7.1.5 Undesired radiated emissions according to § 90.210 L

Method of measurement		FCC part 90.210 (1)(7)			
Operating Frequency Range		4945 - 4985 MHz			
Ambient Temperature	23^0 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 emission levels of the EUT more than 20 dB lower than the specified limit were not recorded in the test summary. For the test results refer to plots in this section. Test results in 30 – 1000 MHz frequency range are recorded in section 9.

The worse case results were found:

Internal antenna.

EBW, MHz	Carrier frequency, MHz	Measured frequency, MHz	Measured level, dBm	Relative 40 dBc limit, dBm	Margin, dB	Reference to plot #
5	4945	4937	-33.0	-17.3	15.7	68
		5266	-28.5	-17.3	10.7	70
	4965	4957	-34.2	-17.3	16.9	76
		5328	-28.8	-17.3	11.5	78
	4985	4992	-31.6	-17.0	14.6	84
		5226	-29.6	-17.0	12.6	85
10	4950	4935	-32.3	-19.8	12.5	90
		5234	-29.5	-19.8	9.7	92
	4965	4930	-36.7	-19.7	17.0	97
		5329	-30.1	-19.7	10.4	98
	4980	4945	-36.7	-19.6	17.1	103
		5270	-30.0	-19.6	10.4	104
20	4960	4822	-35.7	-22.7	13.0	109
		5254	-30.1	-22.7	7.4	110
	4980	4753	-44.1	-27.5	16.6	115
		5226	-37.8	-27.5	10.3	116

External Flat panel antenna.

EBW, MHz	Carrier frequency, MHz	Measured frequency, MHz	Measured level, dBm	Relative 40 dBc limit, dBm	Margin, dB	Reference to plot #
5	4945	4937	-40.6	-28.5	12.1	122
		4952	-40.5	-28.5	12.0	123
	4965	4956	-35.7	-23.9	11.8	130
		5457	-32.1	-23.9	8.2	132
	4985	4992	-33.1	-24.4	8.7	139
		5558	-32.0	-24.4	7.6	140
10	4950	4934	-36.5	-25.2	11.3	146
		5606	-31.9	-25.2	6.7	147
	4965	4950	-33.7	-24.4	9.3	152
		5603	-29.0	-24.4	4.6	153
	4980	4965	-40.7	-29.3	11.4	158
		5383	-38.4	-29.3	9.1	159
20	4960	4871	-34.0	-26.9	7.1	164
		5534	-32.4	-26.9	5.5	165
	4980	4417	-34.5	-24.1	10.4	170
		5226	-30.8	-24.1	6.7	171

LIMIT

The power spectral density of any emissions must be attenuated below the output power of the transmitter as follow: On any frequency removed from assigned frequency above 150% - 40 dBc. Relative limit for every carrier frequency was calculated as follow: Ucarrier peak – 40 dB.

TEST PROCEDURE

The test was performed for 5 MHz, 10 MHz and 20 MHz emissions bandwidths that are worse case power and band-edge options.
The measurements were performed at three transmitted carrier (channel) frequencies at bottom, middle and top of the 4940 - 4990 MHz frequency band under maximum data transfer bit rate. To find maximum radiation the turntable was rotated 360^{o}, measuring antenna height was changed from 1 to 4 m, and the antenna polarization was changed from vertical to horizontal. The measurements were performed according to FCC part 90.210 L (1)(7) with RBW = at least 1% of EBW and VBW = 30 kHz.
The result was previously verified according to ANSI/TIA-603-C-2004 section 2.2.12 substitution test method. Investigation of transmitter spurious emissions was performed. EUT was replaced by generator and substitution antenna. Level calculated from generator output level, substitution antenna gain and connected cable loss was compared with the limit.

TEST SUMMARY

EUT comply with FCC part 90.210 L (1) requirements.

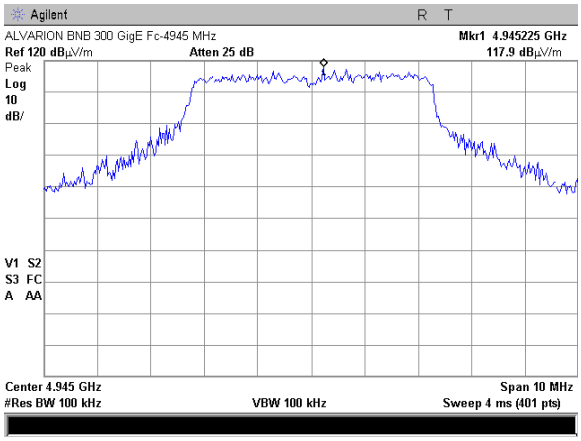
TEST EQUIPMENT USED:

