GENERAL INFORMATION REQUIREMENTS

Paragraph 2.983(a)

Name of Applicant:	**Wittis Golden Eagle Technology Limited**
Address of Applicant:	**Flat A-B, 11/Floor, Wah Lik Industrial Centre, 459-469 Castle Peak Road Tsuen Wan, N.T., Hong Kong**
Name of Manufacturer:	**Wittis Golden Eagle Technology Limited**
Address of Manufacturer:	**Flat A-B, 11/Floor, Wah Lik Industrial Centre, 459-469 Castle Peak Road Tsuen Wan, N.T., Hong Kong**

Paragraph 2.983(b)

Equipment Identification:	**FCC ID: P67WG-5M5HH**

Paragraph 2.02(c)(1)

Necessary Bandwidth Determination:

The necessary bandwidth was calculated utilizing the following formula:

$B_n = 2M + 2D$ M = 3.0 kHz, D = 1.9 kHz

$B_n = 2(3.0) + 2(1.9) = 9.8$ kHz

Paragraph 2.1046

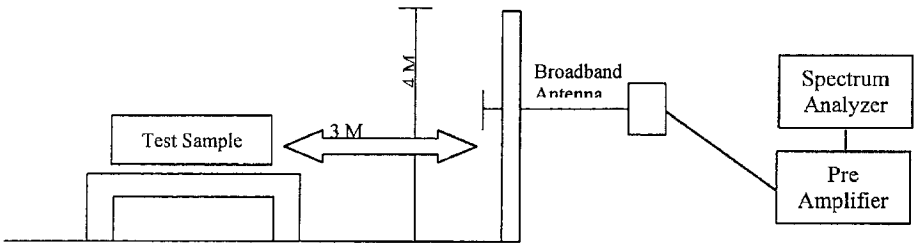
Power Output, Effective Radiated Power

POWER OUTPUT, EFFECTIVE RADIATED POWER (Para. 2.1046)

A. Measurement Procedure:

The transmitter under test was placed on an 80-cm. high non-metallic table on the Open Air Test Site with its antenna polarized vertically. A receive dipole antenna was placed three meters away from the transmitter. The turntable was rotated 360 degrees and the receive antenna was raised and lowered from 1 to 4 meters until a maximum reading was obtained. This reading was recorded. The transmitter under test was replaced with a dipole and signal generator. The signal generator was set to the frequency of the transmitter under test. The level of the signal generator was increased until the level was equal to that previously measured. The required input level from the signal generator in dBm was recorded and converted into milliwatts. This was the Effective Radiated Power of the transmitter. These measurements were recorded for the vertical and horizontal polarizations of the antenna.

Setup of the test is shown below:



B. Test Results:

See the following single data sheet for complete results obtained.

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

TEST METHOD:	**POWER OUTPUT, EFFECTIVE RADIATED POWER METHOD, PARAGRAPH 2.985**
CUSTOMER:	Golden Eagle Electronics Manufactory LTD — JOB No.: R-9323-1
TEST SAMPLE:	462 MHz Family Radio Service Transmitter FCC ID: P67WG-5M5HH
MODEL No.:	5M-3-6-8 — SERIAL No.: N/A
TEST SPECIFICATION:	FCC PART 95 PARAGRAPH: 95.639(d)
OPERATING MODE:	CONTINUOUSLY TRANSMITTING A CW SIGNAL AT CENTER FREQUENCY/CHANNEL SHOWN BELOW.
TECHNICIAN:	RV / TS — DATE: July12,1999
NOTES:	

CENTER FREQUENCY	CHANNEL	Antenna Orientation	METER READING			Signal Gen. Output Level	CONVERTED READING	LIMIT
MHz			dBuV			dBm	mWatts	mWatts
								500
462.68	06	V	87.1			+10.2	12.0	|
462.68	06	H	82.7			+13.0	20.0	|
								|
467.60	13	V	88.0			+9.2	8.30	V
467.60	13	H	84.4			+14.1	25.7	500

The EUT was placed on a tabletop, and the radiated output level was measured with a dipole antenna. After the level was maximized, the EUT was replaced with another dipole and a signal generator. The level of the generator was raised until it matched the level recorded from the EUT and this was considered to be the output power.

Paragraph 2.1047

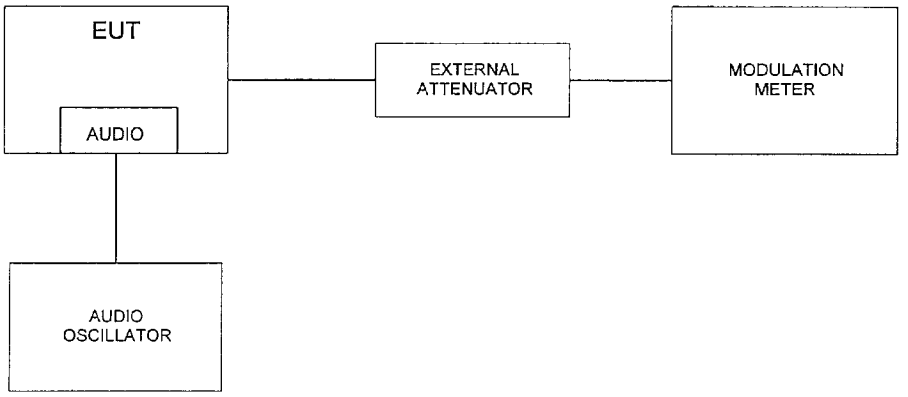
Modulation Characteristics

MODULATION CHARACTERISTICS (2.1047)

A. Measurement Procedure:

An Audio Oscillator was coupled to the Audio Input of the transmitter under test. The RF Output at the antenna terminals was loosely coupled to a modulation meter as shown below. The Audio Input level was adjusted from -60dBm to 0dBm at each frequency listed herein. At each test frequency and level, the FM modulation was recorded.

Setup of the above test is shown below:



B. Test Results:

See the following three data sheets (1 for Audio Frequency Response and 2 for Modulation Characteristics) for complete results obtained.

