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A				01.09.04	D.Lanuel	S.Cohen

EMC Laboratory

GigAccess 900H

Manufactured by
WaveIP Ltd.

EMC Test Report

According FCC Part 15 Requirements

SEP 2004

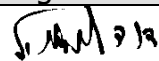
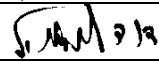
	Function/Title	Name	Signature	Date
Prepared by	Test Engineer	D.Lanuel		01.09.04
Checked by	Test Engineer	D.Lanuel		01.09.04
Approved by	EMC Lab. Manager	S.Cohen		01.09.04

Table of Contents

Para	Page
1 GENERAL INFORMATION.....	4
a. Description of equipment under test.	4
b. Applicant Information:.....	4
c. Test Performance:.....	4
2 TEST SUMMARY AND SIGNATURES.....	5
a. Test performed by:	5
b. Test Report prepared by:.....	5
c. Test Report Approved by:	5
3 EUT DESCRIPTION.....	6
a. General	6
b. General Information:	6
c. RF Software Version: PCB-V6	7
d. Transmitter description.....	7
e. E.U.T Test Configuration.....	9
f. E.U.T Mode of Operation description.....	9
4 OCCUPIED BANDWIDTH FOR DSSS SYSTEM ACCORDING TO 15.247(A) (2)	10
a. Test Results Summary & Conclusions.....	10
b. Limits of bandwidth.....	10
c. Test Results.....	10
d. Test Instrumentation and Equipment.....	11
e. Test Procedure	11
5 MAXIMUM PEAK OUTPUT POWER TEST ACCORDING 15.247(B)(3)	12
a. Test Results Summary & Conclusions.....	12
b. Limits.....	12
c. Test Results.....	12
d. Test Instrumentation and Equipment.....	13
e. Test Procedure	14
6 OUT OF BAND CONDUCTED EMISSION TEST ACCORDING TO 15.247(C)	15
a. Test Results Summary & Conclusions.....	15
b. Limits of out of band conducted emission according to 15.247 (c).....	15
c. Test Results.....	15
d. Test Instrumentation and Equipment.....	16
e. Test Procedure	16
7 RADIATED EMISSION IN RESTRICTED BANDS TEST ACCORDING 15.247(C), 15.205 AND 15.209	17
a. Test Results Summary & Conclusions.....	17
b. Limit: Radiated emission, which fall in the restricted bandwidth must comply with 15.209(a) Limits. See limits in table 8c bellow.	17
c. Results.....	18
d. Test Instrumentation and Equipment.....	21
e. Test Procedure	22
f. Final Test Setup.....	22

8	PEAK POWER SPECTRAL DENSITY OF DSSS ACCORDING 15.247D	25
a.	Test Results Summary & Conclusions	25
b.	Limit	25
c.	Test Results	25
d.	Test Instrumentation and Equipment	26
e.	Procedure	26
9	UNINTENTIONAL RADIATED EMISSION TEST ACCORDING TO 15.109	27
a.	Test Results Summary & Conclusions	27
b.	Limit:	27
c.	Test Results	27
d.	Test Instrumentation and Equipment	28
e.	Procedure	28
10	CONDUCTED EMISSION TEST ACCORDING TO 15.207.15.107	29
a.	Test Results Summary & Conclusions	29
b.	Limit:	29
c.	Test Results	29
d.	Test Instrumentation and Equipment	30
e.	Test Procedure	30
f.	Test setup	30
11	PLOTS	32
a.	Occupied bandwidth plots 1-9	32
b.	Maximum peak output power plots 10-21	37
c.	Out of band emission Plots 22 - 41	42
d.	Radiated spurious Emission in restricted band Plots 42-117	50
e.	Peak power spectral density of DSSS according 15.247d plots 118 - 129	154
f.	Unintentional Radiated Emission Plots	160
12	CORRECTION FACTORS	162
13	ABBREVIATIONS AND ACRONYMS	164

1 GENERAL Information

a. Description of equipment under test.

Equipment Under Test:	GigAccess 900
FCCID	QQ2-GA900
Manufacturer:	WaveIP.
Serial Numbers:	0-50-C2-1C-C468
Mode of Operation:	TX MODE
Operating frequency:	902-928MHZ
Year of Manufacture:	2004

b. Applicant Information:

Applicant:	WaveIP Ltd.
Applicant Address	TAVOR Building YOKNEAM
Telephone:	+972-4-9937333
FAX:	+972-4-9592614
The testing was observed by:	Yoram Singer
following applicant's personnel:	Yoram Singer

c. Test Performance:

Date of reception for testing:	17.08.04
Dates of testing	17.08.04-23.08.04
Test Laboratory Location	TADIRAN EMC LAB , Hashoftim 26 Holon 58102ISRAEL Tel: 972-3-5574476 Fax: 972-3-5575320

Applicable EMC Specification:	Federal Communication Commission (FCC), Code of
Federal Regulations 47,	
FCC Docket 89-103,Part 15:	Radio Frequency Devices, Sections 15.109, 15.209 & 15.207, 15.205, 15.247.

2 Test Summary and Signatures.

TADIRAN EMC Laboratory has completed testing of E.U.T in accordance with the requirements of the FCC 15.247

The E.U.T was found to comply with the requirements of the FCC Part 15.247 Regulations given below

Test Description	Spec Reference	Date of Testing	Test Report Paragraph	Compliance PASS/FAIL
Occupied 6db bandwidth	15.247 (a) (2)	17/08/04	4	PASS
Max peak output power	15.247 (b) (3)	17/08/04	5	PASS
Out of band Conducted emission	15.247 (c)	17/08/04	6	PASS
Spurious emission radiated In Restricted band	15.209 15.205(a ,c)	17/08/04- 22.08.04	7	PASS
Peak power spectral density	15.247 (d)	23.08.04	8	PASS
Unintentional radiated emission	15.109	23.08.04	9	PASS
Power leads Conducted emission	15.207, 15.107	23.08.04	10	PASS

a. **Test performed by:**

Mr. D. Lanuel Test Engineer



b. **Test Report prepared by:**

Mr. D. Lanuel Test Engineer



c. **Test Report Approved by:**

Mr. Samuel Cohen EMC Lab. Manager



3 EUT Description

a. General

Model Number(s): GigAccess 900

Brief Description (Purpose of Device):

GigAccess™ 900 is WaveIP's wireless point-to-point and point-to-multipoint broadband communication system. The basic subsystem is composed of a single sector, which consists of an AU (Access Unit) and up to 64 SUs (Subscriber Units). Each sector is a stand-alone communication network operating on a star topology with a gateway to the WAN, which allows two-way communication between the SUs and the WAN via the AU. A Sector may be divided into sub sectors, which are consecutive to the SUs within the sector. GigAccess™ 900 system allows operators that provide IP services using GigAccess™ (at 2.4 GHz band) to extend the reach of their system and provide services to clusters of customers that cannot otherwise be reached due to being obstructed by heavy foliage or other obstacles existing in rural areas.

For detailed description see GigAccess™ 900 and 900A User Guide.

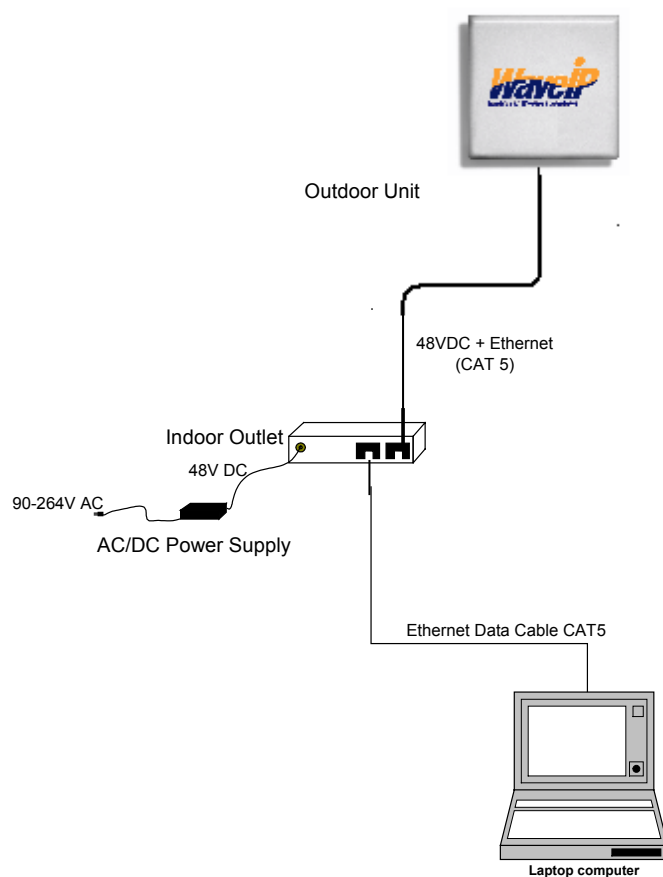
b. General Information:

- (1) **Intended Environment: Outdoor**
- (2) **Operating Temperature Range: -20°C - +55°C**
- (3) **Physical Dimensions of Unit: 190 x 190 x 30 mm (with 6.5 dBi integrated antenna)**

Table 1 EUT ports and lines

Port type	Port description	Connector type	Quan.	Cable type description	Cable length, m	Connected to
GigAccess Data input	Ethernet 802.3	RJ45	2	CAT 5 Shielded	Up to 100m	Indoor outlet output
GigAccess Power input	48V DC	RJ45	2	CAT 5 Shielded	Up to 100m	Indoor outlet output
Indoor Outlet Data Input	Ethernet 802.3	RJ45	1	CAT 5 Shielded	Up to 100m	Computer NIC
Indoor Outlet Power Input	48V DC	DC Jack	1	DC Standard	2m	AC/DC Unit out
AC/DC Unit input	90-264V AC	AC Jack	1	AC Standard	2m	Power WallSocket

EUT test configuration1Figure



c. RF Software Version: PCB-V6

d. Transmitter description

(1) Radio Specifications

Operating Frequency	902-928MHz ISM band
Output Power	Up to 30dbm (at antenna port)
RF Waveform	Direct Sequence Spread spectrum(DSSS)
Number of Channel	7(912-918) in GA_900 15(907-923) in GA_900A
RF Cannel Spacing	1MHz
Type of modulation	DQOSK, 16CCK1, 256 CCK
Data Rate	11 Mbps, 5.5 Mbps in GA_900 5.5 Mbps, 2 Mbps in GA_900A
EIRP	36dbm(max)
Antenna Gain	6.5dbi

(2) External, Integrated Antennas Technical characteristics

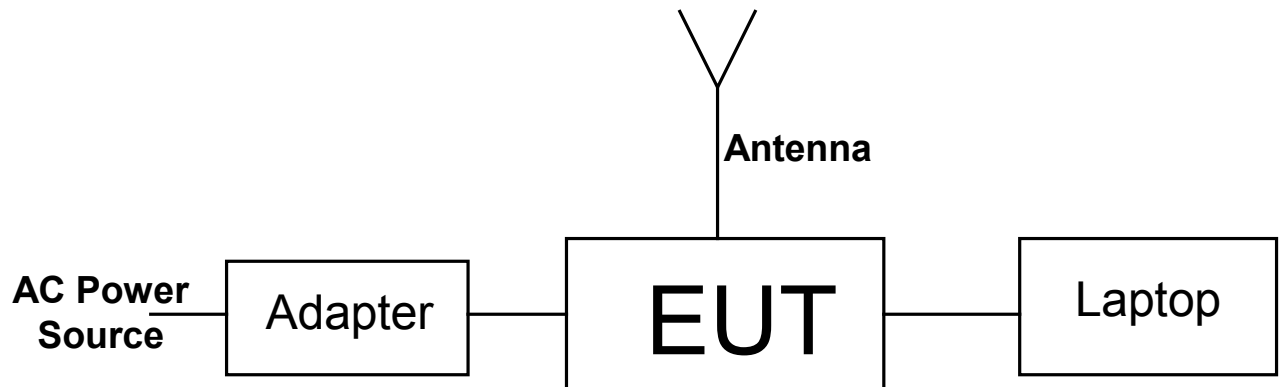
Antenna Type	Model	Gain (db)
Flat Panel Integrated	MTI-262002/C/A	6.5
Flat Panel	MTI-263006/N	12.5
Omni Directional	MTI-263003/NV	8

(3) Transmitter Power Source

Adapter 220VAC/48VDC

e. **E.U.T Test Configuration**

EUT test configuration is shown in figure bellow



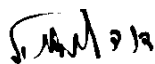
f. **E.U.T Mode of Operation description**

- (1) **GA_900 (912-918)-Transmit and Standby**
- (2) **GA_900A(907-923)-Transmit and Standby**

4 Occupied Bandwidth for DSSS System According to 15.247(a) (2)

E.U.T: GigAccess 900 S/N:00-50C2-1C-C468
 Test Method: ANSI 63.4
 Date: 07/07/04
 Relative Humidity: 38%
 Ambient Temperature: 22c
 Air Pressure: 1046hpa

Testing Engineer: D.Lanuel



Date 01/09/04

a. Test Results Summary & Conclusions

The E.U.T was found in compliance with OCCUPIED BANDWIDTH

b. Limits of bandwidth

The test unit shall meet the limits of Table 4.b

Table 4.b Limits For Bandwidth

Operating Frequency (MHz)	Minimum allowed bandwidth
902 - 928	≥500KHz for 6dbc

c. Test Results

Table 4.c Bandwidth Test Result for GA_900 mode

Frequency (MHz)	Bandwidth (MHz)	Bandwidth Max Limit(KHz)	Plot Results	PASS/F AIL
912	11.3	≥500KHz	Plot-1	PASS
			Plot-2	
915	11.75		Plot-3	PASS
			Plot-4	
918	11.15		Plot-5	PASS
			Plot-6	

Table 4.c1 Bandwidth Test Result for GA_900A mode

Frequency (MHz)	Bandwidth (MHz)	Bandwidth Max Limit(KHz)	Plot Results	PASS/F AIL
907	7.1	≥500KHz	Plot-7	PASS
915	6.7		Plot-8	PASS
923	6.6		Plot-9	PASS

d. **Test Instrumentation and Equipment**

Table 4.d Test Instrumentation and Equipment

Item	Model	Manufacturer	Next Date Calibration
Spectrum Analyzer	8593E	HP	31/01/05
Broadband Antenna	BTA-L	FRANKONIA	10.04.06
20db attenuator	2525-200	ATM	18.03.06
20db attenuator	2525-200	ATM	18.03.06

e. **Test Procedure**

The EUT output was connected to the spectrum analyzer through 40db attenuator,
The test set up are shown in figure 4e bellow

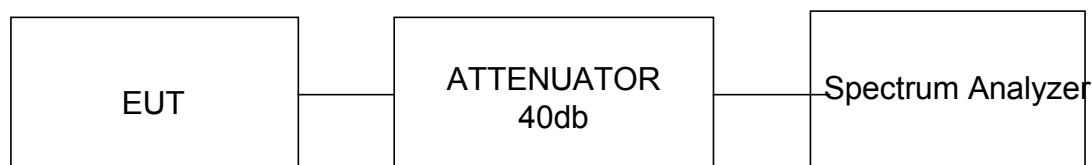


Figure 4e Test Setup for Occupied Bandwidth test

5 Maximum peak output power test according 15.247(b)(3)

E.U.T:	GigAccess 900	S/N:00-50C2-1C-C468
Test Method:	ANSI 63.4	
Date:	07/07/04	
Relative Humidity:	38%	
Ambient Temperature:	22c	
Air Pressure:	1046hpa	
Test Setup:	Figure 6.c.1	

Testing Engineer: D.Lanuel



Date 01/09/04

a. Test Results Summary & Conclusions

The E.U.T was found in compliance with peak output power requirement

b. Limits

The test unit shall meet the limits of Table 5.b.

