

**Test Report No. 8412304024**

**For Alvarion Ltd.**

**Equipment Under Test:**

**Point-to-point wireless bridge Outdoor Unit  
with two antennas**

**Name: BreezeNET-B**

**Model:**

**BU-B14/28/D-5.8 and RB-B14/28/D-5.8  
(with 40MHz Bandwidth feature)**

**From The Standards Institution  
Of Israel  
Industry Division  
Telematics Laboratory  
EMC Section**



**Certificate No.1487-01**

**Test Report No.:** 8412304024

Page 1 of 42 Pages

**Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

<b>Order placed by:</b>	Alvarion Ltd.
<b>Address:</b>	21A Habarzel str, Tel-Aviv, 69710, Israel
<b>Sample for test selected by:</b>	The customer
<b>The date of test:</b>	25, 26/02, 13/03/2004

**Description of Equipment**

<b>Under Test (EUT):</b>	Point-to-point wireless bridge Outdoor Unit with two antennas
<b>Model:</b>	BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)
<b>Manufactured by:</b>	Alvarion Ltd.

**Reference Documents:**

- ❖ CFR 47 FCC: Rules and Regulations; Part 15. "Radio frequency devices"; Subpart C: "Intentional radiators" (2002)

**Test Results:** The EUT was found meeting with the relevant requirements of CFR 47 FCC Part 15 Sections:15.205, 15.209, 15.247 (b (1), c, d).

This Test Report contains 42 pages and may be used only in full.	This Test Report applies only to the specimen tested and may not be applied to other specimens of the same product.
--	---



**Test Report No.:** 8412304024

**Page 2 of 42 Pages**

**Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B

**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

## Table of Contents

<b>1. Scope</b> .....	<b>3</b>
<b>2. General</b> .....	<b>3</b>
<b>2.1. Permissible change description</b> .....	<b>3</b>
<b>2.2. Test configuration:</b> .....	<b>3</b>
<b>3. Test specification, Methods and Procedures</b> .....	<b>4</b>
<b>4. Measurements, examinations and derived results</b> .....	<b>4</b>
<b>4.1. Location of the Test Site:</b> .....	<b>4</b>
<b>4.2. Normal test condition:</b> .....	<b>4</b>
<b>4.3. Radiated emission test on Radio Unit - spurious:</b> .....	<b>5</b>
<b>4.4. Radiated emission test on Radio Unit - restricted bands:</b> .....	<b>8</b>
<b>4.5. Conducted emission tests on Radio Unit:</b> .....	<b>17</b>
<b>5. Compliance with specification</b> .....	<b>34</b>
<b>6. Appendix 1: Test equipment used</b> .....	<b>35</b>
<b>7. Appendix 2: Antenna Factor and Cable Loss</b> .....	<b>36</b>
<b>8. Appendix 3: Test configuration illustration</b> .....	<b>39</b>

**Test Report No.:** 8412304024

**Page 3 of 42 Pages**

**Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B

**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

## Scope

This test report contains results measured on Point-to-point wireless bridge Outdoor Unit with two antennas (permissible change) according to the relevant requirements of CFR 47 FCC Part 15 Subpart C.

## 1. General

### 1.1. Permissible change description

The BreezeNETB P2P system , new feature , 40MHz channel bandwidth , (as compared with FCC approved 20MHz channel bandwidth version) is software selectable.

No hardware changes were made to the system, no frequency of operation or power out was affected by the new feature.

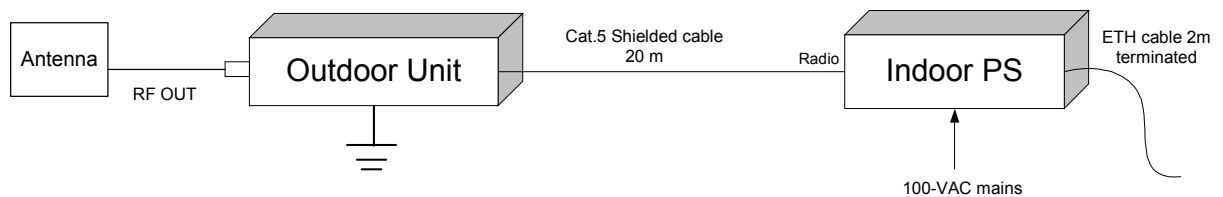
This test report contains results of spurious emissions and emission in restricted bands, Spectrum mask results, performed on EUT: BreezeNET-B Outdoor Unit - Point-to-point wireless bridge.

The test was made with two different antenna types

### 1.2. Test configuration:

The EUT was tested using two various antennas as shown in table:

No.	Name	Freq. range	Gain dbi	P/N	Type
1	Unidirectional antenna UNI-28-4	5.15-5.875MHz	28	858109	Planar Array
2	Unidirectional antenna	-	31.2	AN1262	Parabolic



**Figure 1. Test setup**



**Test Report No.:** 8412304024

Page 4 of 42 Pages

**Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B

**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

## 2. Test specification, Methods and Procedures

### Test Specification:

- ❖ CFR 47 FCC: Rules and Regulations; Part 15. "Radio frequency devices"; Subpart C: "Intentional radiators" (2002)

### Methods and Procedures:

- ❖ ANSI C63/4/1992: "American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz".

## 3. Measurements, examinations and derived results

### 3.1. Location of the Test Site:

The tests were conducted in the EMC laboratory of the Standards Institution of Israel in Tel-Aviv.

### 3.2. Normal test condition:

Temperature: 22 °C  
Humidity: 50 %



**Test Report No.:** 8412304024

Page 5 of 42 Pages

**Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B

**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

### **3.3. Radiated emission test on Radio Unit - spurious:**

#### **3.3.1. Requirements:**

The levels of any unwanted emission shall not exceed value required in section 15.209.

#### **3.3.2. EUT configuration:**

The radio unit was tested with two various antennas (see sec.2.2)

- Unidirectional antenna ; Planar array, UNI-28-4 P/N 858109
- Unidirectional antenna ; Parabolic; P/N AN1262

#### **3.3.3. Test procedure:**

The measurements were performed in the anechoic chamber.

The EUT was arranged on a non-metallic table 0.8 m placed on the turntable.

Measuring antennas used: Up to 18 GHz - Double Ridge EMCO model 3115  
above 18 GHz - Alpha TRG model A361

Antenna height = 1 m.

Polarization: Vertical/Horizontal

Measurement distance = 1m.

The frequency range was investigated up to 40 GHz.

The measurements were performed in vertical and horizontal polarization, the maximum reading recorded.

Measuring detector function and bandwidths:

Detector type	Peak
Resolution bandwidth	1MHz
Video bandwidth	1 MHz

Detector type	Average
Resolution bandwidth	1MHz
Video bandwidth	3 kHz*

#### **3.3.4. Radiated emission test results and calculation ratio:**

The test results are shown in Tables ## 1-2.

The emission level was calculated as:

E Reading (dB $\mu$ V) + measuring cable loss (dB) + measuring antenna factor (dB/m) + Distance correction factor

For measuring cable loss and measuring antenna factor refer to Appendix 2.

Distance correction factor = -9.5 dB (an extrapolation reading from 1 m measuring distance to 3m specified distance)



Test Report No.: 8412304024

Page 6 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

Table 1. Spurious emissions test results

Antenna used: Planar Array UNI-28-4 P/N 858109

Frequency (GHz)	Emission Level (dB $\mu$ V/m)		Limit @ 3m (dB $\mu$ V/m)		Margin (dB)		Results
	Average	Peak	Average	Peak	Average	Peak	
<b>LOW 5.745 GHz</b>							
11.49	41.7	54.1	54	74	12.3	19.9	Complies
17.24	48.5	61.0			5.5	13.0	Complies
22.98	43.8	55.9			10.2	18.1	Complies
28.725	43.3	55.0			10.7	19.0	Complies
34.47	49.6	60.5			4.4	13.5	Complies
<b>MIDDLE 5.790 GHz</b>							
11.58	41.8	54.1	54	74	12.2	19.9	Complies
17.37	48.4	61.8			5.6	12.2	Complies
23.16	44.1	56.6			9.9	17.4	Complies
28.95	43.2	55.0			10.8	19.0	Complies
34.74	49.5	60.0			4.5	14.0	Complies
<b>HIGH 5.830 GHz</b>							
11.67	41.6	54.5	54	74	12.4	19.5	Complies
17.51	48.1	60.4			5.9	13.6	Complies
23.34	44.5	57.2			9.5	16.8	Complies
29.175	43.7	55.0			10.3	19.0	Complies
35.01	49.8	61.8			4.2	12.2	Complies



Test Report No.: 8412304024

Page 7 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

Table 2. Spurious emissions test results

Antenna used: Parabolic P/N AN1262

Frequency (GHz)	Emission Level (dB $\mu$ V/m)		Limit @ 3m (dB $\mu$ V/m)		Margin (dB)		Results
	Average	Peak	Average	Peak	Average	Peak	
<b>LOW 5.750 GHz</b>							
11.49	41.7	54.0	54	74	12.3	20.0	Complies
17.24	48.3	61.0			5.7	13.0	Complies
22.98	43.8	55.7			10.2	18.3	Complies
28.725	43.3	55.0			10.7	19.0	Complies
34.47	49.5	60.3			4.5	13.7	Complies
<b>MIDDLE 5.790 GHz</b>							
11.58	41.7	54.0	54	74	12.3	20.0	Complies
17.37	48.5	61.8			5.5	12.2	Complies
23.16	44.0	56.5			10.0	17.5	Complies
28.95	43.2	54.9			10.8	19.1	Complies
34.74	49.5	60			4.5	14.0	Complies
<b>HIGH 5.830 GHz</b>							
11.67	41.6	54.5	54	74	12.4	19.5	Complies
17.51	48.0	60.3			6.0	13.7	Complies
23.34	44.4	57.0			9.6	17.0	Complies
29.175	43.8	55.0			10.2	19.0	Complies
35.01	49.8	61.8			4.2	12.2	Complies



**Test Report No.:** 8412304024

Page 8 of 42 Pages

**Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)**3.4. Radiated emission test on Radio Unit - restricted bands:****3.4.1. Requirements:**

Radiated emission in restricted bands should meet the requirements sec. 15.205 Sec. C.

**3.4.2. Test procedure:**

The measurements were performed in the anechoic chamber.

The EUT was arranged on a non-metallic table 0.8 m placed on the turntable.

Measuring antennas used: Up to 18 GHz - Double Ridge EMCO model 3115  
above 18 GHz - Alpha TRG model A361

Antenna height = 1 m, distance = 1m.

Measuring detector function and bandwidths:

Detector type	Peak
Resolution bandwidth	1MHz
Video bandwidth	1 MHz

Detector type	Average
Resolution bandwidth	1MHz
Video bandwidth	3 kHz*

The measurements were performed twice, with two different antennas (as detailed in clause 1.2) and with both (Peak and AVG) detectors.

The spurious were found in following restricted bands:

- 10.6-12.7 GHz (2-nd harmonic of the low, mid and high frequencies).  
The measurements were performed with two antennas; the worst results are demonstrated in the plots.
- 22.01-23.12 GHz (4-th harmonic of the low frequency). The measurements were performed with two antennas; the worst results are demonstrated in the plots.

