DECLARATION OF CONFORMITY
FOR A CLASS B DIGITAL DEVICE

We, the Responsible Party

Alinco Incorporated
Electronics Division
Shin Dai Building 9F
1-2-6 Dojimahama
Kita-ku, Osaka 530-0004
Japan

declare that the product

DR-620T

Document Number: 2002159
Reference Number: QRTL02-545

is in conformity with Part 15 of the FCC Rules. Operation of this product is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

_____
(Signature)

_____
(Full Name)

_____
(Position)

Engineering and Testing for EMC and Safety Compliance

STANDARDS REFERENCED FOR THIS REPORT	
FCC PART 15	Radio Frequency Devices
ANSI C63.4-1992	Standard Format Measurement/Technical Report Personal Computer and Peripherals

I, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described above identified standard(s) as described in the attached test report. No modifications were made during testing to the equipment in order to achieve compliance with these standards.

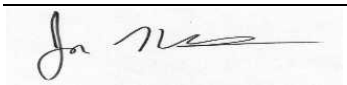
Furthermore, there was no deviation from, additions to or exclusions from the ANSI C63.4 1992 test methodology.

Location: Herndon, VA

Date: October 1, 2002

Full Name: Jon Wilson

Title: EMC Lab Coordinator

Signature: 

Test Engineers: **Franck Schuppius**

Rhein Tech Laboratories, Inc.

NVLAP *Accredited by the National Voluntary Accreditation Program for the specific scope of accreditation under Lab Code 20061-0.*

Note: This report may not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

VERIFICATION

Statement of Manufacturer's Representative

I hereby warrant that the test sample is representative of the product to be marketed, that the test system configuration is representative of the product's intended use, and that during the testing the test sample was functioning and being exercised in a manner typical of its intended use.

Alinco Incorporated Electronics Division

Full Name: Katsumi Nakata

Date:

Title:

Signature:

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Herndon, VA 20170
Phone: 703-689-0368; Fax: 703-689-2056; Metro: 703-471-6441

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1 GENERAL INFORMATION

The following report for Declaration of Conformity of a Class B digital device is prepared on behalf of **Alinco Incorporated, Electronics Division** in accordance with Part 2, and Part 15, Subparts A and B of the Federal Communications Commissions Rules and Regulations and ICES-003 of the Industry Canada standard. The Equipment Under Test (EUT) is the **DR-620T**. The test results reported in this document relate only to the item that was tested.

All measurements contained in this Application were conducted in accordance with ANSI C63.4 Methods of Measurement of Radio Noise Emissions, 1992. The instrumentation utilized for the measurements conforms to the ANSI C63.4 standard for EMI and Field Strength Instrumentation. Some accessories are used to increase sensitivity and prevent overloading of the measuring instrument. These are listed in Section 6, Equipment List, in this report. Calibration checks are performed regularly on all test equipment.

All radiated and conducted emission measurements are performed manually at Rhein Tech Laboratories, Inc. The radiated emissions measurements required by the rules are performed on the (three/ten) meter, open field, test range maintained by Rhein Tech Laboratories, Inc., 360 Herndon Parkway, Suite 1400, Herndon, Va., 20170. Complete description and site attenuation measurement data has been placed on file with the Federal Communications Commission. When applicable, the power line conducted emission measurements are performed in a shielded enclosure also located at the Herndon, Virginia facility. Rhein Tech Laboratories is accepted by the FCC as a facility available to do measurement work for others on a contract basis.

1.1 ACCREDITATION STATEMENTS

- **FCC**

Rhein Tech Laboratories, Inc. is accepted by the Federal Communications Commission as a facility available to do measurement work for others on a contract basis. 31040/SIT (Registration # 90902).

- **ACA**

Rhein Tech Laboratories, Inc. is an AUSTEL listed test house having satisfied NATA's (or its Associates with which it has an MoU or MRA for mutual recognition of test houses) requirements for testing to the following standards: AS/NZS 3548: Limits and methods of measurement of radio disturbance characteristics of information technology equipment. Certification number: A97/TH/0107.