1	5	6	7	9	14	

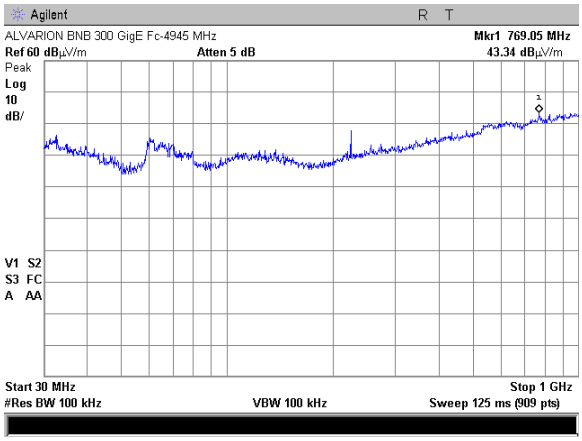
Internal antenna

5 MHz emission bandwidth

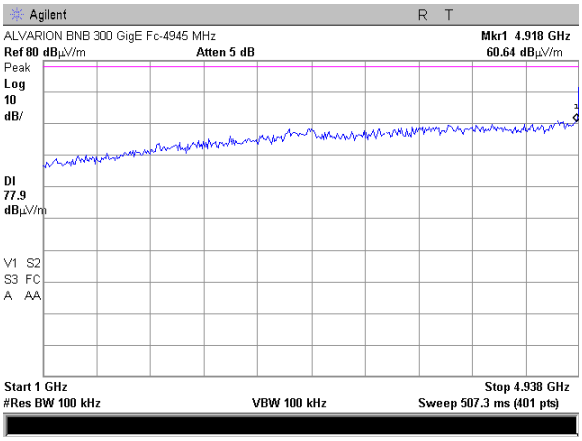
Carrier frequency – 4945 MHz



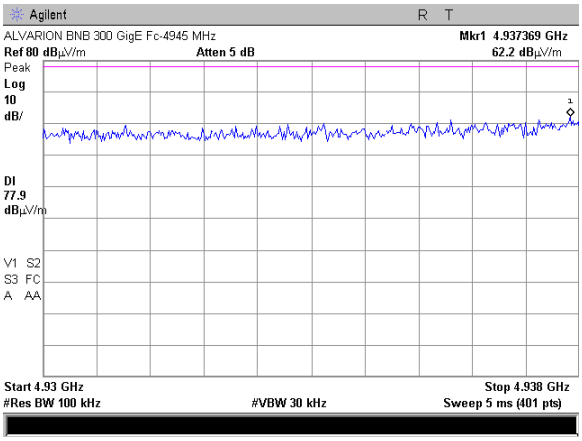
Plot # 65



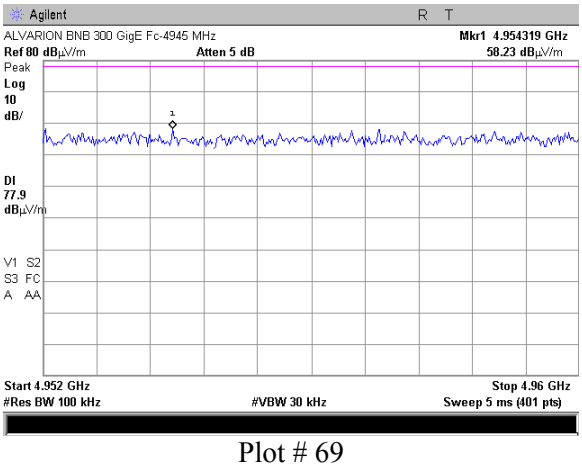
Plot # 66



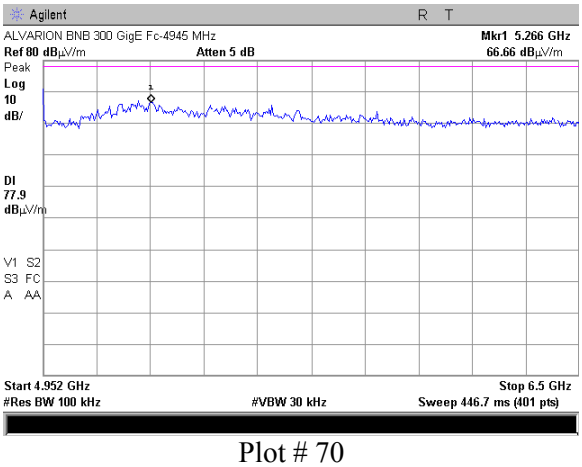
Plot # 67



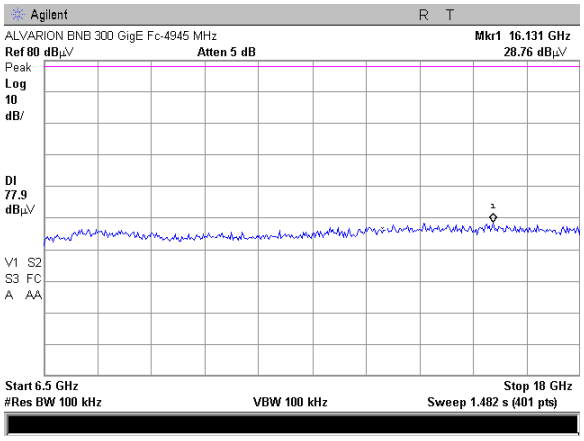
Plot # 68



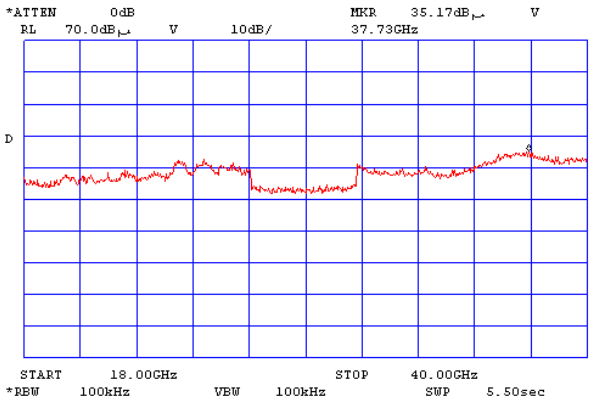
Plot # 69



Plot # 70

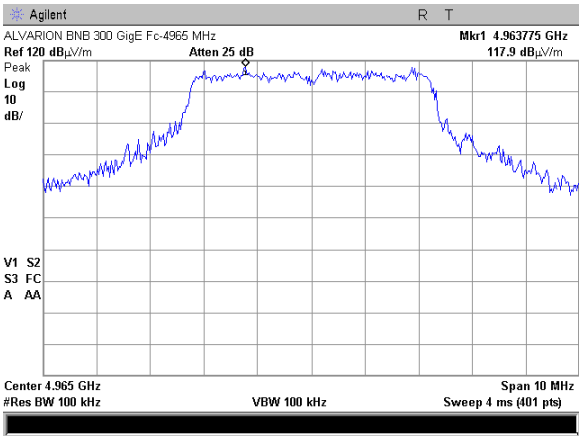


Plot # 71

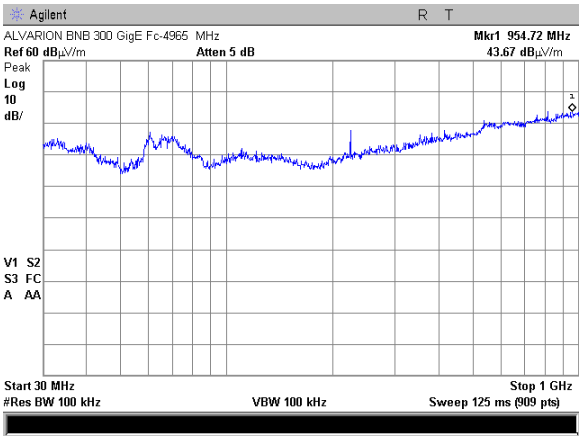


Plot # 72

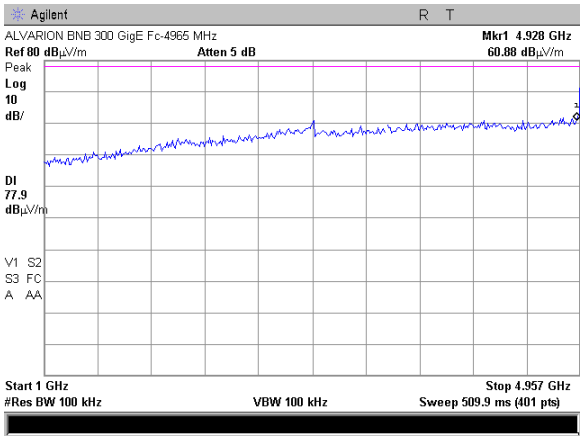
Carrier frequency – 4965 MHz



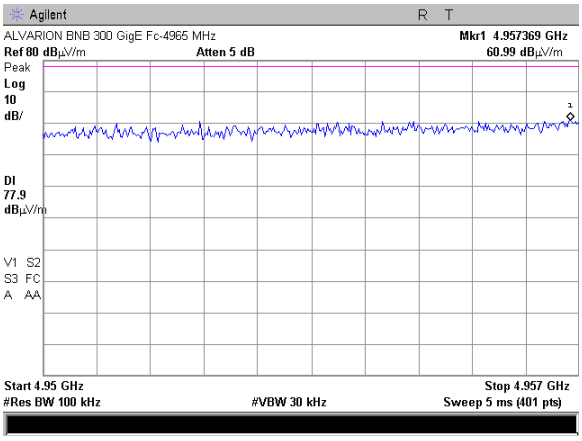
Plot # 73



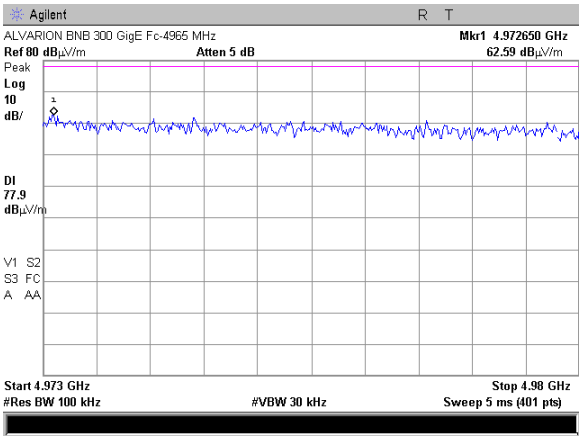
Plot # 74



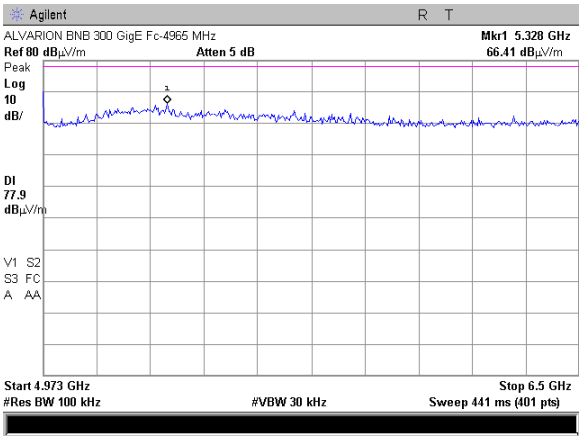
Plot # 75



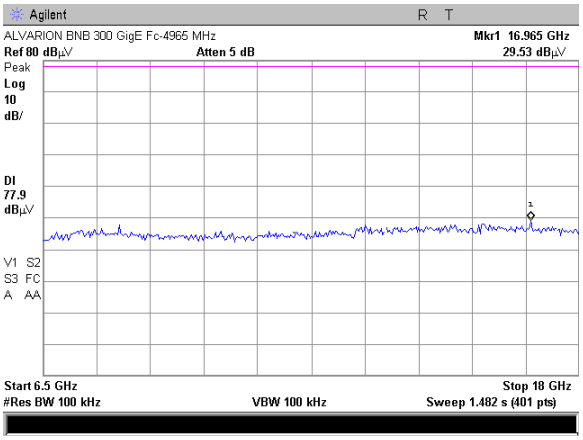
Plot # 76



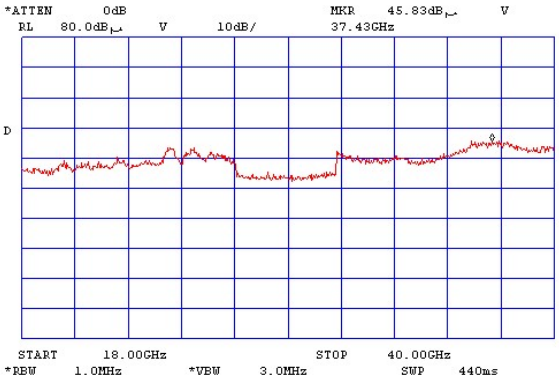
Plot # 77



Plot # 78

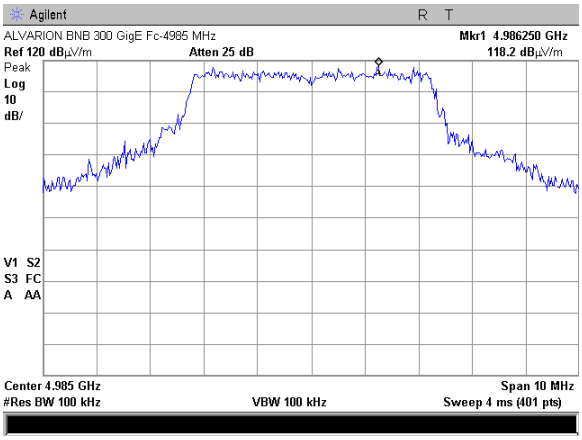


Plot # 79

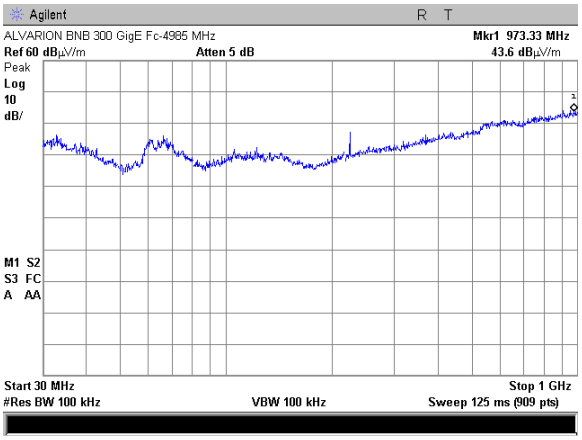


Plot # 80

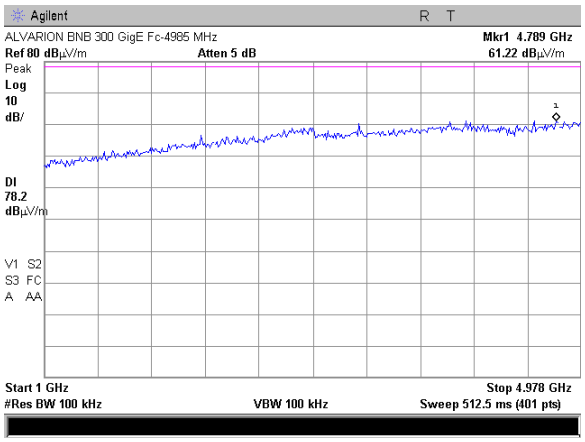
Carrier frequency – 4985 MHz



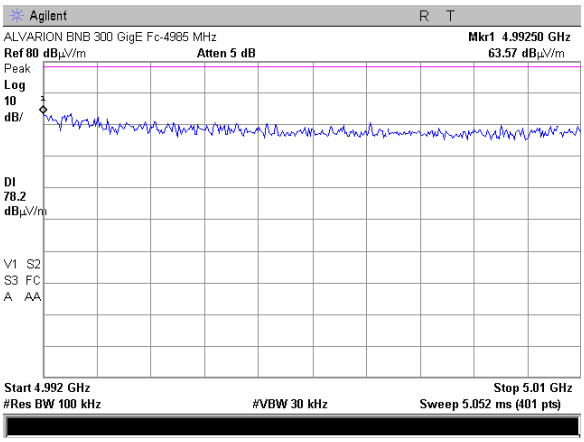
Plot # 81



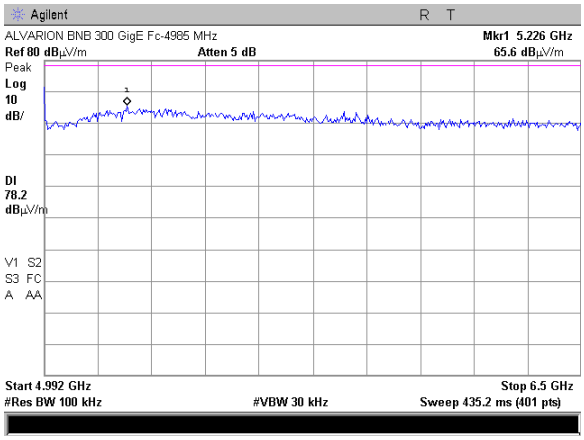
Plot # 82



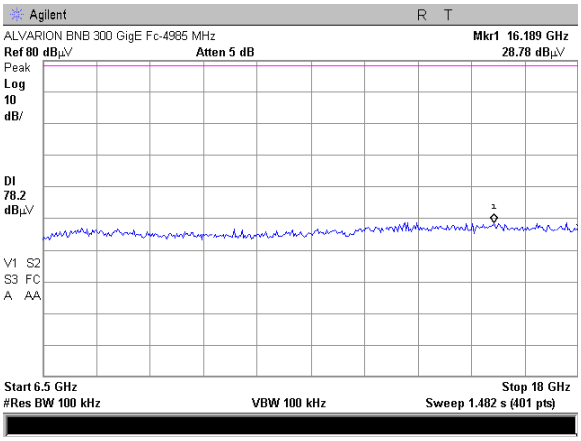
Plot # 83



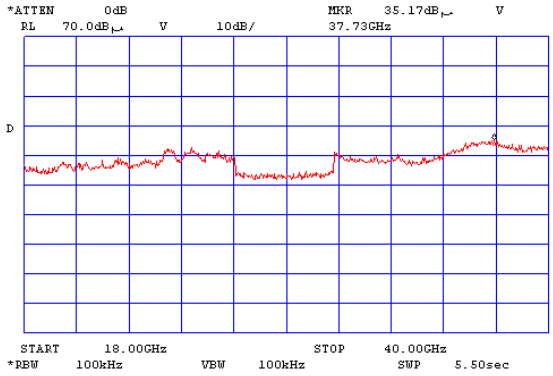
Plot # 84



Plot # 85



