Electromagnetic Compatibility Test Report

Prepared in accordance with

CFR 47 Part 15C and RSS-210, Issue 8

Tested using the procedures of ANSI C63.10-2013 and C63.10:2009

On

WiFi Transmitter

DRX PLUS DETECTOR RADIO

Carestream Health Inc.
1049 W. Ridge Road
Rochester, NY 14615

Prepared by:

TUV Rheinland of North America, Inc.

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Manufacturer's statement - attestation

The manufacturer; Carestream Health Inc., as the responsible party for the equipment tested, hereby affirms:

a) That he has reviewed and concurs that the test shown in this report are reflective of the operational characteristics of the device for which certification is sought;

b) That the device in this test report will be representative of production units;

c) That all changes (in hardware and software/firmware) to the subject device will be reviewed.

d) That any changes impacting the attributes, functionality or operational characteristics documented in this report will be communicated to the body responsible for approving (certifying) the subject equipment.

Ronald Cain Printed name of official	Ronald Cain Signature of official
1049 W. Ridge Road Rochester, NY 14615 Address	3/5/2015 Date
585-627-8321 Telephone number	Ronald.cain@carestream.com Email address of official

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Client:	Carestream Health Inc. 1049 W. Ridge Road Rochester, NY 14615	Contact: Tel: Fax: e-mail	Ronald Cain 585-627-8321 585-627-8802 ronald.cain@carestream.com
Identification:	WiFi Transmitter	***Serial No.:***	13A32S1011361
Test item:	DRX PLUS DETECTOR RADIO	***Date tested:***	4 March 2015
Testing location:	TUV Rheinland of North America 710 Resende Road Webster, NY 14580 U.S.A.	Tel: (585) 645-0125	
Test specification:	**Emissions:** FCC Part 15, Subpart C, RSS-210 Issue 8: FCC Part 15.207(a) and RSS-GEN 7.2 FCC Parts 15.247(d), 15.205, 15.209, 15.215(c) and RSS-210 A8.5 and RSS-GEN 7.2 FCC Part 15.247(a)(2) and RSS-210 A1.1.3, FCC Part 15.247 and RSS-210 Annex 8, FCC Part 15.247(b)(3) and RSS-210 A8.4(4), FCC Part 15.247(d) and RSS-210 2.2, FCC Parts 15.109(a), RSS-210 2.2, 2.5, and RSS-GEN 6.1 and		
Test Result	**The above product was found to be Compliant to the above test standard(s)**		

tested by: Randall E Masline	***reviewed by:*** Cecil Gittens
30 March 2015 Randall E Masline *Date* *Name* *Signature*	30 March 2015 Cecil Gittens *Date* *Name* *Signature*
Other Aspects:	**None**

Abbreviations: OK, Pass, Compliant, Complies = passed
Fail, Not Compliant, Does Not Comply = failed
N/A = not applicable

FCC	ilac-MRA ACCREDITED	**Industry Canada**	**VCCI**	**BSMI**
US5253	**Testing Cert.# 3331.08**	**482B-1**	**A-0203**	**SL2-IN-E-050R**

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1 General Information

1.1 Scope

This report is intended to document the status of conformance with the requirements of the CFR 47 Part 15C and RSS-210, Issue 8 based on the results of testing performed on 4 March 2015 on the WiFi Transmitter, Model No. DRX PLUS DETECTOR RADIO, manufactured by Carestream Health Inc.. This report only applies to the specific samples tested under the stated test conditions. It is the responsibility of the manufacturer to assure that additional production units of this model are manufactured with identical or EMI equivalent electrical and mechanical components. This report is further intended to document changes and modifications to the EUT throughout its life cycle. All documentation will be included as a supplement.

1.2 Purpose

Testing was performed to evaluate the EMC performance of the EUT (Equipment Under Test) in accordance with the applicable requirements, procedures, and criteria defined in the application of regulations and application of standards listed in this report.

1.3 Revision History

Revision	Date	Description of Revision
A		

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1.4 *Summary of Test Results*

Applicant	Carestream Health Inc. 1049 W. Ridge Road Rochester, NY 14615	**Tel**	585-627-8321	**Contact**	Ronald Cain
		Fax	585-627-8802	**e-mail**	ronald.cain@carestream.com

Description	WiFi Transmitter	**Model Number**	DRX PLUS DETECTOR RADIO
Serial Number	13A32S1011361	**Test Voltage/Freq.**	Powered Via USB
Test Date Completed:	4 March 2015	**Test Engineer**	Randall E Masline

Standards	Description	Severity Level or Limit	Criteria	Test Result
FCC Part 15, Subpart C Standard	Radio Frequency Devices-Subpart C: Intentional Radiators	See called out parts below	See Below	**Complies**
RSS-210 Issue 8 Standard	Low-Power Licence-exempt Radiocommunication Devices Category I Equipment	See called out parts below	See Below	**Complies**
FCC Part 15.247 and RSS-210 Annex 8	Operation within the band 2400 to 2483.5 MHz	See called out parts below	Below Limit	Complies
FCC Parts 15.247(d), 15.205, 15.209, 15.215(c) and RSS-210 A8.5 and RSS-GEN 7.2	Out-of-Band Spurious and Harmonic Emissions (EUT in Transmit Mode)	Below the applicable limits	Below Limit	Complies
FCC Part 15.207(a) and RSS-GEN 7.2	Conducted Emissions on Mains EUT in Transmit Mode	Below limit of section 15.207(a)	Below Limit	Complies
FCC Part 15.247(d) and RSS-210 2.2	Band Edge Radiated Emission	Per requirements of the standard	Below Limit	Complies
FCC Part 15.247(b)(3) and RSS-210 A8.4(4)	Conducted Output Power	Shall not exceed 1.0 Watts (4W-eirp)	Below Limit	Complies
FCC Part 15.247(a)(2) and RSS-210 A1.1.3	Occupied Bandwidth	6 dB ≥ 500 kHz	Below Limit	Complies
FCC Part 15.247(e) and RSS-210, Section A8.2(b)	Peak Power Spectrial Denesity	≤ 8 dBm in any 3 kHz	Below Limit	Complies
FCC Part 15.31(e) and RSS-GEN 4.7	Frequency Stablity	Battery Operated, using a fresh Battery	Below Limit	Complies
FCC Parts 15.203, 15.204 and RSS-GEN 2.5	Antenna Requirements	Per requirements of the standard	Below Limit	Complies
FCC Parts 15.109(a), RSS-210 2.2, 2.5, and RSS-GEN 6.1	Radiated Emissions while EUT in Receive Mode	Below limit of section 15.109(a) Class B	Below Limit	Complies
FCC Part 2.1093 and RSS-102, Issue 4	RF Exposure	SAR or MPE Requirements	0.63 mW	Complies

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2 Laboratory Information

2.1 Accreditations & Endorsements

2.1.1 US Federal Communications Commission

TUV Rheinland of North America located at, 710 Resende Road, Building 199, Webster, NY 14580 is accredited by the commission for performing testing services for the general public on a fee basis. This laboratory test facilities have been fully described in reports submitted to and accepted by the FCC (Registration No 90575). The laboratory scope of accreditation includes: Title 47 CFR Part 15, and 18. The accreditation is updated every 3 years.

2.1.2 ILAC/A2LA

This is a program which is administered under the auspices of A2LA. The laboratory has been assessed and accredited in accordance with ISO Standard 17025:2005 (Certificate Number: 3331.08). The scope of laboratory accreditation includes emission and immunity testing. The accreditation is updated annually.

2.1.3 VCCI

VCCI Accredited test lab. Registration numbers A-0203

2.1.4 Industry Canada

(Registration No.: 482B-1) The 10M SEMI-ANECHOIC CHAMBER has been accepted by Industry Canada to perform testing to 3 and to 10m, based on the test procedures described in ANSI C63.4-2009.

2.1.5 BSMI

Registration No.: SL2-IN-E-050R. The BSMI accreditation was obtained by NIST MRA with the BSMI.

2.1.6 Korea

Recognized by Radio Research Agency as an accredited Conformity Assessment Body (CAB) under the terms of Phase I of the APEC TEL.

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2.1.7 Test Software

- Agilent MXE Receiver A.10.04

  (The installed EMC software in the MXE has p/n N6141A-2FP and version 1.3.50510.18099)
- CIGUI 32 Version 1.4 for California Instruments AC power source
- HP software E7415A Version A.01.45
- National Instruments "Measurement & Automation Employer" Version 4.6.2f1
- Rohde & Schwarz EMI Measurement software ES-K1 V1.71 ServicePack2
- Schaffner NSG 2025 Win 2025 Version 5.0
- Schaffner NSG 2050 Win 2050 Version 6.0
- TILE version 3.4.K.28
- Voltech PM 6000 Firmware 1.22.07RC6, Software IEC61000-3 for PM6000 Release 1.24.12

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2.1.8 Sample Calculation – radiated & conducted emissions

The field strength is calculated by subtracting the Amplifier Gain and adding the Cable Loss and Antenna Correction Factor to the measured reading. The basic equation is as follows:

Field Strength (dBμV/m) = RAW - AMP + CBL + ACF

Where: RAW = Measured level before correction (dBμV)

AMP = Amplifier Gain (dB)

CBL = Cable Loss (dB)

ACF = Antenna Correction Factor (dB/m)

$$\mu V/m = 10^{\frac{dB\mu V/m}{20}}$$

Sample radiated emissions calculation @ 30 MHz

Measurement +Antenna Factor–Amplifier Gain+Cable loss=Radiated Emissions (dBμV/m)

25 dBμV/m + 17.5 dB – 20 dB + 1.0 dB = 23.5 dBμV/m

2.2 Measurement Uncertainty Emissions

Per CISPR 16-4-2	**Ulab**	**Ucispr**
Radiated Disturbance @ 10m		
30 MHz – 1,000 MHz	4.57 dB	5.2 dB
Radiated Disturbance @ 3m		
1.0 GHz – 6.0 GHz	5.08 dB	5.2 dB
6.0 GHz – 18.0 GHz	5.16 dB	5.5 dB
Conducted Disturbance @ Mains Terminals		
150 kHz – 30 MHz	2.62 dB	3.6 dB
Disturbance Power		
30 MHz – 300 MHz	3.88 dB	4.5 dB

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2.2.1 Calibration Traceability

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST). Measurement method complies with ANSI/NCSL Z540-1-1994 and ISO Standard 17025:2005. Equipment calibration records are kept on file at the test facility.

2.3 Measurement Equipment Used

Equipment	Manufacturer	Model #	Ref.	Serial #	Last Cal dd/mm/yy	Next Cal dd/mm/yy	Test
Radiated Emissions							
Analyzer w RF Filter Section 85460A	HP	8546A		3325A00134	12-Aug-14	12-Aug-15	RE
Multimeter	Fluke	83	C437	48162892	12-Aug-14	12-Aug-15	RE
BiLog	Chase	CBL6111	C017	1169	22 Aug 13	22 Aug 15	RE
Receiver (20Hz-40GHz)	Rohde & Schwarz	ESI(B) 40		100274	15-Aug-14	15-Aug-15	RE
Horn (1-18 GHz)	ETS	3117			16-Jan-14	16-Jan-16	RE
Horn(18-26.5 GHz)	ETS	3117			3-Jan-14	3-Jan-15	RE
General Laboratory Equipment							
Multimeter	Fluke	87	C405	49050672	12-Aug-14	12-Aug-15	
Multimeter	Fluke	8062A	C452	4715199	12-Aug-14	12-Aug-15	
Pressure/Temperature/RH	Extech	SD700	C480	Q668876	12-Aug-14	12-Aug-15	

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3 Product Information

3.1 Product Description

Wi-Fi 802.11 b, g, n

This transmitter is used inside the following models:

Caresteam DRX Plus 3543 Detector, model number 2272233001
Caresteam DRX Plus 3543C Detector, model number 2272233002

MODULATION TECHNOLOGY DSSS, OFDM
TRANSFER RATE
802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps
802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps
802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps
802.11n: up to 300.0Mbps
OPERATING FREQUENCY
2.4GHz: 2412.0 ~ 2462.0MHz
5.0GHz: 5745.0 ~ 5825.0MHz
NUMBER OF CHANNEL
2.4GHz: 11 for 802.11b, 802.11g, 802.11n (20MHz)
5.0GHz: 5 for 802.11a, 802.11n (20MHz)

WLAN 802.11b/g, 802.11n
WLAN 802.11a, 802.11n
(5745~5825 MHz)
FCC Part 15, Subpart C
(Section 15.247)

3.2 Equipment Modifications

No modifications were needed to bring product into compliance.

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3.3 Spurious Emissions Outside the band - FCC 15.247(d), RSS-210 A8.5

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power, based on either RF conducted or radiated measurements. Conducted antenna port measurements are provided below to show that the EUT meets these requirements at the band edges.

3.3.1 Over View of Test

Results	**Complies** (as tested per this report)					**Date**	10/27/2014
Standard	FCC Parts 15.205, 15.209, 15.215(c), 15.247(d), RSS-210 A8.5, and RSS-GEN 7.2.1						
Product Model	DRX PLUS DETECTOR RADIO			**Serial#**	13A32S1011361		
Test Set-up	Per ANSI C63.10:2013						
EUT Powered By	Powered Via USB	**Temp**	74 ºF	**Humidity**	36%	**Pressure**	1000 mbar
Perf. Criteria	(Below Limit)		**Perf. Verification**		Readings Under Limit		
Mod. to EUT	None		**Test Performed By**		Randall E Masline		

3.3.2 Test Procedure

Testing was performed in accordance with 47 CFR Part 15, ANSI C63.10:2013, C63.10:2009, RSS-GEN Issue 3. These test methods are listed under the laboratory's A2LA Scope of Accreditation. This test measures the levels emanating from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices.

3.3.3 Deviations

The EUT is compliant to the standard(s).

3.3.4 Final Test

All final radiated spurious emissions measurements were below (in compliance) the limits.

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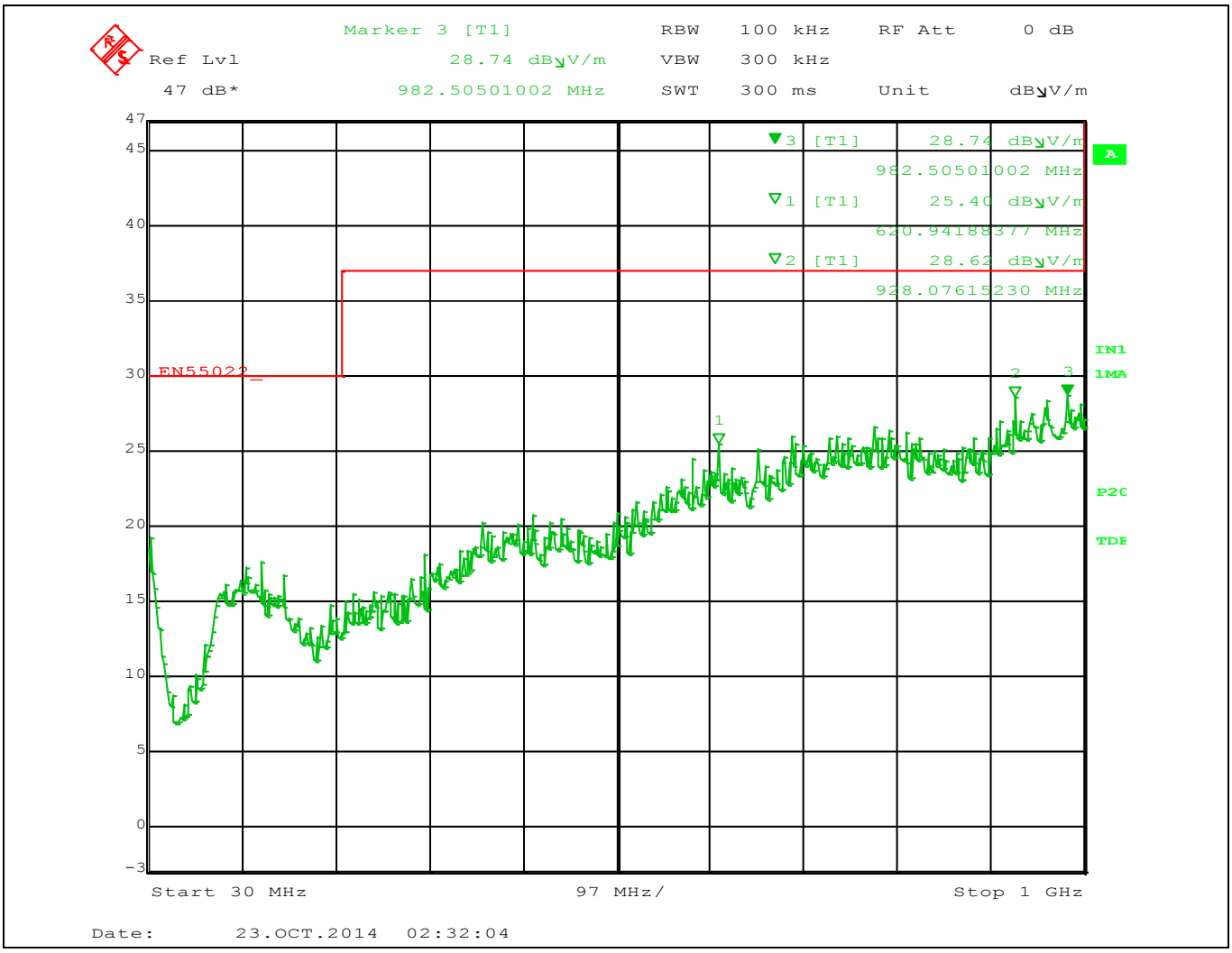
3.3.4.1 Emissions Outside the Frequency Band

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power, based on either RF conducted or radiated measurements. Conducted antenna port measurements are provided below to show that the EUT meets these requirements at the band edges.

Worst-Case Radiated Emissions 30MHz to 1000MHz
Horizontal



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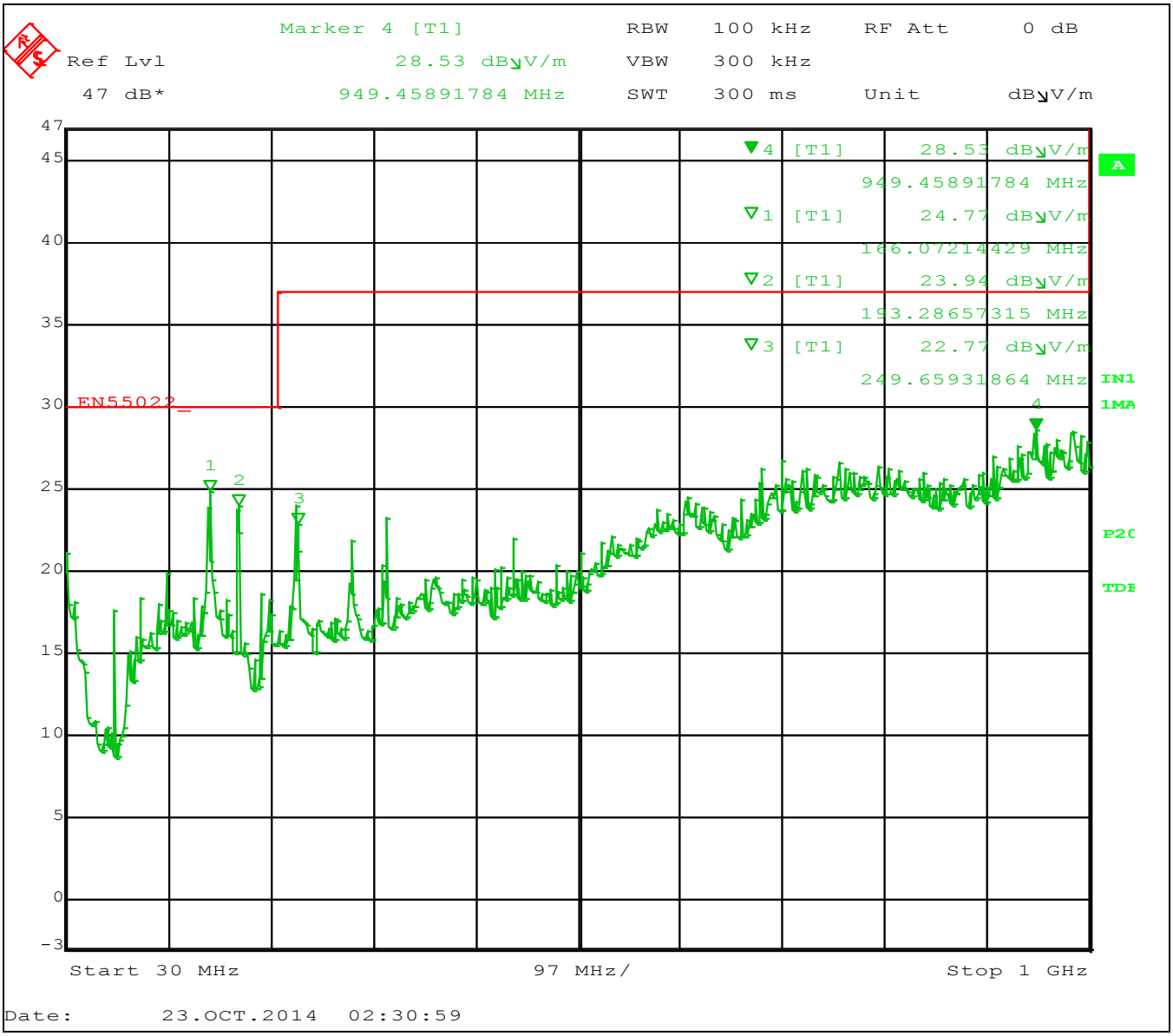
Worst-Case Radiated Emissions 30MHz to 1000MHz
Vertical



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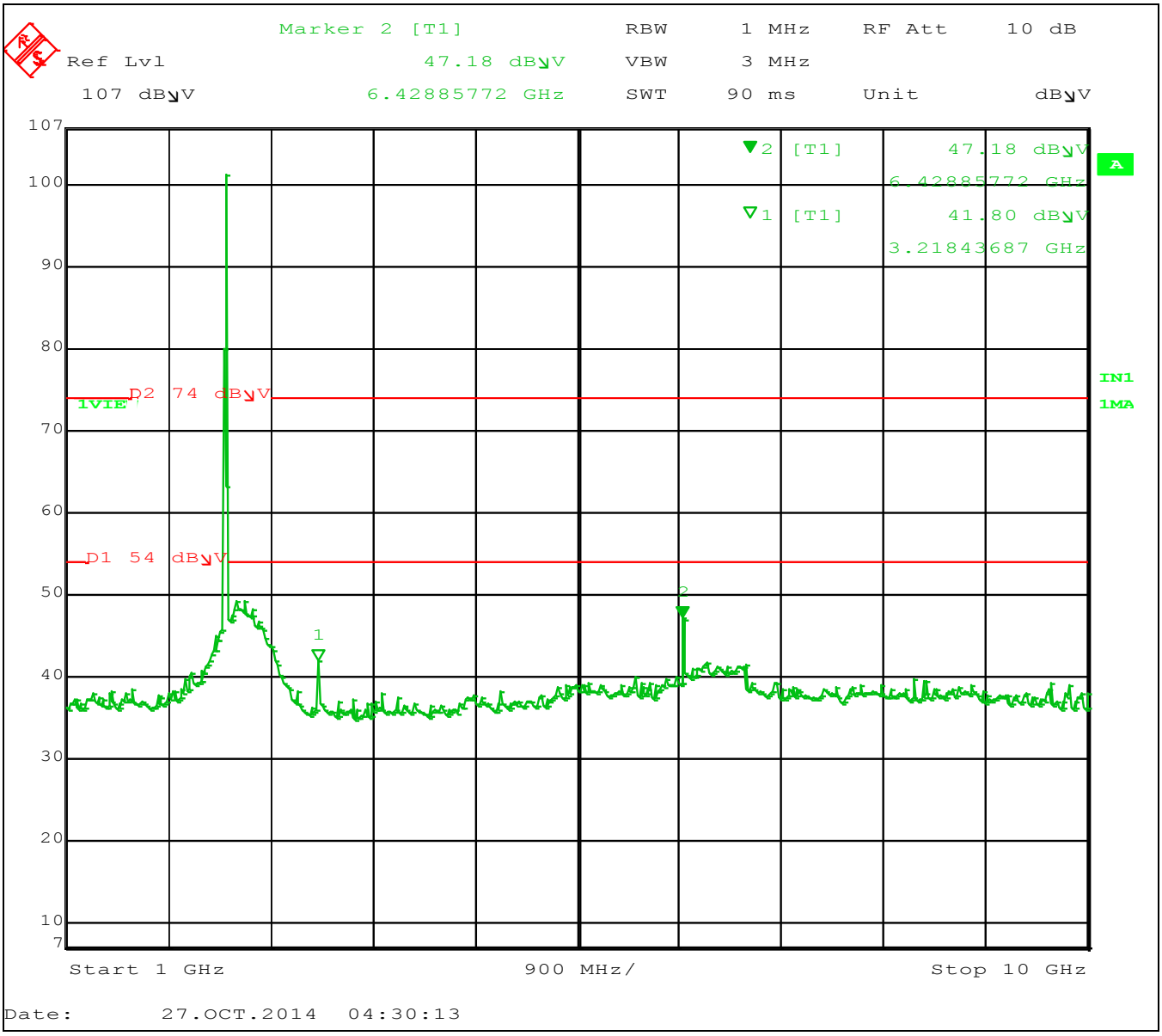
Worst-Case Radiated Emissions 1GHz to 10GHz

Horizontal



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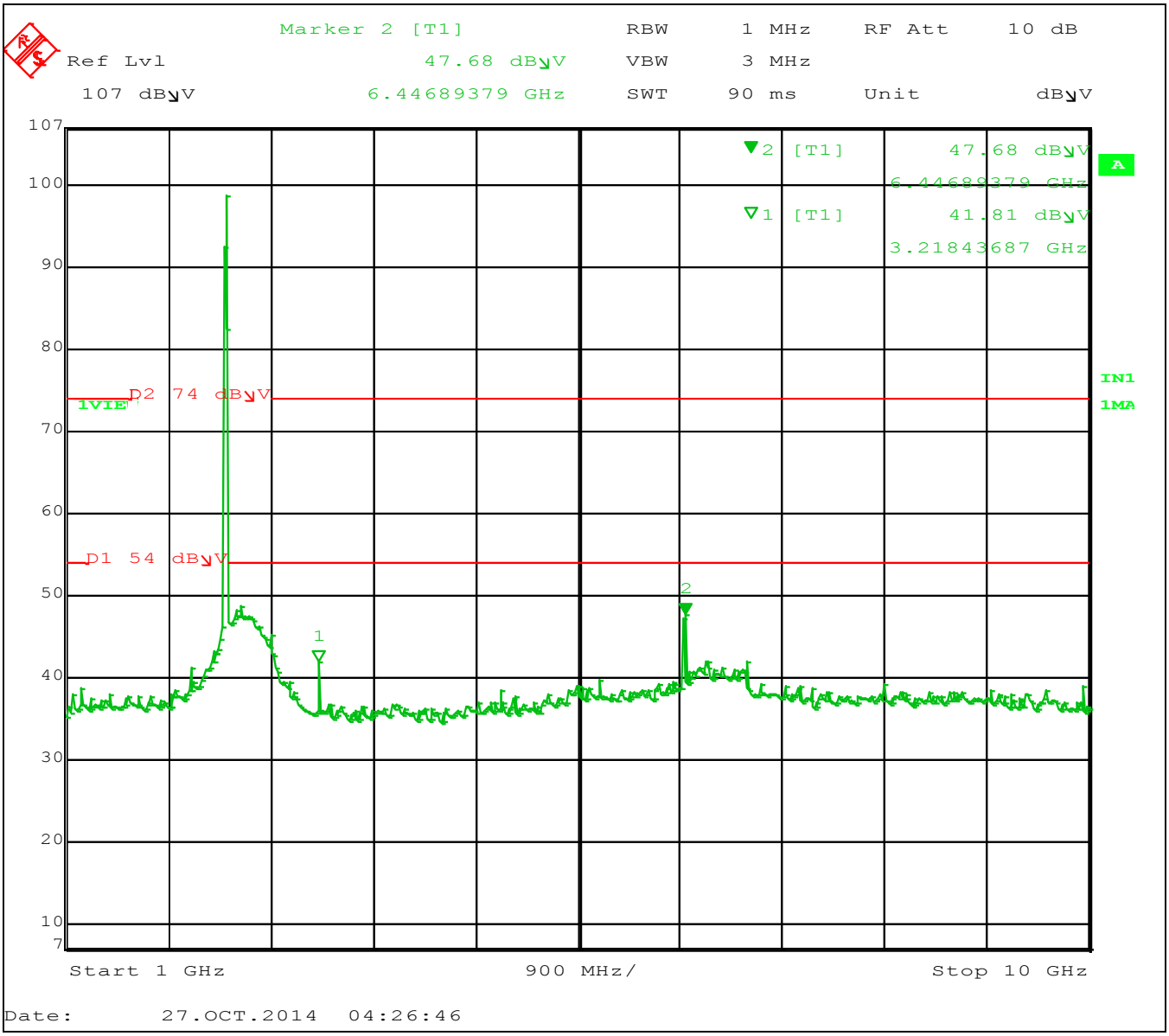
Worst-Case Radiated Emissions 1GHz to 10GHz
Vertical



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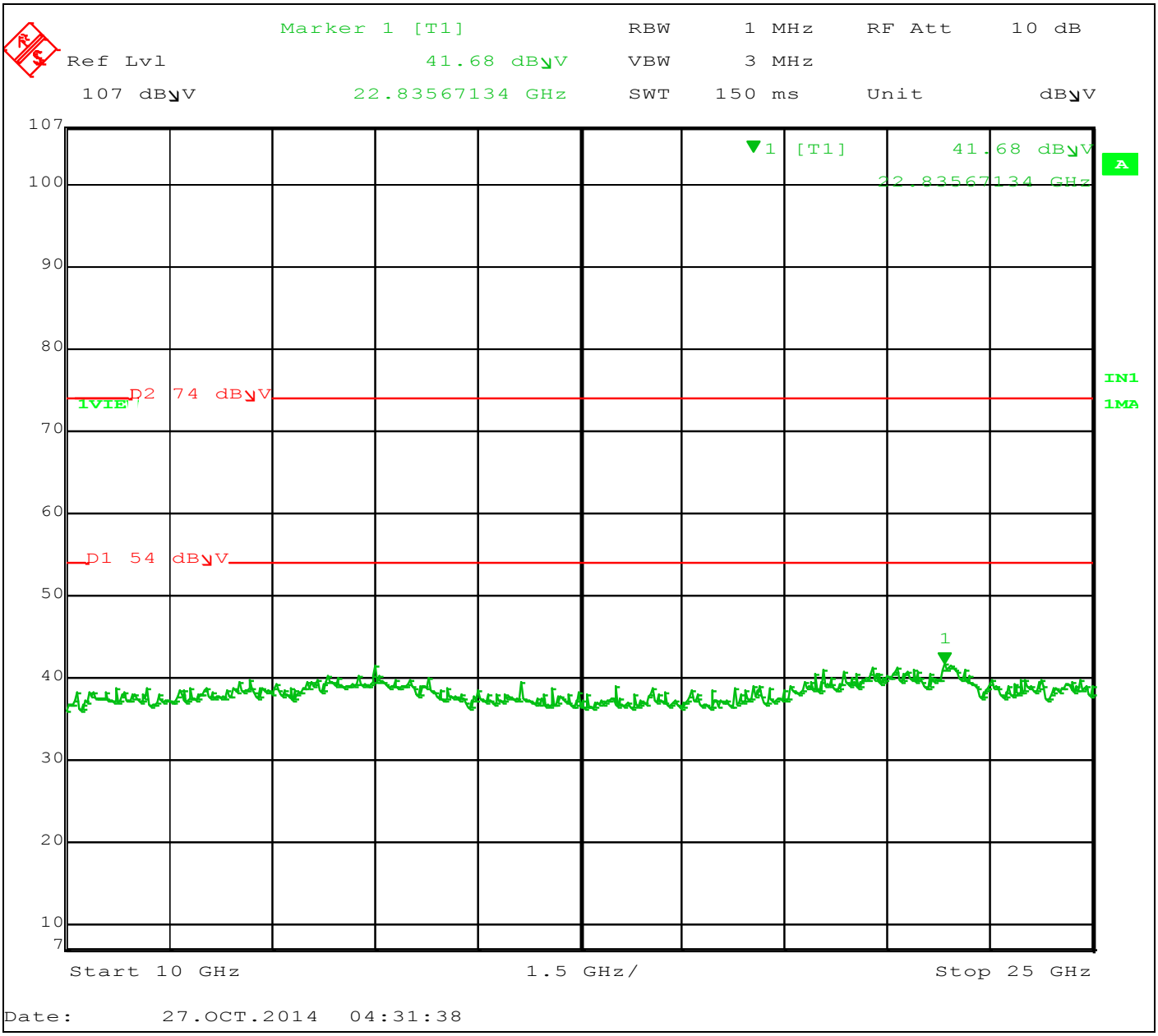
Worst-Case Radiated Emissions 10GHz to 25GHz

Horizontal



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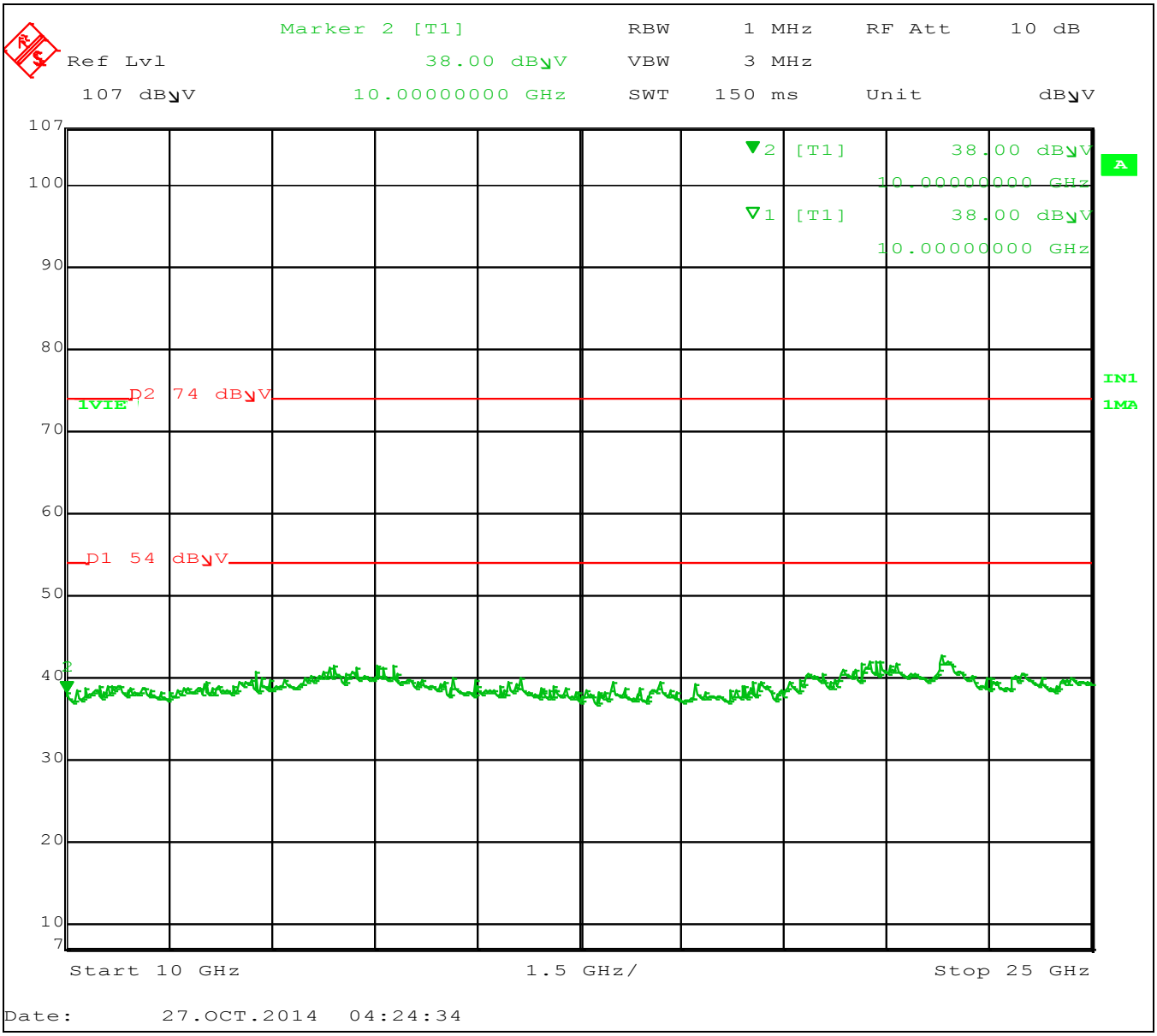
Worst-Case Radiated Emissions 10GHz to 25GHz
Vertical



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3.4 Band Edge

3.4.1 Test Over View

Results	**Complies** (as tested per this report)				**Date**	11/26/2014	
Standard	FCC Part 15.247(d), RSS 210 2.2						
Product Model	DRX PLUS DETECTOR RADIO			**Serial#**	13A32S1011361		
Test Set-up	Per ANSI C63.10:2013						
EUT Powered By	Powered Via USB	**Temp**	74º F	**Humidity**	32%	**Pressure**	1010mbar
Perf. Criteria	(Below Limit)		**Perf. Verification**		Readings Under Limit		
Mod. to EUT	None		**Test Performed By**		Randall E Masline		

3.4.2 Test Procedure

The EUT was using test software to allow the transmitter to transmit continuously. (Duty Cycle > 98%). The test methods of ANSI C63.10:2013, section 11.13 were used.

