FCC Part 90 Report

Sub-part 2.1033 (c):

Equipment Identification

FCC ID: XUF217132-011MD

Date of Report

03 November 2009

The applicant has been cautioned as to the following:

15.21 Information to User.

The user's manual or instruction manual for an intentional radiator shall caution the user that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

15.27 (a) Special Accessories.

Equipment marketed to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed. Where special accessories, such as shielded cables and/or special connectors are required to enable an unintentional or intentional radiator to comply with the emission limits in this part, the equipment must be marketed with, i.e. shipped and sold with, those special accessories. However, in lieu of shipping or packaging the special accessories with the unintentional or intentional radiator, the responsible party may employ other methods of ensuring that the special accessories are provided to the consumer, without additional charge.

Information detailing any alternative method used to supply the special accessories for a grant of equipment authorization or retained in the verification records, as appropriate. The party responsible for the equipment, as detailed in § 2.909 of this chapter, shall ensure that these special accessories are provided with the equipment. The instruction manual for such devices shall include appropriate instructions on the first page of text concerned with the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.

Table of Contents

List of General Information Required for Type Acceptance

In Accordance with FCC Rules and Regulations,
Volume II, Part 2 and to
Part 90 Sub Part S

Sub-part		
2.1033 (c)(1)	Name and Address of Applicant:	
	Mitec Telecom Inc. 3299 Jean-Baptiste-Deschamps Boulevard Lachine, Quebec, H8T 3E4	
	Vendor:	
	Applicant	
2.1033(c)(2):	FCC ID:	XUF217132-001MD
2.924	Model No	217132-001MD
	Technical Description:	
2.1033(c)(4):	Type of Emission:	AMP
2.1033(c)(5)	Frequency Range, MHz:	851MHz-869MHz
2.1033(c)(6)	Power Rating, Watts:	24 Watts
	Switchable _____ Adjustable x N/A _____	
2.1033(c)(7)	Maximum Power Rating, Watts:	24 Watts
2.1033(c)(8)	Voltages & Currents in all Elements in Final R.F. Stage, Including Final Transistor or Solid State Device: Collector Voltage, VAC 115V = per manual	

Open Exhibits

2.1033	Cover Letter: Please see Attached Exhibit 1
2.1033	Cover Letter Confidentiality: Please see Attached Exhibit 2
2.1033	Cover Letter Temperature Range: Please see Attached Exhibit 3
2.1033	External Photo's: Please see Attached Exhibits 4
2.1033	Photo FCC ID: Please see Attached Exhibit 5
2.1033	Tune-Up Procedure: Please see Attached Exhibit 6
2.1033	Test Report: Please see Attached Exhibit 7 (This doc.)
2.1033	Installation Instruction: Please see Attached Exhibit 12

Confidenital Exhibits

2.1033	Internal Photo's: Please see Attached Exhibit 8
2.1033	System Block Diagram: Please see Attached Exhibit 9
2.1033	Schematics: Please see Attached Exhibit 10
2.1033	Technical Description: Please see Attached Exhibit 11
2.1033	Parts List: Please see Attached Exhibit 13
2.1033	Technical Circuit Description: Please see Attached Exhibit 14

2.1033(c)(14) **Test Report:**

Test Report Follows

Sub-part
2.1033 (c) : Test and Measurement Data

All tests and measurement data shown were performed in accordance with FCC Rules and Regulations, Volume II; Part 2, Sub-part J, Sections 2.1046, 2.1049, 2.1051, 2.1053, 2.1055 and the following individual Parts:

21	Domestic Public Radio Services	___
24	Personal Communications Services	___
27	Miscellaneous Wireless Communication Services	___
22E	Broadband PCS	___
22.901	Special Provisions for Alternative Cellular Technologies and and Auxiliary Services	___
23	International Fixed Public Radio Communications Service	___
74	Experimental, Auxiliary & Special Broadcast and Other Program Distribution Services	___
74H	Low Power Auxiliary Stations	___
80	Stations in the Maritime Service	___
80.209 (5)(I)	Transmitter Frequency Tolerances, 156–162 MHz, Coast Stations	___
80K	Private Coast Stations & Marine Utility Stations	___
80S	Compulsory R/T Installations for Small Passenger Boats	___
80T	Radio Telegraph Installation Required for Vessels on the Great Lakes	___
80U	Radio Telegraph Installation Required by the Bridge–to–Bridge Act	___
87	Aviation Services	___
90	Private Land Mobile Radio Services	X
94	Private Operational–Fixed microwave Services	___
95	General Mobile Radio Service	___

Prepared (also subject responsible if other)		No.		
EWU/PR/HD Keith A. Goshia				
Approved	Checked	Date	Rev	Reference
		11/3/2009	A	XUF217132-001MD

General Information

1. Spurious radiation was measured at three (3) meters.

2. The normal modes of modulation are:

   (a) Paging AMP X

   (b) Wideband Data ____

   (c) SAT ____

   (d) ST ____

   (e) SAT + Voice ____

   (f) SAT + DTMF ____

   (g) 16QAM or QPSK WCDMA ____

   (h) Pi/4 DQPSK ____

   (i) NAMPS Voice ____

   (j) NAMPS DSAT ____

   (k) NAMPS ST ____

Standard Test Conditions
and
Engineering Practices

Except as noted herein, the following conditions and procedures were observed during the testing:

Room Temperature	= 25 ± 5° C
Room Humidity	= 20–50%
Supply Voltage	115 VAC

Prior to testing, the E.U.T. was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst-case measurements.

Name of Test: R.F. Power Output & Occupied Bandwidth

Paragraph: 47 CFR 2.1046 & 2.1049

Guide: EIA Standard RS 152B, Paragraph 3.3

Test Condition: Standard Temperature & Humidity

Test Equipment: As per Attached Appendix J

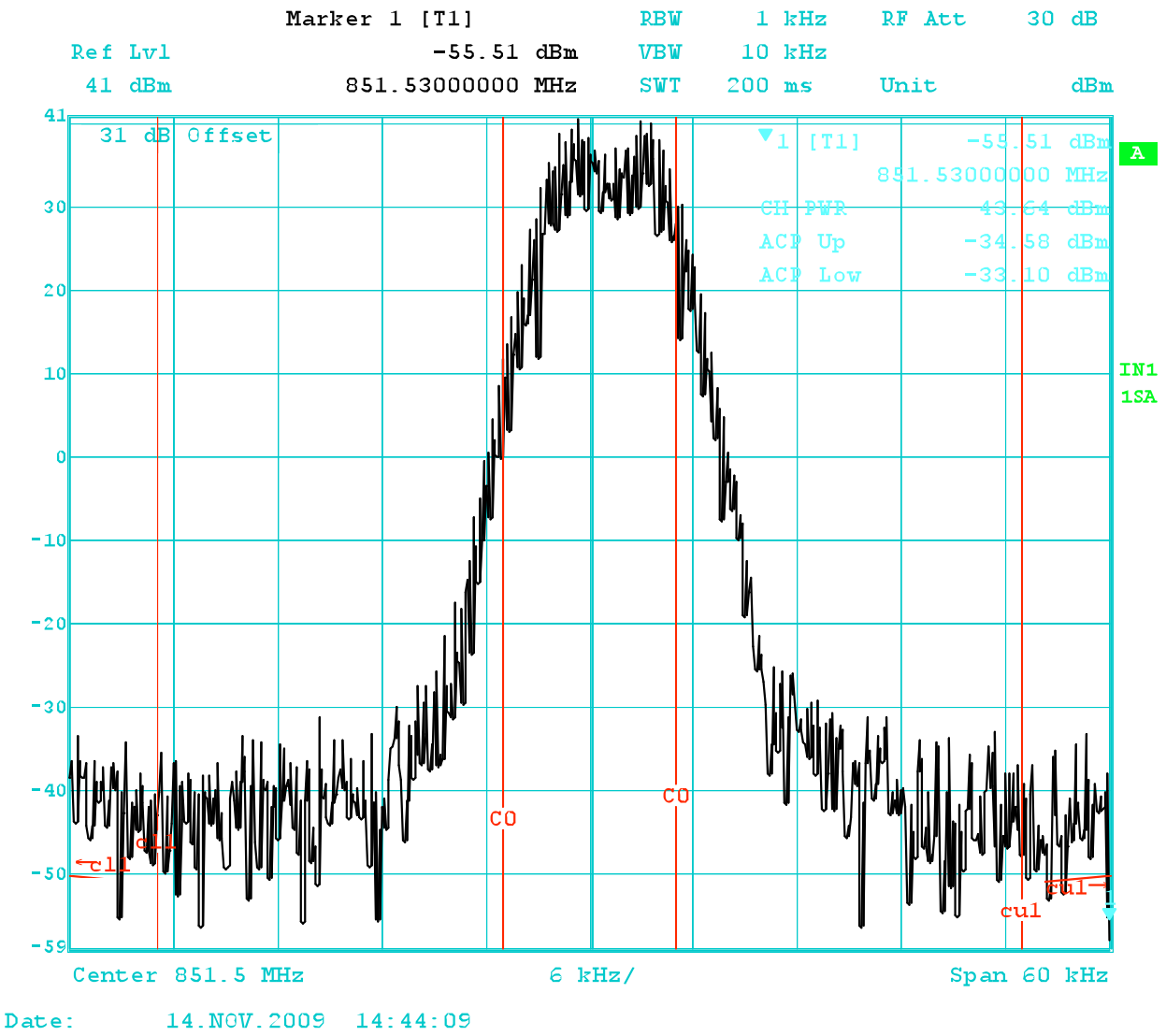
Measurement Procedures

1. The E.U.T. was connected to a directional coupler and a resistive coaxial attenuator of normal load impedance, and the modulated output power was measured by means of an R.F. power meter.