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

TEST METHOD: **Audio Frequency Response (50 Hz TO 4 KHz)**

CUSTOMER: Golden Eagle Electronics Manufactory LTD. JOB No.: R-9323-1

TEST SAMPLE: 462 MHz Family Radio

MODEL No.: 5M-3-6-8 FCC ID: P67WG-5M5HH SERIAL No.: N/A

TEST SPECIFICATION: FCC Part 95 Personal Radio Services; Subpart E: Technical Regulations. PARAGRAPH: 95.637

OPERATING MODE: Unit set to channel 06 and transmitting

TECHNICIAN: N. Dragotta DATE: July 08, 1999

NOTES: **Modulation signal input level at 0 dBm.
**Maximum Audio Frequency Response = 3.125 kHz Temperature: 23° C. Humidity: 39%

Audio Input Frequency	FM Deviation							
Hz	kHz							
50	0.5							
100	0.5							
300	0.8							
500	1.0							
750	1.0							
1000	1.0							
1500	0.9							
2000	0.8							
2500	0.8							
3000	0.8							
3125	0.7							
4000	0.7							

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

TEST METHOD: MODULATION CHARACTERISTICS (50 Hz TO 4 KHz)

CUSTOMER: Golden Eagle Electronics Manufactory LTD. JOB No.: R-9323-1

TEST SAMPLE: 462 MHz Family Radio

MODEL No.: 5M-3-6-8 FCC ID: P67WG-5M5HH SERIAL No.: N/A

TEST SPECIFICATION: FCC Part 95 Personal Radio Services; Subpart E: Technical Regulations. PARAGRAPH: 95.637

OPERATING MODE: Unit set to channel 06 and transmitting at 462.6875 MHz.

TECHNICIAN: N. Dragotta DATE: July 08, 1999

NOTES: Temperature: 23° C. Humidity: 39%

Audio Input Frequency	Input Level	FM Deviation	Maximum FM Deviation Limit		Audio Input Frequency	Input Level	FM Deviation	Maximum FM Deviation Limit
Hz	dbm	kHz			Hz	dbm	kHz	kHz
50	-60	0.2	2.5		1000	-60	0.3	2.5
|	-50	0.2	|		|	-50	0.3	|
|	-40	0.2	|		|	-40	0.3	|
|	-30	0.2	|		|	-30	0.3	|
|	-20	0.3	|		|	-20	0.5	|
V	-10	0.3	V		V	-10	1.1	V
50	0	0.6	2.5		1000	0	1.8	2.5
100	-60	0.2	2.5		1500	-60	0.3	2.5
|	-50	0.2	|		|	-50	0.3	|
|	-40	0.2	|		|	-40	0.3	|
|	-30	0.2	|		|	-30	0.3	|
|	-20	0.3	|		|	-20	0.4	|
V	-10	0.3	V		V	-10	0.7	V
100	0	0.5	2.5		1500	0	1.2	2.5
300	-60	0.2	2.5		2000	-60	0.3	2.5
|	-50	0.2	|		|	-50	0.3	|
|	-40	0.2	|		|	-40	0.3	|
|	-30	0.2	|		|	-30	0.3	|
|	-20	0.3	|		|	-20	0.5	|
V	-10	0.6	V		V	-10	0.7	V
300	0	1.2	2.5		2000	0	1.3	2.5
500	-60	0.2	2.5		2500	-60	0.3	2.5
|	-50	0.3	|		|	-50	0.3	|
|	-40	0.3	|		|	-40	0.3	|
|	-30	0.3	|		|	-30	0.3	|
|	-20	0.4	|		|	-20	0.4	|
V	-10	0.6	V		V	-10	0.6	V
500	0	1.4	2.5		2500	0	0.8	2.5
750	-60	0.3	2.5		3000	-60	0.3	2.5
|	-50	0.4	|		|	-50	0.3	|
|	-40	0.4	|		|	-40	0.3	|
|	-30	0.4	|		|	-30	0.3	|
|	-20	0.4	|		|	-20	0.3	|
V	-10	0.8	V		V	-10	0.6	V
750	0	1.9	+/- 2.5		3000	0	1.5	+/- 2.5

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

TEST METHOD: **MODULATION CHARACTERISTICS (50 Hz TO 4 KHz)**

CUSTOMER: Golden Eagle Electronics Manufactory LTD. JOB No.: R-9323-1

TEST SAMPLE: 462 MHz Family Radio

MODEL No.: 5M-3-6-8 FCC ID: P67WG-5M5HH SERIAL No.: N/A

TEST SPECIFICATION: FCC Part 95 Personal Radio Services; Subpart E: Technical Regulations. PARAGRAPH: 95.637

OPERATING MODE: Unit set to channel 06 and transmitting at 462.6875 MHz.

TECHNICIAN: N. Dragotta DATE: July 08, 1999

NOTES: Temperature: 23° C. Humidity: 39%

Audio Input Frequency	Input Level	FM Deviation	Maximum FM Deviation Limit					
Hz	dbm	kHz	kHz					
3125	-60	0.3	2.5					
"	-50	0.3	"					
"	-40	0.3	"					
"	-30	0.3	"					
"	-20	0.3	"					
V	-10	0.6	V					
3125	0	0.8	2.5					
4000	-60	0.3	2.5					
"	-50	0.3	"					
"	-40	0.3	"					
"	-30	0.3	"					
"	-20	0.4	"					
V	-10	0.7	V					
4000	0	0.9	2.5					

Paragraph 2.1049

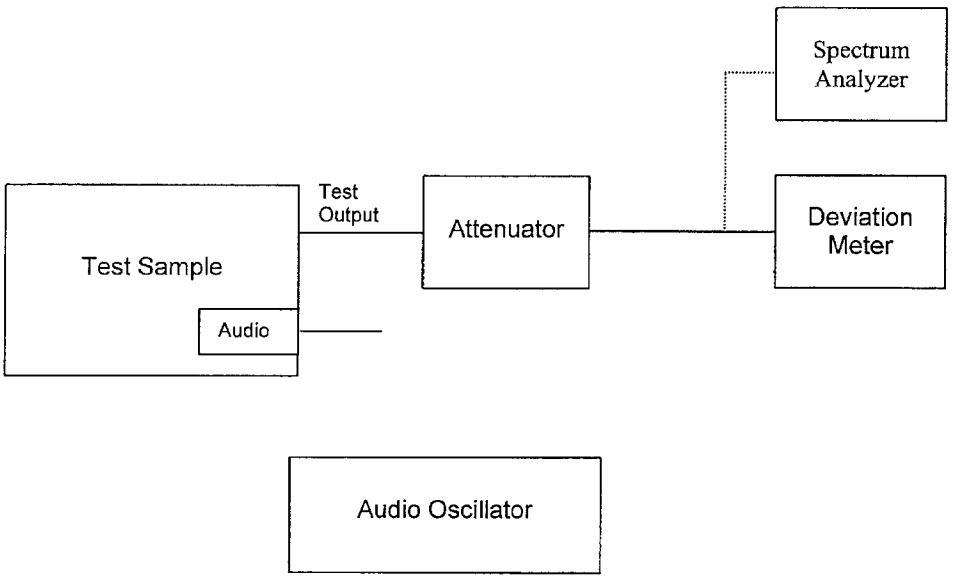
Occupied Bandwidth

OCCUPIED BANDWIDTH (PARA.2.1049)

