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

Prepared for:

Carestream Health Inc.

150 Verona St

Rochester NY, 14608

Prepared by:

TUV Rheinland of North America, Inc.

Auftraggeber: *Client:*	Carestream Health Inc. 150 Verona St Rochester NY, 14608	Ronald Cain 585-627-8321 / 585-477-2718 ronald.cain@carestreamhealth.com	
Bezeichnung: *Identification:*	WiFi Transmitter	**Serien-Nr.:** *Serial No.*	13A32S1011361
Gegenstand der Prüfung: *Test item:*	DRX Plus Detector Radio	**Prüfdatum:** *Date tested:*	03/5/2015
Prüfort: *Testing location:*	TUV Rheinland of North America 710 Resende Road Webster, NY 14580 U.S.A.	Tel: (585) 645-0125	
Prüfgrundlage: *Test specification:*	Emissions: FCC Part 15.407 Subpart E FCC Part 15.209(a) FCC part 15.407(a)(1), FCC Part 15.407(a)(5) RSS-210 Issue 7, FCC Part 15.407(a)(6), FCC Part 15.407(b)(8), FCC Part 15.205, FCC Part 15.407(c), FCC Part 15.407(g), FCC Part 15.203, RSS-210		
Test Result	**The above product was found to be Compliant to the above test standard(s)**		

geprüft / *tested by:* Randall Masline	***reviewed by:*** Cecil Gittens
15 May 2015 **Datum** *Date* / **Name** *Name* / **Unterschrift** *Signature*	15 May 2015 ***Date*** / ***Name*** / ***Signature***

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

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

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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 03/5/2015 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 *Summary of Test Results*

Applicant	Carestream Health Inc. 150 Verona St Rochester NY, 14608	**Tel**	585-627-8321	**Contact**	Ronald Cain
		Fax	585-477-2718	**e-mail**	ronald.cain@carestreamhealth.com

Description	WiFi Transmitter	**Model Number**	DRX Plus Detector Radio
Serial Number	13A32S1011361	**Test Voltage/Freq.**	Battery 12VDC
Test Date Completed:	03/5/2015	**Test Engineer**	Randall Masline

Standards	Description	Severity Level or Limit	Measurement	Test Result
RSS-210 Issue 7	Industry Canada - Low-power License-exempt Radiocommunication Devices	See called out basic standards below	See Below	Complies
FCC Part 15.407 Subpart E	Unlicensed National Information Infrastructure Devices	See called out basic standards below	See Below	Complies
FCC Part 15.209(a)	Radiated Emissions	Class B, 30 - 1000 MHz		Complies
FCC Part 15.207(c)	Conducted Emissions	Class B, 0.15 - 30 MHz	Not Required Battery Powered	Complies
FCC Part 15.407(a) (1)	Conducted Output Power	50 mw Maximum		Complies
FCC part 15.407(a)(1)	-26 dB Bandwidth			Complies
FCC Part 15.407(a)(5)	Peak Power Spectral Density			Complies
FCC Part 15.407(a)(6)	Peak Power Excursion			Complies
FCC Part 15.407(b)(8)	Band Edge			Complies
FCC Part 15.205	Restricted Bands			Complies
FCC Part 15.407(c)	Discontinuance Of Transmission			Complies
FCC Part 15.407(g)	Frequency Stability			Complies
FCC Part 15.203	Antenna Requirements			Complies
RSS-210	99% Bandwidth			Complies

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.

2.2 Measurement Uncertainty

General

☐	The estimated combined standard uncertainty for ESD immunity measurements is ± 0.43%.
☐	The estimated combined standard uncertainty for radiated immunity measurements is ± 2.0dB.
☐	The estimated combined standard uncertainty for EFT fast transient immunity measurements is ± 6.0%.
☐	The estimated combined standard uncertainty for surge immunity measurements is ± 5.0%.
☐	The estimated combined standard uncertainty for conducted immunity measurements is ± 2.0 dB.
☐	The estimated combined standard uncertainty for power frequency magnetic field immunity measurements is ± 2.57%.
☐	The estimated combined standard uncertainty for voltage variation and interruption measurements is ± 4.89%.
☒	The estimated combined standard uncertainty for radiated emissions measurements is ± 4.6 dB.
☐	The estimated combined standard uncertainty for conducted emissions measurements is ± 2.6 dB.
☐	The estimated combined standard uncertainty for harmonic current ± 7.27% and flicker measurements is ± 3.87%.

2.3 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.

2.4 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

Note: CE = Conducted Emissions, CI= Conducted Immunity, DP=Disturbance Power, EFT=Electrical Fast Transients, ESD = Electrostatic Discharge, FLI=Flicker, HAR=Harmonics, MF=Magnetic Field Immunity, RE=Radiated Emissions, RI=Radiated Immunity, SI=Surge Immunity, VDSI=Voltage Dips and Short Interruptions

3 Product Information

3.1 Product Description

WiFi operating in the UNII Bands of FCC Part 15.407

Operating in 5150MHz ~ 5350MHz bands:
Eight channels are provided for 802.11a and 802.11n (20MHz):

CHANNEL	FREQUENCY
36	5180 MHz
40	5200 MHz
44	5220 MHz
48	5240 MHz
52	5260 MHz
56	5280 MHz
60	5300 MHz
64	5320 MHz

Operating in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:
Eight channels are provided for 802.11a and 802.11n (20MHz):

CHANNEL	FREQUENCY
100	5500 MHz
104	5520 MHz
108	5540 MHz
112	5560 MHz
116	5580 MHz
132	5660 MHz
136	5680 MHz
140	5700 MHz

3.2 Equipment Modifications

No modifications were needed to bring product into compliance.

3.3 Test Plan

The EUT product information, test configuration, mode of operation, test types, test procedures, test levels, pass/failure criteria, in this report were carried out per the product test plan located in appendix A of this report.

4 Emissions

4.1 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.

4.1.1 Over View of Test

Results	**Complies** (as tested per this report)				**Date**		
Standard	FCC Part 15.209(a)						
Product Model	DRX Plus Detector Radio			**Serial#**	13A32S1011361		
Configuration	See test plan for details						
Test Set-up	Tested on 10m O.A.T.S. placed on turn-table, see test plans for details						
EUT Powered By	Battery 12VDC	**Temp**	24ºC	**Humidity**	54%	**Pressure**	1013mbar
Frequency Range	30 - 1000 MHz @ 10m						
Criteria	Class B. (Below Limit)		**Perf. Verification**		Readings Under Limit		
Mod. to EUT	None		**Test Performed By**		Randall Masline		

4.1.2 Test Procedure(s)

Radiated and FCC emissions tests were performed using the procedures of ANSI C63.4 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 - 1000 MHz was investigated for radiated emissions.

Radiated emission testing was first performed at a distance of 3 meters in the semi-anechoic chamber in order to identify the specific frequencies for which these measurements will be made on the 10M SEMI-ANECHOIC CHAMBER.

In accordance with FCC Public Notice DA 02-2138 Measurement Procedure updated for Peak Transmit Power in the Unlicensed National Information Infrastructure (U-NII) Bands.

The transmitter was transmitting continuously at maximum power for all tests. Therefore; method 2 was used to measure peak power..

4.1.3 Deviations

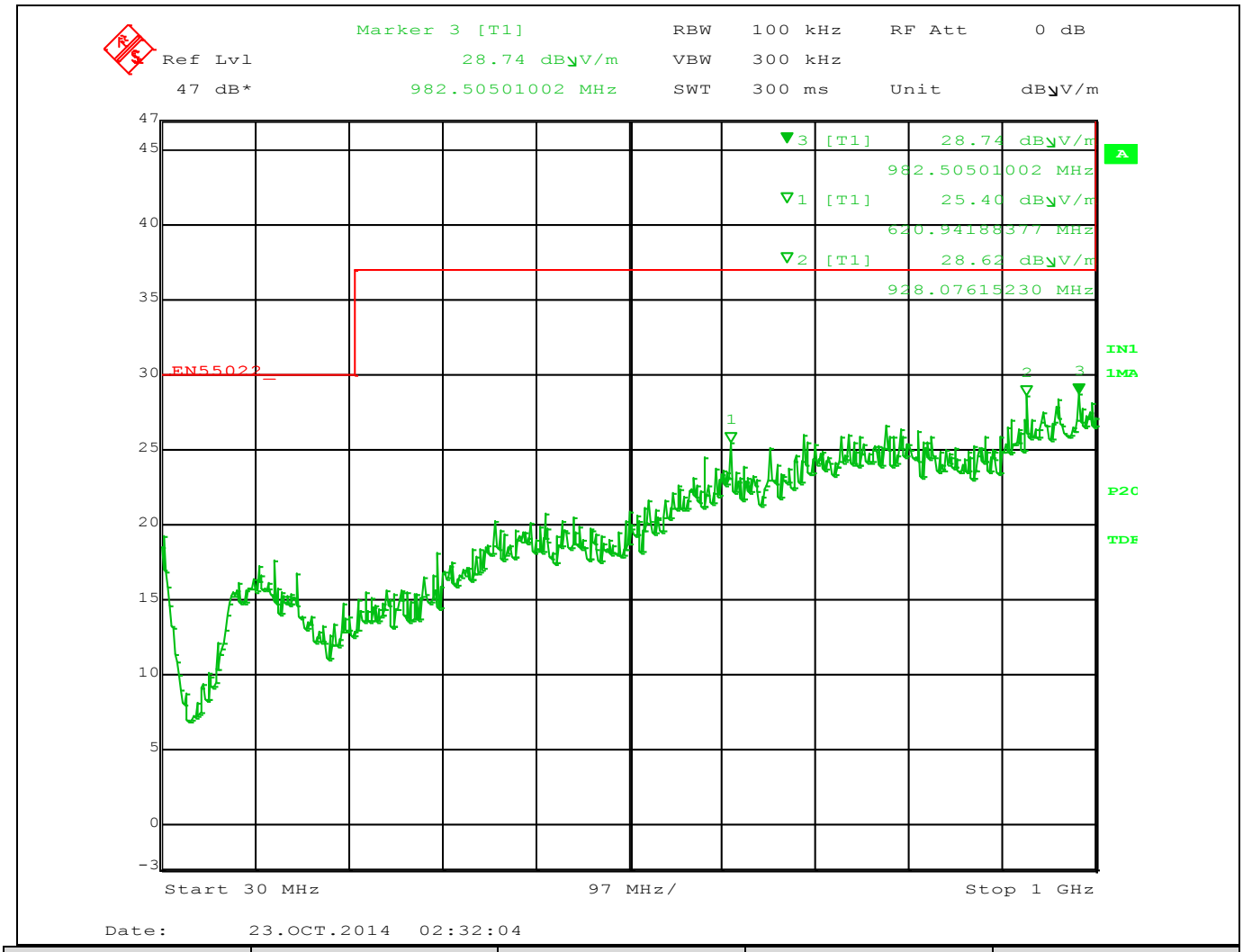
There were no deviations from the test methodology listed in the test plan for the radiated emission test.

4.1.4 Final Test

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

4.1.5 Final Data

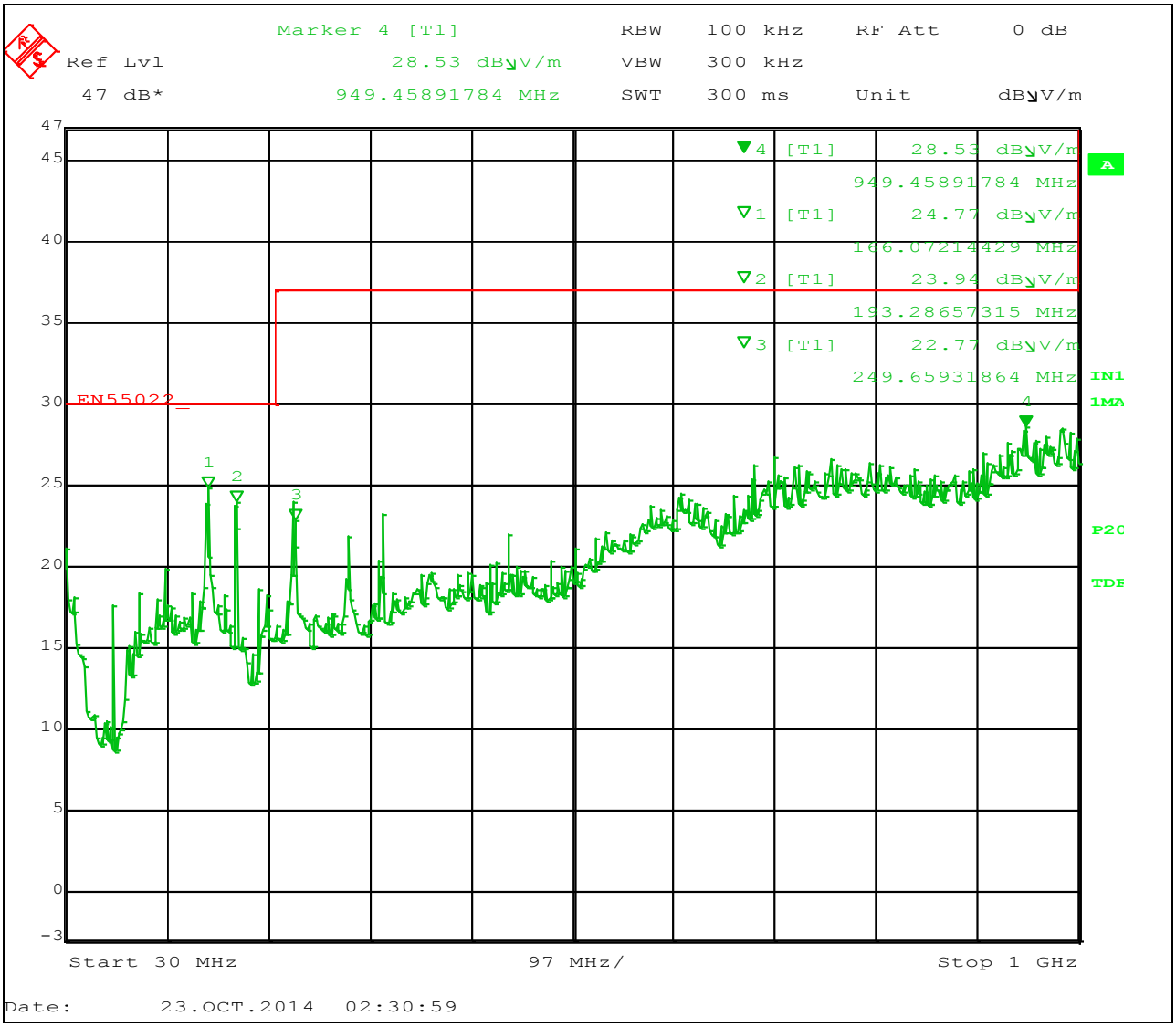
Worst-Case Radiated Emissions 30MHz to 1000MHz
Horizontal



Frequency (MHz)	Peak (dBuV)	QP (dBuV)	QP Limit (dBuV)	Result
620.94	25.40	23.41	37	Complies
928.076	28.076	26.58	37	Complies
982.505	28.74	26.13	37	Complies

Worst-Case Radiated Emissions 30MHz to 1000MHz

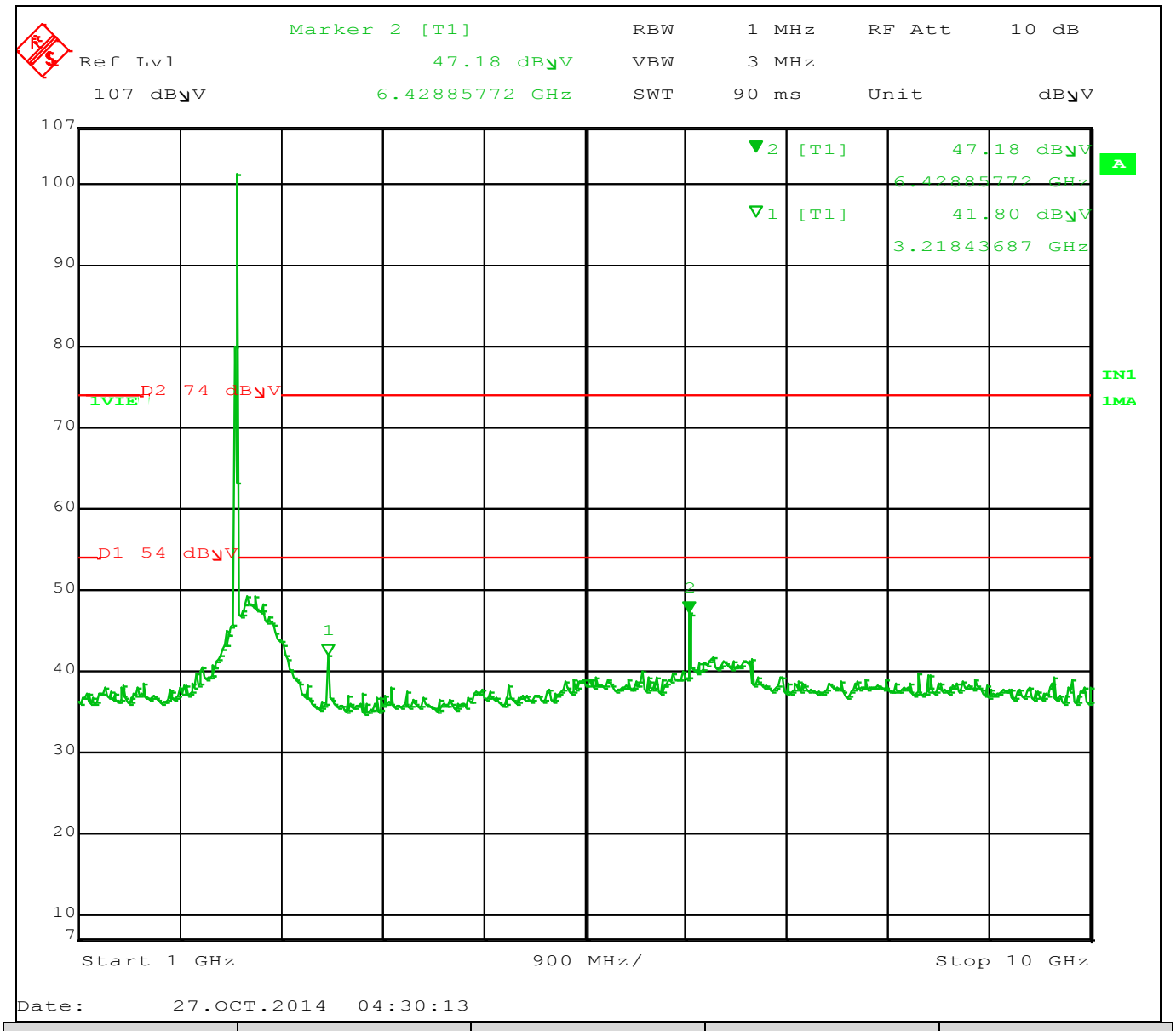
Vertical



Frequency (MHz)	Peak (dBuV)	QP (dBuV)	QP Limit (dBuV)	Result
166.072	24.77	22.35	30	Complies
193.286	23.94	21.56	30	Complies
149.659	22.77	20.84	37	Complies
949.458	28.53	26.3	37	Complies

Worst-Case Radiated Emissions 1GHz to 10GHz

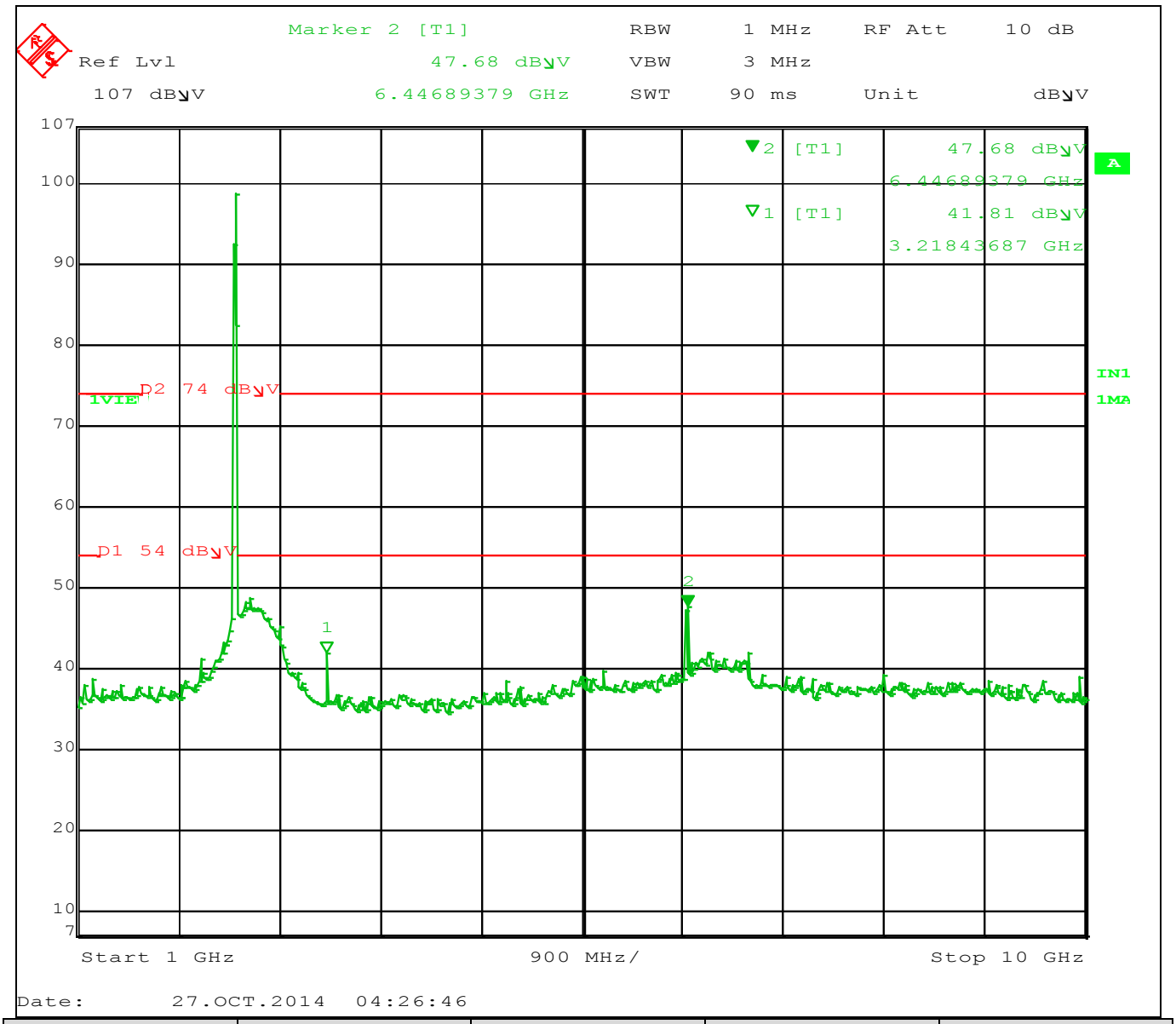
Horizontal



Frequency (MHz)	Peak (dBuV)	AV (dBuV)	AV Limit (dBuV)	Result
3.21	41.8	40.25	54	Complies
6.42	47.18	45.65	54	Complies

Worst-Case Radiated Emissions 1GHz to 10GHz

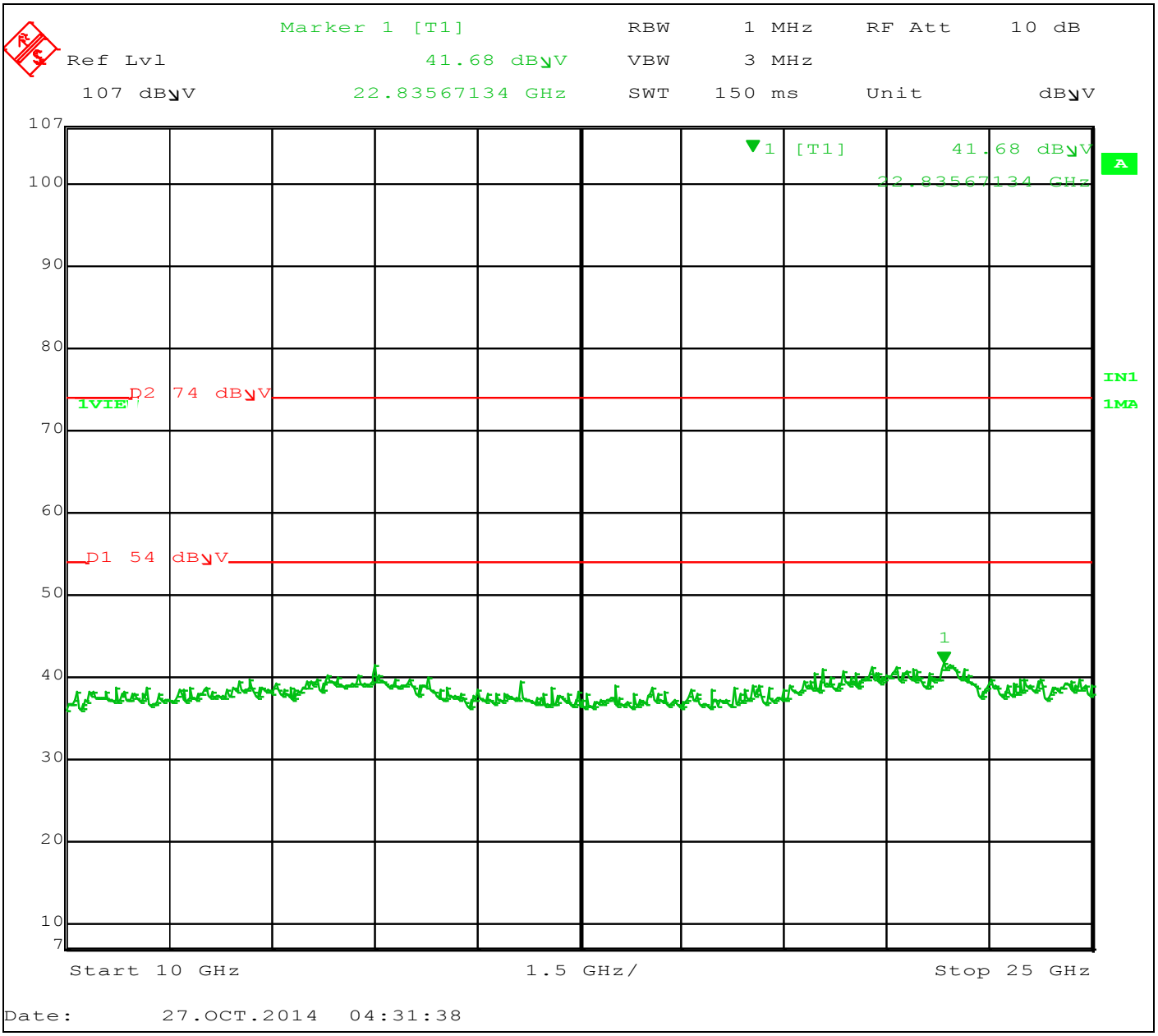
Vertical



Frequency (GHz)	Peak (dBuV)	AV (dBuV)	AV Limit (dBuV)	Result
3.21	41.81	39.87	54	Complies
6.44	47.68	45.32	54	Complies

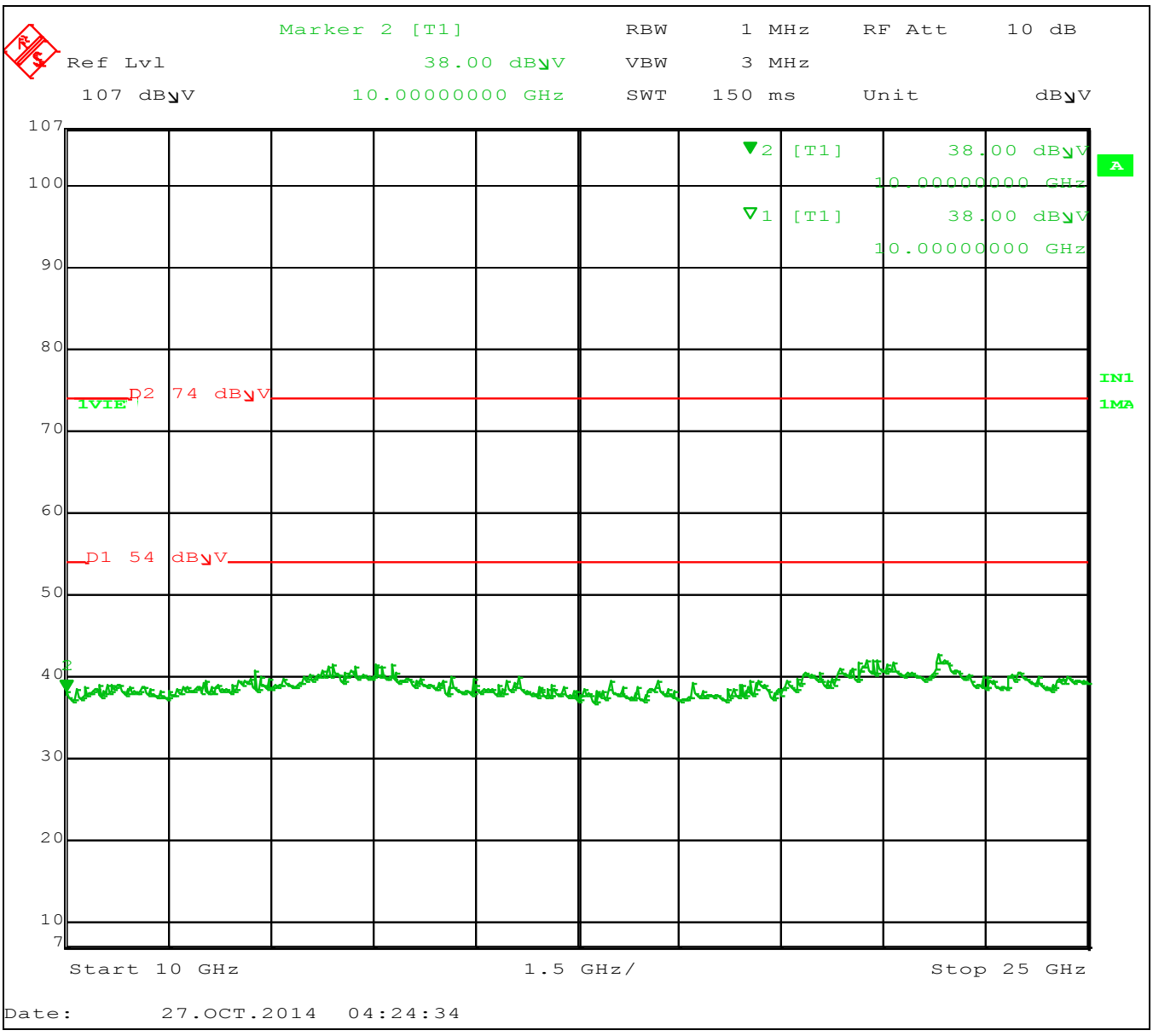
Worst-Case Radiated Emissions 10GHz to 25GHz

Horizontal



Worst-Case Radiated Emissions 10GHz to 25GHz

Vertical



4.2 Conducted Emissions

This test measures the electromagnet levels of spurious signals generated by the EUT on the AC power line that may affect the performance of other near by electronic equipment.

The EUT operated on DC battery only, therefore testing was not performed.

4.3 Conducted Output Power Limits

Testing has been carried out on the EUT in accordance with 47 CFR Part 15.407(a)(1) in order to determine the -26 dB emission bandwidth of the transmitted signal. It has been determined that the -26 emission bandwidth is 44.94 MHz.

The peak transmit power limit based on the -26dB emission bandwidth in the frequency band of 5150 – 5250 MHz can be calculated as follows:

+4 dBm + 10 log B where B is the -26 dB emission Bandwidth in MHz

+4 dBm + 10 log 40 = +4 dBm + 16.52 = 20.52 dBm (112mW)

In accordance with 47 CFR Part 15.404(a)(1) the peak transmit power in the frequency band of 5150 – 5250 MHz shall not exceed the lesser of 50 mW or +4 dBm + 10log B, where B is the -26 dB emission bandwidth in MHz.

