THRU Lab. & Engineering

RF PWR, TEMP & VOLTAGE TEST

NOT TRANSFERABLE

CERTIFICATE OF COMPLIANCE is hereby issued to the named Applicant and is **VALID ONLY** for the equipment identified below:

Date of Tested : 2003.02.13
Applicant's Name : TTI Tech Co., Ltd
Applicant's Address : Eundo Blag. #402, 737-19,Banpo-1dong, Seocho-ku Seoul,Korea

Declares that the product
Product Description : FRS/GMRS
Model Number : GMRSWP1

Conforms to FCC Rules and Regulations Part 2 and Part 95 requirements. This product herewith complies with the requirements of the FCC Rules and Regulations.

TESTED and CERTIFIED by :

THRU LAB. & ENGINEERING

#1105, ACE TECHNO TOWER V 197-22
GURO3-DONG, GURO-KU,
Seoul Koea

Date : 2003.02.18
Report No. : THRU-PT2009

Authorized Signature : Hae Woon Park

H. W. Park / M. Director

1. OUTPUT POWER REPORT

	MEASUREMENT RESULT			(	ERP	)
Channel	Frequency (MHz)	Meter Reading (dBuv)	Antenna Factor (dB)	Cable Loss (dB)	Result (dBuv)	Power (W)
GMRS High Power						
4	462.6375	97.6	18.64	4.66	120.90	0.225
FRS Power						
11	467.6375	96.4	19.69	4.68	120.77	0.218
* Measured with Battery						

2. Unwanted Radiation Report

2.1053 UNWANTED RADIATION:

95.635(b) (7)

The tabulated Data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 to at least the 10th harmonic of the fundamental. This test was conducted per ANSI C63.4-1992

Require:	GMRS High	:43+10log(	0.225	)=	36.51996	dB
	FRS	:43+10log(	0.218	)=	36.39019	dB
Test Data :	GMRS-	High Power		Test Data :	FRS	
Emission Frequency	ATTN dBc	Margin dB		Emission Frequency	ATTN dBc	Margin dB
462.64	0.00	0.00		467.64	0.00	0.00
925.28	38.97	2.45		935.28	41.37	4.98
1387.91	52.02	15.50		1402.91	57.26	20.87
1850.55	50.18	13.66		1870.55	51.85	15.46
2313.19	52.87	16.35		2338.19	49.31	12.92
2775.83	58.48	21.96		2805.83	55.03	18.64
3238.46	57.91	21.39		3273.46	56.05	19.66
3701.10	56.68	20.16		3741.10	62.92	26.53
4163.74	48.90	12.38		4208.74	52.83	16.44
4626.38	45.93	9.41		4676.38	46.12	9.73

METHOD OF MEASURMENT: The tabulated Data shows the results of the radiated field strength emissions test. The spectrum was scanned from 30 to at least the 10th harmonic of the fundamental. This test was conducted per TIA/EIA STANDARD 603 using the substitution method. Measurements were made at #389 Jeam-Rhi, Hyangnam-Myun, Hwasung City, Kyungki-Do, Korea

3. FRS/GMRS Frequency stability

2.1055
95.621(b)

Temperature and voltage tests were performed to verify that the frequency remains within the 0.00025%, 2.5 ppm specification limit for FRS and within the 0.0005%, 5.0 ppm specification limit for GMRS. The test was conducted as follows: The transmitter was placed in the temperature chamber at 25 degrees C and allowed to stabilize for one hour. The transmitter was keyed ON for one minute during which for frequency readings were recorded at 15 second intervals. The worse case number was taken for temperature plotting. The assigned channel frequency was considered to be the reference frequency. The temperature was then reduced to -30 degrees C after which the transmitter was again allowed to stabilize for one hour. The transmitter was keyed ON for one minute and again frequency readings were noted at 15 second intervals. The worst case number was recorded for temperature plotting. This procedure was repeated in 10 degree increments up to + 50 degrees C .

Readings were also taken at plus and minus 15% of the specified battery voltage of 6 V DC.

Measurement Data

Assigned Frequency (Ref. Frequency) : 462.6375

TEMPERATURE ° C	FREQUENCY MHz	ppM
REFERENCE	462.6375	0.00
-30°C	462.63617	-2.87
-20°C	462.63684	-1.43
-10°C	462.63746	-0.09
0°C	462.6379	0.86
10°C	462.63828	1.69
20°C	462.63787	0.80
30°C	462.63751	0.02
40°C	462.63725	-0.54
50°C	462.63764	0.30
BATT. End-Point 5.1 V/dc	462.63764	0.30
BATT. End-Point 6.9 V/dc	462.63779	0.63

RESULTS OF MEASURMENT : The maximum frequency variation over the temperature range was -2.87 to 1.69 ppm. The maximum frequency variation with voltage was 0.63 ppm.

Note: EUT must meets the frequency stability requirement for a FRS:+/- 2.5ppm over temp. range of -20 degrees C to +50 degrees C. It also must meets the GMRS frequency stability requirements: +/- 5ppm over the temp range -30 degrees C to +50 degrees C.