Table 5.b Limits For Fundamental

Operating frequency range (MHz)	Peak Max Limits(dbm)
902 - 928	30 (1W)

c. Test Results

Table 5.c Peak output power Result for GA_900 mode

Frequency (MHz)	Peak Result	peak Limits	Margine (dB)	Plots Result	Pass/Fail
912MHz	29.88*	30dbm (1W)	0.12	Plot 10-12	PASS
915MHz	29.99*		0.01	Plot 13-15	PASS
918MHz	29.79*		0.21	Plot 16-18	PASS

*See calculation bellow-based on test procedure paragraph 5e

Table 5.c1 Peak output power Result for GA_900A mode

Frequency (MHz)	Peak Result	peak Limits	Margine (dB)	Plots Result	Pass/Fail
907MHz	29.79*	30dbm (1W)	0.21	Plot-19	PASS
915MHz	29.69*		0.31	Plot-20	PASS
923MHz	29.80*		0.2	Plot-21	PASS

*See calculation bellow-based on test procedure paragraph 5e

(1) 912MHz peak power calculation –based on plot-7

- a) BW correction factor is: $10\log 6\text{db BW of emission/analyzer RBW}$
b) $10\log 11.75/3=5.93$
c) Output power: $23.95+5.93=29.88$

(2) 915MHz peak power calculation –based on plot-8

- a) BW correction factor is: $10\log 6\text{db BW of emission/analyzer RBW}$
b) $10\log 11.2/3=5.72$
c) Output power: $24.27+5.72=29.99$

(3) 918MHz peak power calculation –based on plot-9

- a) BW correction factor is: $10\log 6\text{db BW of emission/analyzer RBW}$
b) $10\log 11.55/3=5.85$
c) Output power: $23.94+5.85=29.79$

(4) 902MHz peak power calculation –based on plot-9

- a) BW correction factor is: $10\log 6\text{db BW of emission/analyzer RBW}$
b) $10\log 7.8/3=4.14$
c) Output power: $25.65+4.14=29.79$

(5) 915MHz peak power calculation –based on plot-9

- a) BW correction factor is: $10\log 6\text{db BW of emission/analyzer RBW}$
b) $10\log 7.6/3=4.03$
c) Output power: $25.66+4.03=29.69$

(6) 923MHz peak power calculation –based on plot-9

- a) BW correction factor is: $10\log 6\text{db BW of emission/analyzer RBW}$
b) $10\log 7.6/3=4.03$
c) Output power: $25.77+4,03=29.80$

d. Test Instrumentation and Equipment

Table5.d Test Instrumentation and Equipment

Item	Model	Manufacturer	Next Date Calibration
Spectrum Analyzer	8593E	HP	31/01/05
Broadband Antenna	BTA-L	FRANKONIA	10.04.06
20db attenuator	2525-200	ATM	18.03.06

e. Test Procedure

- (1) **Spectrum analyzer measured the transmitter peak output power while the RBW of analyzer is 3MHz and the RBW of transmitter is 20MHz.**
- (2) **When the analyzer RBW is not large enough as required. the peak output power procedure is as follows:**
 - a) *Set the RBW and VBW to the maximum available.*
 - b) *Set the band limit to 6db*
 - c) *Set sweep to automatic*
 - d) *Set the span just enough to capture the emission*
 - e) *Use the peak detector on max hold*
 - f) *Set the analyzer on linear mode display*
 - g) *Let the emission stabilize before making a final reading*

BW correction factor is: $10\log 6\text{db BW of emission/analyzer RBW}$

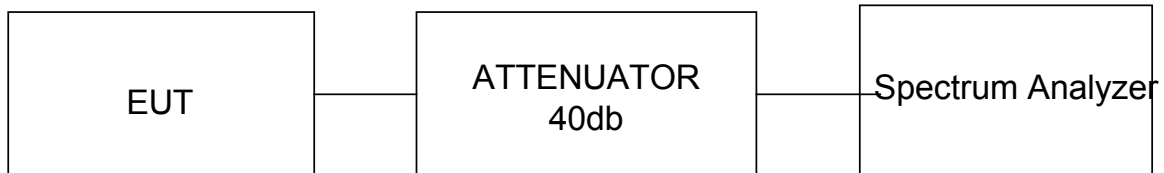


Figure 5e Test Setup for Peak output power

6 Out of band conducted emission test according to 15.247(c)

E.U.T:	GigAccess 900	S/N:00-50C2-1C-C468
Test Method:	ANSI 63.4	
Date:	07/07/04	
Relative Humidity:	38%	
Ambient Temperature:	22c	
Air Pressure:	1046hpa	
Test Setup:	Figure 6.c.1	

Testing Engineer: D.Lanuel



Date 01/09/04

a. Test Results Summary & Conclusions

The E.U.T was found in compliance with Out of band conducted emission test according to 15.247(c)

b. Limits of out of band conducted emission according to 15.247 (c)

The test unit shall meet the limits of Table 9.b.

Table 6.b Limits For 15.247(c)

Frequency range(MHz)	Limits (dB μ V/m)
0.009 – 9200	110 (20db below peak power)

c. Test Results

Table 6.c Results for GA_900 mode

Operating Frequency (MHz)	Frequency range (MHz)	Results (dB μ V/m)	Plots Result
915MHz	0.009 – 9200	All emission were found Min 30db below the specified limits	22 - 31

Table 6.c1 Results For GA_900A mode

Operating Frequency (MHz)	Frequency range (MHz)	Results (dB μ V/m)	Plots Result
915MHz	0.009 – 9200	All emission were found Min 30db below the specified limits	32 - 41

d. **Test Instrumentation and Equipment**

Table 6.d Test Instrumentation and Equipment

Item	Model	Manufacturer	Next Date Calibration
Spectrum Analyzer	8593E	HP	31/01/05
20db attenuator	2525-200	ATM	18.03.06
20db attenuator	2525-200	ATM	18.03.06

e. **Test Procedure**

The EUT output was connected to the spectrum analyzer through 40db attenuator. The test set up is shown in figure 6e bellow.

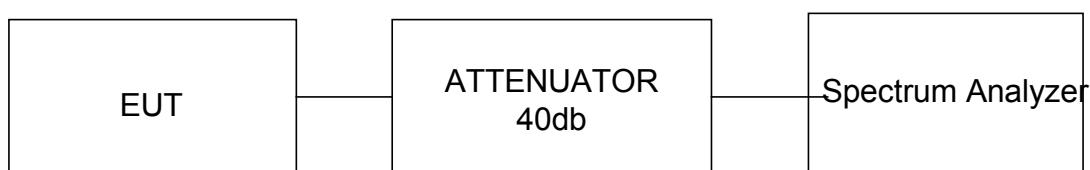


Figure 6e Test Setup for Conducted emission

7 Radiated emission in restricted bands test according 15.247(c), 15.205 and 15.209

E.U.T:	GigAccess 900	S/N:00-50C2-1C-C468
Test Method:	ANSI 63.4	
Date:	13/05/04	
Relative Humidity:	38%	
Ambient Temperature:	22c	
Air Pressure:	1046hpa	
Test Setup:	Figure 6.c.1	

Testing Engineer: D.Lanuel



Date 01/09/04

a. Test Results Summary & Conclusions

The E.U.T was found in compliance with radiated emission restricted band test

b. Limit: Radiated emission, which fall in the restricted bandwidth must comply with 15.209(a) Limits. See limits in table 8c bellow.

Table 7.b Limits For 15.209 Class B equipment

Frequency Range (MHz)	Quasi-peak Limits (dB μ V/m)
0.009 – 1.705	128 - 70
1.705 - 30	70
30 - 88	40
88 - 216	43
216 - 960	46
960 - 2000	54

c. Results

(1) Preliminary Results

Table 7.c1 Preliminary test results

Configuration	Transmitting Frequency	Freq. Range	Plots Results	PASS/FAIL
GA_900 Antenna sq 6dbi	912MHz	9KHz- 9.2GHz	42 - 54	PASS
	915MHz		55 - 66	PASS
	918MHz		67 - 79	PASS
GA_900 Antenna 8dbi omni	912MHz		80 - 92	PASS
	915MHz		93 - 104	PASS
	918MHz		105 - 117	PASS
GA_900 Antenna 12.5dbi	912MHz		118- -130	PASS
	915MHz		131- -143	PASS
	918MHz		144 - 156	PASS
GA_900-A Antenna sq 6dbi	907MHz		157 - 169	PASS
	915MHz		170 - 182	PASS
	923MHz		183 - 195	PASS
GA_900-A Antenna 8dbi omni	907MHz		196 – 208	PASS
	915MHz		209 - 221	PASS
	923MHz		222 - 234	PASS
GA_900-A Antenna 12.5dbi	907MHz		235 - 247	PASS
	915MHz		248 - 260	PASS
	923MHz		261 - 273	PASS

(2) Final Test Results

Table 7c2 Six Highest for GA_900 Antenna 6dbi

Transmit Freq(MHz)	Freq. MHz	QP Reading (dbμV/m)	Limit (dbμV/m)	Margin (db)	Polarity/ Hight	Angle
912MHz	35.03	38.5	100*	>20	V/1.65	324
	87.99	39.3	100*	>20	V/1	180
915MHz	35.02	37.2	100*	>20	V/1.65	355
	87.92	26.3	100*	>20	V/1.65	72
918MHz	35.03	36	100*	>20	V/1.65	108
	87.99	38.3	100*	>20	V/1.65	72

*NOT RESTRICTED BAND

Table 7c2 Six Highest for GA_900 Antenna 8dbi

Transmit Freq(MHz)	Freq. MHz	QP Reading (db μ V/m)	Limit (db μ V/m)	Margin (db)	Polarity/Hight	Angle
912MHz	35.4	38.5	100*	>20	V/1.m	240
	89.69	35.9	100*	>20	V/1	240
915MHz	35.39	39.1	100*	>20	V/1	120
	87.99	36.1	100*	>20	V/1.3	180
918MHz	35.62	37.2	100*	>20	V/1	180
	88.02	35.3	100*	>20	V/1	240
	174.245	31.5	100*	>20	V/1	300

*NOT RESTRICTED BAND

Table 7c2 Six Highest for GA_900 Antenna 12.5dbi

Transmit Freq(MHz)	Freq. MHz	QP Reading (db μ V/m)	Limit (db μ V/m)	Margin (db)	Polarity/Hight	Angle
912MHz	34.6	35	100*	>20	V/1.3m	240
	87.92	28.3	100*	>20	V/1	120
915MHz	All emission were found min 30db below the specified limit					
918MHz	All emission were found min 30db below the specified limit					

*NOT RESTRICTED BAND

Table 7c3 Six Highest for GA_900_A, Antenna 6dbi

Transmit Freq(MHz)	Freq. MHz	QP Reading (db μ V/m)	Limit (db μ V/m)	Margin (db)	Polarity/Hight	Angle
907MHz	35.02	36.6	100*	>20	H/1.65	288
	88	38.5	100*	>20	V/1	180
915MHz	35.03	36.7	100*	>20	V/1.65	288
	88	37.8	100*	>20	V/1.3	103
923MHz	35.03	36.4	100*	>20	H/1/65	180
	87.92	28.1	100*	>20	H/1.31	72

*NOT RESTRICTED BAND

Table 7c3 Six Highest for GA_900_A, Antenna 8dbi

Transmit Freq(MHz)	Freq. MHz	QP Reading (dbμV/m)	Limit (dbμV/m)	Margin (db)	Polarity/Hight	Angle
907MHz	35.02	32.7	100*	>20	V/1.65	180
	89.69	38.6	100*	>20	V/1	240
915MHz	34.89	29.3	100*	>20	V/1.65	240
	88.02	38	100*	>20	V/1	180
923MHz	35.5	32.2	100*	>20	V/1/65	240
	87.99	36.5	100*	>20	V/1	180

*NOT RESTRICTED BAND

Table 7c3 Six Highest for GA_900_A, Antenna 12.5dbi

Transmit Freq(MHz)	Freq. MHz	QP Reading (dbμV/m)	Limit (dbμV/m)	Margin (db)	Polarity/Hight	Angle
907MHz	34.07	28.5	100*	>20	V/1	216
915MHz	All emission were found min 30db below the specified limit					
918MHz	All emission were found min 30db below the specified limit					

*NOT RESTRICTED BAND

d. **Test Instrumentation and Equipment**

Table 7.d Test Instrumentation and Equipment

Item	Model	Manufacturer	Next Date Calibration
Spectrum Analyzer	8593E	HP	31/01/05
Double Ridge Guide Antenna(1-18GHz)	3105	EMCO	24.04.05
Broadband Antenna	BTA-L	FRANKONI A	10.04.05
Low Noise Amplifier (0-1GHz)	AM-1300-N	MITEQ	14.01.05
Low Noise Amplifier (1-4GHz)	AMM 003N	AVANTEK	14.01.05
Low Noise Amplifier (2-6GHz)	MWA-02060	ELISRA	14.01.05
Low Noise Amplifier (6-18GHz)	MWA-06180	ELISRA	14.01.05
Low pass filter 100MHz	LD110	FSY	17.04.05
Low pass filter 700MHz	360A	HP	18.05.05
Band reject filter 902 – 928MHz	BRF 900	TADIRAN	20.05.05
Attenuator 20db	2525-20	ATW	18.03.06
Attenuator 3db	AN9146	WEINSCH E	23.06.05
Attenuator 6db	AP2542	WEINSCH E	23.06.05

e. Test Procedure

(1) Preliminary Test Procedure

- a) The EUT was placed on the top of a rotating table 0.8 meters above the ground at a chamber shielded
- b) The E.U.T was set 3 meters away from the receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c) The Antenna height varied from one meter above the ground over its full-allowed range of travel and the table was rotated 360°to determine the maximum value of the field strength
- d) The antenna was set both horizontal and vertical polarization.

(2) Final Test Procedure

- a) The EUT was tested at open area for each suspected emission,
- b) The test procedure was performed according paragraph d. but the Antenna height varied from one meter to four meters above the ground

