TYPE OF EXHIBIT:	TEST REPORT
FCC PART:	2.1033 (c)(14)
MANUFACTURER:	RITRON, INC. 505 West Carmel Drive Carmel, IN 46032
MODELS:	RQA-151M, RQT-151M
TYPE OF UNIT:	VHF-FM Voice Message Transmitter
FCC ID:	AIERIT32-151M
DATE:	January 10, 2011

The following is a list of attached exhibits required by the Federal Communications Commission for the application to and grant of FCC Type Acceptance. All tests are per EIA/TIA-603-C (2004) where applicable.

TYPE OF EXHIBIT: TEST EQUIPMENT LIST

FCC PART: 2.947 (d)

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

MODELS: RQA-151M, RQT-151M

TYPE OF UNIT: VHF-FM Voice Message Transmitter

FCC ID: AIERIT32-151M

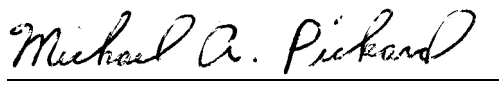
DATE: December 2, 2010

The measured data in this report was obtained using one or more of the following pieces of equipment. The particular equipment used in any one test is detailed in the procedure for that test.

ITEM	MANUFACTURER	MODEL NO.	SERIAL NO.	Last Cal	EXP Cal
Comms Test Set	Aeroflex	IFR COM-120B	500009331	15 SEP 2010	15 SEP 2011
Signal generator	Hewlett-Packard	8657B	3315V04378	02 SEP 2010	06 SEP 2011
Spectrum Analyzer	Advantest	R3265A	75060189	21 OCT 2010	21 OCT 2011

Support equipment:

ITEM	MANUFACTURER	MODEL NO.	SERIAL NO.
Power Supply	BK Precision	1630	146-03508
Digital Oscilloscope	Philips	PM-3335	DM648004
Digital Multimeter	Fluke	179	82800086
Dipole Antenna	Electro-Metrics	EM-6924	241
Dipole Antenna	Electro-Metrics	BDA-25	8-101
Log Periodic Antenna	Electro-Metrics	LPA-25	8-102
Gain horn	EMCO	3105	
Temperature Chamber	Associated Laboratories	ELH-0.5-LC	N/A
Thermocouple	Omega	7035-J-225	8504
272 MHz high pass filter	Ritron		
30dB Power Attenuator	Bird	8306-300-N	N/A
10dB Attenuator	ELCOM	AT-51-10	N/A

Signed: 

Michael A. Pickard - Project Engineer

TYPE OF EXHIBIT:	DESCRIPTION OF MEASUREMENT FACILITY
FCC PART:	2.947(d)
MANUFACTURER:	RITRON, INC. 505 West Carmel Drive Carmel, IN 46032
MODELS:	RQA-151M, RQT-151M
TYPE OF UNIT:	VHF-FM Voice Message Transmitter
FCC ID:	AIERIT32-151M
DATE:	November 30, 2010

The ERP and field strength of spurious emissions measurements filed with this application were made on a site certified by RITRON, Inc. Data pertaining to this site are on file with the FCC and Industry Canada.

This site is used on a continuing basis exclusively by RITRON, Inc. and is utilized only for RF field strength measurements of equipment designed and manufactured by RITRON, Inc. It is not used for measurements by, or for, any other party on a contract basis or otherwise.

All other measurements were taken at RITRON's engineering laboratory in Carmel, IN.

Signed: Michael A. Pickard

Michael A. Pickard - Project Engineer

Ritron Test Site

TYPE OF EXHIBIT:	RADIO FREQUENCY POWER OUTPUT
FCC PART:	2.1046(a) per 95.639 (h)
MANUFACTURER:	RITRON, INC. 505 West Carmel Drive Carmel, IN 46032
MODELS:	RQA-151M, RQT-151M
TYPE OF UNIT:	VHF-FM Voice Message Transmitter
FCC ID:	AIERIT32-151M
DATE:	December 2, 2010

PROCEDURE:

1. The RQT-151M was aligned for transmitter operation at 120mW power level per the tune-up procedure for frequencies representing the low, middle, and upper range of the desired operating band.

2. Power was supplied to the RQT-151M at the EXTERNAL POWER input by a BK Precision 1630 power supply set to 10 and 13.5 volts to represent the specified input voltage range.

3. The RQT-151M was connected to an IFR COM-120A Test Set used to measure the RF carrier power. The input to the Test Set provides a resistive 50-ohm termination at the frequencies and power levels used for this test.

4. A Fluke 179 multimeter was used to measure the I_{TX} transmitter current that supplies the driver and final RF amplifier stages.

5. Measurements were taken at the lower, middle and upper band edge frequencies.

6. Power was supplied to the RQT-151M at the BATTERY input by a BK Precision 1630 power supply set to 6 and 9 volts to represent the specified input voltage range.

7. Steps 3 through 5 were repeated with power supplied through the BATTERY input.

TYPE OF EXHIBIT: RADIO FREQUENCY POWER OUTPUT

FCC PART: 2.1046(a) per 95.639 (h)

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

MODELS: RQA-151M, RQT-151M

TYPE OF UNIT: VHF-FM Voice Message Transmitter

FCC ID: AIERIT32-151M

DATE: December 2, 2010

RESULTS:

EXTERNAL POWER

Frequency (MHz)	Input (VDC)	$+V_{TX}$ (VDC)	I_{TX} (mA)	Power (mW)
150.025	10	4.5	57	120
	13.5	4.5	57	120
156.025	10	4.2	54	120
	13.5	4.2	53	120
162.025	10	4.0	50	120
	13.5	4.0	50	120

BATTERY

Frequency (MHz)	Input (VDC)	$+V_{TX}$ (VDC)	I_{TX} (mA)	Power (mW)
150.025	6	4.4	57	120
	9	4.4	57	120
156.025	6	4.2	55	120
	9	4.2	55	120
162.025	6	4.0	51	120
	9	4.0	51	120

