

# FCC TEST REPORT

Equipment Under Test : WIRELESS AUDIO LINK  
Model No. : WS-WAL1

Applicant : Wen Shing Electronics Co.,Ltd.  
Address of Applicant : 82,Chorng Der St.,  
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 : Gallon Lee      Date : Nov. 4, 2002

Approved by : Jason Lin      Date : Nov. 5, 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 Wen Shing Electronics Co.,Ltd.  
Address 82,Chorng Der St.,  
Taipei, Taiwan, R.O.C.  
Contact Fu-Wen Lin  
Telephone +886-2-27353055

## 1.3 Description of EUT(s)

1	Product name	Wireless Audio Link
2	Product ID	WS-WAL1
3	Supply Voltage	USB Power Supply 5V±10%
4	Carrier Frequency	88MHz to 108MHz
5	Output Interface	USB

## 1.4 Operation Procedure

Turn on PC and all peripheral devices. Set Frequency by DIP switch. Connect EUT to USB connector. Connect audio source to 3.5mm connector of EUT.

Testing requirement follows CFR47, Part 15.239 , testing site comply with the requirement of ANSI C63.4 standard.

## 2.Summary of Results

subclause	Parameter to be measures	Verdict	Page
15.207	Conducted Limits	<i>PASS</i>	6
15.209	Radiated emission Limits, general requirement	<i>PASS</i>	9
15.239(a)	Frequency range of 88MHz-108MHz	<i>PASS</i>	14
15.239(b)	Main frequency field strength not exceed 250 microvolts/meter at 3 meters	<i>PASS</i>	15

### 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 VULB9163	159	July 1, 2002
EMC Analyzer	HP 8594EM	3624A00203	Dec. 13, 2001
EMI Test Receiver	R&S ESCS 30	828985/004	Oct. 11, 2002
Transient Limiter	HP 11947A	3107A02062	Jul. 24, 2002
L.I.S.N	Rolf-Heine NNB-2/16Z	99012	Oct. 08, 2002

## 4. Measurements

### 4.1 Conducted Limits

### SUBCLAUSE 15.207

Product Name: Wireless Audio Link      Test Date: Nov,4,2002

Model No.: WS-WAL1      Tester : Gallon

Test Mode: operation mode      Temperature 24 °C

Test Result: PASS      Humidity: 55 %

Main Terminals:L

FREQ MHz	QP1 dBuV	AVG1 dBuV	Factor	QP2 dBuV	AVG 2	QP Limit	AV Limit	QP Offset	AV Offset
0.2	49.6	49.5	2.90	52.50	52.40	63.61	53.61	-11.11	-1.21
0.3	37	36.1	2.80	39.80	38.90	60.24	50.24	-20.44	-11.34
4.65	27.1	21	3.19	30.29	24.19	56.00	46.00	-25.71	-21.81
6.09	38	36.1	3.22	41.22	39.32	60.00	50.00	-18.78	-10.68
13.59	36.3	33.8	3.41	39.71	37.21	60.00	50.00	-20.29	-12.79
20.73	27.5	21.1	3.62	31.12	24.72	60.00	50.00	-28.88	-25.28

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: Wireless Audio Link      Test Date: Nov,4,2002

