

# TEST RESULT SUMMARY

## UNITED STATES STANDARD 47 CFR PART 15, SUBPART B & 47 CFR PART 15, SUBPART C, SECTION 15.247

FCC ID : DF6-WL311

MANUFACTURER NAME	3Com Corporation
NAME OF EQUIPMENT	SL-1021
MODEL NUMBER	WL-311
MANUFACTURER ADDRESS	5400 Bayfront Plaza Santa Clara, CA 95054
TEST REPORT NUMBER	AC104006F01
TEST DATE	6/4/2001

According to testing performed at BABT Product Service, the above-mentioned unit is in compliance with the electromagnetic compatibility requirements defined in United States Standard 47 CFR Part 15, Subpart B.

BABT Product Service reports apply only to the specific sample tested under stated test conditions. It is the manufacturer's responsibility to assure the continued compliance of production units of this model. BABT Product Service shall have no liability for any deductions, inferences or generalizations drawn by the client or others from BABT Product Service issued reports.

As the responsible EMC Project/Division Managers, we hereby declare that the equipment tested at BABT Product Service as specified above conforms to the requirements of United States Standard 47 CFR Part 15, Radio Frequency Devices, Subpart B, Unintentional Radiators.

Date: 2 July, 2001

Location: Santa Clara, California  
USA



Frank Ibrahim  
Engineer In Charge



Harry Ward  
EMC and Radio Manager



Certificate No: 1212-01

Not Transferable

# EMC EMISSION - TEST REPORT

## UNITED STATES STANDARD 47 CFR PART 15, SUBPART B & 47 CFR PART 15, SUBPART C, SECTION 15.247

FCC ID : DF6-WL311

Test Report File No. : AC104006F01 Date of Issue: 2 July, 2001

Model / Serial No. : WL-311 / N/A

Product Type : SL-1021

Applicant : 3Com Corporation

Manufacturer : 3Com Corporation

License holder : 3Com Corporation

Address : 5400 Bayfront Plaza  
: Santa Clara, CA 95054

Test Result : ☒ **Positive** ☐ **Negative**

Test Project Number  
Reference(s) : AC104006F01

Total pages - Test Report : 32

*BABT Product Service is a joint venture between TÜV Product Service, Inc. and BABT.*

*BABT Product Service reports apply only to the specific sample tested under stated test conditions. It is the manufacturer's responsibility to assure the continued compliance of production units of this model. BABT Product Service shall have no liability for any deductions, inferences or generalizations drawn by the client or others from BABT Product Service issued reports.*

*This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval.*

## D I R E C T O R Y - E M I S S I O N S

### Test Report

FCC ID : DF6-WL311

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FCC ID : DF6-WL311

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FCC ID : DF6-WL311

## EMISSIONS TEST REGULATIONS :

The emissions tests were performed according to the following regulations:

☐ - EN 50081-1 : 1992

☐ - EN 55011 : 1998

☐ - Group 1

☐ - Group 2

☐ - Class A

☐ - Class A

☐ - Class B

☐ - Class B

☐ - EN 55013 : 1990

☐ - EN 55014-1 : 1993

☐ - Household appliances

☐ - Electric tools

☐ - Similar apparatus

☐ - EN 55014-1 : 1993 / Amendment A1 : 1997

☐ - EN 55015 : 1993

☐ - EN 55015 : 1996

☐ - EN 55015 : 1996 / Amendment A1 : 1997

☐ - EN 55022 / 1994

☐ - Class A

☐ - Class B

☐ - Amendment A1 : 1995 to EN 55022 : 1994

☐ - Amendment A2 : 1997 to EN 55022 : 1994

☐ - EN 55022 : 1998

☐ - Class A

☐ - Class B

☐ - BS

☐ - VCCI

☐ - Class A ITE

☐ - Class B ITE

### ■ - 47 CFR Part 15, Subpart B

☐ - 107(b) (Class A)

■ - 107(a) (Class B)

☐ - 107(e)

☐ - Class A

☐ - Class B (CISPR22)

☐ - 109(b) (Class A)

■ - 109(a) (Class B)

☐ - 109(g)

☐ - Class A

☐ - Class B (CISPR22)

### ■ - 47 CFR Part 15, Subpart C, SECTION 15.247

☐ - AS/NZS 3548: 1995

☐ - Class A

☐ - Class B

☐ - CISPR 11 (1997)

☐ - Group 1

☐ - Group 2

☐ - Class A

☐ - Class A

☐ - Class B

☐ - Class B

☐ - CISPR 22 (1997)

☐ - Class A

☐ - Class B

FCC ID : DF6-WL311

## Environmental Conditions In The Laboratory:

	<u>Actual</u>
Temperature:	: 23 °C
Relative Humidity:	: 60 %
Atmospheric Pressure:	: 101.0 kPa

## Power Supply Utilized:

Power supply system : 120 V / 60 Hz / 1 $\phi$

## Symbol Definitions:

- - Applicable
- - Not Applicable

## Description of EUT:

Building to Building bridge with an external antenna connector.

## Measurement Methods

Measurements were made in accordance with ANSI C63.4:1992. All emissions measurements are fully automated.

For conducted emissions, the receiver is swept over the frequency range 450kHz to 30MHz using detector functions as specified in CISPR 16. The measured levels from the receiver are then re-calculated taking into account the LISN and coax cable loss to derive the corrected level. This is then compared with the limits specified in FCC 47 CFR Part 15.107 to determine the compliance of the EUT.

For radiated emissions, the receiver is swept over the frequency range 30MHz to 1000MHz, while the turntable is rotated through 360° and the antenna height is varied between 1m and 4m. The worst-case emission level is recorded for each frequency and recorded for the full frequency range. The measured levels from the receiver are then re-calculated taking into account the antenna gain, mast amplifier gain and coax cable loss to derive the corrected level. All peak emissions over the limit are re-measured using the CISPR 16 quasi-peak detector, in any case the highest 15 peaks are re-measured. These are then compared with the limits specified in FCC 47 CFR Part 15.109 to determine the compliance of the EUT.

FCC ID : DF6-WL311

## Sample Calculations

These calculations are performed automatically by the control software prior to display. For radiated emissions the corrected level is derived by taking into account the antenna gain, antenna mast amplifier and coax cable loss.

For example, assuming a receiver measurement of 50.0dB $\mu$ V. Allowing for an antenna factor of 10.0dB/m, a mast amplifier gain of 25dB and a cable loss of 0.64dB, the resultant corrected field strength would be calculated as follows:-

Receiver level = field strength - antenna factor + amplifier gain - cable factor

Corrected field strength = (Receiver level) + (Cable factor) - (Amp gain) + (Antenna factor)

$$= 50.0 + 10.0 + 0.64 - 25$$

$$= 35.64\text{dB}\mu\text{V/m}$$

FCC limits are specified in  $\mu$ V for conducted emissions and  $\mu$ V/m for radiated emissions. These are converted to dB $\mu$ V and dB $\mu$ V/m respectively by the control software before results are displayed, limits being converted accordingly. The conversion factor is  $20 \log_{10}(\mu\text{V}) = \text{dB}\mu\text{V}$ .

FCC ID : DF6-WL311

**Emissions Test Conditions: CONDUCTED EMISSIONS (Interference Voltage)**The **CONDUCTED EMISSIONS (INTERFERENCE VOLTAGE)** measurements were performed at the following test location:☐ - Test not applicable

■ - Test area no. 1 – Semi - anechoic absorber – lined chamber (80' x 44' x 28')

☐ - Test area no. 2 – Shielded room (19' x 19' x 8' )☐ - Test area no. 3 – Fully – anechoic ferrite – lined chamber (24' x 16' x 11' )**Test Equipment Used :**

Model No.	Description	Manufacturer	Serial No.	Due Calib. Date
■ - 85462A	Receiver RF Section	Hewlett Packard	3325A00161	5/15/02
■ - 85460A	RF Filter Section	Hewlett Packard	3330A00160	5/15/02
<input type="checkbox"/> - AC LISN	Line Impedance Stabilization Network	Fischer Custom Communications	6A,6B	5/26/02
<input type="checkbox"/> - AC LISN	Line Impedance Stabilization Network	Fischer Custom Communications	3A,3B	5/26/02
■ - AC LISN	Line Impedance Stabilization Network	Fischer Custom Communications	2A,2B,2C,2D	5/26/02
<input type="checkbox"/> - AC LISN	Line Impedance Stabilization Network	Fischer Custom Communications	1A,1B,1C,1D	5/26/02
<input type="checkbox"/> - AC LISN	Line Impedance Stabilization Network	Fischer Custom Communications	4A,4B	5/26/02
<input type="checkbox"/> - AC LISN	Line Impedance Stabilization Network	Fischer Custom Communications	7A,7B	5/26/02
<input type="checkbox"/> - DC LISN	Line Impedance Stabilization Network	Fischer Custom Communications	5A,5B	5/26/02
<input type="checkbox"/> - DC LISN	Line Impedance Stabilization Network	Fischer Custom Communications	8A,8B	5/26/02
<input type="checkbox"/> - NNLA 8120	Line Impedance Stabilization Network	Rohde & Schwartz	8120490	-----
<input type="checkbox"/> - NNLA 8120	Line Impedance Stabilization Network	Rohde & Schwartz	8120491	-----
<input type="checkbox"/> - NNLK 8121	Line Impedance Stabilization Network	Rohde & Schwartz	-----	-----

Remarks: \_\_\_\_\_



FCC ID : DF6-WL311

**Emissions Test Conditions: RADIATED EMISSIONS (Magnetic Field)**

The *RADIATED EMISSIONS (MAGNETIC FIELD)* measurements were performed at the following test location:

■ - Test not applicable

- ☐ - Test area no. 1 – Semi - anechoic absorber – lined chamber (80' x 44' x 28')
- ☐ - Test area no. 2 – Shielded room (19' x 19' x 8' )
- ☐ - Test area no. 3 – Fully – anechoic ferrite – lined chamber (24' x 16' x 11' )

**Testing was performed at a test distance of :**

- ☐ - 3 meters
- ☐ - 10 meters

**Test Equipment Used :**

Model No.	Description	Manufacturer	Serial No.	Due Calib. Date
<input type="checkbox"/> - 85462A	Receiver RF Section	Hewlett Packard	3325A00161	5/15/02
<input type="checkbox"/> - 85460A	RF Filter Section	Hewlett Packard	3330A00160	5/15/02
<input type="checkbox"/> - 87405A	RF Pre-Amplifier	Hewlett Packard	3207A01433	9/25/01
<input type="checkbox"/> - 87405A	RF Pre-Amplifier	Hewlett Packard	3207A01434	6/7/02
<input type="checkbox"/> - HFH 2 - Z2	Loop Antenna	Rohde & Schwarz	892 665 / 019	10/31/01