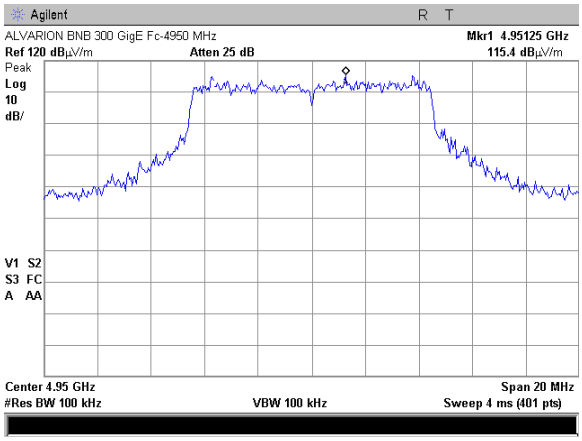
Plot # 86



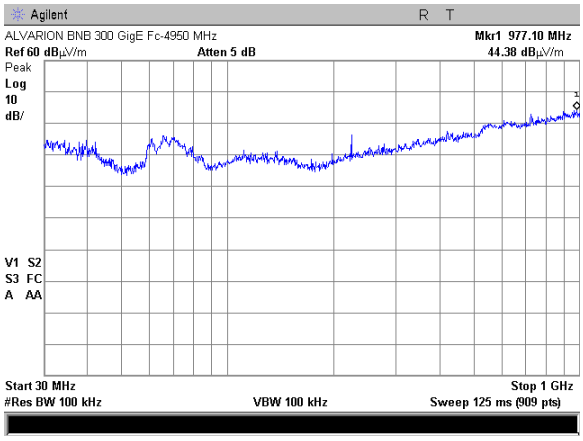
Plot # 87

10 MHz emission bandwidth

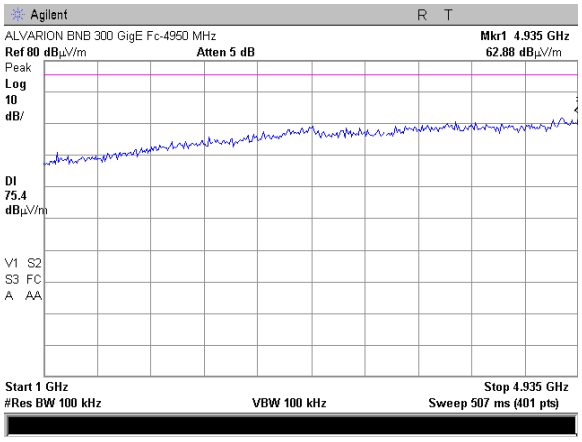
Carrier frequency – 4950 MHz



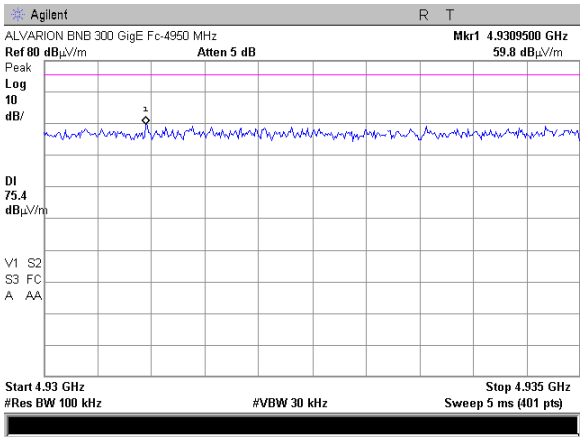
Plot # 88



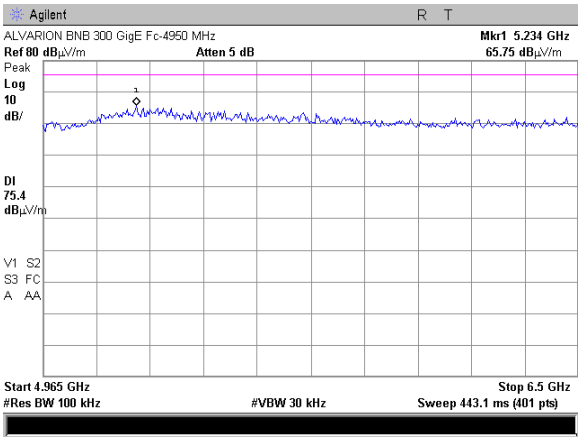
Plot # 89



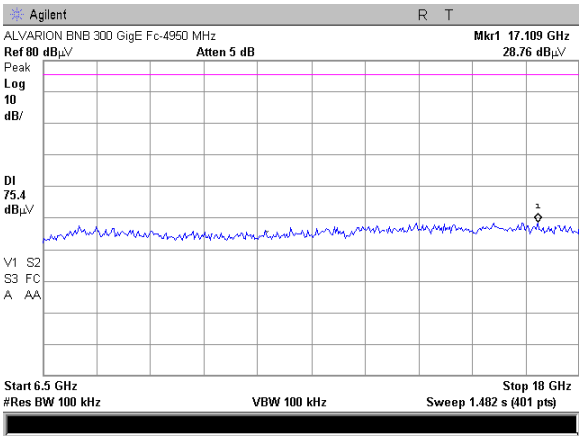
Plot # 90



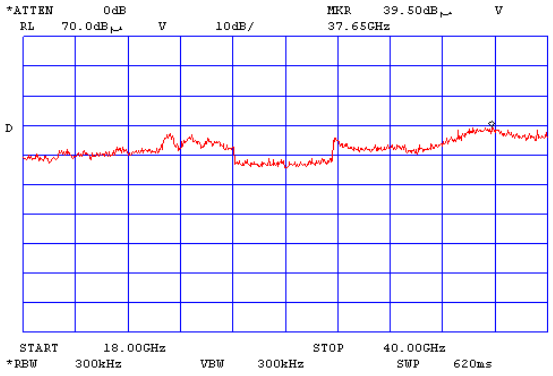
Plot # 91



Plot # 92

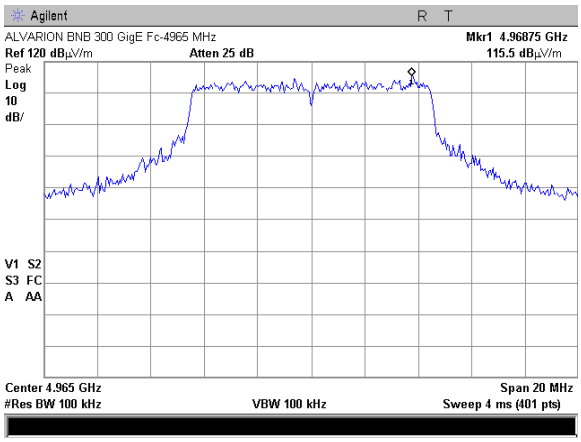


Plot # 93

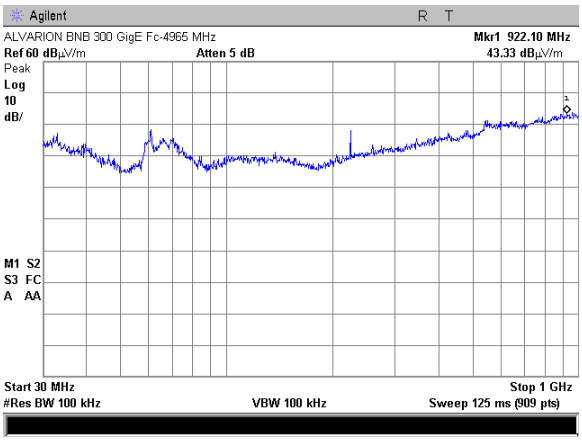


Plot # 94

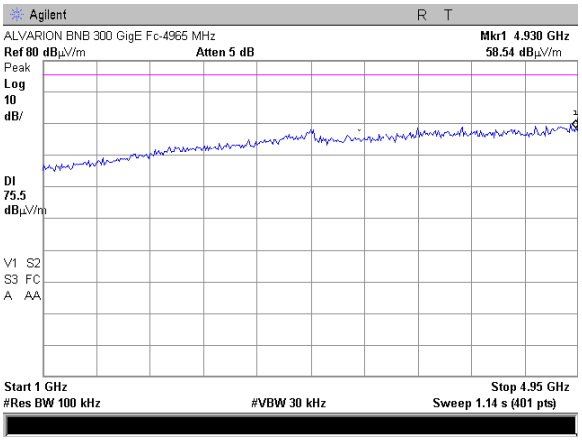
Carrier frequency – 4965 MHz



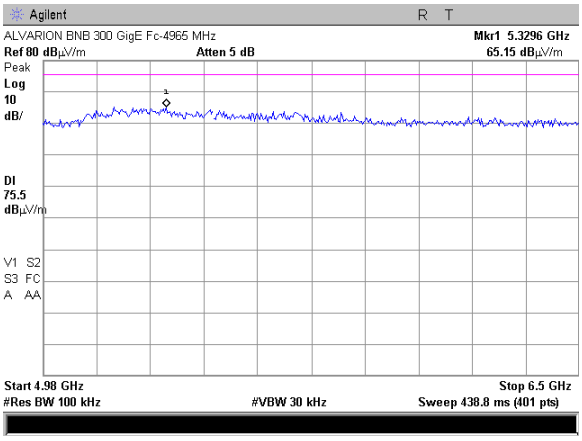
Plot # 95



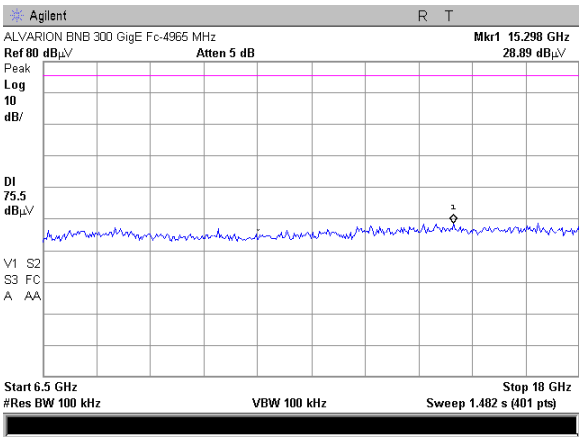
Plot # 96



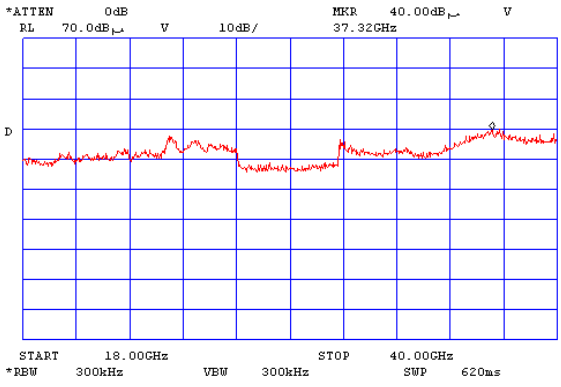
Plot # 97



Plot # 98

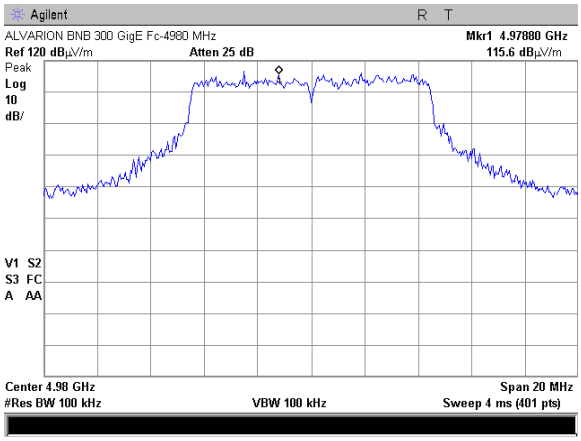


Plot # 99

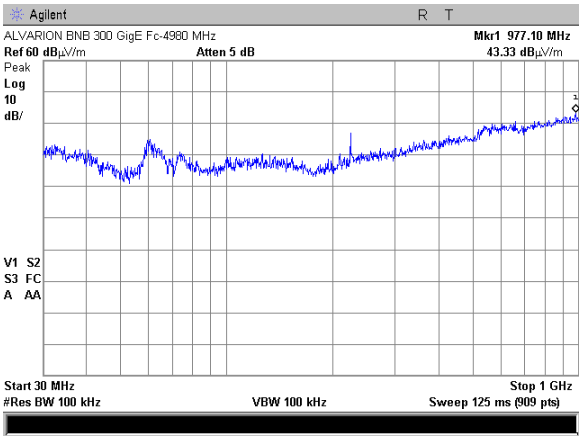


Plot # 100

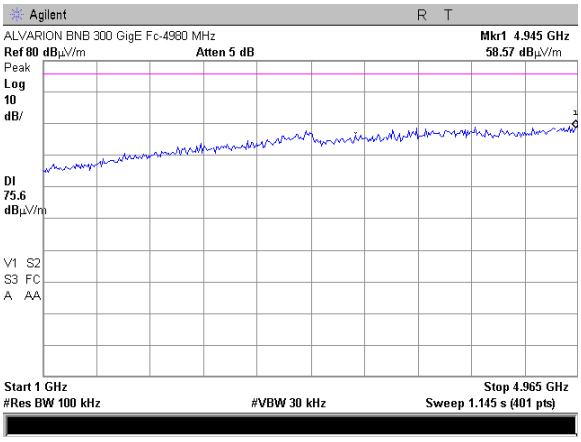
Carrier frequency 4980 MHz



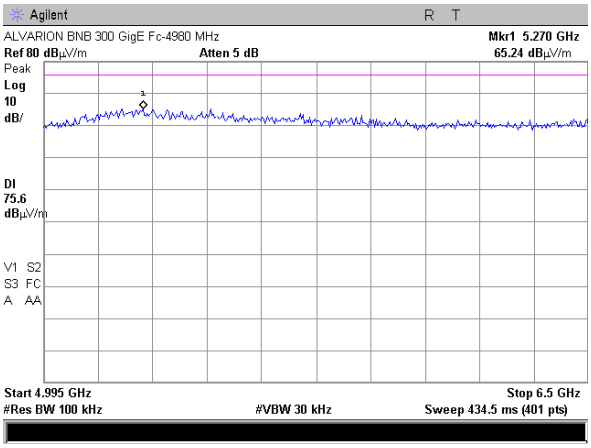
Plot # 101



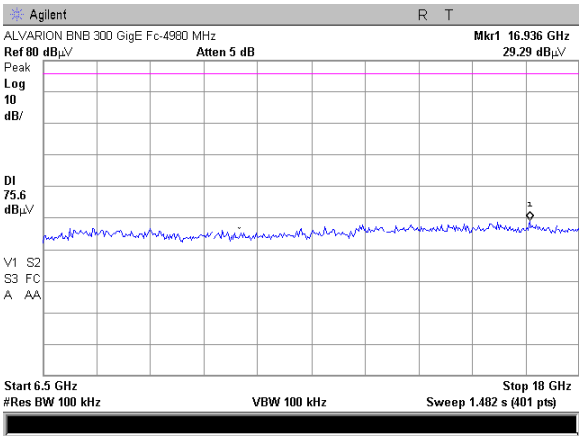
Plot # 102



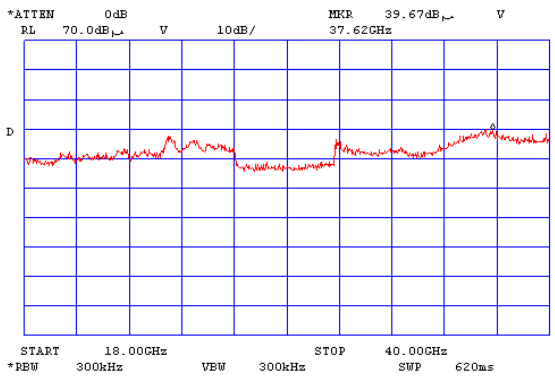
Plot # 103



Plot # 104



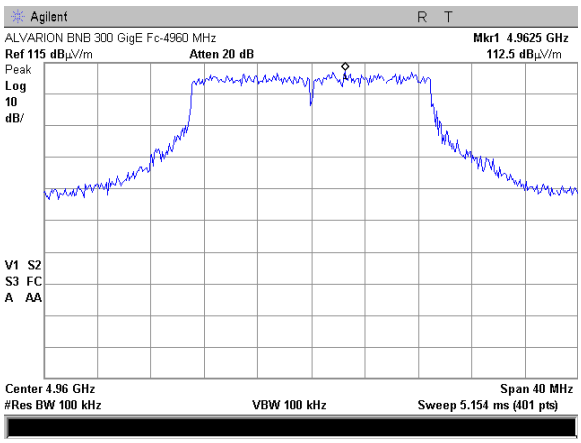
Plot # 105



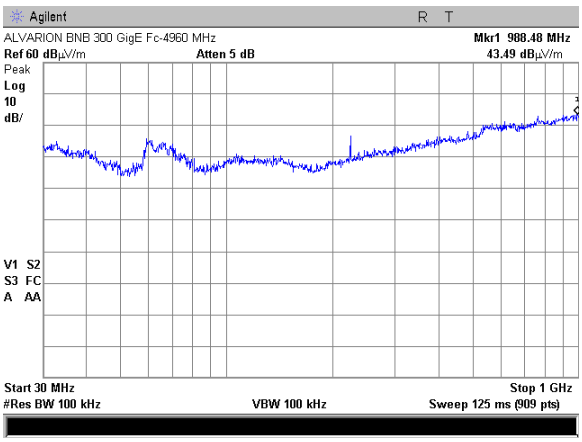
Plot # 106

20 MHz emission bandwidth.

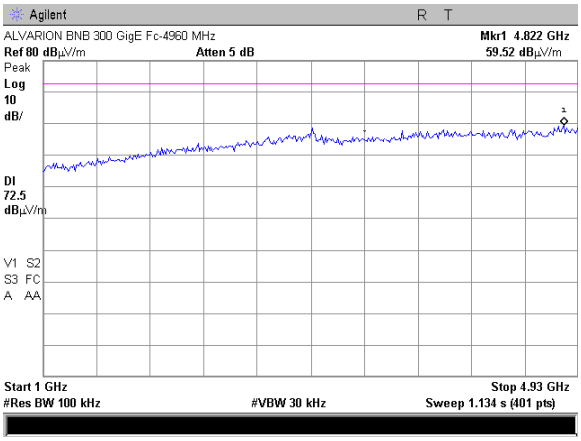
Carrier frequency – 4960 MHz.