**3.4.3. Test results and calculation ratio:**

	Frequency, GHz	Restricted band	Antenna name	
			P/N 858109	P/N AN1262
<b>LOW 5.745 GHz</b>	11.49	10.6 – 12.7	Plots #1-# 2	Plots #9-# 10
	22.98	22.01 – 23.12	Plots #7-# 8	Plots #15-# 16
<b>MIDDLE 5.790 GHz</b>	11.58	10.6 – 12.7	Plots #3-# 4	Plots #11-# 12
<b>HIGH 5.830 GHz</b>	11.66	10.6 – 12.7	Plots #5-# 6	Plots #13-# 14

**Note:** The AVG limit line 64 dB $\mu$ V/m (at 1m distance) is not shown in the plots.



Test Report No.: 8412304024

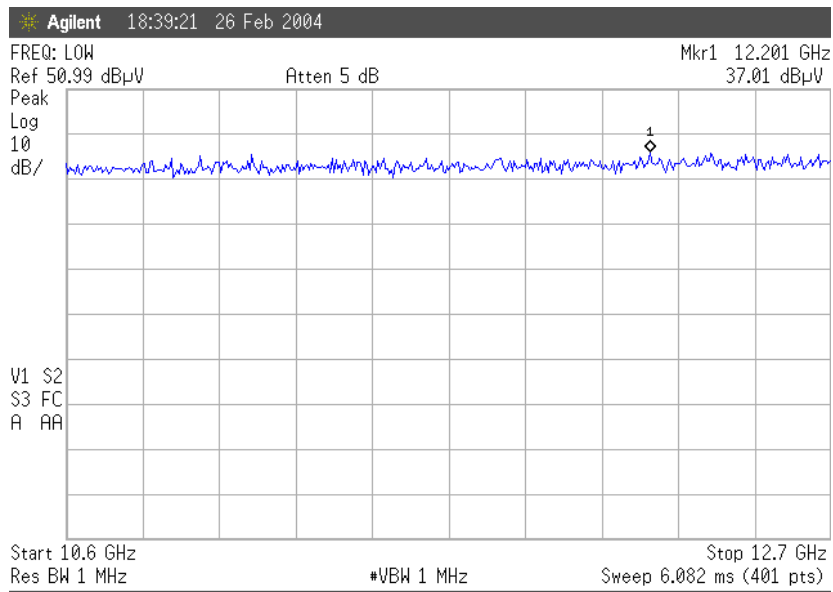
Page 9 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

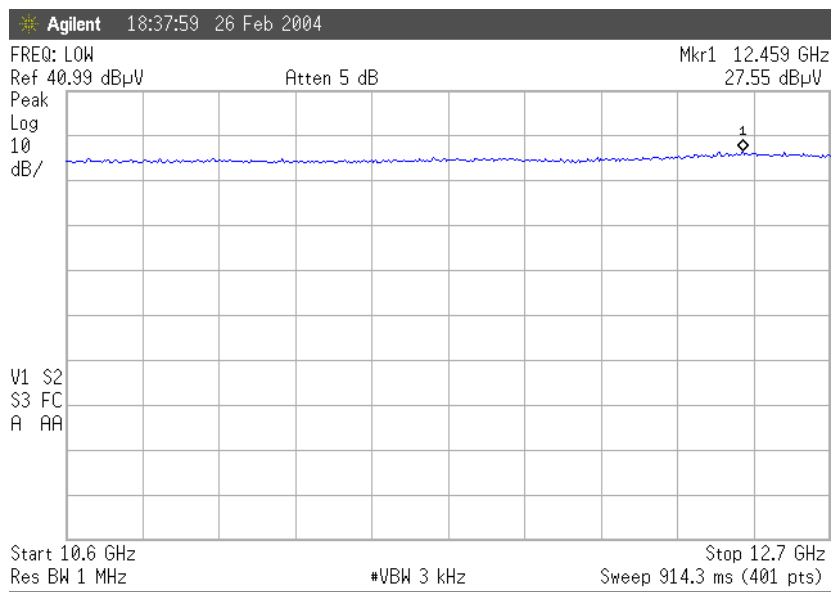
Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

**Radiated emissions measured in restricted band 10.6-12.7 GHz**

Antenna: Antenna P/N 858109



**Plot # 1. LOW Frequency, Peak detector**



**Plot # 2. LOW Frequency, AVG detector**



Test Report No.: 8412304024

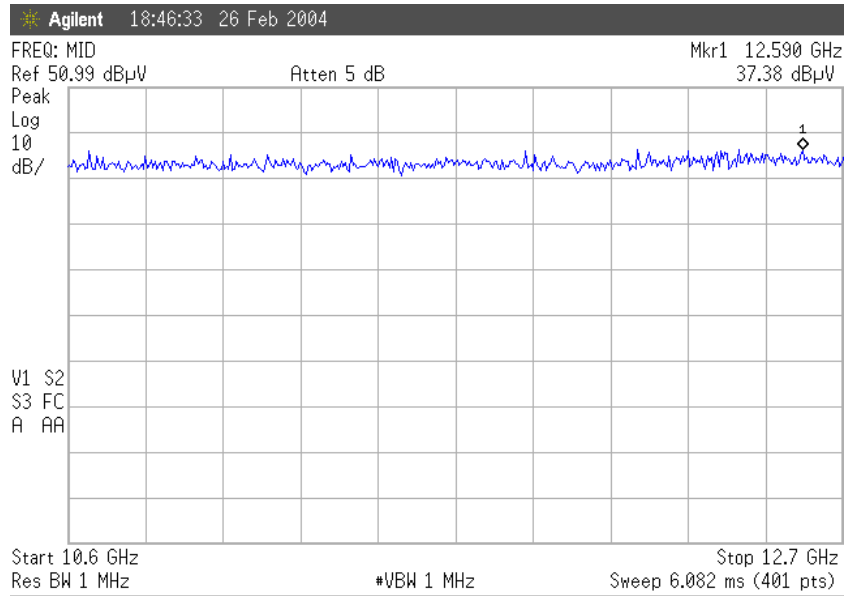
Page 10 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

**Radiated emissions measured in restricted band 10.6-12.7 GHz**

Antenna: Antenna P/N 858109



**Plot # 3. MID Frequency, Peak detector**



**Plot # 4. MID Frequency, AVG detector**



Test Report No.: 8412304024

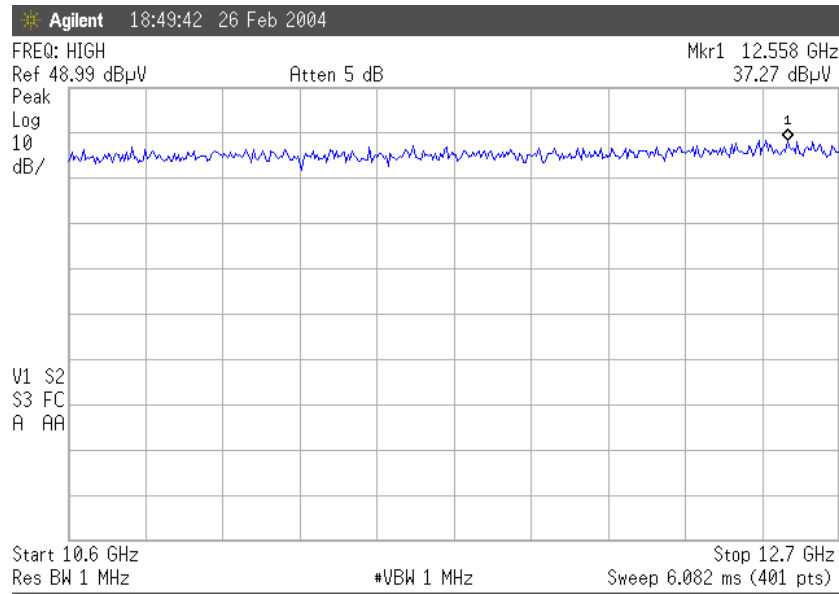
Page 11 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

**Radiated emissions measured in restricted band 10.6-12.7 GHz**

Antenna: Antenna P/N 858109



**Plot # 5. HIGH Frequency, Peak detector**



**Plot # 6. HIGH Frequency, AVG detector**



Test Report No.: 8412304024

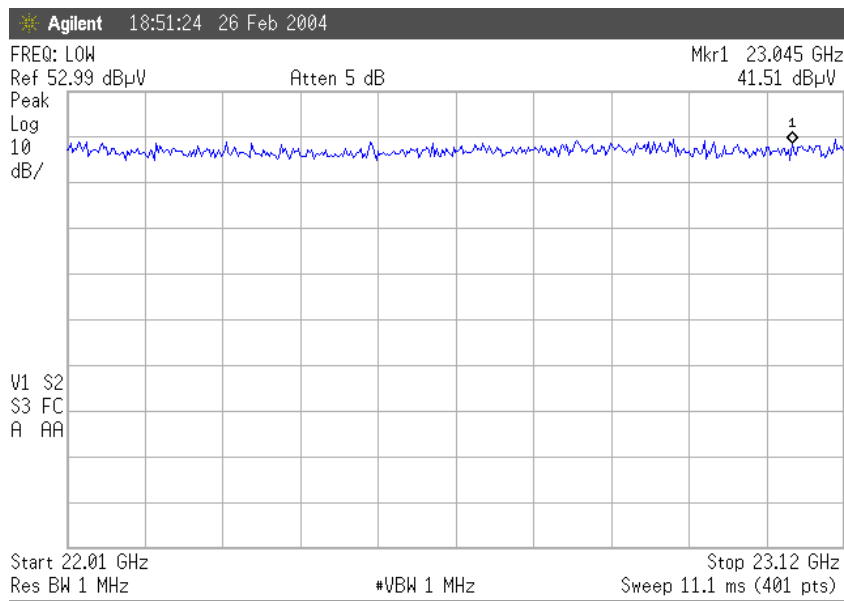
Page 12 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

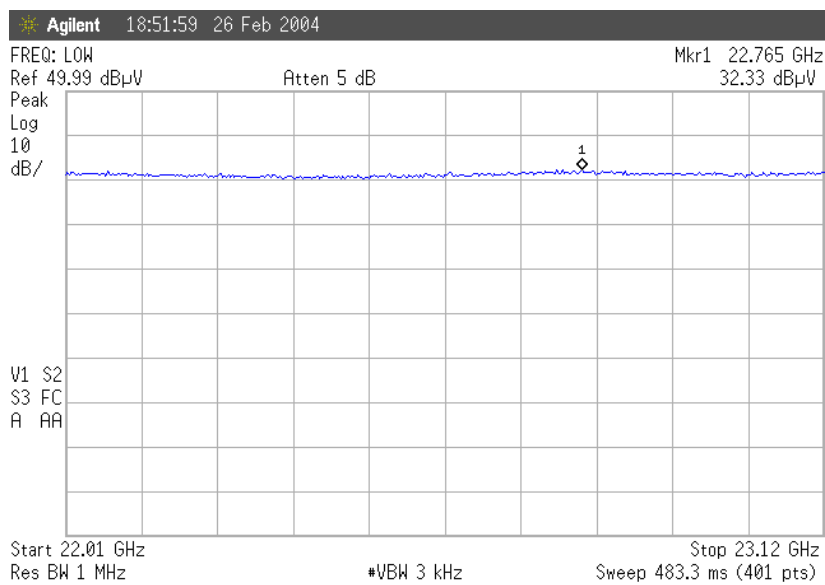
Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

**Radiated emissions measured in restricted band 22.01-23.12 GHz**

Antenna: Antenna P/N 858109



**Plot # 7. LOW Frequency, Peak detector**



**Plot # 8. LOW Frequency, AVG detector**



Test Report No.: 8412304024

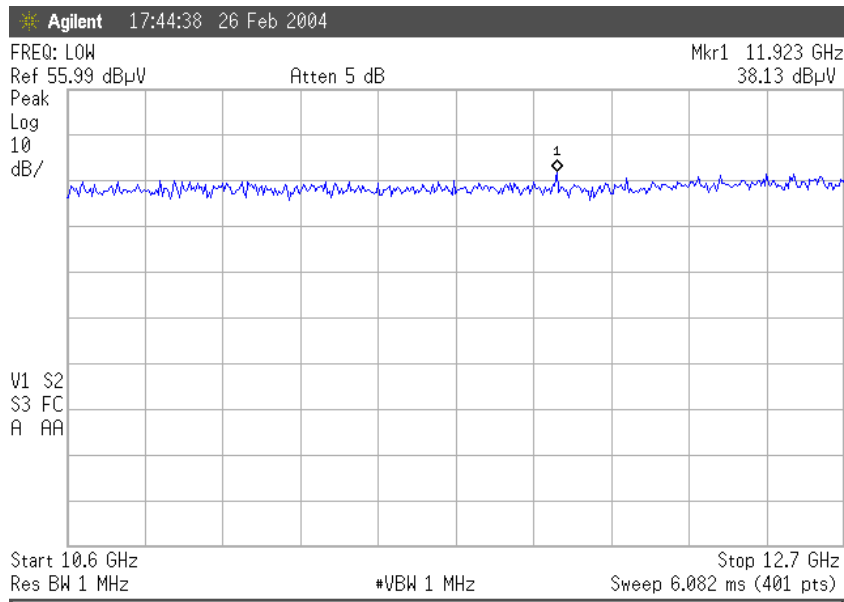
Page 13 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

