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Test Report: 2005 110898-FCC3

Applicant: Sendum Wireless Corporation
4500 Beedie Street
Burnaby, BC Canada V5J 5L2
Phone: 604 438 6451
Fax: 604 437 5726

Apparatus: DS500

FCC ID: TS5-6050M-DS500

In Accordance With: FCC Part 22, Subpart H
Public Mobile Services
RSS-129, Issue 2
800MHz Dual-Mode CDMA Cellular Telephones

FCC Part 24, Subpart E
RSS-133, Issue 2, Rev.1
2GHz Personal Communications Services

Tested By: Nemko USA

Project Number: 25-898-SEN

Date: Nov. 17, 2005

Total Number of Pages: 50

Report Summary

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 22. Conducted measurements were performed in accordance with ANSI TIA-603-B-2002. Radiated tests were conducted in accordance with ANSI C63.4-2003. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.

The assessment summary is as follows:

- Apparatus Assessed:** DS500
- Specification:** FCC Part 22 Public Mobile Services
FCC Part 24, Subpart E
RSS-129, Issue 2
RSS-133, Issue 2
- Compliance Status:** Complies
- Exclusions:** None
- Non-compliances:** None

Report Release History:

REVISION	DATE	COMMENTS
-	12-10-05	Prepared By: A. Laudani
-		Initial Release: Chip Fleury

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025.

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Section 1: Equipment Under Test

1.1 Product Identification

The Equipment Under Test was identified as follows:
Temporary label on underside of device



1.2 Samples Submitted for Assessment

The following samples of the apparatus have been submitted for type assessment:

Sample No.	Description	Serial No.
001	PT200* modified with pigtail for conducted measurements	NA
002	DS500 with charger for Radiated Measurements Charger keeps battery fully charged for test	NA

* PT200 contains the same radio circuitry as the DS500

DS500 PS/CHARGER
SP15-0442000-NA
100-240 Vac 50/60 HZ 300 mA → 4.4 Vdc 2A

The first samples were received on: 10 November 2005

1.3 Theory of Operation

The device uses GPS technology to encode its location, which is transmitted via CDMA or PCS wireless telephony to keep track of the container or vehicle it is in.

1.4 Technical Specifications of the EUT

Manufacturer:	Sendum Wireless
Operating Frequency:	836.51 to 848.97 MHz, 1851.25 to 1908.75 MHz
Emission Designator:	1M28F9W
Rated Power:	24.0 dBm
Measured Power:	24.6 dBm
Modulation:	CDMA Cellular, CDMA PCS
Power Source:	4.6 V lithium battery
Antenna Gain:	Internal Integral Circuit.

1.5 Block Diagram of the EUT

See Block diagram exhibit

Section 2: Test Conditions

2.1 Specifications

The apparatus was assessed against the following specifications:

FCC Part 22, Subpart H Public Mobile Services
 RSS-129, Issue 2 800MHz Dual-Mode CDMA Cellular Telephones
 FCC Part 24, Subpart E Personal Communications Services
 RSS-133, Issue 2, Rev.1 2GHz Personal Communications Services

2.2 Deviations From Laboratory Test Procedures

No deviations were made from laboratory test procedures.

2.3 Test Environment

All tests were performed under the following environmental conditions:

Temperature range : 15 – 30 °C
 Humidity range : 20 - 75 %
 Pressure range : 86 - 106 kPa
 Power supply range : +/- 5% of rated voltages

2.4 Test Equipment

Asset Number	Description	Model Number	Serial Number	Last Cal	Cal Due
101L	Signal Generator, Gigatronics	900	317101	10/5/05	10/5/06
835	Spectrum Analyzer, Rhode & Schwartz	RHDFSEK	829058/005	12/30/04	12/30/05
842	Preamp	Nemko	na	verified	10/8/05
752	Antenna, DRWG, EMCO	3115	4943	12/29/04	12/29/05
529	Antenna, DRWG, EMCO	3115	2505	4/13/05	4/13/06
112	Antenna, LPA, EMCO	3146	9101-2988	10/28/04	10/28/05
759	Antenna Set, Dipole, EMCO	3121C	1214	1/28/05	1/28/06
529	Antenna, DRWG, EMCO	3115	2505	4/13/05	4/13/06
836	Signal Generator, Agilent	E8254A	US41140229	12/30/04	12/30/05
759	Antenna Dipole, Part of Set 760	3121C-DB4	9609-1214	12/30/04	12/30/05
149	Cincinnati Environmental Chamber	Plus 32	AP0552665	5/13/05	5/13/06

Section 3: Observations

3.1 Modifications Performed During Assessment

No modifications were performed during assessment.

3.2 Record Of Technical Judgements

Conductive measurements were performed on the model PT200 which contains the same RF circuitry as the DS500. A coax, sma pigtail was soldered into the circuitry between the final RF stage and the integral antenna.

3.3 EUT Parameters Affecting Compliance

The user of the apparatus could not alter parameters that would affect compliance.

3.4 Test Deleted

No Tests were deleted from this assessment.

3.5 Additional Observations

There were no additional observations made during this assessment.

Section 4: Results Summary

This section contains the following:

The results contained in this section are representative of the operation of the apparatus as originally submitted.

FCC Part 22: Test Results

Clause	Test Method	Test Description	Required	Result
22.355	2.1055	Frequency stability		PASS
22.913	2.1046	Output power		PASS
22.917	2.1051	Conducted spurious emissions		PASS
22.917	2.1053	Radiated spurious emissions		PASS
22.905	2.1049	Occupied bandwidth		PASS

Part 24: Test Results

Clause	Test Method	Test Description	Required	Result
24.235	2.1055	Frequency stability		PASS
24.232	2.1046	Output power		PASS
24.238	2.1051	Conducted spurious emissions		PASS
24.236	2.1053	Radiated spurious emissions		PASS
24.238	2.1049	Occupied bandwidth		PASS

Notes:

Appendix A: Test Results

Frequency Stability

22.355

Except as otherwise provided in this part, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table C-1 of this section.

Table C-1. - Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency range (MHz)	Base, fixed (ppm)	Mobile >3 watts (ppm)	Mobile <=3 watts (ppm)
25 to 50		20.0	20.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929	5.0	n/a	n/a
929 to 960	1.5	n/a	n/a
2110 to 2220	10.0	n/a	n/a

Sec. 24.235 Frequency stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

The fundamental frequency emissions did not stray outside the designated band 1850 to 1909 MHz during all testing within this report.

The fundamental frequency emissions did not stray outside the designated band 1850 to 1909 MHz during all testing within this report. See Appendix B for bandedge plots from -30 °C to + 50 °C step 10°.

Test Conditions:

Sample Number:	001	Temperature:	24 °C
Date:	11-8-05	Humidity:	31 %
Modification State:	CW	Tester:	A. Laudani
		Laboratory:	Nemko

Test Results: See Attached Table.

Testing procedure for 22.355:

Frequency stability measurements were made over the temperature range of -30°C to +50°C. Climatic control was accomplished using a temperature chamber. The temperature was first increased from 20C to 50C in 10C increments and then lowered to -50C and incremented back to 20C. The unit remained in the chamber during temperature transitions and during the measurement process.

Voltage Nominal 4.3 V

Temperature(°C)	Frequency center	Freq.difference
20	836.519839	0
30	836.519839	0
40	836.519839	0
50	836.520160	-321
-30	836.520751	-912
-20	836.520751	-912
-10	836.520751	-912
0	836.520160	-321
10	836.520160	-321

836.52 MHz
2.5 ppm
2091.3 Hz -- Limit

Voltage 85% 3.66 V

Temperature(°C)	Frequency center	Freq.difference
20	836.519839	0
30	836.519839	0
40	836.519839	0
50	836.520160	-321
-30	836.520751	-912
-20	836.520751	-912
-10	836.520751	-912
0	836.520160	-321
10	836.520160	-321

Voltage 1.15% 4.94 V

Temperature(°C)	Frequency center	Freq.difference
20	836.519839	0
30	836.519839	0
40	836.519839	0
50	836.520160	-321
-30	836.520751	-912
-20	836.520751	-912
-10	836.520751	-912
0	836.520160	-321
10	836.520160	-321

Volts	Frequency center	Freq.difference	Output power dBm
4.6	836.520160	0	22.3
4.4	836.520160	0	22.2
4.2	836.520160	0	22.1
4.1	836.520160	0	21.7
4.0	836.520160	0	20.9
3.9	836.520160	0	22.4
3.7	836.520160	0	20.4
3.6	off		off

Output Power

Clause 22.913

Para. No. 22.913(a). The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts

Clause 24.232

Para. No.: 24.232. (b) Mobile/portable stations are limited to 2 watts E.I.R.P. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

**Test Results:
Radiated**

Modulation	Frequency (MHz)	ERP/EIRP Measured (dBm)	Substituted (dBm)	Result Watts
CDMA	824.70	25.7	22.5	0.18
	836.52	25.2	22.6	0.18
	848.31	25.3	22.4	0.17
PCS	1851.25	28.3	24.6	0.29
	1880.00	27.6	23.7	0.24
	1908.75	27.8	23.4	0.22

Tables below.

Radiated Emissions Data

Complete YES Job #: 25-898-SEN Test #: 1
Preliminary _____ Page 1 of 1
Client Name : Sendum Wireless Corporation
EUT Name : DS500
EUT Model # : DS500
EUT Part # : _____
EUT Serial # : _____
EUT Config. : Transmit CW
Specification : FCC Part 22 Reference : _____
Bicon Ant.#: NA Temp. (°C) : 19 Date : _____
Log Ant.#: 110 Humidity (%) : 61 Time : _____
DRG Ant. # 529 EUT Voltage : 120 Vac Staff : _____
Dipole Ant.#: NA EUT Frequency : 60 Hz Photo ID: _____
Cable#: SOATS Phase: 1 Peak Bandwidth: 1 MHz
Preamp#: 842 Location: SOATS Video Bandwidth 1 MHz
Spec An.#: 835 Distance: 3M
QP #: NA
PreSelect#: NA

Meas. Freq. (MHz)	Vertical (dBuV) pk	Horizontal (dBuV) pk	CF (db)	Max Level (dBm) pk	Spec. Limit (dBm) pk	Margin dB pk	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
824.70	86.8	92.2	30.9	25.74	33.0	-7.3	20	1.0	Pass	
836.52	84.6	91.9	30.7	25.24	33.0	-7.8	20	1.0	Pass	
848.31	85.6	91.7	31.0	25.34	33.0	-7.7	20	1.0	Pass	

Radiated Emissions Data

Complete	<u>YES</u>	Job # :	<u>25-898-SEN</u>	Test # :	<u>2</u>
Preliminary	<u> </u>	Page	<u>1</u>	of	<u>1</u>
Client Name :	<u>Sendum Wireless Corporation</u>				
EUT Name :	<u>DS500</u>				
EUT Model # :	<u>DS500</u>				
EUT Part # :	<u> </u>				
EUT Serial # :	<u> </u>				
EUT Config. :	<u>Transmit CW</u>				
Specification :	<u>FCC Part 24</u>		Reference :	<u> </u>	
Bicon Ant.#:	<u>NA</u>	Temp. (°C) :	<u>19</u>	Date :	<u>11/9/2005</u>
Log Ant.#:	<u>110</u>	Humidity (%) :	<u>61</u>	Time :	<u> </u>
DRG Ant. #	<u>529</u>	EUT Voltage :	<u>120 Vac</u>	Staff :	<u>AL</u>
Dipole Ant.#:	<u>NA</u>	EUT Frequency :	<u>60 Hz</u>	Photo ID:	<u> </u>
Cable#:	<u>40ft</u>	Phase:	<u>1</u>	Peak Bandwidth:	<u>1 MHz</u>
Preamp#:	<u>842</u>	Location:	<u>SOATS</u>	Video Bandwidth:	<u>1 MHz</u>
Spec An.#:	<u>835</u>	Distance:	<u>3M</u>		
QP #:	<u>NA</u>				
PreSelect#:	<u>NA</u>				

Meas. Freq. (MHz)	Vertical (dBuV) pk	Horizontal (dBuV) pk	CF (db)	Max Level (dBm) pk	Spec. Limit (dBm) pk	Margin dB pk	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
1851.25	87.8	85.5	35.7	28.3	33.0	-4.7	60	1.0	Pass	
1880.00	87.1	85.1	35.7	27.6	33.0	-5.4	60	1.0	Pass	
1908.75	87.3	85.3	35.7	27.8	33.0	-5.2	60	1.0	Pass	

Substitution Method For Radiated Emissions

Complete Yes Job # : 25-898-SEN Test # : 3
 Preliminary _____ Page 1 of 1

Client Name : Sendum Wireless Corporation
 EUT Name : DS500
 EUT Model # : DS500
 EUT Part # : _____
 EUT Serial # : _____
 EUT Config. : Transmit

Specification : FCC Part 22 & Part 24 Reference : _____
 Rod. Ant. # : NA Temp. (deg. C) : 19 Date : 11/10/2005
 Bicon Ant.# : NA Humidity (%) : 61 Time : _____
 Log Ant.# : 110 EUT Voltage : 120 Vac Staff : A. Laudani
 DRG Ant. # 752 EUT Frequency : 60 Hz Photo ID: _____
 DRG Ant. # 529 Phase: 1 Peak Bandwidth: RBW-1MHz, VBW-1MHz
 Dipole Ant.#: 759 Location: SOATS
 Cable#: 10ft Distance: 3m
 Preamp#: NA
 Spec An.#: 835
 Signal Gen.# 836

target Frequency mHz	level dBuV/m	dipole	cable loss dB	Signal Generator dBm	Total (ERP) dBm	Watts
824.70	92.2	0	0.8	23.30	22.50	0.18
836.49	91.9	0	0.9	23.50	22.60	0.18
848.31	91.7	0	0.9	23.30	22.40	0.17

target Frequency mHz	level dBuV/m	Horn Gain dBi	cable loss dB	Signal Generator dBm	Total (EIRP) dBm	Watts
1851.31	87.8	9.24	1.2	16.60	24.64	0.29
1880.00	87.1	8.95	1.3	16.10	23.75	0.24
1908.75	87.3	8.67	1.3	16.00	23.37	0.22

Conducted Output Power:

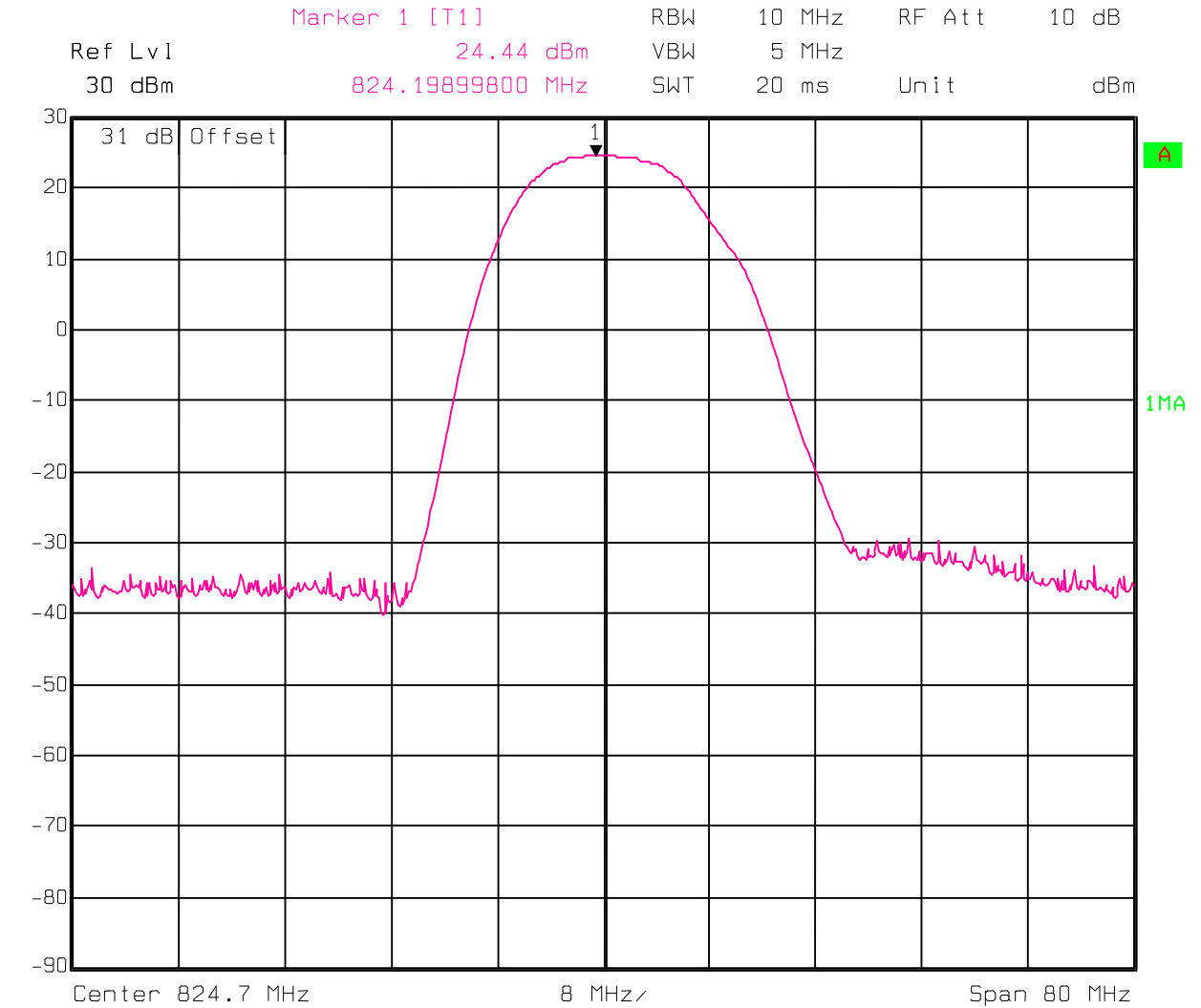
Test Conditions:

Sample Number:	001	Temperature:	22°C
Date:	12-5-05	Humidity:	29%
Modification State:	CW	Tester:	A. Laudani
		Laboratory:	Nemko SOATS

Equipment: Spectrum Analyzer 835, with 30 dB Attenuator.

