



FOUNTAIN TECHNOLOGIES, INC.

COMPLIANCE LABORATORY

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**ELECTROMAGNETIC EMISSION COMPLIANCE REPORT**  
of

WALKIE TALKIE  
MODEL: WT-9180  
FCC ID: N24WT-9180

*August 25, 2000*

This report concerns (check one): Original grant  Class II change \_\_\_\_\_  
Equipment type: Low Power Transceiver

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? yes \_\_\_\_\_ no   
If yes, defer until: \_\_\_\_\_ (date)

Company agrees to notify the Commission by \_\_\_\_\_ (date)  
of the intended date of announcement of the product so that the grant can be  
issued on that date.

Transition Rules Request per 15.37? yes \_\_\_\_\_ no   
If no, assumed Part 15, Subpart B for unintentional radiators - the new 47 CFR  
[10-1-90 Edition] provision.

Report prepared for:  
Report prepared by:  
Report number:

LEAVES INDUSTRIES LTD.  
Fountain Compliance Lab  
0048-2K0705-01



The test result in this report IS supported and covered by the NVLAP accreditation

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## 1. GENERAL INFORMATION

### 1.1 Verification of Compliance

EUT: **WALKIE TALKIE**  
 Model: **WT-9180**  
 Applicant: **LEAVES INDUSTRIES LTD.**  
 Test Type: **FCC Part 15C CERTIFICATION**  
 Result: **PASS**  
 Tested by: **FOUNTAIN COMPLIANCE LABORATORY**  
 Test Date: **AUGUST 18, 2000**  
 Report Number: **0048-2K0501-02**

The above equipment was tested by Compliance Laboratory, Fountain Technologies, Inc. for compliance with the requirement set forth in the FCC rules and regulations Part 15, subpart C. This said equipment in the configuration described in the report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

The estimated uncertainty of the test result is given as following. The method of uncertainty calculation is provided in Fountain Compliance Lab. Doc. No. 0048-01-01.

	Prob. Dist.	Uncertainty(dB) 30-1000MHz	Uncertainty(dB) 1-6.5GHz	Uncertainty(dB) Conducted
Combined Std. Uncertainty $u_c$	norm.	$\pm 2.36$	$\pm 2.99$	$\pm 1.83$



Wei Li  
 Lab Manager  
 Fountain Compliance Lab  
 Fountain Technologies, Inc.

Date: August 25 , 2000

## **1.2 Equipment Modifications**

N/A

### 1.3 Product Information

#### System Configuration

ITEM	DESCRIPTION	FCC ID	CABLE
Product	WALKIE TALKIE WT-9180 (1)	N24WT-9180	
Housing	PLASTICS		
Power Supply	9V DC		
Clock/OSC Freq.	49.860 MHz		
Receiver	WT-9180 (RX) (FCC Part15 Class B DoC)		

(1) EUT submitted for grant.

### 1.4 Test Methodology

Radiated tests were performed according to the procedures in ANSI C63.4-1992 at an antenna to EUT distance of 3 meters.

### 1.5 Test Facility

The open area test site and conducted measurement facility used to collect the radiated and conducted data are located at 50 Randolph Road, Somerset, New Jersey. This site has been accepted by FCC to perform measurements under Part 15 or 18 in a letter dated May 19, 1997 (Refer to: 31040/PRV 1300F2). The NVLAP Lab code for accreditation of FCC EMC Test Method is: 200101-0.