Signed: Michael A. Pickard

Michael A. Pickard - Project Engineer

TYPE OF TEST: TRANSMITTER AUDIO OVERALL RESPONSE

FCC PART: 2.1047 (a)

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

MODELS: RQA-151M, RQT-151M

TYPE OF UNIT: VHF-FM Voice Message Transmitter

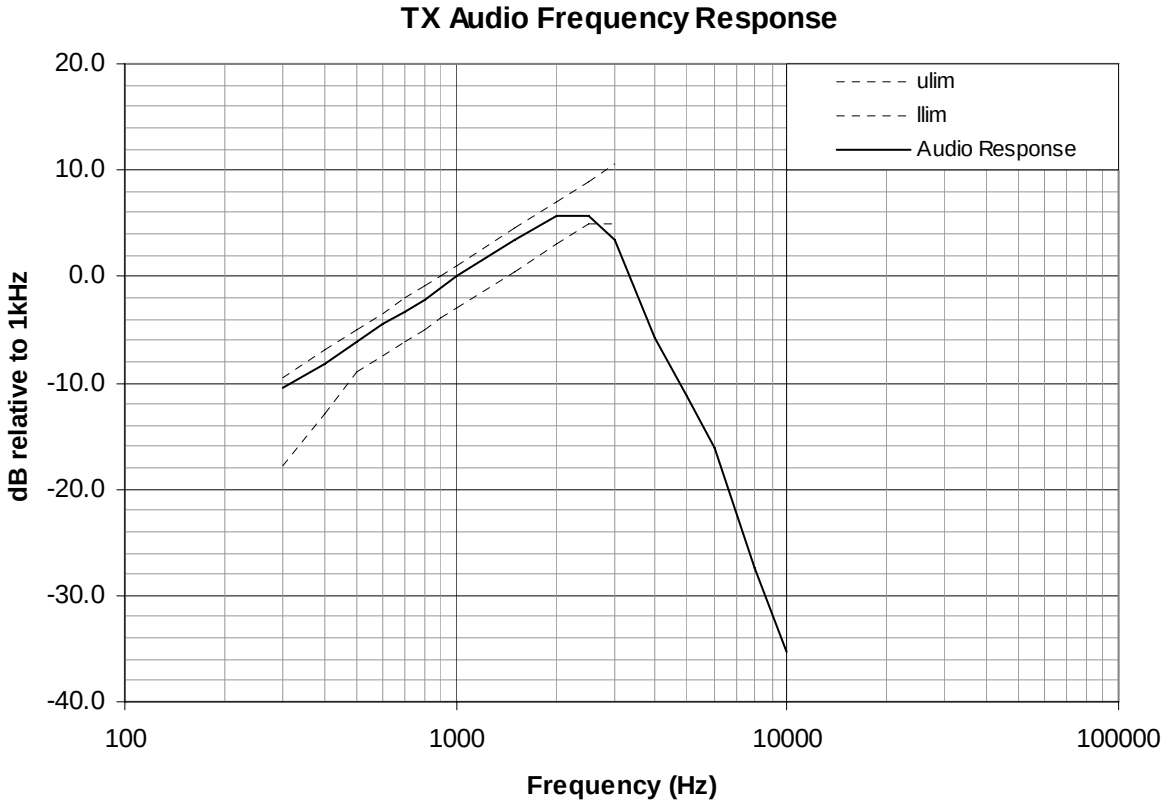
FCC ID: AIERIT32-151M

DATE: November 5, 2010

PROCEDURE:

The output of an IFR COM-120B audio function generator was applied to the input of the RQT-151M audio processing circuitry at C316 with the analog voice storage IC disconnected at a constant input level of .25 VP. The output frequency response was calculated as –20 log(Vin/Vref) where the reference is 1 kHz. TIA-603-B frequency response limits are shown.

RESULTS:



Signed: Michael A. Pickard

Michael A. Pickard - Project Engineer

TYPE OF TEST: TRANSMITTER AUDIO LOWPASS FILTER

FCC PART: 2.1047 (a)