2. Measurement accuracy is ±3%.

Measurement Results

Nominal, MHz	Channel	Band	R.F. Power Output, Watts	
			Low Power	High Power
851.5Mhz	Low	Class 4	2.0	24
868.5Mhz	High	Class 4	2.0	24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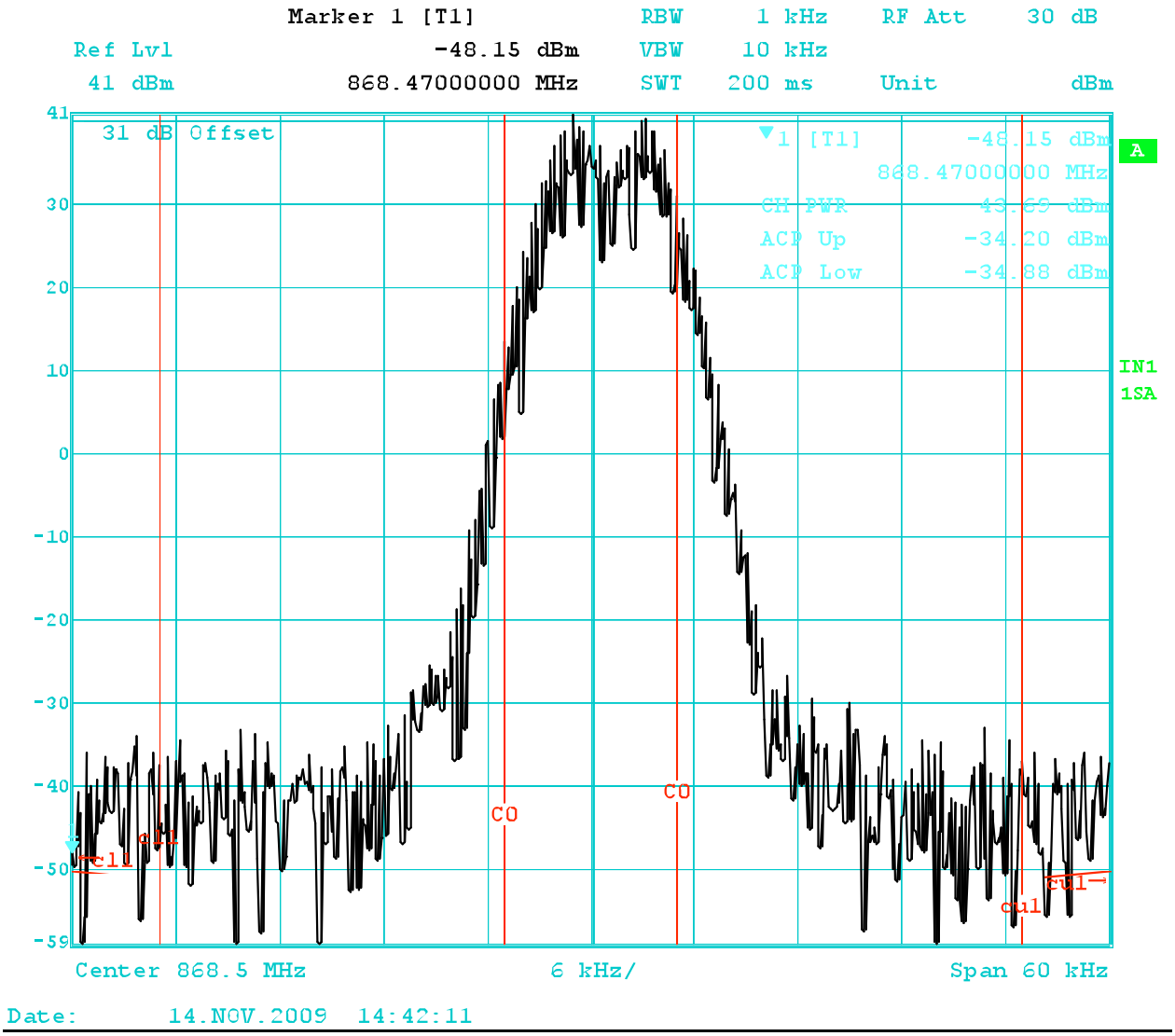
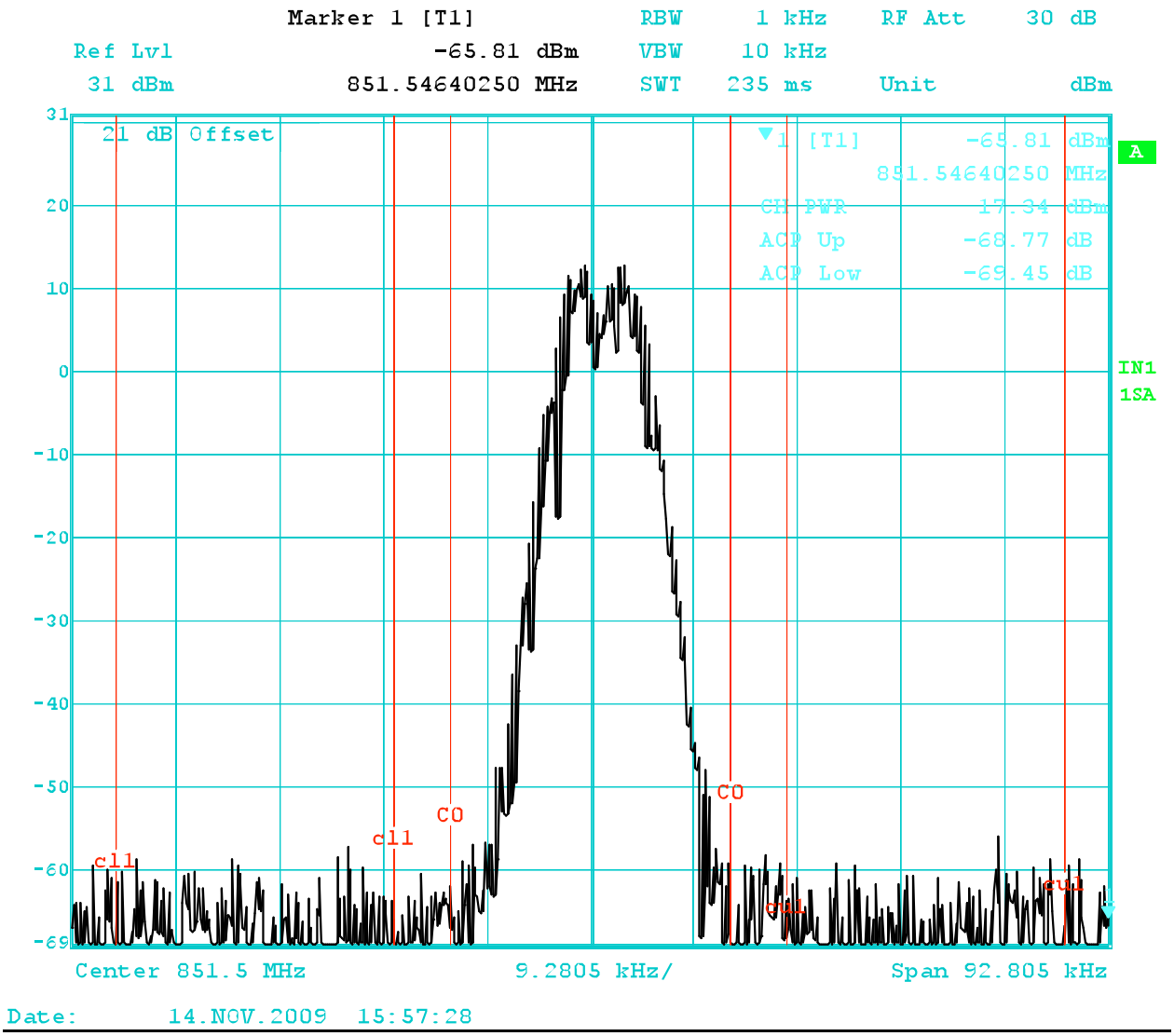
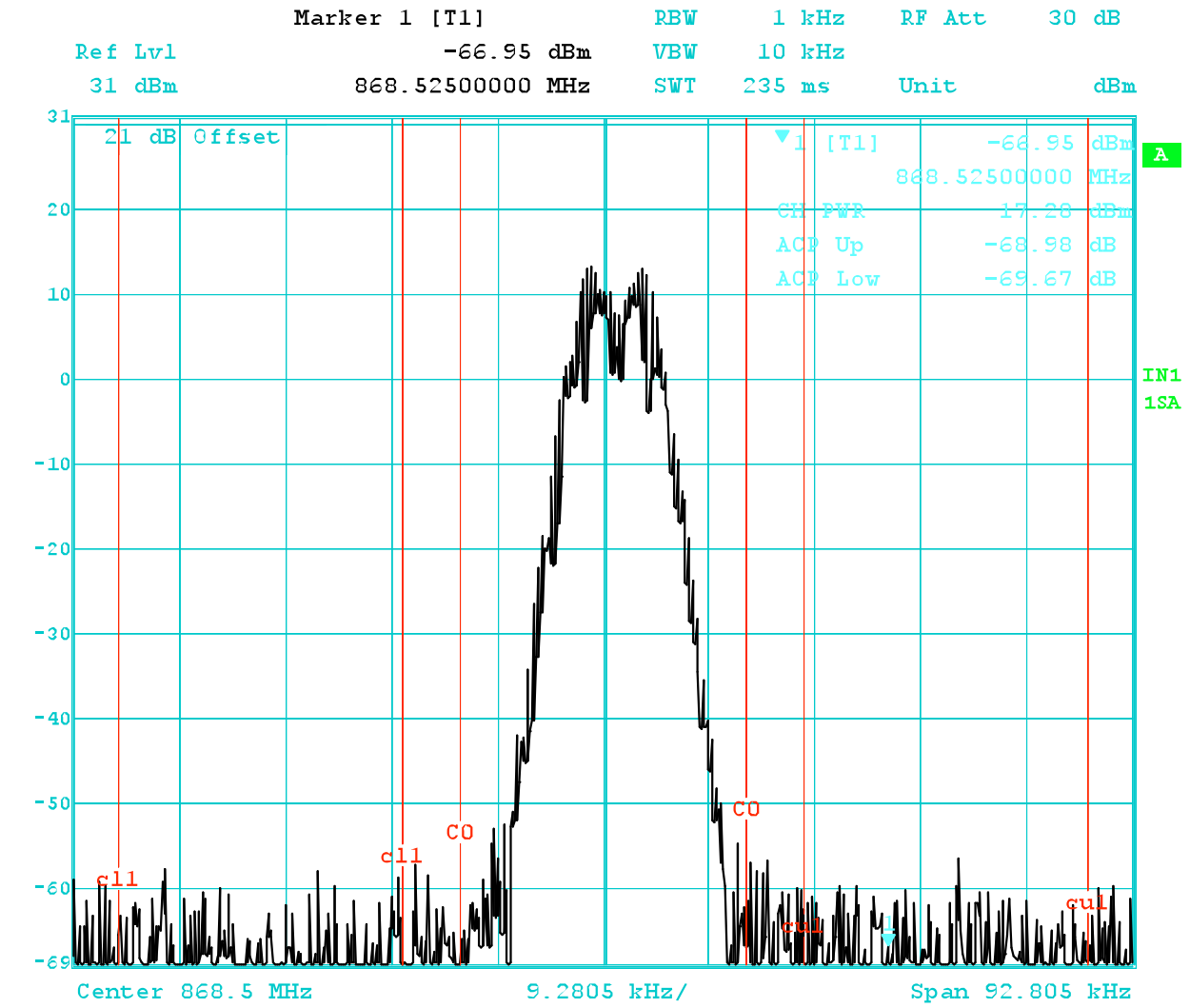
RBW 1 kHz
RF Att 30 dB
Ref Lvl
-55.51 dBm
VBW 10 kHz
41 dBm
851.53000000 MHz
SWT 200 ms
Unit dBm
31 dB Offset
1 [T1] -55.51 dBm
851.53000000 MHz
CH PWR 43.64 dBm
ACP Up -34.58 dBm
ACP Low -33.10 dBm
A
IN1
1SA
41
30
20
10
0
-10
-20
-30
-40
-50
-59
C0
C0
cul
cul
cul
cul
Center 851.5 MHz
6 kHz/
Span 60 kHz
Date: 14.NOV.2009 14:44:09


Marker 1 [T1]
-48.15 dBm
868.47000000 MHz
RBW 1 kHz
VBW 10 kHz
SWT 200 ms
RF Att 30 dB
Unit dBm
Ref Lvl
41 dBm
31 dB Offset
1 [T1] -48.15 dBm
868.47000000 MHz
CH PWR 43.69 dBm
ACP Up -34.20 dBm
ACP Low -34.88 dBm
A
IN1
1SA
41
30
20
10
0
-10
-20
-30
-40
-50
-59
C0
C0
Center 868.5 MHz
6 kHz/
Span 60 kHz
Date: 14.NOV.2009 14:42:11

Signal Generator Input: The next (2) input signals below are the maximum level signal provided to the input of the device.

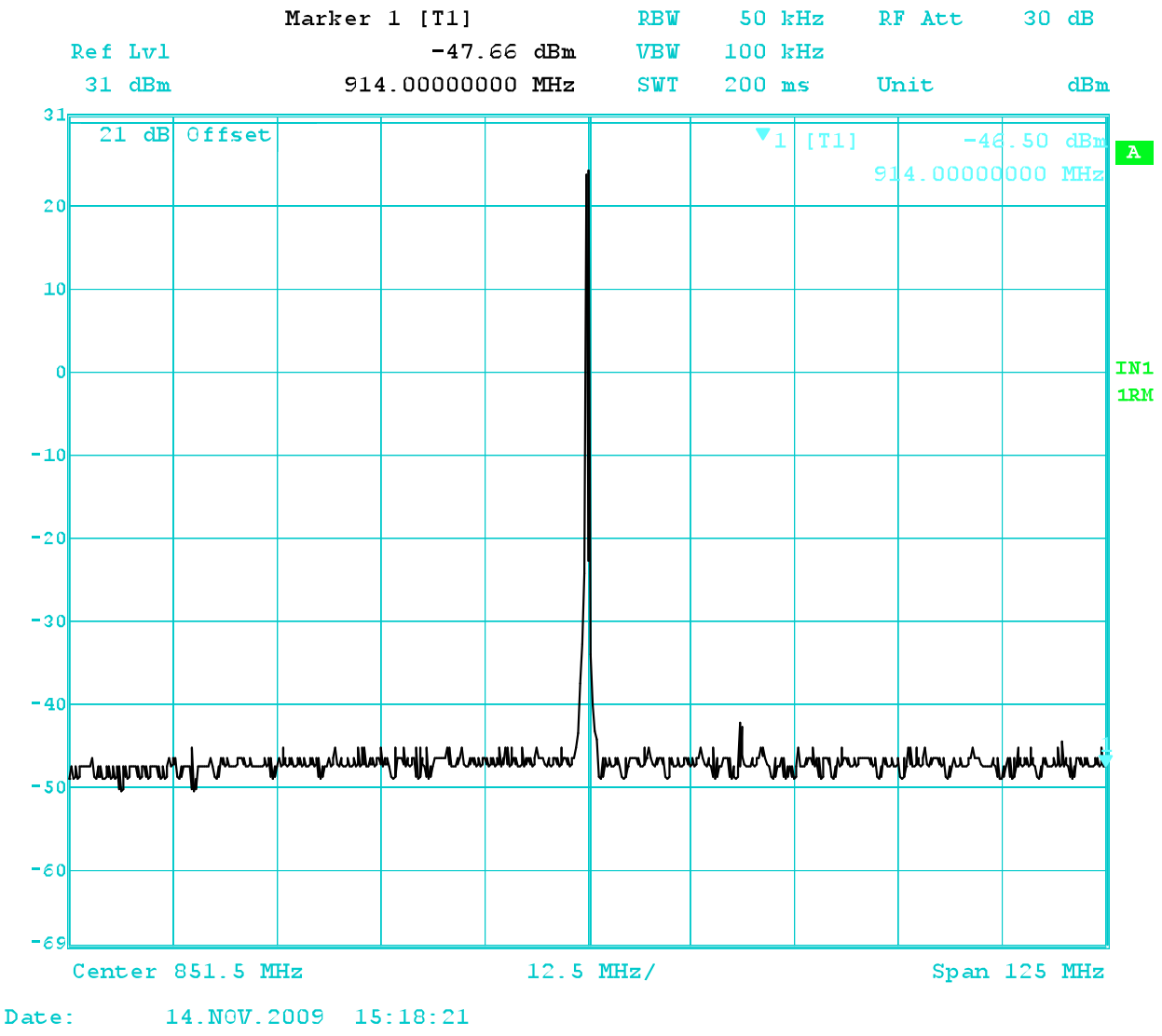


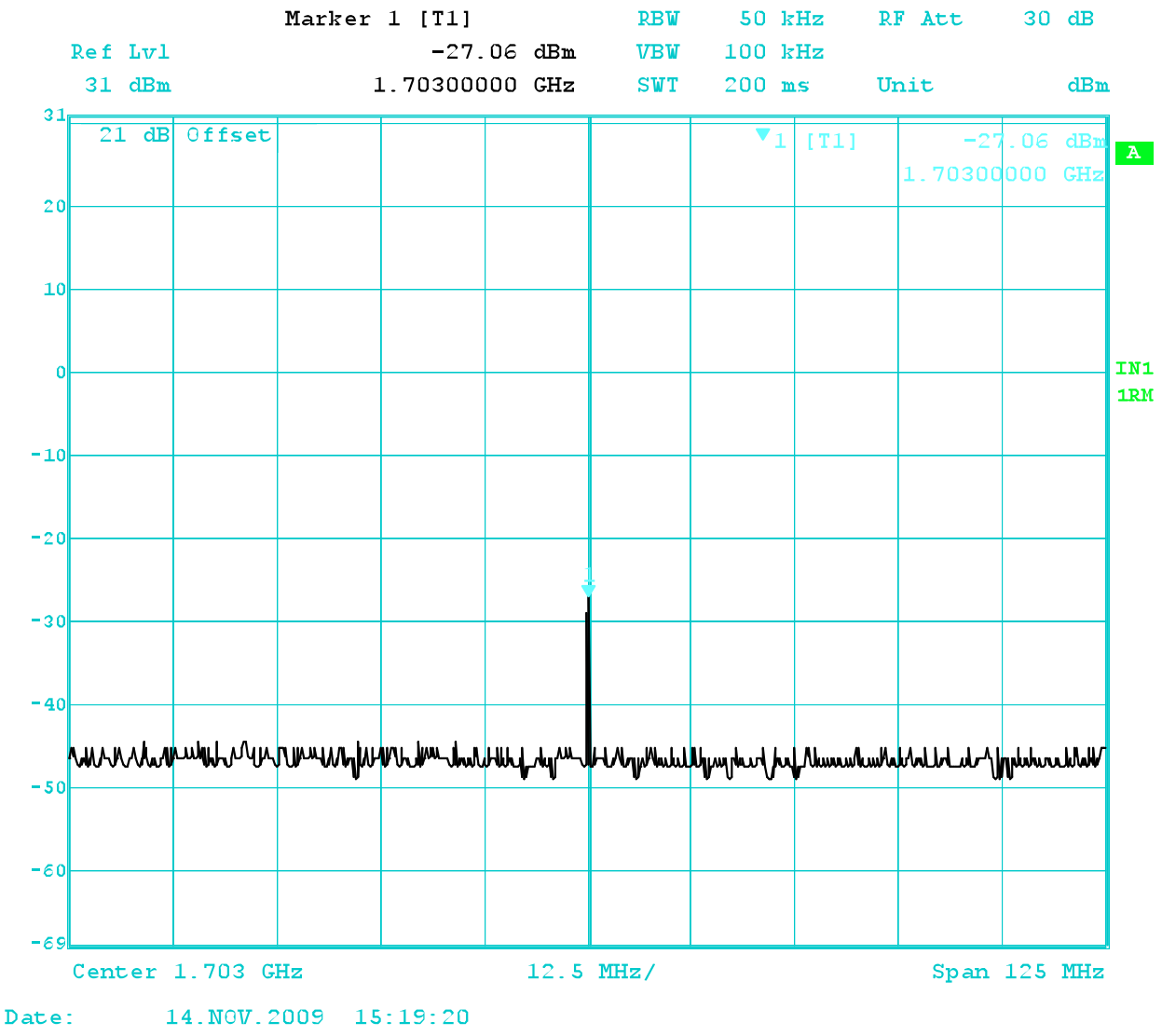

Marker 1 [T1]
RBW 1 kHz
RF Att 30 dB
Ref Lvl
-66.95 dBm
VBW 10 kHz
31 dBm
868.52500000 MHz
SWT 235 ms
Unit dBm
21 dB Offset
1 [T1] -66.95 dBm
868.52500000 MHz
CH PWR 17.28 dBm
ACP Up -68.98 dB
ACP Low -69.67 dB
A
IN1
1SA
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
C11
C11
C0
C0
C11
C11
Center 868.5 MHz
9.2805 kHz/
Span 92.805 kHz
Date: 14.NOV.2009 15:56:27