### 1.6 Test Equipment

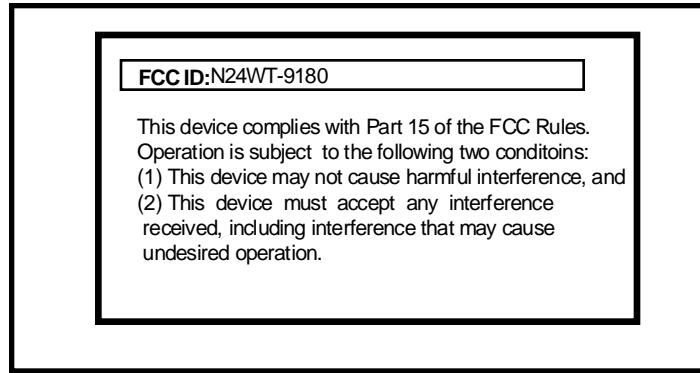
Manufacture	Model	Serial No.	Description	Last Cal dd/mm/yy	Cal Due dd/mm/yy
Hewlett-Packard	HP8546A	3625A00341	EMI Receiver	15/12/99	15/12/00
Fischer Custom	LISN-2	900-4-008	Line Impedance Stabilization Networks	27/05/00	27/05/01
Fischer Custom	LISN-2	900-4-009	Line Impedance Stabilization Networks	26/04/00	26/04/01
EMCO	3115	4945	Double Ridge Guide Horn Antenna	05/12/99	05/12/00
EMCO	3104C	4396	30-200MHz Biconical Antenna	02/05/00	02/05/01
EMCO	3146	3350	200-1000MHz Log-Periodic Antenna	02/05/00	02/05/01

All Test Equipment Used are Calibrated Traceable to NIST Standards.

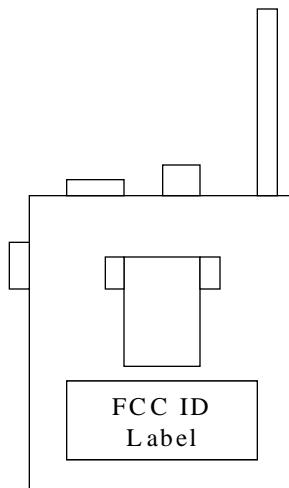
### **1.7 Statement for the Document Use**

This report shall not be reproduced except in full, without the written approval of the laboratory. And this report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

## 2. PRODUCT LABELING



**Figure 2.1 FCC ID Label**



**Figure 2.2 Location of Label on EUT**

### **3. SYSTEM TEST CONFIGURATION**

#### **3.1 Justification**

The system was configured for testing in a typical fashion (as a customer would normally use it). And its antenna was permanently attached to the EUT with fixed length, 5.31". Fresh batteries are used during the test in order to generate maximum emission from EUT.

Testing was performed in "ON" mode. It is the worst case.

#### **3.2 Special Accessories**

N/A

#### **3.3 Configuration of Tested System**

Figure 3.1, Figure 3.2 and Figure 3.2 illustrate this system, which is tested standing along.