Model No.: WS-WAL1      Tester : Gallon

Test Mode: operation mode      Temperature 24 °C

Test Result: PASS      Humidity: 55 %

## Main Terminals:N

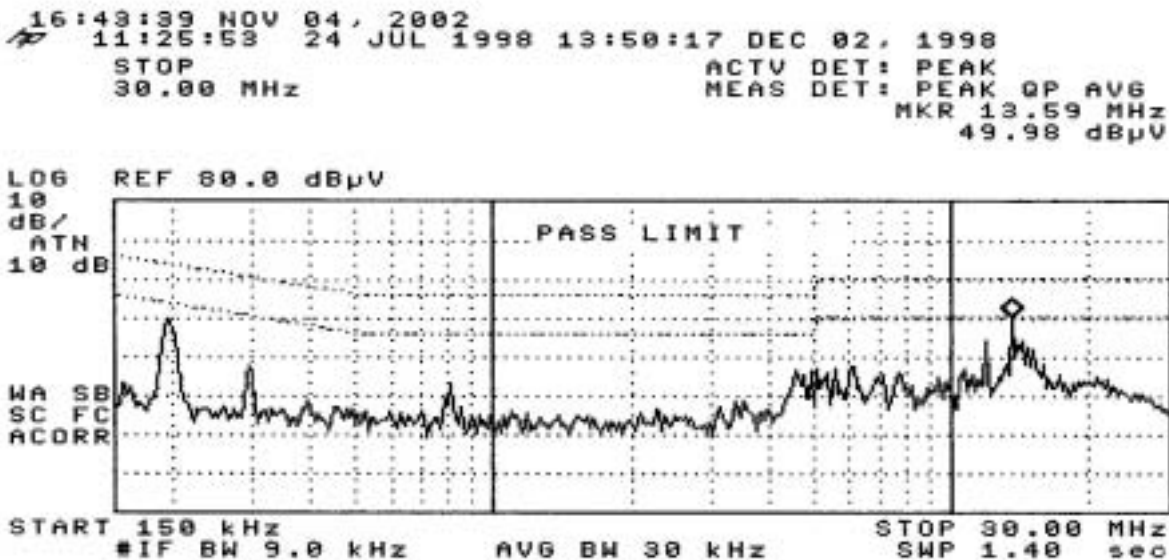
FREQ MHz	QP1 dBuV	AVG1 dBuV	Factor	QP2 dBuV	AVG 2	QP Limit	AV Limit	QP Offset	AV Offset
0.2	45	44.6	2.9	47.9	47.5	63.6	53.61	-15.7	-6.11
0.30	35.00	33.90	2.80	37.80	36.70	60.24	50.24	-22.44	-13.54
0.84	24.40	15.10	2.83	27.23	17.93	56.00	46.00	-28.77	-28.07
4.65	27.20	21.20	3.19	30.39	24.39	56.00	46.00	-25.61	-21.61
9.67	27.50	21.20	3.29	30.79	24.49	60.00	50.00	-29.21	-25.51
15.10	34.10	25.80	3.45	37.55	29.25	60.00	50.00	-22.45	-20.75

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

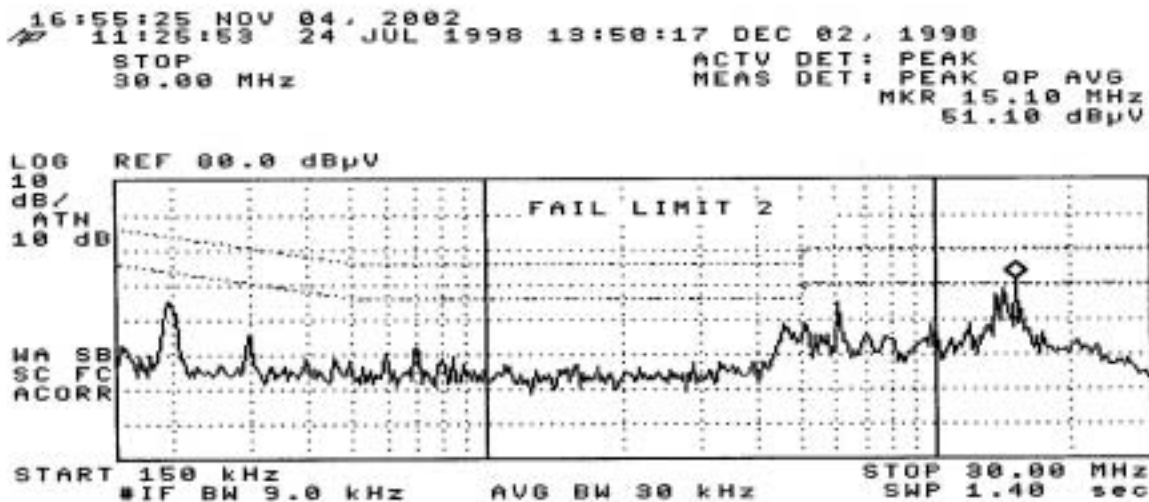
2. QP1/ AVG1 value means the QP/AV reading without the factor.