In accordance with 47 CFR Part 15.407(a)(1), the peak transmit power limit, in the frequency band of 5150 – 5250 MHz, has been determined at +16.9 dBm (50mW)

Frequency Band	Limit
5.15 – 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 – 5.35GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.47 – 5.725GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 – 5.825GHz	The lesser of 1W (30dBm) or 17dBm + 10logB

4.3.1 Maximum Peak Transmit Power Test Results

Operating in 5150MHz ~ 5350MHz bands:
Eight channels are provided for 802.11a and 802.11n (20MHz):

CHANNEL	FREQUENCY
36	5180 MHz
40	5200 MHz
44	5220 MHz
48	5240 MHz
52	5260 MHz
56	5280 MHz
60	5300 MHz
64	5320 MHz

Operating in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:
Eight channels are provided for 802.11a and 802.11n (20MHz):

CHANNEL	FREQUENCY
100	5500 MHz
104	5520 MHz
112	5540 MHz
116	5560 MHz
132	5660 MHz
136	5680 MHz
140	5700 MHz

Table 1 – Maximum Peak transmit power at 20MHz Bandwidth

POWER OUTPUT: Multiple chains - 802.11a:

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN (0)	CHAIN (1)				
36	5180	9.3	10.12	20.5	13.12	16.91	PASS
40	5200	8.95	12.18	24.4	13.89	16.91	PASS
48	5240	8.94	10.76	18.11	12.58	16.91	PASS
52	5260	8.63	11.06	19.3	12.86	23.91	PASS
60	5300	9.45	9.49	17.4	12.41	23.91	PASS
64	5320	8.95	8.60	19.36	12.87	23.91	PASS
100	5500	8.86	7.47	13.21	11.21	22.23	PASS
116	5580	7.84	8.06	12.64	11.02	22.23	PASS
132	5660	9.11	10.43	19.67	12.94	22.23	PASS
140	5700	10.24	11.39	19.99	13.01	22.23	PASS

Figure 1 – Power output 802.11a

POWER OUTPUT: 802.11n (20MHz) Multiple chains OFDM MODULATION:

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN (0)	CHAIN (1)				
36	5180	11.7	11.44	28.7	14.58	16.91	PASS
40	5200	11.7	11.44	28.7	14.58	16.91	PASS
48	5240	11.68	10.8	26.7	14.27	16.91	PASS
52	5260	11.56	11.0	26.9	14.31	23.91	PASS
60	5300	11.32	11.46	27.8	14.45	23.91	PASS
64	5320	11.17	11.46	27.0	14.32	23.91	PASS
100	5500	10.8	11.42	25.8	14.13	22.23	PASS
116	5580	10.34	11.34	24.3	13.87	22.23	PASS
132	5660	11.72	11.64	29.4	14.69	22.23	PASS
140	5700	11.93	11.9	31.0	14.92	22.23	PASS

Figure 2 – Power Output 802.11n

For Operation in 5150MHz ~ 5250MHz bands: Highest Antenna gain is -0.8 dBi
Directional gain = gain of antenna element + 10 log (# of TX antenna elements)
Effective Legacy Gain (dBi) = 2.21 dBi

For Operation in 5250MHz ~ 5350MHz bands: Highest Antenna Gain is -0.8 dBi
Directional gain = gain of antenna element + 10 log (# of TX antenna elements)
Effective Legacy Gain (dBi) = 2.21 dBi

For Operation in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands: Highest Antenna Gain is -2.3 dBi
Directional gain = gain of antenna element + 10 log (# of TX antenna elements)
Effective Legacy Gain (dBi) = 0.71 dBi

4.4 Peak Power Spectral Density

The results of the testing on the EUT, carried out in accordance with 47 CFR Part 15.407(a)(5), are depicted in the table below. The limits have been derived from 47 CFR Part 15.407(a)(1)

In accordance with FCC Public Notice DA 02-2138 Measurement Procedure updated for Peak Transmit Power in the Unlicensed National Information Infrastructure (U-NII) Bands. Method #1 was used

4.5 Peak Power Excursion

The results of the testing on the EUT, carried out in accordance with 47 CFR Part 15.407(a)(6), are depicted in table below.

4.5.1 Test Results

Multiple chain - 802.11a OFDM MODULATION:

TX chain	CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK VALUE (dBm)	PPSD (dBm)	PEAK POWER EXCURSION (dB)	PEAK POWER EXCURSION LIMIT (dB)	PASS/ FAIL
0	36	5180	10.27	-1.53	11.8	13	PASS
	40	5200	10.32	2.33	7.99	13	PASS
	48	5240	10.29	2.4	7.89	13	PASS
	52	5260	9.77	1.29	8.48	13	PASS
	60	5300	10.18	1.43	8.75	13	PASS
	64	5320	9.85	1.61	8.24	13	PASS
	100	5500	8.54	1.04	7.5	13	PASS
	116	5580	8.46	1.59	6.87	13	PASS
	132	5660	9.84	2.08	7.76	13	PASS
	140	5700	9.59	1.81	7.78	13	PASS
1	36	5180	10.33	2.33	8.0	13	PASS
	40	5200	10.71	3.44	7.27	13	PASS
	48	5240	11.07	1.94	9.13	13	PASS
	52	5260	10.33	2.38	7.95	13	PASS
	60	5300	11.23	1.72	9.51	13	PASS
	64	5320	9.85	1.43	8.42	13	PASS
	100	5500	9.06	0.16	8.9	13	PASS
	116	5580	9.50	-.16	9.66	13	PASS
	132	5660	11.47	2.54	8.93	13	PASS
	140	5700	10.07	2.83	7.24	13	PASS

Figure 3 – Peak Power Spectral Density at 20MHz Bandwidth

4.5.2 Final Test Chain 0

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

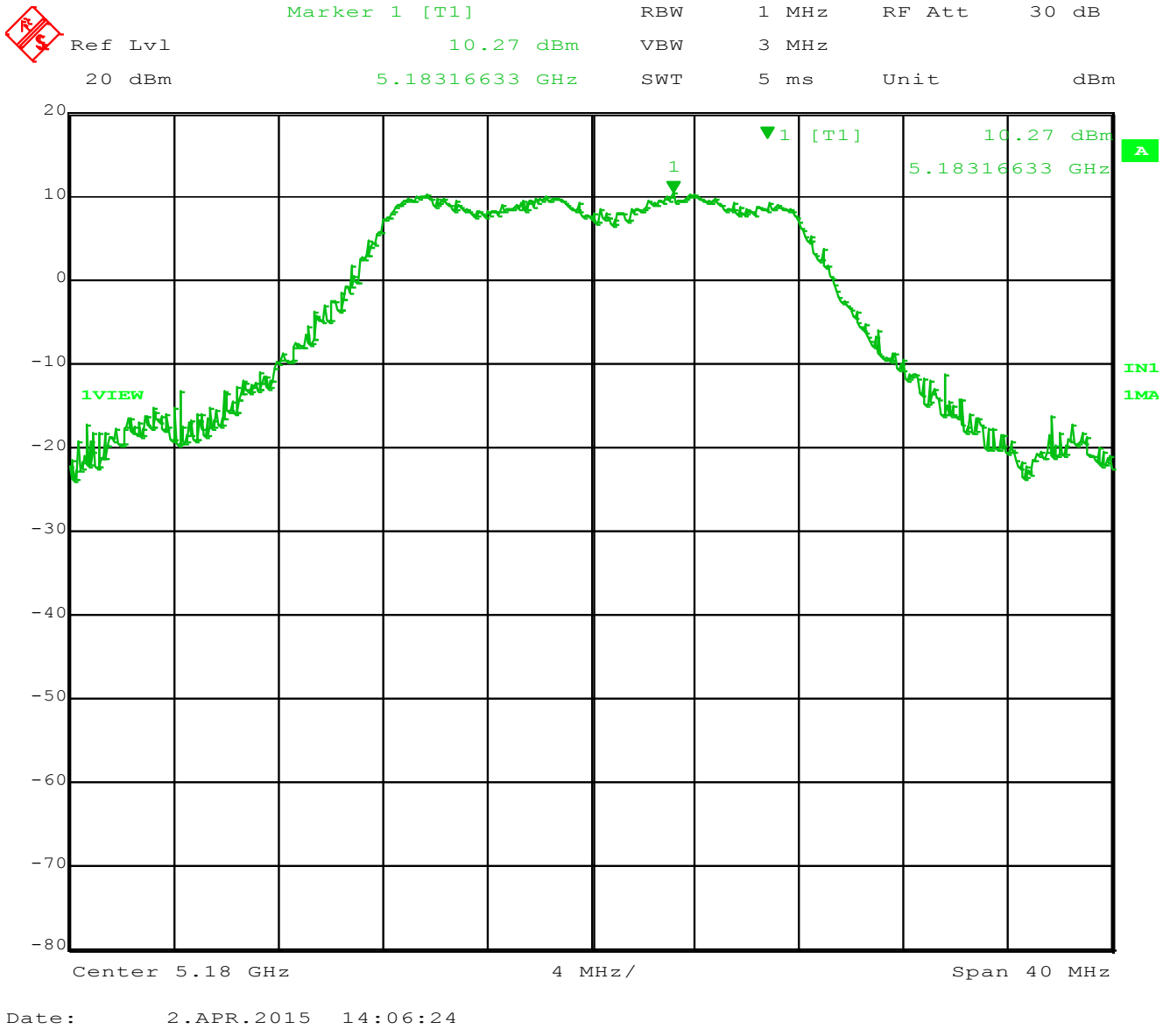


Figure 4 – Peak Power (conducted)

EUT operating on Ch 36 (5180 MHz)

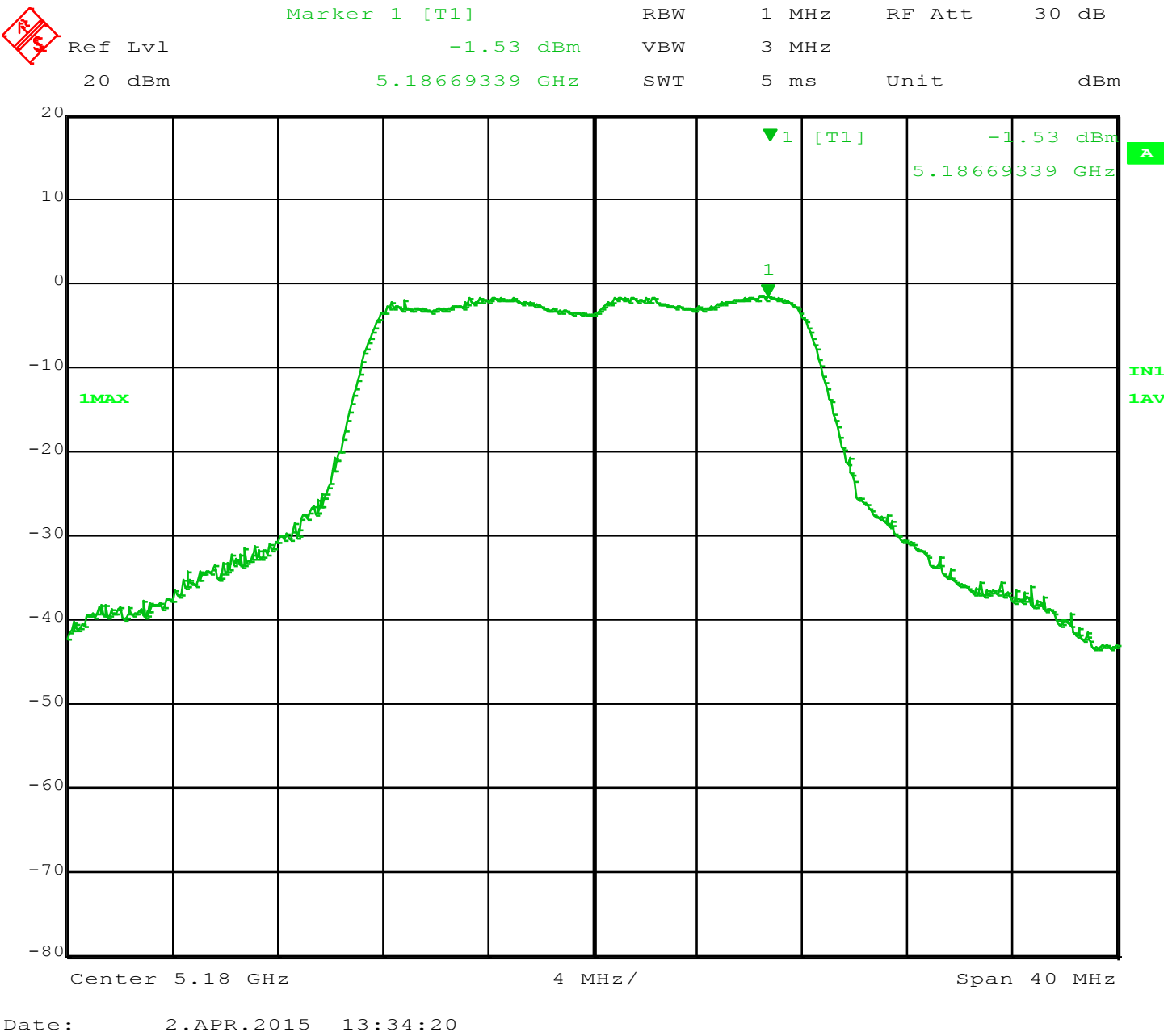


Figure 5 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 36 (5180 MHz

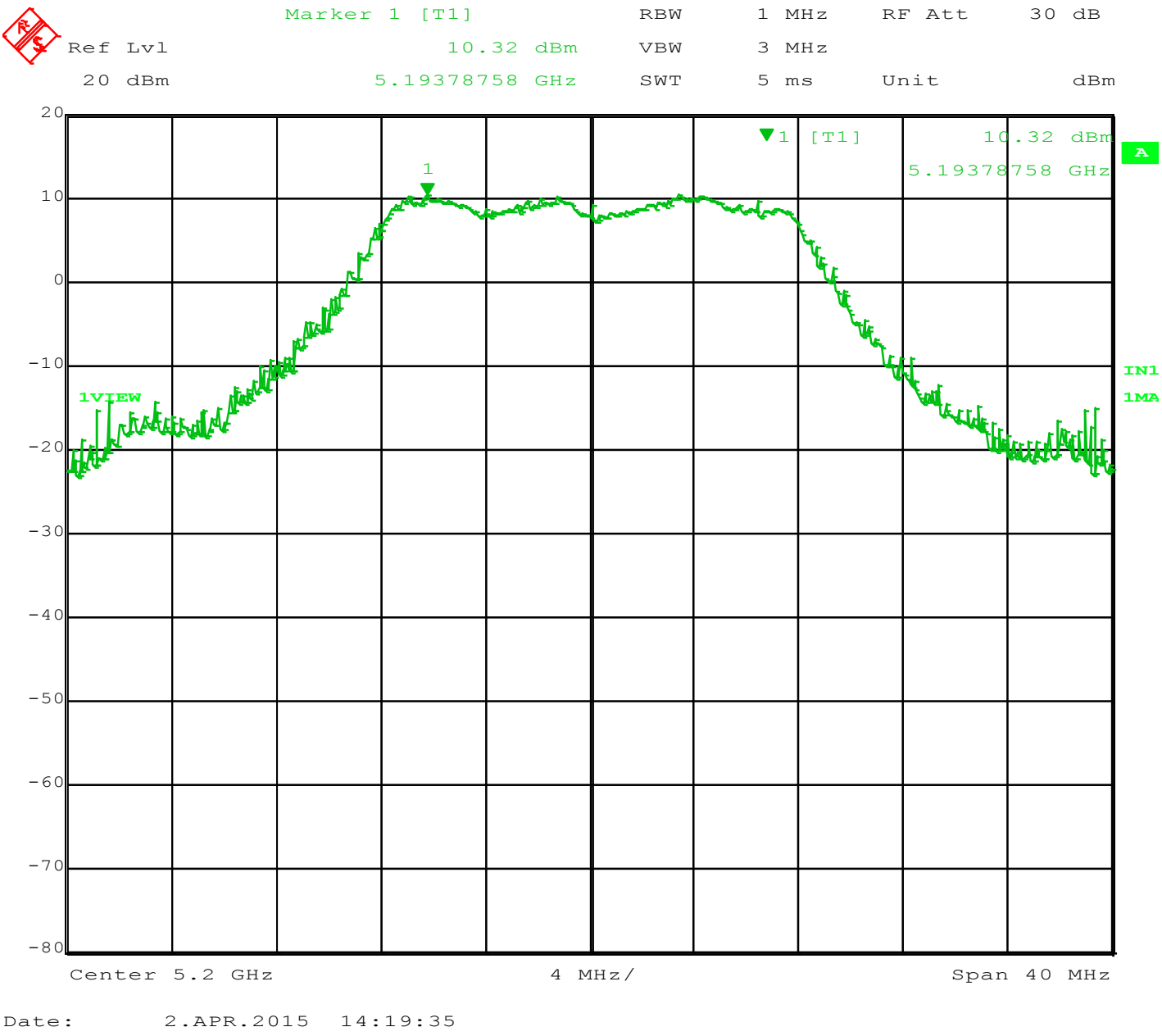


Figure 6 – Peak Power (conducted)

EUT operating on Ch 40 (5200 MHz)

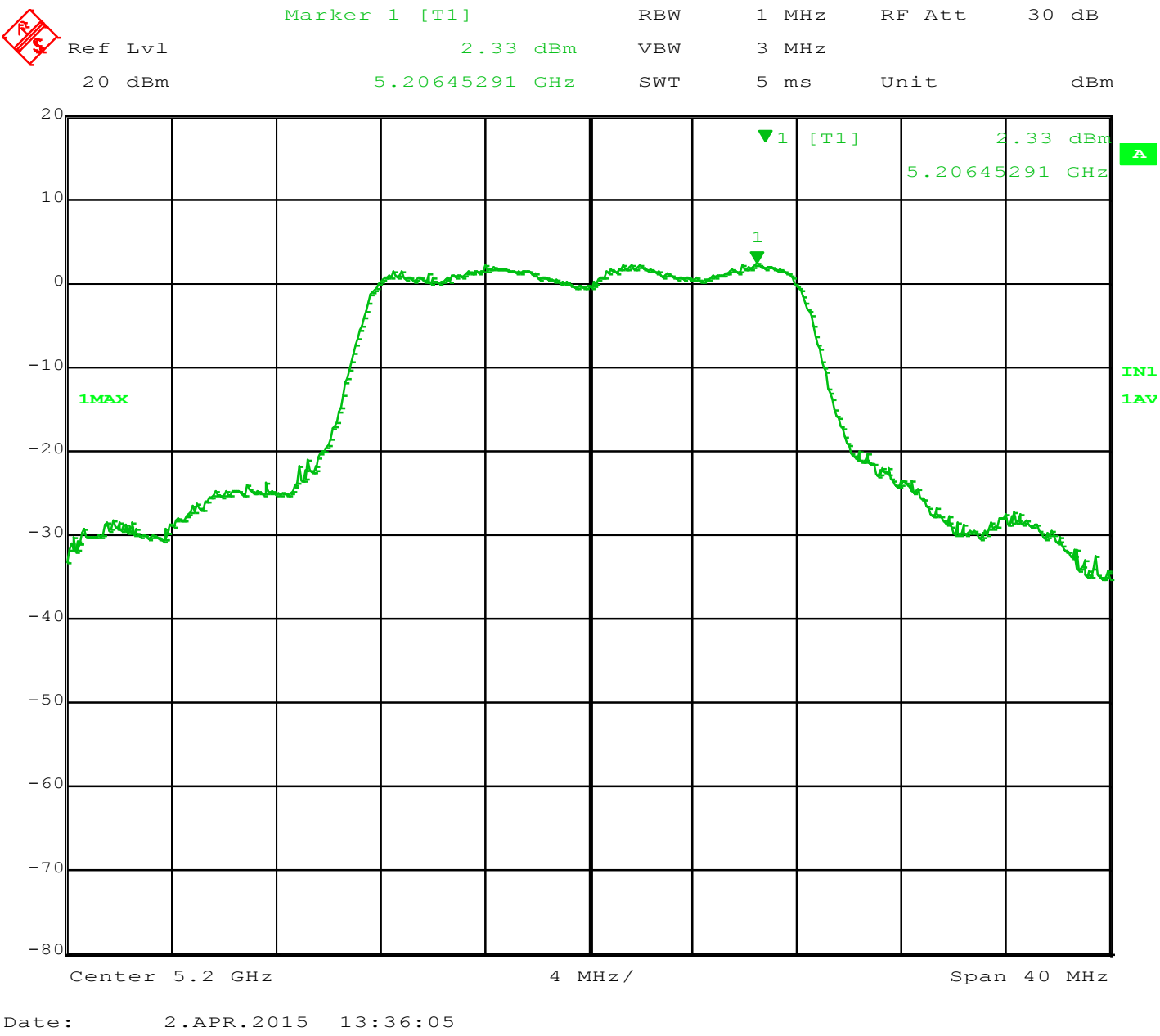


Figure 7 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 40 (5200 MHz)

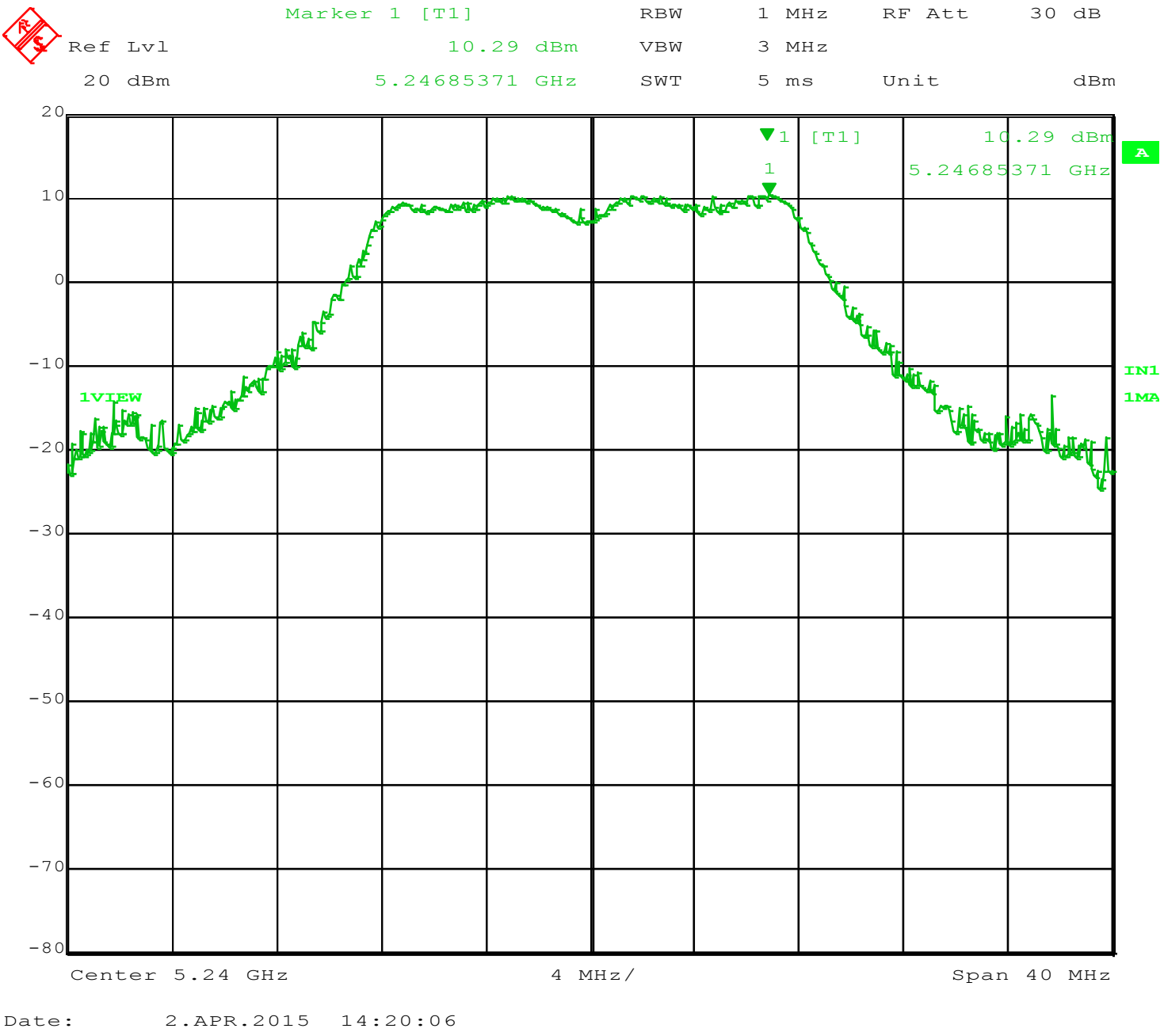


Figure 8 – Peak Power (conducted)

EUT operating on Ch 48 (5240 MHz)

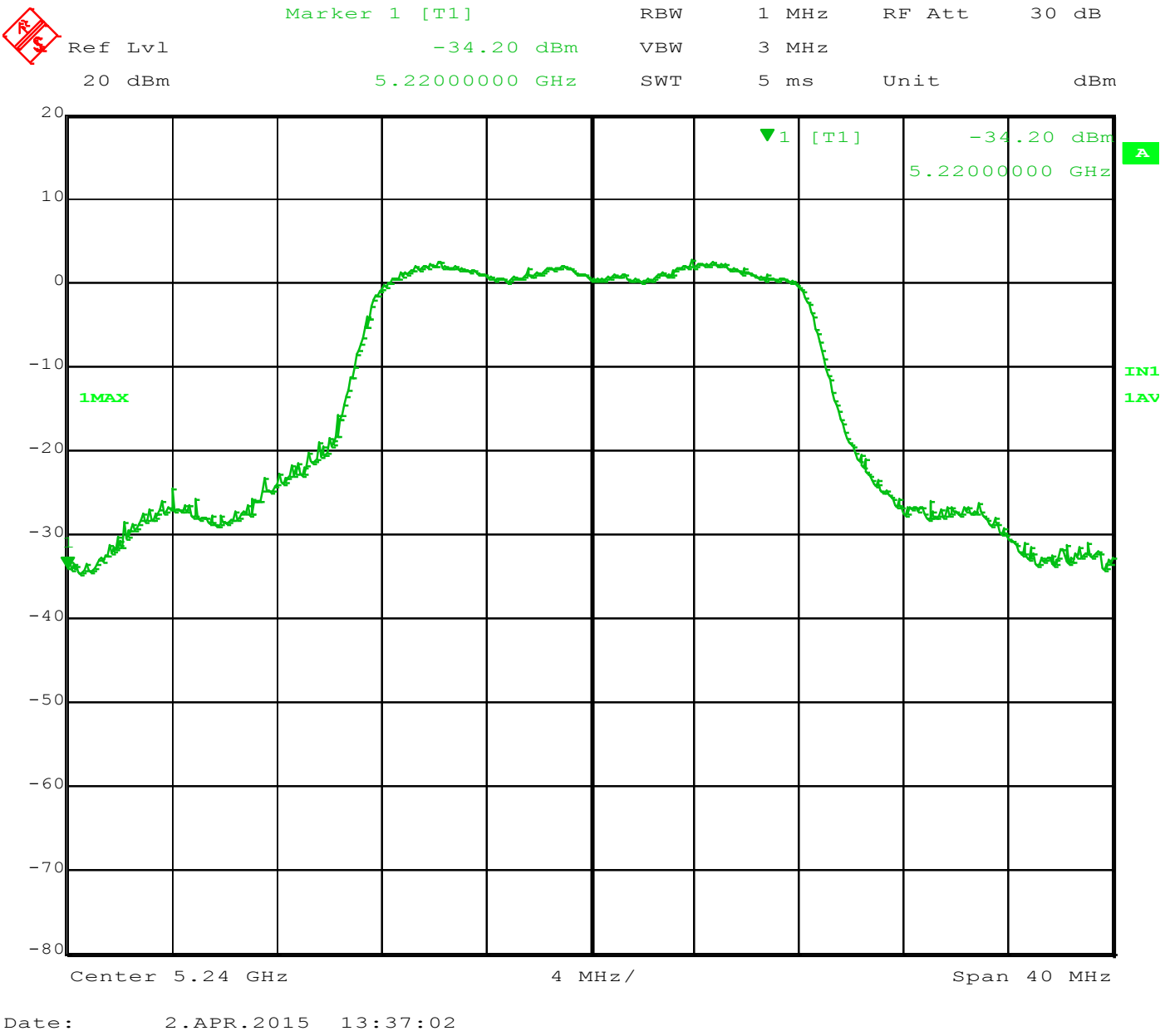


Figure 9 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 48 (5240 MHz)

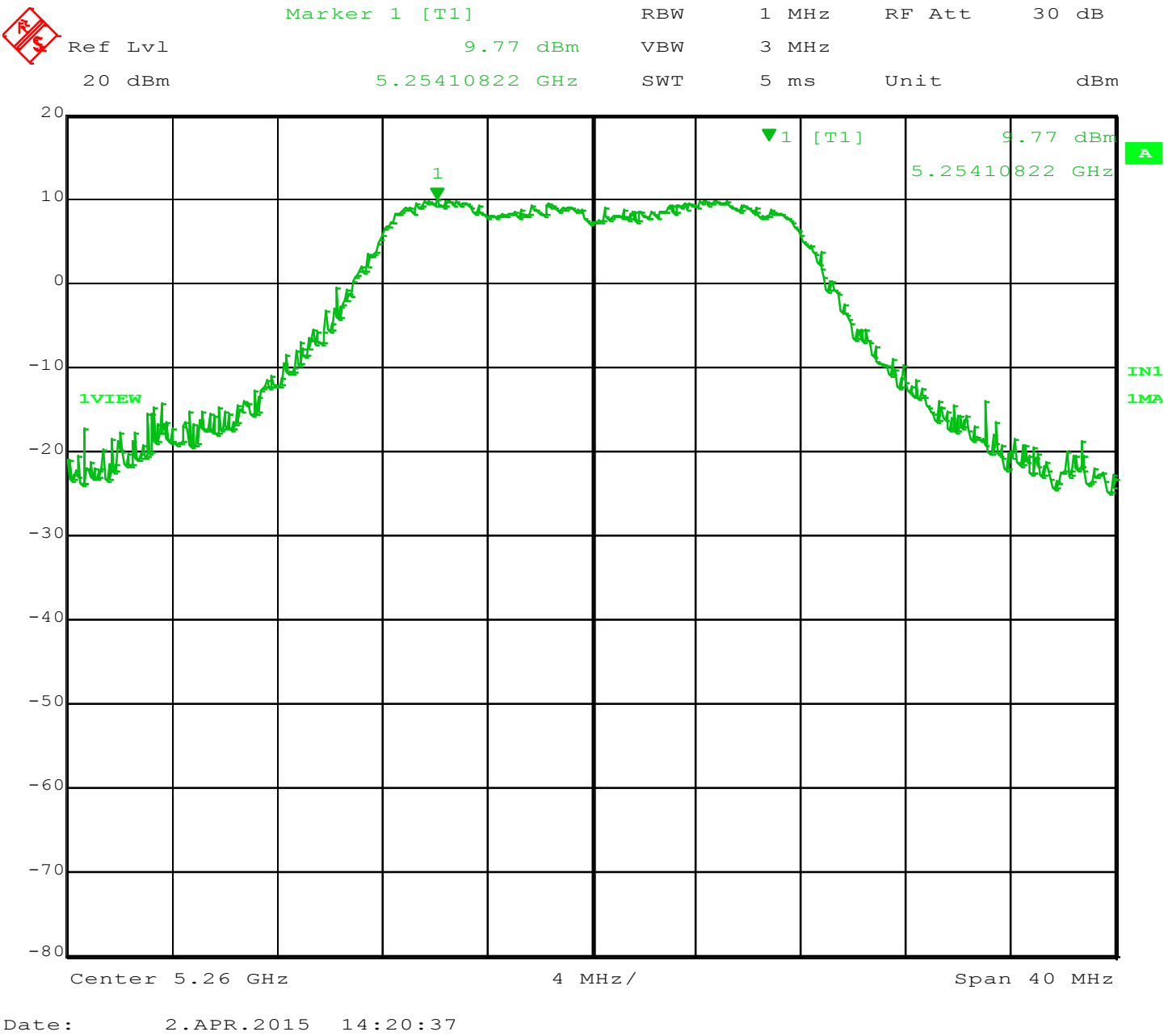


Figure 10 – Peak Power (conducted)