**Figure 3.1 Radiated Test Setup, X-Axis**

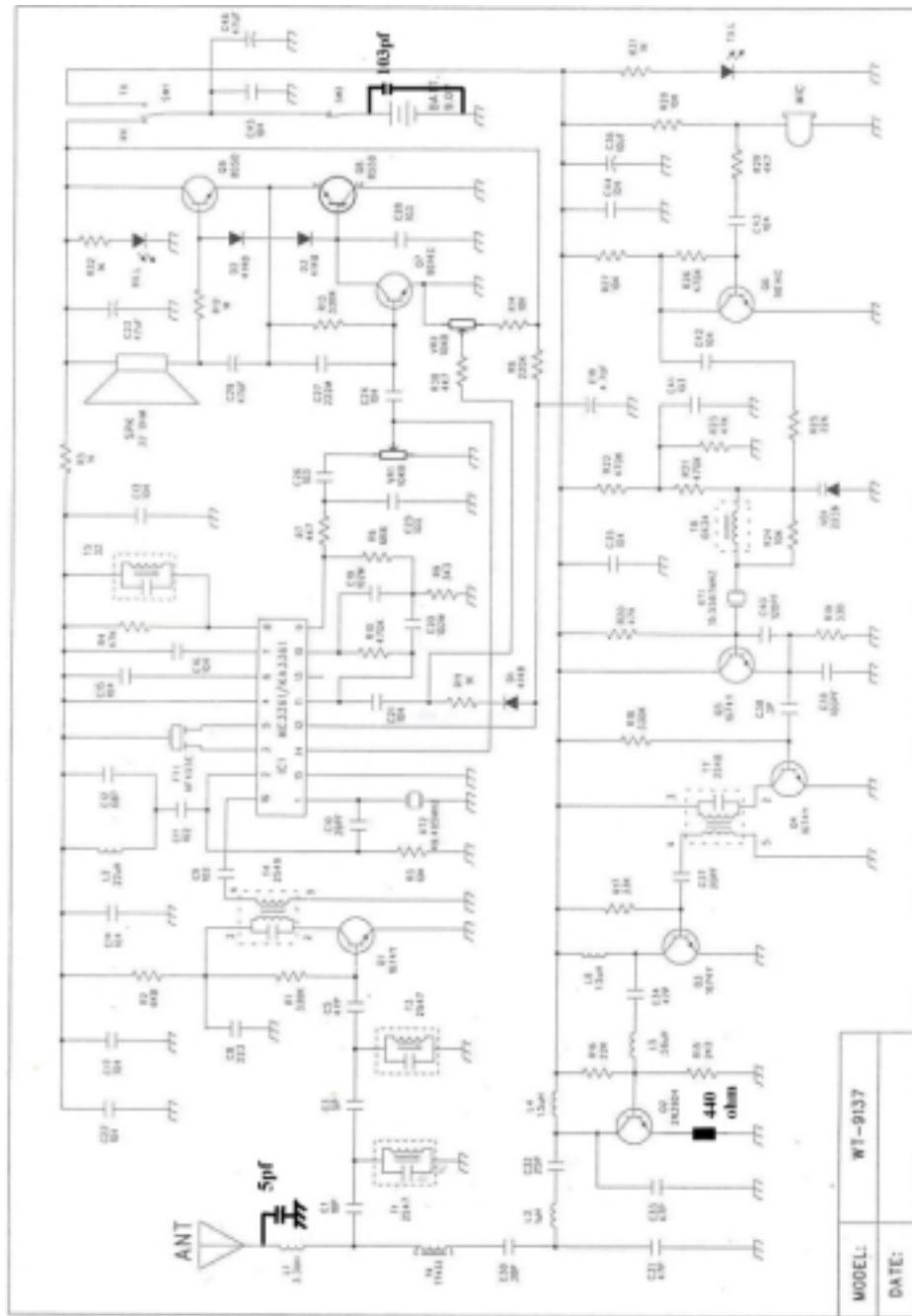


**Figure 3.2 Radiated Test Setup, Y-Axis**



**Figure 3.3 Radiated Test Setup, Z-Axis**

## 4. SYSTEM SCHEMATICS



## Figure 4.1 System Schematics

## 5. RADIATED EMISSION DATA

### 5.1 Field Strength Calculation

The corrected field strength is automatically calculated by EMI Receiver using following:

$$FS = RA - AF - CF - AG$$

where FS: Corrected Field Strength in dB $\mu$ V/m

RA: Amplitude of EMI Receiver before correction in dB $\mu$ V

AF: Antenna Factor in dB/m

CF: Cable Attenuation Factor in dB

AG: Built-in Preamplifier Gain in dB (Stored in receiver as part of the calibration data)

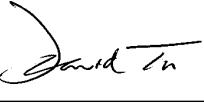
### 5.2 Test Methods and Conditions

The EUT exercise program was loaded during the radiated emission test. The initial step in collecting radiated data is an EMI Receiver scan of the measurement range 30MHz - 5GHz using peak detector. IF bandwidth is 120kHz and video bandwidth is 300kHz for measuring 30MHz-1GHz. Both bandwidth are 1MHz for above 1GHz measurement.

### 5.3 Tx & Rx Test Data

The following data lists the significant emission frequencies, polarity and position, peak reading of the EMI Receiver, calculated average reading (if needed), the FCC limit, and the difference between the final reading and the limit. Explanation of the correction and calculation are given in section 5.1. **Both Tx Mode and Rx modes are tested and data was collected.**

Test Personnel:

Tester Signature: 