Name of Test:	Spurious Emissions at Antenna Terminals
Paragraph:	47 CFR 2.1051, 22.917(b)
Guide:	EIA Standard RS 152B, Paragraph 17
Test Condition:	Standard Temperature & Humidity
Test Equipment:	As per Attached Appendix J

Measurement Procedures

1. The E.U.T. was connected, through a directional coupler, a 30 dB coaxial attenuator then to a Rohde & Schwarz Spectrum Analyzer.
2. Measurements were made over the range from 1Ghz to 20 Ghz for the worst case modulation at the highest R.F. power settings.
3. All other emissions were 20 dB or more below the limit.
4. Spectrum analyzer bandwidth was set to section 22.917 (h)(1) & (2) as applicable.
5. Measurement Results**: *All emissions are 30dB below and more*.**


Marker 1 [T1]
RBW 50 kHz
RF Att 30 dB
Ref Lvl
-47.66 dBm
VBW 100 kHz
31 dBm
914.00000000 MHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-46.50 dBm
914.00000000 MHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 851.5 MHz
12.5 MHz/
Span 125 MHz
Date: 14.NOV.2009 15:18:21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RBW 50 kHz
RF Att 30 dB
Ref Lvl
-27.06 dBm
VBW 100 kHz
31 dBm
1.70300000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-27.06 dBm
1.70300000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 1.703 GHz
12.5 MHz/
Span 125 MHz
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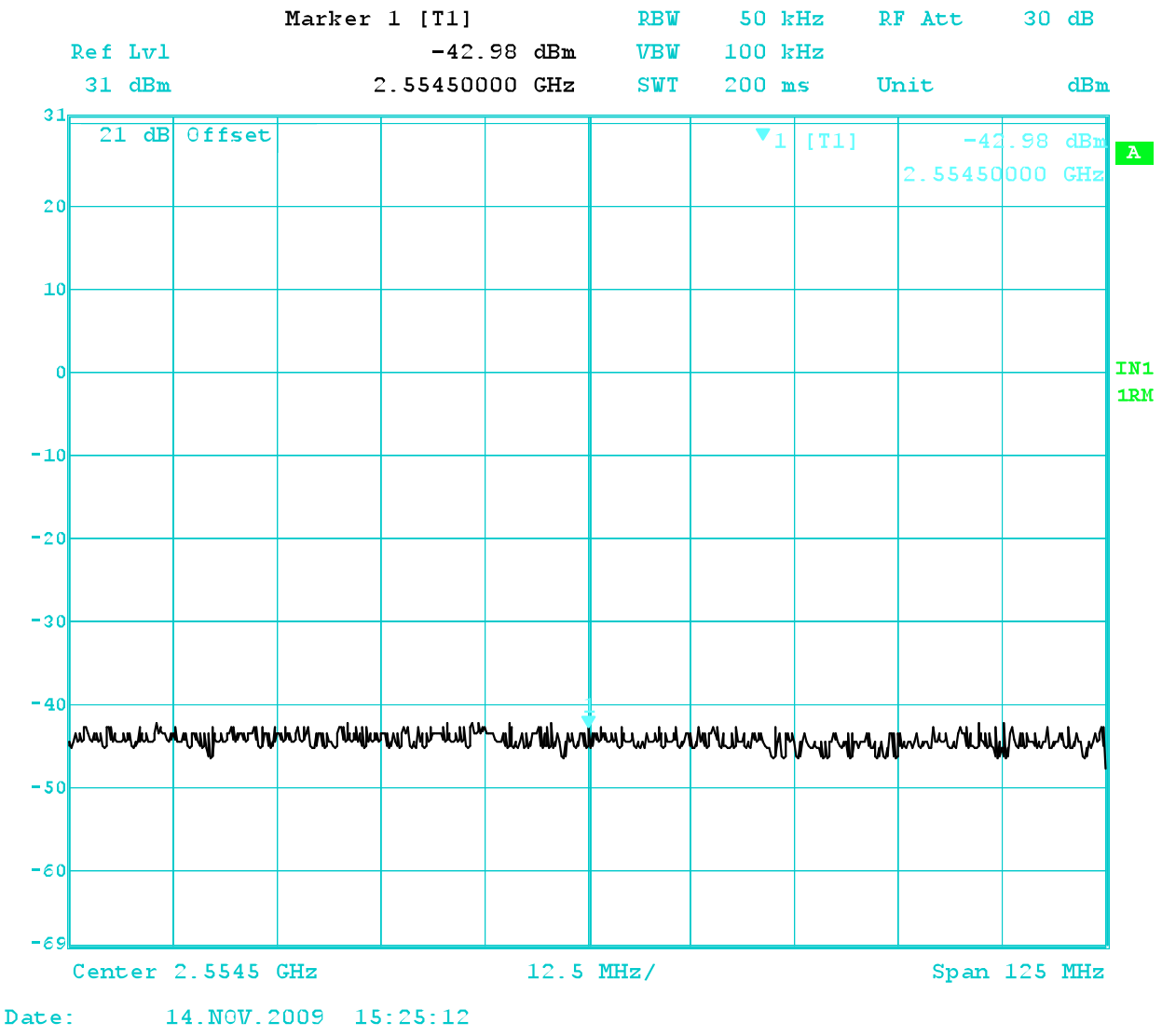
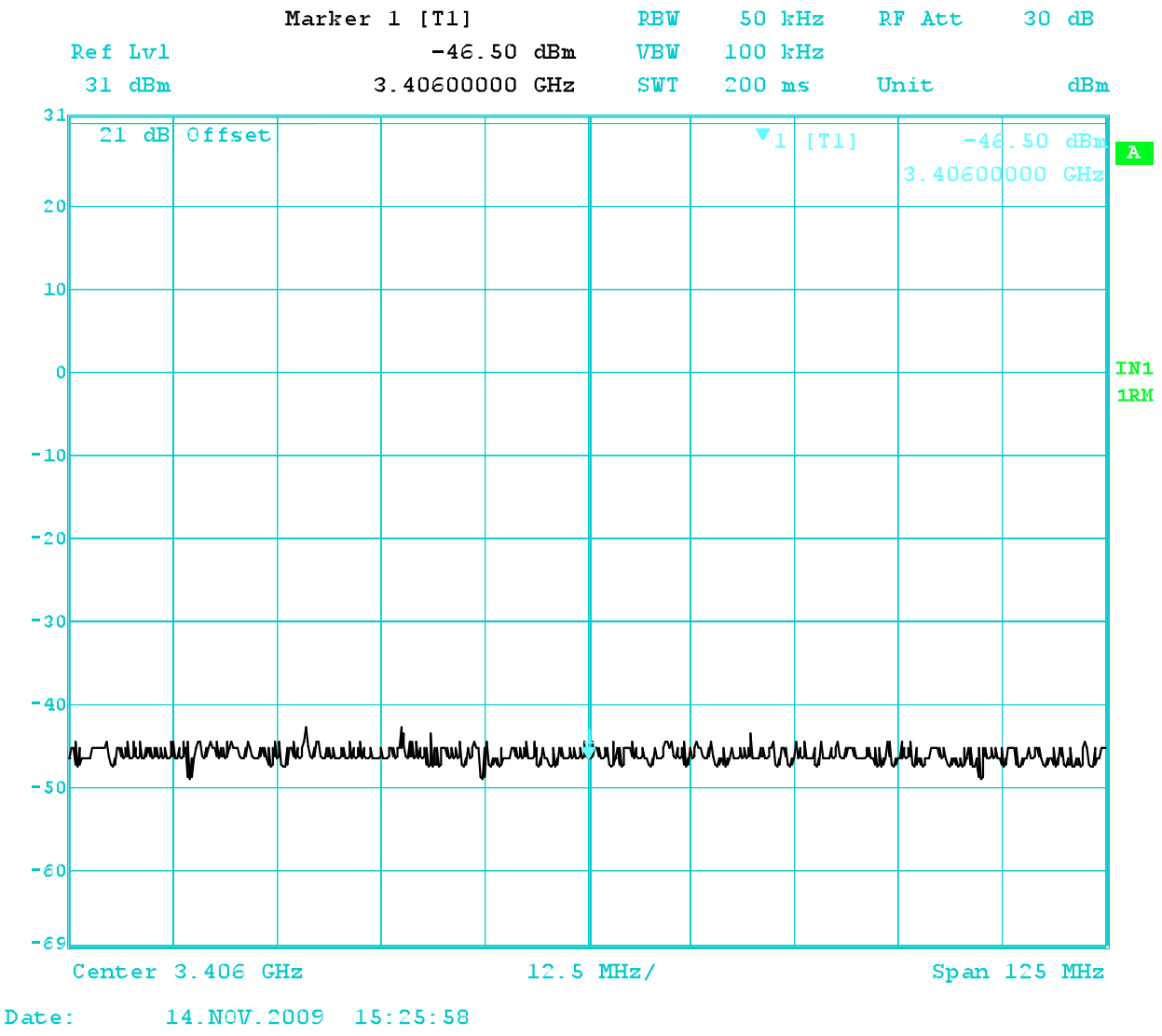
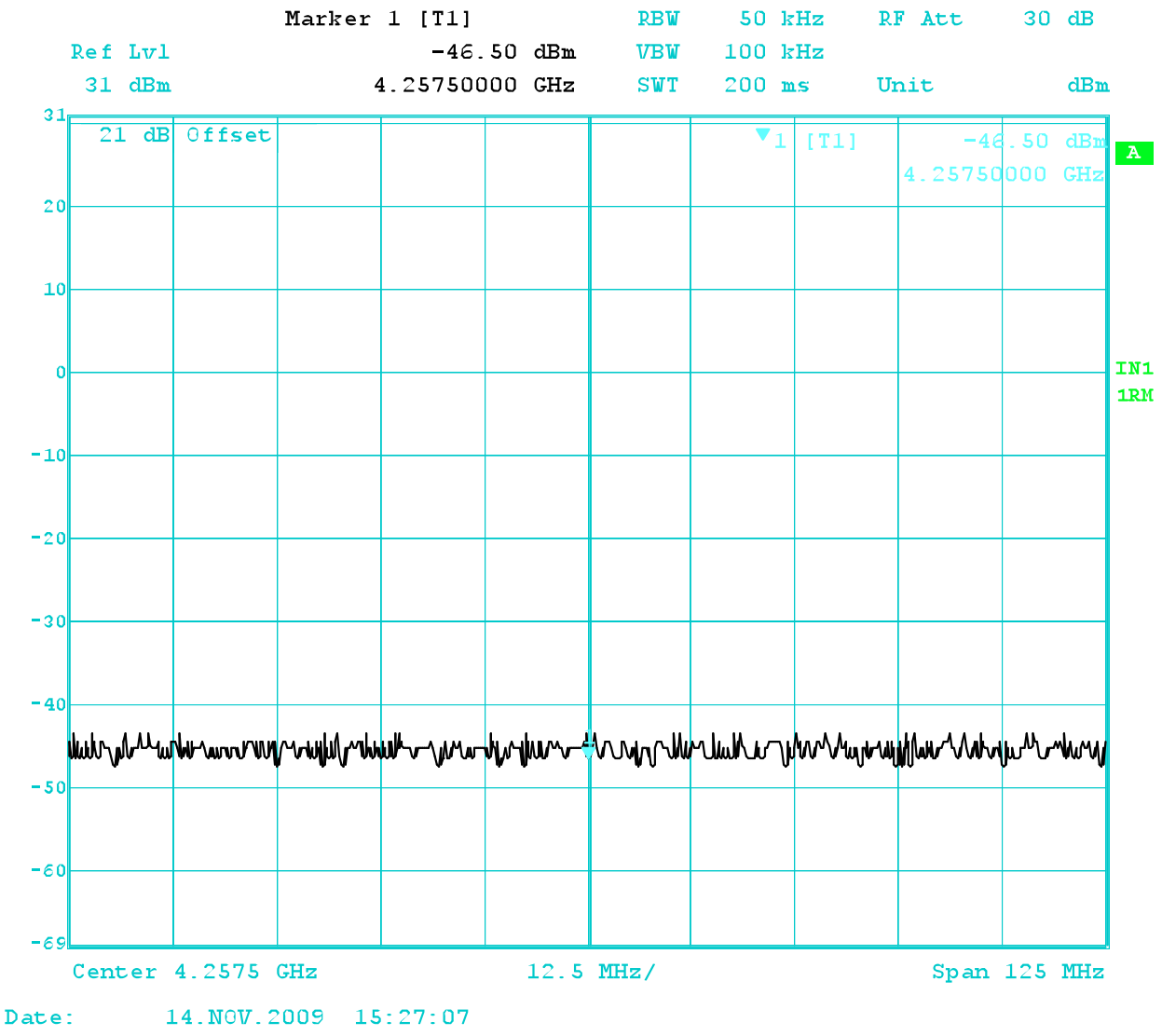
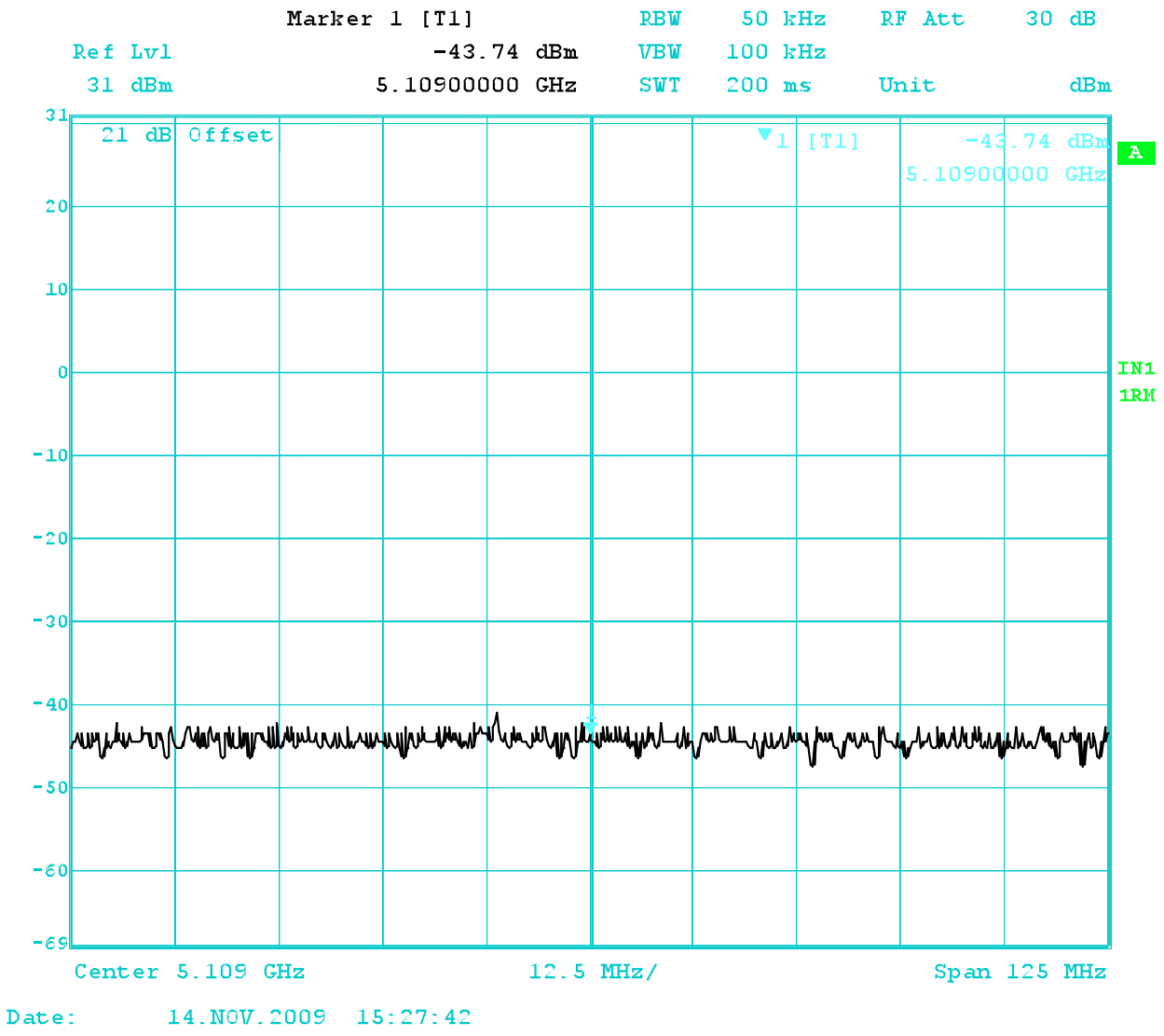
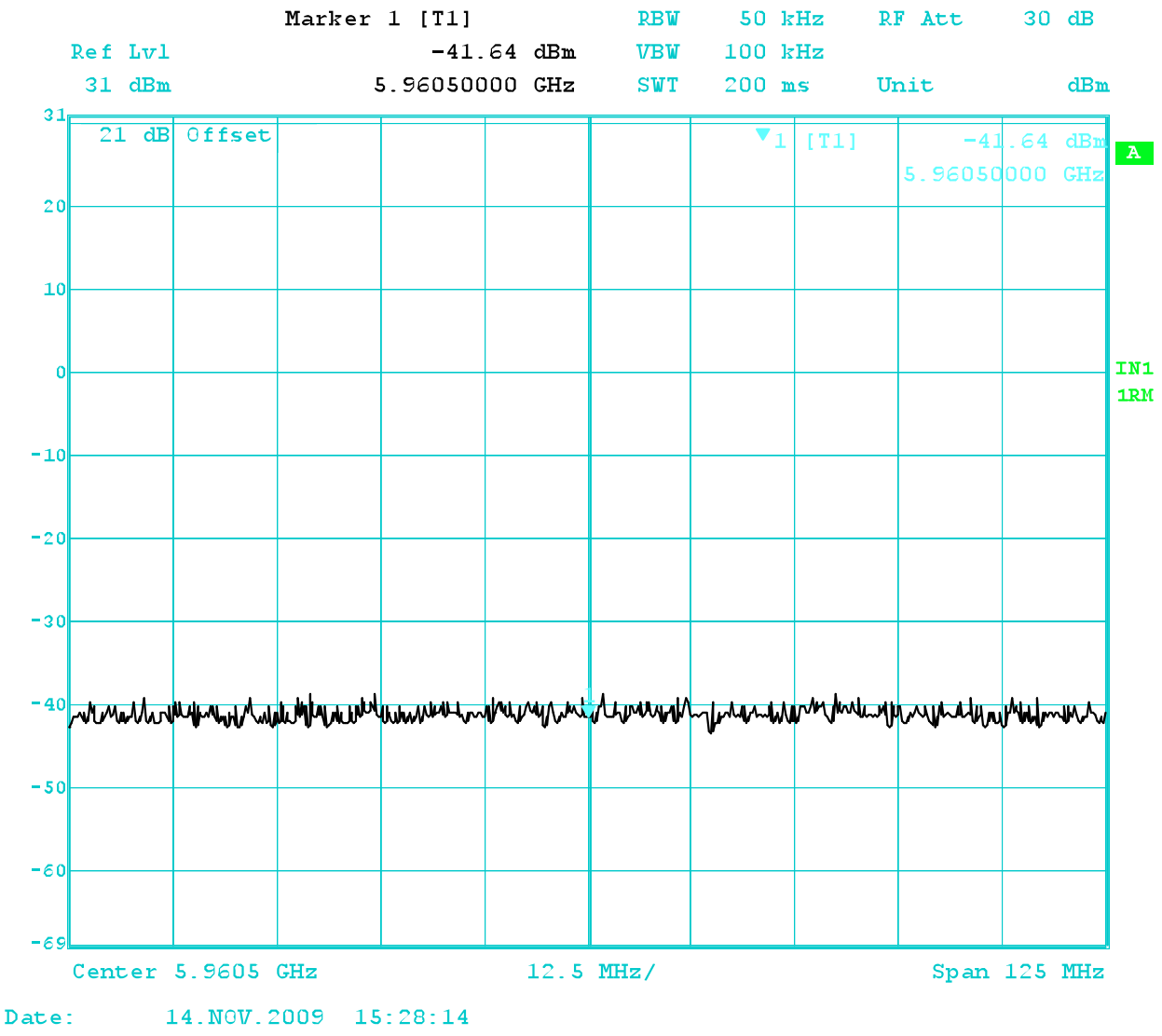