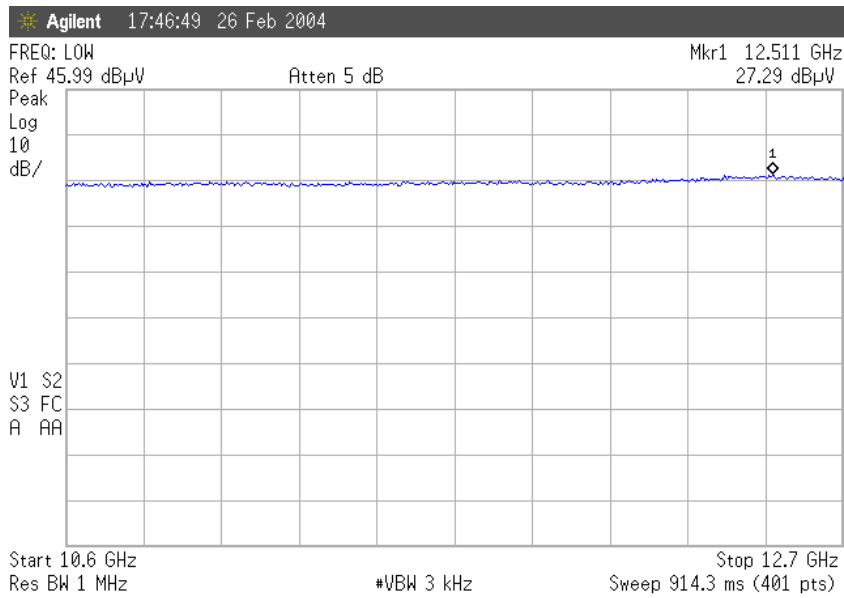
Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

**Radiated emissions measured in restricted band 10.6-12.7 GHz**

Antenna: Parabolic Antenna P/N AN1262



**Plot # 9. LOW Frequency, Peak detector**



**Plot # 10. LOW Frequency, AVG detector**



Test Report No.: 8412304024

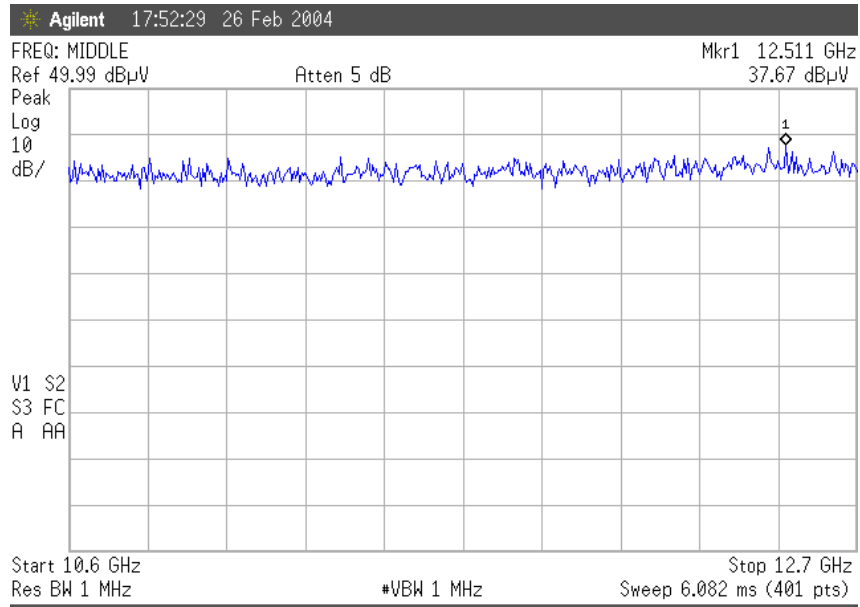
Page 14 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

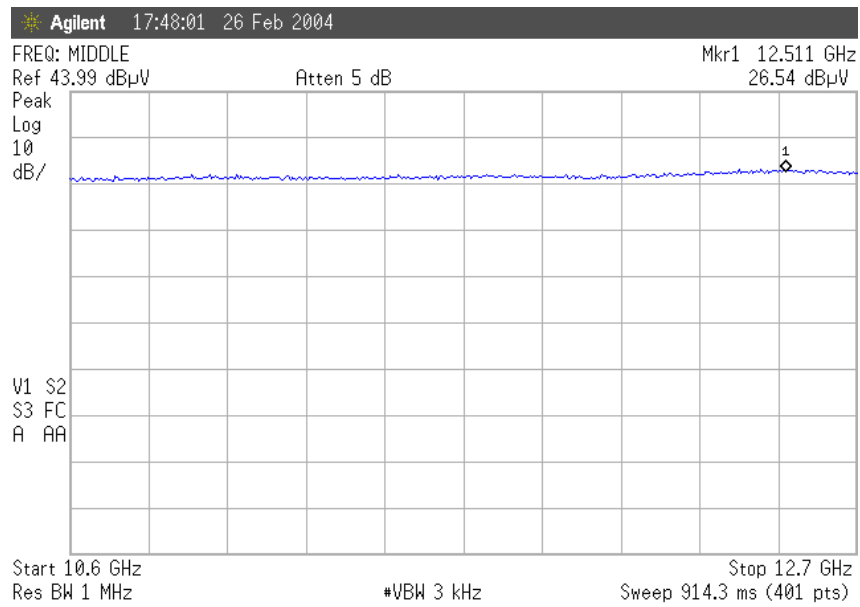
Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

**Radiated emissions measured in restricted band 10.6-12.7 GHz**

Antenna: Parabolic Antenna P/N AN1262



**Plot # 11. MID Frequency, Peak detector**



**Plot # 12. MID Frequency, AVG detector**



Test Report No.: 8412304024

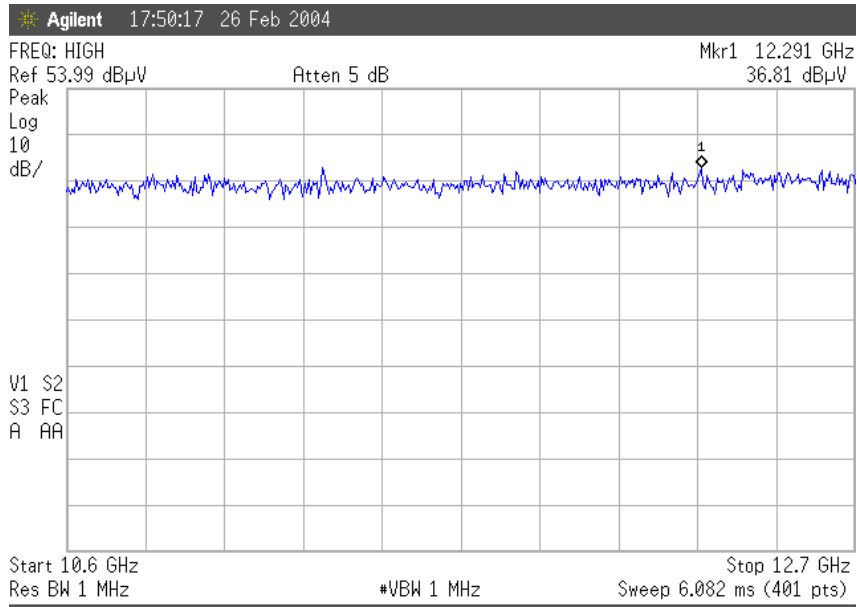
Page 15 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

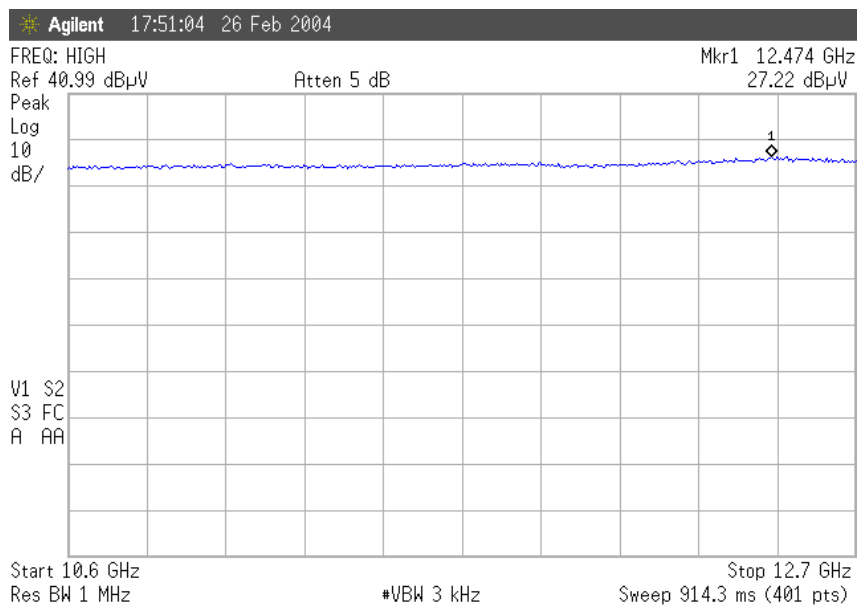
Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

**Radiated emissions measured in restricted band 10.6-12.7 GHz**

Antenna: Parabolic Antenna P/N AN1262



**Plot # 13. HIGH Frequency, Peak detector**



**Plot # 14. HIGH Frequency, AVG detector**





Test Report No.: 8412304024

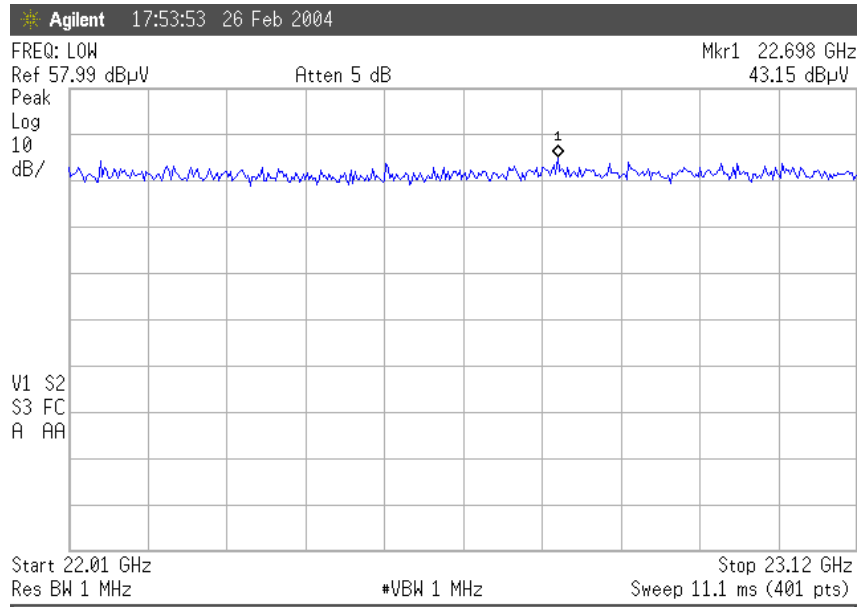
Page 16 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

**Radiated emissions measured in restricted band 22.01-23.12 GHz**

Antenna: Parabolic Antenna P/N AN1262



**Plot # 15. LOW Frequency, Peak detector**



**Plot # 16. LOW Frequency, AVG detector**



**Test Report No.:** 8412304024

**Page 17 of 42 Pages**

**Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B

**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

### **3.5. Conducted emission tests on Radio Unit:**

#### **3.5.1. Maximum peak output power**

Requirements:

The maximum peak output power shall not exceed 1 Watt as required in sec. 15.247 (b) (1).

Test results:

The measurements were taken at three carrier frequencies.

Calculations:

The peak power is calculated according to the following formula:

Maximum power measured = 17.5dbm

6dB bandwidth = 34MHz

Spectrum resolution bandwidth = 3MHz (Video bandwidth set to 3MHz)

Peak power calculated from above is  $17.5+10\log(34/3)=28\text{dBm}$

The measured results are shown in Plots #17 to #19.

The maximum peak output power in range 30 MHz – 40 GHz does not exceed 30 dBm (1 Watt).

**Test Report No.:** 8412304024

Page 18 of 42 Pages

**Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

### 3.5.2. Spurious

#### Requirements:

In any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the RF power shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, as required in sec. 15.247 (c). Tests were performed on twice: for PRBS 6 Mbit/s and again - for - PRBS 54 Mbit/s. Were: PRBS – pseudo-random bit sequence.