Modulation	Frequency (MHz)	Measured (dBm)	ANT. GAIN	TOTAL ERP/EIRP	Result Watts
CDMA	824.70	24.4	-1.0	23.4	0.22
	836.52	24.0	-1.0	23.0	0.20
	848.31	24.3	-1.0	23.3	0.21
PCS	1851.25	24.2	-0.5	23.7	0.23
	1878	24.0	-0.5	23.5	0.22
	1908.75	24.3	-0.5	23.8	0.24

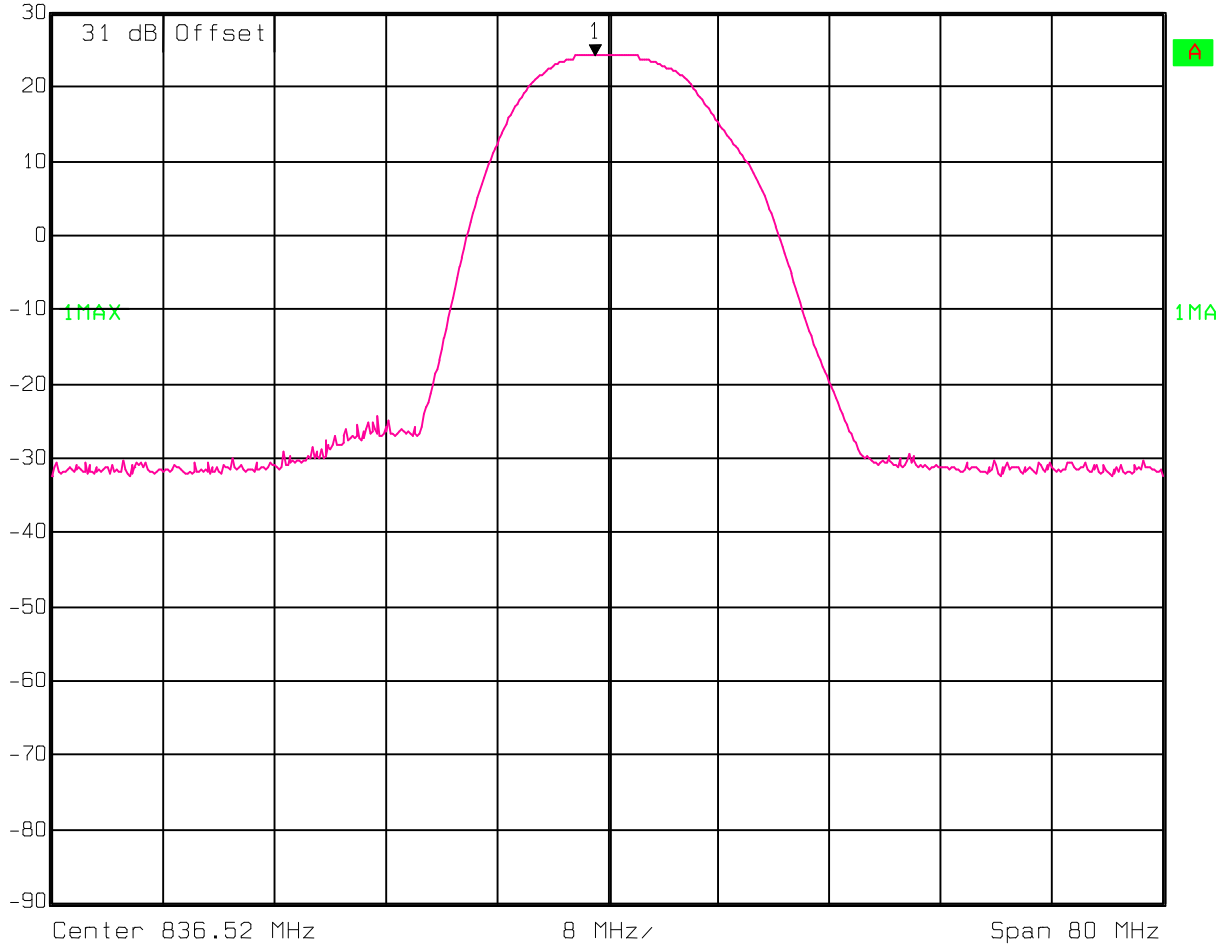
Part 22 Low Frequency Output Power



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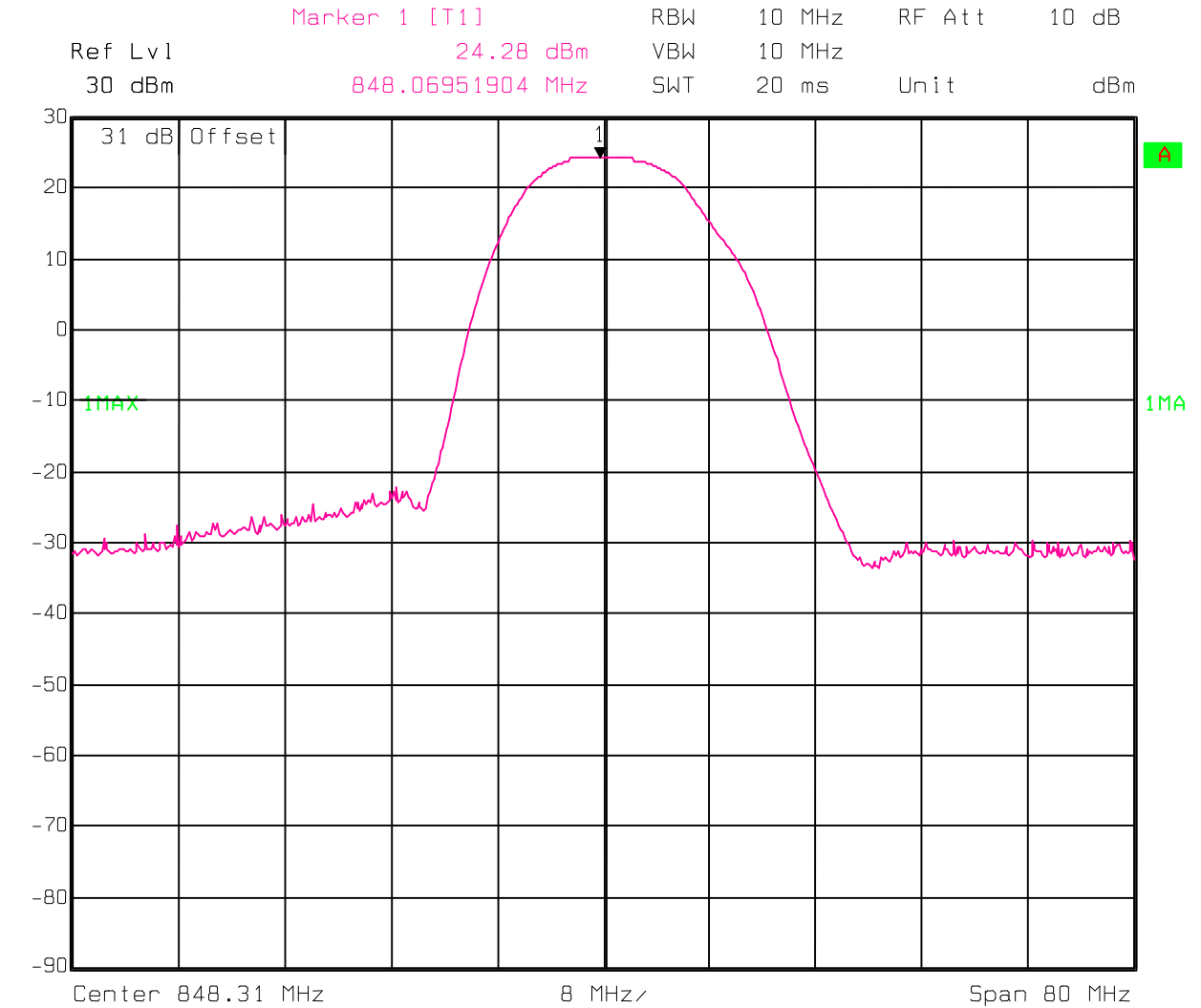
Mid Frequency Output Power

Marker 1 [T1] RBW 10 MHz RF Att 10 dB
Ref Lvl 24.03 dBm VBW 10 MHz
30 dBm 835.63823647 MHz SWT 20 ms Unit dBm



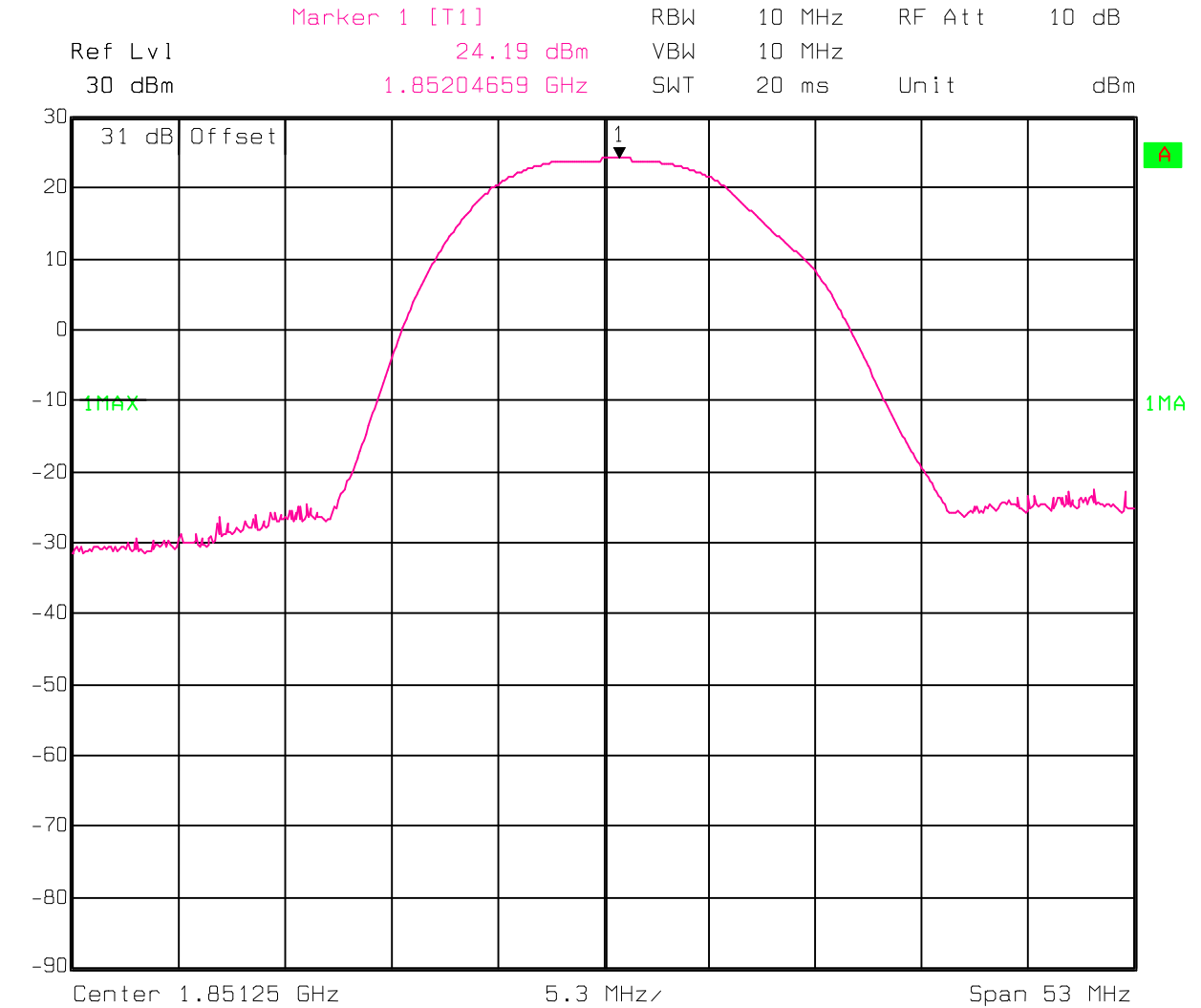
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High Frequency Output Power



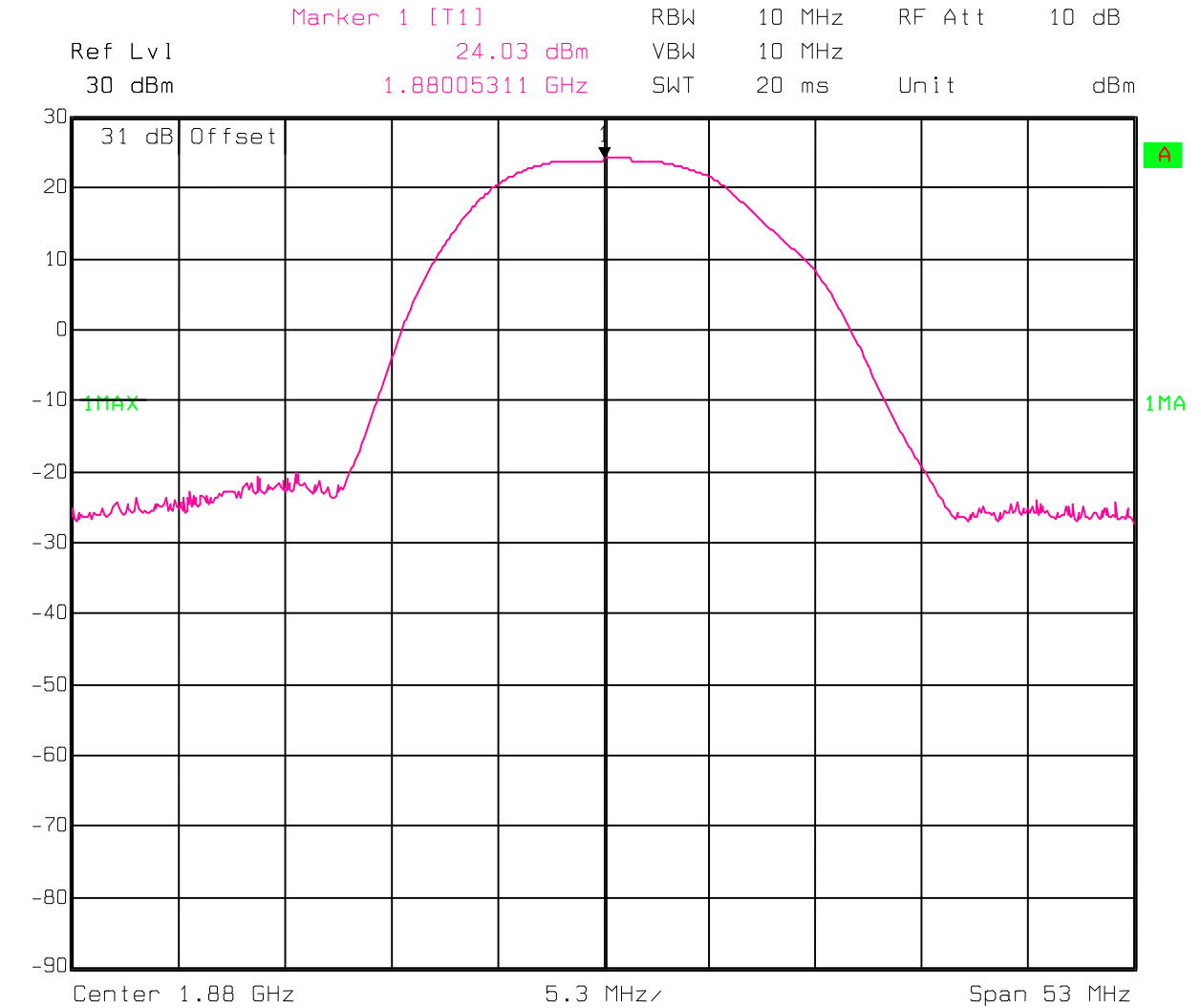
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Part 24 Low Frequency Output Power