f. Final Test Setup

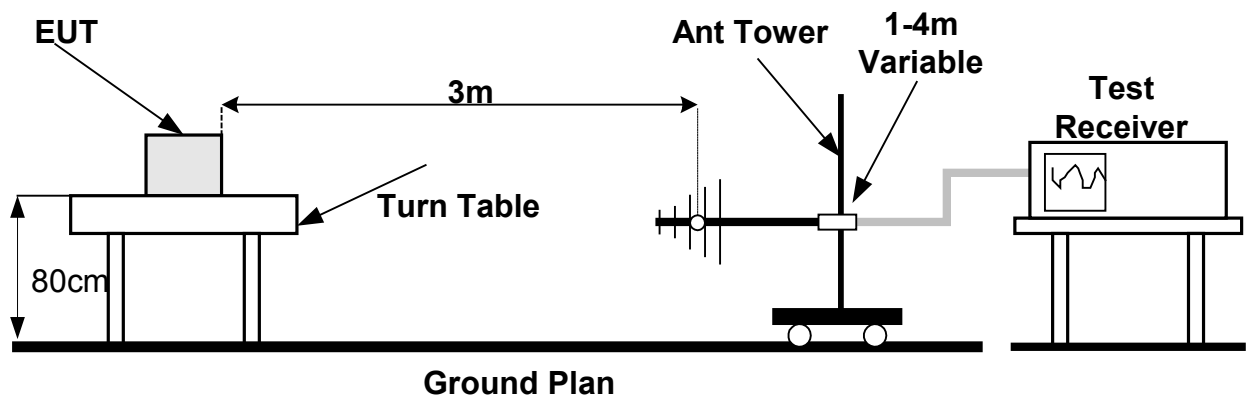


Figure 7.f

Radiated Emission Test Configuration

(1) Tests Setup

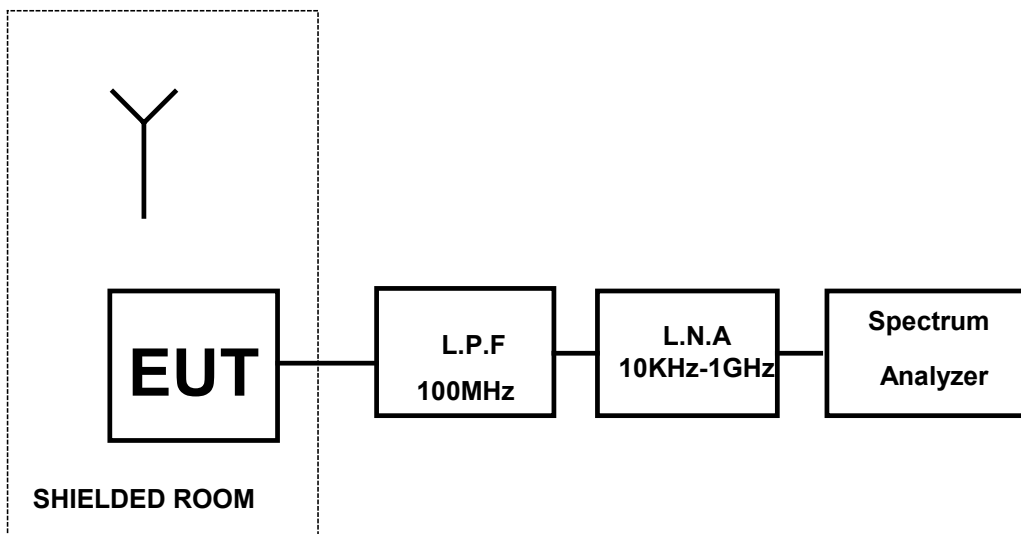


Figure 7.e.5 Radiated emission Test setup for freq range of 10KHz – 100MHz

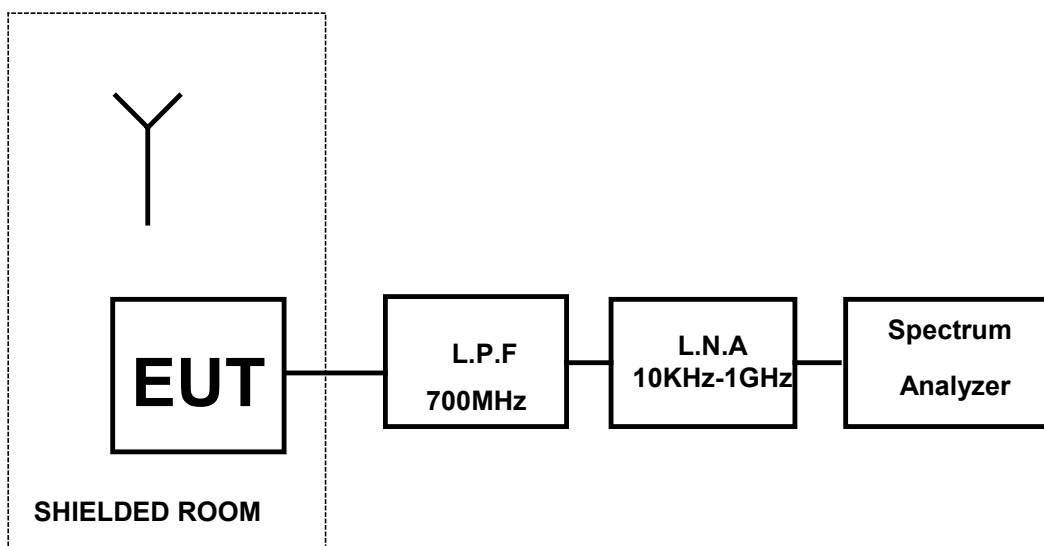


Figure 7.e.6 Radiated emission Test setup for freq range of 100MHz – 700MHz

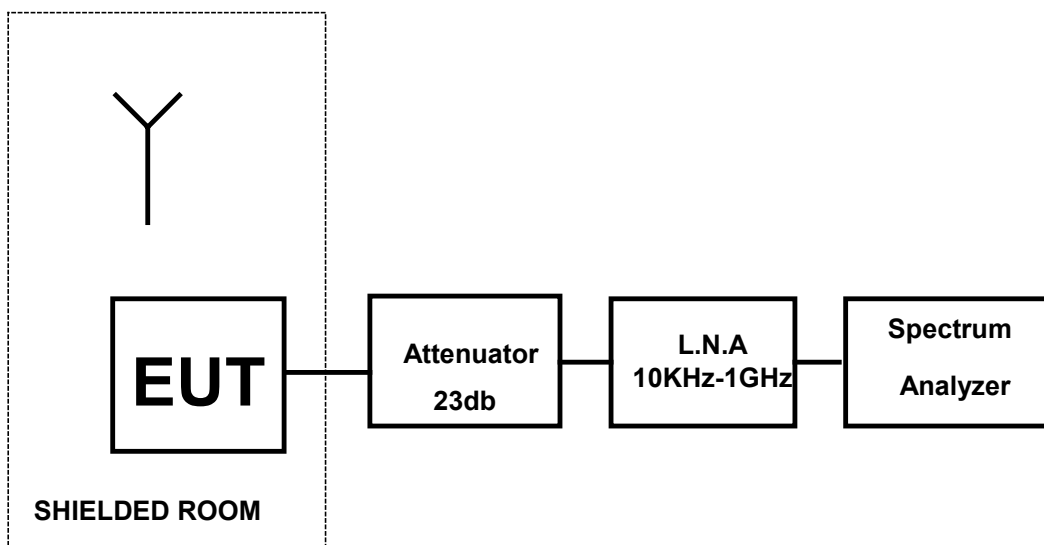


Figure 7.e.7 Radiated emission Test setup for freq range of 960MHz – 1GHz

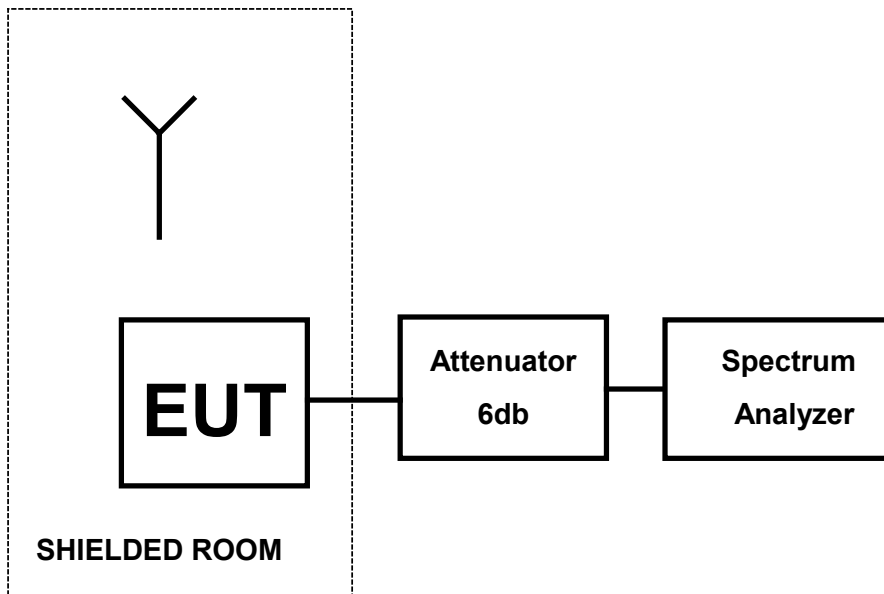


Figure 7.e.8 Radiated emission Test setup for freq range of 1GHz – 2GHz

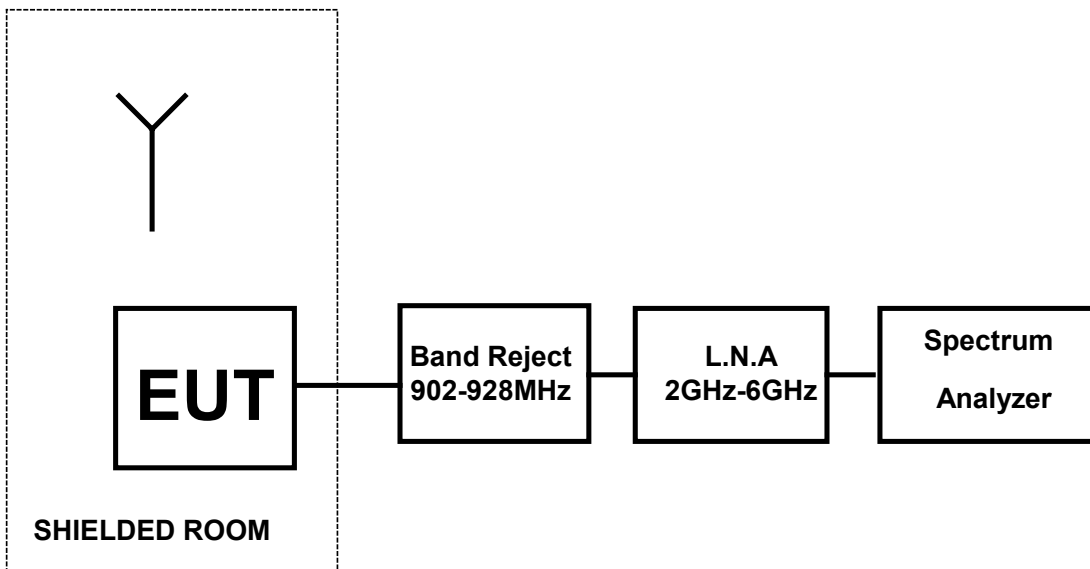


Figure 7.e.9 Radiated emission Test setup for freq range of 2GHz – 6GHz

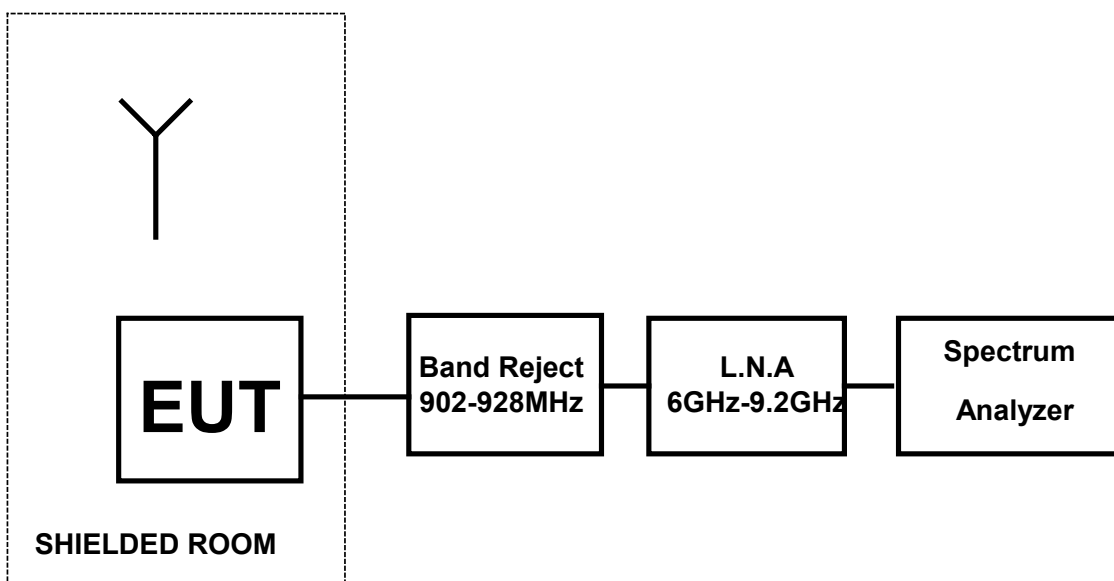
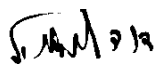


Figure 7.e.10 Radiated emission Test setup for freq range of 6Hz – 9.2GHz

8 Peak power spectral density of DSSS according 15.247d

E.U.T:	GigAccess 900	S/N:00-50C2-1C-C468
Test Method:	ANSI 63.4	
Date:	16/05/04	
Relative Humidity:	38%	
Ambient Temperature:	22c	
Air Pressure:	1046hpa	
Test Setup:	Figure 6.c.1	

Testing Engineer: D.Lanuel



Date 01/09/04

a. Test Results Summary & Conclusions

The E.U.T was found in compliance peak power spectral density test

b. 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

c. Test Results

Table 6.c Results for GA_900 mode

Carrier Frequency(MHz)	Measured peak power spectral density(dbm/3KHz)	Plots
912	0.46	274, 275
915	0.45	276, 277
918	0.31	278, 279

Table 6.c Results for GA_900A mode

Carrier Frequency(MHz)	Measured peak power spectral density(dbm/3KHz)	Plots
907	2.72	280, 281
915	2.38	282, 283
923	2.59	284, 285

d. **Test Instrumentation and Equipment**

Table 8.d Test Instrumentation and Equipment

Item	Model	Manufacturer	Next Date Calibration
Spectrum Analyzer	8593E	HP	31/01/05
Broadband Antenna	BTA-L	FRANKONIA	10.04.06
20db attenuator	2525-200	ATM	18.03.06

e. **Procedure**

The EUT RF output was connected to the spectrum analyzer through 40db attenuator according to test setup bellow.

The test was performed with transmitter operating 3-carrier frequency, Fmin-912MHz, Fcenter-915MHz, Fmax-918MHz.

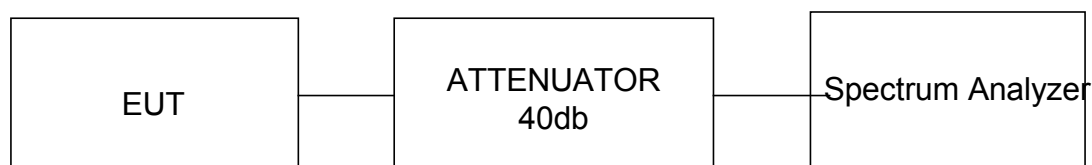
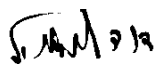


Figure 5e Test Setup for peak power spectral density

9 Unintentional radiated emission test according to 15.109

E.U.T:	GigAccess 900	S/N:00-50C2-1C-C468
Test Method:	ANSI 63.4	
Date:	02/06/03	
Relative Humidity:	29%	
Ambient Temperature:	21c	
Air Pressure:	1053hpa	
Test Setup:	Figure 6.c.1	

Testing Engineer: D.Lanuel



Date 01/09/04

a. Test Results Summary & Conclusions

The E.U.T was found in compliance with unintentional radiated emission requirements.

b. Limit:

Unintentional radiated emission must comply with 15.109Limits. See limits in table 10c bellow.

Table 9.b Limits For 15.109 Class B equipment

Frequency Range (MHz)	Quasi-peak Limits (dB μ V/m)
30 - 88	40
88 - 216	43
216 - 960	46
960 - 2000	54

c. Test Results

Table 9.c .Preliminary test results

Configuration	Antenna Polarization	Frequency Range(MHz)	Plots Results	PASS/FAIL
6dbi antenna Integrated	Both	30-1000	286	PASS
		1-2.8GHz	287	PASS
		2.8 – 6GHz	288	PASS
		6GHz – 9.2GHz	-	PASS

Table 9.C1 Six Highest 15.109

Freq. MHz	QP Reading (db μ V/m)	Limit (db μ V/m)	Margin (db)	Polarity/ Hight	Angle	Plots
All emission were found Min 20db below the specified limits						

d. **Test Instrumentation and Equipment**

Table 9.d Test Instrumentation and Equipment

Item	Model	Manufacturer	Next Date Calibratio n
Spectrum Analyzer	8593E	HP	31/01/05
Double Ridge Guide Antenna(1-18GHz)	3105	EMCO	24.04.05
Broadband Antenna(30-1000MHz)	BTA-L	FRANKONIA	10.04.05
Low Noise Amplifier (0-1GHz)	AM-1300-N	MITEQ	14.01.05
Low Noise Amplifier (1-4GHz)	SMC-09	MITEQ	14.01.05
Low Noise Amplifier (2-6GHz)	SMC-09	MITEQ	14.01.05
Low Noise Amplifier (6-10GHz)	SMC-09	MITEQ	14.01.05

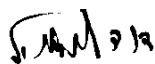
e. **Procedure**

The EUT output was connected to the spectrum analyzer through appropriate low noise amplifier while the EUT is in STBY mode.

10 Conducted emission test according to 15.207.15.107

E.U.T: GigAccess 900 S/N:00-50C2-1C-C468
 Test Method: ANSI 63.4
 Date: 02/06/03
 Relative Humidity: 29%
 Ambient Temperature: 21c
 Air Pressure: 1053hpa
 Test Setup: Figure 6.c.1

Testing Engineer: D.Lanuel



Date 01/09/04

a. Test Results Summary & Conclusions

The E.U.T was found in compliance with conducted emission power leads requirements.

b. Limit:

Conducted emission must comply with 15.107 Limits. See limits in table 10b bellow.

Table 10.b Limits For 15.209 Class B equipment

Frequency (MHz)	Quasi-peak Limits (dB μ V/m)
0.15 – 0.5	66-56
0.5 - 5	56
5 - 30	60

c. Test Results

Table 10.c test results

Frequency Range(MHz)	Tested Line	Plots Results	PASS/FAIL
0.15 - 30	PHASE	289	PASS
0.15 - 30	NEUTRAL	290	PASS

Table 10.C1 Six Highest 15.107

Freq. MHz	QP Reading (db μ V/m)	Limit (db μ V/m)	Margin (db)	Plots
All emission were found Min 20db below the specified limits				

d. **Test Instrumentation and Equipment**

Table 10.d Test Instrumentation and Equipment

Item	Model	Manufacturer	Next Date Calibration
Spectrum Analyzer	8593E	HP	31/01/05
LISN	DC-AC-20A/01	TADIRAN	N.P.C.R
20DB attenuator	2525	ATM	18.03.06

e. **Test Procedure**

- The EUT was placed on the top of table 1m by 1.5m, raised 0.8 meters above the conducting ground plane*
- The rear panel of the EUT was located 40cm to the vertical wall of the screen room*
- Each EUT power leads were individually connected through an LISN to the input power source. Unused 50 ohm connector of the LISN was terminated in 50ohm and other was connected to the spectrum analyzer through 20db attenuator for maximum conducted interference*