Remarks: \_\_\_\_\_

FCC ID : DF6-WL311

**Emissions Test Conditions: RADIATED EMISSIONS (Electric Field)**

The *RADIATED EMISSIONS (ELECTRIC FIELD)* measurements, in the frequency range of 30 MHz-1000 MHz, were tested in a horizontal and vertical polarization at the following test location :

☐ - Test not applicable

- - Test area no. 1 – Semi - anechoic absorber – lined chamber (80' x 44' x 28')
- ☐ - Test area no. 2 – Shielded room (19' x 19' x 8' )
- ☐ - Test area no. 3 – Fully – anechoic ferrite – lined chamber (24' x 16' x 11' )

**Testing was performed at a test distance of :**

- - 3 meters
- ☐ - 10 meters

**Test Equipment Used :**

	<b>Model No.</b>	<b>Description</b>	<b>Manufacturer</b>	<b>Serial No.</b>	<b>Due Calib. Date</b>
■ -	85462A	Receiver RF Section	Hewlett Packard	3325A00161	5/15/02
■ -	85460A	RF Filter Section	Hewlett Packard	3330A00160	5/15/02
■ -	87405A	RF Pre-Amplifier	Hewlett Packard	3207A01433	9/25/01
■ -	CBL6111	Bilog Antenna	Chase	1122	8/15/01
<input type="checkbox"/> -	CBL6112	Bilog Antenna	Chase	2180	1/12/02

Remarks: \_\_\_\_\_

\_\_\_\_\_

FCC ID : DF6-WL311

# **Emissions Test Conditions: INTERFERENCE POWER**

The *INTERFERENCE POWER* measurements were performed by using the absorbing clamp on the mains and interface cables in the frequency range 30 MHz - 300 MHz at the following test location :

■ - Test not applicable

- ☐ - Test area no. 1 – Semi - anechoic absorber – lined chamber (80' x 44' x 28')
- ☐ - Test area no. 2 – Shielded room (19' x 19' x 8' )
- ☐ - Test area no. 3 – Fully – anechoic ferrite – lined chamber (24' x 16' x 11' )

## **Test Equipment Used :**

<b>Model No.</b>	<b>Description</b>	<b>Manufacturer</b>	<b>Serial No.</b>	<b>Due Calib. Date</b>
<input type="checkbox"/> - MDS-21	Absorbing Clamp	Rohde & Schwarz	20798	-----
<input type="checkbox"/> - 85462A	Receiver RF Section	Hewlett Packard	3325A00161	5/15/02
<input type="checkbox"/> - 85460A	RF Filter Section	Hewlett Packard	3330A00160	5/15/02

Remarks: \_\_\_\_\_

\_\_\_\_\_

FCC ID : DF6-WL311

**Emissions Test Conditions: RADIATED EMISSIONS (Electric Field)**

The *EQUIVALENT RADIATED EMISSIONS* measurements in the frequency range 1 GHz - 24 GHz were performed in a horizontal and vertical polarization at the following test location :

☐ - Test not applicable

- - Test area no. 1 – Semi - anechoic absorber – lined chamber (80' x 44' x 28')
- ☐ - Test area no. 2 – Shielded room (19' x 19' x 8' )
- ☐ - Test area no. 3 – Fully – anechoic ferrite – lined chamber (24' x 16' x 11' )

**Testing was performed at a test distance of:**

- ☐ - 1 meters
- - 3 meters
- ☐ - 10 meters

**Test Equipment Used :**

Model No.	Description	Manufacturer	Serial No.	Due Calib. Date
■ - 85462A	Receiver RF Section	Hewlett Packard	3325A00161	5/15/02
■ - 85460A	RF Filter Section	Hewlett Packard	3330A00160	5/15/02
■ - 8566B	Spectrum Analyzer	Hewlett Packard	2421A00443	6/7/02
■ - 85680B	Spectrum Analyzer, RF section	Hewlett Packard	2732A04047	5/15/02
■ - 85662B	Spectrum Analyzer, Display section	Hewlett Packard	2816A16342	5/15/02
■ - A-AMF10009046	RF Pre-amplifier	Miteq Inc.	AMF-5D-010180-35-10P	4/10/02
■ - 8449B	RF Pre-amplifier	Hewlett Packard	3008A01235	2/5/02
■ - 3115	Horn Antenna	EMCO	9902-5686	11/22/01
■ - 3116	Horn Antenna	EMCO	9810-2405	2/16/02

Remarks:

FCC ID : DF6-WL311

**Equipment Under Test (EUT) Test Operation Mode - Emissions Tests :**

**The equipment under test was operated under the following conditions during emissions testing:**

- ☐ - Standby
- ☐ - Test Program (H - Pattern)
- ☐ - Test Program (Color Bar)
- ☐ - Test Program (Customer Specified)
- ☐ - Practice Operation
- ☒ - Normal Operating Mode, (Refer to appendix A)
- ☐ - \_\_\_\_\_

**Configuration of the equipment under test:**

- ☐ - See Constructional Data Form in Appendix B - Page B2
- ☒ - See Product Information Form(s) in Appendix B - Page B2

**The following peripheral devices and interface cables were connected during the testing:** (Refer to appendix B)

- |   |                |
|---|----------------|
| <input type="checkbox"/> - _____                    | Type : _____   |
| <input type="checkbox"/> - _____                    | Type : _____   |
| <input type="checkbox"/> - _____                    | Type : _____   |
| <input type="checkbox"/> - _____                    | Type : _____   |
| <input type="checkbox"/> - _____                    | Type : _____   |
| <input type="checkbox"/> - _____                    | Type : _____   |
| <input type="checkbox"/> - _____                    | Type : _____   |
| <input type="checkbox"/> - _____                    | Type : _____   |
| <input type="checkbox"/> - _____                    | Type : _____   |
| <input type="checkbox"/> - Unshielded power cable   |                |
| <input type="checkbox"/> - Unshielded cables        |                |
| <input type="checkbox"/> - Shielded cables          | MPS.No.: _____ |
| <input type="checkbox"/> - Customer specific cables |                |
| <input type="checkbox"/> - _____                    |                |
| <input type="checkbox"/> - _____                    |                |

FCC ID : DF6-WL311

**Emissions Test Results:****Conducted Emissions, 10/150/450 kHz - 30 MHz**☒ - PASS☐ - FAIL☐ - NOT APPLICABLEMinimum limit margin 0.24 dB at 1.503 MHz

Maximum limit exceeding \_\_\_\_\_ dB at \_\_\_\_\_ MHz

Remarks: This value is within the calculated measurement uncertainty.**Radiated Emissions (Magnetic Field), 10 kHz - 30 MHz**☐ - PASS☐ - FAIL☒ - NOT APPLICABLE

Minimum limit margin \_\_\_\_\_ dB at \_\_\_\_\_ MHz

Maximum limit exceeding \_\_\_\_\_ dB at \_\_\_\_\_ MHz

Remarks: \_\_\_\_\_

**Radiated Emissions (Electric Field), 30 MHz - 1000 MHz**☒ - PASS☐ - FAIL☐ - NOT APPLICABLEMinimum limit margin 3.6 dB at 209.45 MHz

Maximum limit exceeding \_\_\_\_\_ dB at \_\_\_\_\_ MHz

Remarks: This value is within the calculated measurement uncertainty**Interference Power at the Mains and Interface Cables, 30 MHz - 300 MHz**☐ - PASS☐ - FAIL☒ - NOT APPLICABLE

Minimum limit margin \_\_\_\_\_ dB at \_\_\_\_\_ MHz

Maximum limit exceeding \_\_\_\_\_ dB at \_\_\_\_\_ MHz

Remarks: \_\_\_\_\_

**Equivalent Radiated Emissions, 1 GHz - 24 GHz**☒ - PASS☐ - FAIL☐ - NOT APPLICABLEMinimum limit margin 11 dB at 2413 MHz