3.4.3 Deviations

There were no deviations from the test methodology listed.

3.4.4 Final Test

The EUT met the performance criteria requirement as specified in this report and in the standards.

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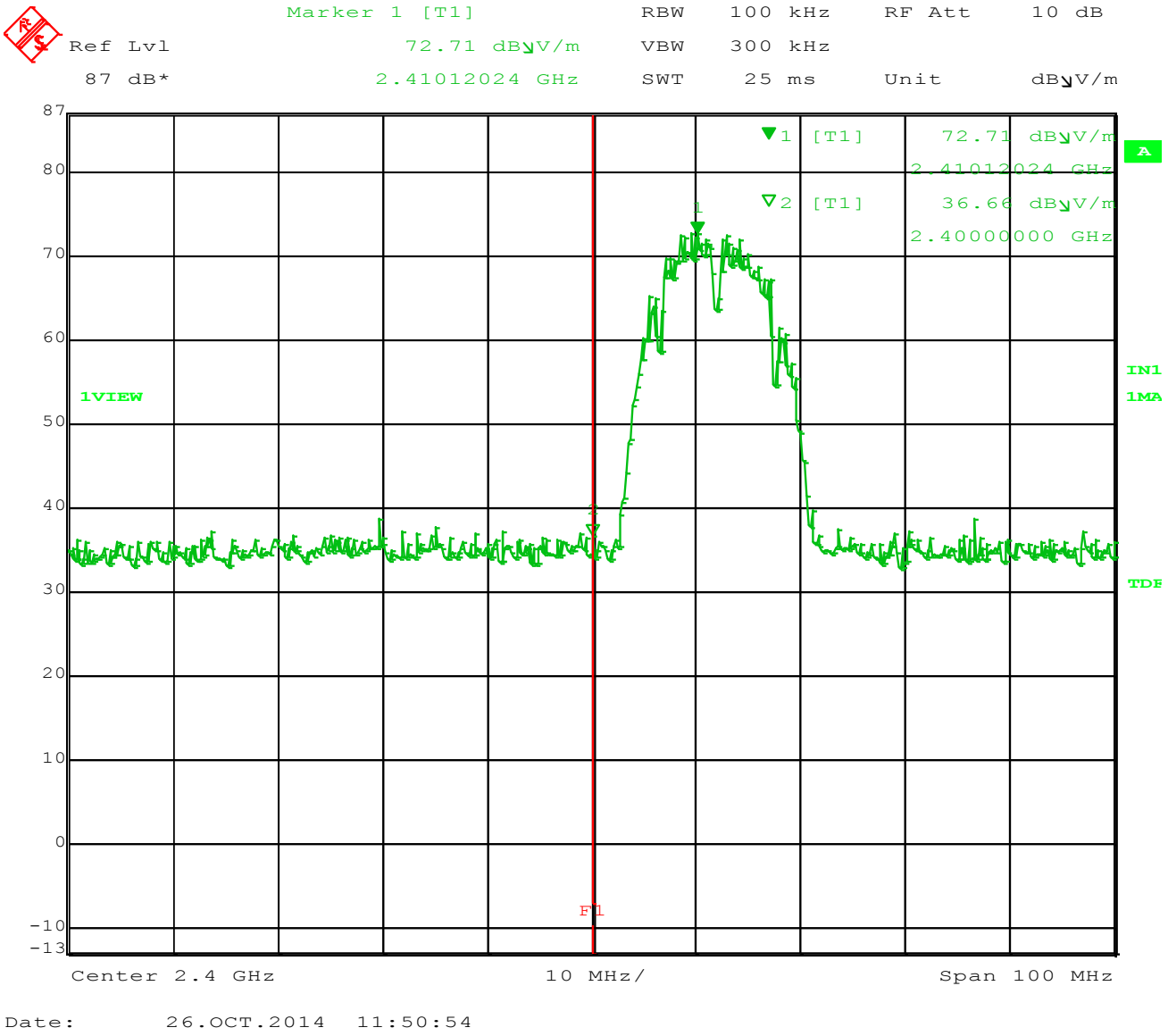

Figure 1: Lower Band Edge Measurement (Radiated Emission) CCK

Note: Band Edge is at 2.4 GHz, and the nearest restricted band (2390MHz) is 10 MHz away

At the lowest channel, the highest emission at the band-edge at 2400 MHz is -36.66 dBc.

The EUT is compliant with the rules.

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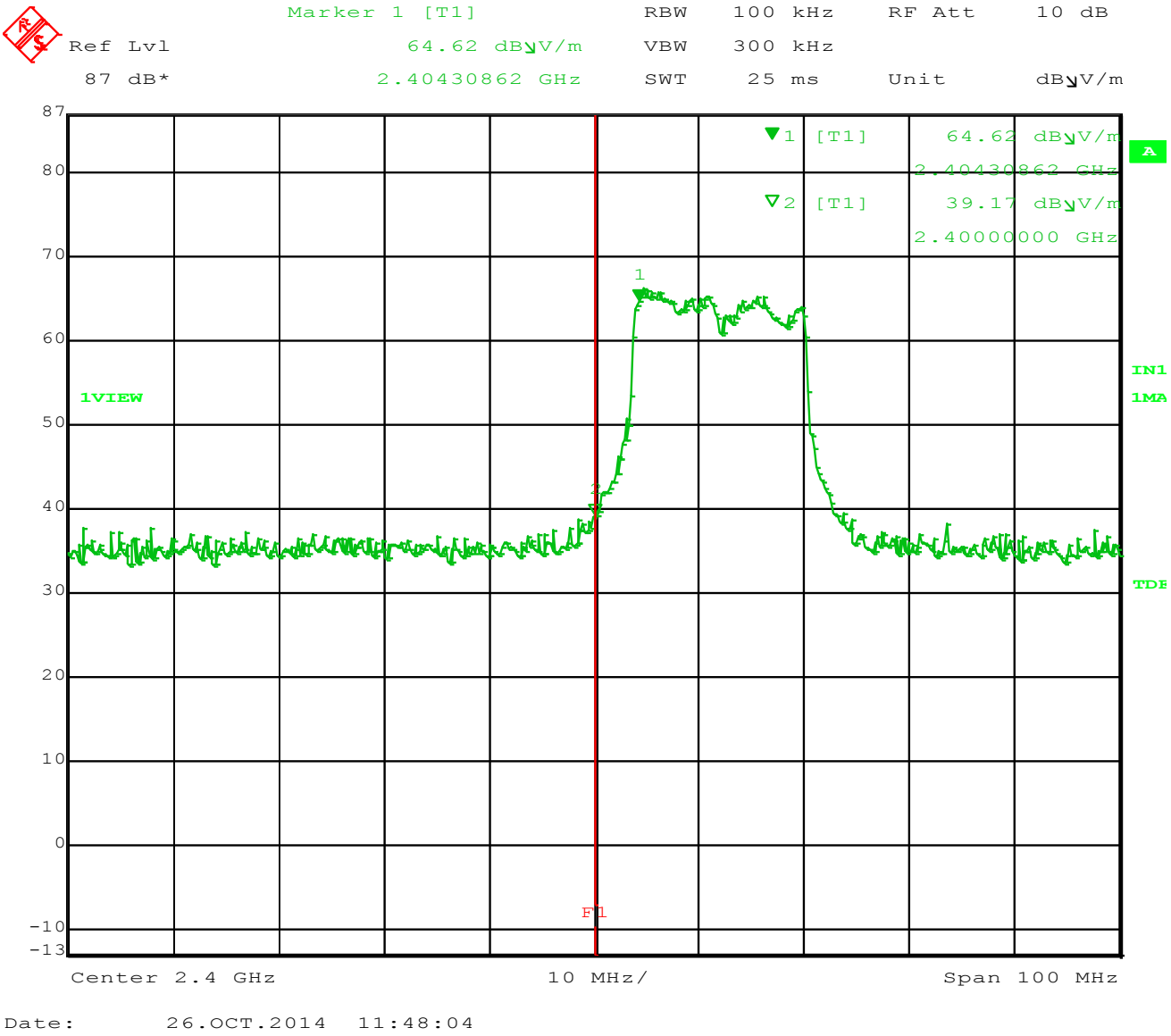

Figure 2: Lower Band Edge Measurement (Radiated Emission) OFDM

Note: Band Edge is at 2.4 GHz, and the nearest restricted band (2390MHz) is 10 MHz away

At the lowest channel, the highest emission at the band-edge at 2400 MHz is -39.17 dBc.

The EUT is compliant with the rules.

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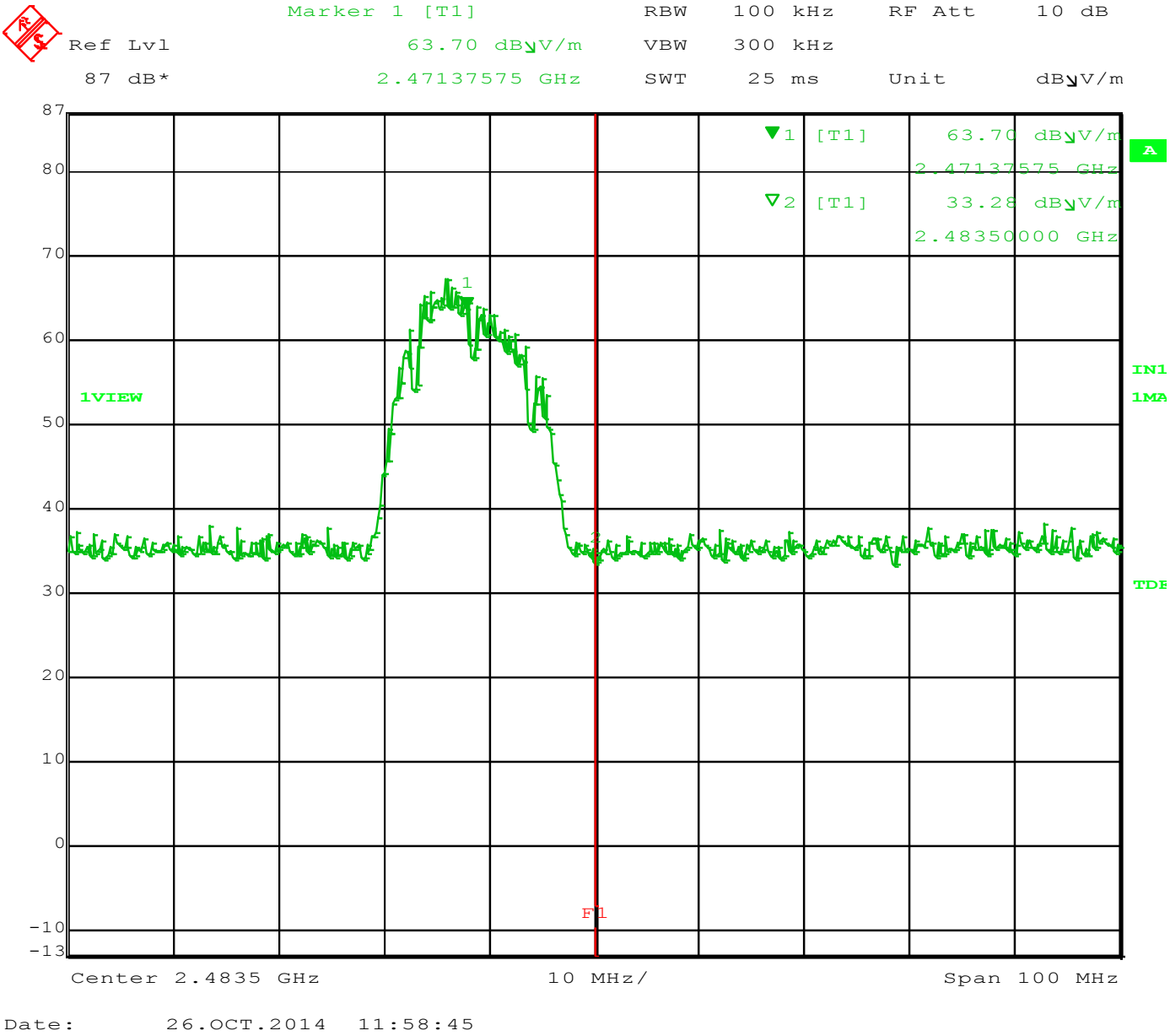

Figure 3: Upper Band Edge Measurement (Radiated Emission) CCK

Note: Band edge (F1) at 2483.5 MHz is also the start of a restricted band, so the rules of 15.205 apply.

The highest channel frequency is 2.47 GHz. The highest emission above the band edge is -33.28 dBc as the signal is gets lost in the noise floor of the receiver.

The EUT is compliant with the rules.

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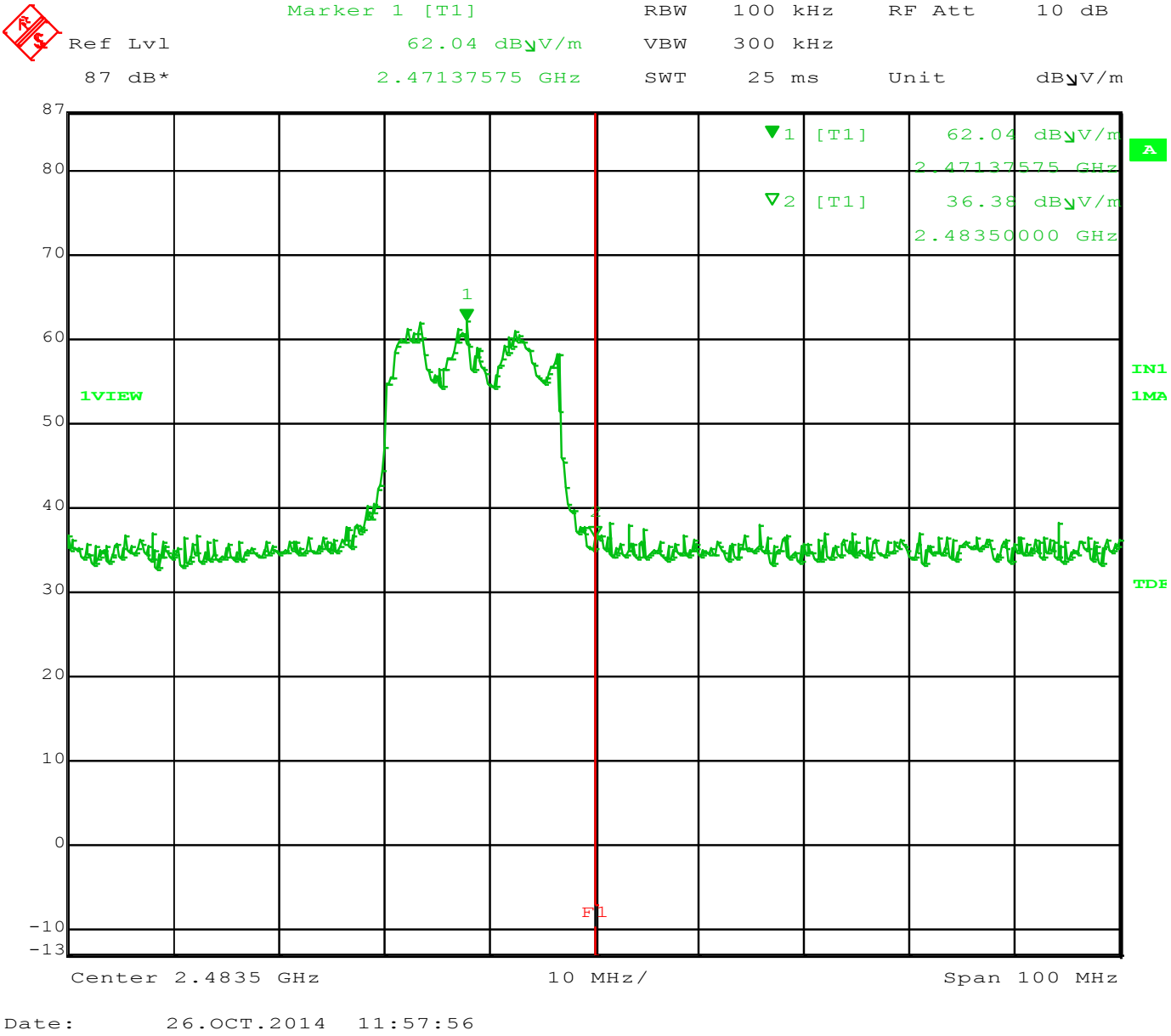

Figure 4: Upper Band Edge Measurement (Radiated Emission) OFDM

Note: Band edge (F1) at 2483.5 MHz is also the start of a restricted band, so the rules of 15.205 apply.

The highest channel frequency is 2.47 GHz. The highest emission above the band edge is -36.38 dBc as the signal is gets lost in the noise floor of the receiver.

The EUT is compliant with the rules.

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4 Antenna Port Conducted Emissions

For conducted tests, the emissions were measured at the antenna port.

Testing was performed in accordance with 47 CFR Part 15, ANSI C63.10:2013, RSP-100 Issue 9. These test methods are listed under the laboratory's A2LA Scope of Accreditation. This test measures the levels emanating from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices.

4.1 Conducted Output Power, FCC 15.247(b)(3) and RSS-210 A8.4(4)

4.1.1

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the *maximum conducted output power* is the highest total transmit power occurring in any mode.

4.1.2 Test Over View

Results	**Complies** (as tested per this report)					**Date**	11/29/2014
Standard	FCC Part 15.247(b)(3) and RSS-210 A8.4(4)						
Product Model	DRX PLUS DETECTOR RADIO			**Serial#**	13A32S1011361		
Test Set-up	Per ANSI C63.10:2013						
EUT Powered By	Powered Via USB	**Temp**	74º F	**Humidity**	32%	**Pressure**	1010mbar
Perf. Criteria	(Below Limit)		**Perf. Verification**		Readings Under Limit		
Mod. to EUT	None		**Test Performed By**		Randall E Masline		

4.1.3 Test Procedure

The EUT was using test software to allow the transmitter to transmit continuously. (Duty Cycle > 100%).

The test methods of ANSI C63.10:2013 and C63.2009 were used

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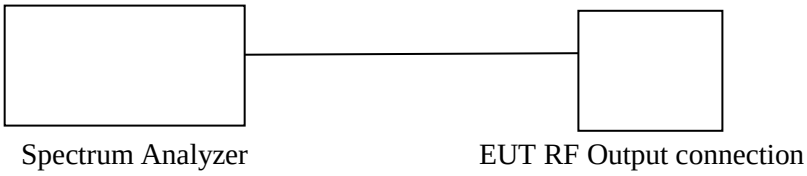
Test Setup:



Note: The output of the EUT is low enough that an external attenuator was not necessary.

4.1.4 Deviations

There were no deviations from the test methodology.

4.1.5 Final Test

The EUT is compliant to the requirements of the standard.

4.1.6 Peak Power Output

Peak Output Conducted Channel Power Measurements

Emission Freq (MHz)	Corrected Value (dBm)	Spec Limit (dBm)	Spec Margin (dB)	Modulation
2412.00 (f_H)	13.93	**+30.00**	**-16.07**	**CCK**
2442.00 (f_M)	14.15	+30.00	**-15.85**	**CCK**
2472.00 (f_H)	**14.69**	+30.00	**-15.31**	**CCK**

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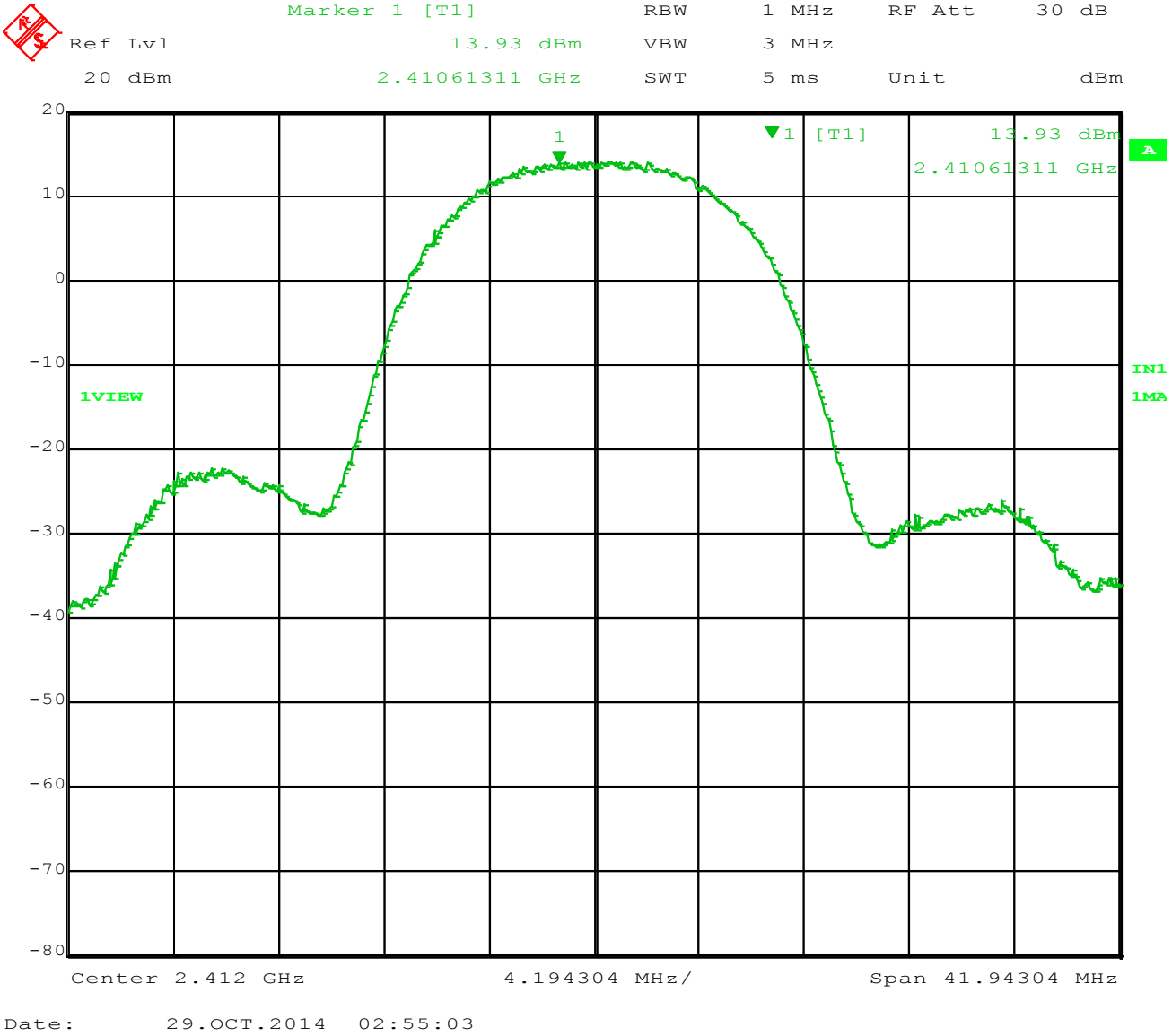

Figure 5 – Highest Peak Conducted Power Output for EUT highest frequency. CCK at 2412 MHz

Graphs of the other frequencies are on file at the manufacturer and at TUV.

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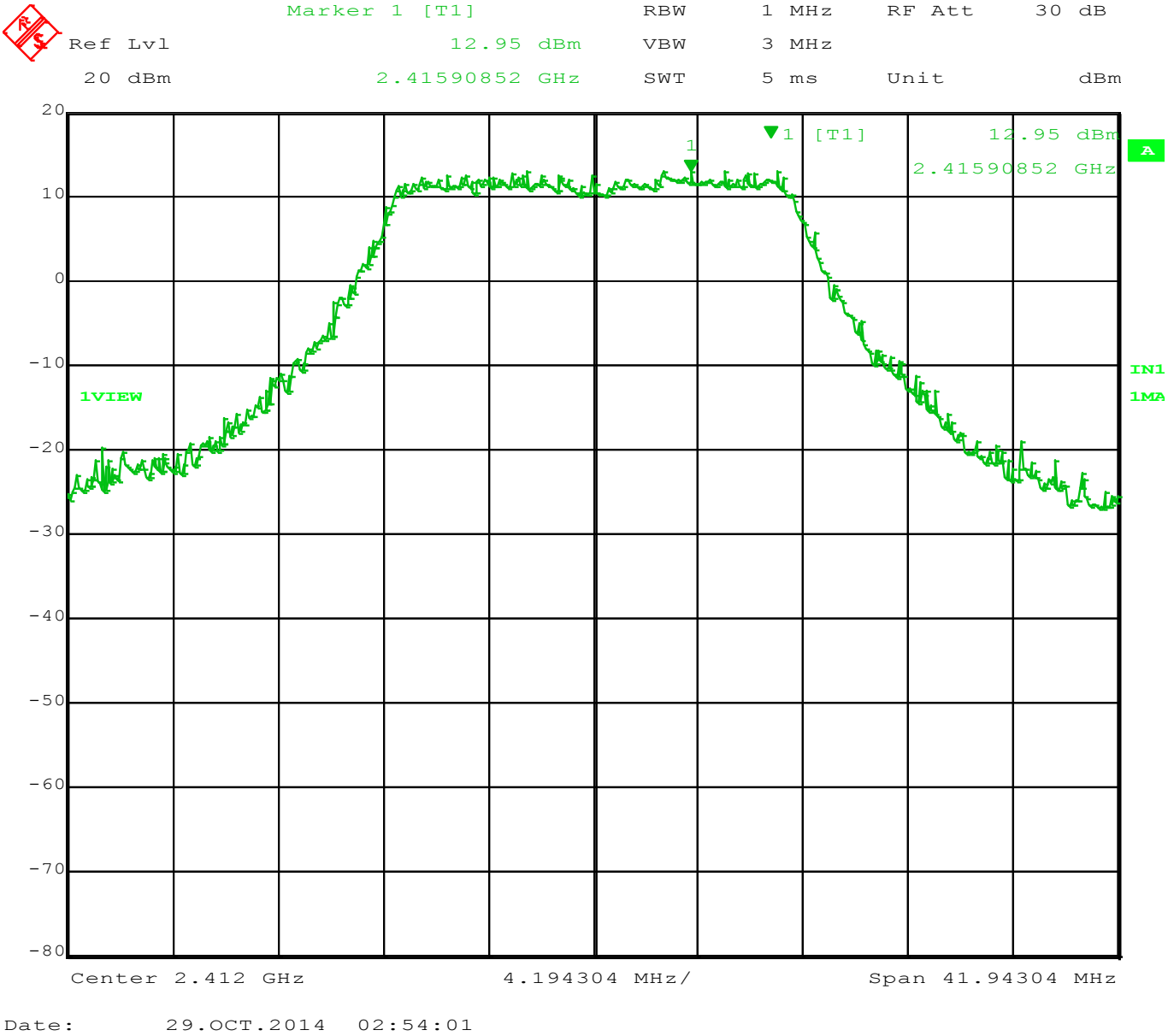

Figure 6 – Highest Peak Conducted Power Output for EUT highest frequency. OFDM at 2412 MHz

Graphs of the other frequencies are on file at the manufacturer and at TUV.

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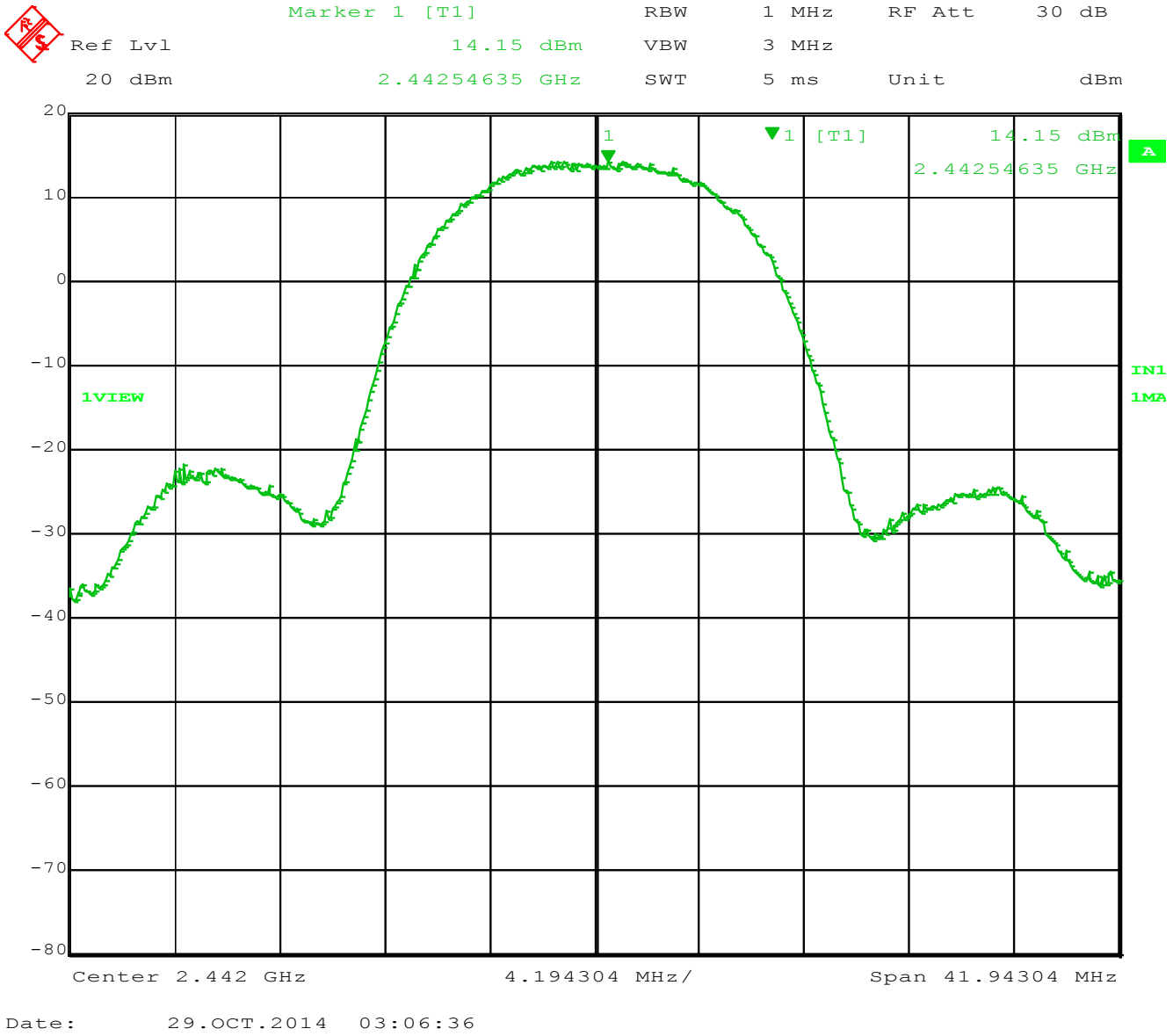

Figure 7 – Highest Peak Conducted Power Output for EUT highest frequency. CCK at 2442 MHz

Graphs of the other frequencies are on file at the manufacturer and at TUV.

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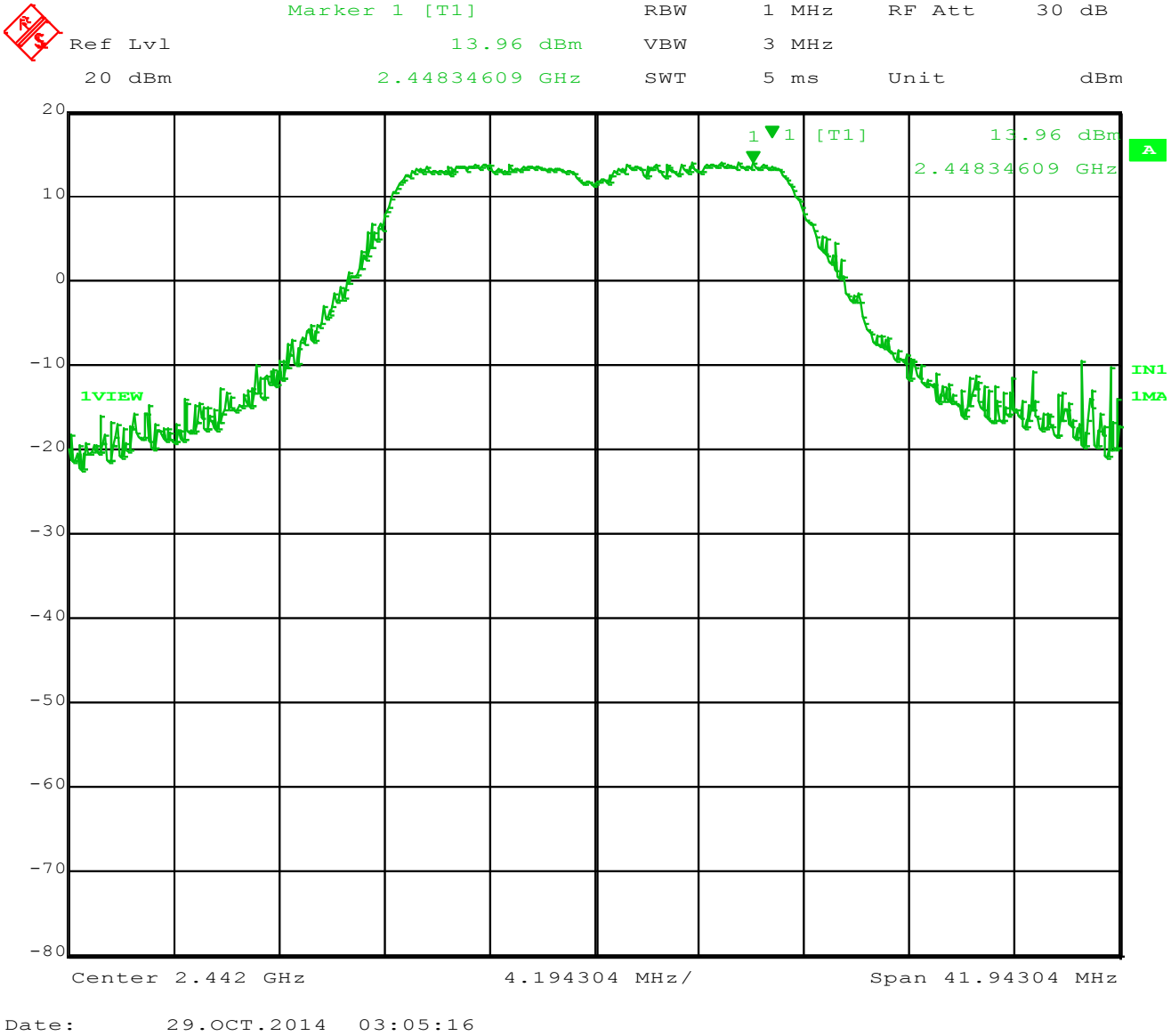

Figure 8 – Highest Peak Conducted Power Output for EUT highest frequency. OFDM at 2442 MHz

Graphs of the other frequencies are on file at the manufacturer and at TUV.