Date: 08-25-2000

Typed/Printed Name: David Tu

### Radiated Test Data for Tx Mode (49.865MHz)

Frequency (MHz)	Polarity [H, V] Position	Height (m)	Azimuth (Degree)	Peak(2) Reading (dB $\mu$ V/m)	Class B(1) 3m Limit (dB $\mu$ V/m)	Difference from limit (dB)
49.86	XH	3.7	105	45.6	80.0	-32.4
99.72	XH	1.0	180	30.4	43.5	-13.1
149.6	XH	2.1	270	33.7	43.5	-9.8
199.4	XH	1.9	270	35.0	43.5	-8.5
249.2	XH	1.0	270	39.0	46.0	-7.0
267.2	XH	1.0	270	35.6	46.0	-10.4
283.8	XH	1.0	270	34.0	46.0	-12.0
299.7	XH	1.0	270	35.0	46.0	-11.0
415.6	XH	1.0	095	34.9	46.0	-11.1
748.0	XH	1.0	265	36.2	46.0	-9.8
797.6	XH	1.0	250	32.8	46.0	-13.2
847.7	XH	1.0	265	32.1	46.0	-13.9
49.86	XV	1.0	180	45.5	80.0	-32.5
99.72	XV	1.0	035	31.3	43.5	-12.2
249.2	XV	1.6	180	31.8	46.0	-14.2
748.0	XV	1.7	205	34.7	46.0	-11.3
797.6	XV	2.0	200	39.9	46.0	-6.1
49.86	YH	3.7	180	47.5	80.0	-27.5
149.6	YH	1.3	180	33.7	43.5	-9.8
199.4	YH	1.7	180	41.8	43.5	-1.7
249.2	YH	1.1	180	40.8	46.0	-5.2
299.2	YH	1.0	045	35.1	46.0	-10.9
349.0	YH	1.0	045	31.6	46.0	-14.4
398.9	YH	1.0	045	37.5	46.0	-8.5
747.9	YH	1.0	170	41.8	46.0	-4.2
797.8	YH	1.0	170	40.1	46.0	-5.9
847.6	YH	1.0	170	37.6	46.0	-8.4
897.5	YH	1.0	170	37.8	46.0	-8.2
49.86	YV	1.0	270	46.3	80.0	-29.7
149.6	YV	1.0	270	31.1	43.5	-12.4
199.4	YV	1.0	255	32.9	43.5	-10.6
249.2	YV	1.7	300	38.5	46.0	-7.5
299.2	YV	1.7	260	31.4	46.0	-14.6
349.0	YV	1.5	270	36.6	46.0	-9.4
398.9	YV	1.5	270	37.3	46.0	-8.7

747.9	YV	1.3	225	40.4	46.0	-5.6
797.8	YV	1.3	225	34.8	46.0	-11.2
847.6	YV	1.3	225	33.0	46.0	-13.0
897.5	YV	1.3	225	40.4	46.0	-5.6
49.86	ZH	3.7	000	47.8	80.0	-30.2
149.6	ZH	1.0	180	29.4	43.5	-14.1
249.3	ZH	1.0	180	34.1	46.0	-11.9
299.2	ZH	1.0	300	32.4	46.0	-13.6
398.9	ZH	1.0	180	35.5	46.0	-10.5
747.9	ZH	1.0	180	38.3	46.0	-7.7
49.86	ZV	1.0	105	48.3	80.0	-26.7
149.6	ZV	1.0	125	34.3	43.5	-9.2
249.3	ZV	2.1	270	42.6	46.0	-3.4
299.2	ZV	2.1	270	33.5	46.0	-12.5
598.3	ZV	2.0	150	39.9	46.0	-6.1
648.2	ZV	1.9	135	40.8	46.0	-5.2
698.1	ZV	2.0	090	37.7	46.0	-8.3
747.9	ZV	1.5	150	41.9	46.0	-4.1
797.7	ZV	1.5	150	42.5	46.0	-3.5
847.6	ZV	1.5	150	38.9	46.0	-7.1
897.5	ZV	1.5	150	39.8	46.0	-6.2

(1) The limit for emissions within the 49.82-49.90MHz band is 10,000uV(80dB). Sec. 15.235.

The limit for other emissions is defined in Sec. 15.209.

(2) Because each peak reading is less than the FCC average limit, it is not necessary to show the calculated average reading based on the pulse train characteristics.

### Radiated Test Data for Rx

No significant emission points were found comparing to the FCC Class B limit defined in CFR47, Part 15, Sec. 15.209.

## **6. PHOTOS OF TESTED EUT**

The following photos show the inside details of the EUT.

See Attachments: front.jpg, rear.jpg, inside.jpg, compnt.jpg, foil.jpg,