Maximum limit exceeding \_\_\_\_\_ dB at \_\_\_\_\_ MHz

Remarks: \_\_\_\_\_

FCC ID : DF6-WL311

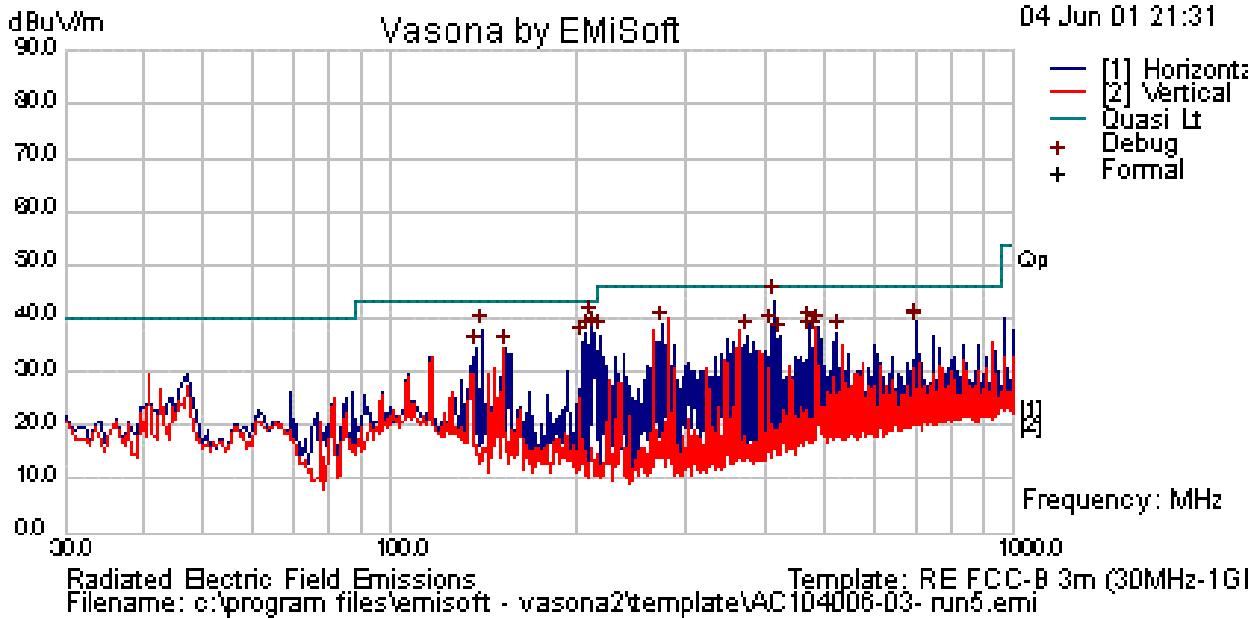
3-COM AC104006-

03

EUT 2 clip sample 2

FCC-B (3m) from 30 MHz-1000MHz, (120vac/60Hz Radiated Emissions, Full scan

operator: Ron Wumkes



Frequency MHz	Raw dBuV	Cable Loss dB	AF dB	Level dBuV/m	Emission Type	Pol	Hgt cm	Azt Deg	Limit dBuV/m	Margin dB	Result
414.455	24.23	2.35	-8.09	18.49	Quasi Peak	V	112	73	46	-27.51	Pass
209.45	52.41	1.53	-14.03	39.9	Preview	V	100	208	43.5	-3.6	Pass
139.731	50.25	1.21	-13.52	37.95	Preview	V	100	274	43.5	-5.55	Pass
212.481	50.19	1.54	-14.21	37.52	Preview	V	200	340	43.5	-5.98	Pass
206.419	49.6	1.51	-13.85	37.26	Preview	V	200	186	43.5	-6.24	Pass
696.269	39.81	3.19	-3.59	39.41	Preview	V	100	318	46	-6.59	Pass
473.169	43.31	2.52	-6.95	38.88	Preview	H	200	328	46	-7.12	Pass
699.3	39.01	3.2	-3.53	38.68	Preview	V	300	350	46	-7.32	Pass
273.106	48.57	1.79	-11.71	38.66	Preview	V	100	76	46	-7.34	Pass
203.388	48.06	1.5	-13.82	35.73	Preview	V	100	54	43.5	-7.77	Pass
408.906	44.12	2.34	-8.31	38.15	Preview	V	100	186	46	-7.85	Pass
485.294	42.15	2.55	-6.58	38.12	Preview	V	100	98	46	-7.88	Pass
523.488	40.48	2.68	-6	37.16	Preview	V	100	10	46	-8.84	Pass
153.069	47.01	1.28	-13.75	34.54	Preview	V	100	296	43.5	-8.96	Pass
482.263	41.15	2.54	-6.67	37.02	Preview	H	200	130	46	-8.98	Pass
136.7	46.74	1.2	-13.46	34.48	Preview	V	100	296	43.5	-9.02	Pass

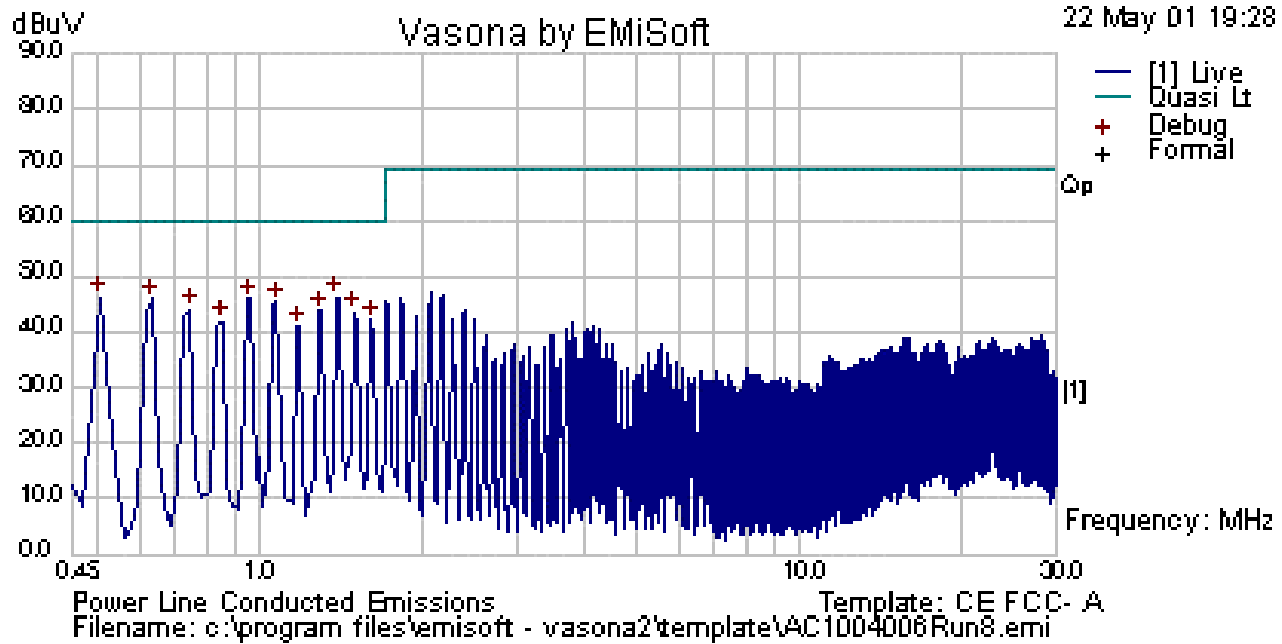
FCC ID : DF6-WL311

Company : 3 Com, AC1004006, May-22-2001

EUT : SL-1021, Detail : Rx on (disconnected Ant.), Tx off, HP1 laptop off, HP2 laptop in control room

Config : CE FCC-B . 120V/60Hz, LINE.

Operator : Giap Kim Nguyen



Frequency MHz	Raw dBuV	Cable Loss dB	Level dBuV	Emission Type	Line	Limit dBuV	Margin dB
1.392	45.73	0.45	46.18	Preview	Live	48	-1.82
0.505	45.61	0.52	46.13	Preview	Live	48	-1.87
0.967	45.73	0.39	46.11	Preview	Live	48	-1.89
0.635	45.4	0.47	45.87	Preview	Live	48	-2.13
1.078	45.03	0.4	45.43	Preview	Live	48	-2.57
0.746	43.6	0.44	44.04	Preview	Live	48	-3.96
1.3	43.4	0.43	43.84	Preview	Live	48	-4.16
1.503	42.95	0.46	43.41	Preview	Live	48	-4.59
1.614	41.53	0.48	42	Preview	Live	48	-6.00
0.856	41.54	0.41	41.95	Preview	Live	48	-6.05
1.189	40.64	0.41	41.06	Preview	Live	48	-6.94



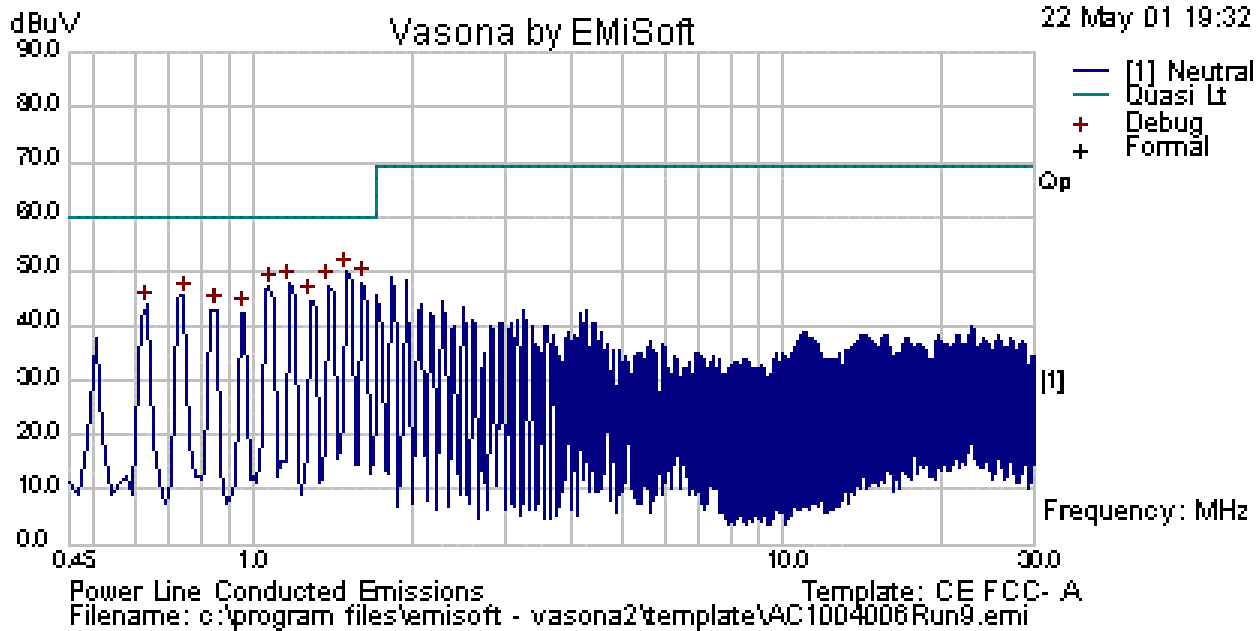
FCC ID : DF6-WL311

Company : 3 Com, AC1004006, May-22-2001

EUT : SL-1021, Detail : Rx on (disconnected Ant.), Tx off, HP1 laptop off, HP2 laptop in control room

Config : CE FCC-A . 120V/60Hz, NEUTRAL

Operator : Giap Kim Nguyen



Frequency MHz	Raw dBuV	Cable Loss dB	Level dBuV	Emission Type	Line	Limit dBuV	Margin dB
1.503	47.3	0.46	47.76	Quasi Peak	Neutral	48	-0.24
1.614	45.5	0.48	45.97	Quasi Peak	Neutral	48	-2.03
1.17	47.21	0.41	47.63	Preview	Neutral	48	-0.37
1.392	46.8	0.45	47.25	Preview	Neutral	48	-0.75
1.078	46.52	0.4	46.92	Preview	Neutral	48	-1.08
0.746	44.94	0.44	45.38	Preview	Neutral	48	-2.62
1.281	44.21	0.43	44.64	Preview	Neutral	48	-3.36
0.635	43.19	0.47	43.66	Preview	Neutral	48	-4.34
0.856	42.56	0.41	42.97	Preview	Neutral	48	-5.03
0.967	42.04	0.39	42.42	Preview	Neutral	48	-5.58

FCC ID : DF6-WL311

**Peak output power measurements:**

Channel	Freq (MHz)	Measured Output Power dBm	Cable Loss dB	12dB	Corrected Output Power dBm	Limit dBm	Margin dB
CH1	2413	-2.5	9.5	12	19	30	-11
CH7	2436	-2.7	9.5	12	18.8	30	-11.2
CH13	2471	-3.0	9.5	12	18.5	30	-11.5