#### Test results:

The measured results are shown:  
for PRBS 6 MHbit/s – see Plots #20 to #22,  
for PRBS 54 MHbit/s - see Plots #23 to #25 .

Conducted emissions test results in frequency range 100 kHz – 26 GHz are presented:  
for PRBS 6 MHbit/s - see Plots 26 – 28 ,  
for PRBS 54 MHbit/s - see Plots # 29-31.

In-band measurements (conducted spurious) are presented:  
for PRBS 6 Mbit/s - see Plots # 32-33,  
for PRBS 54 Mbit/s - see Plots # 34-35.

### 3.5.3. Peak power spectral density

#### Requirements:

The peak power spectral density shall not be greater than 8dBm in any 3kHz band as required in section 15.247 (d).

#### Test results:

The peak power spectral density was recorded for 54 Mbit/s (as worst case). The measured results are shown in Plots #36- #41 and Table below.

Frequency, MHz	Result of Peak power spectral density	Reference Plots
5.74	-4.15	#36-#37
5.79	-4.19	#38-#39
5.82	- 3.85	#40-#41



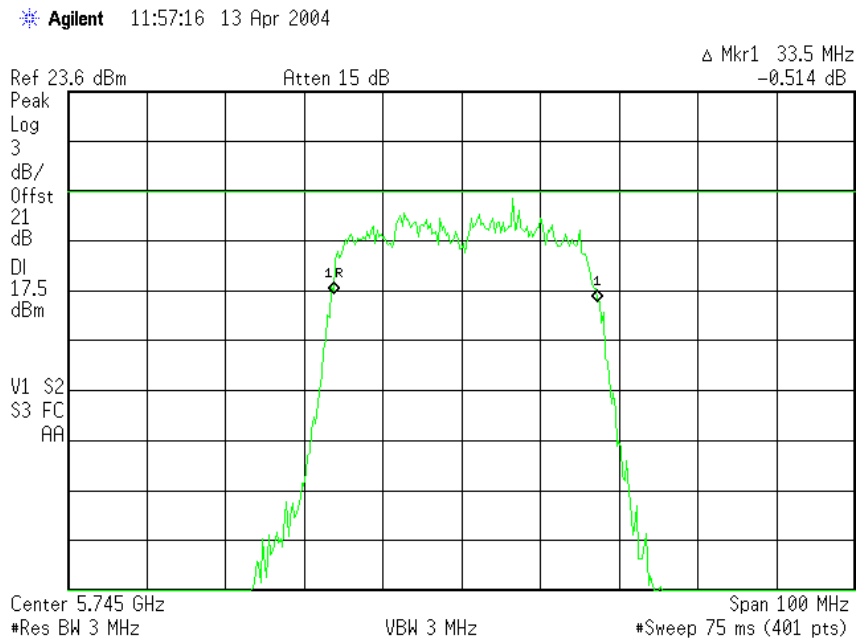
Test Report No.: 8412304024

Page 19 of 42 Pages

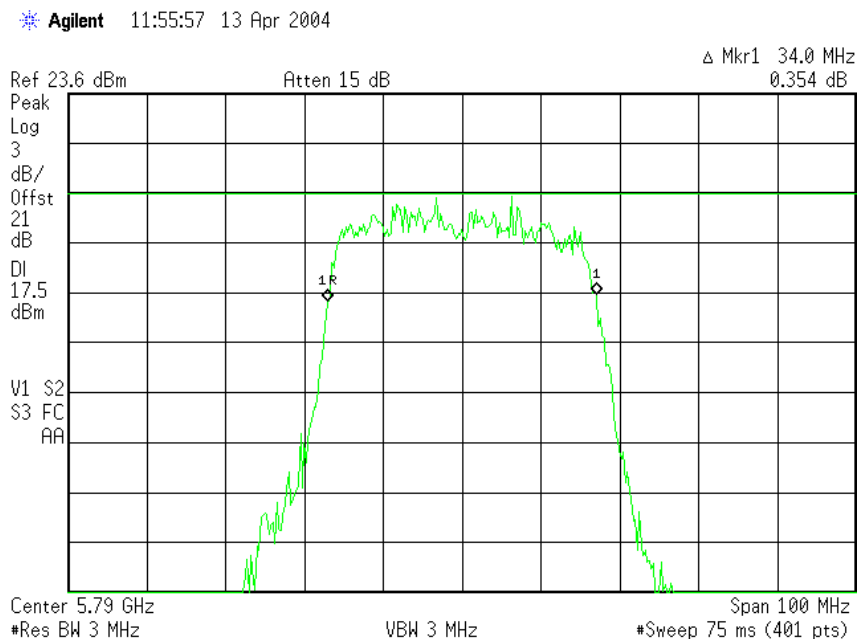
Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

### Maximum Peak Output Power



Plot # 17. Freq. – LOW



Plot # 18. Freq. - MID



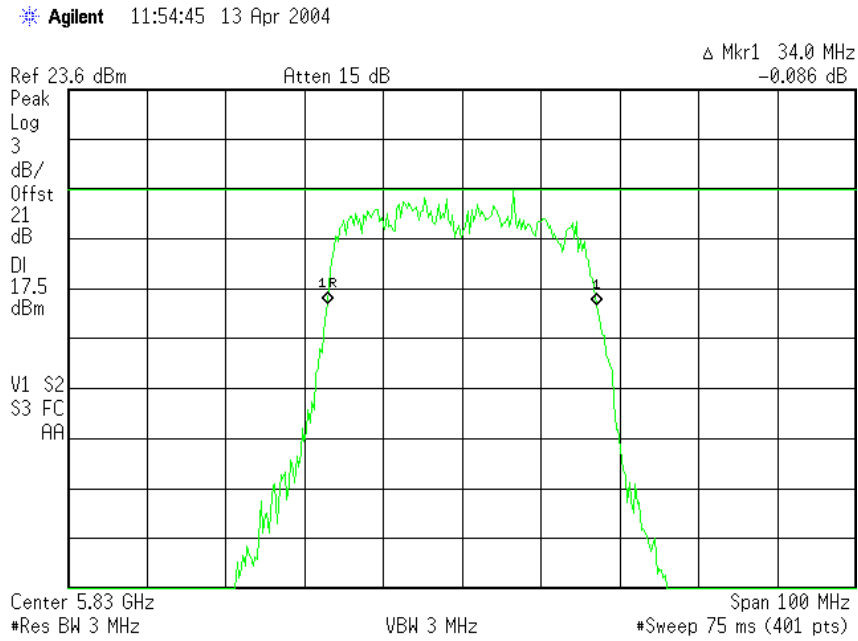
Test Report No.: 8412304024

Page 20 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

### Maximum Peak Output Power



Plot # 19. Freq. - HIGH



Test Report No.: 8412304024

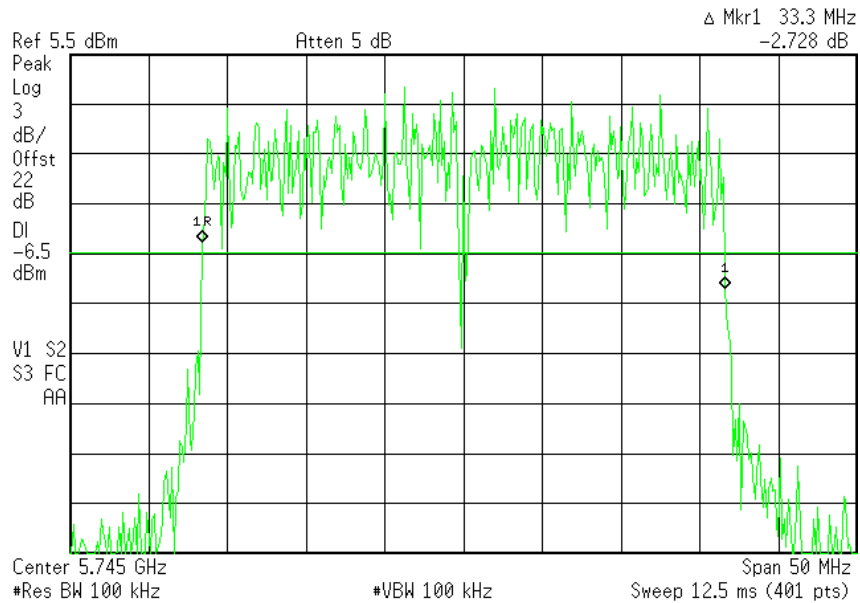
Page 21 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

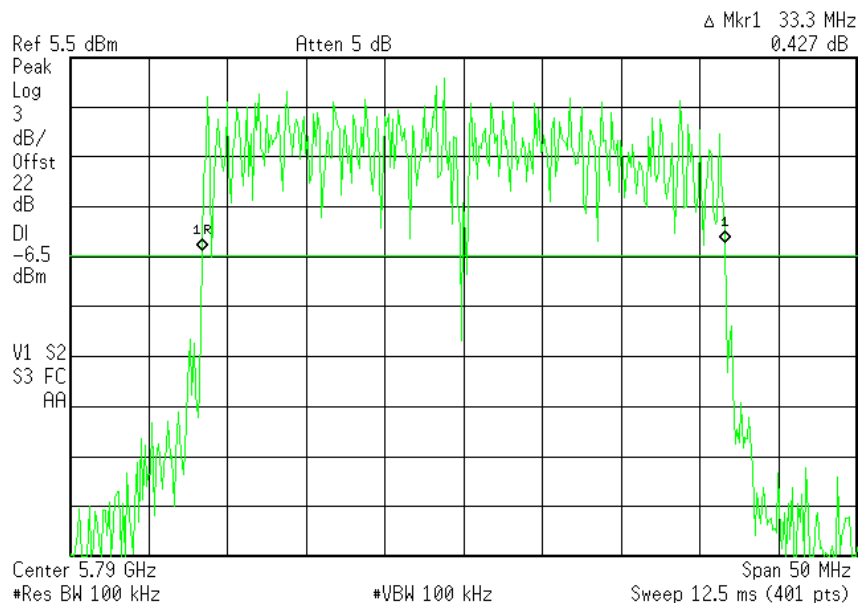
### 6dB bandwidth

Agilent 10:50:41 25 Feb 2004



Plot # 20. PRBS 6 Mbit/s. Freq. - LOW

Agilent 10:52:57 25 Feb 2004



Plot # 21. PRBS 6 Mbit/s. Freq. - MID



Test Report No.: 8412304024

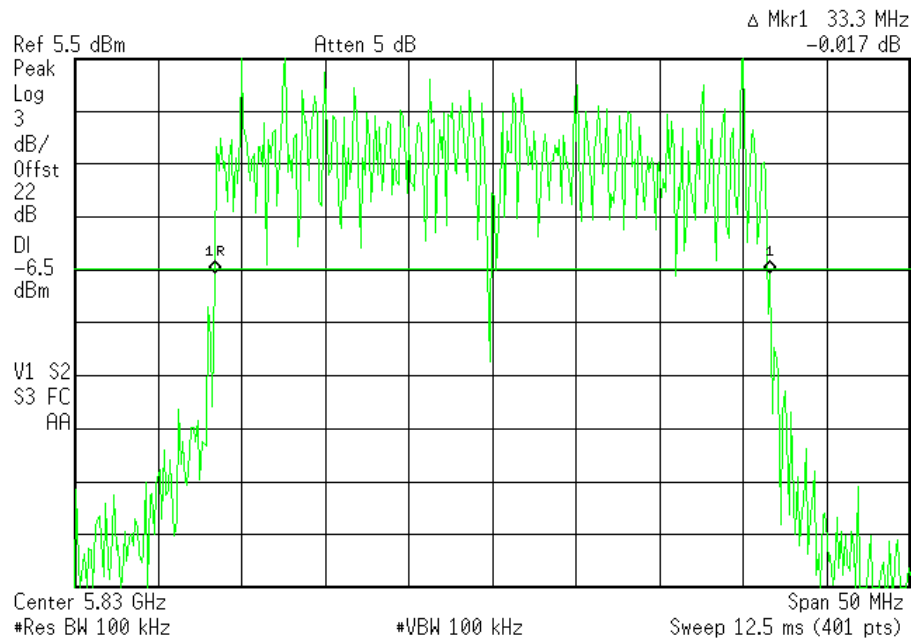
Page 22 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