EUT operating on Ch 52 (5260 MHz)

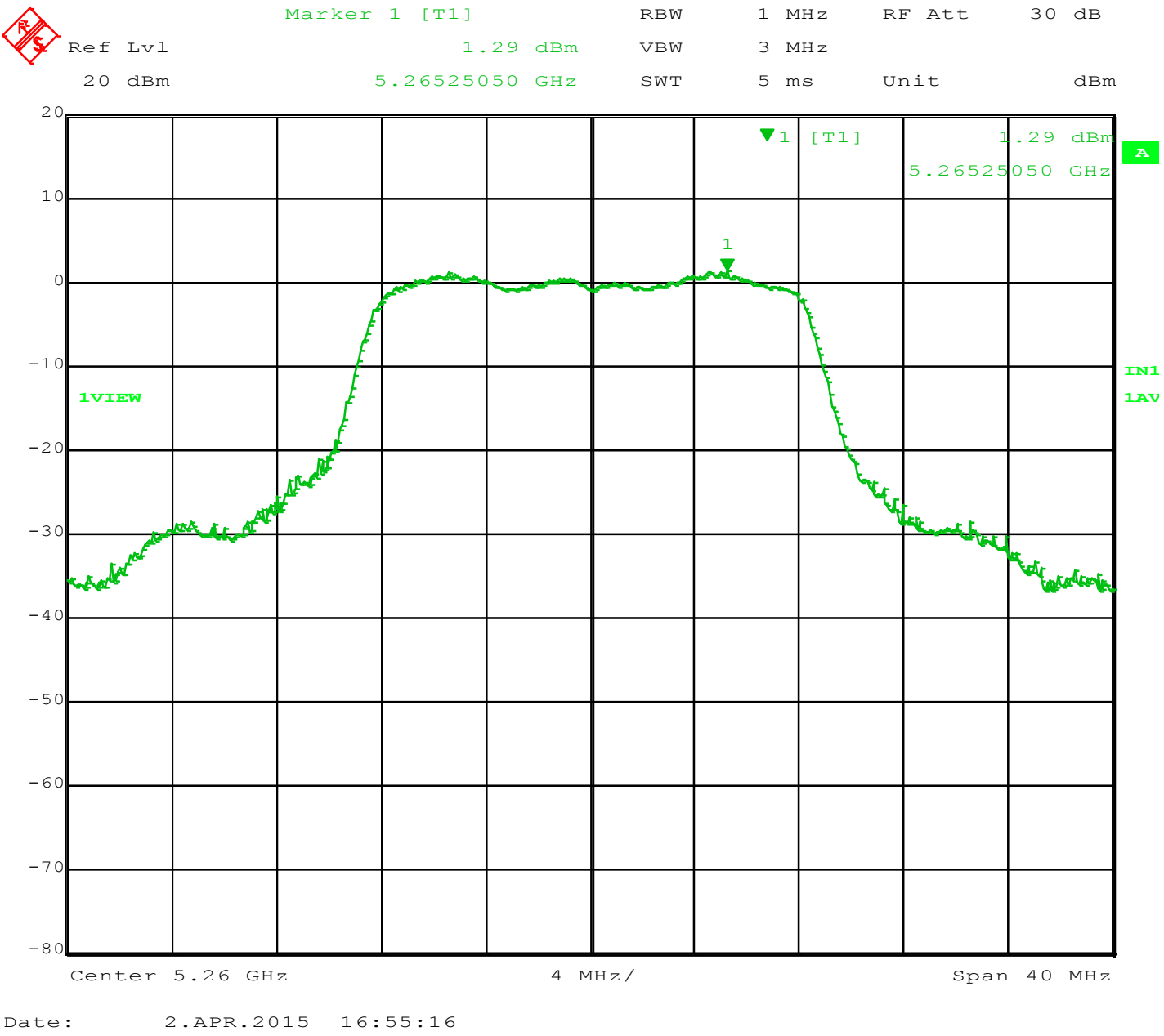


Figure 11 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 52 (5260 MHz)

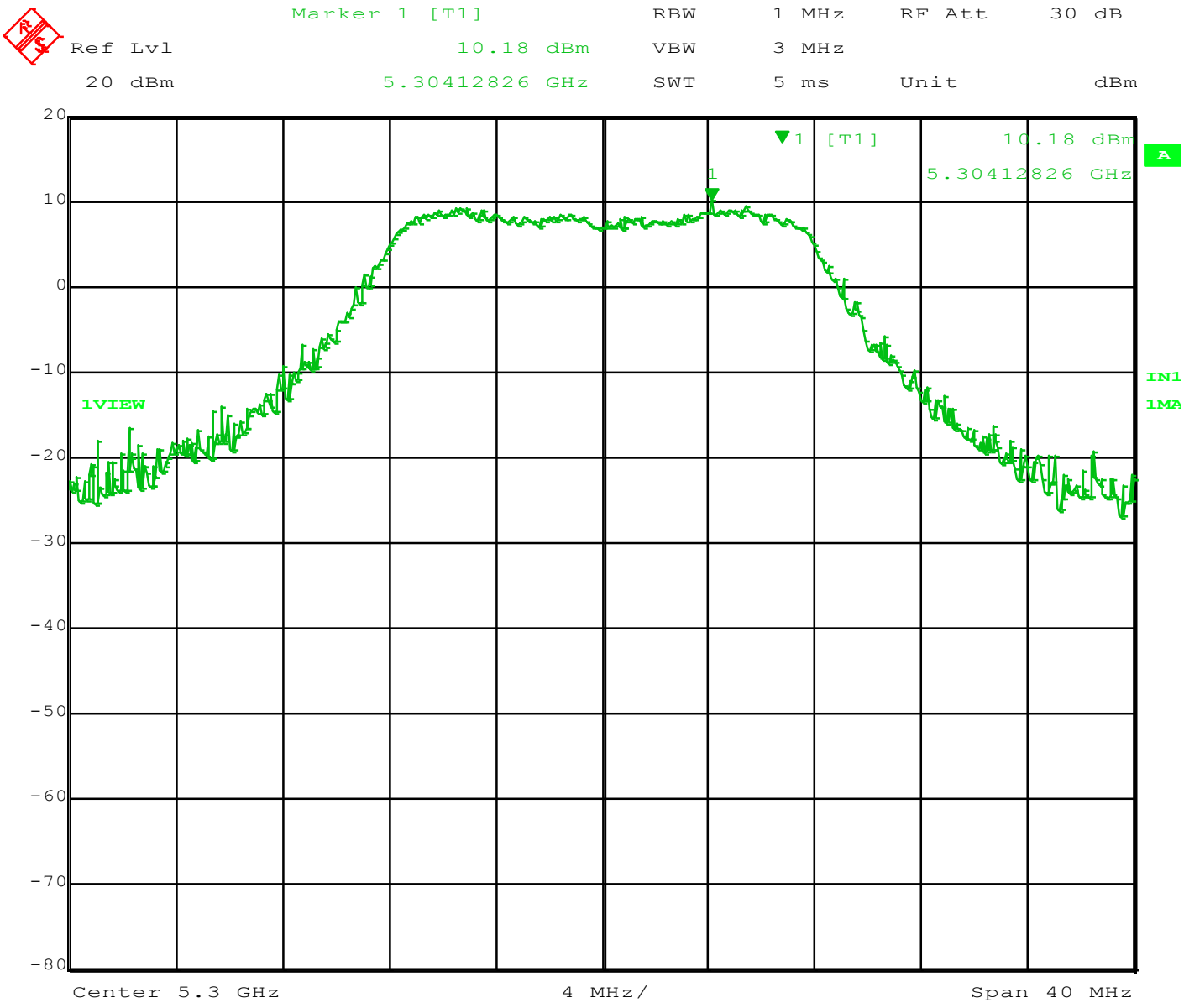


Figure 12 – Peak Power (conducted)

EUT operating on Ch 60 (5300 MHz)

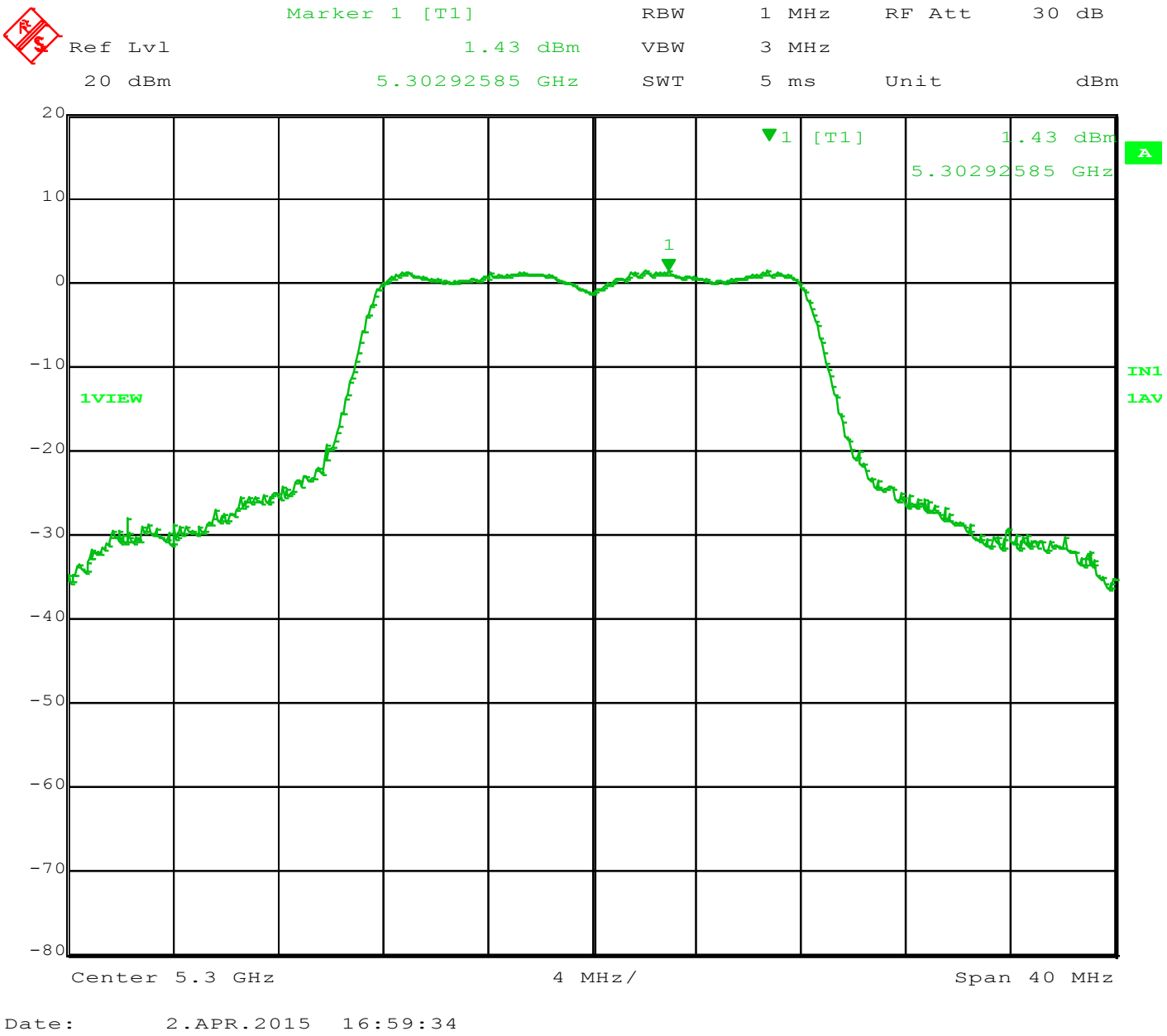


Figure 13 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 60 (5300 MHz

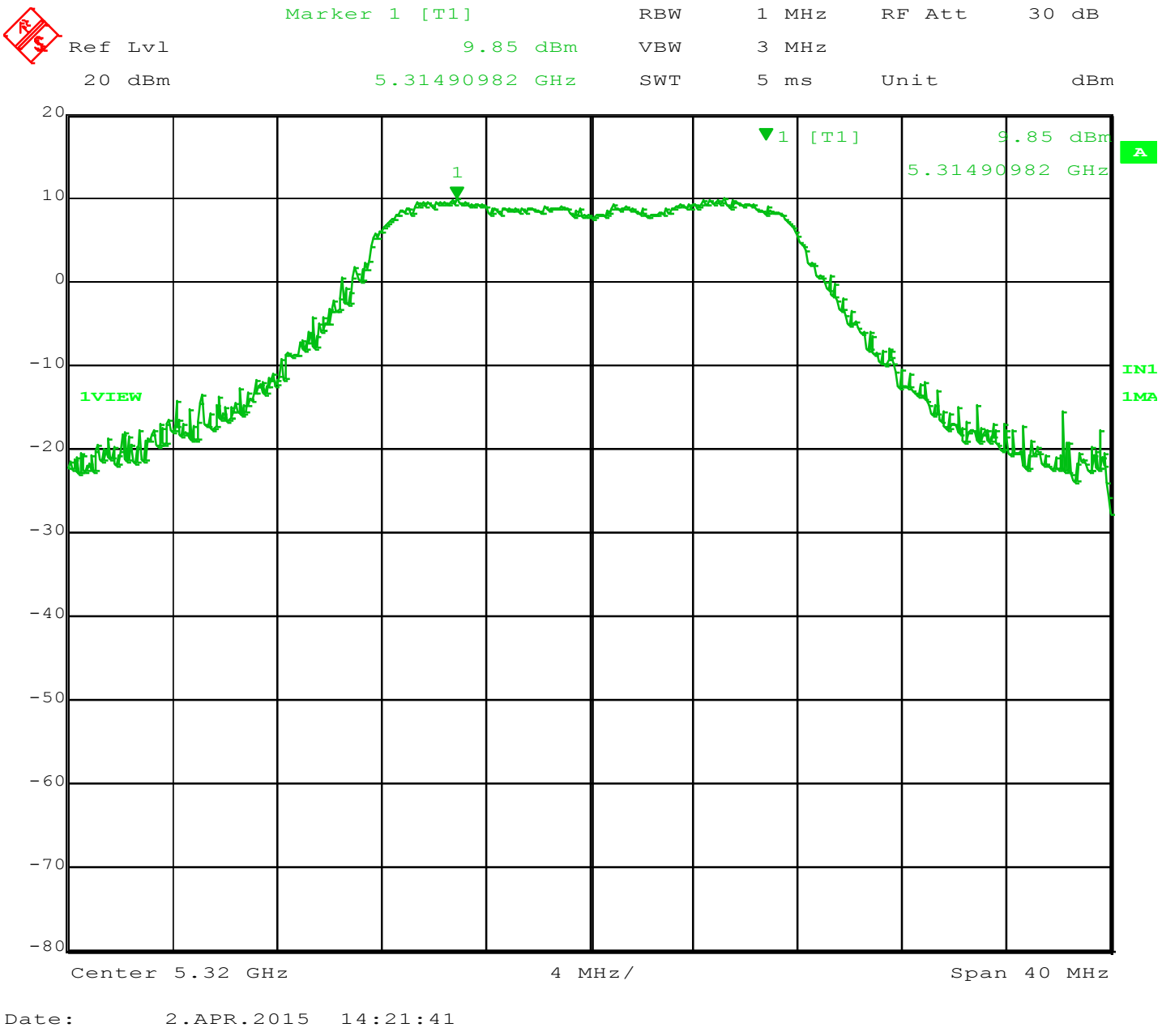


Figure 14 – Peak Power (conducted)

EUT operating on Ch 64 (5320 MHz)

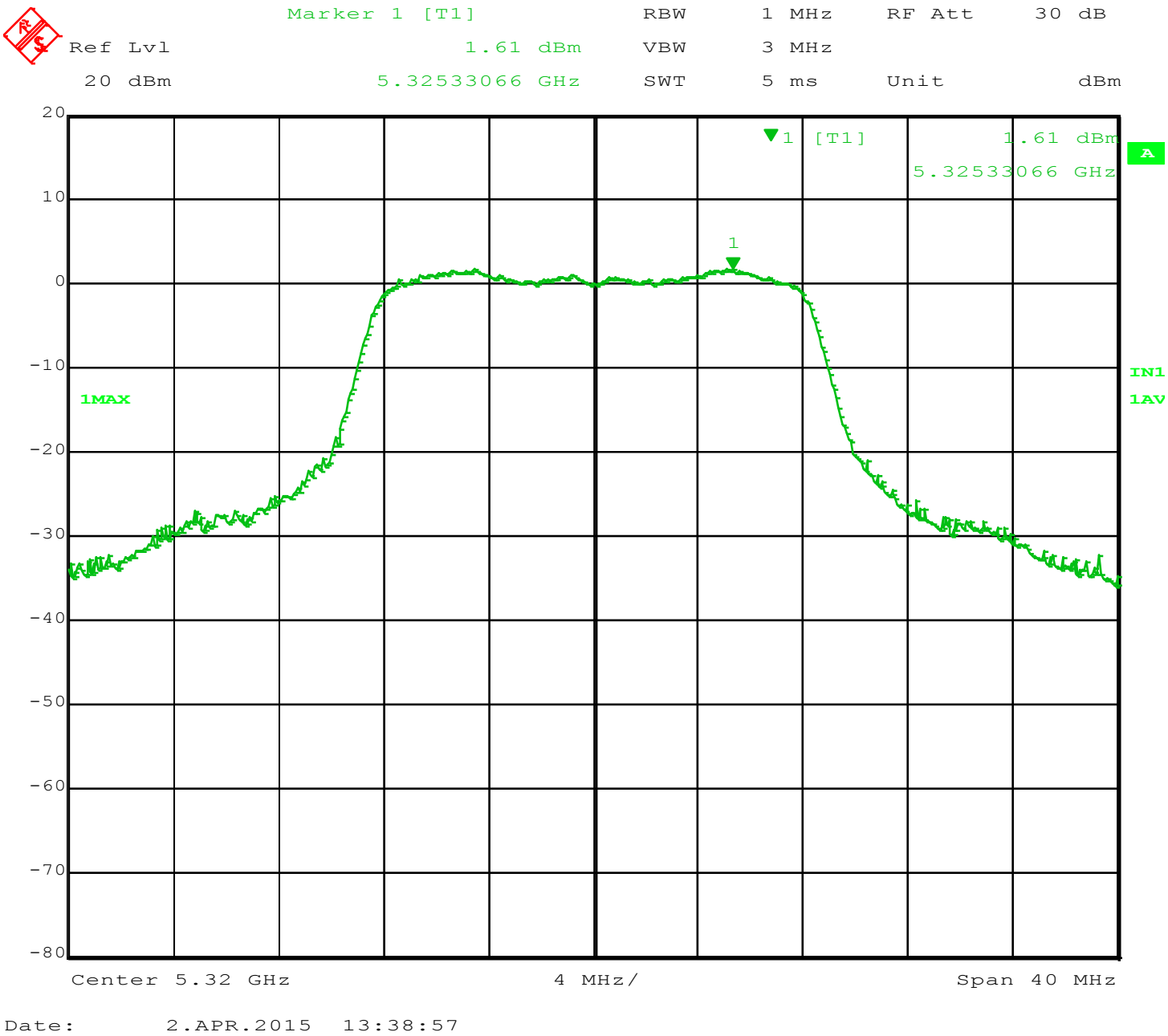


Figure 15 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 64 (5320 MHz)

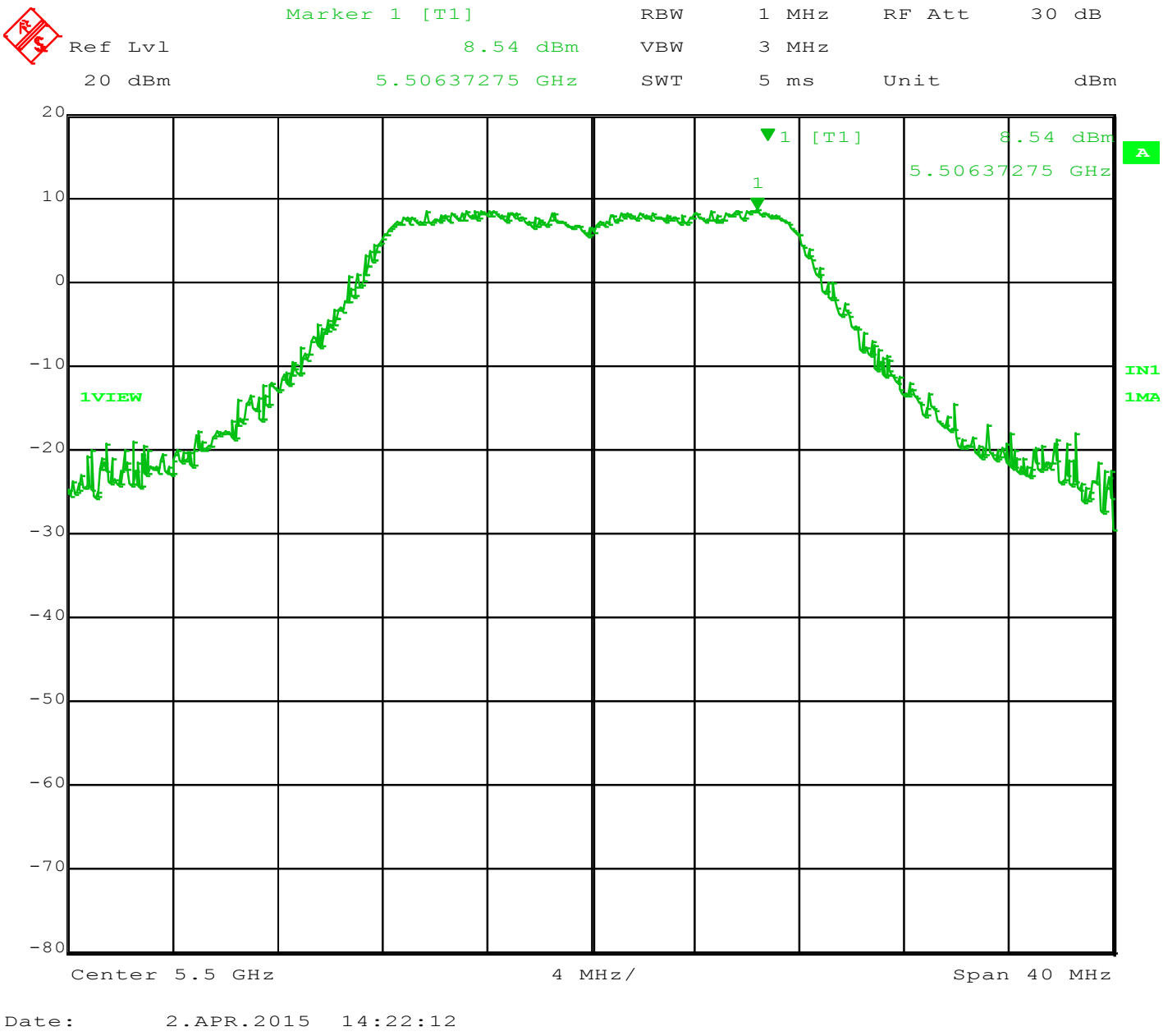


Figure 16 – Peak Power (conducted)

EUT operating on Ch 100 (5500 MHz)

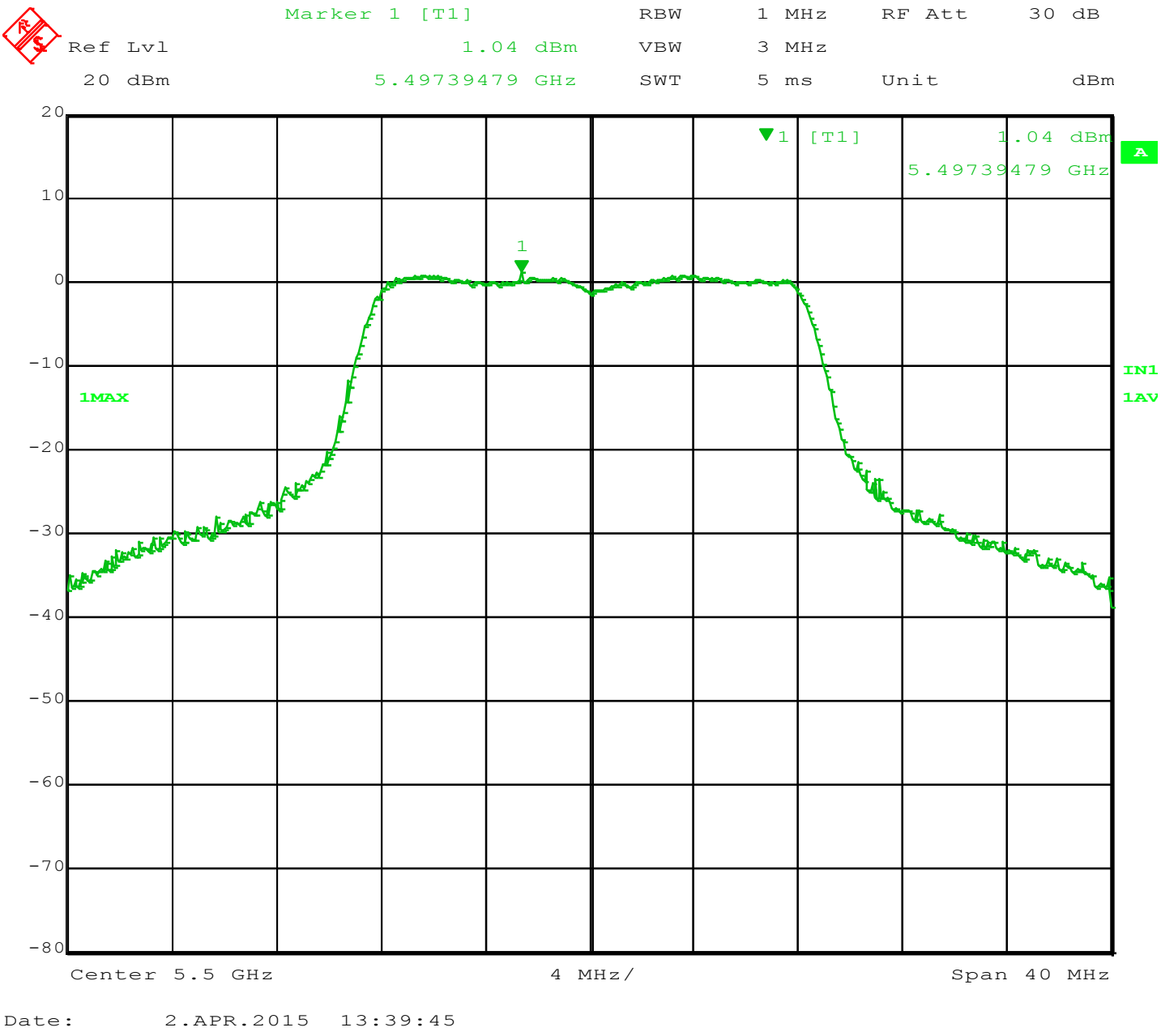


Figure 17 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 100 (5500 MHz)

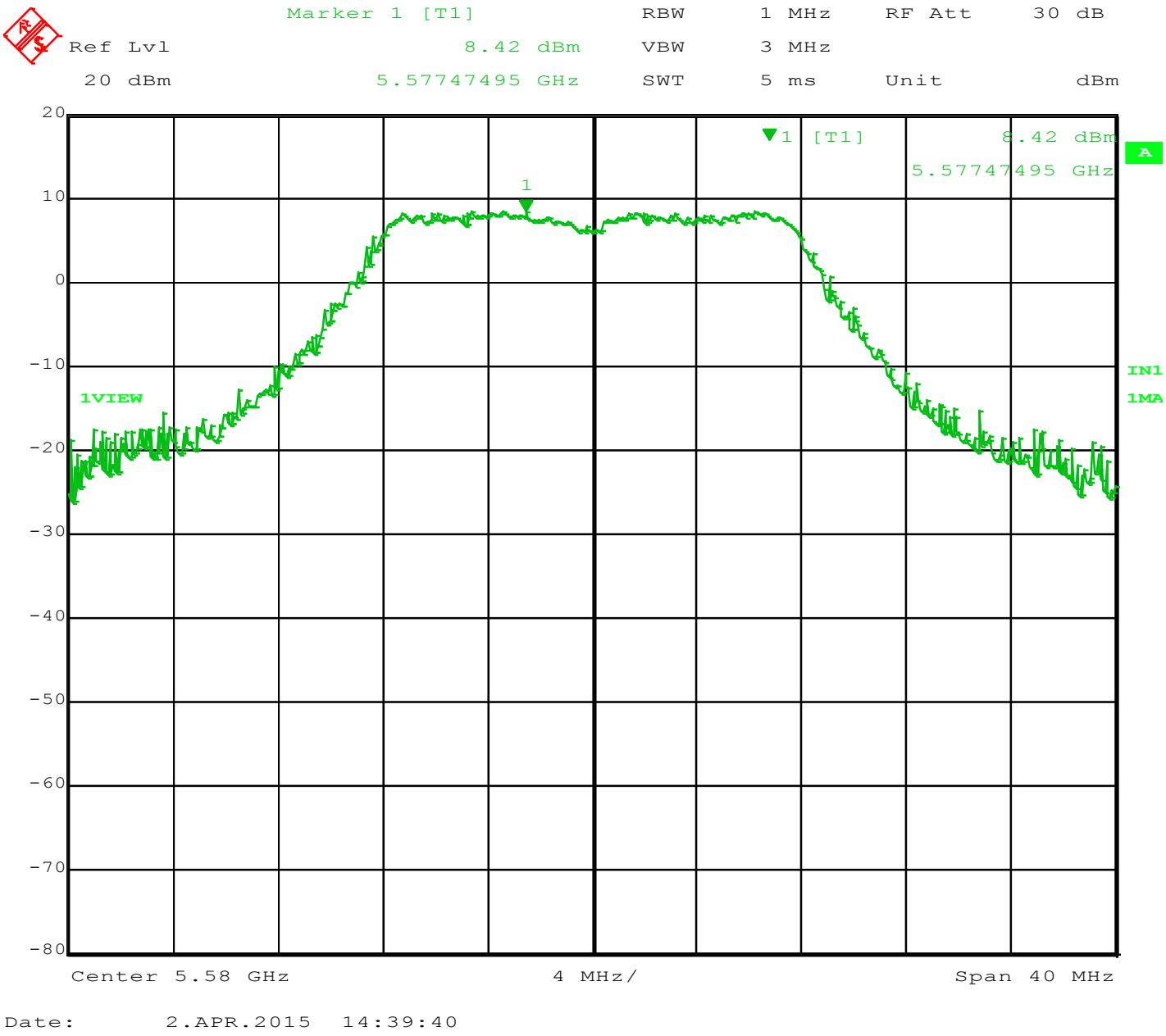


Figure 18 – Peak Power (conducted)

EUT operating on Ch 116 (5580 MHz)

