

FCC TEST REPORT

Equipment Under Test : Mini Bluetooth USB Dongle

Model No. : B092H0

Applicant : UNIWILL COMPUTER CORP.

Address of Applicant : 5F, No.9, WuChuan Rd. , Wu Gu Ind. Park,
Taipei, Taiwan, R.O.C.

Standards:

FCC Part 15 subpart C

In the configuration tested, the EUT complied with the standards specified above.

Remarks:

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. 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 Taiwan EMC Services or testing done by SGS Taiwan EMC Services in connection with distribution or use of the product described in this report must be approved by SGS Taiwan EMC Services in writing.

Tested by : Robert Chang **Date** : Aug. 26, 2002

Approved by : Jason Lin **Date** : Aug. 27, 2002

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1. General Information

1.1 Testing Laboratory

SGS Taiwan Ltd. (FCC Registration number: 94644)
1F, No. 134, Wukung Road, Wuku industrial zone
Taipei county , Taiwan , R.O.C.
Telephone : +886-2-2299-3279
Fax : +886-2-2298-2698
Internet : <http://www.sgs.com.tw>

1.2 Details of Applicant

Name : UNIWILL COMPUTER CORP.
Address : 5F, No.9, WuChiuan Rd. , Wu Gu Ind. Park,
Taipei, Taiwan, R.O.C.
Contact : Ms. Sunny Chien
Telephone : +886-2-22995668 ext. 3401

1.3 Description of EUT(s)

1	Product name	Mini Bluetooth USB Dongle
2	Product ID	B092H0
3	Hardware Version	REV.A
4	Software Version	14.3
5	Supply Voltage	USB Power Supply 5V $\pm$ 10%
6	Carrier Frequency	2400MHz to 2483.5MHz(USA,Spain,France)
7	Modulation Method	GFSK,1Mbps,0.5BT Gaussian
8	Hopping	1600hops/sec, 1MHz channel space
9	Output Interface	USB
10	Operation Temperature	0 to +60 degree
11	Compliant	Bluetooth Specification Ver1.1
12	Storage Temperature	-40 to +85 degree

1.4 Operation Procedure

Since Bluetooth is a FHSS system, it is difficult to measure the parameters under hopping mode. The output power and operating frequency are NOT End-user adjustable. Applicant offer a engineering software “BlueSuite” to control the EUT. Setting of the software parameters are set as default. Operating frequency are set as testing required. The output power is set as Ext=255, Int=40.

The lowest operating frequency within Bluetooth specification is 2402Mhz, and highest operating frequency is 2480Mhz. So the frequency above are used as the lowest and highest frequency in the testing, and the middle frequency is set as 2441Mhz.

Due to cable loss, the real value will equal to measured value(show on the instrument) add cable loss.

2.Summary of Results

subclause	Parameter to be measures	Verdict	Page
15.207	Conducted Limits	<i>PASS</i>	7
15.209	Radiated emission Limits, general requirement	<i>PASS</i>	10
15.249(a)	Field Strength of emission	<i>PASS</i>	13
15.249(d)	Emissions radiated outside of the specified frequency bands	<i>PASS</i>	14

3. Instruments List

Instrument	Model	Serial number	Calibration date
Desktop PC	Acer Veriton 7200	N/A	N/A
Spectrum Analyzer	Agilent 7405A	US40240202	May 22, 2002
Antenna	Schwarzbeck BBHA9120D	A292	Jan 21, 2002
Antenna	Schwarzbeck VULB9163	152	July 01, 2002
EMC Analyzer	HP 8594EM	3624A00203	Dec. 13, 2001
EMI Test Receiver	R&S ESCS 30	828985/004	Oct. 11, 2001
Transient Limiter	HP 11947A	3107A02062	Jul. 24, 2002
L.I.S.N	Rolf-Heine NNB- 2/16Z	99012	Oct. 08, 2001