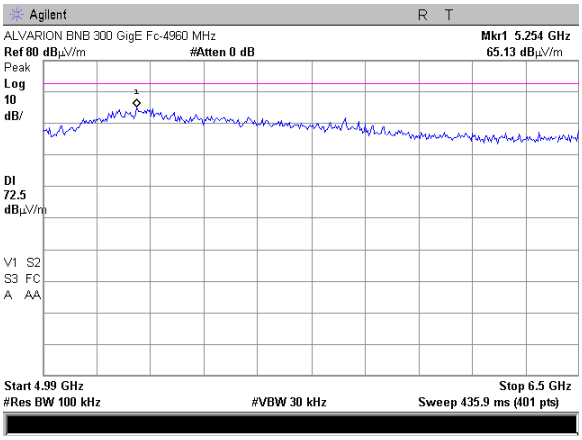
Plot # 107



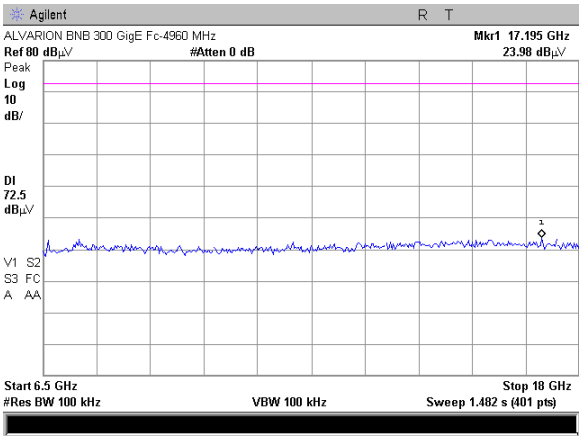
Plot # 108



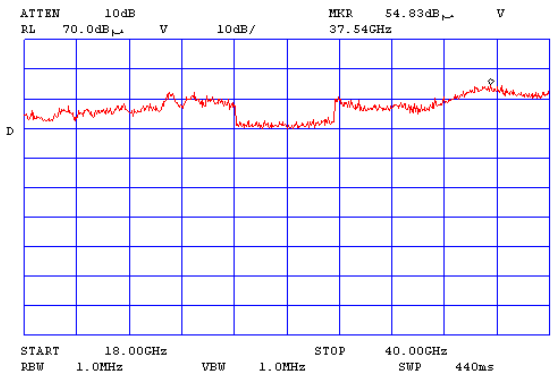
Plot # 109



Plot # 110

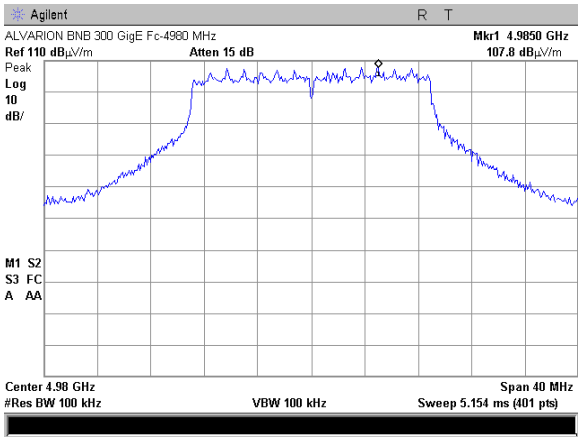


Plot # 111

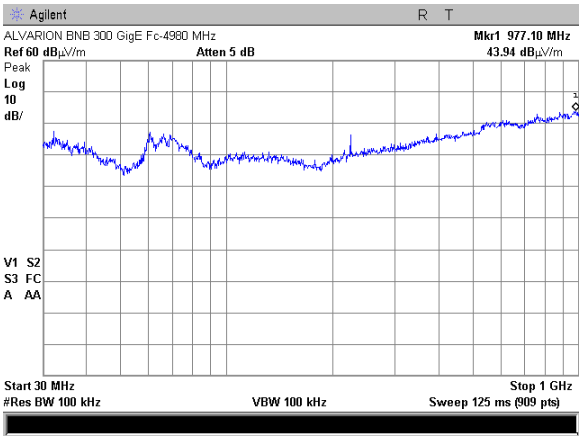


Plot # 112

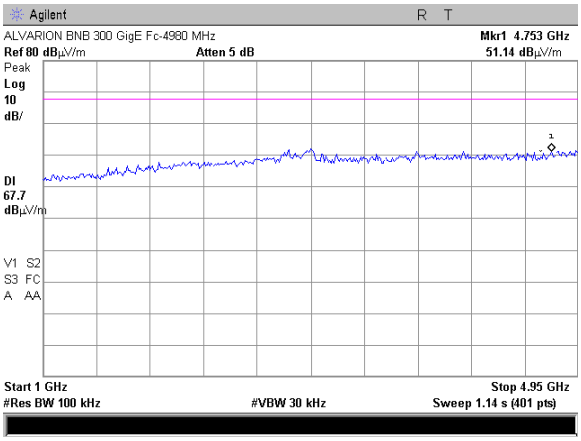
Carrier frequency – 4980 MHz



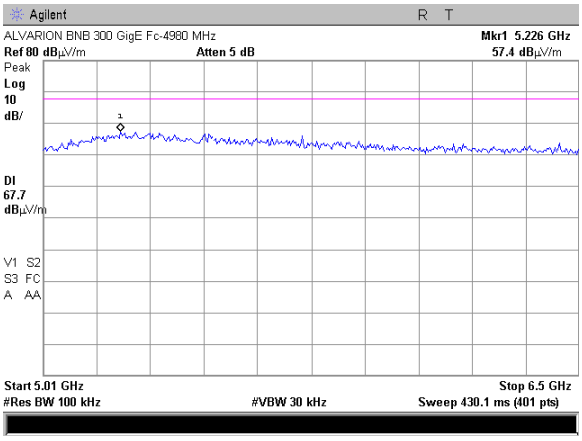
Plot # 113



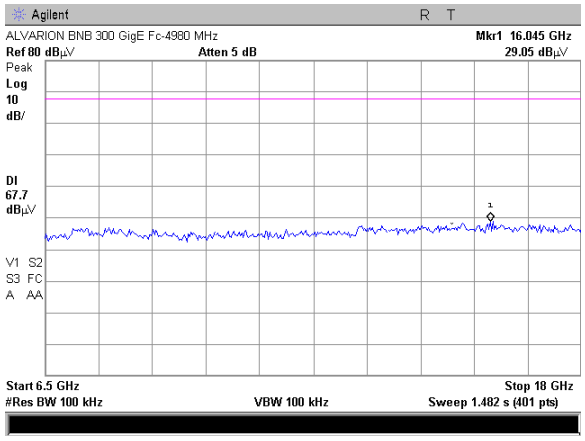
Plot # 114



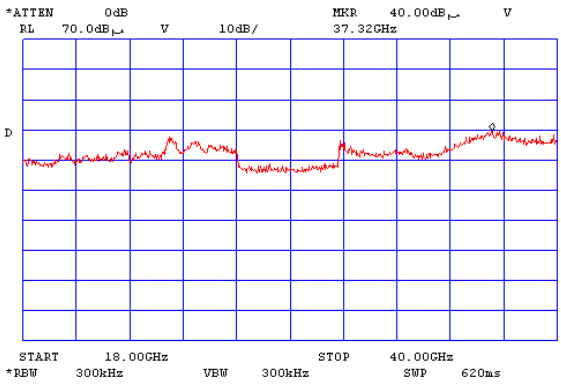
Plot # 115



Plot # 116



Plot # 117

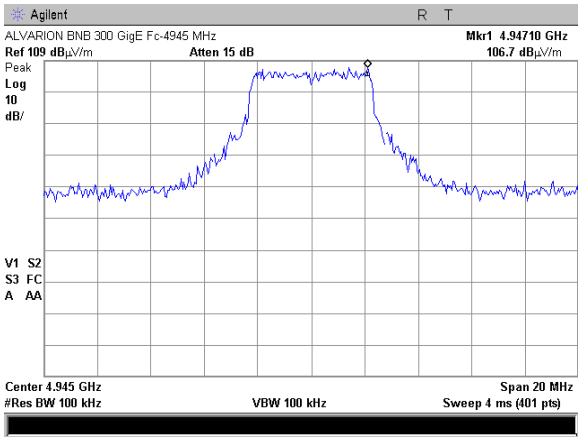


Plot # 118

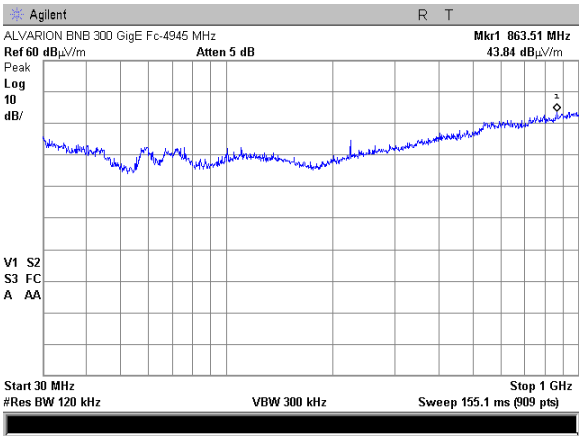
External Flat panel antenna.