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

Line



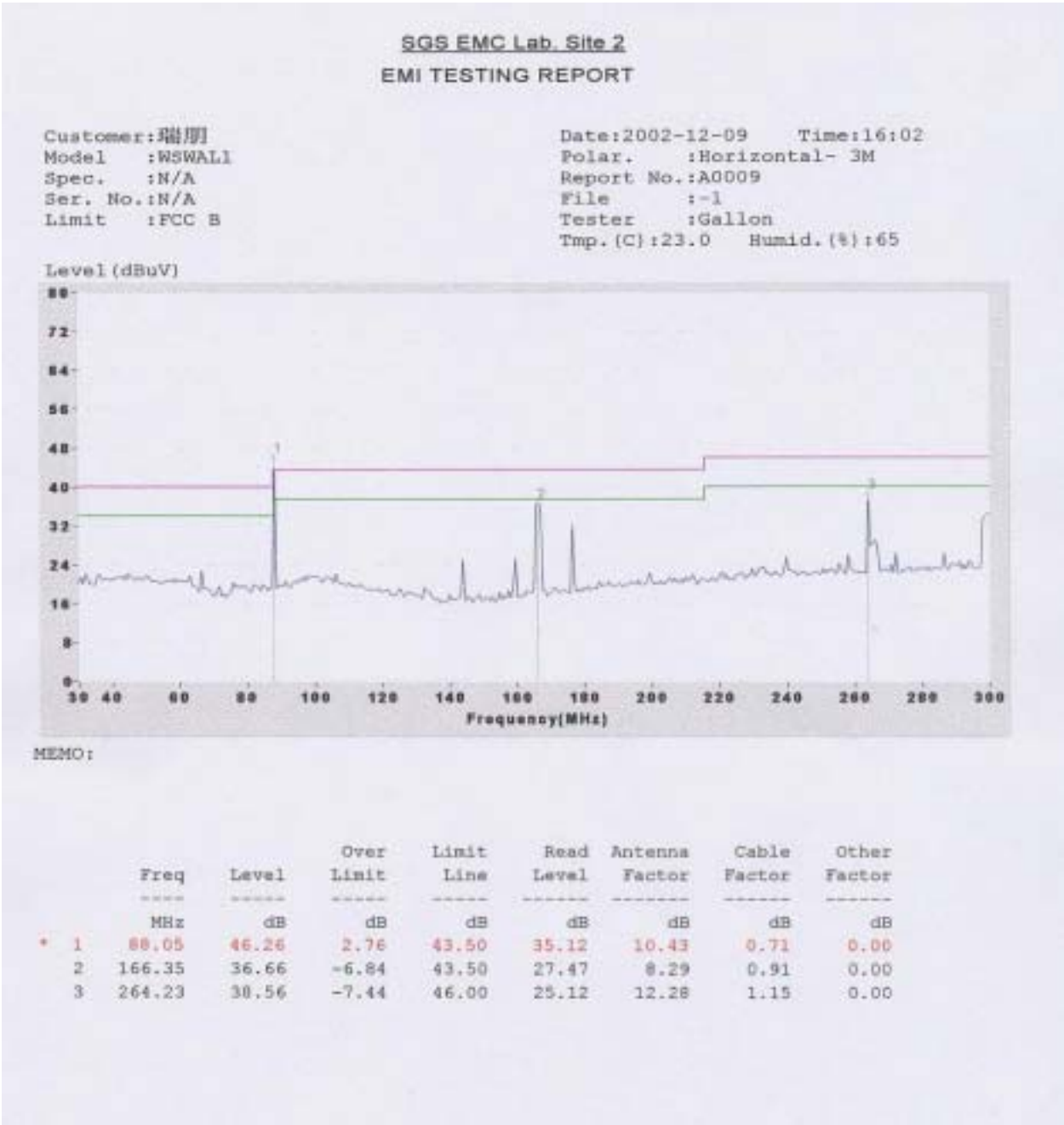
Neutral





4.2 Radiated emission Limits, general requirement SUBCLAUSE 15.209

Part 1: 30Mhz-300Mhz(H)