**Repeated Peak output power measurements using Vector Analyzer:**

Channel	Freq (MHz)	Measured Output Power dBm	Cable Loss dB	12dB	Corrected Output Power dBm	Limit dBm	Margin dB
CH1	2413	-1.1	9.5	12	20.4	30	-9.6
CH7	2436	-3.5	9.5	12	18.0	30	-12.0
CH13	2471	-1.6	9.5	12	19.9	30	-10.1

Notes:

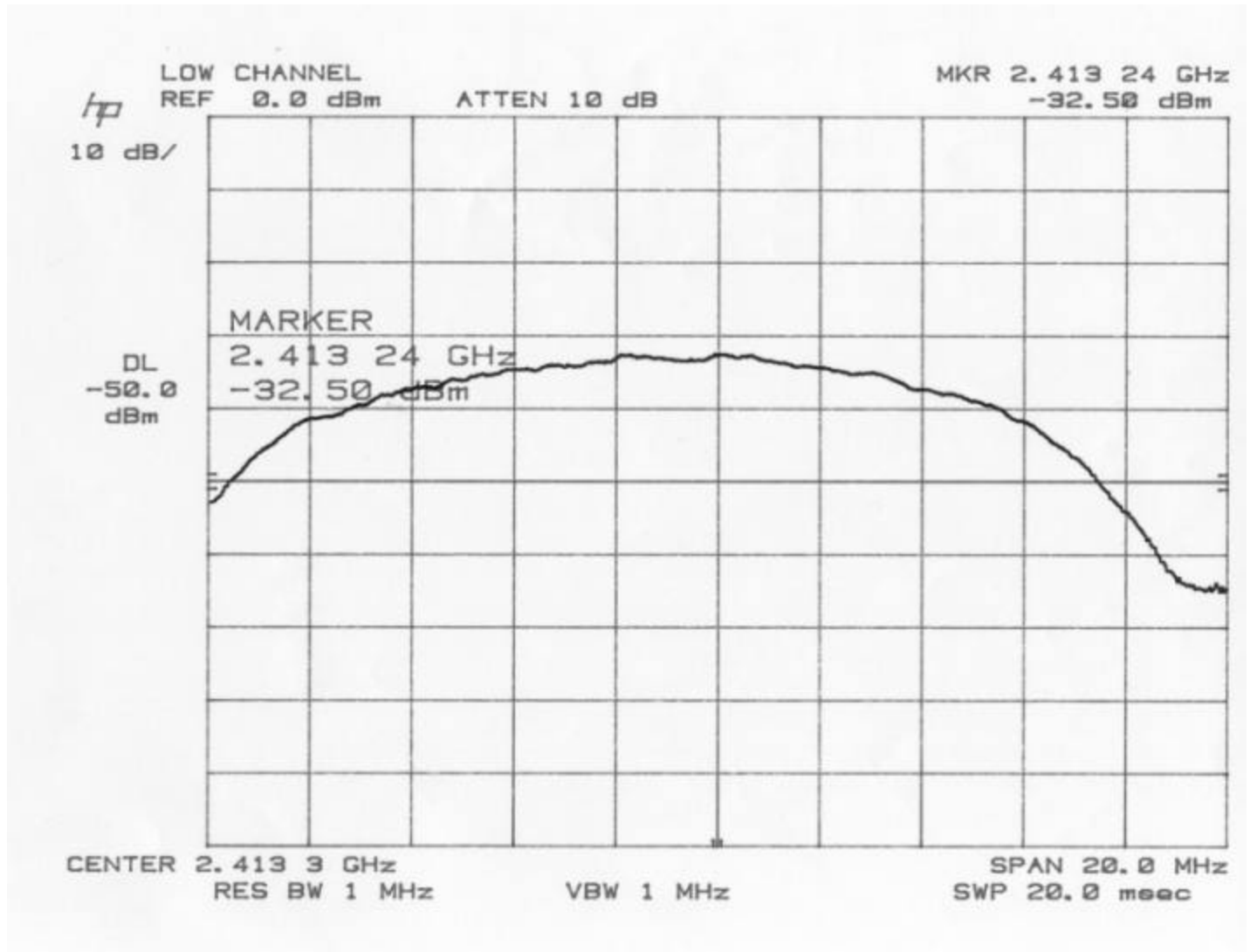
1. 9.5 dB in column 4 is the cable loss provided by client (50 ft cable)
2. 12 dB in column 5 is the difference between antenna gain 18dBi and 6 dBi stated in section 15.247

**Test Equipment used:**

Model No.	Description	Manufacturer	Serial No.	Due Calib. Date
■ - 85462A	Receiver RF Section	Hewlett Packard	3325A00161	5/15/02
■ - 85460A	RF Filter Section	Hewlett Packard	3330A00160	5/15/02
■ - 8566B	Spectrum Analyzer	Hewlett Packard	2421A00443	6/7/02
■ - 85680B	Spectrum Analyzer, RF section	Hewlett Packard	2732A04047	5/15/02
■ - 85662B	Spectrum Analyzer, Display section	Hewlett Packard	2816A16342	5/15/02
■ - A-AMF10009046	RF Pre-amplifier	Miteq Inc.	AMF-5D-010180-35-10P	4/10/02
■ - 8449B	RF Pre-amplifier	Hewlett Packard	3008A01235	2/5/02
■ - 3115	Horn Antenna	EMCO	9902-5686	11/22/01
■ - 3116	Horn Antenna	EMCO	9810-2405	2/16/02
■ - FSIQ26	Vector Analyzer	Rohde & Schwartz	835355/008	9/15/01
■ - 8482A	Power Sensor	Hewlett Packard	2607A11286	2/23/02