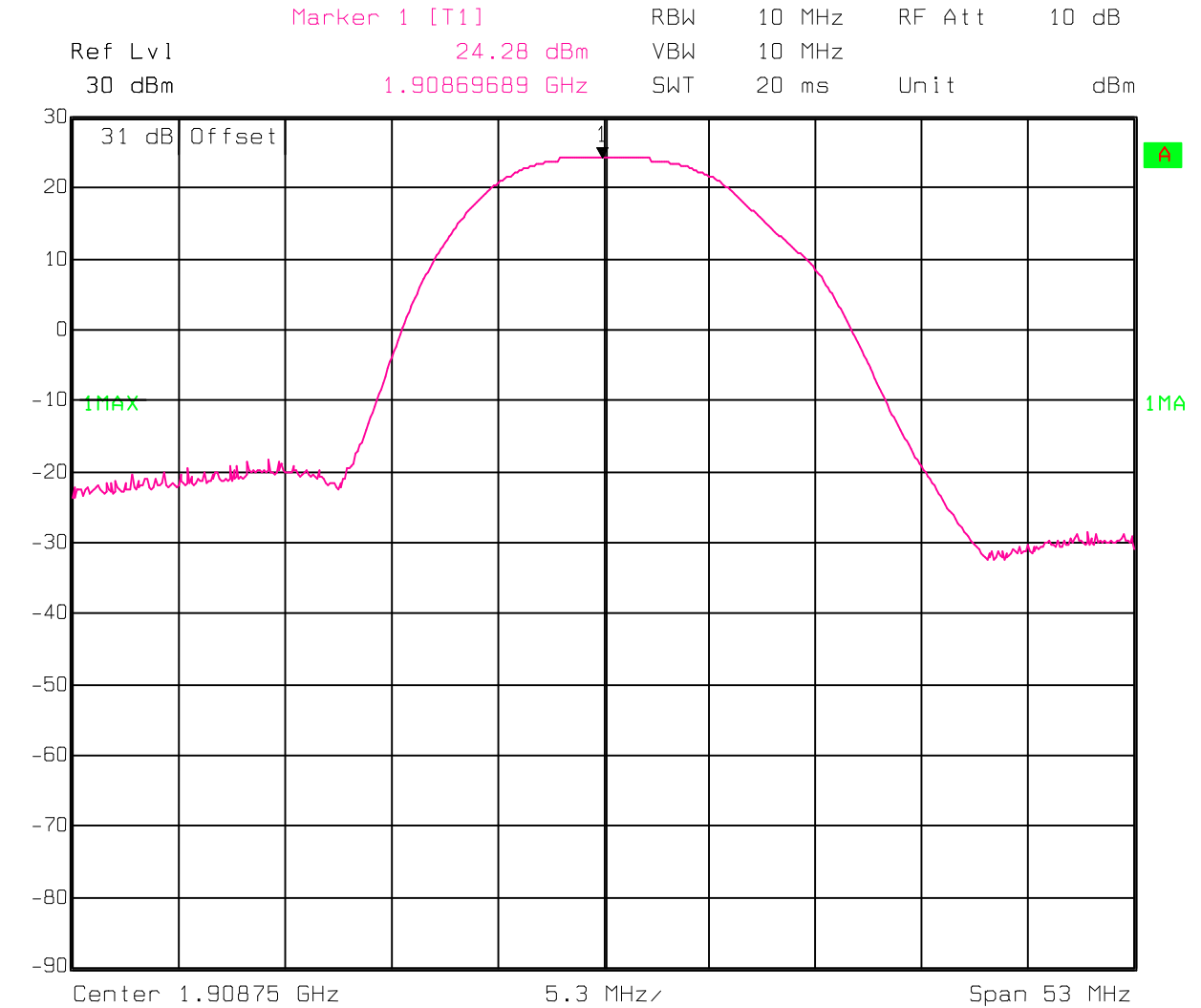
Date: 05.DEC.2005 14:59:18

Mid Frequency Output Power



Date: 05.DEC.2005 15:01:26

High Frequency Output Power



Date: 05.DEC.2005 15:05:36

Conducted Spurious Emissions

22.917 a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.
--

Test Conditions:

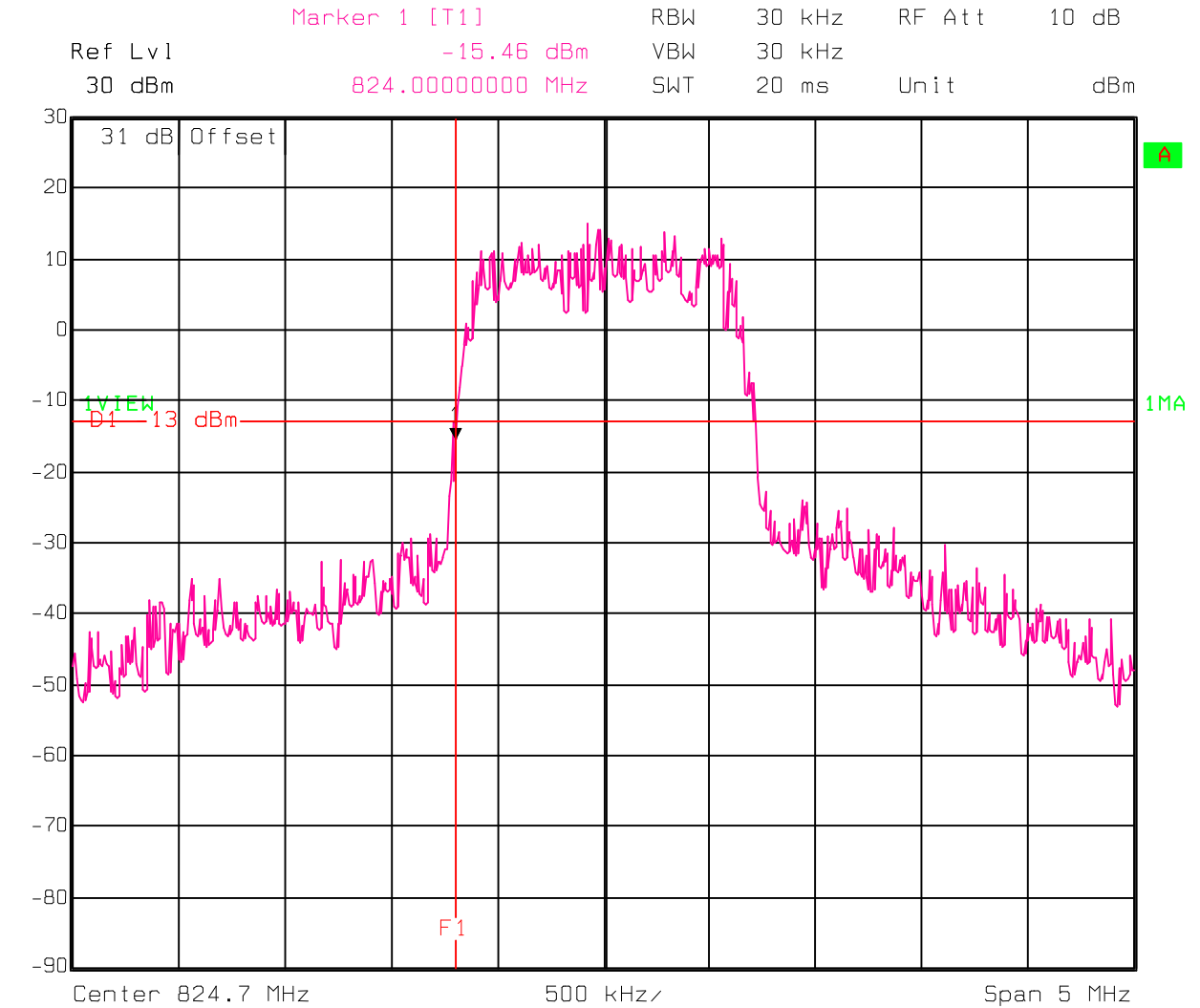
Sample Number:	001	Temperature:	24 °C
Date:	11-8-05	Humidity:	31 %
Modification State:	CW	Tester:	A. Laudani
		Laboratory:	Nemko

Test Results:

See Attached Plots.

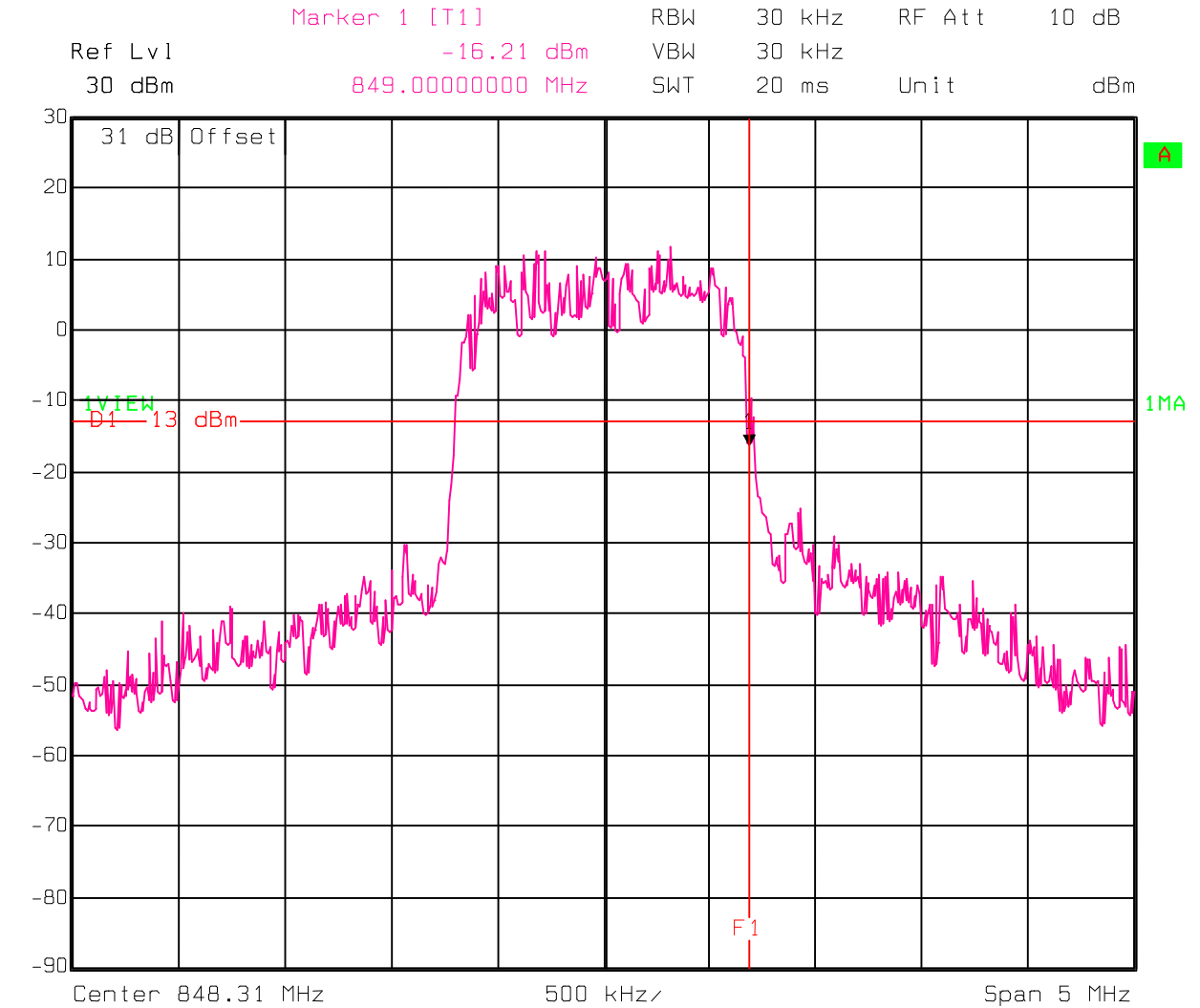
Additional Observations:

Part 22, Lower Band Edge.



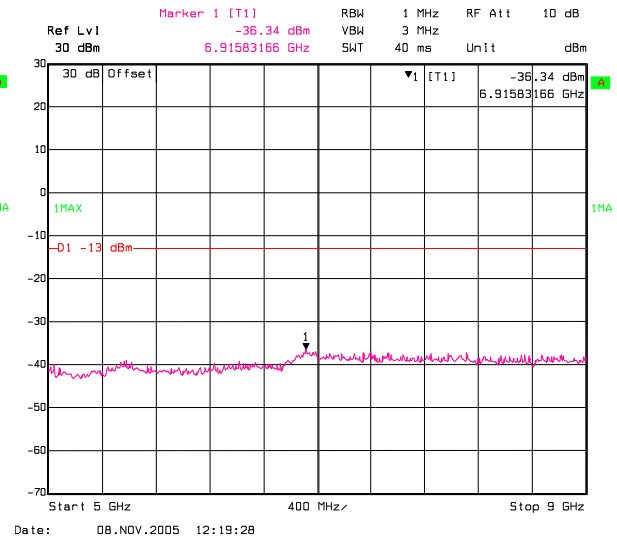
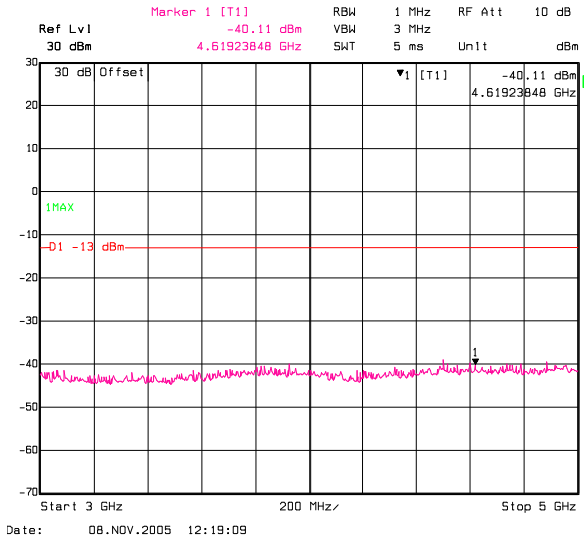
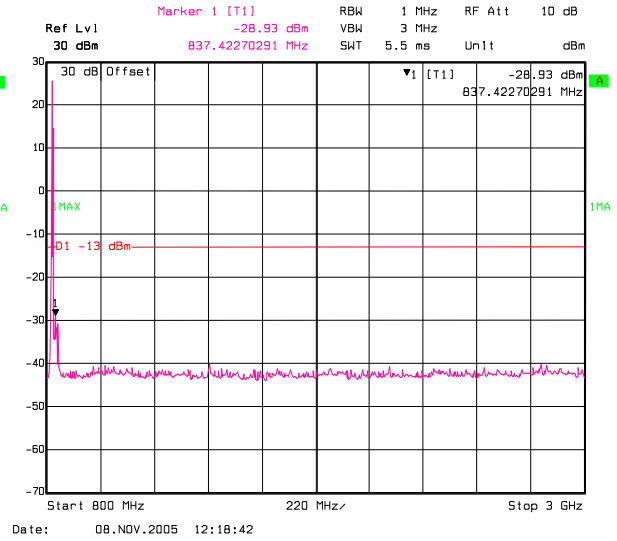
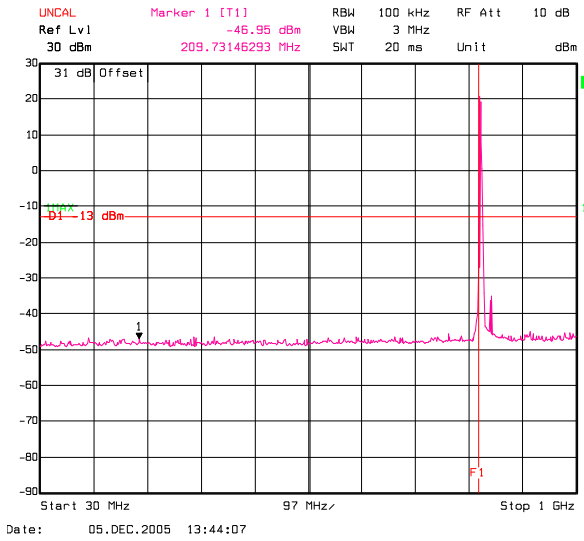
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Part 22, Upper Band Edge

