



Test Report No. 9012359790

Applicant: Alvarion Ltd

BreezeNETB 300

Model: BU/RB-B300D-5X-GigE

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



***ACCLASS Accreditation Services
Certificate Number: AT-1359***



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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

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1. Applicant information

Applicant:	Alvarion Ltd
Address:	21A Habarzel str, Tel-Aviv, 69710, Israel
Sample for test selected by:	The customer
The date of tests:	9,10, 22, 25 August 2010

Equipment under test information

Description of Equipment Under Test (EUT):	BreezeNETB 300
Model:	BU/RB-B300D-5X-GigE
Serial Number:	NA
Manufactured by:	Alvarion Ltd

2. Test performance

Location:	SII EMC Section
Purpose of test:	Apparatus compliance verification in accordance with emission requirements
Test specifications:	47CFR part 15.247, part 1 §1.1310, RSS-210

Reference Documents:

CFR 47 FCC:	Rules and Regulations; Part 15. "Radio frequency devices"; Subpart C: "Intentional radiators"
Radio Standard Specification (RSS) Canada	RSS-Gen, RSS-210

This Test Report contains 78 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.



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3. Summary of test

The EUT was found to be in compliance with requirements of: 47CFR Part 15, §§ 15.247, 15.207, 15.209 and RSS-210.

Transmitter characteristics	Subclasses
Minimum 6 dB bandwidth	15.247(a)(2); RSS-210 A8.2(a)
Maximum output power	15.247(b)(3); RSS-210 A8.4
Spurious emissions at antenna terminal	15.247(d)
Out of band spurious emissions radiated	15.205, 15.247(d); RSS-210 A8.5
Receiver spurious emissions radiated	RSS-210 2.6
Peak power spectral density	15.247(e); RSS-210 A8.2(b)
Conducted emissions on AC power line	15.207
Unwanted radiated emissions below 1 GHz	15.209

Telematics Laboratory

26 October 2010

Name: Eng. Yuri Rozenberg
Position: Head of EMC Branch

Name: Michael Feldman
Position: Test Technician

Measurement uncertainty.

Were relevant, the following measurement uncertainty level have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test description	Expanded uncertainty
Radiated emissions in the open field test site at 3 m measuring distance: 30 MHz – 1.0 GHz 1.0 GHz – 18 GHz	2 Uc (E) = ± 4.32 dB 2 Uc (E) = ± 4.47 dB

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4. Equipment under test description.

*The customer provided description.

4.1 General description

The BNB-300 is designed as an adaptable platform, for high availability, high capacity and long range wireless services, in the unlicensed and licensed frequency spectrum. The platform architecture and software framework will enable various product configurations, providing a rich suite of applications and system deployment models.

The generic platform is based on a state-of-the-art technology, with robust capabilities including Orthogonal Frequency Division Multiplexing (OFDM), Time Division Duplexing (TDD) and Spectrum Management, the BNB-300 will offer line-of-sight (LOS) as well as non-line-of-sight (NLOS) operation, such as for drive through trees, foliage and around buildings.

EUT technical characteristics

Transmitter technical characteristics.		Note	
Stand-alone/fixd use	Always at distance at least 2 m from the people and public area.		
Assigned frequency range	5725 MHz – 5850 MHz		
Operating frequency range	5730 MHz – 5845 MHz	5 MHz/10 MHz EBW	
	5740 MHz – 5840 MHz	20 MHz EBW	
	5750 MHz – 5830 MHz	40 MHz EBW	
RF channel spacing	5/10/20/40 MHz		
Antenna connection	Two N-type for external antennas	Professional installation	
Type of modulation	QPSK, 4QAM, 16QAM, 64QAM		
Type of multiplexing	OFDM		
Modulating test signal (baseband)	PRBS		
Antenna information			
Type	Manufacturer	Model	Gain, dBi
Internal	MTI	P/N 850102	23
Flat panel , dual polarized	MTI	P/N 850102	23
Dish, dual polarized	MTI	P/N 850101	28

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5. Environmental evaluation and exposure limit according to FCC part 1, §1.1307, §1.1310

Limit for power density for general population/uncontrolled exposure is 1(mW/cm²) or 10 (W/m²).

The power density calculation is $S = (Pt / 4\pi r^2)$.

Where:

Pt - The transmitted power (EIRP) (mW)

r - The distance from the unit. (cm)

The limit 1(mW/cm²) can be calculated from the above based on the following data:

Pt- the transmitted power which is equal to the maximum peak output power 25.8 dBm plus external antenna gain 28 dBi . The maximum peak EIRP = 53.8 dBm = 239883 mW

Maximum allowed distance “r”, where RF exposure limits may not be exceeded,

$r = \text{SQRT}(239883/4\pi)$ and is more than 138 cm from the antenna main lobe.

6. EUT test configuration

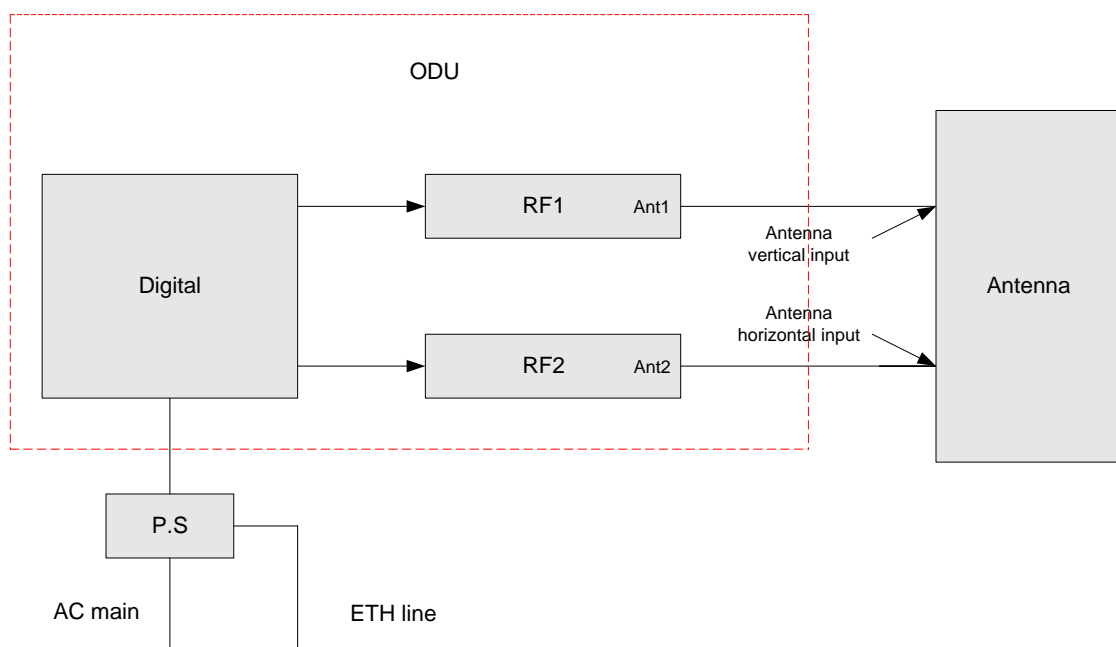


Fig. 1. EUT block diagram.



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7. Test results

7.1 Transmitter characteristics

7.1.1 Occupied 6 dB bandwidth for digitally systems.

Method of measurement	FCC March 23, 2005 procedure		
Operating Frequency Range	5730 – 5845 MHz		
Ambient Temperature	23 ⁰ C	Relative Humidity	49% Air Pressure 1011 hPa

5 MHz emission bandwidth

Carrier frequency MHz	Measured 6 dB bandwidth, MHz	Reference to plots
5730	4.50	#1
5790	4.45	#2
5845	4.51	#3

LIMIT

Minimum allowed bandwidth - 500 kHz @ 6 dBc

TEST PROCEDURE

The measurements were performed in normal (transmitting) mode of operation for carrier (channel) frequency at bottom, middle and at the top of 5725 – 5850 MHz frequency band under maximum data transfer bit rate. The EUT RF output was connected to the Spectrum Analyzer through appropriate attenuator and accounted with cable loss in SA settings.

The minimum emission bandwidth was chosen for the testing. The worst case from all possible was measured and presented in the table above.

TEST EQUIPMENT USED:

2	3	4	5			
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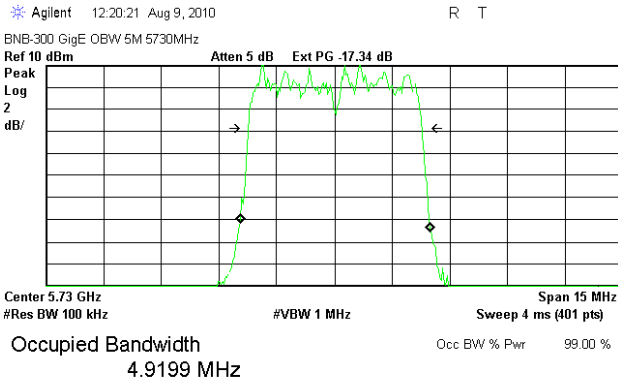


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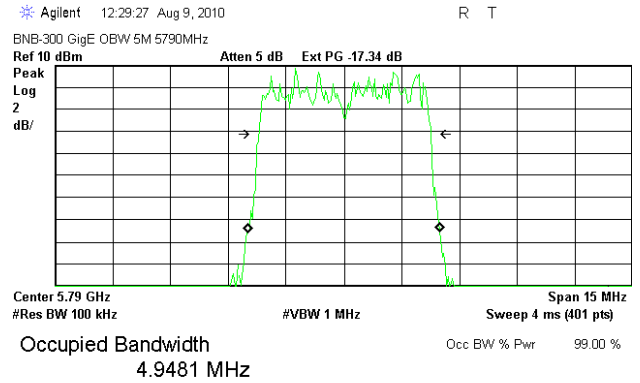
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Title: BreezeNETB 300

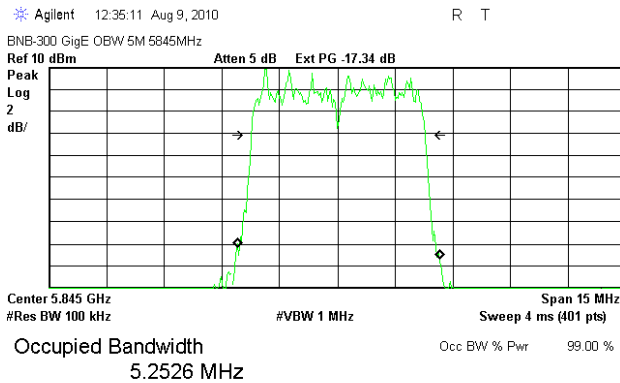
Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X



Plot # 1



Plot # 2



Plot # 3



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7.1.2 Maximum peak conducted output power test according to §15.247 (b)(3).

Method of measurement FCC March 23, 2005 procedure
 Operating Frequency Range 5730 – 5845 MHz
 Ambient Temperature 23° C Relative Humidity 49% Air Pressure 1011 hPa

EBW, MHz	Carrier frequency MHz	26 dB emission bandwidth MHz	Measured Peak output power, dBm	Power limit dBm	Margin, dBm	Reference to plot #
5	5730	7.70	25.66	30	4.34	4, 7
	5790	8.41	25.45	30	4.55	5, 8
	5845	9.17	24.99	30	5.01	6, 9
10	5730	11.94	25.78	30	4.22	10, 13
	5790	11.89	25.34	30	4.66	11, 14
	5845	12.16	25.17	30	4.83	12, 15
20	5740	23.60	24.23	30	5.77	16, 19
	5780	24.28	24.25	30	5.75	17, 20
	5840	23.58	24.01	30	5.99	18, 21
40	5750	44.35	24.46	30	5.54	22, 25
	5790	44.23	24.32	30	5.68	23, 26
	5830	46.50	24.26	30	5.74	24, 27

LIMIT

For systems using digital modulation in the 5725 – 5850 MHz frequency band: 1W (30 dBm).
 Systems used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted output power.

TEST PROCEDURE

The measurements were performed in normal (transmitting) mode of operation for carrier (channel) frequency at bottom, middle and the top of the 5725 – 5850 MHz frequency band under maximum data transfer bit rate. The EUT RF output was connected to the Spectrum Analyzer through appropriate attenuator and accounted with cable loss in SA settings.

The transmitter consists of two identical channels connected to the identical antennas – one is directed in vertical polarization and the second in horizontal polarization. That’s means that these channels are physically separated and output power cannot be combined. The presented results are worst case for one Tx chain.

TEST EQUIPMENT USED:

2	3	4	5			
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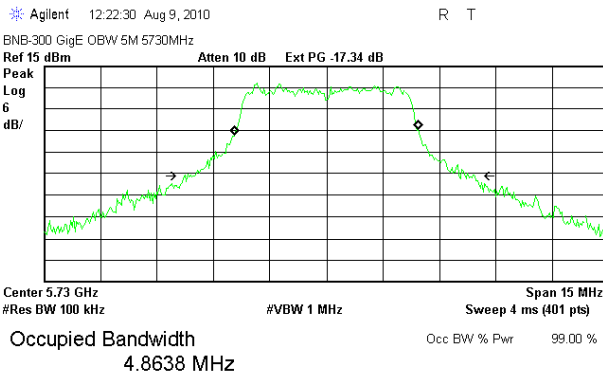
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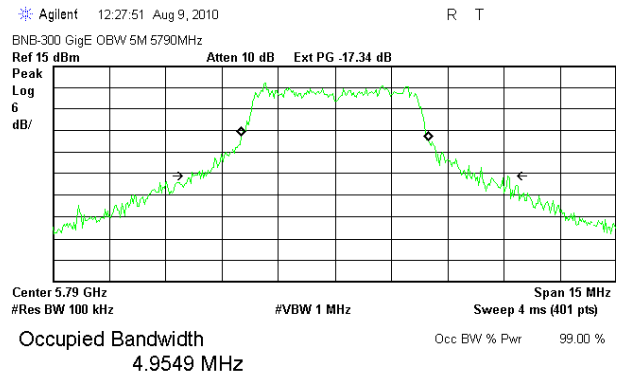
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

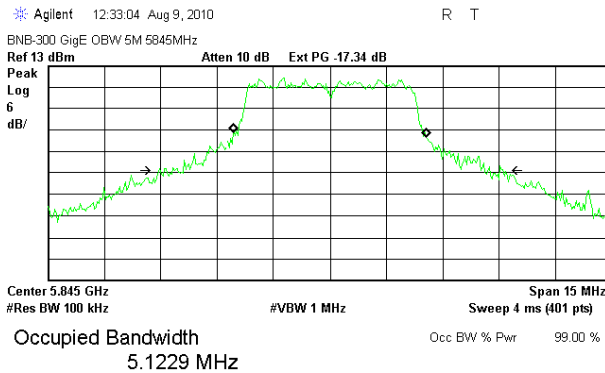
5 MHz EBW option, 26 dB bandwidth test result



Plot # 4



Plot # 5



Plot # 6



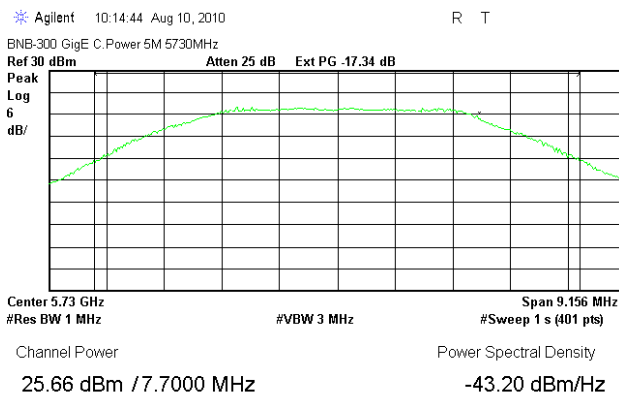
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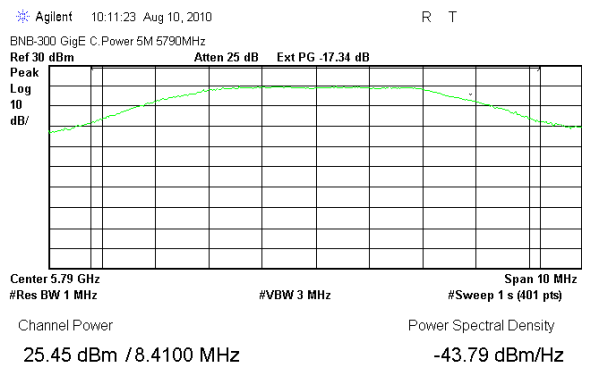
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Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

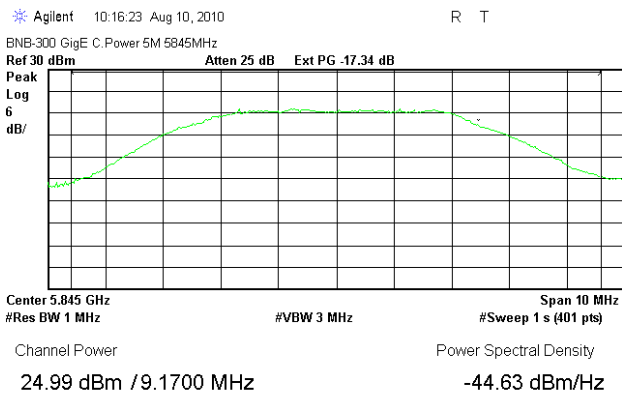
5 MHz EBW option. Peak output power results



Plot # 7



Plot # 8



Plot # 9

Insertion loss of external attenuator, power splitter and cable = 17.34 dB.



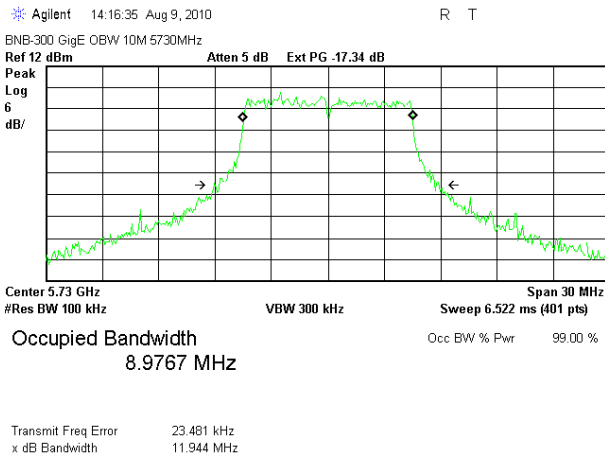
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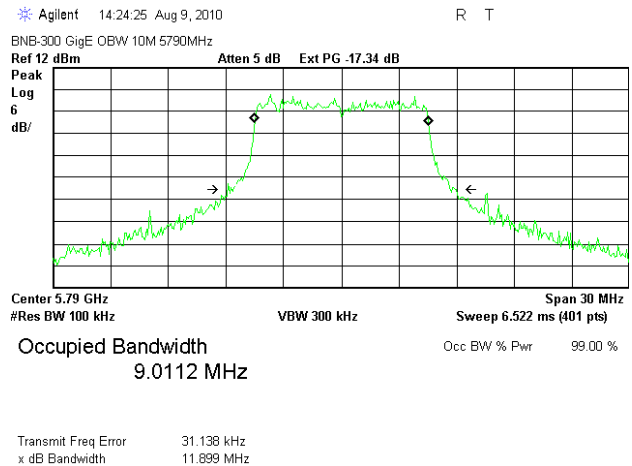
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

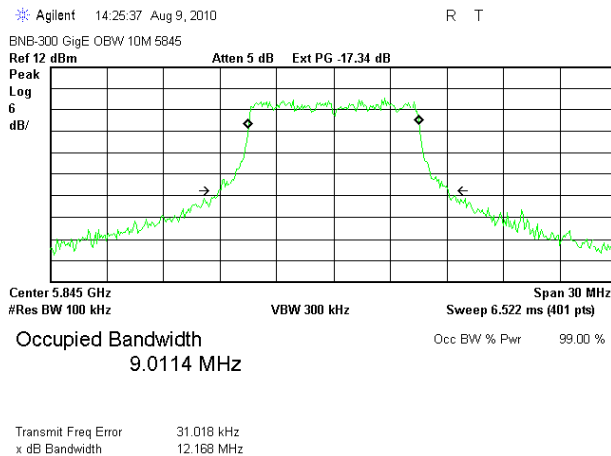
10 MHz EBW option, 26 dB bandwidth test result



Plot # 10



Plot # 11



Plot # 12



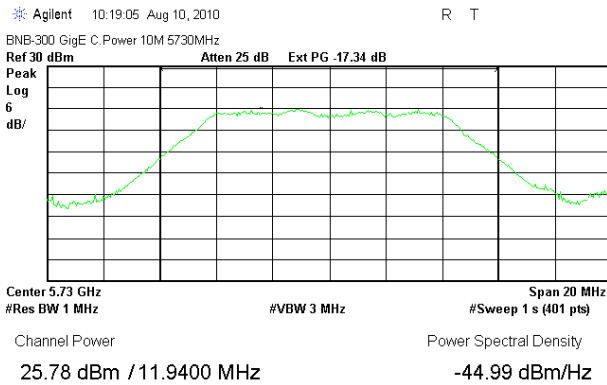
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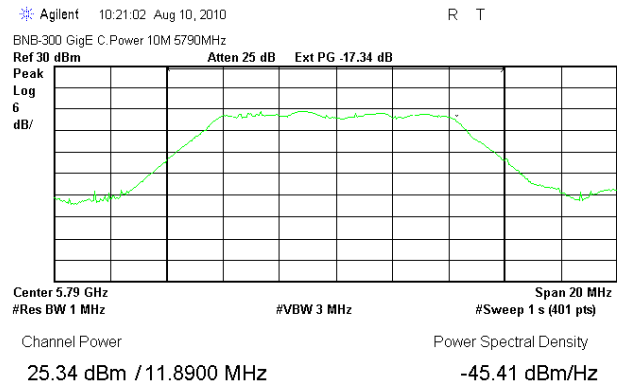
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

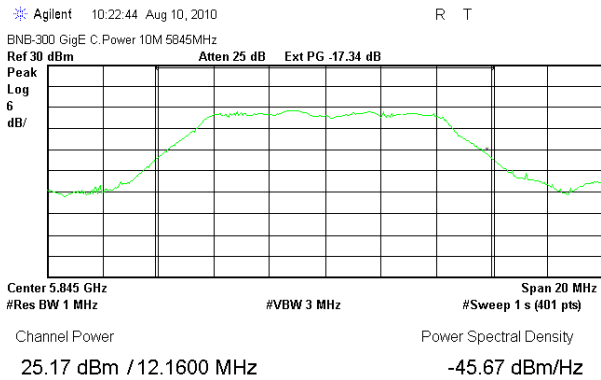
10 MHz EBW option. Peak output power results



Plot # 13



Plot # 14



Plot # 15



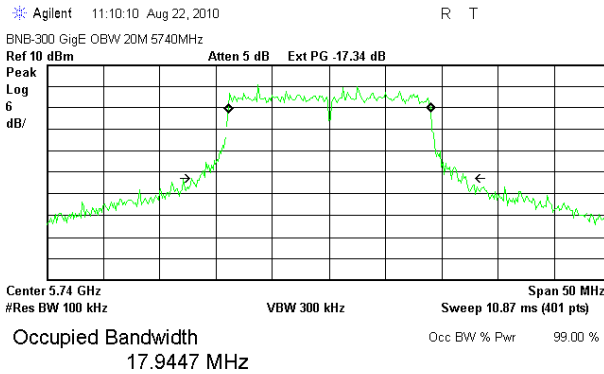
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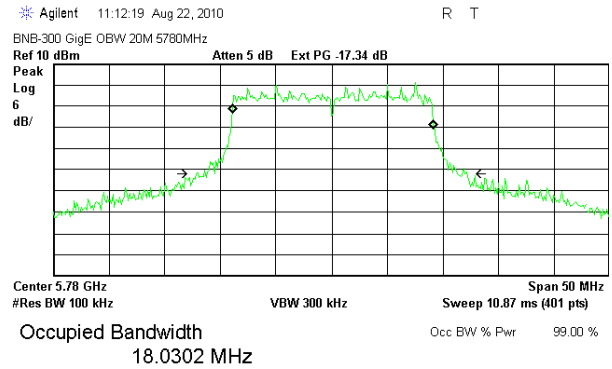
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

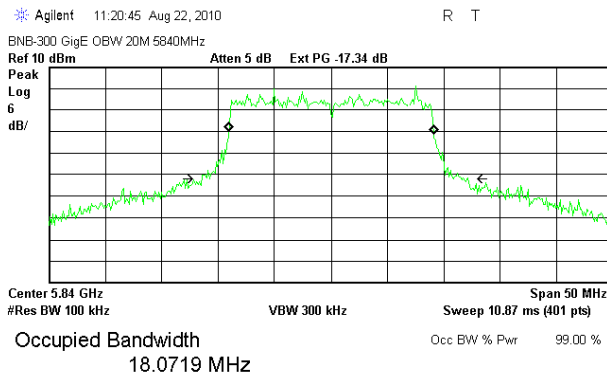
20 MHz EBW option, 26 dB bandwidth test result



Plot # 16



Plot # 17



Plot # 18

Transmit Freq Error 67.822 kHz
x dB Bandwidth 23.584 MHz

Transmit Freq Error 113.116 kHz
x dB Bandwidth 24.268 MHz



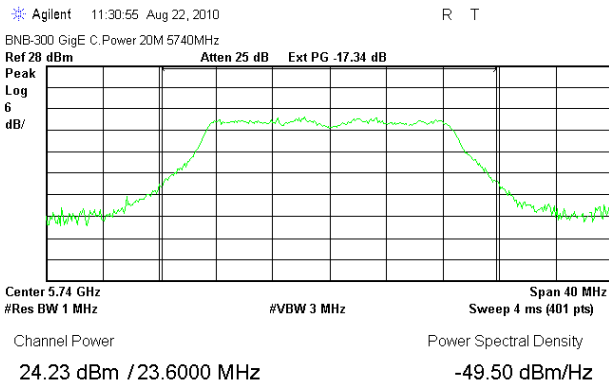
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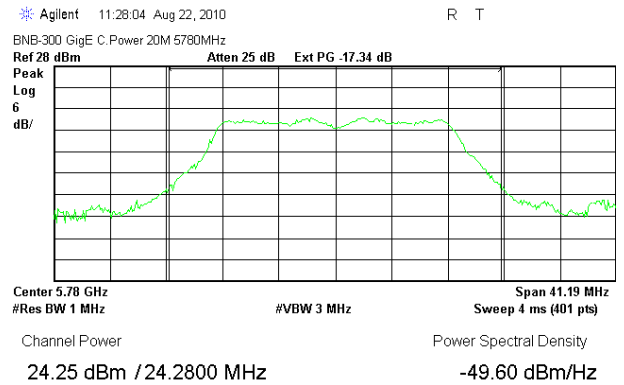
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

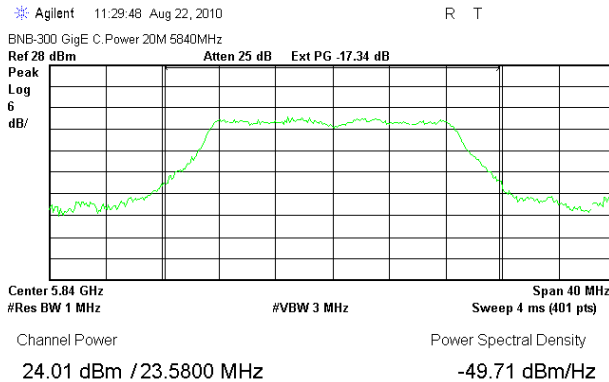
20 MHz EBW option. Peak output power results



Plot # 19



Plot # 20



Plot # 21

Insertion loss of external attenuator, power splitter and cable = 17.34 dB.



