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FEDERAL COMMUNICATIONS COMMISSION
Registration number: 282399

Report No.: 03.09.1628EF-2
Page: 1 of 16
FCC ID: RF7WR-2

FCC TEST REPORT

Application No. : 03.09.1628EF-2
Applicant : STL INTERNATIONAL LTD
FCC ID : RF7WR-2
Fundamental Frequency : 915 MHz

Equipment under Test (EUT):

Name : WIRELESS FLOORMAT
Model : WR-2

Standards : FCC PART 15, SUBPART C : 2002
Date of Receipt : 10 September 2003
Date of Test : 12 to 18 September 2003
Date of Issue : 28 September 2003

Test Result :	PASS *
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* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Kent Hsu
Laboratory Manager
SGS-CSTC Co., Ltd.

This report refers to the General Conditions for Inspection and Testing Services, printed overleaf
This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the SGS PRODUCT CERTIFICATION MARK.. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.
This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.



2 Contents

	Page
1 COVER PAGE.....	1
2 CONTENTS	2
3 GENERAL INFORMATION.....	3
3.1 CLIENT INFORMATION	3
3.2 DETAILS OF E.U.T.	3
3.3 DESCRIPTION OF SUPPORT UNITS.....	3
3.4 TEST LOCATION	3
3.5 OTHER INFORMATION REQUESTED BY THE CUSTOMER.....	3
3.6 TEST FACILITY	4
4 TEST RESULTS.....	5
4.1 TEST INSTRUMENTS	5
4.2 E.U.T. OPERATION	5
4.3 TEST PROCEDURE & MEASUREMENT DATA.....	6
4.3.1 Radiated Emissions	6
4.3.2 Conducted Emissions Mains Terminals, 150kHz to 30MHz	9
4.3.3 Measurement Data	9
4.3.4 Occupied Bandwidth	10
4.3.5 Calculation Of Duty Cycle:	11
5 PHOTOGRAPHS - RADIATED EMISSION TEST SETUP.....	13
6 PHOTOGRAPHS – CONDUCTED EMISSION TEST SETUP	14
7 PHOTOGRAPHS - EUT CONSTRUCTIONAL DETAILS.....	15-16

3 General Information

3.1 Client Information

Applicant: STL INTERNATIONAL LTD

Address of Applicant: TUNG KONG INDUSTRIAL ZONE.LIU MEI
VILLAGE,YUEN ZHOU,BOLOU,PRC

3.2 Details of E.U.T.

Product Name: WIRELESS FLOORMAT

Model: WR-2

Power Supply: 120Vac / 60Hz (for AC/DC Adapter supplied)

AC/DC Adapter: Input: 120Vac/60Hz;
Output: 12Vdc, 200mA.

Power Cord: 1.6 m , 2 wires unshielding DC cable

3.3 Description of Support Units

The EUT was tested as an independent unit: a 915MHz radio transmitter.It also as a receiver been tested for another product (model: WSR-1).

3.4 Test Location

All tests were performed at:-

SGS-CSTC Standards Technical Services Ltd., Guangzhou Safety & EMC Laboratory, 1/F,
Building No. 1, Agriculture Machinery Materials Company Warehouse Ltd., Wushan Road
Shipai, Tianhe District, Guangzhou, China. P.C. 510630.

Tel: +86 20 3848 1001

Fax: +86 20 3848 1006

3.5 Other Information Requested by the Customer

None.

3.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP – Lab Code: 200611-0**
SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 2000611-0. Effective through February 2, 2003.
- **ACA**
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.
- **VCCI**
The 3m Semi-anechoic chamber and Shielded Room (11.5m x 4m x 4m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-1599 and C-1706 respectively.
Date of Registration: February 28, 2003. Valid until May 30, 2005
- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FINKO**
Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.
- **CNAL – LAB Code: L0141**
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of Testing Laboratories.
- **FCC – Registration No.: 282399**
SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002. With the above and NVLAP, SGS-CSTC is an authorized test laboratory for the DoC process.