A. Measurement Procedure:

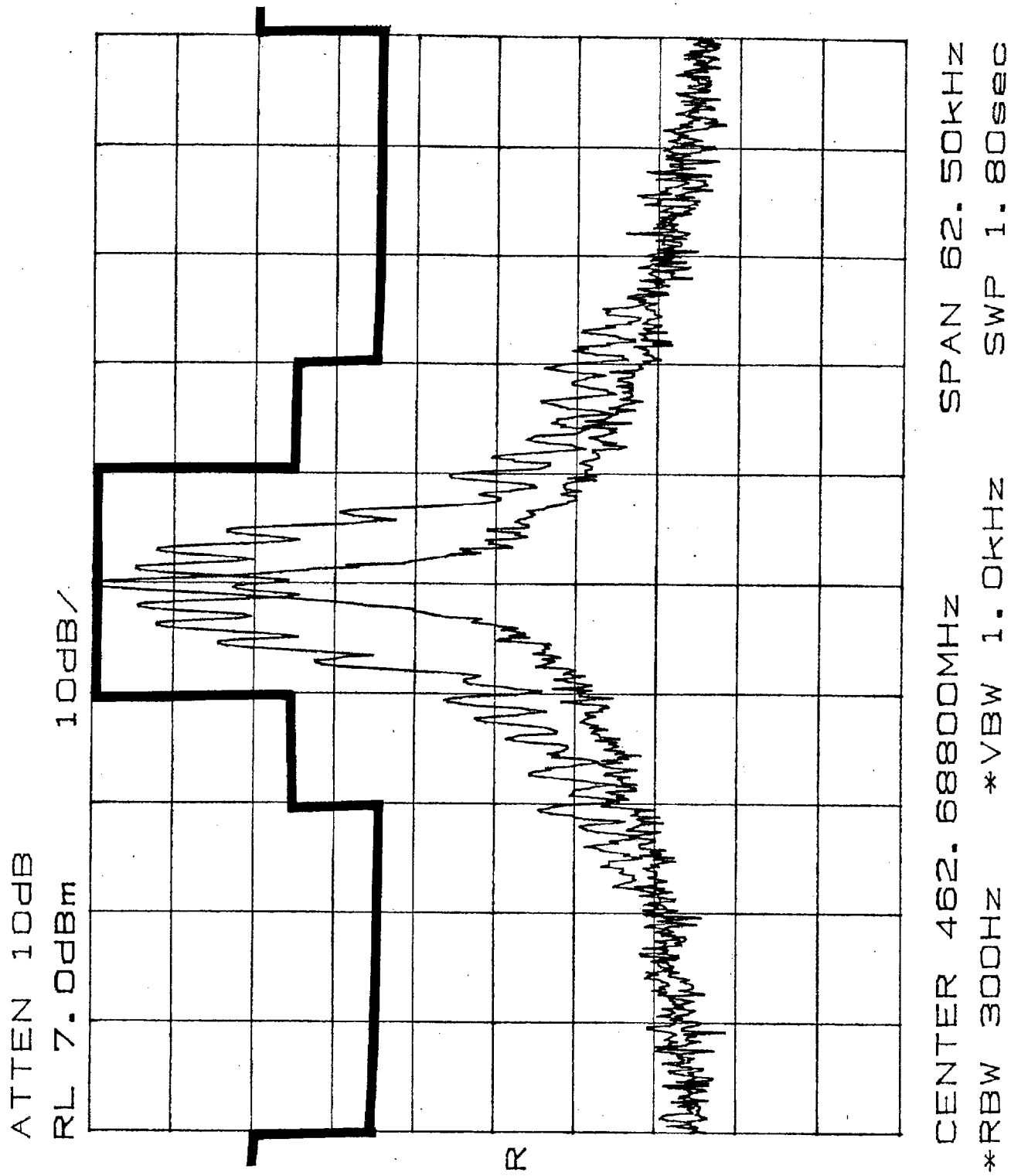
An audio signal was electrically coupled to the audio input terminals of the test sample. The RF output was monitored using a deviation meter. The audio input level was increased to produce 50% modulation. The RF output was then loosely coupled through external attenuators to a spectrum analyzer and the audio level was increased by 16 dB. The occupied bandwidth of the RF carrier, modulated at 50% plus 16 dB, was then measured. The above procedure was performed with the audio input frequencies of 1000, 2500, and 3125 kHz. The modulated signal must be within the template as specified by the applicable paragraph in Part 95. The above was performed at the low and high frequencies.

Setup of the test is shown below:



B. Test Results:

See the following six data sheets for complete results obtained.