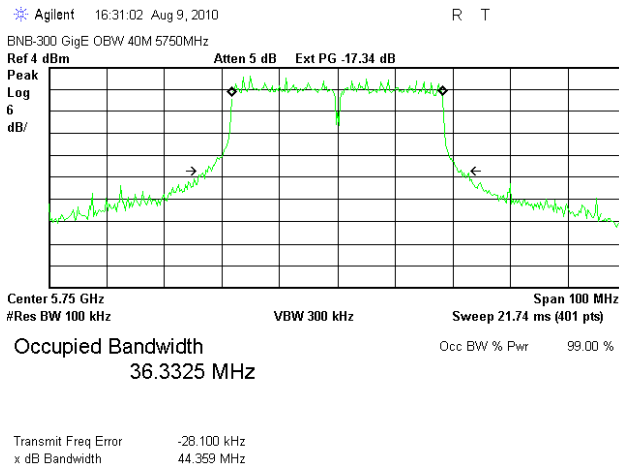
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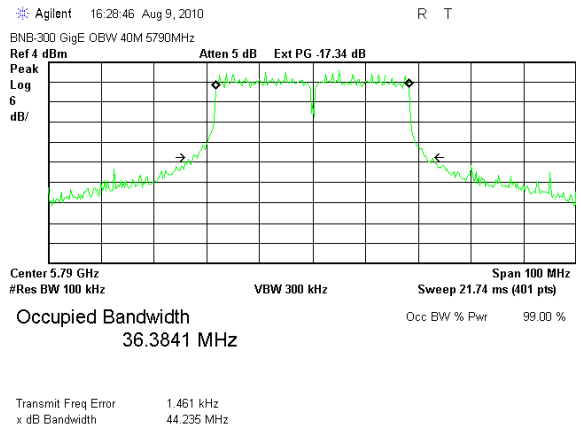
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

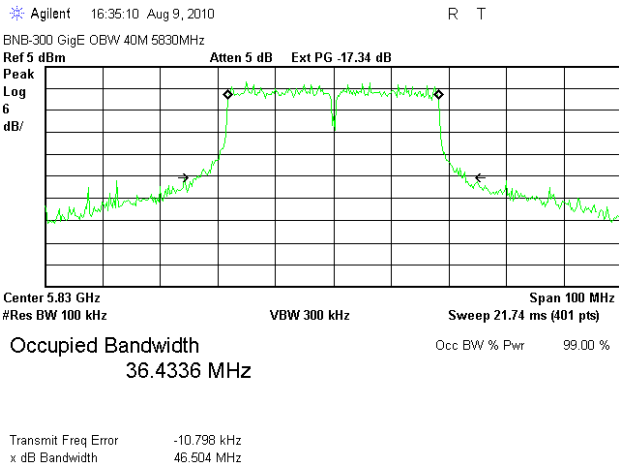
40 MHz BW option, 26 dB bandwidth test result



Plot # 22



Plot # 23



Plot # 24



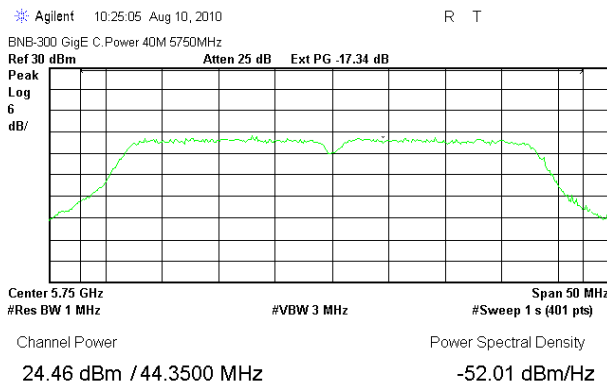
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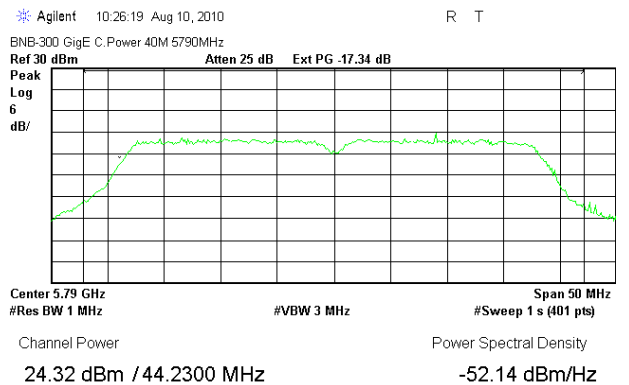
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

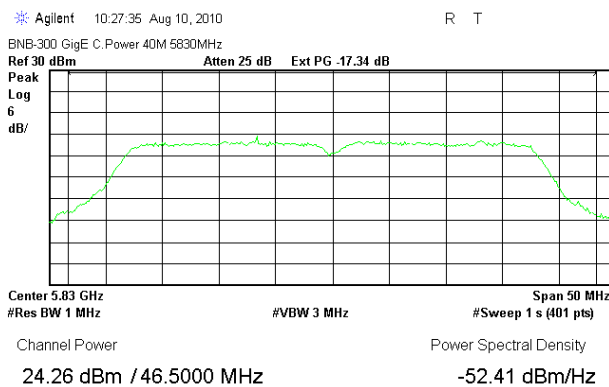
40 MHz BW option. Peak output power results



Plot # 25



Plot # 26



Plot # 27

Insertion loss of external attenuator, power splitter and cable = 17.34 dB.



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7.1.3 Out of band conducted emissions test according to §15.247(d)

Method of measurement	FCC March 23, 2005 procedure				
Operating Frequency Range	5730 – 5845 MHz				
Ambient Temperature	23° C	Relative Humidity	49%	Air Pressure	1009 hPa

The frequency spectrum was investigated from the lowest radio frequency signal generated in the equipment and up to 40 GHz. The emission levels of the EUT in peak mode more than 20 dB lower than the specified limit were not recorded in the table. For the test results refer to plots ## 28 - 45 in this section.

LIMIT

In any 100 kHz bandwidth, outside the frequency band, in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator 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.

TEST PROCEDURE

The test was performed at three emissions bandwidths 5 MHz, 10 MHz and 40 MHz that is worse case power and band-edge options. The measurements were performed in normal (transmitting) mode of operation for carrier (channel) frequency at bottom, middle and the top of the 5725 – 5850 MHz frequency band under maximum data transfer bit rate. The EUT RF output was connected to the Spectrum Analyzer through appropriate attenuator and accounted with cable loss in SA settings

TEST EQUIPMENT USED:

1	3	5				
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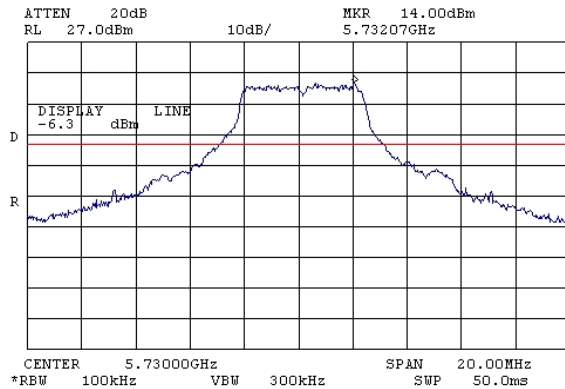
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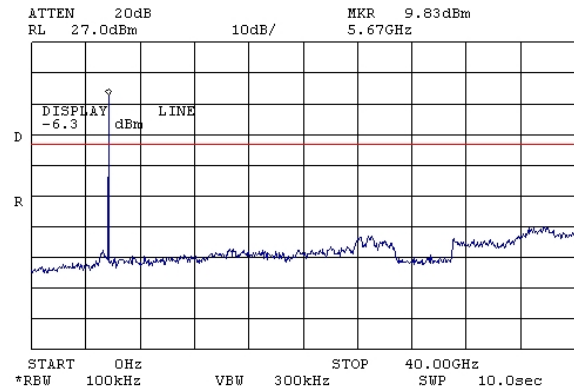
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

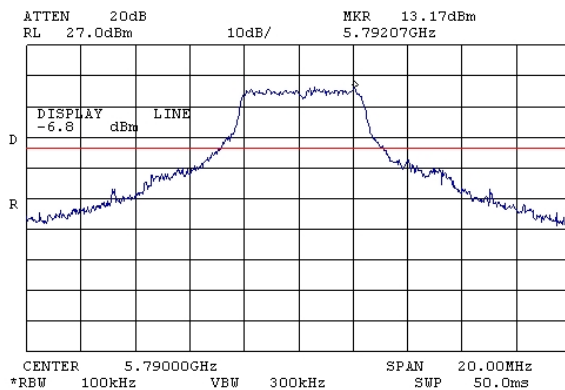
5 MHz emission bandwidth



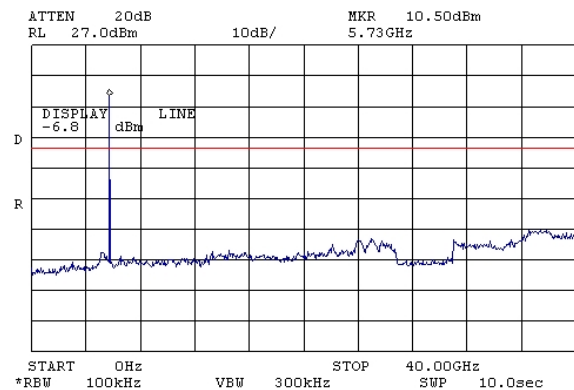
Plot # 28. Carrier frequency 5730 MHz.



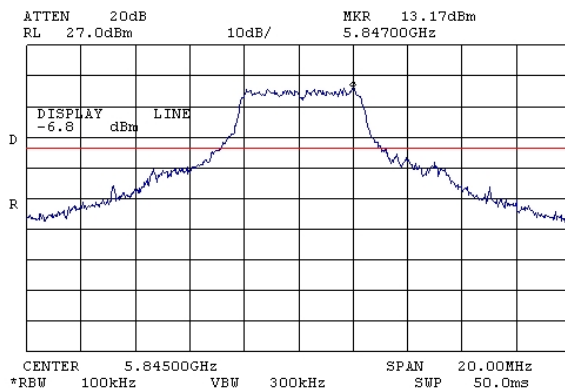
Plot # 29. Carrier frequency 5730 MHz..



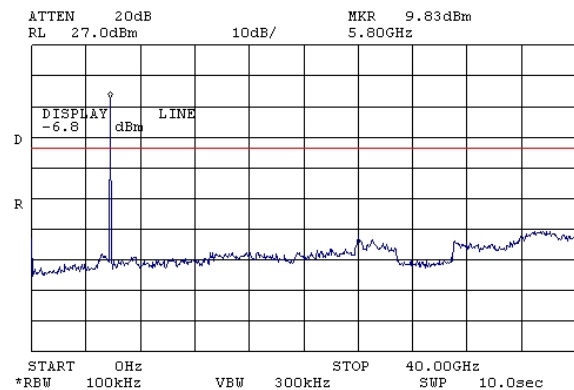
Plot # 30. Carrier frequency 5790 MHz.



Plot # 31. Carrier frequency 5790 MHz.



Plot # 32. Carrier frequency 5845 MHz



Plot # 33. Carrier frequency 5845 MHz



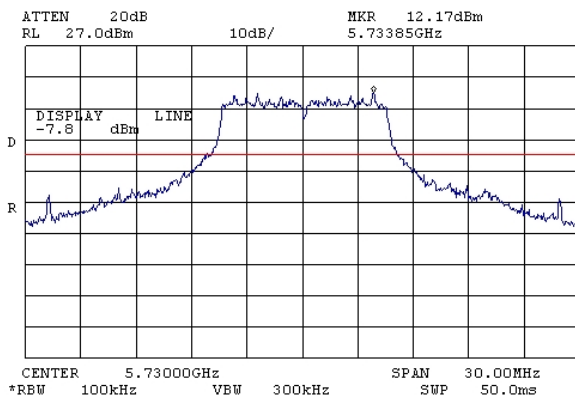
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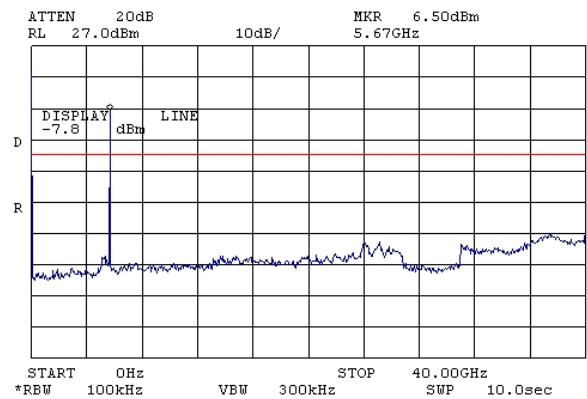
Title: BreezeNETB 300

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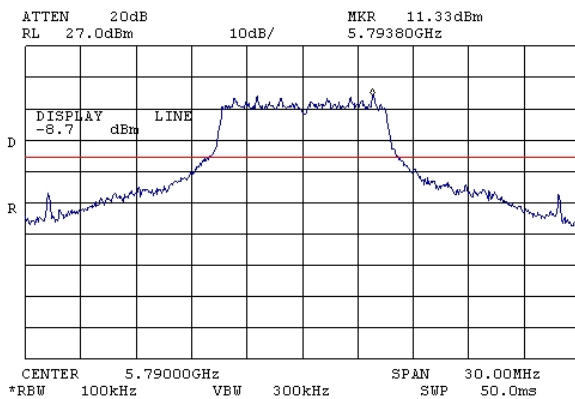
10 MHz emission bandwidth



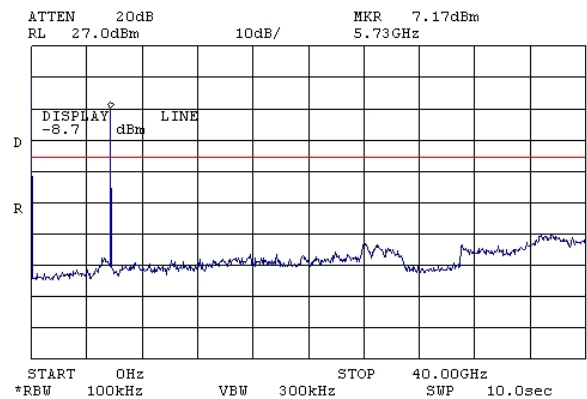
Plot # 34. Carrier frequency 5730 MHz.



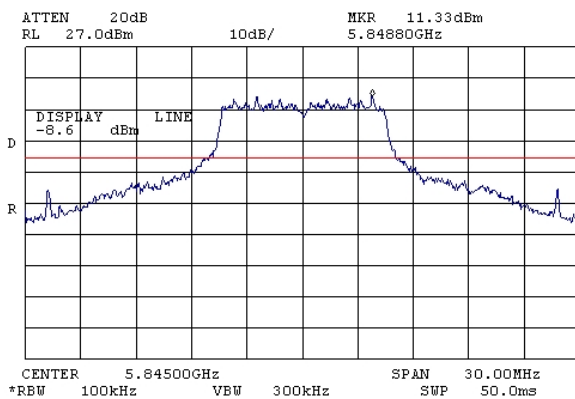
Plot # 35. Carrier frequency 5730 MHz..



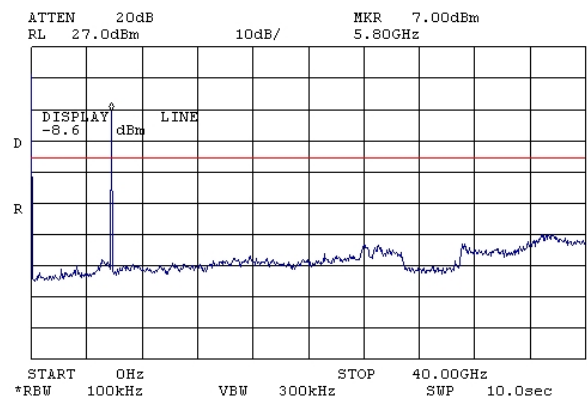
Plot # 36. Carrier frequency 5790 MHz.



Plot # 37. Carrier frequency 5790 MHz.



Plot # 38. Carrier frequency 5845 MHz



Plot # 39. Carrier frequency 5845 MHz

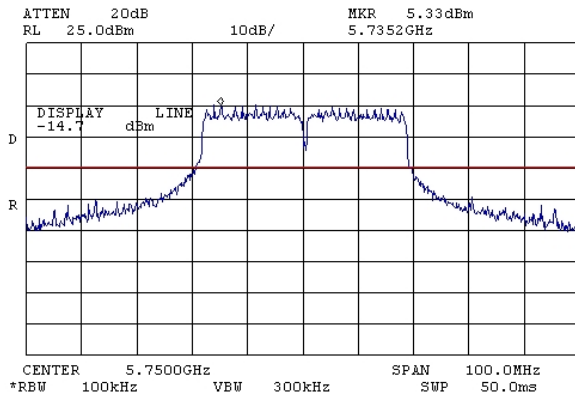
Test report N: 9012359790

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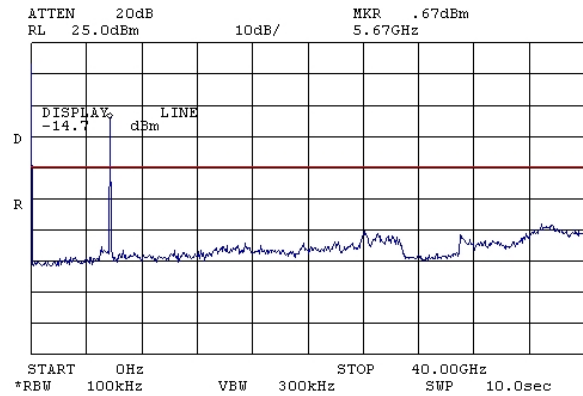
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

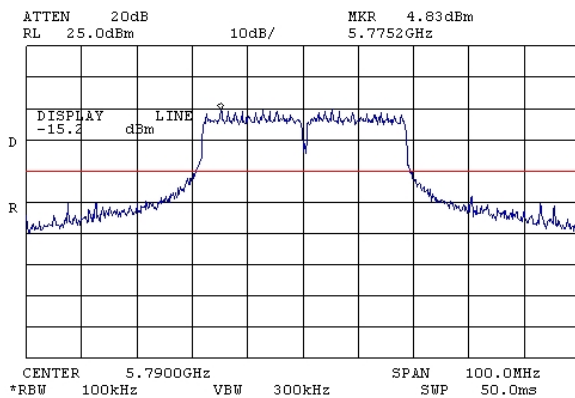
40 MHz emission bandwidth



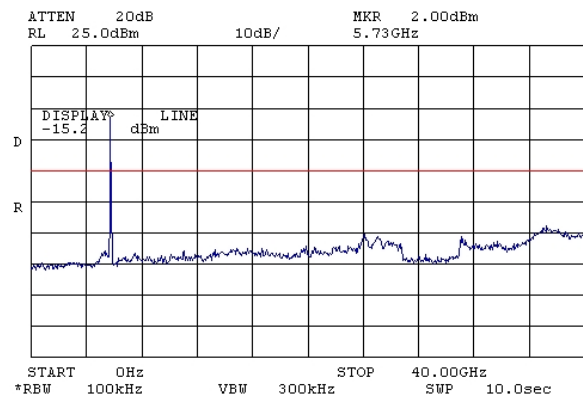
Plot # 40. Carrier frequency 5750 MHz.



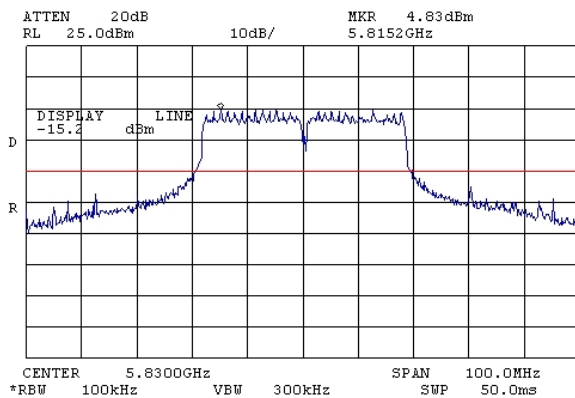
Plot # 41. Carrier frequency 5750 MHz.



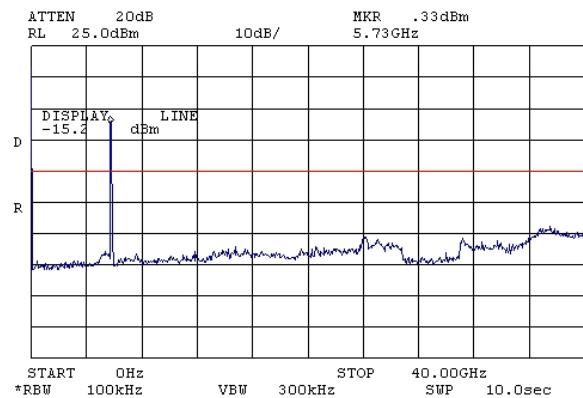
Plot # 42. Carrier frequency 5790 MHz



Plot # 43. Carrier frequency 5790 MHz



Plot # 44. Carrier frequency 5830 MHz



Plot # 45. Carrier frequency 5830 MHz

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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

7.1.4 Radiated emissions out of band test according to §15.247(d), 15.205

Method of measurement FCC March 23, 2005 procedure
 Operating Frequency Range 5730 – 5845 MHz
 Ambient Temperature 23⁰ C Relative Humidity 56% Air Pressure 1011 hPa

The frequency spectrum was investigated from the lowest radio frequency signal generated in the equipment and up to 40 GHz. The worst case emission levels of the EUT below the specified limit were recorded in the tables. For the test results refer to tables and plots in this section. Test results in 30 – 1000 MHz frequency range are recorded in section 8.

Internal antenna.

5 MHz emission bandwidth

Carrier frequency 5730 MHz

Frequency, MHz	Radiated emissions, dBµV/m	Peak limit, dBµV/m	Avg limit, dBµV/m	Margin, dB	Note	Reference to plot#
5000	70.2	74	-	3.8	Detector peak	46
5000	46.8	-	54	7.2	Detector average.	47

Carrier frequency 5790 MHz

Frequency, MHz	Radiated emissions, dBµV/m	Peak limit, dBµV/m	Avg limit, dBµV/m	Margin, dB	Note	Reference to plot#
5371	63.7	74	-	10.3	Detector peak	52
5404	46.7	-	54	7.3	Detector average.	53

Carrier frequency 5845 MHz

Frequency, MHz	Radiated emissions, dBµV/m	Peak limit, dBµV/m	Avg limit, dBµV/m	Margin, dB	Note	Reference to plot#
5036	66.6	74	-	3.8	Detector peak	57
5393	46.3	-	54	7.2	Detector average.	58

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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

10 MHz emission bandwidth

Carrier frequency 5730 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5282	64.9	74	-	9.1	Detector peak	63
5003	48.1	-	54	5.9	Detector average.	64

Carrier frequency 5790 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5326	64.1	74	-	9.9	Detector peak	69
5427	46.5	-	54	7.5	Detector average.	70

Carrier frequency 5845 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5036	63.3	74	-	10.7	Detector peak	75
5427	47.1	-	54	6.9	Detector average.	76

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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

40 MHz emission bandwidth

Carrier frequency 5750 MHz.

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5427	62.1	74	-	11.9	Detector peak	81
5003	48.9	-	54	5.1	Detector average.	82

Carrier frequency 5790 MHz.

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5103	62.7	74	-	11.3	Detector peak	87
5337	47.1	-	54	6.9	Detector average.	88

Carrier frequency 5830 MHz.

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5404	62.8	74	-	11.2	Detector peak	92
5326	47.1	-	54	6.9	Detector average.	93

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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

External flat panel antenna.

5 MHz emission bandwidth

Carrier frequency 5730 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5192	65.3	74	-	8.7	Detector peak	98
5415	46.4	-	54	7.6	Detector average.	99

Carrier frequency 5790 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5137	63.3	74	-	10.7	Detector peak	104
5126	47.3	-	54	6.7	Detector average.	105

Carrier frequency 5845 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5081	62.8	74	-	11.2	Detector peak	109
5438	46.6	-	54	7.4	Detector average.	110

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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

10 MHz emission bandwidth

Carrier frequency 5730 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5148	63.8	74	-	10.2	Detector peak	115
5003	47.0	-	54	7.0	Detector average.	116

Carrier frequency 5790 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5204	63.3	74	-	10.7	Detector peak	121
5427	46.2	-	54	7.8	Detector average.	122

Carrier frequency 5845 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5159	63.7	74	-	10.3	Detector peak	126
5181	46.4	-	54	7.6	Detector average.	127

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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

40 MHz emission bandwidth

Carrier frequency 5750 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5137	64.2	74	-	9.8	Detector peak	132
5438	46.6	-	54	7.4	Detector average.	133

Carrier frequency 5790 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5114	62.4	74	-	11.6	Detector peak	138
5415	46.6	-	54	7.4	Detector average.	139

Carrier frequency 5830 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5438	62.0	74	-	12.0	Detector peak	143
5438	46.5	-	54	7.5	Detector average.	144

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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

Parabolic antenna.

5 MHz emission bandwidth

Carrier frequency 5730 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5047	62.6	74	-	11.4	Detector peak	149
5326	48.0	-	54	6.0	Detector average.	150

Carrier frequency 5790 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5415	63.6	74	-	10.4	Detector peak	155
5360	48.9	-	54	5.1	Detector average.	156

Carrier frequency 5845 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5438	62.5	74	-	11.5	Detector peak	161
5360	47.0	-	54	7.0	Detector average.	162

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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

10 MHz emission bandwidth

Carrier frequency 5730 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5092	62.3	74	-	11.7	Detector peak	166
5360	47.0	-	54	7.0	Detector average.	167

Carrier frequency 5790 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5427	64.0	74	-	10.0	Detector peak	172
5371	47.1	-	54	6.9	Detector average.	173

Carrier frequency 5845 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5393	63.1	74	-	10.9	Detector peak	177
5036	46.4	-	54	7.6	Detector average.	178

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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

40 MHz emission bandwidth

Carrier frequency 5750 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5371	62.9	74	-	11.1	Detector peak	183
5326	46.6	-	54	6.4	Detector average.	184

Carrier frequency 5790 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5371	62.8	74	-	11.2	Detector peak	189
5047	46.4	-	54	7.6	Detector average.	190

Carrier frequency 5830 MHz

Frequency, MHz	Radiated emissions, dB μ V/m	Peak limit, dB μ V/m	Avg limit, dB μ V/m	Margin, dB	Note	Reference to plot#
5438	63.6	74	-	11.4	Detector peak	194
5059	46.4	-	54	7.6	Detector average.	195



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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

TEST PROCEDURE

The test was performed at three emissions bandwidths 5 MHz, 10 MHz and 40 MHz that is worse case power and band-edge options with all antenna configurations: internal, external flat panel and external parabolic. The measurements were performed at three transmitted carrier (channel) frequencies at bottom, middle and top of the 5725 – 5850 MHz frequency band under maximum data transfer bit rate. To find maximum radiation the turntable was rotated 360°, measuring antenna height was changed from 1 to 4 m, and the antenna polarization was changed from vertical to horizontal.

LIMIT

In any 100 kHz bandwidth outside the frequency band the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below in band highest level desired power. Radiated emissions, which fall in the restricted bands, must comply with the radiated emissions limit specified in section 15.205(c).

TEST SUMMARY

All emissions outside of the 5725 – 5850 MHz band were found below 15.247(d) limit. No emissions were found above SA noise floor in 6.5 – 40 GHz frequency band that is at least 40 dB under the limit.

TEST EQUIPMENT USED:

1	5	6	7	9	14	
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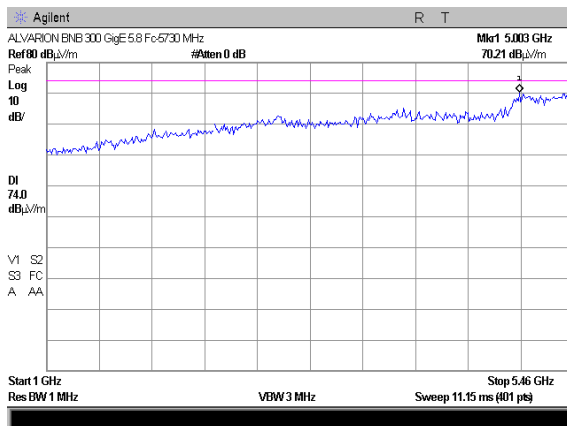
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

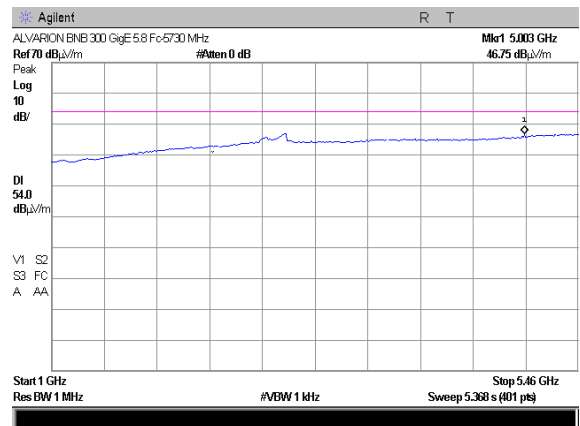
Internal antenna.