4. Measurements

4.1 Conducted Limits

SUBCLAUSE 15.207

Product Name: USB DONGLE Test Date: Aug.24,2002

Model No.: B092H0 Tester : Jack

Test Mode: operation mode Temperature 23 °C

Test Result: PASS Humidity: 34 %

Main Terminals:N

FREQ MHz	QP1 dBuV	AVG1 dBuV	Factor	QP2 dBuV	AVG 2	QP Limit	AV Limit	QP Offset	AV Offset
0.15	36.56	31.88	3.00	39.56	34.88	66.00	56.00	-26.44	-21.12
1.34	37.45	30.56	2.90	40.35	33.46	56.00	46.00	-15.65	-12.54
1.89	36.34	34.45	3.07	39.41	37.52	56.00	46.00	-16.59	-8.48
1.83	22.10	16.10	3.05	25.15	19.15	56.00	46.00	-30.85	-26.85
2.44	40.67	35.77	3.11	43.78	38.88	56.00	46.00	-12.22	-7.12
3.66	41.34	38.78	3.16	44.50	41.94	56.00	46.00	-11.50	-4.06
12.55	43.56	38.99	3.38	46.94	42.37	60.00	50.00	-13.06	-7.63

1. " -" denotes the emission level was - 10 dB beneath the Average limit,so nothing need to re-check anymore.

2. QP1/ AVG1 value means the QP/AV reading without the factor.

3. QP2/AVG2 value means the QP/AV final reading with the factor.

Product Name: USB DONGLE

Test Date: Aug.24,2002

Model No.: B092H0

Tester : Jack

Test Mode: operation mode

Temperature 23 °C

Test Result: PASS

Humidity: 34 %

Main Terminals:L

FREQ MHz	QP1 dBuV	AVG1 dBuV	Factor	QP2 dBuV	AVG 2	QP Limit	AV Limit	QP Offset	AV Offset
0.15	34.23	30.23	3.00	37.23	33.23	66.00	56.00	-28.77	-22.77
1.34	35.67	31.23	2.90	38.57	34.13	56.00	46.00	-17.43	-11.87
1.82	36.78	32.34	3.05	39.83	35.39	56.00	46.00	-16.17	-10.61
2.45	40.56	34.67	3.12	43.68	37.79	56.00	46.00	-12.33	-8.22
3.67	42.34	38.67	3.16	45.50	41.83	56.00	46.00	-10.50	-4.17
12.45	45.78	40.21	3.37	49.15	43.58	60.00	50.00	-10.85	-6.42

1." -" denotes the emission level was - 10 dB beneath the Average limit,so nothing need to re-check anymore.

2. QP1/ AVG1 value means the QP/AV reading without the factor.

3. QP2/AVG2 value means the QP/AV final reading with the factor.

Line

14:02:09 AUG 21, 2002
 11:25:53 24 JUL 1998 13:50:17 DEC 02, 1998
 SPAN 29.85 MHz
 ACTV DET: PEAK
 MEAS DET: PEAK QP AVG
 MKR 150 kHz
 52.01 dB μ V

LOG REF 80.0 dB μ V

10

dB/

ATN

10 dB

WA SB

SC FC

ACORR

CENTER 15.08 MHz

#IF BW 9.0 kHz

AVG BW 30 kHz

SPAN 29.85 MHz

SWP 1.40 sec

Neutral

14:02:30 AUG 21, 2002
 11:25:53 24 JUL 1998 13:50:17 DEC 02, 1998
 SPAN 29.85 MHz
 ACTV DET: PEAK
 MEAS DET: PEAK QP AVG
 MKR 150 kHz
 53.41 dB μ V