### 6dB bandwidth

Agilent 10:54:27 25 Feb 2004



Plot # 22. PRBS 6 Mbit/s. Freq. - HIGH



Test Report No.: 8412304024

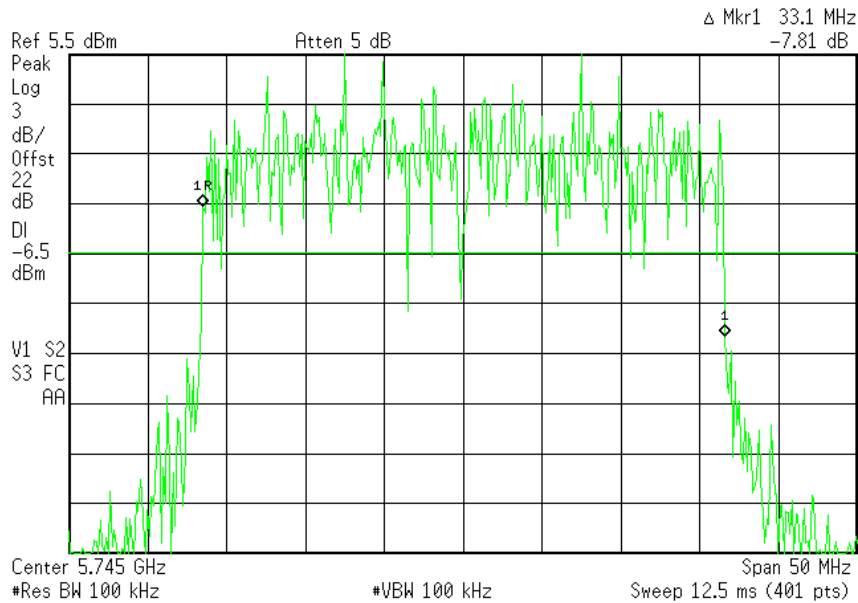
Page 23 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

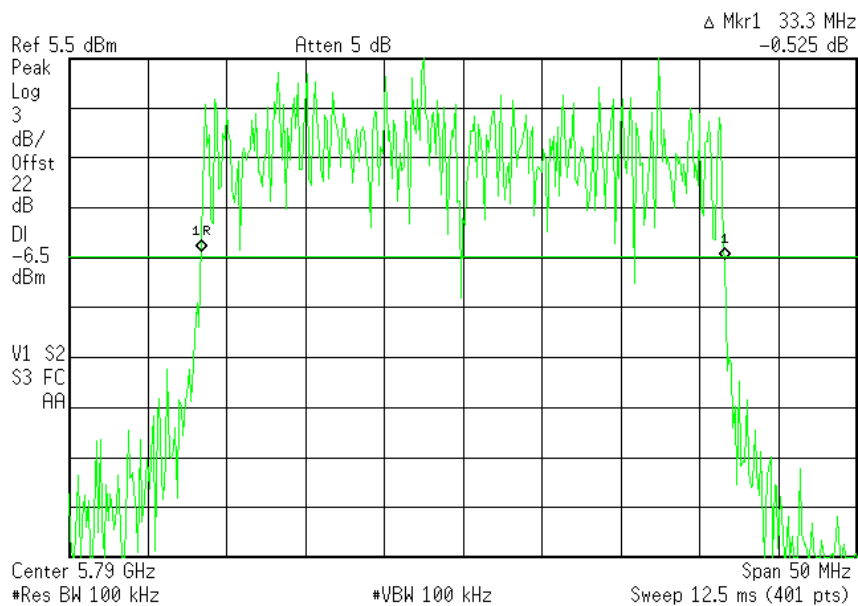
### 54 dB bandwidth

Agilent 10:48:07 25 Feb 2004



Plot # 23. PRBS 54 Mbit/s. Freq. - LOW

Agilent 10:53:27 25 Feb 2004



Plot # 24. PRBS 54 Mbit/s. Freq. - MID





Test Report No.: 8412304024

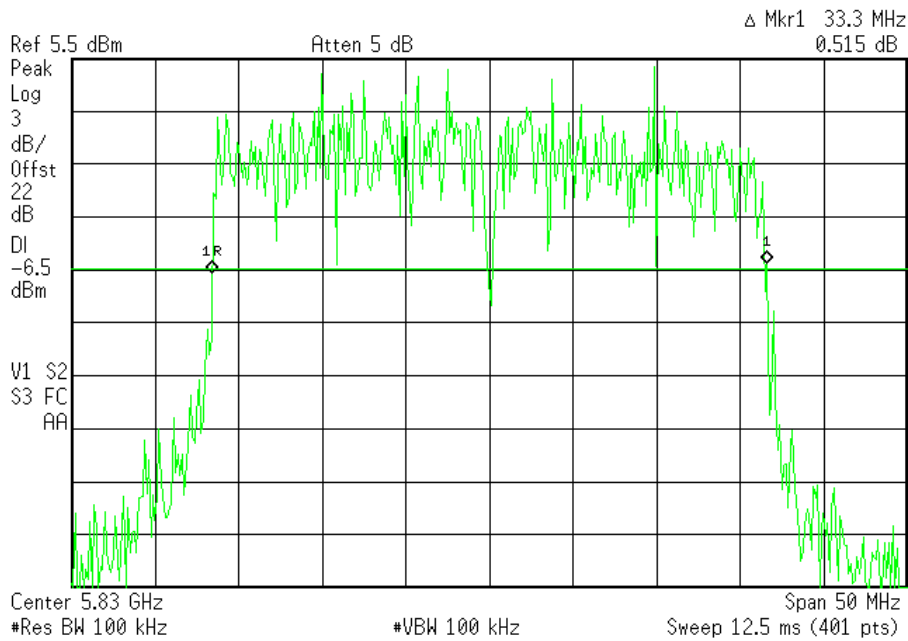
Page 24 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

**54 dB bandwidth**

Agilent 10:54:53 25 Feb 2004



Plot # 25. PRBS 54 Mbit/s. Freq. - HIGH

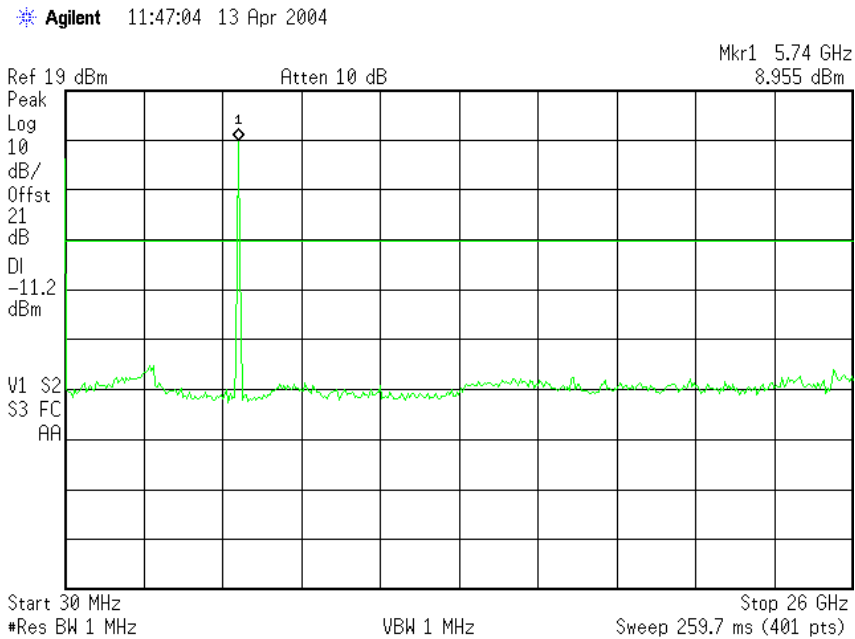


Test Report No.: 8412304024

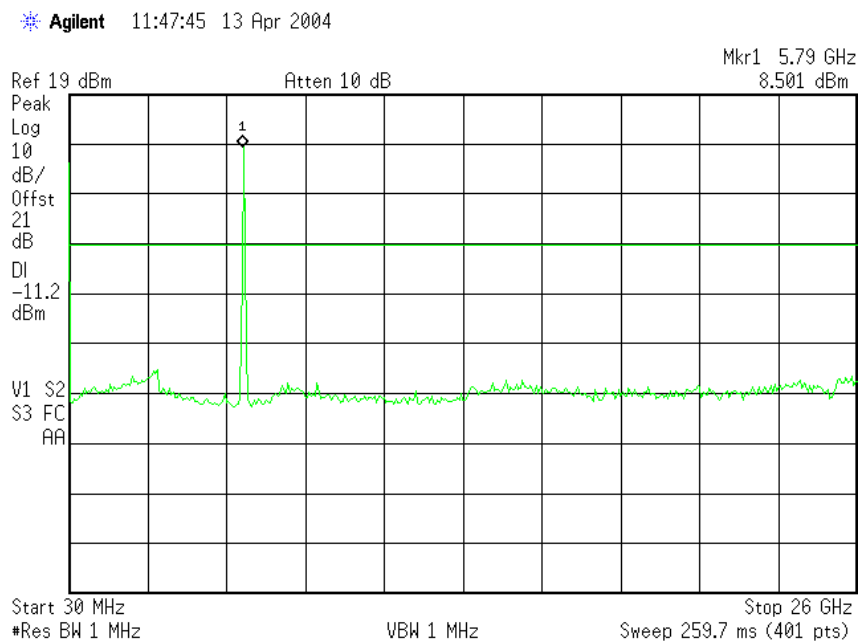
Page 25 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)



**Plot # 26. PRBS 6 Mbit/s.**  
**Conducted emission in freq. range 30 MHz – 26 GHz/Freq. - LOW**



**Plot # 27. PRBS 6 Mbit/s.**  
**Conducted emission in freq. range 30 MHz – 26 GHz/Freq. - MID**

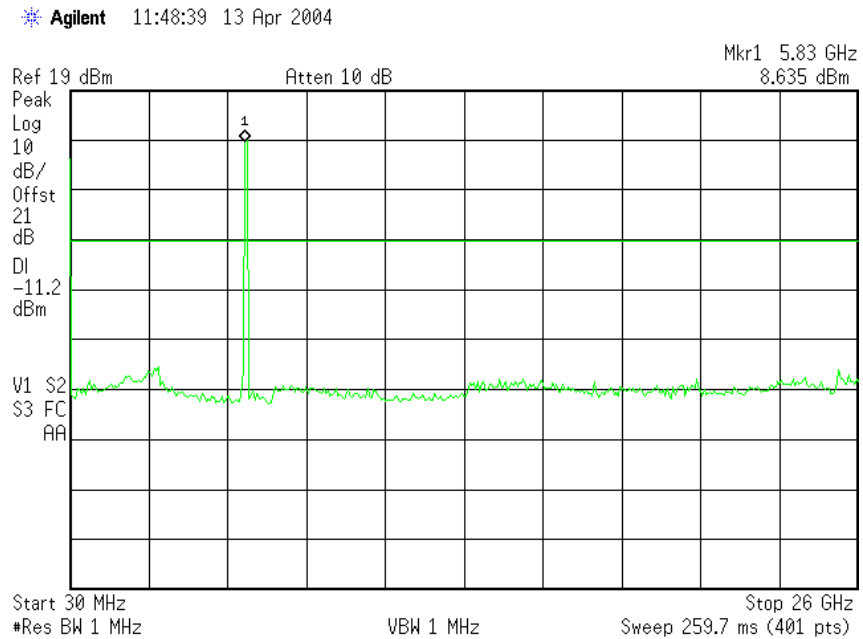


Test Report No.: 8412304024

Page 26 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)



Plot # 28. PRBS 6 Mbit/s.  
Conducted emission in freq. range 30 MHz – 26 GHz/Freq. - HIGH