5 MHz emission bandwidth

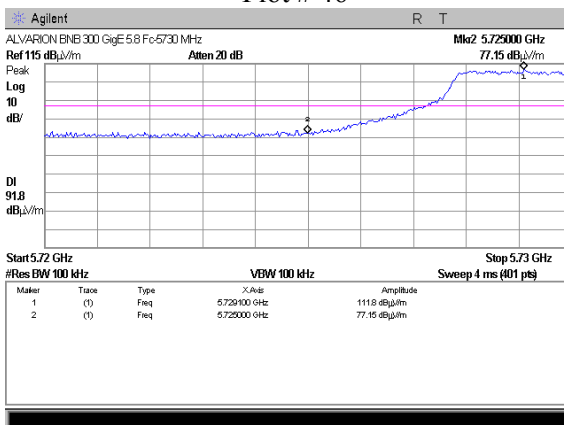
Carrier frequency – 5730 MHz



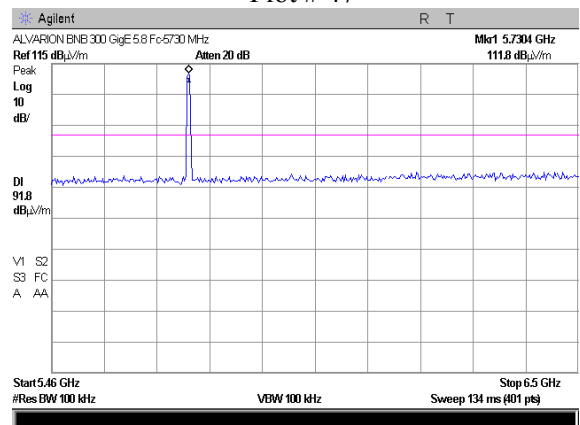
Plot # 46



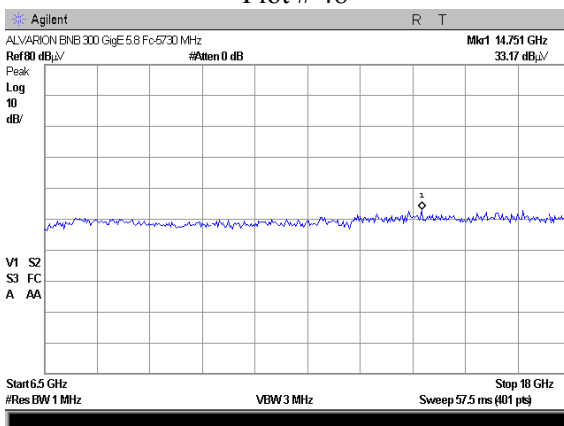
Plot # 47



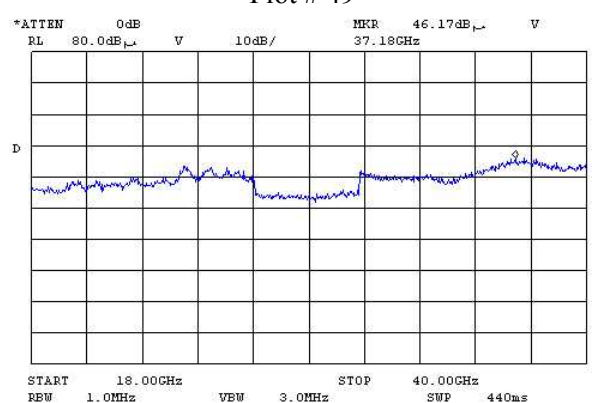
Plot # 48



Plot # 49



Plot # 50



Plot # 51



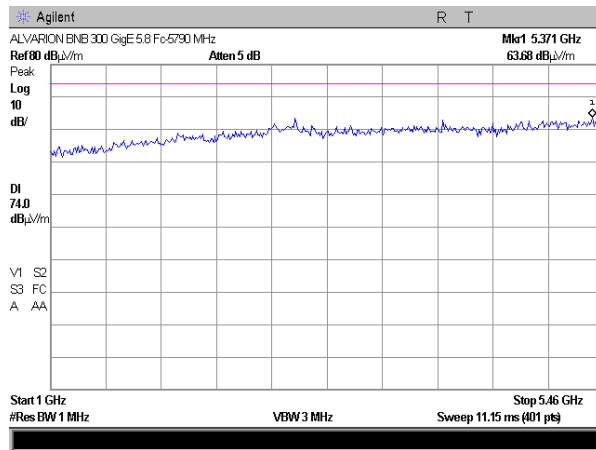
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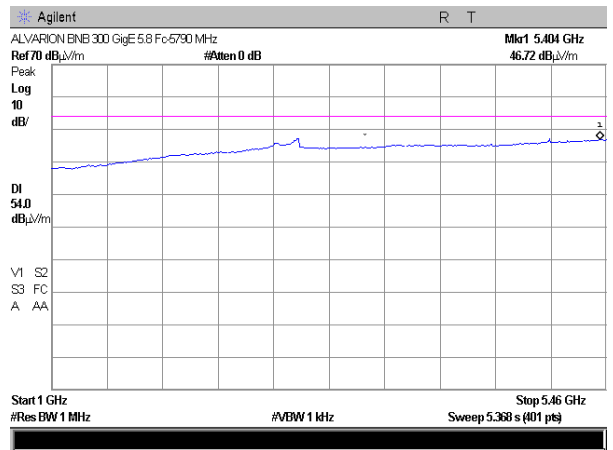
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

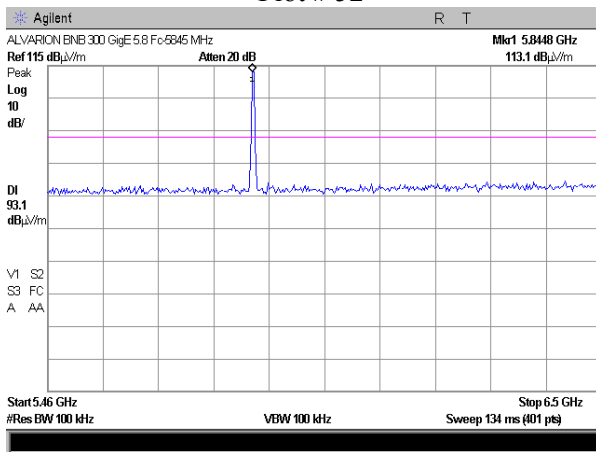
Carrier frequency – 5790 MHz



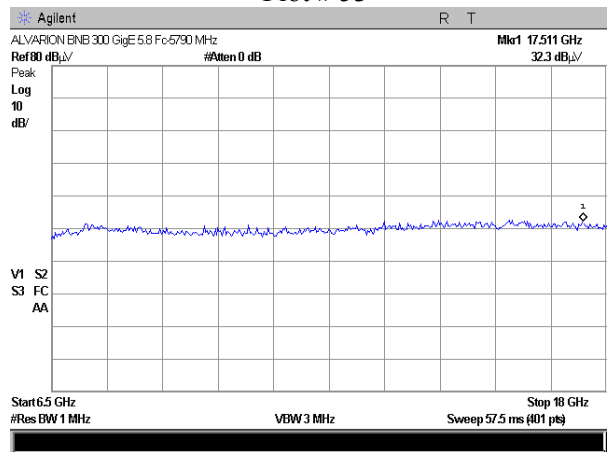
Plot # 52



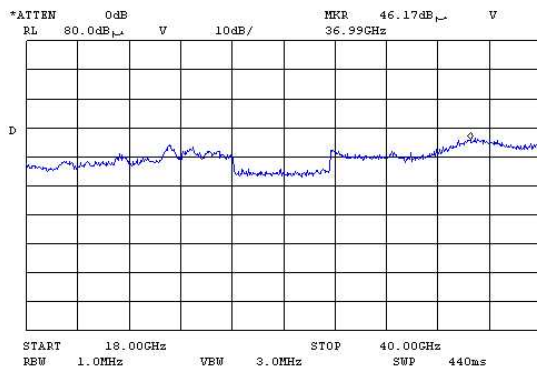
Plot # 53



Plot # 54



Plot # 55



Plot # 56



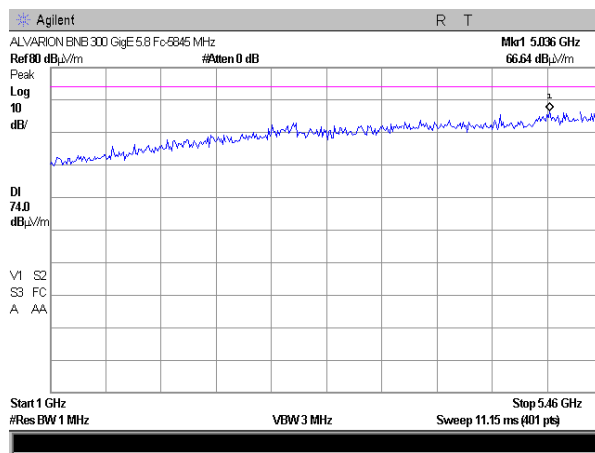
Test report N: 9012359790

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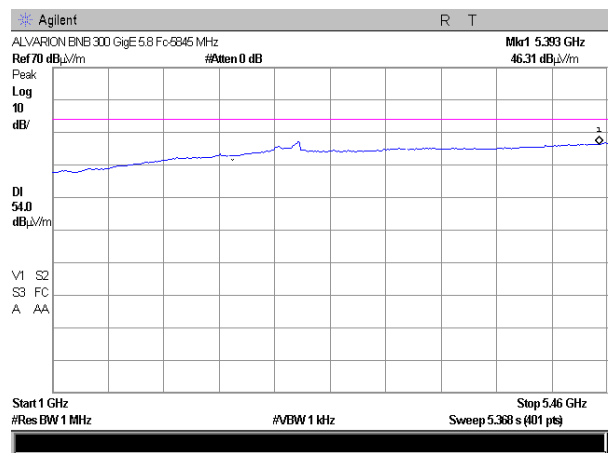
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

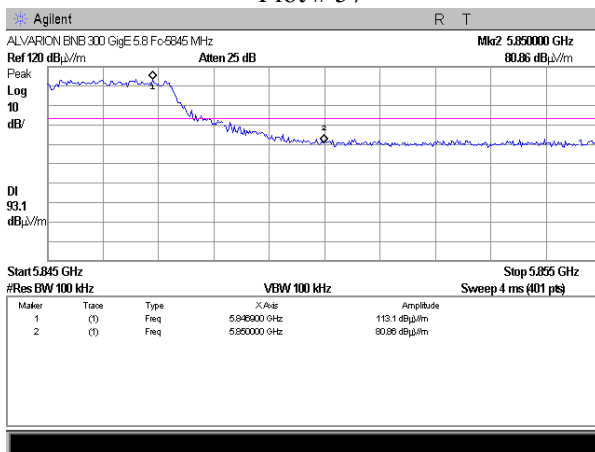
Carrier frequency – 5845 MHz.



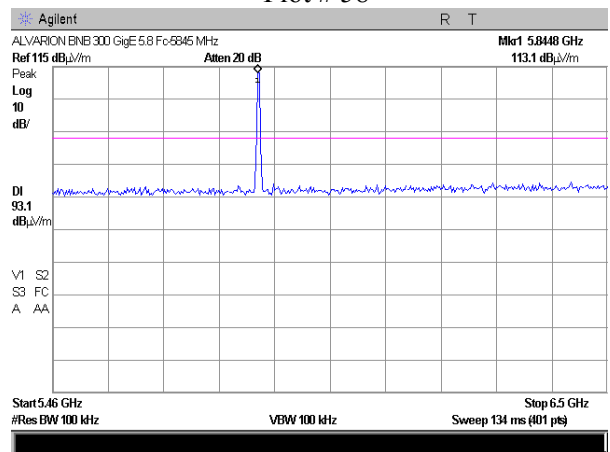
Plot # 57



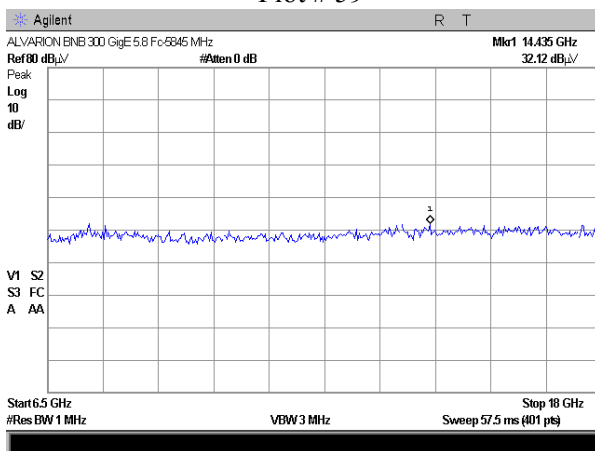
Plot # 58



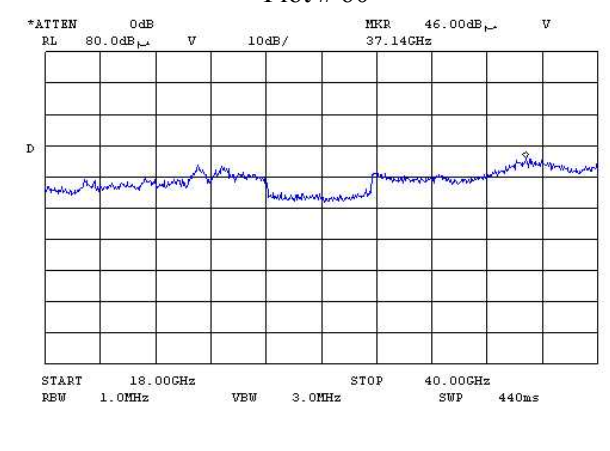
Plot # 59



Plot # 60



Plot # 61



Plot # 62

Test report N: 9012359790

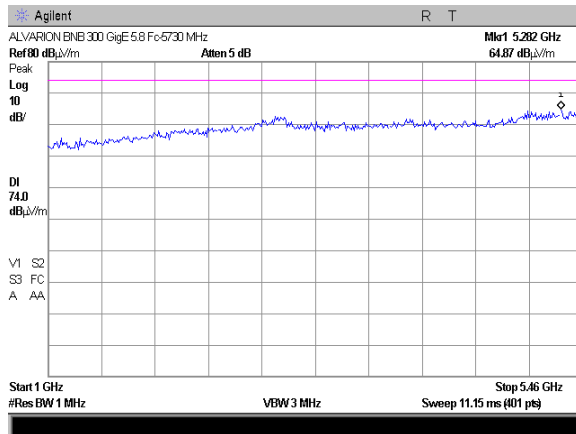
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Title: BreezeNETB 300

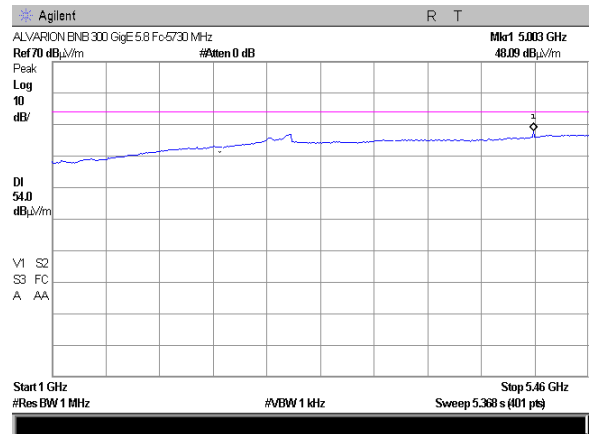
Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

10 MHz emission bandwidth

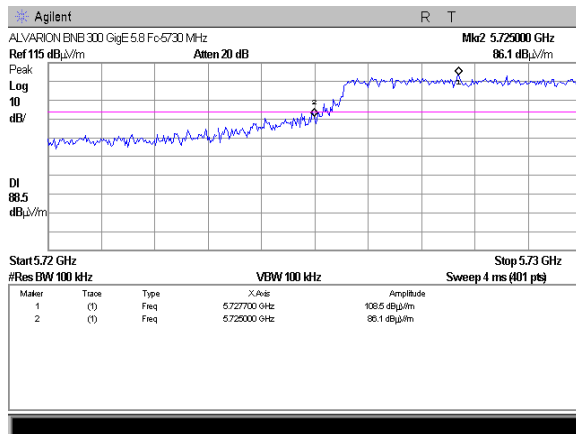
Carrier frequency - 5730 MHz.



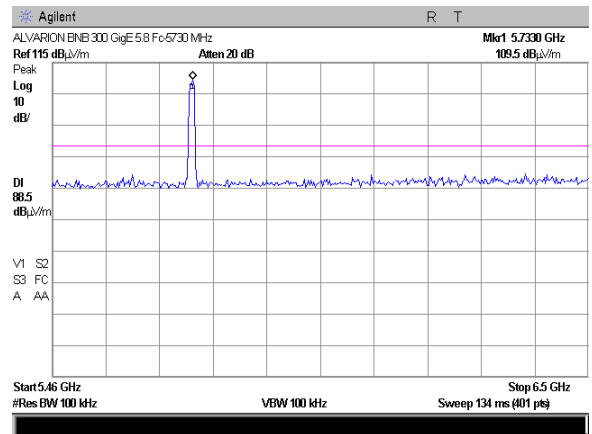
Plot # 63



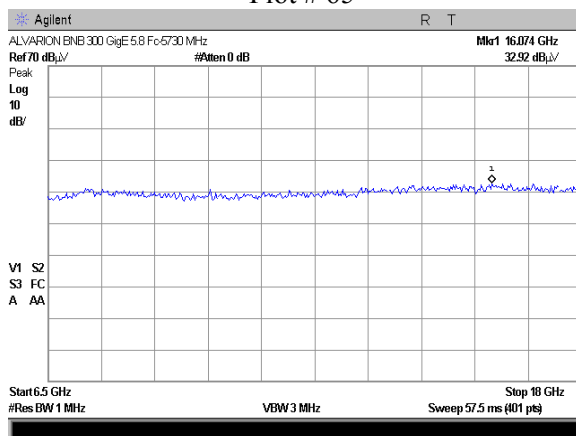
Plot # 64



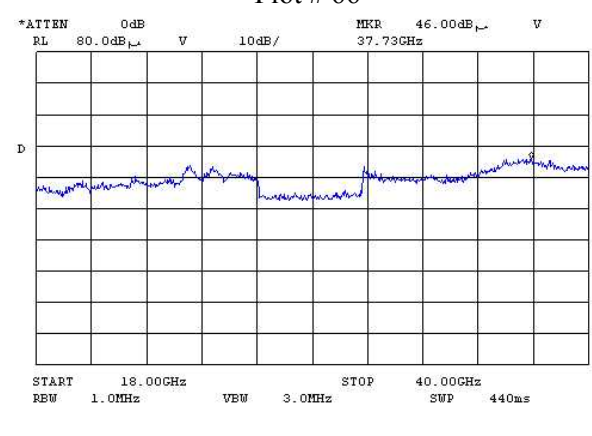
Plot # 65



Plot # 66



Plot # 67



Plot # 68



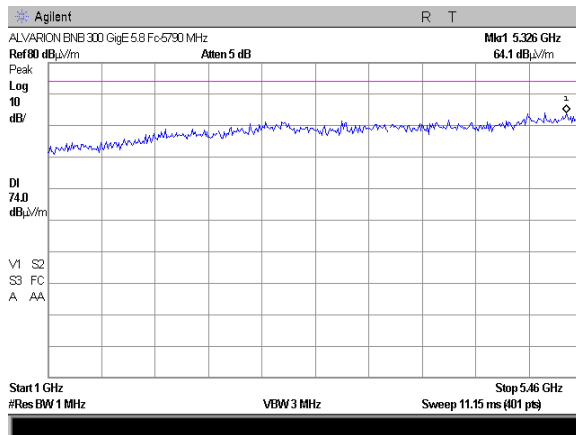
Test report N: 9012359790

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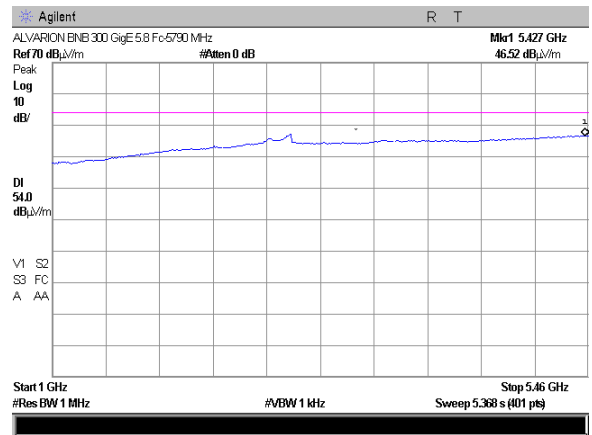
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

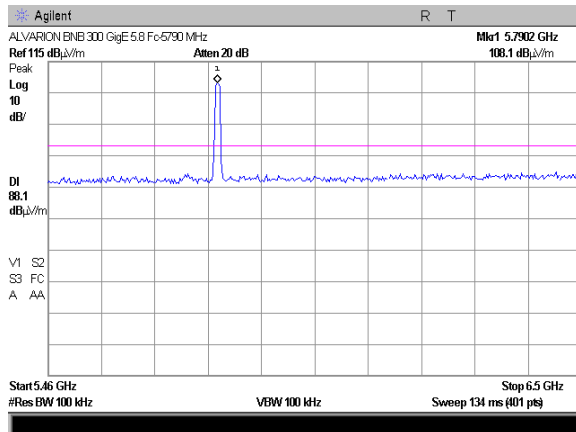
Carrier frequency – 5790 MHz



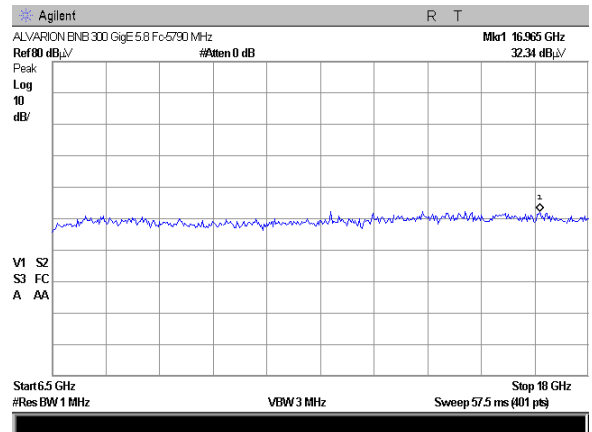
Plot # 69



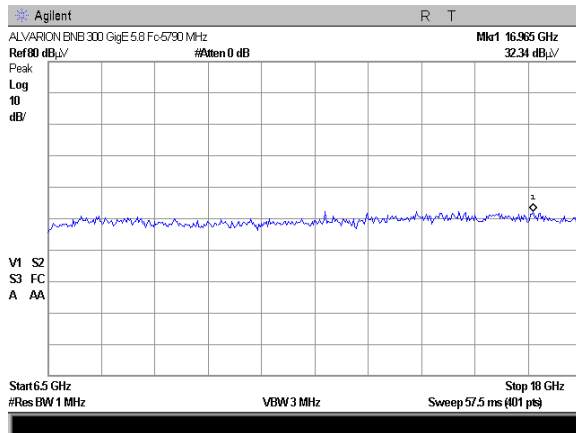
Plot # 70



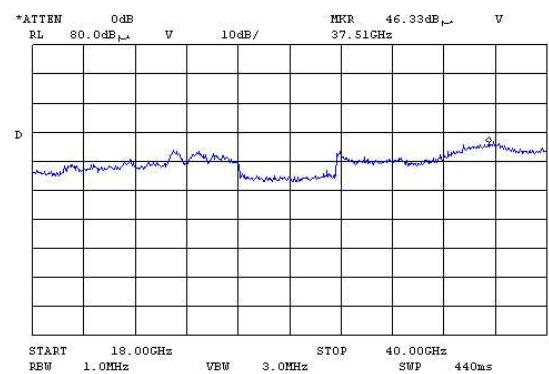
Plot # 71



Plot # 72



Plot # 73



Plot # 74



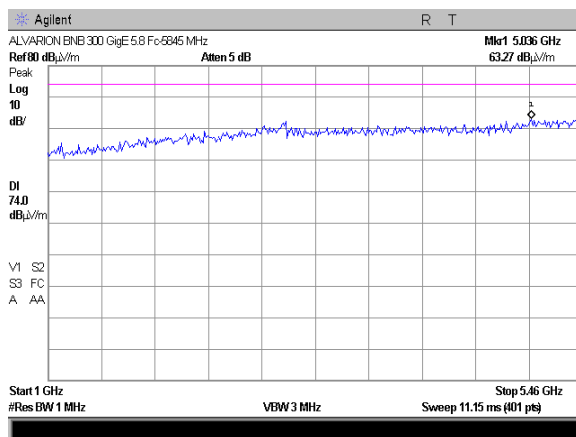
Test report N: 9012359790

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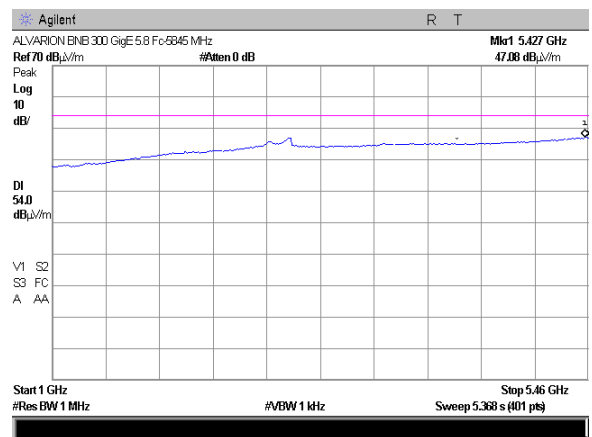
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

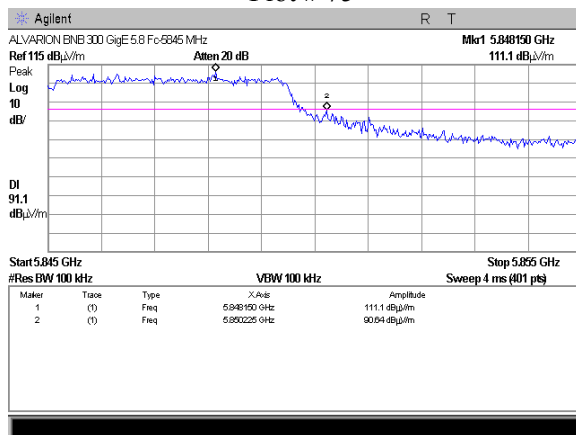
Carrier frequency 5845 MHz



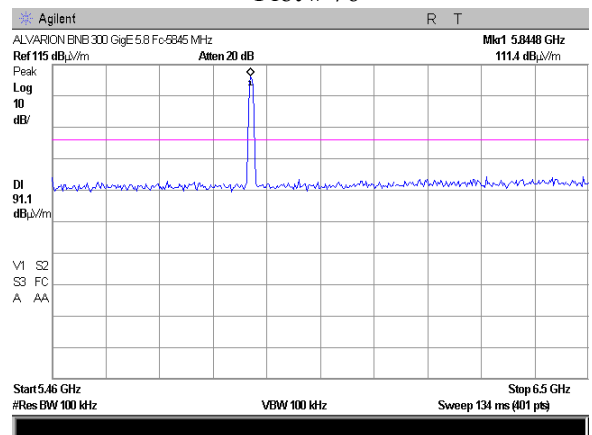
Plot # 75



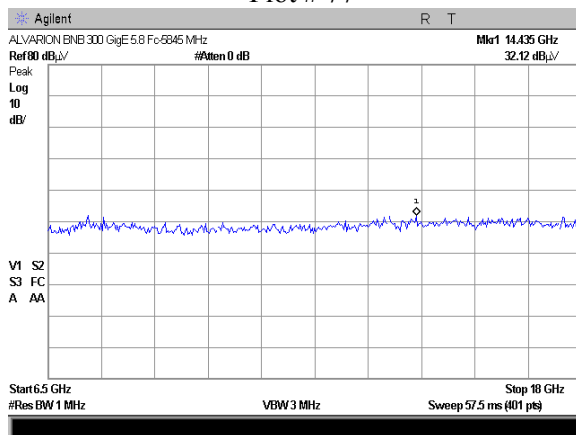
Plot # 76



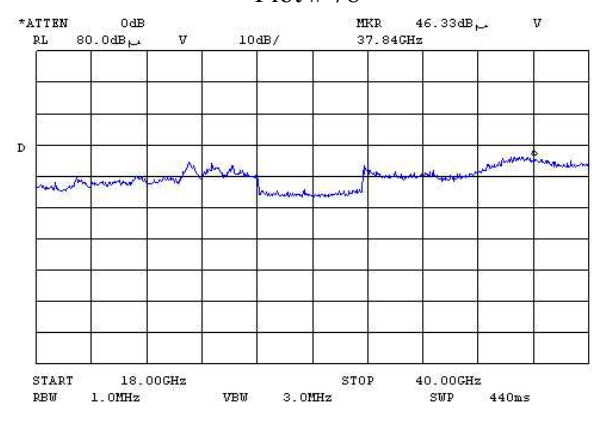
Plot # 77



Plot # 78



Plot # 79



Plot # 80



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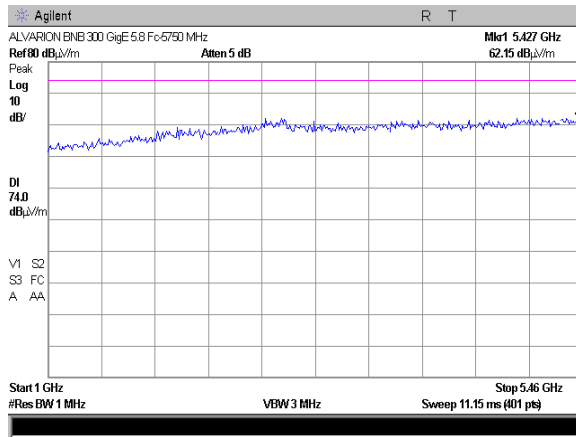
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Title: BreezeNETB 300

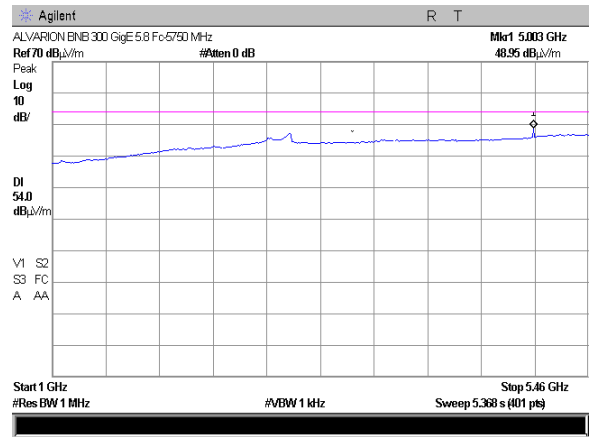
Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

40 MHz emission bandwidth

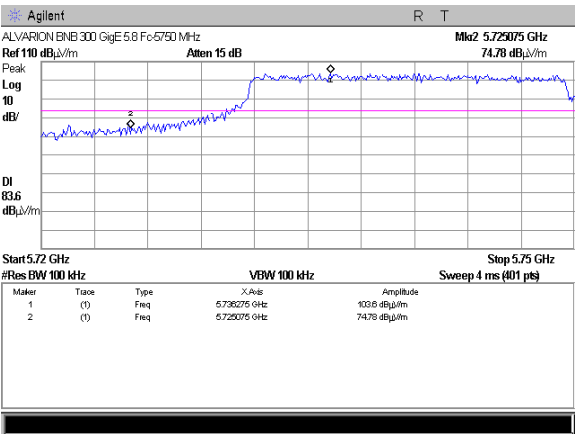
Carrier frequency – 5750 MHz.