FCC ID : DF6-WL311

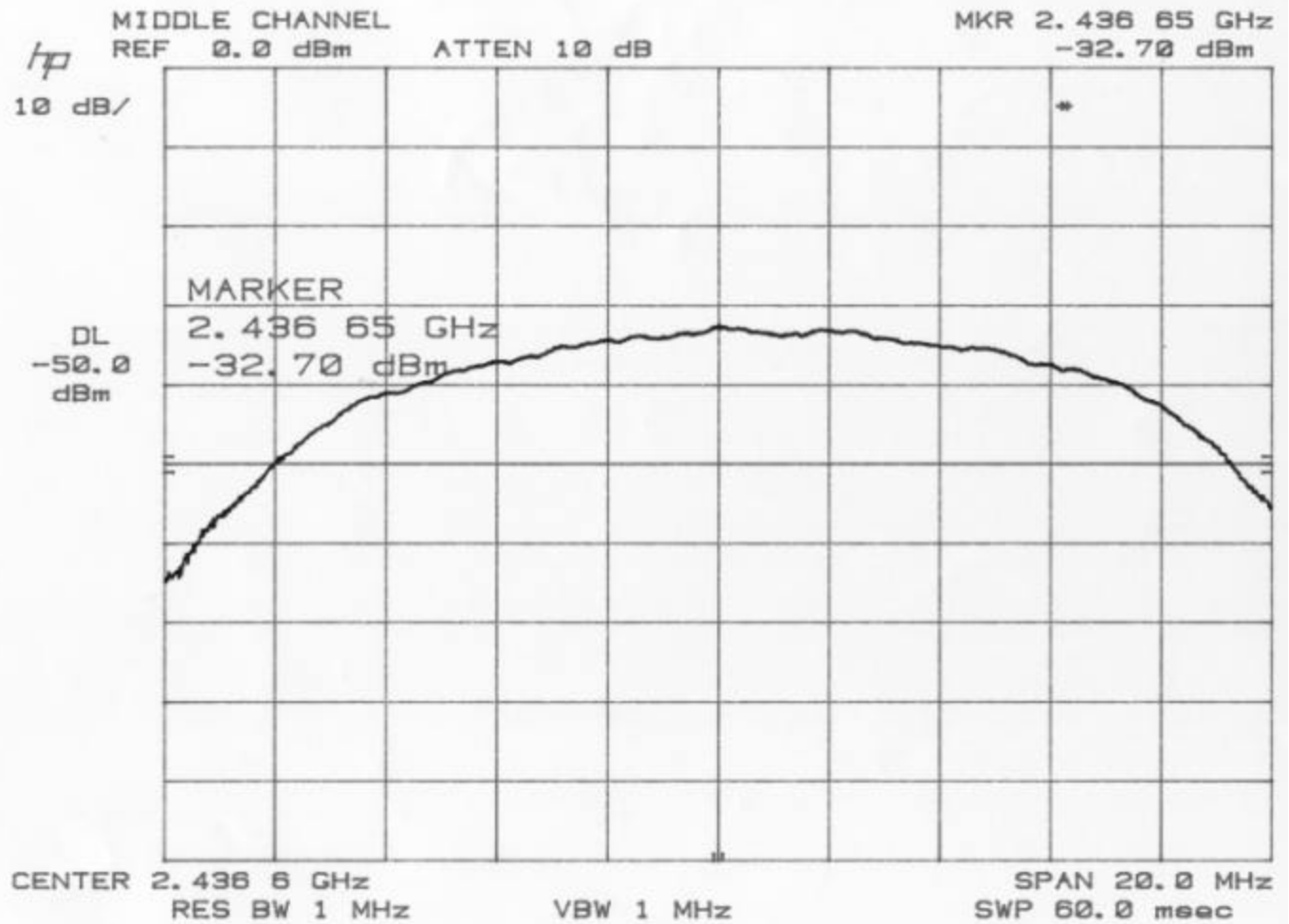
**Power Output of Carrier, CH01**



**Note:** 30 dB attenuator used in front of the spectrum analyzer

FCC ID : DF6-WL311

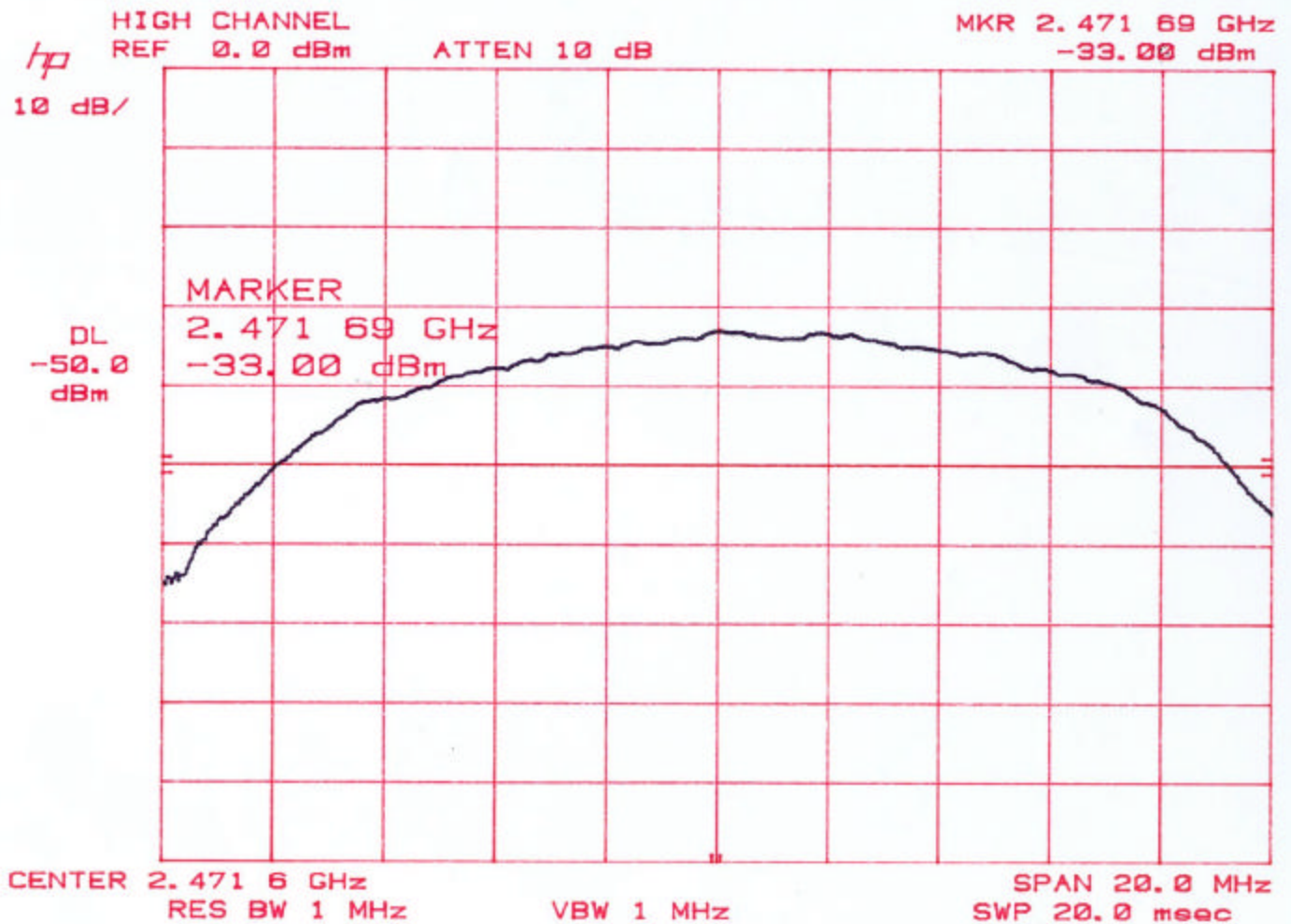
**Power Output of Carrier, CH07**



**Note:** 30 dB attenuator used in front of the spectrum analyzer

FCC ID : DF6-WL311

Power Output of Carrier, CH13



**Note:** 30 dB attenuator used in front of the spectrum analyzer

FCC ID : DF6-WL311

**6dB Bandwidth results:**

Channel number	Centre Freq (MHz)	6dB BW (MHz)	Result
1	2412	10.7	Pass
7	2441	11.12	Pass
13	2472	10.5	Pass

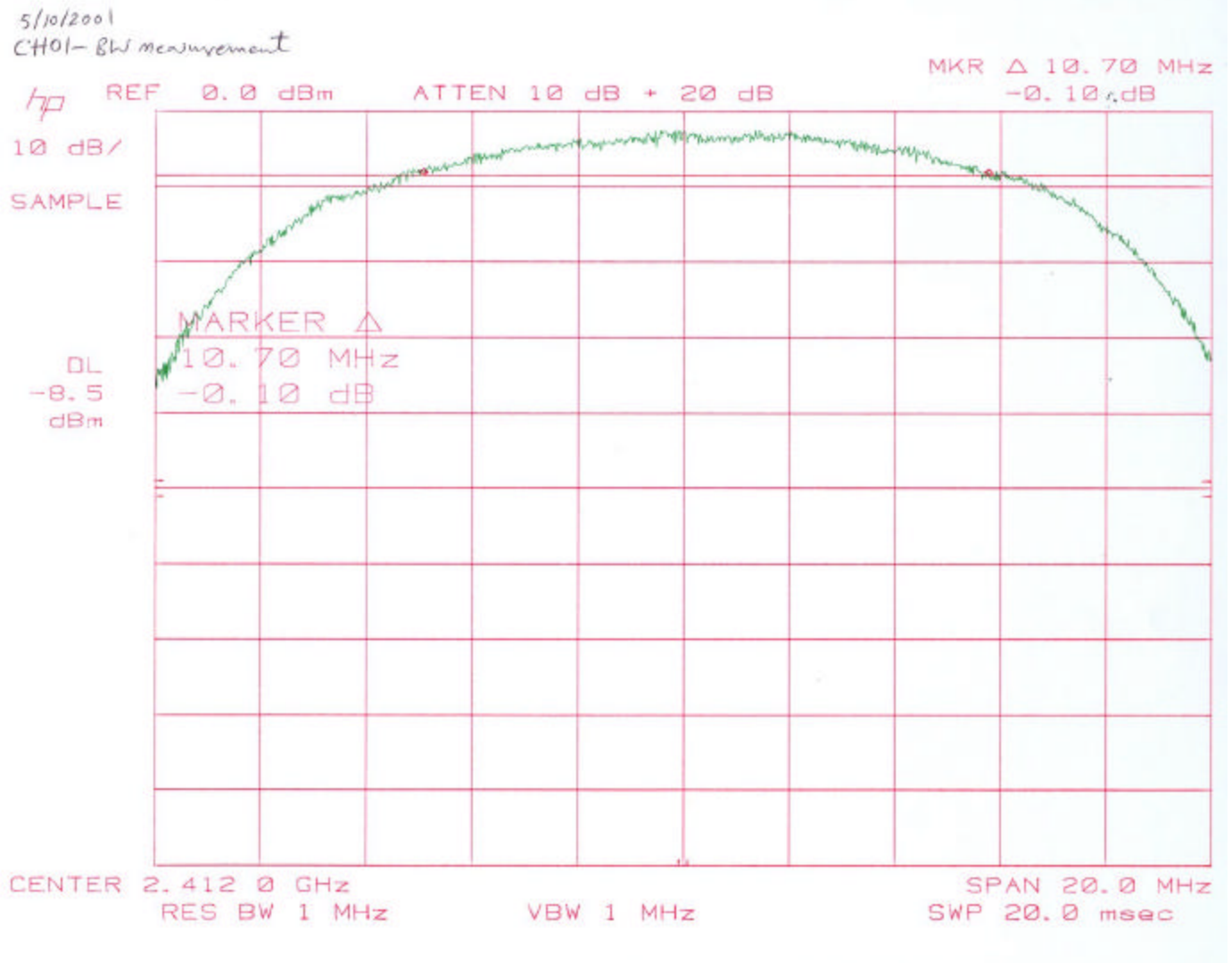
Note: 6dB BW shall be greater than 500 kHz.

**Test Equipment used:**

■ - 8566B	Spectrum Analyzer	Hewlett Packard	2421A00443	6/7/02
■ - 85680B	Spectrum Analyzer, RF section	Hewlett Packard	2732A04047	5/15/02
■ - 85662B	Spectrum Analyzer, Display section	Hewlett Packard	2816A16342	5/15/02