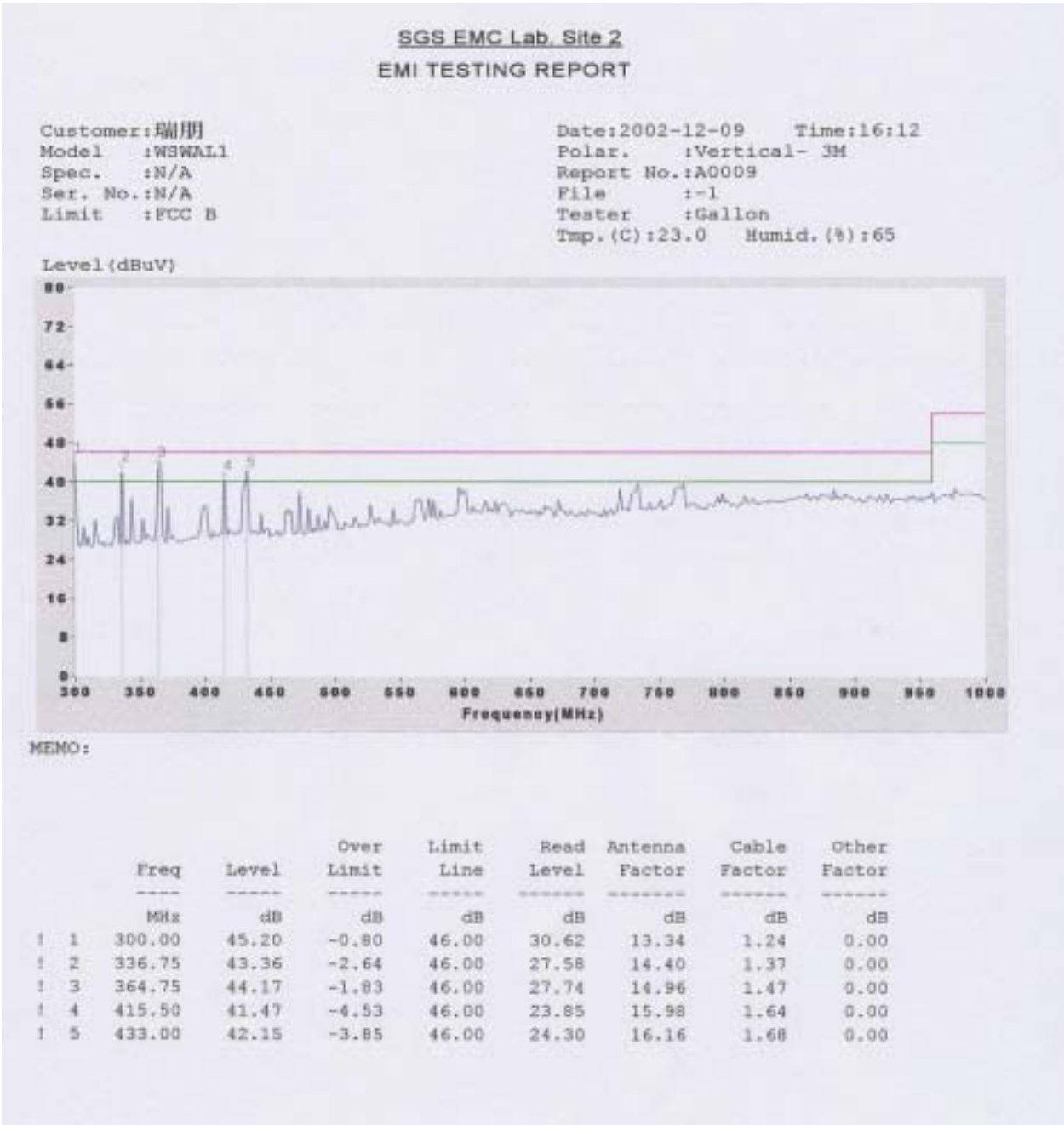
Part2: 300Mhz- 1Ghz(H)