5 MHz emission bandwidth

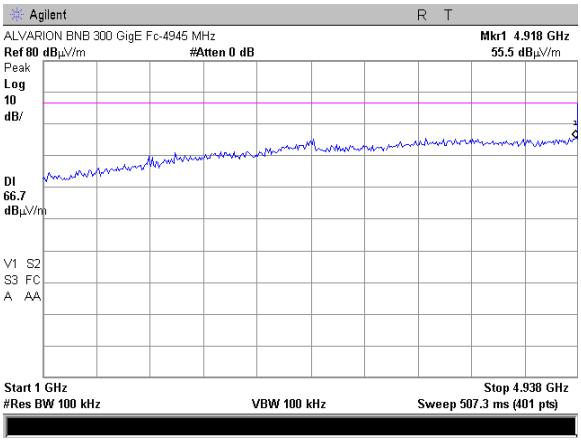
Carrier frequency – 4945 MHz



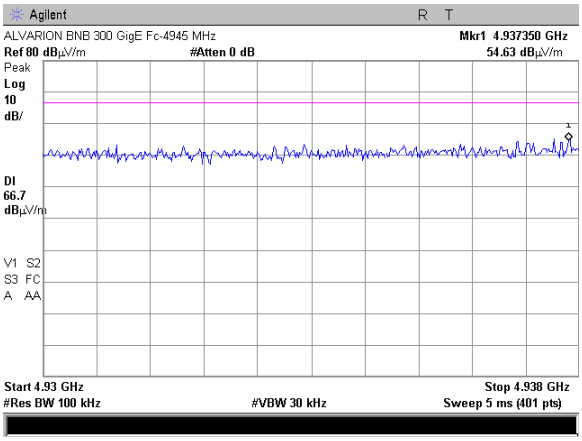
Plot # 119



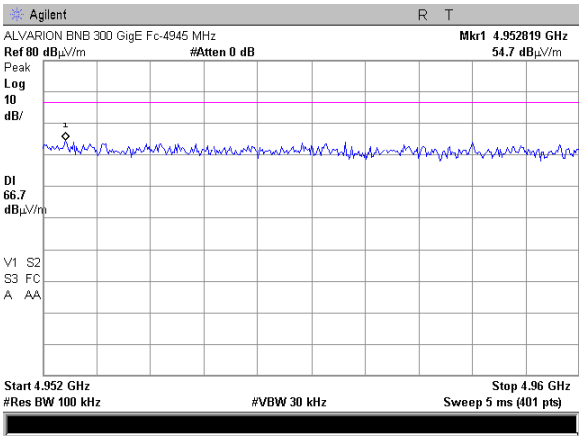
Plot # 120



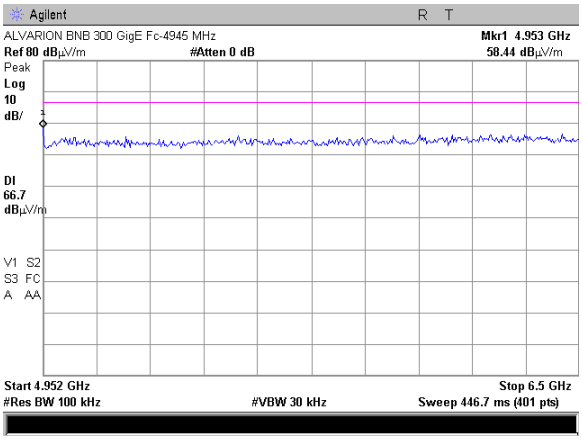
Plot # 121



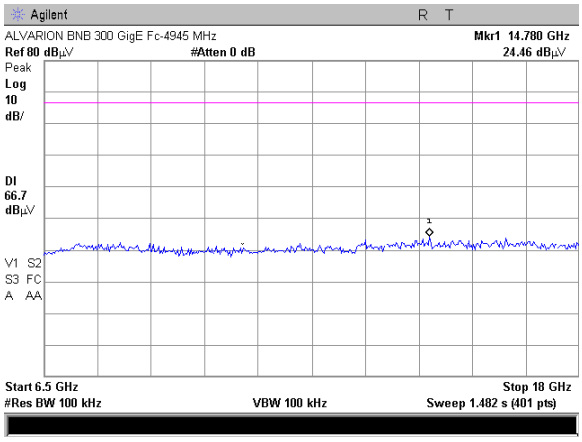
Plot # 122



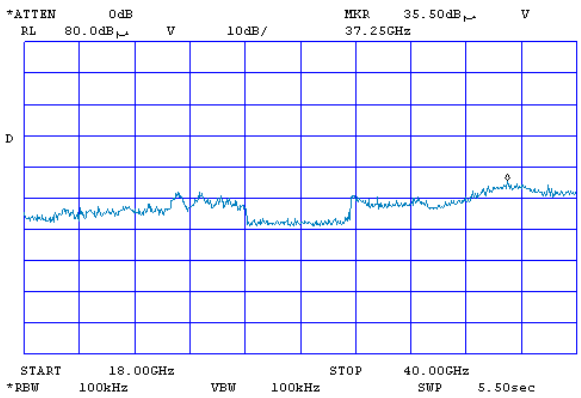
Plot # 123



Plot # 124

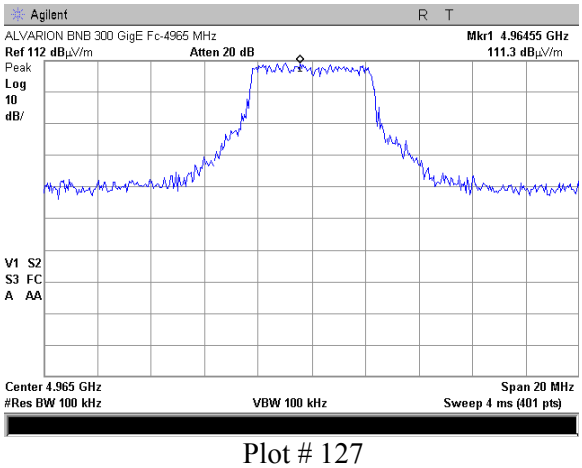


Plot # 125

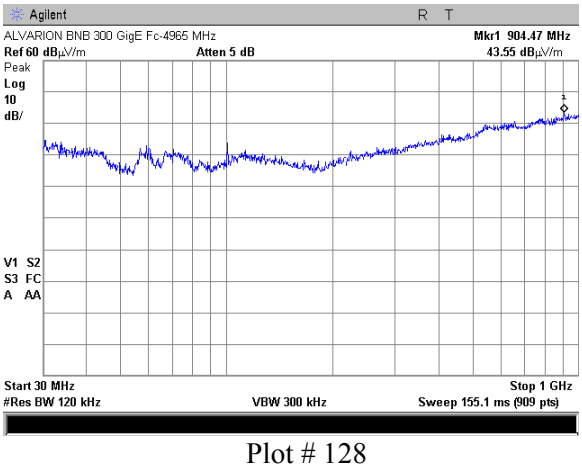


Plot # 126

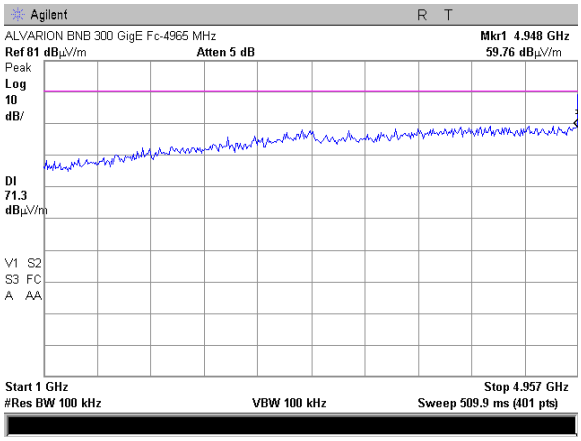
Carrier frequency – 4965 MHz



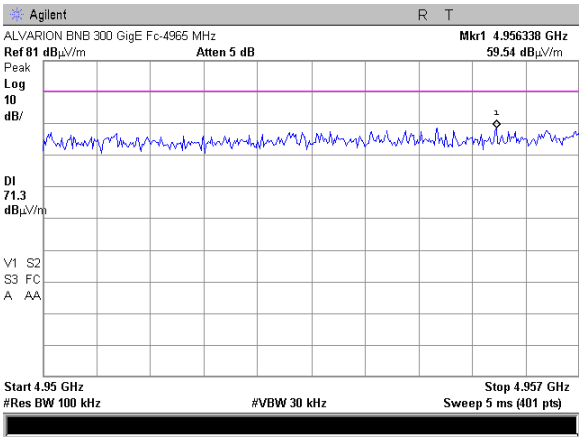
Plot # 127



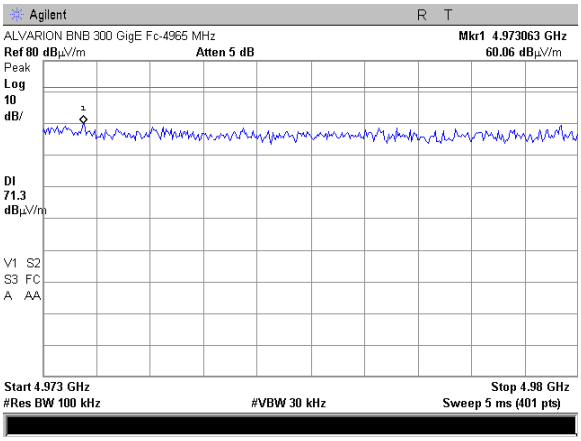
Plot # 128



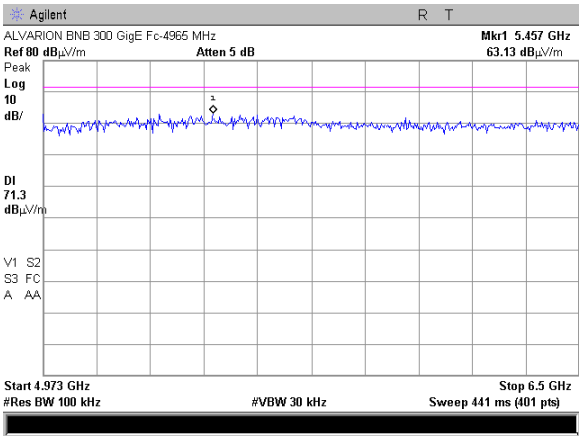
Plot # 129



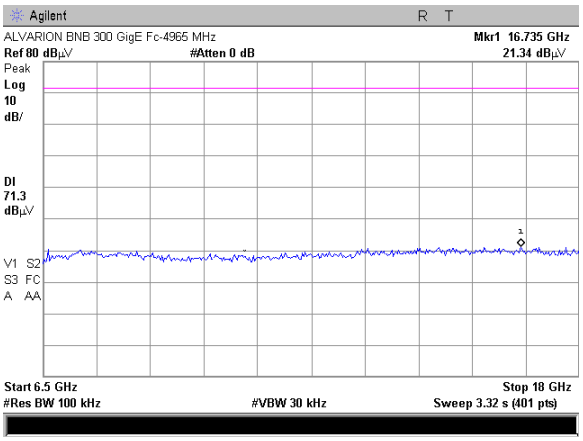
Plot # 130



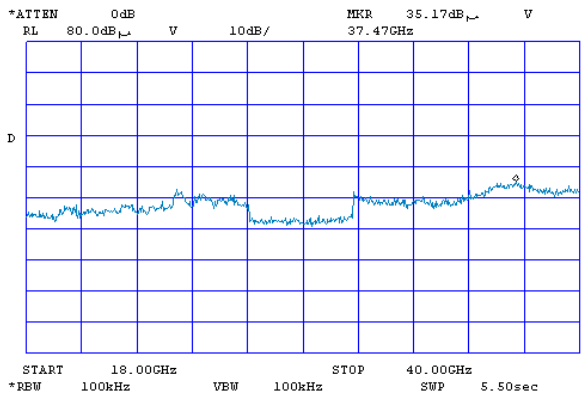
Plot # 131



Plot # 132

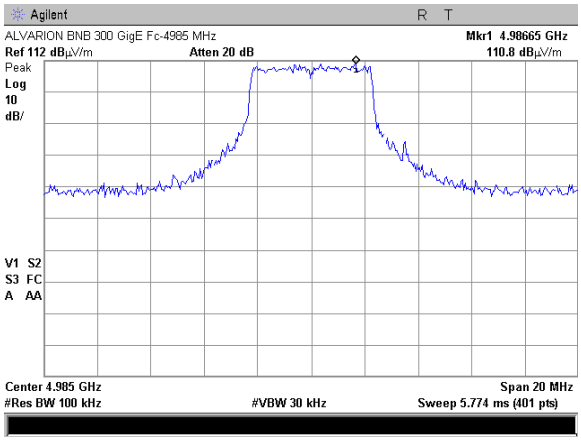


Plot # 133

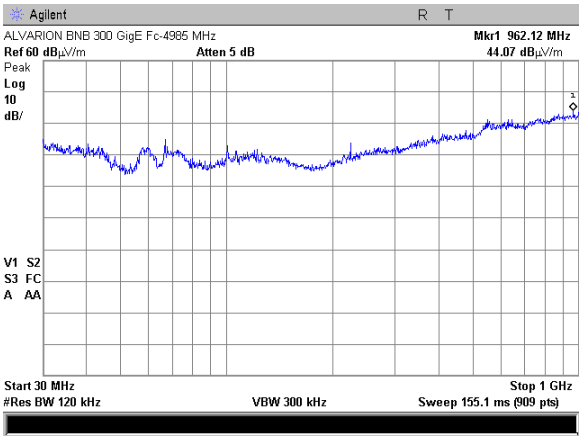


Plot # 134

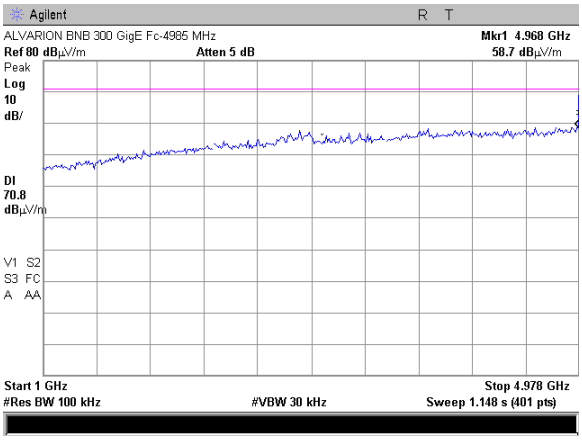
Carrier frequency – 4985 MHz



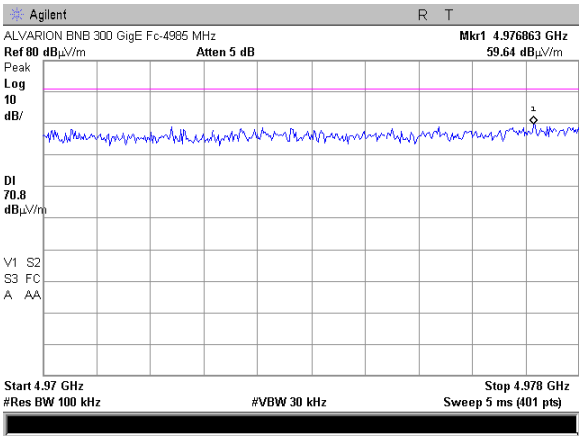
Plot # 135



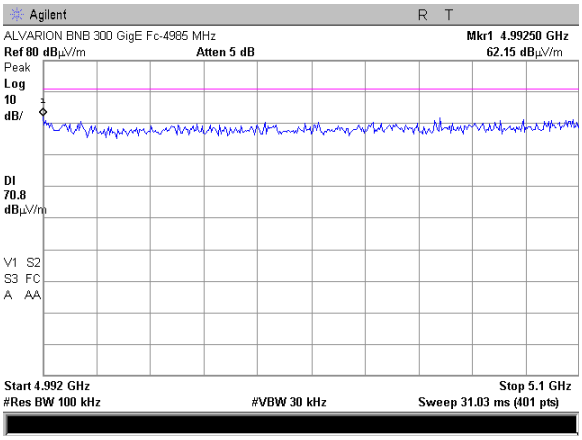
Plot # 136



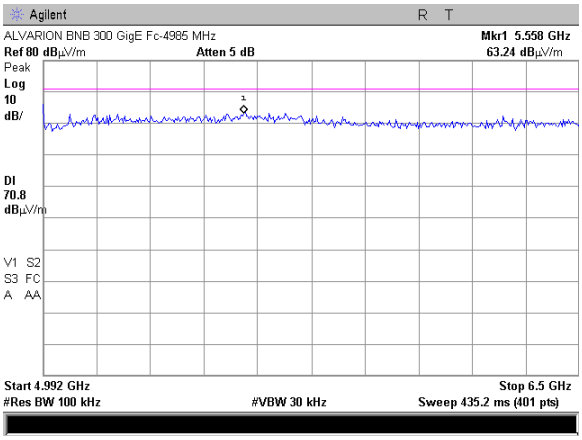
Plot # 137



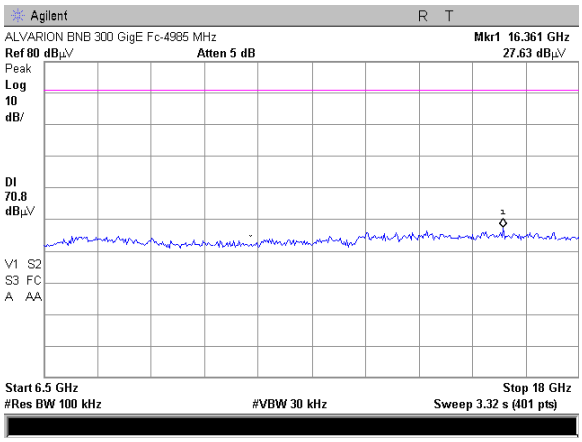
Plot # 138



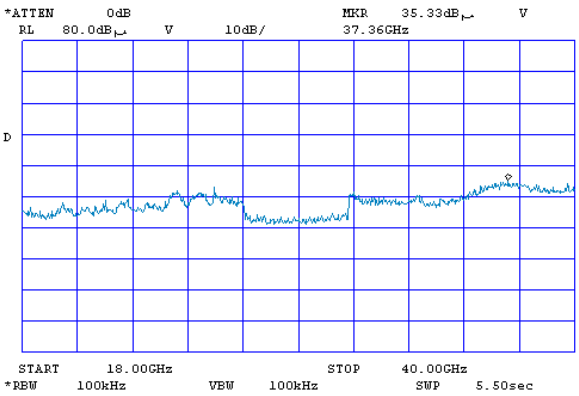
Plot # 139



Plot # 140



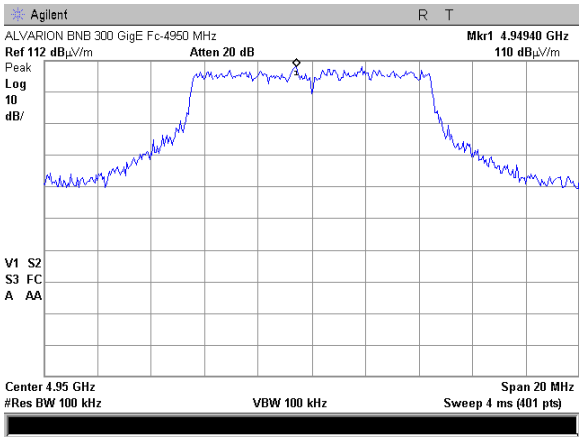
Plot # 141



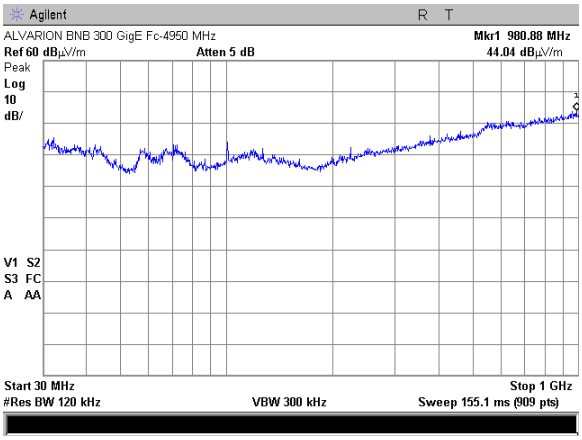
Plot # 142

10 MHz emission bandwidth

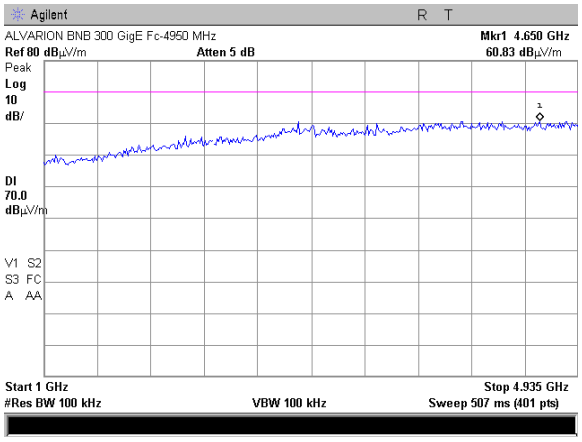
Carrier frequency – 4950 MHz