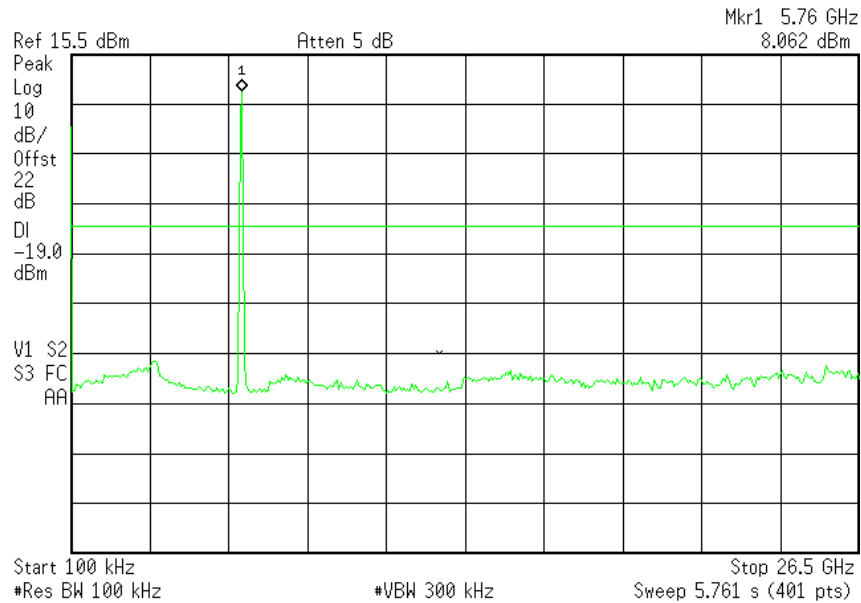
Test Report No.: 8412304024

Page 27 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

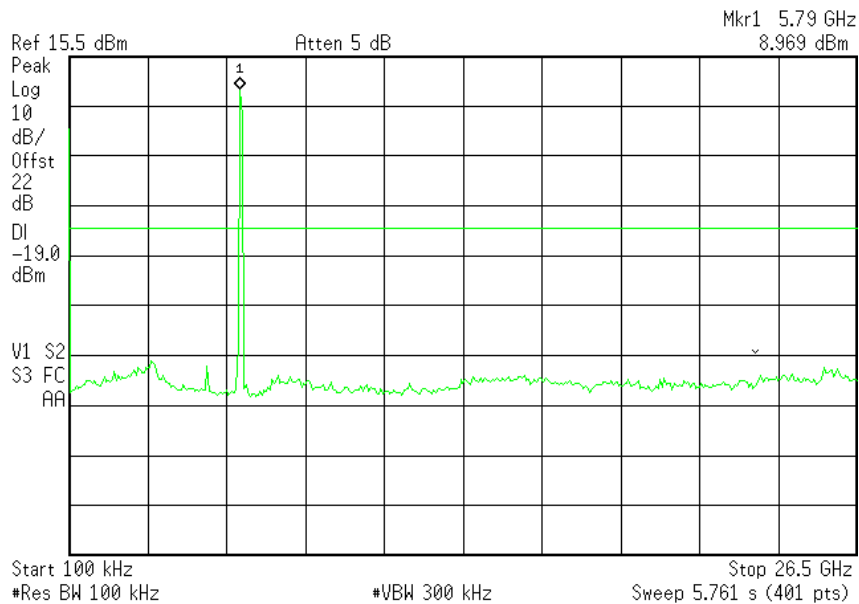
Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

Agilent 11:12:49 25 Feb 2004



Plot # 29. PRBS 54 MHbit/s.  
Conducted emission in freq. range 100 kHz - 26.5 GHz/Freq. - LOW

Agilent 11:14:05 25 Feb 2004



Plot # 30. PRBS 54 MHbit/s.  
Conducted emission in freq. range 100-kHz - 26.5 GHz/Freq. - MID

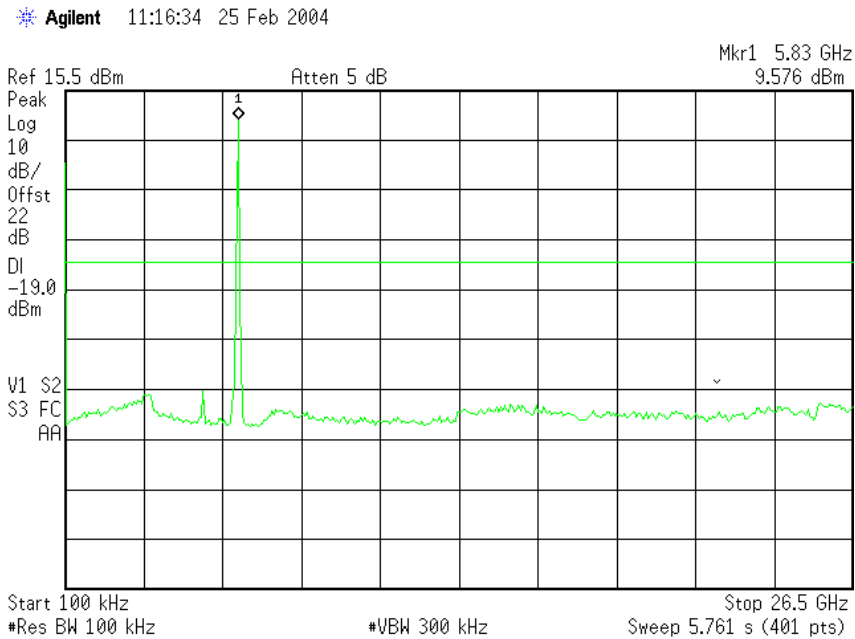


**Test Report No.:** 8412304024

**Page 28 of 42 Pages**

**Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B

**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)



**Plot # 31. PRBS 54 Mbit/s.  
Conducted emission in freq. range 100 kHz – 26.5 GHz/Freq. - HIGH**



Test Report No.: 8412304024

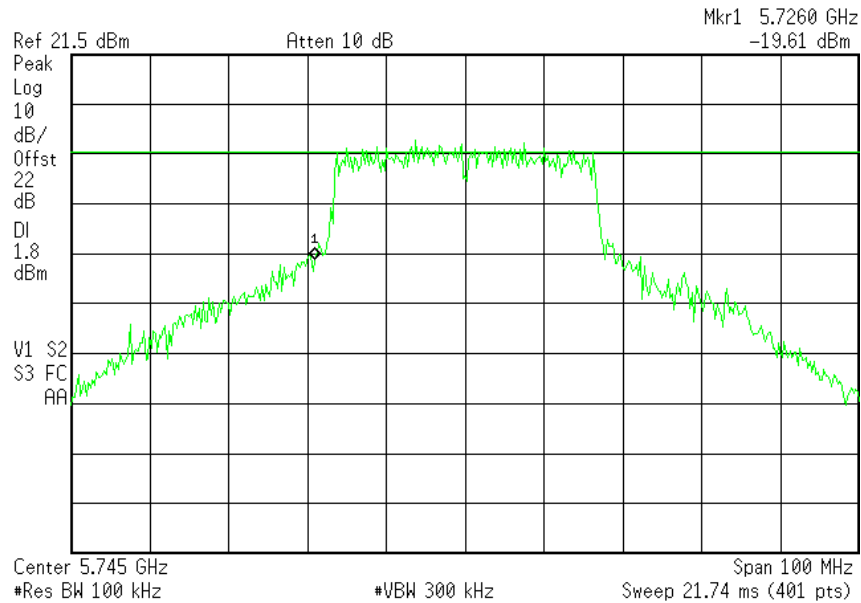
Page 29 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

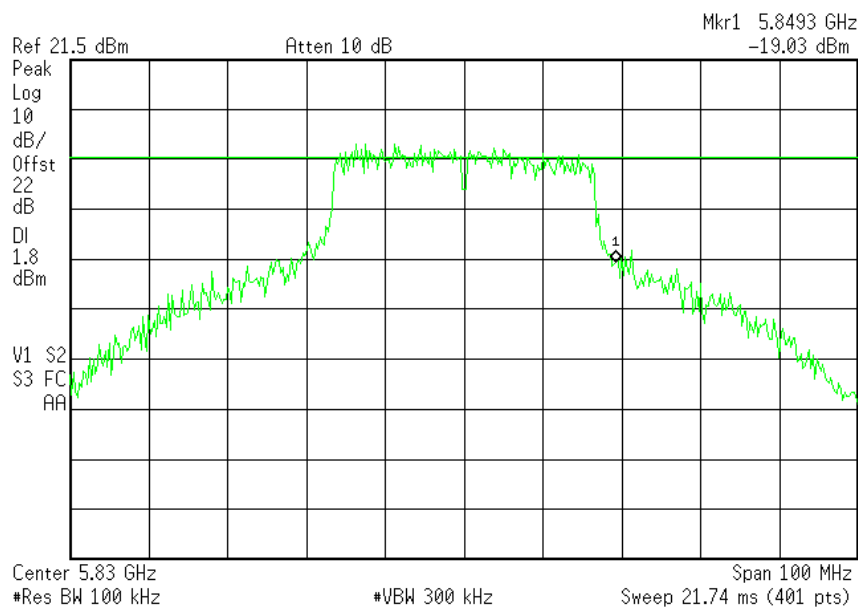
**In-band measurements (conducted spurious)**

Agilent 11:05:56 25 Feb 2004



**Plot # 32. PRBS 6 Mbit/s.  
Conducted RF power 20dB below/Freq. - LOW**

Agilent 11:02:53 25 Feb 2004



**Plot # 33. PRBS 6 Mbit/s.  
Conducted RF power 20dB below/Freq. - HIGH**



Test Report No.: 8412304024

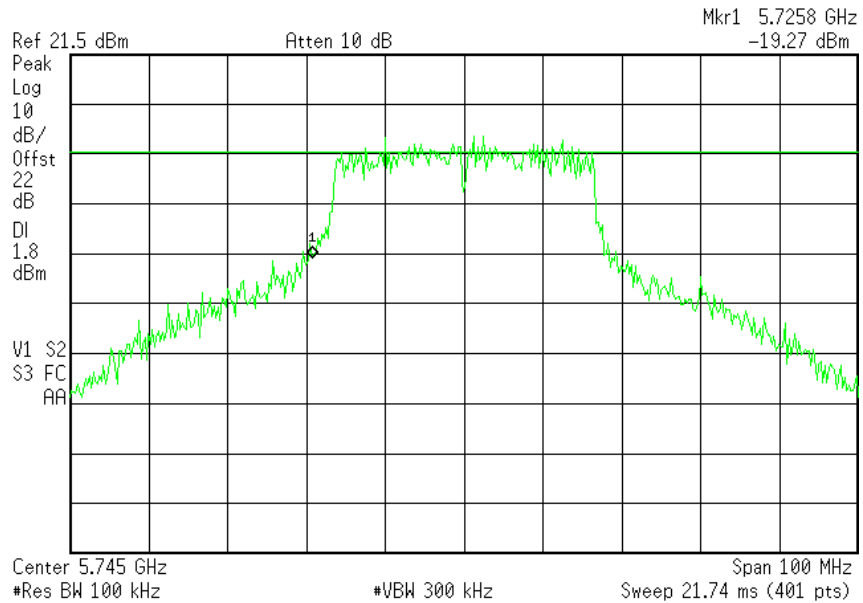
Page 30 of 42 Pages

Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

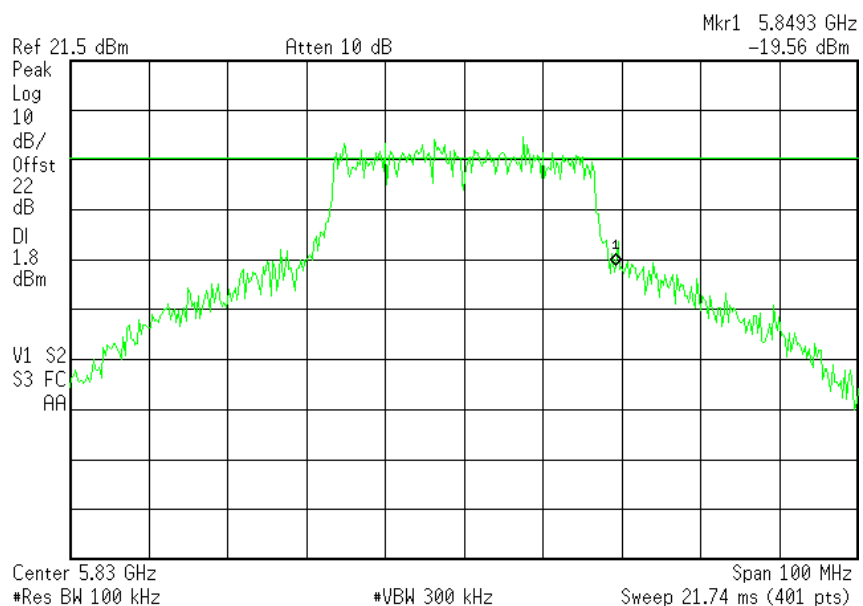
**In-band measurements (conducted spurious)**