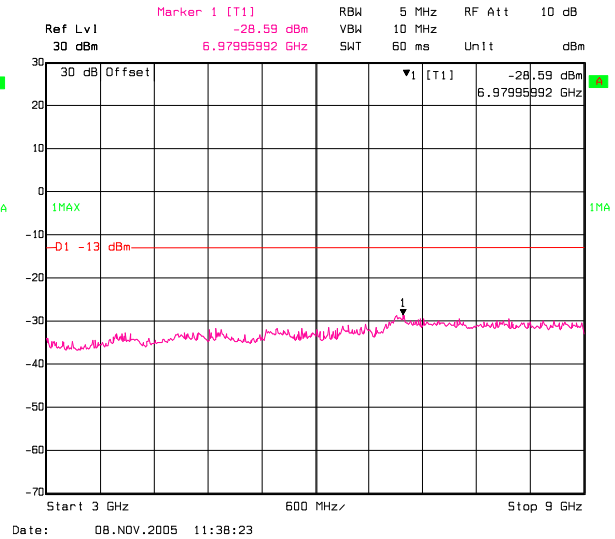
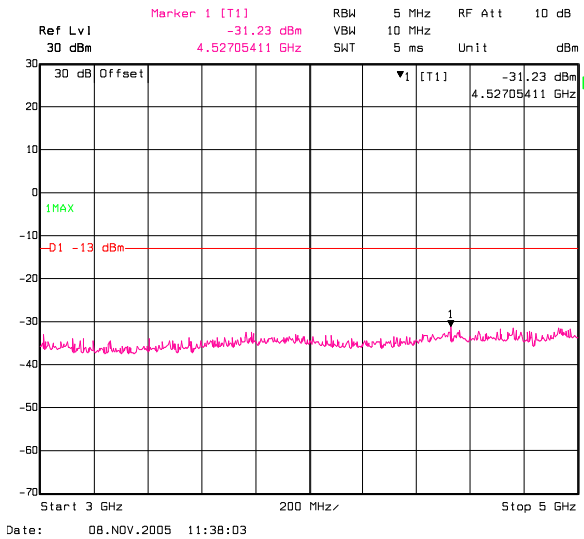
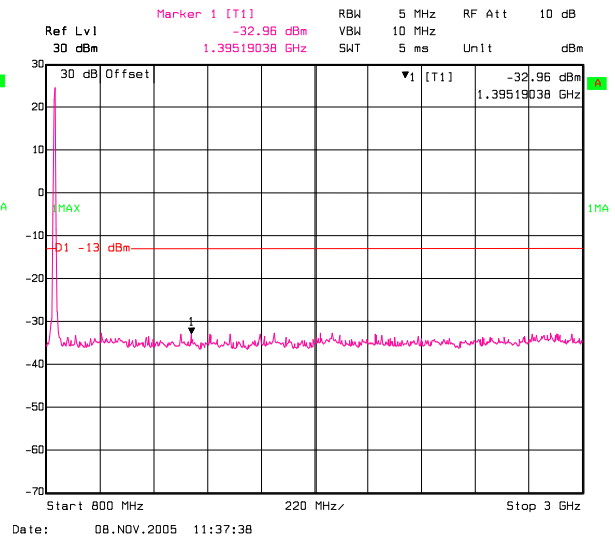
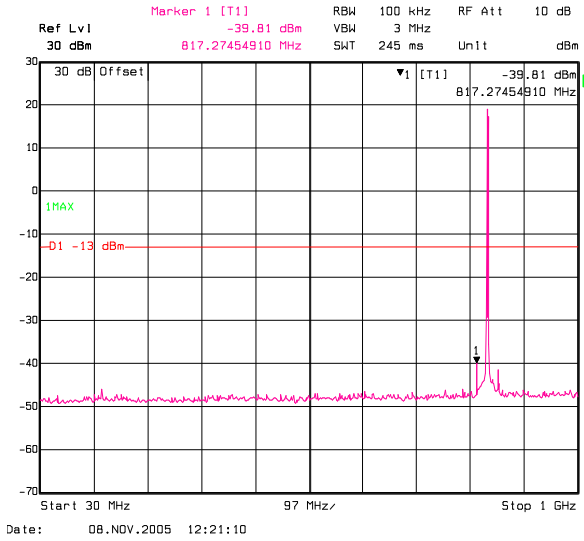


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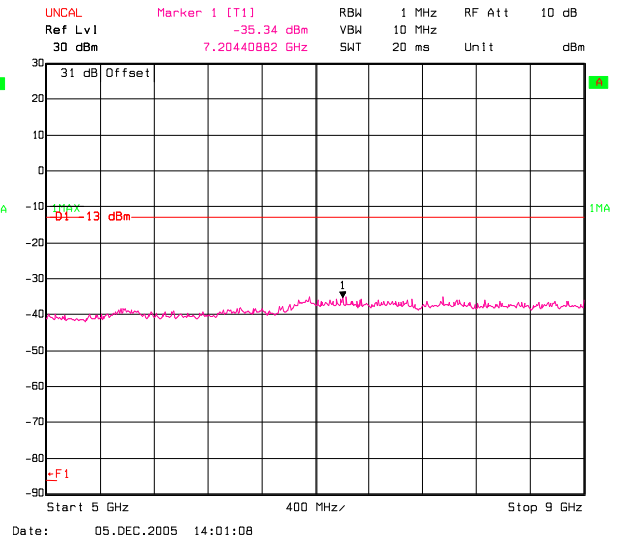
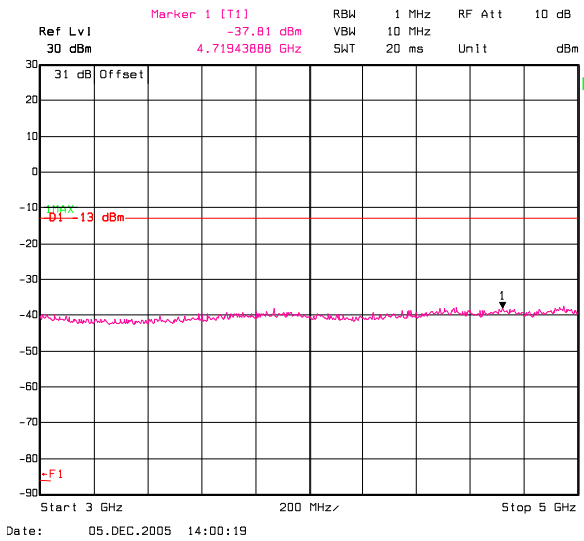
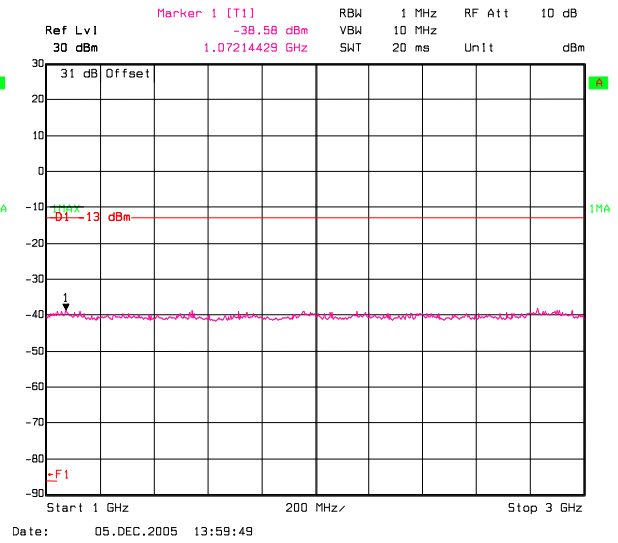
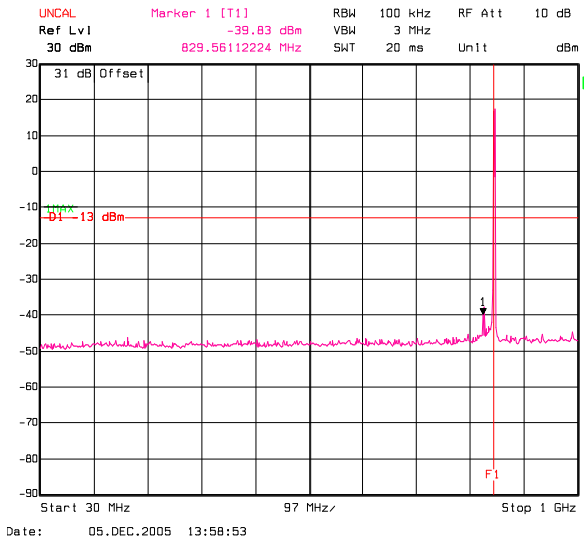
Low frequency Part 22