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

MODELS: RQA-151M, RQT-151M

TYPE OF UNIT: VHF-FM Voice Message Transmitter

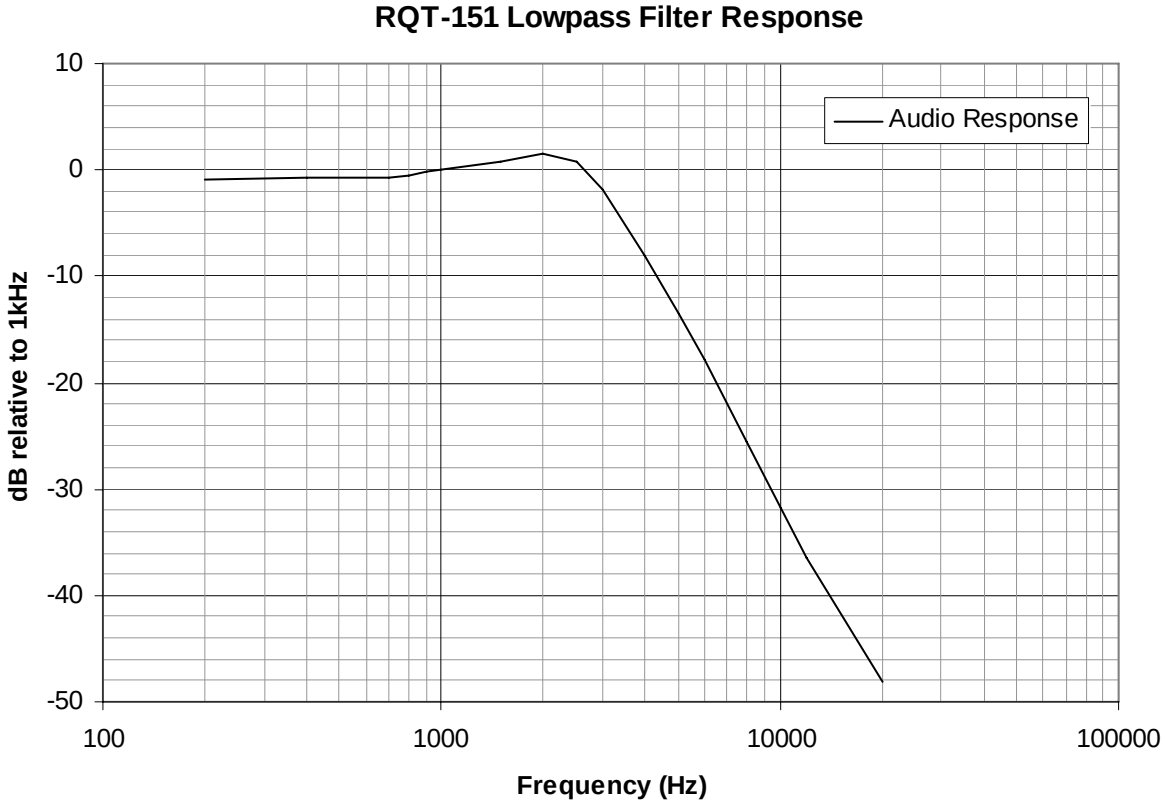
FCC ID: AIERIT32-151M

DATE: November 5, 2010

PROCEDURE:

The output of an IFR COM-120B audio function generator was applied to the input of the RQT-151M audio lowpass filter at R331 through a 0.1µF capacitor at a constant input level of 2.0 VP to keep the filter in a linear (not limiting) mode. The output frequency response was calculated as –20 log(Vin/Vref) where the reference is 1 kHz.

RESULTS:



Signed: Michael A. Pickard

Michael A. Pickard - Project Engineer

TYPE OF TEST: MODULATION LIMITING

FCC PART: 2.1047 (b)

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

MODELS: RQA-151M, RQT-151M

TYPE OF UNIT: VHF-FM Voice Message Transmitter

FCC ID: AIERIT32-151M

DATE: January 10, 2011

PROCEDURE:

1. The RQT-151M was programmed for transmitter operation on 156.025 MHz. The transmitter was adjusted for a deviation of +/- 2.5 kHz at 1900 Hz for narrow band operation.

2. The output of an IFR COM-120B audio function generator was applied to the input of the RQT-151M audio processing circuitry at C316 with the analog voice storage IC disconnected.

3. The output of the generator was adjusted from 0.01 VP to 2.5 VP at frequencies from 500 to 3000 Hz.

4. An IFR COM-120B was used to measure FM deviation. The resulting deviations were recorded as a percentage of the rated system deviation of +/- 2.5 kHz for narrow band operation.

5. An attached chart displays the narrow band (12.5 kHz) response.

6. The transmitter was adjusted for a deviation of +/- 5 kHz at 1900 Hz for wide band operation.

7. An IFR COM-120B was used to measure FM deviation. The resulting deviations were recorded as a percentage of the rated system deviation of +/- 5 kHz for wide band operation.

8. An attached chart displays the wide band (25 kHz) response.

TYPE OF TEST: MODULATION LIMITING

FCC PART: 2.1047 (b)