f. **Test setup**

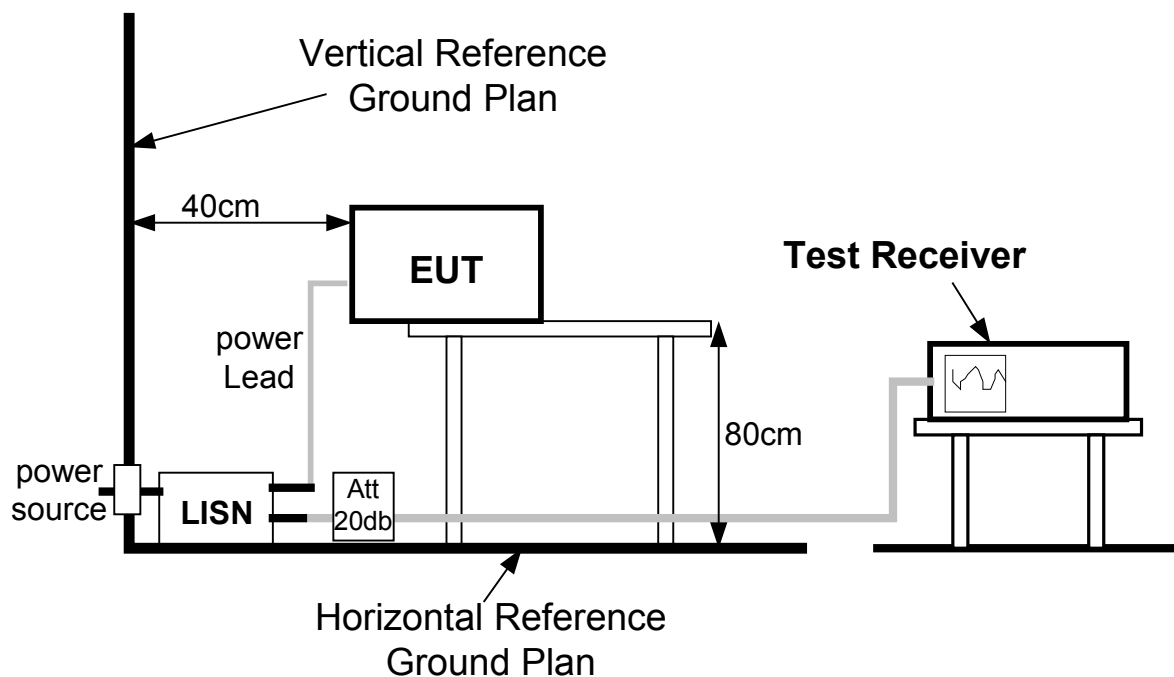


Figure 9.e

Conducted emission Test Configuration

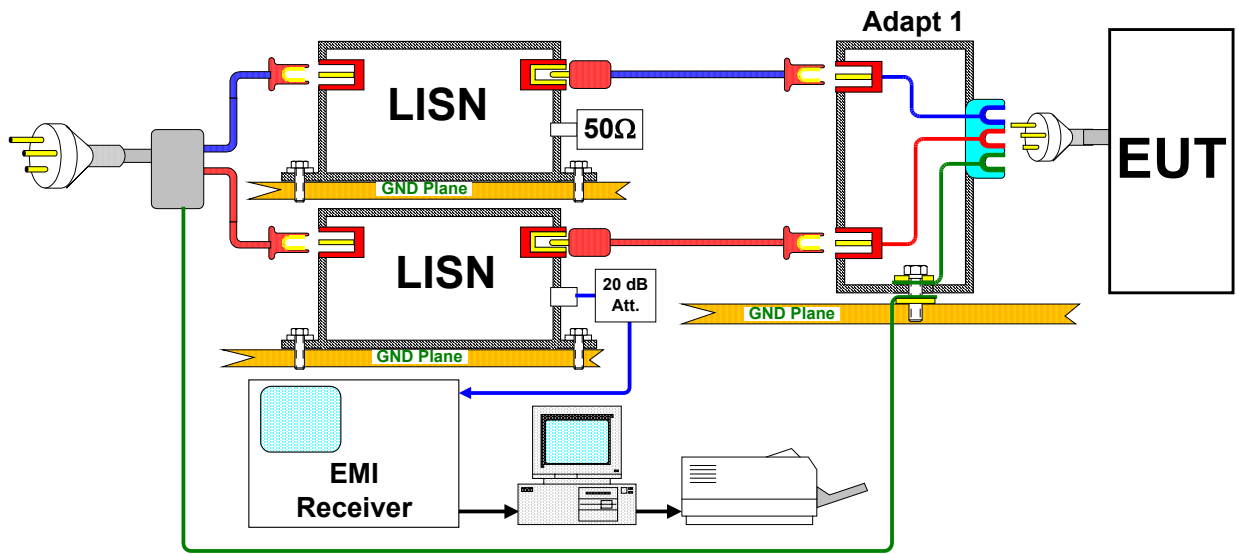
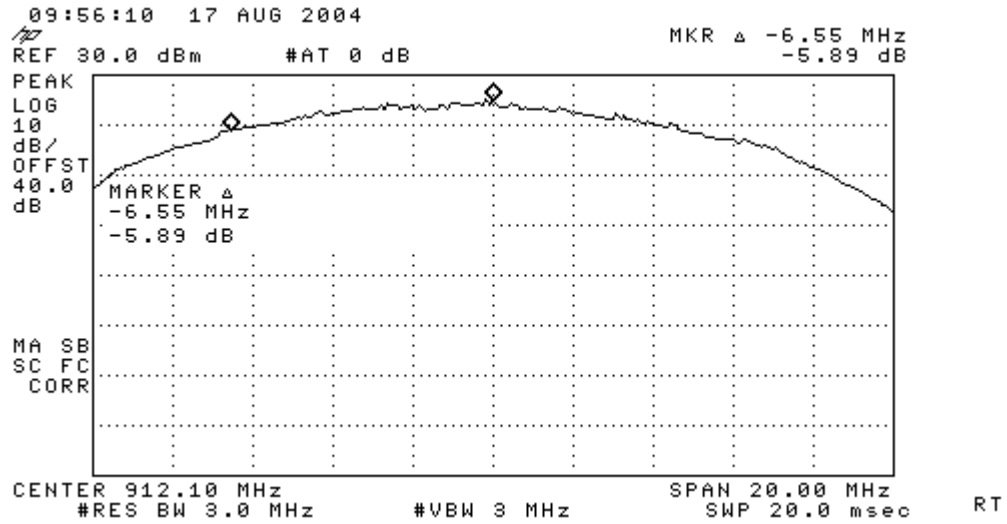


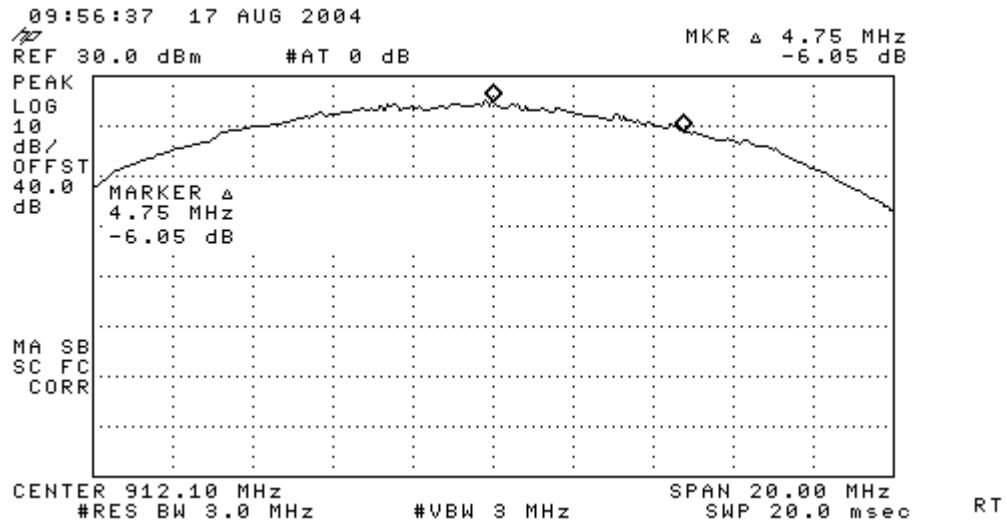
Figure 9e1 Conducted emission Test setup