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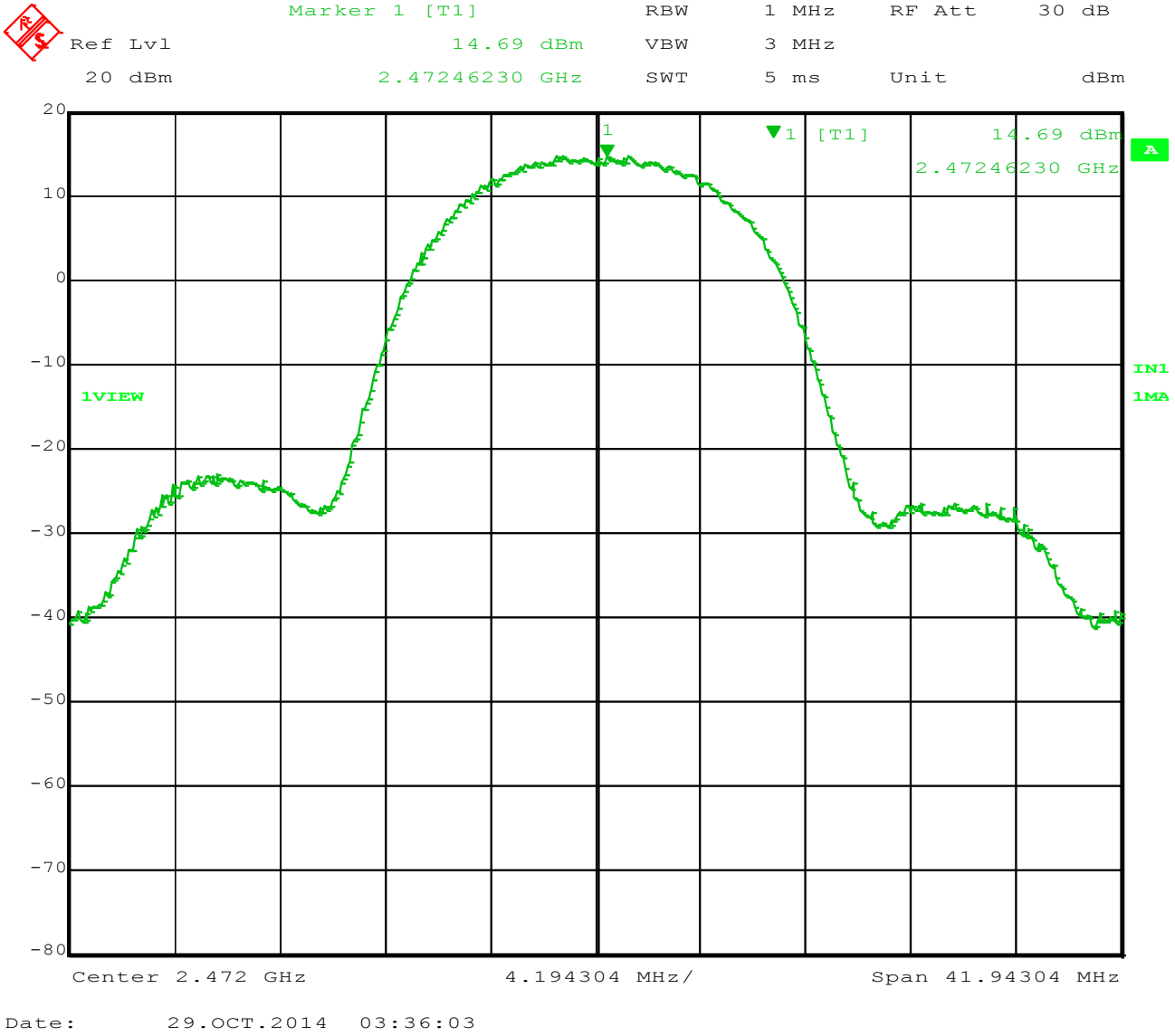

Figure 9 – Highest Peak Conducted Power Output for EUT highest frequency. CCK at 2472 MHz

Graphs of the other frequencies are on file at the manufacturer and at TUV.

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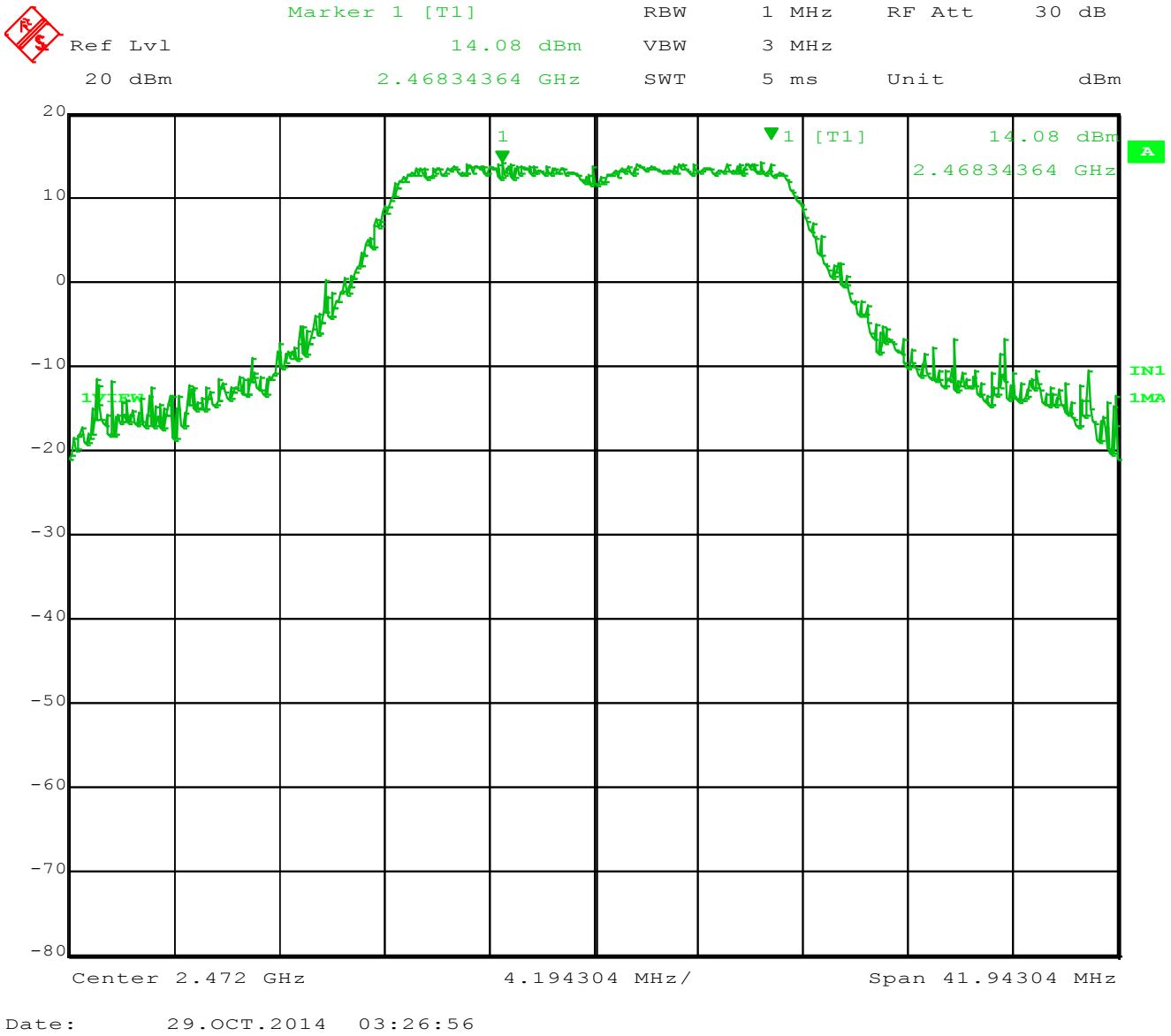

Figure 10 – Highest Peak Conducted Power Output for EUT highest frequency. OFDM at 2472 MHz

Graphs of the other frequencies are on file at the manufacturer and at TUV.

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4.1.7 Antenna Gain

ELECTRICL PERFORMANCE SUMMARY

FREQUENCY(GHZ)	2.4	2.44	2.48	5.15	5.25	5.35	5.50	5.725	5.825
GAIN (dBI)	-7.2	-5.5	-8.4	-1.2	-0.8	-1.8	-2.3	-3.3	-3.5
POLARIZATION	V	V	V	V	V	$45	$45	$45	$45
3 db BEAMWIDTH ELEV 1 [DEG.]	140	150	150	120	120	110	110	110	110
3 db BEAMWIDTH ELEV 2 [DEG.]	120	120	150	60	60	150	180	180	180
IMPEDENCE [OHM]	50	50	50	50	50	50	50	50	50
VSWR	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.

Results

As tested, the EUT was found to be compliant to the requirements of the test standard.

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4.2 Maximum Power Spectral Density

4.2.1 Test Over View

Results	**Complies** (as tested per this report)				**Date**	11/4/2014	
Standard	FCC Part 15.247(e) and RSS 210 A8.2(b)						
Product Model	DRX PLUS DETECTOR RADIO			**Serial#**	13A32S1011361		
Test Set-up	Per ANSI C63.10:2013						
EUT Powered By	Powered Via USB	**Temp**	74º F	**Humidity**	32%	**Pressure**	1010mbar
Perf. Criteria	Below Limit (10dBm)		**Perf. Verification**		≤8 dBm in any 3 kHz		
Mod. to EUT	None		**Test Performed By**		Randall E Masline		

4.2.2 Test Procedure

The EUT was using test software to allow the transmitter to transmit continuously. (Duty Cycle > 98%).

The test methods of ANSI C63.10:

4.2.3 Deviations

The output of the EUT is much less than the PSD limit, therefore the device is compliant by default.

However the measurements were made for informational use only.

RBW correction factor for 30kHz RBW: 10log(3/30) or -10dB.

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4.2.4 Final Test

The EUT's total power (eirp) is well below 8 dBm. It is therefore compliant by default.

THE Power Spectral Density Measurements are shown below.

Maximum Power Spectral Density Measurements

Freq. (MHz)	Meas. (dBm)	Limit (dBm)	Margin (dB)	Mod
2412.00	-14.16	8.00	-22.16	CCK
2437.00	-15.51	8.00	-23.51	CCK
2467.00	-15.20	8.00	-23.2	CCK
2412.00	-16.77	8.00	-24.77	OFDM
2437.00	-17.36	8.00	-25.36	OFDM
2467.00	-17.08	8.00	-25.08	OFDM

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4.2.5 Final Data

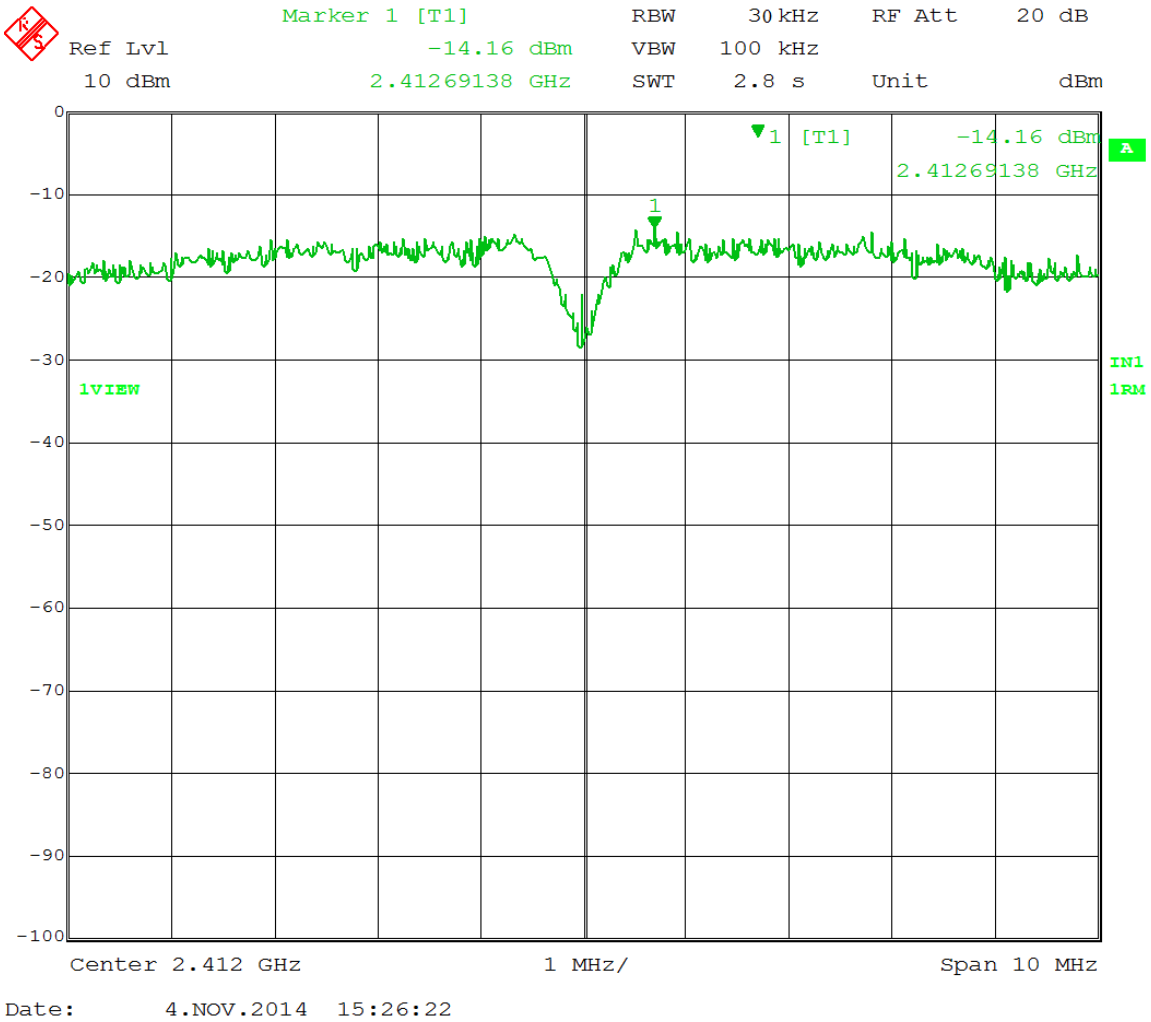

Figure 11: Peak Reference Frequency CCK

Spectrum Analyzer Parameters:
RBW= 30kHz
Span= 10MHz
VBW= 100kHz
LOG dB/div.= 10dB
Sweep = Auto
Detector = RMS detector, max hold

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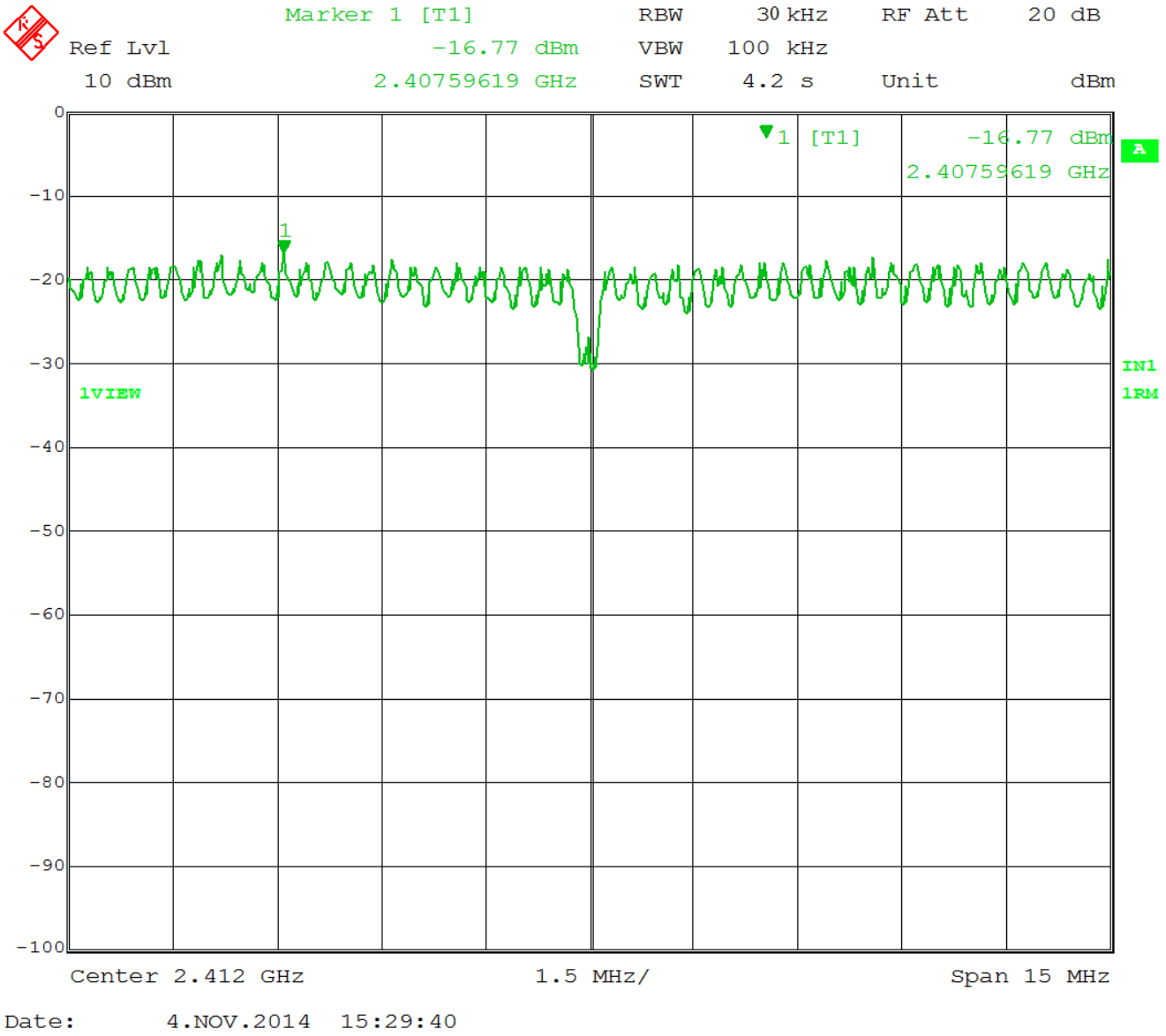

Figure 12: Peak Reference Frequency OFDM

Spectrum Analyzer Parameters:
RBW= 30kHz
Span= 10MHz
VBW= 100kHz
LOG dB/div.= 10dB
Sweep = Auto
Detector = RMS detector, max hold

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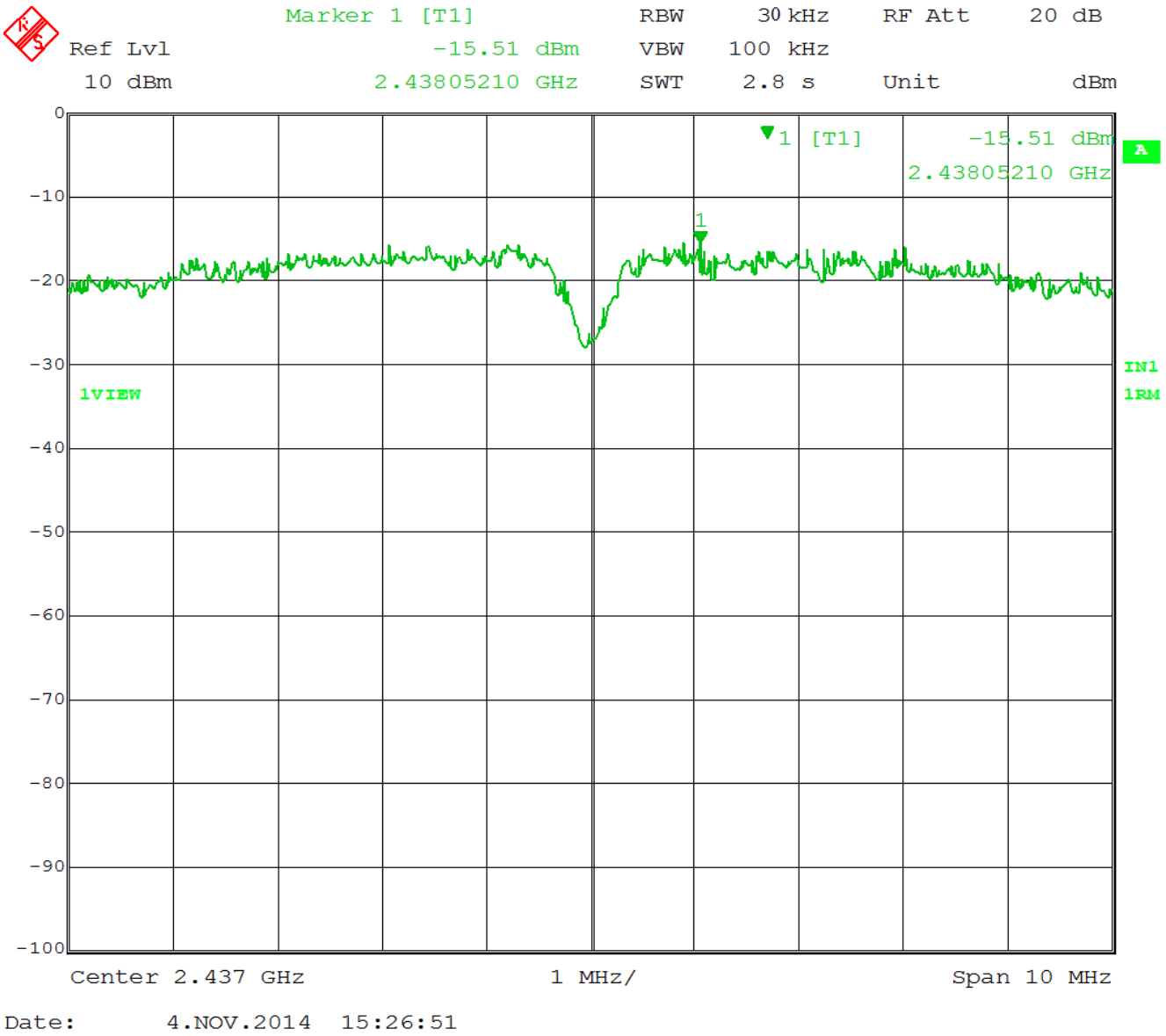

Figure 13: Peak Reference Frequency CCK

Spectrum Analyzer Parameters:
RBW= 30kHz
Span= 10MHz
VBW= 100kHz
LOG dB/div.= 10dB
Sweep = Auto
Detector = RMS detector, max hold

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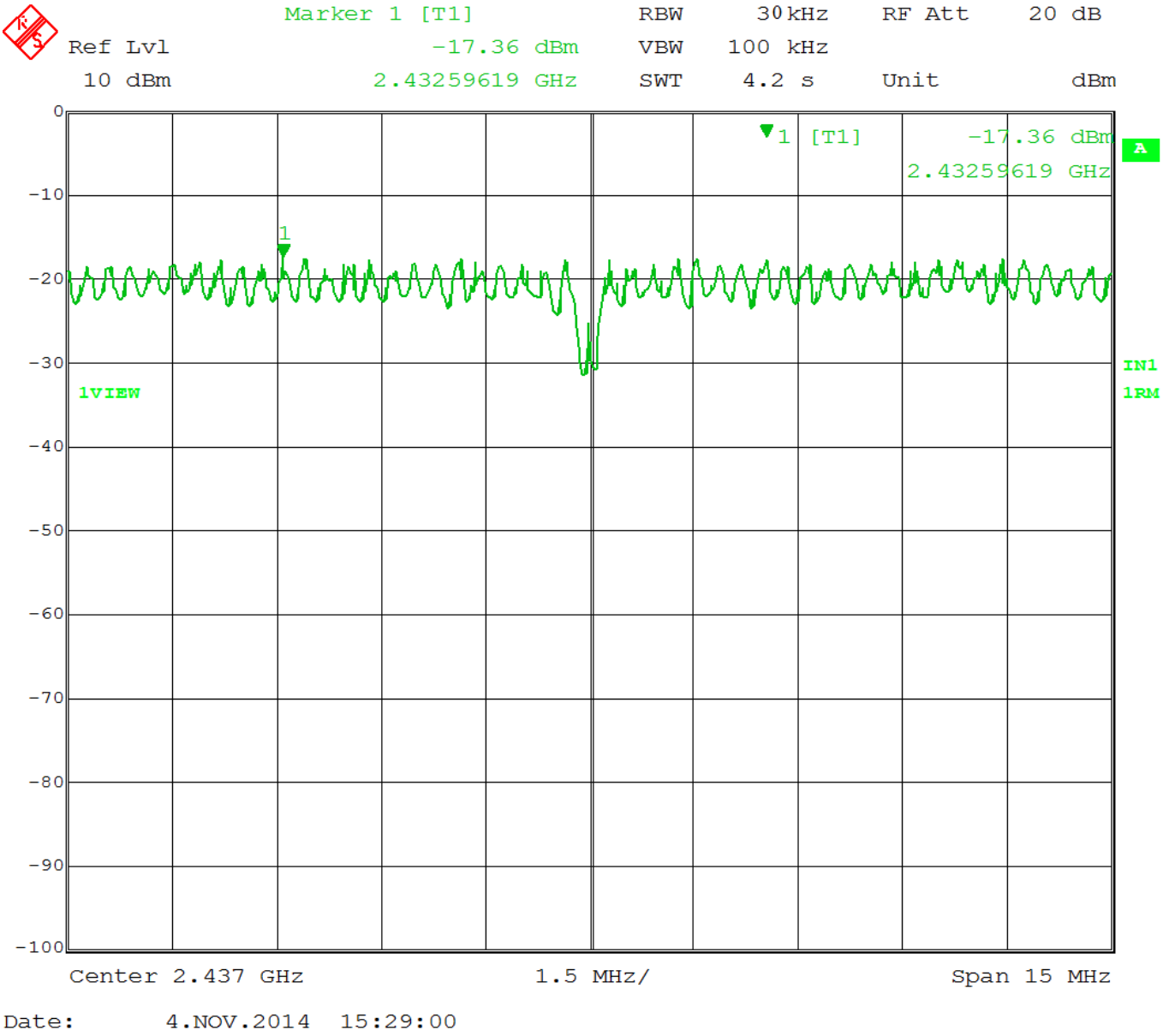

Figure 14: Peak Reference Frequency OFDM

Spectrum Analyzer Parameters:
RBW= 30kHz
Span= 10MHz
VBW= 100kHz
LOG dB/div.= 10dB
Sweep = Auto
Detector = RMS detector, max hold

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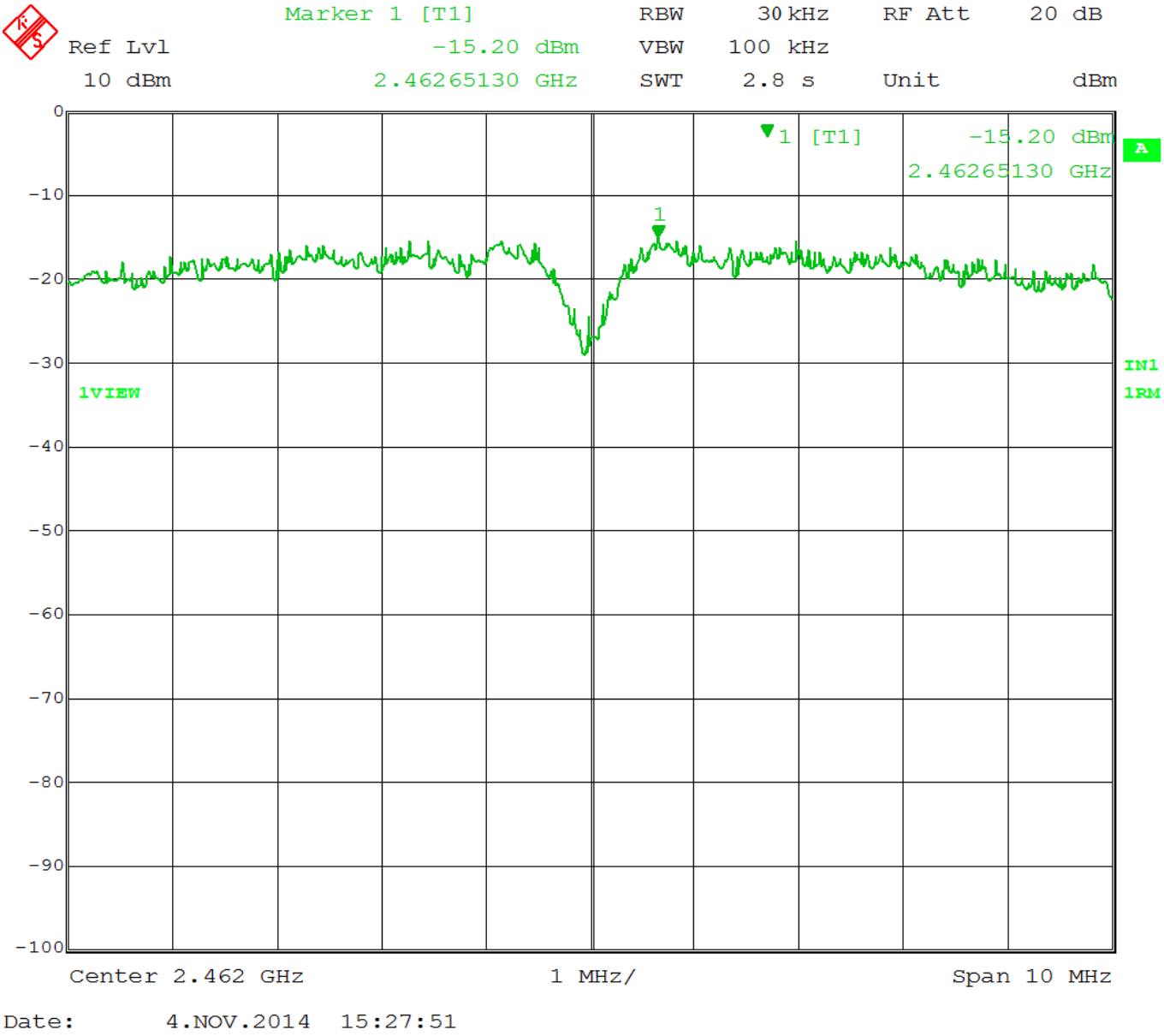

Figure 15: Peak Reference Frequency CCK

Spectrum Analyzer Parameters:
RBW= 30kHz
Span= 10MHz
VBW= 100kHz
LOG dB/div.= 10dB
Sweep = Auto
Detector = RMS detector, max hold

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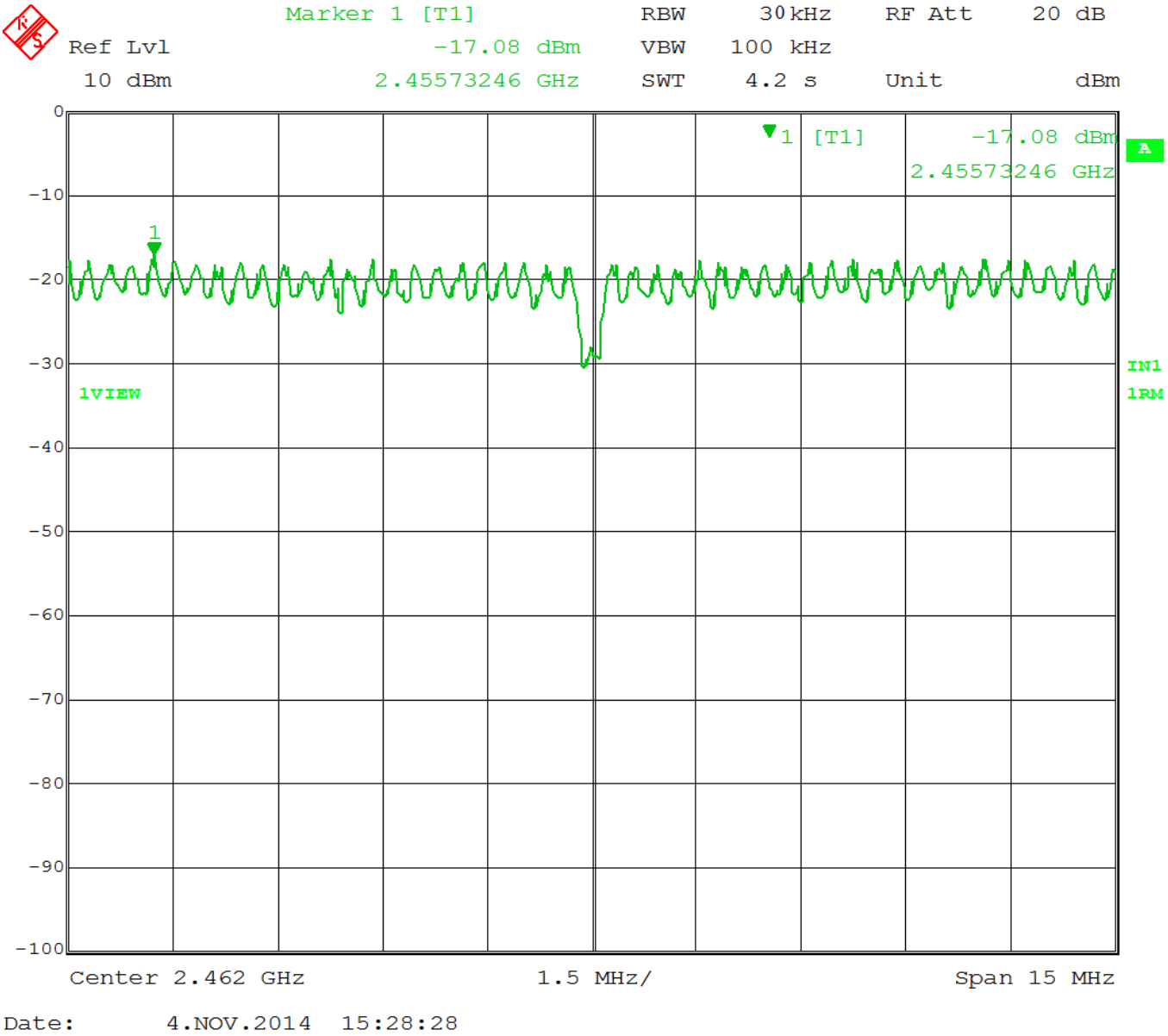

Figure 16: Peak Reference Frequency CCK

Spectrum Analyzer Parameters:
RBW= 30kHz
Span= 10MHz
VBW= 100kHz
LOG dB/div.= 10dB
Sweep = Auto
Detector = RMS detector, max hold

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4.3 Occupied Bandwidth

For systems using digital modulation techniques shall have a minimum 6 dB bandwidth of at least 500 kHz.