4 Test Results

4.1 Test Instruments

Test Equipment	Manufacturer	Model	Asset No.	Cal. Due Date
Temperature, Humidity & Barometer	Oregon Scientific	BA-888	EMC0003	25-07-2003
3m Semi- Anechoic Chamber	Frankonia	N/A	EMC0501	04-11-2003
EMI Test Receiver	ROHDE & SCHWARZ	ESCS30	EMC0506	17-11-2003
Spectrum Analyzer	ROHDE & SCHWARZ	FSP 30	EMC0521	01-04-2004
Bilog Type Antenna	Schaffner Chase	CBL6143	EMC0519	01-12-2003
Horn Antenna	ROHDE & SCHWARZ	HF906	EMC0517	01-04-2004
Peramplifier	Agilent	8449B	EMC0520	30-06-2003
Coaxial cable	SGS	N/A	EMC0514	04-11-2003
Shielding Room	Frankonia	12 x 4 x 4 m ³	EMC0103	N/A
LISN	Schaffner Chase	MNZ050D11	1421	05-11-2003
EMI Test Receiver	Rohde & Schwarz	ESCS30	100086	17-11-2003
Coaxial Cable	SGS	2m	EMC0107	01-06-2004

4.2 E.U.T. Operation

Input voltage: 120Vac / 60Hz (for AC/DC Adapter supplied)

Operating Environment:

Temperature: 24.0 °C

Humidity: 52 % RH

Atmospheric Pressure: 1008 mbar

EUT Operation:

Test the EUT in transmitting mode.

4.3 Test Procedure & Measurement Data

4.3.1 Radiated Emissions

4.3.1.1 Test in transmitting mode

Test Requirement: FCC Part15 C
Test Method: Based on FCC Part15 C Section 15.231
Test Date: 15 September 2003
Measurement Distance: 3m (Semi-Anechoic Chamber)
Frequency range 30 MHz - 10,000 MHz for transmitting mode.
Test instrumentation resolution bandwidth 120 kHz (30 MHz - 1,000 MHz)
1 MHz (1000 MHz - 4,000 MHz)
Receive antenna scan height 1 m - 4 m, polarization Vertical/Horizontal
Requirements:

Fundamental Frequency MHz	Field Strength of Fundamental (dBuV/m @ 3m)	Field Strength of Harmonics and Spurious Emissions (dBuV/m @ 3m)
40.66 to 40.70	67.0	47.0
70 to 130	62.0	42.0
130 to 174	62.0 to 71.5	42.0 to 51.5
174 to 260	71.5	51.5
260 to 470	71.5 to 82.0	51.5 to 62.0
470 and above	82.0	62.0

The fundamental frequency of the EUT is 915MHz

The limit for average field strength dBuV/m for the fundamental frequency= 82.0 dBuV/m.

No fundamental is allowed in the restricted bands. The limit for average field strength dBuV/m for the harmonics and spurious frequencies = 62.0 dBuV/m. Spurious in the restricted bands must be less than 54 dBuV/m or 15.209.

Test Procedure: The procedure used was ANSI Standard C63.4-2000. The receive was scanned from 30MHz to 10GHz. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

The field strength is calculated by adding the Antenna Factor, Cable Factor & Peramplifier .
The basic equation with a sample calculation is as follows:
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Peramlifer Factor

The following test results were performed on the EUT on 12 September 2003:

1. Fundamental emission

Test Frequency (MHz)	Peak (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
915.018	67.2	78.5	102.0	34.8	23.5

Test Frequency (MHz)	Average (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
915.018	65.3	77.6	82.0	16.7	4.4

2. Spurious Emissions

Test Frequency (MHz)	Peak (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
1830.036	56.6	58.1	82.0	25.4	23.9
2745.054	54.6	56.3	82.0	27.4	25.7
3660.072	32.5	34.0	82.0	49.5	48.0
4575.090	34.6	34.3	82.0	47.4	47.7
5490.108	35.2	36.0	82.0	46.8	46.0
6405.126	35.3	35.7	82.0	46.7	46.3
7320.144	37.4	36.4	82.0	44.6	45.6
8235.162	36.8	36.0	82.0	45.2	46.0

Remark: According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules, e.g., see Section 15.255.

TEST RESULTS: The unit does meet the FCC requirements.