LOG REF 80.0 dB μ V

10

dB/

ATN

10 dB

WA SB

SC FC

ACORR

CENTER 15.08 MHz

#IF BW 9.0 kHz

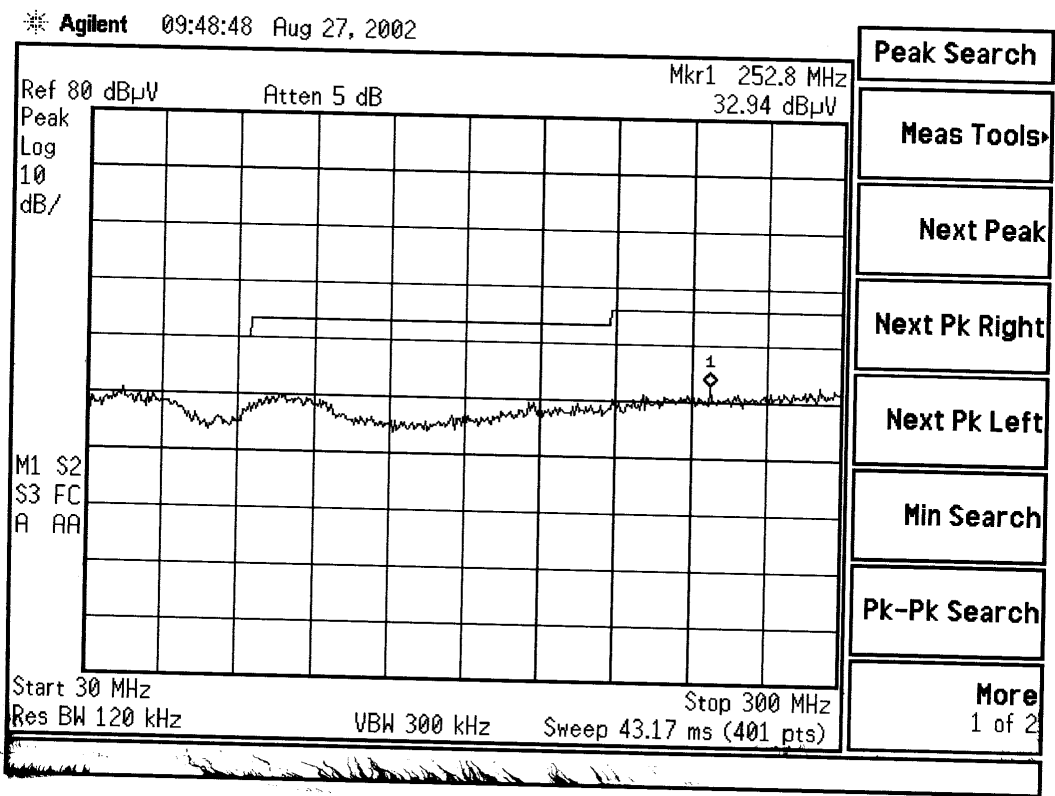
AVG BW 30 kHz

SPAN 29.85 MHz

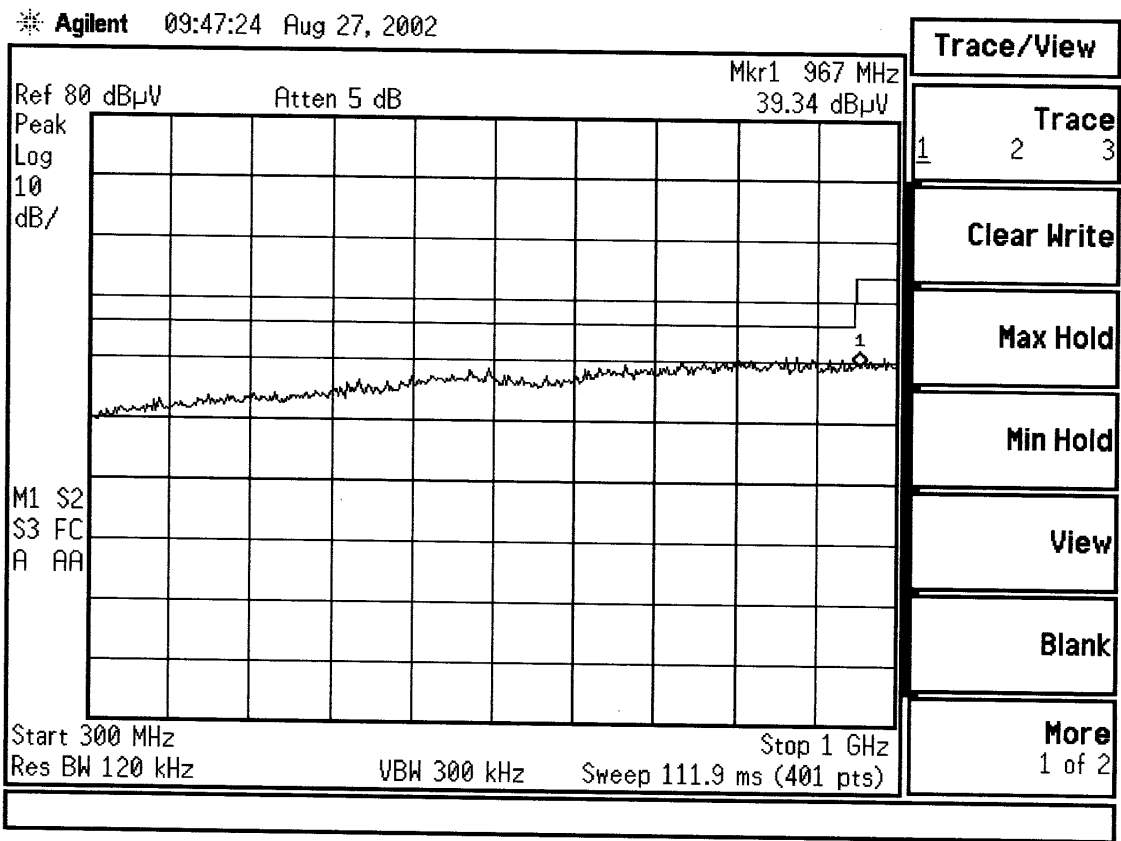
SWP 1.40 sec

4.2 Radiated emission Limits, general requirement SUBCLAUSE 15.209

Part 1: 30Mhz-300Mhz



Part2: 300Mhz- 1Ghz



4.2.1 Limits

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

4.3 Field Strength of emission**SUBCLAUSE 15.249(a)**

Transmitting Frequency: 2402Mhz

Emission Frequency (Mhz)	Meter Reading-H	Meter Reading-V	Correction factor	Results (dB μ V/m) -H	Results (dB μ V/m) -V
2401.970	53.5	58.6	+33.3	86.8	91.9
4803.940	42.8	42.6	+2.5	45.3	45.1

Transmitting Frequency: 2441Mhz

Emission Frequency	Meter Reading-H	Meter Reading-V	Correction factor	Results (dB μ V/m) -H	Results (dB μ V/m) -V
2440.947	55.0	60.3	+33.3	88.3	93.6
4881.894	42.0	41.8	+2.7	44.7	44.5

Transmitting Frequency: 2480Mhz

Emission Frequency	Meter Reading-H	Meter Reading-V	Correction factor	Results (dB μ V/m) -H	Results (dB μ V/m) -V
2479.973	51.7	57.8	+33.3	85.3	91.4
4959.946	41.2	41.4	+2.9	44.1	44.3