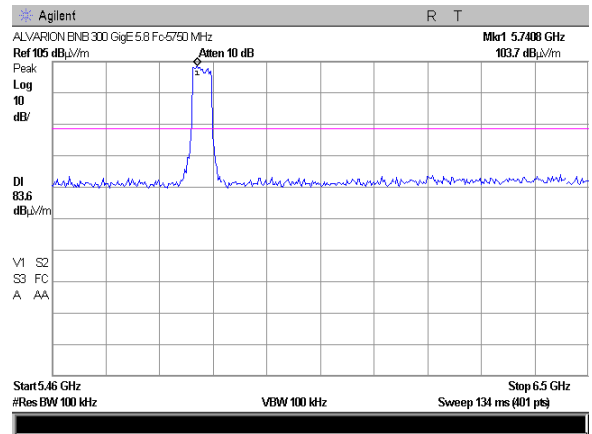
Plot # 81



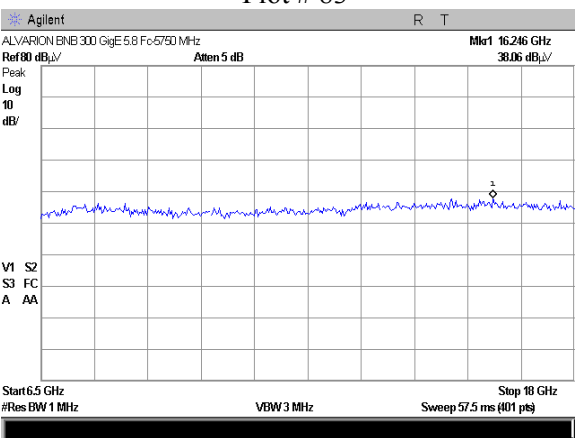
Plot # 82



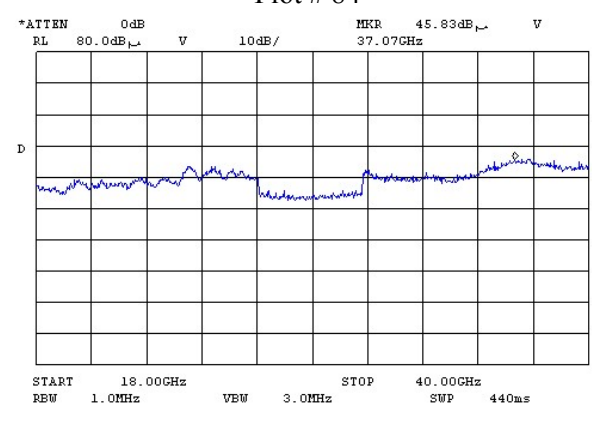
Plot # 83



Plot # 84



Plot # 85



Plot # 86



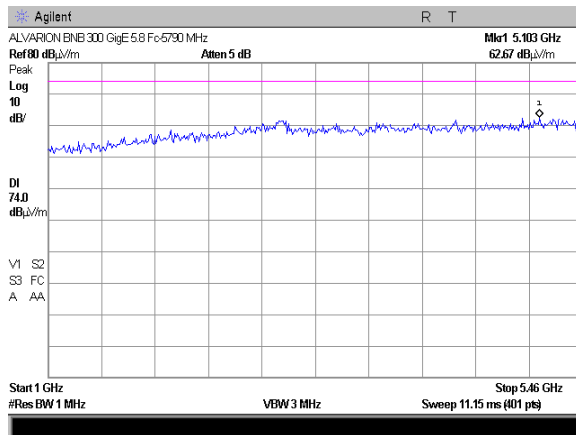
Test report N: 9012359790

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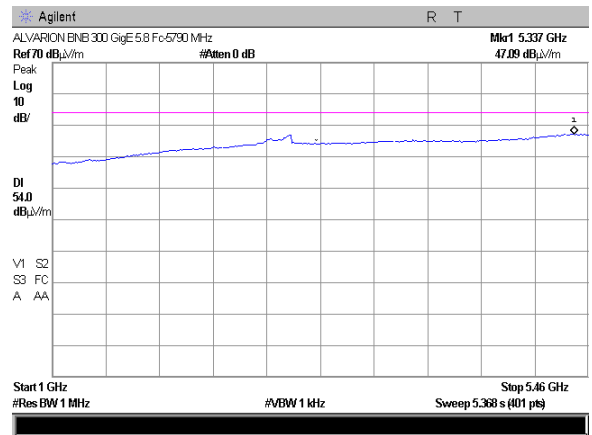
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

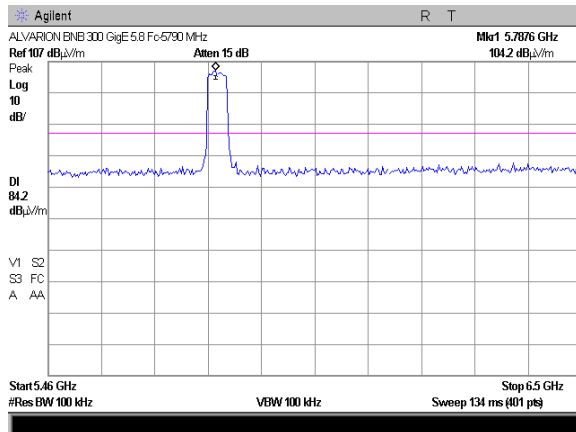
Carrier frequency – 5790 MHz



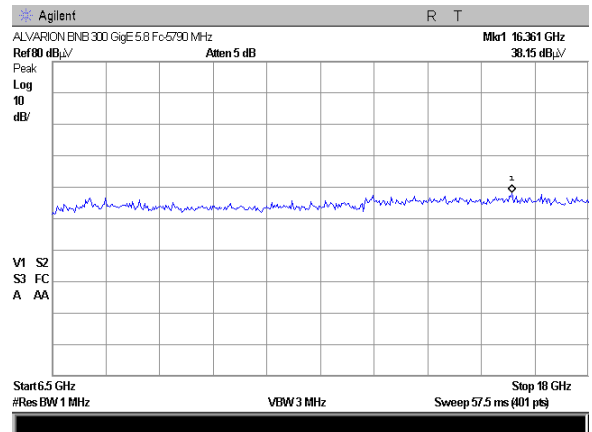
Plot # 87



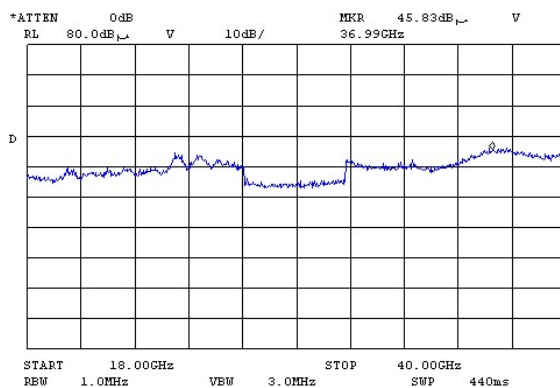
Plot # 88



Plot # 89



Plot # 90



Plot # 91



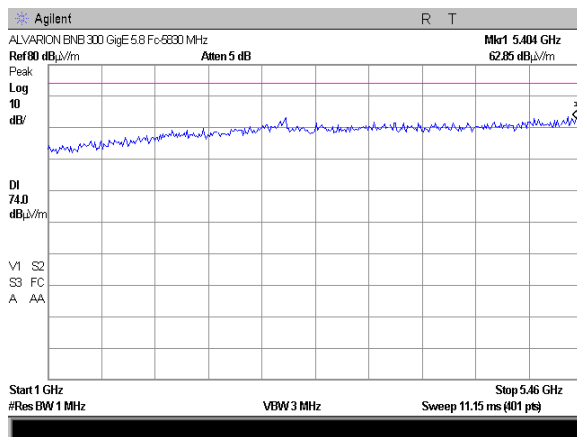
Test report N: 9012359790

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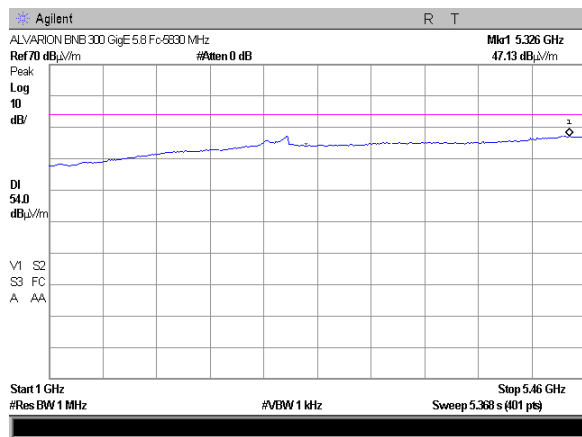
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

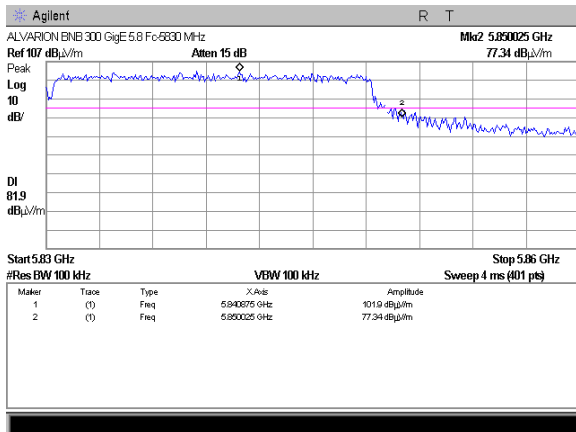
Carrier frequency – 5830 MHz



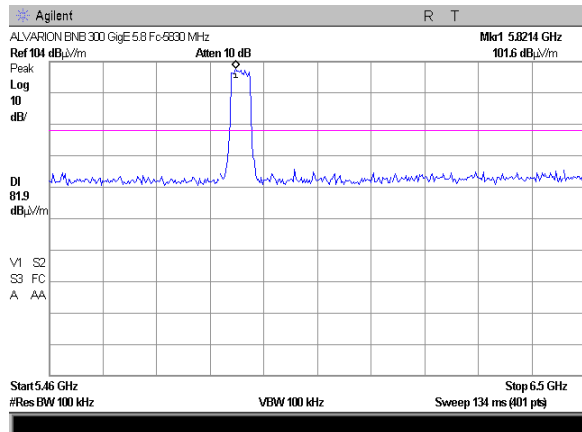
Plot # 92



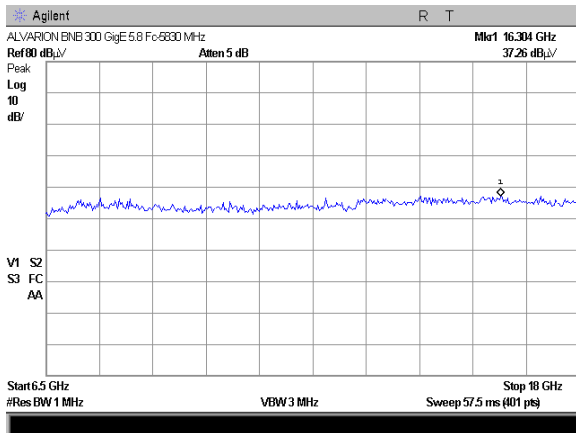
Plot # 93



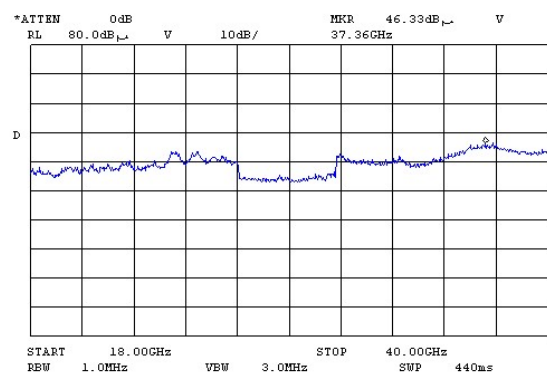
Plot # 94



Plot # 95



Plot # 96



Plot # 97

Test report N: 9012359790

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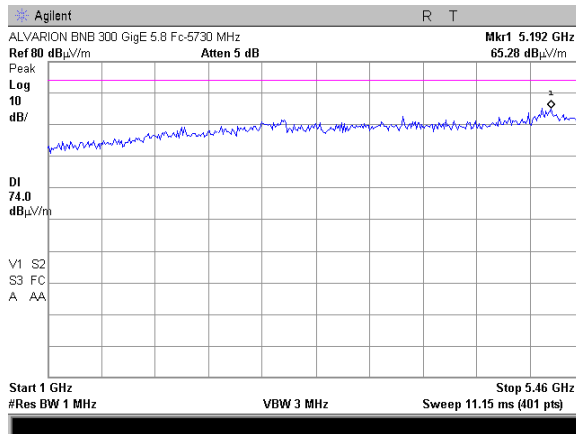
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

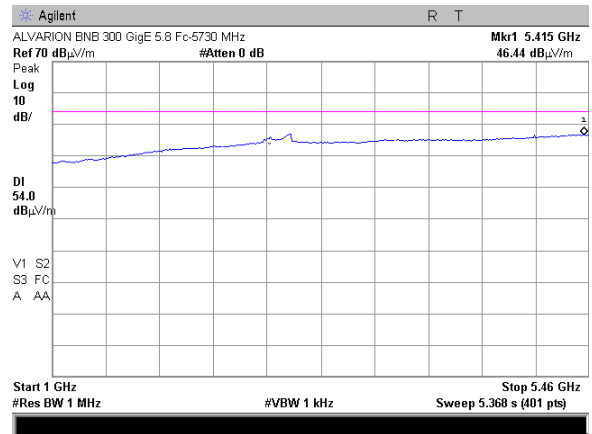
External flat panel antenna.

5 MHz emission bandwidth.

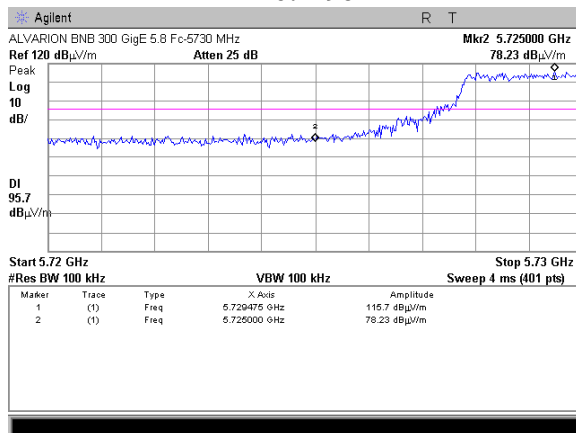
Carrier frequency – 5730 MHz



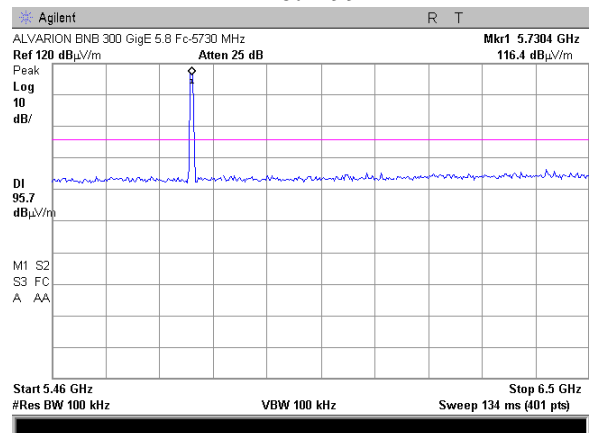
Plot # 98



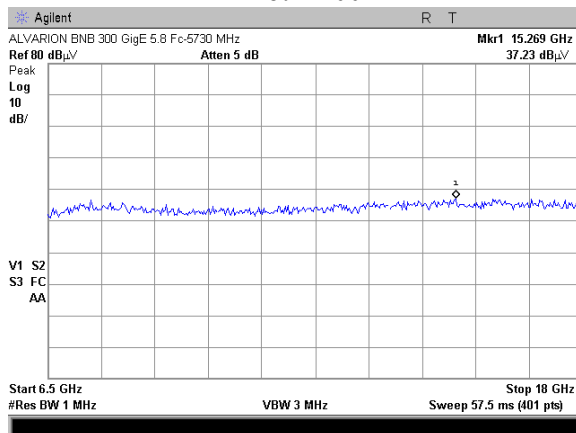
Plot # 99



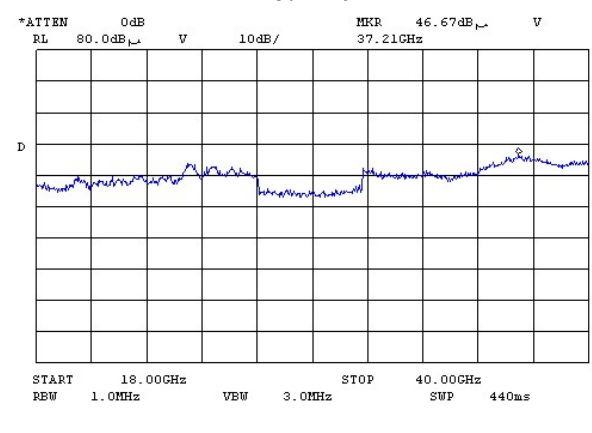
Plot # 100



Plot # 101



Plot # 102



Plot # 103



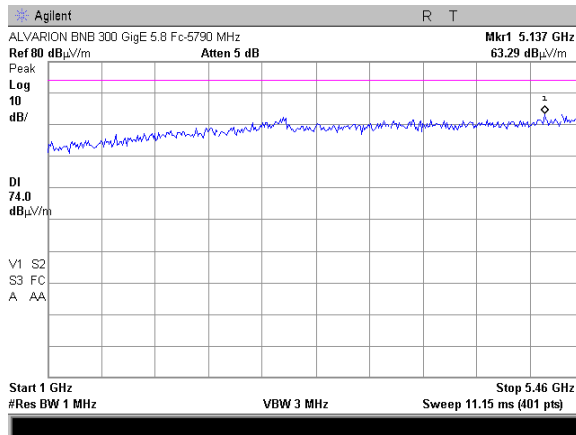
Test report N: 9012359790

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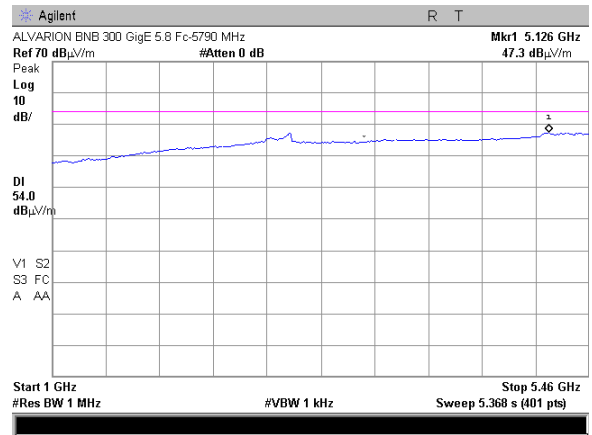
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

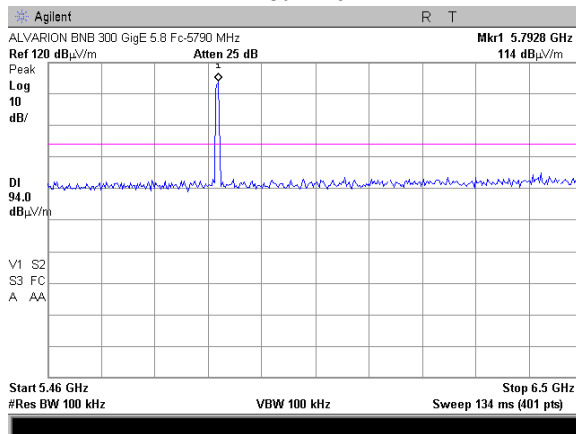
Carrier frequency – 5790 MHz



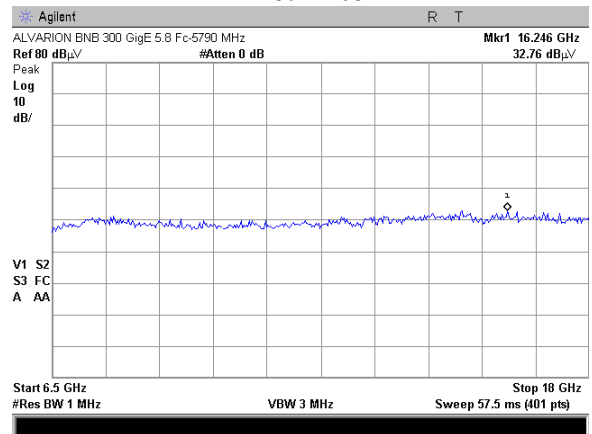
Plot # 104



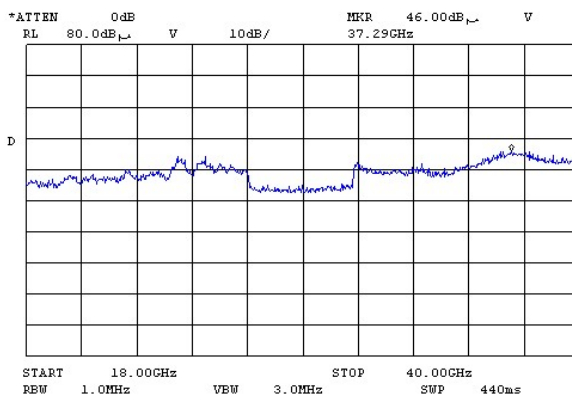
Plot # 105



Plot # 106



Plot # 107



Plot # 108



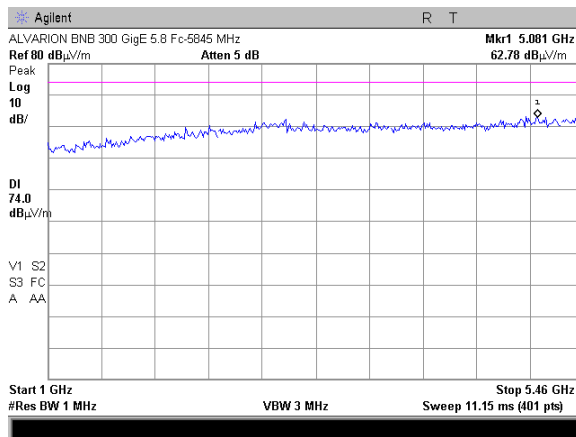
Test report N: 9012359790

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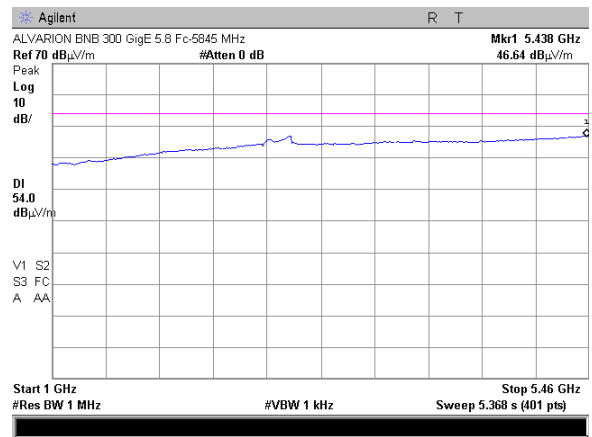
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

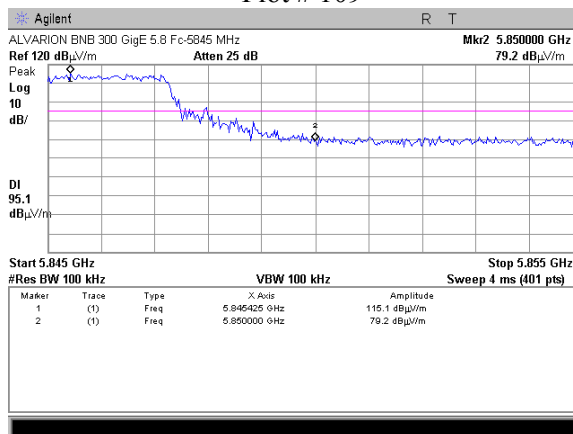
Carrier frequency 5845 MHz



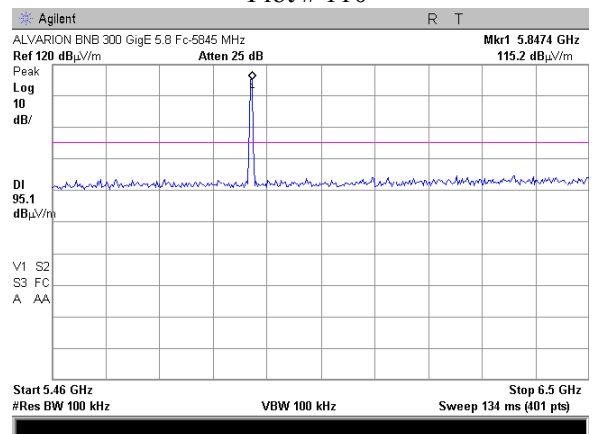
Plot # 109



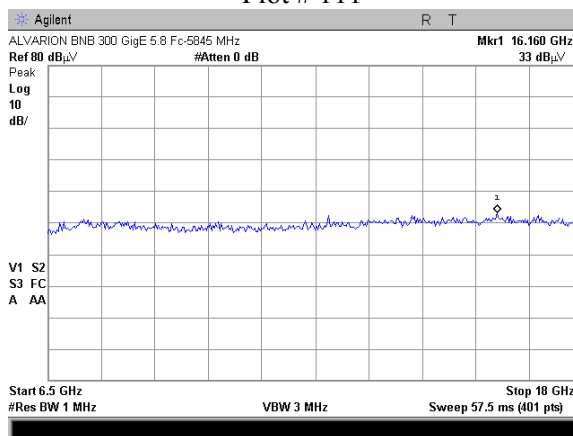
Plot # 110



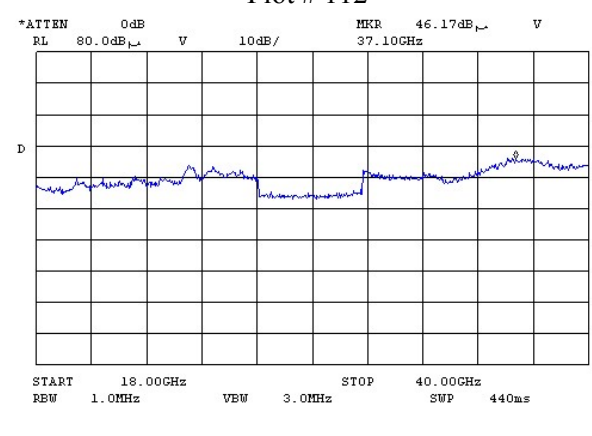
Plot # 111



Plot # 112



Plot # 113



Plot # 114



Test report N: 9012359790

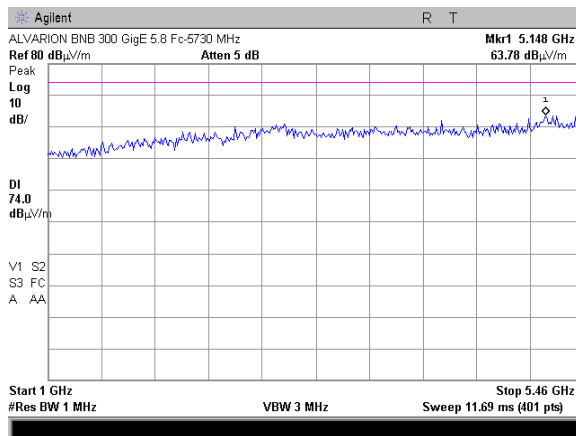
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Title: BreezeNETB 300

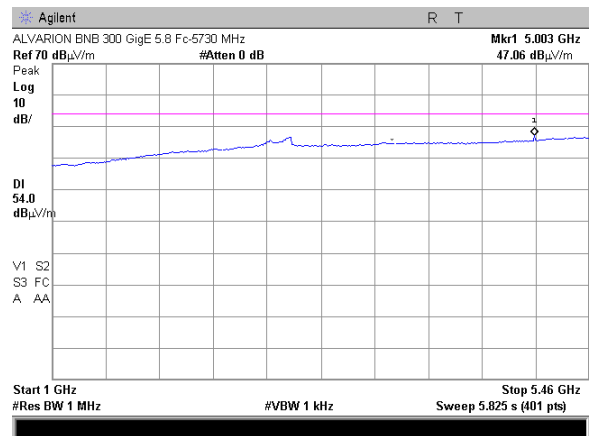
Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