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

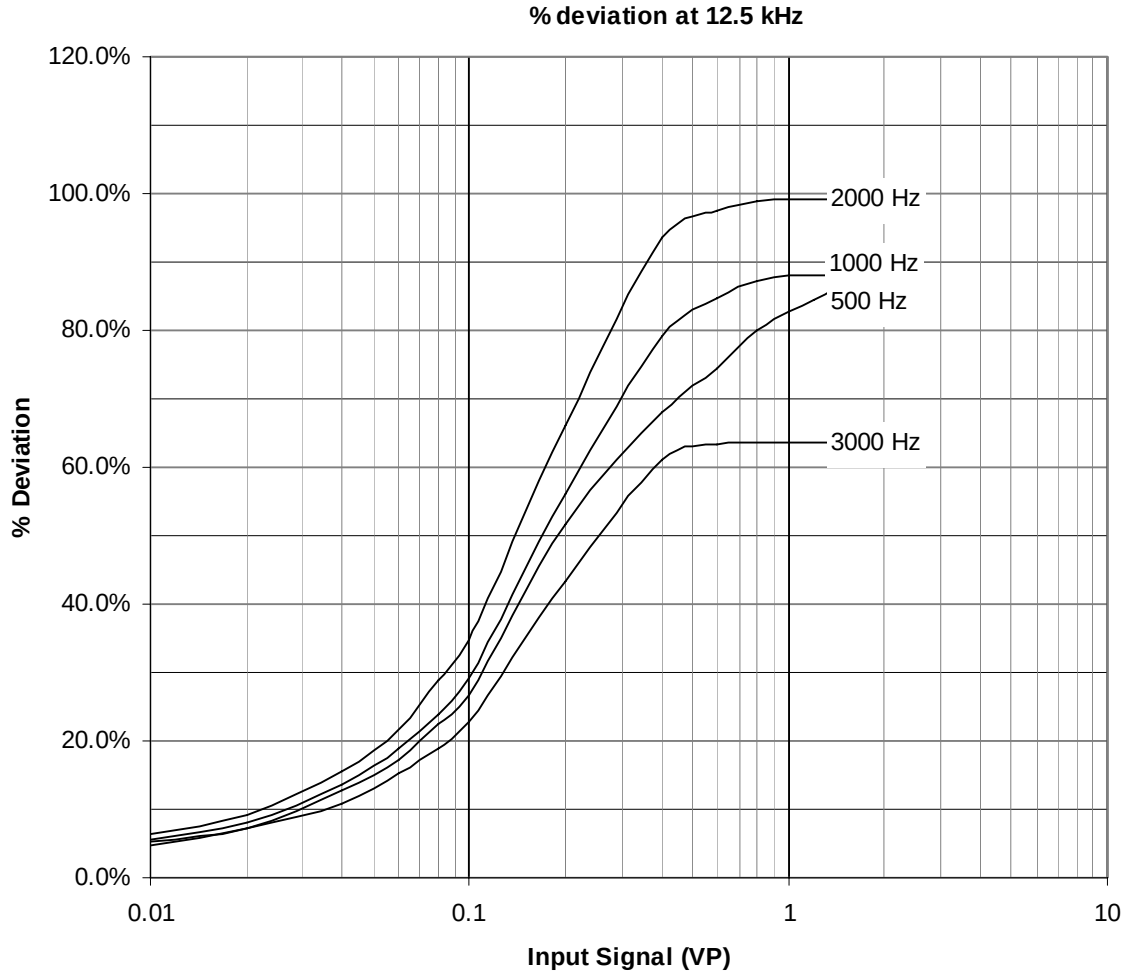
MODELS: RQA-151M, RQT-151M

TYPE OF UNIT: VHF-FM Voice Message Transmitter

FCC ID: AIERIT32-151M

DATE: January 10, 2011

DATA: 12.5 kHz narrow band channel



Signed: Michael A. Pickard

Michael A. Pickard - Project Engineer

TYPE OF TEST: MODULATION LIMITING

FCC PART: 2.1047 (b)

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

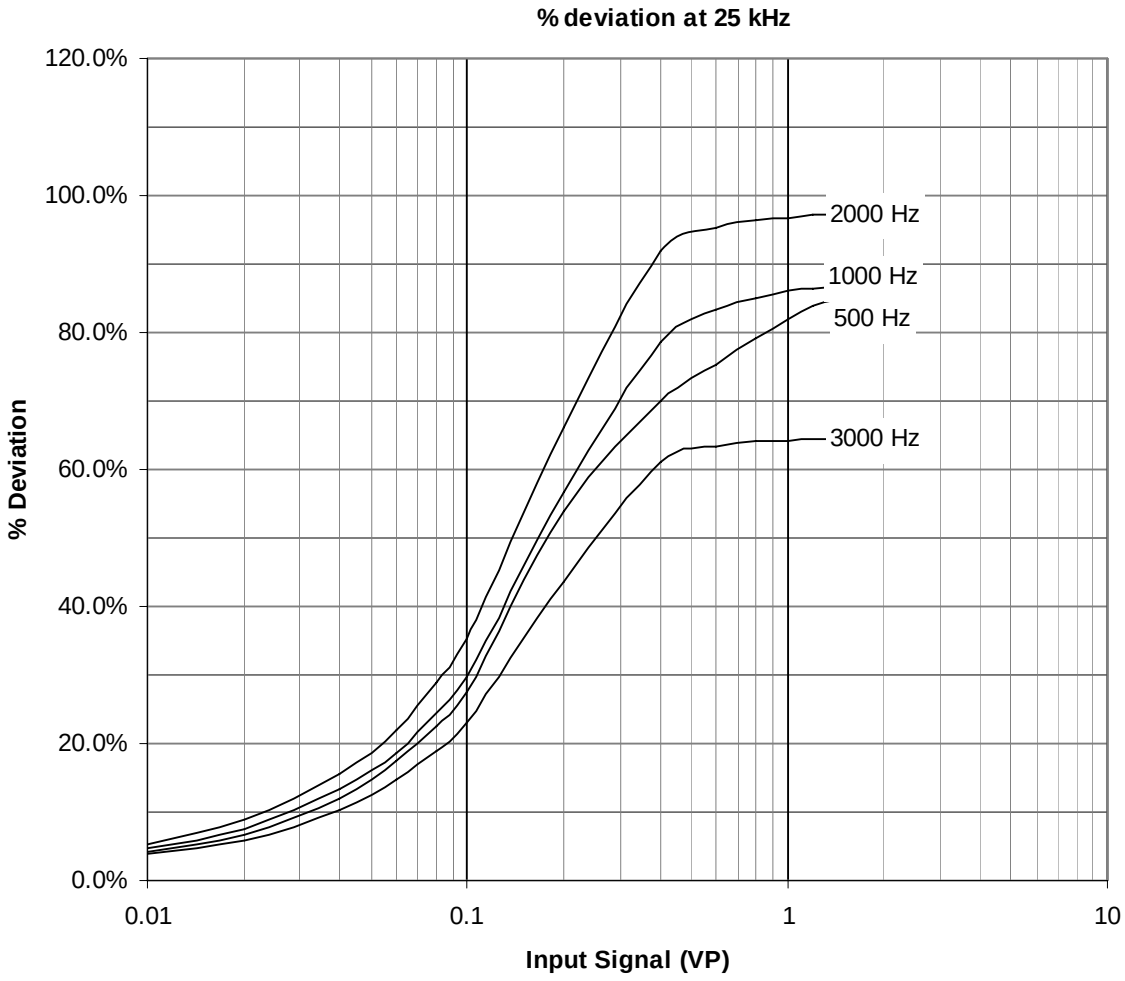
MODELS: RQA-151M, RQT-151M

TYPE OF UNIT: VHF-FM Voice Message Transmitter

FCC ID: AIERIT32-151M

DATE: January 10, 2011

DATA: 25 kHz narrow band channel



Signed: Michael A. Pickard

Michael A. Pickard - Project Engineer

TYPE OF TEST:	EMISSIONS DESIGNATOR
FCC PART:	2.1049 (c) per 95.631(j)
MANUFACTURER:	RITRON, INC. 505 West Carmel Drive Carmel, IN 46032
MODELS:	RQA-151M, RQT-151M
TYPE OF UNIT:	VHF-FM Voice Message Transmitter
FCC ID:	AIERIT32-151M
DATE:	January 10, 2011

CALCULATIONS:

By Carson's rule, the occupied bandwidth for an FM signal may be calculated by:

BW = $2(f_\Delta + f_m)$ where f_Δ is the frequency deviation and f_m is the modulating frequency.