4.3.1.2 Test in receiving mode

Test Requirement: FCC Part15 B
 Test Method: Based on FCC Part15 B
 Test Date: 15 September 2003
 Frequency Range: 30MHz to 1GHz
 Measurement Distance: 3m
 Class: Class B
 Limit:
 40.0 dB μ V/m between 30MHz & 88MHz
 43.5 dB μ V/m between 88MHz & 216MHz
 46.0 dB μ V/m between 216MHz & 960MHz
 54.0 dB μ V/m above 960MHz
 Detector: Peak for pre-scan (120kHz resolution bandwidth)
 Quasi-Peak if maximised peak within 6dB of limit

The following quasi-peak measurements were performed on the EUT:

Frequency (MHz)	Antenna Polarization	Emission Level (dB μ V/m)	Limit dB μ V/m)	Margin (dB)
41.825	Vertical	33.5	40.0	6.5
147.455	Vertical	34.2	43.5	9.3
191.688	Vertical	38.5	43.5	5.0
206.435	Vertical	38.8	43.5	4.7
221.820	Vertical	36.7	46.0	9.3
914.835	Vertical	40.5	46.0	5.5
147.455	Horizontal	39.6	43.5	3.9
191.688	Horizontal	33.8	43.5	9.7
206.435	Horizontal	34.3	43.5	9.2
221.820	Horizontal	36.6	46.0	9.4
398.125	Horizontal	31.8	46.0	14.2
914.835	Horizontal	43.2	46.0	2.8

The field strength is calculated by adding the Antenna Factor, Cable Factor & Peramplifier .
 The basic equation with a sample calculation is as follows:
 Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Peramplifier Factor

TEST RESULTS: The unit does meet the FCC requirements.

4.3.2 Conducted Emissions Mains Terminals, 150kHz to 30MHz

Test Requirement: FCC Part15 B
 Test Method: ANSI C63.4
 Test Date: 16 September 2003
 Frequency Range: 150KHz to 30MHz
 Class / Severity: Class B
 Detector: Peak for pre-scan (9kHz Resolution Bandwidth)
 Operating Environment:
 Temperature: 24.0 °C Humidity: 52% RH Atmospheric Pressure: 1012 Mbar
 EUT Operation: Test in receiveing mode. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

4.3.3 Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

The following Quasi-Peak and Average measurements were performed on the EUT.:

Freq. MHz	Line	QP Level dBuV	Limit dBuV	Margin dB	AV Level dBuV	Limit dBuV	Margin dB
15.931	Live	9.7	60.0	50.3	9.3	50.0	40.7
19.917	Live	18.2	60.0	41.8	18.0	50.0	32.0
22.904	Live	15.6	60.0	44.4	15.0	50.0	35.0
25.888	Live	21.0	60.0	39.0	20.2	50.0	29.8
27.880	Live	24.2	60.0	35.8	23.6	50.0	26.4
29.872	Live	20.8	60.0	39.2	20.4	50.0	29.6
15.931	Neutral	11.6	60.0	48.4	11.1	50.0	38.9
19.917	Neutral	19.0	60.0	41.0	18.6	50.0	31.4
22.904	Neutral	16.2	60.0	43.8	16.0	50.0	34.0
25.888	Neutral	22.3	60.0	37.7	21.8	50.0	28.2
27.880	Neutral	25.0	60.0	35.0	24.7	50.0	25.3
29.872	Neutral	21.5	60.0	38.5	21.3	50.0	28.7

TEST RESULTS: The unit does meet the FCC requirements.