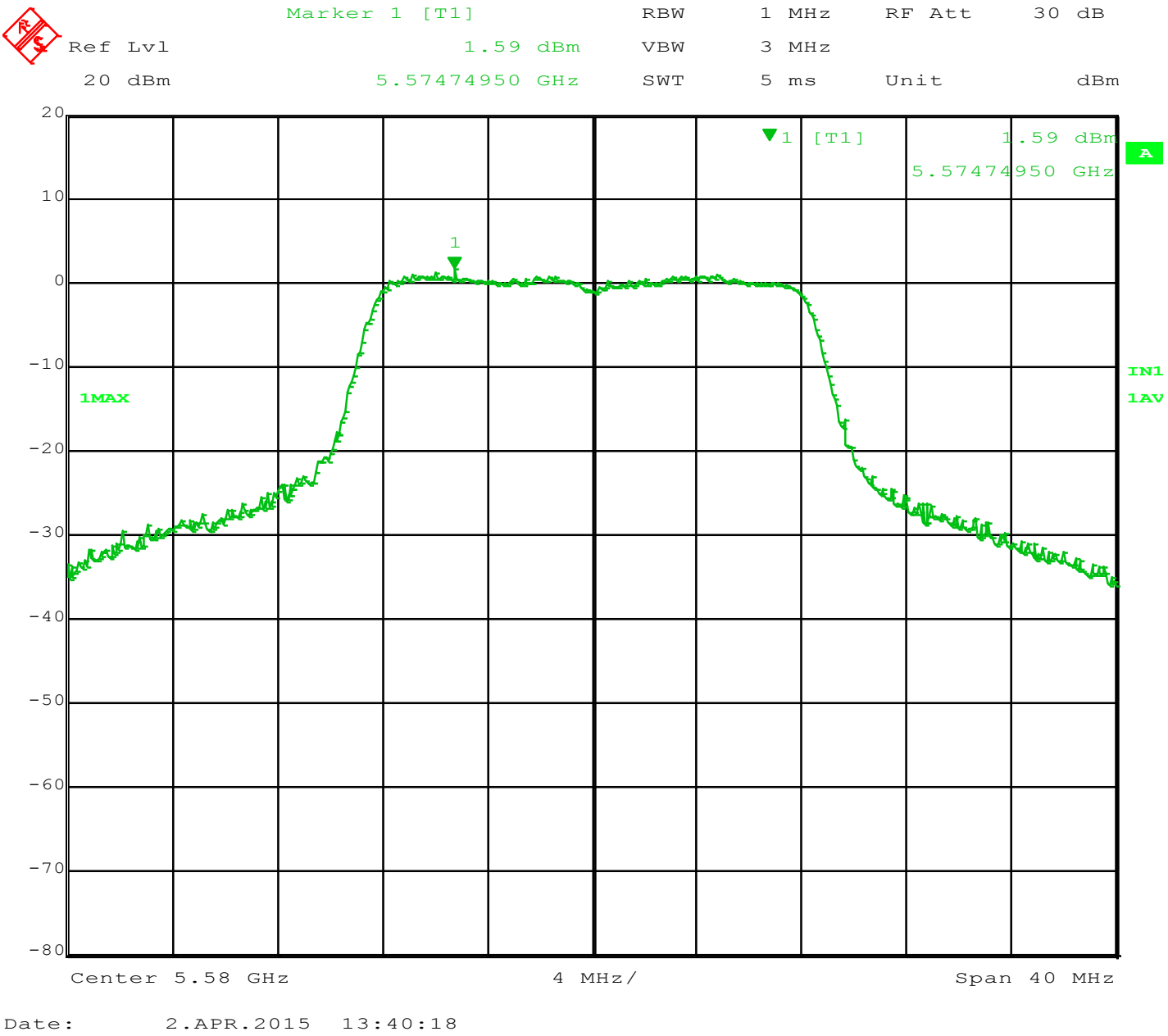


Figure 19 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 116 (5580 MHz)

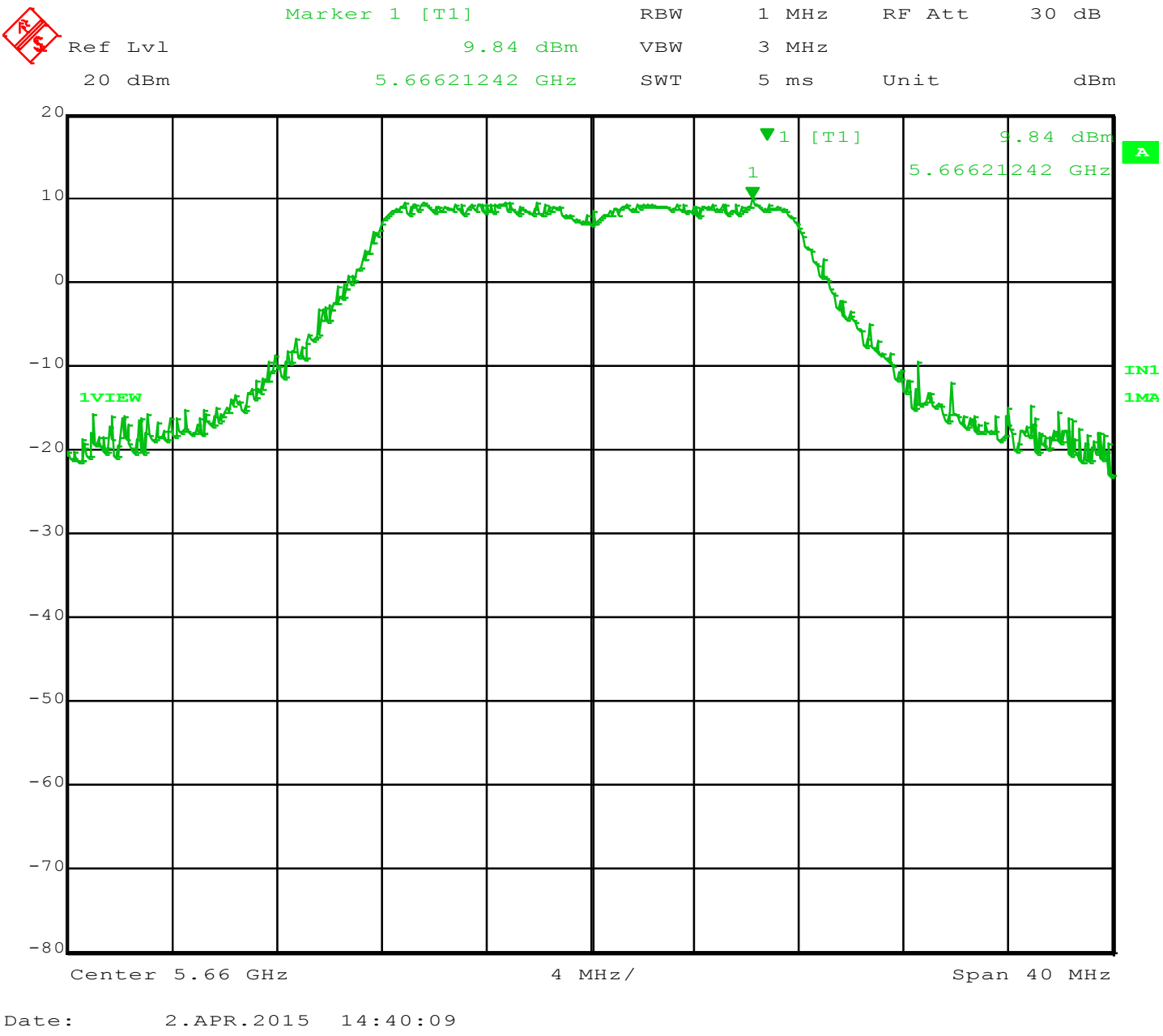


Figure 20 – Peak Power (conducted)

EUT operating on Ch 132 (5660 MHz)

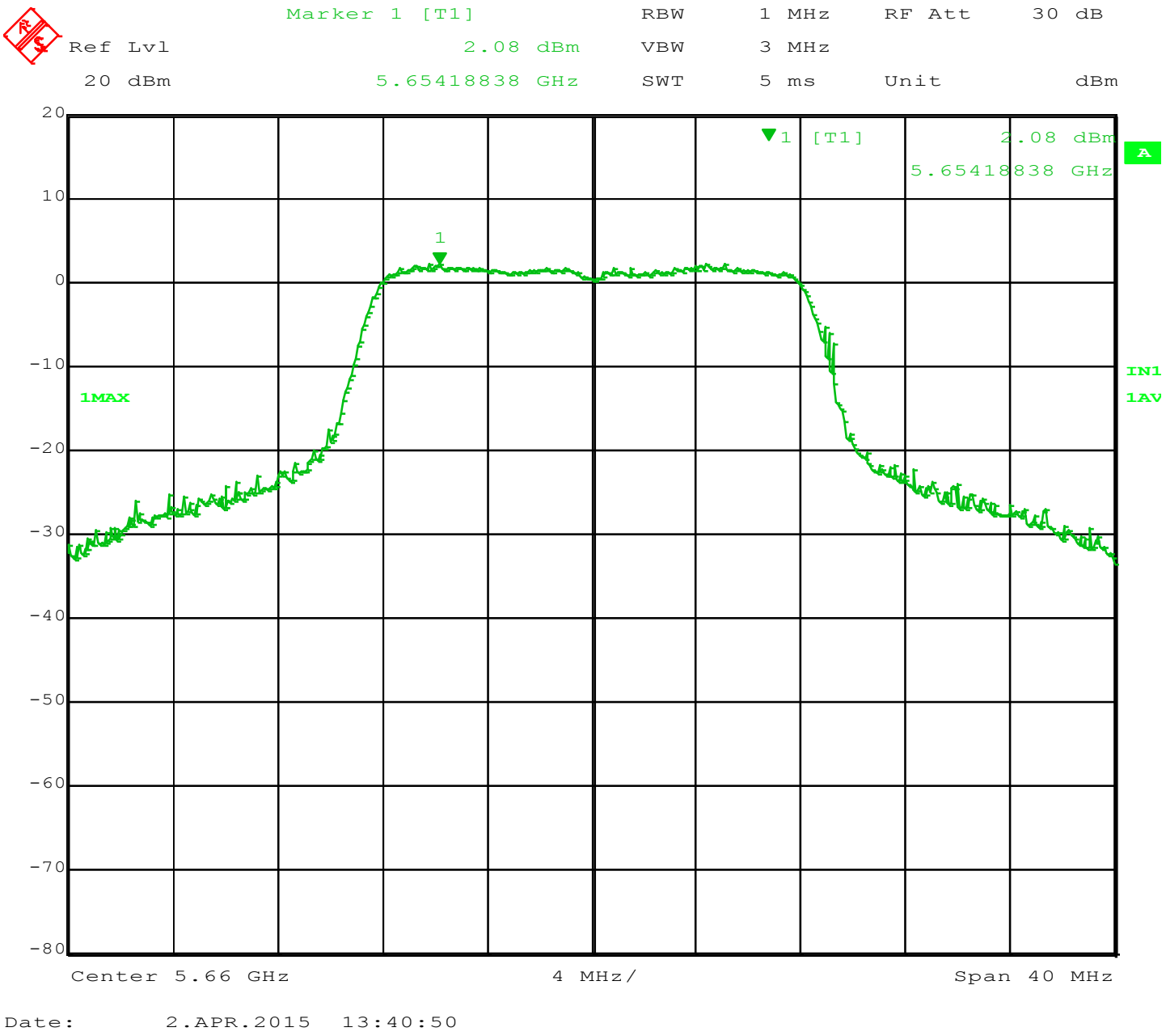


Figure 21 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 132 (5600 MHz)

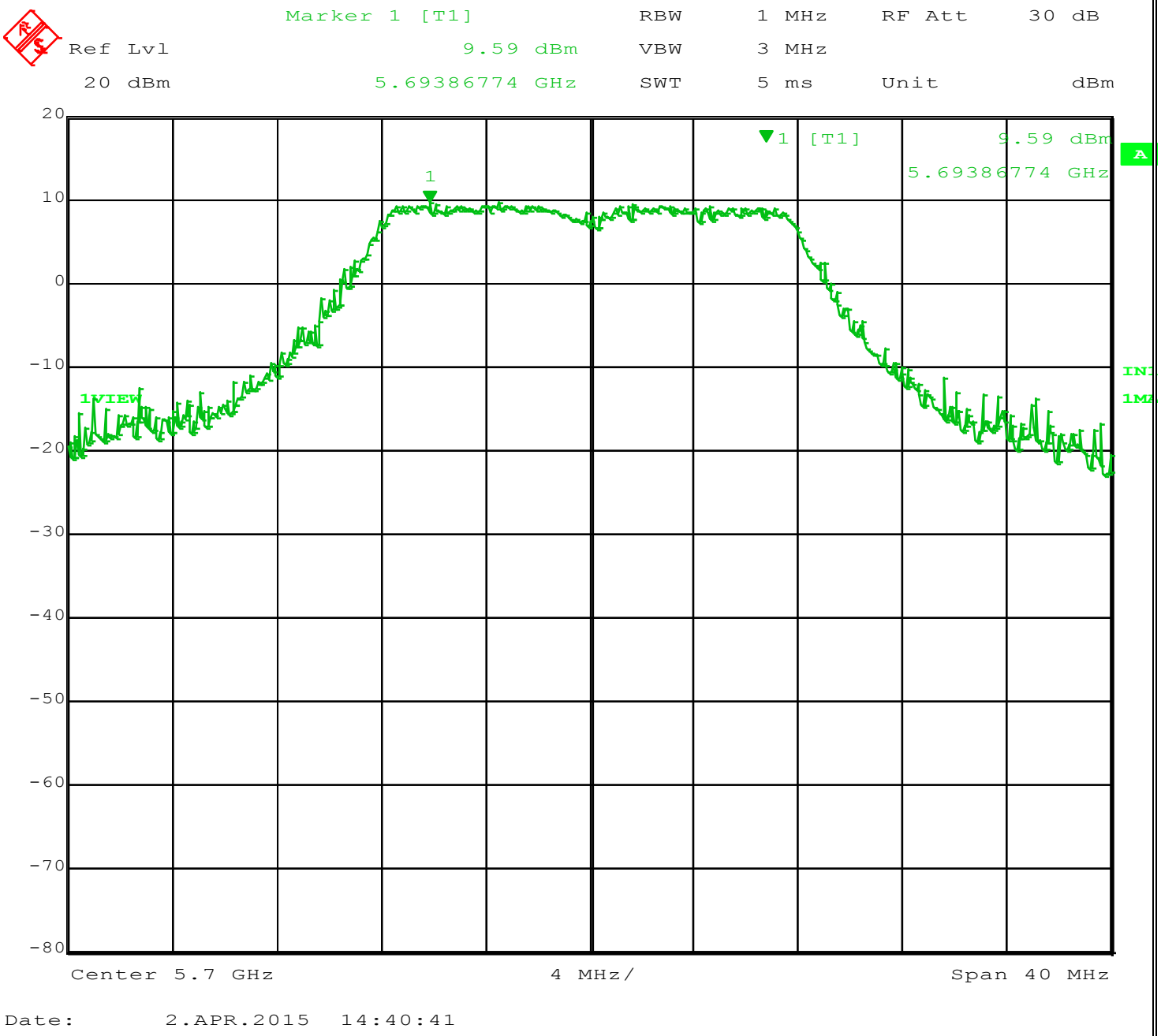


Figure 22 – Peak Power (conducted)

EUT operating on Ch 140 (5700 MHz)

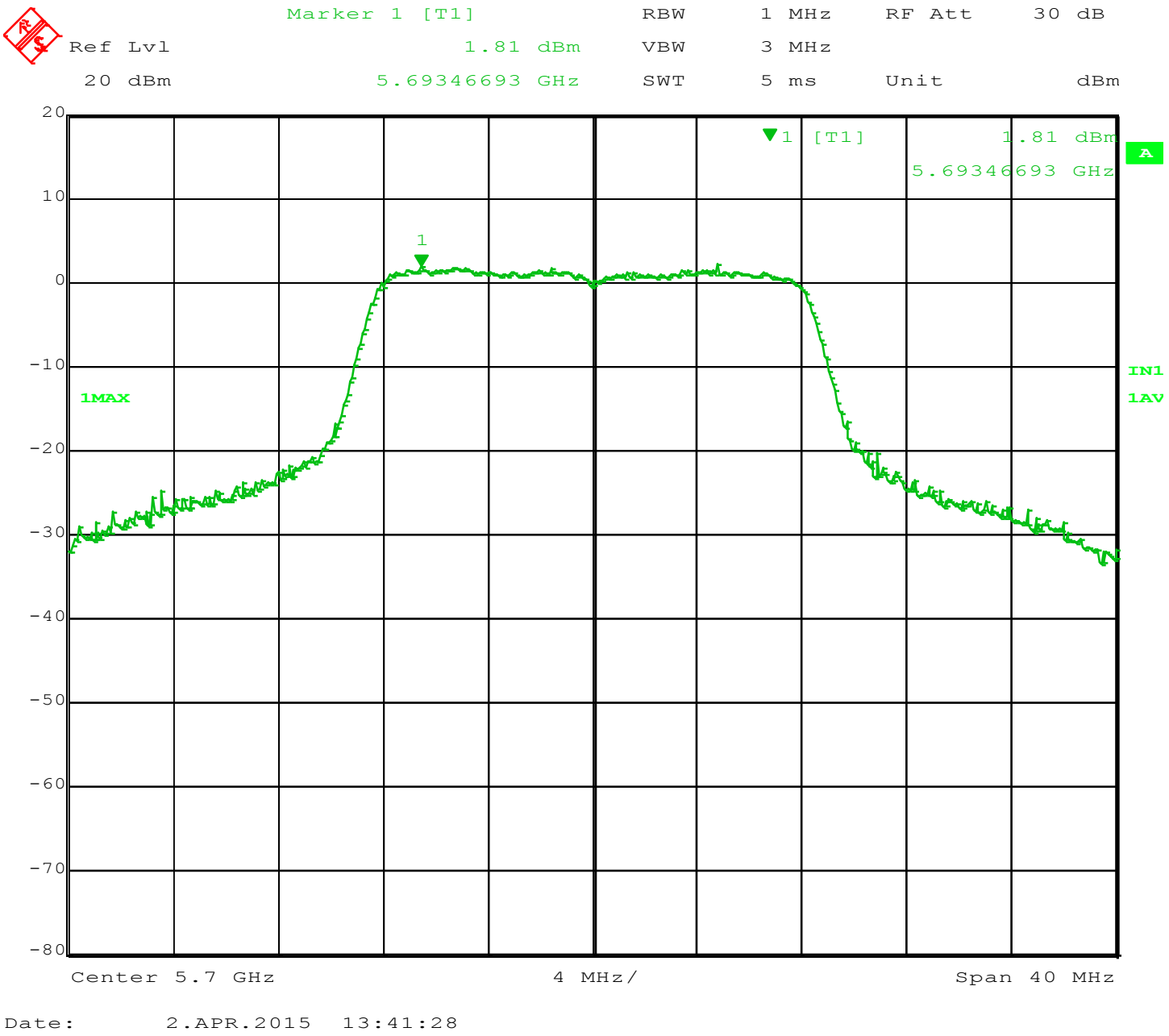


Figure 23 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 140 (5700 MHz)

4.5.1 Final Test Chain 1

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

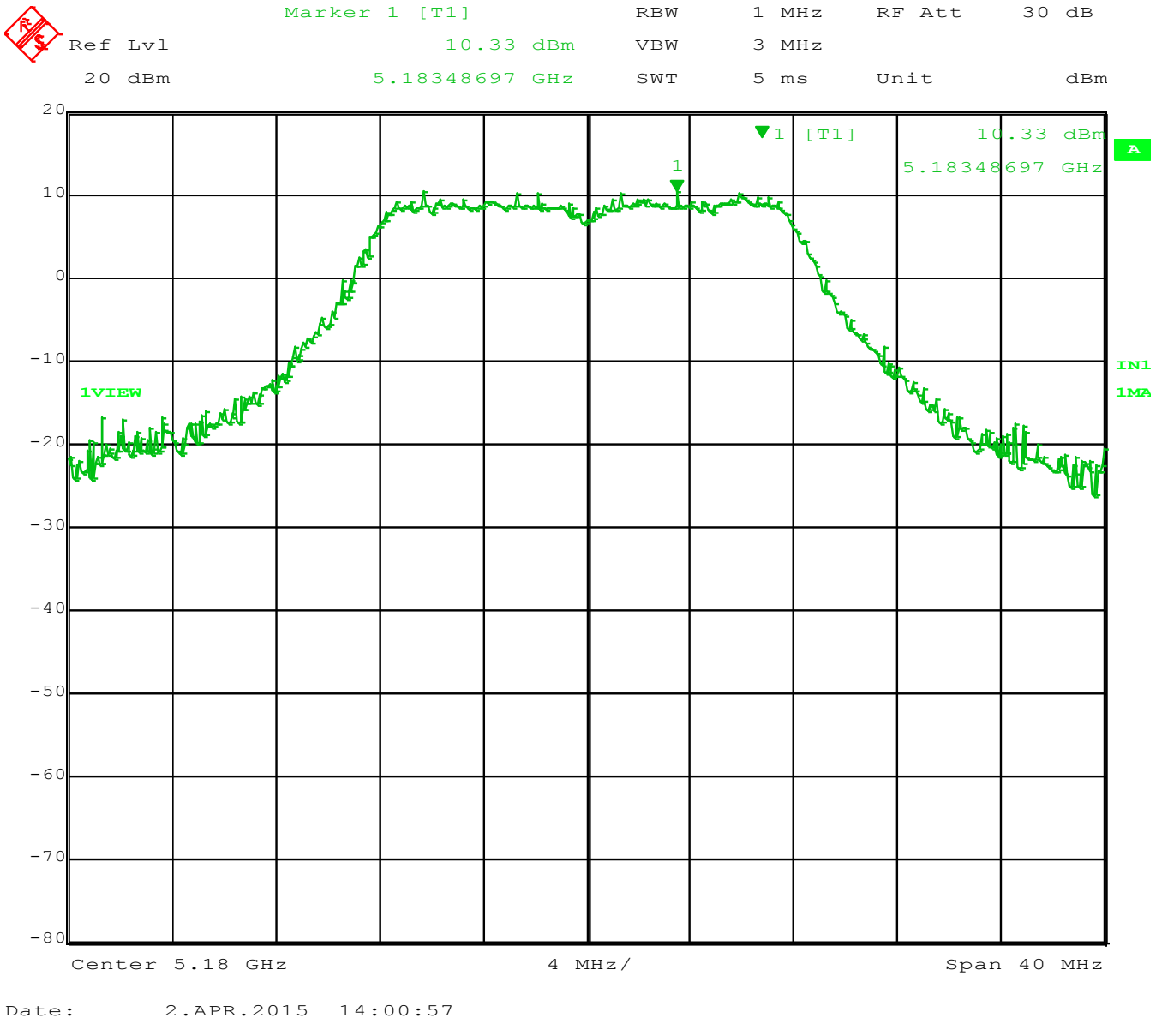


Figure 24 – Peak Power (conducted)

EUT operating on Ch 36 (5180 MHz)

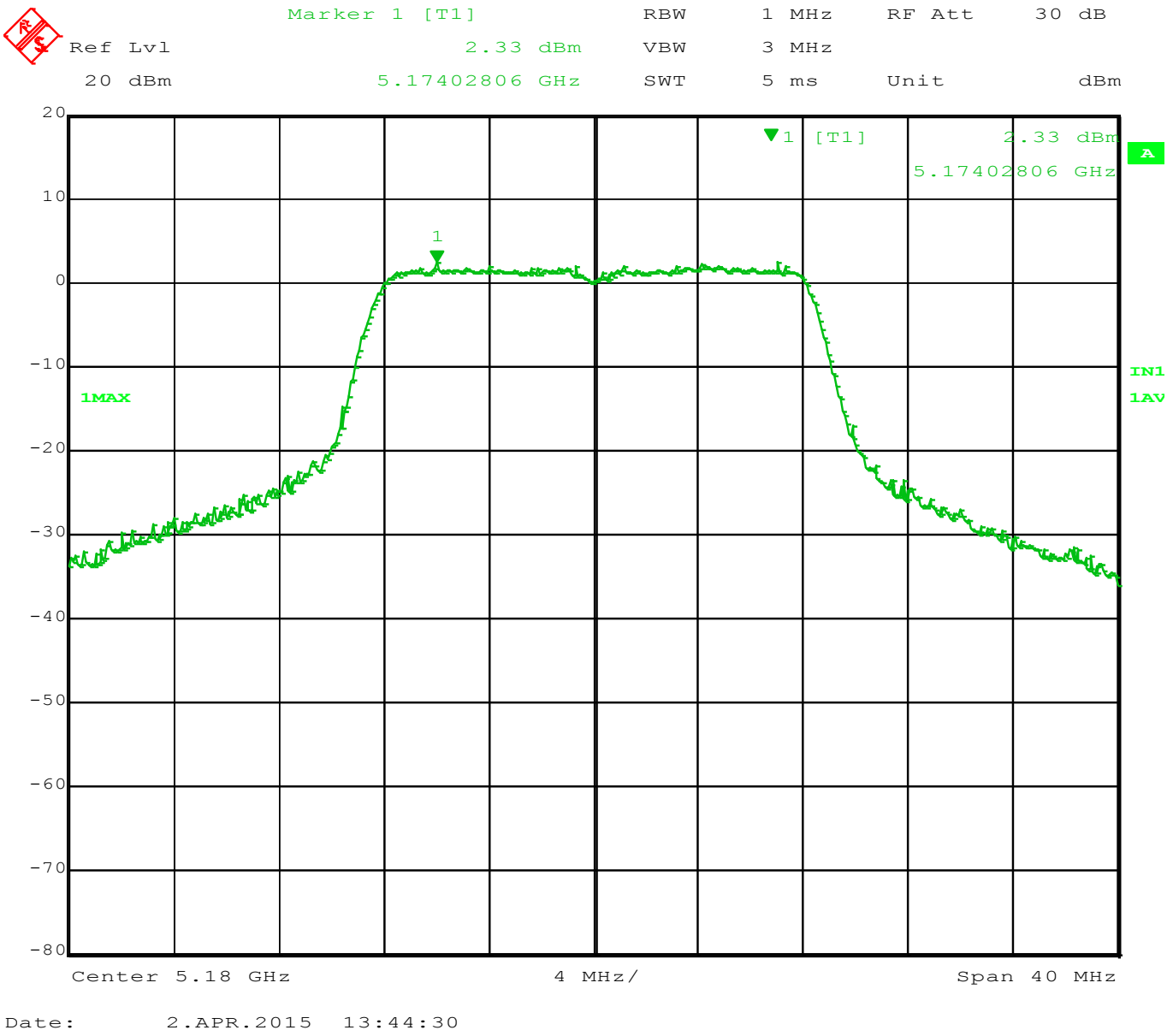


Figure 25 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 36 (5180 MHz

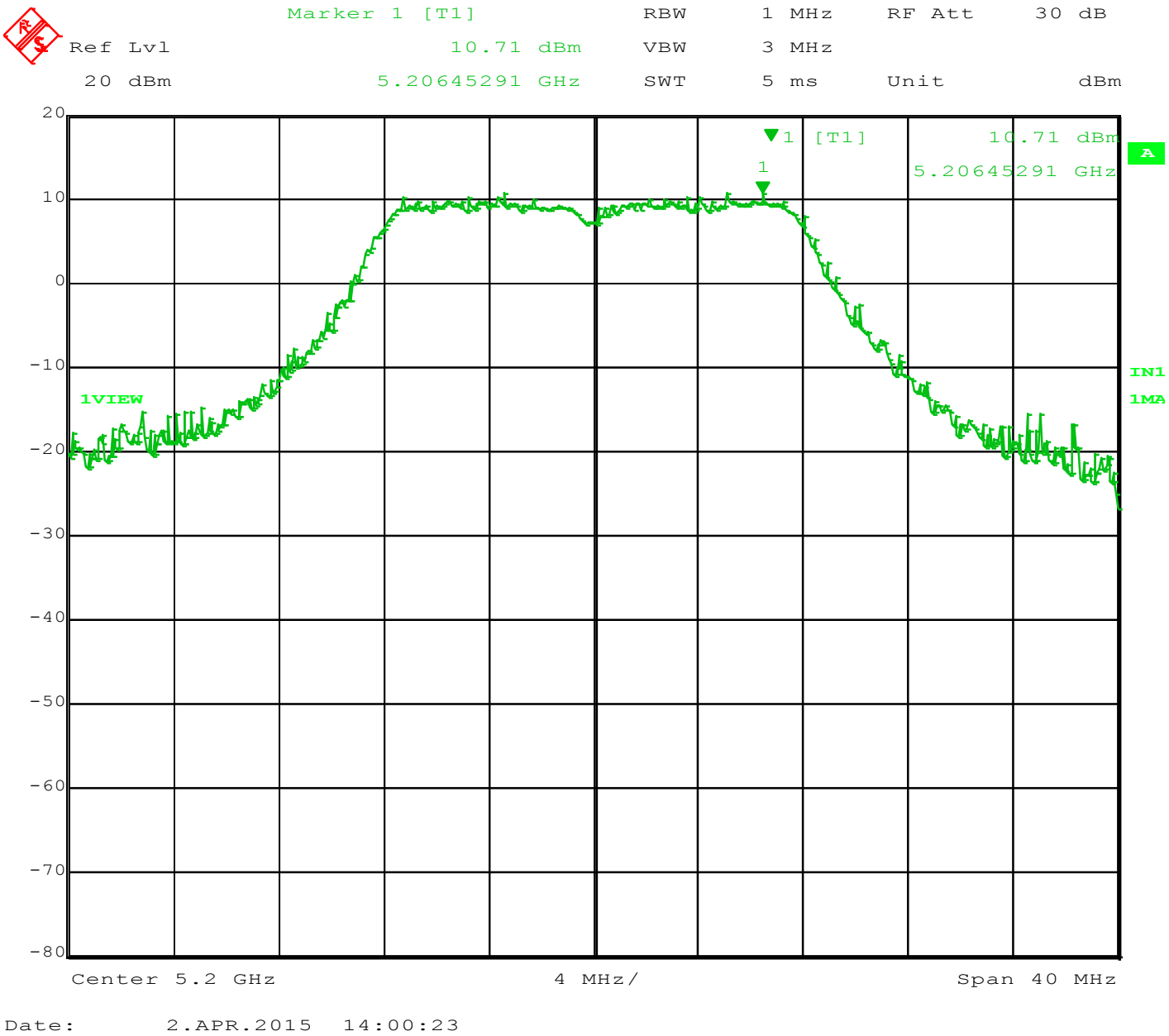


Figure 26 – Peak Power (conducted)

EUT operating on Ch 40 (5200 MHz)

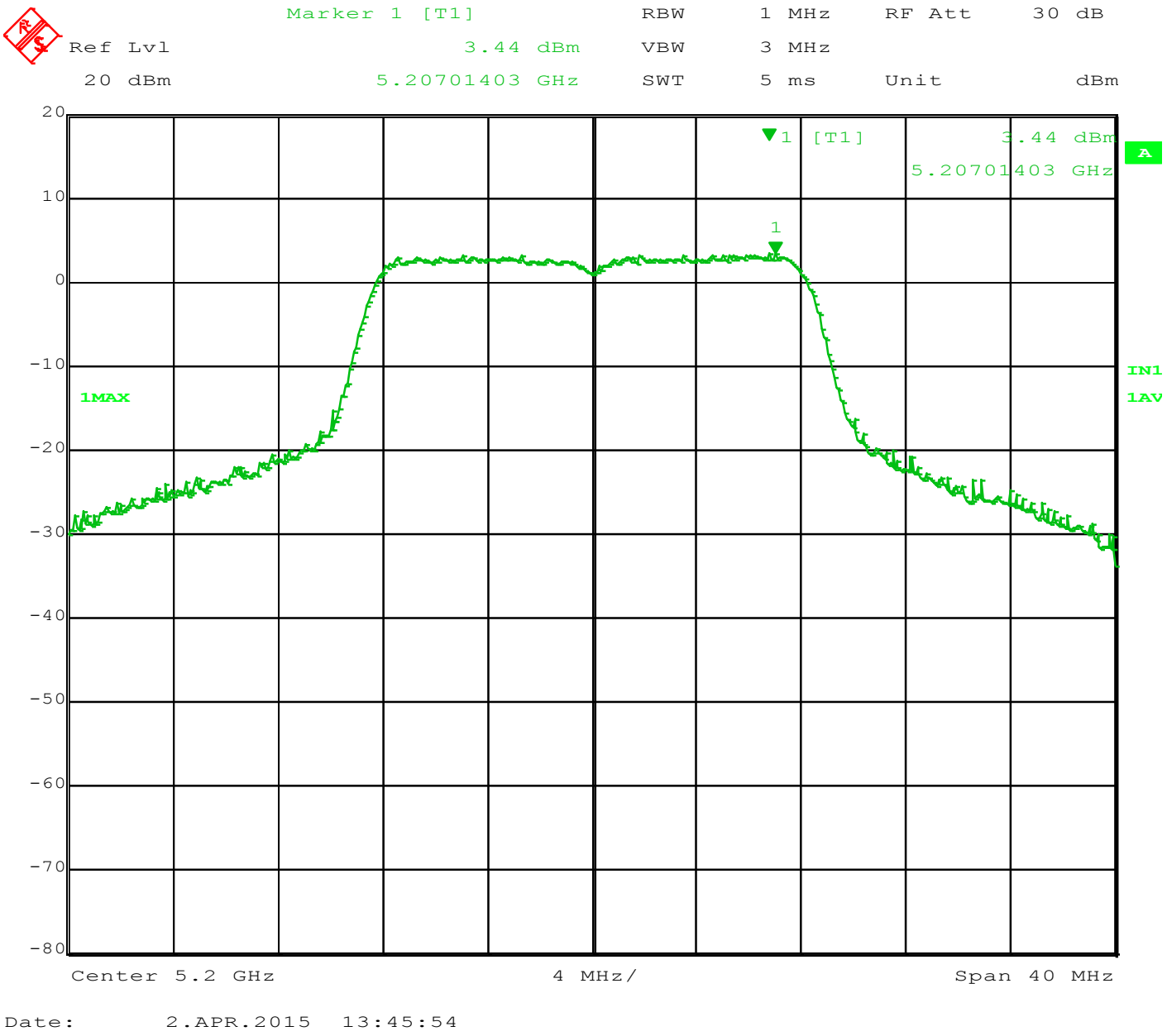


Figure 27 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 40 (5200 MHz)