11 Plots

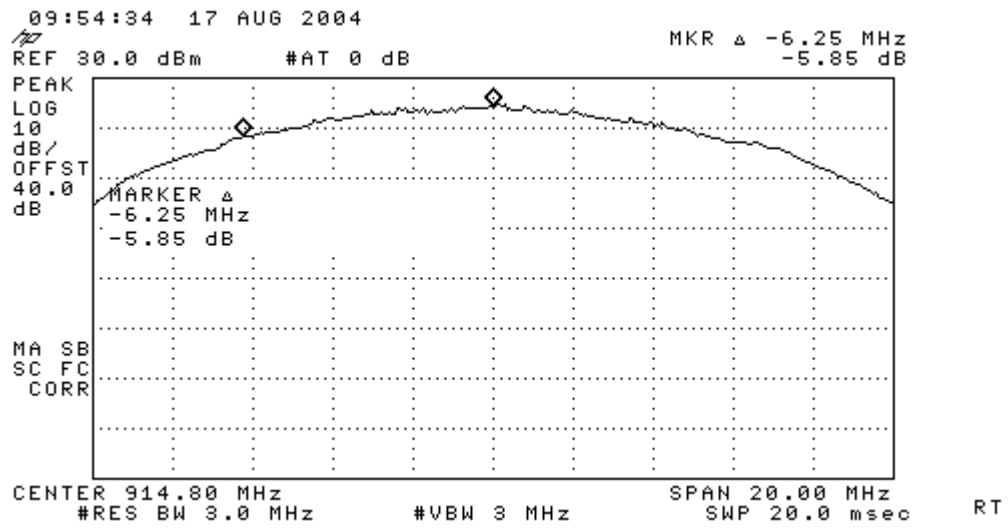
a. Occupied bandwidth plots 1-9



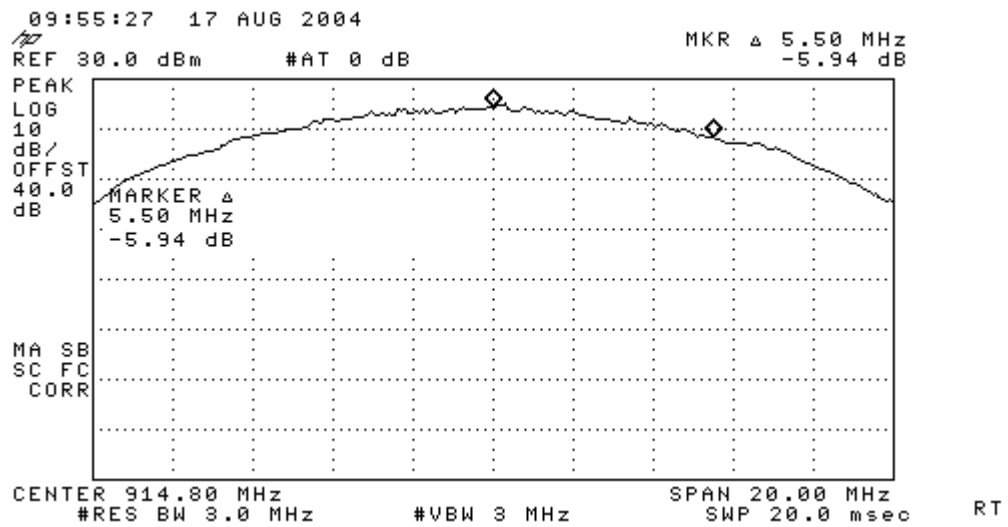
Plot / 1



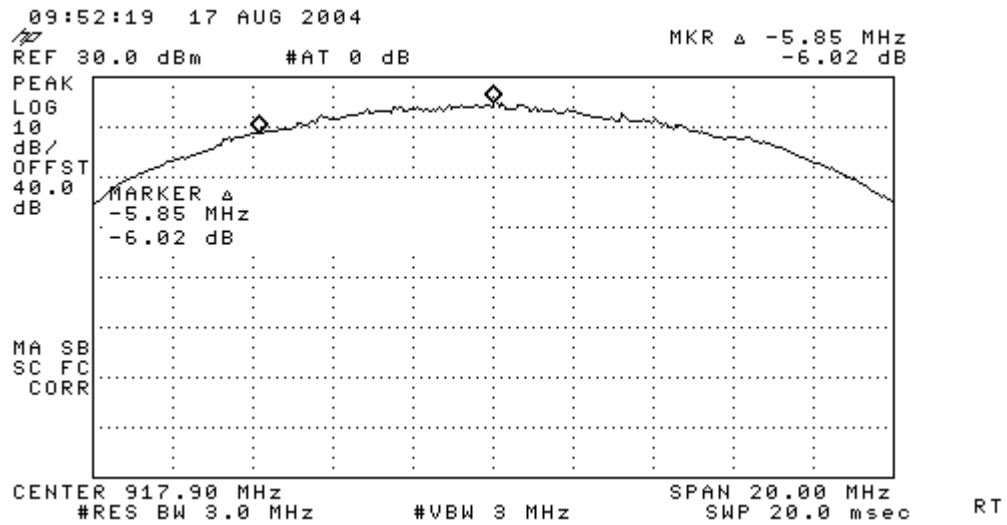
Plot / 2



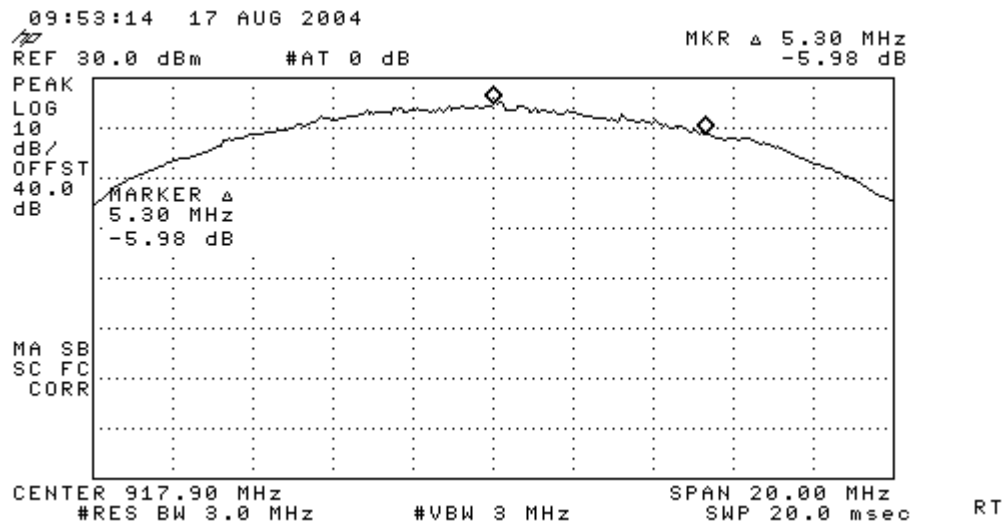
Plot / 3



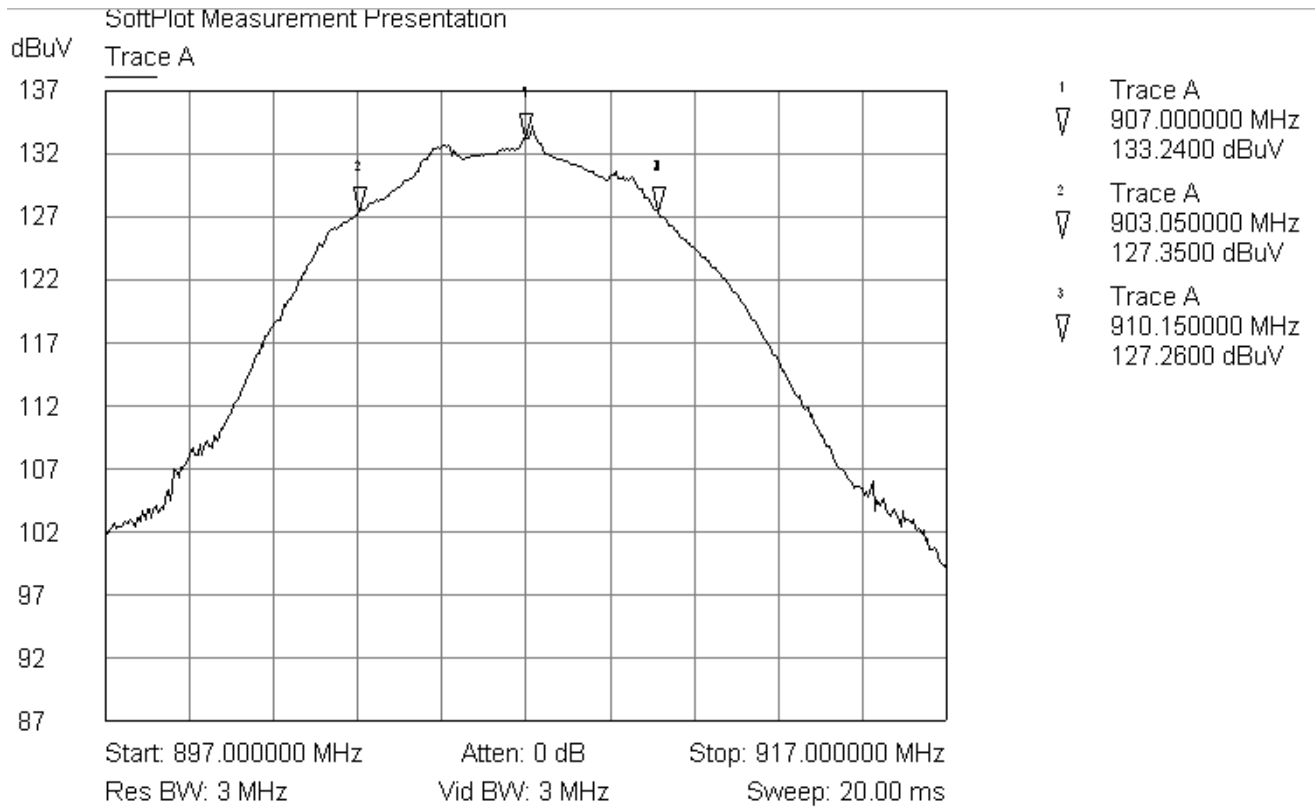
Plot / 4



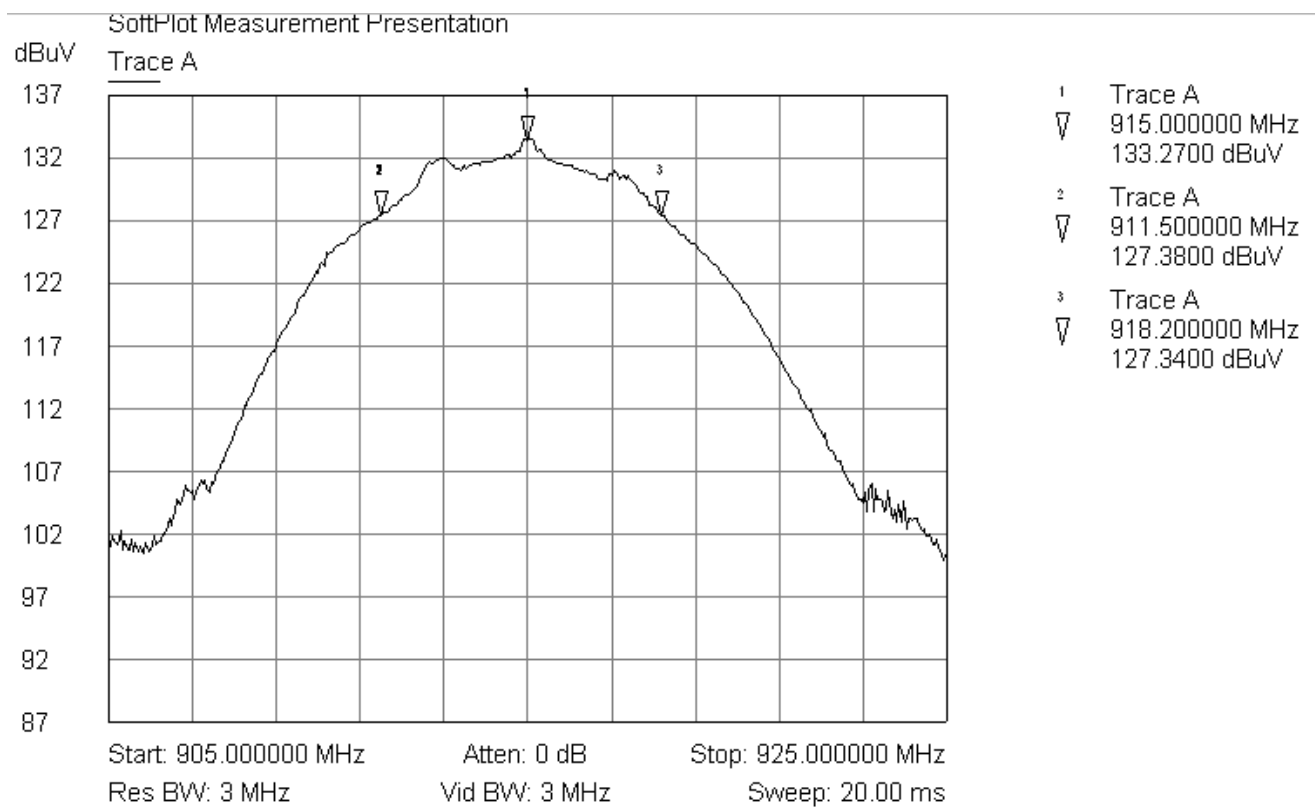
Plot / 5



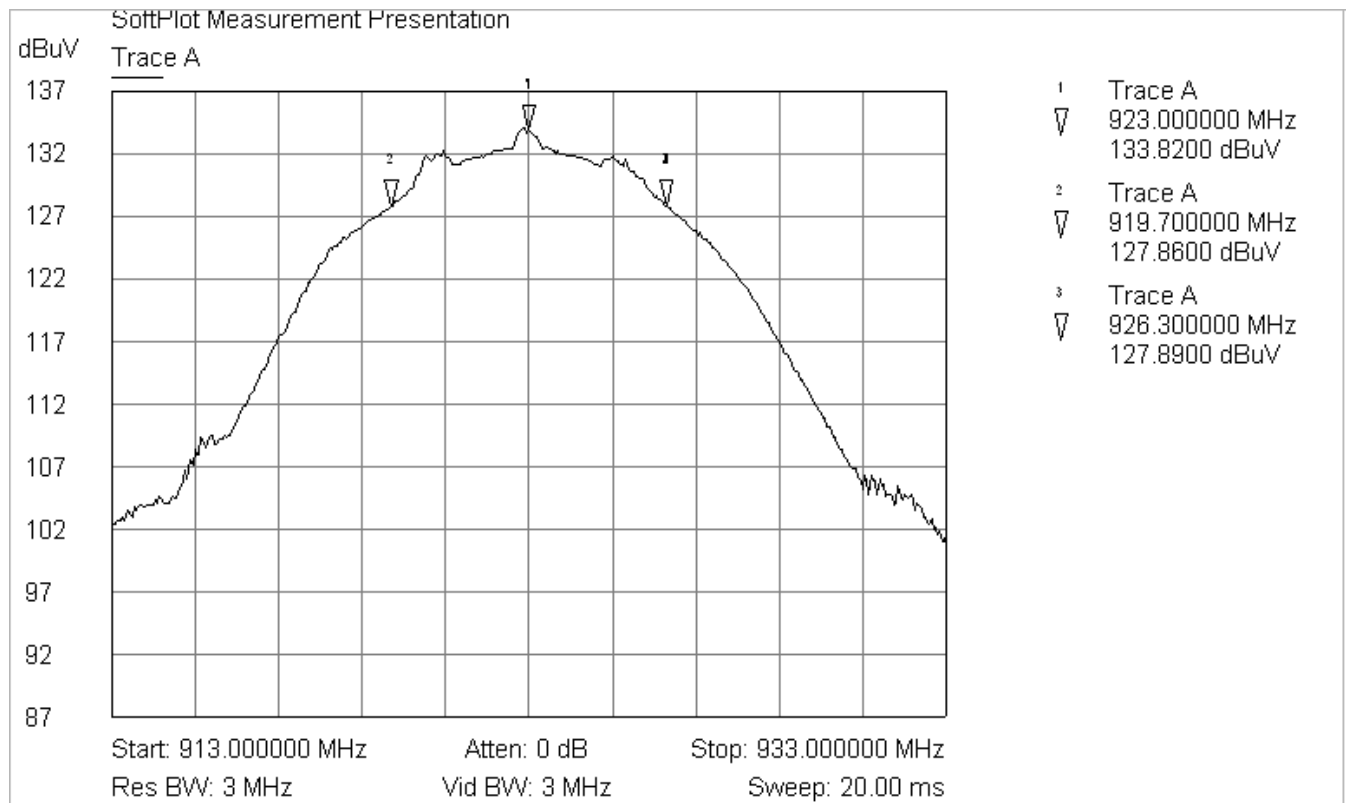
Plot / 6



Plot / 7

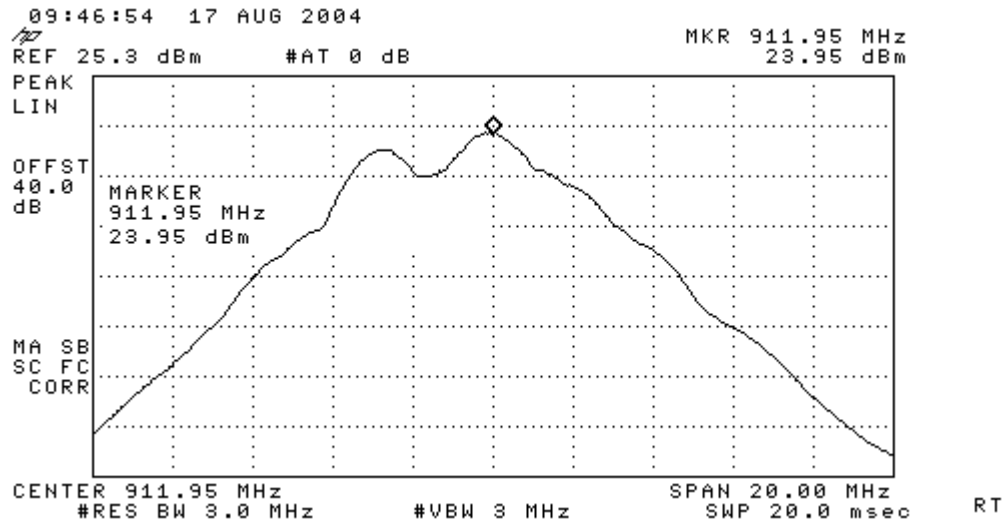


Plot / 8

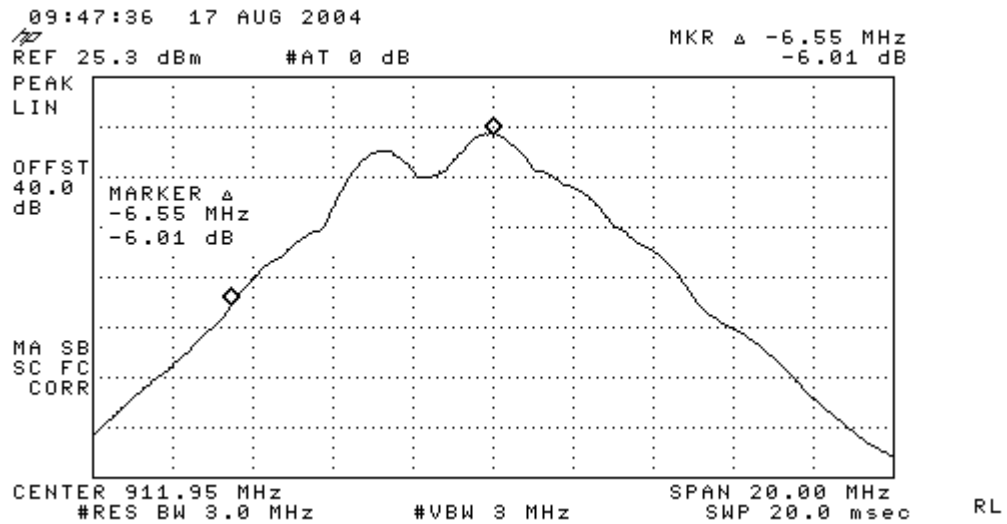


Plot / 9

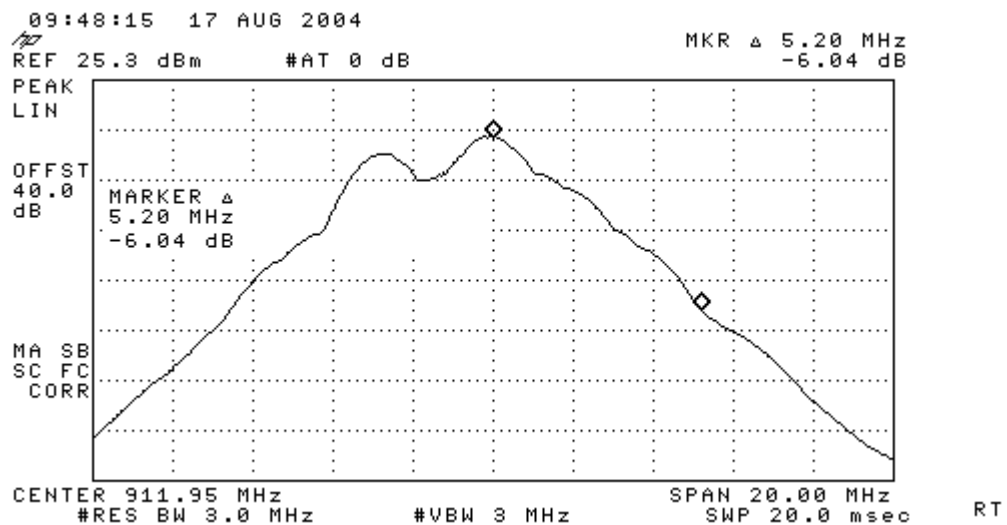
b. **Maximum peak output power plots 10-21**