Agilent 11:05:16 25 Feb 2004



**Plot # 34. PRBS 54 Mbit/s.  
Conducted RF power 20dB below/Freq. - LOW**

Agilent 11:03:36 25 Feb 2004



**Plot # 35. PRBS 54 Mbit/s.  
Conducted RF power 20dB below/Freq. - HIGH**



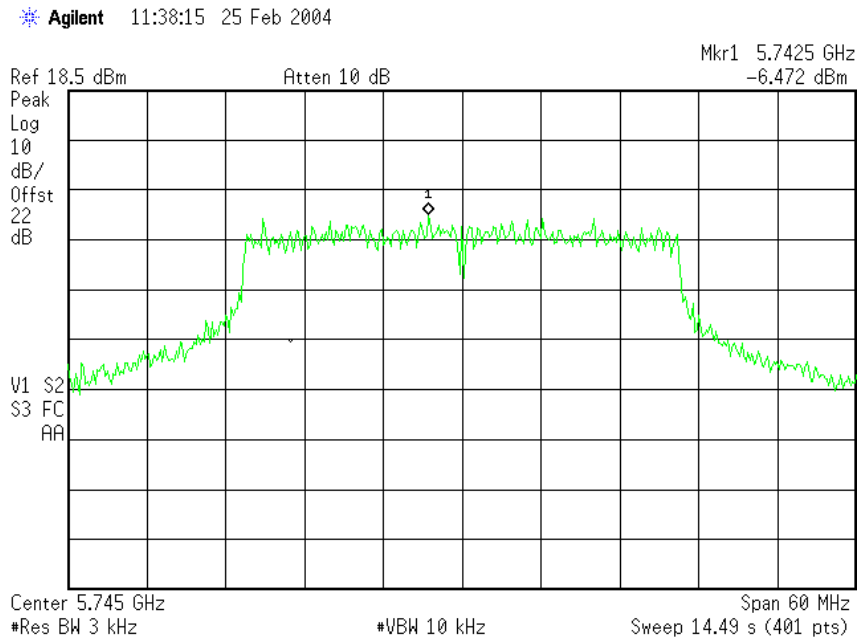
Test Report No.: 8412304024

Page 31 of 42 Pages

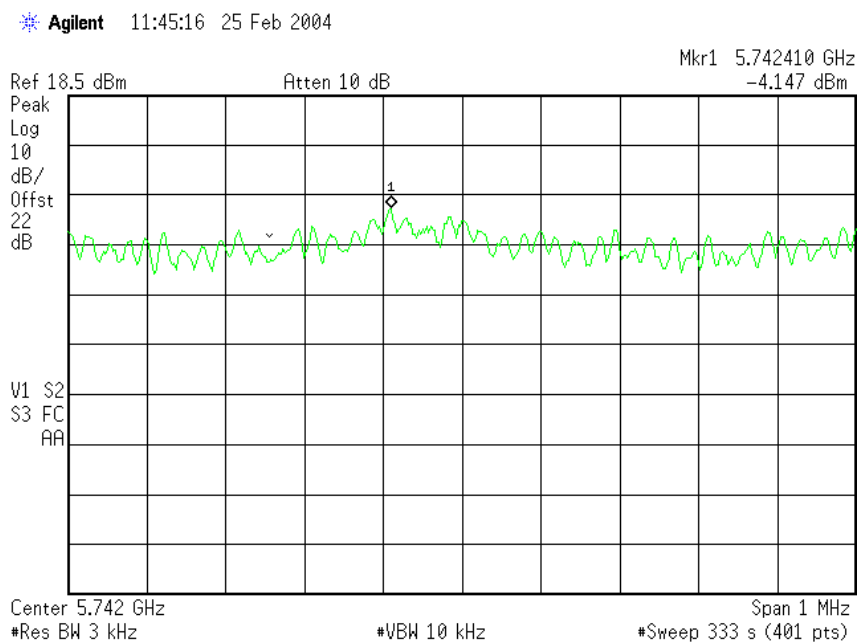
Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

### Peak Power spectral density



Plot # 36.



Plot # 37.





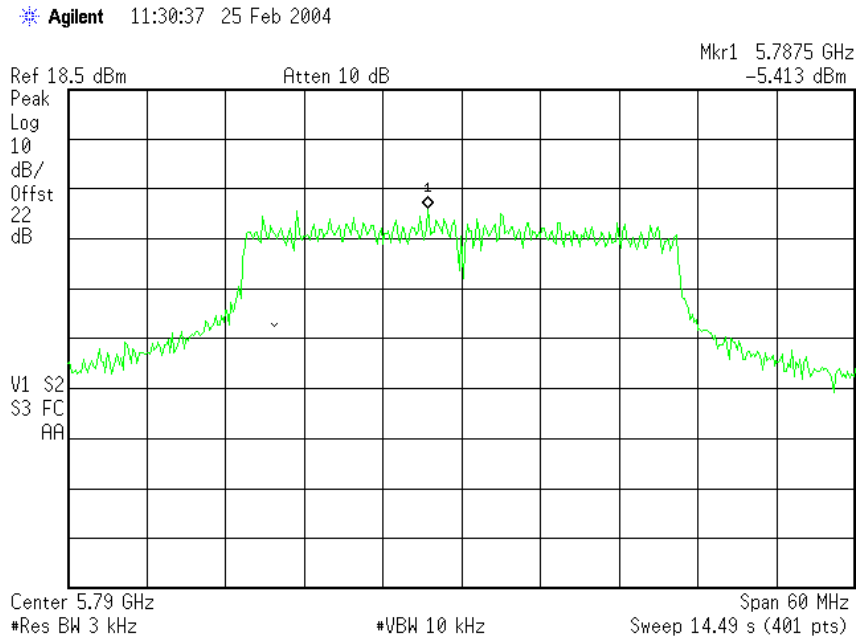
Test Report No.: 8412304024

Page 32 of 42 Pages

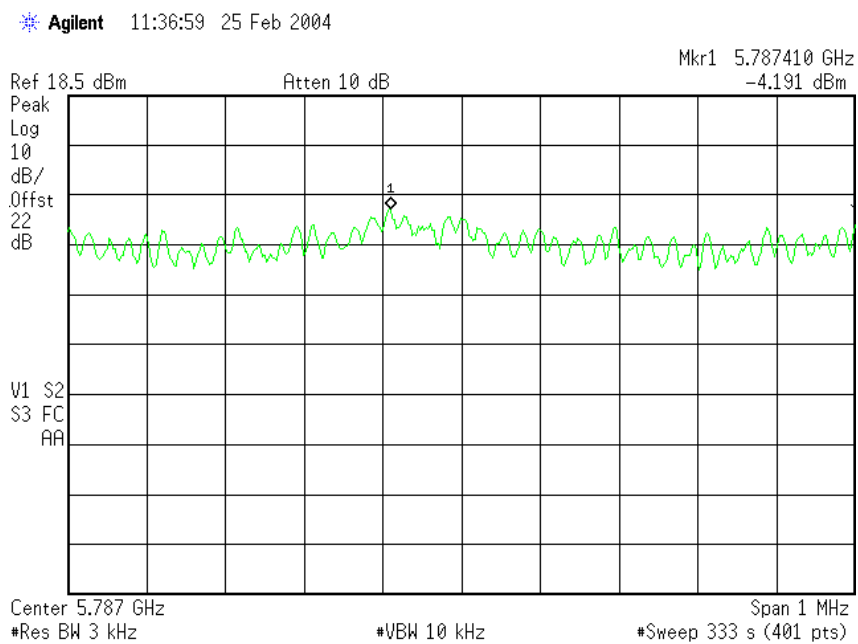
Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

### Peak Power spectral density



Plot # 38.



Plot # 39.



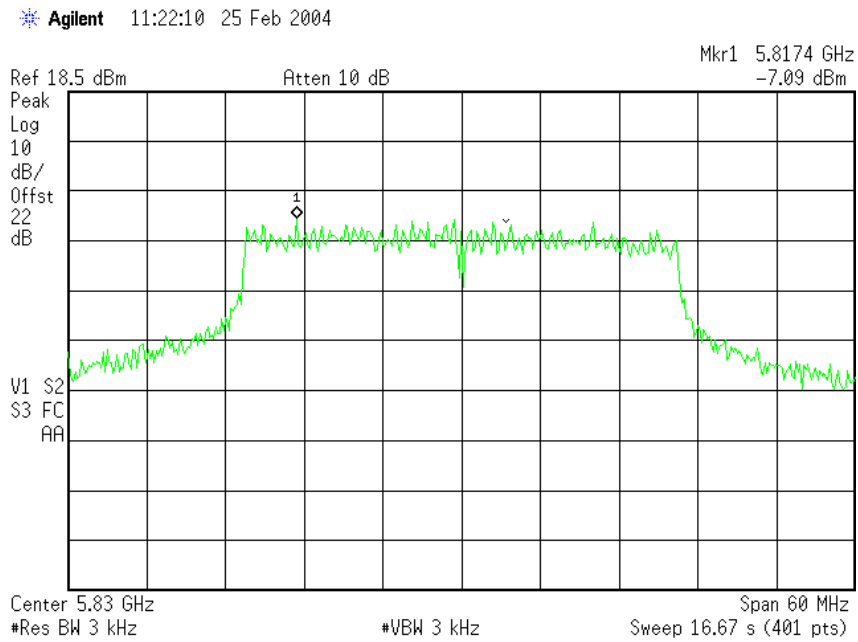
Test Report No.: 8412304024

Page 33 of 42 Pages

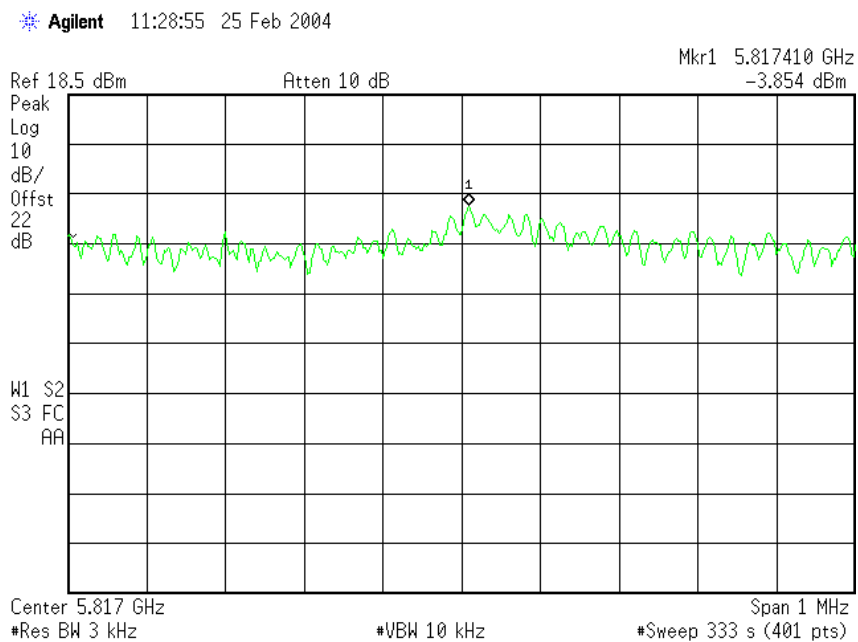
Title: Test on Point-to-point wireless bridge Outdoor Unit with two antennas Name: BreezeNET-B

Model: BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

Peak Power spectral density.



Plot # 40.



Plot # 41.

**Test Report No.:** 8412304024**Page 34 of 42 Pages****Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

#### 4. Compliance with specification

Test	FCC Part 15	Test result
Restricted bands	Sec.15.205 (c)	Complies
Spurious emissions	Sec.15.209	Complies
Maximum peak output power	Sec.15.247 (b) (1)	Complies
Conducted spurious	Sec.15.247 (c)	Complies
Peak power density	Sec.15.247 (d)	Complies

Approved by: Eng. Yuri Rozenberg  
Position: Head of EMC Branch

Written by: Rotenfeld Mariya  
Position: Technical Writer

Telematics  
Laboratory  
30 March 2004

Tested by: Albert Herzenshtein  
Position: Test Engineer

Tested by: Michael Feldman  
Position: Test Technician

**Test Report No.:** 8412304024**Page 35 of 42 Pages****Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

## 5. Appendix 1: Test equipment used

All measurements equipment is on SII calibration schedule with a recalibration interval not exceeding one year.