The necessary bandwidth for narrow band voice channels is:

Maximum modulation frequency (f_m) in kHz	= 3
Maximum deviation (f_Δ) in kHz	= 2.5
Necessary bandwidth for **narrow band** in kHz	= 2(2.5 + 3) = 11

Narrowband emissions designator applied for is 11K0F3E.

The necessary bandwidth for wide band voice channels is:

Maximum modulation frequency (f_m) in kHz	= 3
Maximum deviation (f_Δ) in kHz	= 5
Necessary bandwidth for **wide band** in kHz	= 2(5 + 3) = 16

Wide band emissions designator applied for is 16K0F3E.

TYPE OF TEST: OCCUPIED BANDWIDTH

FCC PART: 2.1049 (c)(1) per 95.635 (e)

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

MODELS: RQA-151M, RQT-151M

TYPE OF UNIT: VHF-FM Voice Message Transmitter

FCC ID: AIERIT32-151M

DATE: January 7, 2011

PROCEDURE:

1. The RQT-151M was programmed for transmitter operation on 156.025 MHz. The transmitter was adjusted for a deviation of +/- 2.5 kHz at 1900 Hz for narrowband operation.

2. The RF output of the RQT-151M was measured with a HP435B wattmeter at 120 mW. Power was set at +9 VDC.

3. The output of an IFR COM-120B audio function generator was applied to the input of the RQT-151M audio processing circuitry at C316 with the analog voice storage IC disconnected. 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 at the frequency of maximum response.

Frequency of maximum response:	1900	Hz
Level for 50% system deviation:	0.15	VP
Level for 50% system deviation + 16DB:	0.95	VP

4. The unit's antenna port was connected to the Advantest R3265A spectrum analyzer. The spectrum analyzer was centered on 156.025 MHz and the sidebands were capture in max hold mode on the spectrum analyzer. The appropriate narrow band emission mask was also displayed. The attached photo shows voice occupied bandwidth for 12.5 kHz bandwidth operation with a 2500 Hz audio tone.

5. The RQT-151M was adjusted for a deviation of +/- 5 kHz at 1900 Hz for wide band operation.

6. The unit's antenna port was connected to the Advantest R3265A spectrum analyzer. The spectrum analyzer was centered on 156.025 MHz and the sidebands were capture in max hold mode on the spectrum analyzer. The appropriate wide band emission mask was also displayed. The attached photo shows voice occupied bandwidth for 25 kHz bandwidth operation with a 2500 Hz audio tone.

TYPE OF TEST: 12.5 kHz VOICE OCCUPIED BANDWIDTH

FCC PART: 2.1049 (c)(1) per 95.635 (e)(1)

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

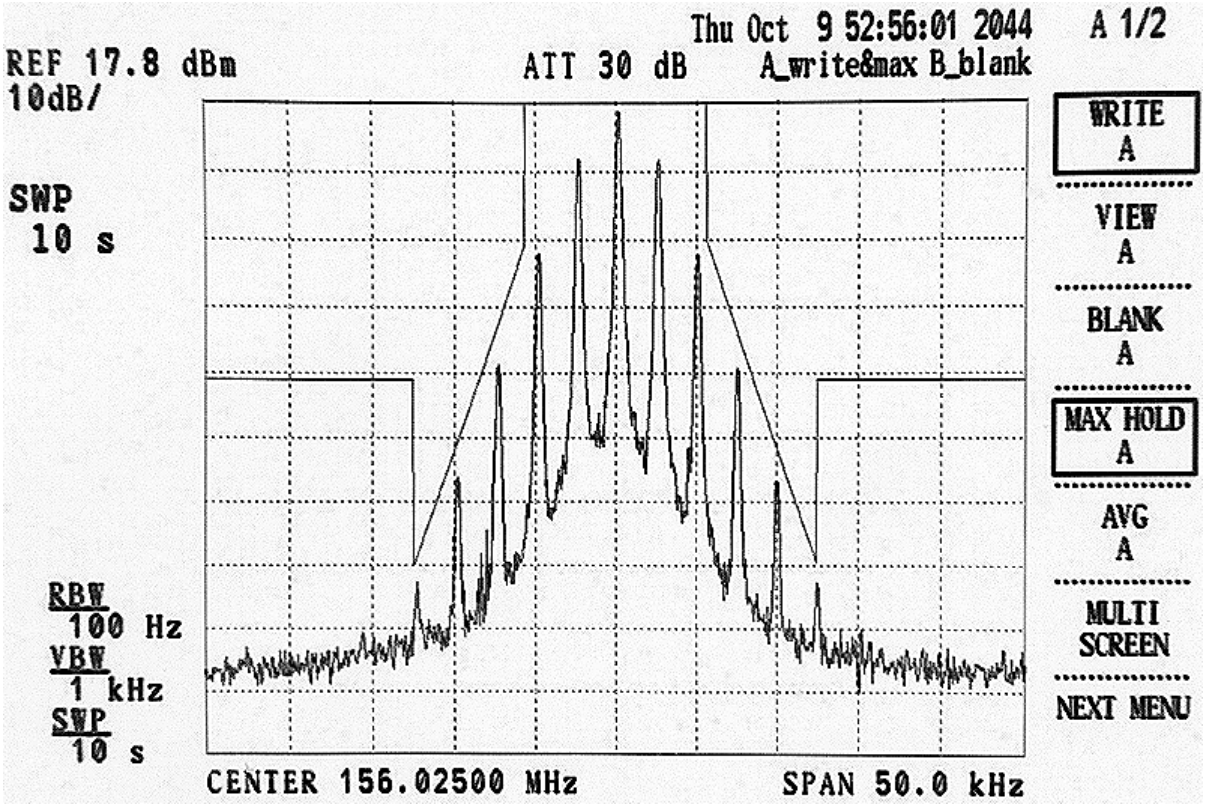
MODELS: RQA-151M, RQT-151M

TYPE OF UNIT: VHF-FM Voice Message Transmitter

FCC ID: AIERIT32-151M

DATE: November 5, 2010

DATA: 12.5 kHz channel with 2500 Hz tone.