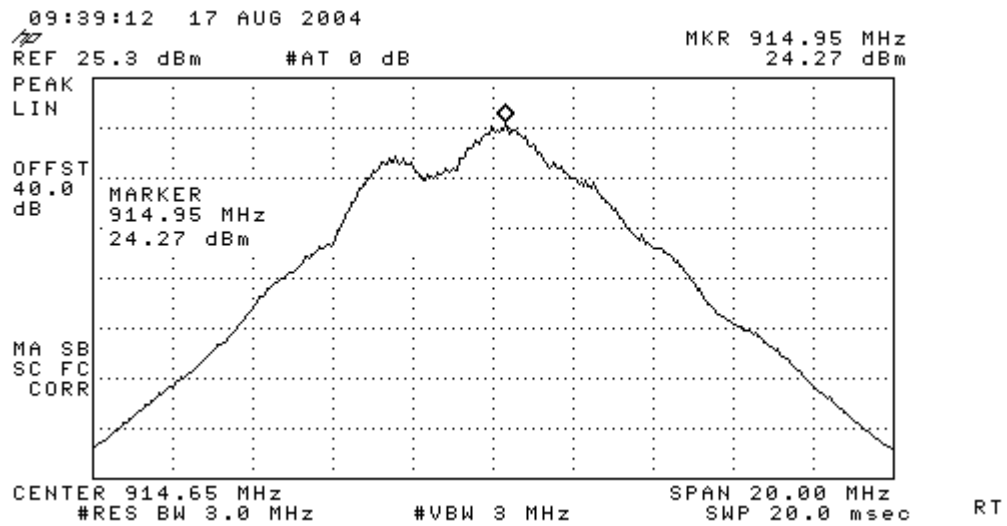
Plot / 10



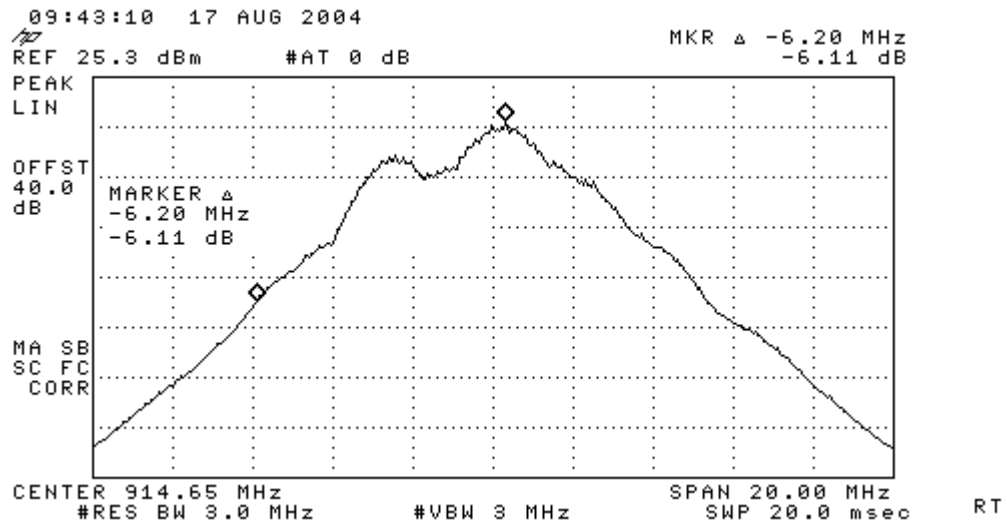
Plot / 11



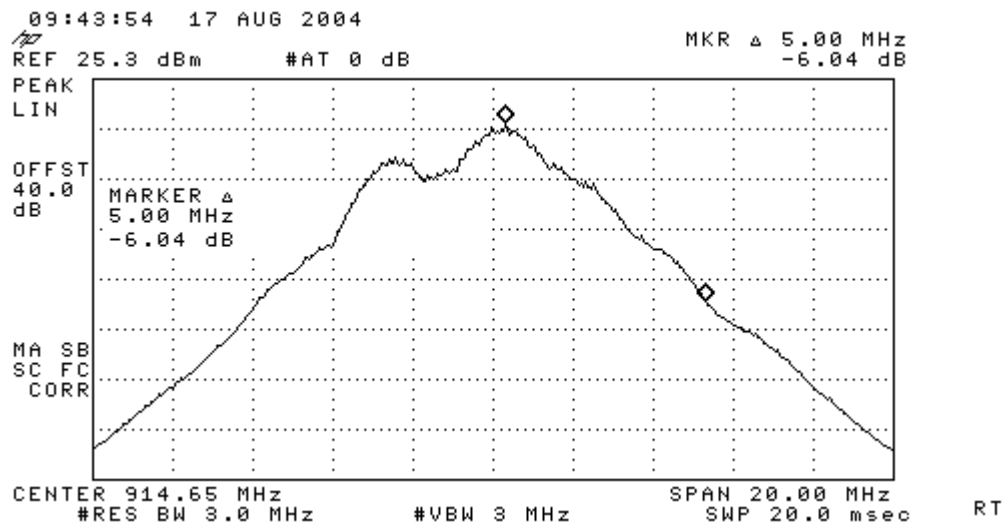
Plot / 12



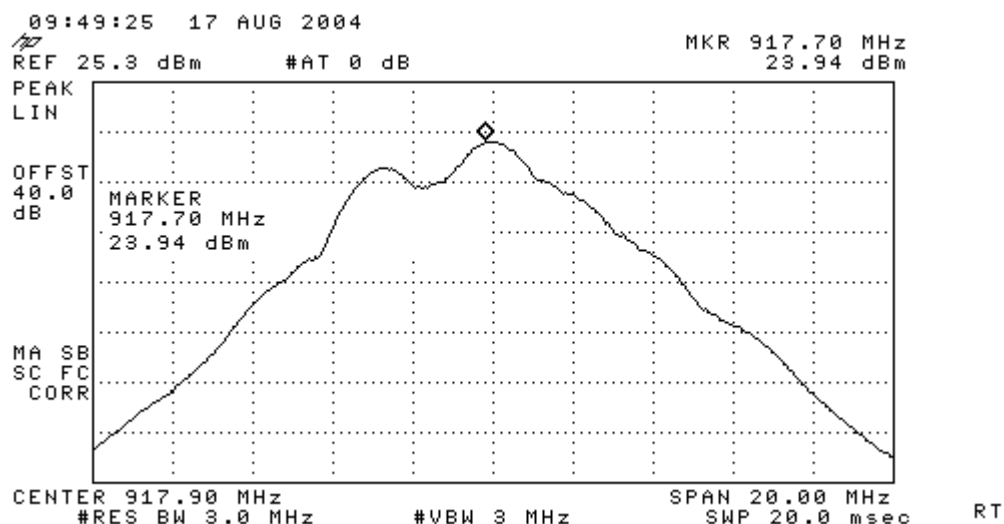
Plot / 13



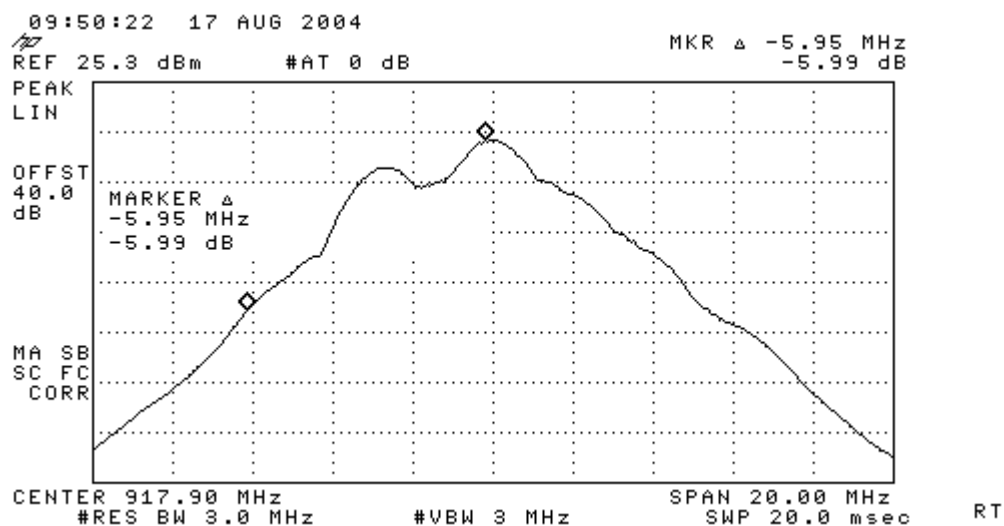
Plot / 14



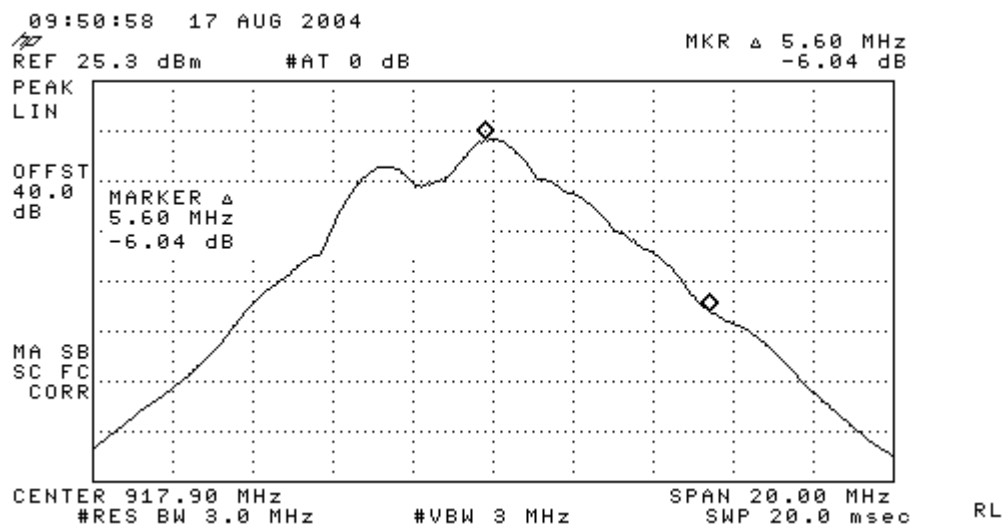
Plot / 15



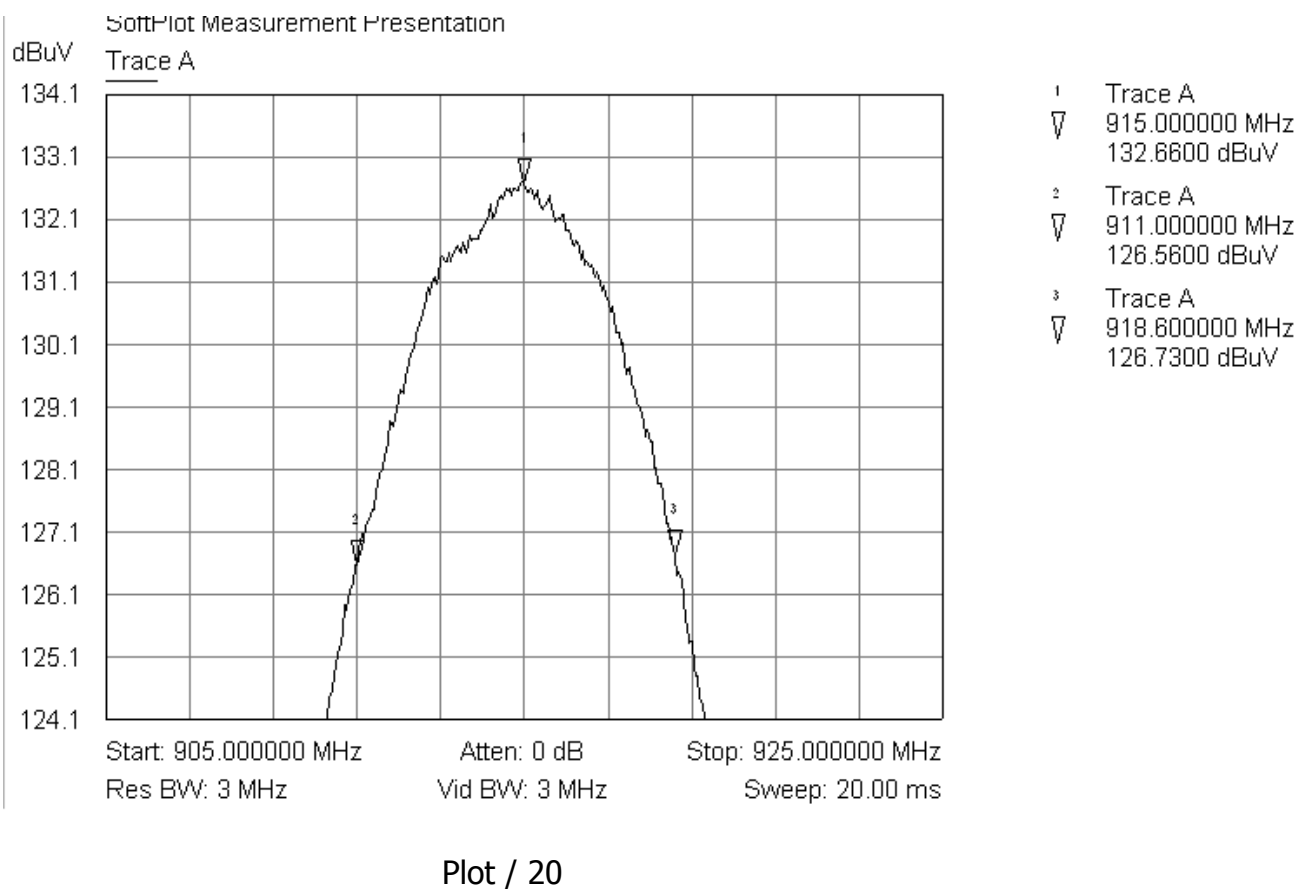
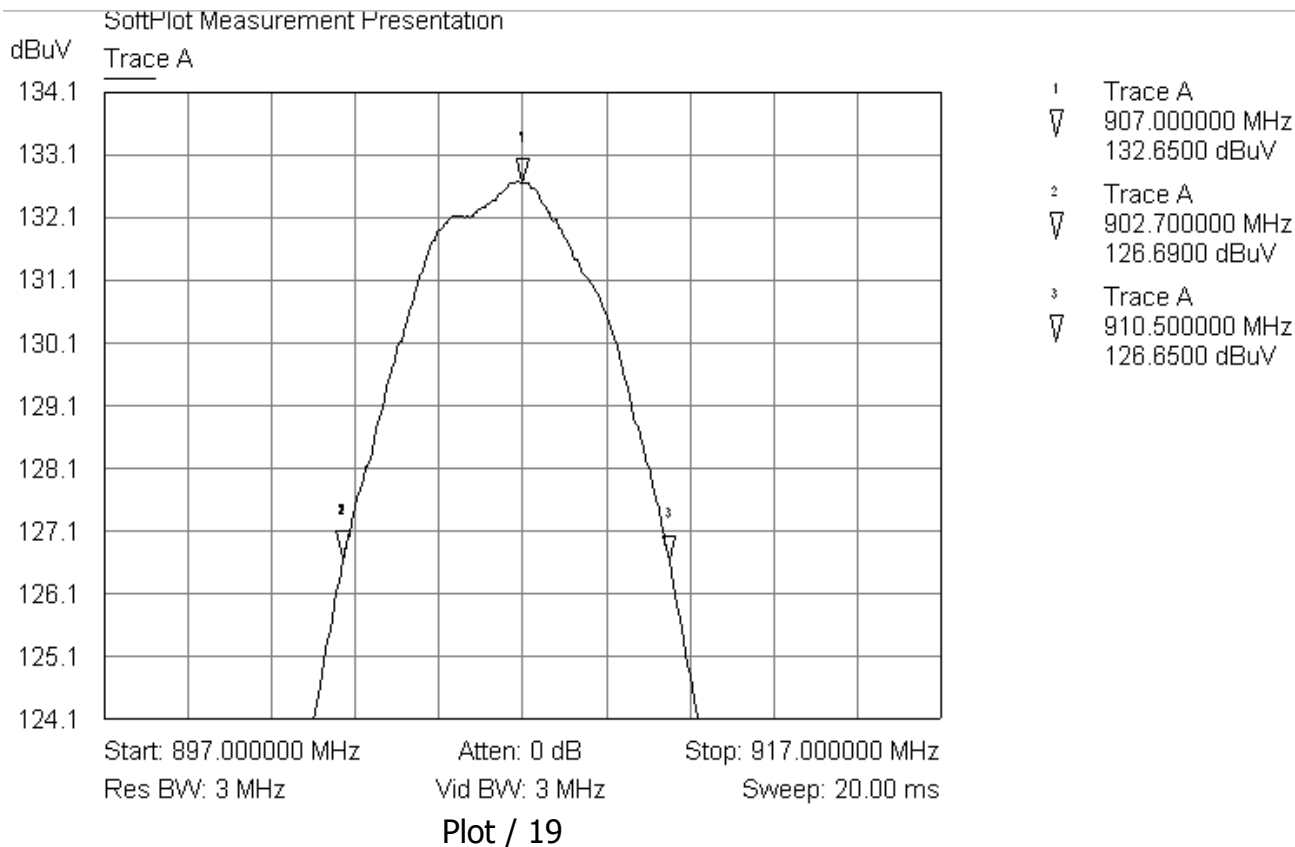
Plot / 16