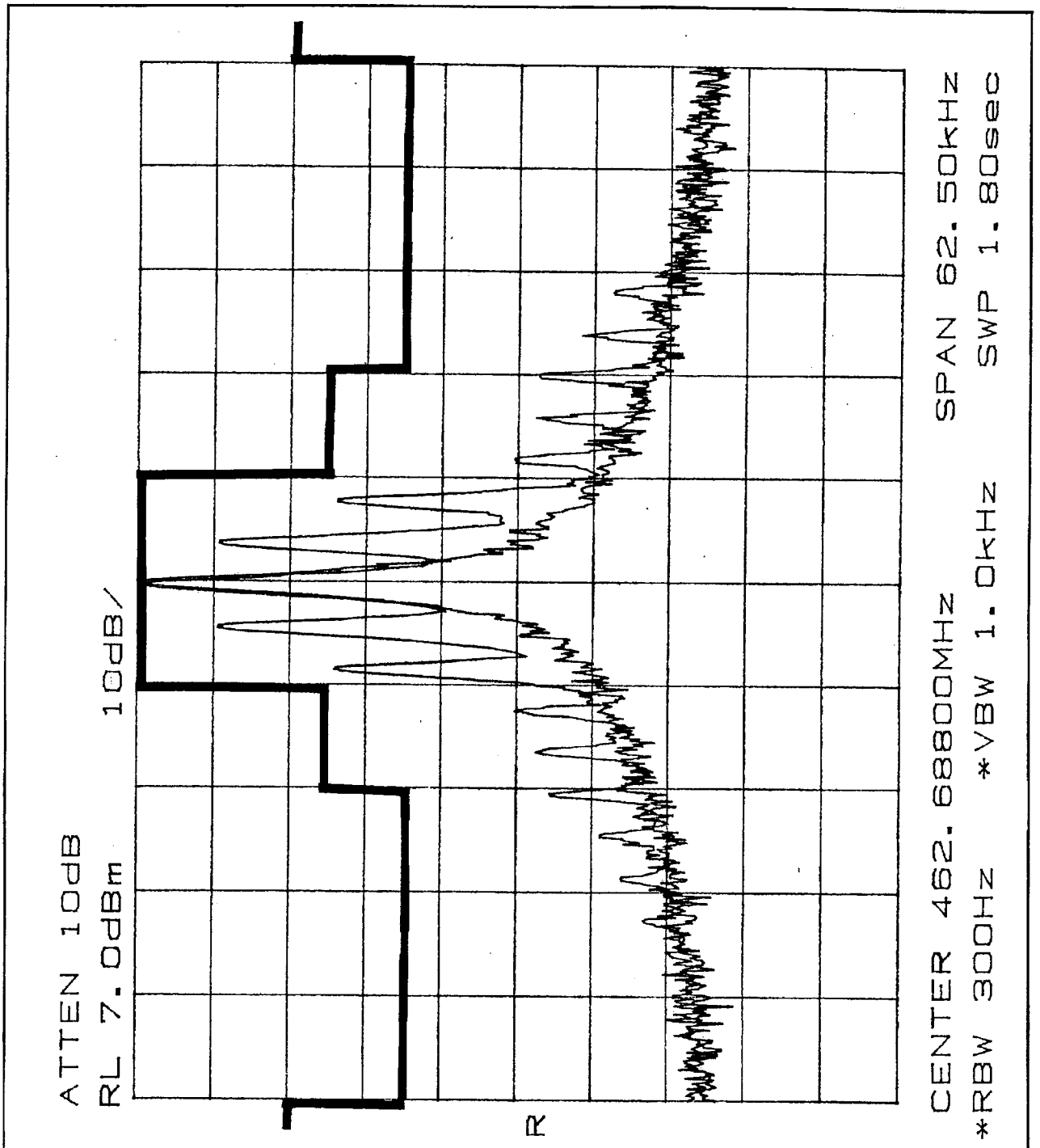


Customer:	Golden Eagle Electronics
Test Sample:	FRS Radio Transmitter
Model No.:	~~FG6 IB: BPV5M 3 6 8~~ mw FCC ID: P67WG-5M5HH
Test Method:	Occupied Bandwidth
Notes:	Channel 6, Center Frequency= 462.6875 MHz, Audio Input set to 1 kHz at 50% modulation +16 dB input level