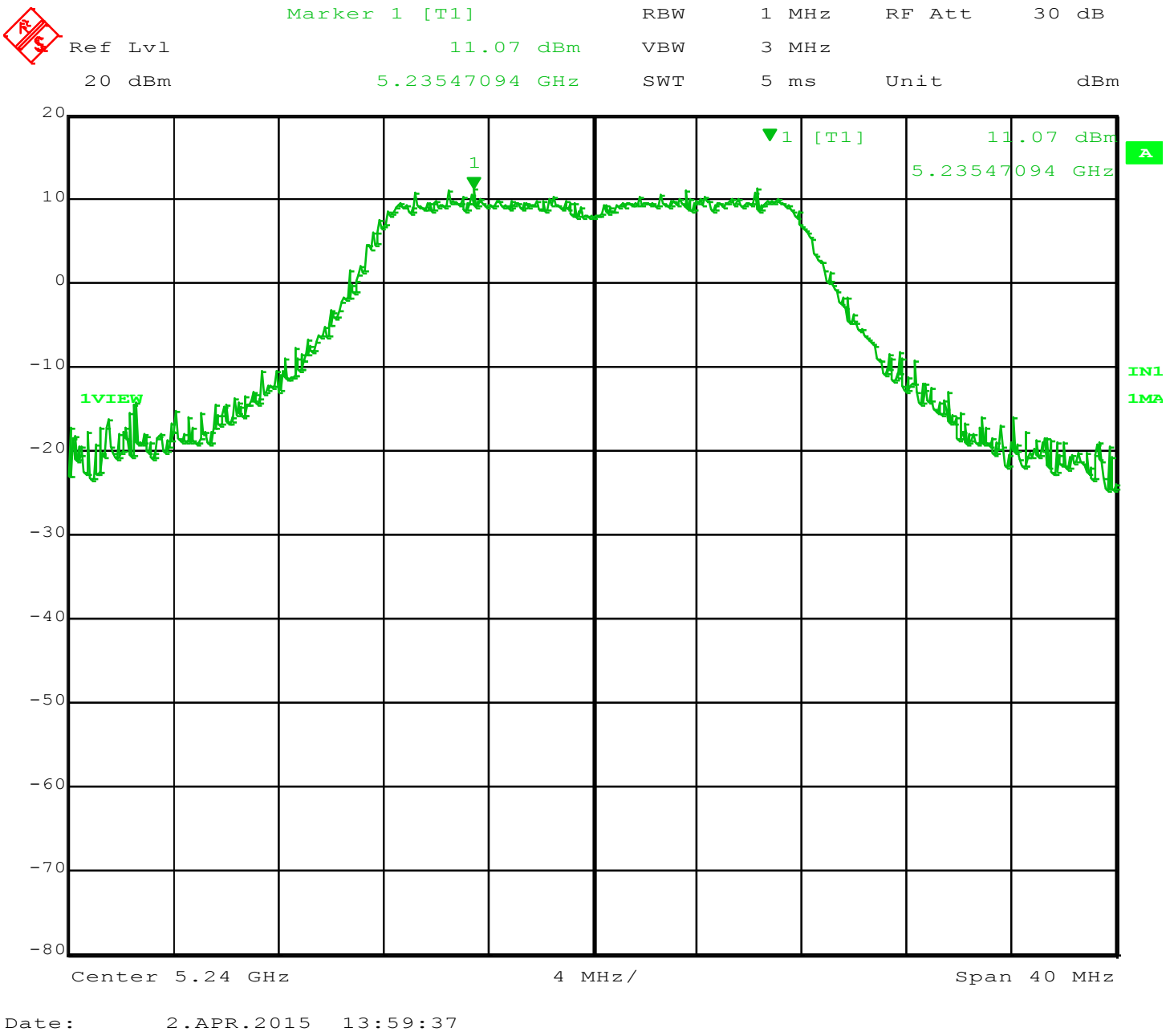


Figure 28 – Peak Power (conducted)

EUT operating on Ch 48 (5240 MHz)

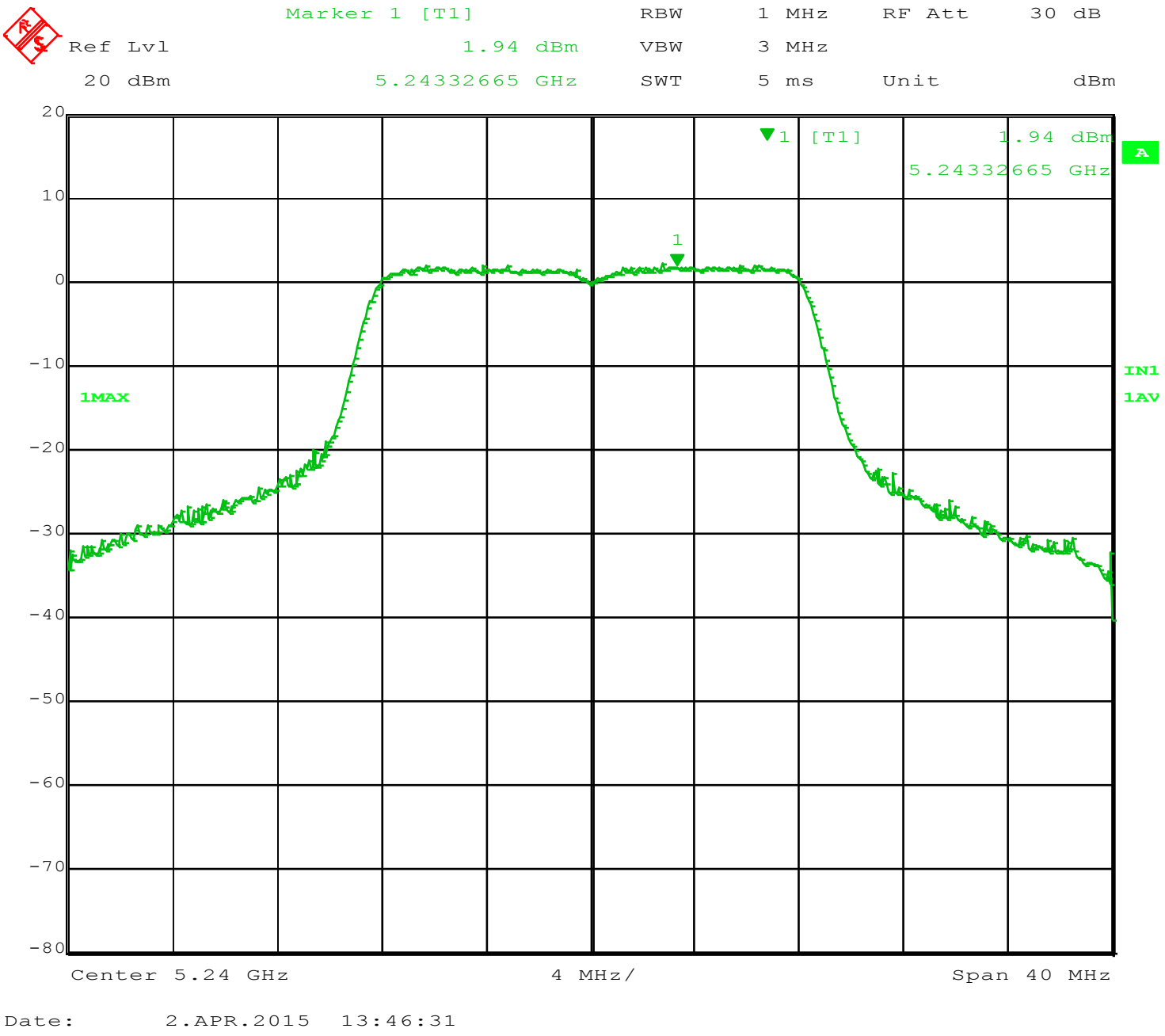


Figure 29 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 48 (5240 MHz)

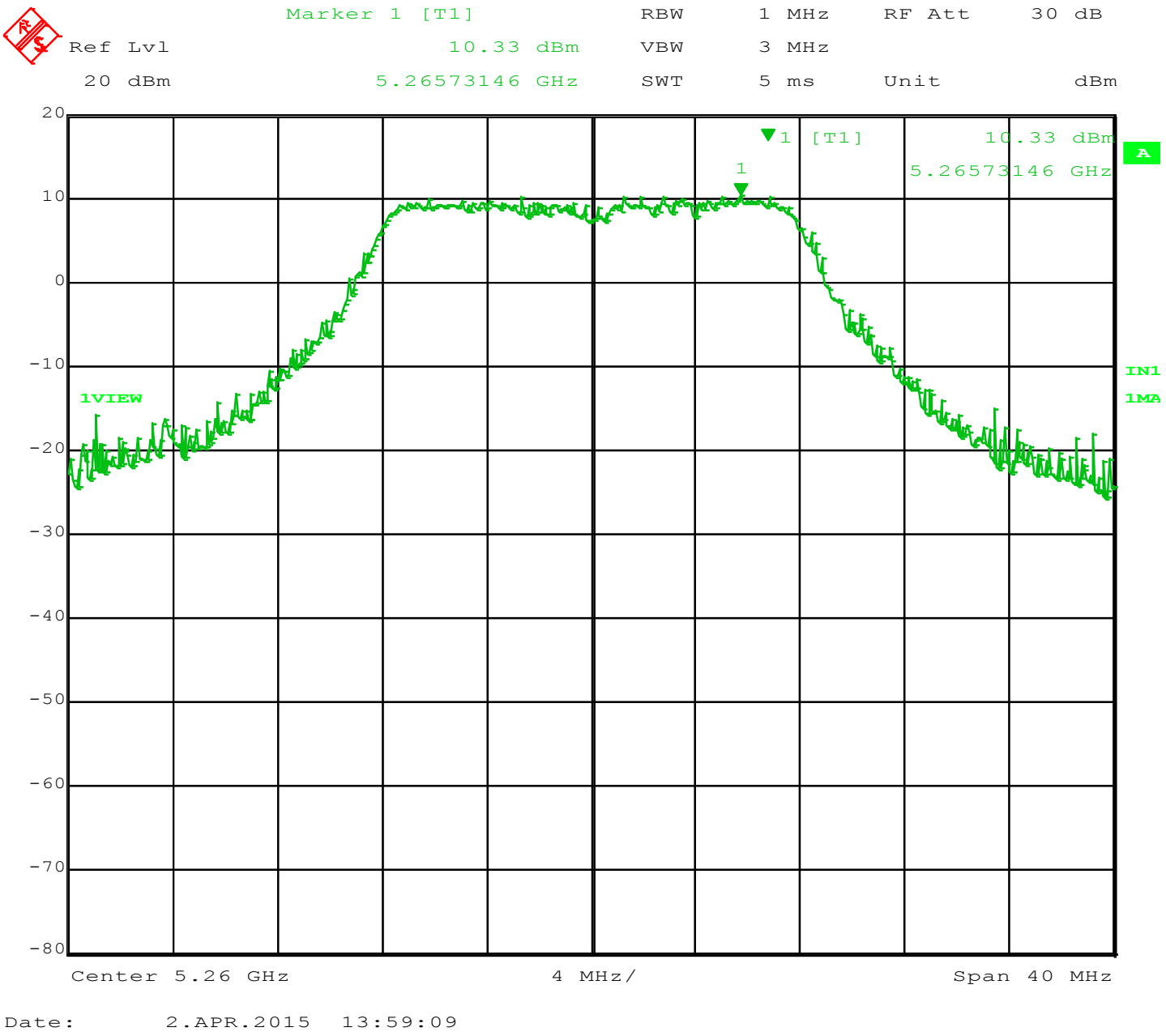


Figure 30 – Peak Power (conducted)

EUT operating on Ch 52 (5260 MHz)

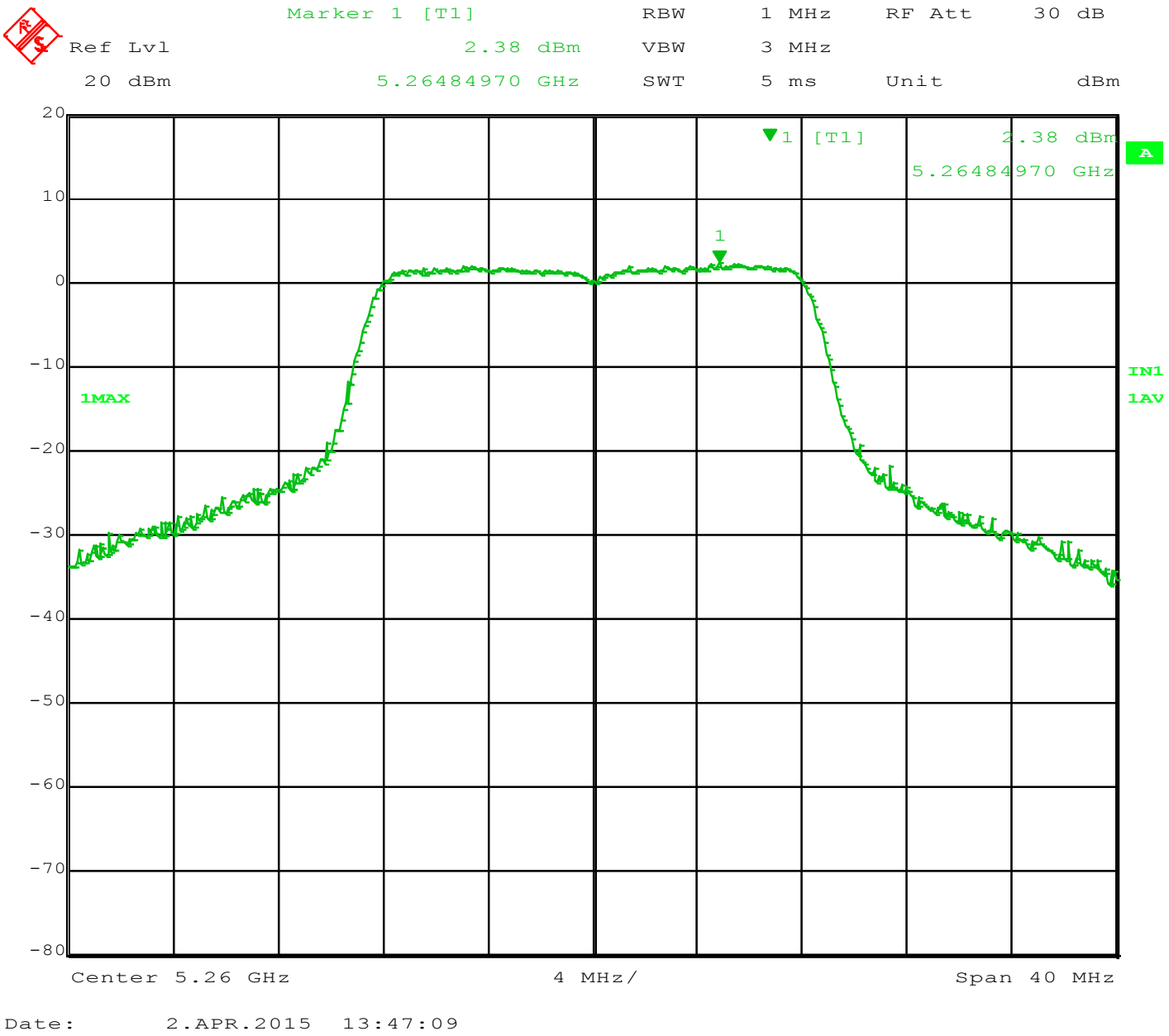


Figure 31 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 52 (5260 MHz)

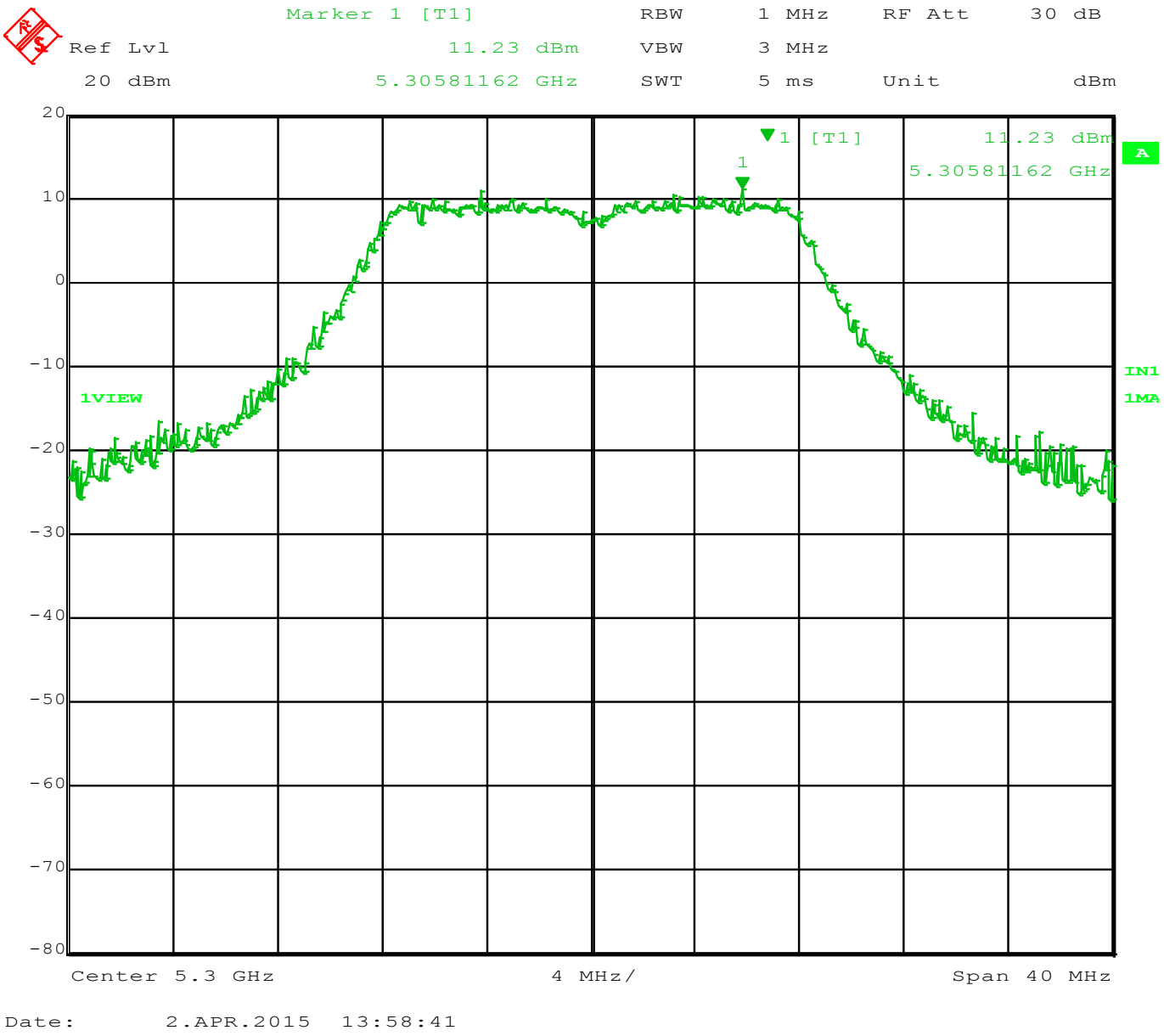


Figure 32 – Peak Power (conducted)

EUT operating on Ch 60 (5300 MHz)

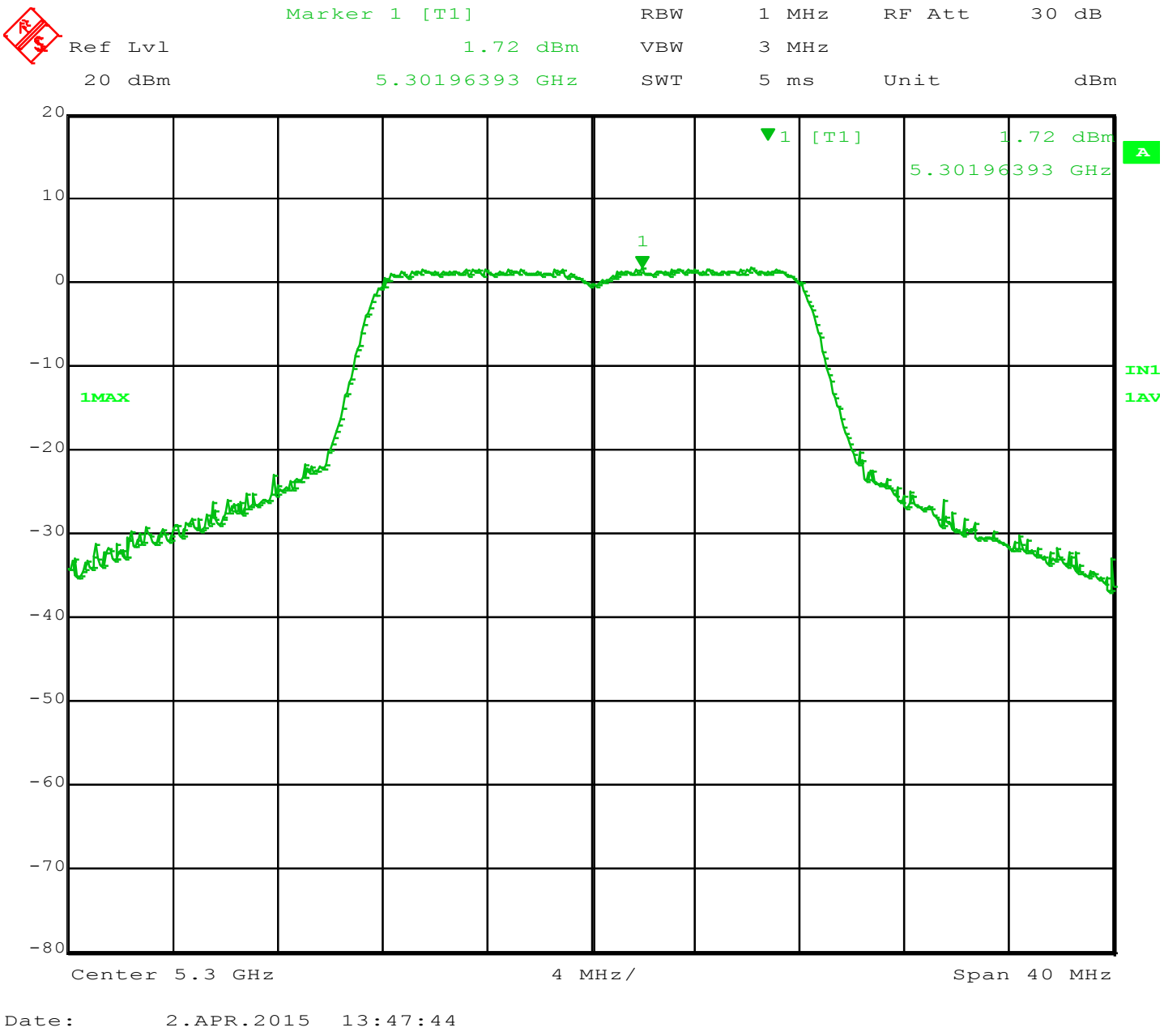


Figure 33 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 60 (5300 MHz

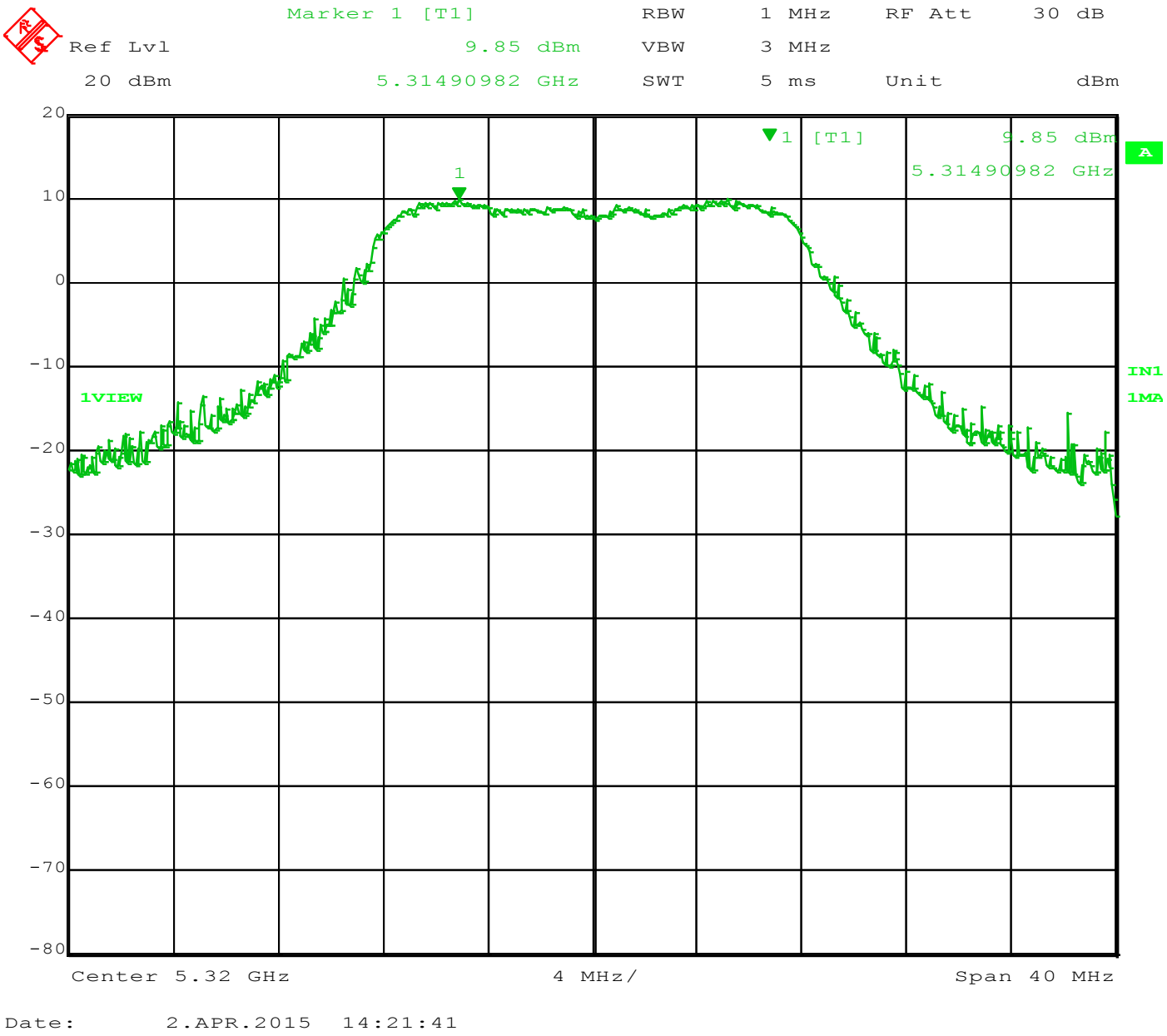


Figure 34 – Peak Power (conducted)

EUT operating on Ch 64 (5320 MHz)

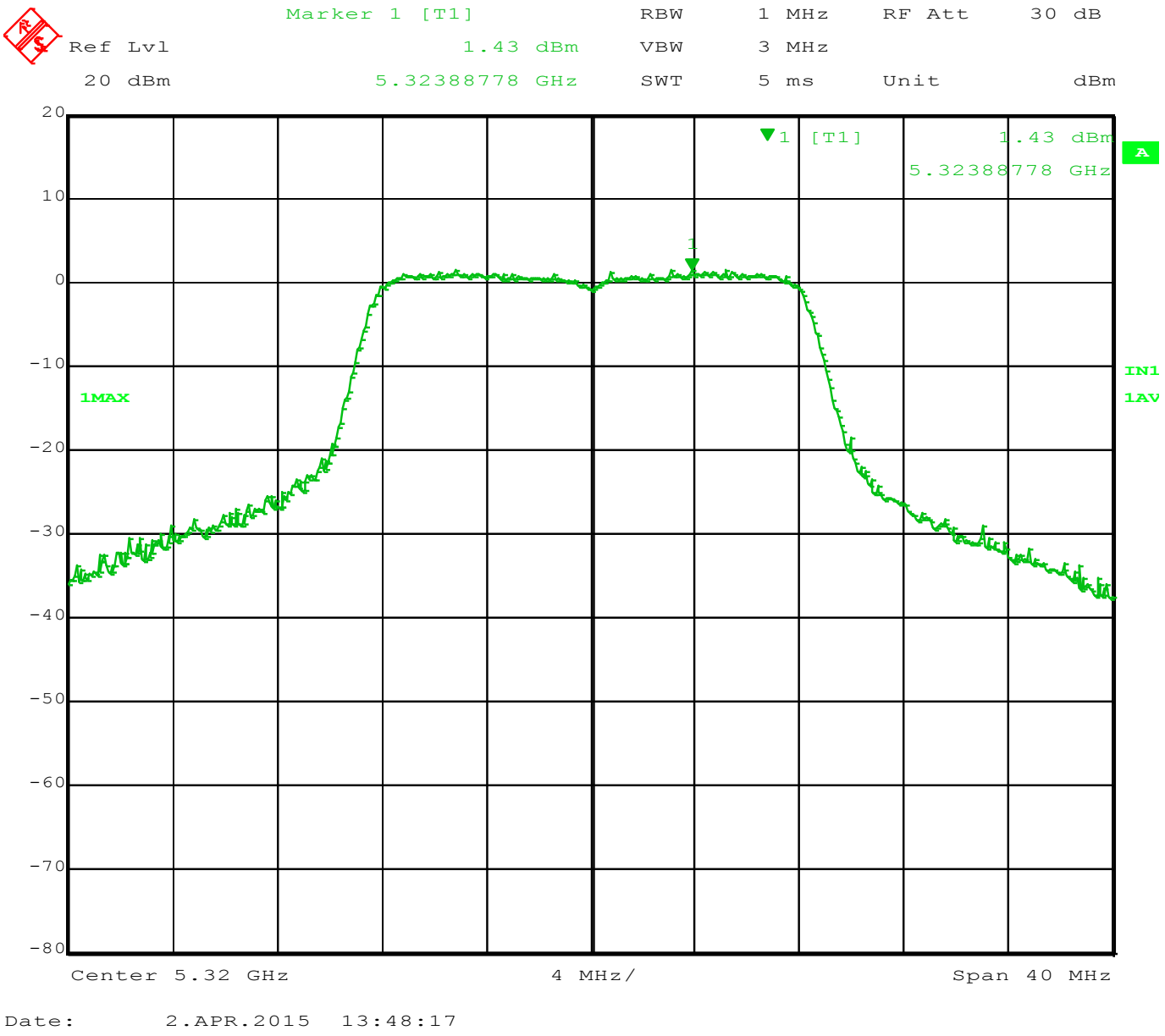


Figure 35 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 64 (5320 MHz)