Marker 1 [T1]
RBW 50 kHz
RF Att 30 dB
Ref Lvl
-42.98 dBm
VBW 100 kHz
31 dBm
2.55450000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-42.98 dBm
2.55450000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 2.5545 GHz
12.5 MHz/
Span 125 MHz
Date: 14.NOV.2009 15:25:12


Marker 1 [T1]
RBW 50 kHz
RF Att 30 dB
Ref Lvl
-46.50 dBm
VBW 100 kHz
31 dBm
3.40600000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-46.50 dBm
3.40600000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 3.406 GHz
12.5 MHz/
Span 125 MHz
Date: 14.NOV.2009 15:25:58


Marker 1 [T1]
RBW 50 kHz
RF Att 30 dB
Ref Lvl
-46.50 dBm
VBW 100 kHz
31 dBm
4.25750000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-46.50 dBm
4.25750000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 4.2575 GHz
12.5 MHz/
Span 125 MHz
Date: 14.NOV.2009 15:27:07


Marker 1 [T1]
RBW 50 kHz
RF Att 30 dB
Ref Lvl
-43.74 dBm
VBW 100 kHz
31 dBm
5.10900000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-43.74 dBm
5.10900000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 5.109 GHz
12.5 MHz/
Span 125 MHz
Date: 14.NOV.2009 15:27:42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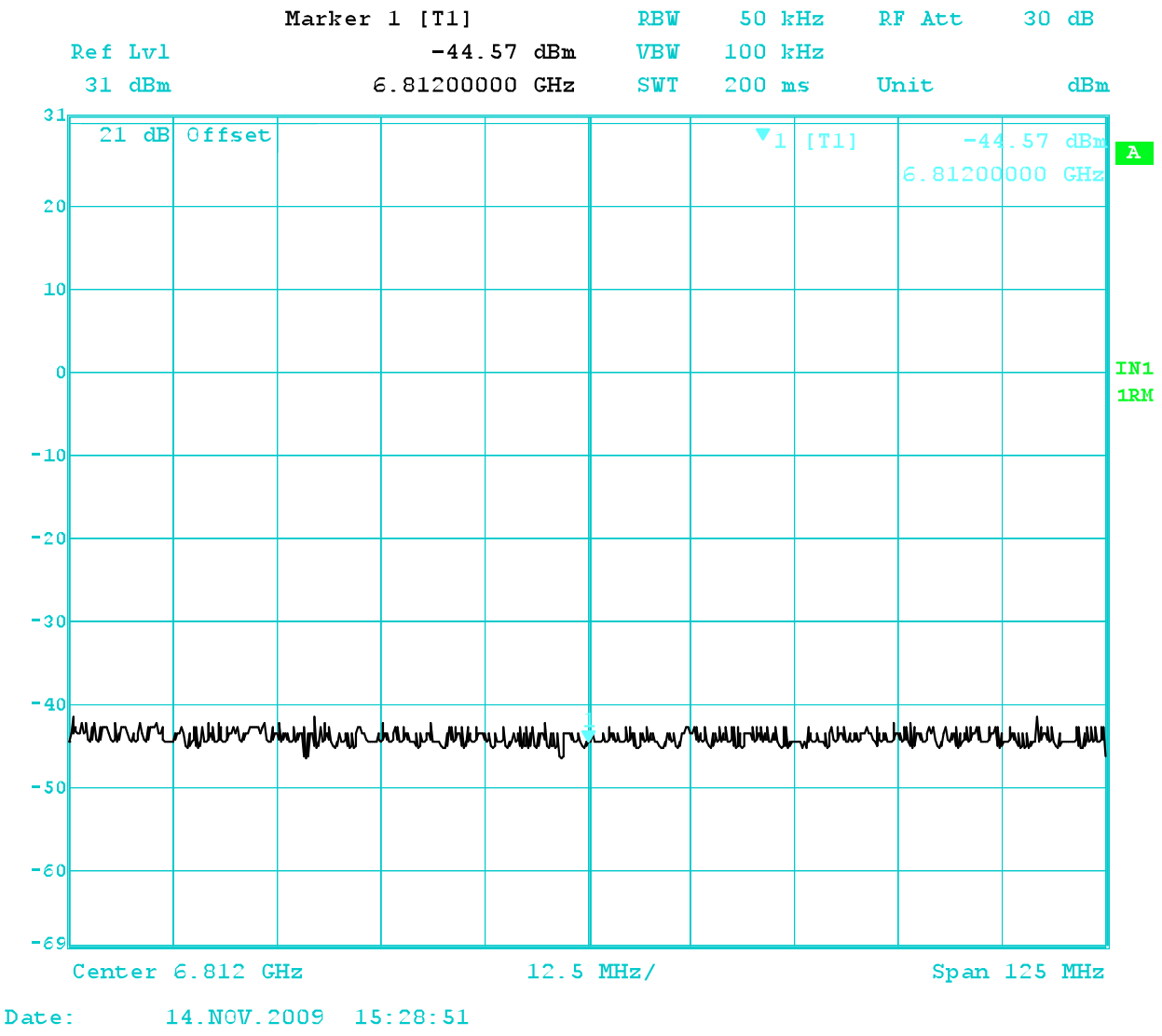
RBW 50 kHz
RF Att 30 dB
Ref Lvl
-41.64 dBm
VBW 100 kHz
31 dBm
5.96050000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-41.64 dBm
5.96050000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 5.9605 GHz
12.5 MHz/
Span 125 MHz
Date: 14.NOV.2009 15:28:14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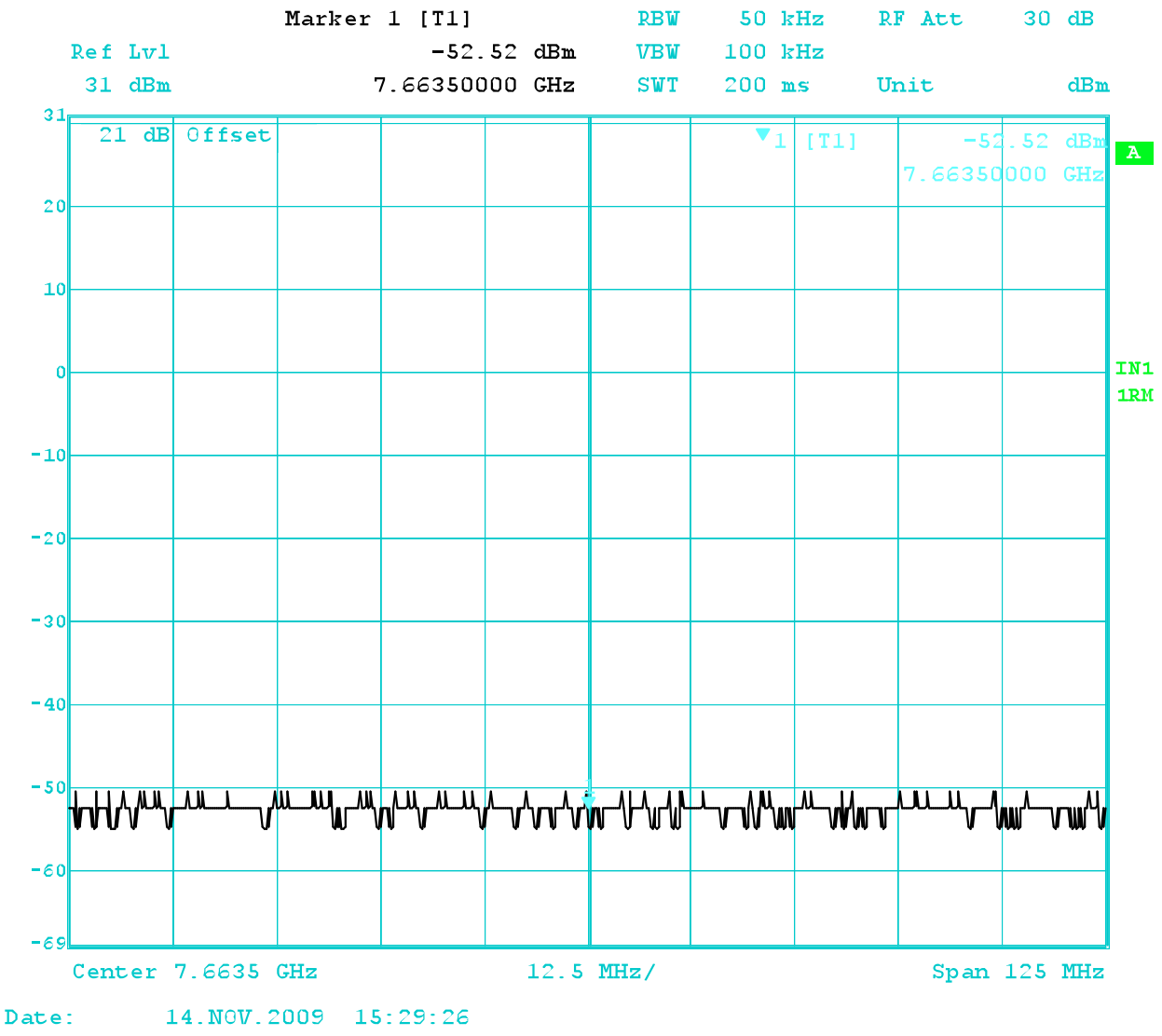
RBW 50 kHz
RF Att 30 dB
Ref Lvl
-44.57 dBm
VBW 100 kHz
31 dBm