Date: July 20, 1999 Tech: T. Schneider Sheet 1 of 6

Retlif Testing Laboratories

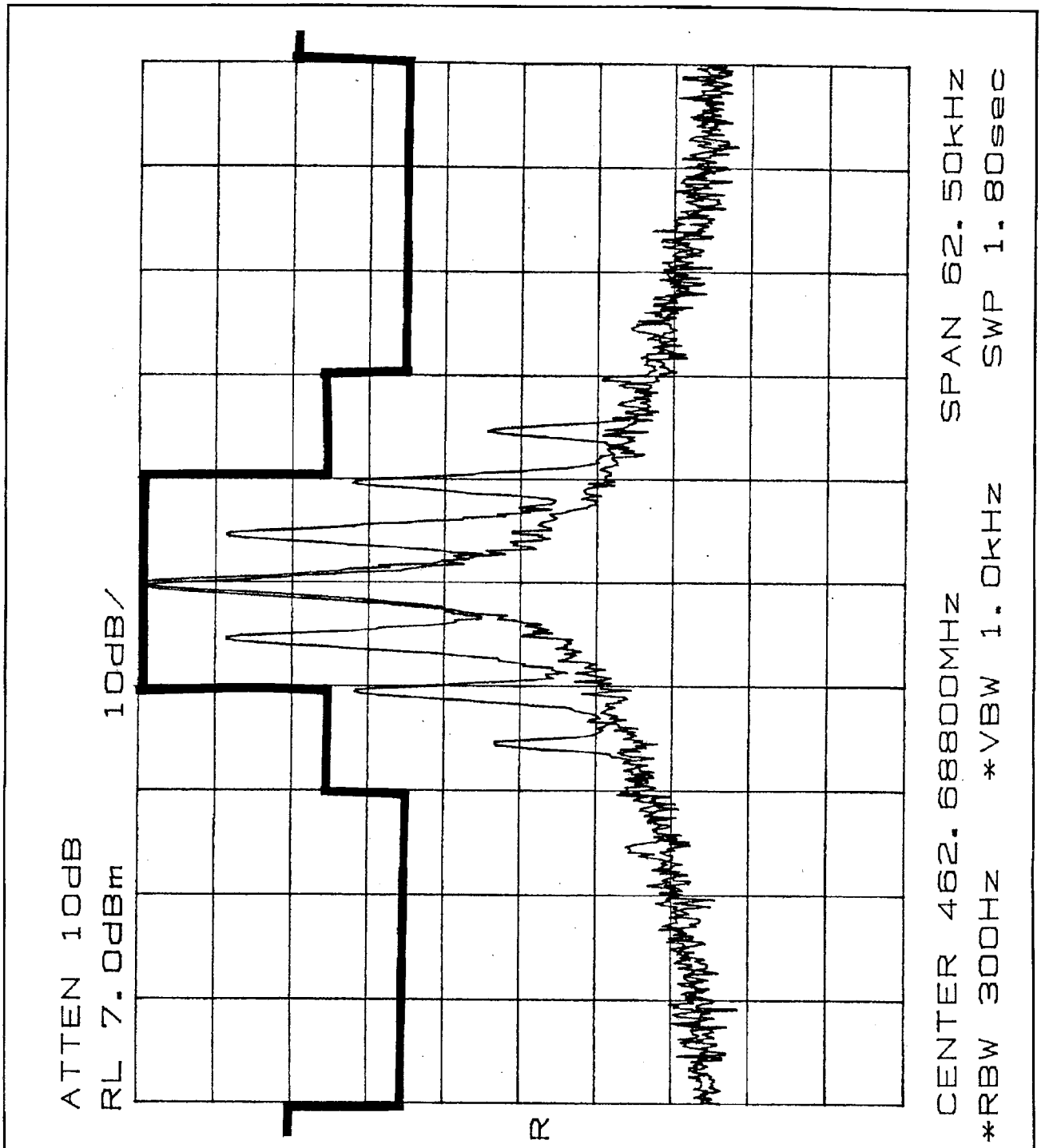
Report No. ~~R-8151~~ mw R-9323-1



Customer:	Golden Eagle Electronics
Test Sample:	FRS Radio Transmitter
Model No.:	~~FCC ID: BEV5M-8-6-8~~ mw FCC ID: P67WG-5M5HH
Test Method:	Occupied Bandwidth
Notes:	Channel 6, Center Frequency= 462.6875 MHz, Audio Input set to 2.5 kHz at 50% modulation +16 dB input level
Date: July 20, 1999	Tech: T. Schneider Sheet 2 of 6

Retlif Testing Laboratories

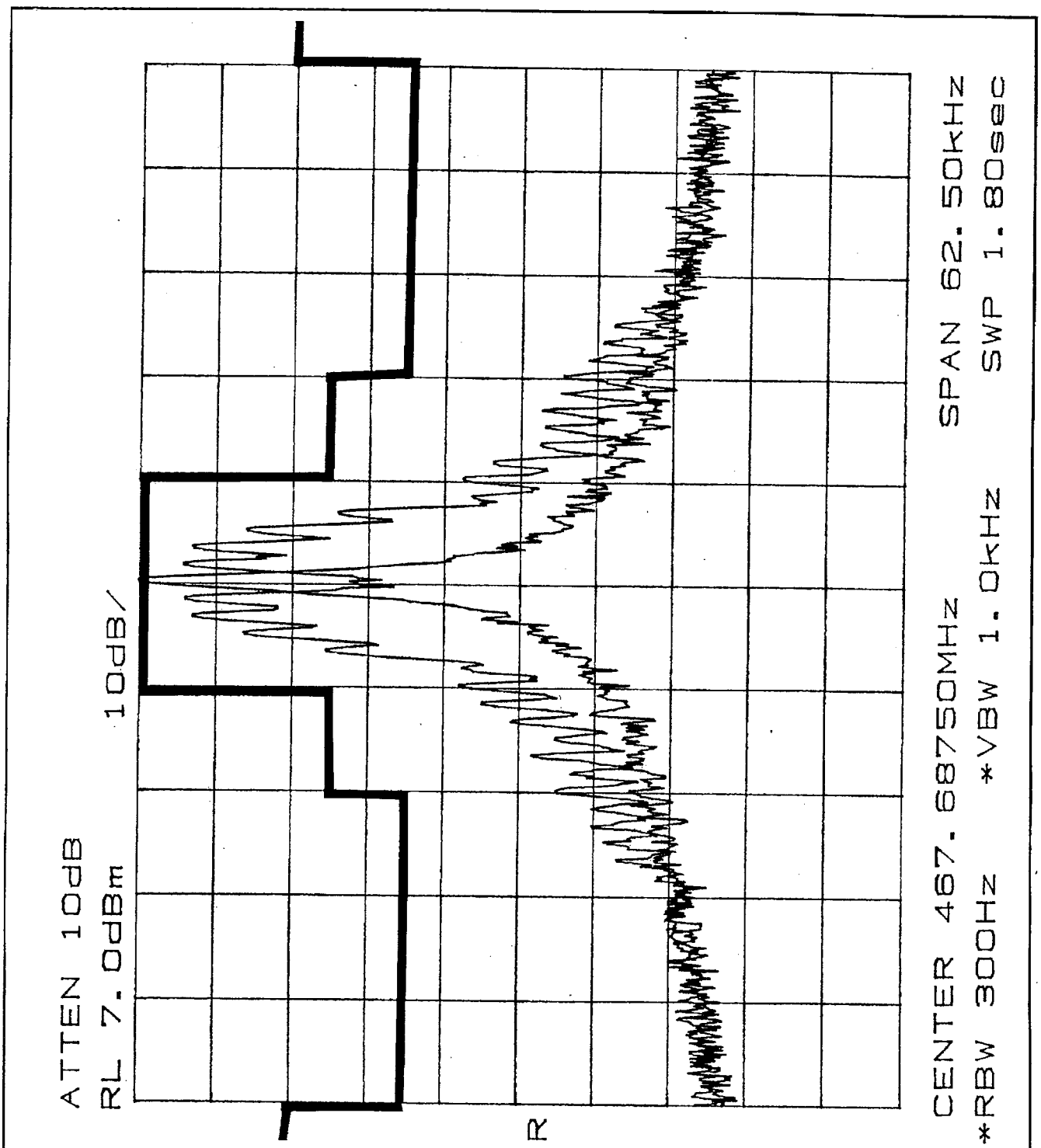
Report No. ~~R-8151~~ mw R-9323-1



Customer:	Golden Eagle Electronics
Test Sample:	FRS Radio Transmitter
Model No.:	~~FCC ID: BFV5M-3-6-8~~ mw FCC ID: P67WG-5M5HH
Test Method:	Occupied Bandwidth
Notes:	Channel 6, Center Frequency= 462.6875 MHz, Audio Input set to 3.125 kHz at 50% modulation +16 dB input level
Date: July 20, 1999	Tech: T. Schneider Sheet 3 of 6