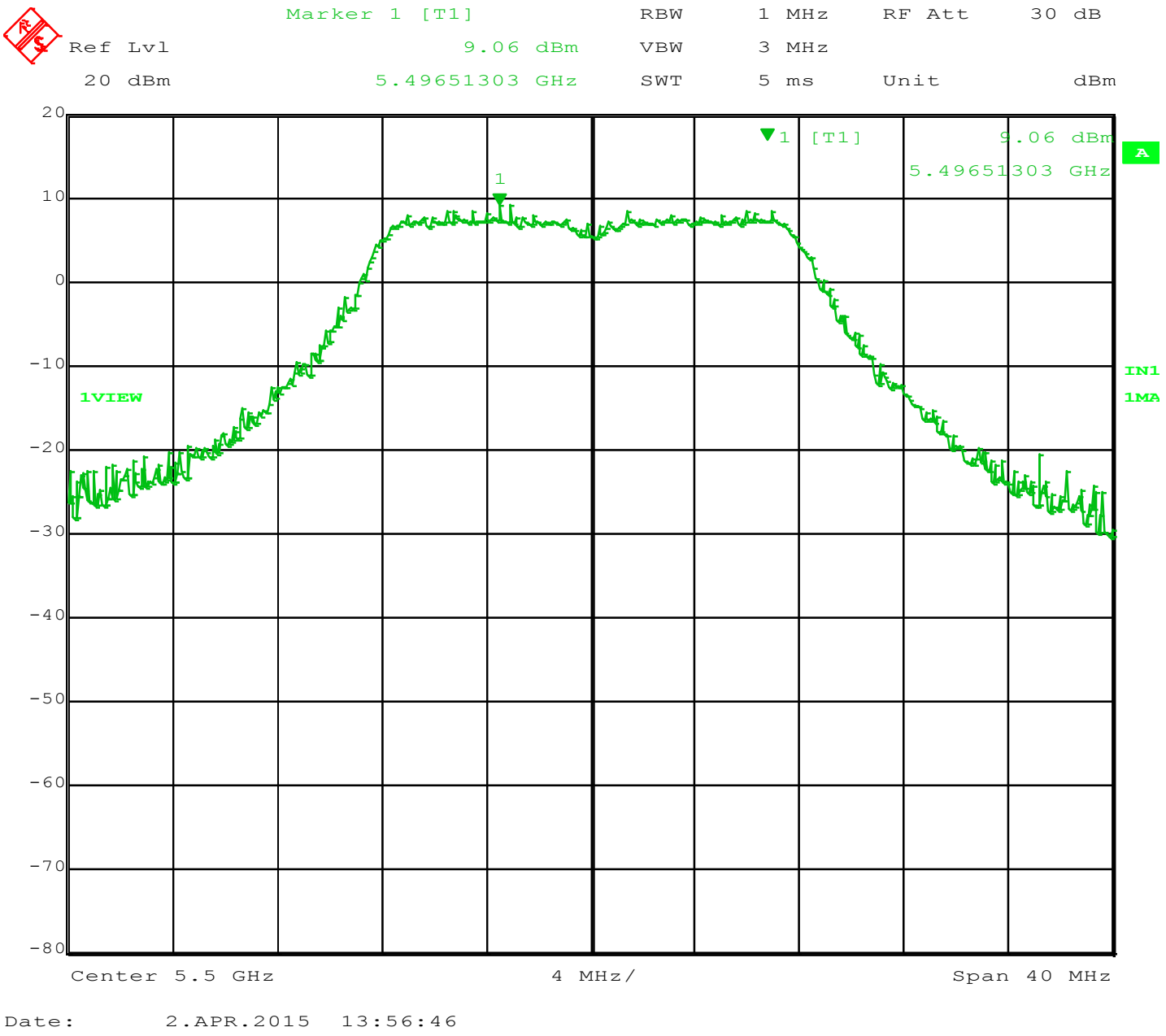


Figure 36 – Peak Power (conducted)

EUT operating on Ch 100 (5500 MHz)

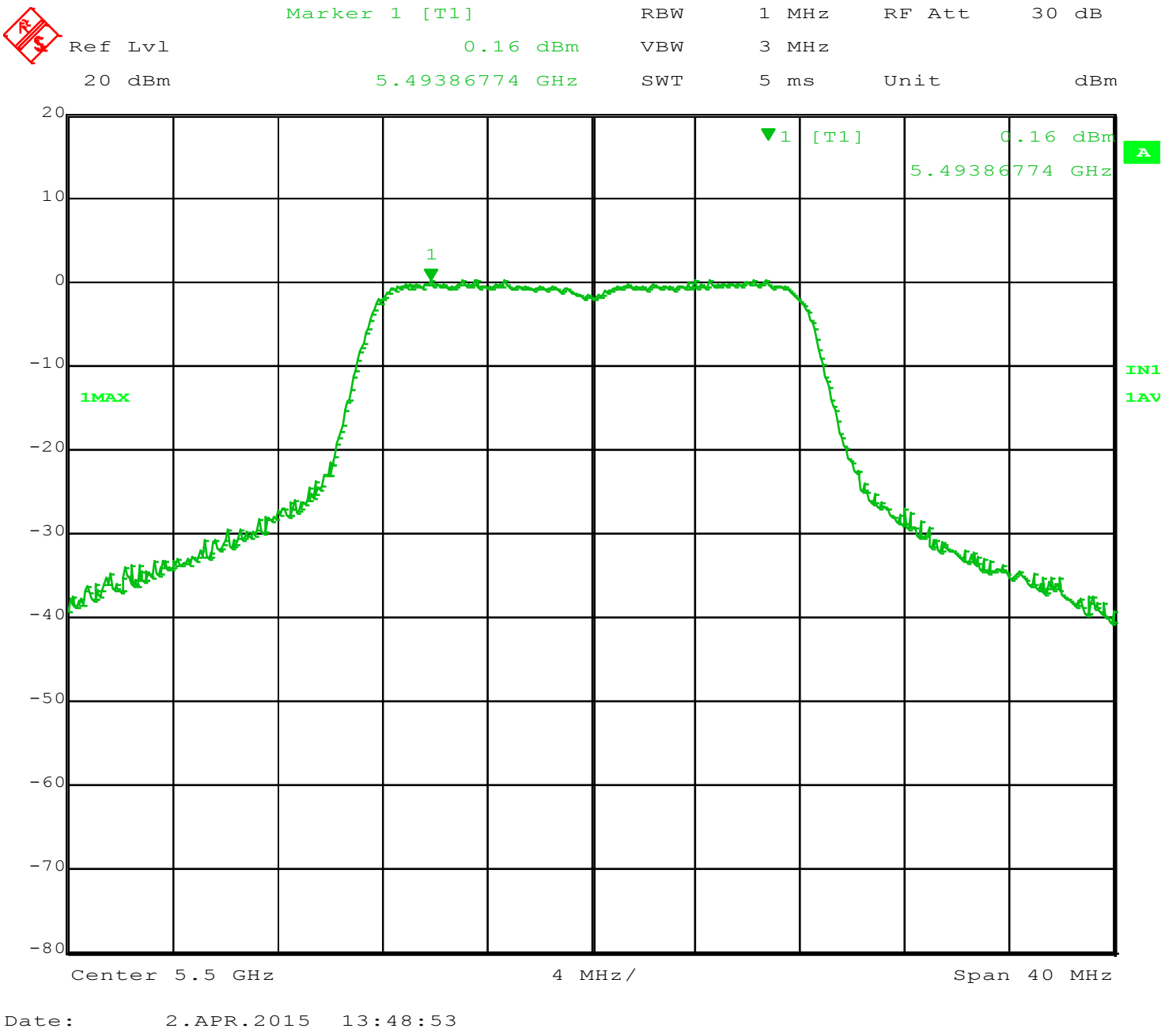


Figure 37 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 100 (5500 MHz)

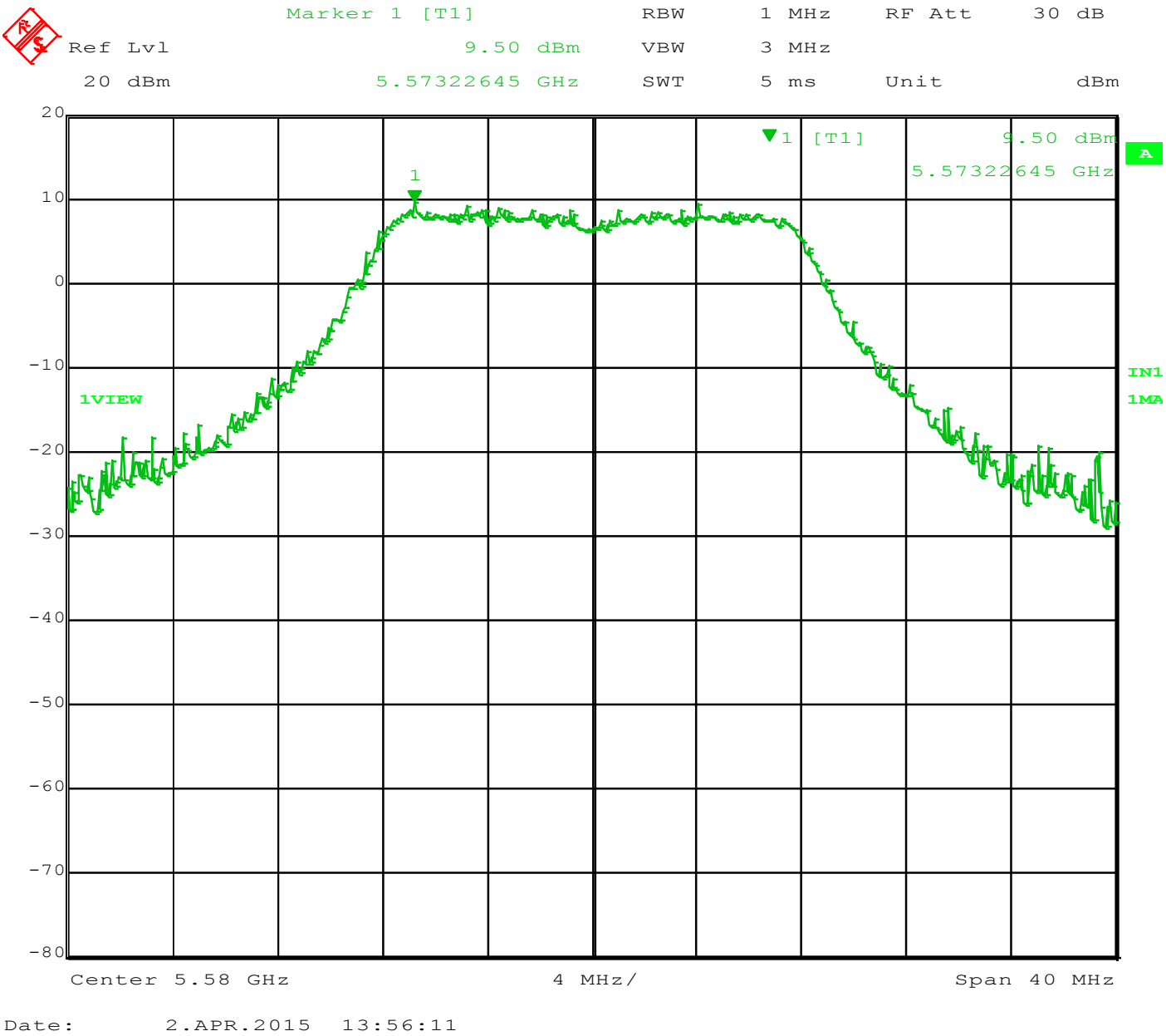


Figure 38 – Peak Power (conducted)

EUT operating on Ch 116 (5580 MHz)

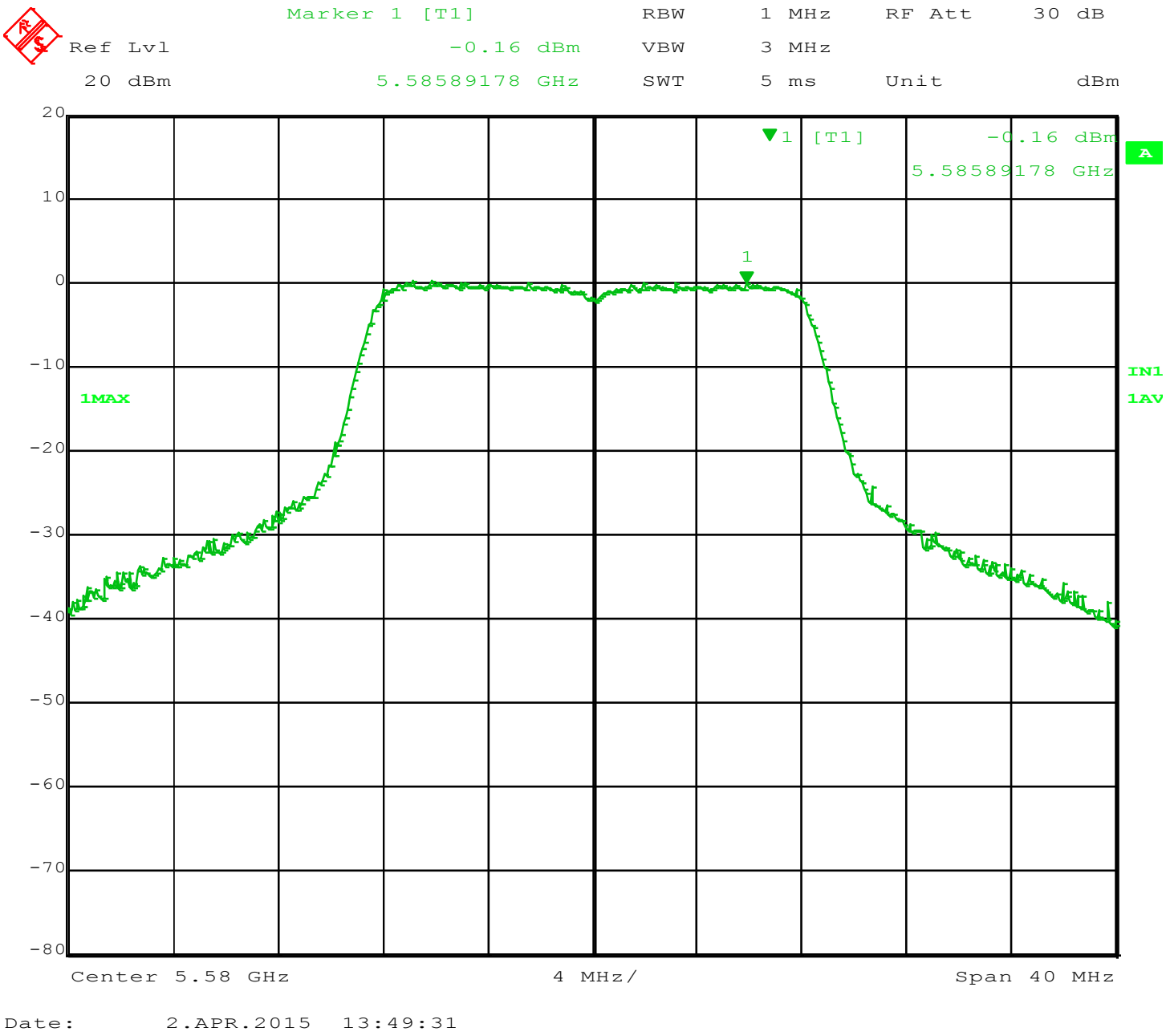


Figure 39 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 116 (5580 MHz)

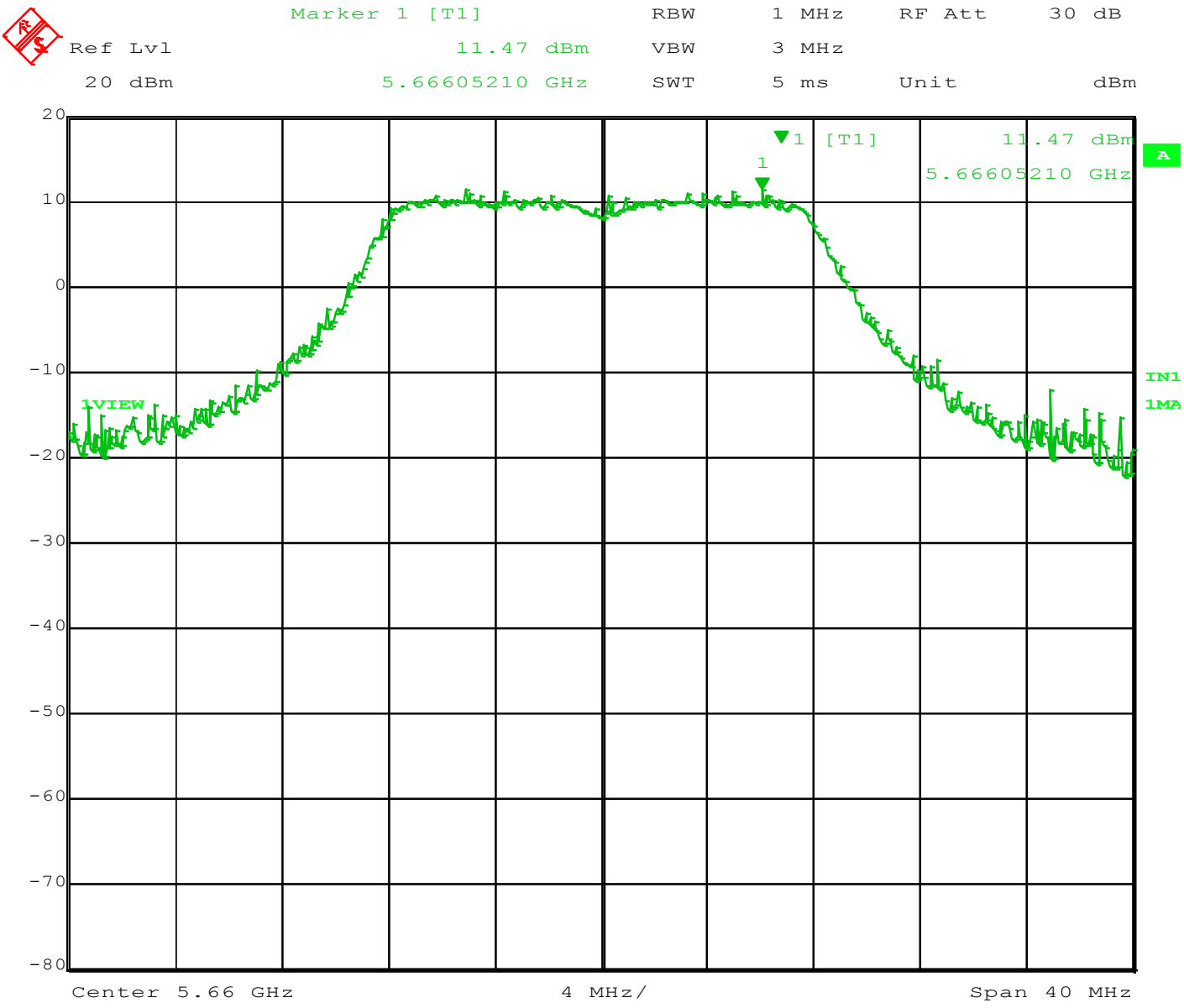


Figure 40 – Peak Power (conducted)

EUT operating on Ch 132 (5660 MHz)

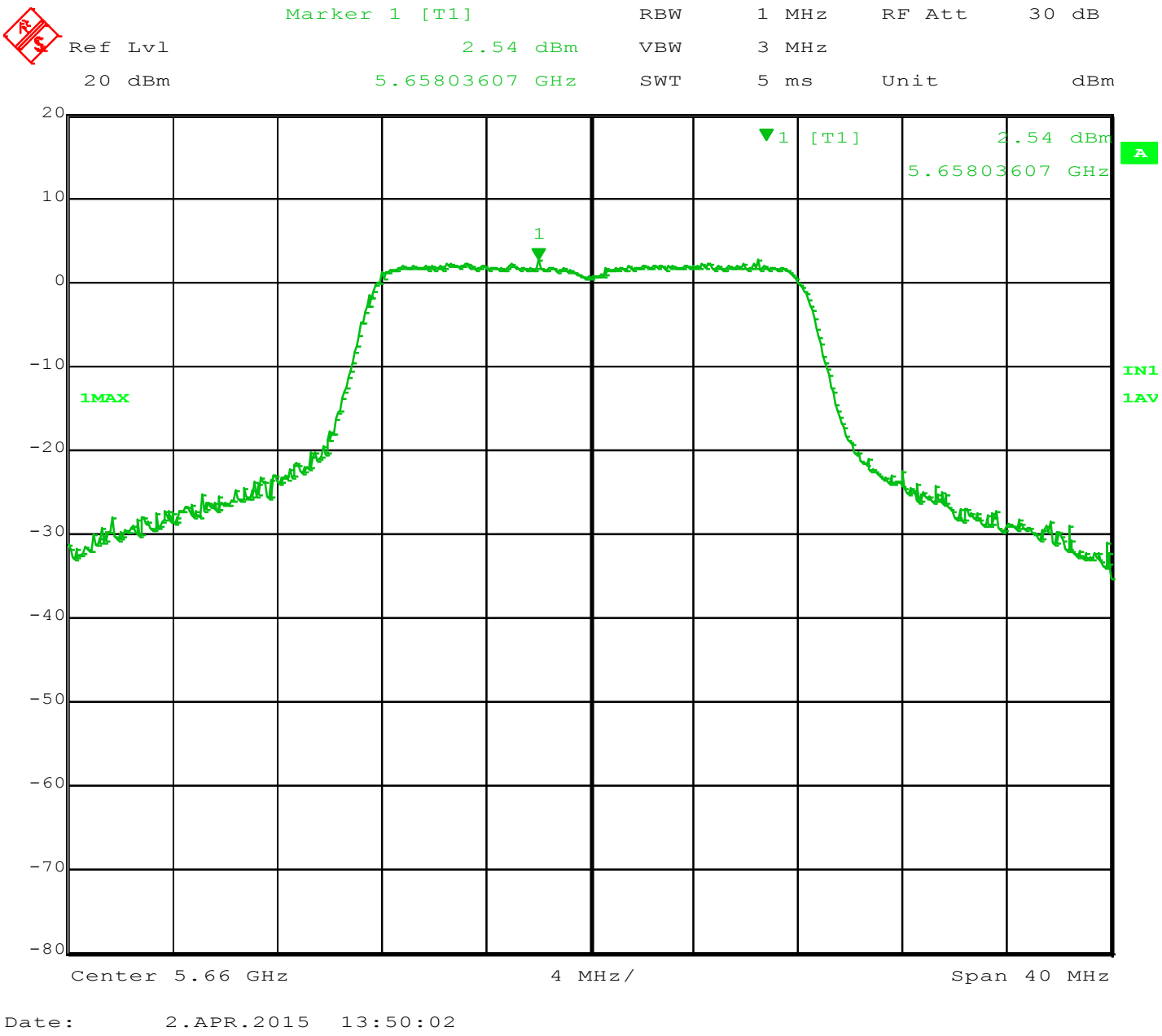


Figure 41 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 132 (5600 MHz)

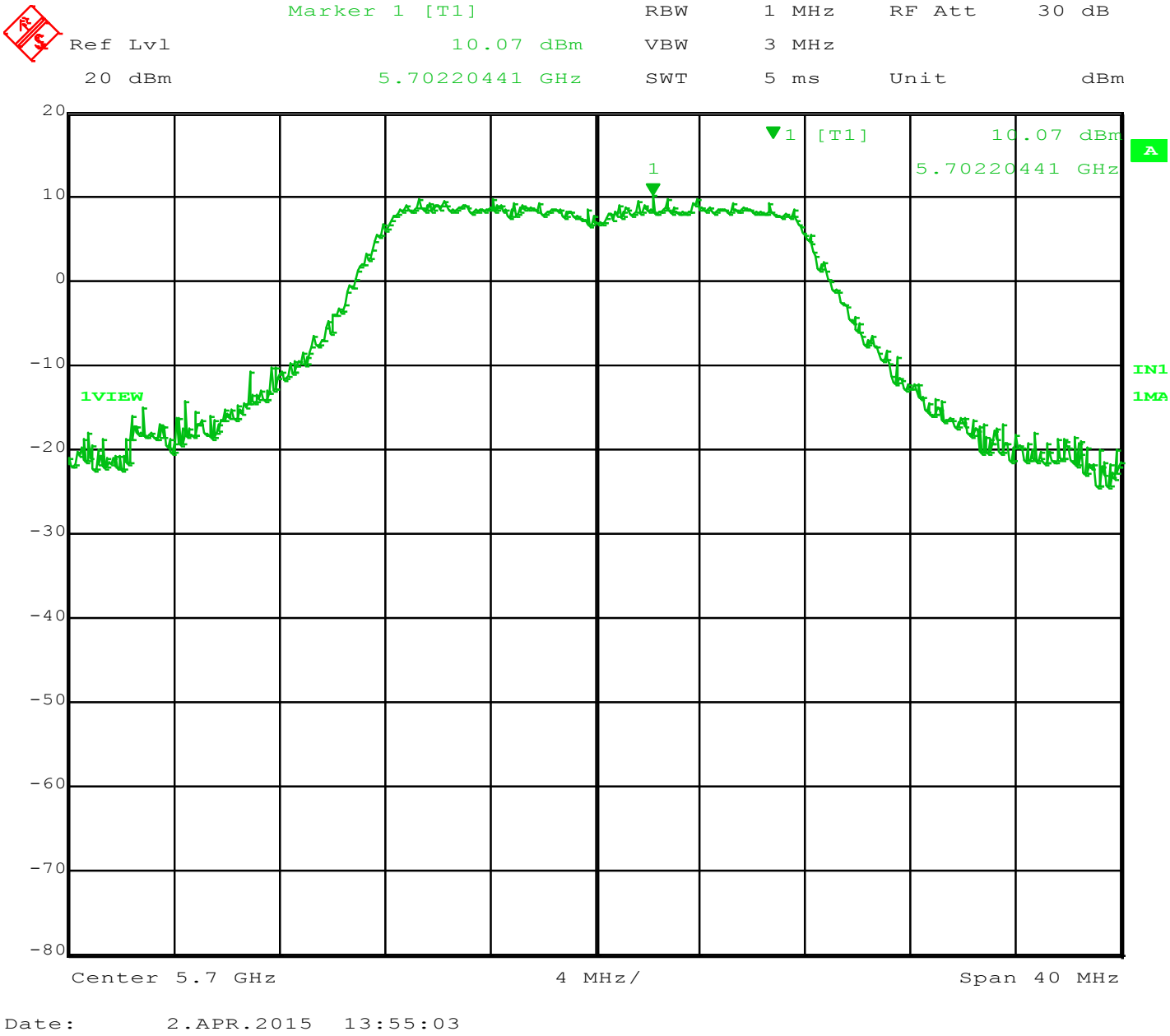


Figure 42 – Peak Power (conducted)

EUT operating on Ch 140 (5700 MHz)

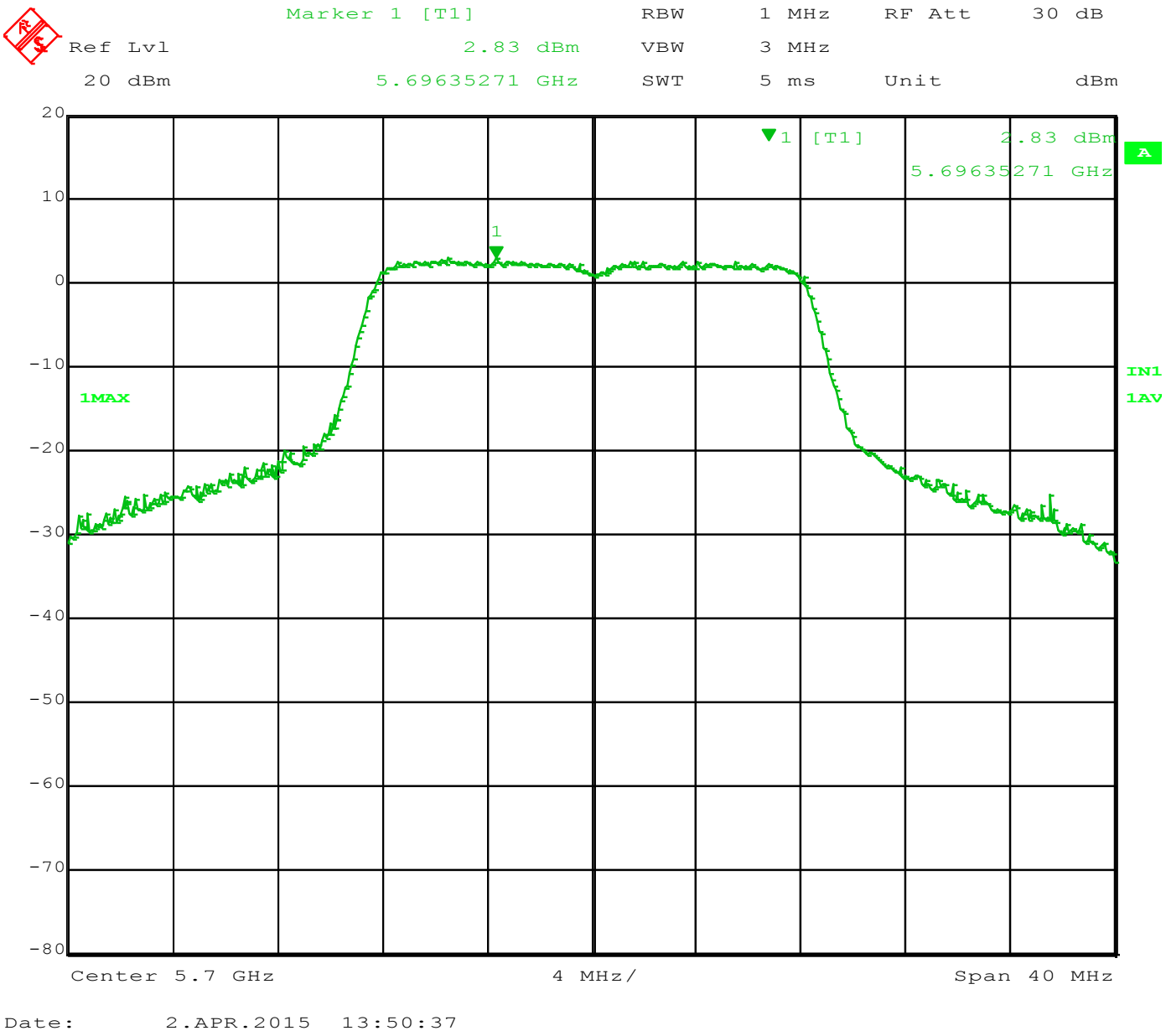


Figure 43 – Peak Power Spectral Density (conducted) in any 1 MHz band

EUT operating on Ch 140 (5700 MHz)

4.6 Band Edge

In accordance with 47 CFR Part 15.407(b) All emissions outside of the 5.15 – 5.25 GHz Band shall not exceed an EIRP of -27dBm/MHz.