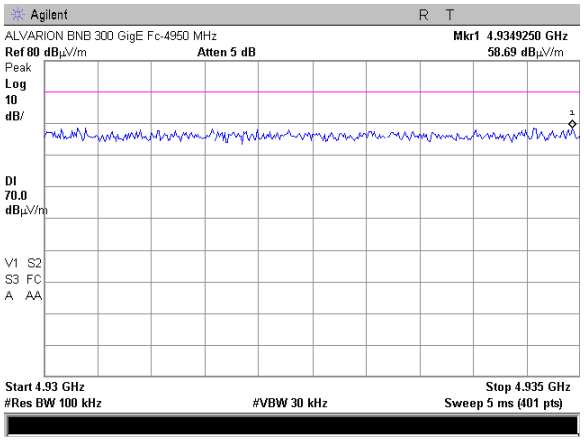
Plot # 143



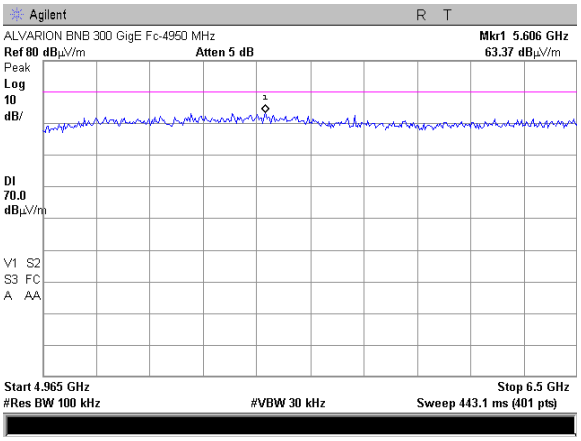
Plot # 144



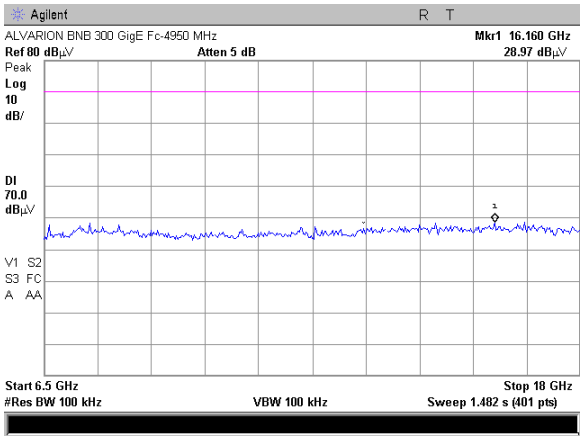
Plot # 145



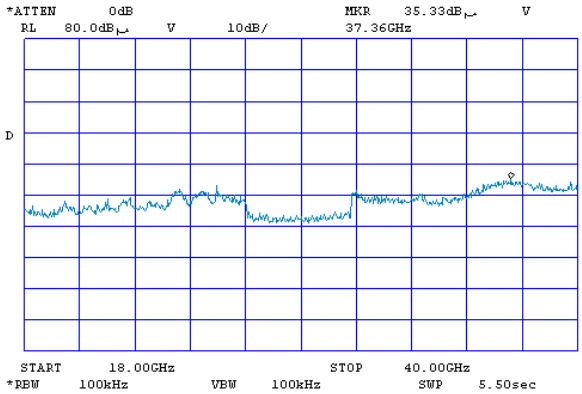
Plot # 146



Plot # 147

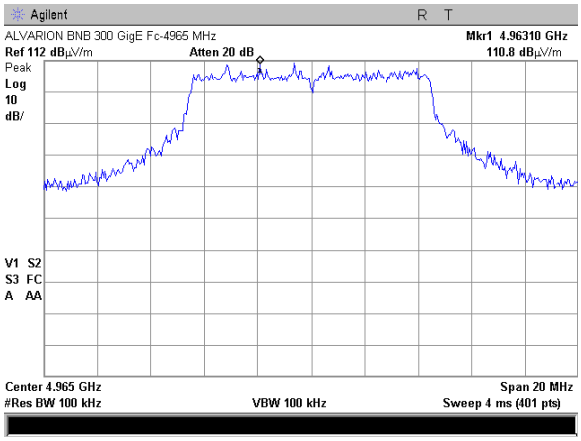


Plot # 148

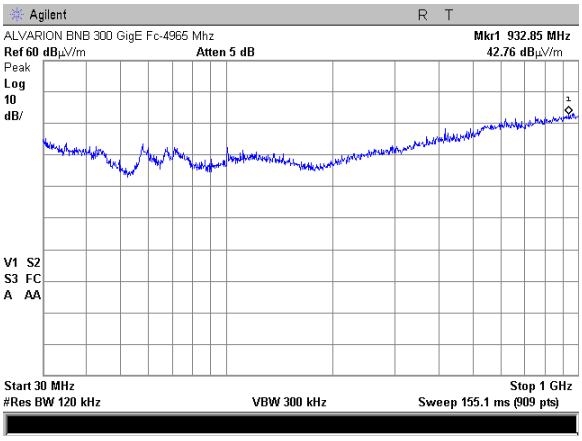


Plot # 149

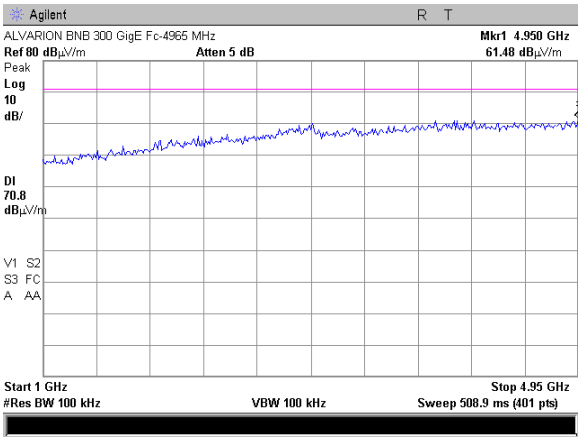
Carrier frequency – 4965 MHz



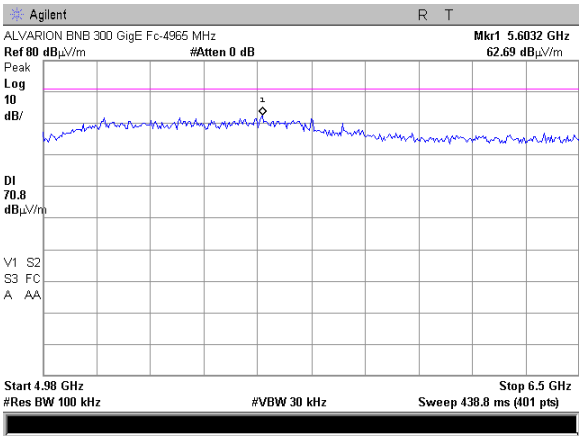
Plot # 150



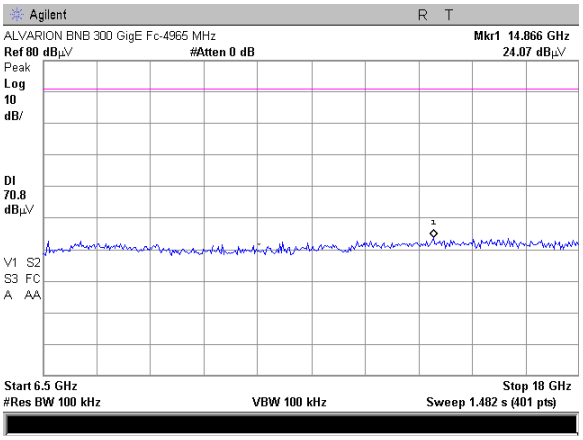
Plot # 151



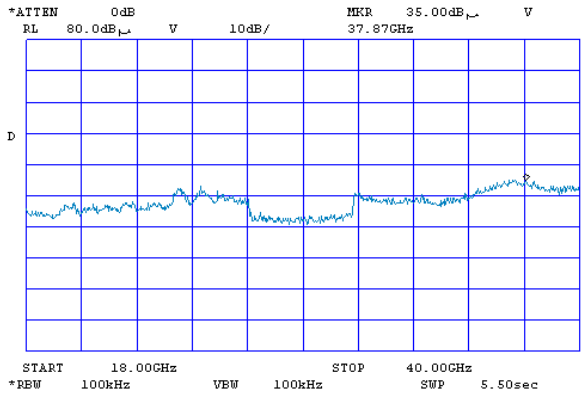
Plot # 152



Plot # 153

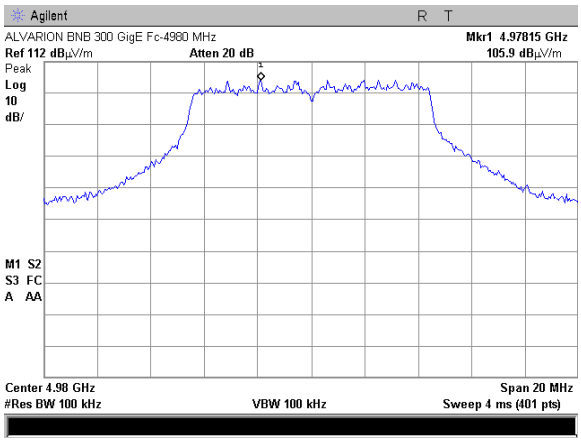


Plot # 154

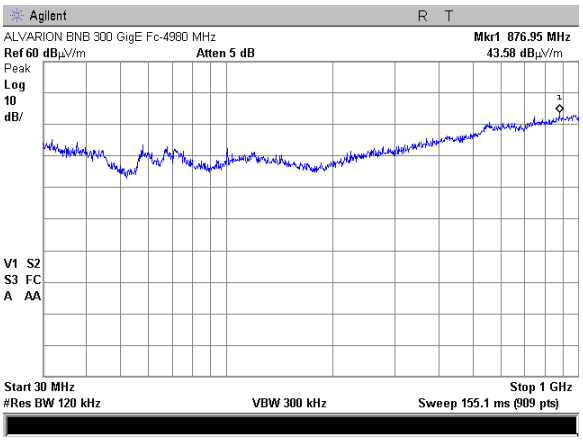


Plot # 155

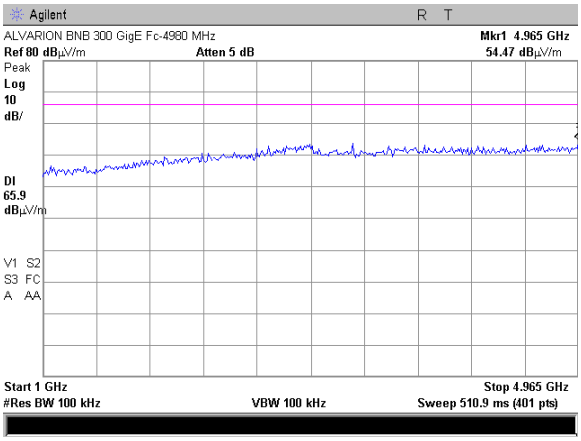
Carrier frequency – 4980 MHz



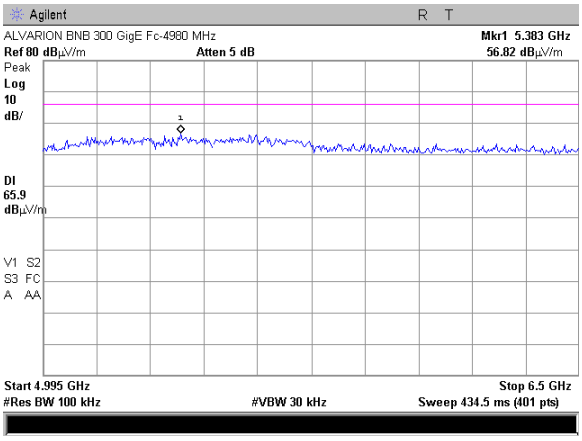
Plot # 156



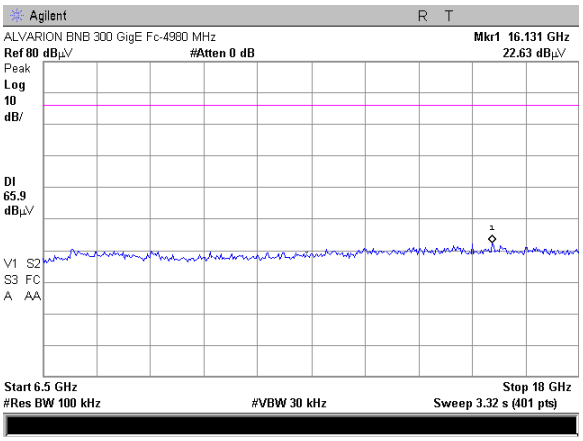
Plot # 157



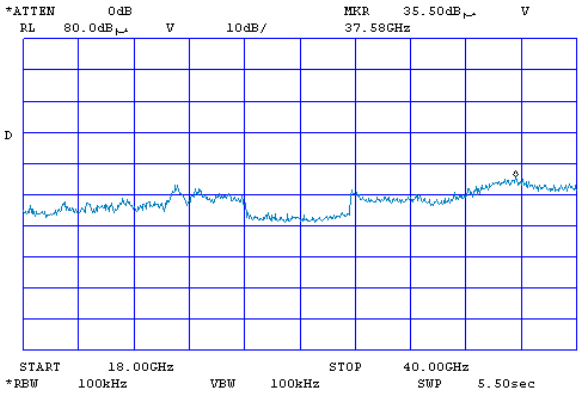
Plot # 158



Plot # 159



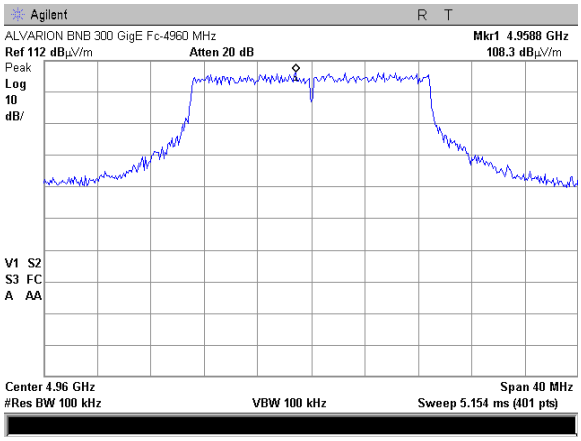
Plot # 160



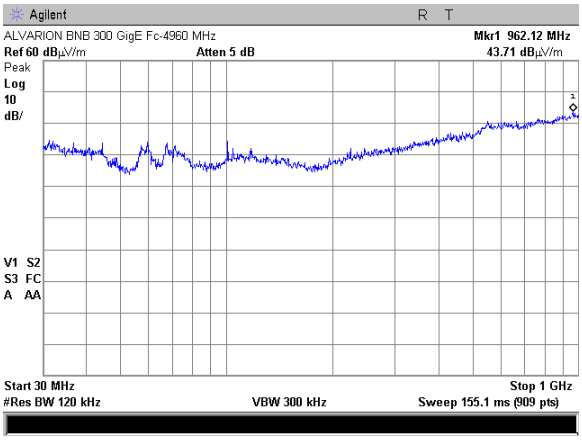
Plot # 161

20 MHz emission bandwidth

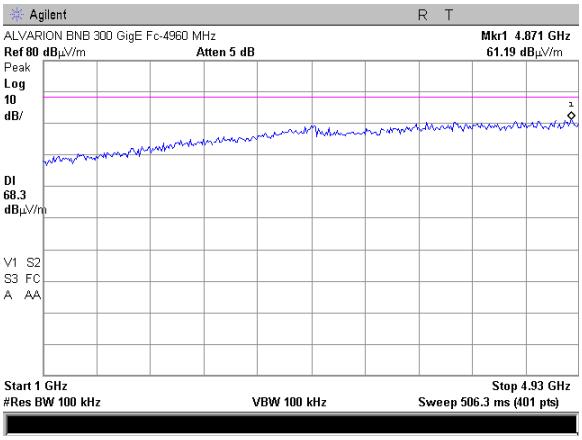
Carrier frequency – 4960 MHz



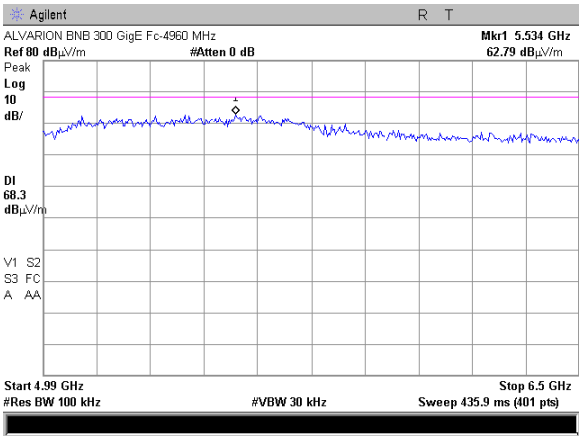
Plot # 162



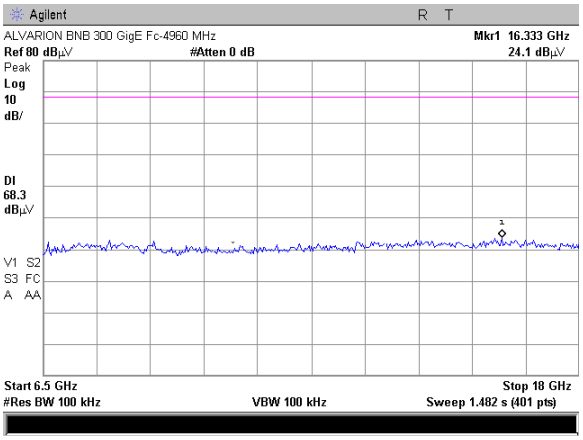
Plot # 163



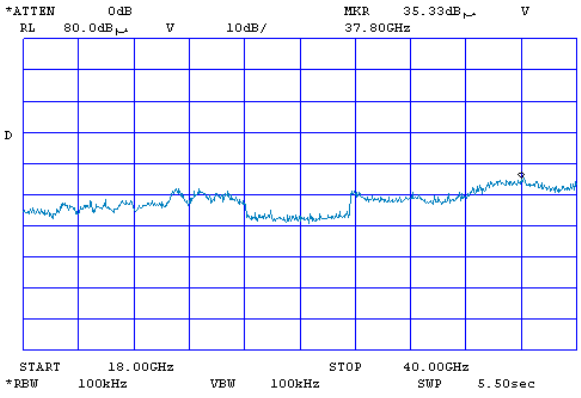
Plot # 164



Plot # 165

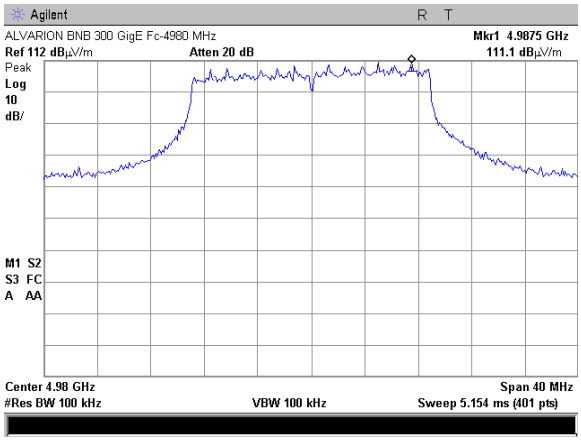


Plot # 166

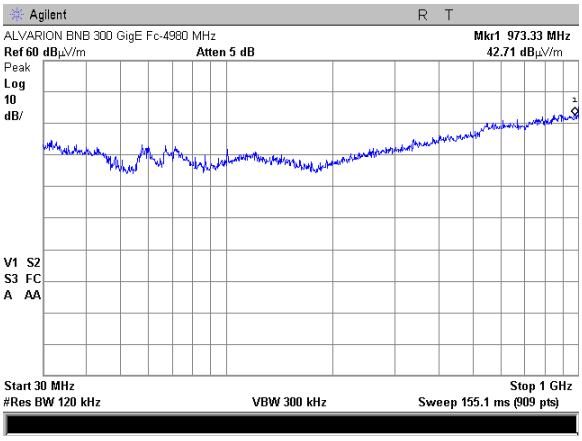


Plot # 167

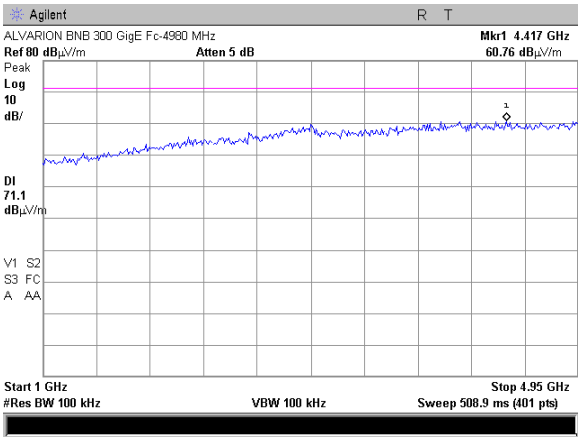
