
OET Bulletin 65 (MPE) Test Report

Report No.: AGC00589140205F7

FCC ID : PH3-DR638
IC : 3070C-DR638
PRODUCT DESIGNATION : VHF/UHF FM MOBILE TRANSCEIVER
BRAND NAME : ALINCO
TEST MODEL : DR-638
CLIENT : Alinco, Inc. Electronics Division
DATE OF ISSUE : Feb.18, 2014
STANDARD(S) : OET Bulletin 65
REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Feb.18, 2014	Valid	Original Report

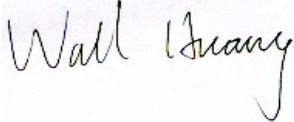
TABALE OF CONTENTS

TABALE OF CONTENTS	2
1. TEST RESULT CERTIFICATION.....	4
2. TECHNICAL INFORMATION.....	5
3. RF EXPOSURE MEASUREMENT.....	6
3.1 INTRODUCTION.....	6
3.2 FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE).....	7
4. CLASSIFICATION OF THE ASSESSMENT METHODS	8
5. EUT OPERATION CONDITION	8
6. TEST RESULTS.....	9


1. TEST RESULT CERTIFICATION

Applicant Name:	Alinco, Inc. Electronics Division
Address:	Yodoyabashi Dai-Bldg 13F, 4-4-9 Koraibashi, Chuo-Ku, Osaka 541-0043, Japan
Manufacturer Name:	Alinco, Inc. Electronics Division
Address:	Yodoyabashi Dai-Bldg 13F, 4-4-9 Koraibashi, Chuo-Ku, Osaka 541-0043, Japan
Product Designation	VHF/UHF FM MOBILE TRANSCEIVER
Brand Name	ALINCO
Test Model	DR-638
Hardware Version:	V1.0
Software Version:	V1.0
Test Standard	OET Bulletin 65
Date of Test:	Feb.13, 2014 to Feb.17, 2014

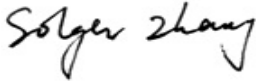
We (AGC), Attestation of Global Compliance (Shenzhen) Co., Ltd. for compliance with the requirements set forth in the FCC Standard OET Bulletin 65 (Edition 97-01) Supplement C (Edition 01-01). The results of testing in this report apply to the product/system which was tested only.



Tested by _____
Wall Huang Feb.18, 2014



Checked By _____
Forrest Lei Feb.18, 2014



Authorized By _____
Solger Zhang Feb.18, 2014

2. TECHNICAL INFORMATION

Note: the following data is based on the information by the applicant.

EUT DESCRIPTION

The EUT is a VHF/UHF FM MOBILE TRANSCEIVER designed for voice communication. It is designed by way of utilizing the FM modulation achieves the system operating.

A major technical description of EUT is described as following:

Communication Type	Voice / Tone only	
Modulation	FM	
Emission Type	F3E	
Emission Bandwidth	VHF: 10.49KHz UHF: 10.39KHz	
Peak Frequency Deviation	1.87KHz	
Audio Frequency Response	6.24dB	
Maximum Transmitter Power	VHF: 46.98dBm UHF: 45.99dBm	
Output power Modification	VHF: 50W UHF: 40W (It was fixed by the manufacturer, any individual can't arbitrarily change it.)	
Antenna Designation	Detachable	
Power Supply	DC 13.8V	
Limiting Voltage	DC 11.73V	
Operation Frequency Range and Channel	Frequency Range: 136MHz to 174MHz Channel Separation: 12.5KHz (VHF)	Frequency Range: 400MHz to 480MHz Channel Separation: 12.5KHz (UHF)
	Top Channel: 136.025MHz Centre Channel: 155.000MHz Bottom Channel: 173.975MHz	Top Channel: 400.025MHz Centre Channel: 440.000MHz Bottom Channel: 479.975MHz
Frequency Tolerance	VHF: 0.914ppm UHF: 0.860ppm	

3. RF EXPOSURE MEASUREMENT

3.1 INTRODUCTION

Human exposure to RF emissions from mobile devices (47 CFR §2.1091) may be evaluated based on the MPE limits adopted by the FCC for electric and magnetic field strength and/or power density, as appropriate, since exposures are assumed to occur at distances of 20 cm or more from persons.

The 1992 ANSI/IEEE standard (See Listed limit table) specifies a minimum separation distance of 20 cm for performing reliable field measurements to determine adherence to MPE limits.

If the minimum separation distance between a transmitter and nearby persons is more than 20 cm under normal operating conditions, compliance with MPE limits may be determined at such distance from the transmitter. When applicable, operation instructions and prominent warning labels may be used to alert the exposed persons to maintain a specified distance from the transmitter or to limit their exposure durations and usage conditions to ensure compliance.

3.2 FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE

Frequency Range (MHz)	E-field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (Minutes)
0.3 -- 1.34	614	1.63	(100)*	30
1.34 -- 30	824/f	2.19/f	(180/f ²)*	30
30 -- 300	27.5	0.073	0.2	30
300 -- 1500	--	--	f/1500	30
1500 -- 100,000	--	--	1.0	30

*Note:

1. f= Frequency in MHz * Plane-wave Equivalent Power Density
2. The averaging time for General Population/Uncontrolled exposure to fixed transmitters is not applicable for mobile and portable transmitters. See 47 CFR §§2.1091 and 2.1093 on source-based time-averaging requirement for mobile and portable transmitters.

4. CLASSIFICATION OF THE ASSESSMENT METHODS

According to user manual, The antenna of the product, under normal use condition is at least 1m away from the body of the user. Warning statement to the user for keeping at least 100cm separation distance and the prohibition of operating to a person has been printed on the user's manual. So, this product under normal use is located on electromagnetic far field between the human body.

$$S=PG/4\pi R^2$$

Where:

S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator R=distance to the center of radiation of the antenna

5. EUT OPERATION CONDITION

Make the EUT to transmit at lowest, middle and highest channel individually.

6. TEST RESULTS

Note: report the worst result in this part

Antenna Gain=0dBi (Numeric 1.0), $\pi=3.141$, Duty cycle=50%

Frequency	Output Power	Output Power	Correct Power	Power Density	Power Density Limit	Result
MHz	dBm	mW	mW	mW/cm ²	mW/cm ²	Pass/Fail
155.000	46.98	49888	24944	0.199	0.2	Pass

Note: The output power is refer to AGC00589140205F2.

Correct Power=Output Power*Duty cycle.

According to the user manual, the minimum separate distance which used for MPE calculate is 1.0m.