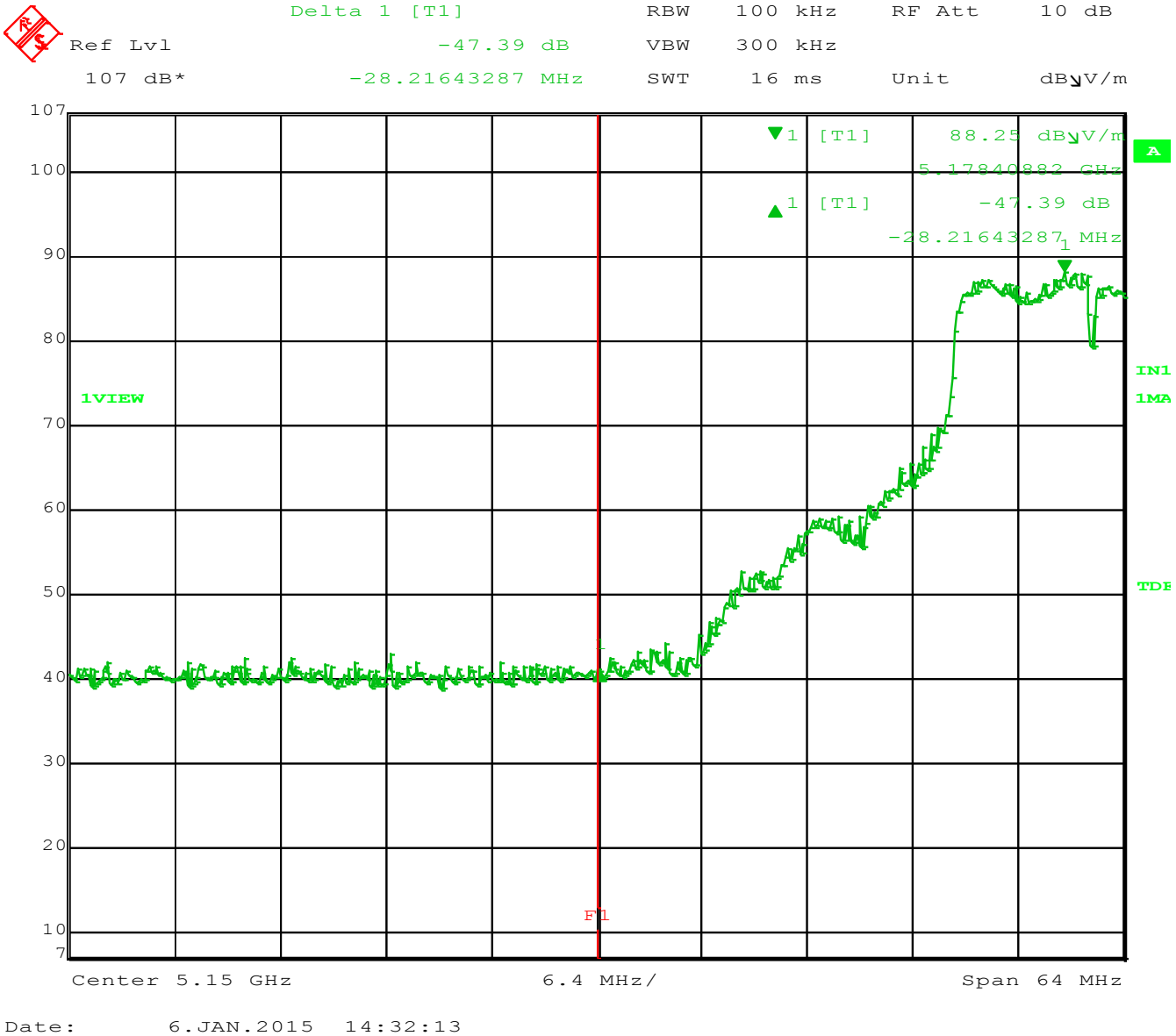


Figure 44 – Lower Band edge at 5150 MHz

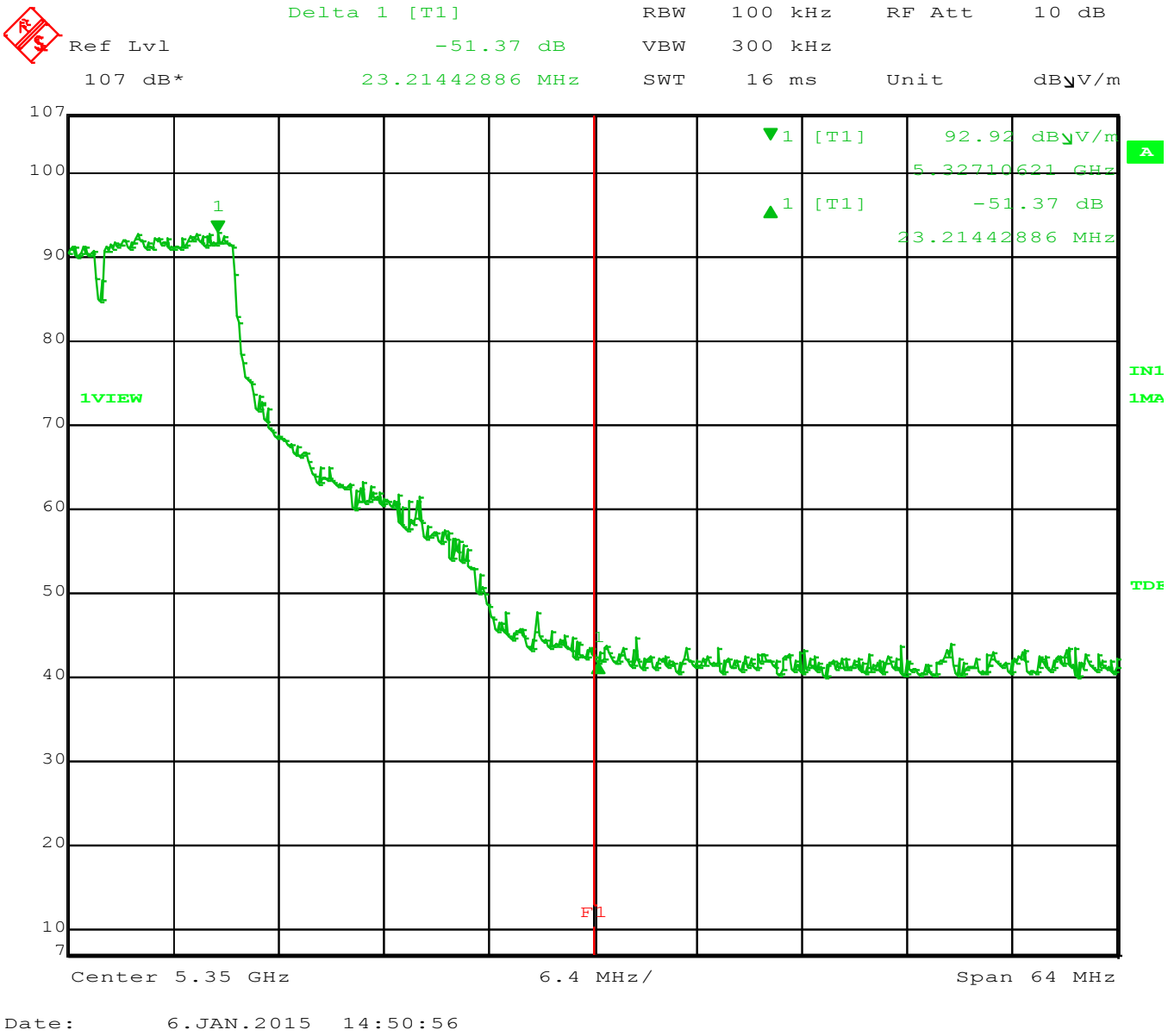


Figure 45 – Upper Band edge at 5350 MHz

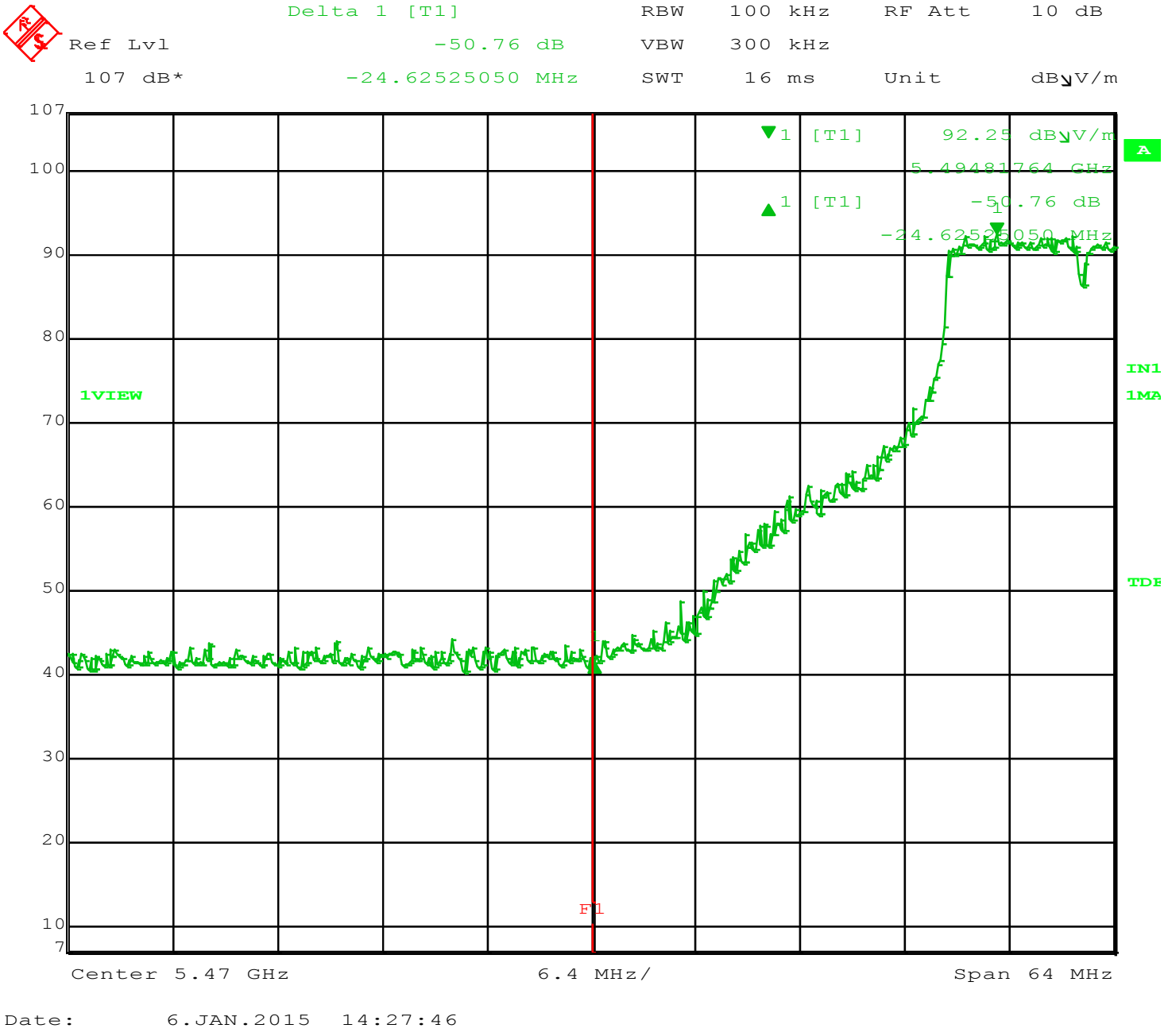


Figure 46 – Lower Band edge at 5470 MHz

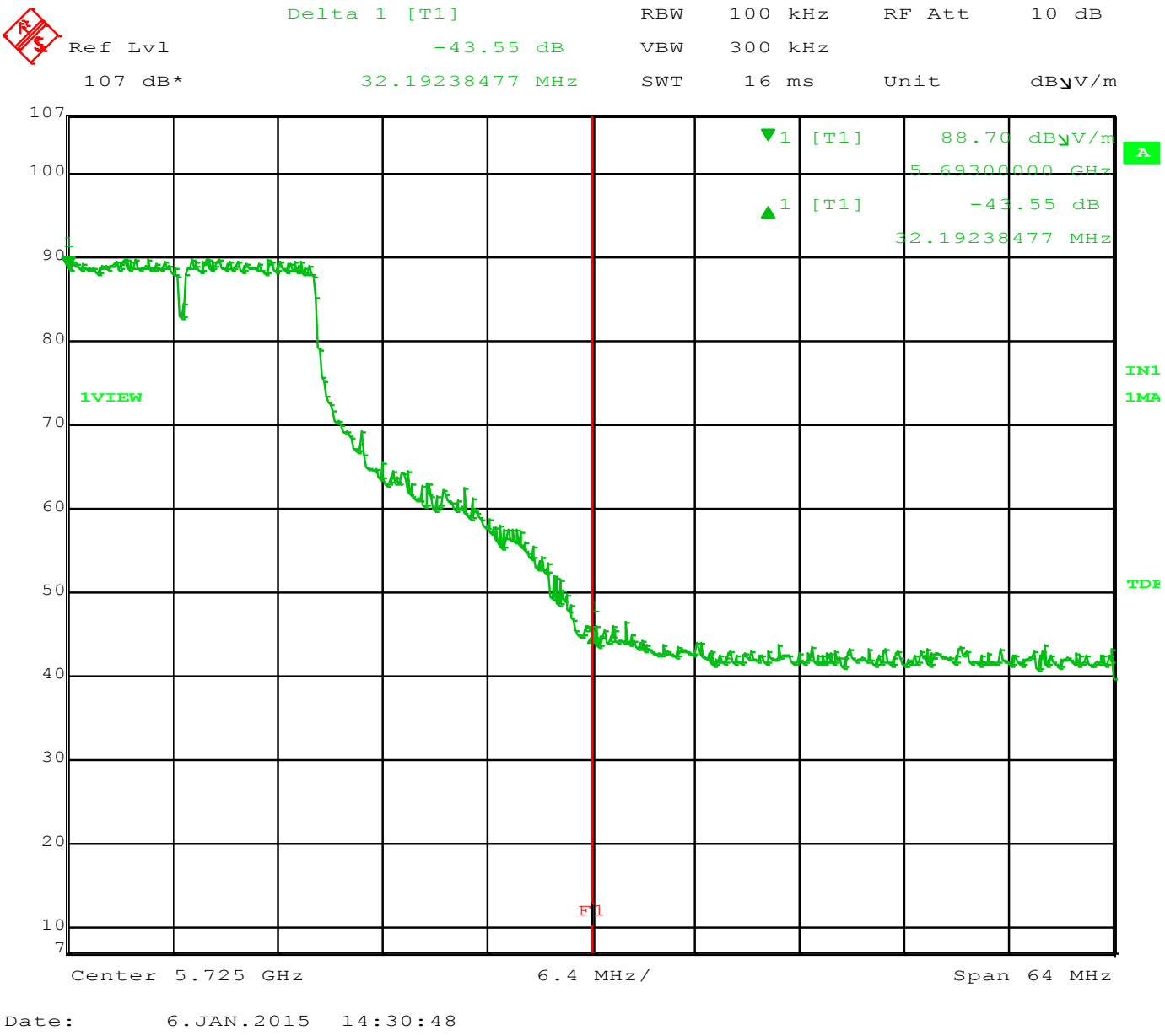


Figure 47 – Upper Band edge at 5725 MHz

4.6.1 Final Test

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

4.7 -26 dB Bandwidth

In accordance with 47 CFR Part 15.407(a) (1)

26dB OCCUPIED BANDWIDTH: Single chain - 802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)
36	5180	24.34
40	5200	24.94
48	5240	25.25
52	5260	26.99
60	5300	25.45
64	5320	25.55
100	5500	24.94
116	5580	25.85
132	5660	25.55
140	5700	26.25