4.3.1 Test Over View

Results	**Complies** (as tested per this report)					**Date**	11/4/2014
Standard	FCC Part 15.247(a)(2)						
Product Model	DRX PLUS DETECTOR RADIO			**Serial#**	13A32S1011361		
Test Set-up	Per ANSI C63.10:2009						
EUT Powered By	Powered Via USB	**Temp**	74º F	**Humidity**	32%	**Pressure**	1010mbar
Perf. Criteria	(Below Limit)		**Perf. Verification**		Readings Under Limit		
Mod. to EUT	None		**Test Performed By**		Randall E Masline		

4.3.2 Test Procedure

The EUT was using test software to allow the transmitter to transmit continuously. (Duty Cycle > 98%).

The test methods of ANSI C63.10:2009, section 9.9.2 were used.

Both 6 dB and 20 Occupied Bandwidth measurements were made.

4.3.3 Deviations

No devieations

The test results contained in this report refer exclusively to the product(s) presented for testing. No liability may be assumed for models or products not referred to herein. This test report may not be published or duplicated in part without permission of the testing body. This test report by itself does not constitute authorization for the use of any TUV Rheinland test mark. The report must not be used by the client to claim product certification, approval, or endorsement by A2LA.

4.3.4 Final Test

All 6 dB bandwidth measurements are greater than 500 kHz.

The EUT is compliant to the standard(s).

-6 dB Bandwidth Measurements

Emission Freq (MHz)	OBW 6 dB (MHz)	MOD
2412.00 (f_H)	10.02	CCK
2437.00 (f_M)	10.17	CCK
2467.00 (f_H)	10.07	CCK
2412.00 (f_H)	16.58	OFDM
2437.00 (f_M)	16.58	OFDM
2467.00 (f_H)	16.63	OFDM

Note: worst Case 6 dB and 20 dB Occupied Bandwidth measurement plots are shown below; the other plots are on file at TUV Rheinland.

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4.3.5 Final Data

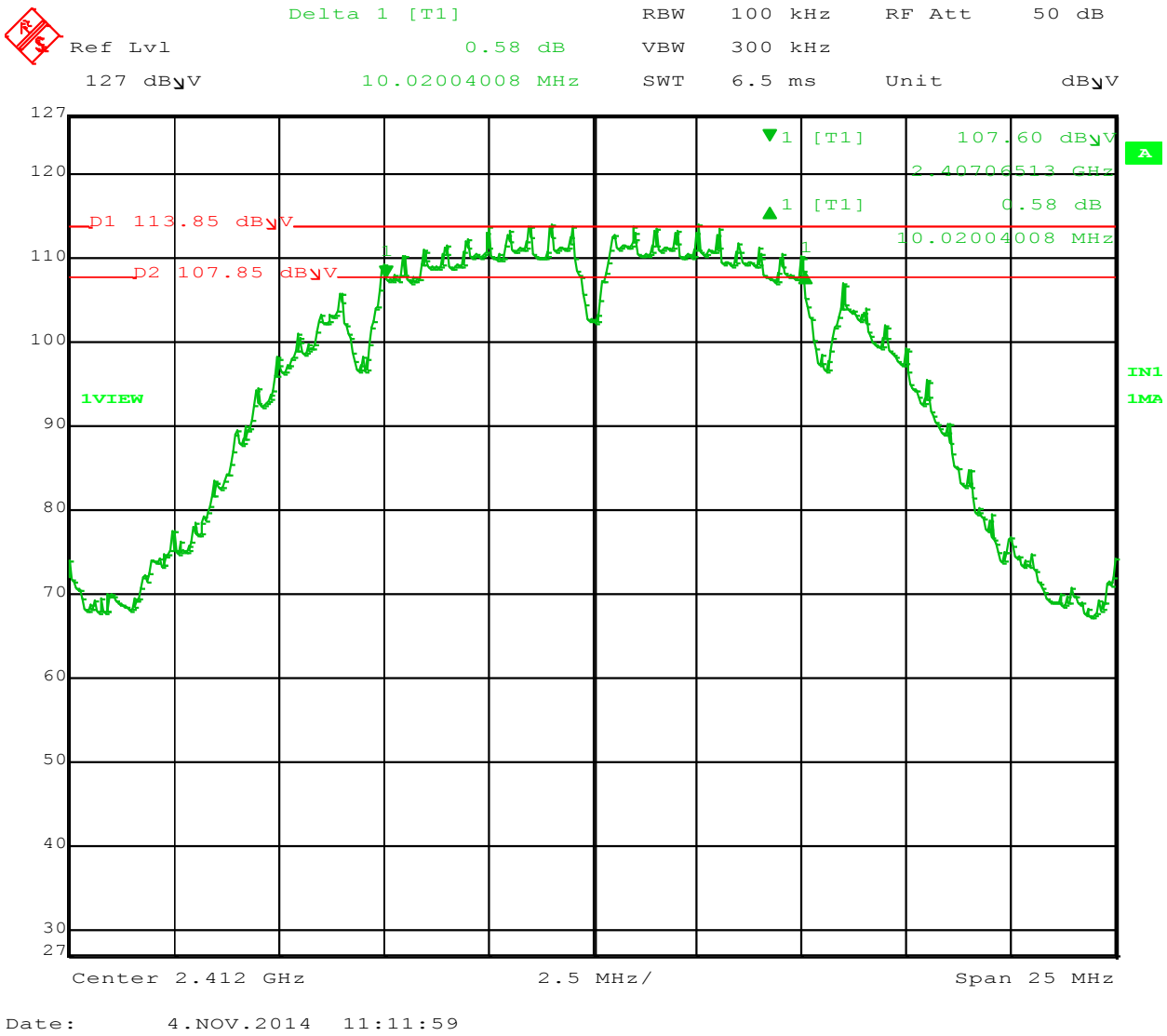

Figure 17: 6dB Occupied Bandwidth CCK

6dB Band width is 10.02 MHz

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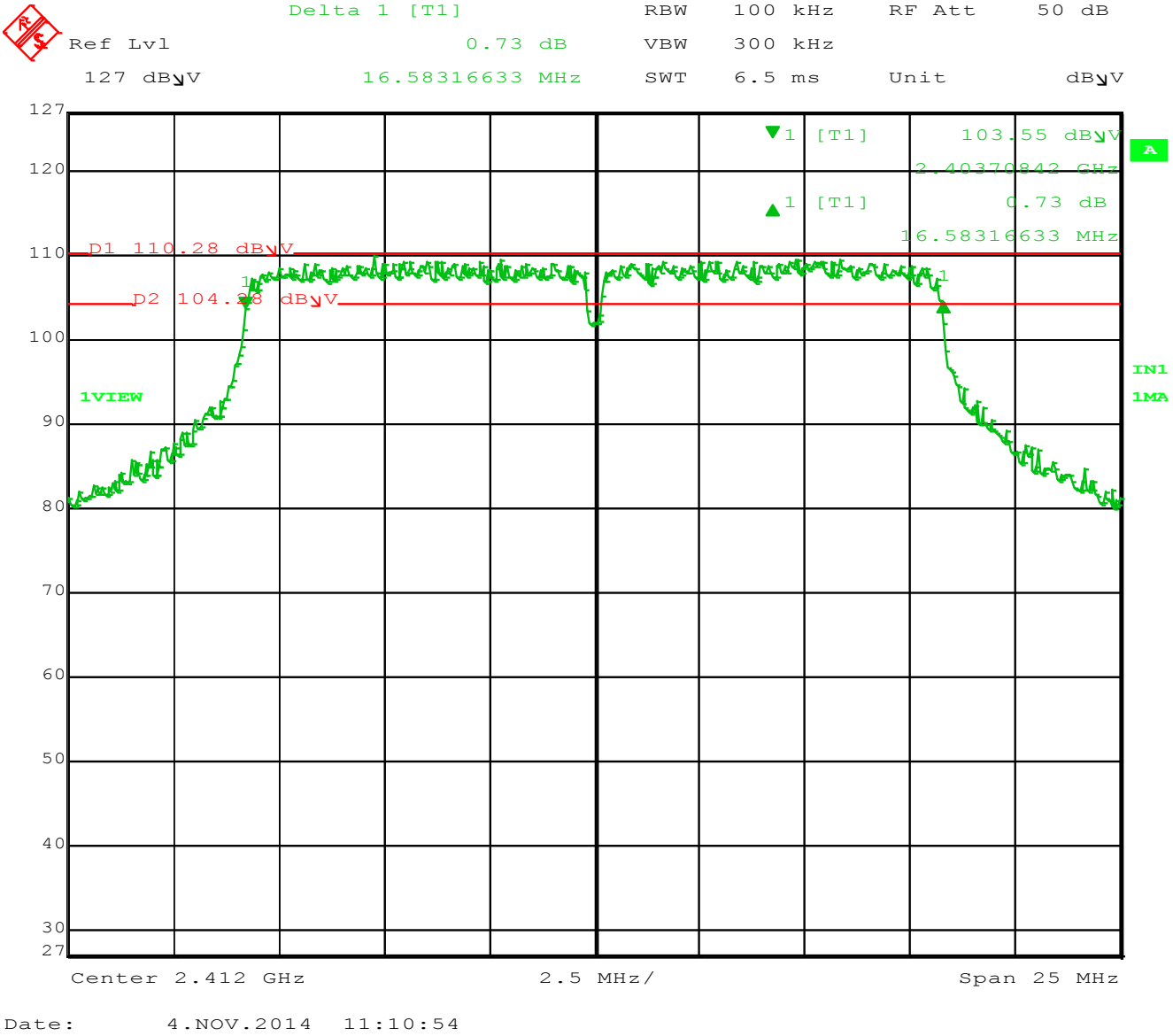

Figure 18: 6dB Occupied Bandwidth OFDM

6dB Band width is 16.58 MHz

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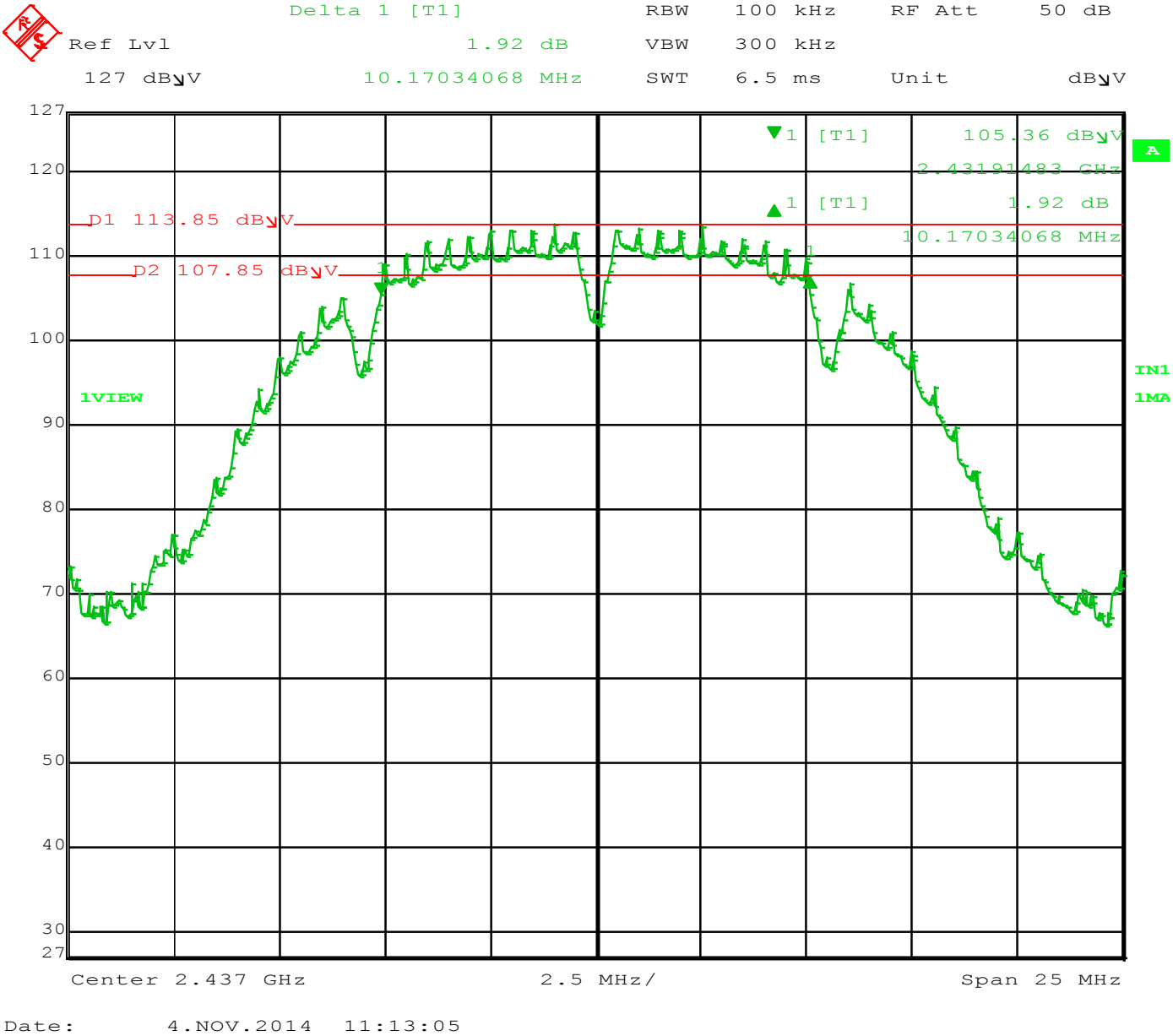

Figure 19: 6dB Occupied Bandwidth CCK

6dB Band width is 10.17 MHz

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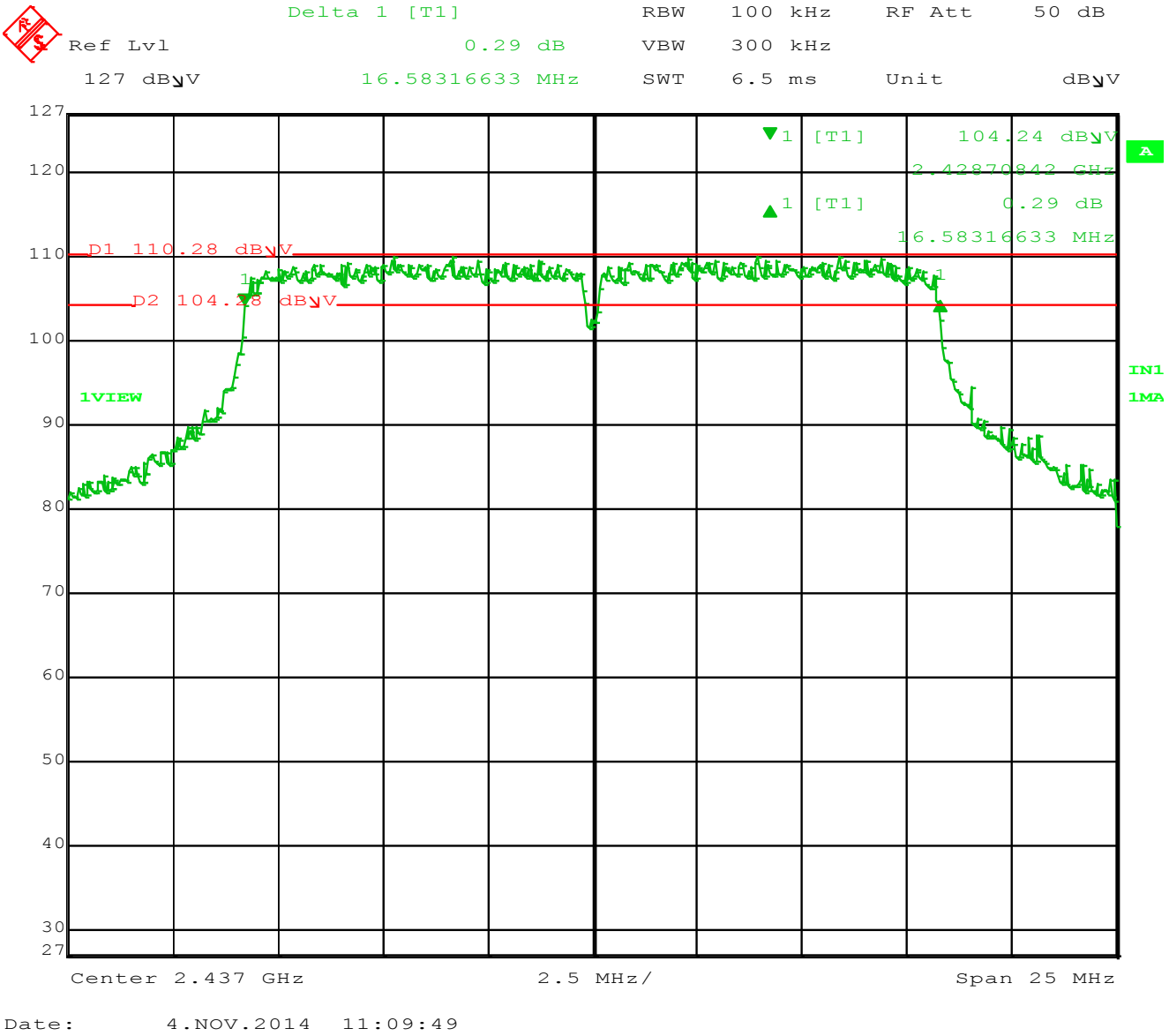

Figure 20: 6dB Occupied Bandwidth OFDM

6dB Band width is 16.58 MHz

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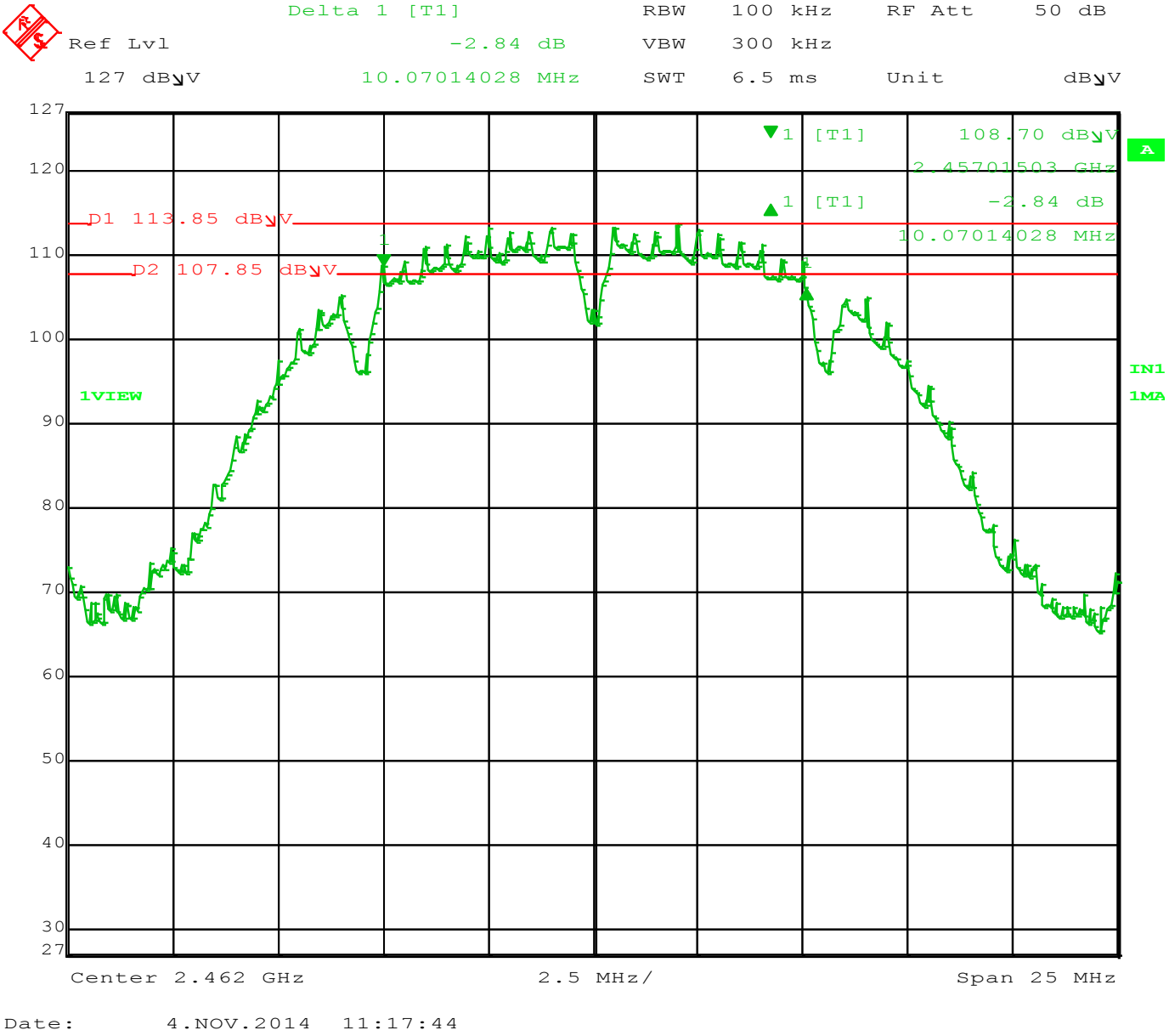
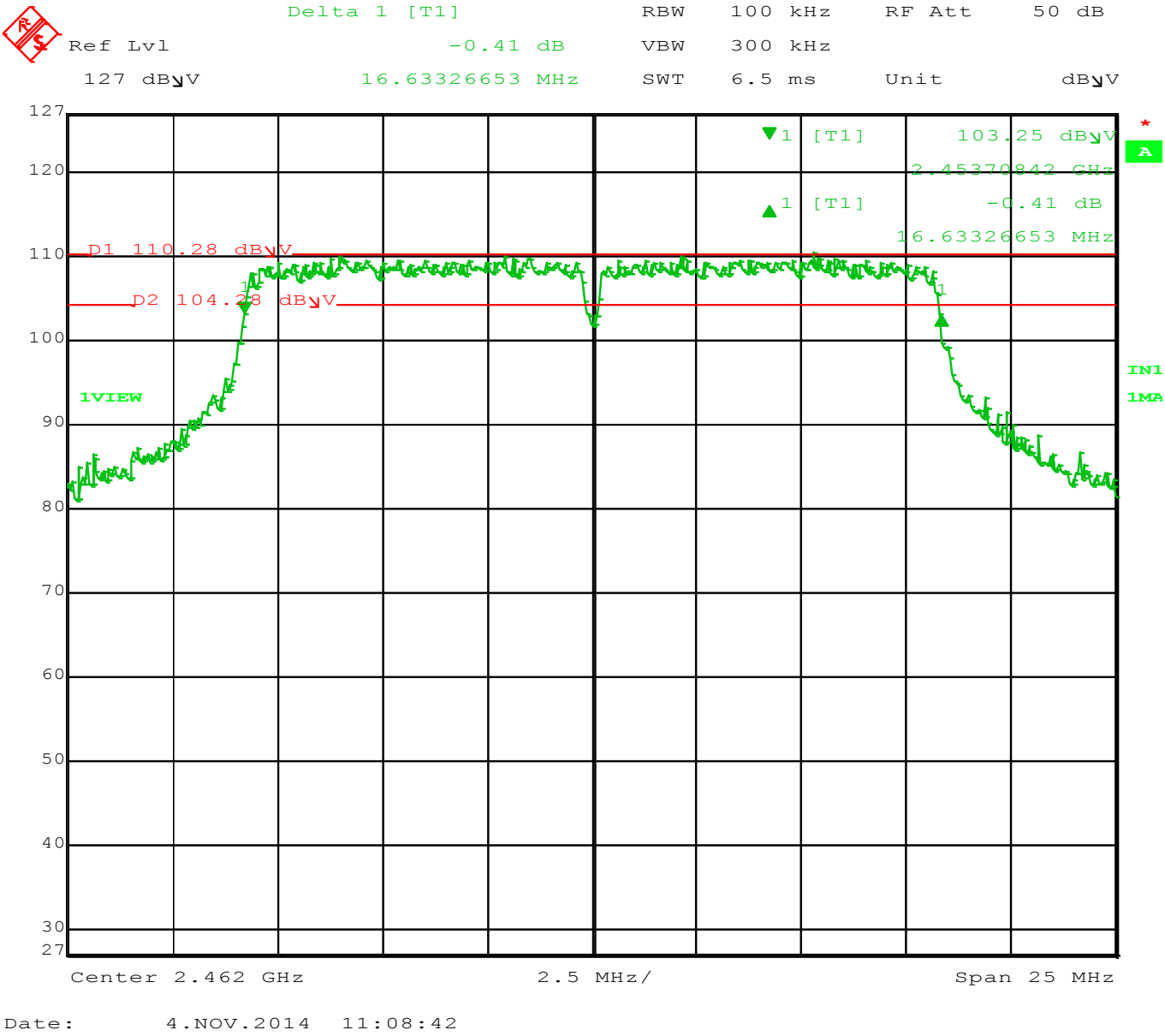


Figure 21: 6dB Occupied Bandwidth CCK

6dB Band width is 10.07 MHz

The test results contained in this report refer exclusively to the product(s) presented for testing. No liability may be assumed for models or products not referred to herein. This test report may not be published or duplicated in part without permission of the testing body. This test report by itself does not constitute authorization for the use of any TUV Rheinland test mark. The report must not be used by the client to claim product certification, approval, or endorsement by A2LA.



Date: 4.NOV.2014 11:08:42

Figure 22: 6dB Occupied Bandwidth OFDM

6dB Band width is 16.63 MHz

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4.4 Voltage Requirements FCC Part 15.31(e)

FCC Part 15.31 states that for intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

4.4.1 Over View of Test

Results	**Complies** (as tested per this report)	**Date**	11/4/2014
Standard	FCC Part 15.31(e) and RSS-GEN 4.7		
Product Model	DRX PLUS DETECTOR RADIO	**Serial#**	13A32S1011361
Test Set-up	Per ANSI C63.10:2013		
Perf. Criteria	(Below Limit)	**Perf. Verification**	Readings Under Limit
Mod. to EUT	None	**Test Performed By**	Randall E Masline

4.4.2 Test Procedure

The EUT is a battery-only operated device. A fresh battery was installed in the EUT for testing.

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4.5 Antenna Requirements FCC Parts 15.203, 15.204 and RSS-GEN 7.1.4

4.5.1 Over View of Test

Results	**Complies** (as tested per this report)	**Date**	11/4/2014
Standard	FCC Part 15.203, 15.204 and RSS-GEN 714		
Product Model	DRX PLUS DETECTOR RADIO	**Serial#**	13A32S1011361

4.5.2 Test Procedure

The EUT was operates using only an internal printed circuit "Inverted – F" antenna.

The antennae are placed inside a Detector and are professionally installed and uses security screws.

4.5.3 Final Test

The EUT was found to be compliant to the requirements of the test standard.

ELECTRICL PERFORMANCE SUMMARY

FREQUENCY(GHZ)	2.4	2.44	2.48	5.15	5.25	5.35	5.50	5.725	5.825
GAIN (dBI)	-7.2	-5.5	-8.4	-1.2	-0.8	-1.8	-2.3	-3.3	-3.5
POLARIZATION	V	V	V	V	V	S45	S45	S45	S45
3 db BEAMWIDTH ELEV 1 [DEG.]	140	150	150	120	120	110	110	110	110
3 db BEAMWIDTH ELEV 2 [DEG.]	120	120	150	60	60	150	180	180	180
IMPEDENCE [OHM]	50	50	50	50	50	50	50	50	50
VSWR	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.

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5 Emissions in Receive Mode.

5.1 Radiated Emissions

This test measures the electromagnetic levels of spurious signals generated by the EUT that radiated from the EUT and may affect the performance of other nearby electronic equipment.

5.1.1 Over View of Test

Results	**Complies** (as tested per this report)					**Date**	11/4/2014
Standard	FCC Parts 15.109(a), RSS-210 2.2, 2.5, and RSS-GEN 6.1						
Product Model	DRX PLUS DETECTOR RADIO			**Serial#**	13A32S1011361		
Configuration	EUT set to receive mode						
Test Set-up	Per ANSI C63.10:2013						
EUT Powered By	Powered Via USB	**Temp**	74º F	**Humidity**	32%	**Pressure**	1010mbar
Frequency Range	30 MHz to 25 GHz @ 3m						
Perf. Criteria	(Below Limit)		**Perf. Verification**	Readings Under Limit			
Mod. to EUT	None		**Test Performed By**	Randall E Masline			

5.1.2 Test Procedure

Radiated and FCC emissions tests were performed using the procedures of ANSI C63.4:2003 including methods for signal maximizations and EUT configuration. The photos included with the report show the EUT in its maximized configuration.

The frequency range from 30 MHz to 25 GHz was investigated for radiated emissions.

Radiated emission testing was performed at a distance of 3 meters in a 5 meter semi-anechoic chamber.

5.1.3 Deviations

There were no deviations from the test methodology.

5.1.4 Final Test

All final radiated emissions measurements were below (in compliance) the limits.

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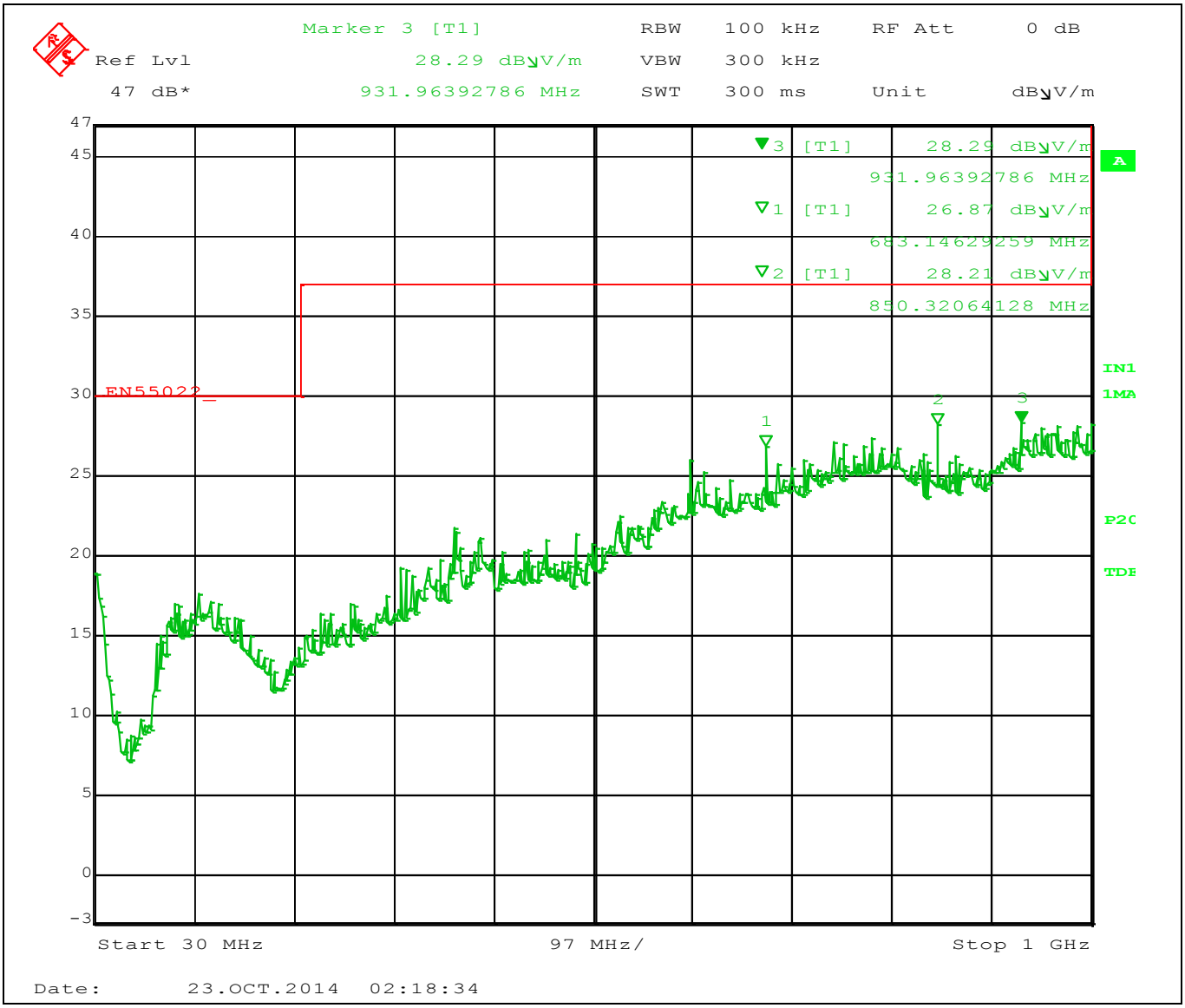
5.1.5 Final Graphs and Tabulated Data

Worst-Case Radiated Emissions 30MHz to 1000MHz
Horizontal



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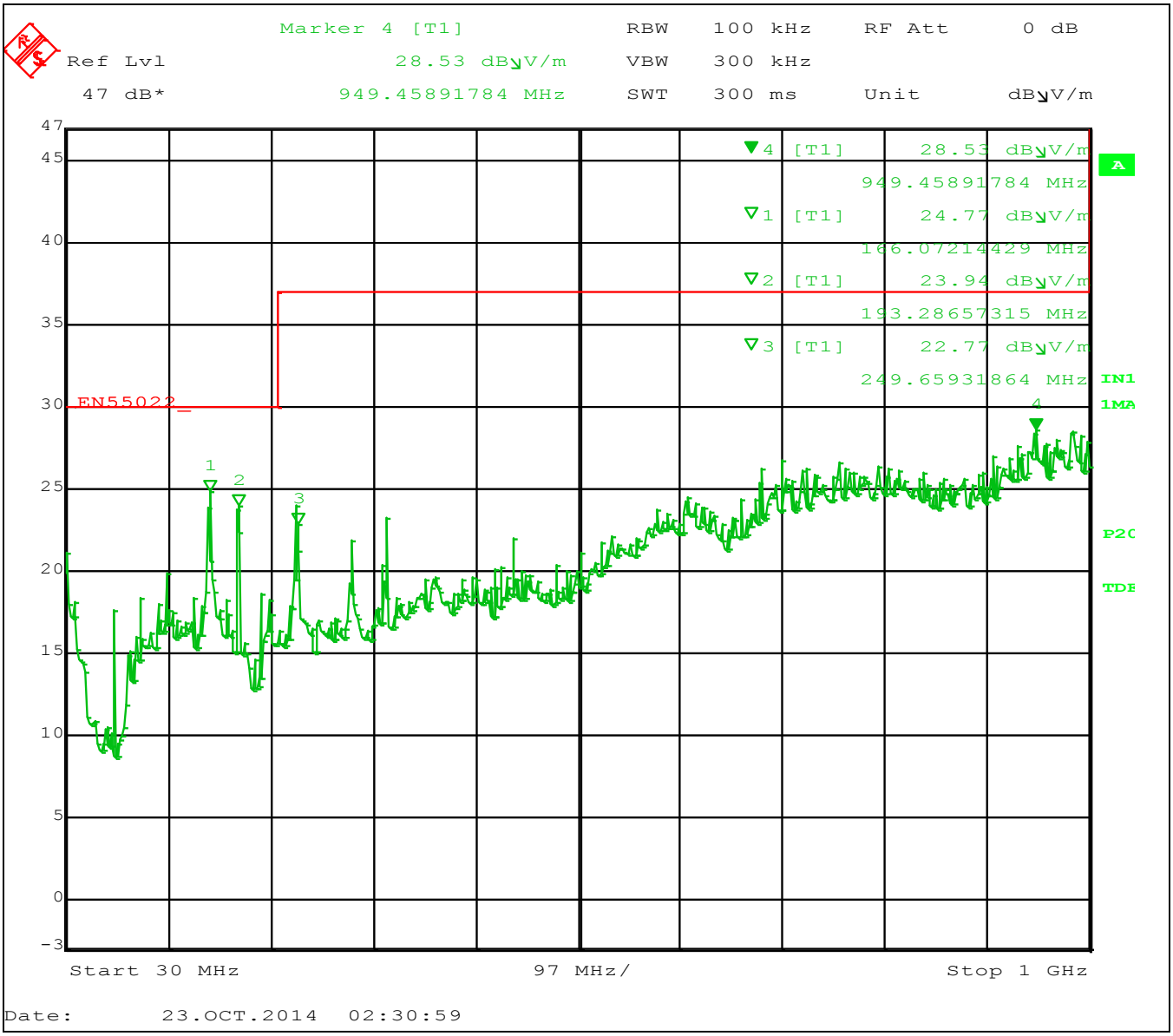
Worst-Case Radiated Emissions 30MHz to 1000MHz
Vertical