Part 3: 30Mhz-300Mhz(V)



Part4: 300Mhz- 1Ghz(V)

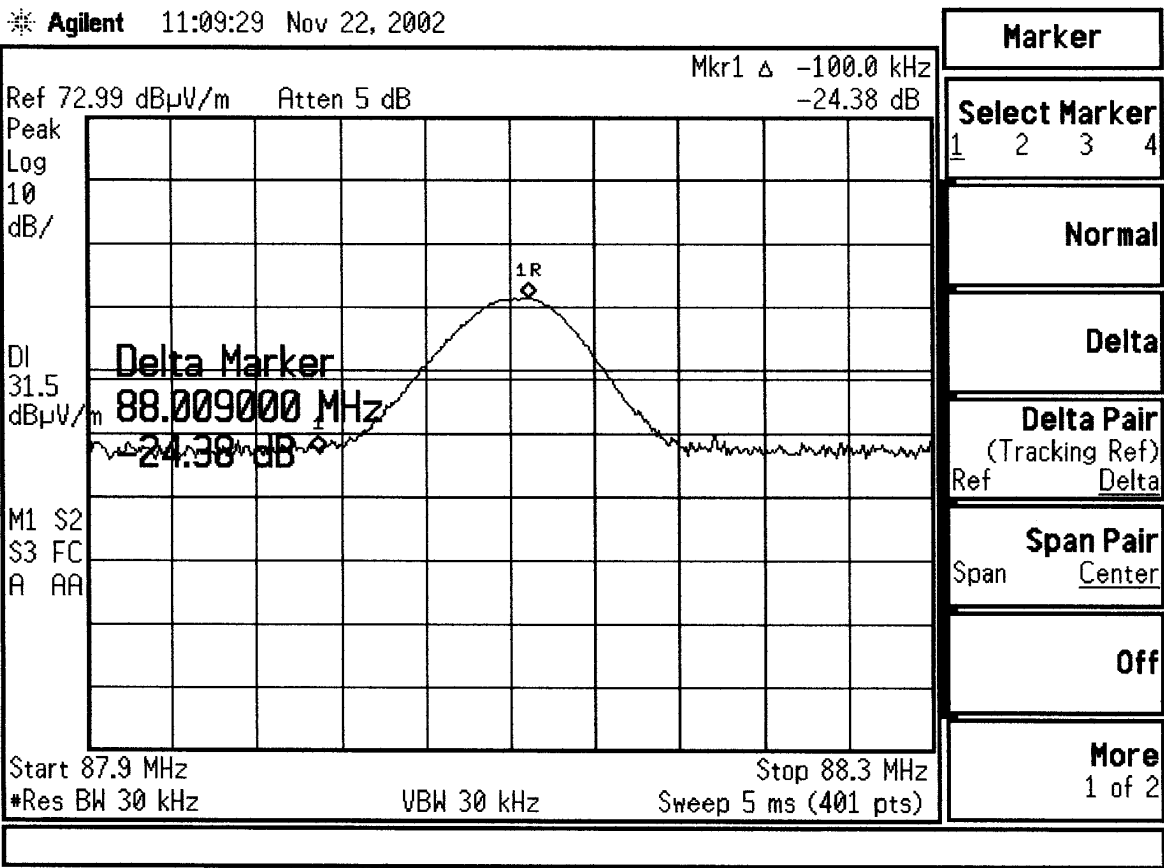


#### 4.2.1 Limits

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 Frequency range of 88MHz-108MHz SUBCLAUSE 15.239(a)

(a) Emissions From the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency, The 200 kHz band shall lie wholly within the frequency range of 88-108 MHz