Signed: Michael A. Pickard

Michael A. Pickard - Project Engineer

TYPE OF TEST: 12.5 kHz VOICE OCCUPIED BANDWIDTH

FCC PART: 2.1049 (c)(1) per 95.635 (e)(2)

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

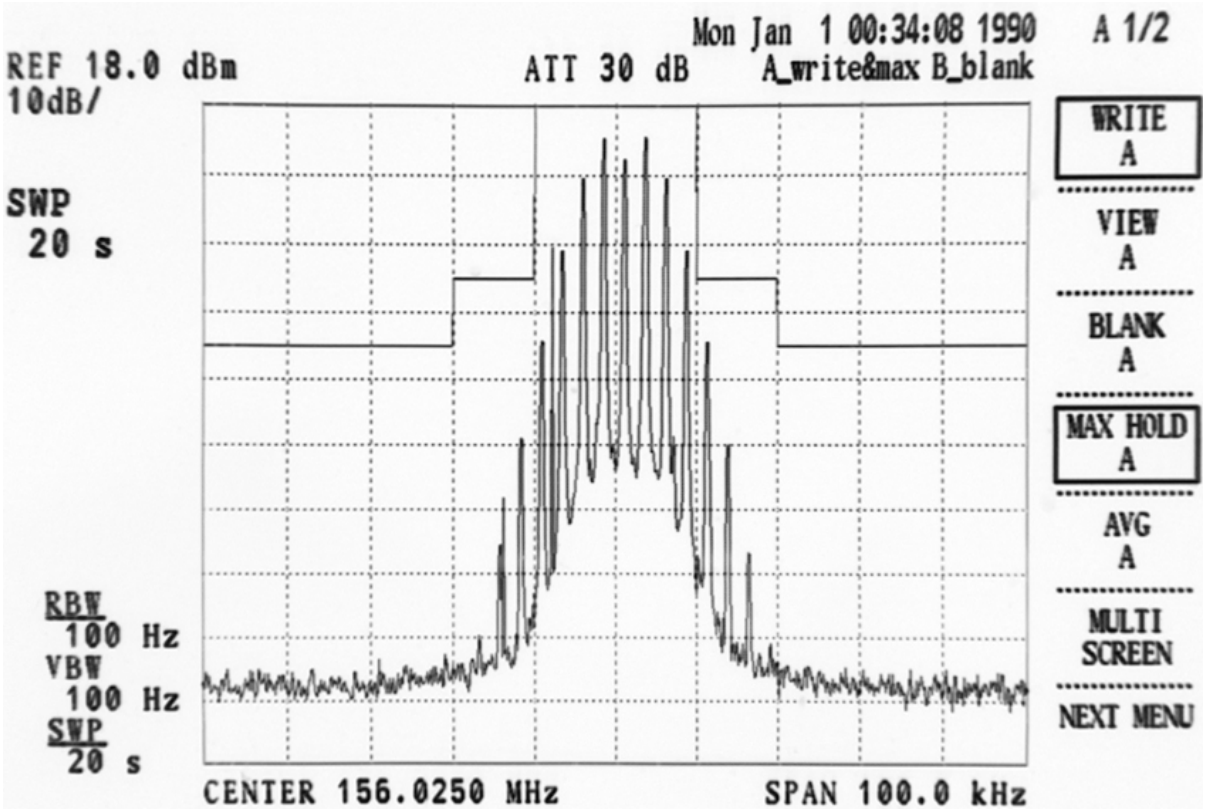
MODELS: RQA-151M, RQT-151M

TYPE OF UNIT: VHF-FM Voice Message Transmitter

FCC ID: AIERIT32-151M

DATE: January 7, 2011

DATA: 25 kHz channel with 2500 Hz tone.



Signed: Michael A. Pickard

Michael A. Pickard - Project Engineer

TYPE OF TEST: SPURIOUS EMISSIONS AT ANTENNA TERMINALS

FCC PART: 2.1051 per 95.635 (e)(1)

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

MODELS: RQA-151M, RQT-151M

TYPE OF UNIT: VHF-FM Voice Message Transmitter

FCC ID: AIERIT32-151M

DATE: November 3, 2010

PROCEDURE:

1. The RQT-151M was programmed for transmitter operation on low, middle and high frequencies.
2. The supply voltage was set to +9 VDC through battery connector P500.
3. The transmitter was modulated by a 2500 Hz tone at an input level 16 dB greater than that necessary to produce 50 percent modulation as specified in FCC Part 2.1049 (c)(1).
4. The RQT-151M antenna terminal was connected to the input of an Advantest R3265A Spectrum Analyzer through a 272 MHz high-pass filter used to attenuate the carrier. The measured insertion loss of the high-pass filter and cable loss is listed on the data sheet.
5. The spectrum was searched from 8 MHz to the 10th harmonic of the operating frequency. All unreported emissions are more than 20 dB below the FCC limit.