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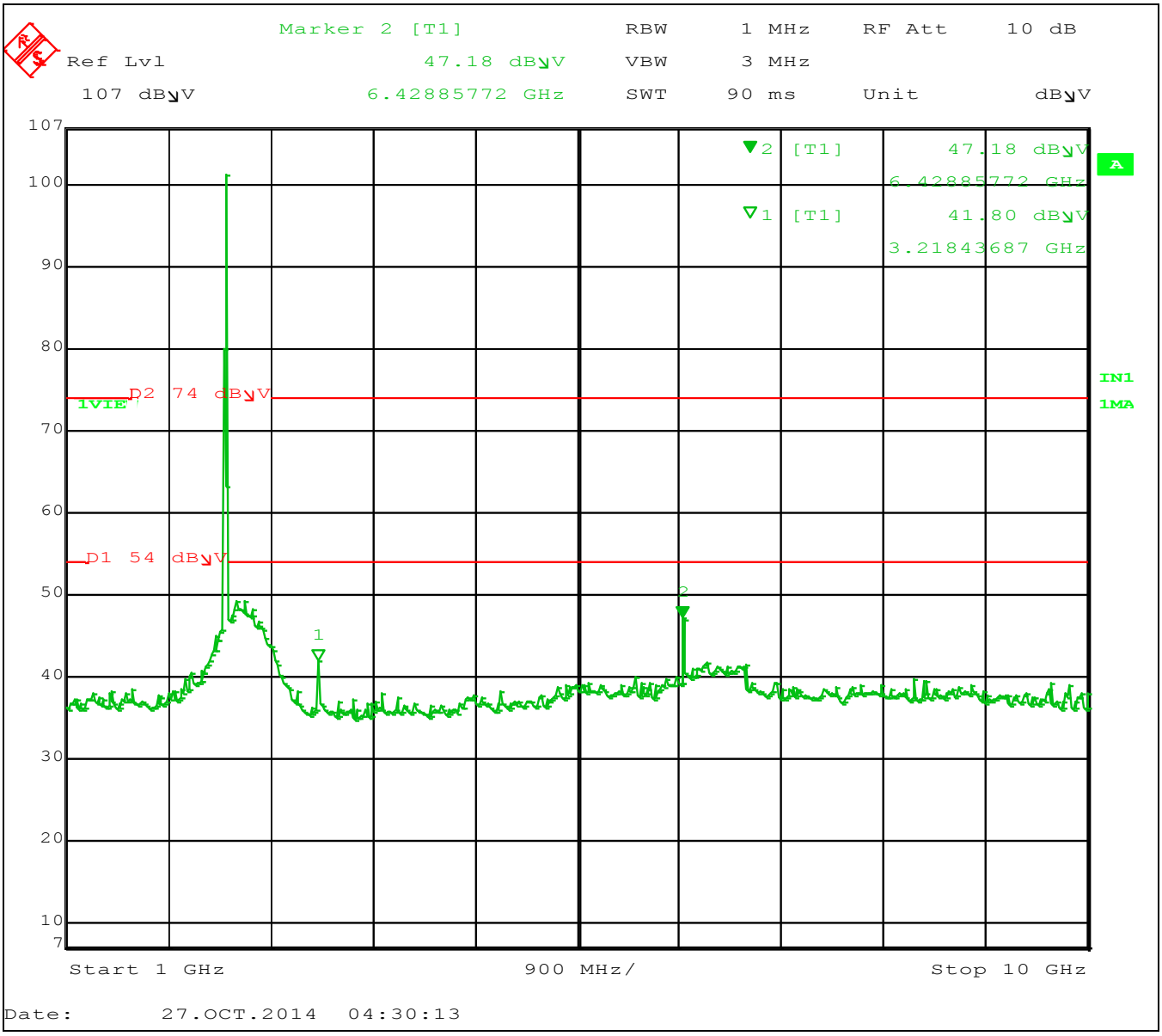
Worst-Case Radiated Emissions 1GHz to 10GHz
Horizontal



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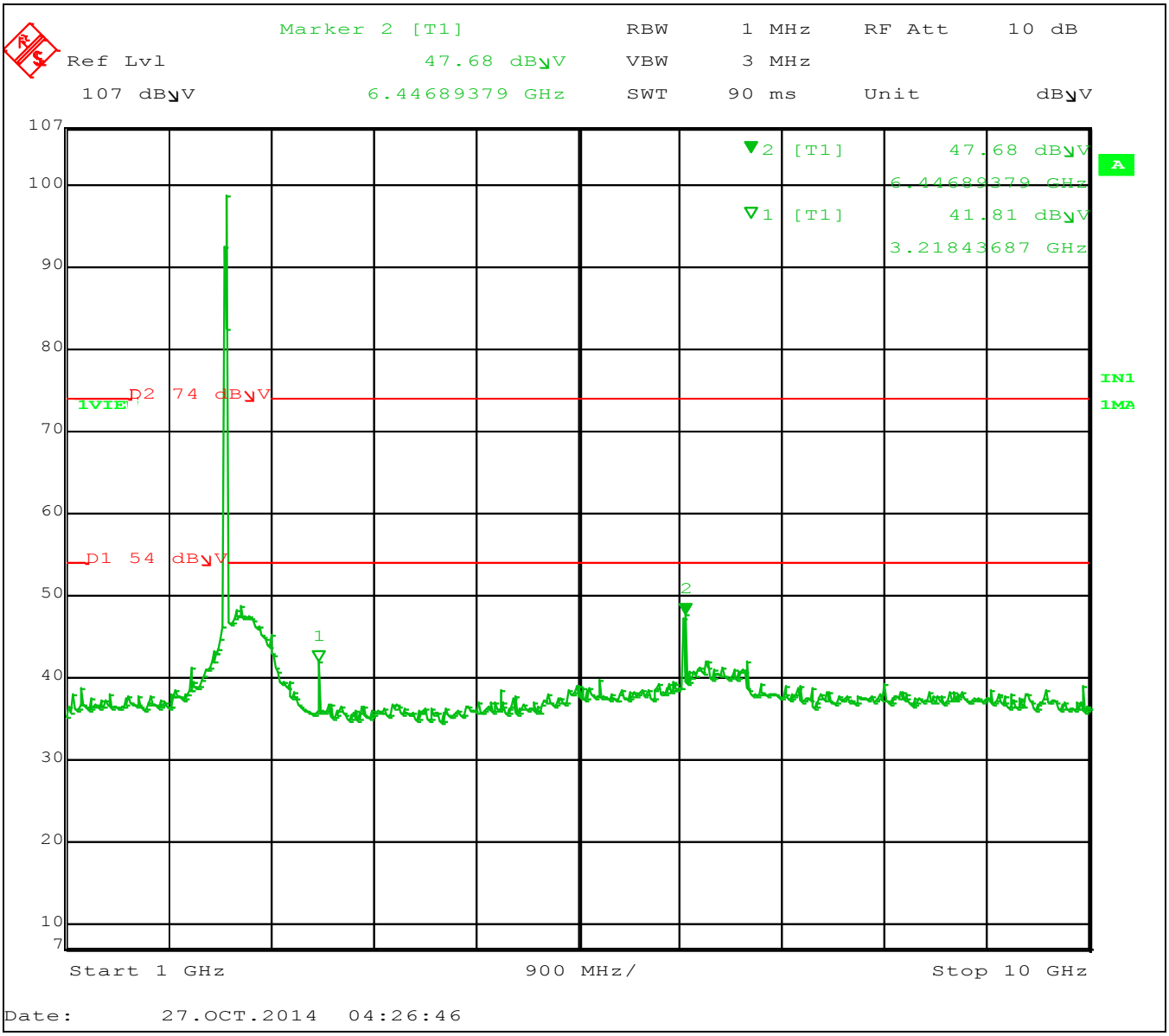
Worst-Case Radiated Emissions 1GHz to 10GHz
Vertical



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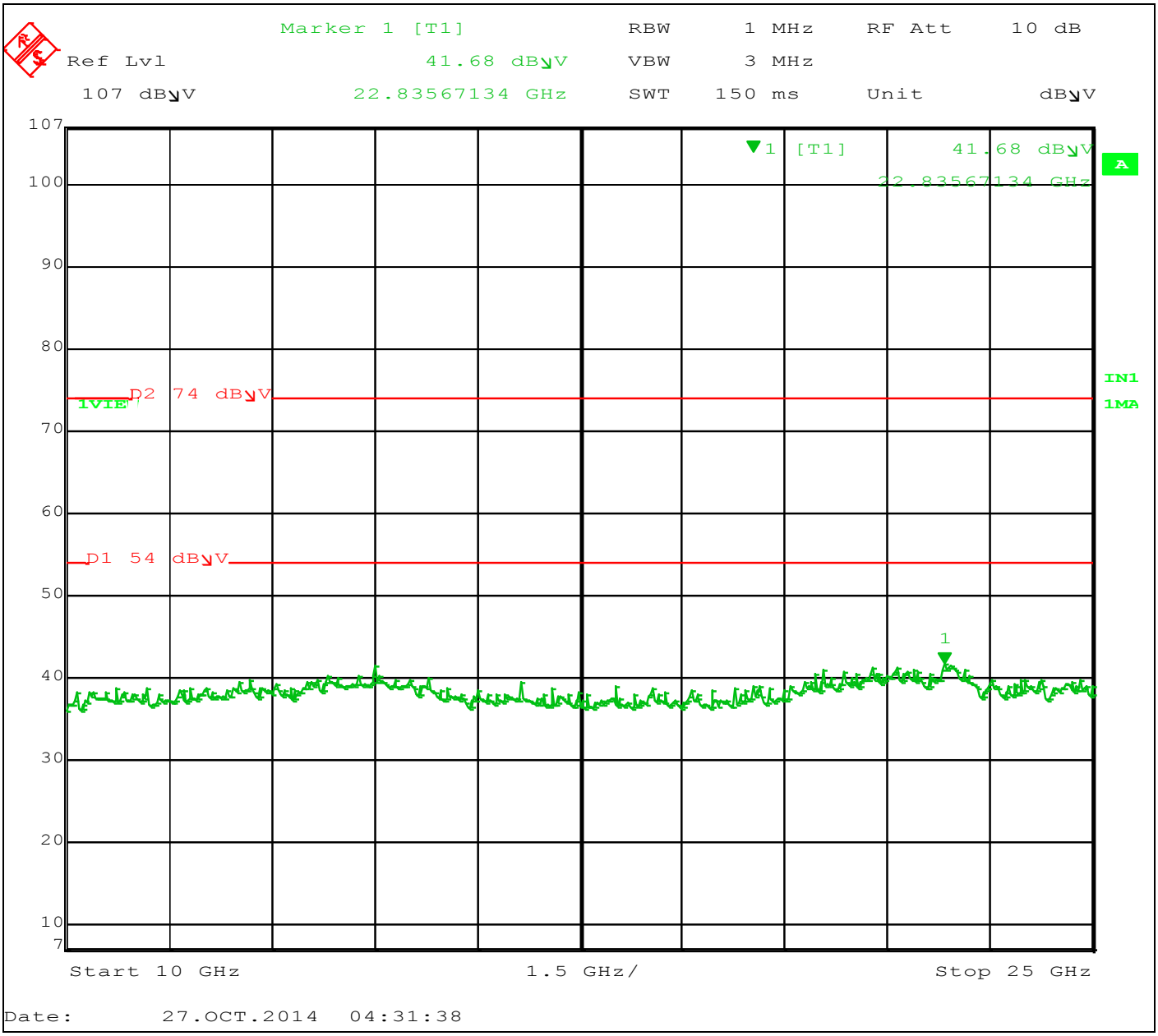
Worst-Case Radiated Emissions 10GHz to 25GHz
Horizontal



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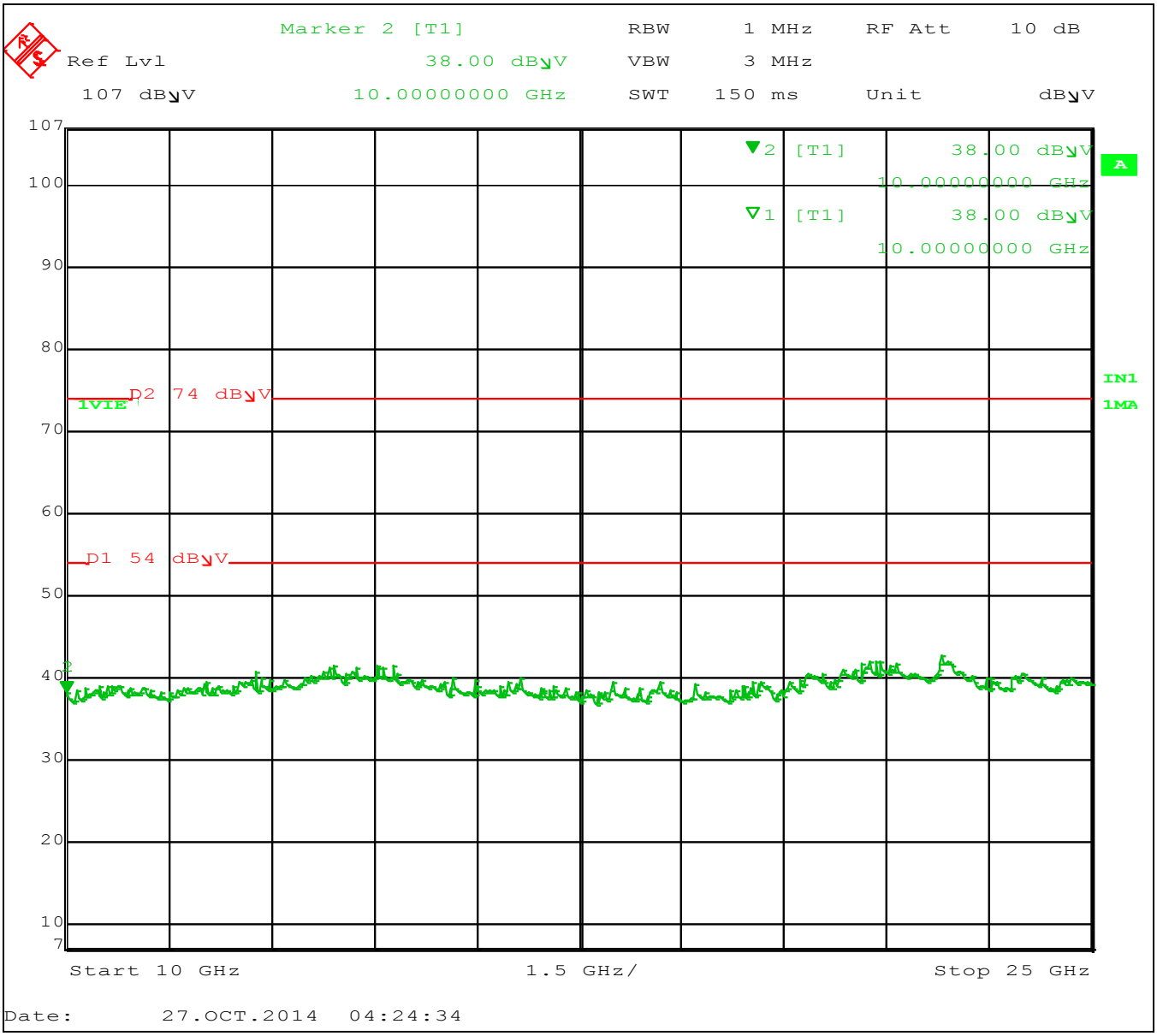
Worst-Case Radiated Emissions 10GHz to 25GHz
Vertical



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6 5 Ghz Band – 5725 – 5850 MHz

6.1 Spurious Emissions Outside the band - FCC 15.247(d), RSS-210 A8.5

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power, based on either RF conducted or radiated measurements. Conducted antenna port measurements are provided below to show that the EUT meets these requirements at the band edges.

6.1.1 Over View of Test

Results	**Complies** (as tested per this report)				**Date**	10/27/2014	
Standard	FCC Parts 15.205, 15.209, 15.215(c), 15.247(d), RSS-210 A8.5, and RSS-GEN 7.2.1						
Product Model	DRX PLUS DETECTOR RADIO			**Serial#**	13A32S1011361		
Test Set-up	Per ANSI C63.10:2013						
EUT Powered By	Powered Via USB	**Temp**	74 ºF	**Humidity**	36%	**Pressure**	1000 mbar
Perf. Criteria	(Below Limit)		**Perf. Verification**		Readings Under Limit		
Mod. to EUT	None		**Test Performed By**		Randall E Masline		

6.1.2 Test Procedure

Testing was performed in accordance with 47 CFR Part 15, ANSI C63.10:2013, C63.10:2009, RSS-GEN Issue 3. These test methods are listed under the laboratory's A2LA Scope of Accreditation. This test measures the levels emanating from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices.

6.1.3 Deviations

The EUT is compliant to the standard(s).

6.1.4 Final Test

All final radiated spurious emissions measurements were below (in compliance) the limits.

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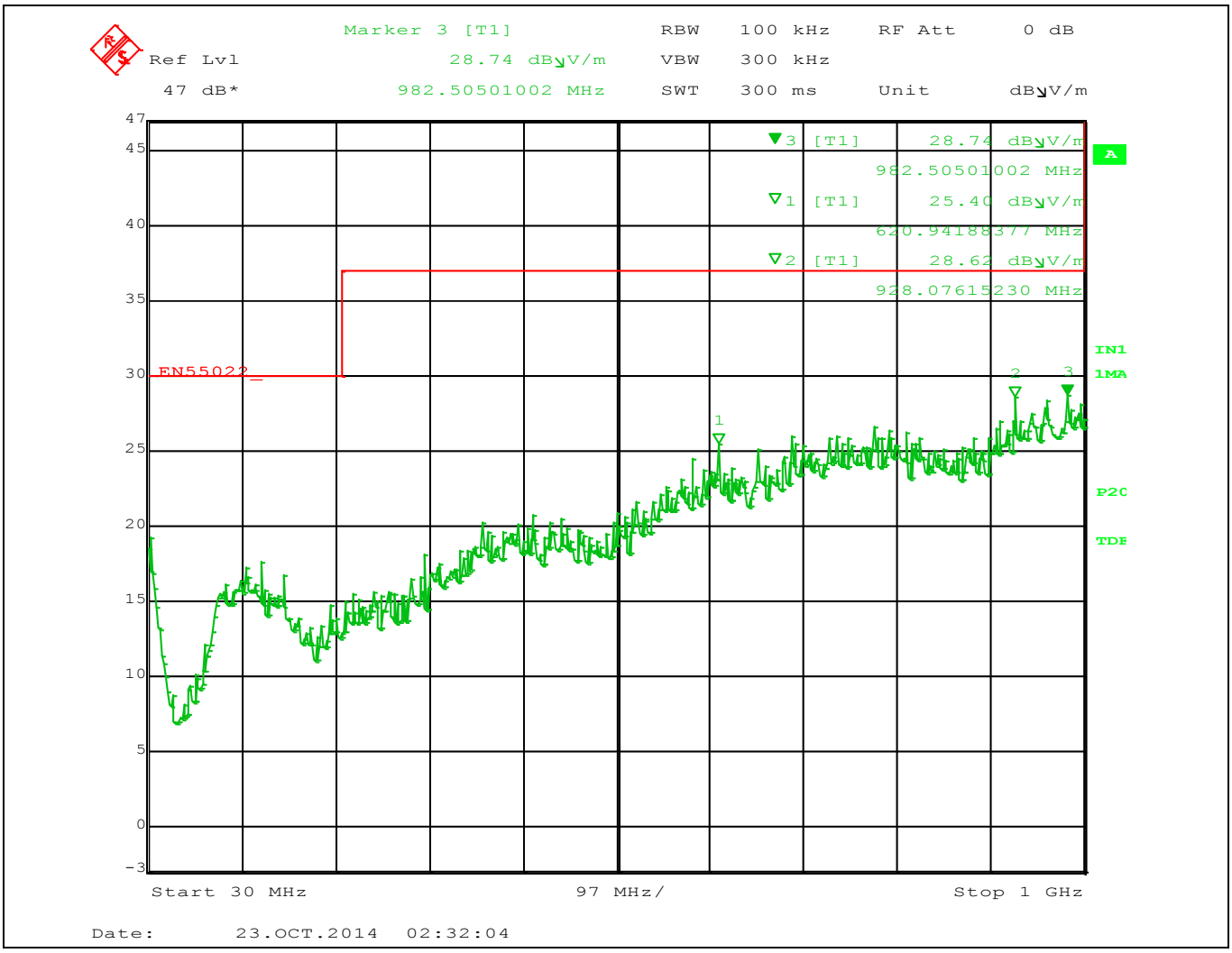
6.1.4.1 Emissions Outside the Frequency Band

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power, based on either RF conducted or radiated measurements. Conducted antenna port measurements are provided below to show that the EUT meets these requirements at the band edges.

Worst-Case Radiated Emissions 30MHz to 1000MHz
Horizontal



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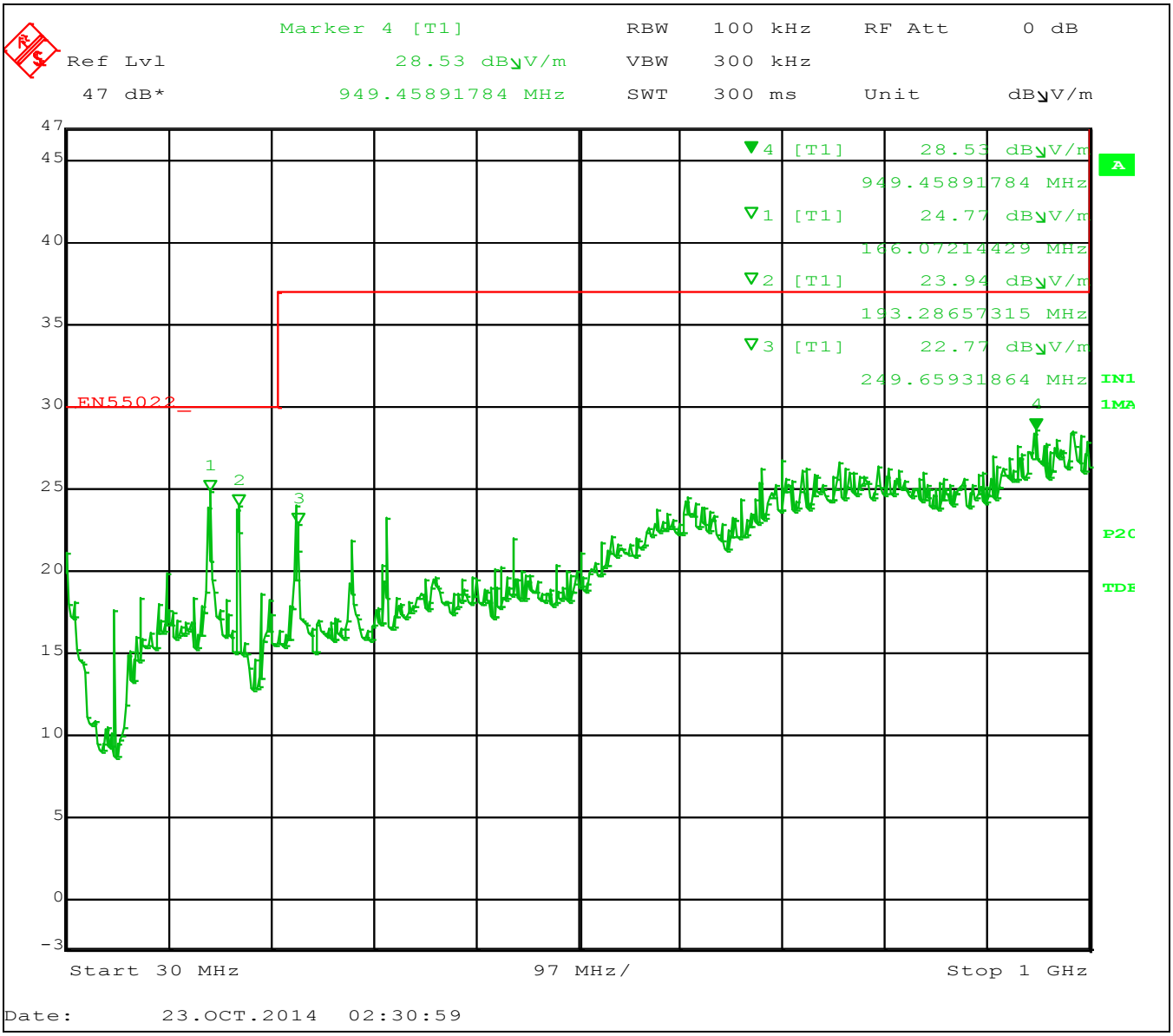
Worst-Case Radiated Emissions 30MHz to 1000MHz
Vertical



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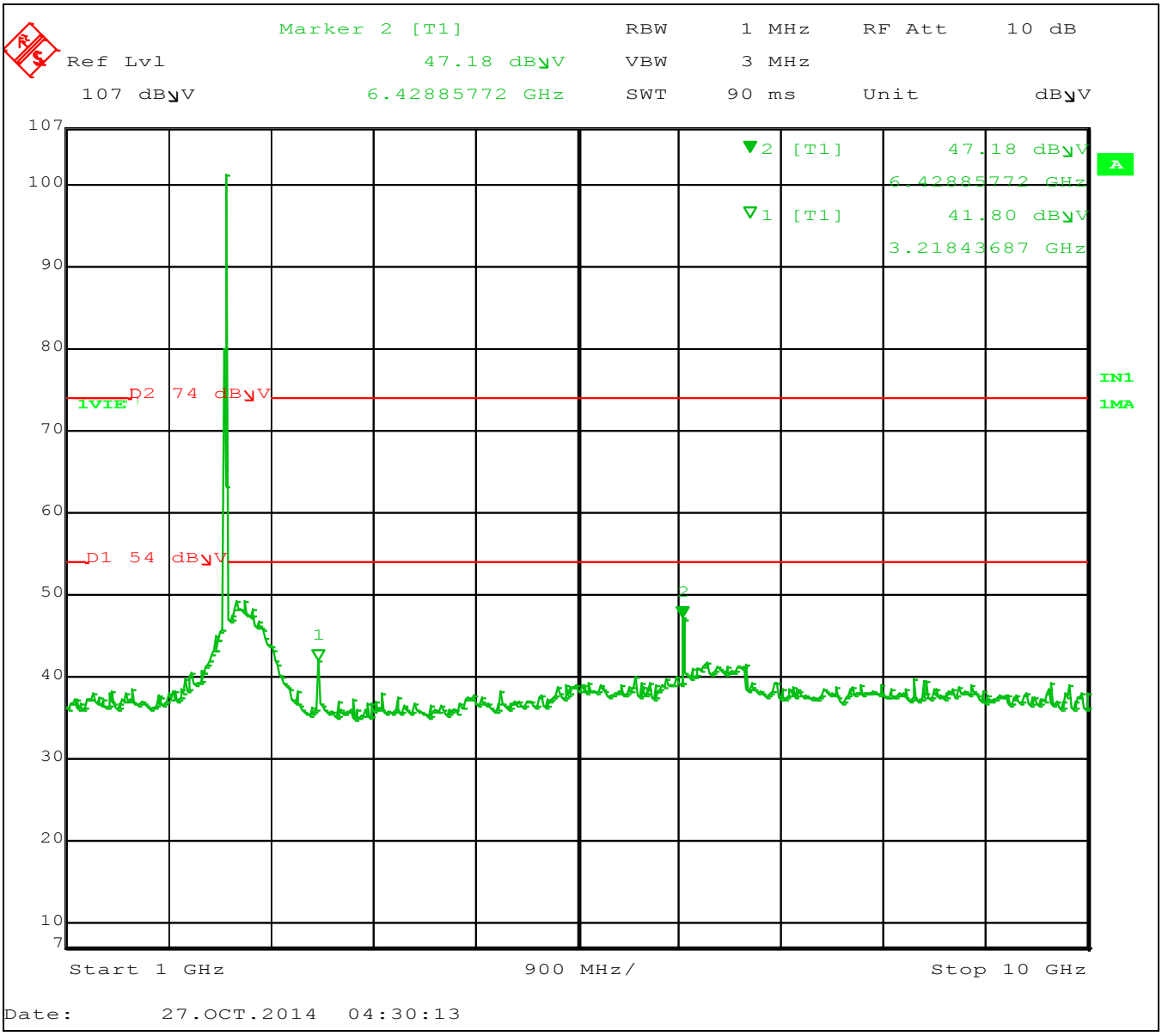
Worst-Case Radiated Emissions 1GHz to 10GHz

Horizontal



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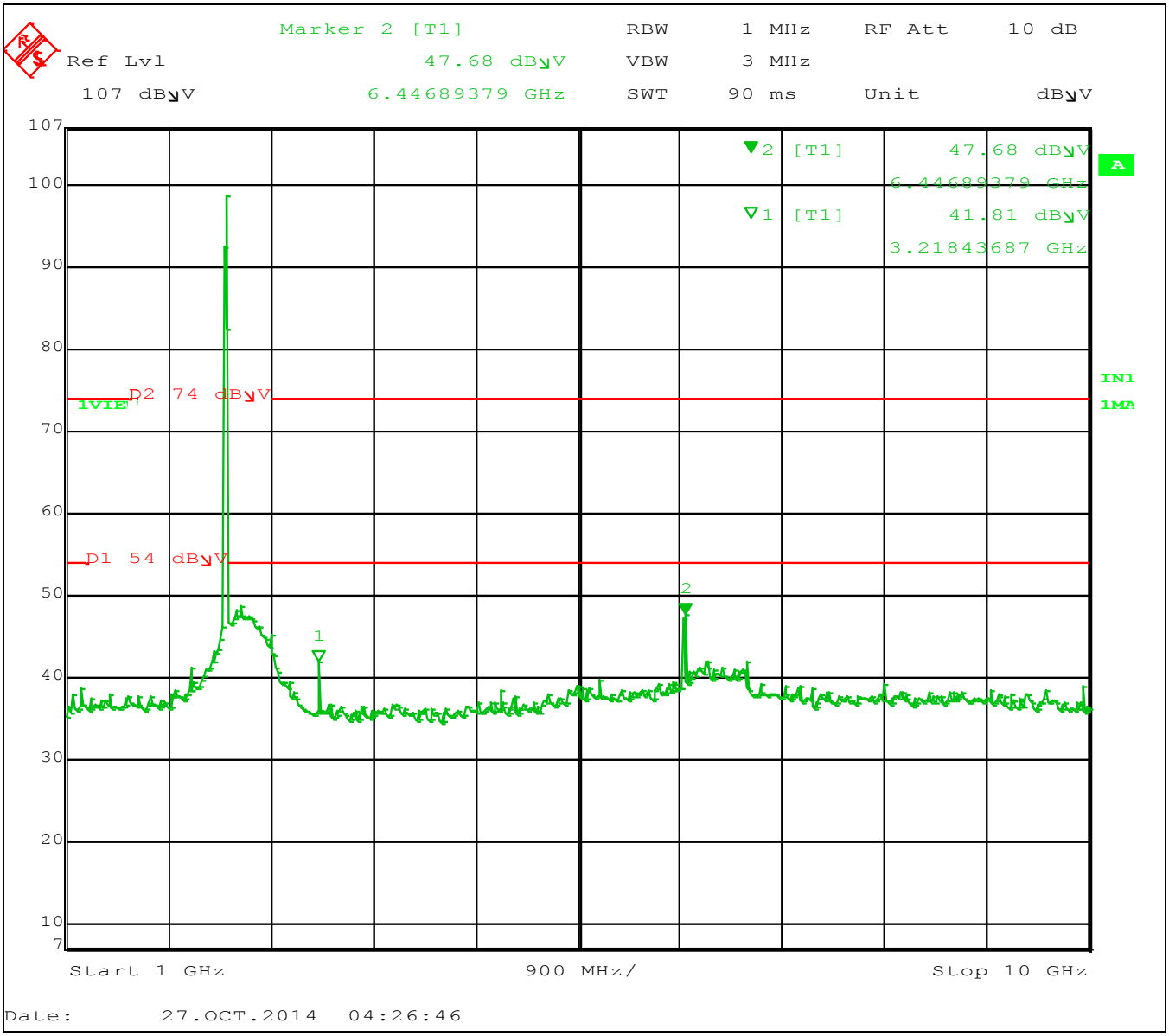
Worst-Case Radiated Emissions 1GHz to 10GHz
Vertical



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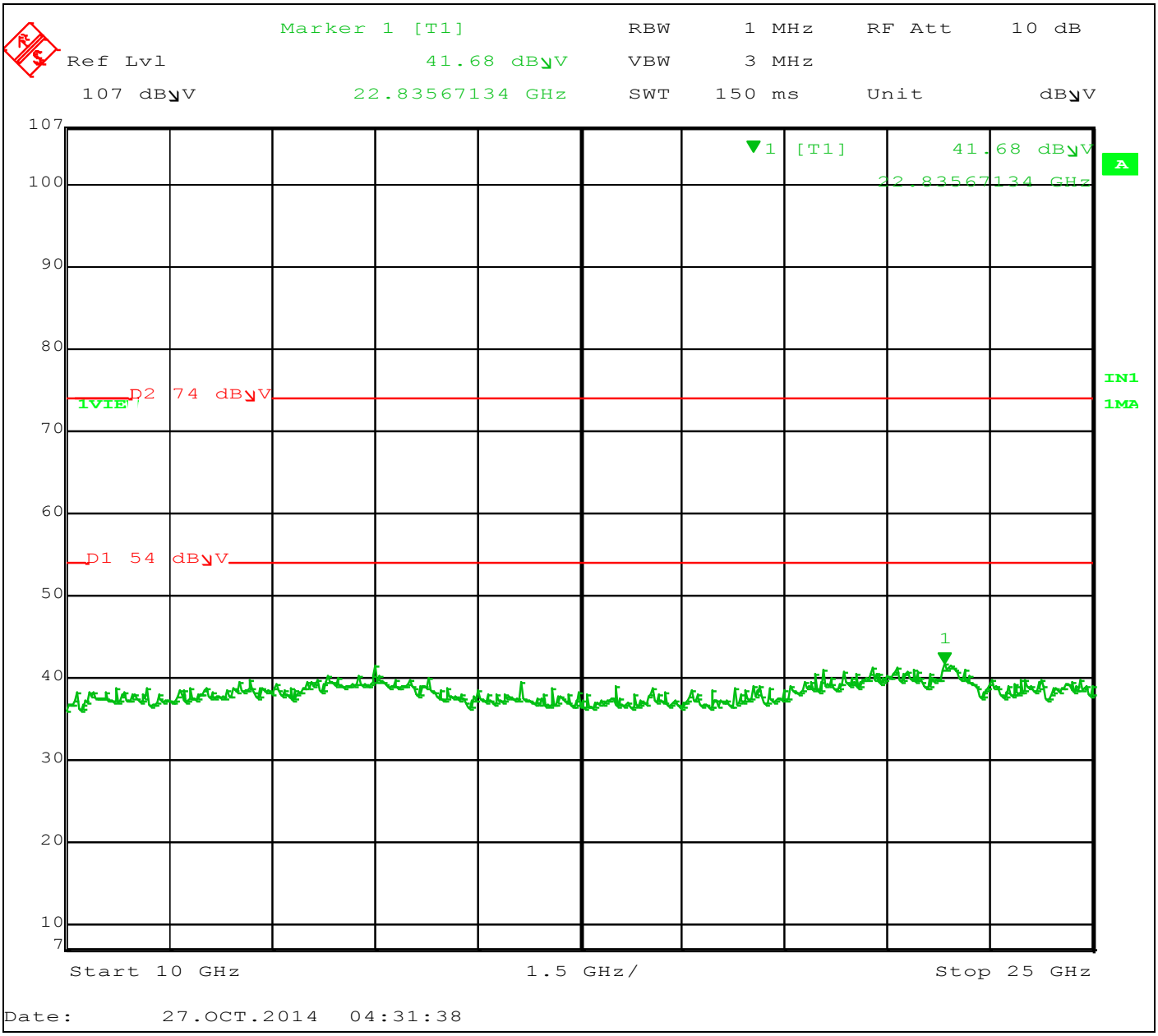
Worst-Case Radiated Emissions 10GHz to 25GHz