- **Industry Canada**

Certification numbers: IC 2956-1 and IC 2956-2.

- **CE**

Rhein Tech Laboratories, Inc. has been assessed by TNO Certification B.V.(formerly NMi) based upon EN45001 and complies with the TNO requirements and has therefore been approved as an EMC Test Laboratory providing Test Reports, Technical Construction Files, to TNO Certification B.V. Certification number: 10118957.

Rhein Tech Laboratories, Inc. was designated a U.S. Conformity Assessment Bodies (CAB) operating under the European Union (EU) EMC Directive 89/336/EEC Article 10.2. The CAB designation is considered equivalent to an EU competent body. Rhein Tech Laboratories, Inc.'s CAB is responsible to evaluate and endorse a Technical Construction File (TCF) and issue a certificate or technical report that is included in the TCF.

- **NVLAP**

Rhein Tech Laboratories, Inc., is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for: Electromagnetic Compatibility And Telecommunications; NVLAP Lab Code: 200061-0.

- **VCCI**

RTL's testing sites are recognized by the VCCI and registered under Numbers R-1113 and C-1172.

2 TEST CONFIGURATION DETAILS

2.1 EQUIPMENT UNDER TEST DESCRIPTION

The Alinco DR-620T Twin Band Mobile Transceiver is a mobile/fix station-use transceiver for amateur radio service in VHF 145MHz/UHF 440MHz range with wide-band receive function. It is designed to function at the following frequency ranges: 87.500 - 107.995 MHz, 108.000 – 135.995 MHz, 136.000 – 173.995MHz, and 335.000 – 479.995MHz.

2.2 EUT EXERCISE DESCRIPTION

The DR620T was set up in a mode to simulate a transfer of data through the DSUB9 connector. All circuitry, clocks, and oscillators were powered and active.

2.3 SPECIAL ACCESSORIES

The end user is advised to use the same type cables as mentioned in this test report.

2.4 TEST EQUIPMENT DETAILS

Listed below are the identifiers and descriptions of all equipment, cables, and internal devices used with the EUT for this test.

TABLE 2-1: EQUIPMENT UNDER TEST

PART	MANUFACTURER	MODEL	SERIAL NUMBER	FCC ID	CABLE DESCRIPTION	RTL BAR CODE
VHF/UHF TWIN BAND FM TRANSCEIVER	ALINCO	DR-620T	M000401	PH3DR-620T		14638
BACKLIT DTMF ELECTRET CONDENSER MICROPHONE	ALINCO	EMS-57	M 0008728	N/A		14639

