TYPE OF EXHIBIT: TRANSMITTER EFFECTIVE RADIATED POWER

FCC PART: 95.639

MANUFACTURER: RITRON, INC.
505 West Carmel Drive
Carmel, IN 46032

MODEL: SST-150

TYPE OF UNIT: VHF-FM Transceiver

FCC ID: AIERIT01-150

DATE: April 25, 2001

PROCEDURE:

1. The measurement for effective radiated power was taken at the RITRON, Inc. 3 meter test site. The measurement was made in accordance with FCC Rules & Regulations Part 2.947 using the procedures of IEC Publication 106.

2. The SST-150 was aligned for transmitter operation on 154.600 MHz at the 2.0 watt maximum obtainable from the unit per the tune-up procedure outlined in the Preliminary Maintenance Manual. The unit was then terminated at the antenna port with the two antennas sold with this product.

3. All field strength measurements were made with the Hewlett-Packard Model 8559A Spectrum Analyzer and an Electro-Metrics EM-6924 adjustable dipole antenna.

4. The height and polarization of the field strength measurement antenna and orientation of the SST-150 were varied to provide maximum field strength.

5. A substitution antenna, an Electro-Metrics EM-6924 adjustable dipole, was substituted for the SST-150 at the SST-150's location. An RF signal generator was set for the frequency of the SST-150 with the level at the substitution antenna noted.

6. The polarization of the substitution antenna was adjusted for maximum signal strength at the field strength measuring antenna. The level at the field strength antenna was noted.

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EQUATIONS:

The substitution antenna is specified from the manufacturer in terms of antenna factor rather than antenna gain. The conversion is:

Ga(dbd) = 20 log f (MHz) – AF(dB) – 31.9

The effective radiated power (ERP) is then:

ERP(dBm) = Pr(dBm) + Pgen(dBm) – Ps(dBm) – Ga(dBd)

Where:

Pr is the power level of the radio's emission at the receiving antenna output.

Pgen is the RF signal generator level at the substitution antenna output.

Ps is the power level of the substitution antenna emission at the receiving antenna output.

Ga is the gain of the substitution antenna.

The ERP is converted to watts from dBm by:

ERP(watts) = $\text{antilog}_{10}((\text{ERP(dBm)} - 30)/10)$

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RESULTS:

Antenna	Pr (dBm) (watts)	Pgen (dBm)	Ps (dBm)	Ga (dBd)	ERP (dBm)	ERP
AFS-150	+7.0	0.0	-19.0	0.3	+25.7	0.37
AFS-150-S	+1.0	0.0	-19.0	0.3	+19.7	0.09

TYPE OF TEST: OCCUPIED BANDWIDTH

FCC PART: 2.989 (c) (1) per 90.210 (b) (d)

MANUFACTURER: RITRON, INC.
505 West Carmel Drive
Carmel, IN 46032

MODEL: SST-150

TYPE OF UNIT: VHF-FM Handheld Transceiver

FCC ID: AIERIT01-150

DATE: March 23, 2001

PROCEDURE:

1. The SST-150 was aligned for transmitter operation on 152.50 MHz (Fo) at full rated power, was set for 12.5 kHz bandwidth operation, and the deviation was adjusted for +/- 2.5 kHz as outlined in the Maintenance Manual.

2. The RF output of the SST-150 was measured with a Bird Model 6154 Thermaline Wattmeter. This value was recorded as POWER OUTPUT. Power was supplied to the SST-150 via P302 by an Astron Model VS-20M Power Supply set at +7.5 VDC to produce the maximum rated transmitter power output.

3. The antenna terminal P201 was connected to the input of a Bird Model 8306-300-N 30 DB power attenuator. The output of the attenuator was connected to the input of a Hewlett Packard Model 8554B Spectrum Analyzer. The spectrum analyzer was set to:

   - 100 Hz Resolution
   - 5 KHz per Horizontal Division
   - 0 dBm Reference
   - 10 dB per Vertical Division

4. The center frequency of the spectrum analyzer was set to the SST-150 carrier frequency and the full scale reference line was set to the level of the unmodulated carrier.