Horizontal



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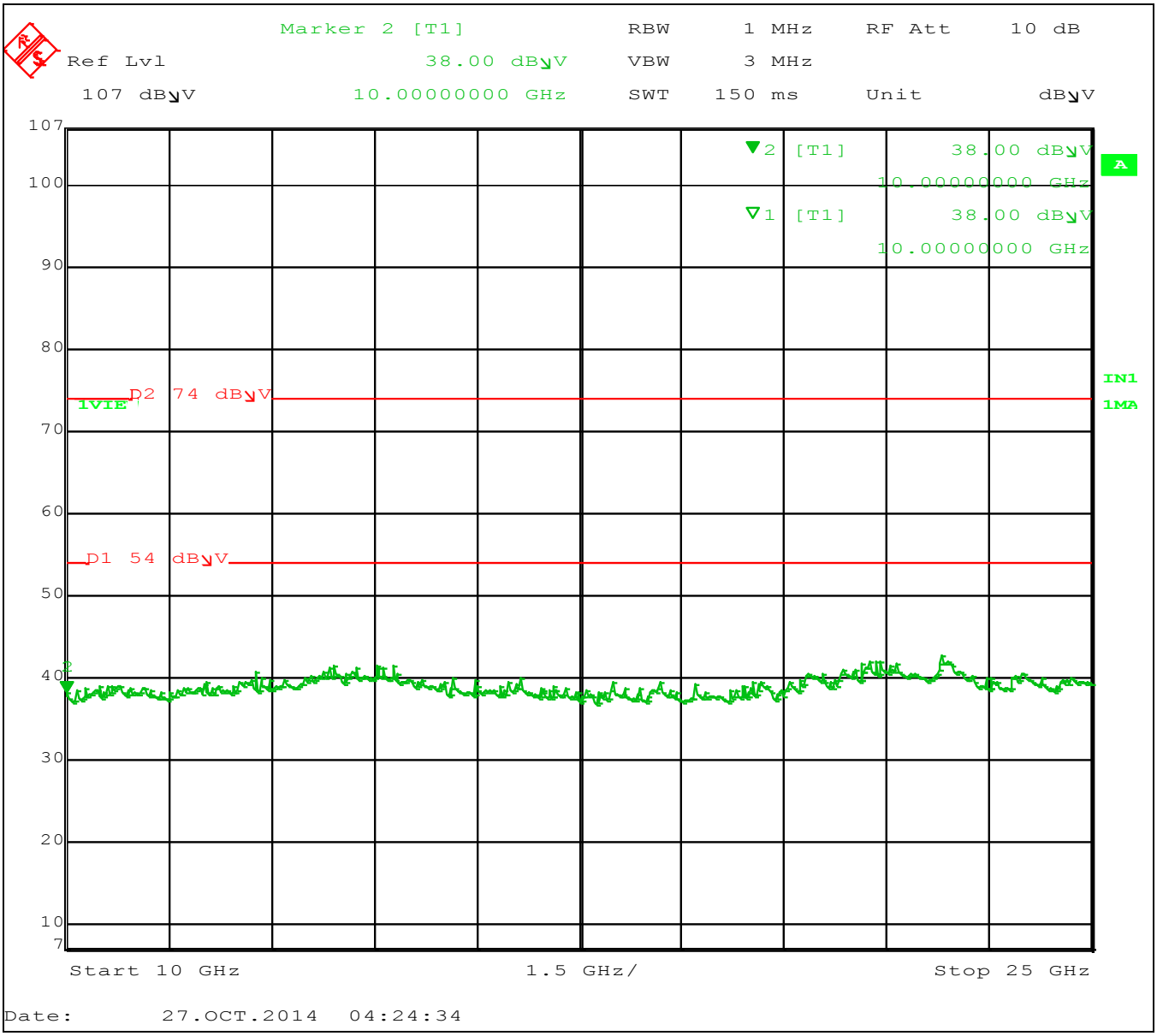
Worst-Case Radiated Emissions 10GHz to 25GHz
Vertical



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6.2 Band Edge

6.2.1 Test Over View

Results	**Complies** (as tested per this report)				**Date**	10/26/2014	
Standard	FCC Part 15.247(d), RSS 210 2.2						
Product Model	DRX PLUS DETECTOR RADIO			**Serial#**	13A32S1011361		
Test Set-up	Per ANSI C63.10:2013						
EUT Powered By	Powered Via USB	**Temp**	74º F	**Humidity**	32%	**Pressure**	1010mbar
Perf. Criteria	(Below Limit)		**Perf. Verification**		Readings Under Limit		
Mod. to EUT	None		**Test Performed By**		Randall E Masline		

6.2.2 Test Procedure

The EUT was using test software to allow the transmitter to transmit continuously. (Duty Cycle > 98%).

The test methods of ANSI C63.10:2013, section 11.13 were used.

6.2.3 Deviations

There were no deviations from the test methodology listed.

6.2.4 Final Test

The EUT met the performance criteria requirement as specified in this report and in the standards.

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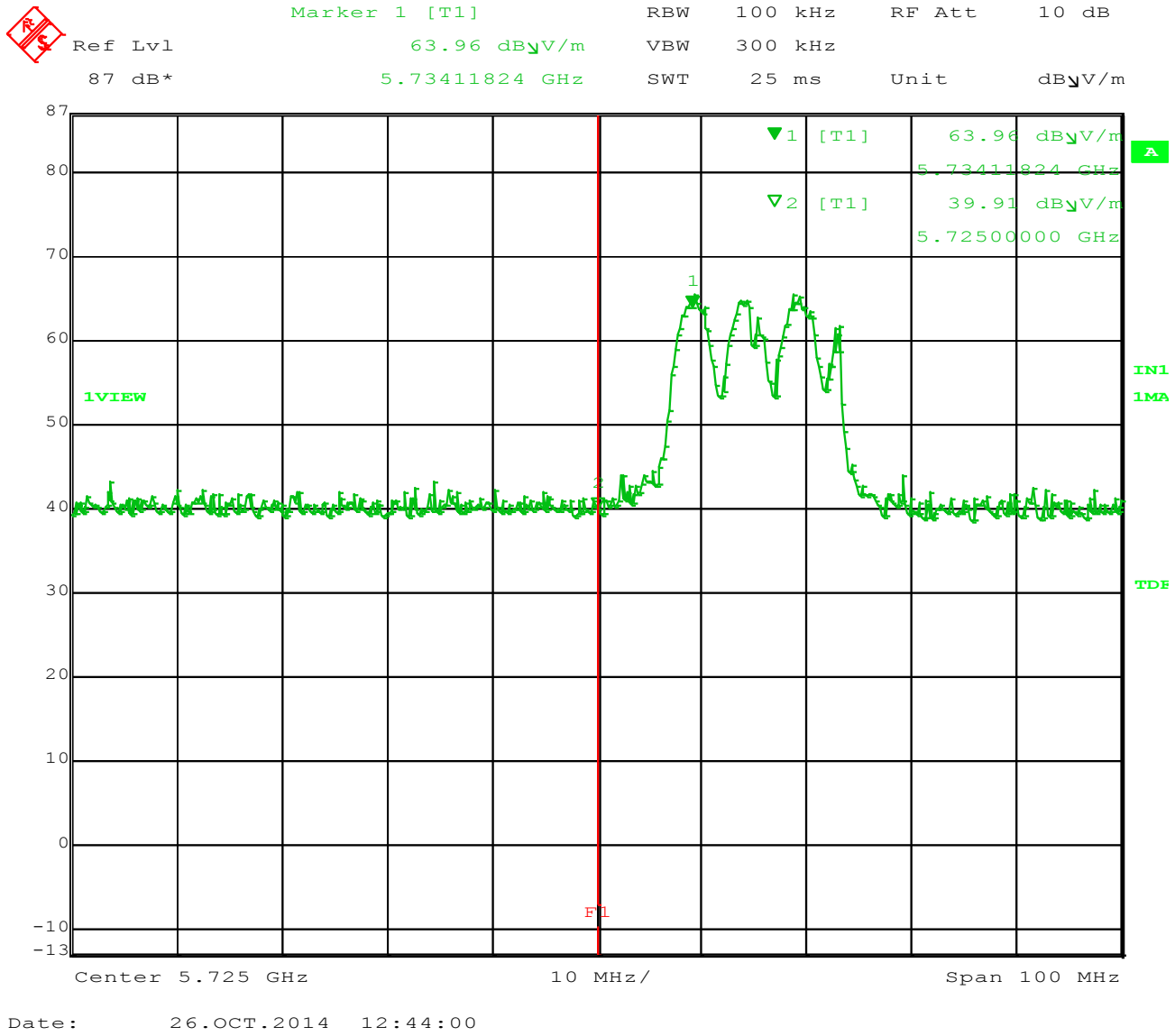

Figure 23: Lower Band Edge Measurement (Radiated Emission)

Note: Band Edge is at 5725 MHz

The EUT is compliant with the rules.

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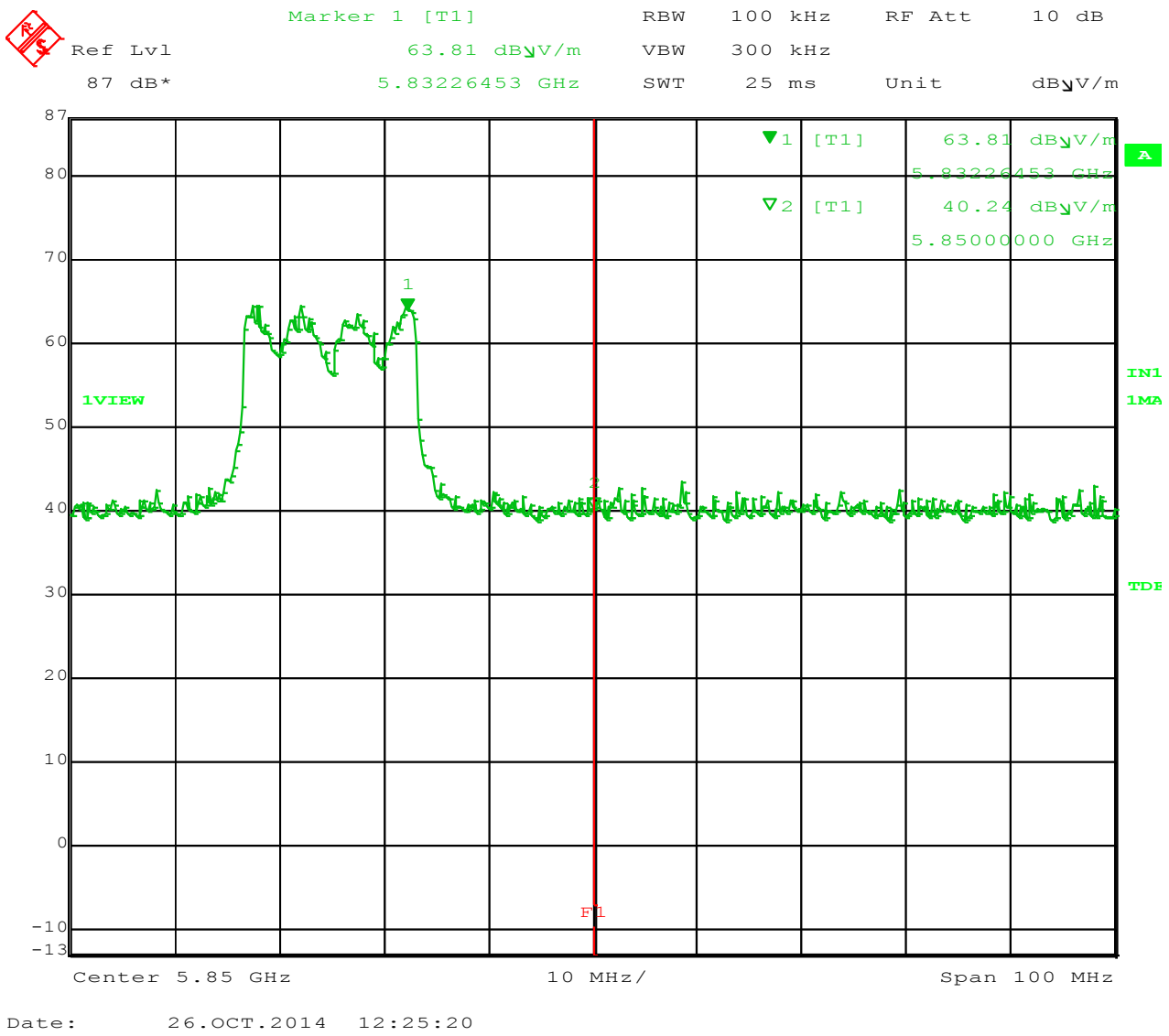

Figure 24: Upper Band Edge Measurement (Radiated Emission)

Note: Band edge (F1) at 5850

The EUT is compliant with the rules.

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7 Antenna Port Conducted Emissions

For conducted tests, the emissions were measured at the antenna port.

Testing was performed in accordance with 47 CFR Part 15, ANSI C63.10:2013, RSP-100 Issue 9. These test methods are listed under the laboratory's A2LA Scope of Accreditation. This test measures the levels emanating from the EUT, thus evaluating the potential for the EUT to cause radio frequency interference to other electronic devices.

7.1 Conducted Output Power, FCC 15.247(b)(3) and RSS-210 A8.4(4)

7.1.1

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the *maximum conducted output power* is the highest total transmit power occurring in any mode.

7.1.2 Test Over View

Results	**Complies** (as tested per this report)					**Date**	11/6/2014
Standard	FCC Part 15.247(b)(3) and RSS-210 A8.4(4)						
Product Model	DRX PLUS DETECTOR RADIO			**Serial#**	13A32S1011361		
Test Set-up	Per ANSI C63.10:2013						
EUT Powered By	Powered Via USB	**Temp**	74º F	**Humidity**	32%	**Pressure**	1010mbar
Perf. Criteria	(Below Limit)		**Perf. Verification**		Readings Under Limit		
Mod. to EUT	None		**Test Performed By**		Randall E Masline		

7.1.3 Test Procedure

The EUT was using test software to allow the transmitter to transmit continuously. (Duty Cycle > 100%).

The test methods of ANSI C63.10:2013 and C63.2009 were used

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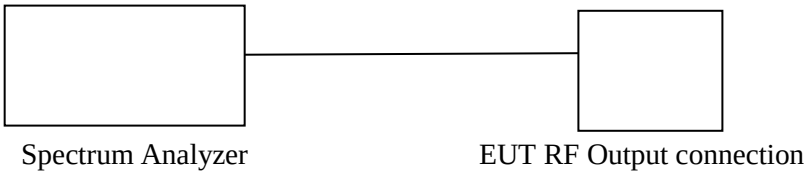
Test Setup:



Note: The output of the EUT is low enough that an external attenuator was not necessary.

7.1.4 Deviations

There were no deviations from the test methodology.

7.1.5 Final Test

The EUT is compliant to the requirements of the standard.

7.1.6 Peak Power Output

Peak Output Conducted Channel Power Measurements

Emission Freq (MHz)	Corrected Value (dBm)	Spec Limit (dBm)	Spec Margin (dB)	Modulation
5745.00 (f_H)	12.03	+30.00	**-17.97**	**OFDM**
5785.00 (f_M)	11.70	+30.00	**-18.3**	**OFDM**
5825.00 (f_H)	10.51	+30.00	**-19.49**	**OFDM**

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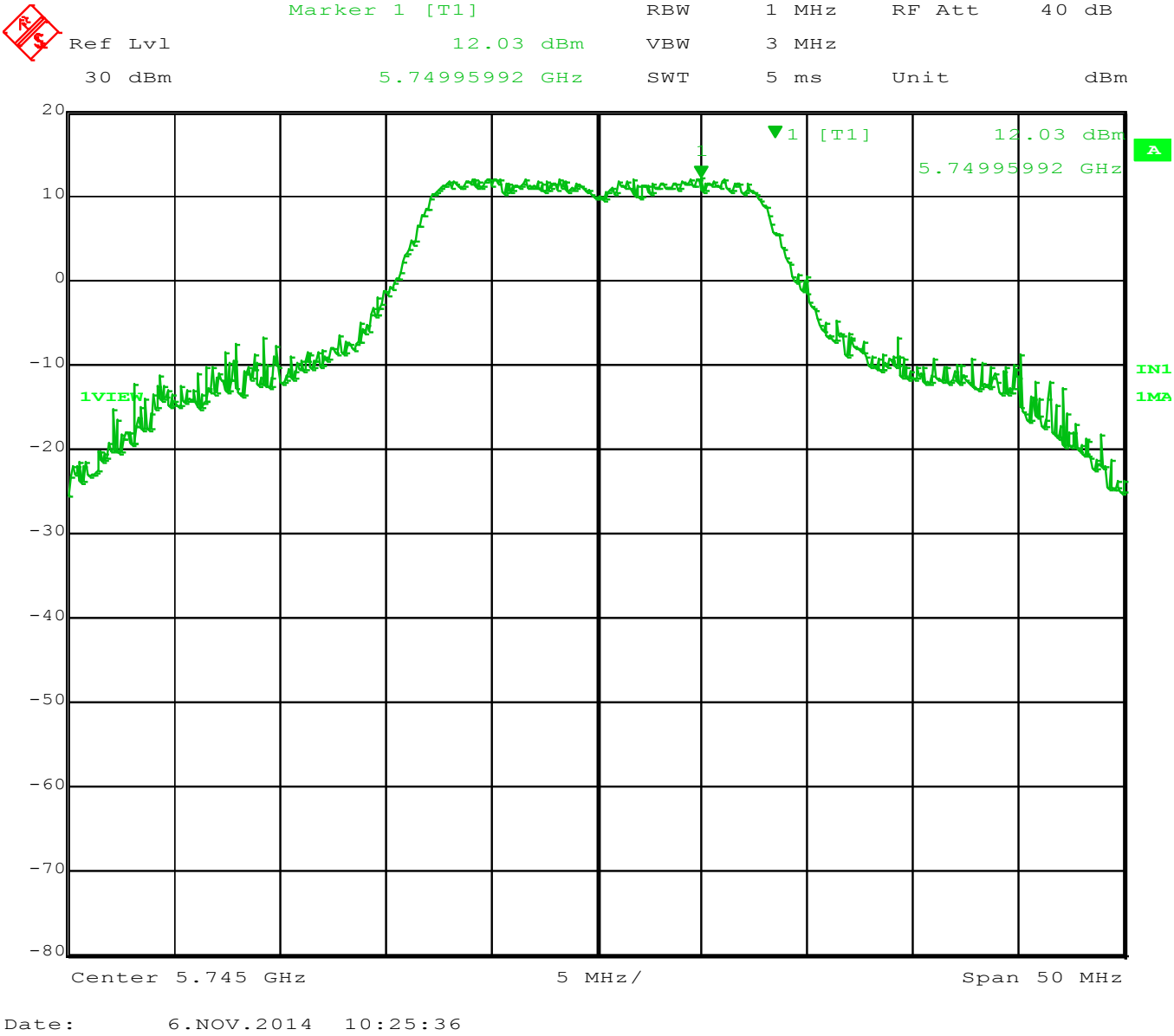

Figure 25 – Highest Peak Conducted Power Output for EUT highest frequency. Ch 149

Graphs of the other frequencies are on file at the manufacturer and at TUV.

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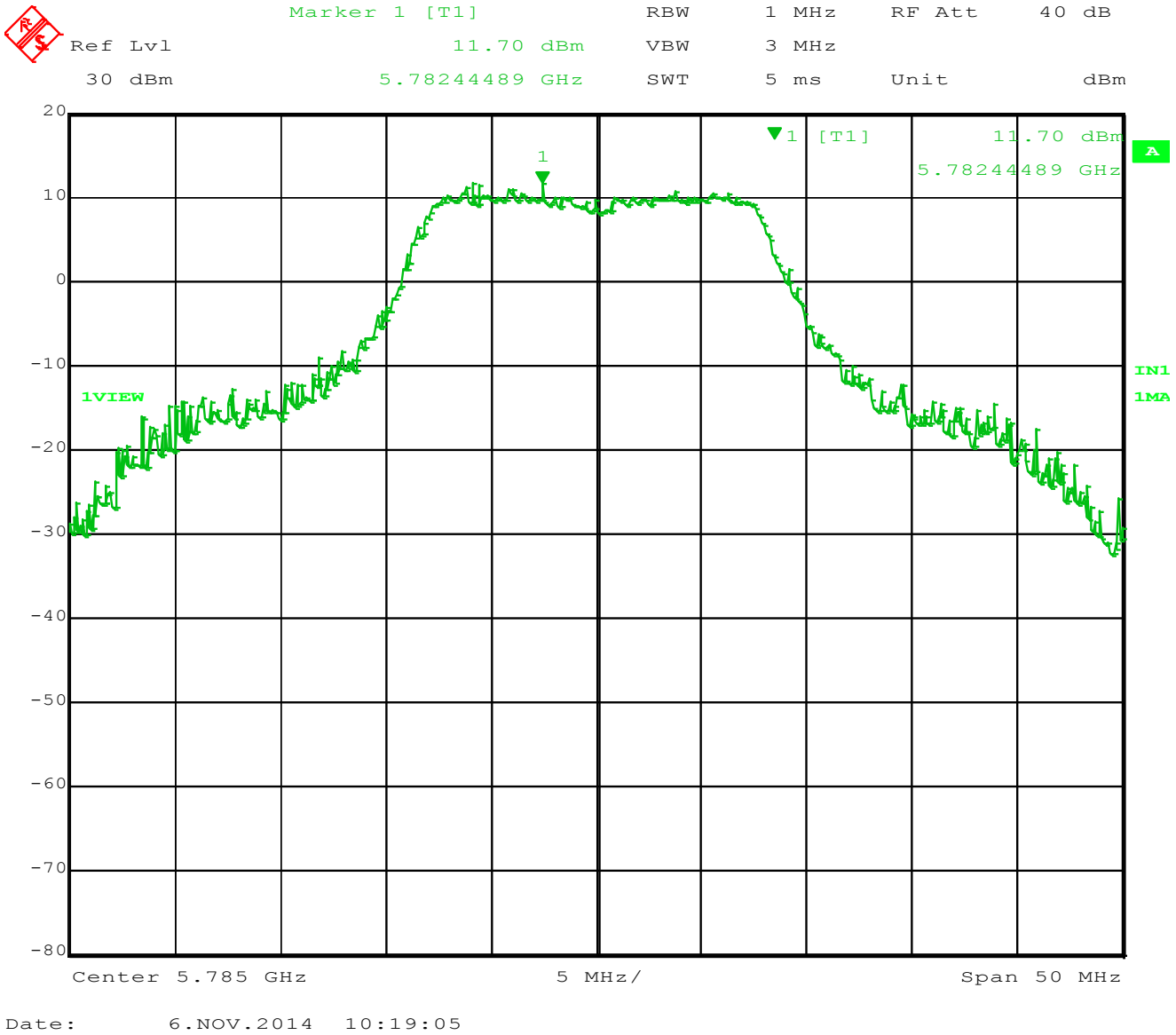

Figure 26 – Highest Peak Conducted Power Output for EUT highest frequency. Ch 157

Graphs of the other frequencies are on file at the manufacturer and at TUV.

The test results contained in this report refer exclusively to the product(s) presented for testing. No liability may be assumed for models or products not referred to herein. This test report may not be published or duplicated in part without permission of the testing body. This test report by itself does not constitute authorization for the use of any TUV Rheinland test mark. The report must not be used by the client to claim product certification, approval, or endorsement by A2LA.

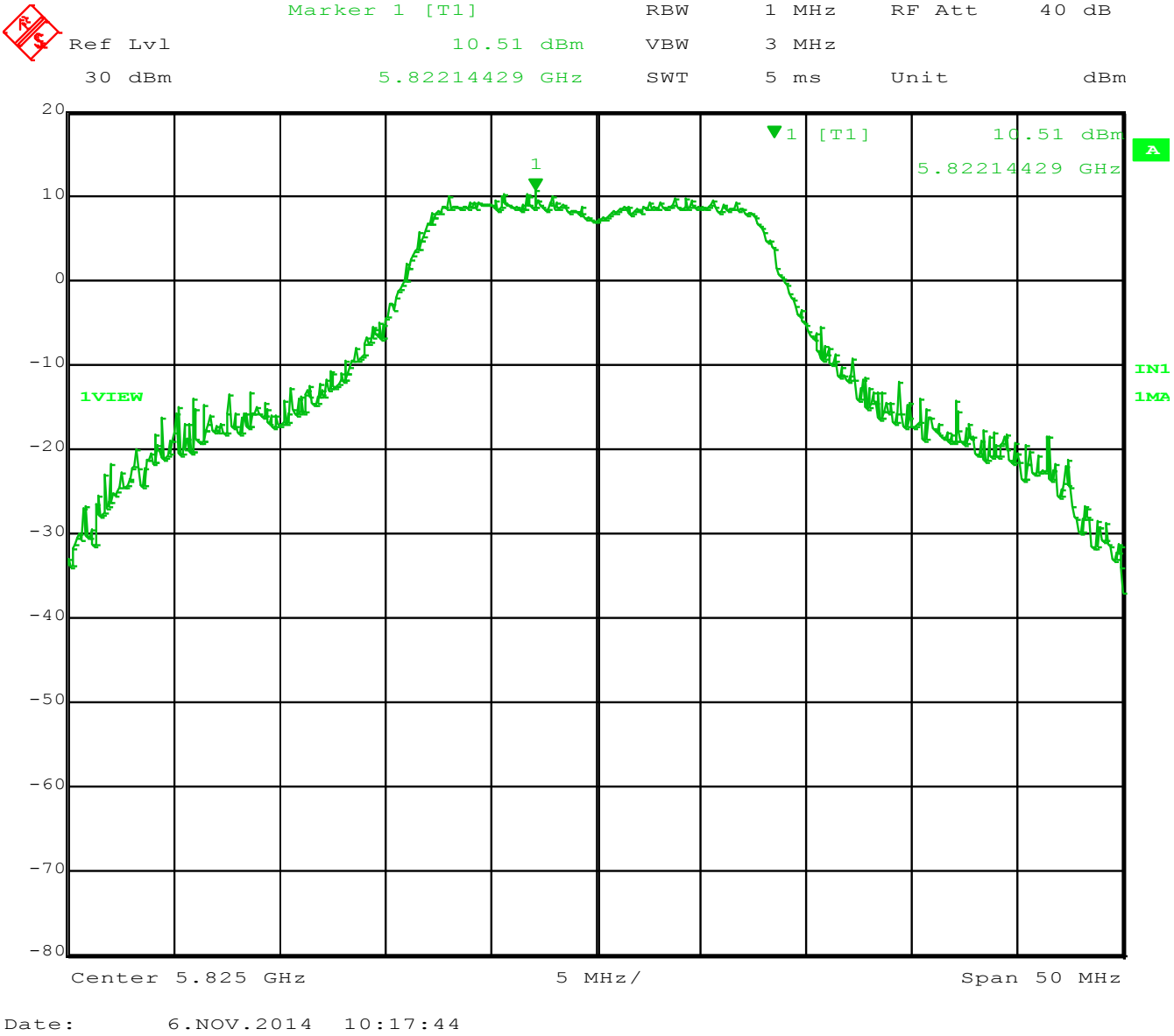

Figure 27 – Highest Peak Conducted Power Output for EUT highest frequency. Ch 165

Graphs of the other frequencies are on file at the manufacturer and at TUV.

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7.1.7 Antenna Gain

The antenna used on the product is a PC Board "Inverted-F" antenna that has a measured maximum gain.

ELECTRICL PERFORMANCE SUMMARY

FREQUENCY(GHZ)	2.4	2.44	2.48	5.15	5.25	5.35	5.50	5.725	5.825
GAIN (dBI)	-7.2	-5.5	-8.4	-1.2	-0.8	-1.8	-2.3	-3.3	-3.5
POLARIZATION	V	V	V	V	V	S45	S45	S45	S45
3 db BEAMWIDTH ELEV 1 [DEG.]	140	150	150	120	120	110	110	110	110
3 db BEAMWIDTH ELEV 2 [DEG.]	120	120	150	60	60	150	180	180	180
IMPEDENCE [OHM]	50	50	50	50	50	50	50	50	50
VSWR	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.

Results

As tested, the EUT was found to be compliant to the requirements of the test standard.

The test results contained in this report refer exclusively to the product(s) presented for testing. No liability may be assumed for models or products not referred to herein. This test report may not be published or duplicated in part without permission of the testing body. This test report by itself does not constitute authorization for the use of any TUV Rheinland test mark. The report must not be used by the client to claim product certification, approval, or endorsement by A2LA.

7.2 Maximum Power Spectral Density

7.2.1 Test Over View

Results	**Complies** (as tested per this report)				**Date**	11/6/2014	
Standard	FCC Part 15.247(e) and RSS 210 A8.2(b)						
Product Model	DRX PLUS DETECTOR RADIO			**Serial#**	13A32S1011361		
Test Set-up	Per ANSI C63.10:2013						
EUT Powered By	Powered Via USB	**Temp**	74º F	**Humidity**	32%	**Pressure**	1010mbar
Perf. Criteria	Below Limit (10dBm)		**Perf. Verification**		≤8 dBm in any 3 kHz		
Mod. to EUT	None		**Test Performed By**		Randall E Masline		

7.2.2 Test Procedure

The EUT was using test software to allow the transmitter to transmit continuously. (Duty Cycle > 98%).

The test methods of ANSI C63.10

7.2.3 Deviations

The output of the EUT is much less than the PSD limit, therefore the device is compliant by default.

However the measurements were made for informational use only.

RBW correction factor for 30kHz RBW: 10log(3/30) or -10dB.

7.2.4 Final Test

The EUT's total power density is well below 8 dBm. It is therefore compliant by default.

THE Power Spectral Density Measurements are shown below.

The test results contained in this report refer exclusively to the product(s) presented for testing. No liability may be assumed for models or products not referred to herein. This test report may not be published or duplicated in part without permission of the testing body. This test report by itself does not constitute authorization for the use of any TUV Rheinland test mark. The report must not be used by the client to claim product certification, approval, or endorsement by A2LA.

