Periodic Antenna: Electro-Metrics Model EM-6950, S/N 632
Char. 3/15/00 Due 3/15/01
- 5._X_ Log-Periodic Antenna: Electro-Metrics Model LPA-30, S/N 409
Char. 3/15/00 Due 3/15/01
- 6._X_ Double-Ridged Horn Antenna: Electro-Metrics Model RGA-180,
1-18 GHz, S/N 2319 Cal. 4/27/99 Due 4/27/00
- 7.___ 18-26.3GHz Systron Donner Standard Gain Horn #DBE-520-20
No Cal Required
- 8.___ Horn 40-60GHz: ATM Part #19-443-6R No Cal Required
- 9.___ Line Impedance Stabilization Network: Electro-Metrics Model
EM-7820, w/NEMA Adapter S/N 2682 Cal. 3/16/01 Due 3/16/02
- 10._X_ Temperature Chamber: Tenney Engineering Model TTRC, S/N 11717-7
Char. 1/27/01 Due 1/27/02
- 11._X_ Frequency Counter: HP Model 5385A, S/N 3242A07460
Char. 11/20/00 Due 11/20/01
- 12.___ Peak Power Meter: HP Model 8900C, S/N 2131A00545
Char. 1/26/01 Due 1/26/02
- 13._X_ Open Area Test Site #1-3meters Cal. 12/22/99
- 14._X_ Signal Generator: HP 8640B, S/N 2308A21464
Cal. 11/15/01 Due 11/15/02
- 15.___ Passive Loop Antenna: EMCO Model 6512, 9KHz to 30MHz, S/N
9706-1211 Char. 6/10/00 Due 6/10/01
- 16.___ Dipole Antenna Kit: Electro-Metrics Model TDA-30/1-4, S/N 153
Char. 11/24/00 Due 11/24/01
- 17.___ AC Voltmeter: HP Model 400FL, S/N 2213A14499
Cal. 10/9/01 Due 10/09/02
- 18._X_ Digital Multimeter: Fluke Model 77, S/N 43850817
Cal. 11/16/00 Due 11/16/01
- 19.___ Oscilloscope: Tektronix Model 2230, S/N 300572
Char. 2/1/01 Due 2/1/02

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