Carrier frequency – 4980 MHz



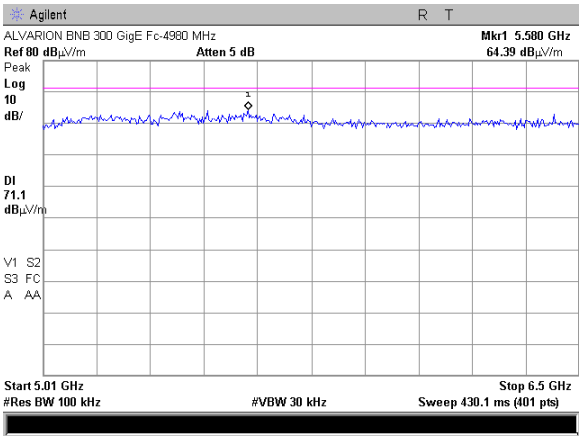
Plot # 168



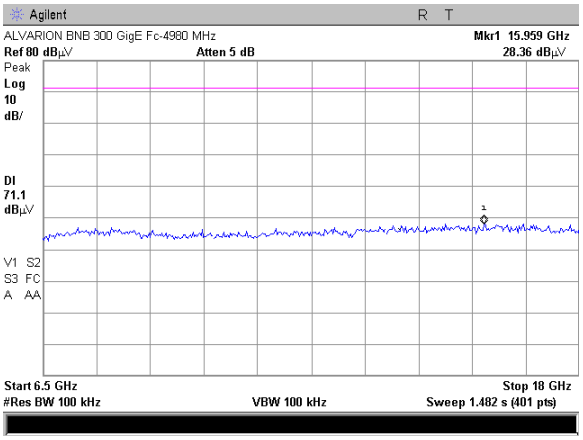
Plot # 169



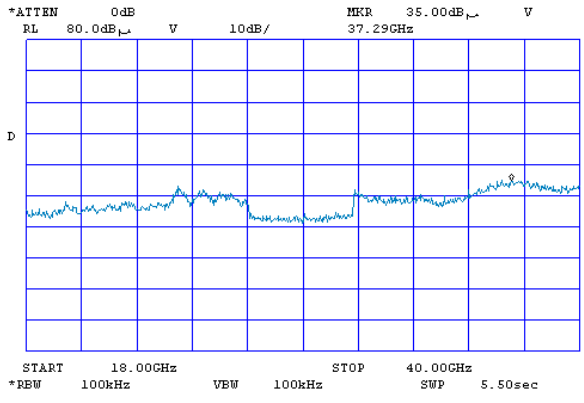
Plot # 170



Plot # 171



Plot # 172



Plot # 173

7.1.6 Ratio of the peak excursion per part 90.1215(e)

Method of measurement		DA 02-2138			
Operating Frequency Range		4945 - 4985 MHz			
Ambient Temperature	23^0 C	Relative Humidity	49%	Air Pressure	1009 hPa

The measurements were performed for al emission bandwidth options in operating frequency range under maximum data transfer bit rate. The trace #1 was performed with RBW= 1 MHz and VBW = 3 MHz. The trace #2 was performed with RBW= 1 MHz and VBW ≥ 1/T = 1/4.74 ms = 0.3 kHz were T is transmission pulse duration from plot #182.

EBW MHz	Carrier frequency MHz	Measured ratio dB	The ratio limit dB	Reference to plot #
5	4945	9.8	13.0	174
	4965	11.2	13.0	175
	4985	11.2	13.0	176
10	4950	10.9	13.0	177
	4965	11.6	13.0	178
	4980	11.6	13.0	179
20	4960	10.3	13.0	180
	4980	11.2	13.0	181

REQUIREMENT

The ratio of the peak excursion of the modulation envelope (PEME) to the peak transmit power shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less as required in sec. 90.1215(e).

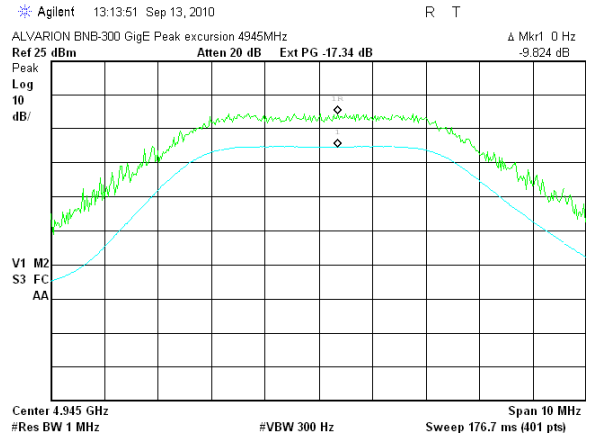
TEST SUMMARY

Transmitter meets standard requirement.
Test result present in plots ## 174 - 176 for 5 MHz emission bandwidth.
Test result present in plots ## 177 - 179 for 10 MHz emission bandwidth.
Test result present in plots # 180, 181 for 20 MHz emission bandwidth.