7.2.5 Final Data

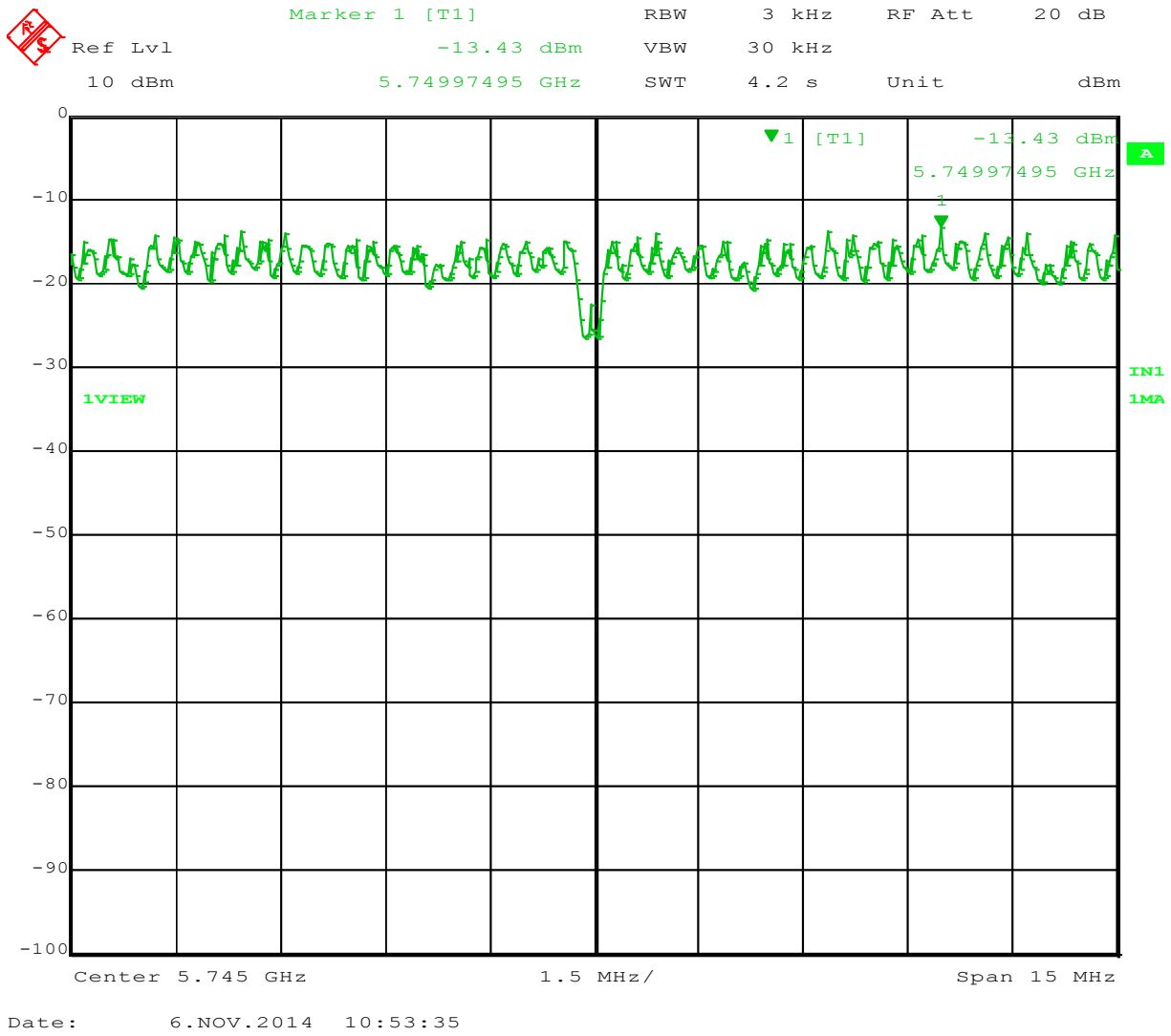

Figure 28: Peak Reference Frequency CCK chain 0, Ch 149

Spectrum Analyzer Parameters:
RBW= 3kHz
Span= 10MHz
VBW= 100kHz
LOG dB/div.= 10dB
Sweep = Auto
Detector = RMS detector, max hold

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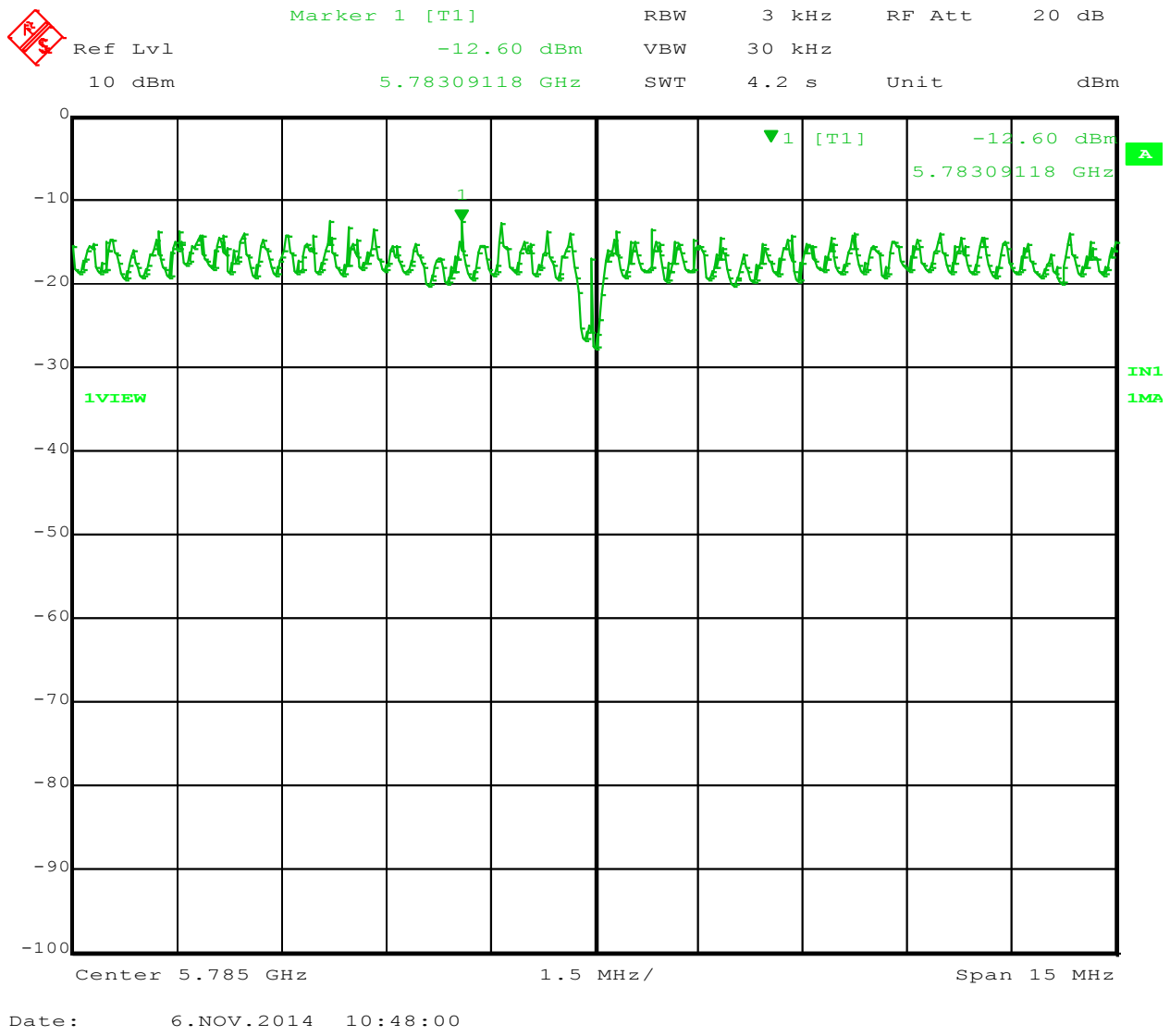

Figure 29: Peak Reference Frequency Chain 0, Ch 157

Spectrum Analyzer Parameters:
RBW= 30kHz
Span= 10MHz
VBW= 100kHz
LOG dB/div.= 10dB
Sweep = Auto
Detector = RMS detector, max hold

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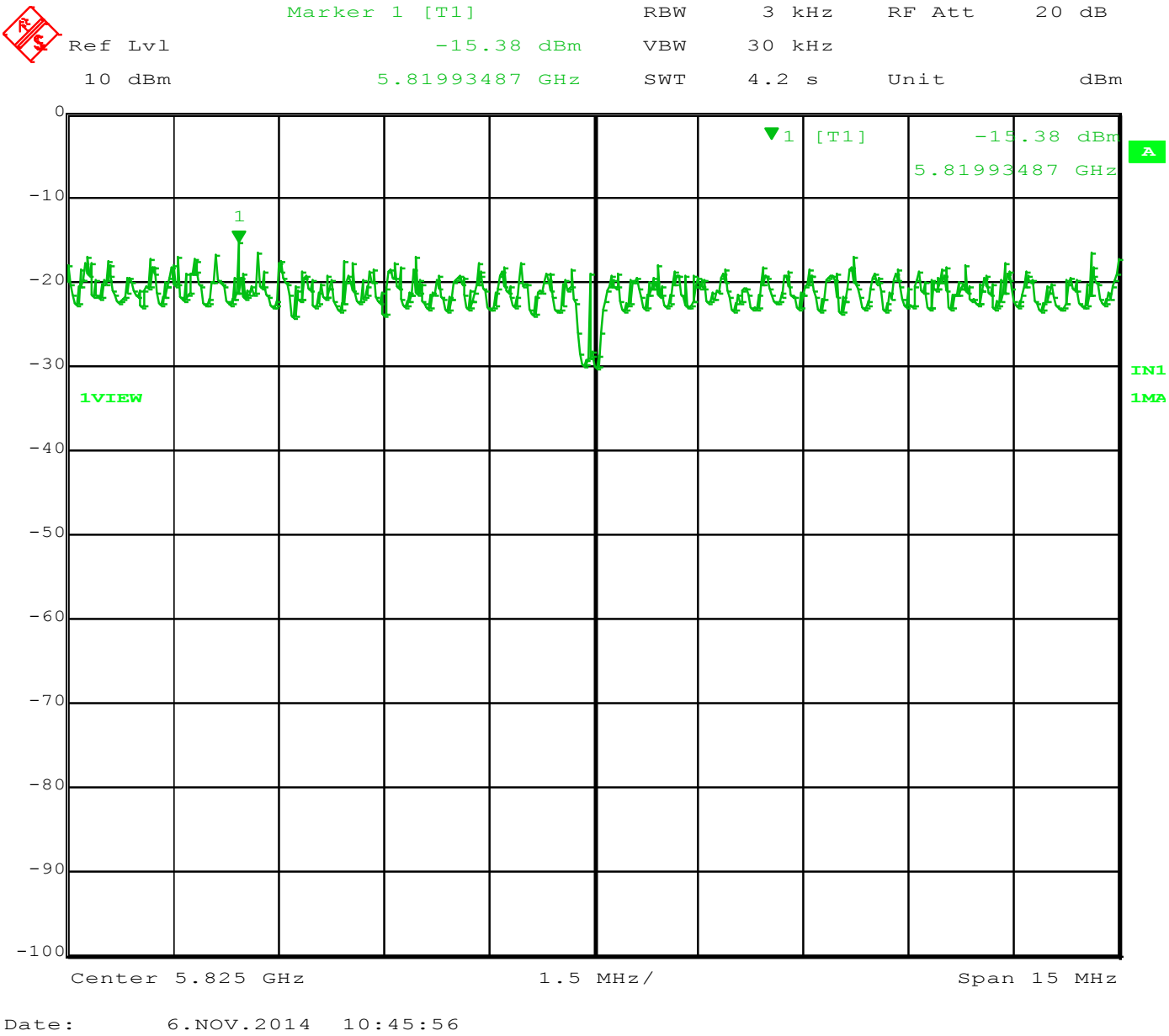

Figure 30: Peak Reference Frequency Chain 0, Ch 165

Spectrum Analyzer Parameters:
RBW= 30kHz
Span= 10MHz
VBW= 100kHz
LOG dB/div.= 10dB
Sweep = Auto
Detector = RMS detector, max hold

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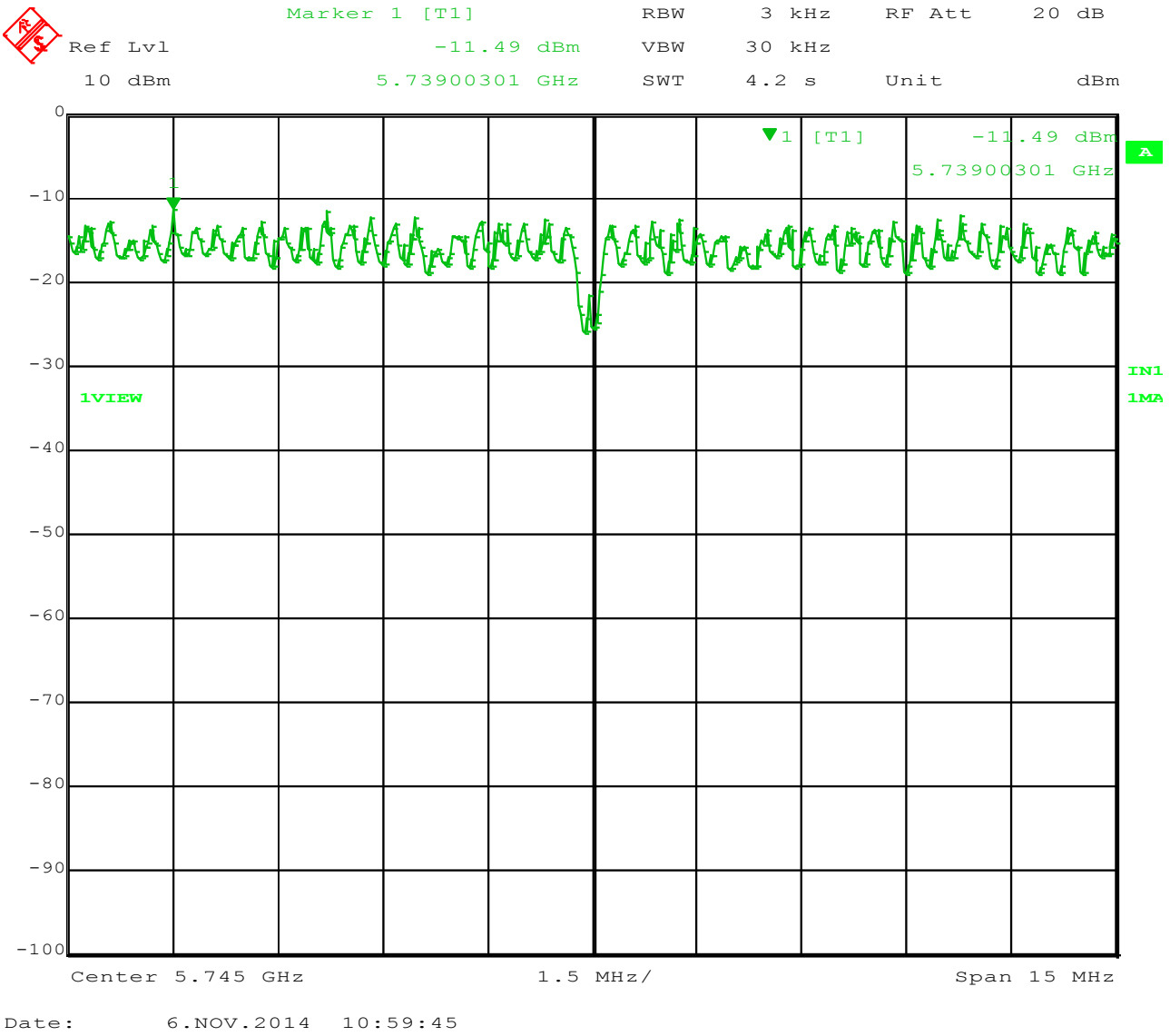

Figure 31: Peak Reference Frequency Chain 1, Ch 149

Spectrum Analyzer Parameters:
RBW= 30kHz
Span= 10MHz
VBW= 100kHz
LOG dB/div.= 10dB
Sweep = Auto
Detector = RMS detector, max hold

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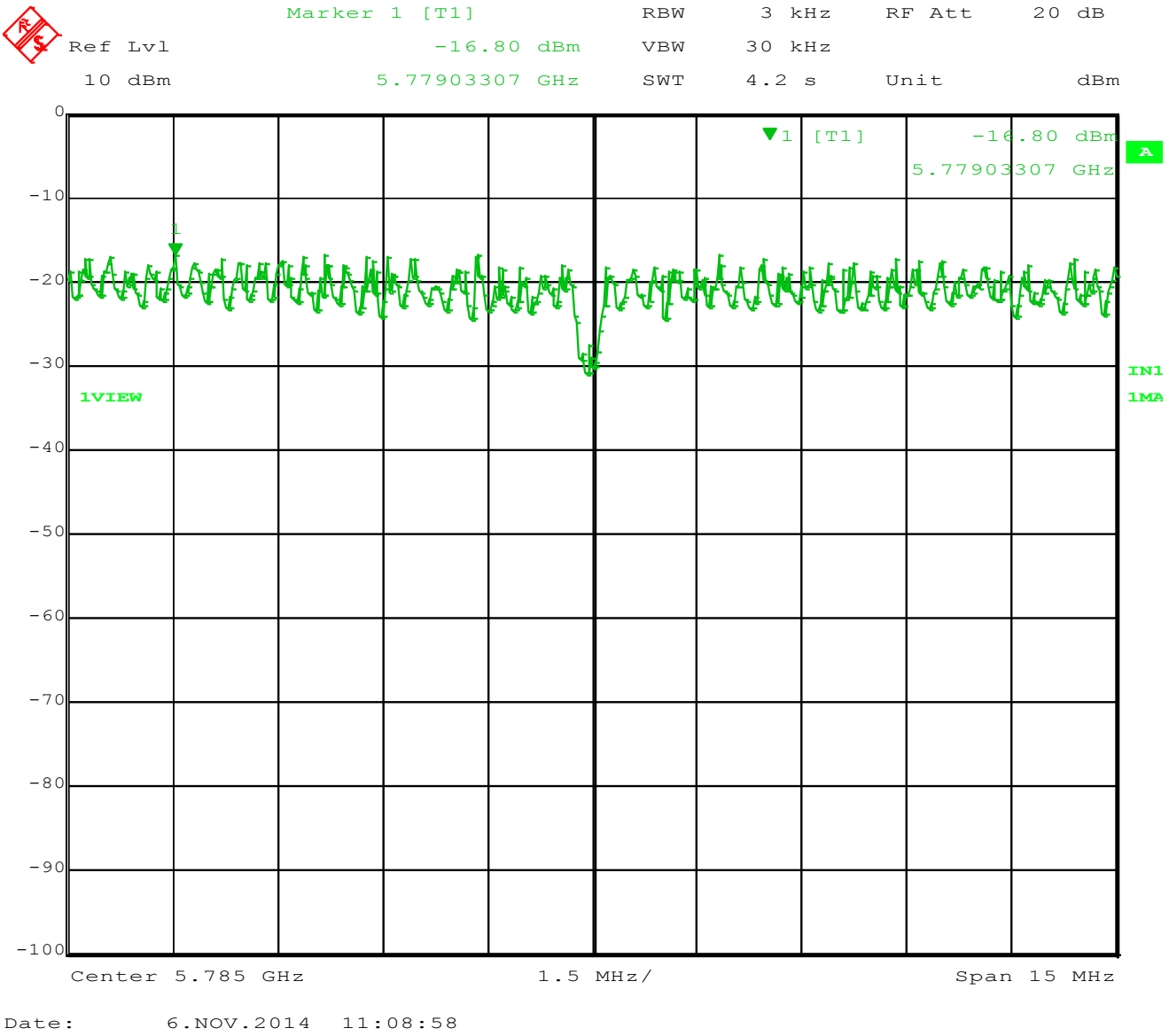

Figure 32: Peak Reference Frequency Chain 1, Ch 157

Spectrum Analyzer Parameters:
RBW= 30kHz
Span= 10MHz
VBW= 100kHz
LOG dB/div.= 10dB
Sweep = Auto
Detector = RMS detector, max hold

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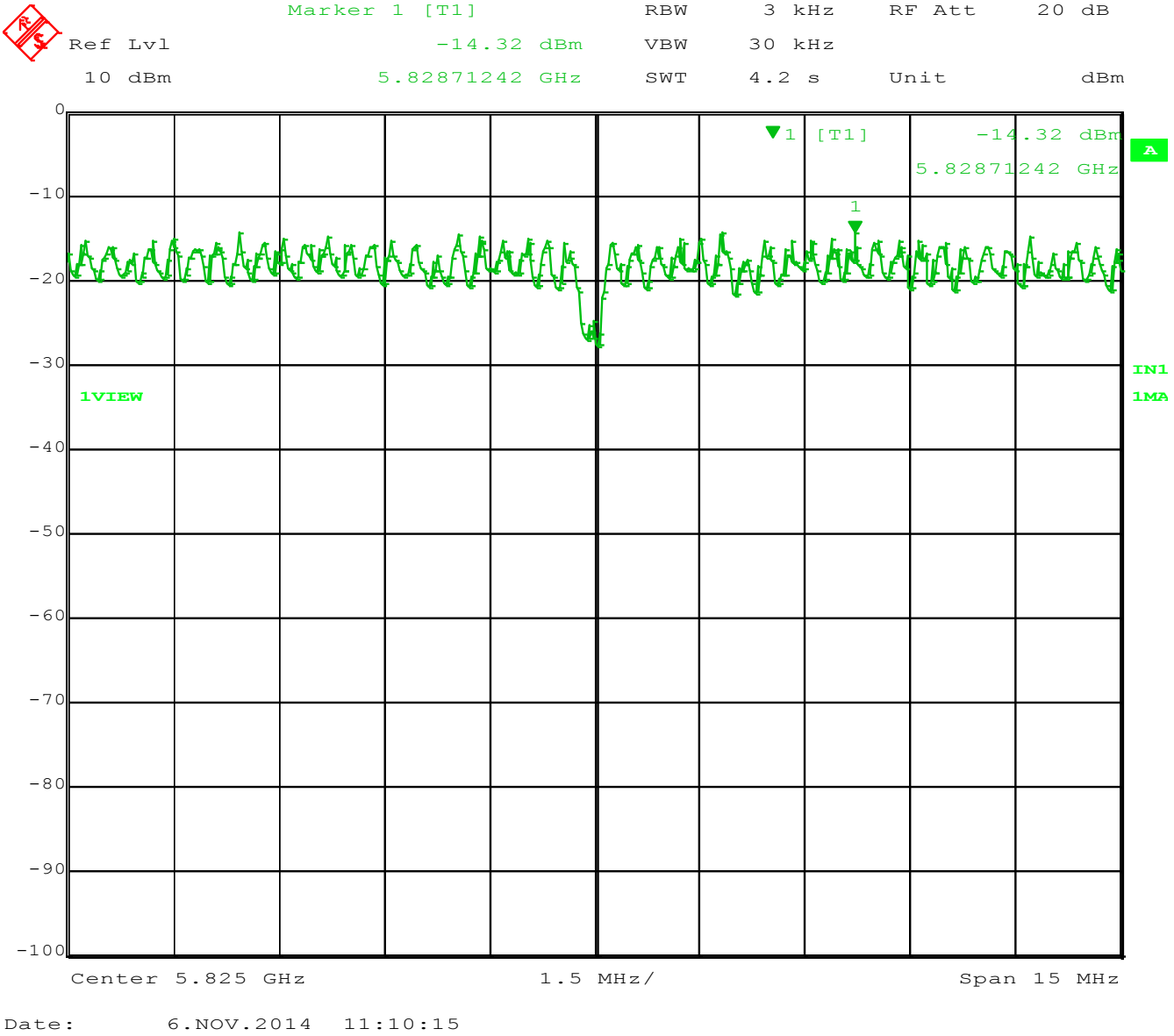

Figure 33: Peak Reference Frequency Chain 1, Ch 165

Spectrum Analyzer Parameters:
RBW= 30kHz
Span= 10MHz
VBW= 100kHz
LOG dB/div.= 10dB
Sweep = Auto
Detector = RMS detector, max hold

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7.3 Occupied Bandwidth

For systems using digital modulation techniques shall have a minimum 6 dB bandwidth of at least 500 kHz.

7.3.1 Test Over View

Results	**Complies** (as tested per this report)					**Date**	11/5/2014
Standard	FCC Part 15.247(a)(2)						
Product Model	DRX PLUS DETECTOR RADIO			**Serial#**	13A32S1011361		
Test Set-up	Per ANSI C63.10:2009						
EUT Powered By	Powered Via USB	**Temp**	74º F	**Humidity**	32%	**Pressure**	1010mbar
Perf. Criteria	(Below Limit)		**Perf. Verification**		Readings Under Limit		
Mod. to EUT	None		**Test Performed By**		Randall E Masline		

7.3.2 Test Procedure

The EUT was using test software to allow the transmitter to transmit continuously. (Duty Cycle > 98%).

The test methods of ANSI C63.10:2009, section 9.9.2 were used.

7.3.3 Deviations

No deviations

7.3.4 Final Test

All 6 dB bandwidth measurements are greater than 500 kHz.

The EUT is compliant to the standard(s).

The test results contained in this report refer exclusively to the product(s) presented for testing. No liability may be assumed for models or products not referred to herein. This test report may not be published or duplicated in part without permission of the testing body. This test report by itself does not constitute authorization for the use of any TUV Rheinland test mark. The report must not be used by the client to claim product certification, approval, or endorsement by A2LA.

7.3.5 Final Data

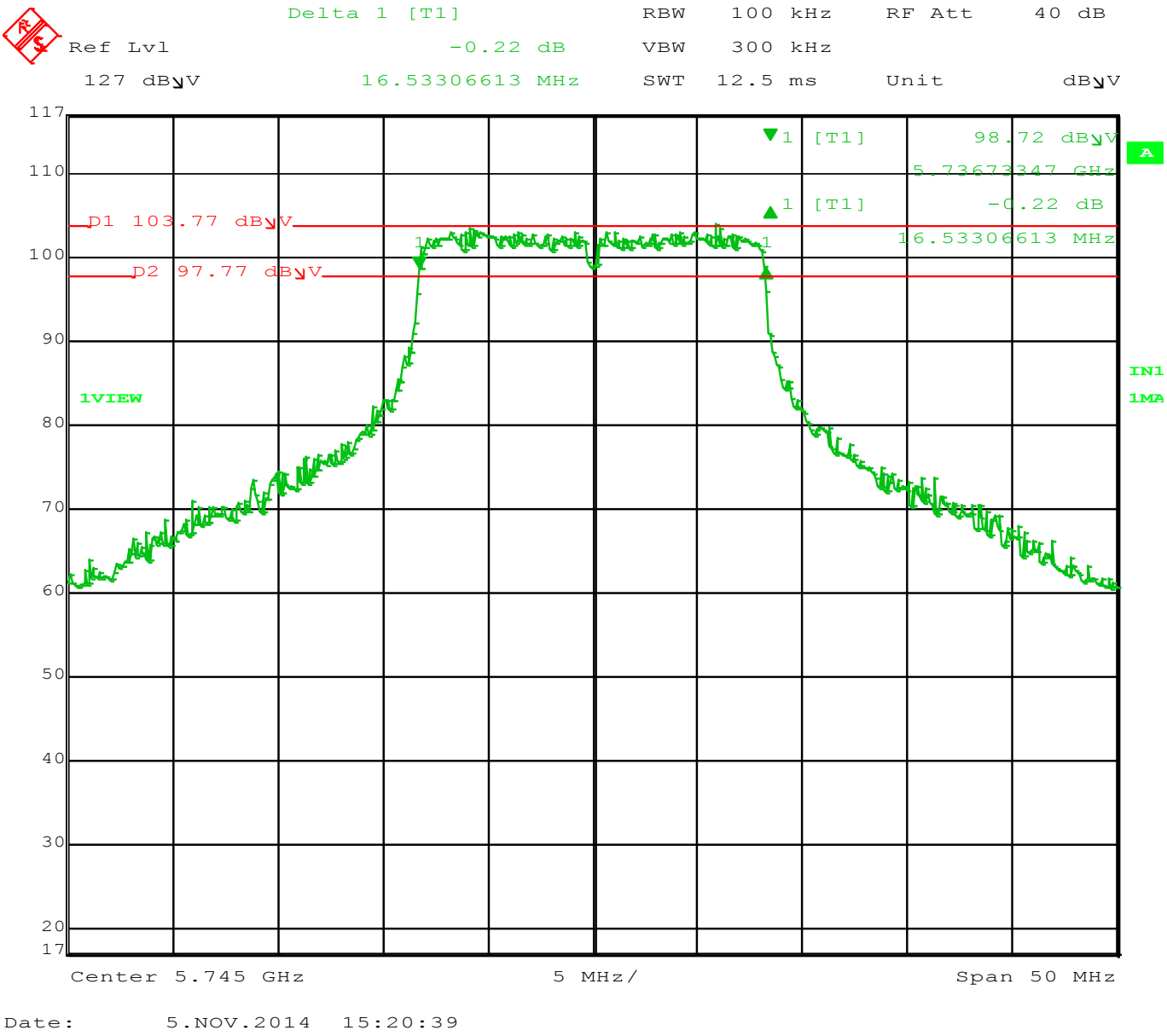

Figure 34: 6dB Occupied Bandwidth Chain 0, Ch 149

6dB Band width is 16.53 MHz

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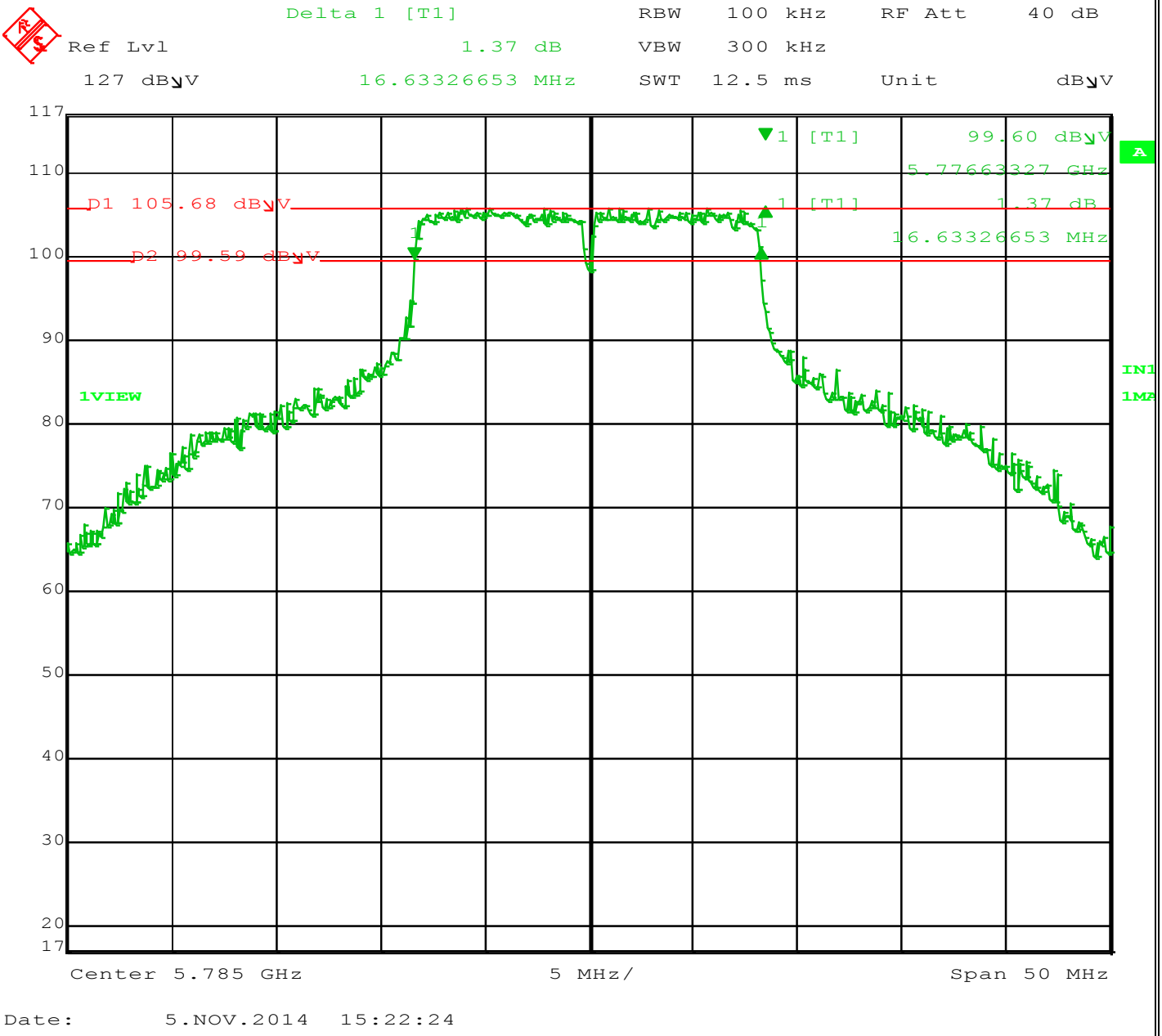

Figure 35: 6dB Occupied Bandwidth Chain 0, Ch 157

6dB Band width is 16.63 MHz

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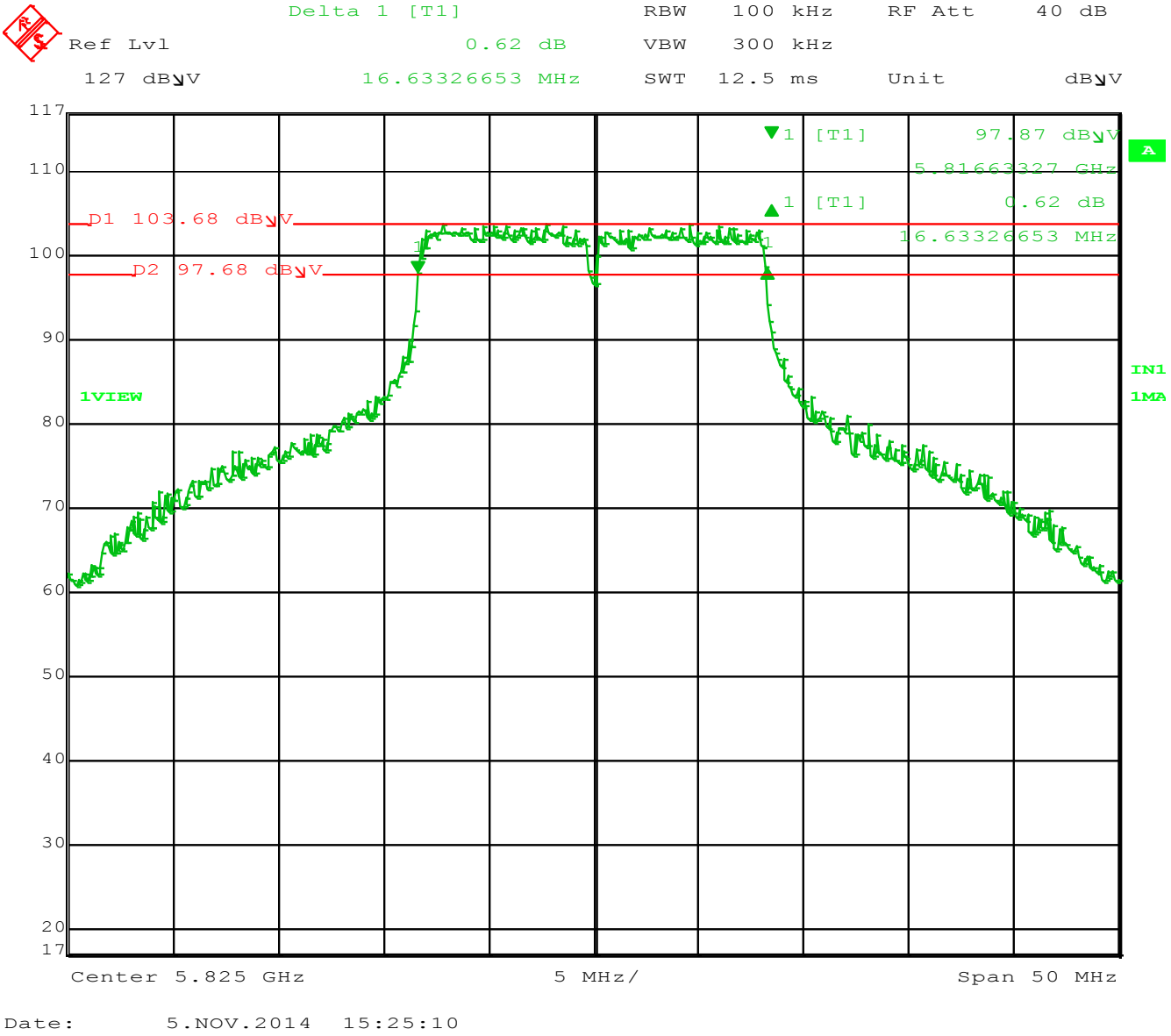

Figure 36: 6dB Occupied Bandwidth Chain 0, Ch 165

6dB Band width is 16.63 MHz

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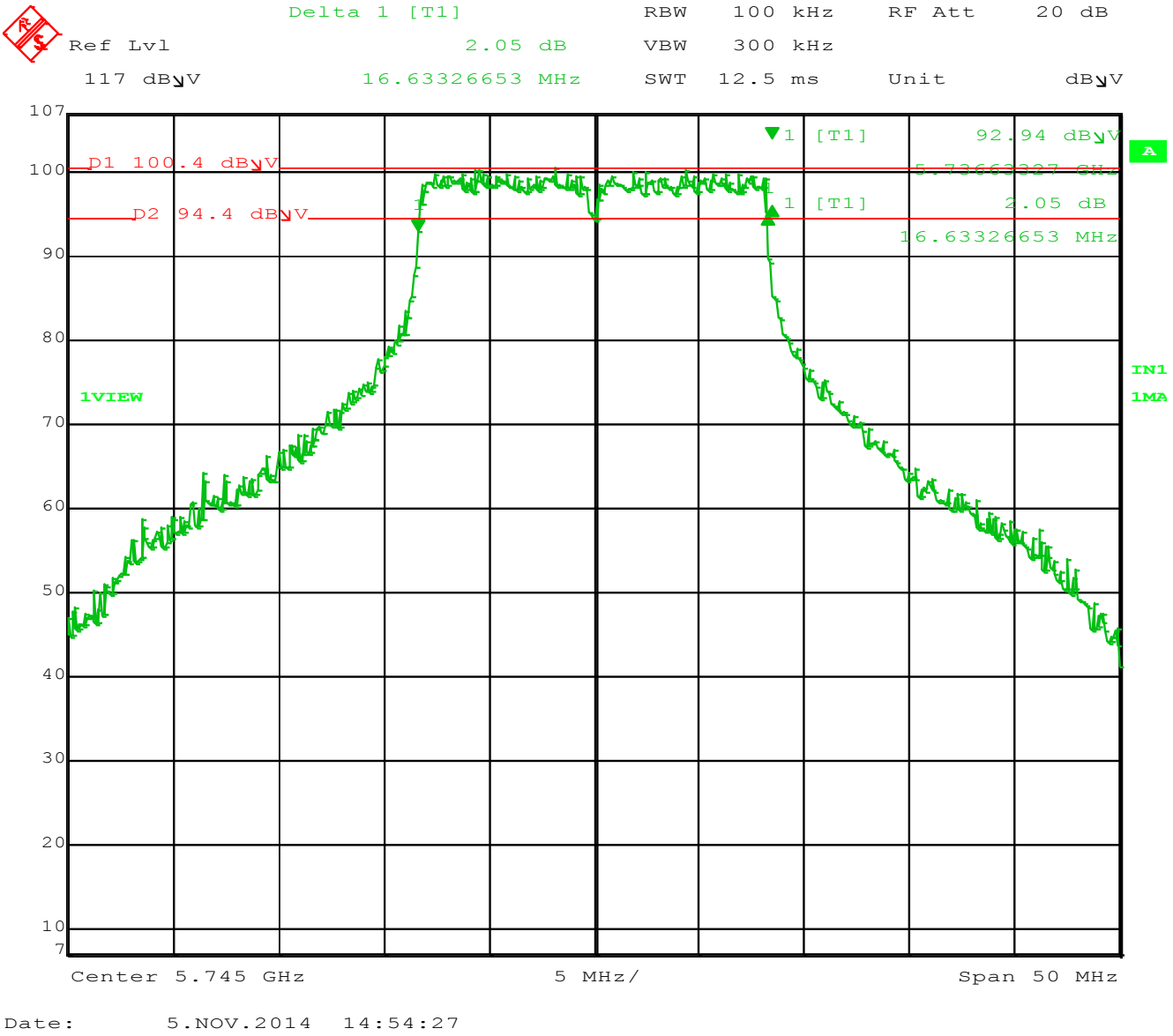