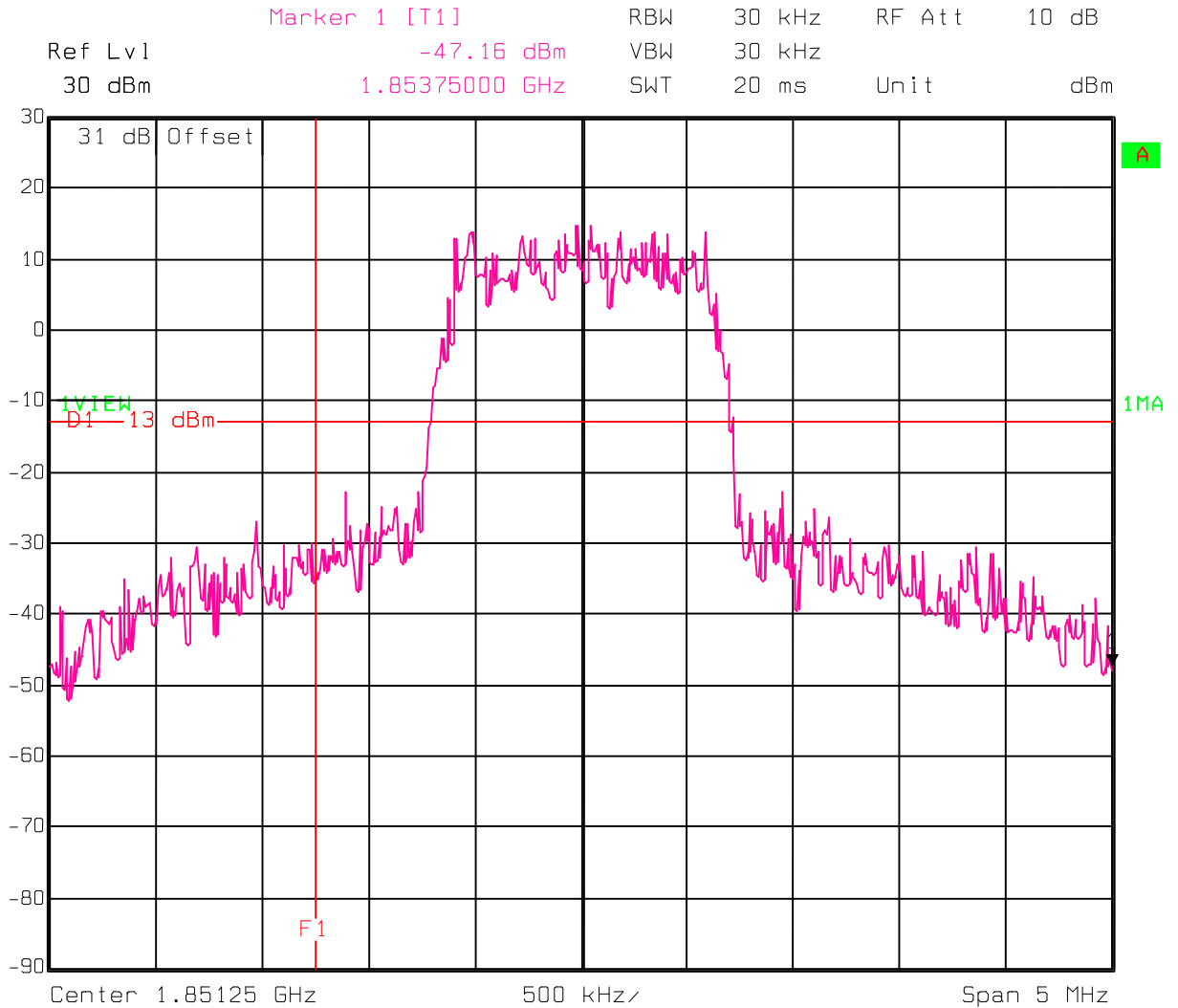
Mid frequency Part 22



High frequency Part 22

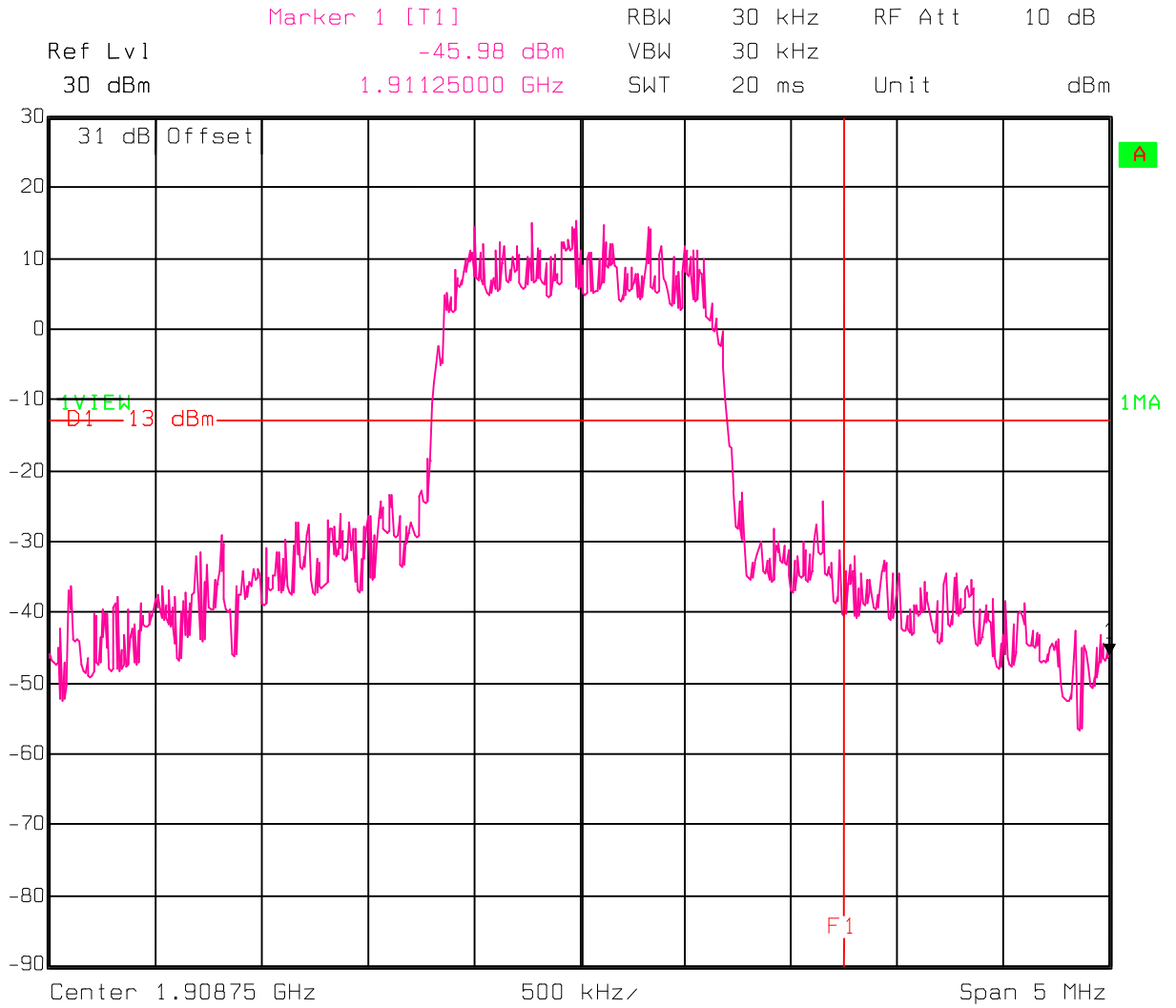


Part 24, Lower Band Edge



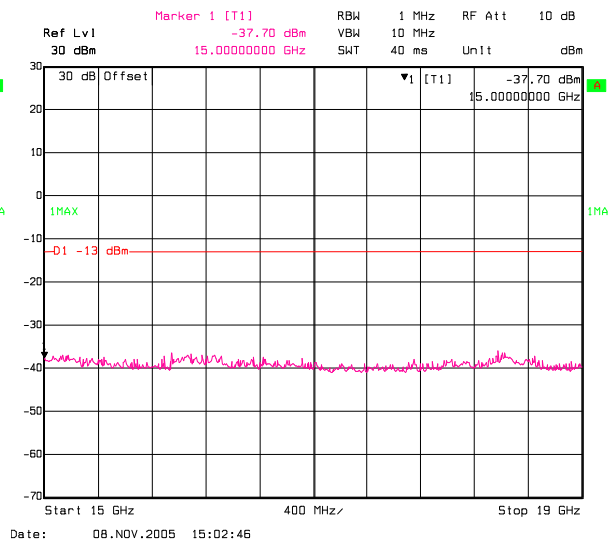
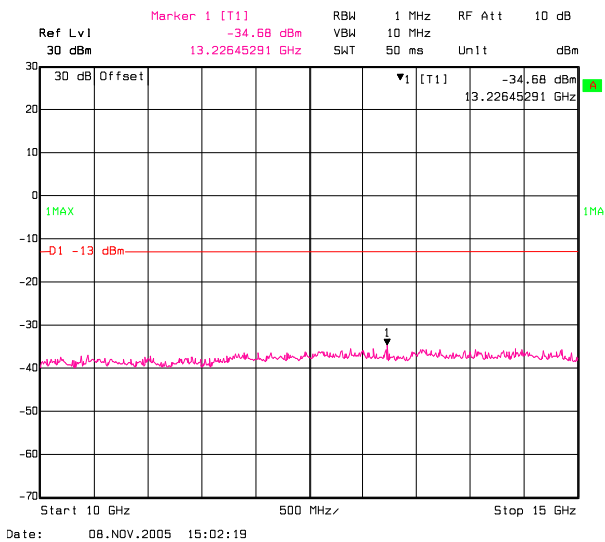
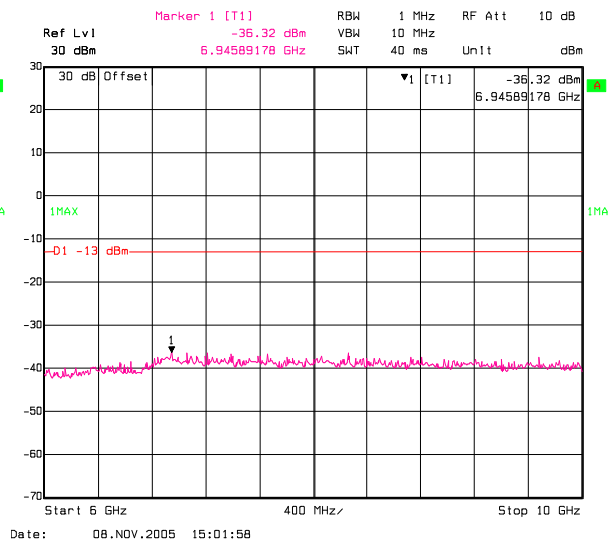
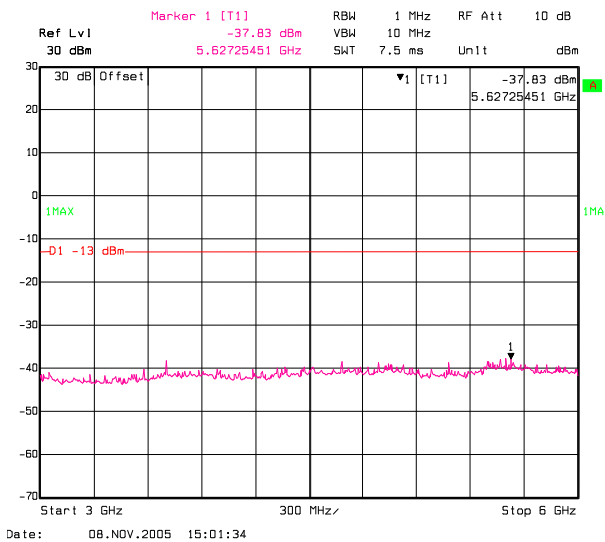
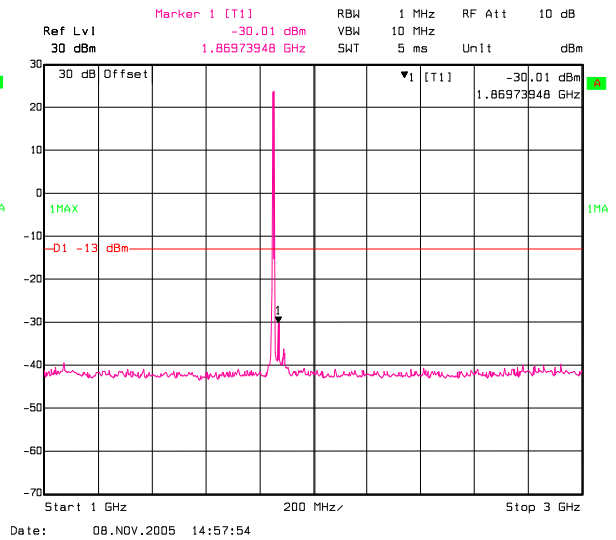
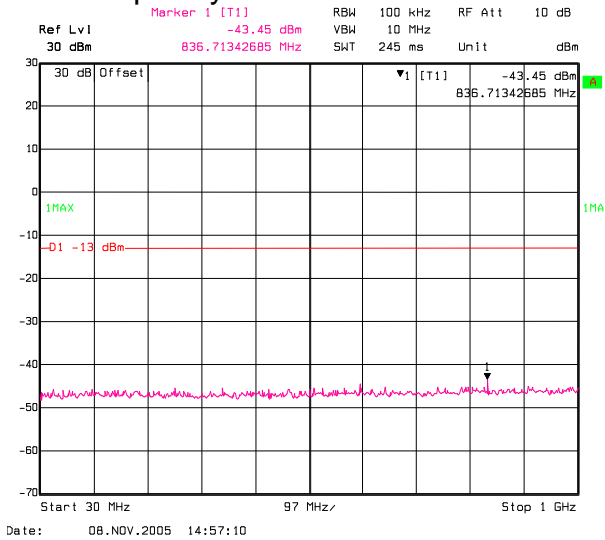
Date: 05.DEC.2005 15:14:41

Part 24, Upper Band Edge

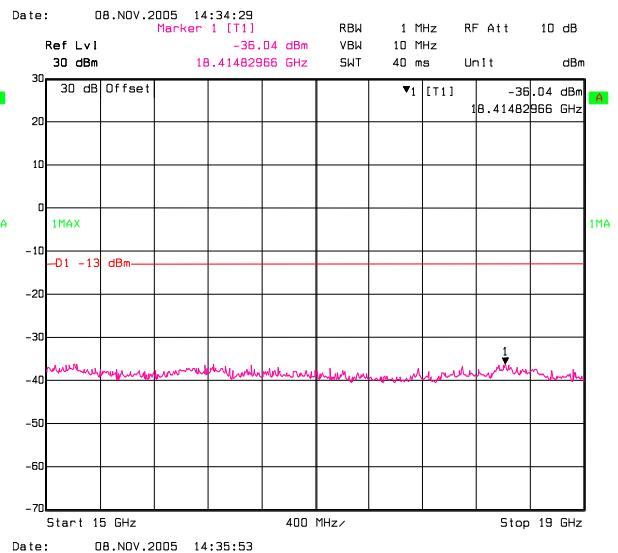
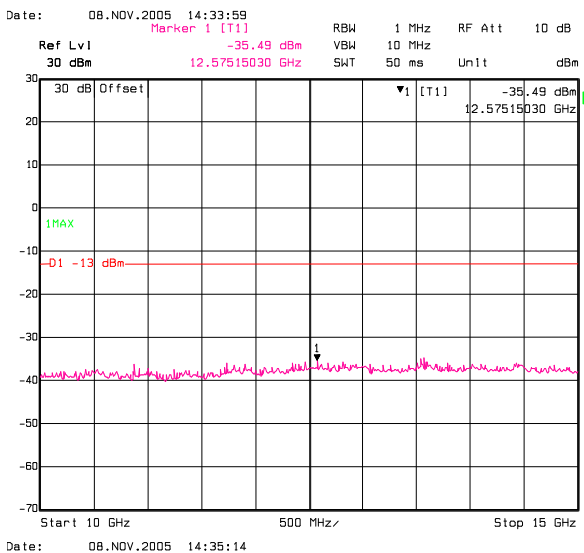
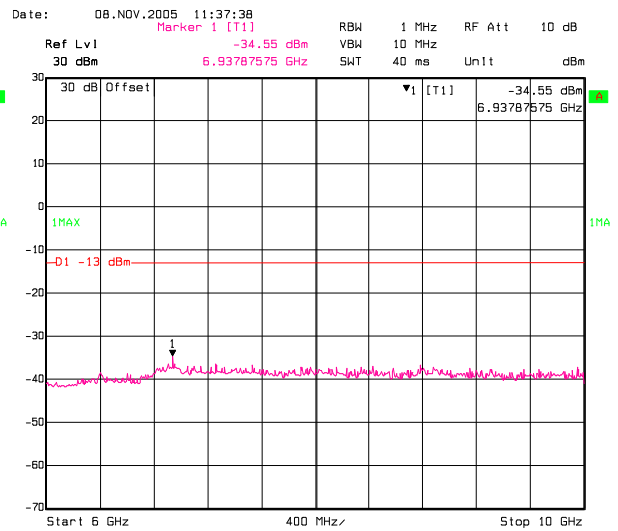
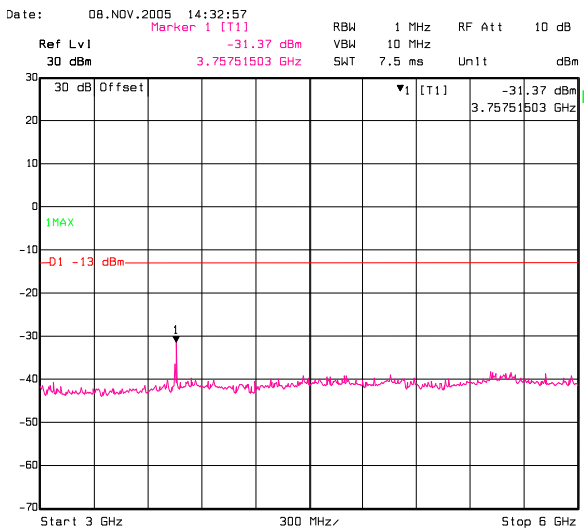
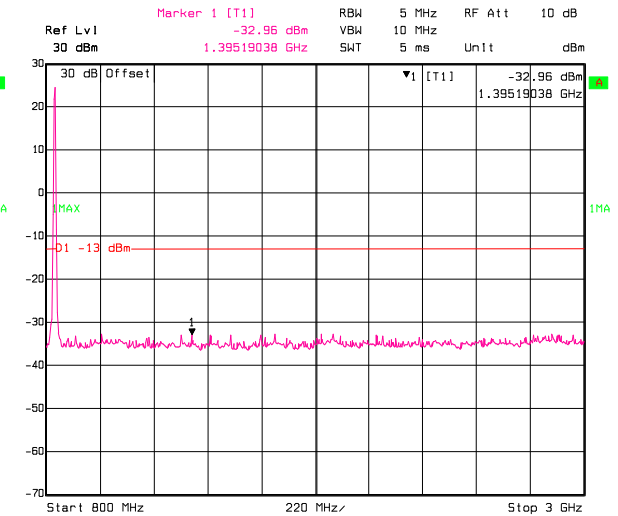
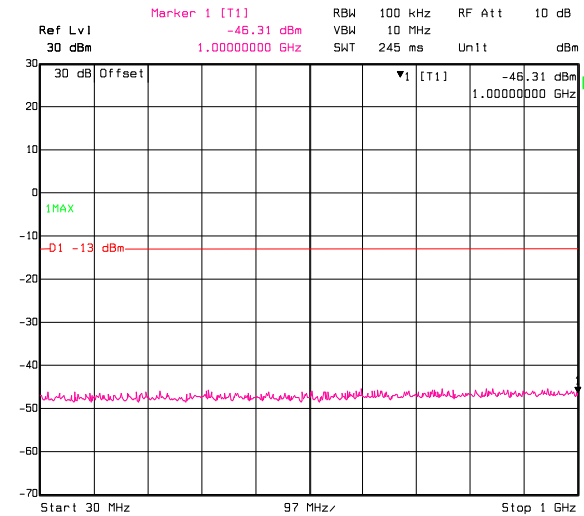


Date: 05.DEC.2005 15:13:24

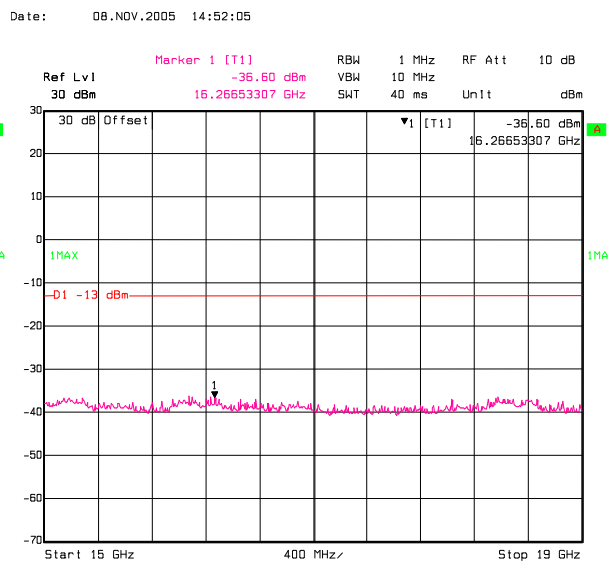
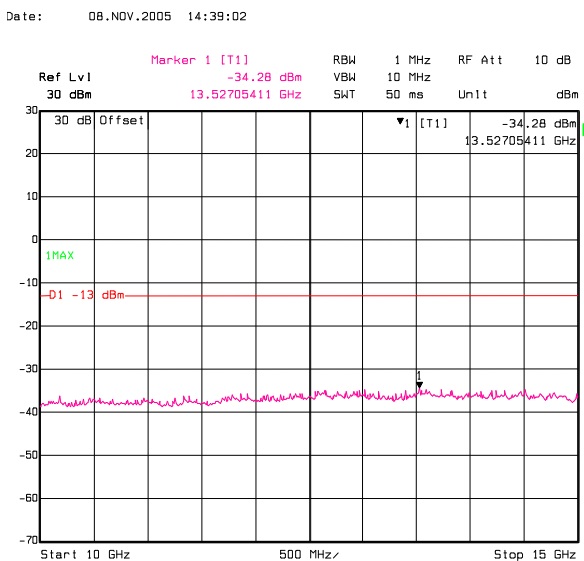
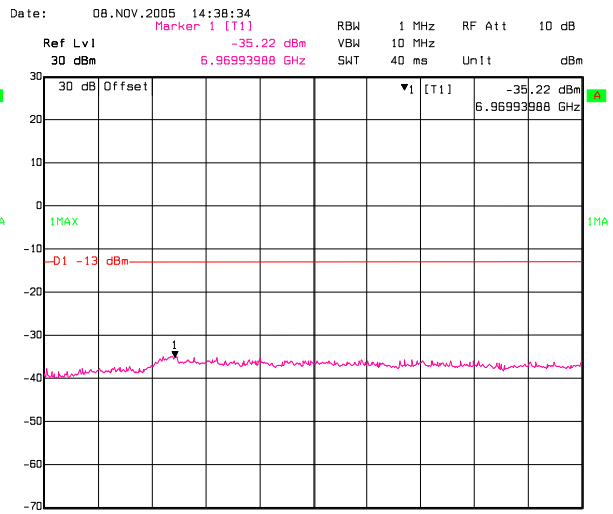
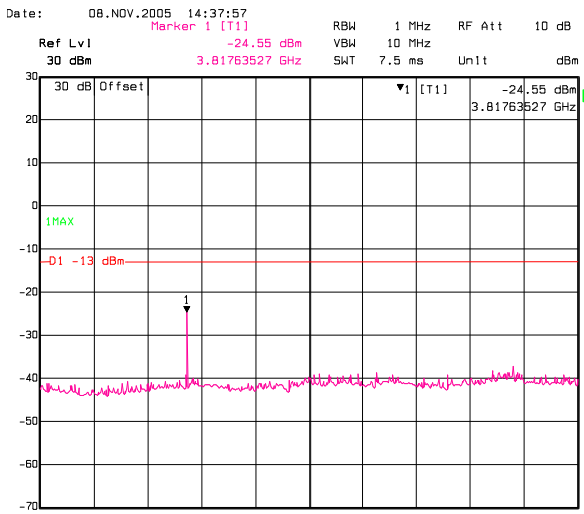
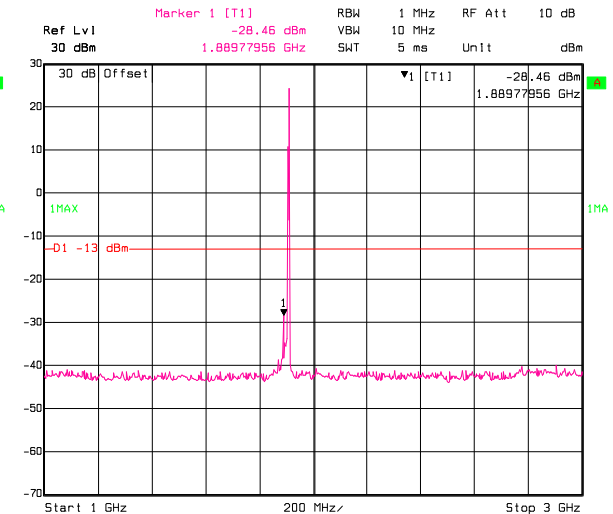
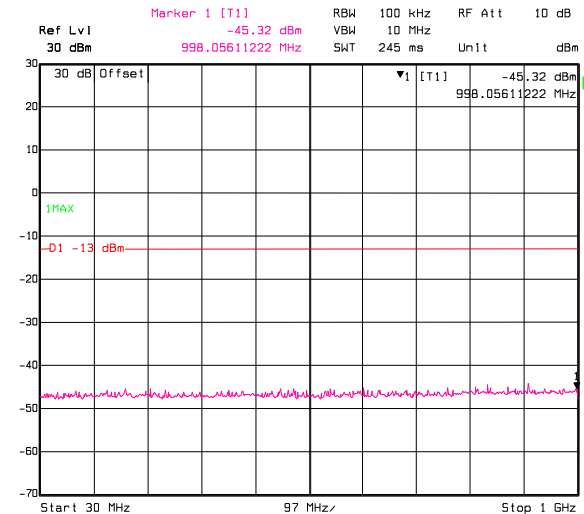
Low Frequency Part 24



Mid Frequency Part 24



High Frequency Part 24



Date: 08.NOV.2005 14:37:57

Date: 08.NOV.2005 14:38:34

Date: 08.NOV.2005 14:39:02

Date: 08.NOV.2005 14:52:05

Date: 08.NOV.2005 14:53:32

Date: 08.NOV.2005 14:54:41

Radiated Spurious Emissions

22.917; 24.238 Emission limits.

a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

Test Results:

See Attached Table for Results

Additional Observations:

The Spectrum was searched from 30MHz to the 10th Harmonic.

The EUT was measured on three orthogonal axis, worst case presented.

All measurements were performed using a Peak Detector with a 1MHz RBW above 1GHz at a distance of 3 meters.

Substitution was performed on emissions at a level greater than 20 dB below the limit.