Retlif Testing Laboratories

Report No. ~~R-8151~~ mw R-9323-1

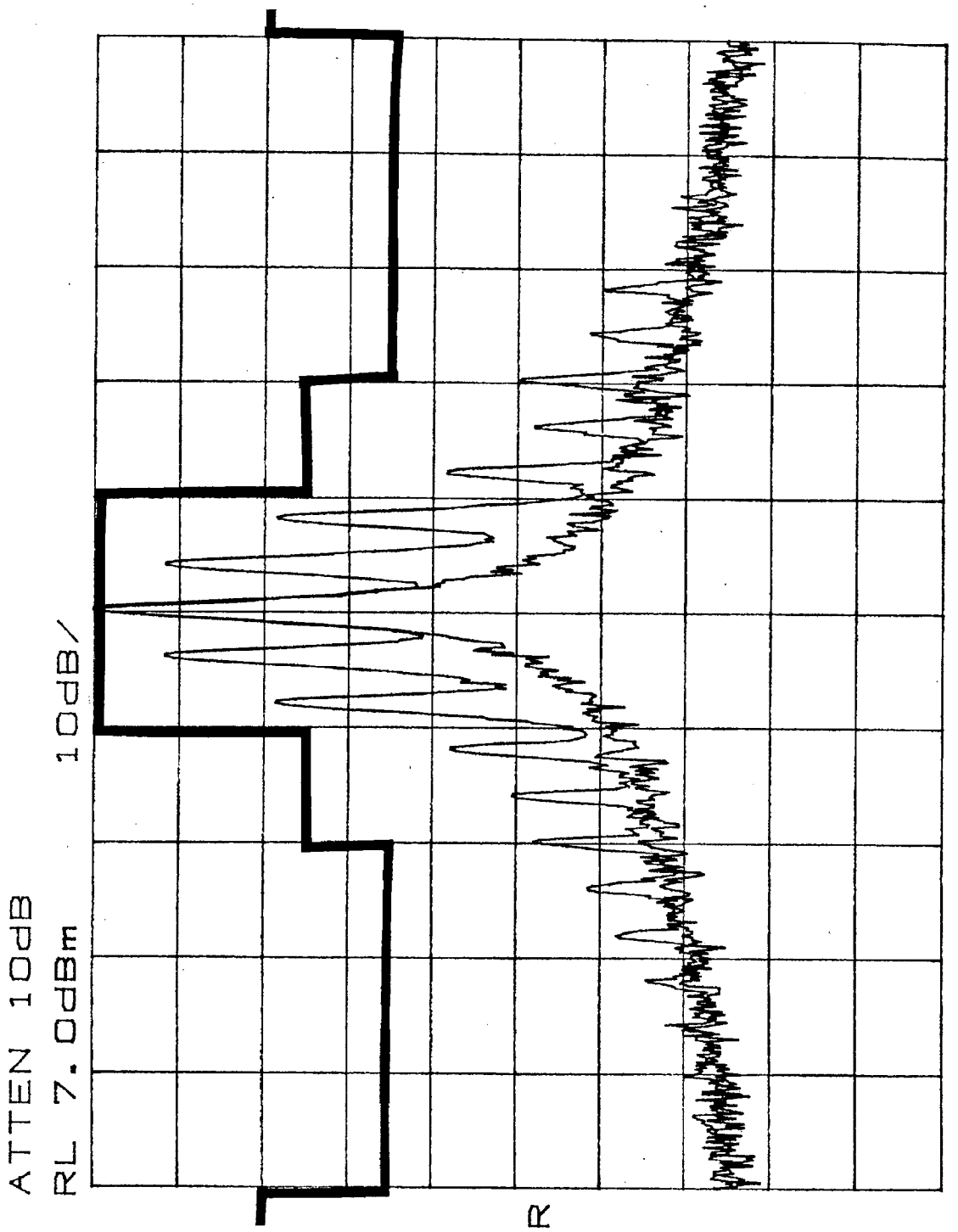


Customer:	Golden Eagle Electronics
Test Sample:	FRS Radio Transmitter
Model No.:	FCC ID: ~~BPV5M-3 6 8~~ mw FCC ID: P67WG-5M5HH
Test Method:	Occupied Bandwidth
Notes:	Channel 13, Center Frequency= 467.6875 MHz, Audio Input set to 1 kHz at 50% modulation +16 dB input level