10 MHz emission bandwidth

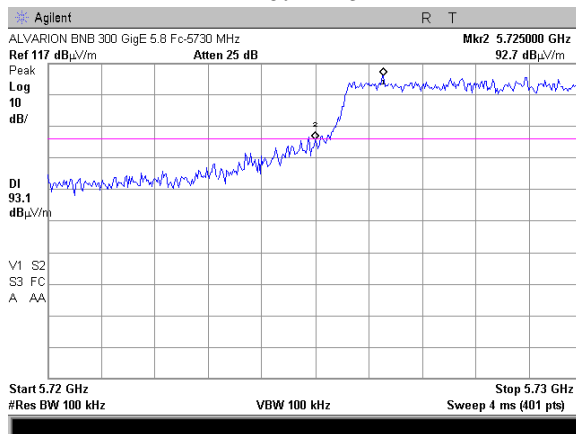
Carrier frequency – 5730 MHz



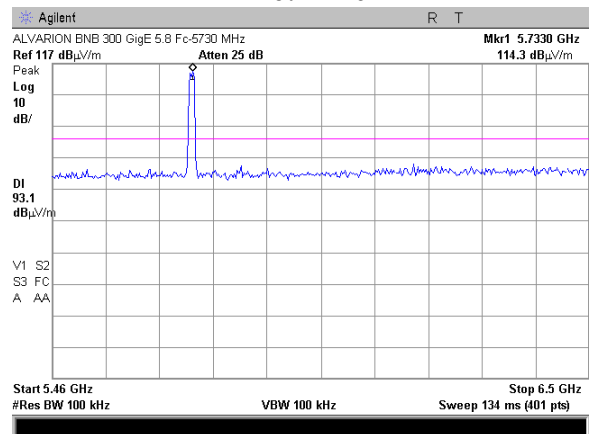
Plot # 115



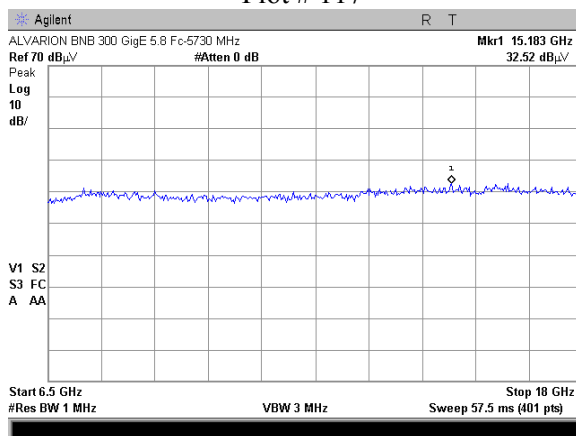
Plot # 116



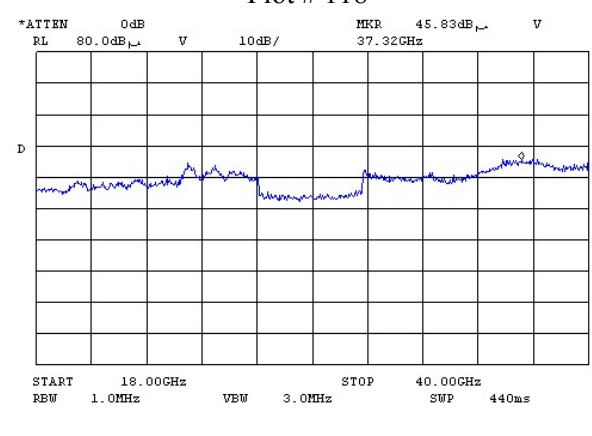
Plot # 117



Plot # 118



Plot # 119



Plot # 120



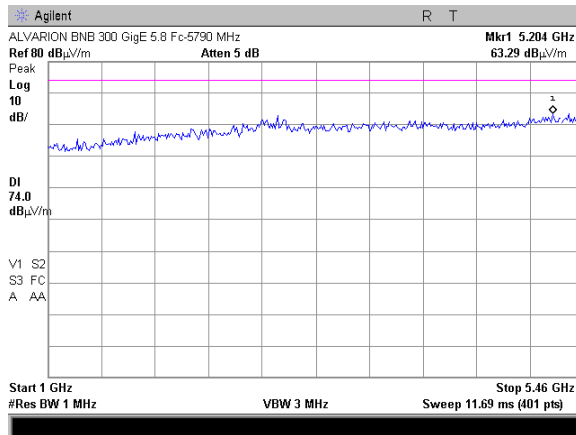
Test report N: 9012359790

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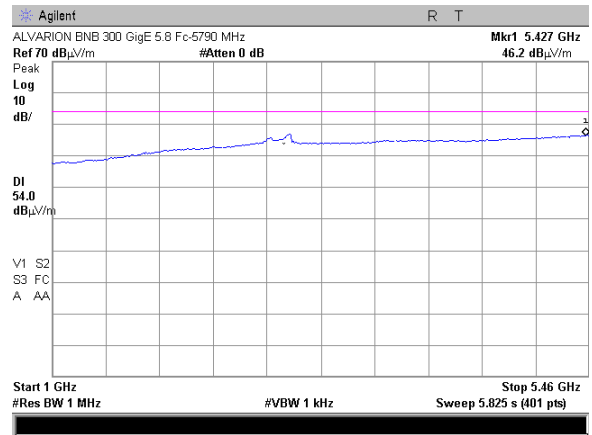
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

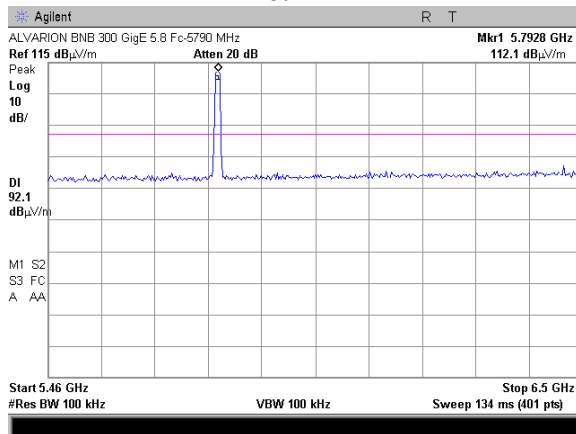
Carrier frequency – 5790 MHz.



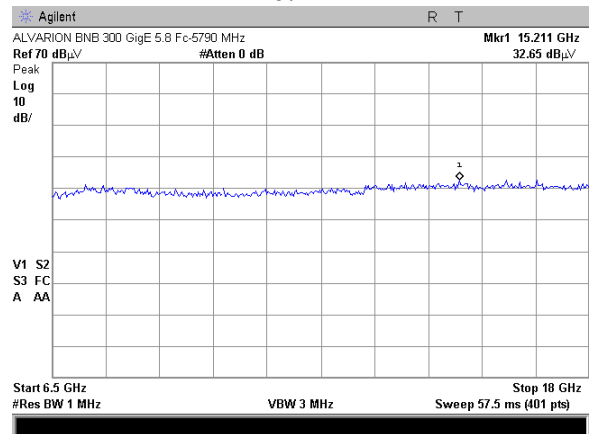
Plot # 121



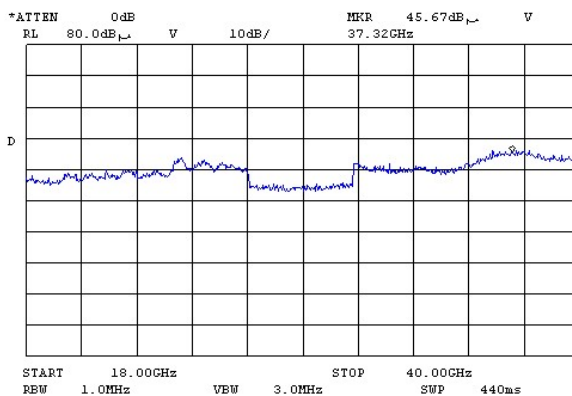
Plot # 122



Plot # 123



Plot # 124



Plot # 125



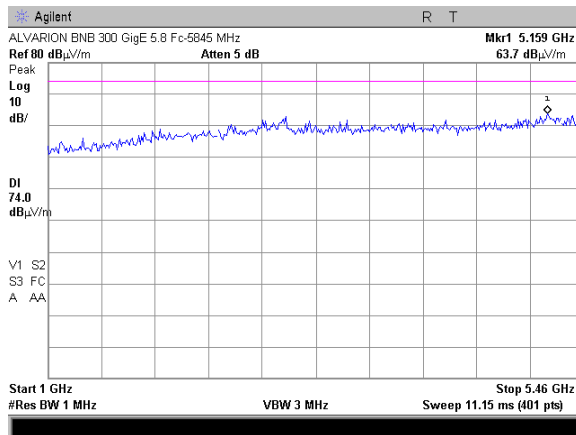
Test report N: 9012359790

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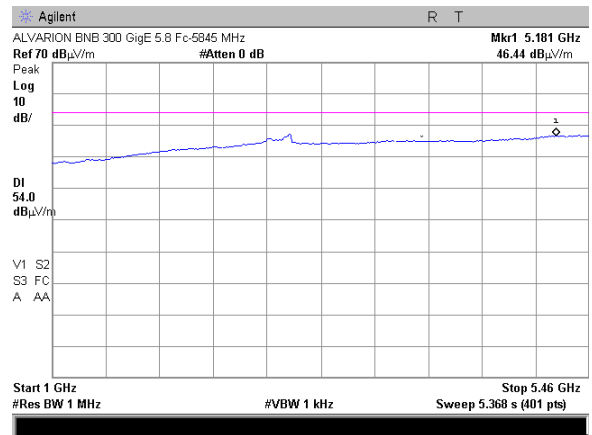
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

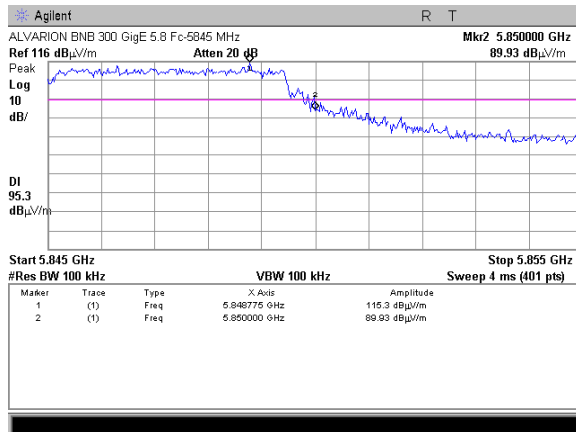
Carrier frequency – 5845 MHz.



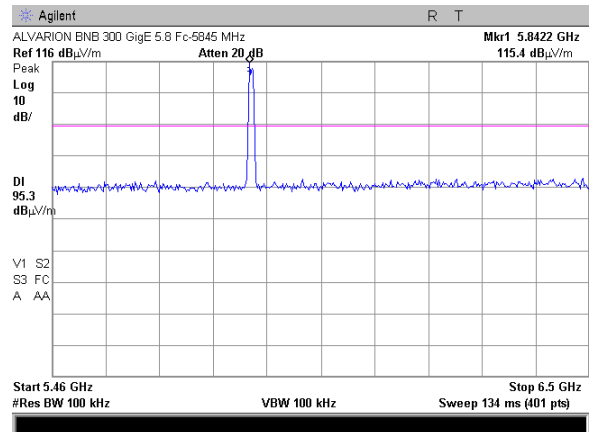
Plot # 126



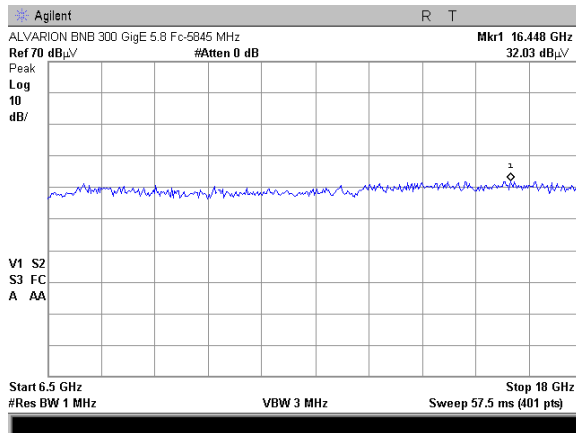
Plot # 127



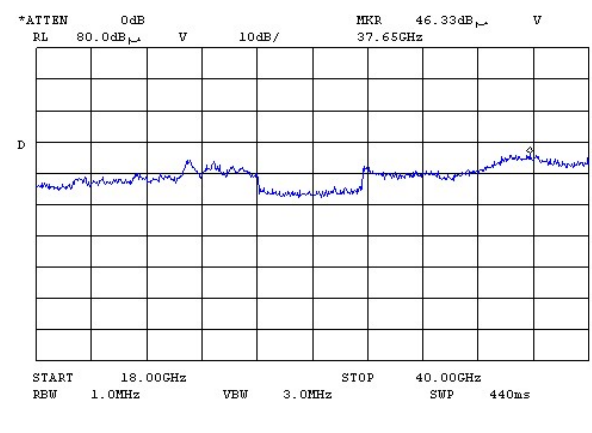
Plot # 128



Plot # 129



Plot # 130



Plot # 131



Test report N: 9012359790

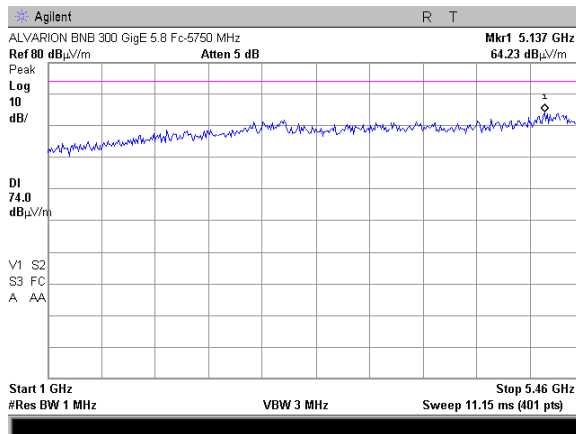
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Title: BreezeNETB 300

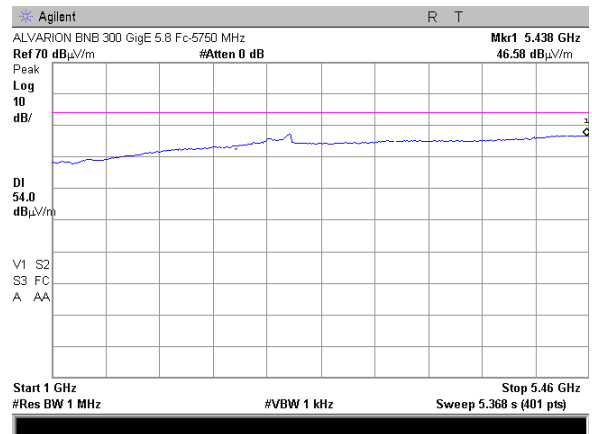
Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

40 MHz emission bandwidth

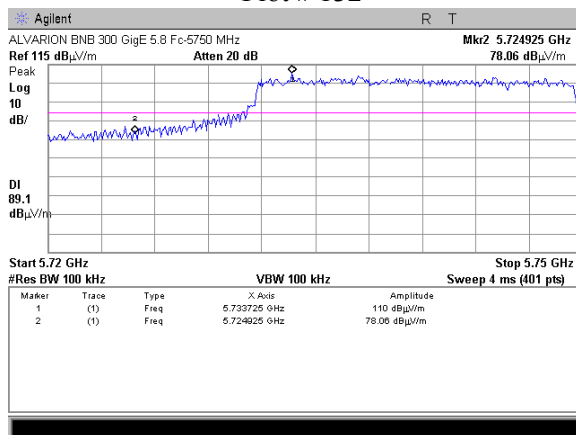
Carrier frequency - 5750 MHz



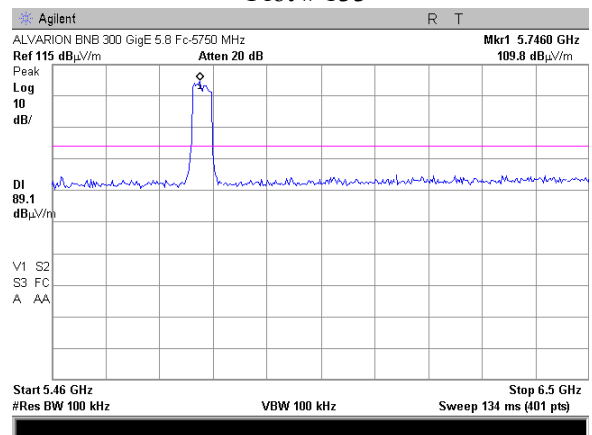
Plot # 132



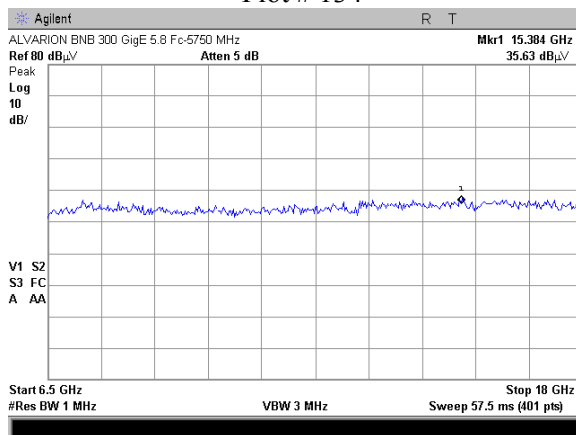
Plot # 133



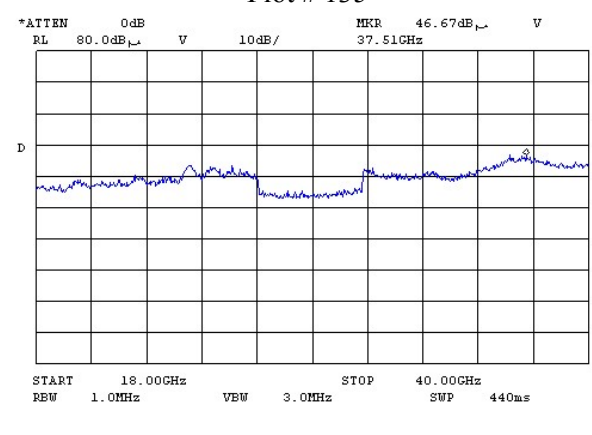
Plot # 134



Plot # 135



Plot # 136



Plot # 137



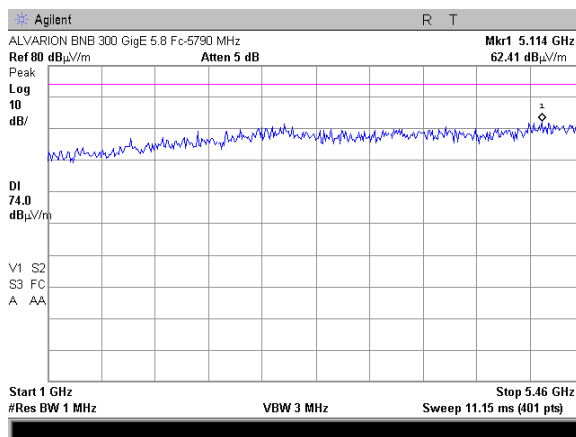
Test report N: 9012359790

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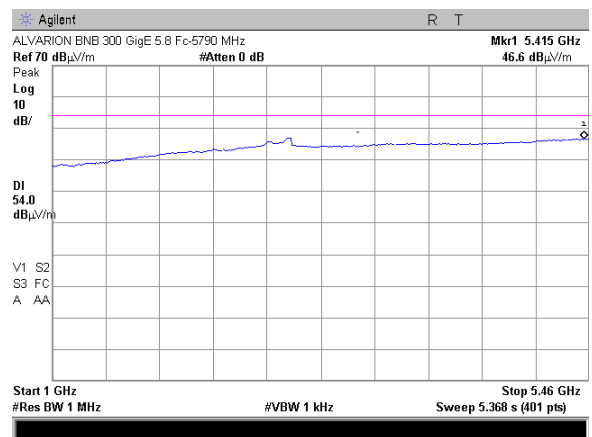
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

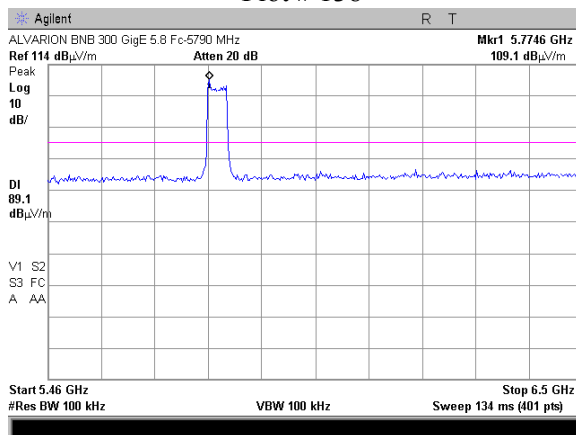
Carrier frequency – 5790 MHz.



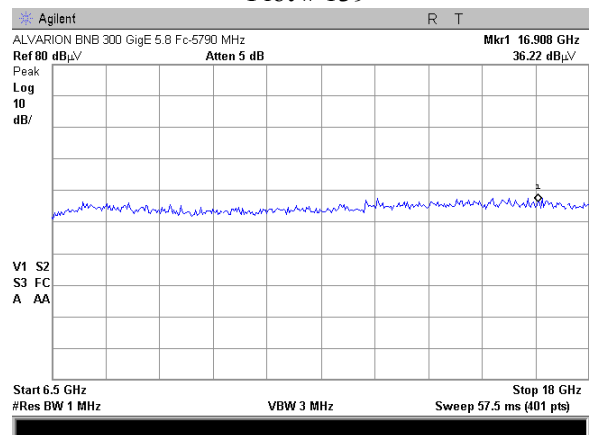
Plot # 138



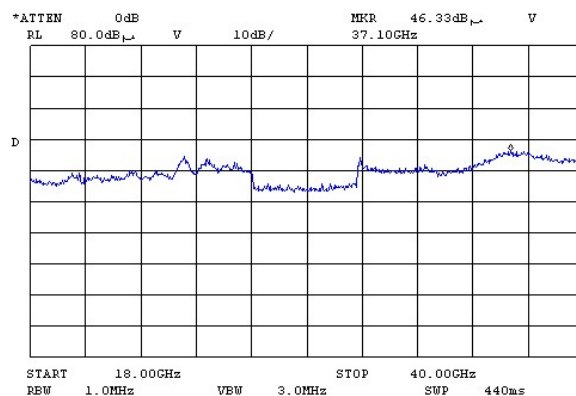
Plot # 139



Plot # 140



Plot # 141



Plot # 142



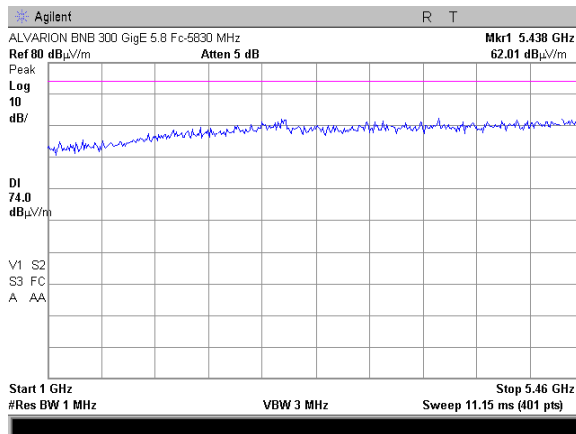
Test report N: 9012359790

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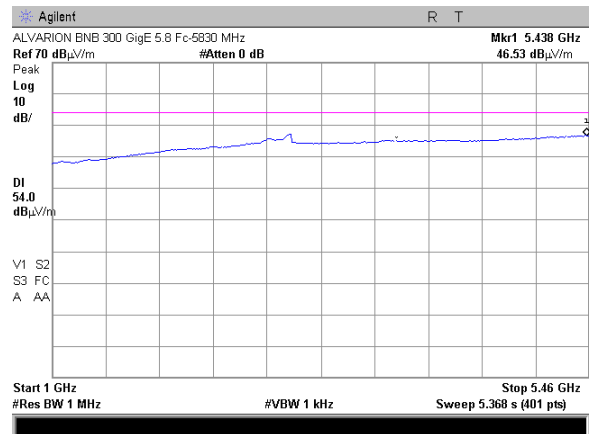
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

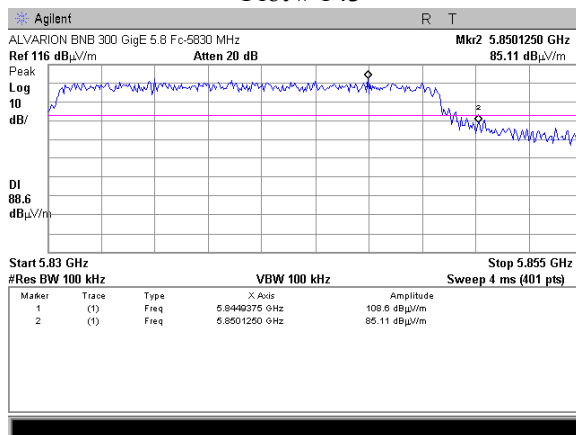
Carrier frequency – 5830 MHz.



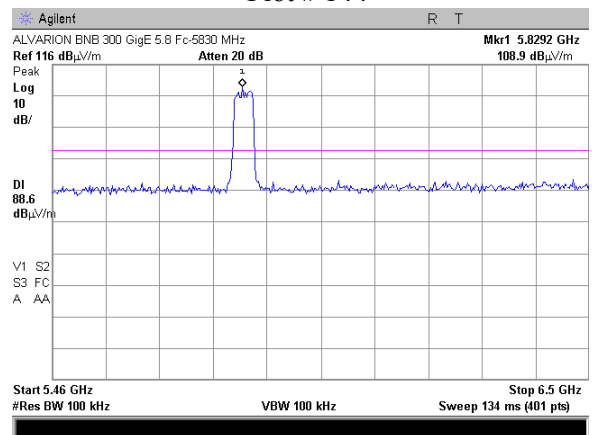
Plot # 143



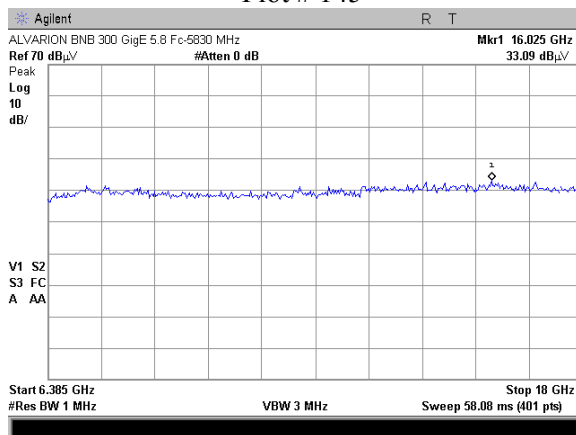
Plot # 144



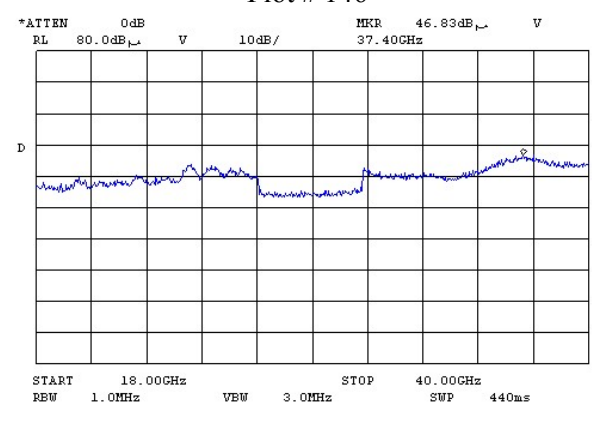
Plot # 145



Plot # 146



Plot # 147



Plot # 148

Test report N: 9012359790

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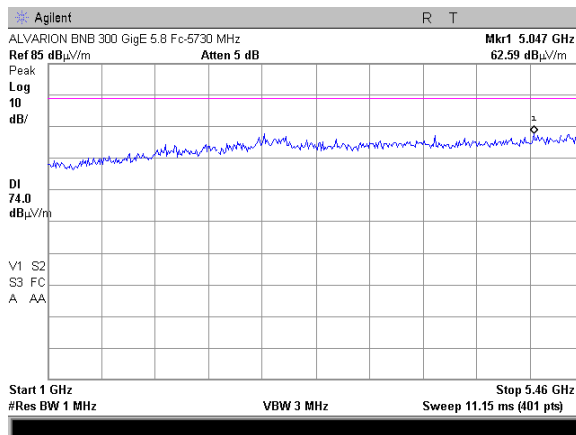
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

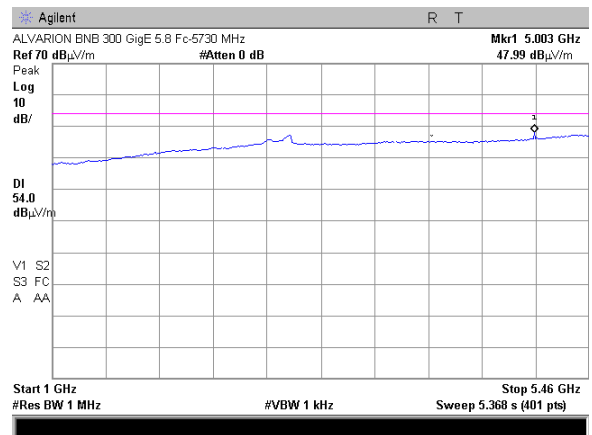
Parabolic antenna.