6.81200000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-44.57 dBm
6.81200000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 6.812 GHz
12.5 MHz/
Span 125 MHz
Date: 14.NOV.2009 15:28:51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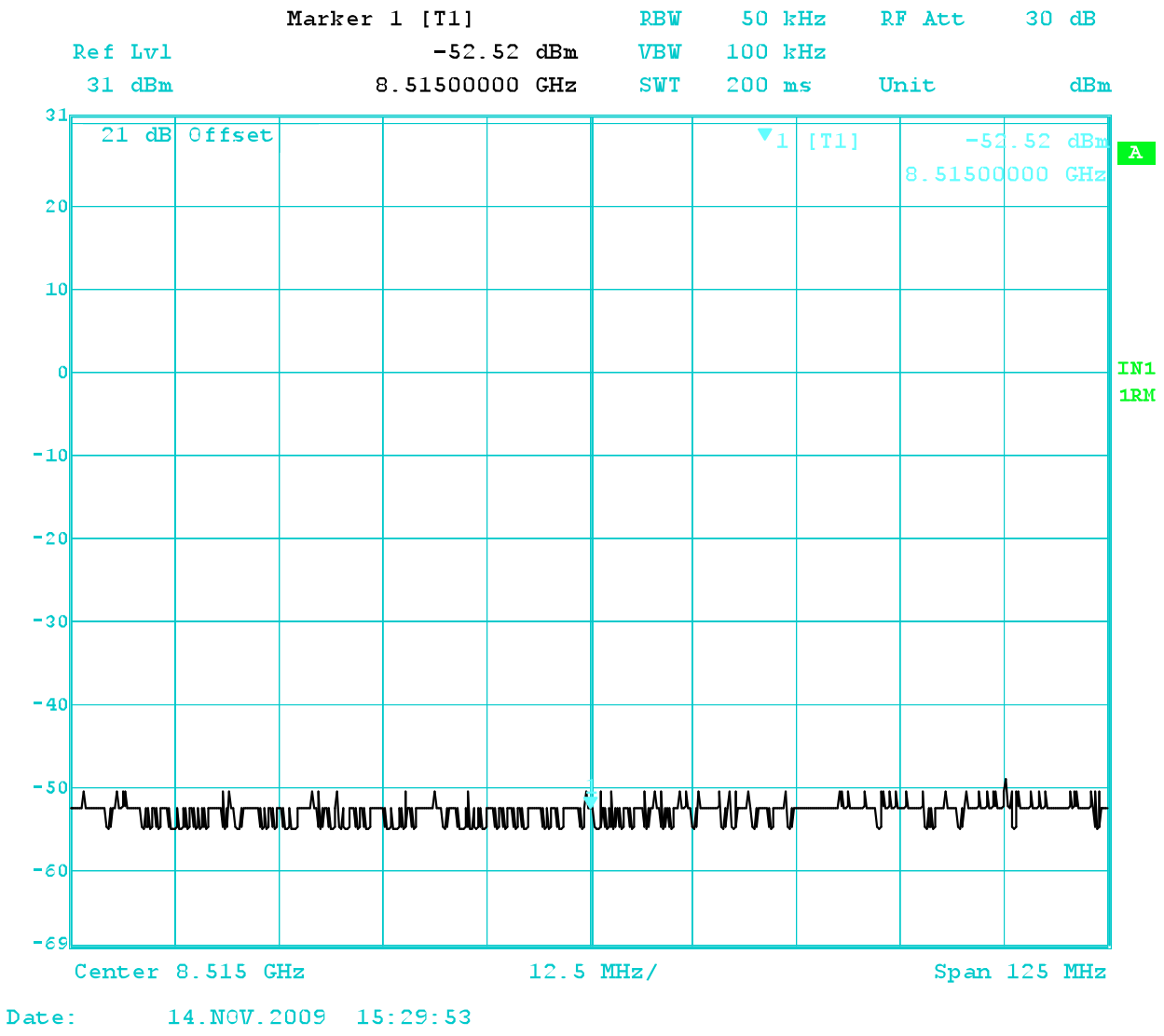
RBW 50 kHz
RF Att 30 dB
Ref Lvl
-52.52 dBm
VBW 100 kHz
31 dBm
7.66350000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-52.52 dBm
7.66350000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 7.6635 GHz
12.5 MHz/
Span 125 MHz
Date: 14.NOV.2009 15:29:26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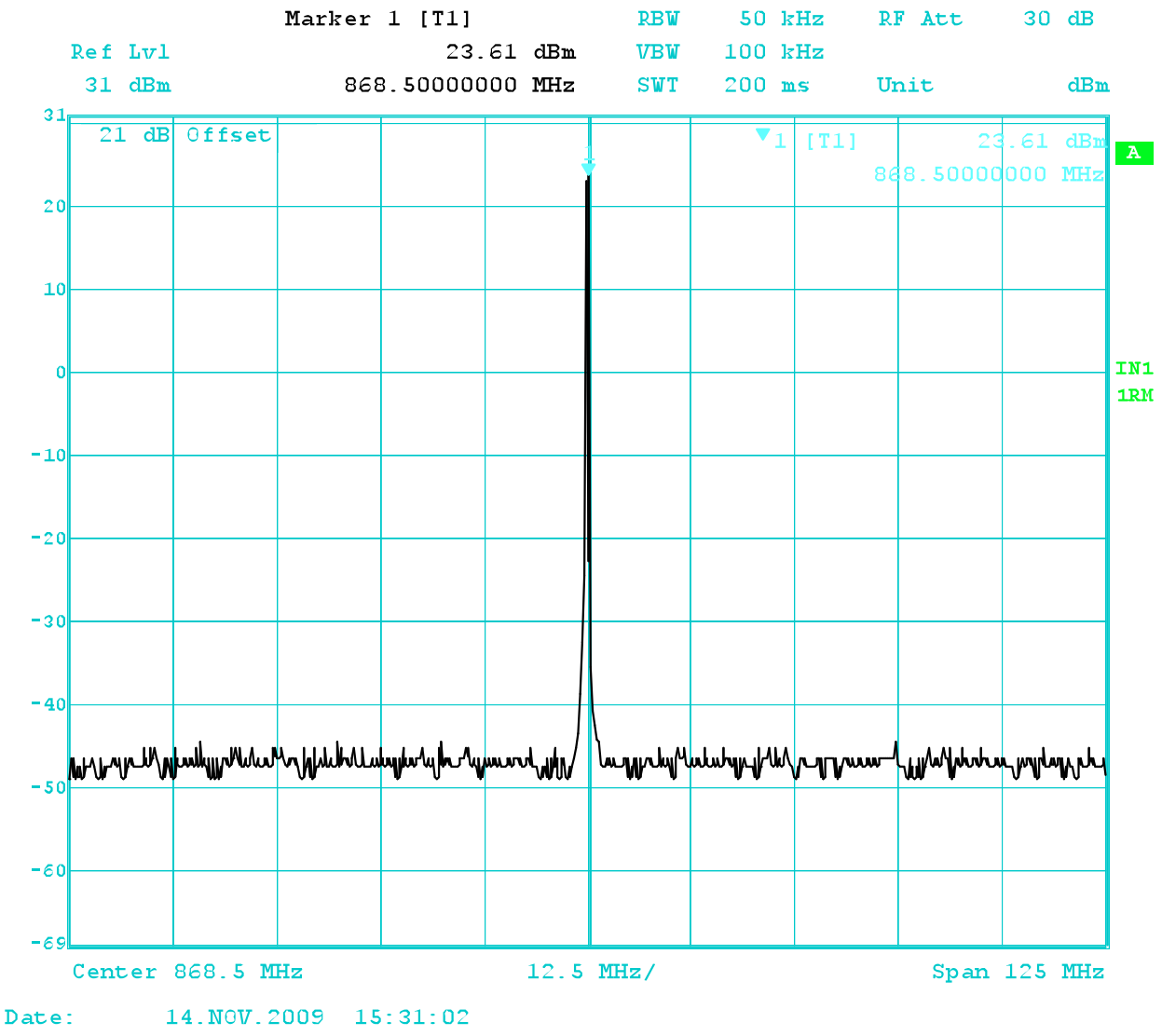
RBW 50 kHz
RF Att 30 dB
Ref Lvl
-52.52 dBm
VBW 100 kHz
31 dBm
8.51500000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-52.52 dBm
8.51500000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 8.515 GHz
12.5 MHz/
Span 125 MHz
Date: 14.NOV.2009 15:29:53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RBW 50 kHz
RF Att 30 dB
Ref Lvl
23.61 dBm
VBW 100 kHz
31 dBm
868.50000000 MHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
23.61 dBm
868.50000000 MHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 868.5 MHz
12.5 MHz/
Span 125 MHz
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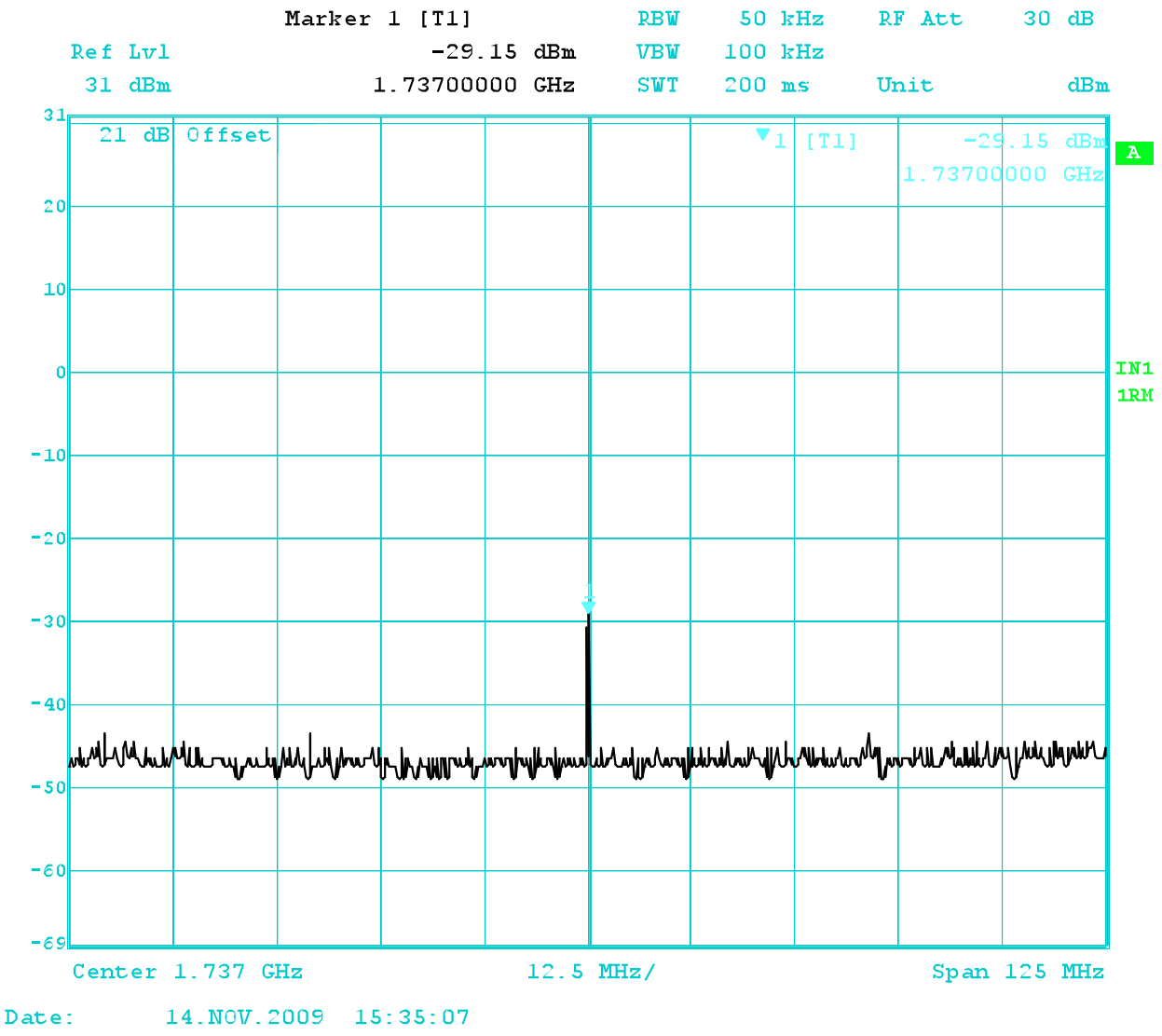
Marker 1 [T1]
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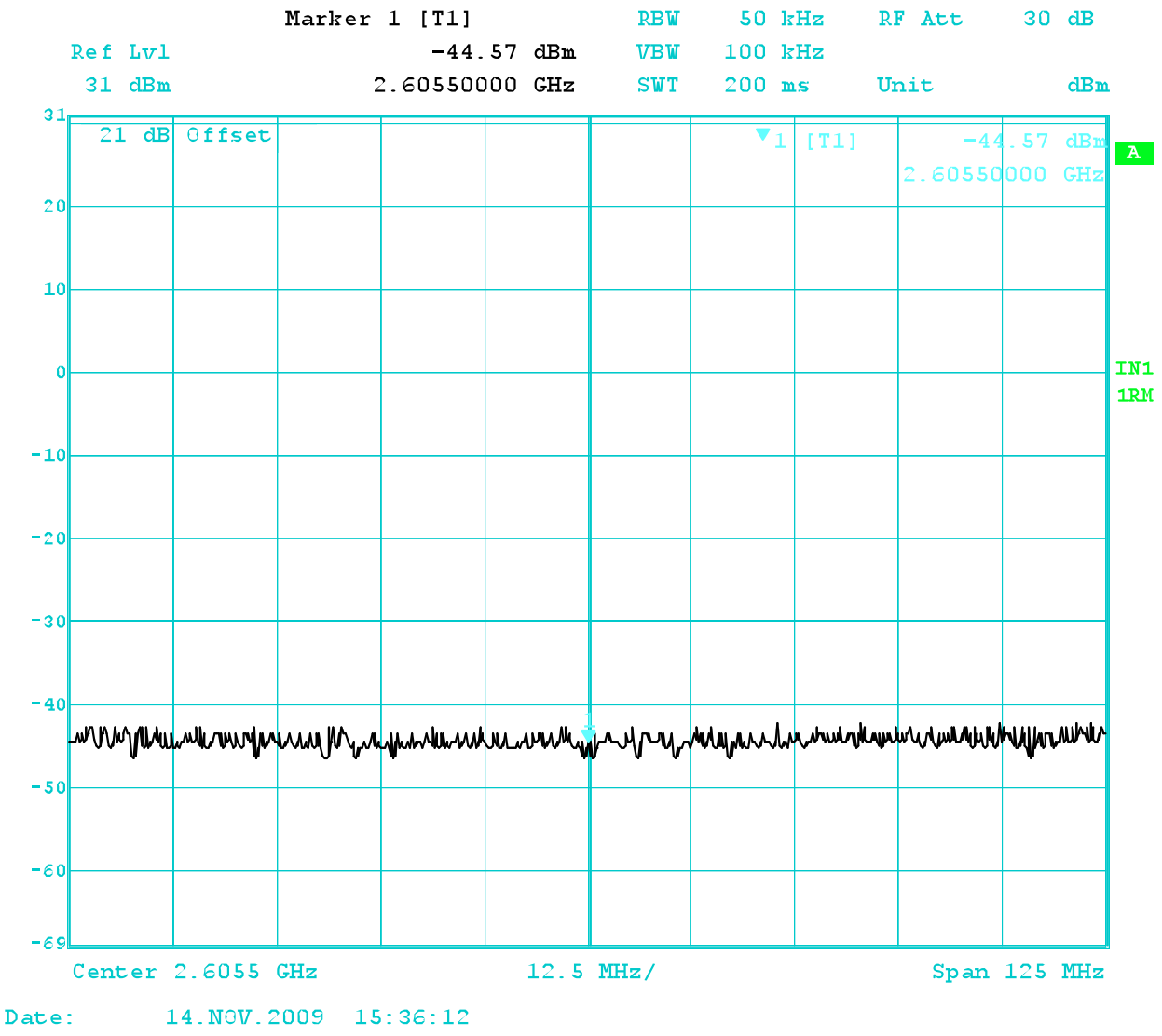
RF Att 30 dB
Ref Lvl
-29.15 dBm
VBW 100 kHz
31 dBm
1.73700000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-29.15 dBm
1.73700000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 1.737 GHz
12.5 MHz/
Span 125 MHz
Date: 14.NOV.2009 15:35:07