Date: July 20, 1999 Tech: T. Schneider Sheet 4 of 6

Retlif Testing Laboratories

Report No. ~~R-8151~~ mw R-9323-1

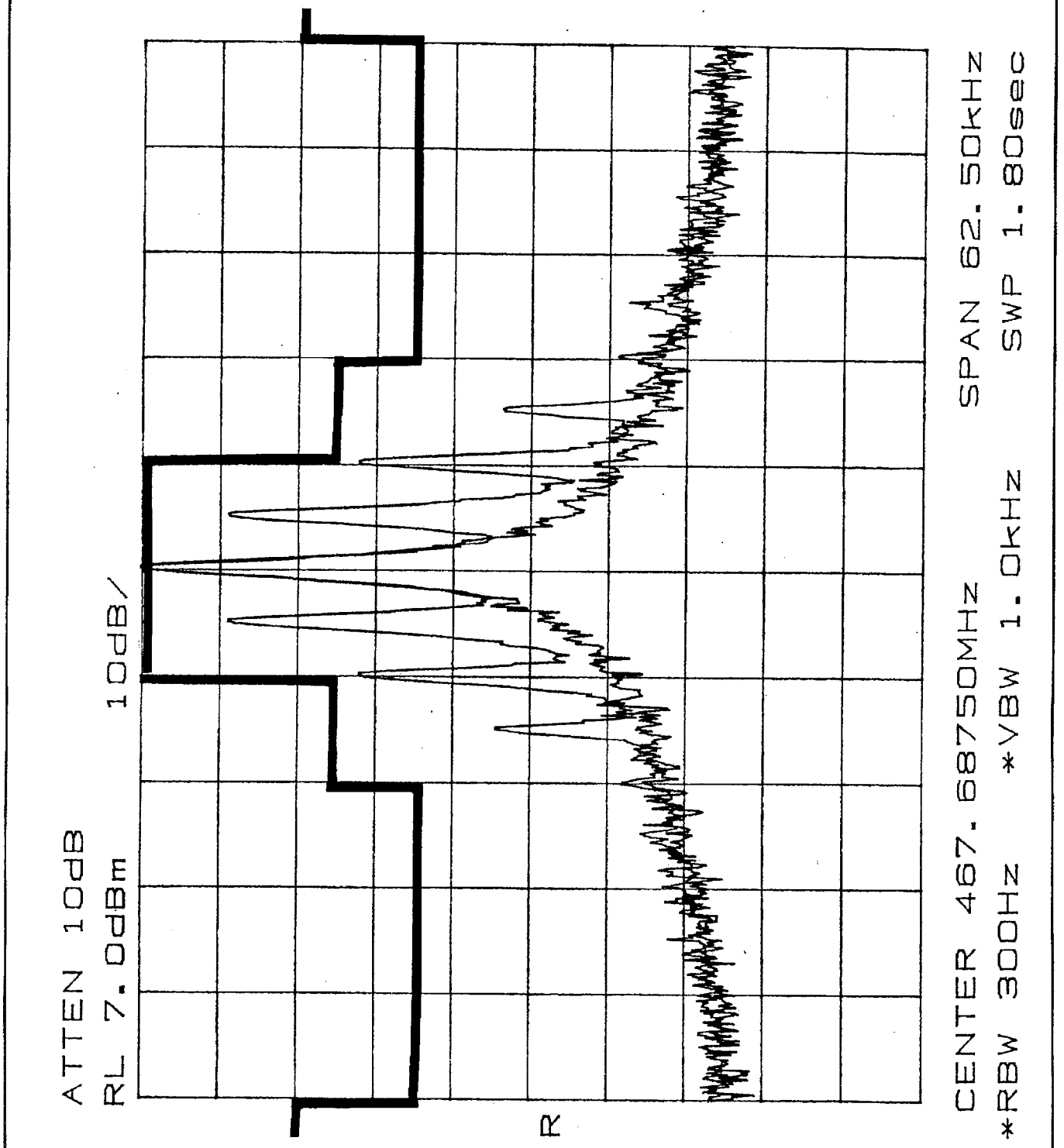


Customer:	Golden Eagle Electronics
Test Sample:	FRS Radio Transmitter
Model No.:	FCC ~~ID: BFV5M-3-6-8~~ mw FCC ID: P67WG-5M5HH
Test Method:	Occupied Bandwidth
Notes:	Channel 13, Center Frequency= 467.6875 MHz, Audio Input set to 2.5 kHz at 50% modulation +16 dB input level

Date: July 20, 1999 Tech: T. Schneider Sheet 5 of 6

Retlif Testing Laboratories

Report No. ~~R-8151~~ mw R-9323-1



Customer:	Golden Eagle Electronics
Test Sample:	FRS Radio Transmitter mw
Model No.:	FCC ID: ~~BFV5M-3-6-8~~ FCC ID: P67WG-5M5HH
Test Method:	Occupied Bandwidth
Notes:	Channel 13, Center Frequency= 467.6875 MHz, Audio Input set to 3.125 kHz at 50% modulation +16 dB input level

Date: July 20, 1999 Tech: T. Schneider Sheet 6 of 6

Retlif Testing Laboratories

Report No. ~~R-8151~~ mw R-9323-1

Para. 2.1053

Field Strength of Spurious Radiation

FIELD STRENGTH OF SPURIOUS RADIATION (PARA 2.1053)

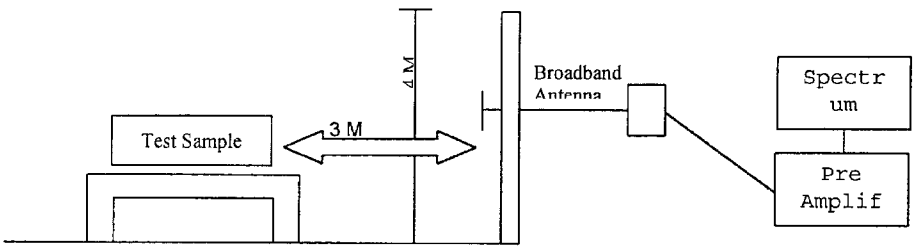
A. Measurement Procedure:

The test sample was then placed on an 80cm high wooden test stand, which was located three meters from the test antenna on an FCC listed test site. The frequency range scanned was from the lowest frequency generated by the test sample to its tenth harmonic. In order to maximize the level of each emission observed from the test sample, the broadband antenna was tuned to the frequency of each emission and the test sample was rotated 360 degrees. To further maximize the each emission observed, the test antenna was both horizontally and vertically polarized, and then was raised and lowered from one to four meters from the ground plane. The limits for all of the spurious emissions was calculated utilizing the measured output power and the following equation:

Limit <dBμV/M> = 20 log [{(49.2 x P_T) ^{½}/3} x 10^6] - (43 + 10 log P_T)

The above procedure was performed at the lower and upper frequencies of the device's range.

Setup of the test is shown below:



B. Test Results:

See the following single data sheet for complete results obtained.

Test Method:	Spurious Emissions, Paragraph 2.993		
Customer:	Wittis Golden Eagle Technology Limited	**Job No.**	R-9323-1
Test Sample:	462 MHz Family Radio Service Transmitter	**FCC ID**	~~P69XXXX~~ FCC ID: P67WG-5M5-HH
Model No.:	5M-3-6-8	**Serial No.**	N/A
Operating Mode	EUT continuously transmitting a CW signal at center frequency specified below.		
Test Specification	FCC Part 95 Personal Radio Services; Subpart E: Technical Regulations.		
Technician:	Dennis Cortes	**Date:**	July 20, 1999

Notes: Test Distance: 3 Meters Limit= 49.2 x Output Power – (43+10 log Output Power)