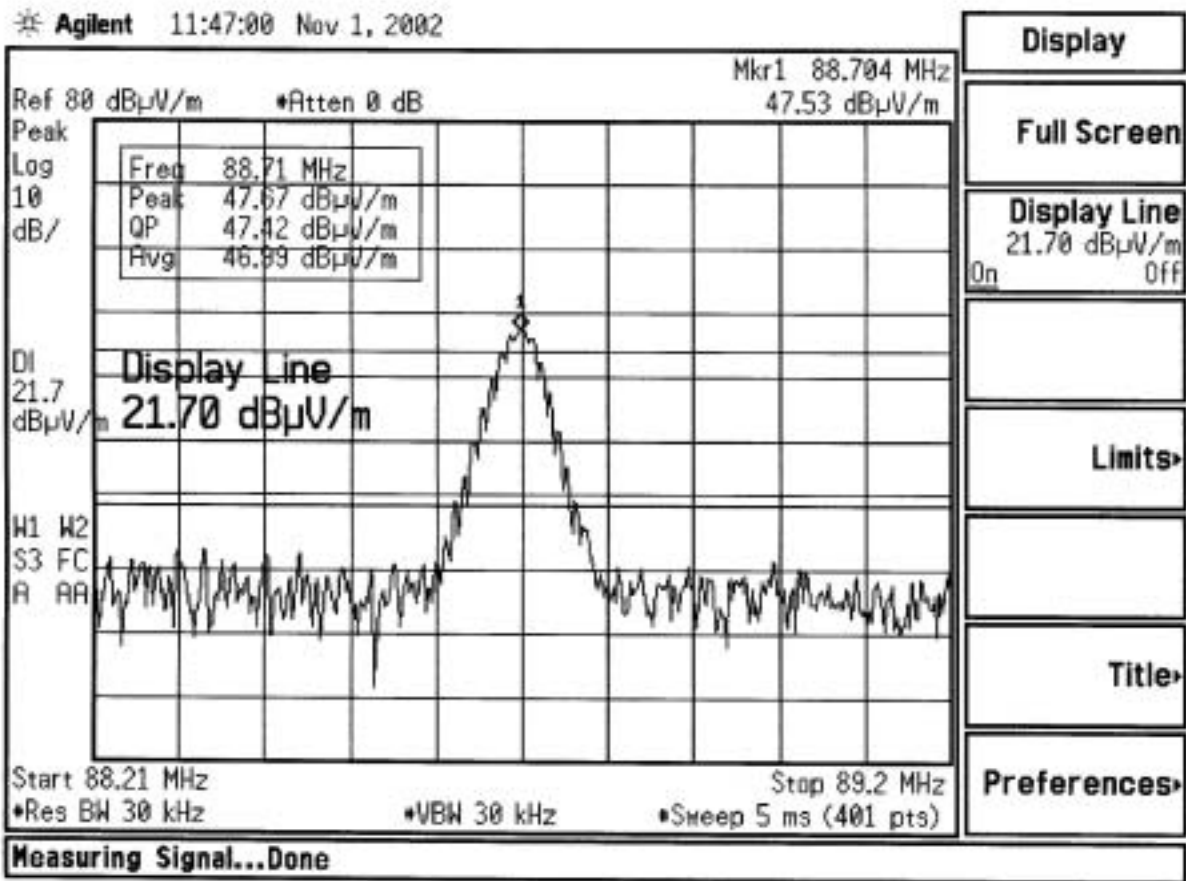
Center Freq: f=88.1009MHz

Lower Band edge at 200khz bandwidth f=88.009MHz

4.4 Main frequency field strength

SUBCLAUSE 15.239(b)

(b) The field strength of any emissions within the permitted 200 kHz band shall not exceed 250 microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in Section 15.35 for limiting peak emissions apply.



**APPENDIX: Photographs of Test Setup**

**The photos are saved separately**



**APPENDIX : Photographs of EUT**

**OUT**

**The photos are saved separately**

**IN**

**The photos are saved separately**