Marker 1 [T1]
RBW 50 kHz
RF Att 30 dB
Ref Lvl
-44.57 dBm
VBW 100 kHz
31 dBm
2.60550000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-44.57 dBm
2.60550000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 2.6055 GHz
12.5 MHz/
Span 125 MHz
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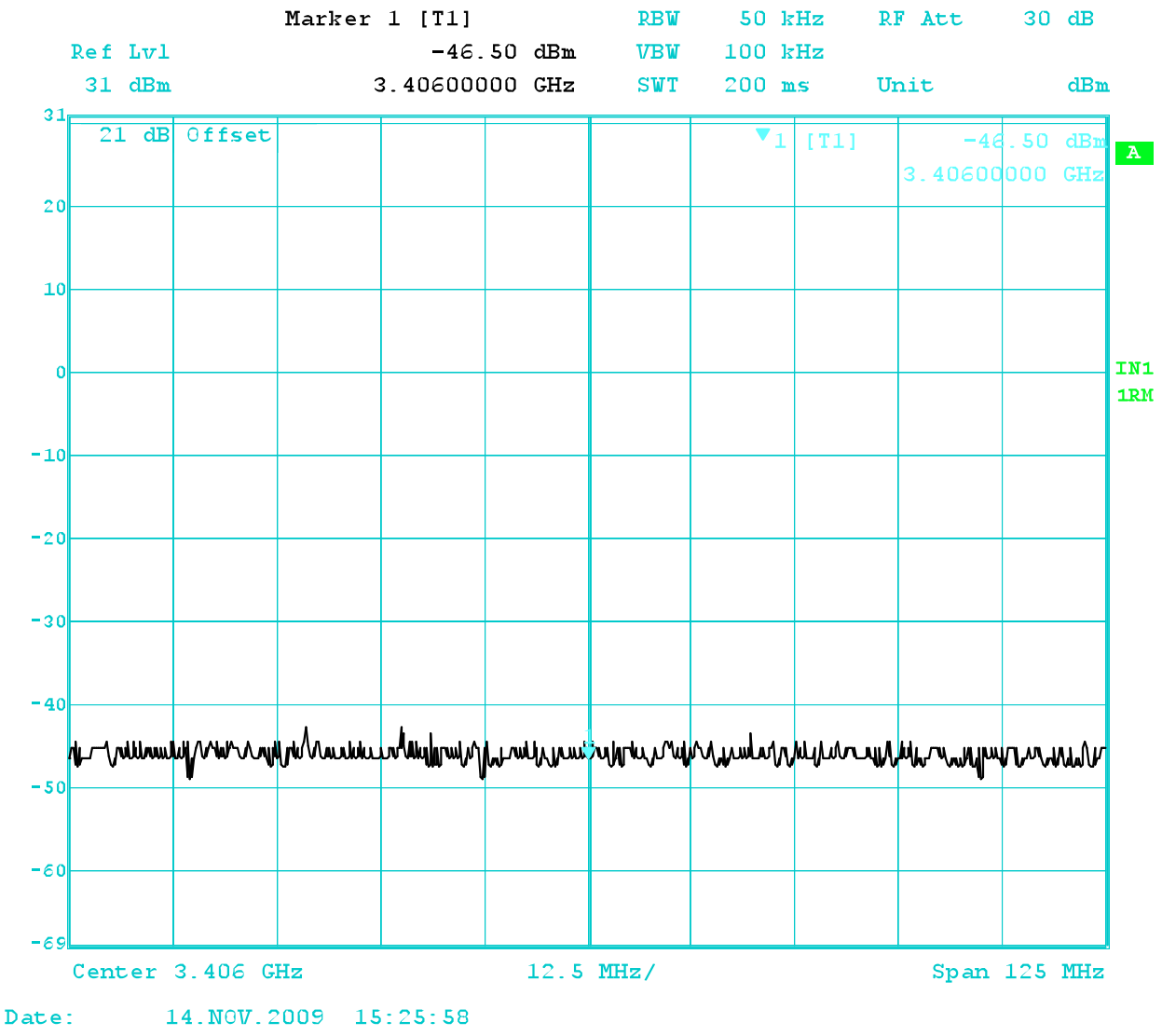
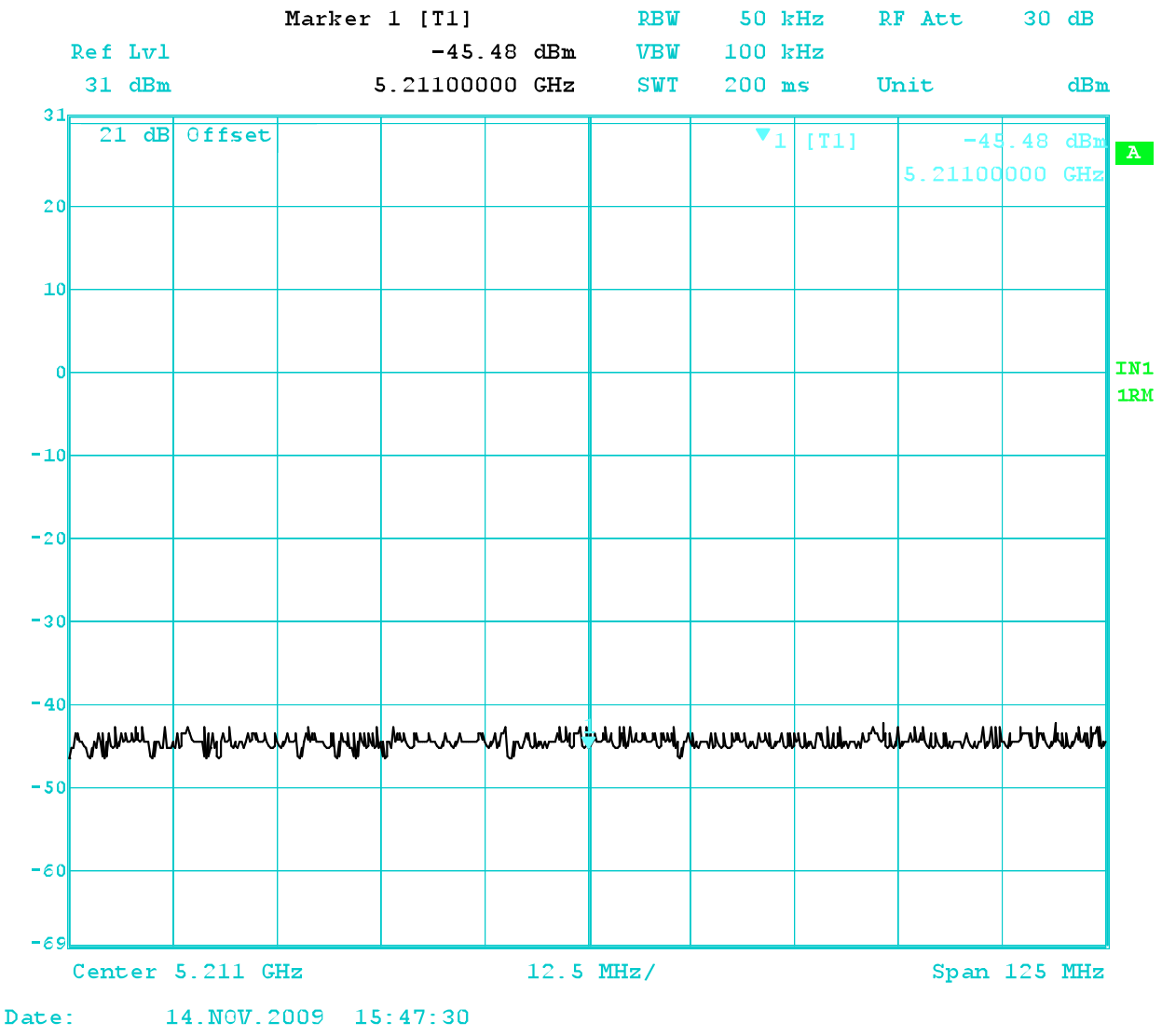