RESULTS:

Power Output: 120 mW **FCC Attenuation per Part 95.635(e)(1):** 40.8 dBc

Multiple of Carrier	Emission Frequency MHz	Analyzer Reading dBm	Attenuation Correction Factor-dB	Spurious Power dBm	Spurious Power dBc	FCC Limit dBc	dB below FCC Limit
	150.025	-32.7	51.2	18.5			
3	450.075	-35.1	1.6	-33.5	-52.0	-40.8	11.2
4	600.100	-40.4	1.9	-38.5	-57.0	-40.8	16.2
5	750.125	-38.2	3.0	-35.2	-53.7	-40.8	12.9
6	900.150	-41.5	2.7	-38.8	-57.3	-40.8	16.5
7	1050.175	-38.9	2.5	-36.4	-54.9	-40.8	14.1
	156.025	-29.2	49.7	20.5			
3	468.075	-35.8	1.8	-34.0	-54.5	-40.8	13.7
5	780.125	-38.3	2.7	-35.6	-56.1	-40.8	15.3
6	936.150	-35.9	3.0	-32.9	-53.4	-40.8	12.6
	162.025	-26.5	46.7	20.2			
3	486.075	-31.9	1.9	-30.0	-50.2	-40.8	9.4
5	810.125	-35.5	2.1	-33.4	-53.6	-40.8	12.8
10	1620.250	-37.1	2.7	-34.4	-54.6	-40.8	13.8

Signed: Michael A. Pickard

Michael A. Pickard - Project Engineer

TYPE OF TEST: FIELD STRENGTH OF SPURIOUS EMISSIONS

FCC PART: 2.1053 per 95.635 (e)(1)

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

MODELS: RQA-151M, RQT-151M

TYPE OF UNIT: VHF-FM Voice Message Transmitter

FCC ID: AIERIT32-151M

DATE: November 15, 2010

PROCEDURE:

1. Field strength of spurious radiation of the RQT-151M was taken at the RITRON, Inc. 3-meter test site, details of which are on file with the FCC. The measurement was via the substitution method.

2. The RQT-151M and RQA-151M were aligned for transmitter operation on 150.025 MHz, 156.025 MHz, and 162.025 MHz at the rated 120 mW transmitter output power. These 3 frequencies represent the low, middle, and upper range of the desired operating band. The radio was powered by 6 internal AA batteries.

3. The RQT-151M was terminated at the antenna port with the Ritron AFB-1545 antenna include with the product. The RQA-151M was terminated at the antenna port with the standard internal antenna include with the product. (The user can connect other antennas, however.)

3. All field strength measurements were made with the Advantest R3265A Spectrum Analyzer connected to the Electro-Metrics LPA-25 log periodic or EMCO horn receiving antenna.

4. A calibrated ½-wave dipole antenna was substituted at the radio side of the range driven by a known power level from an HP 8657B RF signal generator to produce a known ERP at each harmonic. The receiving antenna was oriented both vertically and horizontally and reference measurements were taken at each harmonic. Cable loss from generator to the dipole was taken into account.

5. For each emission, the height and polarization of the field strength measuring antenna and orientation of the RQT-151M and RQA-151M were varied to find maximum field strength.

6. The spectrum was searched up to the 10th harmonic of the transmit frequency. All non-harmonics were less than 20 dB below the FCC limits specified in Part 95.635(e)(1). All harmonics with greater than 20 dB margin were not reported.

TYPE OF TEST: FIELD STRENGTH OF SPURIOUS EMISSIONS
FCC PART: 2.1053
MODELS: RQA-151M, RQT-151M
FCC ID: AIERIT32-151M
DATE: November 15, 2010

Power Output: 120 mW **FCC Attenuation per Part 95.635(e)(1):** 40.8 dBc

			Vertical				
Multiple of Carrier	**Emission Frequency MHz**	**Measured Reading @ -20 dBm**	**Substitution Reading @ -20 dBm**	**Spurious Reading dBm**	**Spurious Level dBc**	**FCC Limit dBC**	**dB below FCC Limit**
5	750.125	-24.3	-56.8	-68.8	-57.1	-40.8	16.3
7	1050.175	-25.0	-63.1	-72.0	-54.7	-40.8	13.9
8	1200.200	-25.3	-68.2	-73.6	-51.5	-40.8	10.7
9	1350.225	-25.5	-65.6	-68.7	-49.4	-40.8	8.6
8	1248.200	-25.4	-69.3	-72.9	-49.8	-40.8	9.0
9	1404.225	-25.7	-67.3	-63.6	-42.8	-40.8	2.0
10	1560.250	-25.9	-70.1	-78.8	-55.4	-40.8	14.6
5	810.125	-24.6	-56.9	-71.1	-59.6	-40.8	18.8
6	972.150	-25.0	-60.7	-69.3	-54.4	-40.8	13.6
7	1134.175	-25.1	-67.3	-79.1	-57.7	-40.8	16.9
8	1296.200	-25.4	-69.3	-72.5	-49.4	-40.8	8.6
9	1458.225	-25.9	-69.4	-66.1	-43.4	-40.8	2.6
10	1620.250	-26.1	-70.6	-78.5	-54.8	-40.8	14.0

			Horizontal				
Multiple of Carrier	**Emission Frequency MHz**	**Measured Reading @ -20 dBm**	**Substitution Reading @ -20 dBm**	**Spurious Reading dBm**	**Spurious Level dBc**	**FCC Limit dBC**	**dB below FCC Limit**
3	450.075	-23.8	-47.1	-61.9	-59.4	-40.8	18.6
5	750.125	-24.3	-54.9	-63.6	-53.8	-40.8	13.0
6	900.150	-24.8	-62.3	-71.7	-55.0	-40.8	14.2
7	1050.175	-25.0	-65.0	-70.5	-51.3	-40.8	10.5
8	1200.200	-25.3	-68.5	-70.1	-47.7	-40.8	6.9
9	1350.225	-25.5	-66.4	-73.9	-53.8	-40.8	13.0
10	1500.250	-25.9	-69.7	-79.4	-56.4	-40.8	15.6
5	780.125	-24.6	-56.2	-64.7	-53.9	-40.8	13.1
6	936.150	-25.1	-59.5	-71.4	-57.8	-40.8	17.0
7	1092.175	-25.1	-66.8	-80.5	-59.6	-40.8	18.8
8	1248.200	-25.4	-68.7	-78.1	-55.6	-40.8	14.8
9	1404.225	-25.7	-69	-72.1	-49.6	-40.8	8.8
10	1560.250	-25.9	-71.3	-77.4	-52.8	-40.8	12.0
6	972.150	-25.0	-59.2	-69.7	-56.3	-40.8	15.5
8	1296.200	-25.4	-70.3	-74.3	-50.2	-40.8	9.4
9	1458.225	-25.9	-70.1	-68.7	-45.3	-40.8	4.5
10	1620.250	-26.1	-69.7	-76.5	-53.7	-40.8	12.9