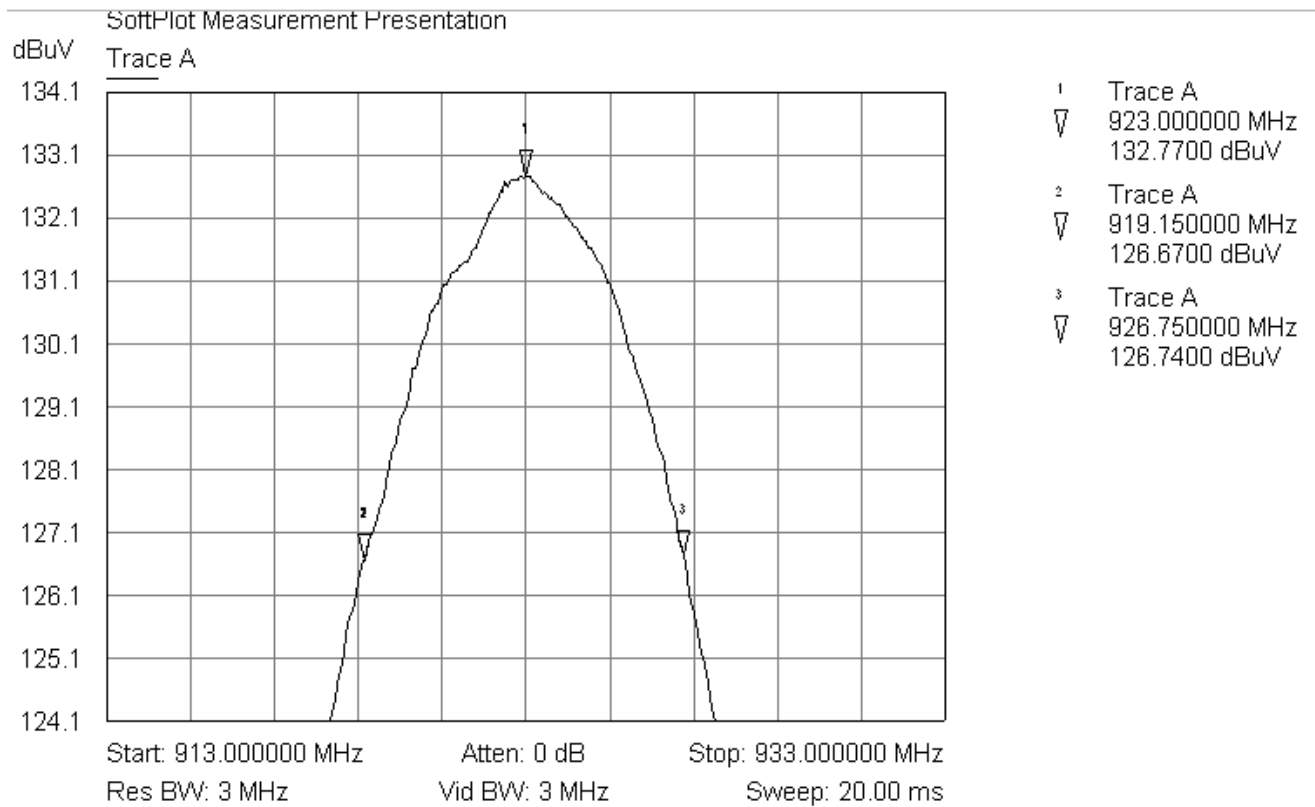


Plot / 17



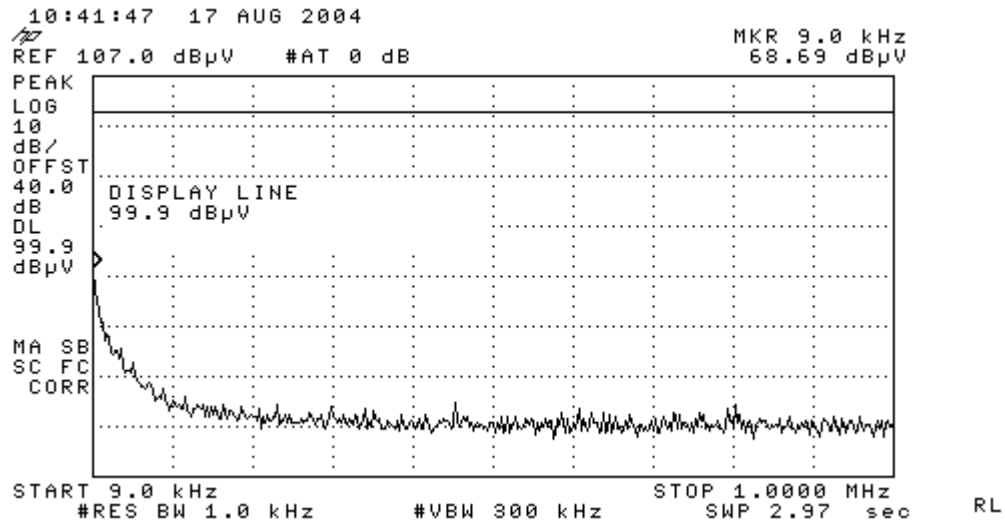
Plot / 18



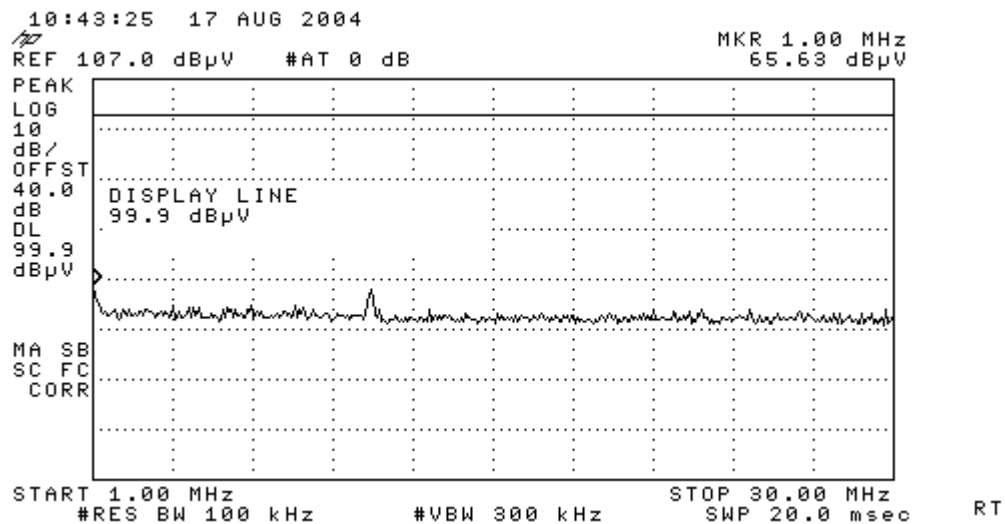


Plot / 21

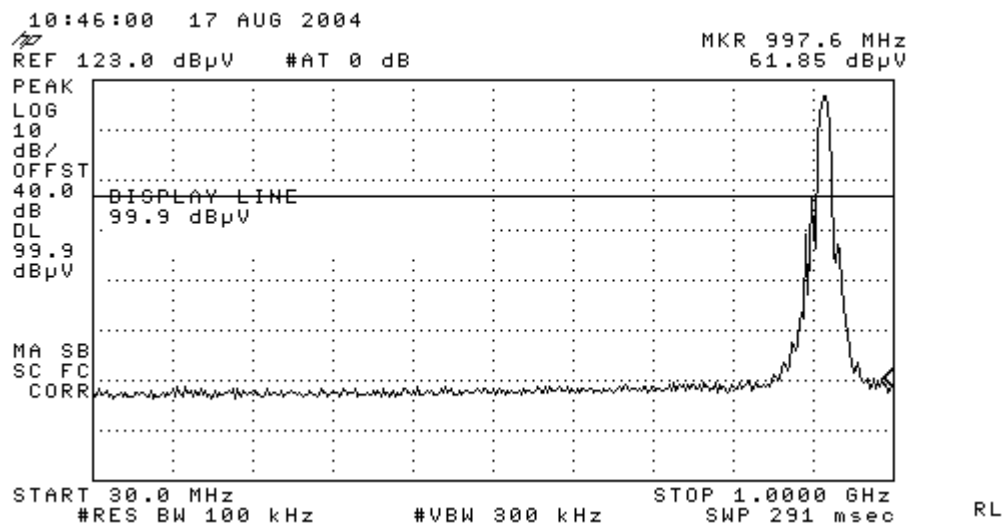
c. Out of band emission Plots 22 - 41



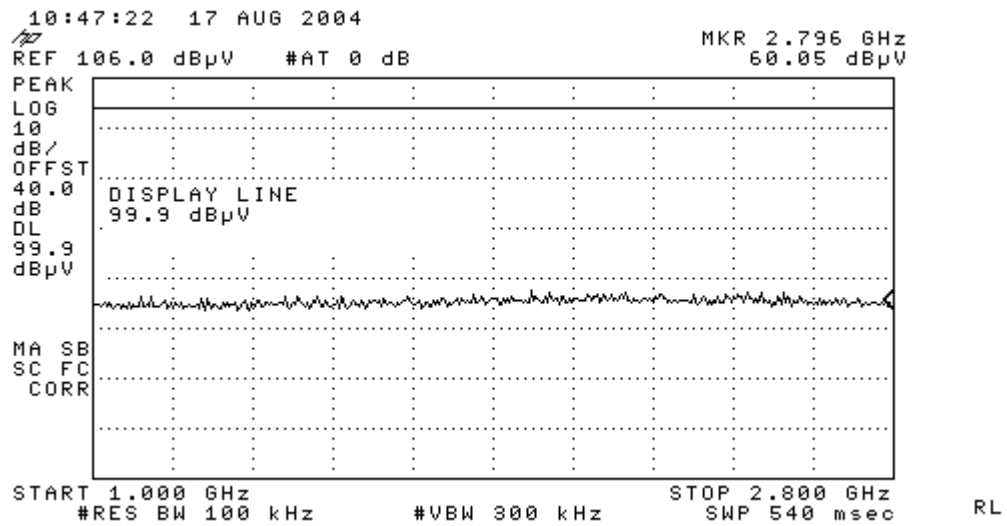
Plot / 22



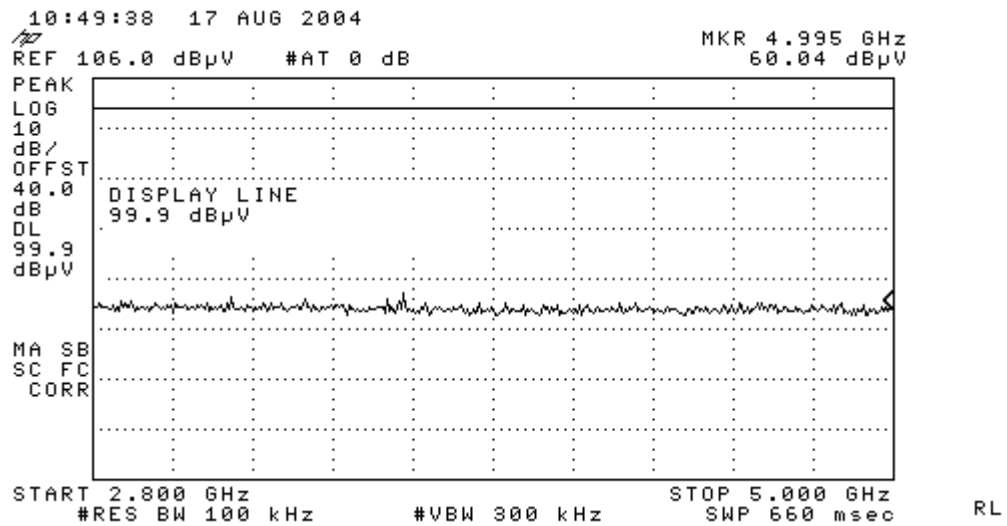
Plot / 23



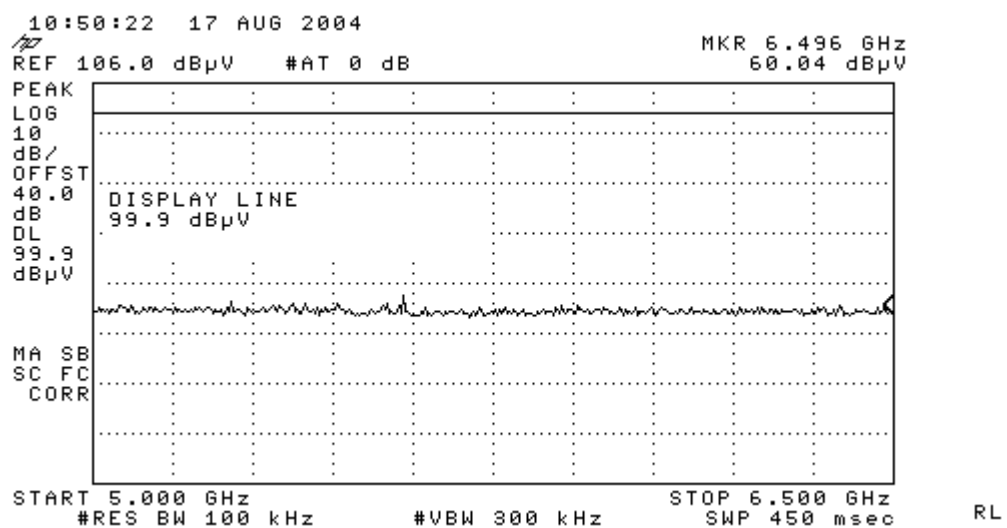
Plot / 24



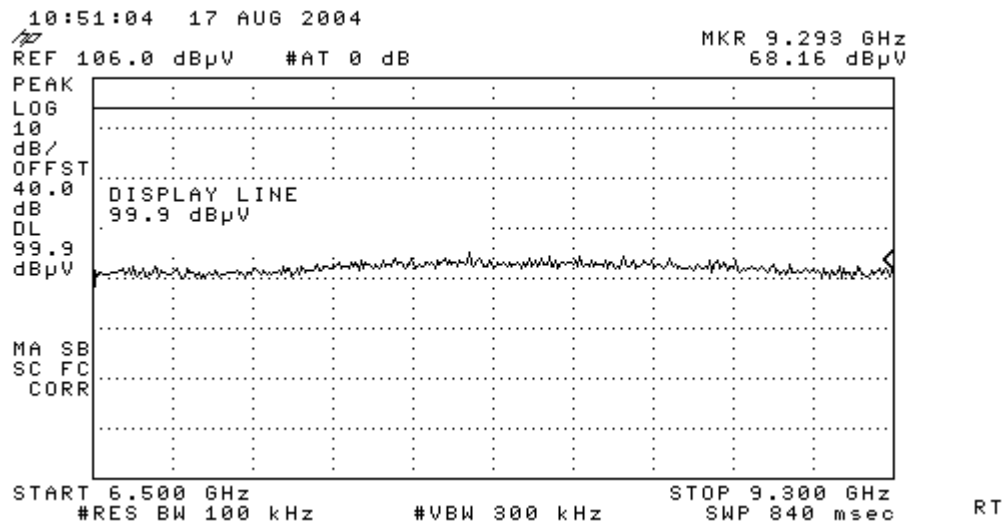
Plot / 25



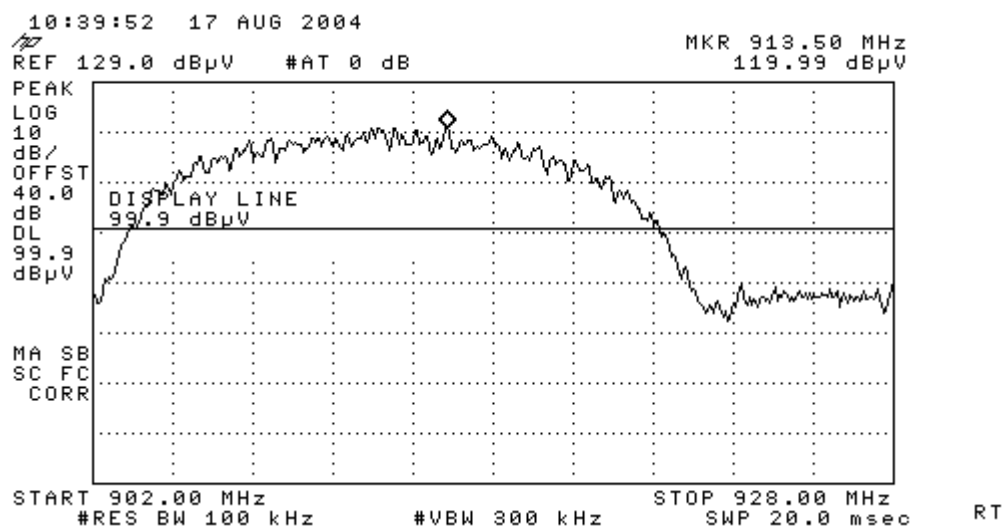
Plot / 26



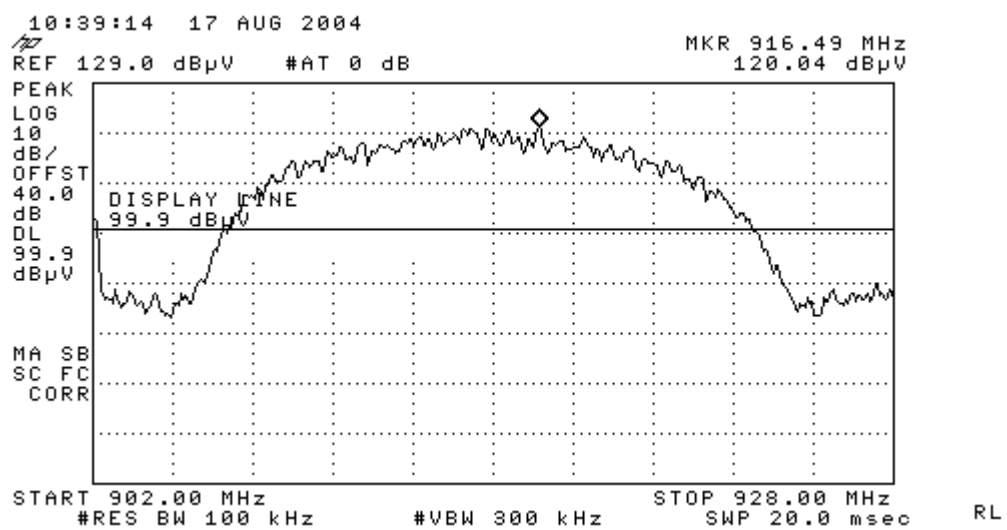
Plot / 27



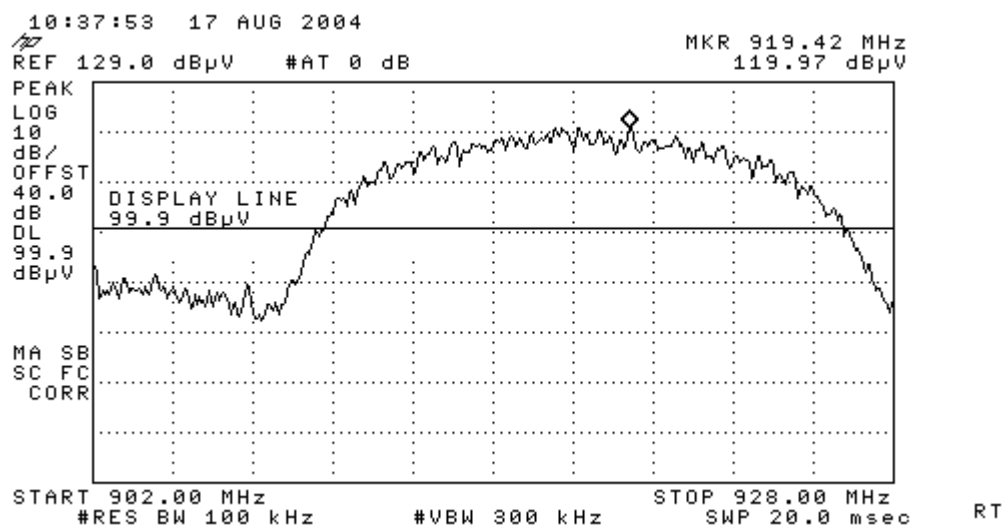
Plot / 28



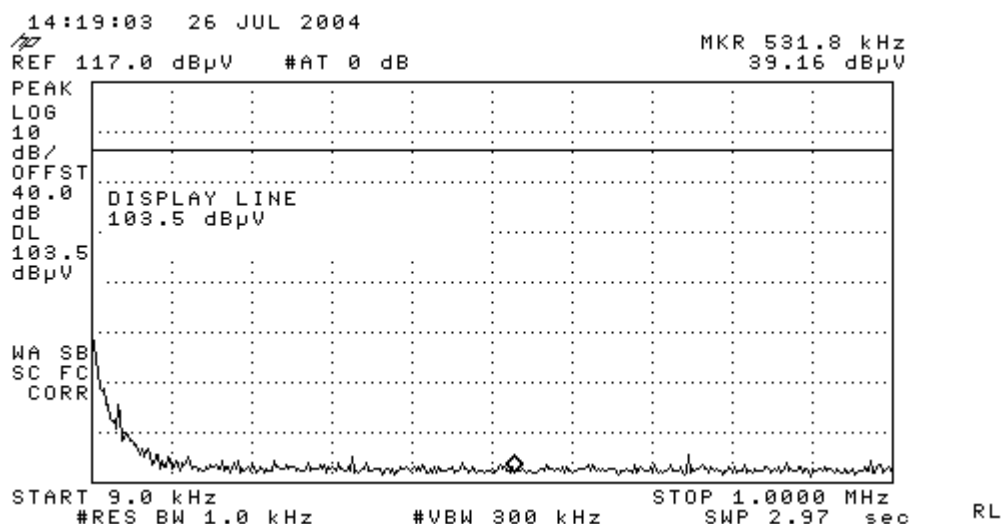
Plot / 29



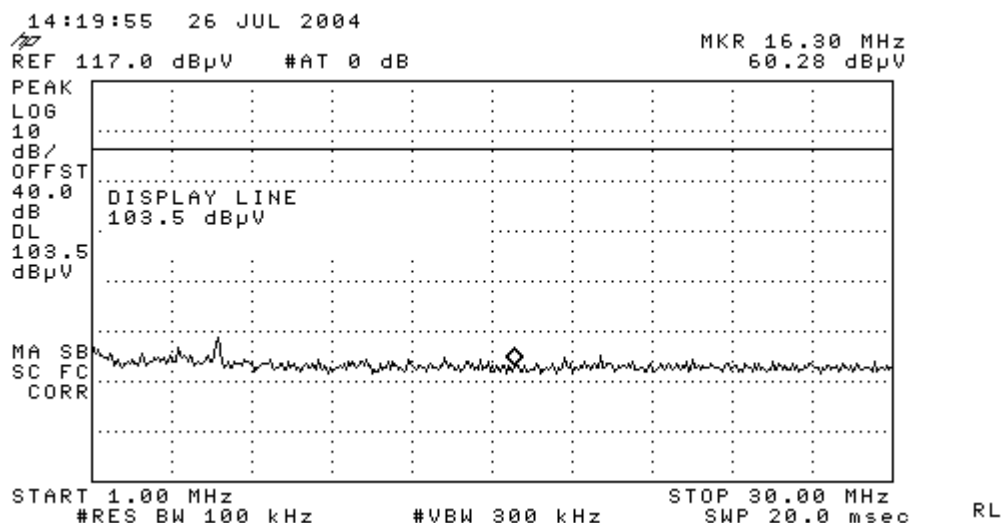
Plot / 30



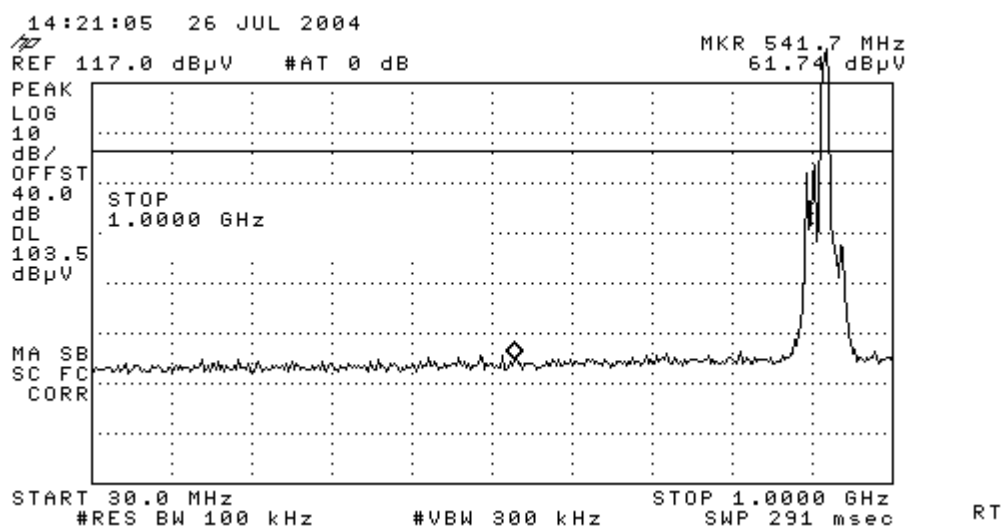
Plot / 31



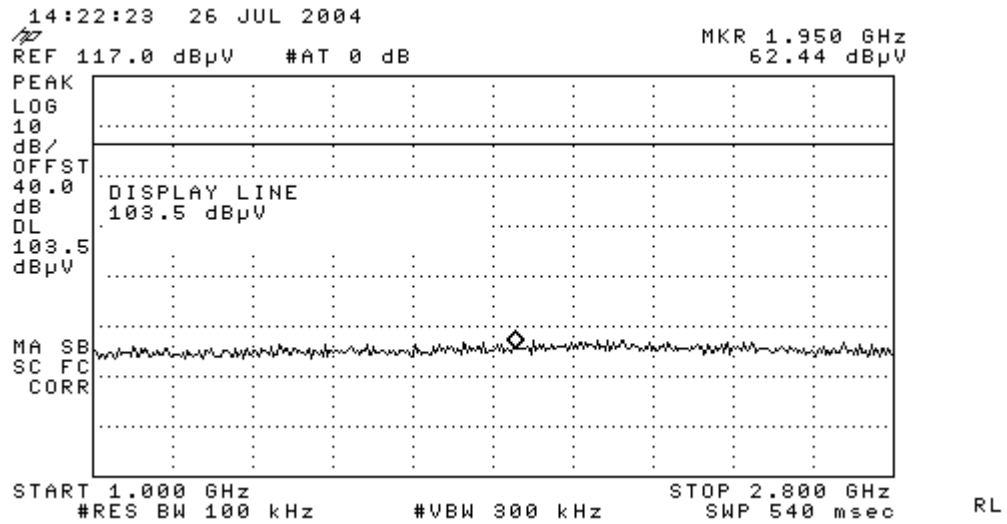