Marker 1 [T1]
RBW 50 kHz
RF Att 30 dB
Ref Lvl
-46.50 dBm
VBW 100 kHz
31 dBm
3.40600000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-46.50 dBm
3.40600000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 3.406 GHz
12.5 MHz/
Span 125 MHz
Date: 14.NOV.2009 15:25:58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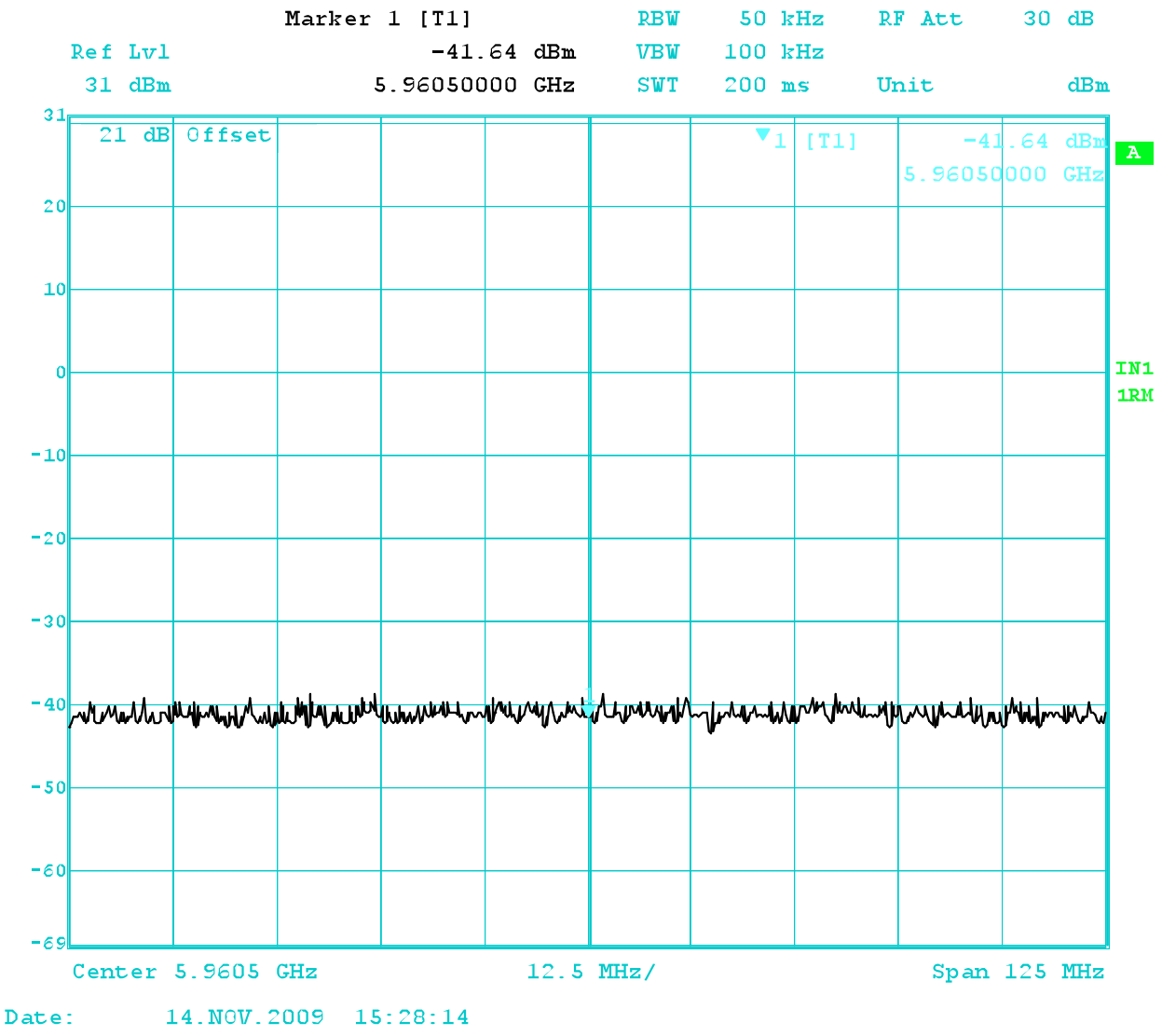
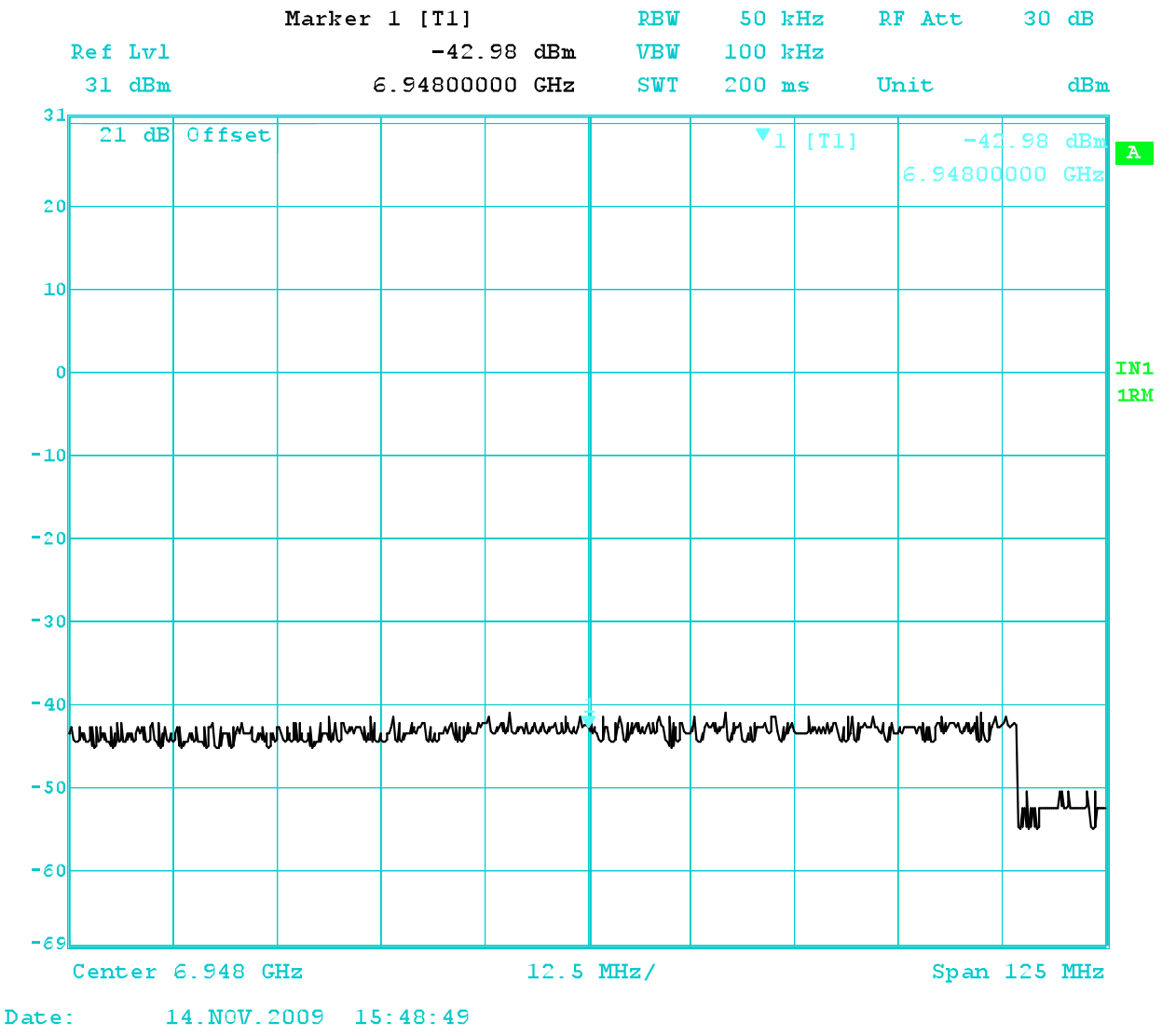
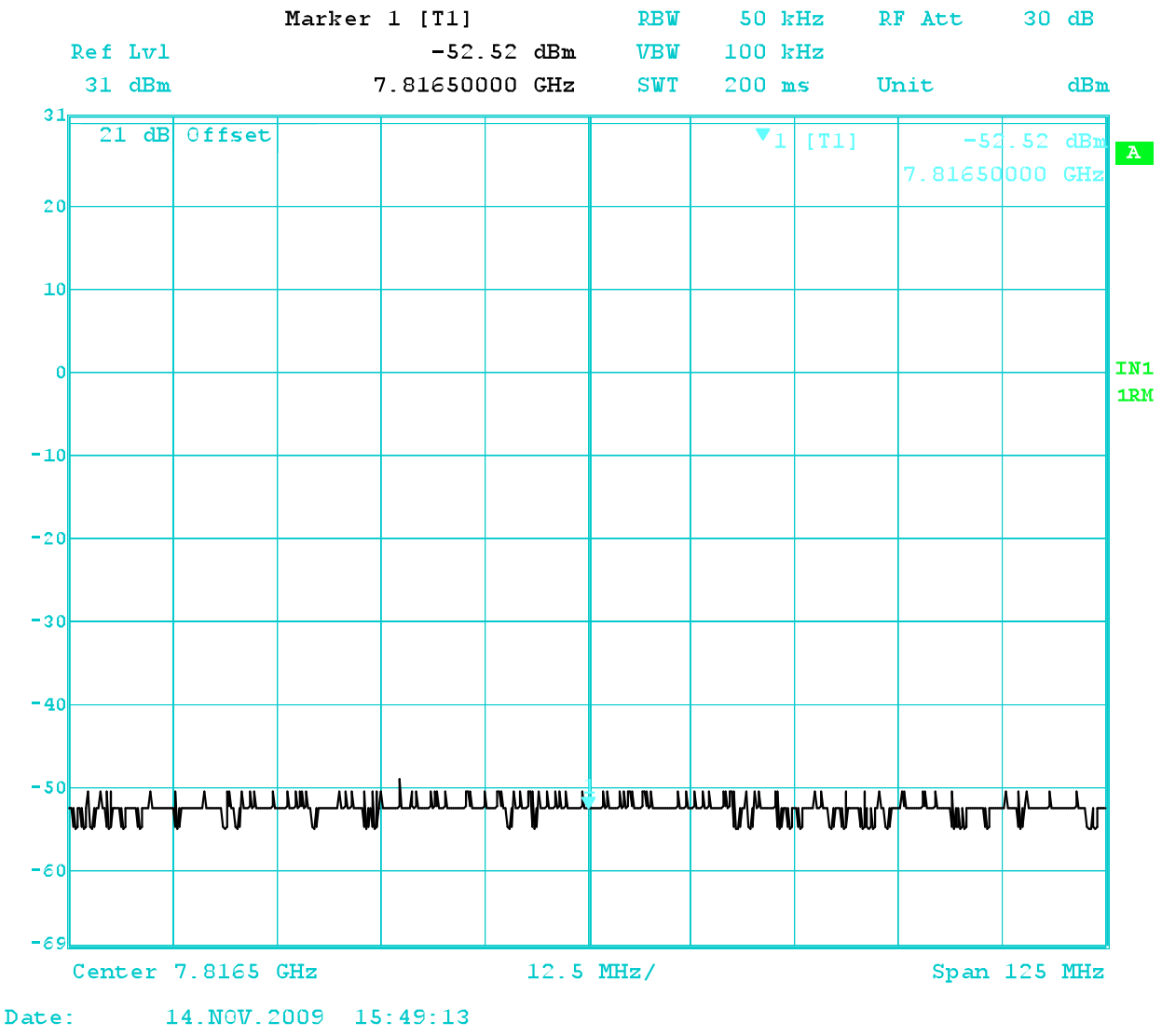
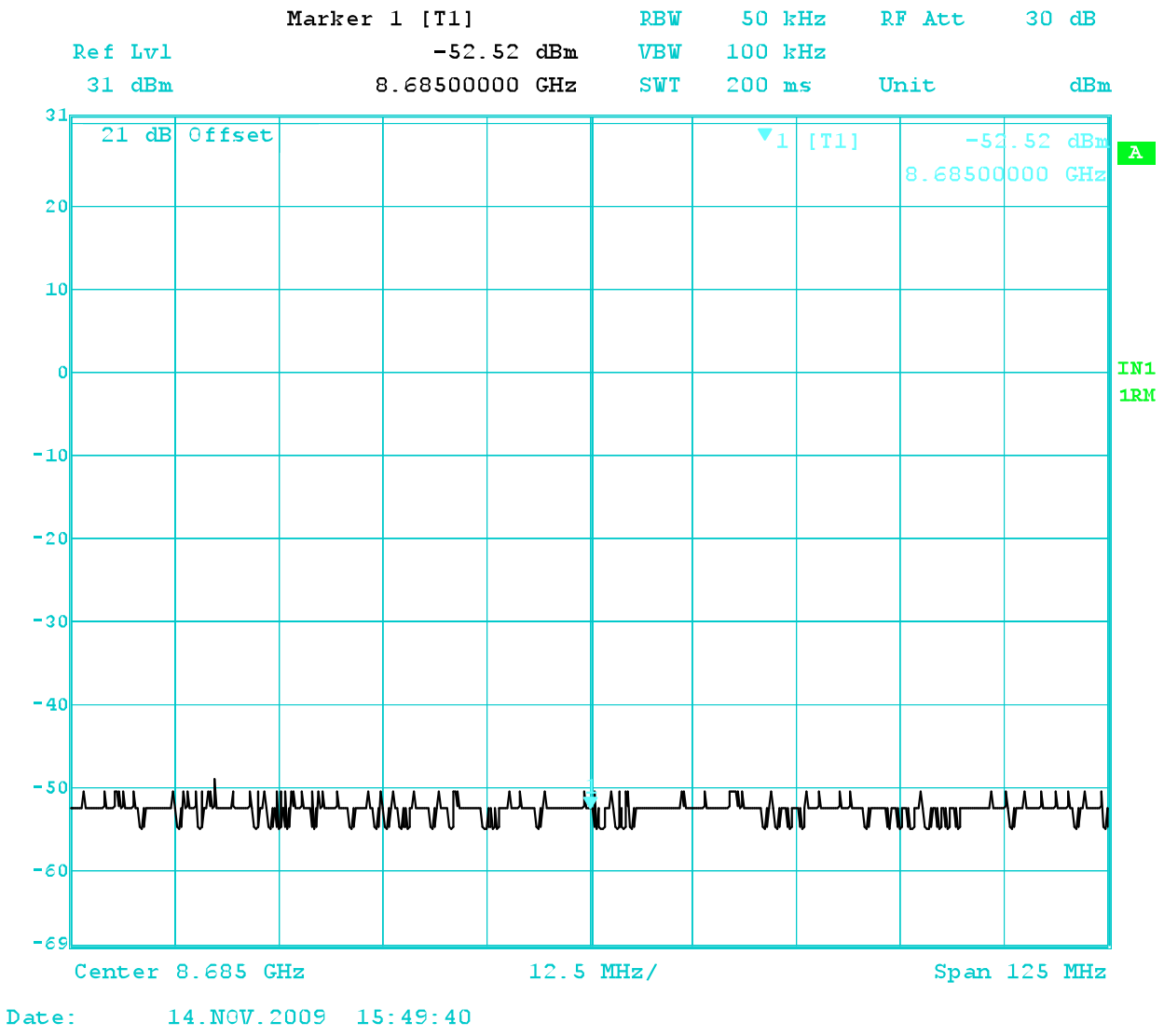
RF Att 30 dB
Ref Lvl
-45.48 dBm
VBW 100 kHz
31 dBm
5.21100000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-45.48 dBm
5.21100000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 5.211 GHz
12.5 MHz/
Span 125 MHz
Date: 14.NOV.2009 15:47:30


Marker 1 [T1]
RBW 50 kHz
RF Att 30 dB
Ref Lvl
-41.64 dBm
VBW 100 kHz
31 dBm
5.96050000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-41.64 dBm
5.96050000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 5.9605 GHz
12.5 MHz/
Span 125 MHz
Date: 14.NOV.2009 15:28:14


Marker 1 [T1]
RBW 50 kHz
RF Att 30 dB
Ref Lvl
-42.98 dBm
VBW 100 kHz
31 dBm
6.94800000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-42.98 dBm
6.94800000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 6.948 GHz
12.5 MHz/
Span 125 MHz
Date: 14.NOV.2009 15:48:49


Marker 1 [T1]
RBW 50 kHz
RF Att 30 dB
Ref Lvl
-52.52 dBm
VBW 100 kHz
31 dBm
7.81650000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-52.52 dBm
7.81650000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 7.8165 GHz
12.5 MHz/
Span 125 MHz
Date: 14.NOV.2009 15:49:13


Marker 1 [T1]
RBW 50 kHz
RF Att 30 dB
Ref Lvl
-52.52 dBm
VBW 100 kHz
31 dBm
8.68500000 GHz
SWT 200 ms
Unit dBm
21 dB Offset
1 [T1]
-52.52 dBm
8.68500000 GHz
A
IN1
1RM
31
20
10
0
-10
-20
-30
-40
-50
-60
-69
Center 8.685 GHz
12.5 MHz/
Span 125 MHz
Date: 14.NOV.2009 15:49:40

Name of Test:	Field Strength of Spurious Radiation
Paragraph:	47 CFR 2.1053
Guide:	See Measurement Procedure Below
Test Condition:	Standard Temperature & Humidity
Test Equipment:	As per Attached Appendix J

Measurement Procedures

1. A description of the measurement facilities was filed with the F.C.C. and was found to be in compliance with the requirements of Section 15.38, by letter from the F.C.C. The test facility used was Nemko Dallas.