5 MHz emission bandwidth

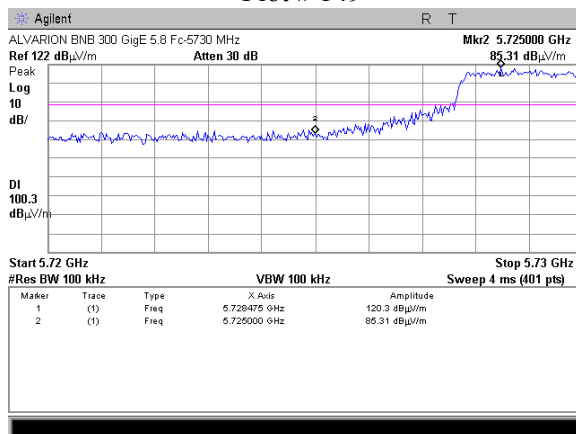
Carrier frequency – 5730 MHz



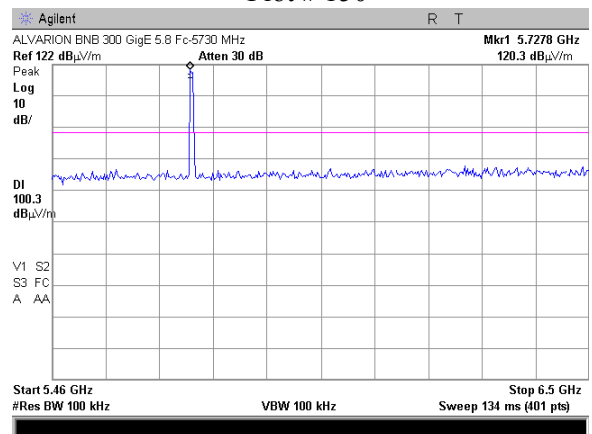
Plot # 149



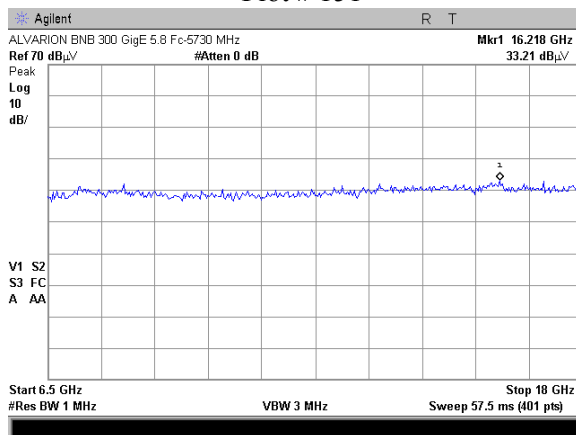
Plot # 150



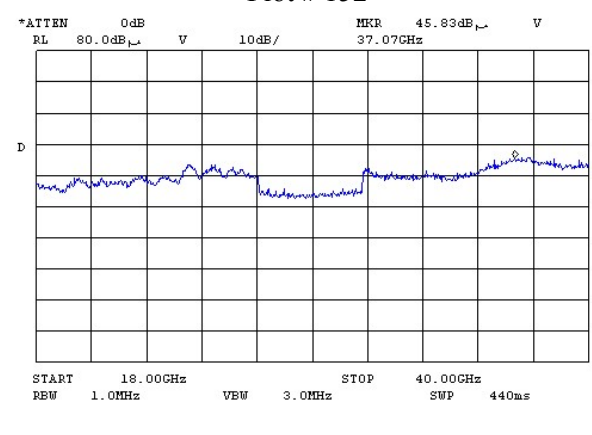
Plot # 151



Plot # 152



Plot # 153



Plot # 154



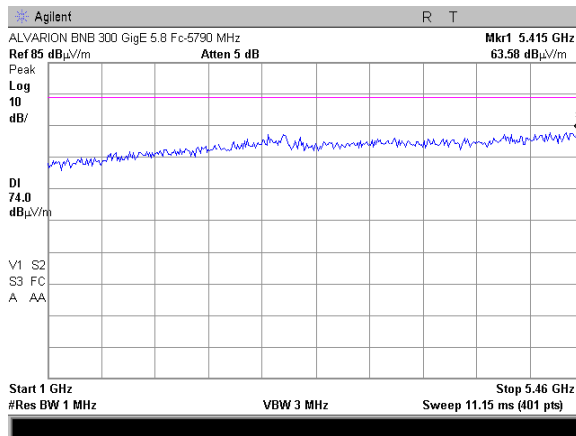
Test report N: 9012359790

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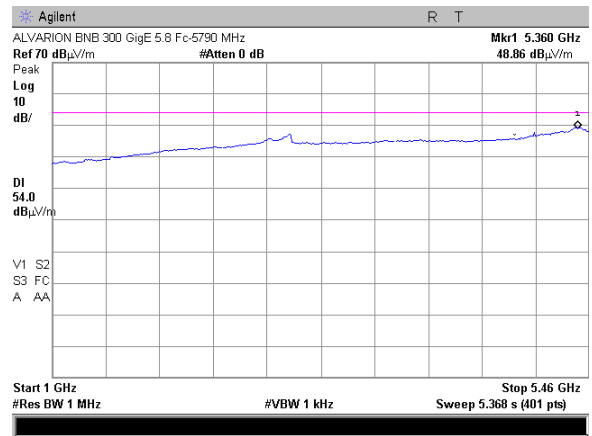
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

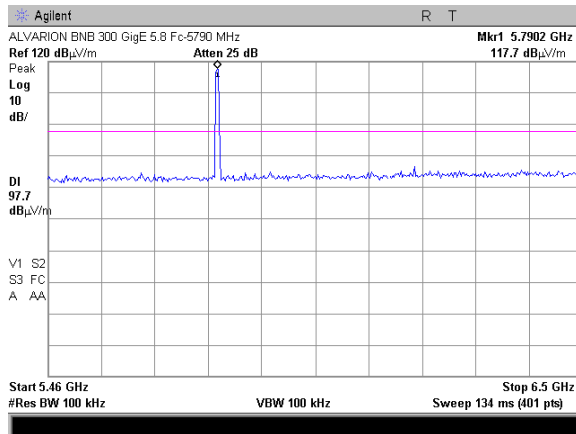
Carrier frequency – 5790 MHz.



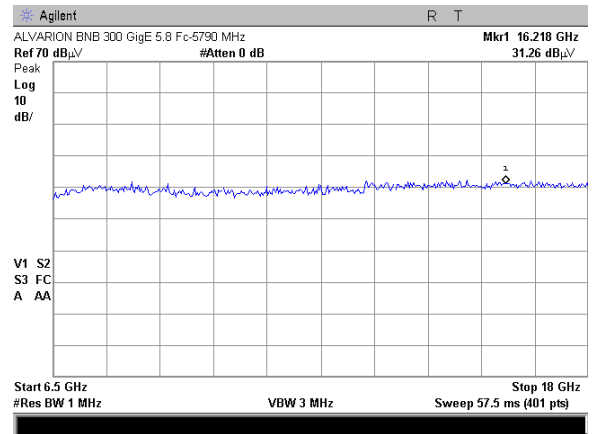
Plot # 155



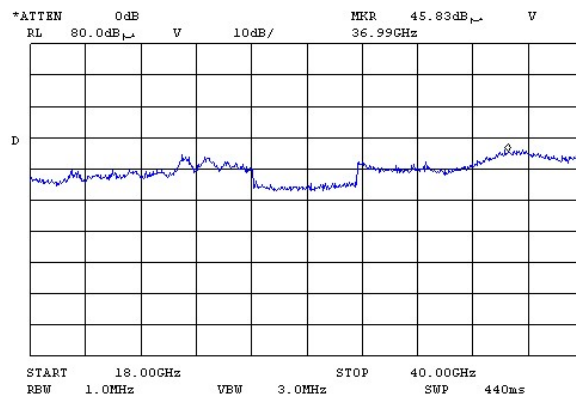
Plot # 156



Plot # 157



Plot # 158



Plot # 159



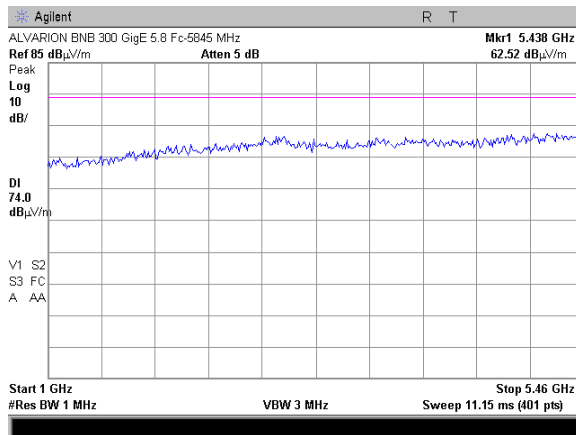
Test report N: 9012359790

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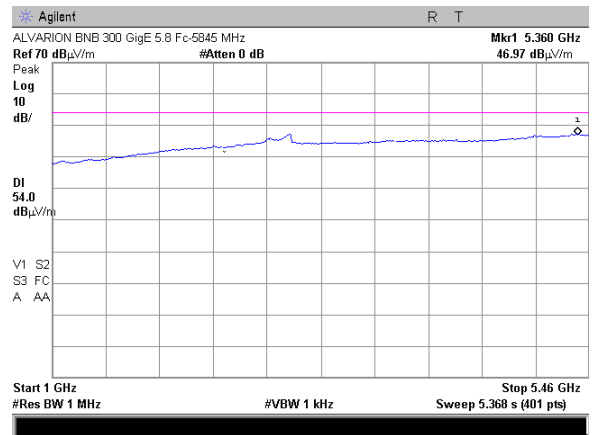
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

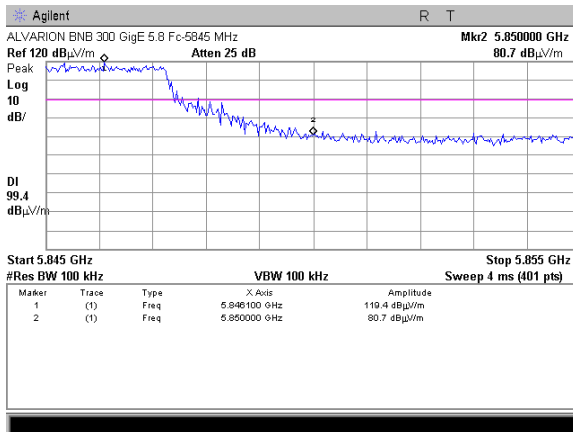
Carrier frequency – 5845 MHz.



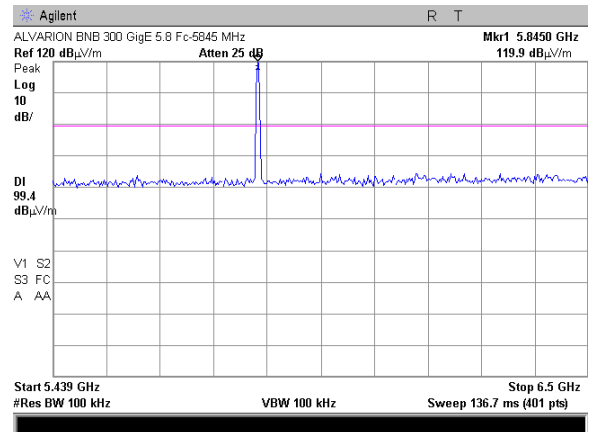
Plot # 160



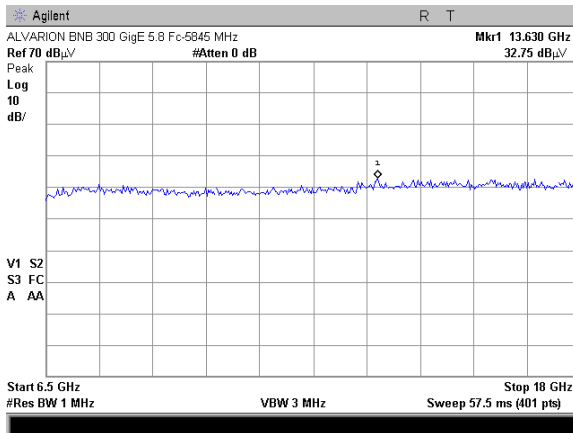
Plot # 161



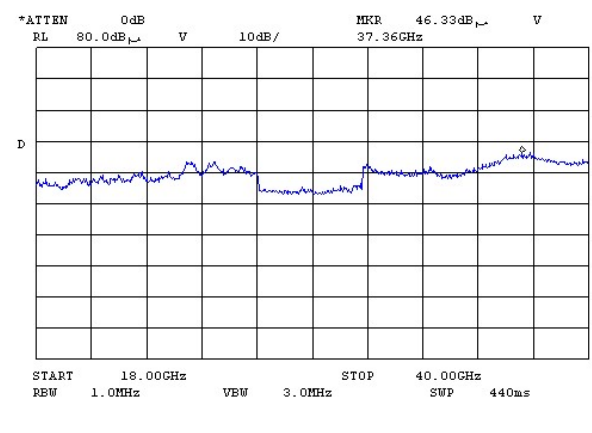
Plot # 162



Plot # 163



Plot # 164



Plot # 165



Test report N: 9012359790

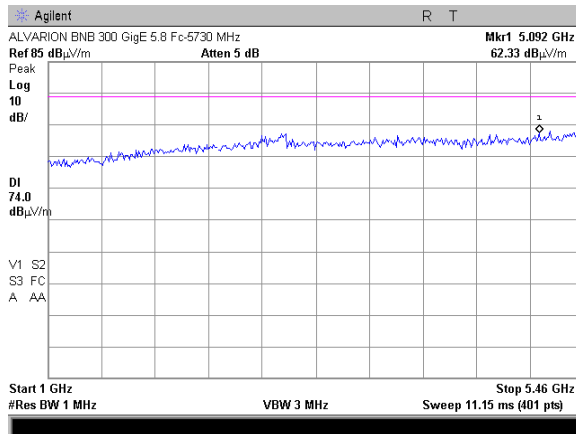
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Title: BreezeNETB 300

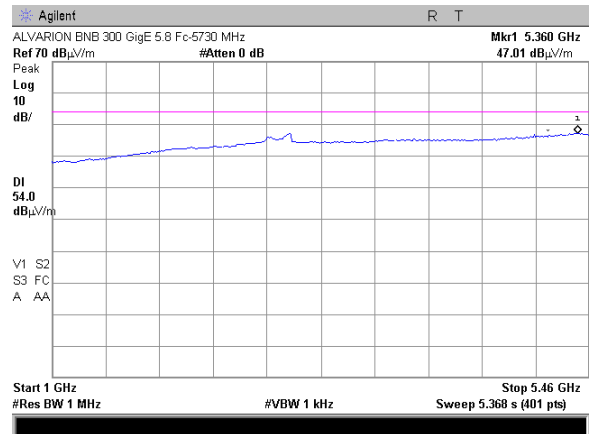
Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

10 MHz emission bandwidth

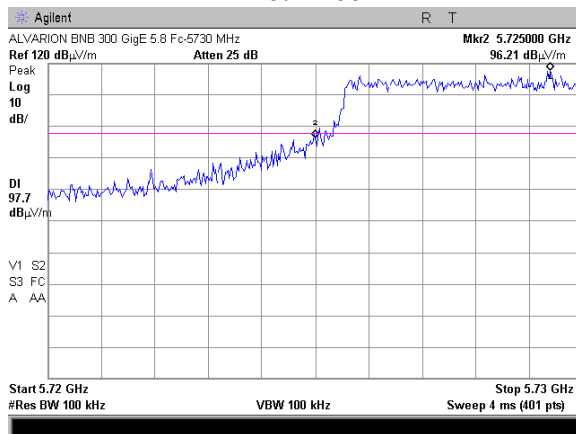
Carrier frequency – 5730 MHz.



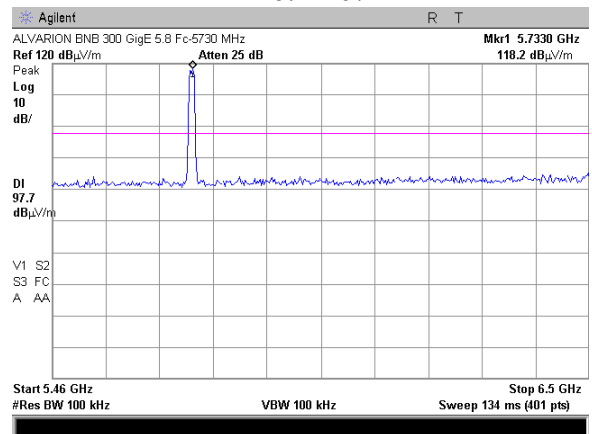
Plot # 166



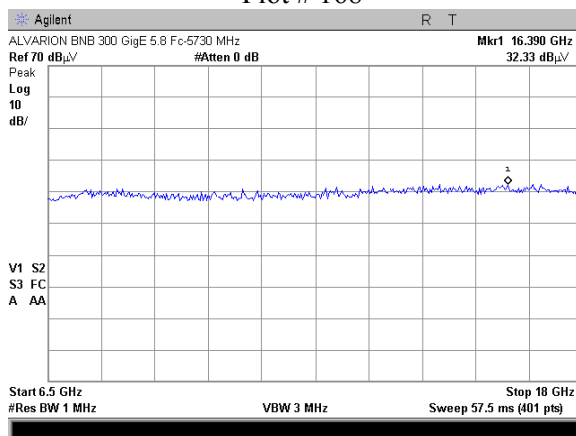
Plot # 167



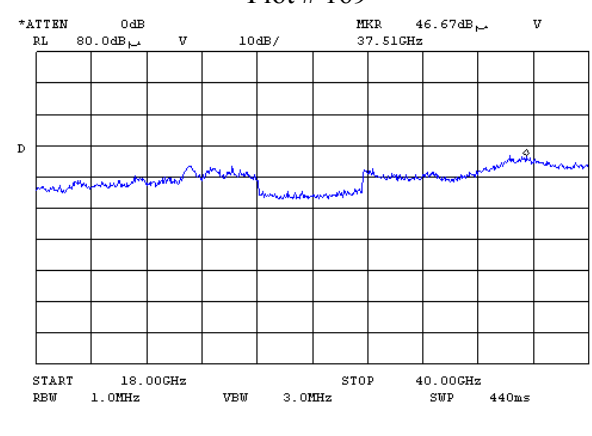
Plot # 168



Plot # 169



Plot # 170



Plot # 171



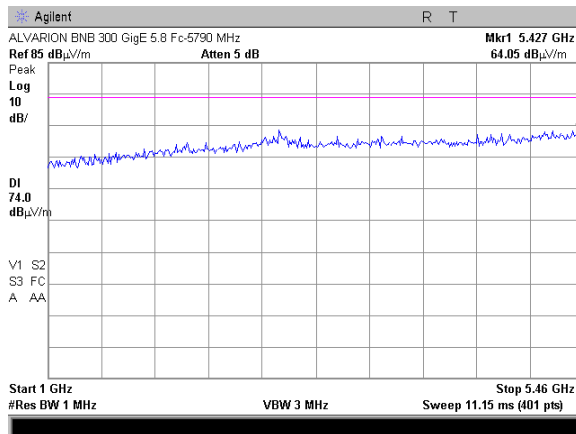
Test report N: 9012359790

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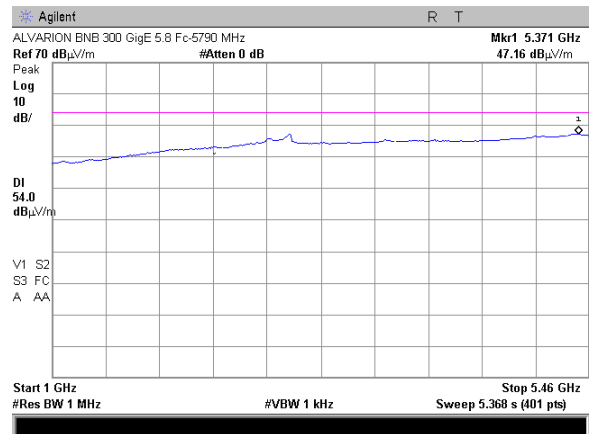
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

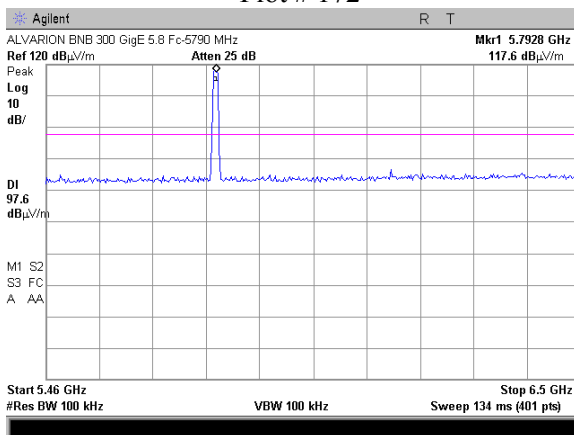
Carrier frequency – 5790 MHz.



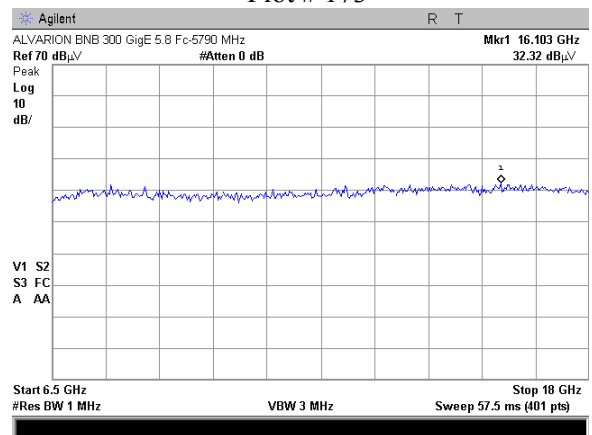
Plot # 172



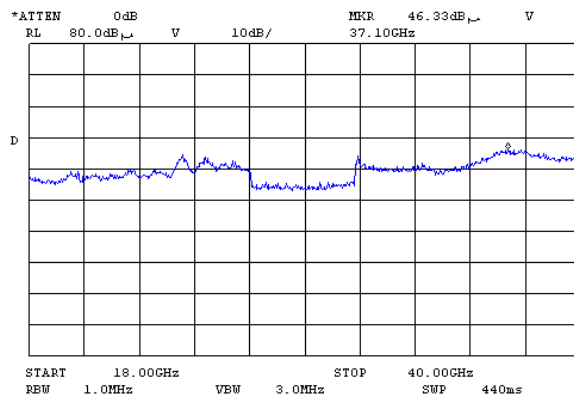
Plot # 173



Plot # 174



Plot # 175



Plot # 176



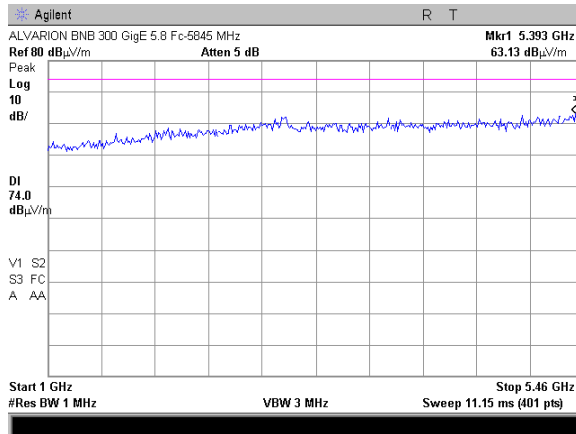
Test report N: 9012359790

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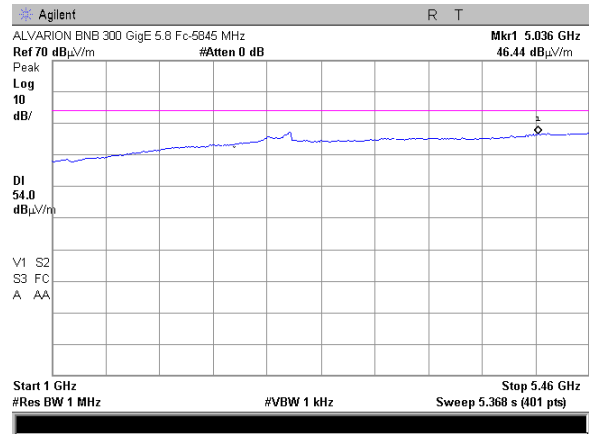
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

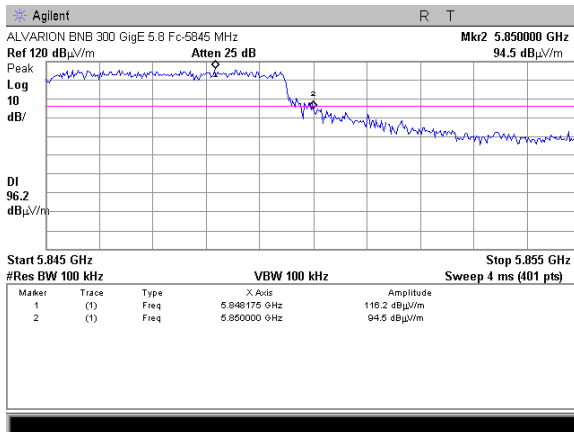
Carrier frequency – 5845 MHz.



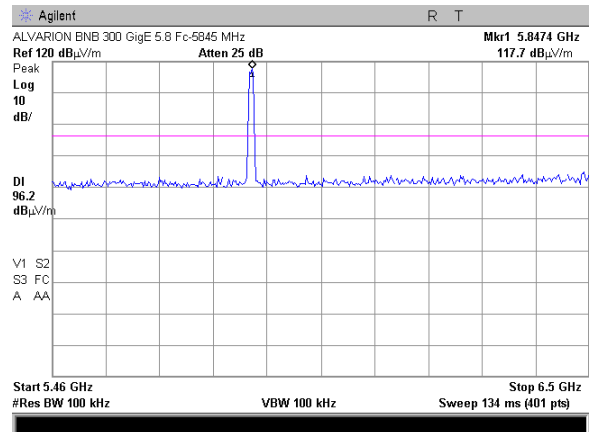
Plot # 177



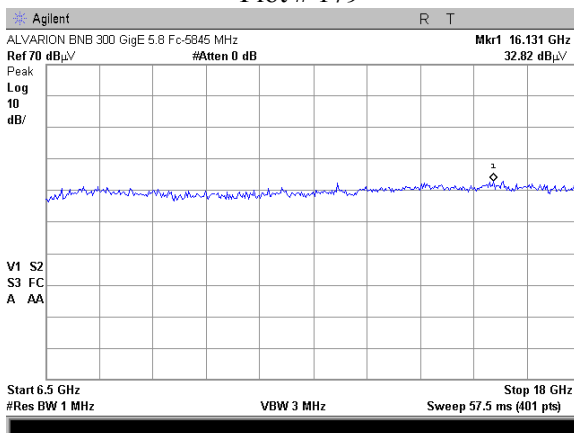
Plot # 178



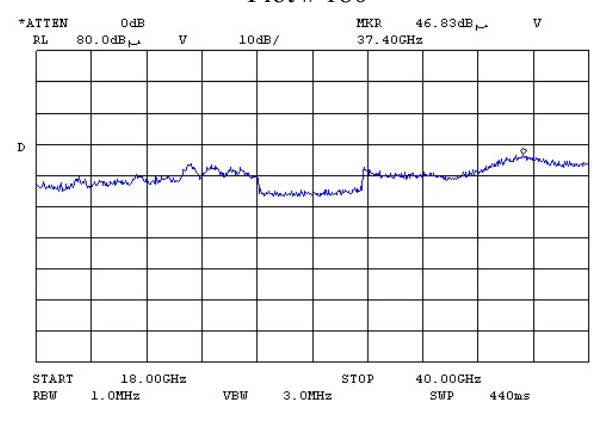
Plot # 179



Plot # 180



Plot # 181



Plot # 182



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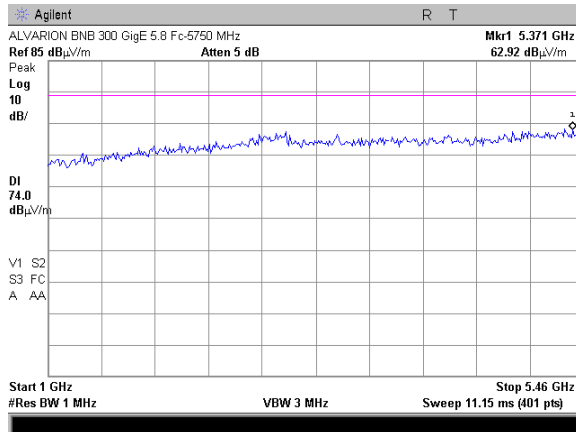
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Title: BreezeNETB 300

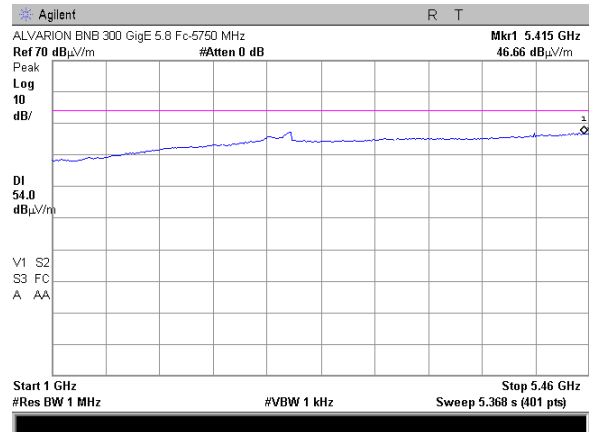
Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

40 MHz emission bandwidth

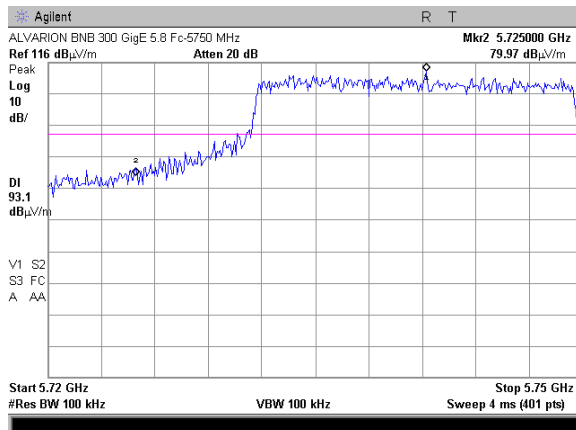
Carrier frequency – 5750 MHz.