Instrument	Manufacturer	Model	Serial No.	Last calibration date	Next calibration date
Spectrum analyzer 10 KHz-26.5 GHz	HP	E7405a	SII 4944	04/03	04/04
Spectrum analyzer 9 KHz-50 GHz	HP	8565E	3517A00347	07/03	07/04
Spectrum analyzer 9 KHz-26.5 GHz	HP	E4407B	USH0241729	09/03	09/04
Antenna Double Ridge 1-18 GHz	EMCO	3115	SII4873	03/03	03/04
Antenna Standard Gain Horn	WILTRON	Alpha TRG A361	861A/590	01/04	01/05
Attenuator 20 dB	HP	8491B	3929M50394	05/03	05/04
Power Meter	HP	437B	U20519	08/03	08/04
Power Sensor	HP	8481A	804495	08/03	08/04

**Test Report No.:** 8412304024**Page 36 of 42 Pages****Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

## 6. Appendix 2: Antenna Factor and Cable Loss

### Antenna Factor Standard Gain Horn Alpha TRG Model A361

Point	Frequency (MHz)	Antenna Factor (dB/m)
1	26000	35.22
2	27000	35.40
3	28000	35.52
4	29000	35.64
5	30000	35.76
6	31000	35.90
7	32000	36.07
8	33000	36.16
9	34000	36.31
10	35000	36.46
11	36000	36.60
12	37000	36.74
13	38000	36.93
14	39000	37.21
15	40000	37.28

**Test Report No.:** 8412304024**Page 37 of 42 Pages****Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)**Gain and Antenna Factor for Double Ridged Guide Antenna**

Model Number: 3115, S/N 5802, manufactured by EMCO

1.0 meter calibration, Polarization: Horizontal, Calibrated on 30/Dec/03

Frequency (MHz)	Antenna Factor (dB/m)	Gain Numeric	Gain (dBi)
1,000.00	24.30	3.90	5.91
1,500.00	25.50	6.65	8.23
2,000.00	27.77	7.01	8.46
2,500.00	28.83	8.59	9.34
3,000.00	30.68	8.08	9.07
3,500.00	31.84	8.41	9.25
4,000.00	33.14	8.14	9.11
4,500.00	32.61	11.66	10.67
5,000.00	34.17	10.04	10.02
5,500.00	34.63	10.92	10.38
6,000.00	35.15	11.54	10.62
6,500.00	35.14	13.59	11.33
7,000.00	35.86	13.34	11.25
7,500.00	37.21	11.22	10.50
8,000.00	37.64	11.57	10.63
8,500.00	38.18	11.52	10.62
9,000.00	38.17	12.96	11.13
9,500.00	38.37	13.77	11.39
10,000.00	38.73	14.05	11.48
10,500.00	38.79	15.30	11.85
11,000.00	38.98	16.06	12.06
11,500.00	39.77	14.63	11.65
12,000.00	39.58	16.64	12.21
12,500.00	39.51	18.36	12.64
13,000.00	40.87	14.50	11.61
13,500.00	41.46	13.65	11.35
14,000.00	42.04	12.85	11.09
14,500.00	41.42	15.90	12.01
15,000.00	39.78	24.84	13.95
15,500.00	38.55	35.25	15.47
16,000.00	38.90	34.65	15.40
16,500.00	39.84	29.65	14.72
17,000.00	42.09	18.76	12.73
17,500.00	45.12	9.89	9.95
18,000.00	46.90	6.94	8.42

**Test Report No.:** 8412304024**Page 38 of 42 Pages****Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)**Gain and Antenna Factor for Double Ridged Guide Antenna**

Model Number: 3115, S/N 5802, manufactured by EMCO  
1.0 meter calibration, Polarization: Vertical, Calibrated on 30/Dec/03

Frequency (MHz)	Antenna Factor (dB/m)	Gain Numeric	Gain (dBi)
1,000.00	24.08	4.10	6.13
1,500.00	25.63	6.46	8.10
2,000.00	27.88	6.85	8.35
2,500.00	29.01	8.23	9.15
3,000.00	30.65	8.12	9.10
3,500.00	32.01	8.09	9.08
4,000.00	33.07	8.28	9.18
4,500.00	32.81	11.14	10.47
5,000.00	34.09	10.22	10.10
5,500.00	34.84	10.43	10.18
6,000.00	34.97	12.02	10.80
6,500.00	35.34	12.98	11.13
7,000.00	36.33	11.98	10.78
7,500.00	37.54	10.41	10.17
8,000.00	37.82	11.11	10.46
8,500.00	38.28	11.28	10.52
9,000.00	38.33	12.48	10.96
9,500.00	38.55	13.22	11.21
10,000.00	38.76	13.98	11.45
10,500.00	38.65	15.79	11.98
11,000.00	39.06	15.76	11.97
11,500.00	39.63	15.10	11.79
12,000.00	39.52	16.87	12.27
12,500.00	39.57	18.09	12.57
13,000.00	40.80	14.74	11.69
13,500.00	41.76	12.77	11.06
14,000.00	42.10	12.67	11.03
14,500.00	41.49	15.66	11.95
15,000.00	40.02	23.49	13.71
15,500.00	38.40	36.41	15.61
16,000.00	38.23	40.40	16.06
16,500.00	39.71	30.55	14.85
17,000.00	41.86	19.75	12.96
17,500.00	44.89	10.42	10.18
18,000.00	46.26	8.05	9.06



**Test Report No.:** 8412304024

**Page 39 of 42 Pages**

**Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B

**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)

## 7. Appendix 3: Test configuration illustration



**Photo # 1.**  
**BreezeNET B unit with Antenna UNI-28-4 P/N 858109. Test setup**



**Test Report No.:** 8412304024

Page 40 of 42 Pages

**Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B

**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)



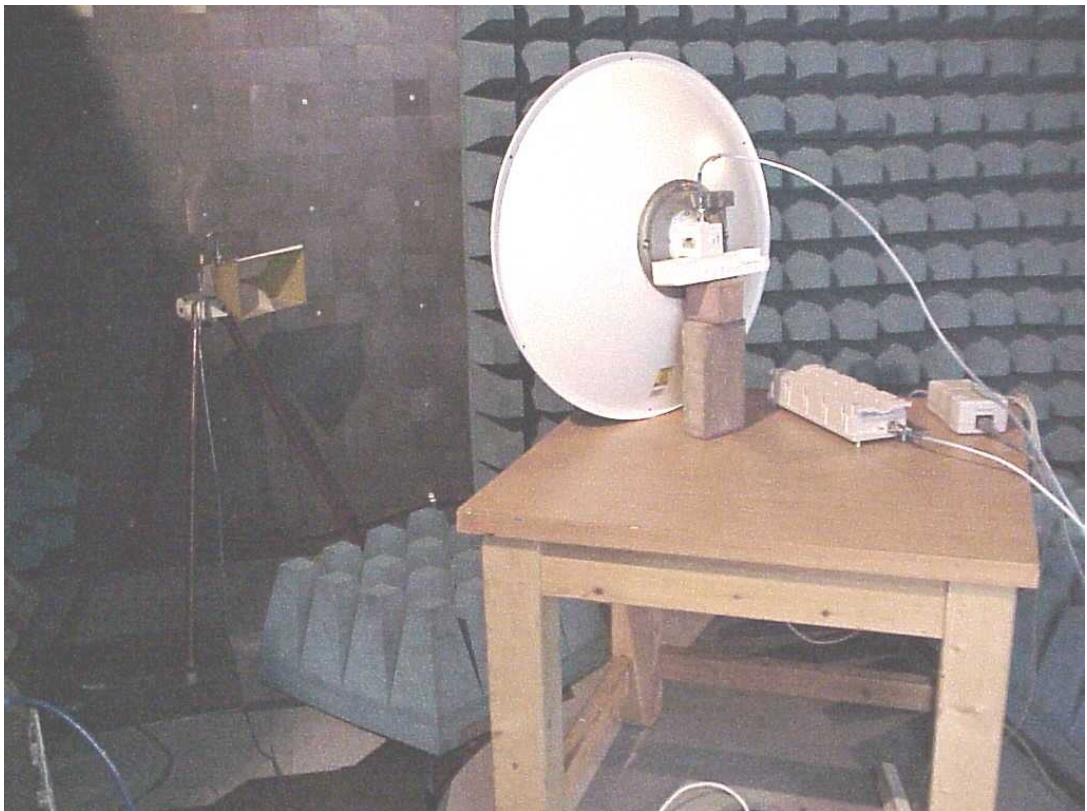
**Photo # 2.**  
**BreezeNET B unit with Antenna UNI-28-4 P/N 858109. Test setup**

**Test Report No.:** 8412304024

**Page 41 of 42 Pages**

**Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B

**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)



**Photo # 3.**

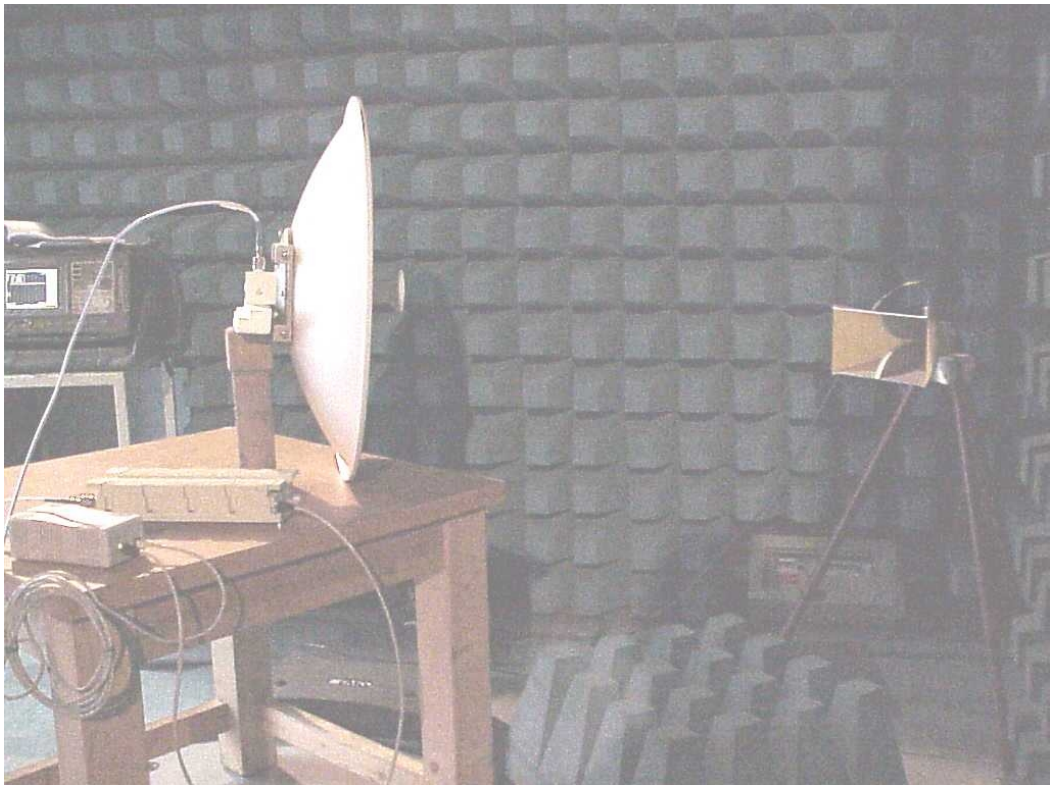
**BreezeNET B unit with Unidirectional Parabolic antenna AN 1262. Test setup**

**Test Report No.:** 8412304024

**Page 42 of 42 Pages**

**Title:** Test on Point-to-point wireless bridge Outdoor Unit with two antennas **Name:** BreezeNET-B

**Model:** BU-B14/28/D-5.8 and RB-B14/28/D-5.8 (with 40MHz Bandwidth feature)



**Photo # 4.**

**BreezeNET B unit with Unidirectional Parabolic antenna AN 1262 Test setup**