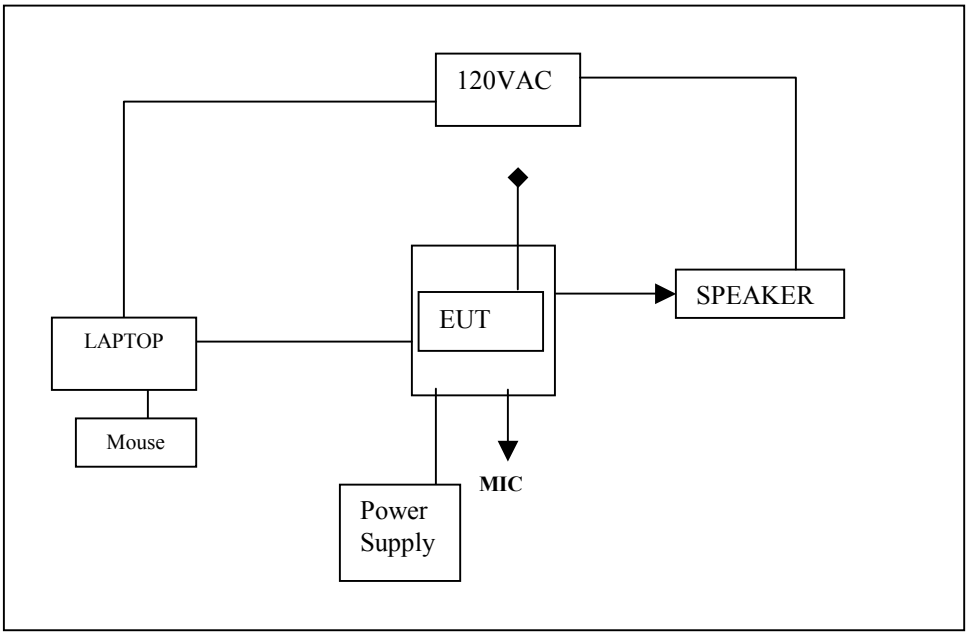
TABLE 2-2: EXTERNAL COMPONENTS IN TEST CONFIGURATION

PART	MANUFACTURER	MODEL	SERIAL NUMBER	FCC ID	CABLE DESCRIPTION	RTL BAR CODE
WHIP ANTENNA	ALINCO	EA0098	N/A	N/A	N/A	013425
SPEAKER	ALTEC LANSING MULTIMEDIA	GCS100	C19804094	N/A	SHIELDED I/O SHIELDED POWER	09162
LAPTOP PC	PANASONIC	CF-28	T0824ZA	N/A	UNSHIELDED POWER SHIELDED I/O	013955
MOUSE	MICROSOFT	TREKKER USB	C20007017	N/A	SHIELDED I/O	012300
POWER SUPPLY	ALINCO	DM-340MVT	F002143	N/A	UNSHIELDED POWER	901028

2.5 MODIFICATIONS

No modifications were made during testing.

2.6 CONFIGURATION OF TESTED SYSTEM



3 CONDUCTED EMISSIONS

The DR-620T is supplied by DC input voltage and therefore falls under the FCC Conducted Limits per 15.107(f) which states "Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines."

4 RADIATED EMISSIONS

4.1 RADIATED TEST METHODOLOGY

Before final measurements of radiated emissions were made on the open-field three/ten meter range; the EUT was scanned indoors at one and three meter distances. This was done in order to determine its emissions spectrum signature. The physical arrangement of the test system and associated cabling was varied in order to determine the effect on the EUT's emissions in amplitude, direction and frequency. This process was repeated during final radiated emissions measurements on the open-field range, at each frequency, in order to insure that maximum emission amplitudes were attained.

Final radiated emissions measurements were made on the three-meter, open-field test site. The EUT was placed on a nonconductive turntable 0.8 meters above the ground plane. The spectrum was examined from 30 MHz to 2000 MHz.

At each frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters in order to determine the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarizations. The spectrum analyzer's 6 dB bandwidth was set to 120 kHz, and the analyzer was operated in the CISPR quasi-peak detection mode. No video filter less than 10 times the resolution bandwidth was used. When any clock exceeds 108 MHz, the EUT was tested above 1 Gigahertz in Average mode with the resolution bandwidth set at 1 MHz as stated in ANSI C63.4. The highest emission amplitudes relative to the appropriate limit were measured and recorded in this report.

Note: Rhein Tech Laboratories, Inc. has implemented procedures to minimize errors that occur from test instruments, calibration, procedures, and test setups. Test instrument and calibration errors are documented from the manufacturer or calibration lab. Other errors have been defined and calculated within the Rhein Tech quality manual, section 6.1. Rhein Tech implements the following procedures to minimize errors that may occur: yearly as well as daily calibration methods, technician training, and emphasis to employees on avoiding error.