Detector: Peak D

Test Freq.	Antenna Pol./Height	EUT Orientation	Meter Reading	Correction Factor	Corrected Reading	Converted Reading	Limit
Mhz	(V/H) / Meters	Degrees	dBuv	dB	dBuv/m	uv/m	uv/m
Center Frequency: 462.68 Mhz							16596
							|
925.3	V-1.3	045	56.3	7.3	63.6	1513.6	|
1388.0	V-1.2	000	63.3	-1.8	61.5	1188.5	|
1850.7	V-1.0	000	58.8	1.6	60.4	1047.1	|
2313.3	V-1.3	000	52.2	-0.8	51.4	371.5	|
2776.1	V-1.4	180	56.3	1.6	57.9	785.2	|
3238.8	V-1.3	135	48.0	3.9	51.9	393.6	|
3701.6	V-1.4	135	51.4	7.4	58.8	871.0	|
							|
							|
Center Frequency: 467.6 Mhz							|
							|
935.2	V-1.2	068	56.1	7.5	63.6	1513.6	|
1403.0	V-1.3	023	61.0	-1.8	59.2	912.0	|
1870.6	V-1.0	000	56.3	1.7	58.0	794.3	|
2338.2	V-1.3	023	53.2	-0.6	52.6	426.6	|
2805.8	V-1.2	203	54.5	1.5	56.0	631.0	|
3273.4	V-1.0	135	49.9	4.1	54.0	501.2	V
3741.0	V-1.3	135	49.6	7.4	57.0	707.9	16596

The EUT was scanned from 30 MHz to 5 GHz

The emissions observed from the EUT do not exceed the specified limits.

All emissions not recorded were more than 20dB below the specified limit.

Paragraph 2.1055

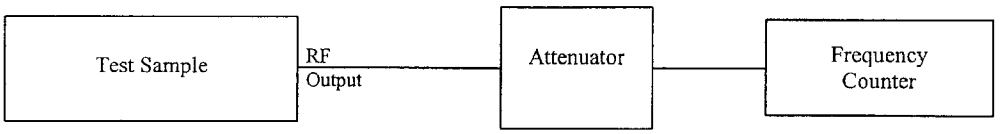
Frequency Stability

FREQUENCY STABILITY MEASUREMENTS

A. Measurement Procedure (Frequency vs. Voltage):

The RF output of the test sample was coupled to a frequency counter through external attenuation. Using a Variable power supply and voltmeter, the input voltage was varied. Measurements were taken with the device being supplied with 85, 100, and 115 percent of its rated input voltage and set to transmit the unmodulated carrier frequency.

Setup of the test is shown below:



B. Test Results:

See the following single data sheet for complete results obtained.

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

TEST METHOD: **FREQUENCY STABILITY (INPUT POWER 85% TO 115%)**

CUSTOMER: Golden Eagle Electronics Manufactory LTD. JOB No.: R-9323-1

TEST SAMPLE: 462 MHz Family Radio

MODEL No.: 5M-3-6-8 FCC ID: P67WG-5M5HH SERIAL No.: N/A

TEST SPECIFICATION: FCC Part 95 Personal Radio Services; Subpart E: Technical Regulations. PARAGRAPH: 95.627

OPERATING MODE: Unit set to channel 06 and transmitting

TECHNICIAN: N. Dragotta DATE: July 02, 1999

NOTES: Temperature: 23° C. Humidity: 43%

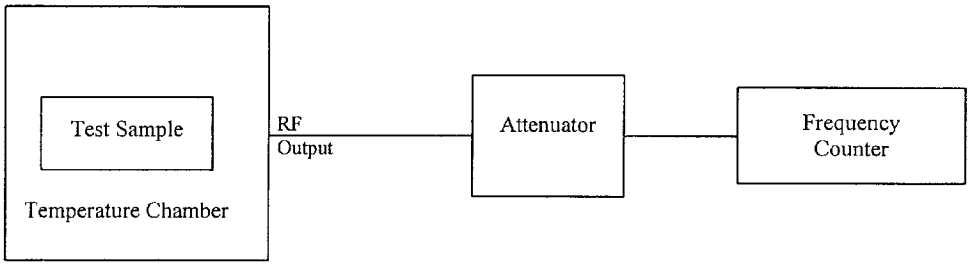
Channel	TRANSMIT FREQUENCY	INPUT VOLTAGE	INPUT VOLTAGE	LOWER LIMIT	METER READING	UPPER LIMIT	CUTOFF READING	CUTOFF VOLTAGE
	MHz	%	VDC	MHz	MHz	MHz	MHz	VDC
06	462.6878	85	5.1	462.686343	462.6878	462.688657		
06	462.6878	100	6.0	462.686343	462.6878	462.688657		
06	462.6878	115	6.9	462.686343	462.6878	462.688657		
06	462.6878	Battery End Point	3.6	462.686343	462.6878	462.688657		3.6

FREQUENCY STABILITY MEASUREMENTS (PARA 2.995)

A. Measurement Procedure (Frequency vs. Temperature)

The RF output of the test sample was coupled to a frequency counter through external attenuators. With the counter connected, the test sample was activated and placed into a temperature chamber. The temperature was then programmed to start at -30 degrees Celsius and reach +50 degrees Celsius in 10 degrees increments. Each increment was held for 30 minutes in order to let the test sample stabilize at that temperature.

Setup of the test is shown below:



B. Test Results:

See the following single data sheet for complete results obtained.

This device contains a thermal switch, which shuts the transmitter off below -10°C.

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

TEST METHOD:	FREQUENCY STABILITY (-30 DEGREES TO +50 DEGREES)
CUSTOMER:	Golden Eagle Electronics Manufactory LTD. JOB No.: R-9323-1
TEST SAMPLE:	462 MHz Family Radio
MODEL No.:	5M-3-6-8 FCC ID: P67WG-5M5HH SERIAL No.: N/A
TEST SPECIFICATION:	FCC Part 95 Personal Radio Services; Subpart E: Technical Regulations. PARAGRAPH: 95.627
OPERATING MODE:	Unit set to channel 06 and transmitting
TECHNICIAN:	N. Accardi DATE: July 7, 1999
NOTES:	

Channel	TRANSMIT FREQUENCY		TEMPERATURE	LOWER LIMIT	METER READING	UPPER LIMIT		
	MHz		DEGREES C.	MHz	MHz	MHz		
06	462.6875		-30	462.686343	000.00000	462.688657		
"	"		-20	"	000.00000	"		
"	"		-10	"	462.68779	"		
"	"		0	"	462.68787	"		
"	"		10	"	462.68790	"		
"	"		20	"	462.68783	"		
"	"		room temp	"	462.68776	"		
"	"		30	"	462.68765	"		
V	V		40	V	462.68739	V		
06	462.6875		50	462.686343	462.68713	462.688657		