2. In the field, the test sample was placed on a turntable at three meters away from the search antenna. The test sample was connected to an R.F. wattmeter and a 50 ohm dummy load, and adjusted to its rated output.

   In order to obtain the maximum response at each spurious frequency, the turntable was rotated. Also, the Search Antennas were raised and lowered vertically, and all cables were oriented. Excess power lead was coiled above the system. The test method used during this test was in accordance with TIA603C antenna substitution method.

3. Measurement Results: No field strength spurious radiated emissions measured exceeded the -13dBm. Please see the table below:

Radiated Spurious Emissions
Low Channel

ERP Substitution Method

Page 1 of 1

Complete X
Preliminary

Job No.: 40402 Date: 11/17/09
Specification: 90.21 Temperature(°C): 22
Tested By: David Light Relative Humidity(%): 35
E.U.T.: DAS 217132-011MD Amplifier
Configuration: Tx 24 Watts
Sample No: 2165720209401000
Location: AC 3 RBW: 1 MHz Measurement
Detector Type: Peak VBW: 1 MHz Distance: 3 m

Test Equipment Used

Antenna: 993 Directional Coupler:
Pre-Amp: 1016 Cable #1: 1484
Filter: Cable #2: 1485
Receiver: 1464 Cable #3:
Attenuator #1 Cable #4:
Attenuator #2: Mixer:
Additional equipment used:
Measurement Uncertainty: +/-1.7 dB

Frequency (MHz)	Meter Reading (dBm)	Substitution Level (dBm)		Pre-Amp Gain (dB)	Substitution Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarity	Comments
										Tx @ 851.5 MHz
1703	-61.0	-59.0		31.5	6.2	-52.8	-20.0	-32.7700	H	Noise floor
2554.5	-61.3	-59.5		31.8	7.1	-52.4	-20.0	-32.3600	H	Noise floor
3406	-61.3	-58.6		31.7	7.4	-51.2	-20.0	-31.2300	H	Noise floor
4257.5	-62.5	-59.1		31.5	7.9	-51.2	-20.0	-31.2200	H	Noise floor
5109	-64.1	-57.5		31.5	8.5	-49.0	-20.0	-28.9900	H	Noise floor
5960.5	-64.0	-58.2		30.8	8.4	-49.8	-20.0	-29.8300	H	Noise floor
6812	-64.1	-56.7		30.7	9.6	-47.1	-20.0	-27.1300	H	Noise floor
7663.5	-65.0	-55.9		31.3	9.0	-46.9	-20.0	-26.9400	H	Noise floor
8515	-64.3	-56.4		33.5	9.6	-46.9	-20.0	-26.8500	H	Noise floor
1703	-61.0	-61.4		31.5	6.2	-55.2	-20.0	-35.1700	V	Noise floor
2554.5	-61.3	-56.2		31.8	7.1	-49.1	-20.0	-29.0600	V	Noise floor
3406	-61.3	-53.4		31.7	7.4	-46.0	-20.0	-26.0300	V	Noise floor
4257.5	-62.5	-48.2		31.5	7.9	-40.3	-20.0	-20.3200	V	Noise floor
5109	-64.1	-53.6		31.5	8.5	-45.1	-20.0	-25.0900	V	Noise floor
5960.5	-64.0	-54.4		30.8	8.4	-46.0	-20.0	-26.0300	V	Noise floor
6812	-64.1	-53.7		30.7	9.6	-44.1	-20.0	-24.1300	V	Noise floor
7663.5	-65.0	-54.7		31.3	9.0	-45.7	-20.0	-25.7400	V	Noise floor
8515	-64.3	-56.6		33.5	9.6	-47.1	-20.0	-27.0500	V	Noise floor

Notes: There were no emissions detected above the noise floor which was at least 20 dB below the specification limit.

Radiated Spurious Emissions
High Channel

ERP Substitution Method

Page 1 of 1

Complete X
Preliminary

Job No.: 40402 Date: 11/17/2009
Specification: 90.21 Temperature(°C): 22
Tested By: David Light Relative Humidity(%) 35
E.U.T.: DAS 217132-011MD Amplifier
Configuration: Tx 24 Watts
Serial No: 2165720209401000
Location: AC 3 RBW: 1 MHz Measurement
Detector Type: Peak VBW: 1 MHz Distance: 3 m

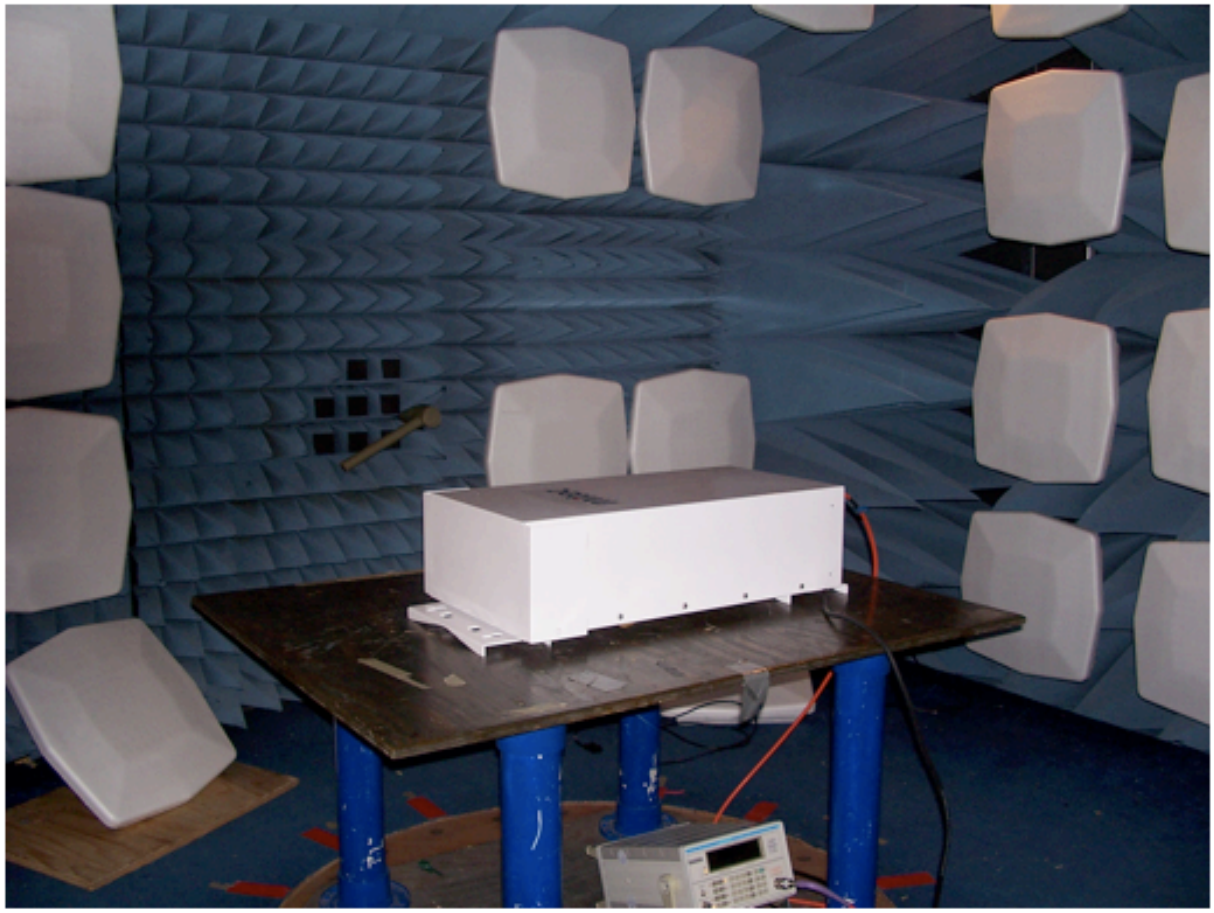
Test Equipment Used

Antenna: 993 Directional Coupler:
Pre-Amp: 1016 Cable #1: 1484
Filter: Cable #2: 1485
Receiver: 1464 Cable #3:
Attenuator #1 Cable #4:
Attenuator #2: Mixer:
Additional equipment used:
Measurement Uncertainty: +/-1.7 dB

Frequency (MHz)	Meter Reading (dBm)	Substitution Level (dBm)		Pre-Amp Gain (dB)	Substitution Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Polarity	Comments
										Tx @ 868.5 MHz
1737	-61.8	-59.8		31.5	6.2	-53.6	-20.0	-33.5700	H	Noise floor
2605.5	-61.8	-60.0		31.8	7.1	-52.9	-20.0	-32.8600	H	Noise floor
3474	-63.0	-60.3		31.7	7.4	-52.9	-20.0	-32.9300	H	Noise floor
4342.5	-63.8	-60.4		31.5	7.9	-52.5	-20.0	-32.5200	H	Noise floor
5211	-64.0	-57.4		31.5	8.5	-48.9	-20.0	-28.8900	H	Noise floor
6079.5	-65.0	-58.4		30.8	9.1	-49.3	-20.0	-29.2700	H	Noise floor
6948	-65.0	-57.6		30.7	9.6	-48.0	-20.0	-28.0300	H	Noise floor
7816.5	-65.3	-56.2		31.3	9.0	-47.2	-20.0	-27.2400	H	Noise floor
8685	-64.0	-56.1		33.5	9.6	-46.6	-20.0	-26.5500	H	Noise floor
1737	-61.8	-62.2		31.5	6.2	-56.0	-20.0	-35.9700	V	Noise floor
2605.5	-61.8	-56.7		31.8	7.1	-49.6	-20.0	-29.5600	V	Noise floor
3474	-63.0	-55.1		31.7	7.4	-47.7	-20.0	-27.7300	V	Noise floor
4342.5	-63.8	-49.5		31.5	7.9	-41.6	-20.0	-21.6200	V	Noise floor
5211	-64.0	-53.5		31.5	8.5	-45.0	-20.0	-24.9900	V	Noise floor
6079.5	-65.0	-55.6		30.8	9.1	-46.5	-20.0	-26.4700	V	Noise floor
6948	-65.0	-54.6		30.7	9.6	-45.0	-20.0	-25.0300	V	Noise floor
7816.5	-65.3	-55.0		31.3	9.0	-46.0	-20.0	-26.0400	V	Noise floor
8685	-64.0	-56.3		33.5	9.6	-46.8	-20.0	-26.7500	V	Noise floor

Notes: **There were no emissions detected above the noise floor which was at least 20 dB below the specification limit.**

Test Setup Photo



Spurious emission bandwidth settings per 22.907 (j)(1) & (2) as applicable.

Nemko Test Equipment Used

Nemko ID	Description	Manufacturer Model Number	Serial Number	Calibration Date	Calibration Due
1464	Spectrum analyzer	Hewlett Packard 8563E	3551A04428	02/27/09	02/28/11
1484	Cable	Storm PR90-010-072	N/A	06/23/09	06/23/10
1485	Cable	Storm PR90-010-216	N/A	06/23/09	06/23/10
1016	Pre-Amp	HEWLETT PACKARD 8449A	2749A00159	06/23/09	06/23/10
993	Horn antenna	A.H. Systems SAS-200/571	XXX	08/31/09	08/31/11

Name of Test: Frequency Stability – Temperature and Voltage Variation

Paragraph: 47 CFR 2.1055

Guide: EIA Standard RS 152B, Paragraph 10

Test Condition: Standard

TEMPERATURE	FREQUENCY @ 851.5MHz	Δ Hz 110		FREQUENCY @ 868.5MHz	Δ Hz 220
0ºC	**851.5007**	7		**686.5009**	9
10ºC	**851.5002**	2		**686.5011**	11
20ºC	**851.5003**	3		**868.5014**	14
30ºC	**851.5009**	9		**868.5012**	12
40ºC	**851.5011**	11		**868.5022**	22
45ºC	**851.5008**	8		**868.5017**	17

Name of Test: Necessary Bandwidth and Emission Bandwidth

Paragraph: 47 CFR 2.202 (g)

Modulation = (F3E)

Emission Bandwidth Calculation:

Necessary Bandwidth, kHz = 3

Testimonial
and
Statement of Certification

This is to certify:

1. That the application was prepared either by, or under the direct supervision of, the undersigned.

2. That the technical data supplies with the application were taken under my direction and supervision.

3. That the data was obtained on representative units, randomly selected.

4. That, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.

Certifying Engineer:

Radio Frequency Radiation Exposure Limits

The device is installed in a permanent location. It is not operator accessible, and is contained in a secured environment that is accessible by field service engineers or installation engineers only. The ERP of the device is less than 1000 Watts. The Antenna's used on this device are a typical 16dB gain antenna, with this configuration and the maximum RF output of the device set to 24 Watts the exposure limit is less than 1000 Watts.

RF Exposure Calculations:

The following information provides the **minimum** separation distance for the highest gain antenna provide. The calculations are from **FCC OET 65 Appendix B, Table 1B** Guidelines for General Population/Uncontrolled Exposure. This calculation is based on the highest EIRP possible from the system, considering maximum power and antenna gain, and considering a 1.0 mW/cm² uncontrolled exposure limit. The Friss formula used was:

$S = (Po*G)/(4*Pi*r^2)$

Where S = 1.0 mW/cm² for 1900 MHz
Where Po = 20,000 mW (Peak RF)
Where G = Isotropic antenna gain (numeric)
Where r = Minimum Safe Distance from antenna (cm)

For: 16 dB gain Antenna - r = 600cm