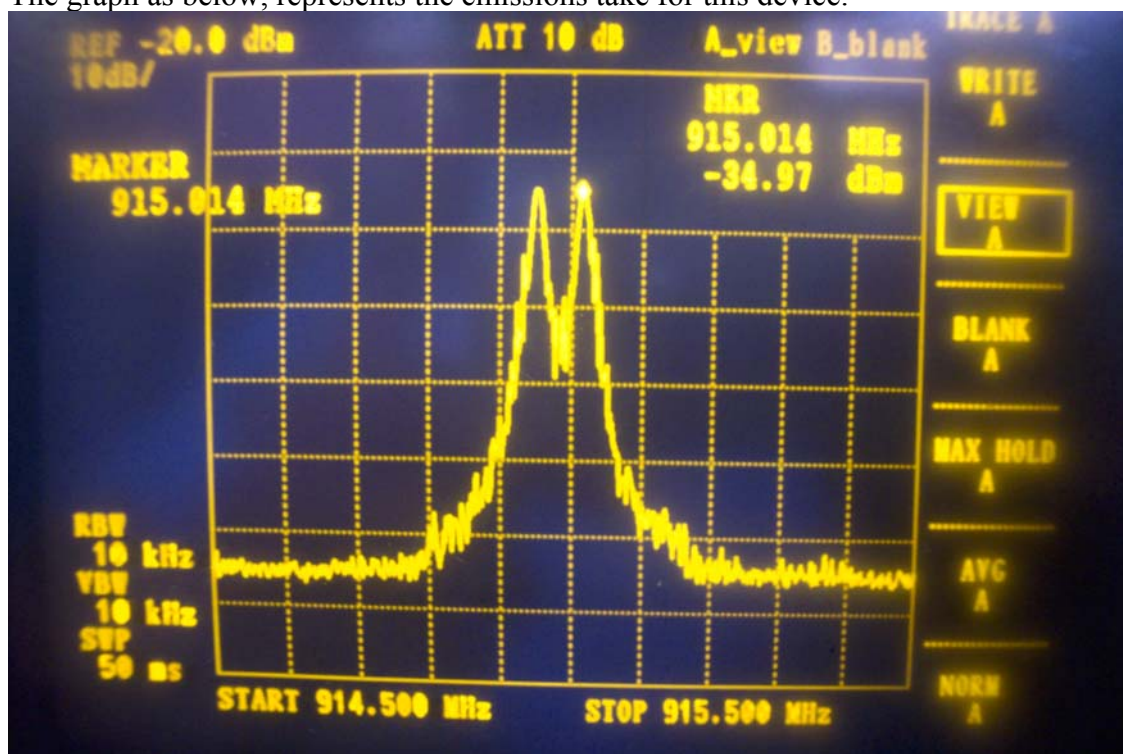
4.3.4 Occupied Bandwidth

Test Requirement: FCC Part15 C
Test Method: Based on FCC Part15 C Section 15.231:
Test Date: 13 September 2003

Requirements: 15.231 (c) The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

Method of measurement: A small sample of the transmitter output was fed into the Spectrum Analyzer and the attached plot was taken. The vertical is set to – 10dB per division. The horizontal scale is set to 100KHz per division.

The graph as below, represents the emissions take for this device.



The results: The unit does meet the FCC requirements.

4.3.5 Calculation Of Duty Cycle:

Test Requirement: FCC Part15 C
Test Method: Based on FCC Part15 C Section 15.231:
Test Date: 13 September 2003