Radiated Emissions Data

Complete	YES	Job # :	25-898-SEN	Test # :	1
Preliminary	_____	Page	1	of	1
Client Name :	_____				
EUT Name :	Sendum				
EUT Model # :	DS500				
EUT Part # :	_____				
EUT Serial # :	_____				
EUT Config. :	Transmit CW				
Specification :	FCC Part 24		Reference :	_____	
Bicon Ant. #:	NA	Temp. (°C) :	18	Date :	11/4/2005
Log Ant. #:	110	Humidity (%) :	61	Time :	_____
DRG Ant. #	529	EUT Voltage :	Vdc	Staff :	AL
Dipole Ant. #:	NA	EUT Frequency :	-	Photo ID:	_____
Cable#:	SOATS	Phase:	-	Peak Bandwidth:	1 MHz
Preamp#:	842	Location:	SOATS	Video Bandwidth	1 MHz
Spec An.#:	835	Distance:	3M		
QP #:	NA				
PreSelect#:	NA				

Meas. Freq. (MHz)	Vertical (dBuV) pk	Horizontal (dBuV) pk	CF (db)	Max Level (dBm) pk	Spec. Limit (dBm) pk	Margin dB pk	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
1851.25										
3702.50	63.8	61.2	-3.6	-35.1	-13.0	-22.1	60	1	Pass	
5553.75	55.0	53.2	2.0	-38.2	-13.0	-25.2	60	1	Pass	
7405.00	50.9	46.6	3.9	-40.4	-13.0	-27.4	60	1	Pass	
9256.25	46.7	49.4	9.5	-36.4	-13.0	-23.4	60	1	Pass	
1880										
3760	64.2	61.1	-3.6	-34.7	-13.0	-21.7	60	1	Pass	
5640	54.4	54.1	2.0	-38.8	-13.0	-25.8	60	1	Pass	
7520	49.3	46.2	5.1	-40.8	-13.0	-27.8	60	1	Pass	
9400	48.1	44.4	9.5	-37.7	-13.0	-24.7	60	1	Pass	
1908.75										
3817.50	64.6	61.6	-3.6	-34.3	-13.0	-21.3	60	1	Pass	
5726.25	52.7	50.7	2.0	-40.5	-13.0	-27.5	60	1	Pass	
7635.00	48.7	46.4	5.1	-41.4	-13.0	-28.4	60	1	Pass	
9543.75	45.6	43.8	9.2	-40.5	-13.0	-27.5	60	1	Pass	

Radiated Emissions Data

Complete YES Job # : 25-898-SEN Test # : 1
 Preliminary _____ Page 1 of 1
 Client Name : _____
 EUT Name : Sendum
 EUT Model # : DS500
 EUT Part # : _____
 EUT Serial # : _____
 EUT Config. : Transmit CW
 Specification : FCC Part 22 Reference : _____
 Bicon Ant.# : NA Temp. (°C) : 16 Date : 11/4/2005
 Log Ant.# : 110 Humidity (%) : 11 Time : _____
 DRG Ant. # : 529 EUT Voltage : Vdc Staff : AL
 Dipole Ant.# : NA EUT Frequency : _____ Photo ID : _____
 Cable# : SOATS Phase : - Peak Bandwidth : 1 MHz
 Preamp# : 842 Location : SOATS Video Bandwidth 1 MHz
 Spec An.# : 835 Distance : 3M
 QP # : NA
 PreSelect# : NA

Meas. Freq. (MHz)	Vertical (dBuV) pk	Horizontal (dBuV) pk	CF (db)	Max Level (dBm) pk	Spec. Limit (dBm) pk	Margin dB pk	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
824.05			30.9		-13.0					
1648.10	70.7	77.4	-12.7	-32.7	-13.0	-19.7	60	1	Pass	
2472.15	63.2	63.3	-10.0	-44.1	-13.0	-31.1	60	1	Pass	
3296.20	51.0	48.2	-5.0	-51.4	-13.0	-38.4	60	1	Pass	
836.52										
1673.04	71.5	77.7	-12.7	-32.4	-13.0	-19.4	60	1	Pass	
2509.56	65.7	62.9	-9.1	-40.8	-13.0	-27.8	60	1	Pass	
3346.08	56.2	58.2	-5.0	-44.2	-13.0	-31.2	60	1	Pass	
848.97										
1697.94	71.6	77.5	-12.7	-32.6	-13.0	-19.6	60	1	Pass	
2546.91	64.6	66.7	-9.1	-39.8	-13.0	-26.8	60	1	Pass	
3395.88	64.6	66.7	-5.0	-35.7	-13.0	-22.7	60	1	Pass	

Substitution Method For Radiated Emissions

Complete	<u>Yes</u>	Job # : <u>25-898-SEN</u>	Test # : <u>3</u>
Preliminary	<u> </u>	Page <u>1</u>	of <u>1</u>
Client Name : <u>Sendum Wireless Corporation</u>			
EUT Name : <u>DS500</u>			
EUT Model # : <u>DS500</u>			
EUT Part # : <u> </u>			
EUT Serial # : <u> </u>			
EUT Config. : <u>Transmit</u>			
<hr/>			
Specification :	<u>FCC Part 22</u>	Reference :	<u> </u>
Rod. Ant. #:	<u>NA</u> Temp. (deg. C) :	<u>19</u>	Date : <u>11/10/2005</u>
Bicon Ant.#:	<u>NA</u> Humidity (%) :	<u>61</u>	Time :
Log Ant.#:	<u>110</u> EUT Voltage :	<u>120 Vac</u>	Staff : <u>A. Laudani</u>
DRG Ant. #	<u>752</u> EUT Frequency :	<u>60 Hz</u>	Photo ID: <u> </u>
DRG Ant. #	<u>529</u> Phase:	<u>1</u>	Peak Bandwidth: <u>RBW-1MHz, VBW-1MHz</u>
Dipole Ant.#:	<u>759</u> Location:	<u>SOATS</u>	<u> </u>
Cable#:	<u>10ft</u> Distance:	<u>3m</u>	<u> </u>
Preamp#:	<u>NA</u>		
Spec An.#:	<u>835</u>		
Signal Gen.#	<u>836</u>		

Frequency mHz	target level dBuV/m	Horn Gain dBi	cable loss dB	Signal Generator dBm	Total (EIRP) dBm	Spec dBm	Margin dBm
1648.10	77.4	5.37	0.61	-38.20	-33.4	-13	-20.4
1673.04	77.7	5.41	0.63	-37.90	-33.1	-13	-20.1
1697.94	77.5	5.45	0.65	-38.10	-33.3	-13	-20.3

Occupied Bandwidth

Using an RBW of 300Hz or 1% of the emission bandwidth, The spectral shape of the output should look similar to the input for all modulations.

Sec. 24.238 Emission limits

(b) Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

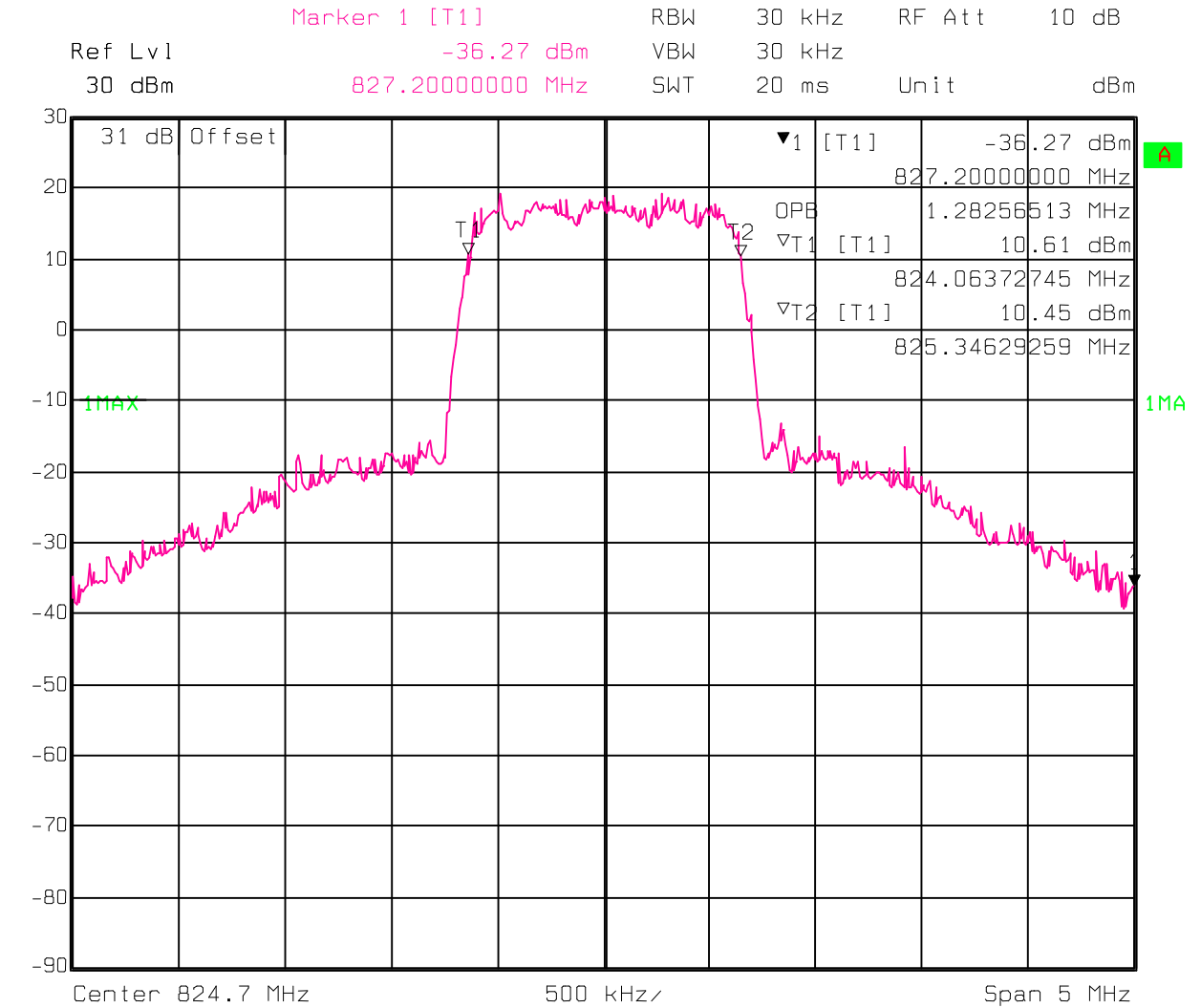
Test Conditions:

Sample Number:	001	Temperature:	22 °C
Date:	12-05-05	Humidity:	29 %
Modification State:	CW	Tester:	A. Laudani
		Laboratory:	Nemko AL

Test Results:

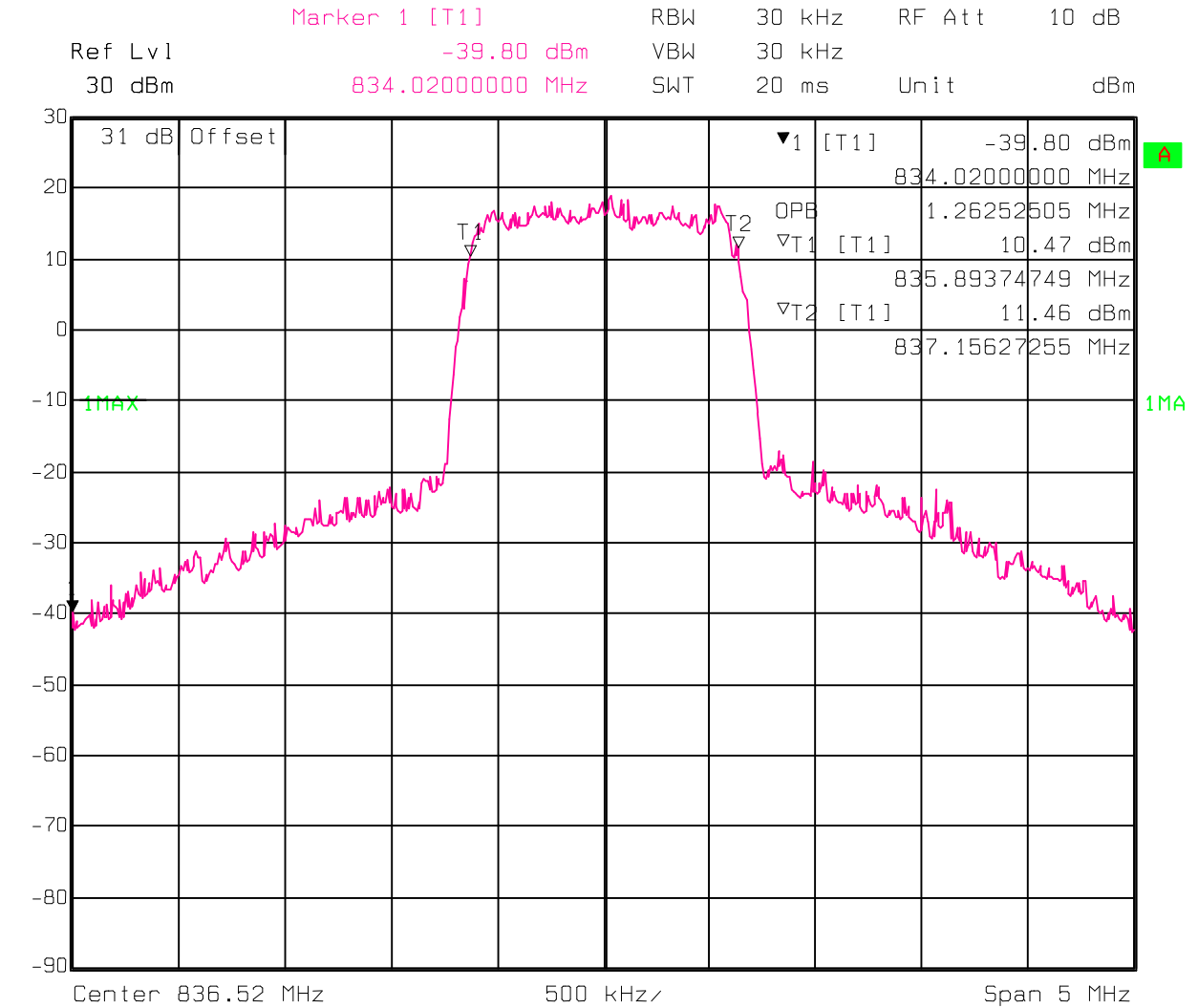
See Attached Plots.