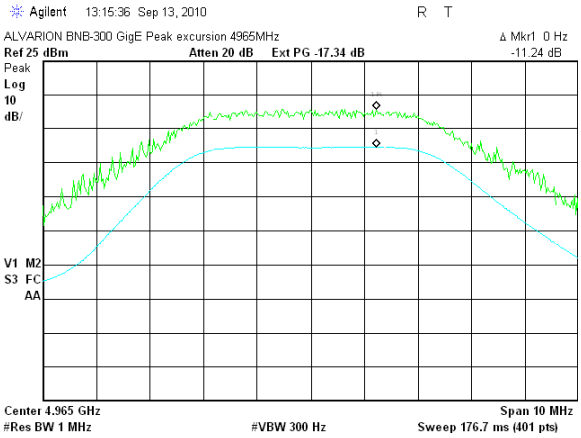
TEST EQUIPMENT USED:

2	3	4	5			

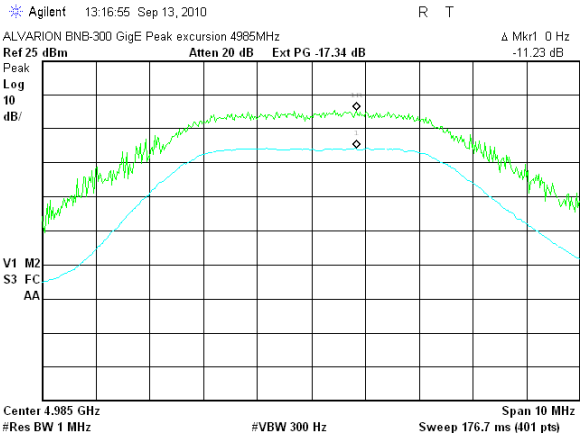
5 MHz emission bandwidth



Plot # 174. Carrier frequency 4945 MHz

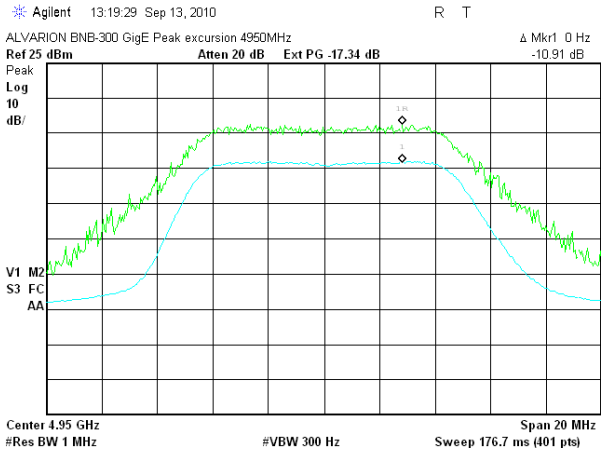


Plot # 175. Carrier frequency 4965 MHz

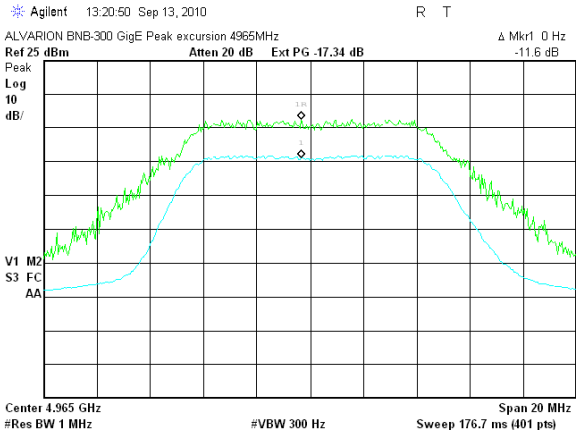


Plot # 176. Carrier frequency 4985 MHz

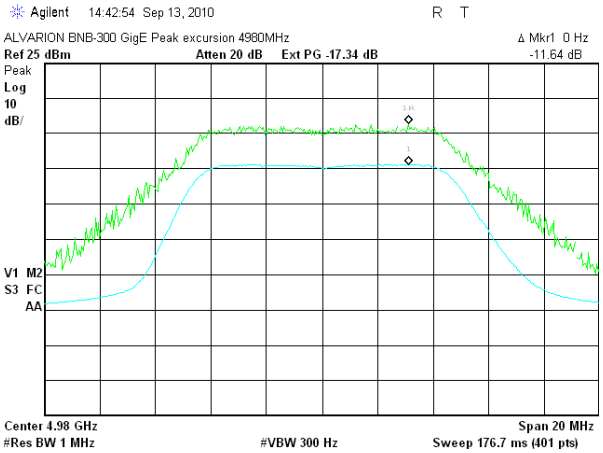
10 MHz emission bandwidth



Plot # 177. Carrier frequency 4950MHz

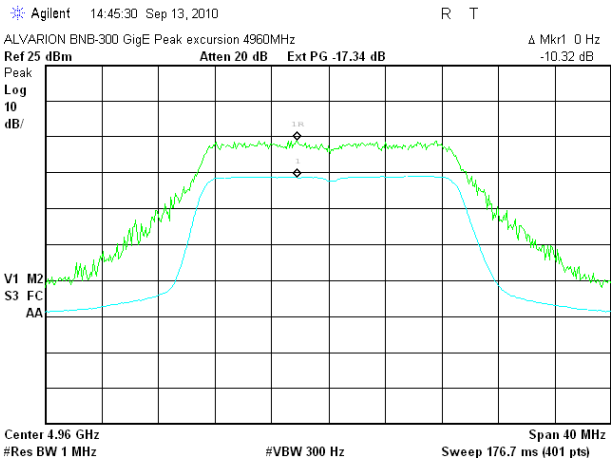


Plot # 178. Carrier frequency 4965 MHz

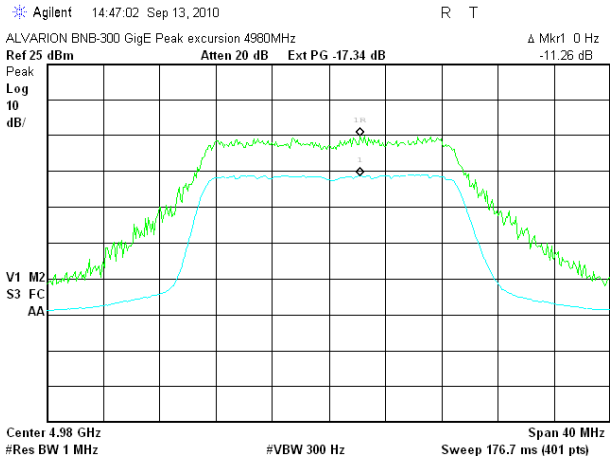


Plot # 179. Carrier frequency 4980 MHz

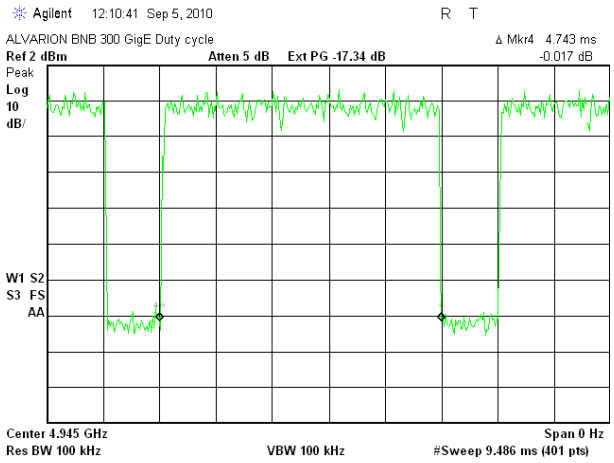
20 MHz emission bandwidth



Plot # 180. Carrier frequency 4980 MHz



Plot # 181. Carrier frequency 4980 MHz



Plot # 182.

Used in trace 2 VBW is 300 Hz from follow calculation 1/Ton = 1/4.74 ms = 0.21 kHz.

7.1.7 Frequency stability according to § 90.213

Method of measurement		FCC part 2.1055			
Operating Frequency Range		4945 - 4985 MHz			
Ambient Temperature	21^0 C	Relative Humidity	54%	Air Pressure	1007 hPa

TEST CONDITIONS		Lowest Tx frequency, 4945 MHz	Highest Tx frequency, 4985 MHz
Test temperature	Test voltage(AC)		
20°C	Vmin (102)	4944996390	4984996950
	Vnom (120)	4944996870	4984984620
	Vmax (138)	4944996410	4984997540
+50°C	Vnom (120)	4944982680	4954982130
+40°C	Vnom (120)	4944983720	4984983200
+30°C	Vnom (120)	4945015450	4985012380
+10°C	Vnom (120)	4945043870	4985045080
+0°C	Vnom (120)	4945057180	4985056960
-10°C	Vnom (120)	4945053810	4985059450
-20°C	Vnom (120)	4945053520	4985057000
-30°C	Vnom (120)	4945053170	4985054750

TEST PROCEDURE

The EUT was placed in a climatic chamber and allowed to stabilize at 20ºC temperature and nominal voltage for at list 15 min. The reference carrier frequency result was taken. The input voltage was changed from 85% of nominal to 115%. Frequency changes were noted. The temperature in climatic chamber was varied from -30ºC to +50ºC. Measured frequencies were noted in the table above.

LIMIT

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized frequency bands of operation.

TEST SUMMARY

Transmitter carrier frequency stay within the authorized frequency bands 4940 – 4990 MHz.

TEST EQUIPMENT USED:

2	3	4				

8. Receiver spurious emission test according to RSS-111.

Operating Frequency Range		4945 - 4985 MHz			
Ambient Temperature	23^0 C	Relative Humidity	58%	Air Pressure	1009 hPa

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.

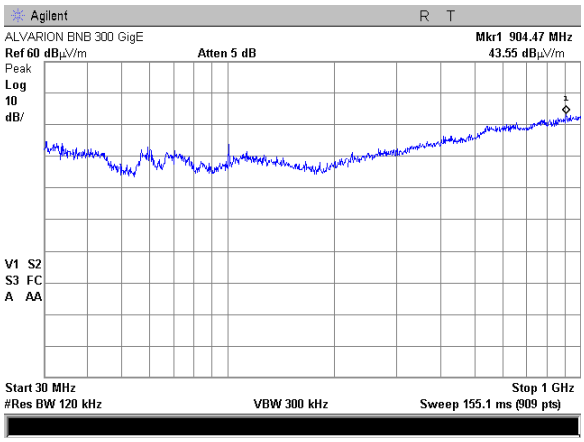
Frequency, MHz	Field strength µV/m(dBµV/m)@3m distance
30 - 88	100(40)
88 - 216	150(43.5)
216 - 960	200(46)
Above 960	500(54)

TEST SAMMARY

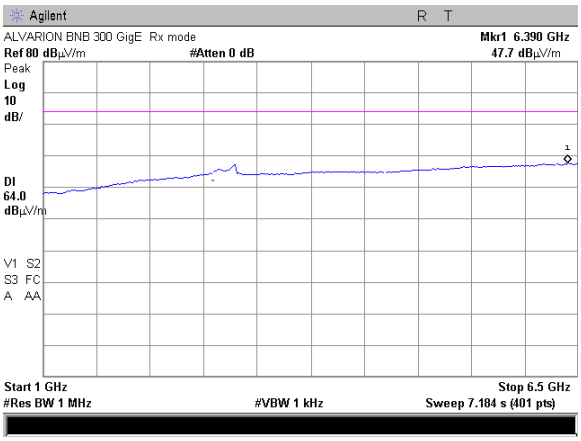
All emissions were found below the limit of RSS-Gen section 6 table #1.
No emissions were found above SA noise floor in 6.5 – 18 GHz frequency band that is at least 40 dB under the limit.

TEST EQUIPMENT USED:

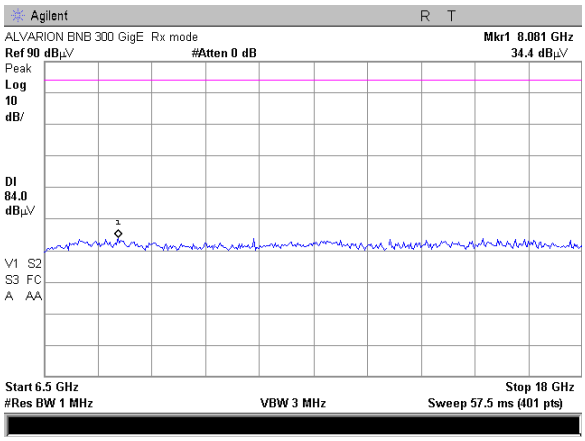
5	6	8	9	10		



Plot # 183. Scan in 30 – 1000 MHz band.



Plot # 184. Scan in 1 – 6.5 GHz band.



Plot # 185. Scan in 6.5 – 18 GHz band.

9. APPENDIX A

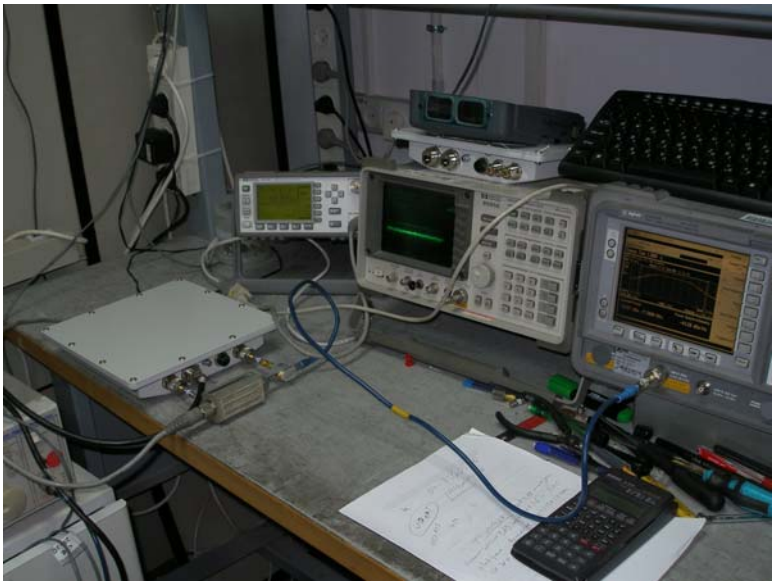


Photo #1. RF conducted emissions test setup.

Photo #2. Radiated emissions test setup in anechoic chamber.

Photo #3. Radiated emissions test setup.

10. APPENDIX B

Test equipment used

No	Description	Manufacturer information			Due Calibration date
		Name	Model No	Serial No	
1	Spectrum Analyzer 9 kHz - 40 GHz	HP	8565E	3835A01359	June 2011
2	Spectrum Analyzer 9 kHz - 26.5 GHz	Adjilent	4407B	US40241729	June 2011
3	Attenuators set (2,3,10,20 dB) DC - 18 GHz	M/A-COM	2082	1650	Aug 2011
4	Power splitter 1.7 – 9 GHz	Mini-Circuits	ZN2PD-9G	0142	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	S/N 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	Spectrum Analyzer MXA 20 Hz – 13.6 GHz	HP	N9020A	MY48010682	June 2011
16	Active Loop antenna 10 kHz – 30 MHz	EMCO	6502	SII 4874	October 2010

Cable Loss (10m cable + Mast)

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

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

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

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

11. 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(μV)	decibel referred to one microvolt
dB(μV/m)	decibel referred to one microvolt per meter
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 90: 2009	Private land mobile radio services.
47 CFR part 15.C: 2009	Intentional radiators.
RSS-111 issue 3 Jun 2009	Operating in the Band 4940 – 4990 MHz
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