4.2 RADIATED EMISSIONS TEST DATA

TABLE 4-1: RADIATED EMISSIONS

Temperature: 61°F Humidity: 31%									
Emission Frequency (MHz)	**Test Detector**	**Antenna Polarity (H/V)**	**Turntable Azimuth (deg)**	**Antenna Height (m)**	**Analyzer Reading (dBuV)**	**Site Correction Factor (dB/m)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**
119.805	Qp	V	145	1.0	35.5	-10.9	24.6	43.5	-18.9
129.700	Qp	V	95	1.0	40.4	-10.9	29.5	43.5	-14.0
175.714	Qp	V	45	1.0	35.3	-10.5	24.8	43.5	-18.7
176.940	Qp	V	145	1.0	38.3	-10.5	27.8	43.5	-15.7
207.662	Qp	V	145	1.0	37.2	-10.3	26.9	43.5	-16.6
259.400	Qp	V	145	1.0	43.4	-9.9	33.5	46.0	-12.5
285.070	Qp	V	145	1.0	34.9	-9.7	25.2	46.0	-20.8
389.100	Qp	V	45	1.0	35.7	-8.9	26.8	46.0	-19.2
518.800	Qp	V	90	1.0	38.3	-8.0	30.3	46.0	-15.7
648.512	Qp	V	180	1.0	36.7	-7.0	29.7	46.0	-16.3
778.212	Qp	V	245	1.0	37.2	-6.1	31.1	46.0	-14.9
907.912	Qp	V	180	1.0	37.5	-5.1	32.4	46.0	-13.6
1167.312	Av	V	45	1.0	37.1	-1.3	35.8	54.0	-18.2

Note:
EUT was scanned from 30 MHz to 2,000 MHz. All emissions above 1167.312 MHz were found to have amplitudes attenuated by more than 20dB below the FCC limit.

TEST PERSONNEL:

Franck Schuppius 09/26/02

EMC Test Engineer Signature: Date of Test

4.3 RADIATED EMISSION MEASUREMENT PHOTOGRAPHS

PHOTOGRAPH 1: RADIATED EMISSIONS FRONT VIEW

PHOTOGRAPH 2: RADIATED EMISSIONS REAR VIEW

5 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FI(dBuV/m) = SAR(dBuV) + SCF(dB/m)
FI = Field Intensity
SAR = Spectrum Analyzer Reading
SCF = Site Correction Factor

The Site Correction Factor (SCF) used in the above equation is determined empirically, and is expressed in the following equation:

SCF(dB/m) = - PG(dB) + AF(dB/m) + CL(dB)

SCF = Site Correction Factor
PG = Pre-amplifier Gain
AF = Antenna Factor
CL = Cable Loss

The field intensity in microvolts per meter can then be determined according to the following equation:

$$FI(uV/m) = 10^{FI(dBuV/m)/20}$$

For example, assume a signal at a frequency of 125 MHz has a received level measured as 49.3 dBuV. The total Site Correction Factor (antenna factor plus cable loss minus preamplifier gain) for 125 MHz is -11.5 dB/m. The actual radiated field strength is calculated as follows:

49.3 dBuV - 11.5 dB/m = 37.8 dBuV/m

$$10^{37.8/20} = 10^{1.89} = 77.6 \text{ uV/m}$$

6 EQUIPMENT LIST

The following is a list of equipment Rhein Tech uses to perform testing.

BARCODE	MANUFACTURER	MODEL	PART TYPE	SERIAL NUMBER	CALIBRATION DUE
900896	Hewlett Packard	85662A	Display Section	2816A16471	11/9/02
900897	Hewlett Packard	8567A	HP Spectrum Analyzer (10KHz-1.5GHz)	2727A00535	11/9/02
900889	Hewlett Packard	85685A	RF Preselector for HP 8566B or 8568B (20Hz-2GHz)	3146A01309	11/14/02
900931	Hewlett Packard	8566B	Spectrum Analyzer (100 Hz - 22 GHz)	3138A07771	5/16/03
900930	Hewlett Packard	85662A	Spectrum Analyzer Display Section	3144A20839	5/16/03
900901	Hewlett Packard	85650A	Quasi-Peak Adapter	2412A00414	11/09/02
900905	RTL	PR-1040	Amplifier	900905	
901053	Schaffner Chase	CBL6112B	Bi-Log Antenna (20 MHz - 2 GHz)	2648	5/22/03
N/A	Rhein Tech Laboratories	Automated Emission Tester	Emissions testing software	Rev. 14.0.2	N/A