Part 22 Low Frequency Bandwidth



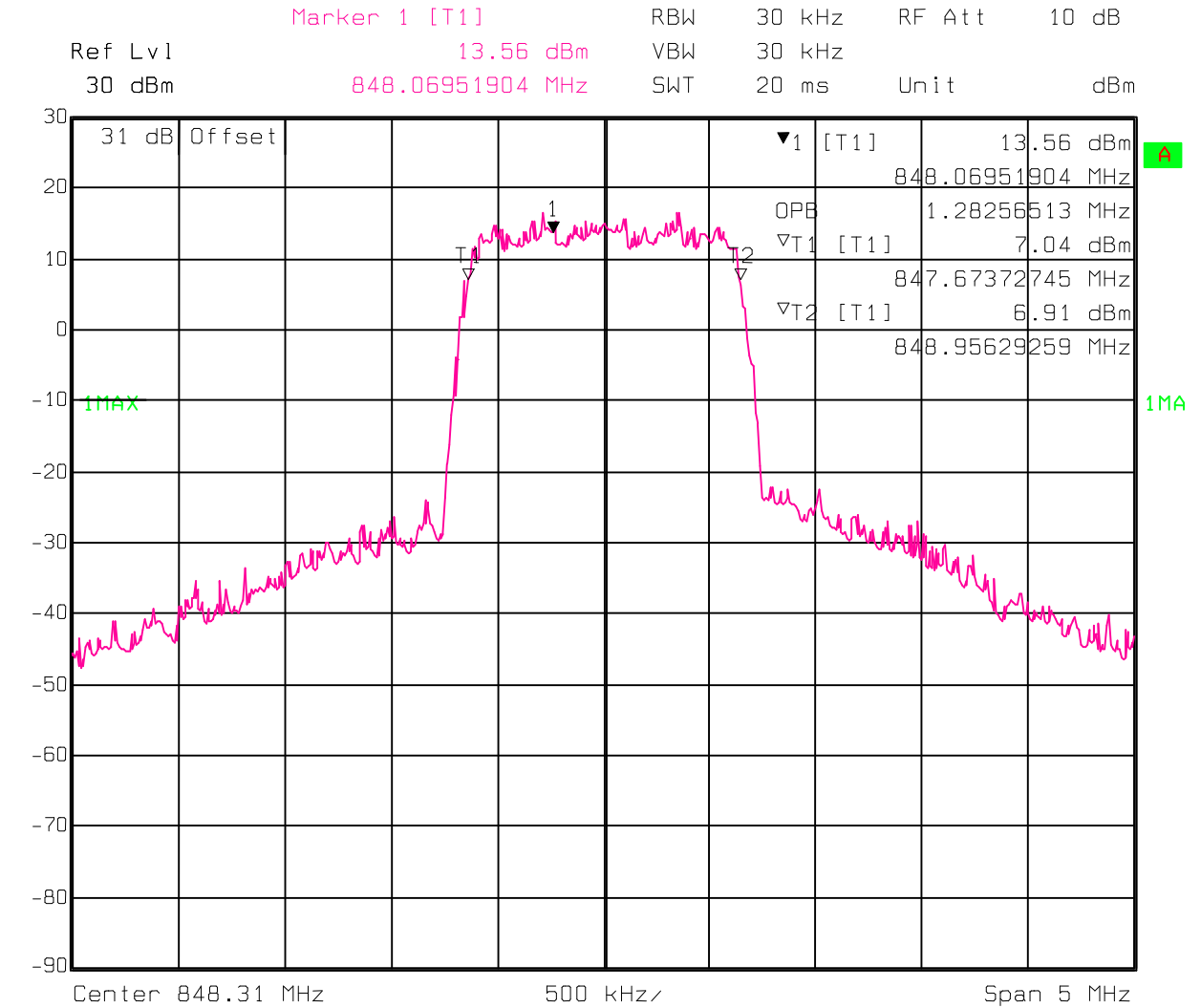
Date: 05.DEC.2005 15:27:10

Part 22 Mid Frequency Bandwidth



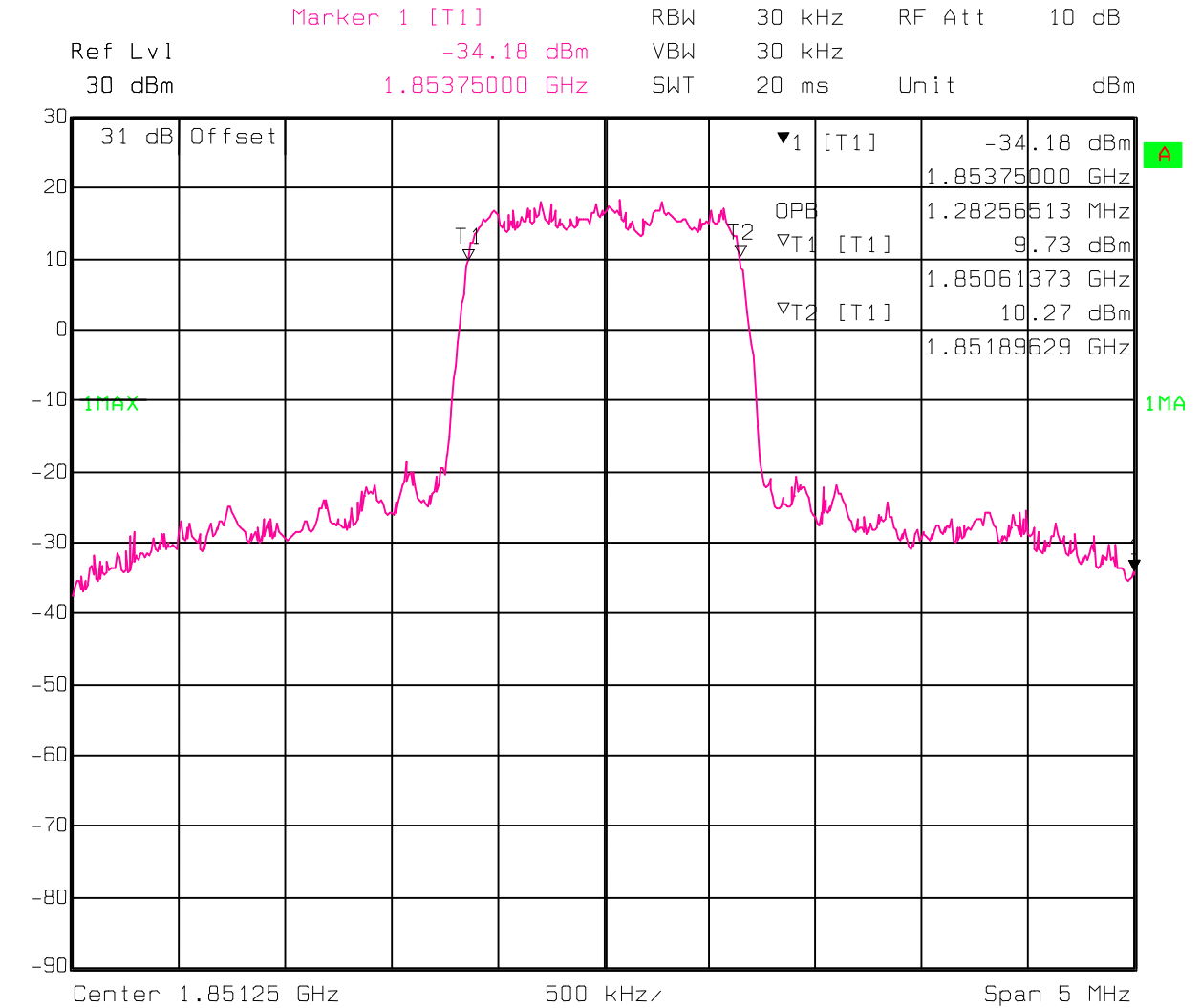
Date: 05.DEC.2005 15:27:54

Part 22 High Frequency Bandwidth



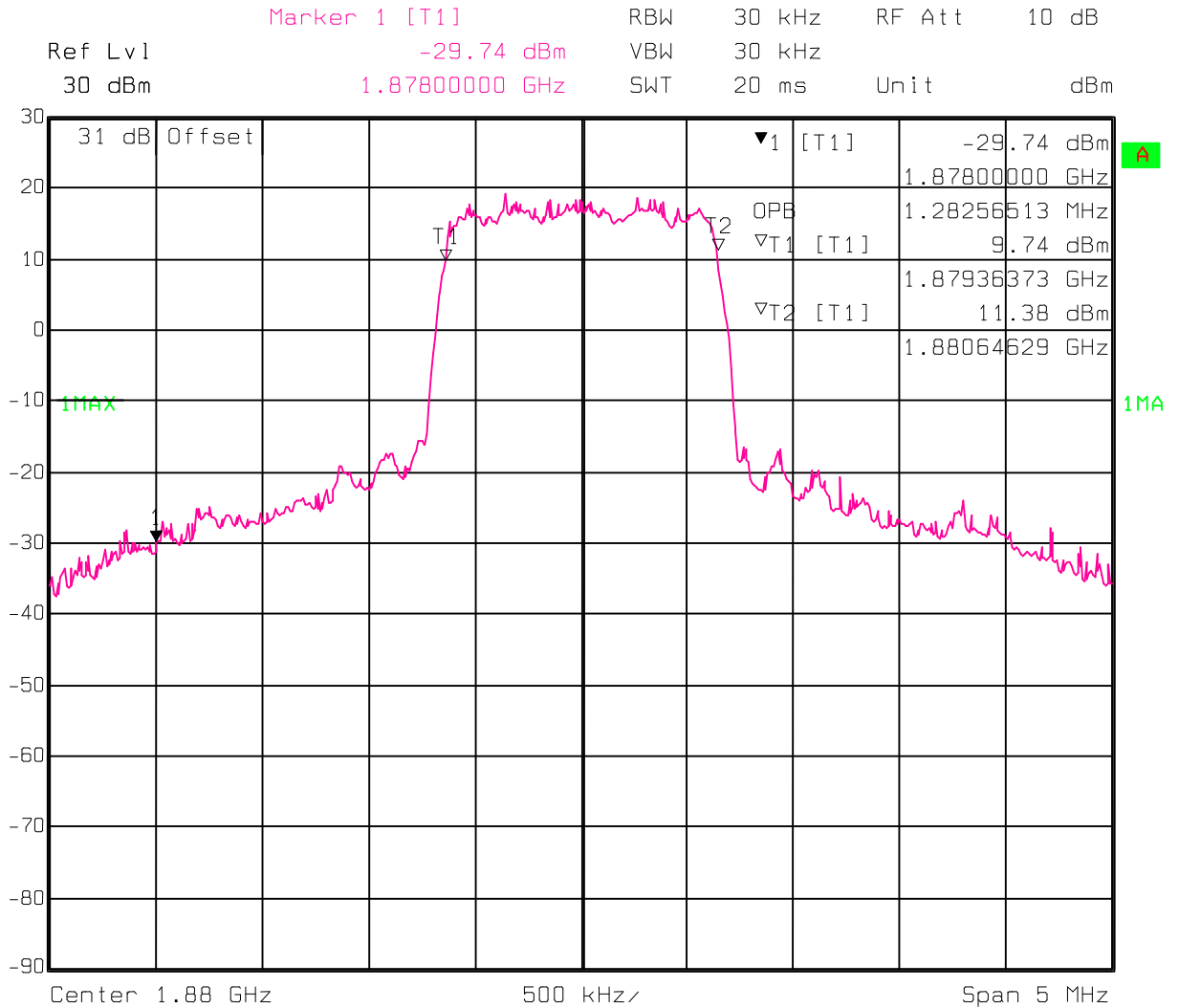
Date: 05.DEC.2005 15:32:34

Part 24 Low Frequency Bandwidth



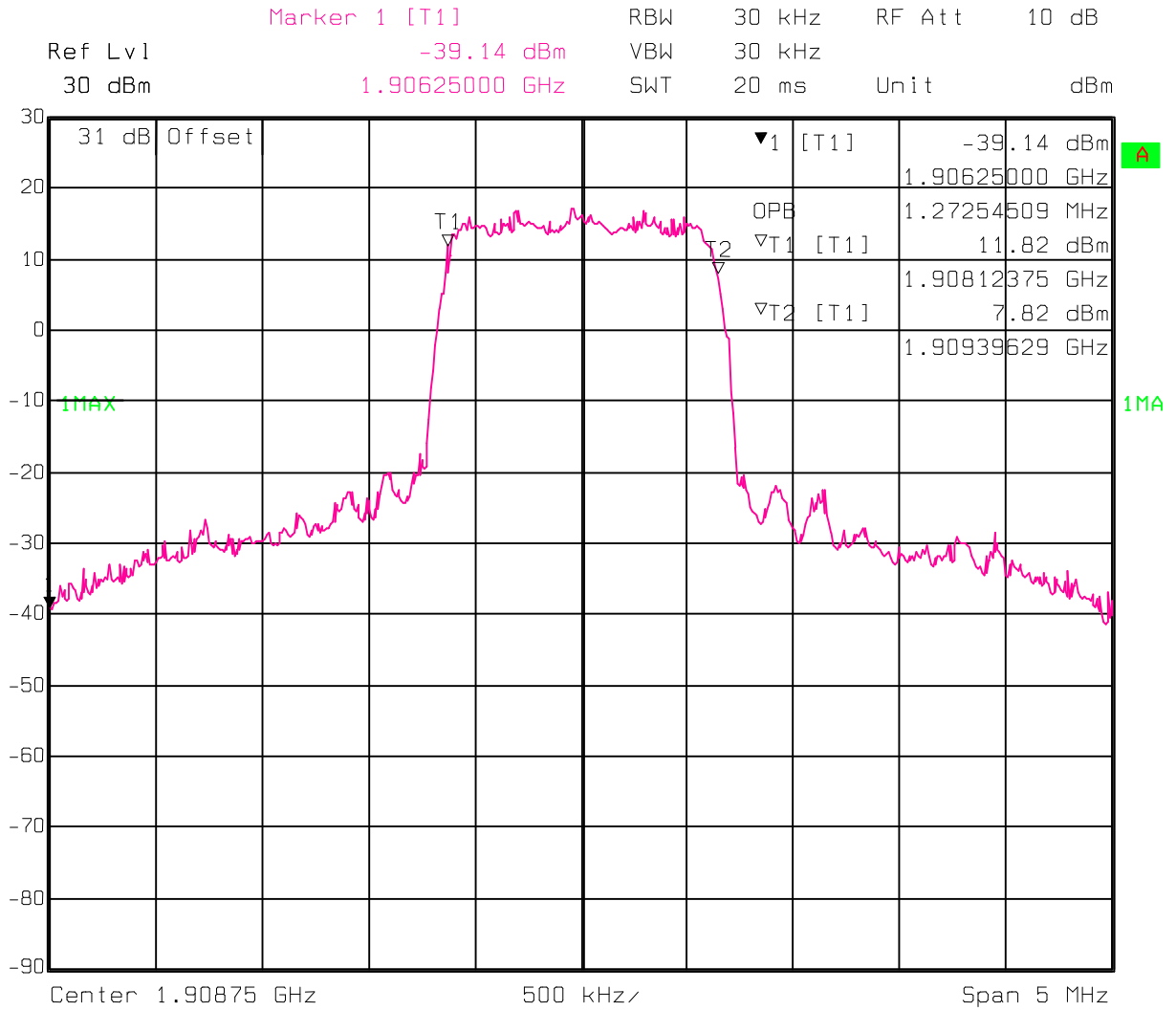
Date: 05.DEC.2005 15:23:19

Part 24 Mid Frequency Bandwidth



Date: 05.DEC.2005 15:24:47

Part 24 High Frequency Bandwidth

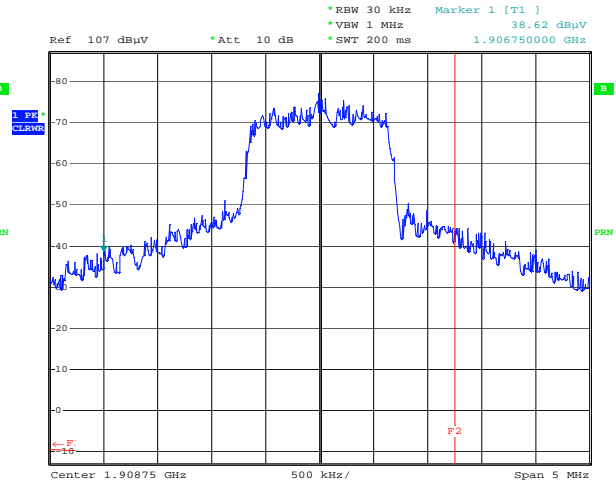
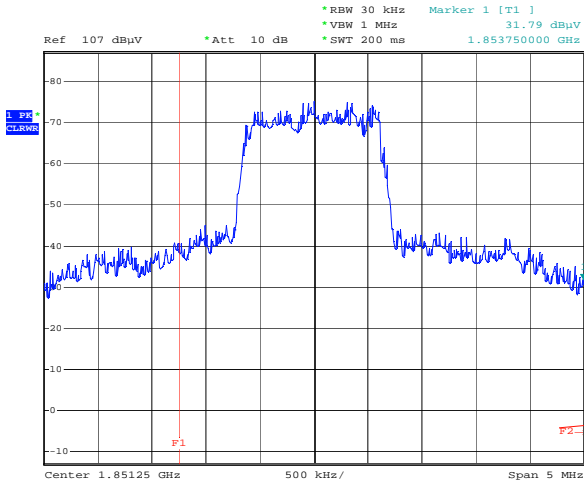


Date: 05.DEC.2005 15:25:54

Appendix B: PCS Frequency Stability

Bandedge plots from -30 °C to + 50 °C step 10°:

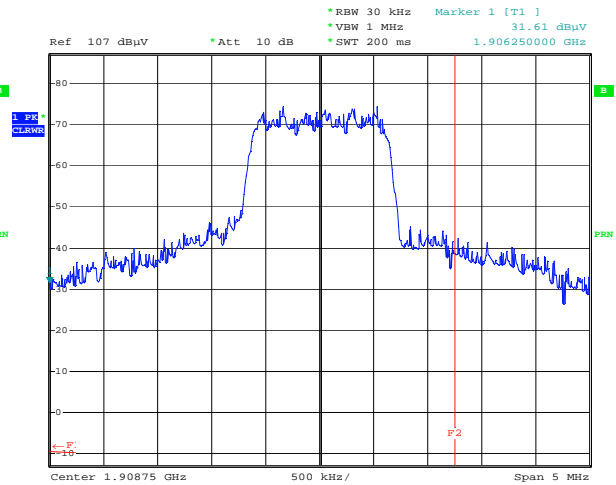
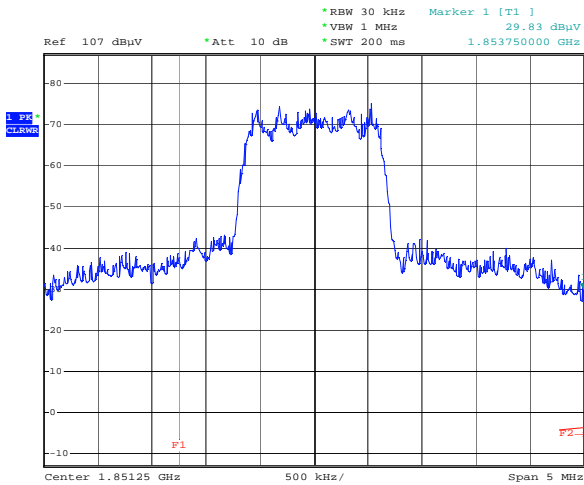
-30°C