4.3.1 Limits

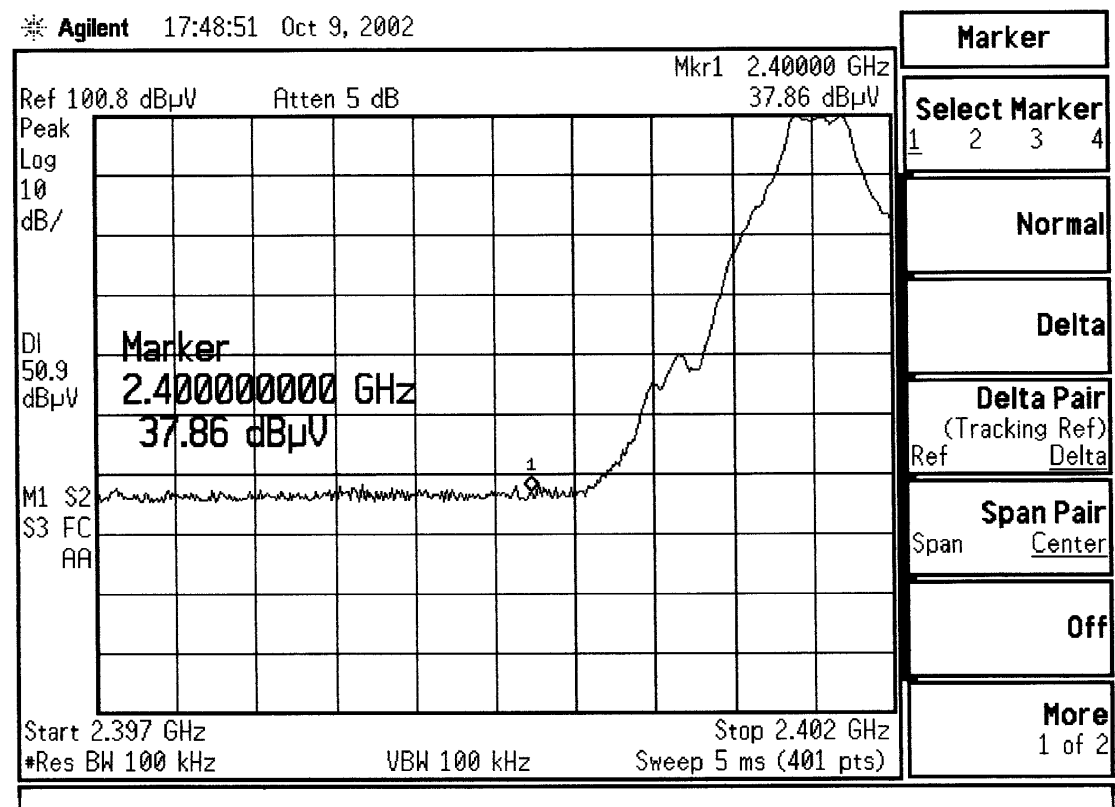
Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
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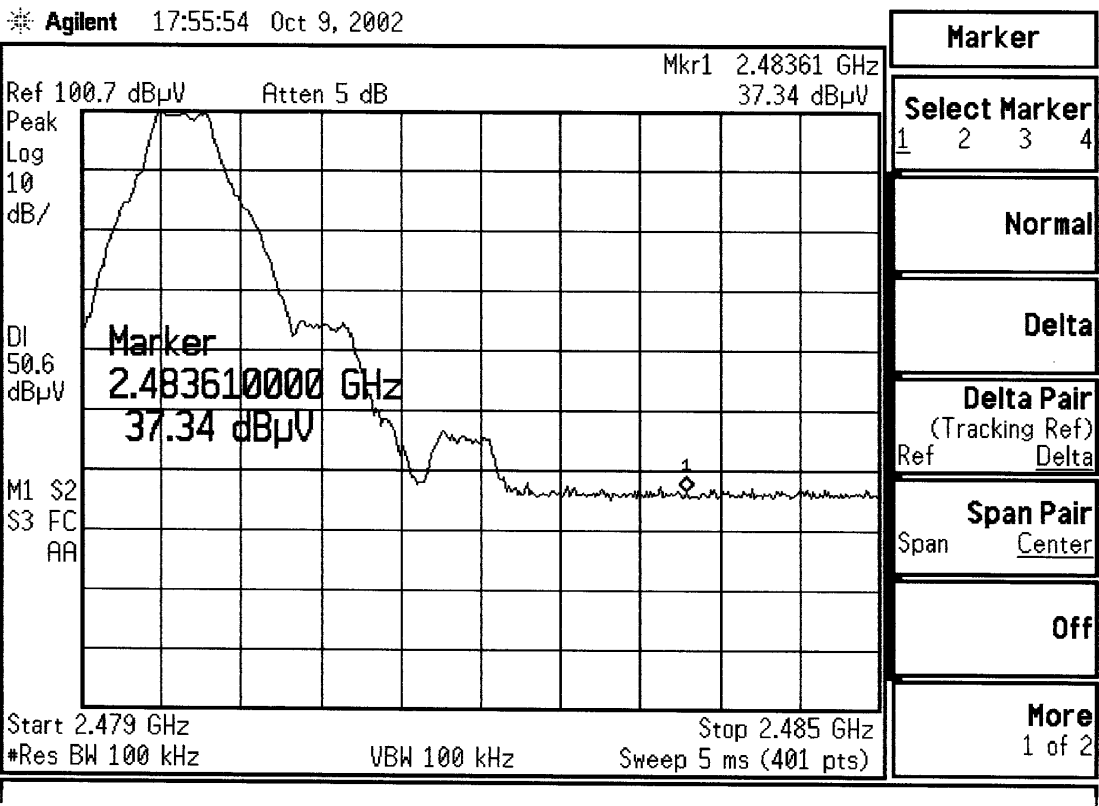
902 - 928 MHz	50	500
2400 - 2483.5 MHz	50	500
5725 - 5875 MHz	50	500
24.0 - 24.25 GHz	250	2500

4.4 Emissions radiated outside of the specified frequency bands

SUBCLAUSE

15.249(d)





4.4.1 Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by a least 50dB below the level of fundamental or to the general radiated emission limits in Section 15.209, whichever is lesser attenuation.

APPENDIX: Photographs of Test Setup

(The photos are saved separately)

(The photos are saved separately)

APPENDIX : Photographs of EUT

(The photos are saved separately)