Plot / 32



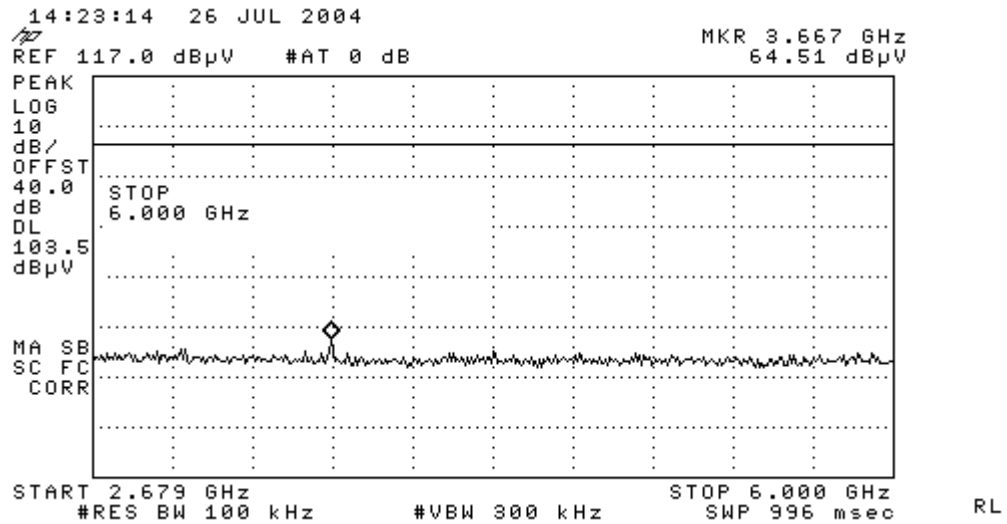
Plot / 33



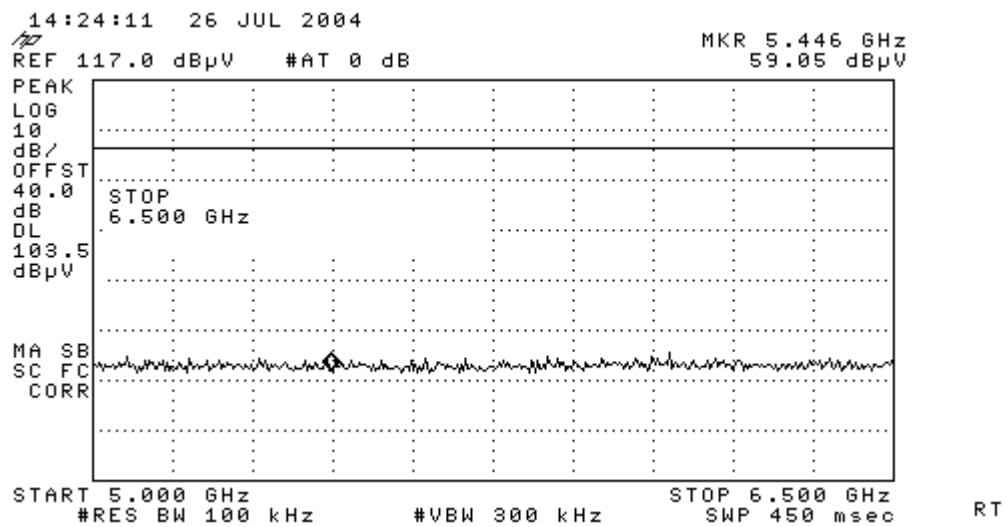
Plot / 34



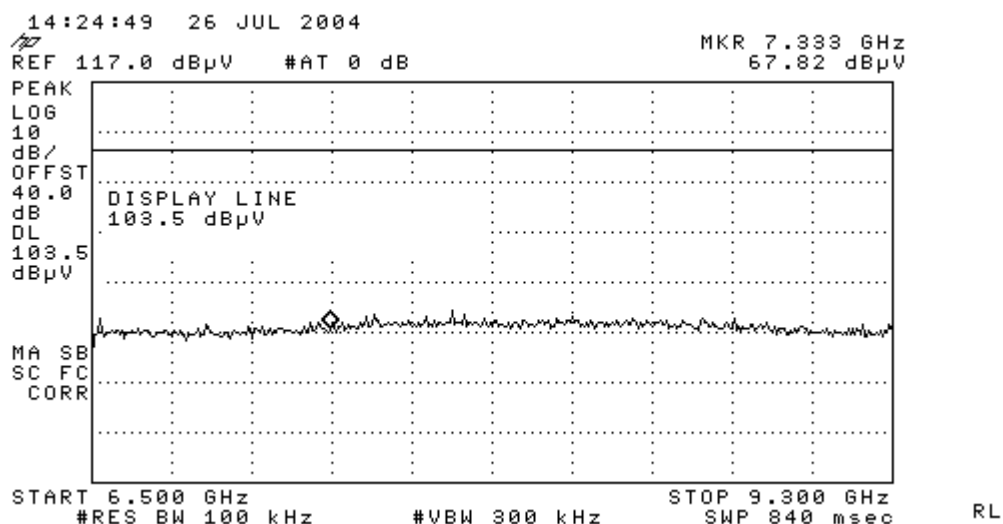
Plot / 35



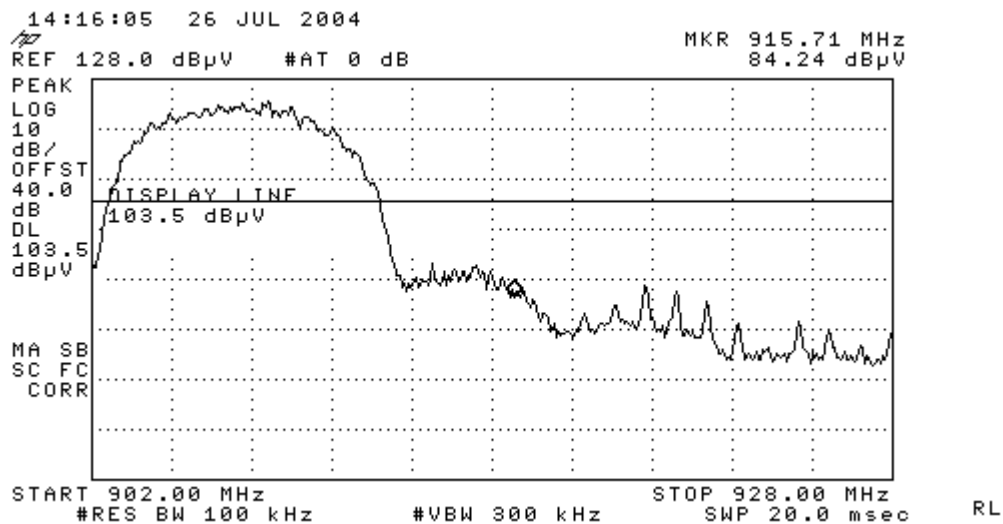
Plot / 36



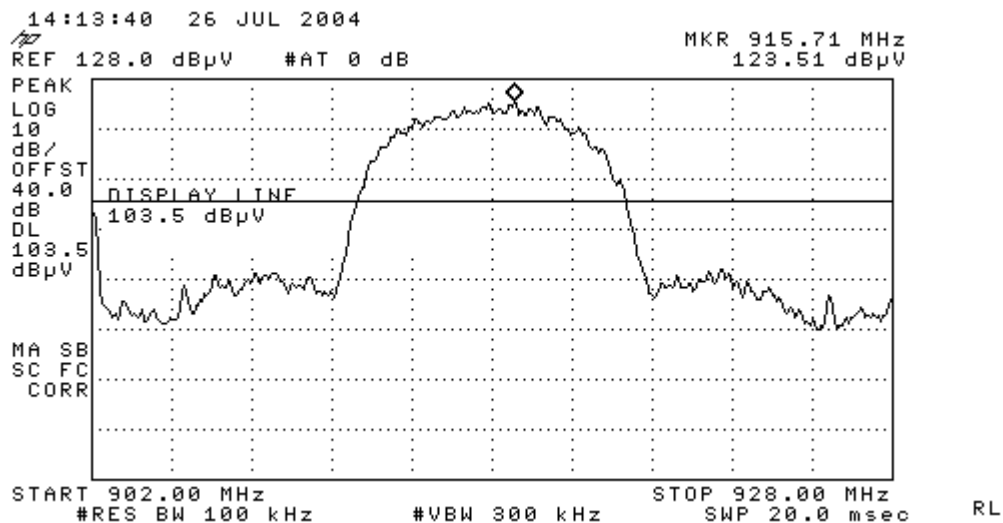
Plot / 37



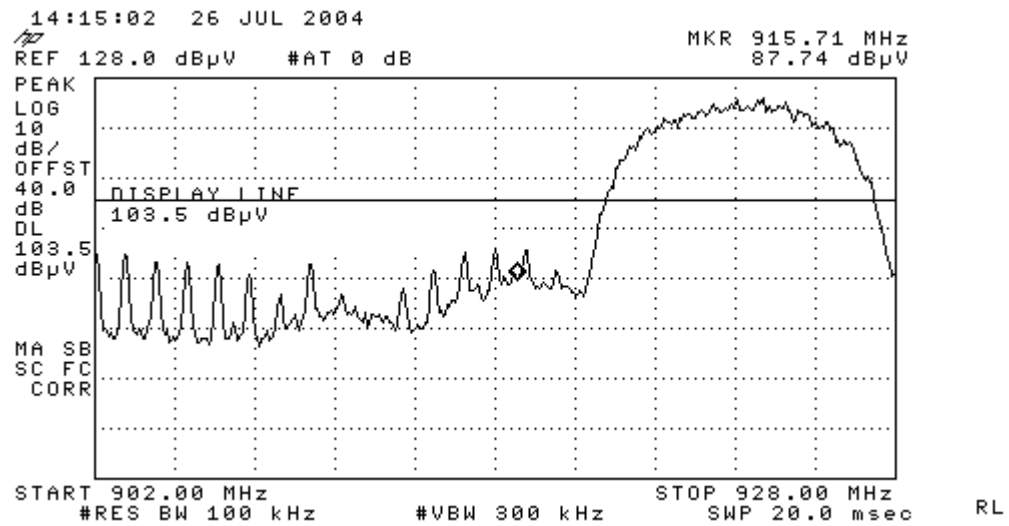
Plot / 38



Plot / 39



Plot / 40

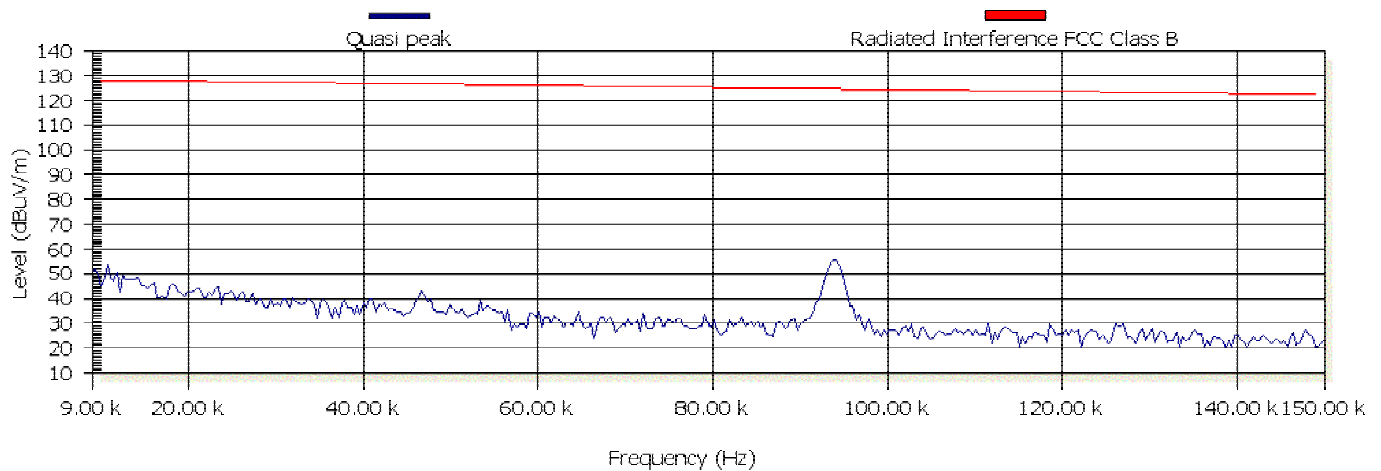


Plot / 41

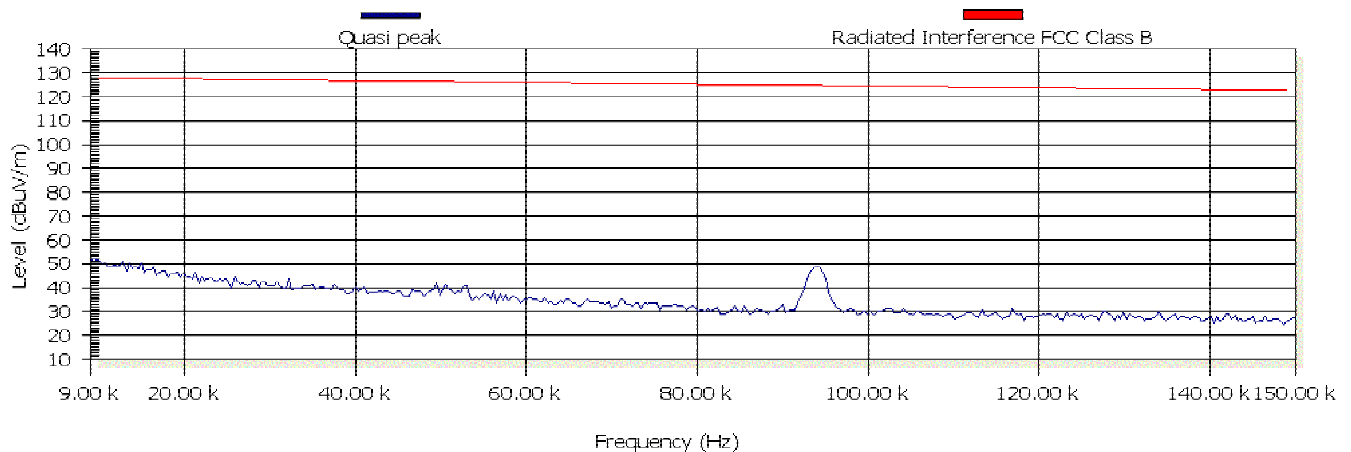
d. Radiated spurious Emission in restricted band Plots 42-117

(1) Transmit Frequency 912MHz for 6dbi Antenna GA_900 mode

Analyzer setting: RBW-1K, VBW-1MHz, QP detector, Antenna Horizontal



Analyzer setting: RBW-1K, VBW-1MHz, QP detector, Antenna Vertical



Analyzer setting: RBW-9K, VBW-1MHz, QP detector, Antenna Horizontal