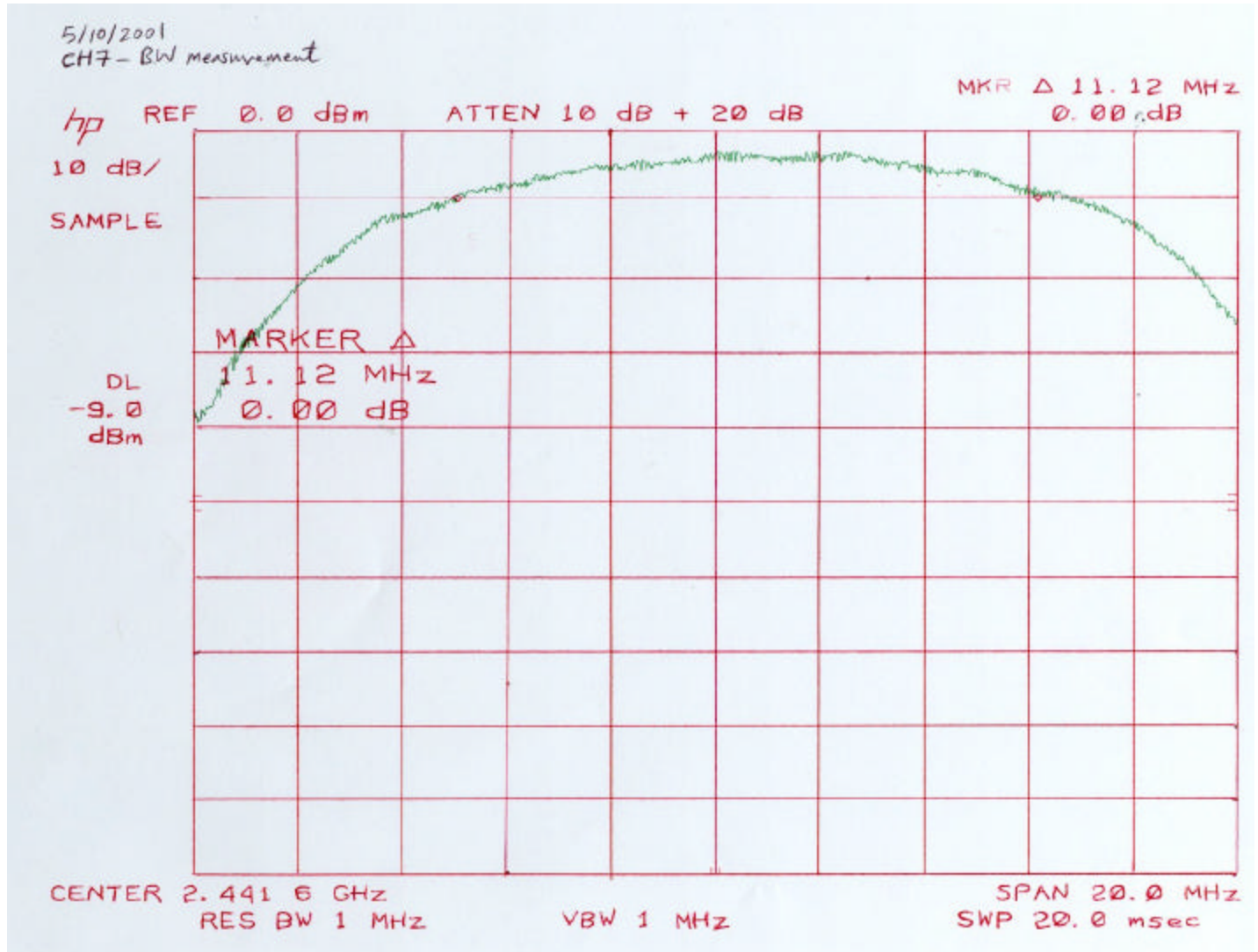
FCC ID : DF6-WL311

**BW of Carrier, CH01**



FCC ID : DF6-WL311

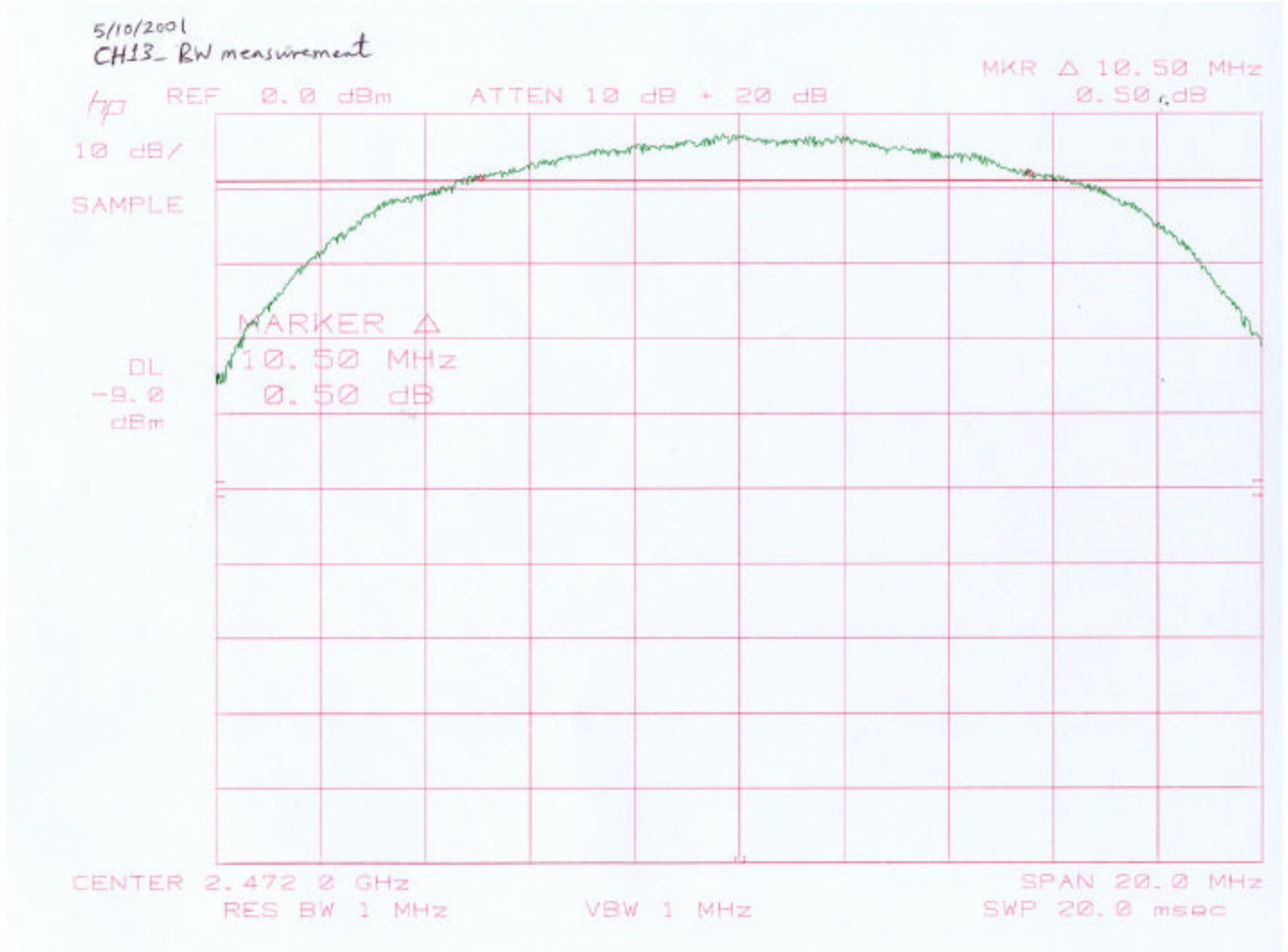
**BW of Carrier, CH07**





FCC ID : DF6-WL311

### BW of Carrier, CH13



FCC ID : DF6-WL311

**Power Spectral Density:**

Channel Number	Measured PSD dBm/3kHz	Cable Loss dB	Corrected PSD dBm/3kHz	Result
1	-24.3	9.5	-14.8	Pass
7	-25.7	9.5	-16.2	Pass
13	-27.8	9.5	-18.3	Pass

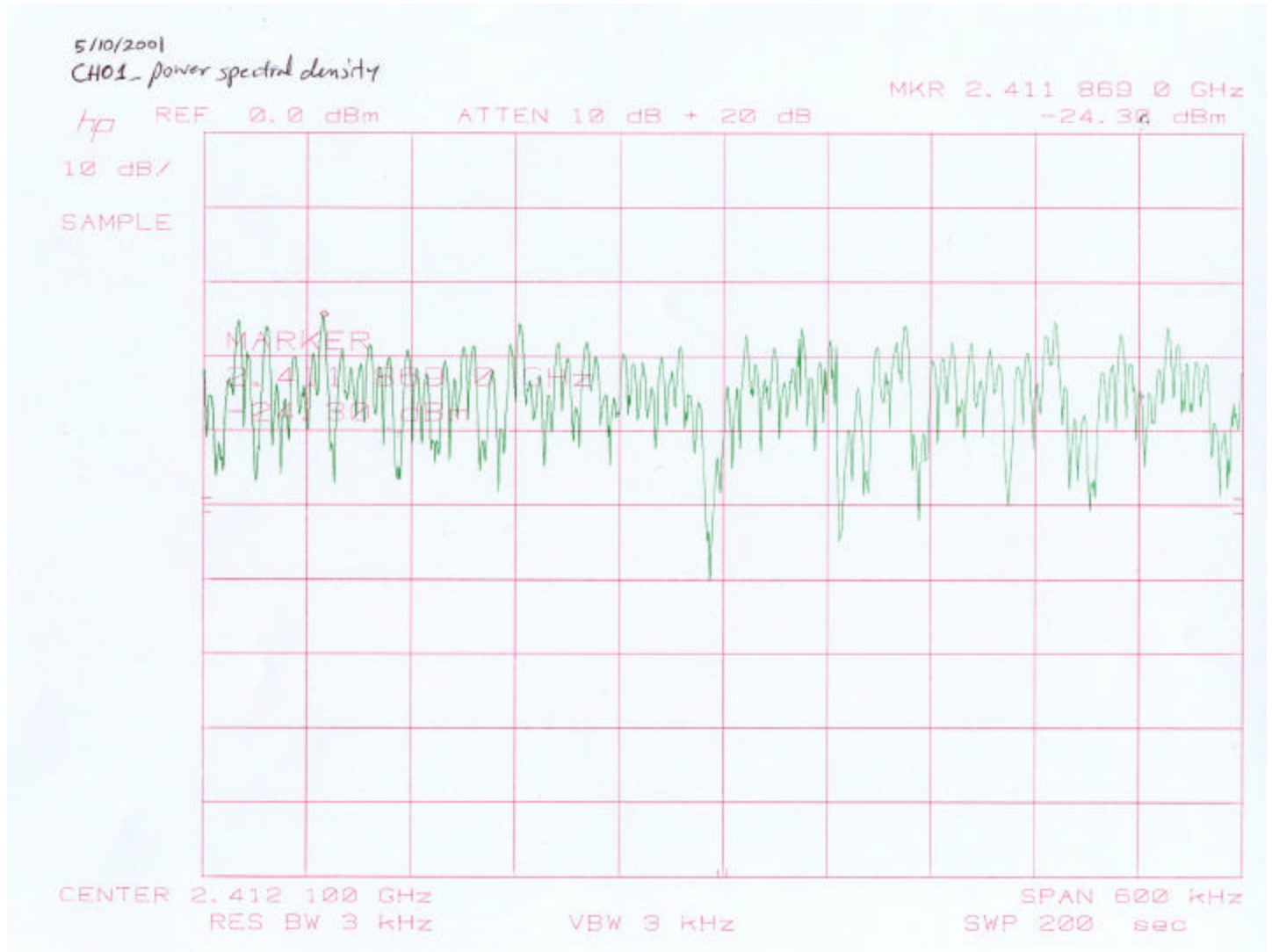
Note: The maximum allowed PSD is 8dBm/ 3kHz

**Test Equipment used:**

■ - 8566B	Spectrum Analyzer	Hewlett Packard	2421A00443	6/7/02
■ - 85680B	Spectrum Analyzer, RF section	Hewlett Packard	2732A04047	5/15/02
■ - 85662B	Spectrum Analyzer, Display section	Hewlett Packard	2816A16342	5/15/02