5. The output of a BK Precision Model 3025 Sweep/Function Generator was applied to the microphone input of the SST-150 through J301. The frequency of the audio signal generator was set to 2500 Hz and the output adjusted to a level 16 dB greater than that necessary to produce 50% of the rated system deviation.

6. The spectrum analyzer readings of the sideband levels in dBm were recorded and a graph of the spectrum analyzer output was plotted. All readings were rounded up to the nearest dB.

TYPE OF TEST:	OCCUPIED BANDWIDTH
FCC PART:	2.989 (c) (1) per 90.210 (b) (d)
MANUFACTURER:	RITRON, INC. 505 West Carmel Drive Carmel, IN 46032
MODEL:	SST-150
TYPE OF UNIT:	VHF-FM Handheld Transceiver
FCC ID:	AIERIT01-150
DATE:	March 23, 2001

EQUATIONS:

The analyzer readings in dBm were converted to power using the following formula:

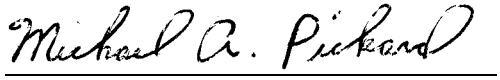
Power = .001 (antilog F(dBm, 10))

The power readings were summed to provide a reference power level. The total was converted back to dBm with the following formula and recorded as MEAN REFERENCE POWER OUTPUT:

dBm = 10 (log Fc (Power,.001))

The sideband powers on each side of the carrier were reduced to a percentage of the MEAN REFERENCE POWER OUTPUT. The percentages were added together starting with the carrier and expanding out equally in +/- 2.5 kHz increments until greater than 99.5% of the total MEAN REFERENCE POWER was reached.

The occupied bandwidth is defined as having 99.5% of the total MEAN REFERENCE POWER existing within its limits.

Certifying Engineer: 

Michael A. Pickard - Project Engineer

TYPE OF TEST: OCCUPIED BANDWIDTH

FCC PART: 2.989 (c) (1) per 90.210 (b) (d)

MANUFACTURER: RITRON, INC.
505 West Carmel Drive
Carmel, IN 46032

MODEL: SST-150

TYPE OF UNIT: VHF-FM Handheld Transceiver

FCC ID: AIERIT01-150

DATE: March 23, 2001

DATA:

Carrier Frequency:	152.5	MHz
Power Output:	2.10	Watts
Power Output:	33.22	dBm
Mean Reference Power:	32.56	dBm
Channel Bandwidth:	12.5	KHz
Occupied Bandwidth:	10.0	kHz

Emission Frequency Offset (kHz)	Measured Relative Amplitude (dBm)	Actual Amplitude (dBm)	FCC Limit (dBm)	Power (Watts)	Percent MRP (%)	Occupied Bandwidth (%)
-25.0			-20.00			
-22.5			-20.00			
-20.0			-20.00			
-17.5			-20.00			
-15.0	-74.00	-40.78	-20.00	83.6E-9	0.00%	
-12.5	-71.00	-37.78	-36.72	166.8E-9	0.00%	
-10.0	-65.00	-31.78	-18.54	664.1E-9	0.00%	
-7.5	-50.00	-16.78	-0.37	21.0E-6	0.00%	
-5.0	-34.00	-0.78	33.22	836.0E-6	0.05%	
-2.5	-15.00	18.22	33.22	66.4E-3	3.68%	
0.0	-1.00	32.22	33.22	1.7E+0	92.55%	100.00%
2.5	-15.00	18.22	33.22	66.4E-3	3.68%	
5.0	-35.00	-1.78	33.22	664.1E-6	0.04%	
7.5	-53.00	-19.78	-0.37	10.5E-6	0.00%	
10.0	-67.00	-33.78	-18.54	419.0E-9	0.00%	
12.5	-71.00	-37.78	-36.72	166.8E-9	0.00%	
15.0	-73.00	-39.78	-20.00	105.2E-9	0.00%	
17.5			-20.00			
20.0			-20.00			
22.5			-20.00			
25.0			-20.00			

Certifying Engineer: Michael A. Pickard

Michael A. Pickard - Project Engineer

TYPE OF TEST:	OCCUPIED BANDWIDTH
FCC PART:	2.989 (c) (1) per 90.210 (d)
MANUFACTURER:	RITRON, INC. 505 West Carmel Drive Carmel, IN 46032
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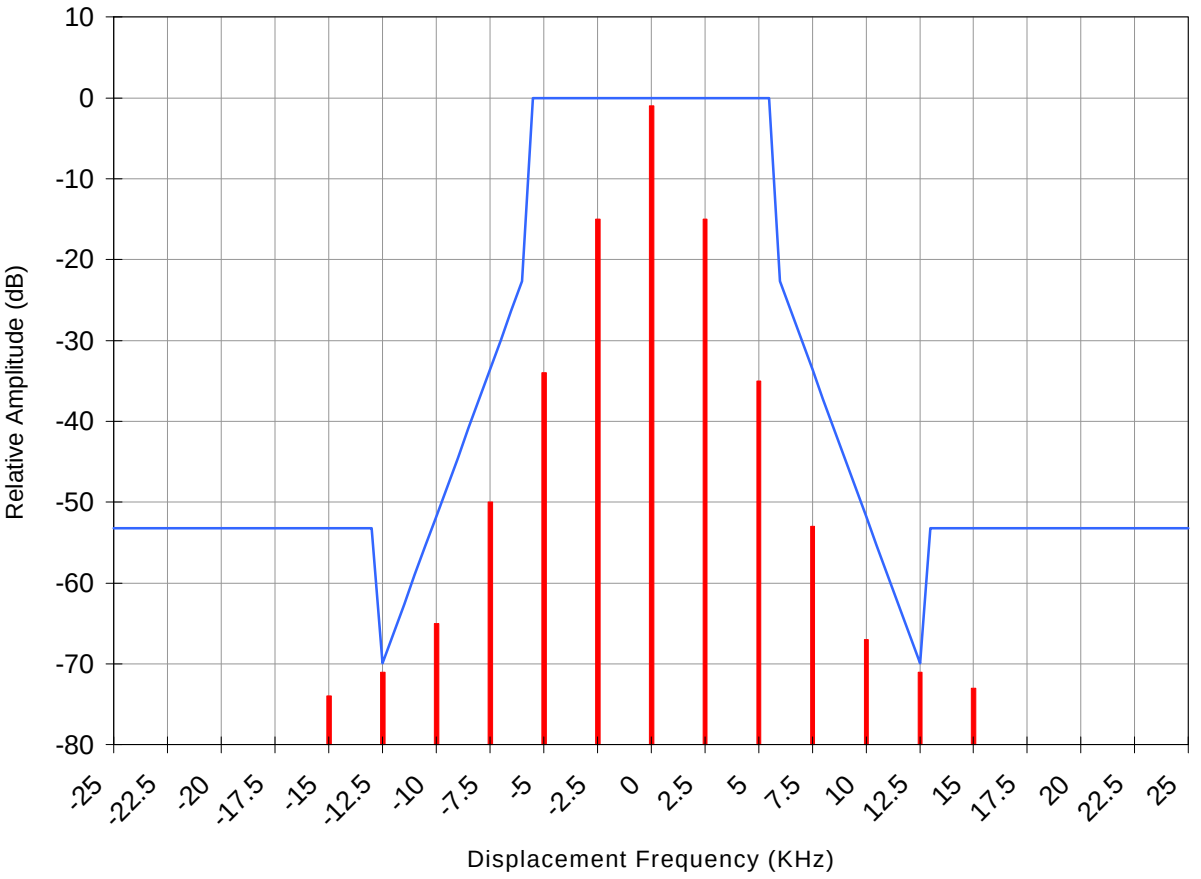
CURVE:



Channel Bandwidth: 12.5 KHz
Power Output: 2.1 Watts