Figure 37: 6dB Occupied Bandwidth Chain 1, Ch 149

6dB Band width is 16.63 MHz

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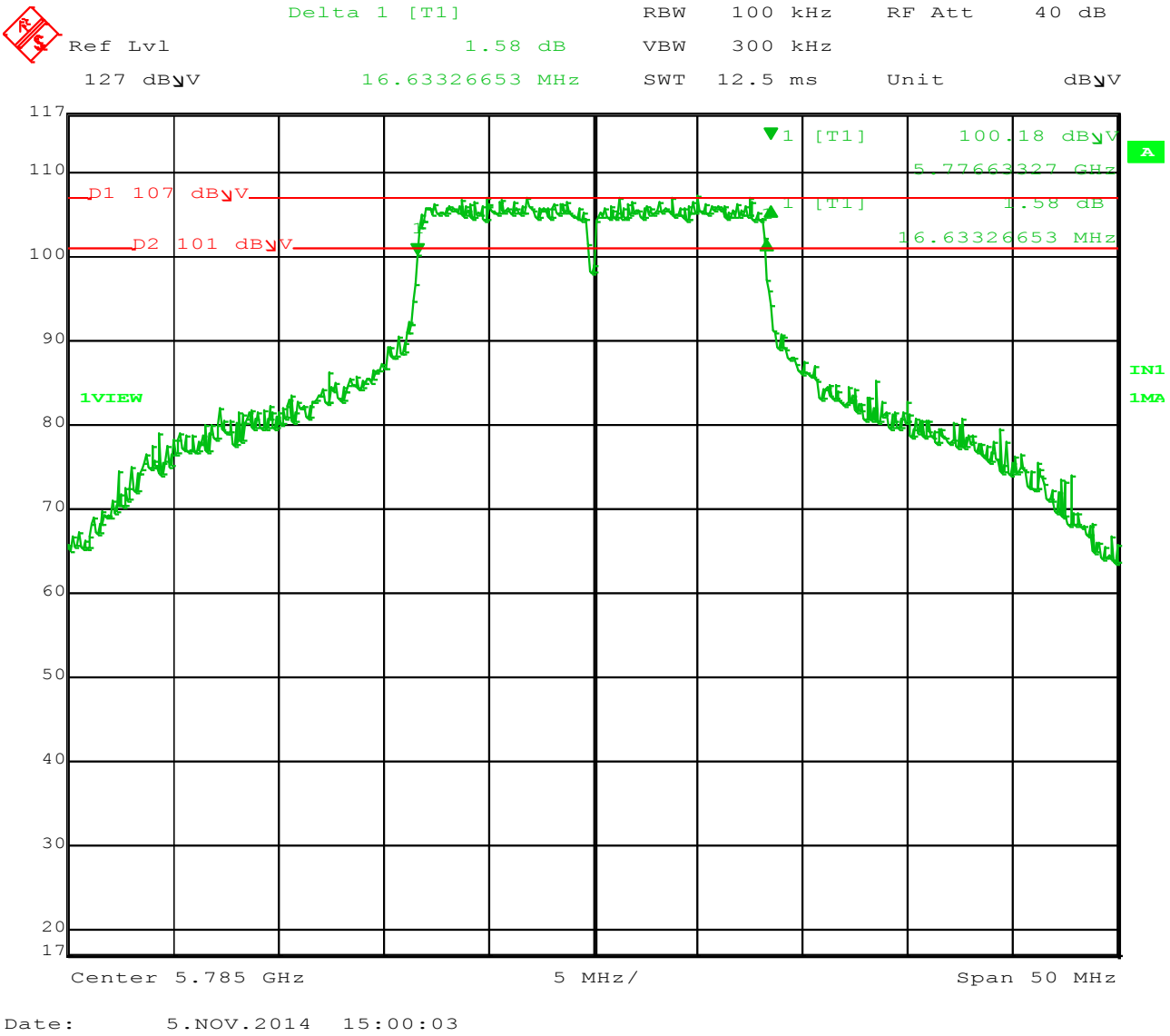

Figure 38: 6dB Occupied Bandwidth Chain 1, Ch 157

6dB Band width is 16.63 MHz

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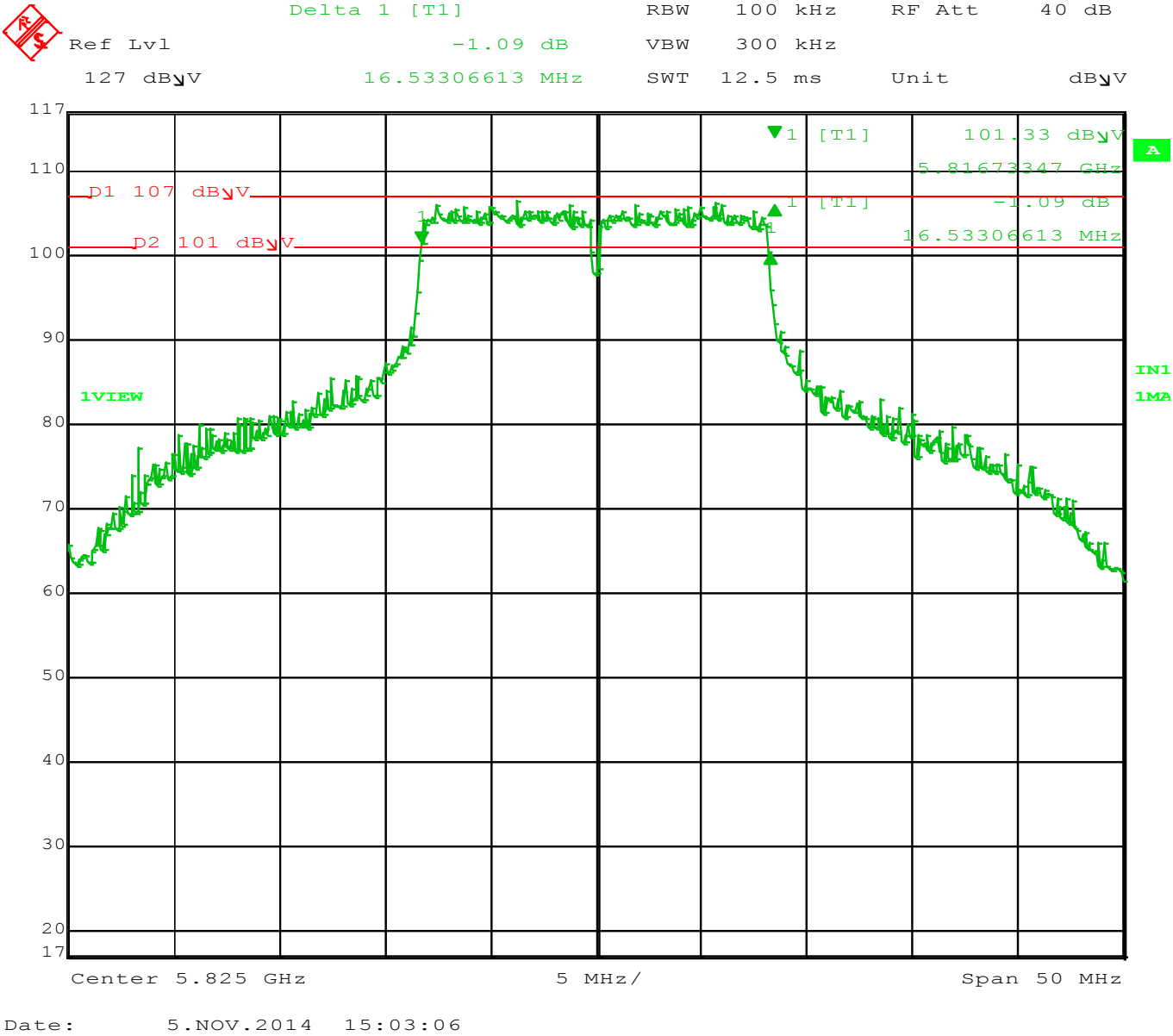

Figure 39: 6dB Occupied Bandwidth Chain 1, Ch 165

6dB Band width is 16.53 MHz

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7.4 Voltage Requirements FCC Part 15.31(e)

FCC Part 15.31 states that for intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.

7.4.1 Over View of Test

Results	**Complies** (as tested per this report)	**Date**	11/4/2014
Standard	FCC Part 15.31(e) and RSS-GEN 4.7		
Product Model	DRX PLUS DETECTOR RADIO	**Serial#**	13A32S1011361
Test Set-up	Per ANSI C63.10:2013		
Perf. Criteria	(Below Limit)	**Perf. Verification**	Readings Under Limit
Mod. to EUT	None	**Test Performed By**	Randall E Masline

7.4.2 Test Procedure

The EUT is a battery-only operated device. A fresh battery was installed in the EUT for testing.

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7.5 Antenna Requirements FCC Parts 15.203, 15.204 and RSS-GEN 7.1.4

7.5.1 Over View of Test

Results	**Complies** (as tested per this report)	**Date**	11/4/2014
Standard	FCC Part 15.203, 15.204 and RSS-GEN 714		
Product Model	DRX PLUS DETECTOR RADIO	**Serial#**	13A32S1011361

7.5.2 Test Procedure

The EUT was operates using only an internal printed circuit "Inverted – F" antenna.

The antennae are placed inside a Detector and are professionally installed and uses security screws.

7.5.3 Final Test

The EUT was found to be compliant to the requirements of the test standard.

ELECTRICL PERFORMANCE SUMMARY

FREQUENCY(GHZ)	2.4	2.44	2.48	5.15	5.25	5.35	5.50	5.725	5.825
GAIN (dBI)	-7.2	-5.5	-8.4	-1.2	-0.8	-1.8	-2.3	-3.3	-3.5
POLARIZATION	V	V	V	V	V	S45	S45	S45	S45
3 db BEAMWIDTH ELEV 1 [DEG.]	140	150	150	120	120	110	110	110	110
3 db BEAMWIDTH ELEV 2 [DEG.]	120	120	150	60	60	150	180	180	180
IMPEDENCE [OHM]	50	50	50	50	50	50	50	50	50
VSWR	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.	2.6: 1 MAX.

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8 Emissions in Receive Mode.

8.1 Radiated Emissions

This test measures the electromagnetic levels of spurious signals generated by the EUT that radiated from the EUT and may affect the performance of other nearby electronic equipment.

8.1.1 Over View of Test

Results	**Complies** (as tested per this report)					**Date**	11/4/2014
Standard	FCC Parts 15.109(a), RSS-210 2.2, 2.5, and RSS-GEN 6.1						
Product Model	DRX PLUS DETECTOR RADIO			**Serial#**	13A32S1011361		
Configuration	EUT set to receive mode						
Test Set-up	Per ANSI C63.10:2013						
EUT Powered By	Powered Via USB	**Temp**	74º F	**Humidity**	32%	**Pressure**	1010mbar
Frequency Range	30 MHz to 25 GHz @ 3m						
Perf. Criteria	(Below Limit)		**Perf. Verification**	Readings Under Limit			
Mod. to EUT	None		**Test Performed By**	Randall E Masline			

8.1.2 Test Procedure

Radiated and FCC emissions tests were performed using the procedures of ANSI C63.4:2003 including methods for signal maximizations and EUT configuration. The photos included with the report show the EUT in its maximized configuration.

The frequency range from 30 MHz to 25 GHz was investigated for radiated emissions.

Radiated emission testing was performed at a distance of 3 meters in a 5 meter semi-anechoic chamber.

8.1.3 Deviations

There were no deviations from the test methodology.

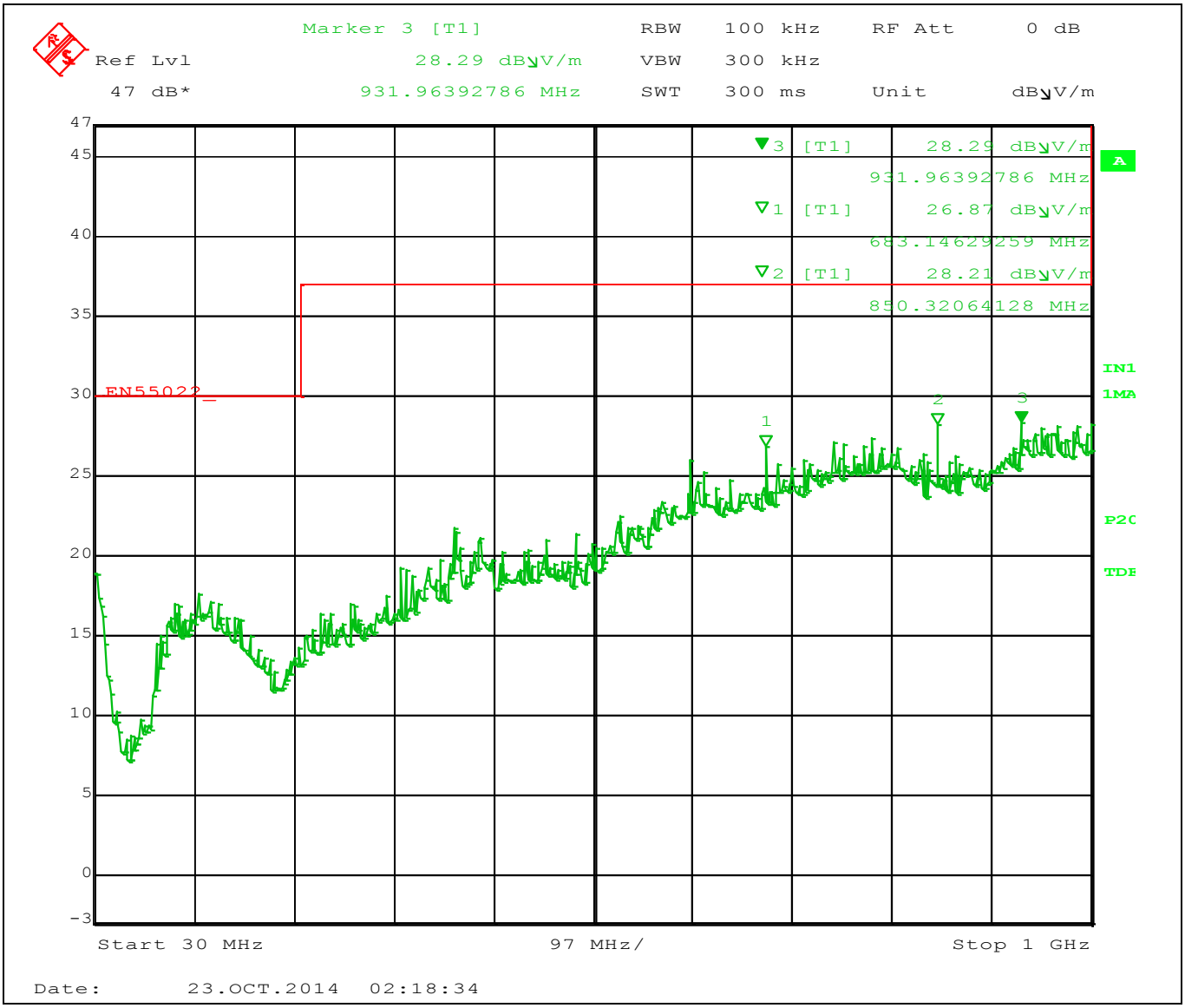
8.1.4 Final Test

All final radiated emissions measurements were below (in compliance) the limits.

The test results contained in this report refer exclusively to the product(s) presented for testing. No liability may be assumed for models or products not referred to herein. This test report may not be published or duplicated in part without permission of the testing body. This test report by itself does not constitute authorization for the use of any TUV Rheinland test mark. The report must not be used by the client to claim product certification, approval, or endorsement by A2LA.

8.1.5 Final Graphs and Tabulated Data

Worst-Case Radiated Emissions 30MHz to 1000MHz
Horizontal



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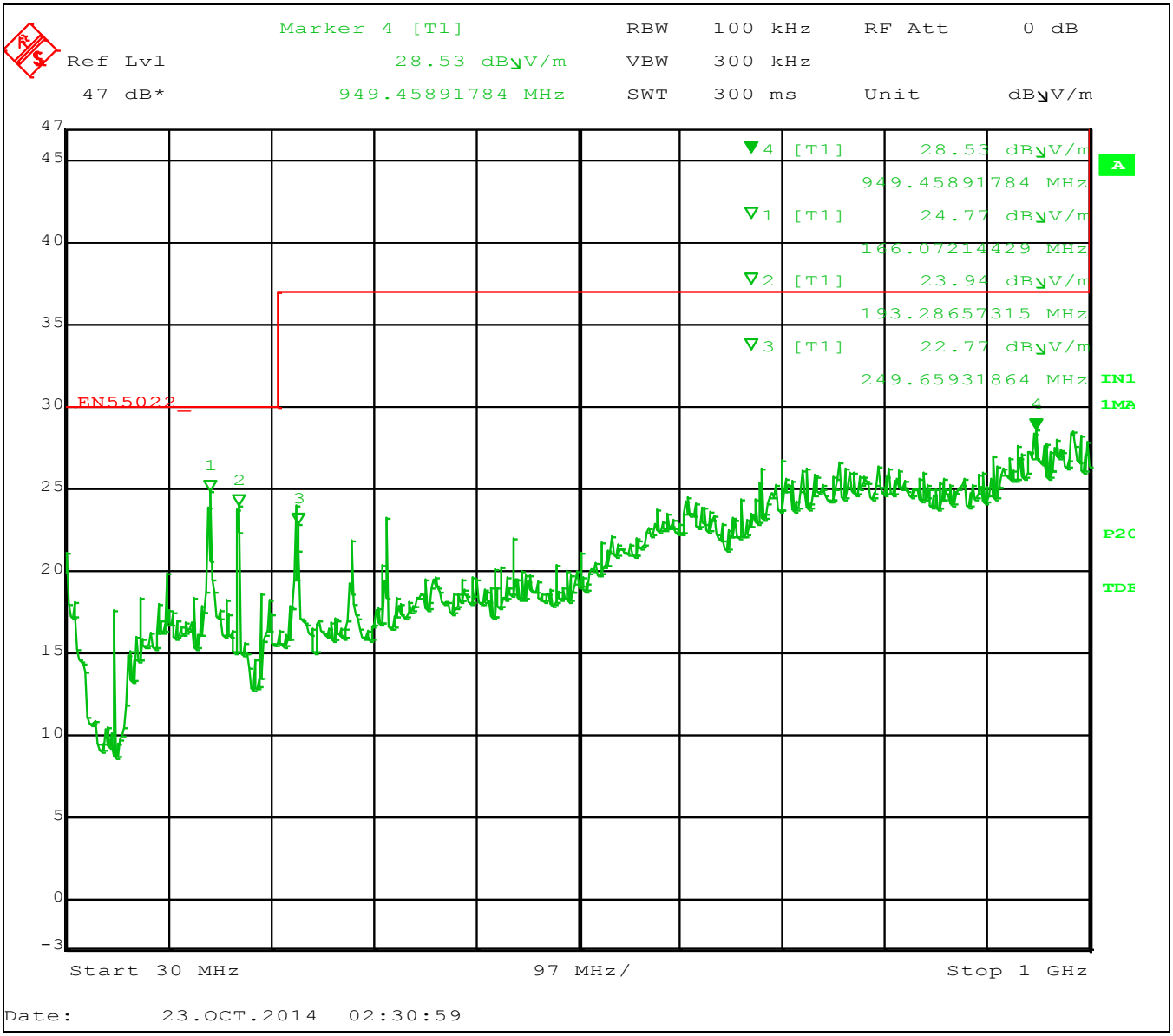
Worst-Case Radiated Emissions 30MHz to 1000MHz
Vertical



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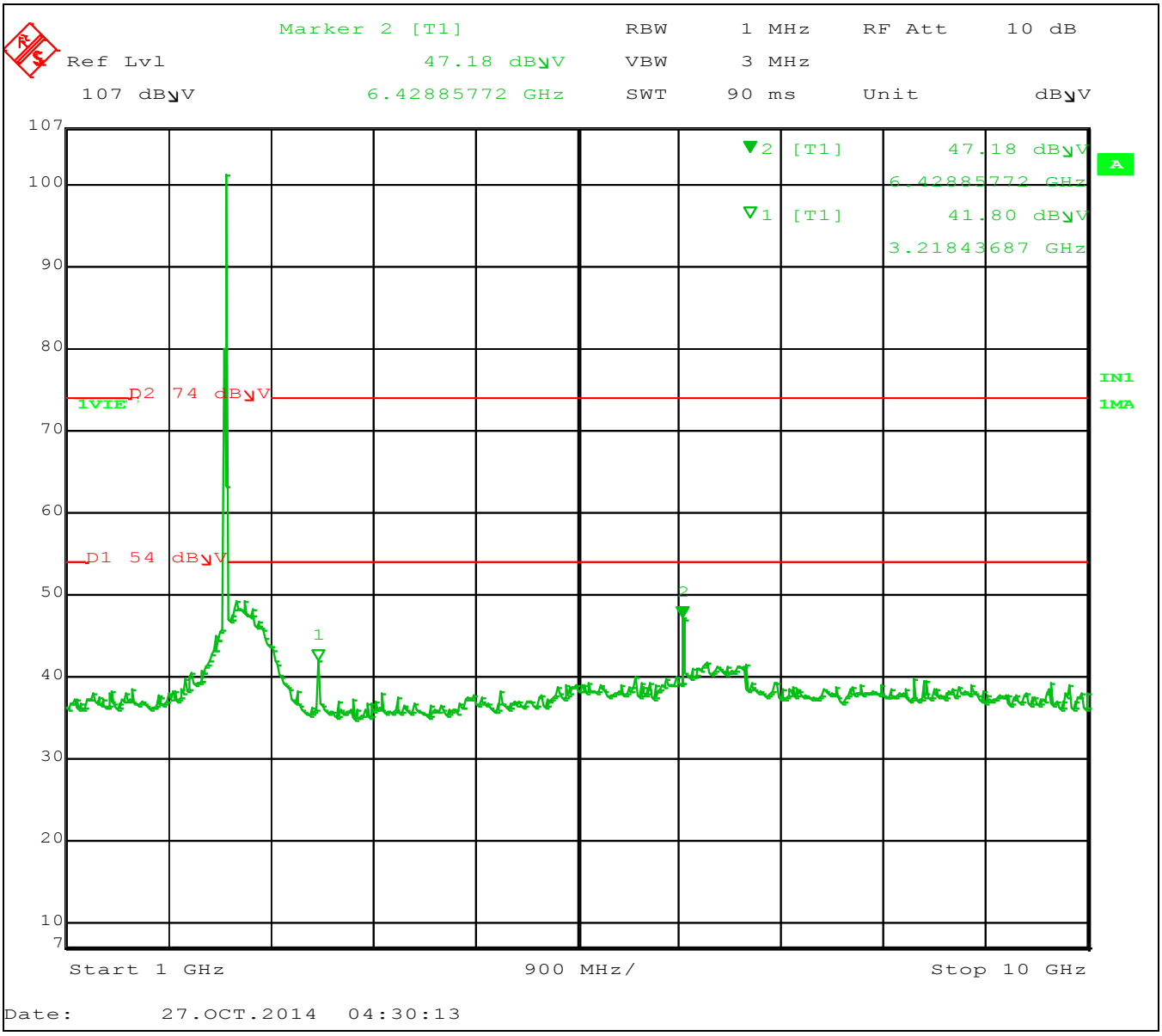
Worst-Case Radiated Emissions 1GHz to 10GHz

Horizontal



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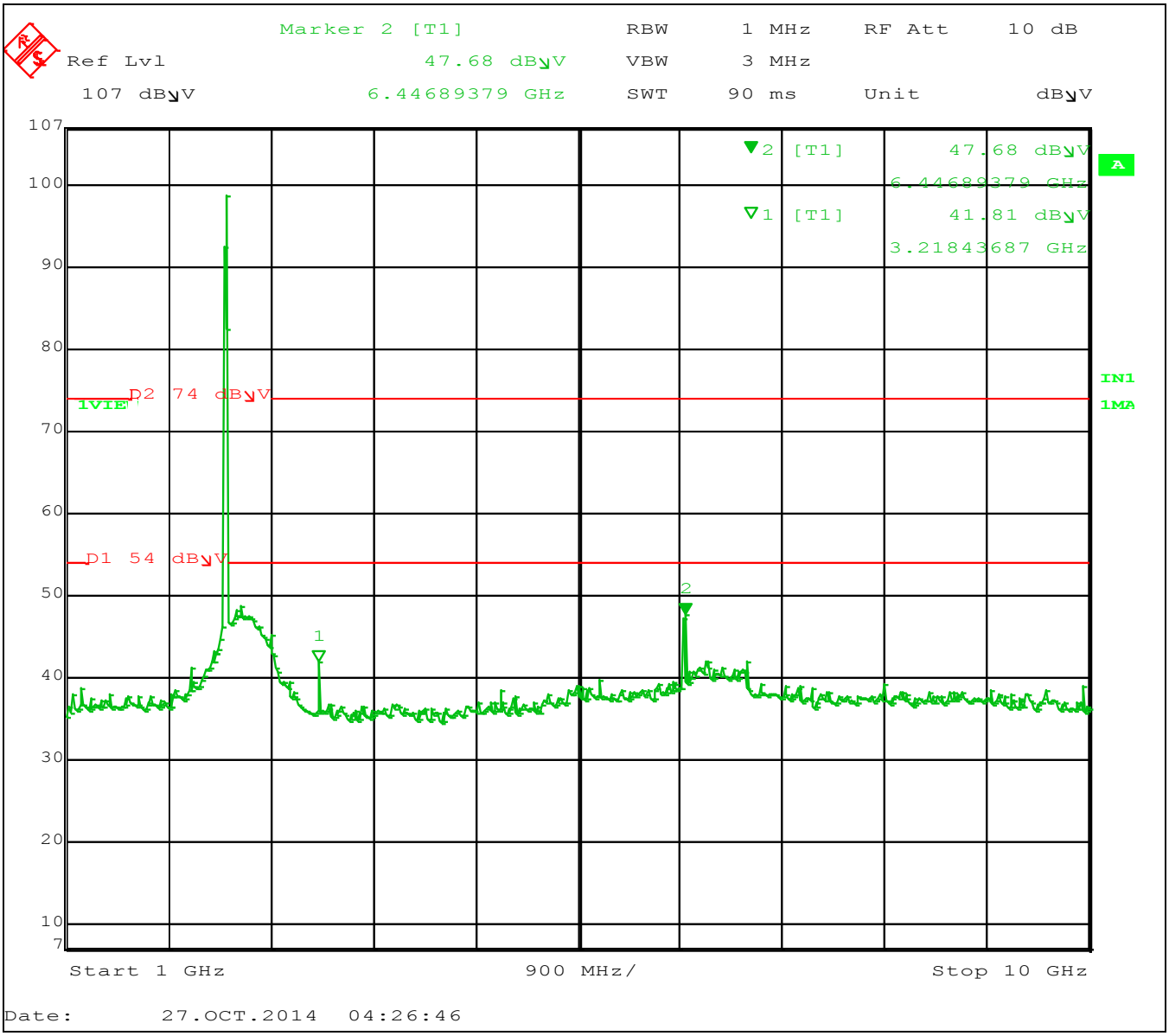
Worst-Case Radiated Emissions 1GHz to 10GHz
Vertical



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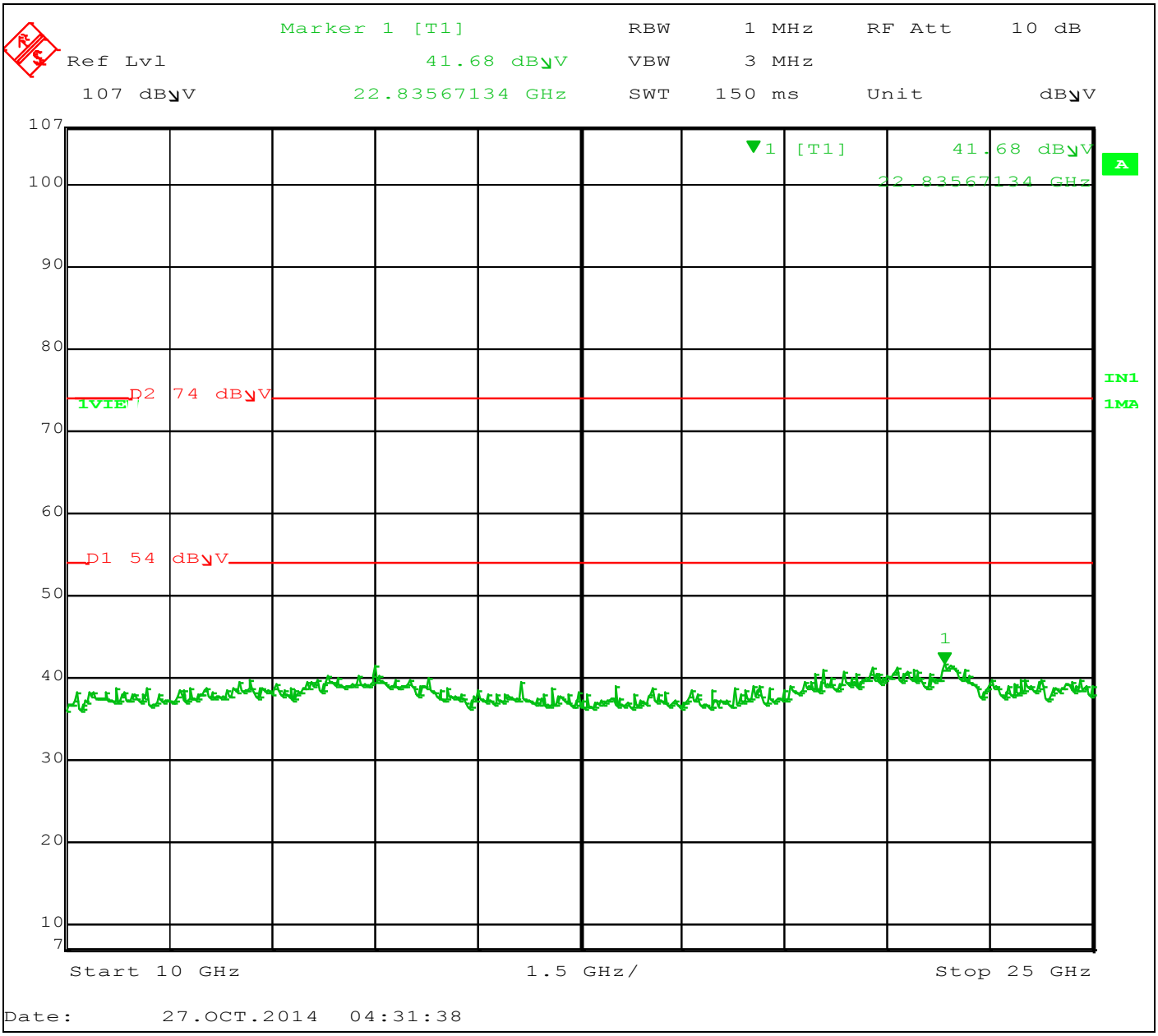
Worst-Case Radiated Emissions 10GHz to 25GHz

Horizontal



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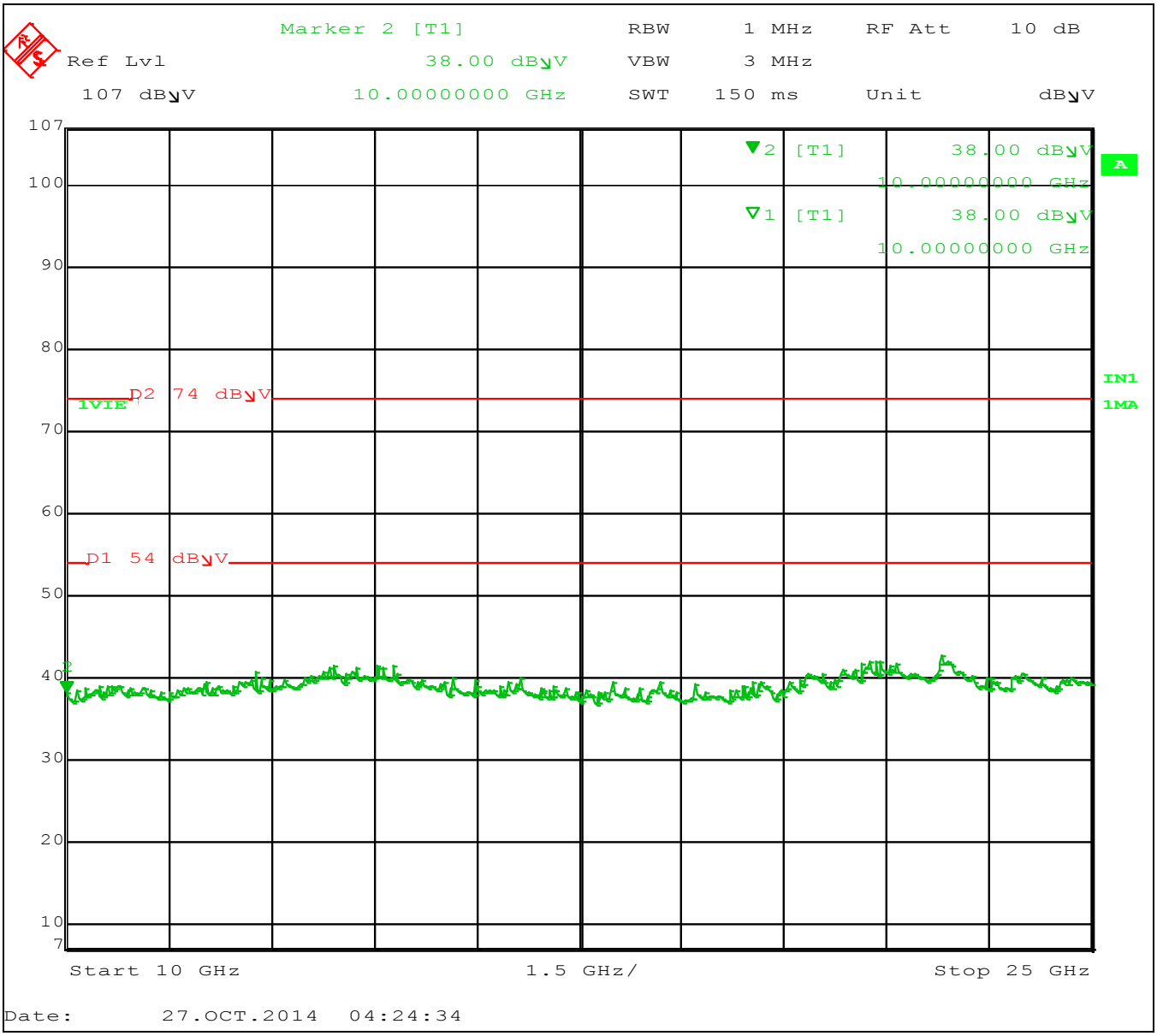
Worst-Case Radiated Emissions 10GHz to 25GHz
Vertical



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9 RF Exposure Measurement (Mobile Device) 15.247(i)

SAR testing was performed on the EUT, see SAR report.

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