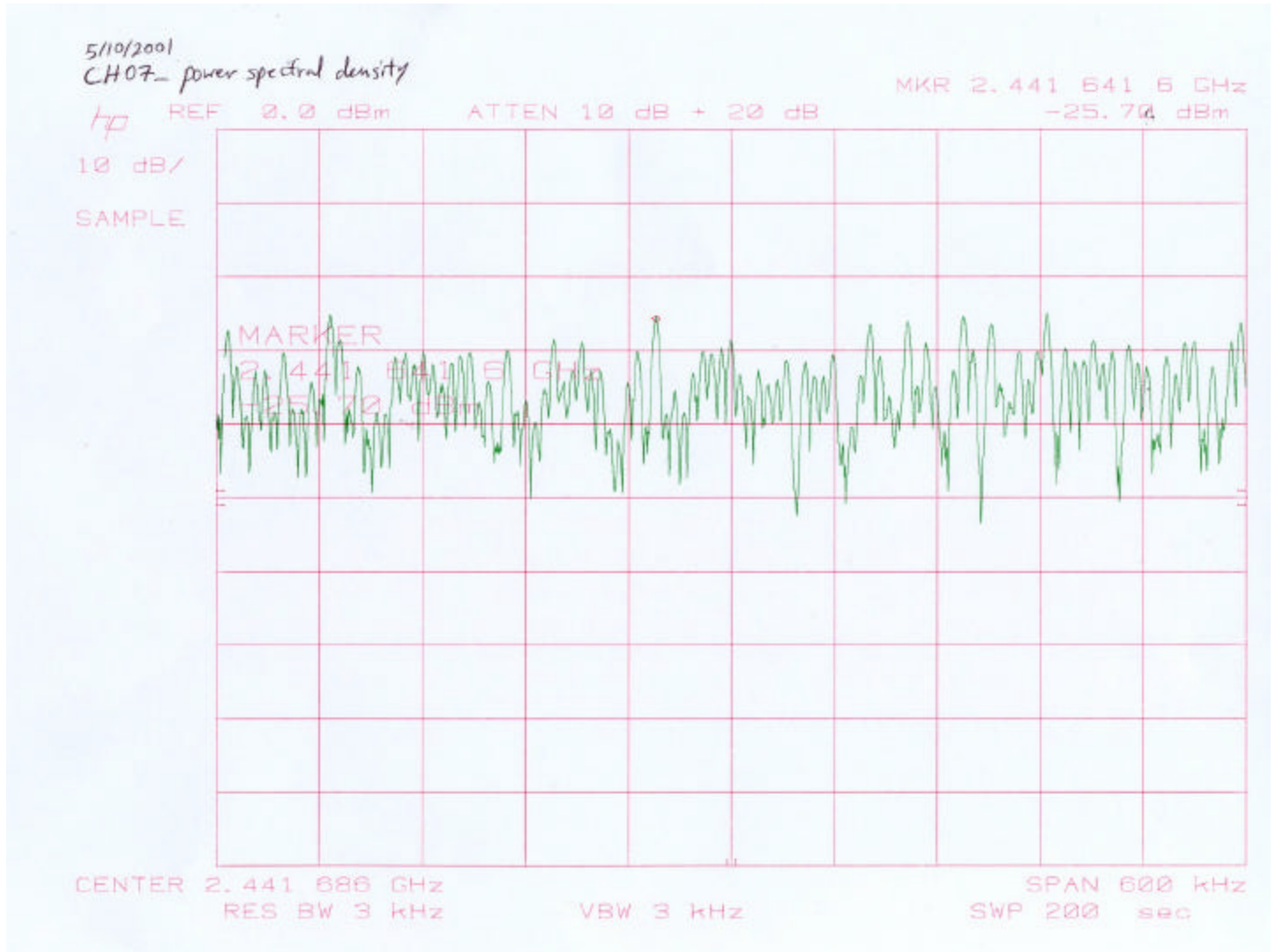
FCC ID : DF6-WL311

Power Spectral Density, CH01



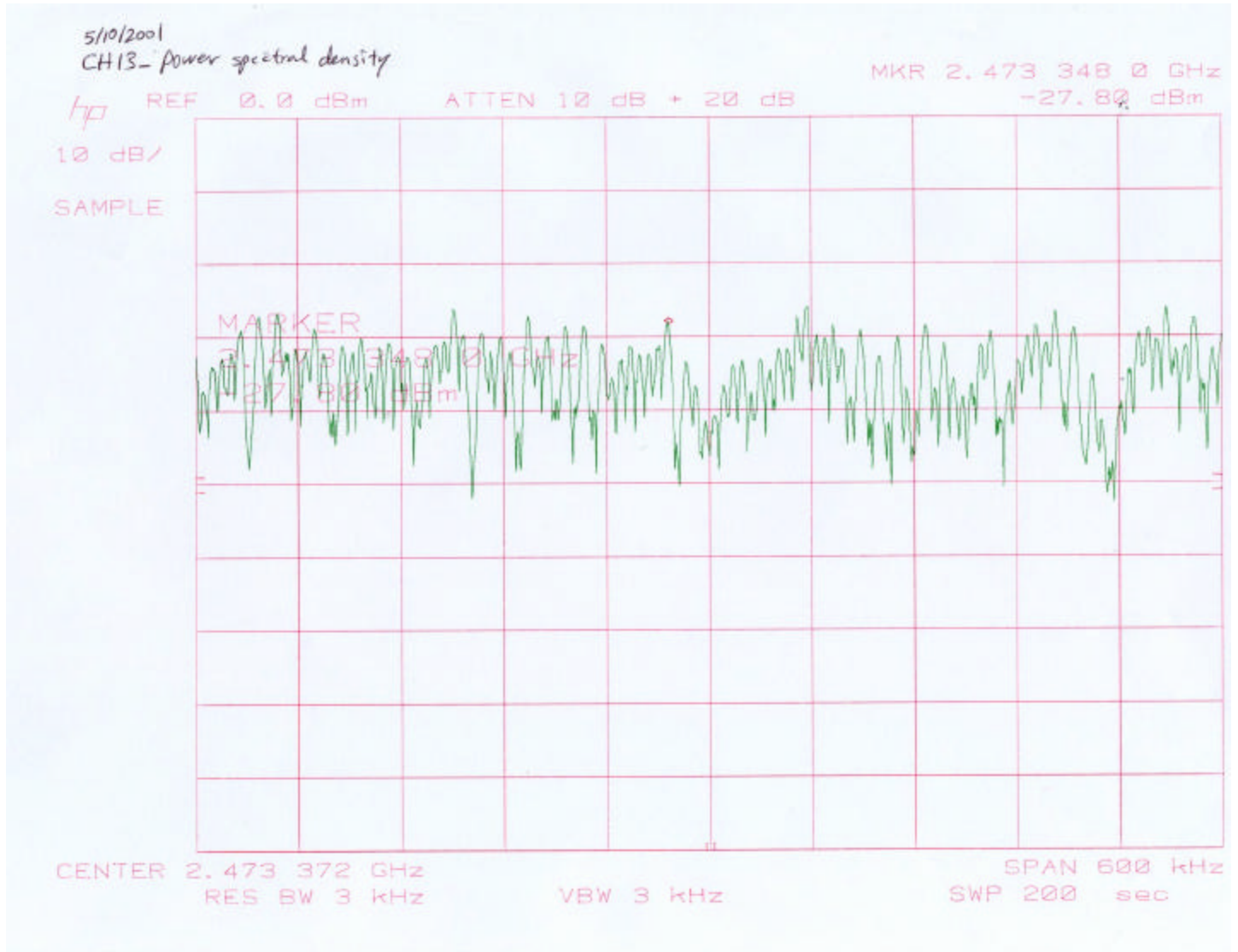
FCC ID : DF6-WL311

Power Spectral Density, CH07



FCC ID : DF6-WL311

Power Spectral Density, CH13



FCC ID : DF6-WL311

**Out of Band Emissions, and Emissions in Restricted Bands:**

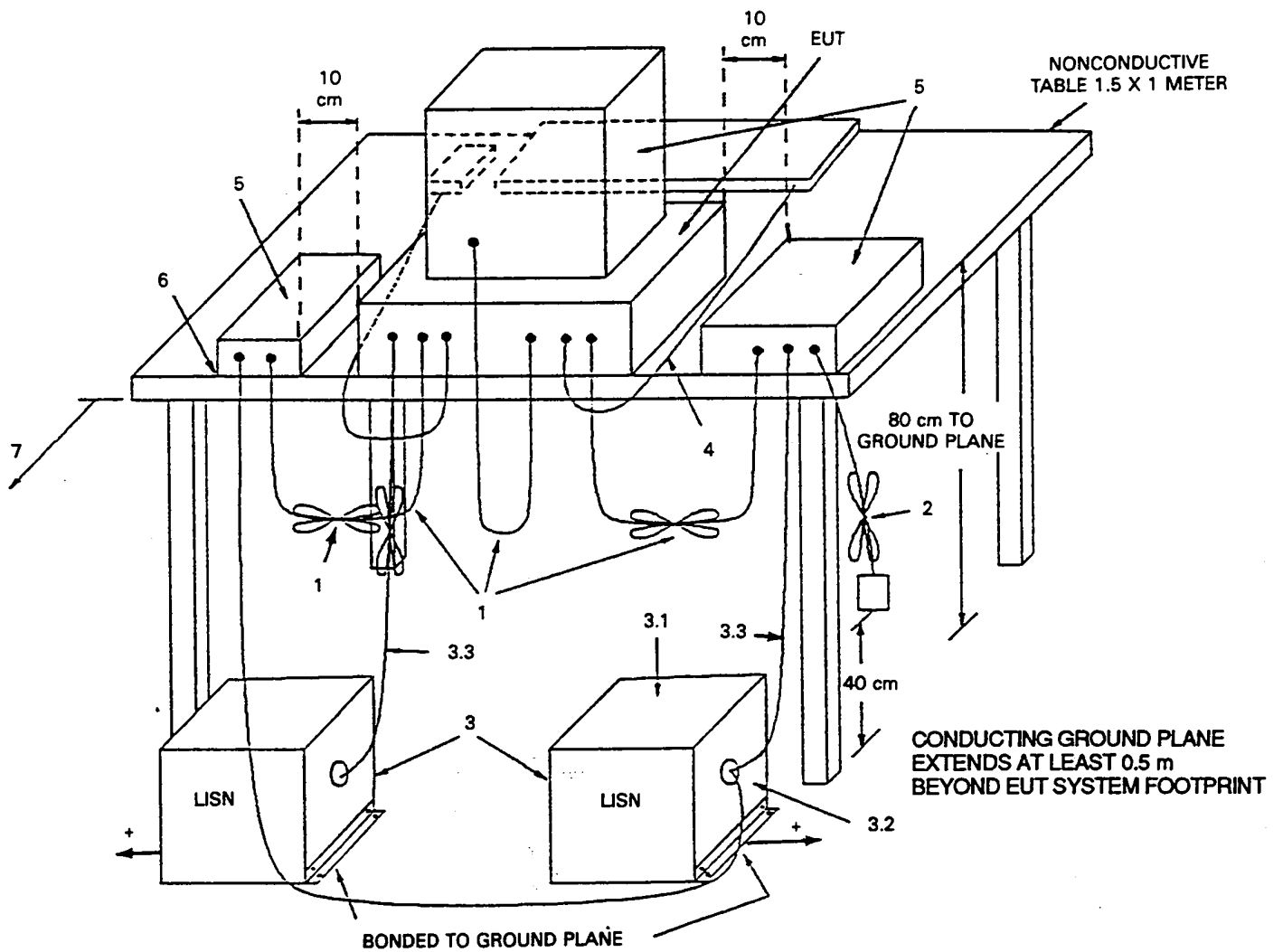
**Notes :**

1. There are no signals found at a level greater than  $-37.5$  dB of the fundamental frequency power level for CH1, CH7 and CH13 up to the 10<sup>th</sup> harmonic of the fundamental frequency.
2. There are no signals found within the restricted bands of operation mentioned in section 15.205