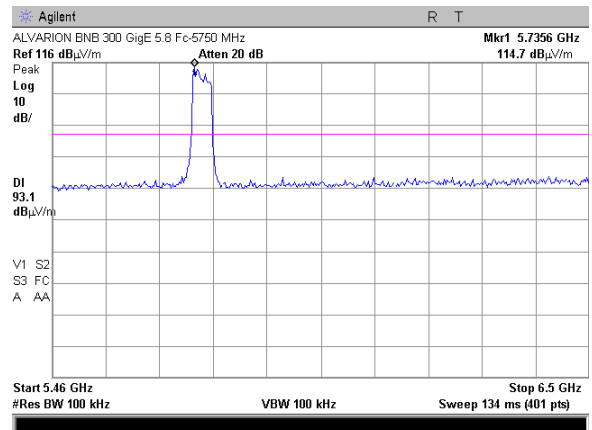
Plot # 183



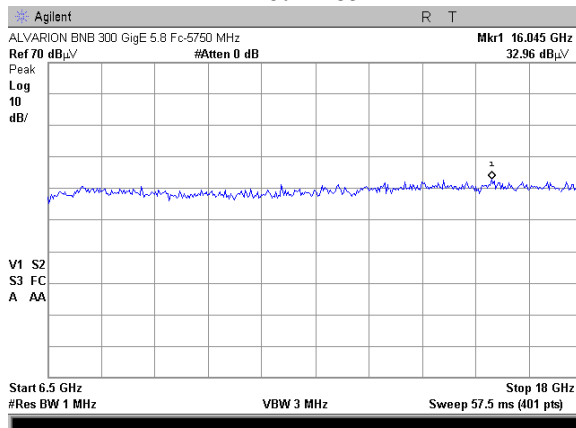
Plot # 184



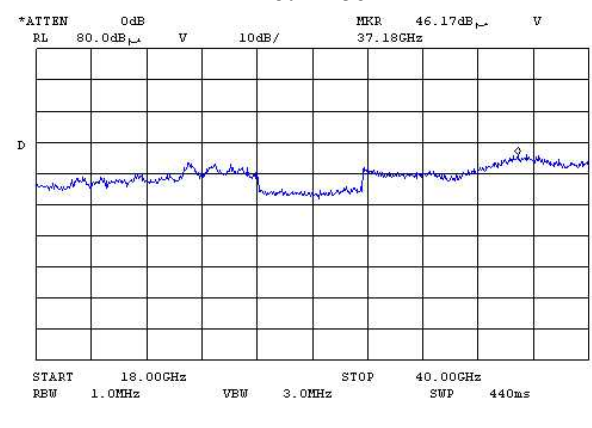
Plot # 185



Plot # 186



Plot # 187



Plot # 188



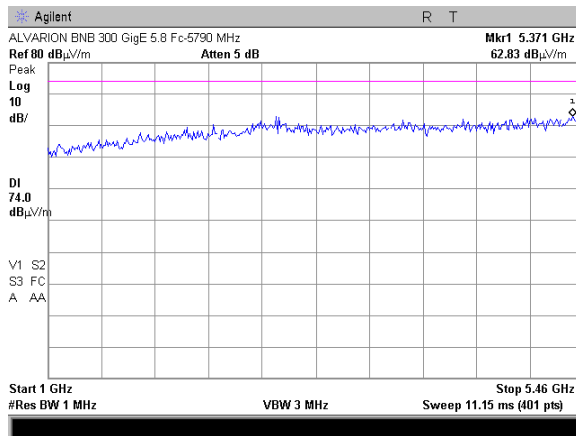
Test report N: 9012359790

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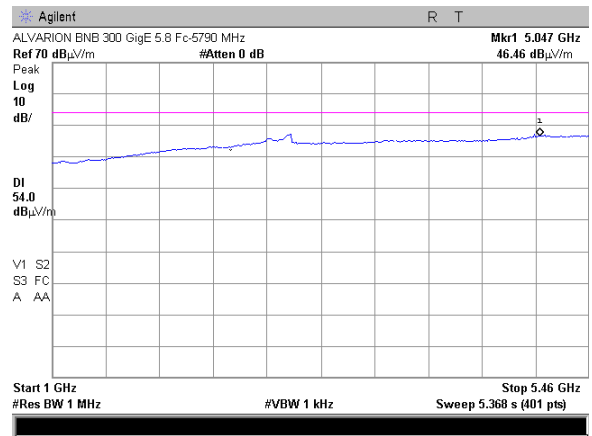
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

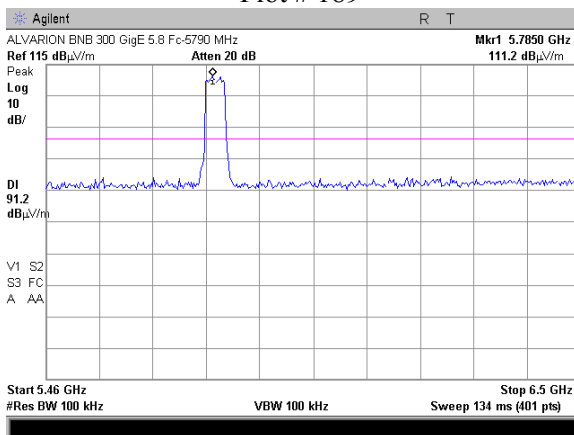
Carrier frequency – 5790 MHz.



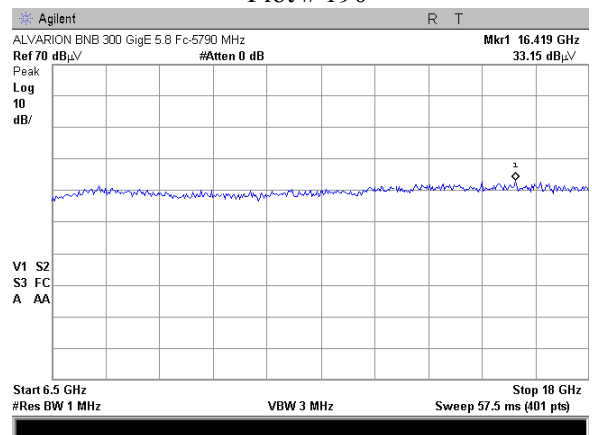
Plot # 189



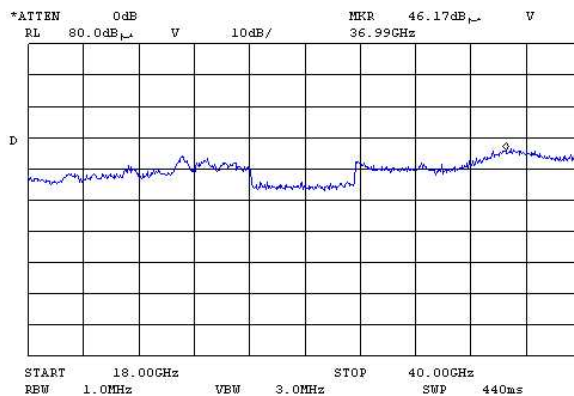
Plot # 190



Plot # 191



Plot # 192



Plot # 193



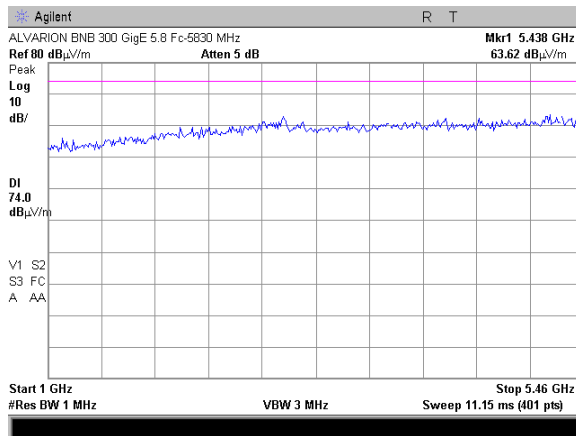
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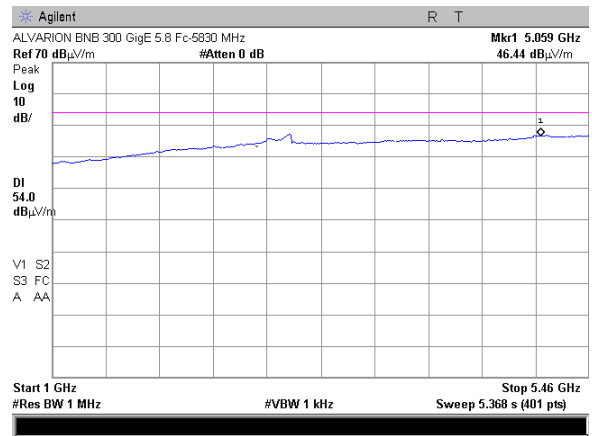
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

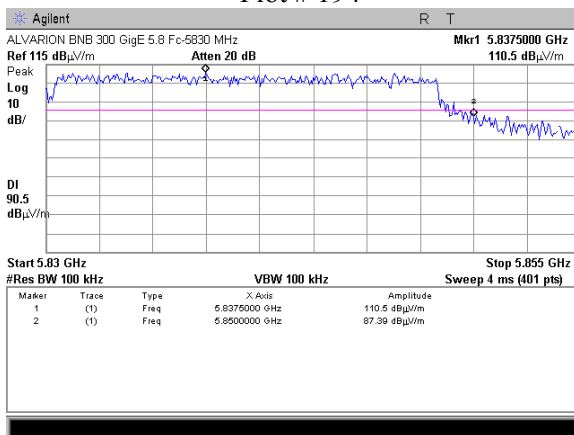
Carrier frequency – 5830 MHz.



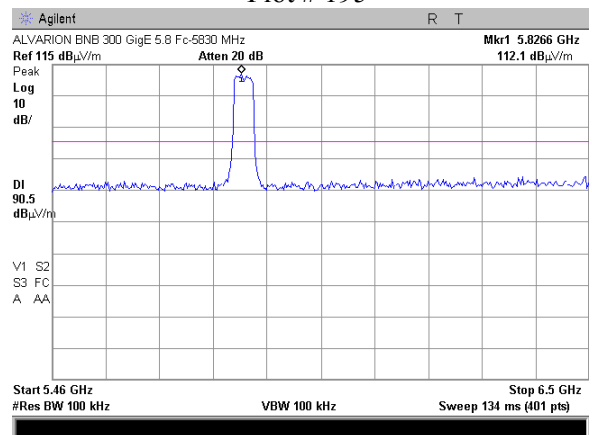
Plot # 194



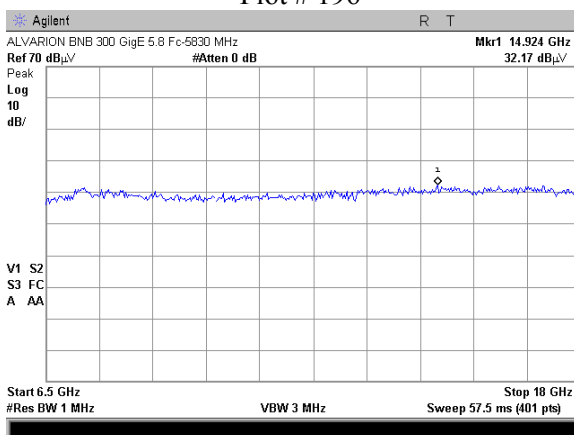
Plot # 195



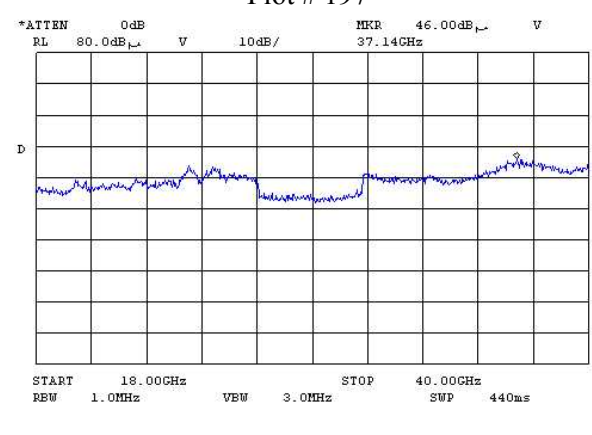
Plot # 196



Plot # 197



Plot # 198



Plot # 199



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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

7.1.5 Power spectral density of digital modulated systems according to § 15.247(e)

Method of measurement FCC March 23, 2005 procedure
Operating Frequency Range 5730 – 5845 MHz
Ambient Temperature 23° C Relative Humidity 49% Air Pressure 1007 hPa

Table with 5 columns: EBW, Carrier frequency MHz, Measured PSD dBm, Specified limit dBm, Reference to plots ##. Rows show data for EBW values 5, 10, 20, and 40 across various carrier frequencies.

LIMIT

The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

The test was performed at the lowest middle and at the highest emission bandwidth options. The measurements were performed in normal (transmitting) mode of operation for carrier (channel) frequency at bottom, middle and the top of the 5725 – 5850 MHz frequency range under maximum data transfer bit rate.

TEST EQUIPMENT USED:

Table with 7 columns, containing numbers 2, 3, 4, 5 in the first four columns.



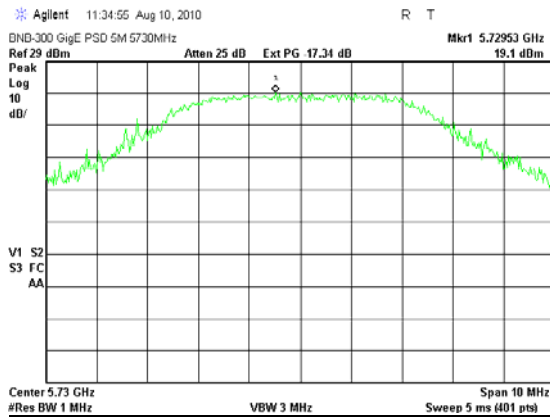
Test report N: 9012359790

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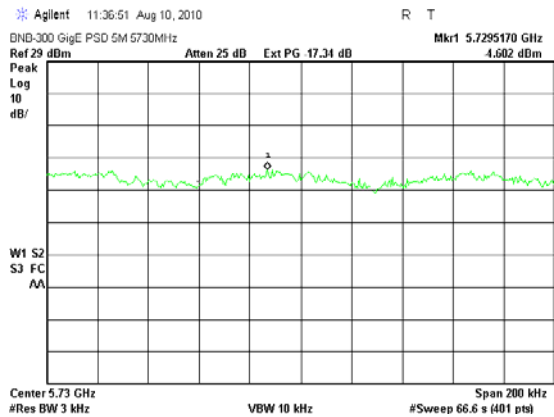
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

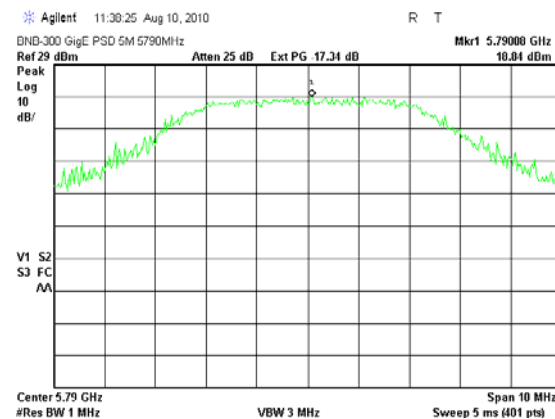
5 MHz emission bandwidth



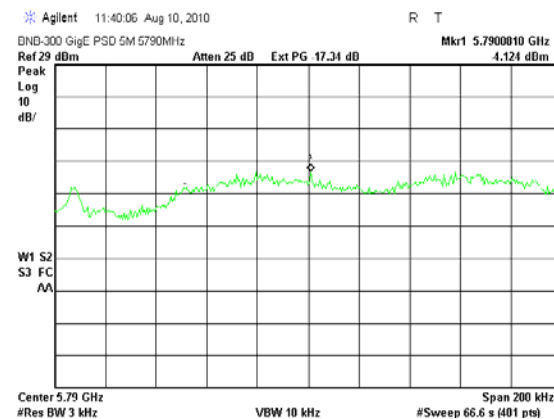
Plot # 200. Carrier frequency 5730 MHz.



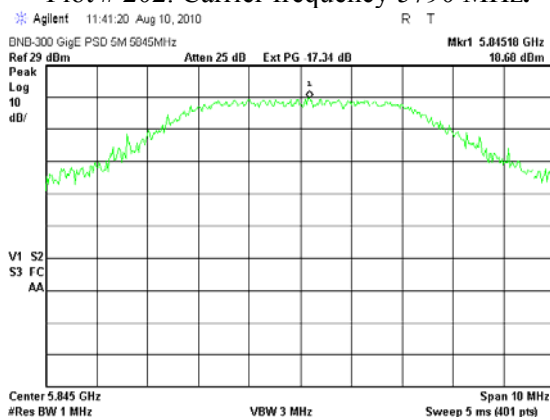
Plot # 201. Carrier frequency 5730 MHz.



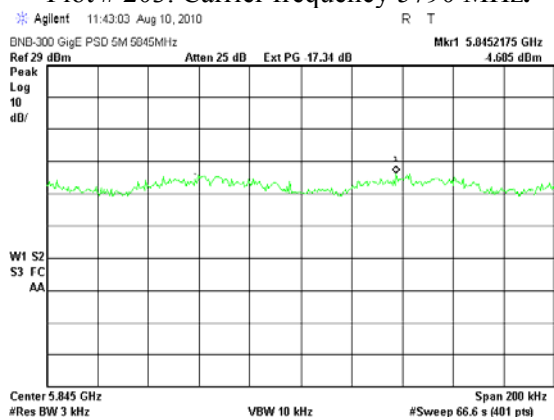
Plot # 202. Carrier frequency 5790 MHz.



Plot # 203. Carrier frequency 5790 MHz.



Plot # 204. Carrier frequency 5845 MHz



Plot # 205. Carrier frequency 5845 MHz

Insertion loss of external attenuator, power splitter and cable = 17.34 dB



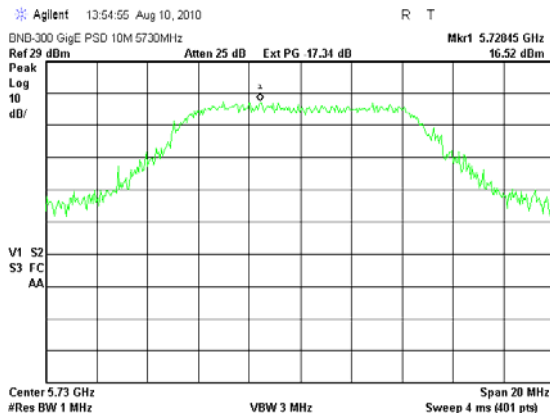
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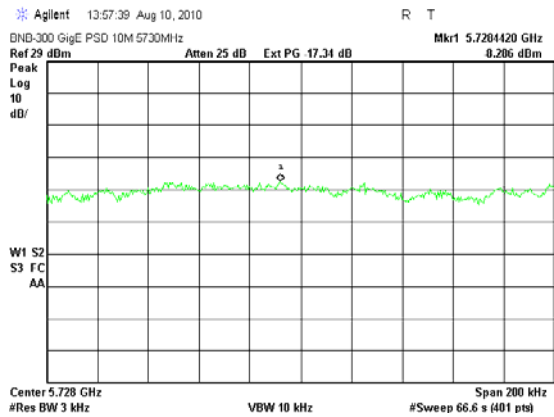
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

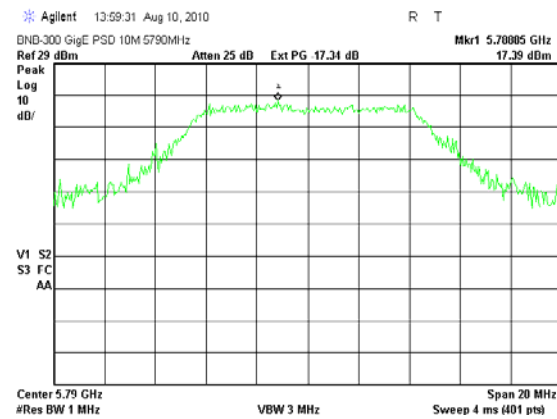
10 MHz emission bandwidth



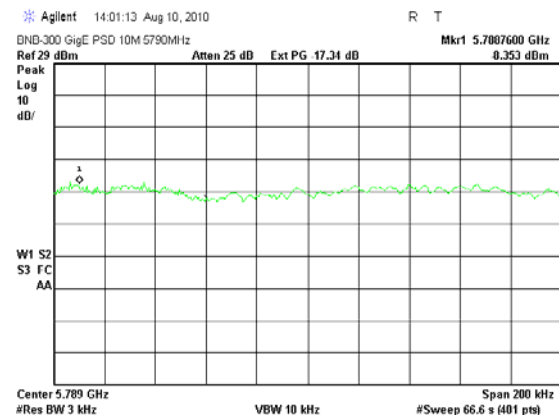
Plot # 206. Carrier frequency 5730 MHz.



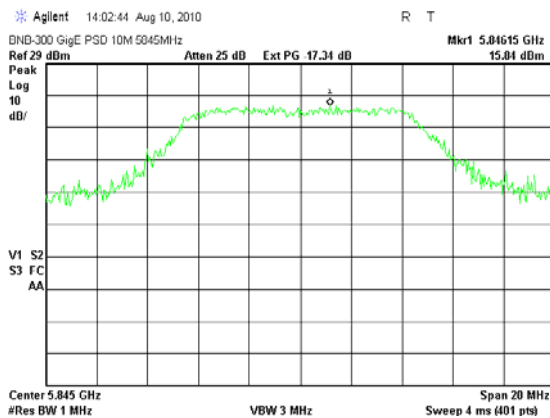
Plot # 207. Carrier frequency 5730 MHz.



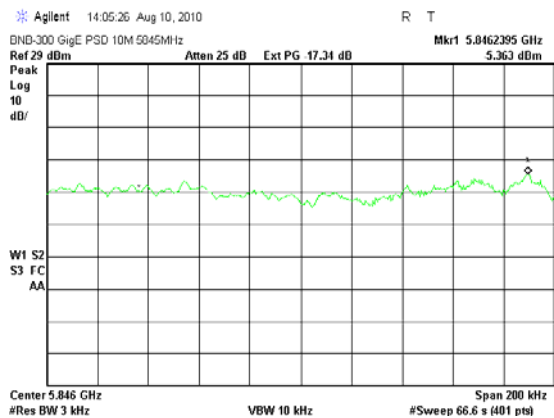
Plot # 208. Carrier frequency 5790 MHz.



Plot # 209. Carrier frequency 5790 MHz.



Plot # 210. Carrier frequency 5845 MHz



Plot # 211. Carrier frequency 5845 MHz



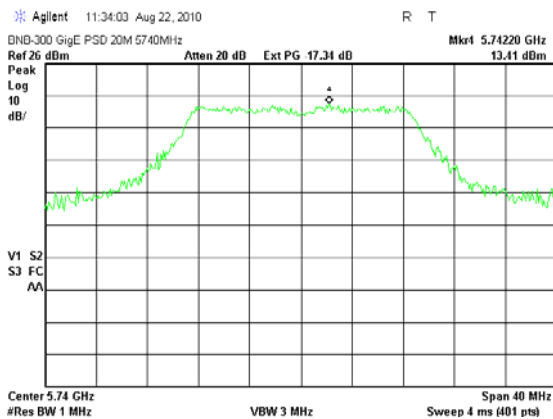
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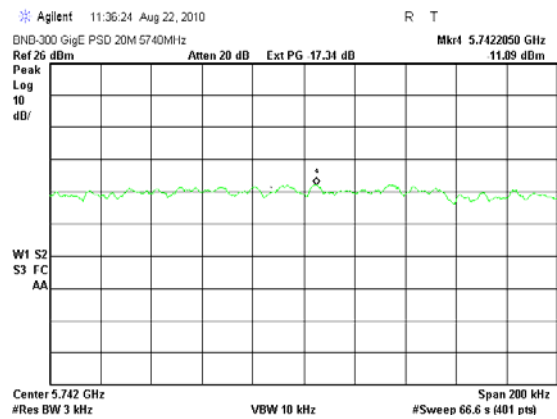
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

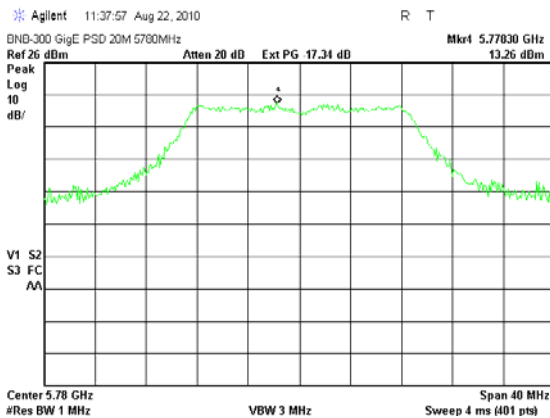
20 MHz emission bandwidth



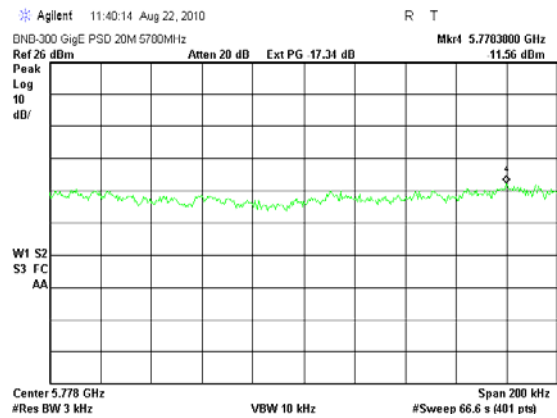
Plot # 212. Carrier frequency 5740 MHz.



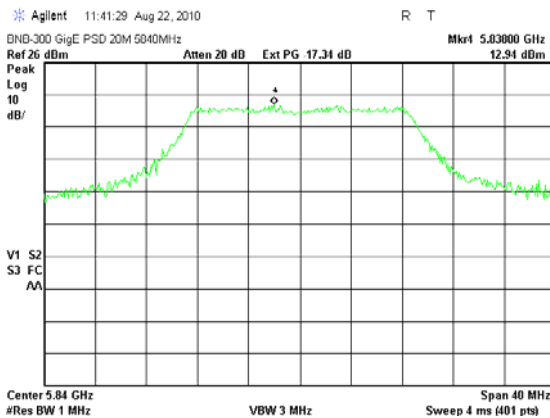
Plot # 213. Carrier frequency 5740 MHz.



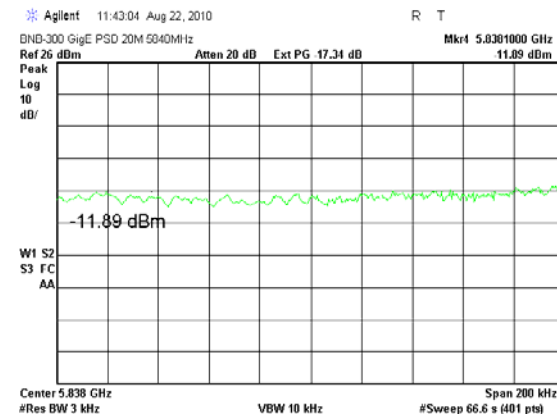
Plot # 214. Carrier frequency 5780 MHz.



Plot # 215. Carrier frequency 5780 MHz.



Plot # 216. Carrier frequency 5840 MHz.



Plot # 217. Carrier frequency 5840 MHz.