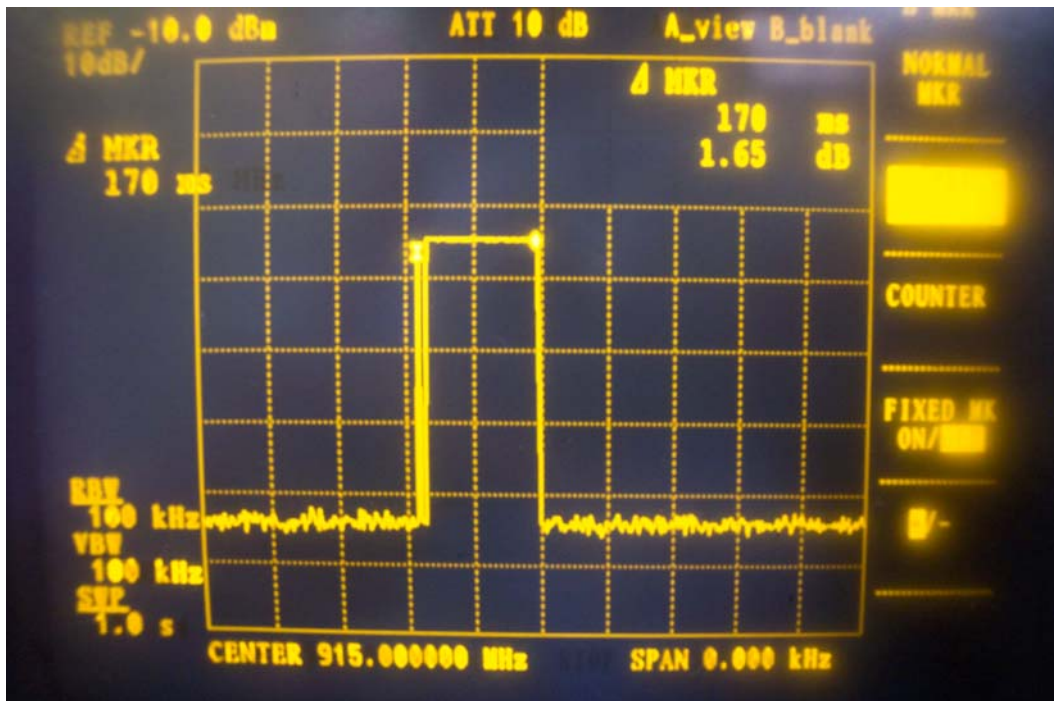
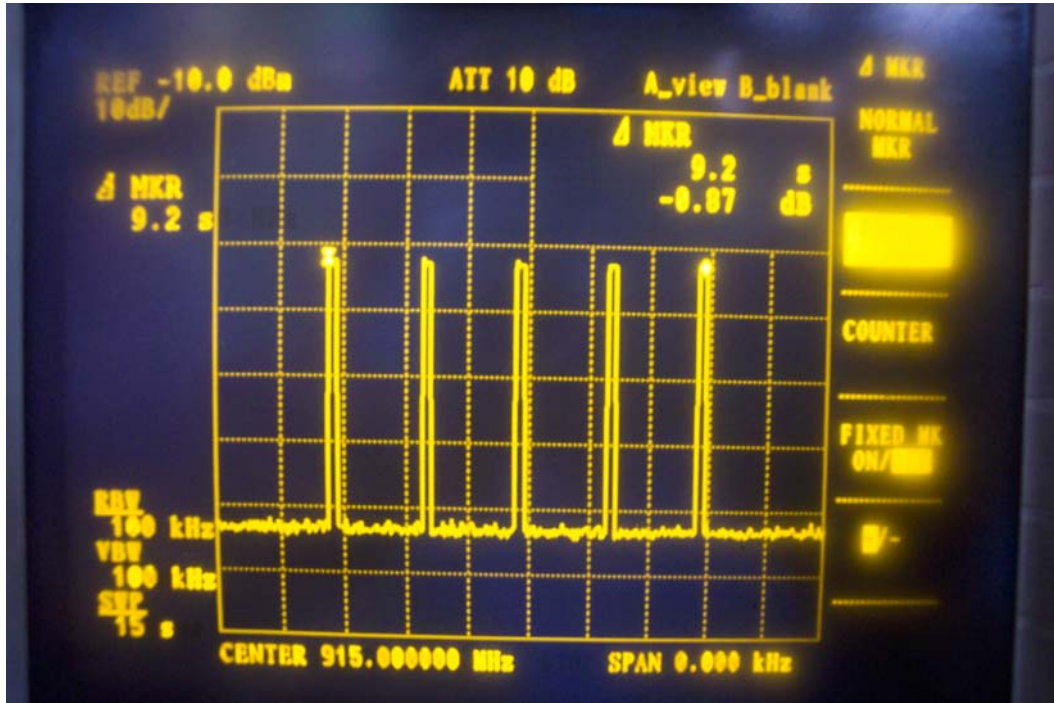
Requirements:

15.231 (a1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.
15.231 (a2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

Method of measurement:

The period of the pulse train is determined by observing it on an oscilloscope or a spectrum analyzer with zero (0) frequency span. A plot is then made of the pulse train with a sweep time of 100 milliseconds. This sweep determines the duration of the pulse train, which in this case is milliseconds. This sweep allows the determination of the number of and type of pulses, i.e. long & short. Plots are then made showing the duration of each type of pulse and its duration. From the 100millisecond Plot the number of a given type of pulse is then multiplied by the duration of that type pulse. This allows the calculation of the amount of time the UUT is on within 100milliseconds .

DUTY CYCLE PLOT – COMPLETE PULSE TRAIN



The results: The unit does meet the FCC requirements.