Signed: Michael A. Pickard

Michael A. Pickard - Project Engineer

TYPE OF TEST: FREQUENCY STABILITY VS. TEMPERATURE

FCC PART: 2.1055 (a)(1) per 95.632 (c)

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

MODELS: RQA-151M, RQT-151M

TYPE OF UNIT: VHF-FM Voice Message Transmitter

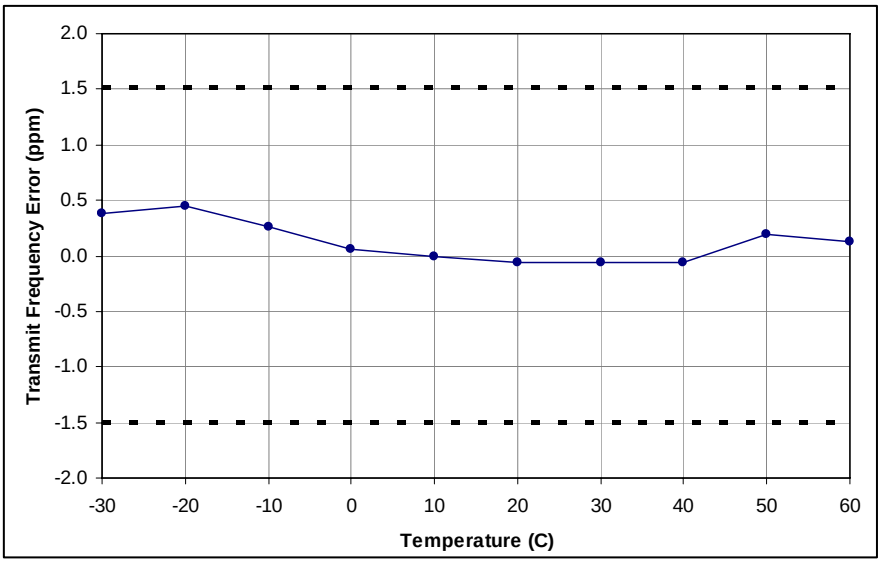
FCC ID: AIERIT32-151M

DATE: October 20, 2010

PROCEDURE:

1. The RQT-151M was programmed for operation at 120 mW on 156.025 MHz.
2. The unit was placed inside a Delta Design Model 3900 CL temperature chamber and supplied with +9 VDC through battery connector P500. The antenna terminal was connected to the input of an IFR COM-120B RF communications test set used to measure frequency of the carrier. A Triplett model 320-G/P thermocouple was placed inside the chamber to measure temperature.
3. Frequency was measured at +25°C and recorded as a reference frequency.
4. The temperature was raise to +30°C for 30 minutes, at which time the transmitter frequency was measured and recorded.
5. Step 4 was repeated in +10°C increments up to +60°C.
6. The unit was allowed to return naturally back to the ambient room temperature of +25°C.
7. The temperature was lowered to +20°C for 30 minutes, at which time the transmitter frequency was measured and recorded.
8. Step 8 was repeated in -10°C increments down to -30°C.
9. The frequency remained within the 1.5 ppm specified across the full -30°C to +60°C temperature range.

Temp C	Frequency (MHz)	Error (ppm)
-30	156.025040	0.38
-20	156.025050	0.45
-10	156.025020	0.26
0	156.024990	0.06
10	156.024980	0.00
20	156.024970	-0.06
30	156.024970	-0.06
40	156.024970	-0.06
50	156.025010	0.19
60	156.025000	0.13
25	156.024980	



Signed: Michael A. Pickard

Michael A. Pickard - Project Engineer

TYPE OF TEST: FREQUENCY STABILITY VS. VOLTAGE

FCC PART: 2.1055 (d)(1) per 95.632 (c)

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

MODELS: RQA-151M, RQT-151M

TYPE OF UNIT: VHF-FM Voice Message Transmitter

FCC ID: AIERIT32-151M

DATE: October 21, 2010

PROCEDURE:

1. The RQT-151M was programmed for operation at 156.025 MHz.
2. The RQT-151M antenna terminal was connected to the input of an IFR COM-120B communications test set, used to measure frequency of the carrier.
3. A BK Precision Model 1630 power supply was used to apply supply voltage at the battery input.
4. Frequency was checked from 85% of minimum to 115% of maximum specified operating voltage.

   Minimum of 6.0 x 0.85 = 5.1 V Maximum of 9 x 1.15 = 10.35 V.
5. The radio was put into transmit mode and the measured frequency at 7.5 VDC was used as a reference.
6. The BK Precision Model 1630 power supply was used then to apply supply voltage at the external power input.
7. Frequency was checked from 85% of minimum to 115% of maximum specified operating voltage.

   Minimum of 11.0 x 0.85 = 9.35 V Maximum of 9 x 1.15 = 19.55 V.
8. The radio was put into transmit mode and the measured frequency at 12 VDC was used as a reference.

VDC	Condition	Frequency (Mhz)	Error (ppm)
5.10	Battery @ 85%	156.024935	0.4
7.50	Battery Nominal	156.025000	0.0
10.35	Battery @ 115%	156.025000	0.0
9.35	External Power @ 85%	156.025000	0.0
12.00	External Power Nominal	156.025000	0.0
19.55	External Power @ 115%	156.025000	0.0

Signed: Michael A. Pickard

Michael A. Pickard - Project Engineer