**Test Equipment used:**

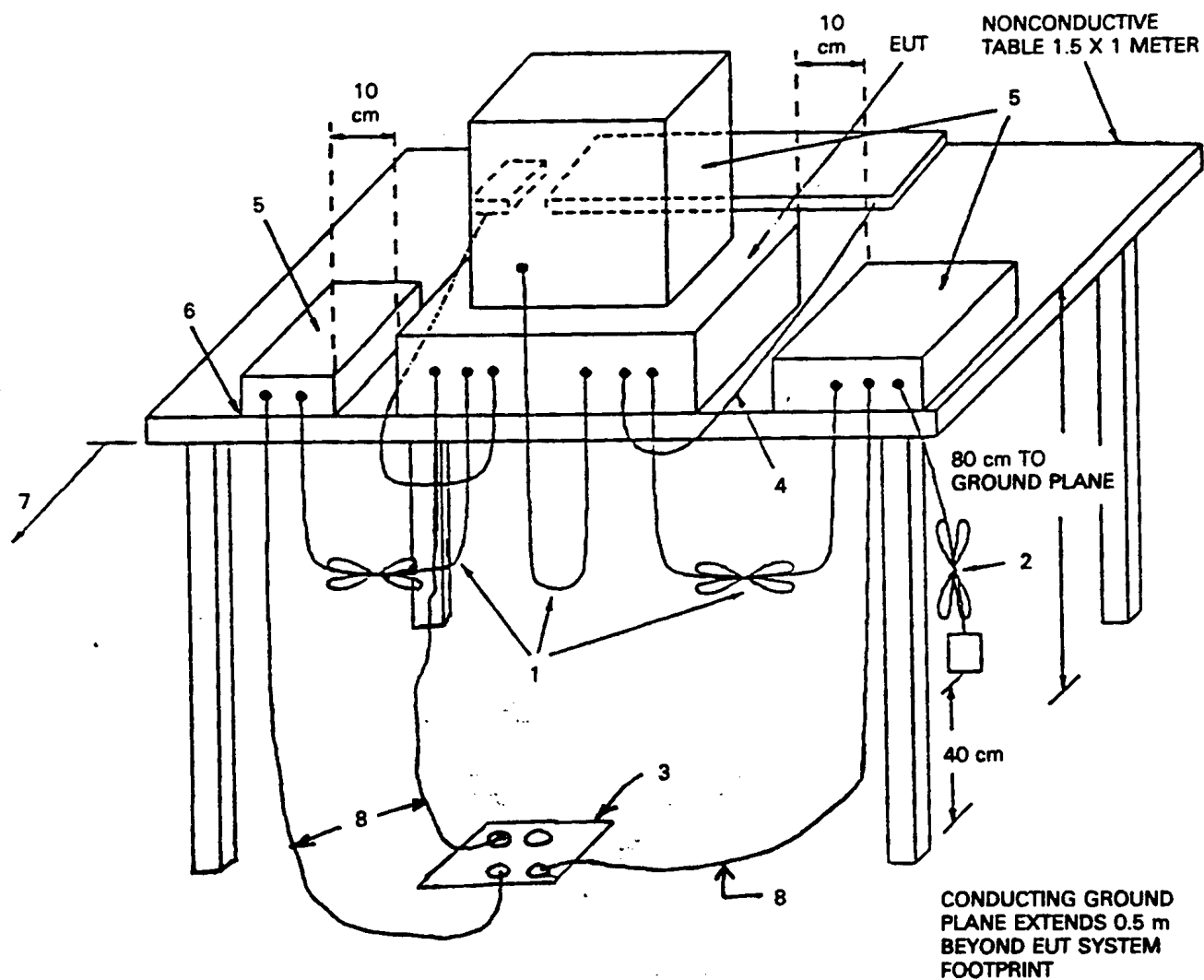
Model No.	Description	Manufacturer	Serial No.	Due Calib. Date
■ - 85462A	Receiver RF Section	Hewlett Packard	3325A00161	5/15/02
■ - 85460A	RF Filter Section	Hewlett Packard	3330A00160	5/15/02
■ - 8566B	Spectrum Analyzer	Hewlett Packard	2421A00443	6/7/02
■ - 85680B	Spectrum Analyzer, RF section	Hewlett Packard	2732A04047	5/15/02
■ - 85662B	Spectrum Analyzer, Display section	Hewlett Packard	2816A16342	5/15/02
■ - A-AMF10009046	RF Pre-amplifier	Miteq Inc.	AMF-5D-010180-35-10P	4/10/02
■ - 8449B	RF Pre-amplifier	Hewlett Packard	3008A01235	2/5/02
■ - 3115	Horn Antenna	EMCO	9902-5686	11/22/01
■ - 3116	Horn Antenna	EMCO	9810-2405	2/16/02
■ - 8491A	Attenuator	Hewlett Packard	2708A	N/A

FCC ID : DF6-WL311



**Conducted Emissions Setup Diagram**

**FCC ID : DF6-WL311**



### Radiated Emissions Setup Diagram



FCC ID : DF6-WL311

## GENERAL REMARKS:

No modifications were necessary in order for the EUT to meet the emissions requirements.

## SUMMARY:

All tests according to the regulations cited on page 3 were

■ - Performed

□ - **Not** Performed

The Equipment Under Test

■ - **Fulfills** the general approval requirements cited on page 3.

□ - **Does not** fulfill the general approval requirements cited on page 3.

## Statement of Measurement Uncertainty

The data and results referenced in this document are true and accurate. There may be some degree or level of measurement uncertainty. As EN 45001 does not allow recommendations to be included in the test report, the reader is encouraged to request a copy of the BABT Product Service policy concerning pass or fail judgment with respect to possible measurement uncertainties.

Measurement uncertainty for radiated emissions is +/- 3.7 dB.

Measurement uncertainty for conducted emissions is +/- 2.2 dB.

Equipment Received Date: 5/15/2001

Testing Start Date: 5/15/2001

Testing End Date: 6/4/2001

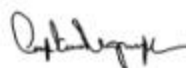
## - BABT PRODUCT SERVICE -

Engineer In Charge:



Frank Ibrahim  
(EMC Engineer)

Tester:



Kim Nguyen  
(EMC Technician)

FCC ID : DF6-WL311

## **Appendix A**

Product Information Form(s)

FCC ID : DF6-WL311

CUSTOMER INFORMATION			
COMPANY NAME:		3Com Corporation	
COMPANY ADDRESS:		5400 Bayfront Plaza	
		Santa Clara, CA 95054	
PHONE NUMBER:		(408) 326-2878	
FAX NUMBER/E-MAIL ADDRESS:		(408) 326-5854 / david_boldy@3com.com	
CUSTOMER CONTACT:		David Boldy	
PRODUCT DESCRIPTION			
NAME, MODEL, SERIAL # OF EUT:		SL_1021, WL_311	
DESCRIPTION OF EUT:		Building to Building bridge with an external antenna connector	
Components of EUT			
Description	Model Number	Serial Number	FCC ID Number
B to B Bridge X 2	WL_311	N/A	N/A
Power Supply X 2	ADP-0502-5V	N/A	N/A
18 dBi antenna (worst case)	MP24018	N/A	N/A
13.8 and 4 dBi antennas (not submitted for test)	N/A	N/A	N/A
Trilogy AP Antenna submitted for ETS 300 386 immunity testing only. (Not to be assessed)	N/A	N/A	N/A
OPERATING MODE(S):		Operation for test per instruction sheet submitted. Continuous DSSS signal provided via test modes. Immunity testing to be checked using CC32 software. The software will send data from one PC to another and back again wirelessly. The original data is then compared to the received to check for errors.	
I/O CABLES			
CONNECTION	Serial port		
SHIELD	N/A		
CONNECTORS	D Type 9-way		
TERMINATION TYPE	N/A		
LENGTH	N/A		
REMOVABLE	N/A		
CONNECTION	10 Base-T		
SHIELD	N/A		
CONNECTORS	RJ-45		
TERMINATION TYPE	N/A		
LENGTH	N/A		
REMOVABLE	N/A		
POWER CORDS			
UNIT:	4 MAINS cables supplied	UNIT:	
MANUFACTURER:		MANUFACTURER:	
SHIELDED:		SHIELDED:	
LENGTH:		LENGTH:	
POWER INTERFACE			
VOLTAGE / FREQUENCY		5VDC	

<b>FCC ID : DF6-WL311</b>				
PHASES/CURRENT:		1.0 Amp		
<b>OSCILLATOR FREQUENCIES (NA)</b>				
FREQUENCY	EUT LOCATION		DESCRIPTION OF USE	
<b>POWER SUPPLY (N/A)</b>				
DESCRIPTION	MANUFACTURER	MODEL #	SERIAL #	SWITCHING/LINEAR FREQ.
<b>POWER LINE FILTERS (N/A)</b>				
MANUFACTURER	MODEL NO.		QTY.	LOCATION ON EUT
<b>CRITICAL EMI COMPONENTS (N/A)</b>				
DESCRIPTION	MANUFACTURER	PART # OR VALUE	QTY.	LOCATION ON EUT
DESCRIPTION OF ENCLOSURE:		(N/A)		
<b>INTERFACING AND/OR SIMULATORS PERIPHERAL EQUIPMENT:</b>				
DESCRIPTION	MANUFACTURER	MODEL #	SERIAL #	FCC ID
<b>BLOCK DIAGRAM:</b>		(N/A)		

FCC ID : DF6-WL311

## **Appendix B**

Change History

**Not Applicable**

FCC ID : DF6-WL311

## **Appendix C**

Supplemental Information

FCC ID : DF6-WL311

## Compliance Information

### Labeling

Equipment subject to Declaration of Conformity procedures shall be labeled in accordance with Part 2 of the Regulations.

### Compliance Statement

Equipment subject to Declaration of Conformity authorization procedures must be accompanied by a compliance information statement when placed on the market, which must contain the following information:-

- 1) Equipment identification
- 2) Statement of compliance with Part 15:-  
  
"This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation."
- 3) Identification and contact details of the responsible party located in the United States.

This statement can either be printed in the user guide or alternatively as an addendum.

The following warning statement must also be included in the equipment manual:-

"Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment."