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FCC PART 90

RADIATED EMISSIONS TEST REPORT

APPLICANT	**RELM WIRELESS CORP. - BK RADIO**
	7100 TECHNOLOGY DRIVE WEST MELBOURNE FLORIDA 32904 USA
FCC ID	K95KNGM150LP
MODEL NUMBER	KNG-M150LP
PRODUCT DESCRIPTION	MOBILE VHF LAND MOBILE TRANSCEIVER
STANDARD APPLIED	CFR 47 Part 90
DATE SAMPLE RECEIVED	3/21/2016
DATE TESTED	4/25/2016
TESTED BY	Cory Leverett
APPROVED BY	Sid Sanders

Report Number	Version Number	Description	Issue Date
1079XUT15TestReport	Rev1	Initial Issue	4/25/2016

Table of Contents

GENERAL REMARKS

The attached report shall not be reproduced except in full without the written permission of Timco Engineering Inc.

Summary

The device under test does:

☒ Fulfill the general approval requirements as identified in this test report
☐ Not fulfill the general approval requirements as identified in this test report

Attestations

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025: 2005 requirements.

I attest that the necessary measurements were made, under my supervision, at:

Timco Engineering Inc.
849 NW State Road 45
Newberry, FL 32669

Authorized Signatory Name:

Cory Leverett
Engineering Project Manager

Date: 04/25/2016

Test report reviewed and approved by: 
Sid Sanders, Engineer

Date: 05/01/2016

Table of Contents

GENERAL INFORMATION

EUT Specification

EUT Description	MOBILE VHF LAND MOBILE TRANSCEIVER
FCC ID	K95KNGM150LP
Model Number	KNG-M150LP
Operating Frequency	150.8-174MHz
Test Frequencies	154, 163, 174MHz
Type of Emission	11K0F3E,
Modulation	FM
EUT Power Source	☐ 110–120Vac/50– 60Hz
	☒ DC Power 12V
	☐ Battery Operated Exclusively
Test Item	☐ Prototype
	☒ Pre-Production
	☐ Production
Type of Equipment	☐ Fixed
	☒ Mobile
	☐ Portable
Test Conditions	The temperature was 26ºC with a relative humidity of 50%.
Revision History to the EUT	None
Test Exercise	The EUT was placed in continuous transmit mode.
Applicable Standards	ANSI C63.4-2009 / TIA 603-D:2010, FCC CFR 47 Part 90
Test Facility	Timco Engineering Inc. 849 NW State Road 45 Newberry, FL 32669 USA.

Table of Contents

TEST REPORT SUMMARY

Rule Part No.	Scope of Work	Status Pass/Fail/NA
2.1053, Part 90	Field Strength Spurious Emissions	Pass

TEST PROCEDURE

Power Output: The RF power output was measured at the antenna feed point using a peak power meter.

Radiation Interference: The test procedure used was ANSI/TIA 603-D: 2010, using a Rohde & Schwarz – EMI test receiver. The bandwidth (RBW) of the spectrum receiver was 100 kHz up to 1 GHz and 1 MHz above 1 GHz with an appropriate sweep speed. The VBW above 1 GHz was 3 MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna.

Table of Contents

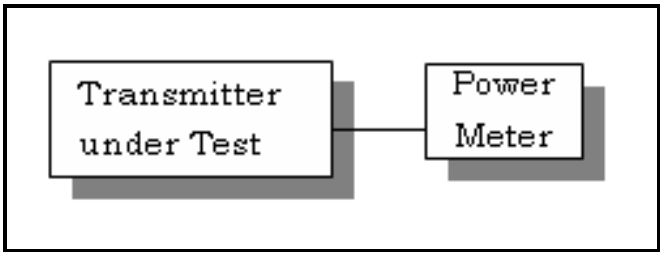
RF POWER OUTPUT

Test Requirements: **Used for determining emission requirements.**

Method of Measurement: RF power is measured by using a 50-ohm, resistive wattmeter to the RF output connector. With a nominal battery voltage (if battery operated), or a properly adjusted power supply (if not battery operated), and the transmitter properly adjusted the RF output measures:

For the device with a fixed or integral antenna, the RF power is measured as ERP. The substitution method was used. The RF output measures:

Test Setup Diagram:



Test Data:

OUTPUT POWER:

	RF POWER	
Tuned Frequency (MHz)	dBm	Watts
154	47.7	58.88
163	47.7	58.88
174	47.6	57.54

Table of Contents

FIELD STRENGTH OF SPURIOUS EMISSIONS

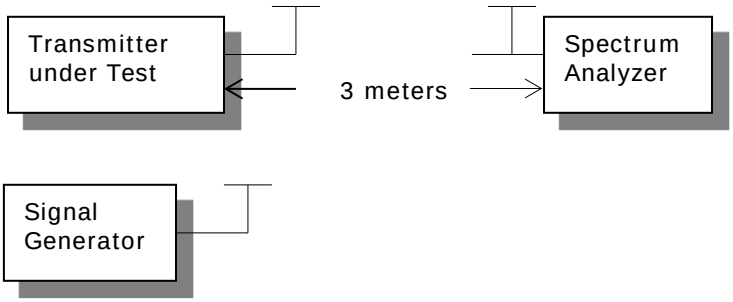
Rule Parts. No.: Part 2.1053

Requirements:

12.5 kHz Channel Spacing = 50+10log (58.88) = 67.70dBc

METHOD OF MEASUREMENT: The tabulated data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 MHz to at least the tenth harmonic of the fundamental. This test was conducted per ANSI/TIA 603-D: 2010 using the substitution method. Measurements were made at the test site of **TIMCO ENGINEERING, INC. located at 849 NW State Road 45, Newberry, FL 32669.**

Test Setup Diagram:



Test Data:

Low End of the Band

Emission Frequency (MHz)	Power Mode	ERP Power Output (dBm)	ERP Power Output (Watts)	FCC Requirement dB	Bandwidth - BW - kHz
154.00	Hi	47.70	57.54	67.70	12.50

Emission Frequency (MHz)	Ant. Polarity	Below Carrier (dBc)	Margin
308.00	H	103.70	36.00
462.00	H	96.51	28.91
616.00	V	102.54	34.94
770.00	H	98.44	30.84
924.00	V	90.40	22.80
1,078.00	V	98.44	30.84
1,232.00	H	102.25	34.65
1,386.00	H	99.22	31.62
1,540.00	H	103.24	35.64

Table of Contents

FIELD STRENGTH OF SPURIOUS EMISSIONS

Middle of Band

Emission Frequency (MHz)	Power Mode	ERP Power Output (dBm)	ERP Power Output (Watts)	FCC Requirement dB	Bandwidth - BW - kHz
163.00	Hi	47.70	58.88	67.70	12.50

Emission Frequency (MHz)	Ant. Polarity	Below Carrier (dBc)	Margin
326.00	H	99.50	31.80
489.00	H	105.31	37.61
652.00	V	101.27	33.57
815.00	H	103.40	35.70
978.00	H	94.83	27.13
1,141.00	H	96.54	28.84
1,304.00	H	95.20	27.50
1,467.00	H	97.29	29.59
1,630.00	V	96.85	29.15

High End of the Band

Emission Frequency (MHz)	Power Mode	ERP Power Output (dBm)	ERP Power Output (Watts)	FCC Requirement dB	Bandwidth - BW - kHz
174.00	Hi	47.70	58.88	67.70	12.50

Emission Frequency (MHz)	Ant. Polarity	Below Carrier (dBc)	Margin
348.00	H	98.94	31.24
522.00	V	82.32	14.62
696.00	V	101.68	33.98
870.00	H	86.63	18.93
1,044.00	H	88.90	21.20
1,218.00	H	96.70	29.00
1,392.00	H	100.61	32.91
1,566.00	V	97.12	29.42
1,740.00	H	95.65	27.95

Results meet requirements.

EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
12 Volt Power Supply	Astron 50Amp.	VS-50M	9001191	NA	NA
Antenna: Biconnical	Eaton	94455-1	1057 YES	11/18/15	11/18/17
Antenna: Log-Periodic	Eaton	96005	1243	02/09/16	02/09/18
Digital Multimeter	Fluke	77	35053830	10/21/2015	10/21/2017
DC Power Supply	HP	6286A	2411A09414	NA	NA
3-Meter Semi-Anechoic Chamber	Panashield	N/A	N/A	04/25/16	12/31/17
Antenna: Double-Ridged Horn/ETS Horn 1	ETS-Lindgren	3117	00035923	06/13/14	06/13/16
EMI Test Receiver R & S ESIB 40 Screen Room	Rohde & Schwarz	ESIB 40	100274	08/12/14	08/12/16
Software: Field Strength Program	Timco	N/A	Version 4.0	NA	NA
Attenuator N 30dB 150W DC-6G	Narda	769-30	10267	6/26/2015	6/26/2017
EMI Test Receiver R & S ESU 40 Chamber	Rohde & Schwarz	ESU 40	100320	04/01/16	04/01/18

***EMI RECEIVER SOFTWARE VERSION**

The receiver firmware used was version 4.43 Service Pack 3

END OF TEST REPORT

Table of Contents