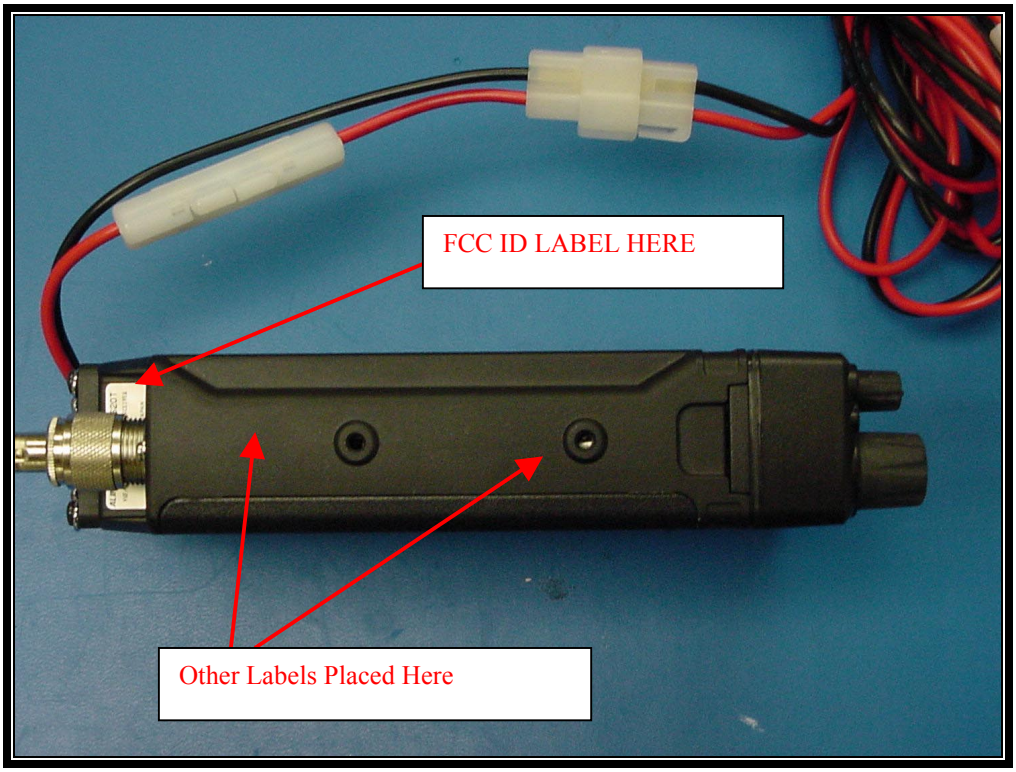
7 MANUFACTURER'S EQUIPMENT FILE CHECKLIST (PER FCC RULES §2.1075)

This checklist shall be used by the manufacturer to verify the correct filing per FCC 2.1075, Retention of Records for products produced and marketed.

PRODUCT MODEL(s): DR-620T Records Verified By:

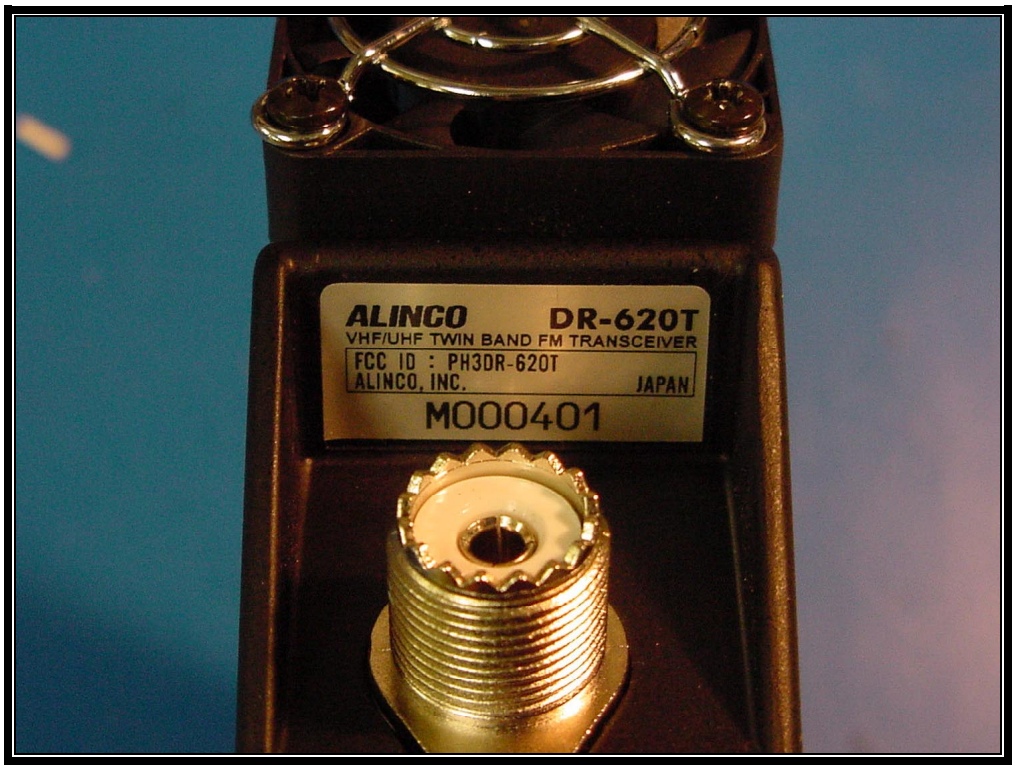
A record of the original design drawings and specifications.	
A record of all changes that have been made that would affect continued compliance with the authorized unit (e.g., any changes which would require a Class I or Class II permissive change).	
A record of the procedures used for production inspection and testing (if tests were performed) to ensure ongoing conformance.	
A record of the measurements made on an appropriate (**NVLAP-accredited**) test site that demonstrates compliance. The record shall contain:	
• (i) The actual date or dates testing was performed;	
• (ii) The name of the test laboratory, or individual performing the testing. (The Commission may request additional information regarding the test site, the test equipment or the qualifications of the Test laboratory from the client. or individual performing the tests);	
• (iii) A description of how the device was actually tested, identifying the measurement procedure and test equipment that was used contained in the test report	
• (iv) A description of the equipment under test (EUT) and support equipment connected to, or installed within the EUT	
• (v) The identification of the EUT and support equipment by trade name and model number and, if appropriate, by FCC identifier and serial number;	
• (vi) The types and lengths of connecting cables used and how they were arranged or moved during testing;	
• (vii) At least two photographs showing the test set-up for the highest line conducted emission and showing the test set-up for the highest radiated emission. These photographs must be focused originals which show enough detail to confirm other information contained in the test report;	
• (viii) A description of any modifications made to the EUT Client, or individual to achieve compliance with the regulations;	
• (ix) All of the data required to show compliance with the appropriate regulations;	
• (x) The signature of the individual responsible for testing the product along with the name and **signature of an official of the responsible party**, as designated in §2.909;	
• (xi) A copy of the compliance information (i.e., the DoC), as described in §2.1077, required to be provided with the equipment as follows: (a) Identification of the product (name and model number); (b) A statement, similar to that contained in §15.19(a)(3), that the product complies with Part 15 of the FCC Rules; (c) Identification, by name, and address of the responsible party.	

APPENDIX A: LABEL INFORMATION



PHOTOGRAPH 3: FCC LABELS PLACEMENT

PHOTOGRAPH 4: FCC ID LABEL



PHOTOGRAPH 5: FCC COMPLIANCE LABELS

APPENDIX B: USER'S MANUAL

Please see the following pages.