Figure 48 – 26 dBc Bandwidth

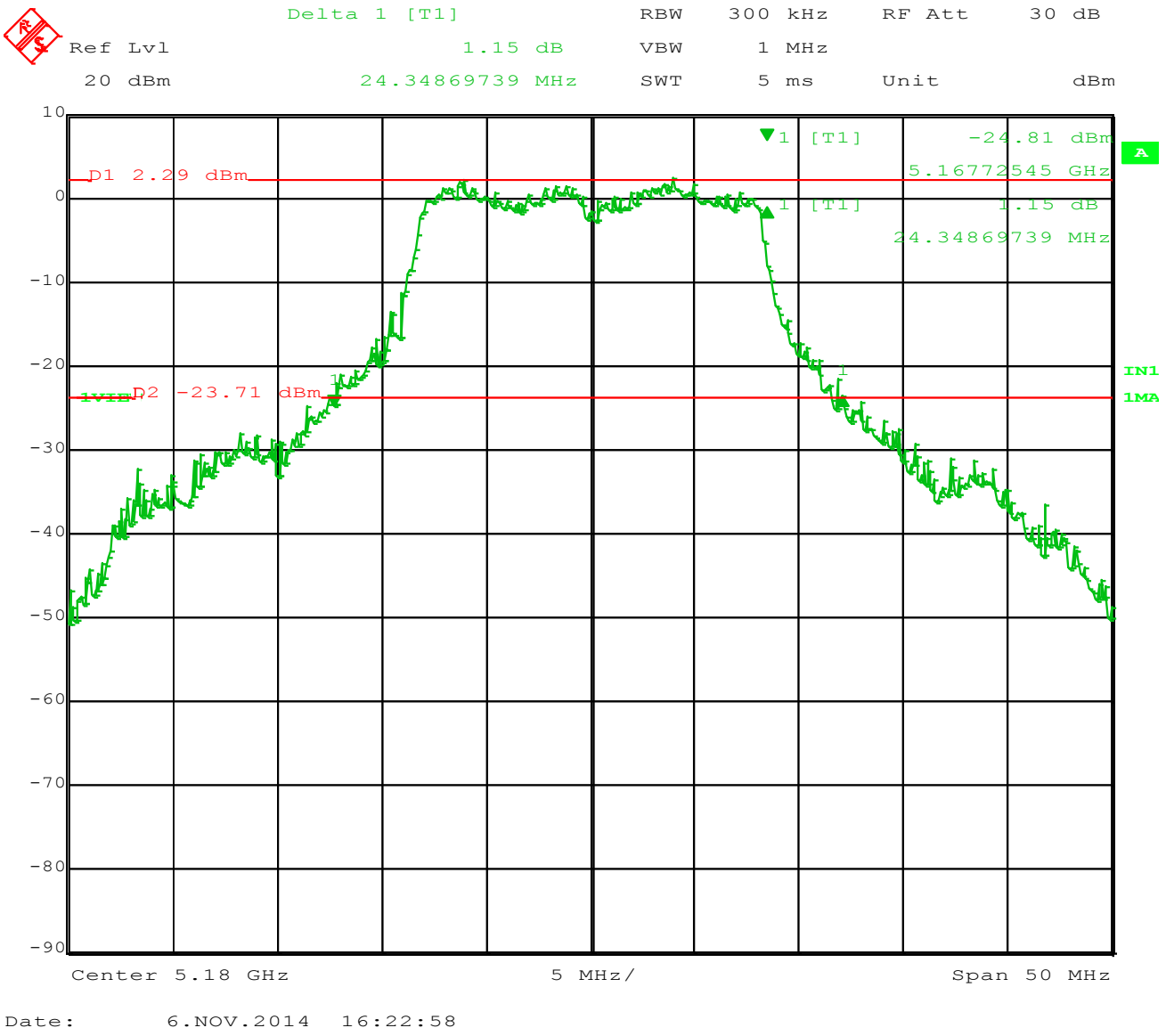


Figure 49 – (-26) dB Bandwidth of EUT operating on Ch 36 at 20 MHz band

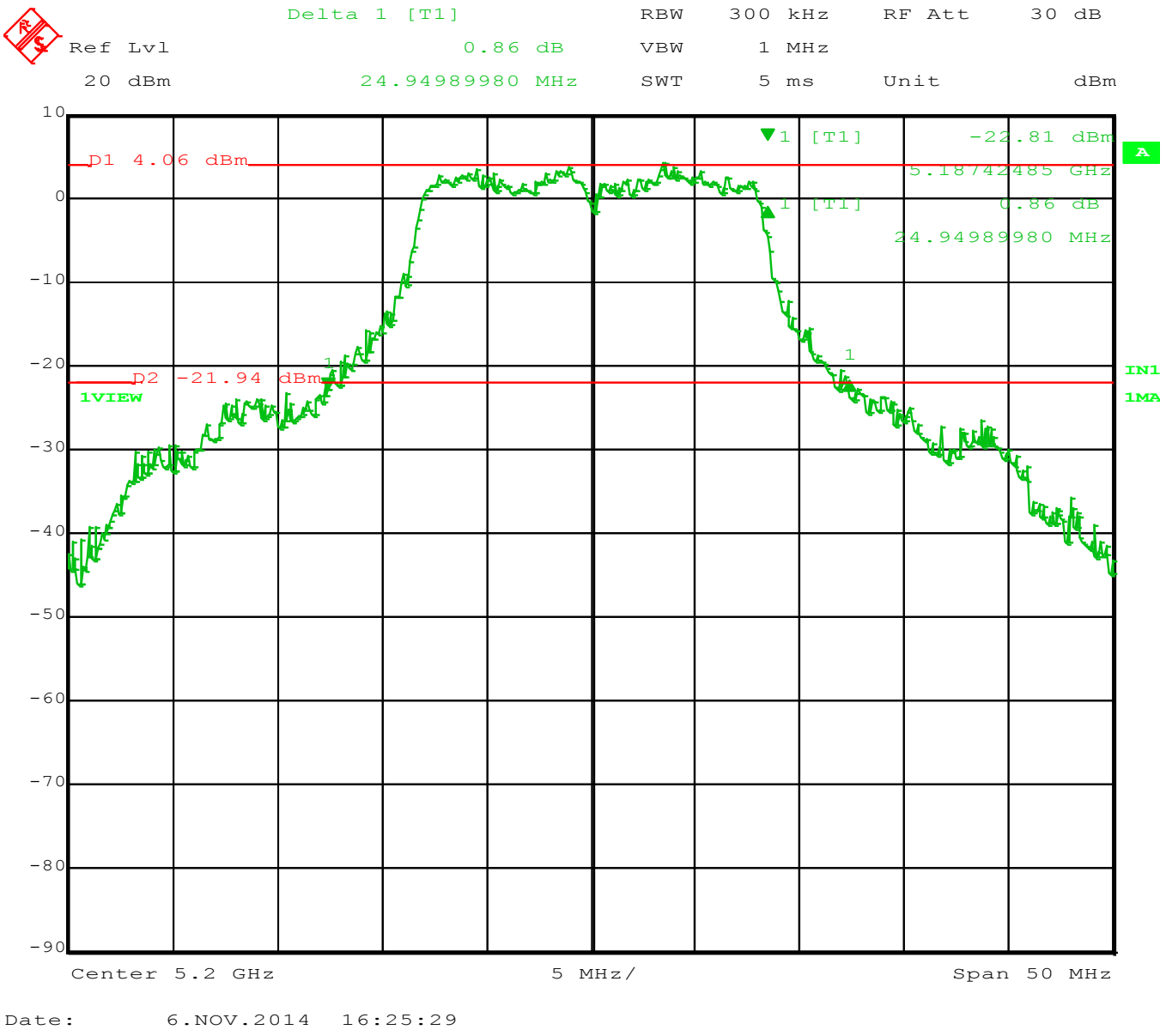


Figure 50 – (-26) dB Bandwidth of EUT operating on Ch 40 at 20 MHz band

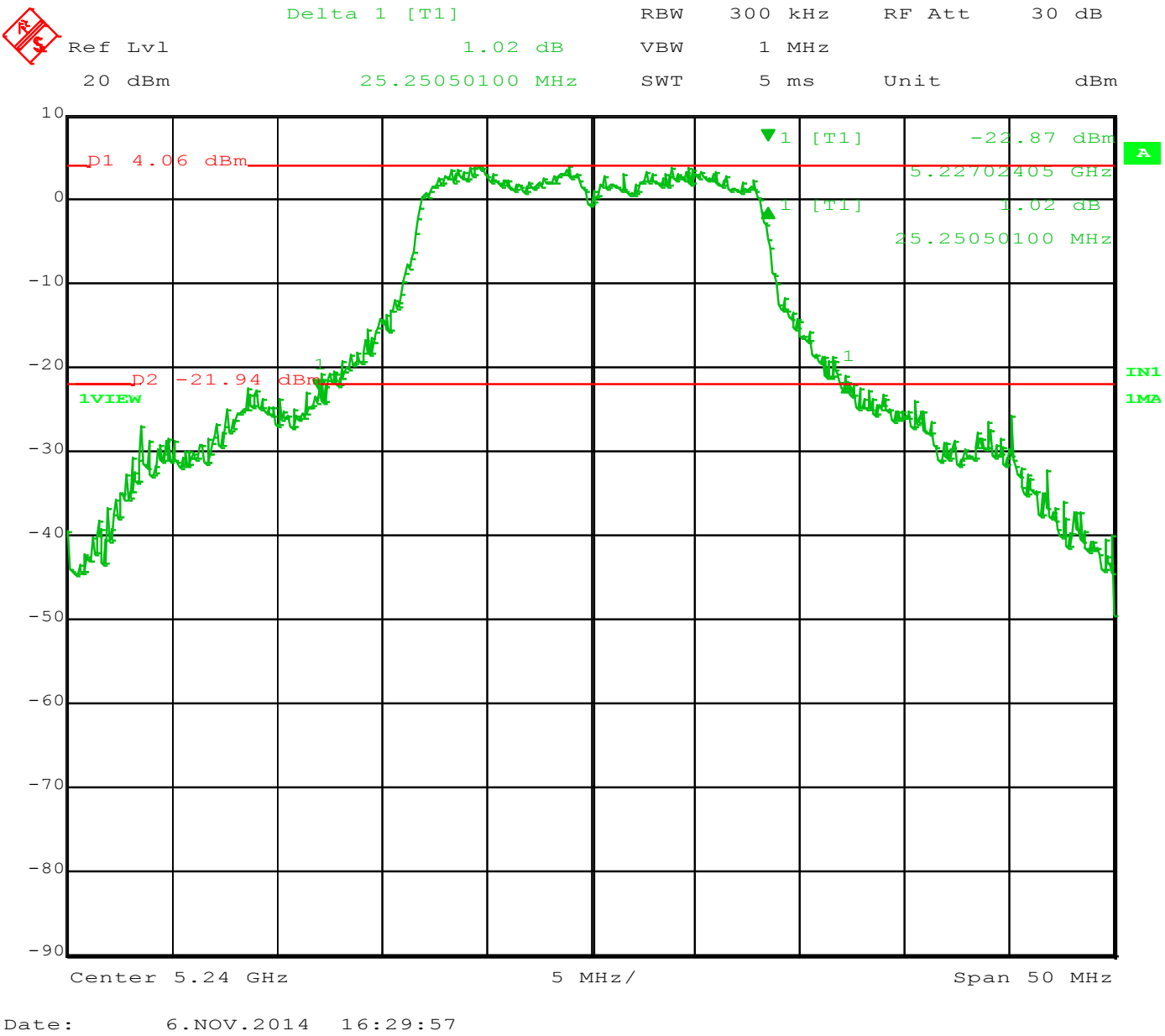


Figure 51 – (-26) dB Bandwidth of EUT operating on Ch 48 at 20 MHz band

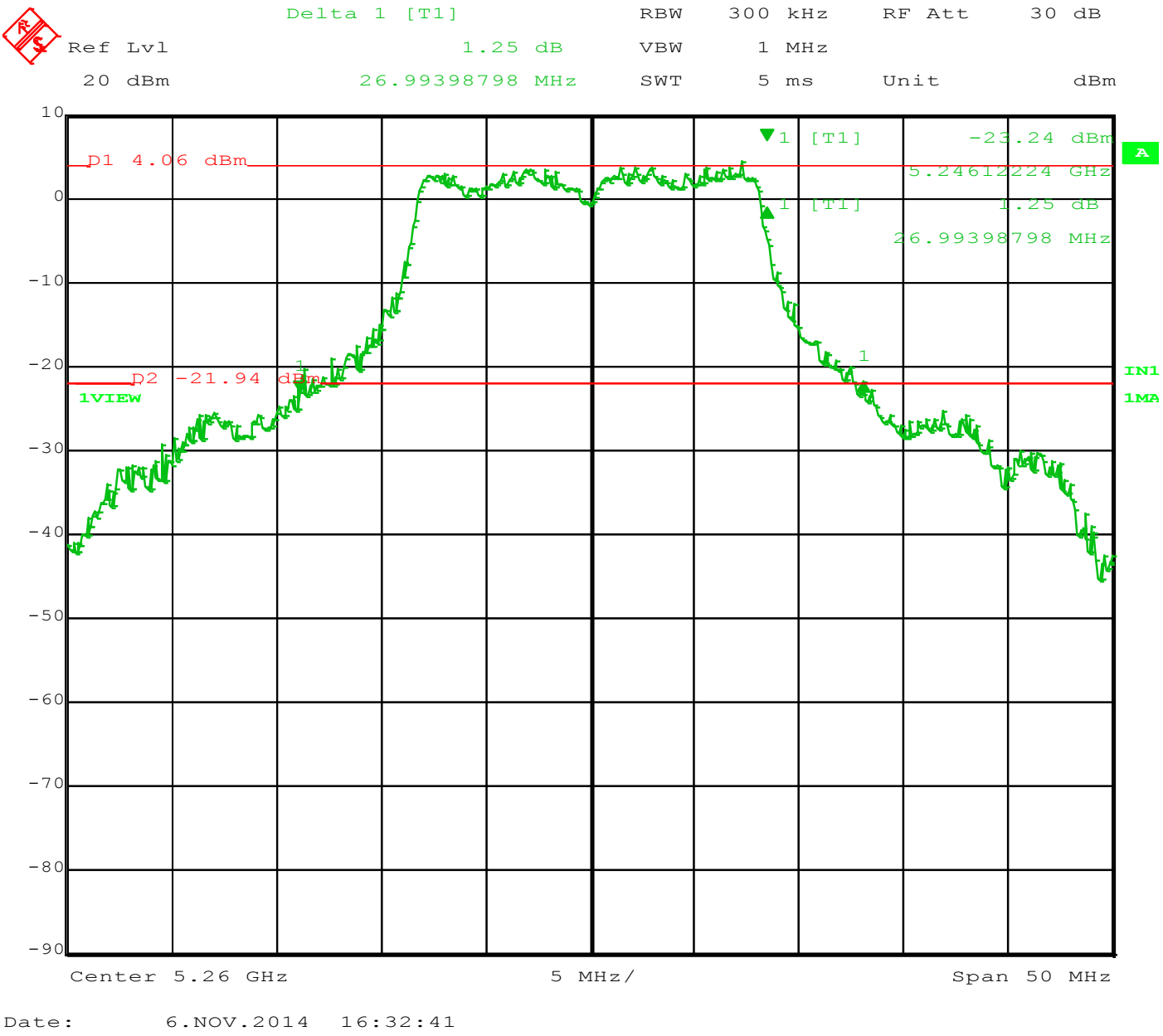


Figure 52 – (-26) dB Bandwidth of EUT operating on Ch 52 at 20 MHz band

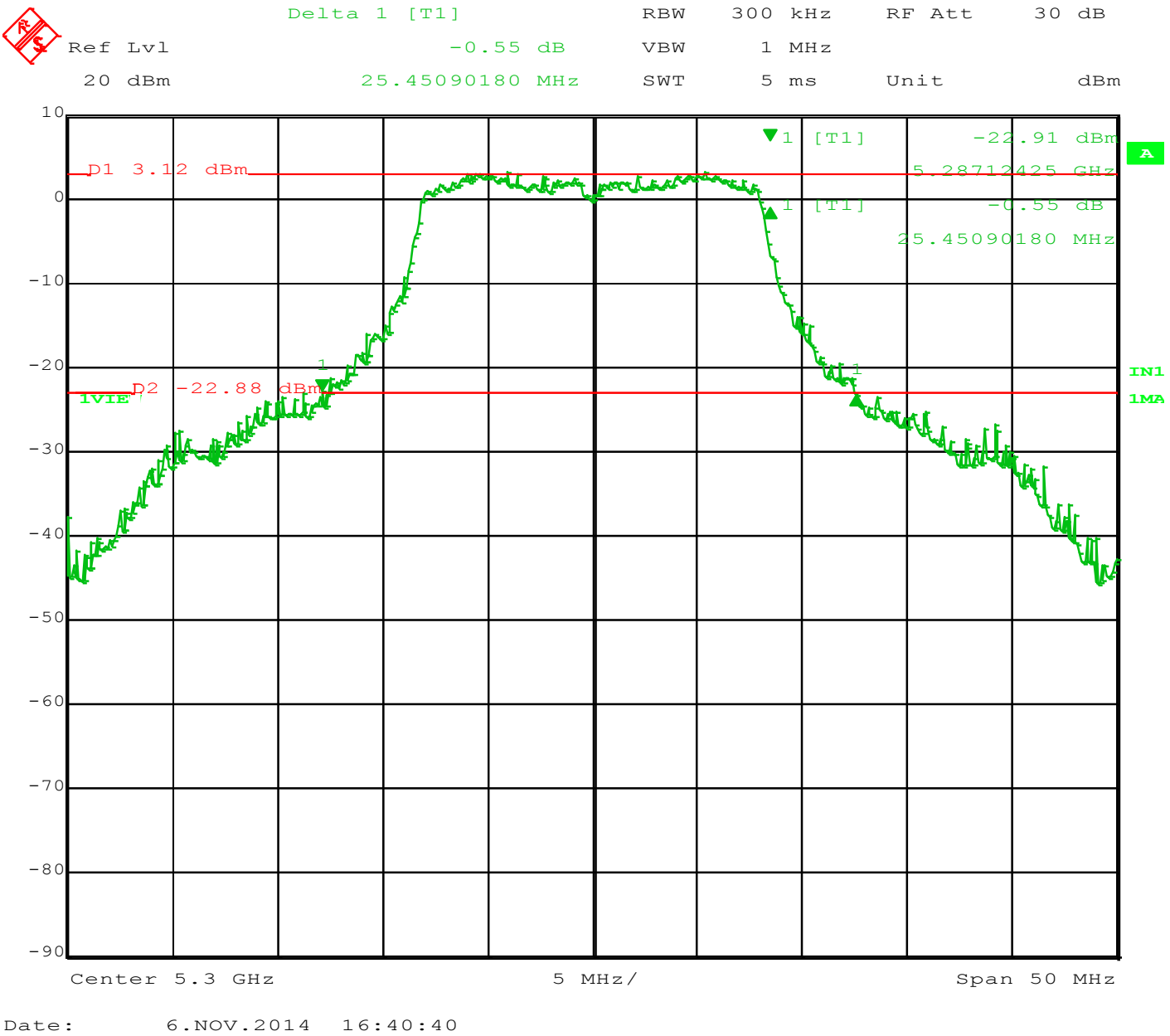


Figure 53 – (-26) dB Bandwidth of EUT operating on Ch 60 at 20 MHz band

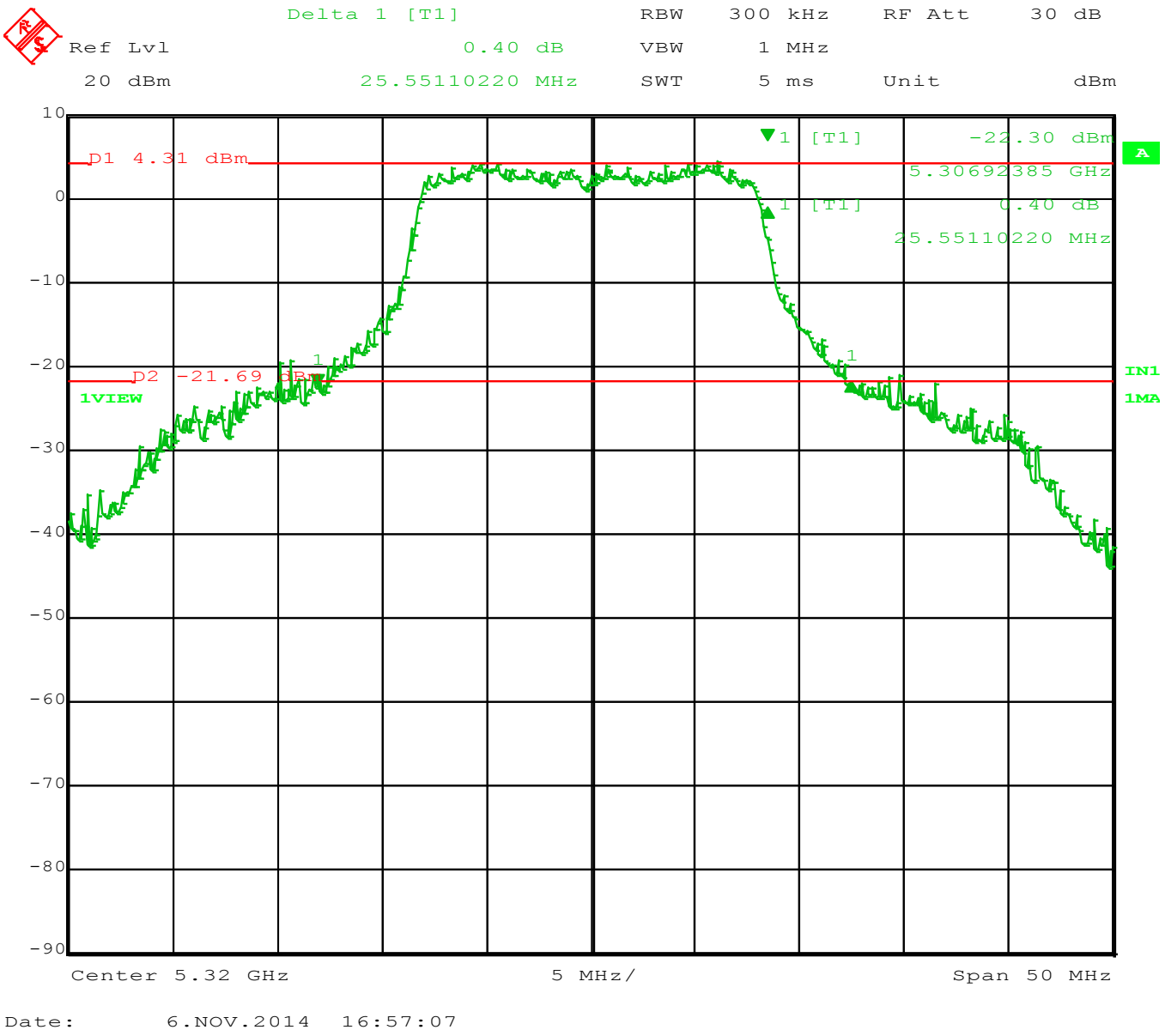


Figure 54 – (-26) dB Bandwidth of EUT operating on Ch 64 at 20 MHz band

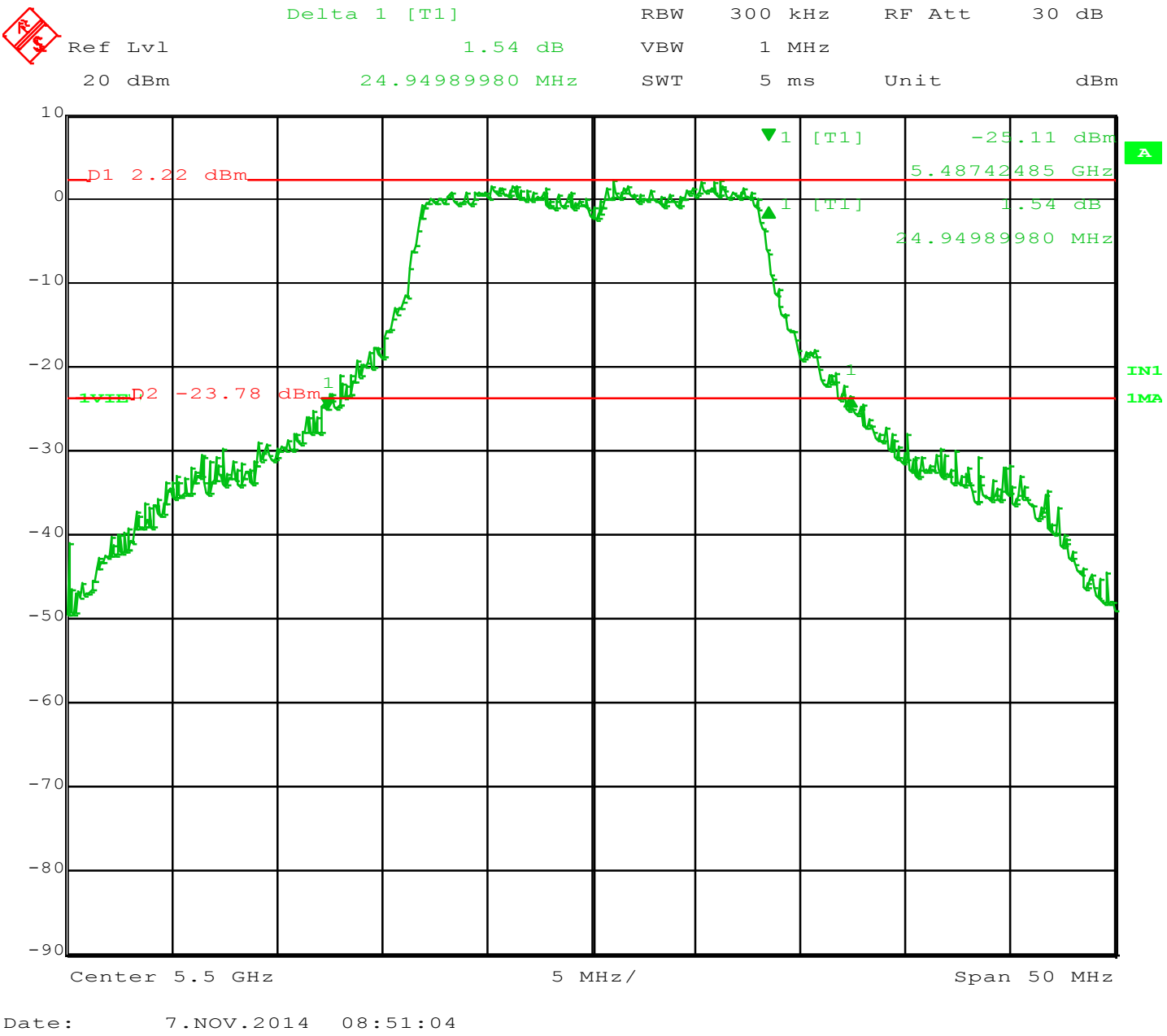


Figure 55 – (-26) dB Bandwidth of EUT operating on Ch 100 at 20 MHz band

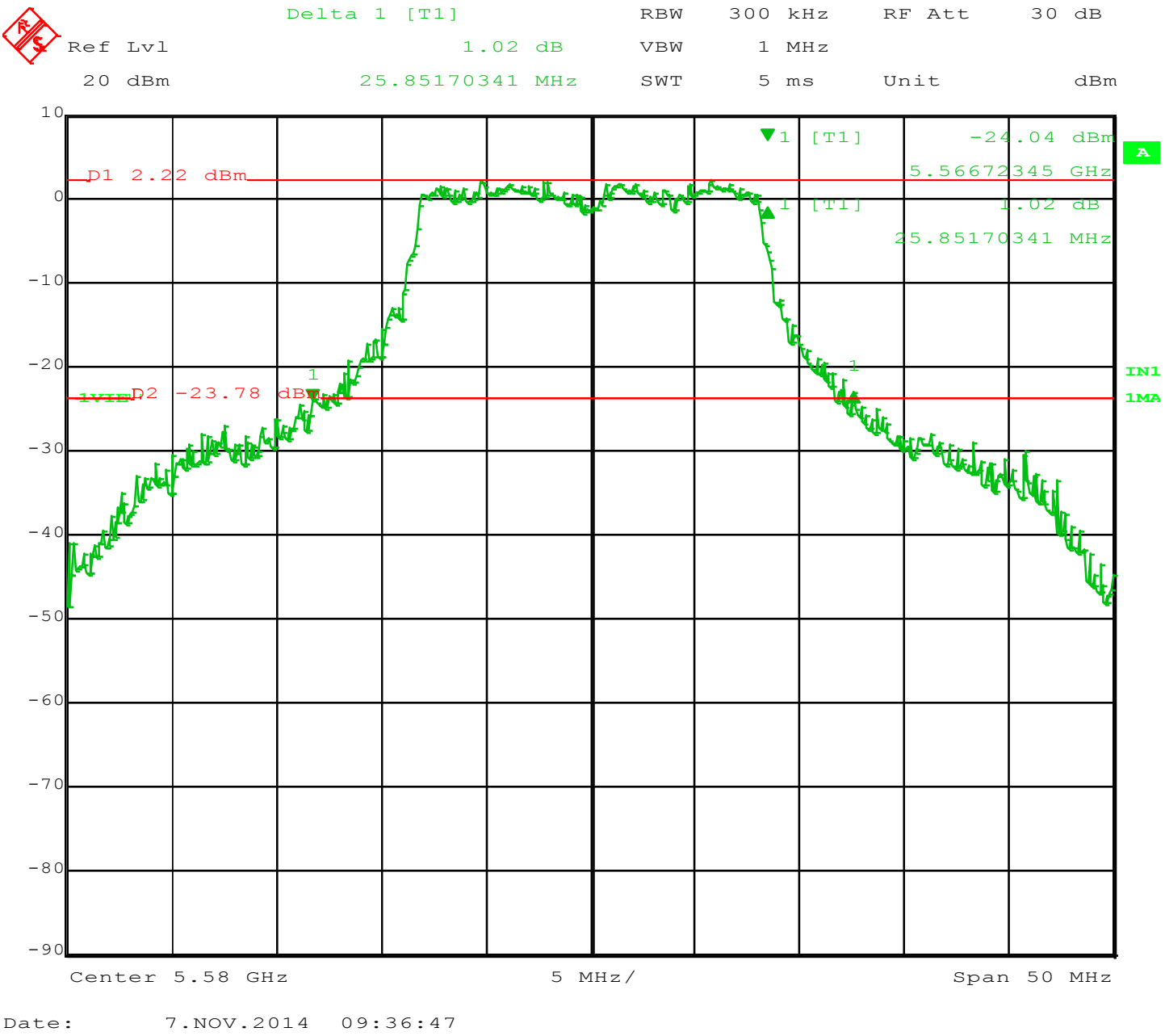


Figure 56 – (-26) dB Bandwidth of EUT operating on Ch 116 at 20 MHz band

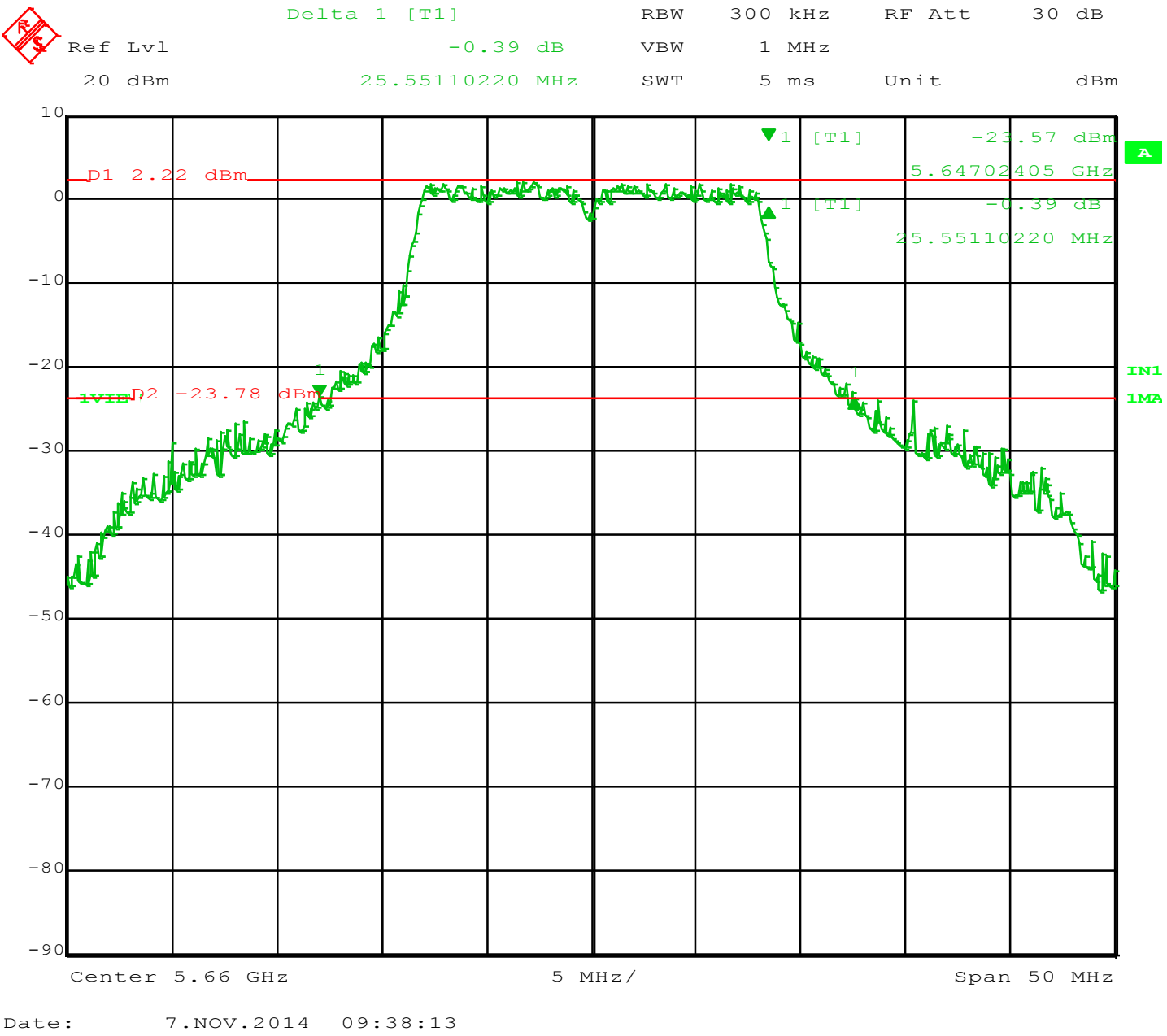


Figure 57 – (-26) dB Bandwidth of EUT operating on Ch 132 at 20 MHz band

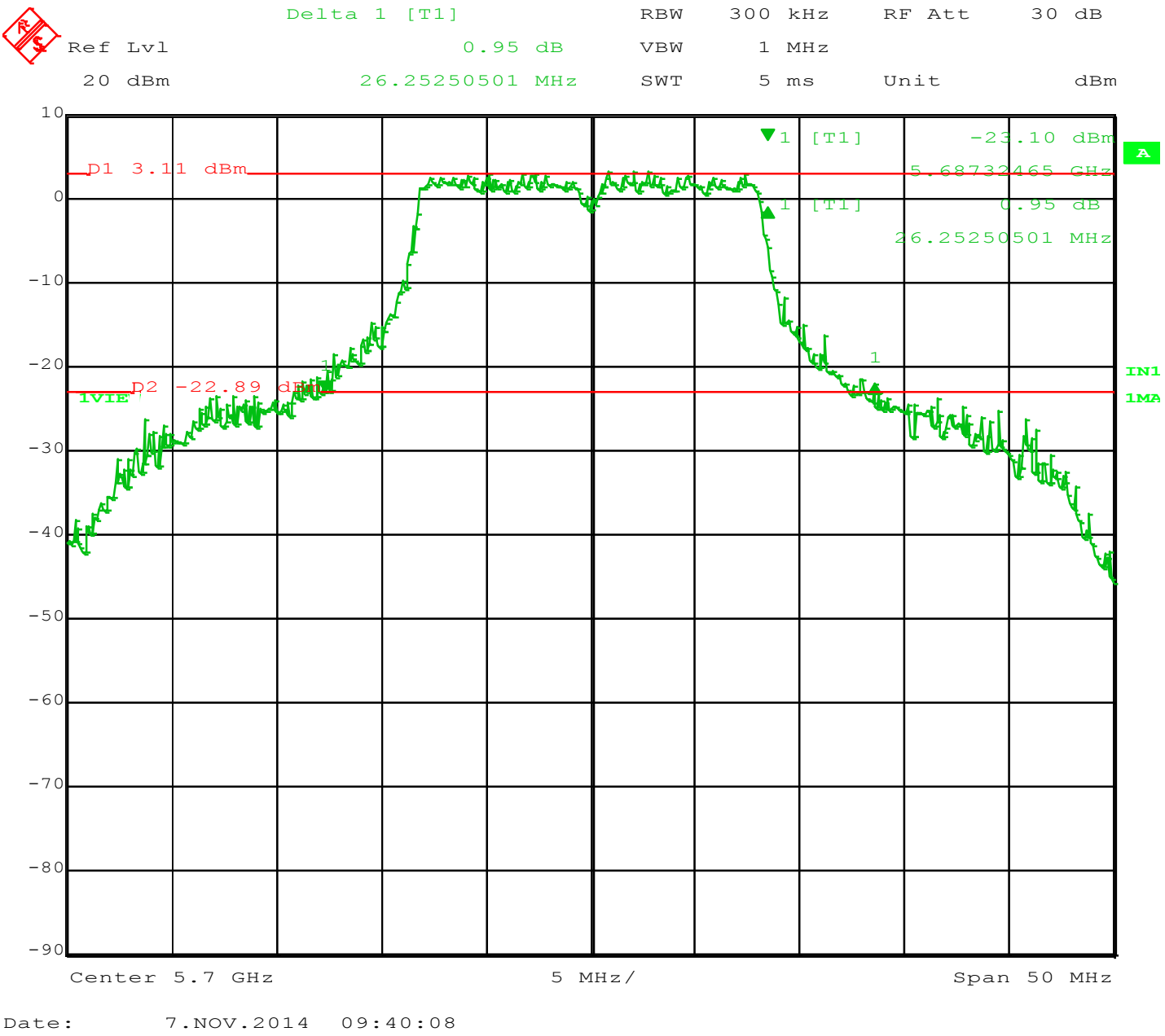


Figure 58 – (-26) dB Bandwidth of EUT operating on Ch 140 at 20 MHz band

4.7.1 Final Test

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

4.8 Antenna Requirements

In accordance with 47 CFR Part 15.203 an intentional radiator shall be designed to ensure that no antenna other then that furnished by the responsible party shall be used with the device.

The following configuration feature assures that only the antenna furnished by Carestream will be used with the associated radio - FCC ID U72DRXPSL and IC: 7027A-DRXPSL.

The Carestream antenna is attached to the DRX Plus Detector (host) with an aggressive pressure sensitive adhesive. The Carestream antenna cannot be removed without extensive damage to the Detector and RF connections to the radio.
The antenna is not a field replaceable component. Replacement of the antenna must be performed in Carestream repair depot by trained personnel.

Ronald L. Cain
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Equipment Compliance & Commercialization
Regulatory Affairs & Quality Systems

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office 585.627.8321 Fax: 585.627.8802

4.9 99% Bandwidth

In accordance with Industry Canada's RSS-210 Issue 8

Multiple chain - 802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	99% BANDWIDTH (MHz)	
		CHAIN(0)	CHAIN(1)
36	5180	17.07	16.73
40	5200	17.07	16.99
48	5240	16.99	16.91
52	5260	17.07	16.91
60	5300	17.07	16.91
64	5320	16.99	16.91
100	5500	16.91	16.83
116	5580	17.15	16.83
132	5660	17.23	16.99
140	5700	17.31	17.47

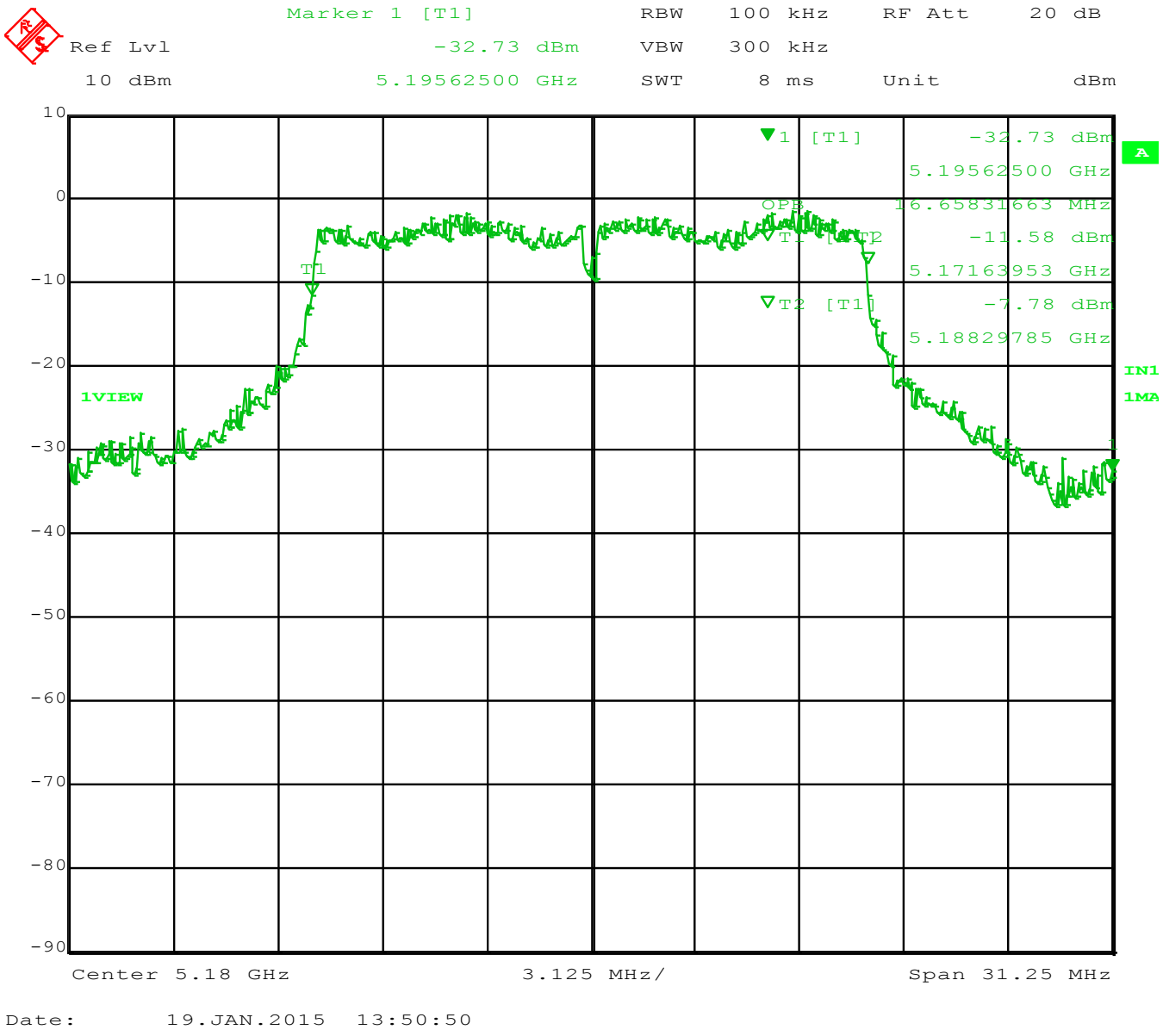

Figure 59 – 99% Bandwidth Ch 36 = 16.65 MHz

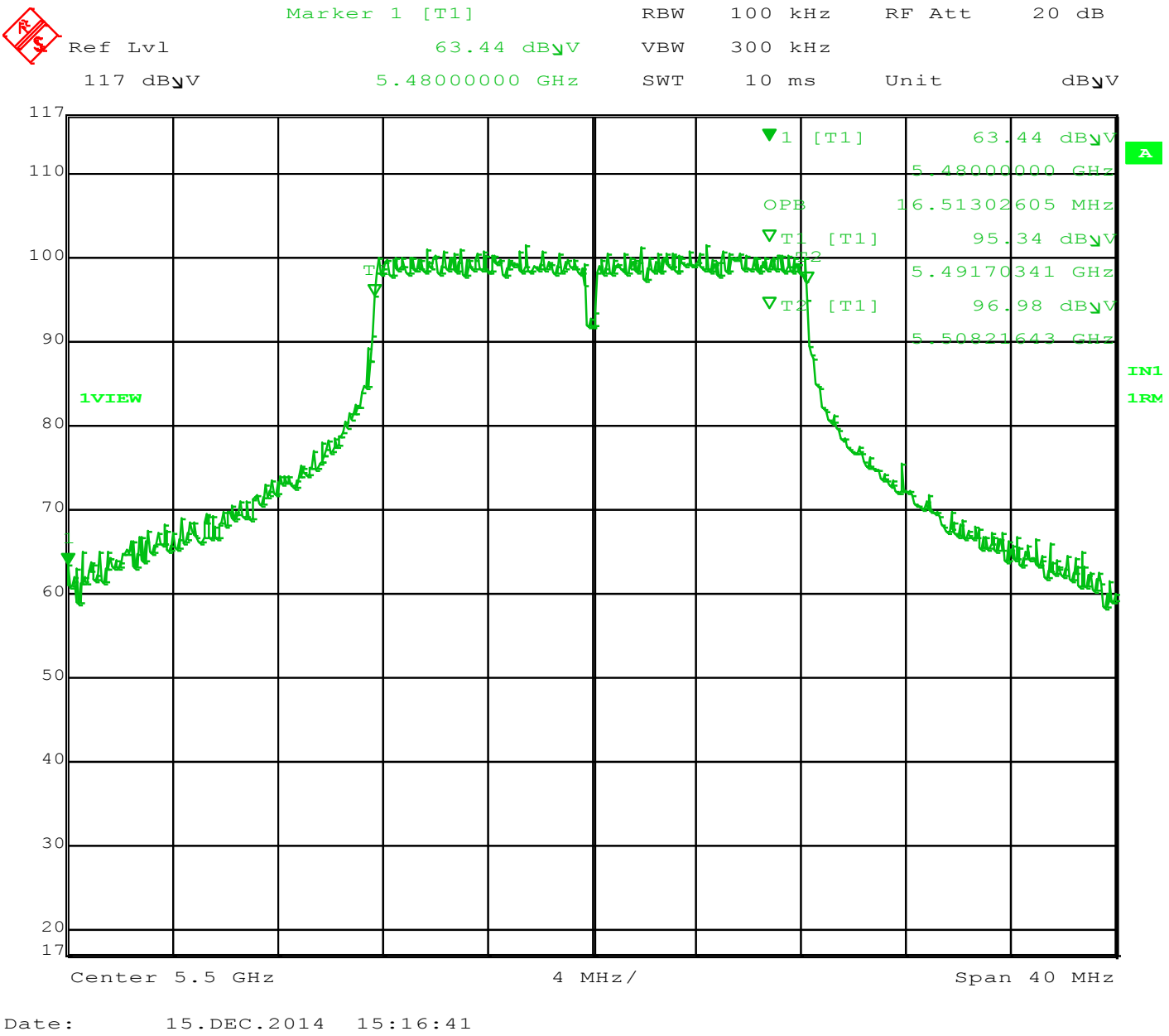

Figure 60 – 99% Bandwidth Ch 100 = 16.513 MHz

4.9.1 Final Test

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

Appendix A

5 Test Plan

This test report is intended to follow this test plan outlined here in unless other wise stated in this here report. The following test plan will give details on product information, standards to be used, test set ups and refer to TUV test procedures. The test procedures will give the steps to be taken when performing the stated test. The product information below came via client, product manual, product itself and or the internet.

5.1 General Information

Client	Carestream Health Inc.
Address	150 Verona St
Address	Rochester NY, 14608
Contact Person	Ronald Cain
Telephone	585-627-8321
Fax	585-477-2718
e-mail	ronald.cain@carestreamhealth.com

5.2 Model(s) Name

DRX Plus Detector Radio

5.3 Type of Product

WiFi Transmitter

5.4 EUT Electrical Powered Information

5.4.1 Electrical Power Type

☐	**AC**	☐	**DC**	☒	**Batteries**	☐	**Host -**

5.5 Electrical Support Equipment

Type	Manufacture	Model	Connected To
Laptop	IBM	Thinkpad T30	Radio

5.6 EUT Test Program

ART2–GUI

Version 2.3

Build Date: 2015/Apr/2

CART

Version 4.6

Build Date 450251