Date: 23.FEB.2006 14:22:08

Date: 23.FEB.2006 14:21:31

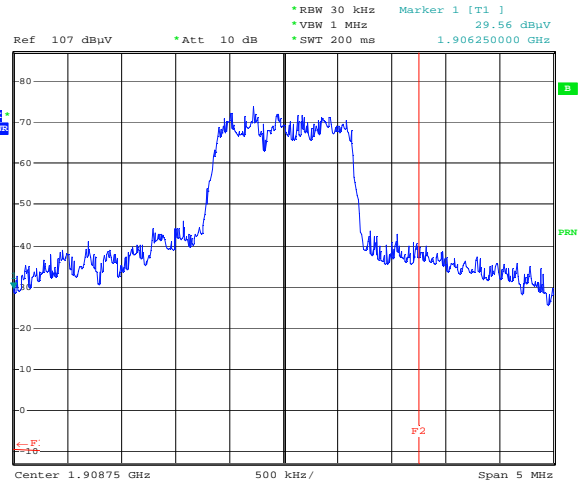
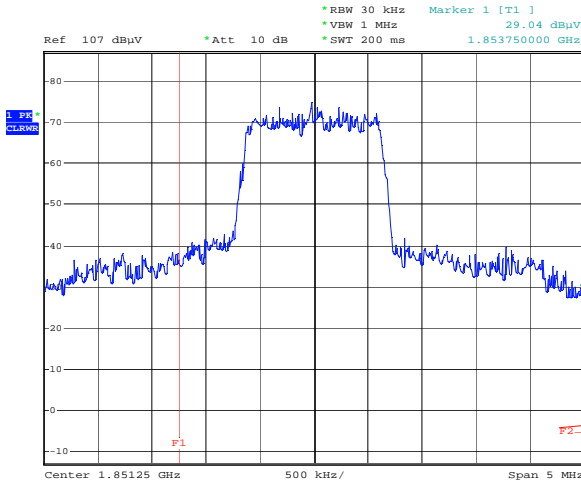
-20°C



Date: 23.FEB.2006 14:34:12

Date: 23.FEB.2006 14:34:41

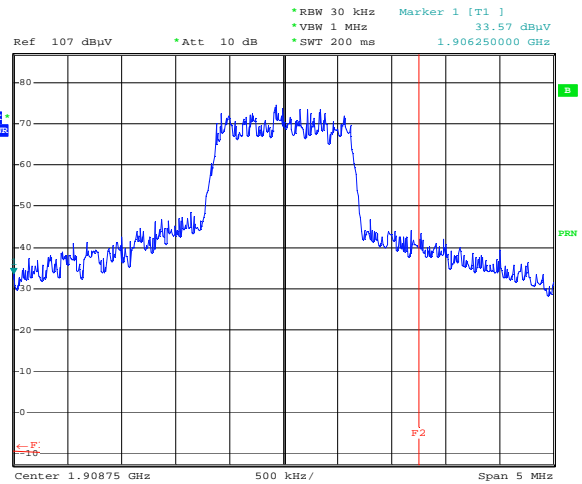
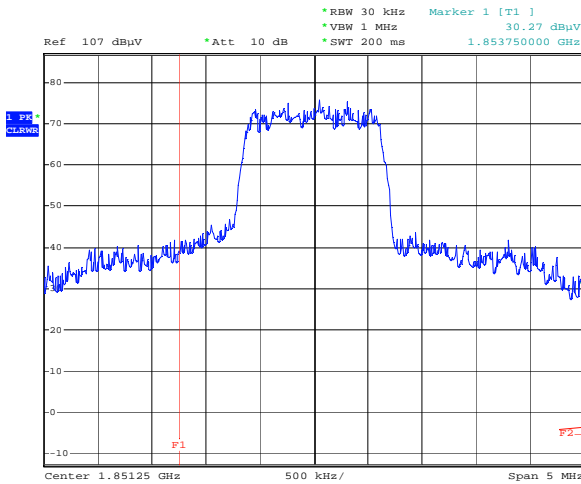
-10°C



Date: 23.FEB.2006 14:49:55

Date: 23.FEB.2006 14:49:28

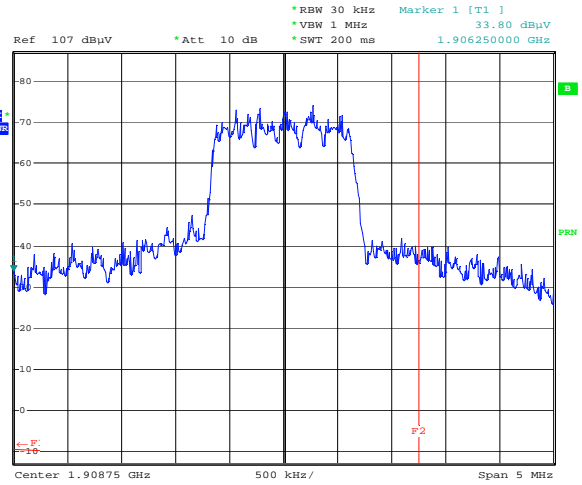
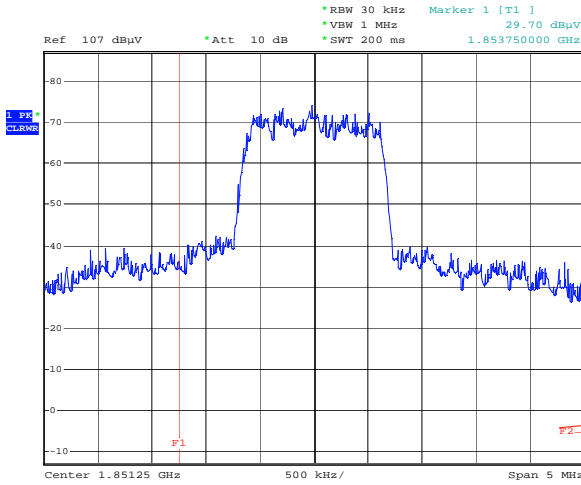
0°C



Date: 23.FEB.2006 15:00:05

Date: 23.FEB.2006 15:00:39

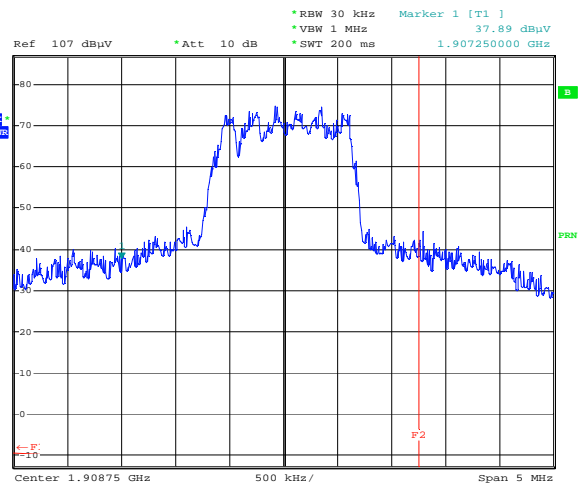
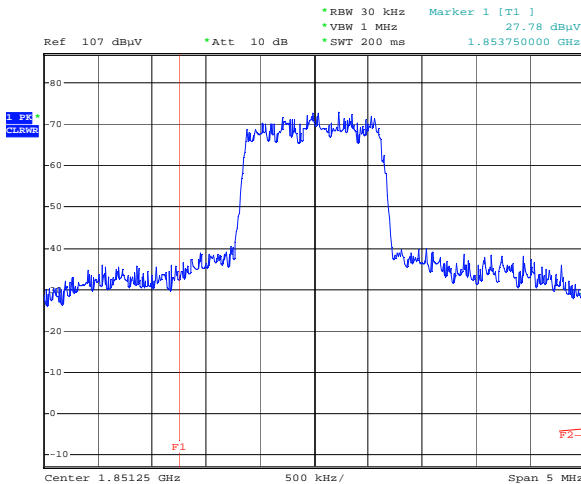
10°C



Date: 23.FEB.2006 15:42:00

Date: 23.FEB.2006 15:41:26

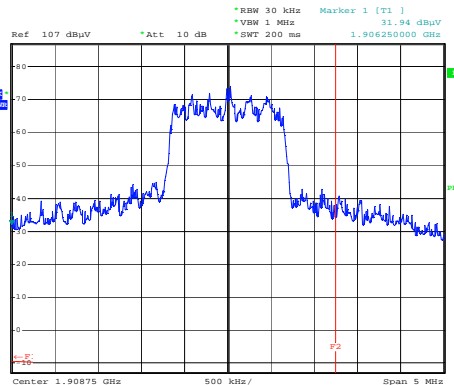
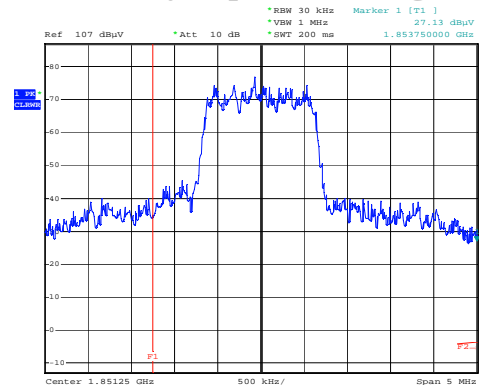
20°C Nominal Voltage



Date: 23.FEB.2006 13:08:54

Date: 23.FEB.2006 13:08:16

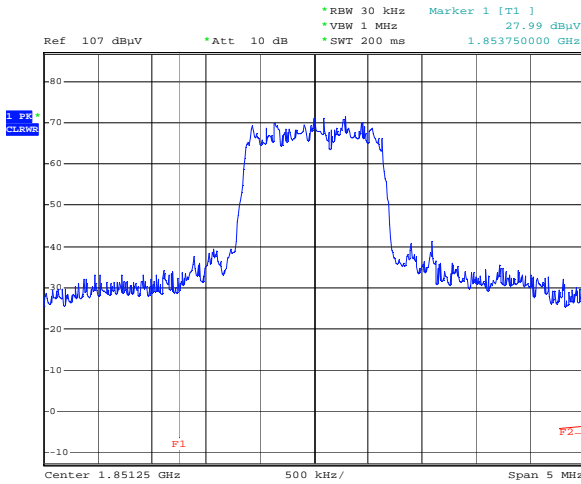
20°C Battery Expended Voltage (3.66Vdc)



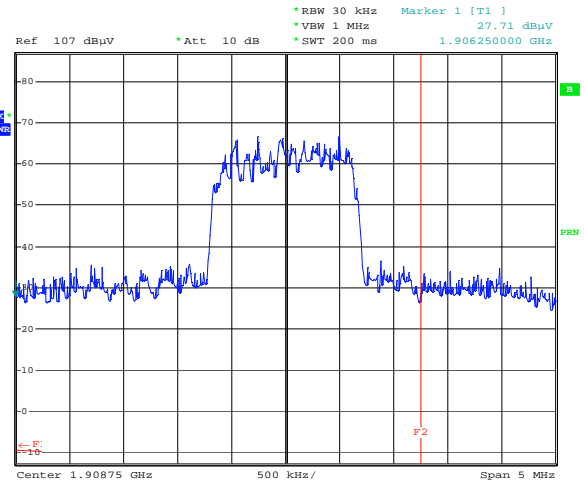
Date: 23.FEB.2006 15:55:39

Date: 23.FEB.2006 15:56:13

30°C

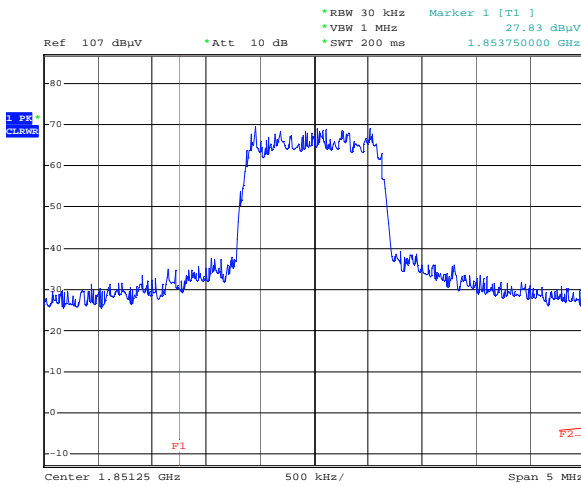


Date: 23.FEB.2006 13:16:13

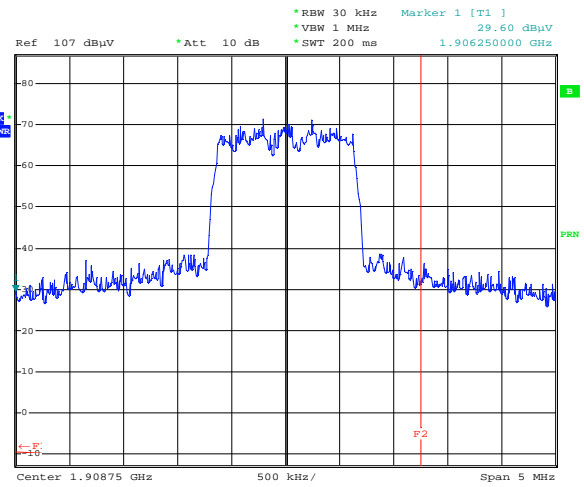


Date: 23.FEB.2006 13:17:48

40°C

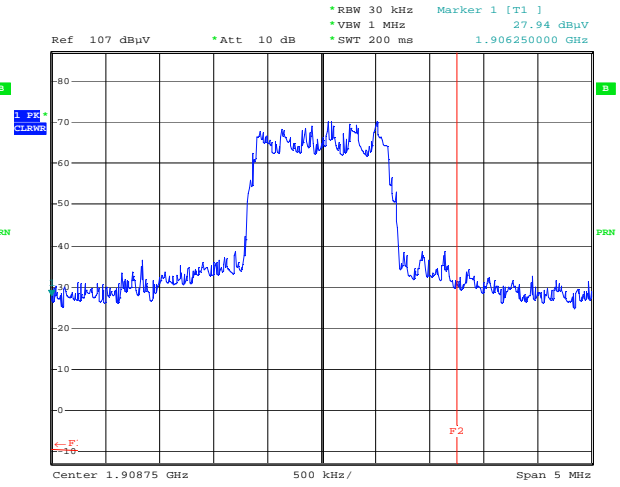
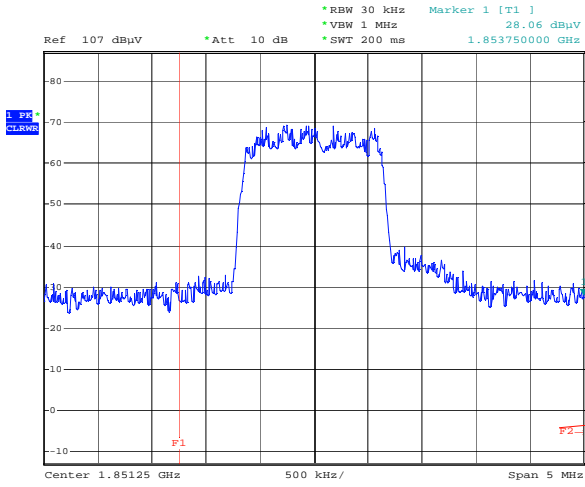


Date: 23.FEB.2006 13:29:56



Date: 23.FEB.2006 13:29:24

50°C

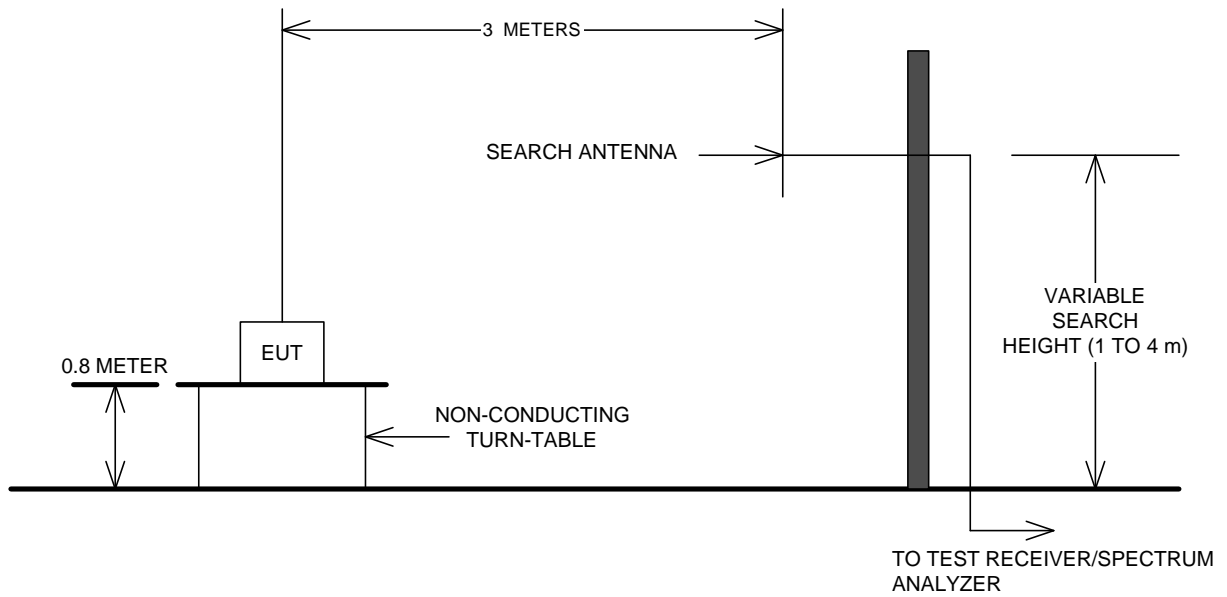


Date: 23.FEB.2006 13:47:06

Date: 23.FEB.2006 13:47:40

Appendix C : Block Diagram of Test Setups

Test Site For Radiated Emissions



Conducted Spurious Emissions, Output power, Occupied Bandwidth, Frequency Stability (EUT in environmental chamber)