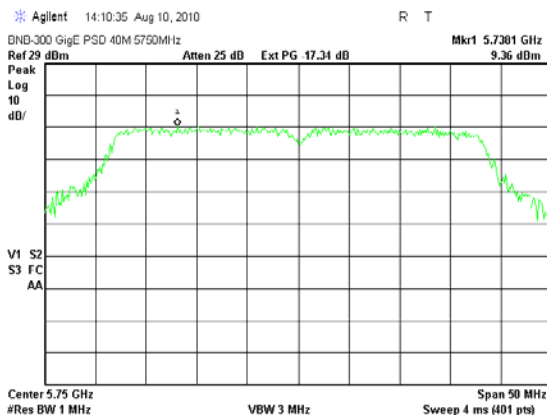
Test report N: 9012359790

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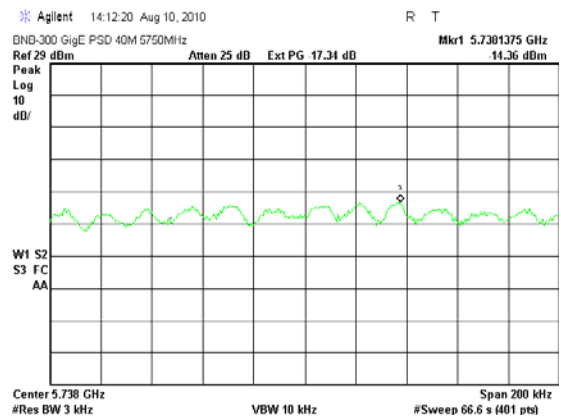
Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

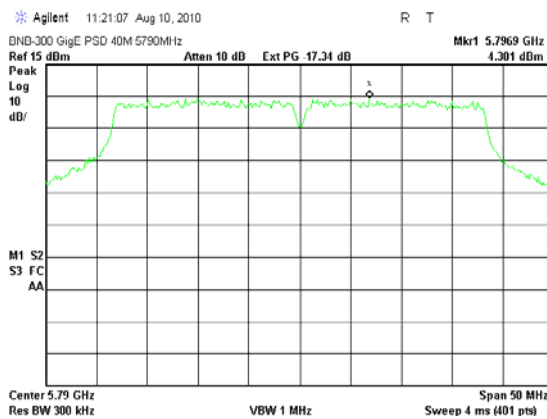
40 MHz emission bandwidth



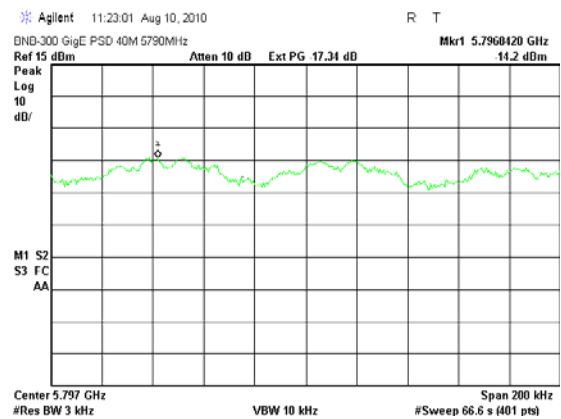
Plot # 218. Carrier frequency 5750 MHz.



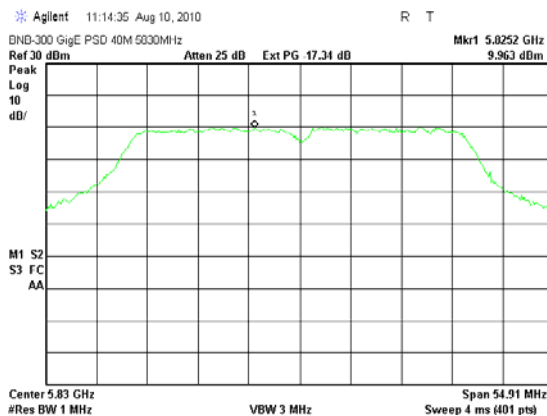
Plot # 219. Carrier frequency 5750 MHz.



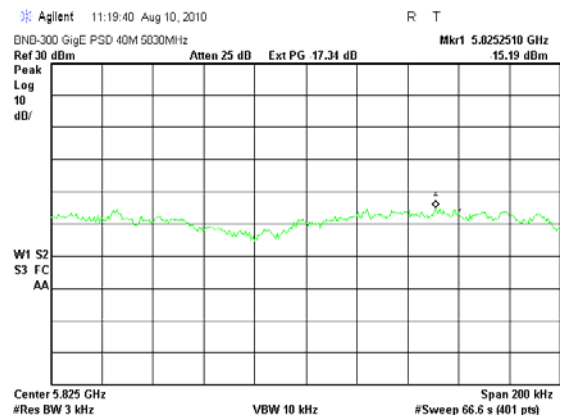
Plot # 220. Carrier frequency 5790 MHz.



Plot # 221. Carrier frequency 5790 MHz.



Plot # 222. Carrier frequency 5830 MHz



Plot # 223. Carrier frequency 5830 MHz



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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

7.1.6 Receiver spurious emissions according to RSS-210 section 2.6.

The frequency spectrum was investigated from the lowest radio frequency signal generated in the equipment to at least 3 times of the highest fundamental frequency. Investigation was performed at 1 m test distance with peak and average detectors according to limit of section 2.7 table 2. The emission levels of the EUT more than 20 dB lower than the specified limit were not recorded in the tables. For the test results refer to plots in this section. Test results in 30 – 1000 MHz frequency range are recorded in section 8.

Frequency, MHz	Field strength μV/m(dBμV/m)@3m distance
30 - 88	100(40)
88 - 216	150(43.5)
216 - 960	200(46)
Above 960	500(54)

TEST SUMMARY

All emissions were found below the limit.

No emissions were found above SA noise floor in 6.5 – 18 GHz frequency band that is at least 40 dB under the limit.

TEST EQUIPMENT USED:

5	6	8	9	10		
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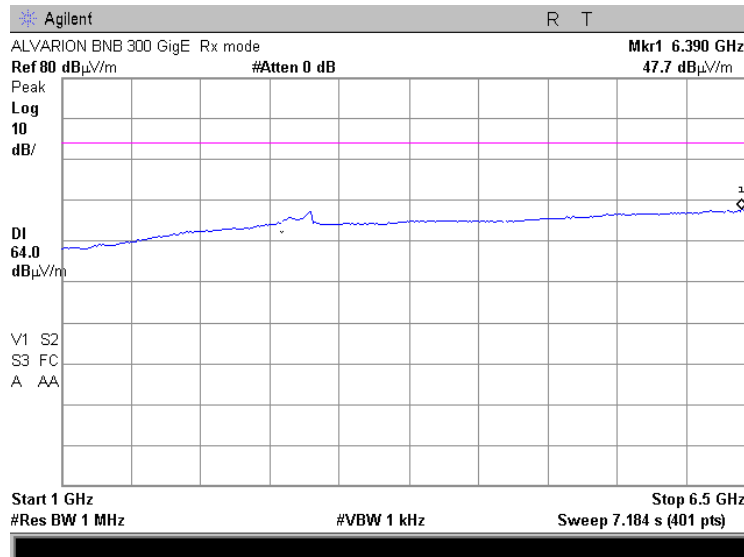


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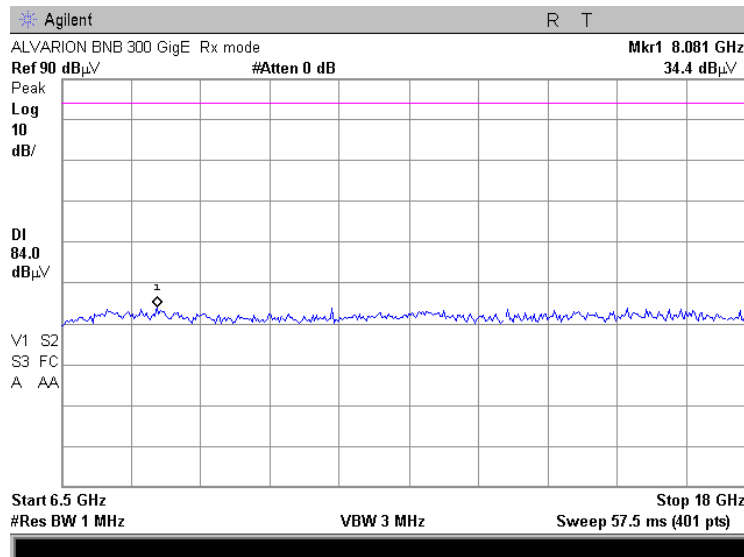
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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X



Plot # 224



Plot # 225

**Test report N: 9012359790****Page 65 of 78****Title: BreezeNETB 300****Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X****8. Radiated emissions test according to § 15.209**

Method of measurement	ANSI 63.4 §13.1.4		
Operating Frequency Range	5730 – 5845 MHz		
Ambient Temperature	23° C	Relative Humidity	58%
		Air Pressure	1009 hPa

TEST DESCRIPTION:

The measurements were performed at the Open Area Test Site at a 10 m test distance. EUT was arranged on a wooden table 0.8 m placed on the turn - table. The Biconilog antenna 30 MHz-2 GHz frequency range was used. The frequency range was investigated from 30 MHz to 1.0 GHz and the measurements were performed at each frequency at which the signal was 10 dB below the limit or less. The level was maximized by initially rotating turntable through 360°, varying the antenna height between 1 m and 4 m, rerouting EUT cables and changing antenna polarization from vertical to horizontal.

REQUIREMENTS:

EUT radiated emission shall not exceed value required in section 15.209

TEST RESULT:

Test results are presented in the table #1.



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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

Table 1. Radiated emission test results.

Frequency (MHz)	Antenna Polariz V/H	Turn- table Angle (°)	Antenna Height (m)	Emission Level Note 1 dB μ V/m	Limit @ 3m dB μ V/m	Margin Note 2 (dB)	Results
30.4	V	121	1.0	36.6	40.0	3.4	Pass
33.8	V	345	1.0	35.9	40.0	4.1	Pass
49.8	V	293	1.0	29.4	40.0	10.6	Pass
65.2	V	12	1.0	34.2	40.0	5.8	Pass
68.1	V	59	1.0	36.2	40.0	3.8	Pass
76.4	V	167	1.1	33.5	40.0	6.5	Pass

Note 1: Emission level = E Reading (dB μ V) + Cable loss (dB) + Antenna Factor (dB/m) + 10 dB
Where 10 dB is an extrapolation distance factor.

For Cable Loss and Antenna Factor refer to Appendix 2.

Note 2: Margin (dB) = Limit (dB μ V/m) – Emission level (dB μ V/m)

TEST EQUIPMENT USED:

8	9					
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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

9. Conducted emissions according to § 15.207

Method of measurement	ANSI 63.4 §13.1.3		
Operating Frequency Range	5730 – 5845 MHz		
Ambient Temperature	21 ⁰ C	Relative Humidity	54% Air Pressure 1008 hPa

Frequency, MHz	Class B equipment, dB (µV)	
	QP	AVRG
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5	56	46
5 - 30	60	50

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

EUT was placed on a wooden table in a shielded chamber at a height of 80 cm from the floor and 40 cm from the vertical reference plane. The measurements were performed at mains terminals by means of LISN, connected to spectrum analyzer in the frequency range as referred to in the table above. The measurements were made with quasi-peak (CISPR) and average detectors. The position of the EUT cables was varied to determine maximum emission level.

TEST RESULTS:

Test results present at plots # 226 for line Phase and # 227 for line Neutral.

TEST EQUIPMENT USED:

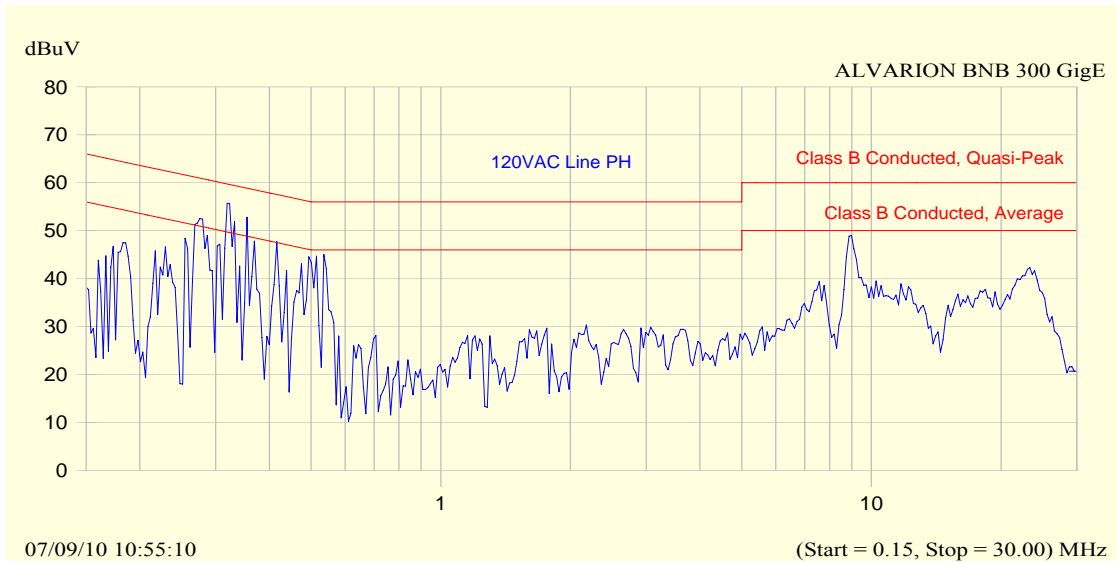
10	11	12				
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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X



Frequency MHz	QP dB μ V	QP Limit dB	Margin dB	Avg dB μ V	Avg Limit dB	Margin dB
0.238	46.2	62.2	16.0	36.8	52.2	15.4
0.326	55.0	59.6	4.5	47.6	49.6	2.0
0.331	54.4	59.4	5.1	45.1	49.4	4.3
0.515	46.1	56.0	9.9	38.4	46.0	7.6
8.999	43.8	60.0	16.2	35.1	50.0	14.9
23.218	38.7	60.0	21.3	32.0	50.0	18.0

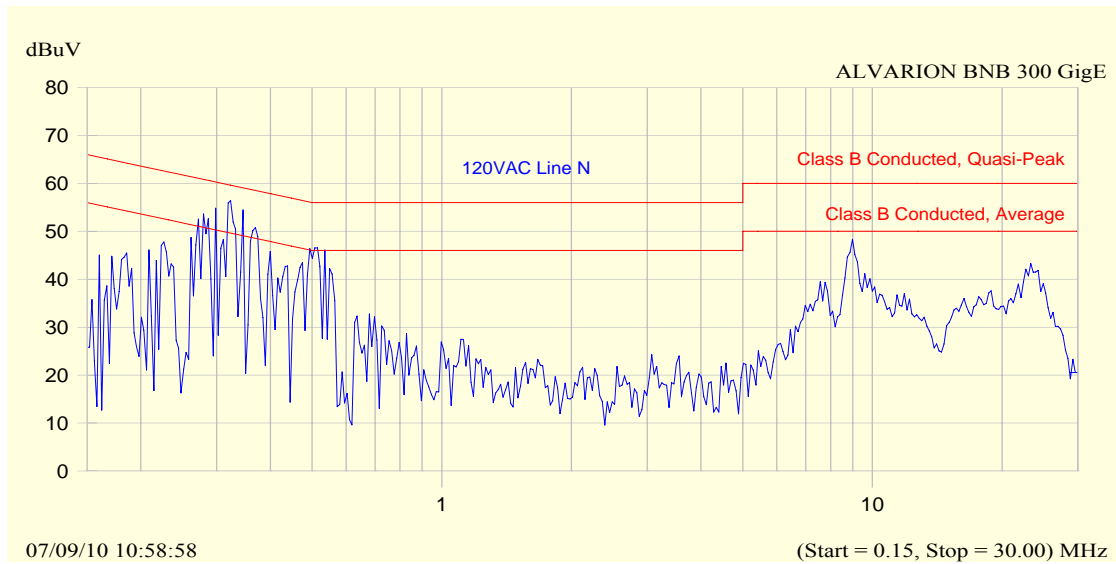
Plot # 226. AC line conducted emissions test. Line Phase

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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X



Frequency MHz	QP dBuV	QP Limit dB	Margin dB	Avg dBuV	Avg Limit dB	Margin dB
0.283	53.2	60.7	7.6	44.6	50.7	6.1
0.325	55.7	59.6	3.8	47.6	49.6	1.9
0.330	55.2	59.4	4.2	46.5	49.4	3.0
0.515	48.2	56.0	7.8	41.6	46.0	4.4
8.999	44.0	60.0	16.0	34.9	50.0	15.1
23.217	38.8	60.0	21.2	31.7	50.0	18.3

Plot # 227. AC line conducted emissions test. Line Neutral

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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE **FCC ID:** LKT-BNETB-5XGIGE; **IC:** 2514A-BNETB5X

10. APPENDIX A

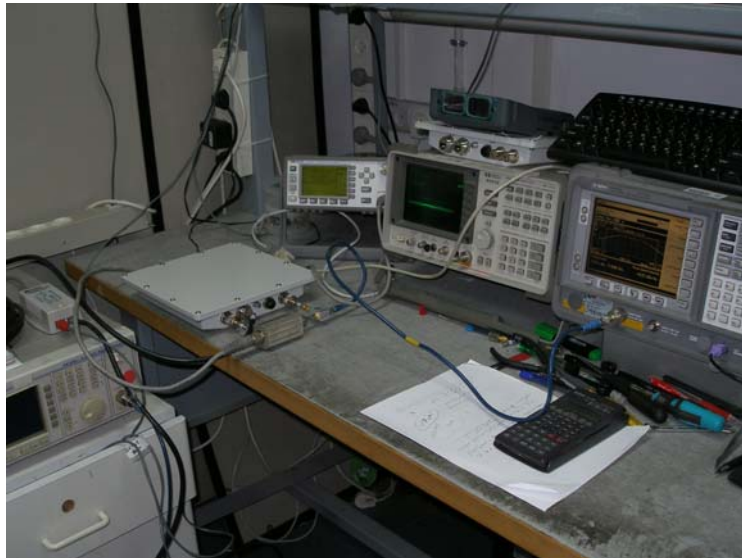


Photo 1. RF conducted emission test.



Photo 2. Radiated emissions test setup on OATS.

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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE **FCC ID:** LKT-BNETB-5XGIGE; **IC:** 2514A-BNETB5X



Photo 3. Radiated emissions test setup with internal antenna.

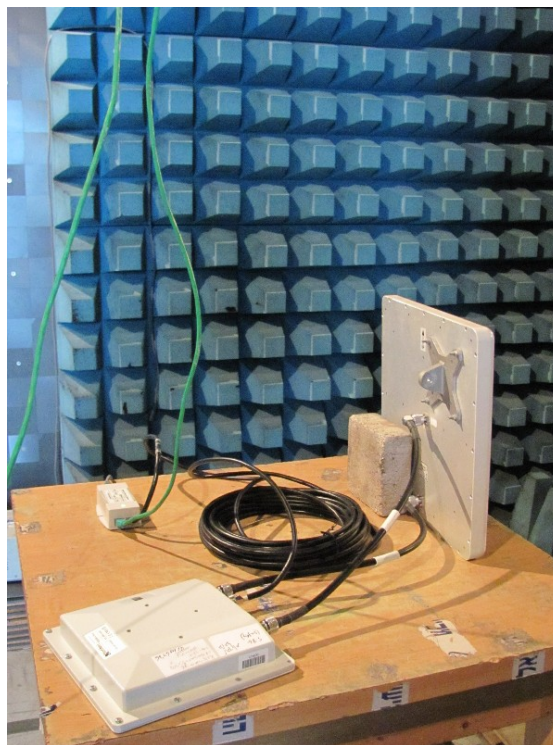


Photo 4. Radiated emissions test setup with external flat panel antenna.

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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

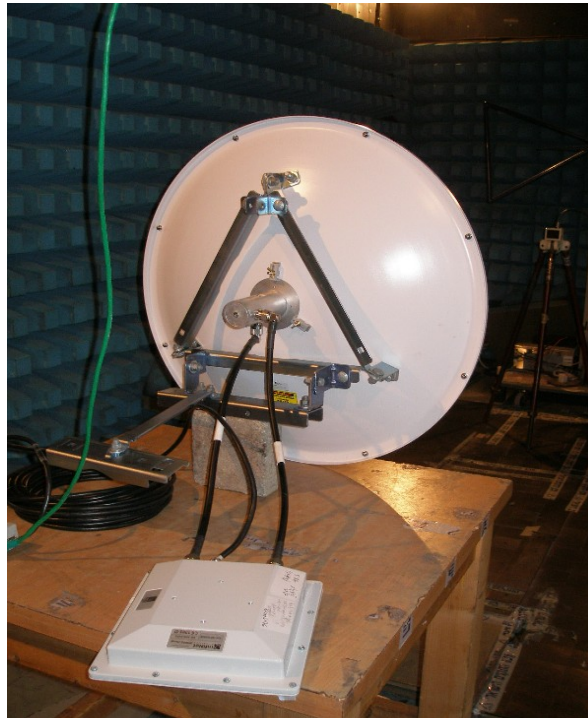


Photo 5. Radiated emissions test setup with parabolic antenna.

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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

11. APPENDIX B

Test equipment used

No	Description	Manufacturer information			Due Calibration date
		Name	Model No	Serial No	
1	Spectrum Analyzer 9 kHz - 50 GHz	HP	8565E	3720A00699	June 2011
2	Spectrum Analyzer 9 kHz - 26.5 GHz	Agilent	4407B	US40241729	Aug 2011
3	Attenuators 10 dB DC – 18 GHz	M/A-COM	2082	6143	June 2011
4	Power splitter DC – 18 GHz	Mini-Circuits	ZFRSC-183-S	SQ037601003	June 2011
5	Cable RF 1m	Huber-Suhner	Sucoflex 104	21324/4PE	October 2010
6	Double Ridged Guide Antenna 1 – 18 GHz	EMCO	3115	5802	October 2010
7	Broadband Horn antenna 15 – 40 GHz	Schwarzbeck Mess-Electronik	BBHA 9170	9170-341	October 2010
8	Antenna Biconilog 30 – 2000 MHz	Schaffner-Chase	CBL6112B	23181	October 2010
9	Spectrum analyzer 10 KHz-26.5 GHz	HP	E7405A	SII 4944	April 2011
10	EMI Receiver 9 kHz-6.5 GHz	HP	8546A+85460A	SII 4068	April 2011
11	LISN 9 kHz – 30 MHz	FCC	LISN 250-32-4-16	SII5023	October 2010
12	Transient limiter 0.009-200 MHz	HP	11947A	3107105	October 2010
13	Cable RF 4m	Huber-Suhner	Sucoflex 104PE	21328/4PE	October 2010
14	Cable RF 0.5m	Huber-Suhner	Multiflex 141	520201	October 2010
15	Active Loop antenna 10 kHz – 30 MHz	EMCO	6502	SII 4874	October 2010

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Point	Frequency (MHz)	Cable Loss (dB)	Point	Frequency (MHz)	Cable Loss (dB)
1	30	0.53	21	1000	3.68
2	50	0.75	22	1100	3.82
3	100	1.08	23	1200	4.07
4	150	1.39	24	1300	4.24
5	200	1.61	25	1400	4.43
6	250	1.752	26	1500	4.6
7	300	2.00	27	1600	4.7
8	350	2.15	28	1700	4.85
9	400	2.26	29	1800	4.98
10	450	2.383	30	1900	5.19
11	500	2.52	31	2000	5.34
12	550	2.606	32	2100	5.51
13	600	2.75	33	2200	5.69
14	650	2.856	34	2300	5.89
15	700	3.06	35	2400	6.07
16	750	3.201	36	2500	6.22
17	800	3.27	37	2600	6.28
18	850	3.38	38	2700	6.41
19	900	3.46	39	2800	6.53
20	950	3.55	40	2900	6.84

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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

Biconilog Antenna, Model Number: CBL-6112D, S/N: 23181.

No.	f / MHz)	AF / dB/m	f / MHz)	AF / dB/m	f / MHz)	AF / dB/m	f / MHz)	AF / dB/m
1	30	17.90	170	9.40	530	17.70	1040	22.20
2	32	16.70	175	9.00	540	18.25	1060	22.50
3	34	15.55	180	8.50	550	18.60	1080	22.50
4	36	14.35	185	8.45	560	14.45	1100	22.40
5	38	13.30	190	8.60	570	18.40	1120	22.60
6	40	12.20	195	8.85	580	18.50	1140	22.45
7	42	11.05	200	8.95	590	18.60	1160	22.50
8	44	9.95	205	8.80	600	18.60	1180	22.40
9	46	8.90	210	8.50	610	18.80	1200	22.80
10	48	8.05	215	8.20	620	18.99	1220	22.95
11	50	7.30	220	8.50	630	19.05	1240	23.10
12	52	6.80	225	9.00	640	19.23	1260	23.40
13	54	6.45	230	9.65	650	19.10	1280	23.35
14	56	6.00	235	10.30	660	19.13	1300	23.62
15	58	5.70	240	11.00	670	19.04	1320	23.64
16	60	5.45	245	11.60	680	19.00	1340	23.86
17	62	5.30	250	12.00	690	19.17	1360	23.95
18	64	5.20	255	12.45	700	19.28	1380	23.90
19	66	5.30	260	12.85	710	19.25	1400	24.45
20	68	5.30	265	12.50	720	19.45	1420	24.74
21	70	5.35	270	12.45	730	19.75	1440	24.93
22	72	5.50	275	12.40	740	19.95	1460	25.03
23	74	5.80	280	12.55	750	20.07	1480	25.45
24	76	6.00	285	12.65	760	19.85	1500	25.30
25	78	6.60	290	12.75	770	19.80	1520	25.25
26	80	6.70	295	12.95	780	19.85	1540	25.36
27	82	7.15	300	13.00	790	19.95	1560	25.58
28	84	7.60	310	13.35	800	20.05	1580	25.50
29	86	8.10	320	13.75	810	20.10	1600	25.65
30	88	8.50	330	13.85	820	20.35	1620	25.60
31	90	8.90	340	14.10	830	20.40	1640	25.70
32	92	9.20	350	14.50	840	20.35	1660	25.83
33	94	9.75	360	14.70	850	20.46	1680	25.97
34	96	9.95	370	14.90	860	20.39	1700	26.10
35	98	10.20	380	15.10	870	20.29	1720	26.25
36	100	10.50	390	15.45	880	20.24	1740	26.04
37	105	11.25	400	16.00	890	20.35	1760	26.14
38	110	11.70	410	16.40	900	20.55	1780	26.20
39	115	11.70	420	16.70	910	20.45	1800	26.40
40	120	11.80	430	16.35	920	20.60	1820	26.64
41	125	11.80	440	16.30	930	20.60	1840	26.86
42	130	11.70	450	16.30	940	20.66	1860	27.12
43	135	11.35	460	16.70	950	20.88	1880	27.00
44	140	10.95	470	17.05	960	21.11	1900	27.25
45	145	10.35	480	17.20	970	20.93	1920	27.36
46	150	10.05	490	17.30	980	21.03	1940	27.68
47	155	9.70	500	17.40	990	21.05	1960	27.10
48	160	9.70	510	17.50	1000	21.10	1980	27.06
49	165	9.45	520	17.60	1020	21.40	2000	27.25

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Title: BreezeNETB 300

Model: BU/RB-B300D-5X-GigE FCC ID: LKT-BNETB-5XGIGE; IC: 2514A-BNETB5X

Antenna Factor

Double Ridged Guide Antenna mfr EMCO model 3115 1m calibration

Point	Frequency (MHz)	Antenna Factor (dB/m)
1	1000	23.9
2	2000	28.3
3	3000	31.0
4	4000	33.1
5	4500	32.5
6	5000	32.4
7	6000	53.7
8	6500	35.6
9	7000	36.4
10	7500	36.9
11	8000	37.0
12	8500	38.0
13	9000	38.6
14	9500	38.4
15	10000	38.4
16	10500	38.4
17	11000	38.9
18	11500	39.6
19	12000	39.4
20	12500	39.2
21	13000	40.3
22	13500	41.0
23	14000	41.2
24	14500	41.3
25	15000	40.0
26	15500	38.0
27	16000	38.1
28	16500	40.3
29	17000	42.2
30	17500	44.6
31	18000	46.2

Cable Loss

Type: Sucoflex 104PE; Ser.No.21328/4PE; 4 m length

Point	Frequency (GHz)	Cable Loss (dB)
1	0.0-1.0	1.7
2	1.0- 3.5	3.2
3	3.5- 5.5	4.0
4	5.5 - 7.5	4.7
5	7.5 - 9.5	5.3
6	9.5 - 10.5	5.6
7	10.5 - 12.5	6.2
8	12.5 - 14.5	6.8
9	14.5 - 16.5	7.5
10	16.5 - 18.0	8.1

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Antenna Factor
Broadband Horn Antenna model BBHA 9170 1m calibration

Point	Frequency (GHz)	Antenna Factor (dB/m)
1	15.0	38.5
2	16.0	37.7
3	17.0	38.1
4	18.0	37.9
5	19.0	38.0
6	20.0	38.0
7	21.0	37.9
8	22.0	38.2
9	23.0	39.6
10	24.0	39.6
11	25.0	39.3
12	26.0	39.5
13	27.0	39.6
14	28.0	39.6
15	30.0	40.1
16	32.0	41.2
17	34.0	41.5
18	35.0	41.9
19	36.0	42.2
20	38.0	43.8
21	40.0	43.2

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12. APPENDIX C

Abbreviations and acronyms

The following abbreviations and acronyms are applicable to this test report:

AC	alternating current
cm	centimeter
dB	decibel
dBm	decibel referred to one milliwatt
dB(μ V)	decibel referred to one microvolt
dB(μ V/m)	decibel referred to one microvolt per meter
EBW	emission bandwidth.
EMC	electromagnetic compatibility
EUT	equipment under test
GHz	gigahertz
H	height
Hz	hertz
kHz	kilohertz
L	length
LNA	low noise amplifier
m	meter
Mbps	megabit per second
MHz	megahertz
NA	not applicable
OFDM	Orthogonal Frequency Division Multiple Access
PRBS	pseudo random binary sequence
QP	quasi-peak
RF	radio frequency
RE	radiated emission
SA	spectrum analyzer
rms	root mean square
W	width

Specification references

47 CFR part 15: 2009	Radio Frequency Devices
ANSI C63.2: 1996	American National Standard for Instrumentation Electromagnetic Noise and Field Strength, 10 kHz to 40 GHz Specifications.
ANSI C63.4: 2003	American National Standard for Method of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz