ELECTRONIC SYSTEMS, INC.

166 South Carter, Genoa City, WI 53128

Company:	Wilson Sporting Goods
Model Tested:	MSC1277
Report Number:	23051
DLS Project:	9121

Code of Federal Regulations 47 Part 15 – Radio Frequency Devices

Subpart C – Intentional Radiators
Section 15.247
Operation within the bands 902 - 928 MHz,
2400 - 2483.5 MHz, 5725 - 5875 MHz,
and 24.0 - 24.25 GHz.

THE FOLLOWING **MEETS** THE ABOVE TEST SPECIFICATION

FCC ID: 2AHBQX21FC38

Formal Name:	X100G-Flash Tag
Kind of Equipment:	Wireless sensor recording device. 2402 to
Frequency Range:	2480 MHz
Test Configuration:	Tabletop
Model Number(s):	MSC1277
Model(s) Tested:	MSC1277
Serial Number(s):	GT2382 (conducted), GT2383 (radiated)
Date of Tests:	August 28-30, 2017
Test Conducted For:	Wilson Sporting Goods Co. 8750 W Bryn Mawr Ave Chicago, IL 60631, USA

NOTICE: "This test report relates only to the items tested and must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government". Please see the "Description of Test Sample" page listed inside of this report.

DLS ELECTRONIC SYSTEMS, INC.

166 South Carter, Genoa City, WI 53128

Company:	Wilson Sporting Goods
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SIGNATURE PAGE

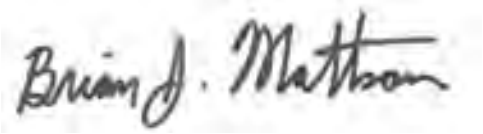
Tested By:

Craig Brandt
Senior Test Engineer

Reviewed By:

William Stumpf
OATS Manager

Approved By:



Brian Mattson
General Manager

DLS ELECTRONIC SYSTEMS, INC.

166 South Carter, Genoa City, WI 53128

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United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 100276-0

D.L.S. Electronic Systems, Inc.
Wheeling, IL

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Electromagnetic Compatibility & Telecommunications

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2016-08-16 through 2017-09-30
Effective Dates

For the National Voluntary Laboratory Accreditation Program

ELECTROMAGNETIC COMPATIBILITY & TELECOMMUNICATIONS

NVLAP LAB CODE 100276-0

Emissions

Designation	***Description***
Off-site test location	D.L.S. Electronics performs radiated emissions testing at an additional location, 166 South Carter Street, Genoa City, WI 53128.

166 South Carter, Genoa City, WI 53128

1.0 Summary of Test Report

It was determined that the Wilson Sporting Goods Co., X100G-Flash Tag, model MSC1277 , complies with the requirements of CFR 47 Part 15 Subpart C Section 15.247.

Subpart C Section 15.247 Applicable Technical Requirements Tested:

Section	Description	Procedure	Note	Compliant?
Informative	Duty Cycle	ANSI C63.10-2013 Section 11.6(b)	1	NA
15.247(a)(2)	DTS Bandwidth	ANSI C63.10-2013 Sections 11.8 & 11.8.1	1	Yes
15.247(b)(3)	Fundamental Emission Output Power	ANSI C63.10-2013 Sections 11.9.1 & 11.9.1.1	1	Yes
15.247(e)	Maximum Power Spectral Density	ANSI C63.10-2013 Sections 11.10 & 11.10.2	1	Yes
15.247(d)	Emissions in Non-Restricted Frequency Bands – RF Conducted	ANSI C63.10-2013 Sections 11.11, 11.11.2 & 11.11.3	1	Yes
15.247(d) 15.205(a) 15.209(a)	Emissions in Restricted Frequency Bands – Radiated	ANSI C63.10-2013 Sections 11.12 & 11.12.1	2	Yes
15.247(d)	Operating Band-Edge Measurements – RF Conducted	ANSI C63.10-2013 Sections 11.11, 11.11.2 & 11.11.3	1	Yes
15.247(d) 15.205(a) 15.209(a)	Restricted Band-Edge Measurements - Radiated	ANSI C63.10-2013 Sections 11.12, 11.12.1 & 11.13.3.4	2	Yes

Note 1: RF conducted measurement.
Note 2: Radiated emission measurement.

2.0 Introduction

During August 28-30, 2017, the X100G-Flash Tag, model MSC1277 , as provided by Wilson Sporting Goods Co. was tested to the requirements of CFR 47 Part 15 Subpart C Section 15.247. To meet these requirements, the procedures contained within this report were performed by personnel of D.L.S Electronic Systems, Inc.

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3.0 Test Facilities

D.L.S. Electronic Systems, Inc. is a full service EMC/Safety Testing Laboratory accredited to ISO 17025. NVLAP Certificate and Scope can be viewed at http://www.dlsemc.com/certificate. Our facilities are registered with the FCC, Innovation Science and Economic Development Canada, and VCCI.

Wisconsin Test Facility:
D.L.S. Electronic Systems, Inc.
166 S. Carter Street
Genoa City, Wisconsin 53128

Wheeling Test Facility:
D.L.S. Electronic Systems, Inc.
1250 Peterson Drive
Wheeling, IL 60090

FCC Registration #90531

4.0 Description of Test Sample

Description:

Unit is a battery powered radio containing a microcontroller and accelerometers. Power is self-contained via internal CR2470 battery.

In end application: DUT interacts with an external BLE master (a pre-certified radio) which controls the operation of the unit. Unit records accelerometer data from on-board accelerometers and transmits the recorded session to the external BLE master.

In test mode: DUT is controlled prior to test by BLE enabled phone. Unit transmits psudo random string constantly on a single channel at a fixed bitrate and fixed output power.

Type of Equipment / Frequency Range:

Hand-Held (portable) / 2402-2480 MHz

Physical Dimensions of Equipment Under Test:

Length: 36 mm, Width: 33 mm, Height: 10 mm

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4.0 Description of Test Sample - continued

Power Source:

3.0 VDC

Internal Frequencies:

64 MHz, 32 MHz, 8 MHz, 4 MHz, 1 MHz, 32.768 kHz

Transmit / Receive Frequencies Used For Test Purpose:

Low channel: 2402 MHz, Middle channel: 2440 MHz, High channel: 2480 MHz

Type of Modulation(s) / Antenna Type:

GFSK Modulation / PCB Trace Antenna

Description of Circuit Board(s) / Part Number:

X100G-Flash Tag	MSC1277

5.0 Test Equipment

A list of the equipment used can be found in the table below. All primary equipment was calibrated against known reference standards with a verified traceable path to NIST.

Radiated 30 – 1000 MHz (Site 2)

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Date	Cal Due Dates
Receiver	Rohde & Schwarz	ESI 40	837808/006	20 Hz – 40 GHz	4-6-17	4-6-18
Preamplifier	Rohde & Schwarz	TS-PR10	032001/004	9 kHz – 1 GHz	12-2-16	12-2-17
Antenna	EMCO	3104C	00054892	20 MHz – 200 MHz	3-11-16	3-11-18
Antenna	EMCO	3146	1205	200 MHz – 1 GHz	3-23-16	3-23-18
Test Software	Rohde & Schwarz	ESK-1	V1.7.1	N/A	N/A	N/A

Radiated 1-18 GHz (Site G1)

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Date	Cal Due Dates
Receiver	Rohde & Schwarz	ESI 40	837808/005	20 Hz – 40 GHz	4-6-17	4-6-18
Preamp	Ciao	CA118-4010	101	1GHz-18GHz	1-9-17	1-9-18
Horn Antenna	Com-Power	AH-118	071127	1-18GHz	9-8-16	9-8-18
Filter- High-Pass	Q-Microwave	100462	2	4.2GHz-18GHz	7-7-17	7-7-18
Test Software	Rohde & Schwarz	ESK-1	V1.7.1	N/A	N/A	N/A

5.0 Test Equipment – continued

Radiated 18-26 GHz (Site 2)

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Date	Cal Due Dates
Receiver	Rohde & Schwarz	ESI 40	837808/006	20 Hz – 40 GHz	4-6-17	4-6-18
Preamp	Miteq	AMF-8B-180265-40-10P-H/S	438727	18GHz-26GHz	5-11-17	5-11-18
Horn Antenna	EMCO	3116	2549	18 – 40GHz	9-2-16	9-2-18
High Pass Filter	K & L	50140 11SH10-18000/T40000-K-K	8	18-40 GHz	1-9-17	1-9-18
Test Software	Rohde & Schwarz	ESK-1	V1.7.1	N/A	N/A	N/A

RF Conducted / Other

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Date	Cal Due Dates
Receiver	Rohde & Schwarz	ESI 40	837808/006	20 Hz – 40 GHz	4-6-17	4-6-18
10 dB attenuator	Narda	4768-10	0702	DC – 40 GHz	5-3-17	5-3-18

6.0 Test Arrangements

Radiated Emissions Measurement Arrangement:

All radiated emission measurements were performed at D.L.S. Electronic Systems, Inc. and set up according to ANSI C63.10-2013, unless otherwise noted. Description of procedures and measurements can be found in Appendix B – Measurement Data. See Appendix A for additional photos of the test set up. See Appendix C for measurement uncertainty.

Unless otherwise noted, the bandwidth of the measuring receiver / analyzer used during testing is shown below.

Frequency Range	Bandwidth (-6 dB)
10 to 150 kHz	200 Hz
150 kHz to 30 MHz	9 kHz
30 MHz to 1 GHz	120 kHz
Above 1 GHz	1 MHz

RF Conducted Emissions Measurement Arrangement:

All RF conducted emission measurements were performed at D.L.S. Electronic Systems, Inc. and set up according to ANSI C63.10-2013, unless otherwise noted. Description of procedures and measurements can be found in Appendix B – Measurement Data. See Appendix A for additional photos of the test set up. See Appendix C for measurement uncertainty.

7.0 Test Conditions

Temperature and Humidity:

74°F at 52% RH unless otherwise noted on test data

Supply Voltage:

3.0 VDC battery

8.0 Modifications Made To EUT For Compliance

Changed power setting in test software from 4 to 0.

9.0 Additional Descriptions

The EUT was programmed for continuous transmission on Low, Mid, and High channels, with a 94.6% duty cycle at a 1 Mbps data rate, and a 89.8% duty cycle at a 2 Mbps data rate.

For radiated emissions, the EUT with was rotated through 3 orthoganal axis to find worst-case.

10.0 FCC 15.31 (e) Supply Voltage Requirement statement

FCC 15.31 (e) - 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.

Compliance Statement: This device complies with the requirements of Part 15.31(e):

☒ This device is battery operated. All tests were performed using a new (or fully charged) battery.

☐ This device provides a constant regulated voltage to the RF circuitry regardless of supply voltage (see schematic diagrams).

☐ This device does not provide a constant regulated voltage to the RF circuitry regardless of supply voltage. Data has been supplied in this test report that supports compliance. Details:

11.0 FCC 15.23 Antenna Requirement statement

SECTION 15.203 ANTENNA REQUIREMENT

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device…. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221.

Statement: This wireless device (Intentional Radiator) meets the requirements of FCC Part 15.203:

☒ The antenna is permanently attached

☐ The antenna has a unique coupling to the intentional radiator.
Description of coupling:

☐ This intentional radiator is professionally installed

☐ This intentional radiator, in accordance with Section 15.31(d), must be measured at the installation site.

12.0 Results

Measurements were performed in accordance with CFR 47 Part 15 Subpart C Section 15.247 and ANSI C63.10-2013. Graphical and tabular data can be found in Appendix B at the end of this report.

13.0 Conclusion

The X100G-Flash Tag, model MSC1277 , as provided by Wilson Sporting Goods Co., tested during August 28-30, 2017 **meets** the requirements of CFR 47 Part 15 Subpart C Section 15.247.

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Appendix B – Measurement Data

B1.0 Duty Cycle during testing

Rule Part: Informative

Test Procedure: ANSI 63.10-2013, section 11.6(b)

Limit: Average emission limits are lowered by the value of the duty cycle correction factor.

Results: 1 Mbps data rate:
Duty Cycle = 94.6%
Duty Cycle Correction = 0.48 dB (for voltage measurements)

2 Mbps data rate:
Duty Cycle = 89.8%
Duty Cycle Correction = 0.93 dB (for voltage measurements)

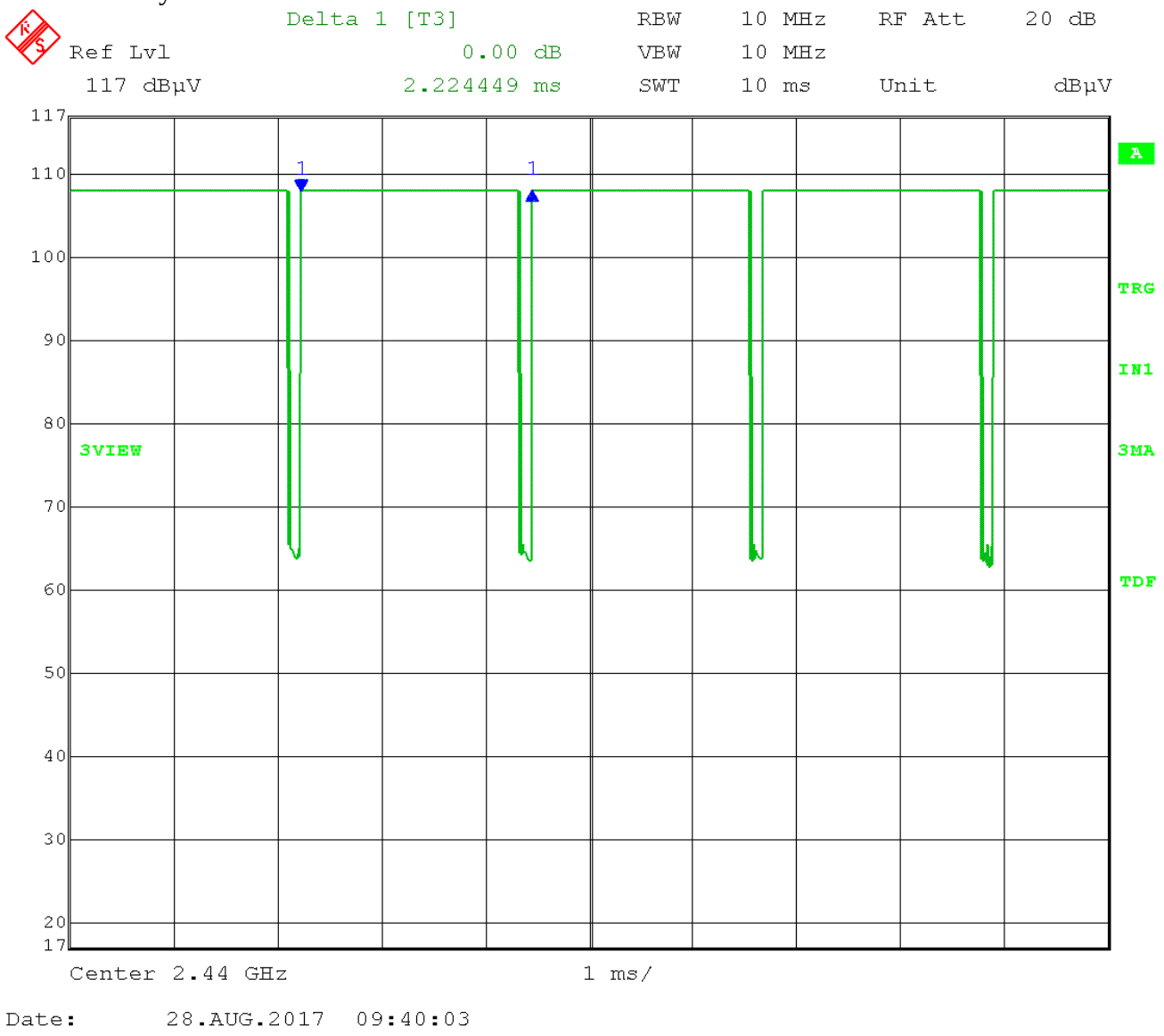
Sample Equations: Total on Time = 2.104208 ms
Total on + off Time = 2.224449 ms
Duty cycle x = (2.104208 ms / 2.224449 ms) = 0.946 = 94.6%
Voltage Duty Cycle Correction Factor = 20 log (1/0.946) = 0.48 dB

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Duty Cycle - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Mid Channel: 2440 MHz

ON + OFF time = 2.224449 ms
Duty cycle x = (2.104208 ms / 2.224449 ms) = 0.946 = 94.6%
Voltage Duty Cycle Correction Factor = 20 log (1/0.946) = 0.48 dB

One cycle: 2.224449 ms



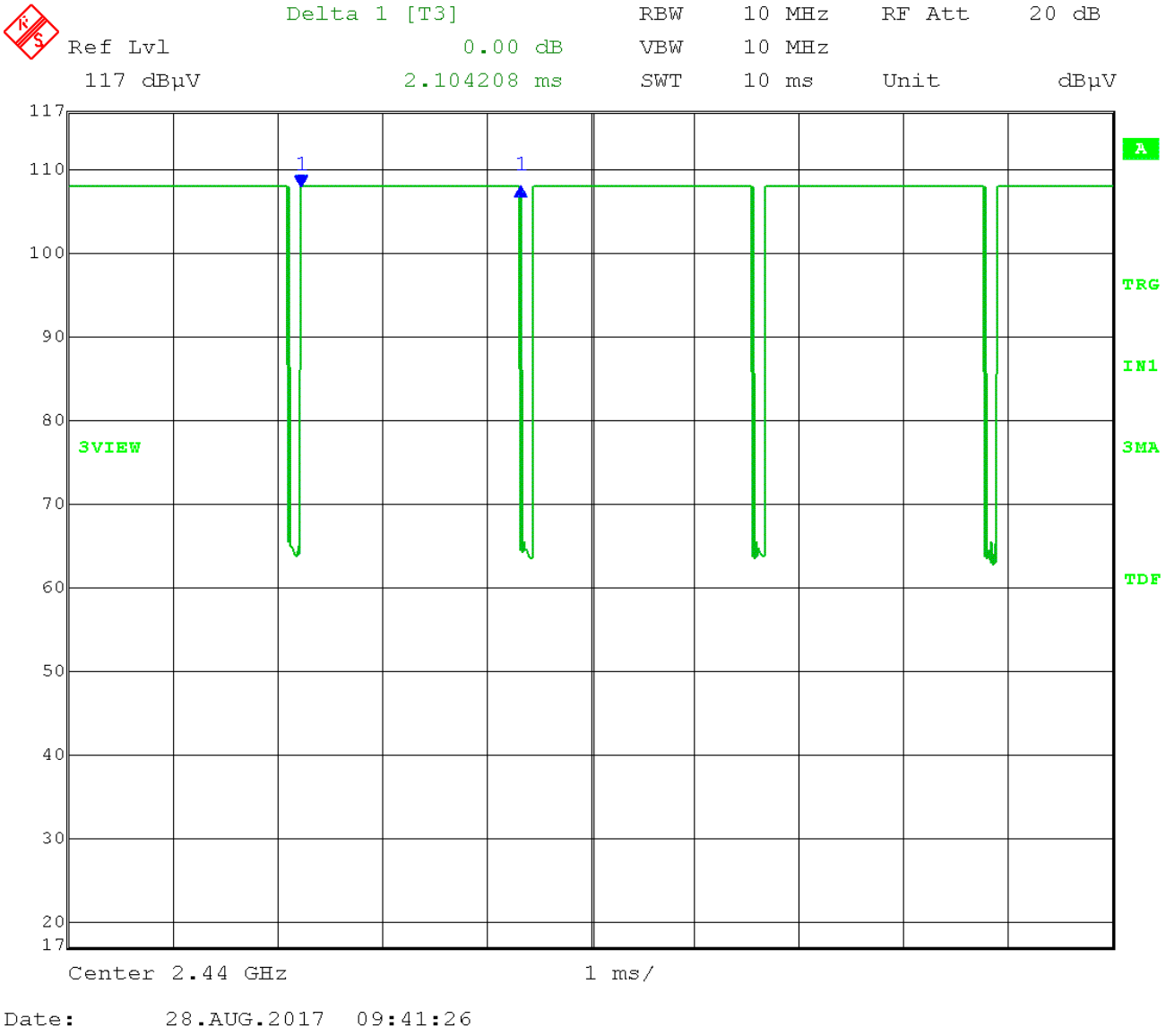
Date: 28.AUG.2017 09:40:03

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Duty Cycle - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Mid Channel: 2440 MHz

ON + OFF time = 2.224449 ms
Duty cycle x = (2.104208 ms / 2.224449 ms) = 0.946 = 94.6%
Voltage Duty Cycle Correction Factor = 20 log (1/0.946) = 0.48 dB

ON time during one cycle = 2.104208 ms



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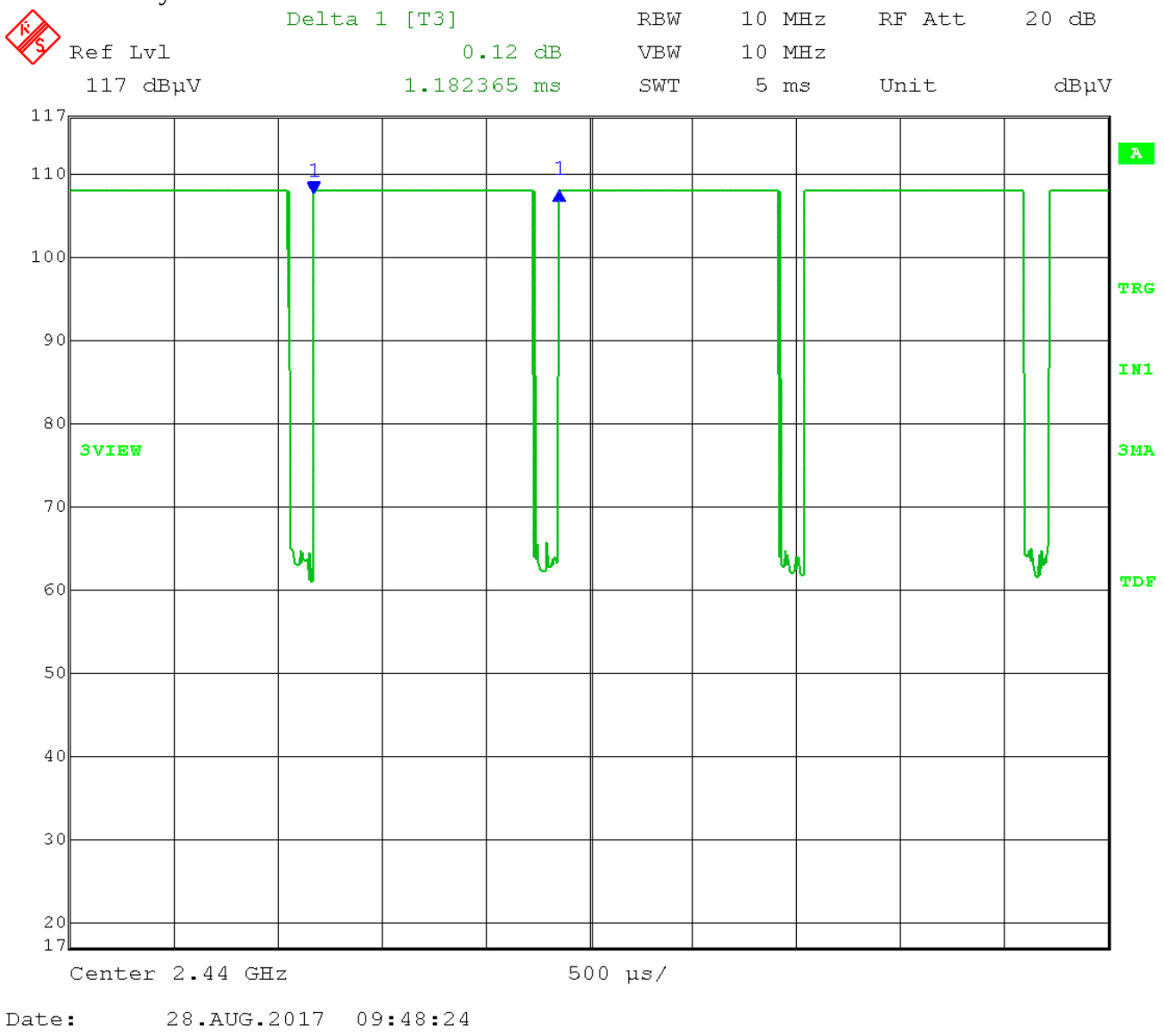
Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Duty Cycle - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Mid Channel: 2440 MHz

ON + OFF time = 2.224449 ms
Duty cycle x = (1.062124 ms / 1.182365 ms) = 0.898 = 89.8%
Voltage Duty Cycle Correction Factor = 20 log (1/0.898) = 0.93 dB

One cycle: 1.182365 ms



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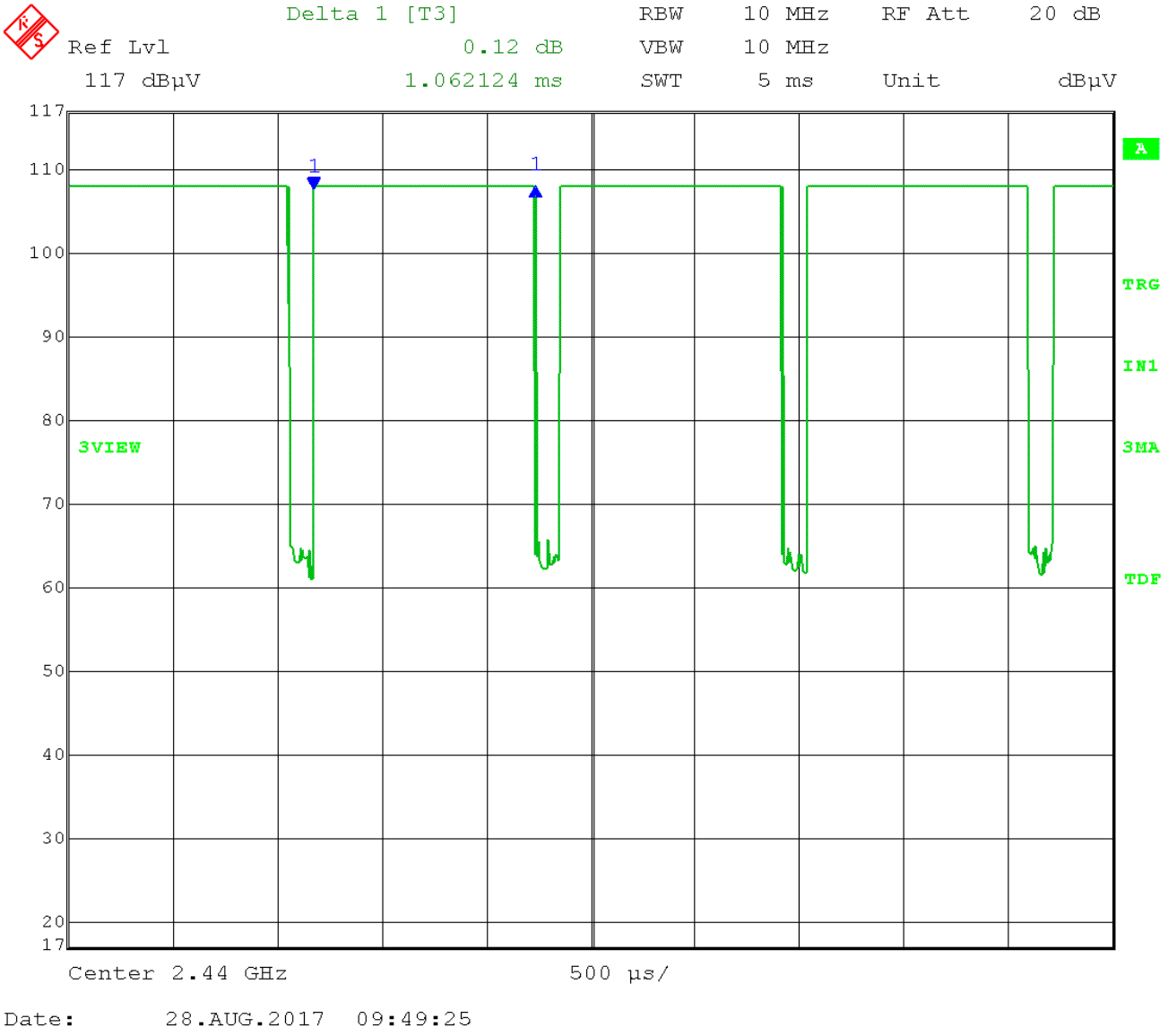
Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Duty Cycle - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Mid Channel: 2440 MHz

ON + OFF time = 2.224449 ms
Duty cycle x = (1.062124 ms / 1.182365 ms) = 0.898 = 89.8%
Voltage Duty Cycle Correction Factor = 20 log (1/0.898) = 0.93 dB

ON time during one cycle = 1.062124 ms



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Appendix B

B2.0 DTS Bandwidth (6 dB bandwidth)

Rule Part: FCC 15.247(a)(2)

Test Procedure: ANSI C63.10-2013, sections 11.8 & 11.8.1

Limit: Minimum 6 dB bandwidth must be at least 500 kHz

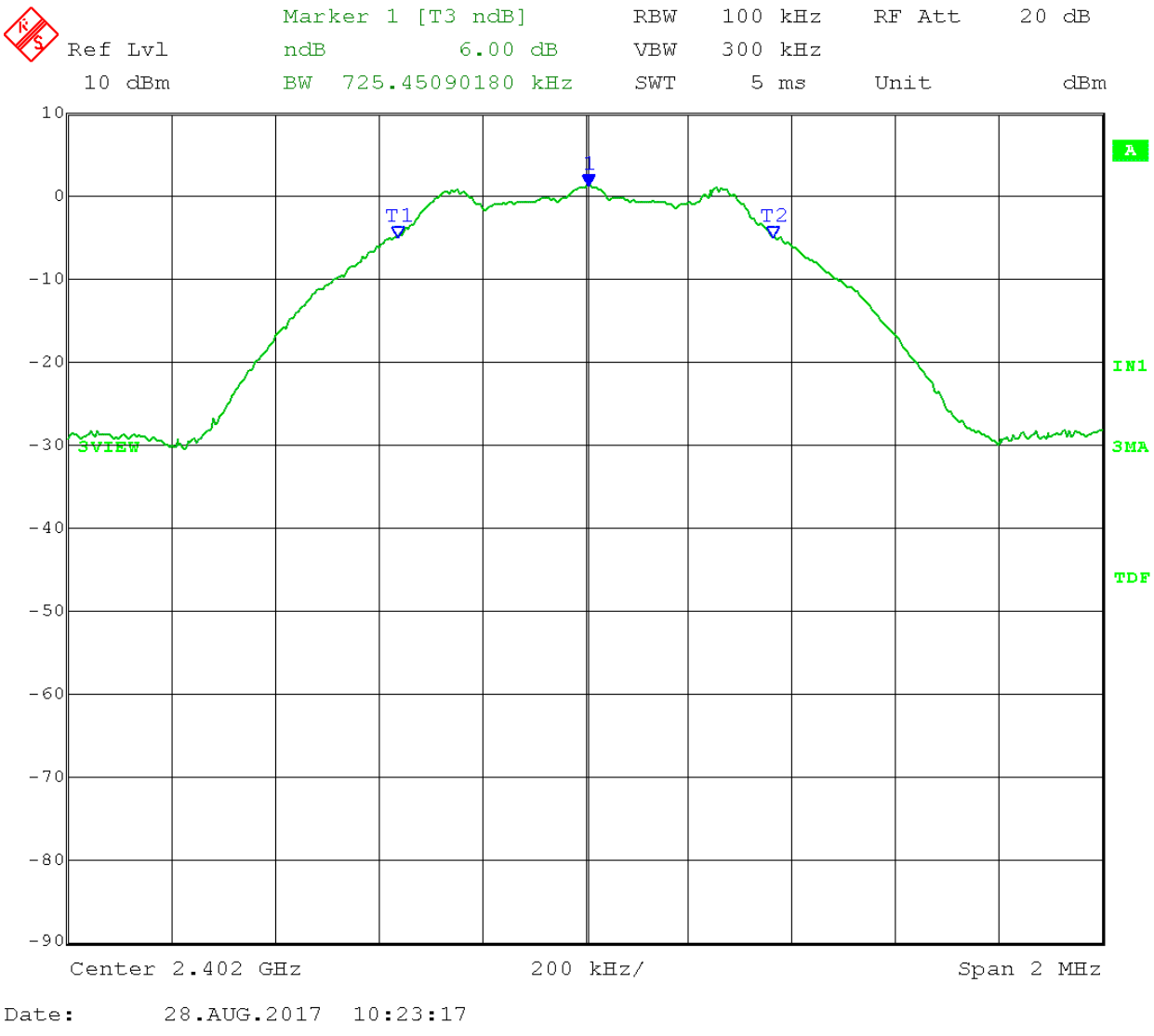
Results: Compliant
Minimum 6 dB bandwidth = 725 kHz

Notes: The EUT was tested at the low, middle, and high channels of operation.
The output power setting was set to 4 for this test.
(The power setting was later changed to 0 meet the radiated restricted band limits.)

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: DTS (6 dB) Bandwidth - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Low Channel: 2402 MHz

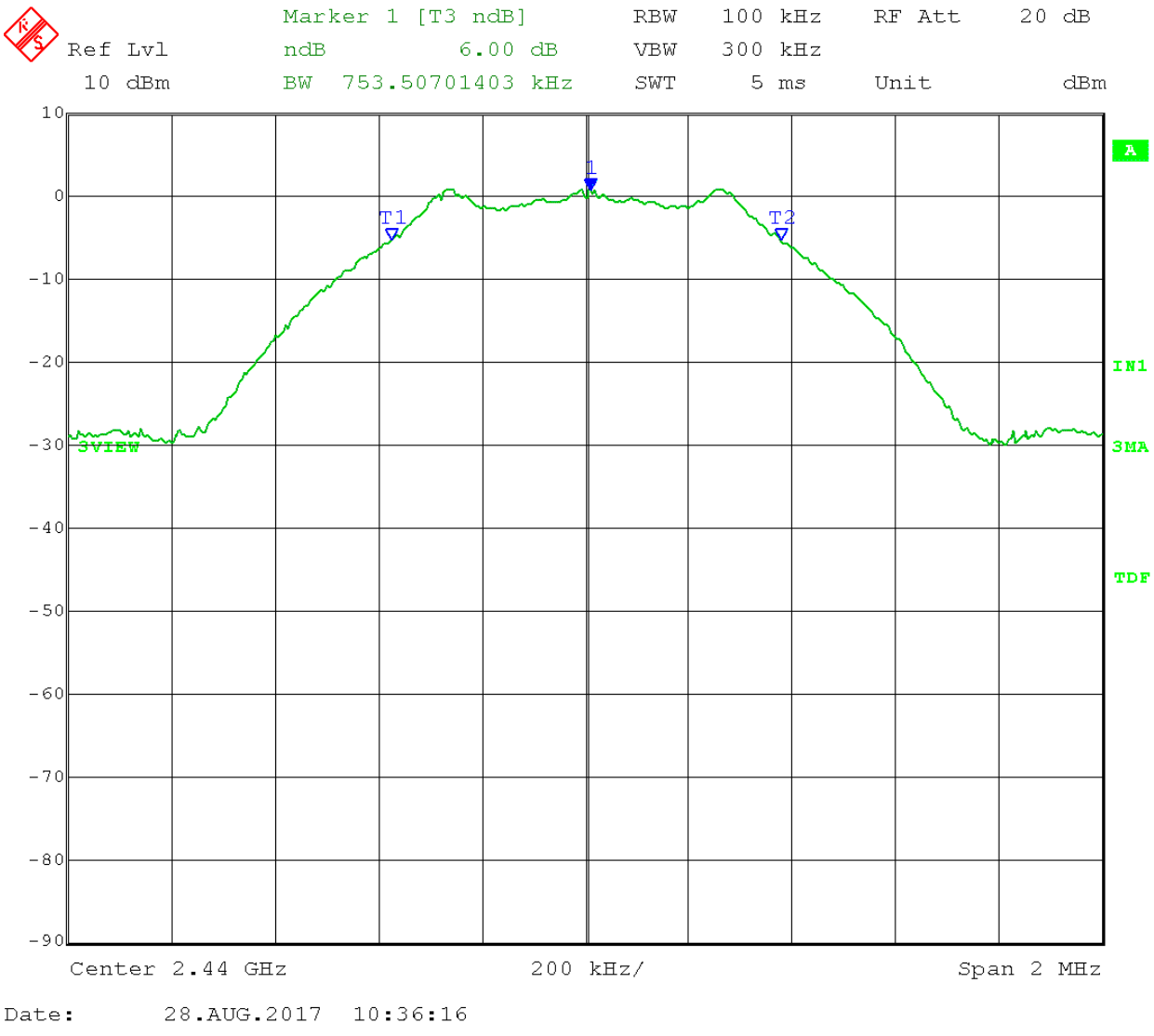
6 dB Bandwidth = 725 kHz



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: DTS (6 dB) Bandwidth - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Mid Channel: 2440 MHz

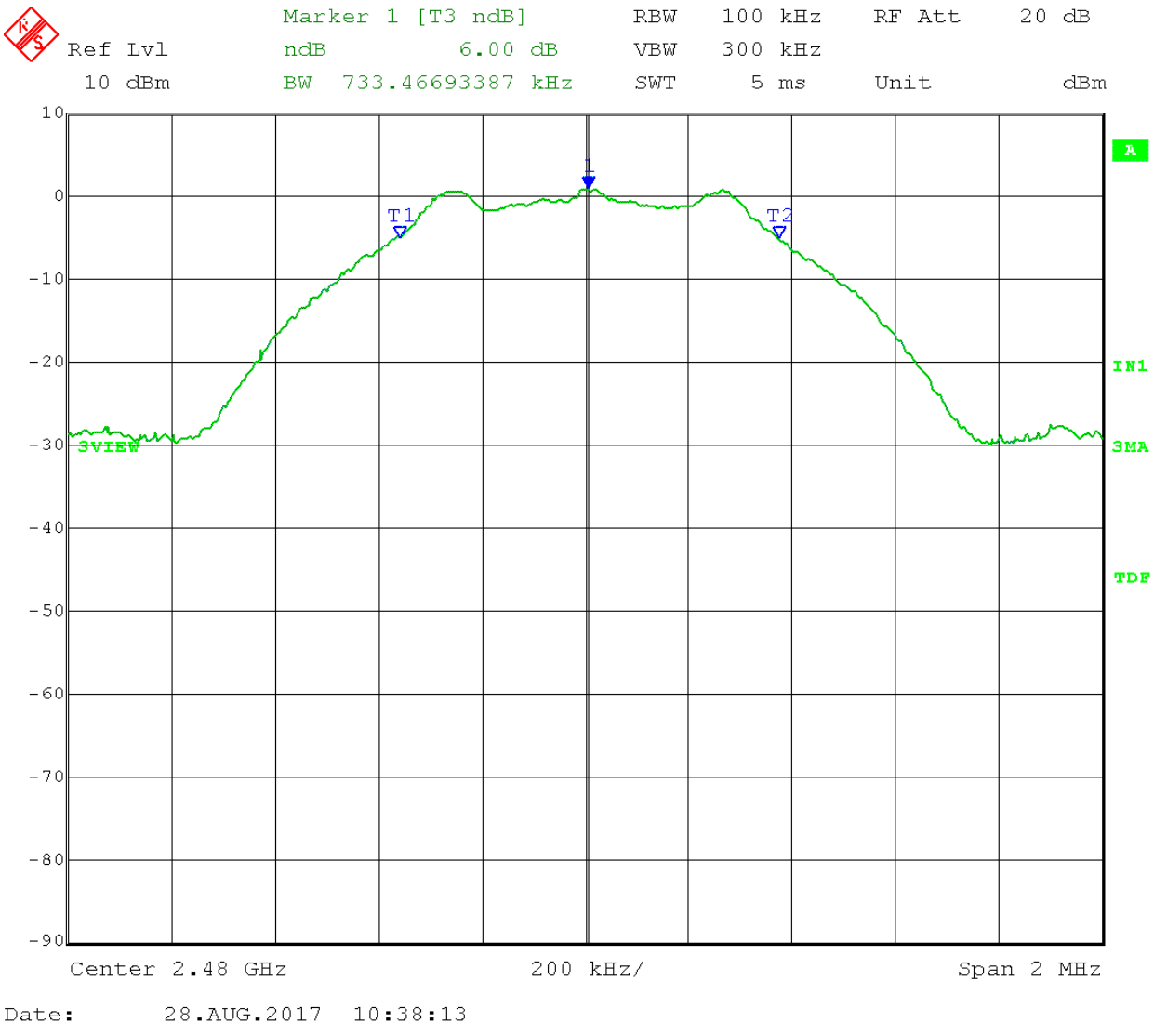
6 dB Bandwidth = 754 kHz



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: DTS (6 dB) Bandwidth - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
High Channel: 2480 MHz

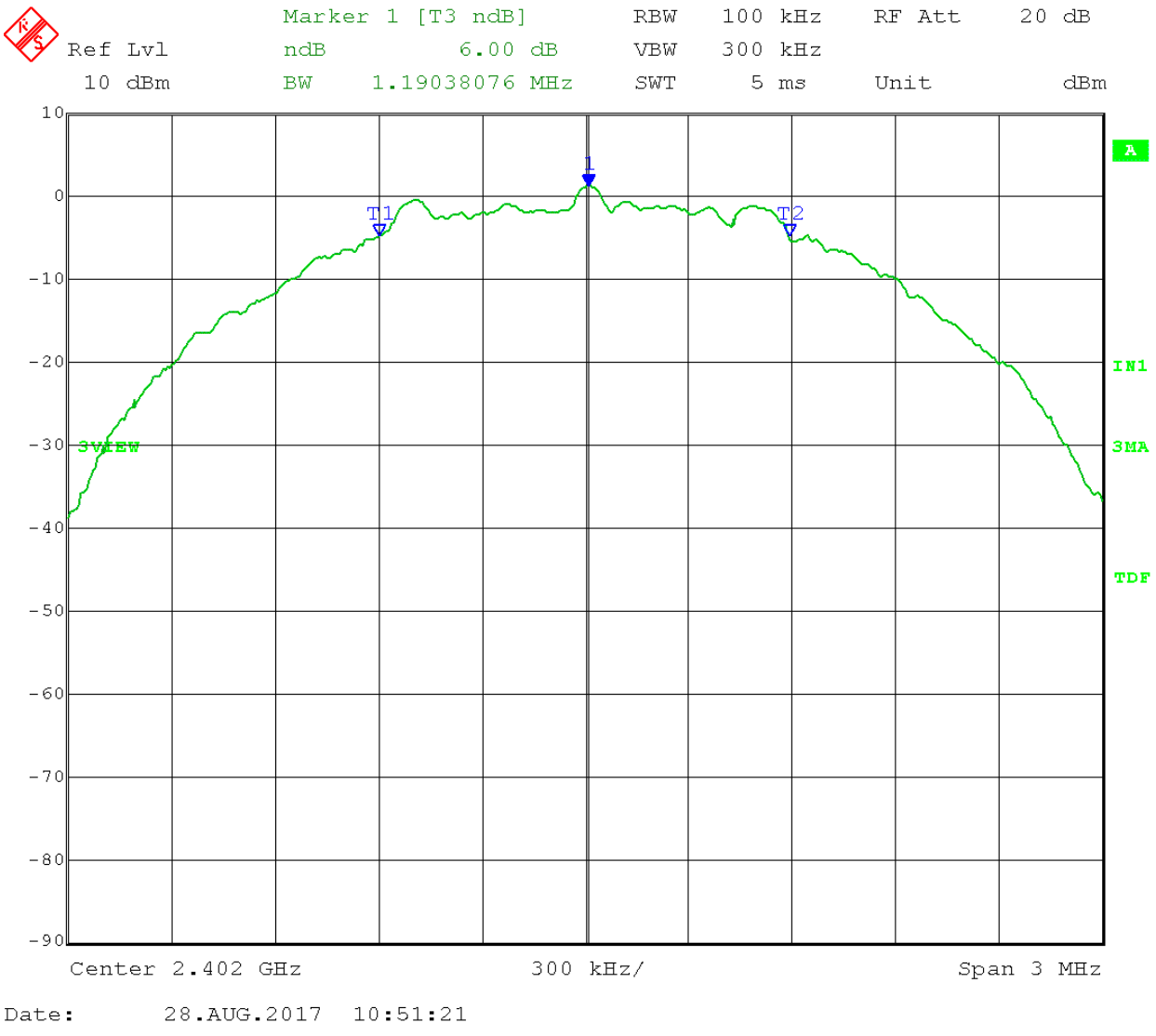
6 dB Bandwidth = 733 kHz



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: DTS (6 dB) Bandwidth - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Low Channel: 2402 MHz

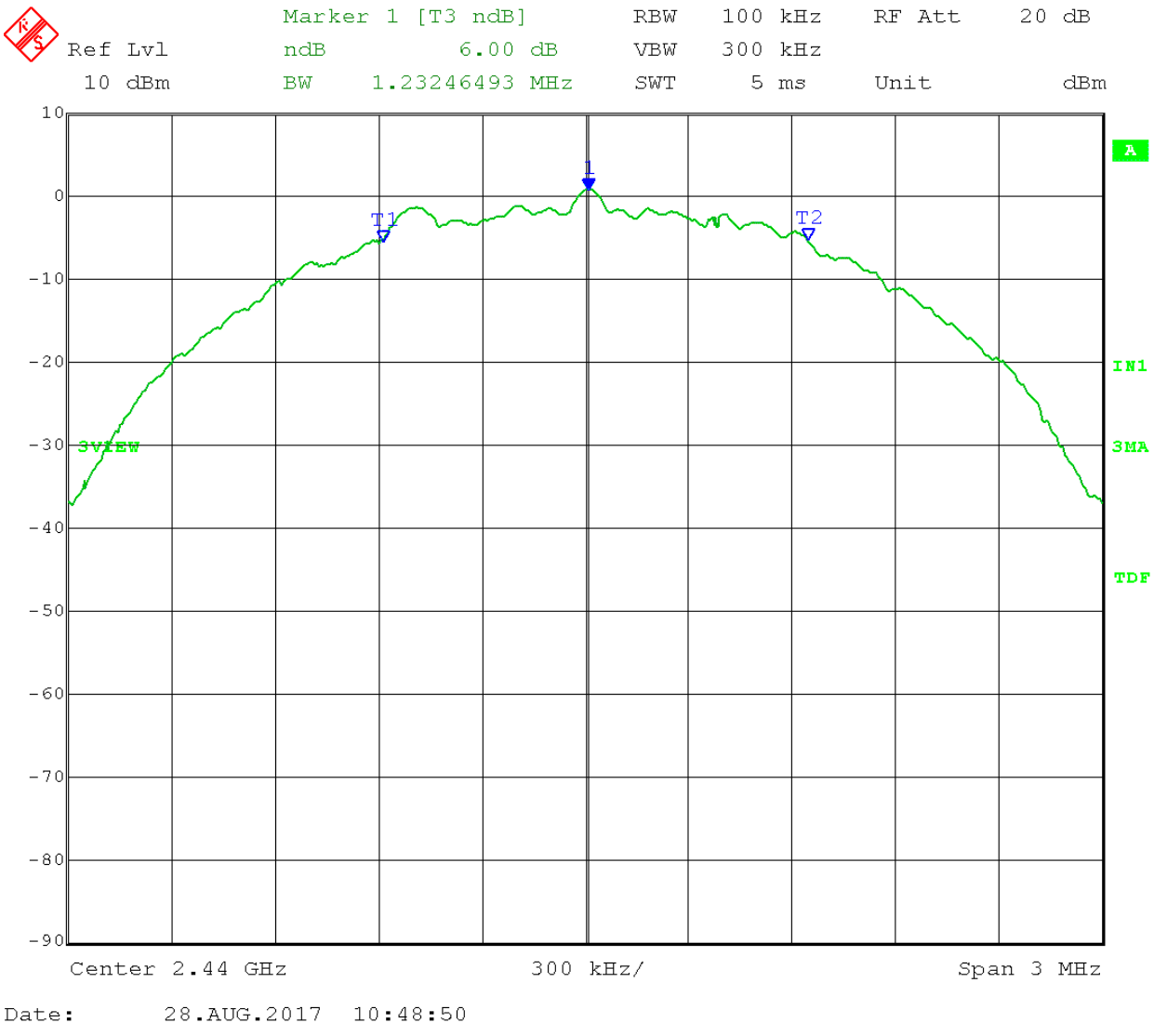
6 dB Bandwidth = 1.19 MHz



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: DTS (6 dB) Bandwidth - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Mid Channel: 2440 MHz

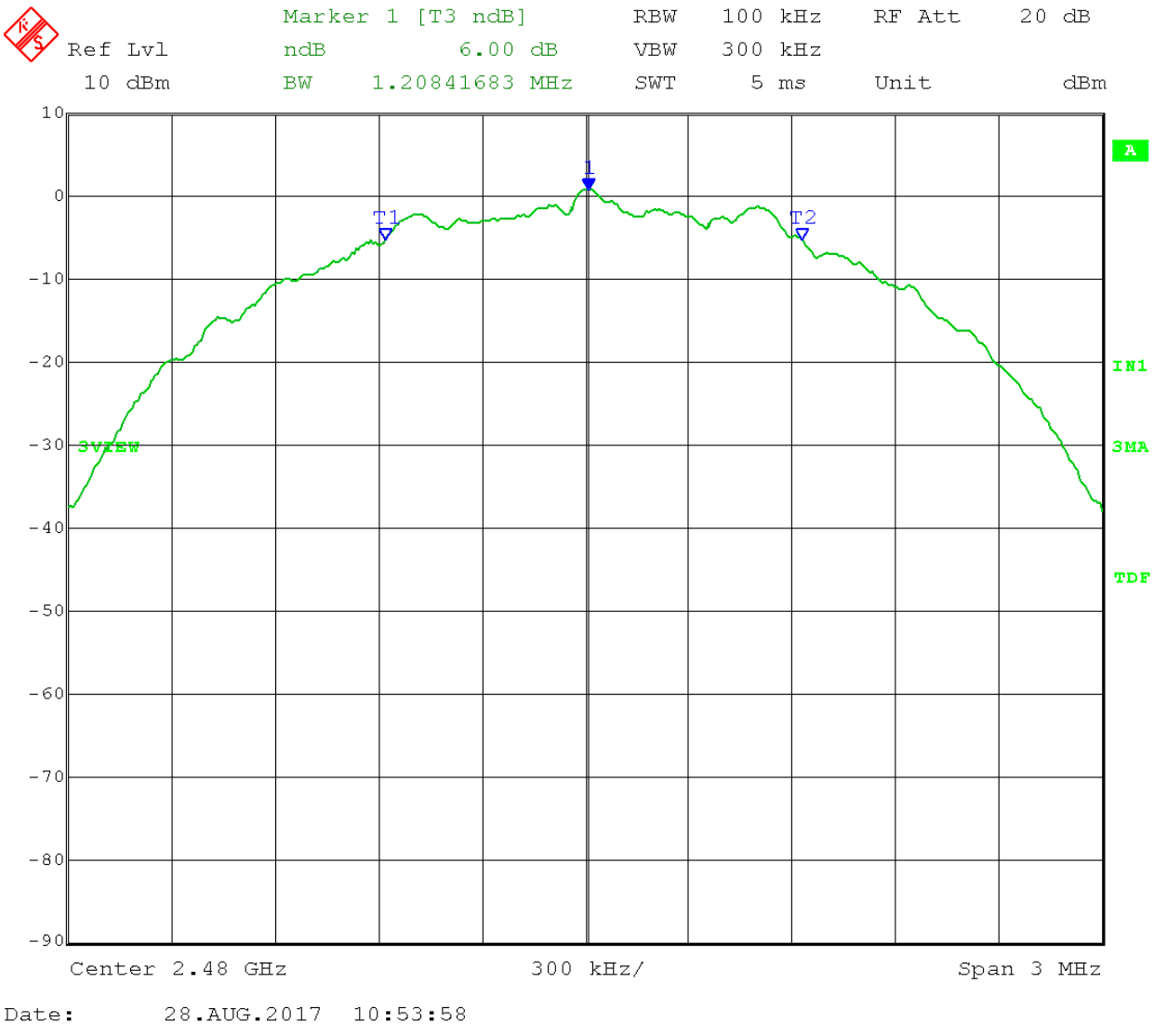
6 dB Bandwidth = 1.23 MHz



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: DTS (6 dB) Bandwidth - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
High Channel: 2480 MHz

6 dB Bandwidth = 1.21 MHz



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Appendix B

B3.0 Output Power – RF conducted

Rule Part: FCC 15.247(b)(3)

Test Procedure: ANSI C63.10-2013, sections 11.9.1 & 11.9.1.1

Limit: 1 Watt

Results: Compliant
Maximum peak conducted output power = -0.79 dBm = 0.834 mW

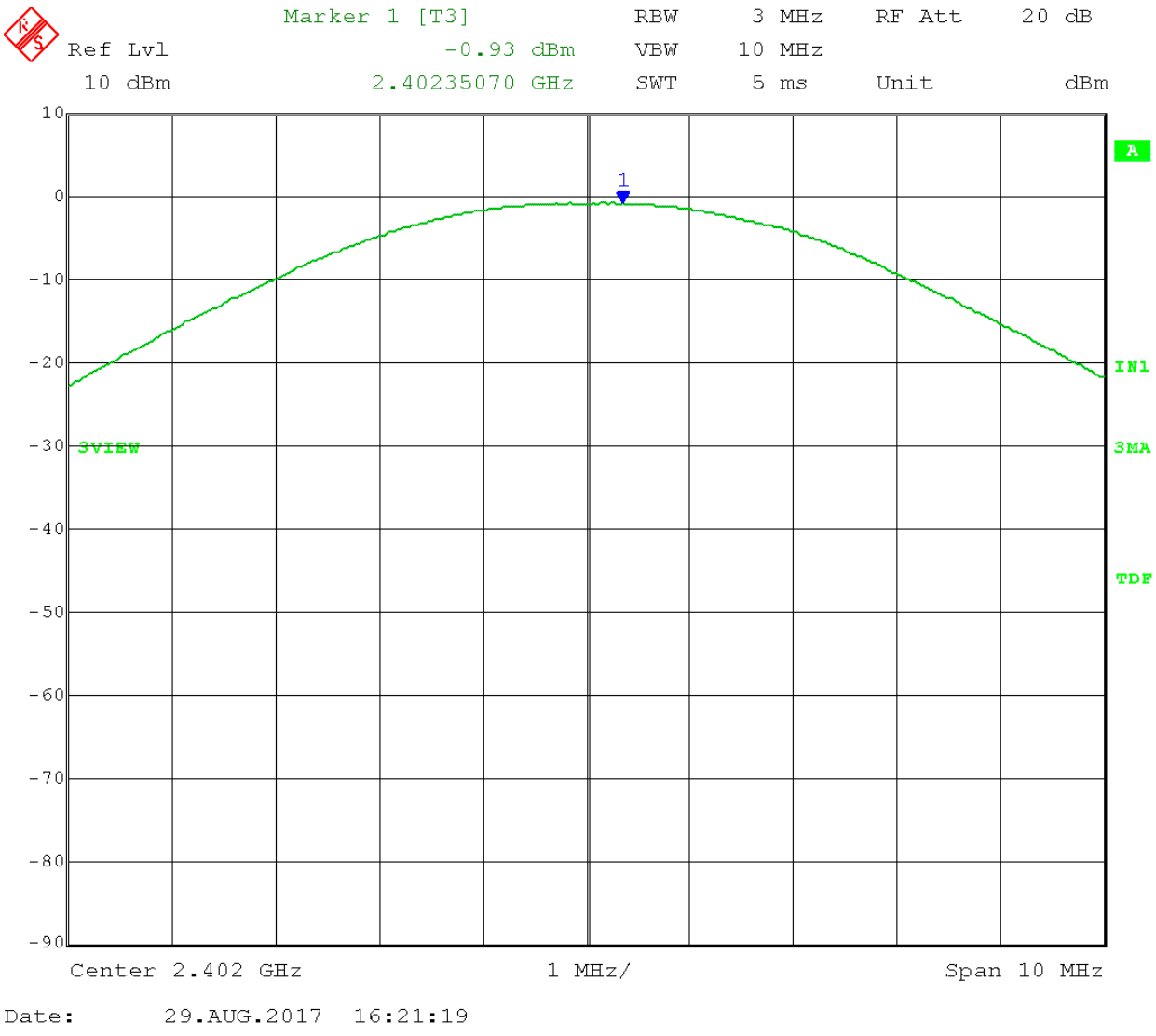
Notes: This was an RF conducted measurement. The EUT was connected to the measuring equipment through a temporary external antenna connector. Cable loss and attenuation were accounted for in the transducer factors set in the analyzer.

The EUT was tested at the low, middle, and high channels of operation. The output power setting was set to 0 for this test. Peak Output power was measured with a spectrum analyzer.

Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Output power - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Low Channel: 2402 MHz

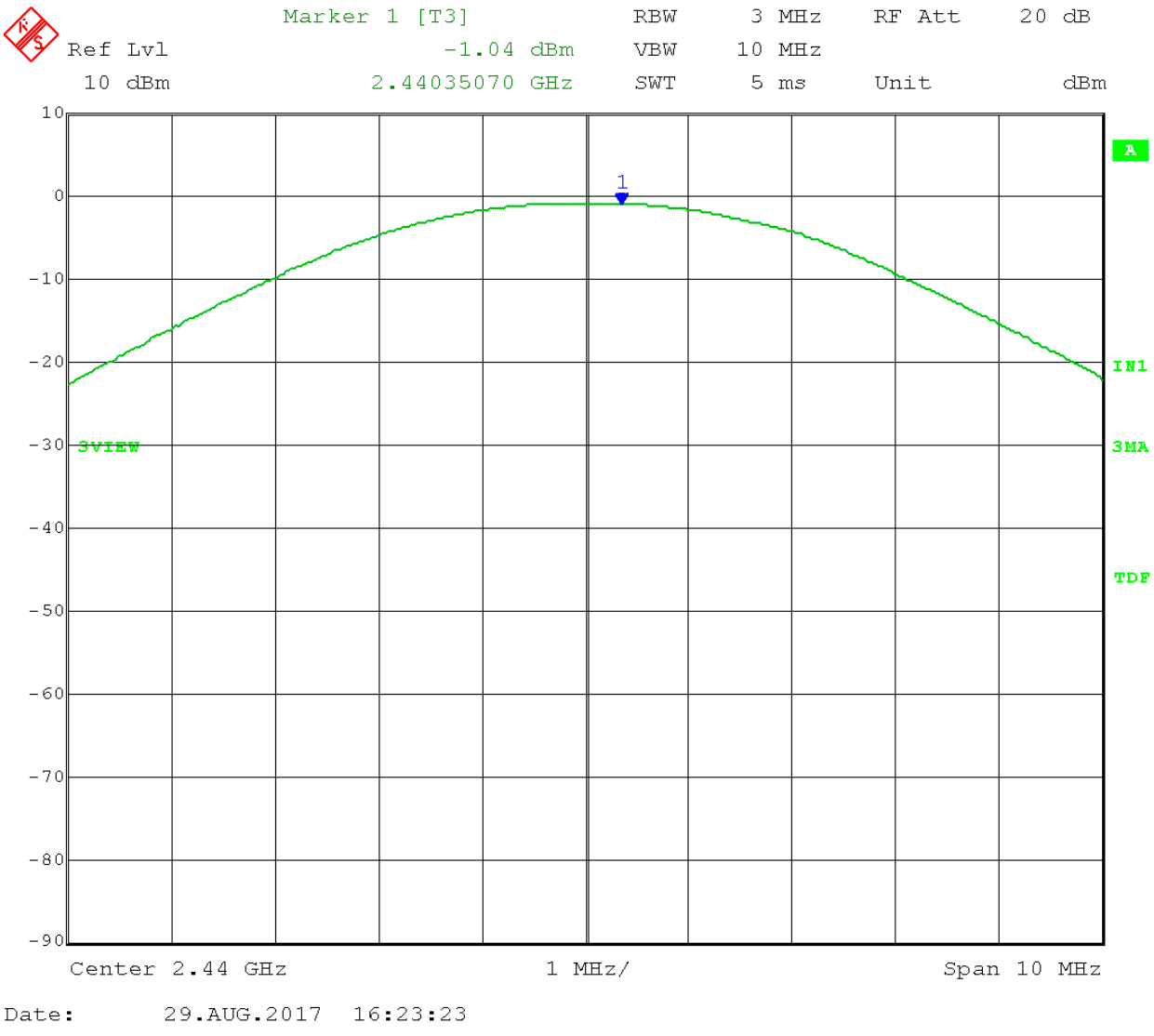
Peak Output Power = -0.93 dBm = 0.807 mW



Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Output power - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Mid Channel: 2440 MHz

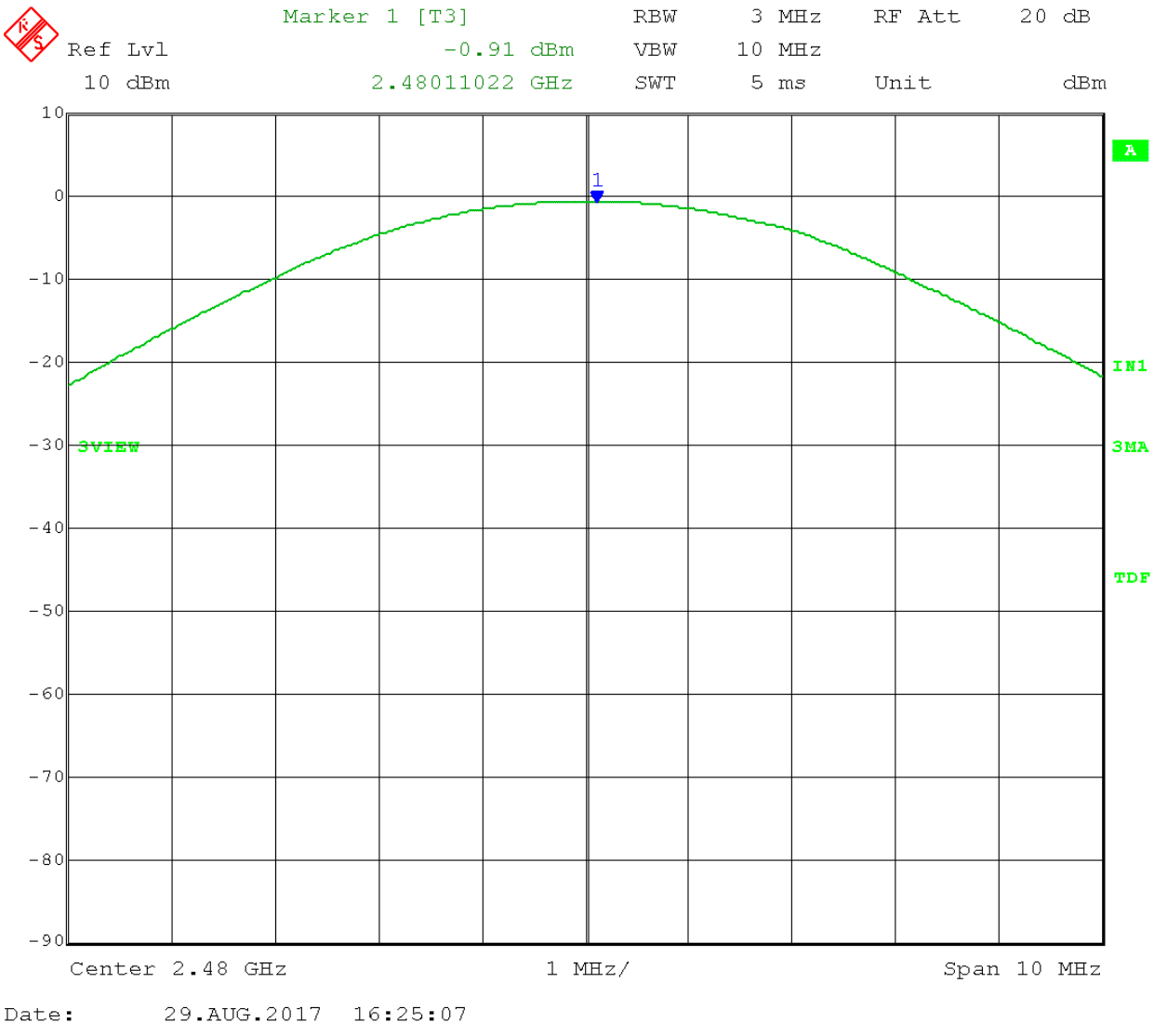
Peak Output Power = -1.04 dBm = 0.787 mW



Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Output power - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
High Channel: 2480 MHz

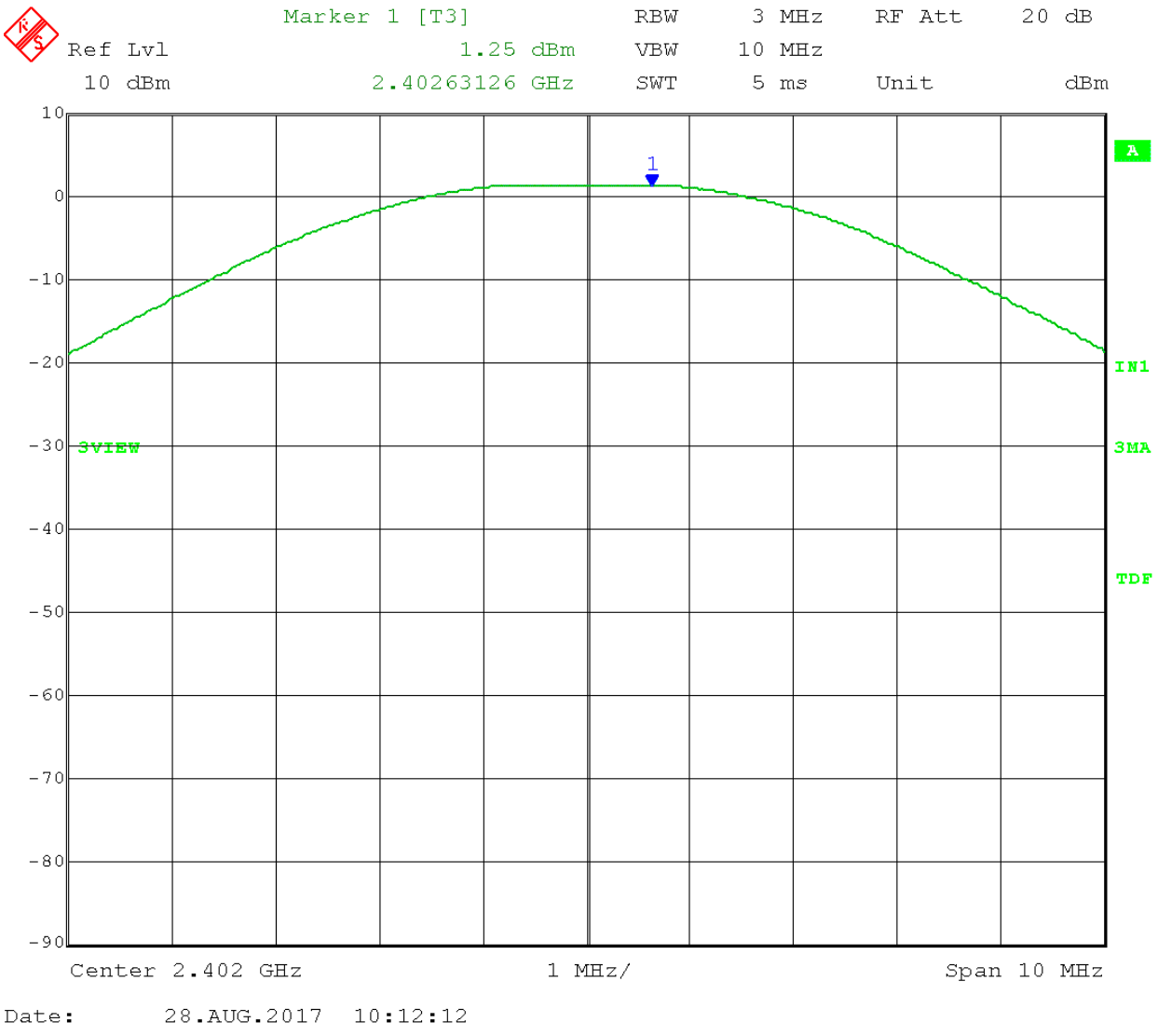
Peak Output Power = -0.91 dBm = 0.811 mW



Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Output power - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Low Channel: 2402 MHz

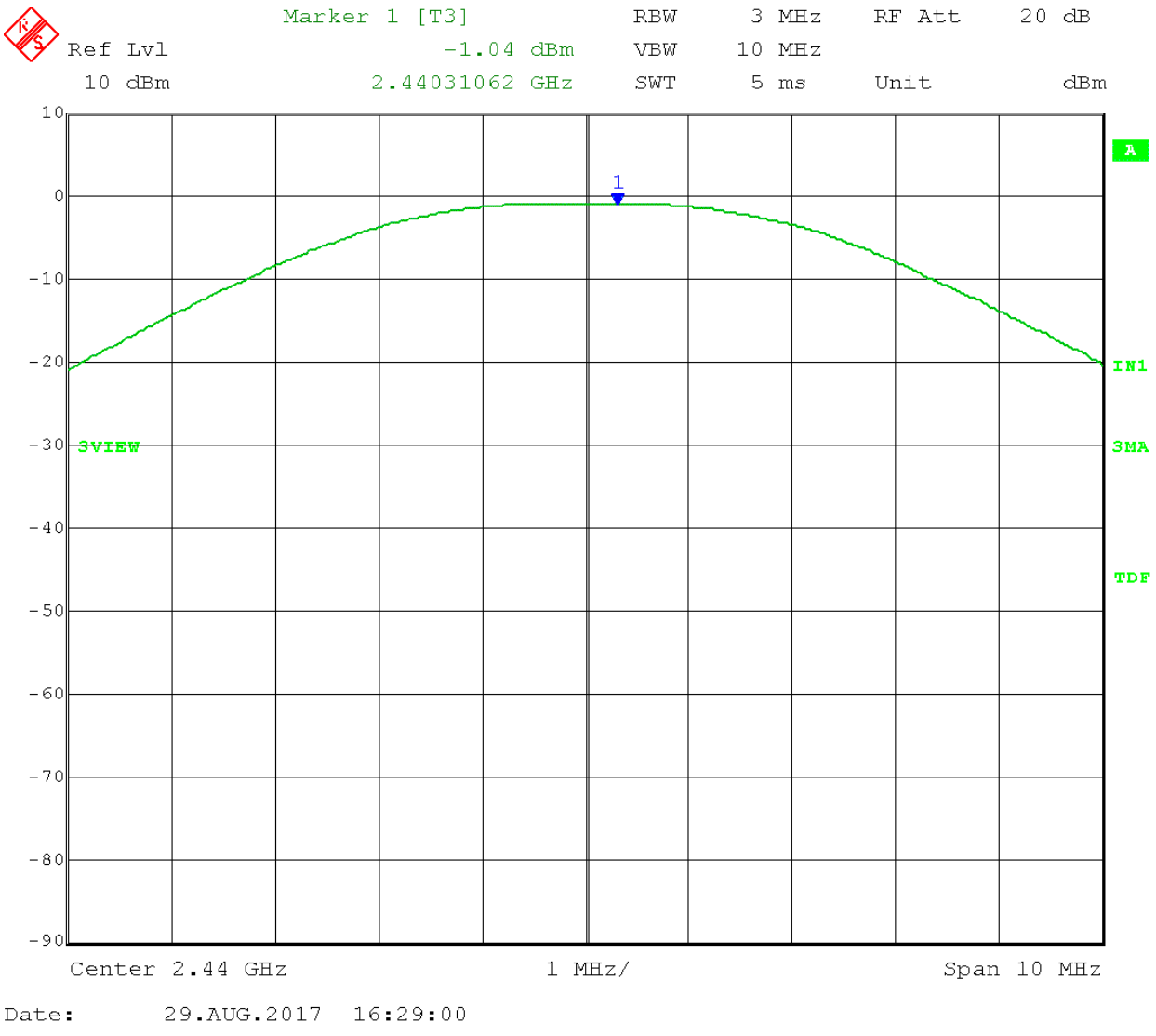
Peak Output Power = -0.93 dBm = 0.807 mW



Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Output power - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Mid Channel: 2440 MHz

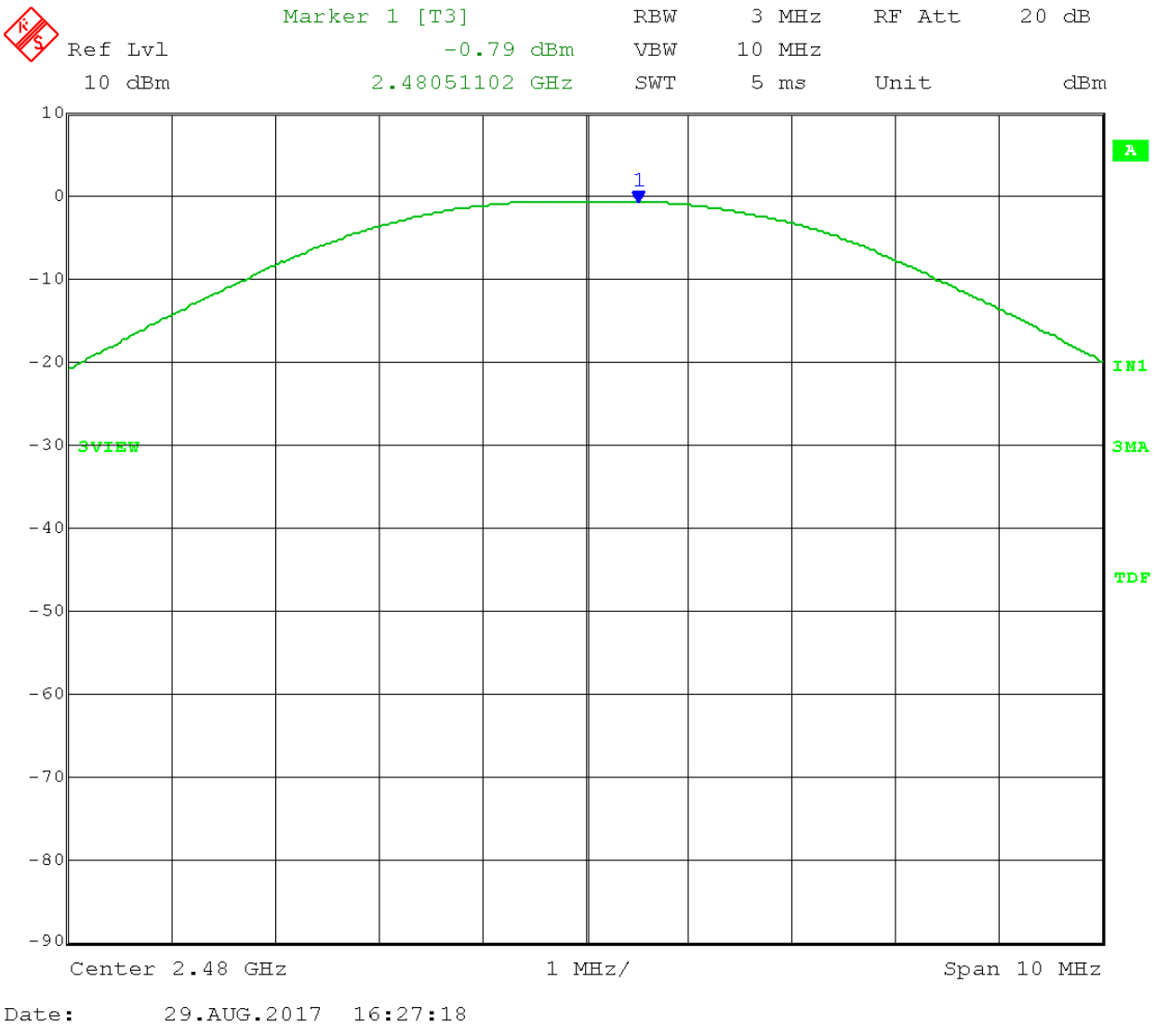
Peak Output Power = -1.04 dBm = 0.787 mW



Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Output power - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
High Channel: 2480 MHz

Peak Output Power = -0.79 dBm = 0.834 mW



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Appendix B

B4.0 Maximum Power Spectral Density – RF Conducted

Rule Part: FCC 15.247(e)

Test Procedure: ANSI C63.10-2013, sections 11.10 & 11.10.2

Limit: 8 dBm in any 3 kHz band during continuous transmission

Results: Compliant
Maximum Power Spectral Density measured -11.42 dBm/3kHz

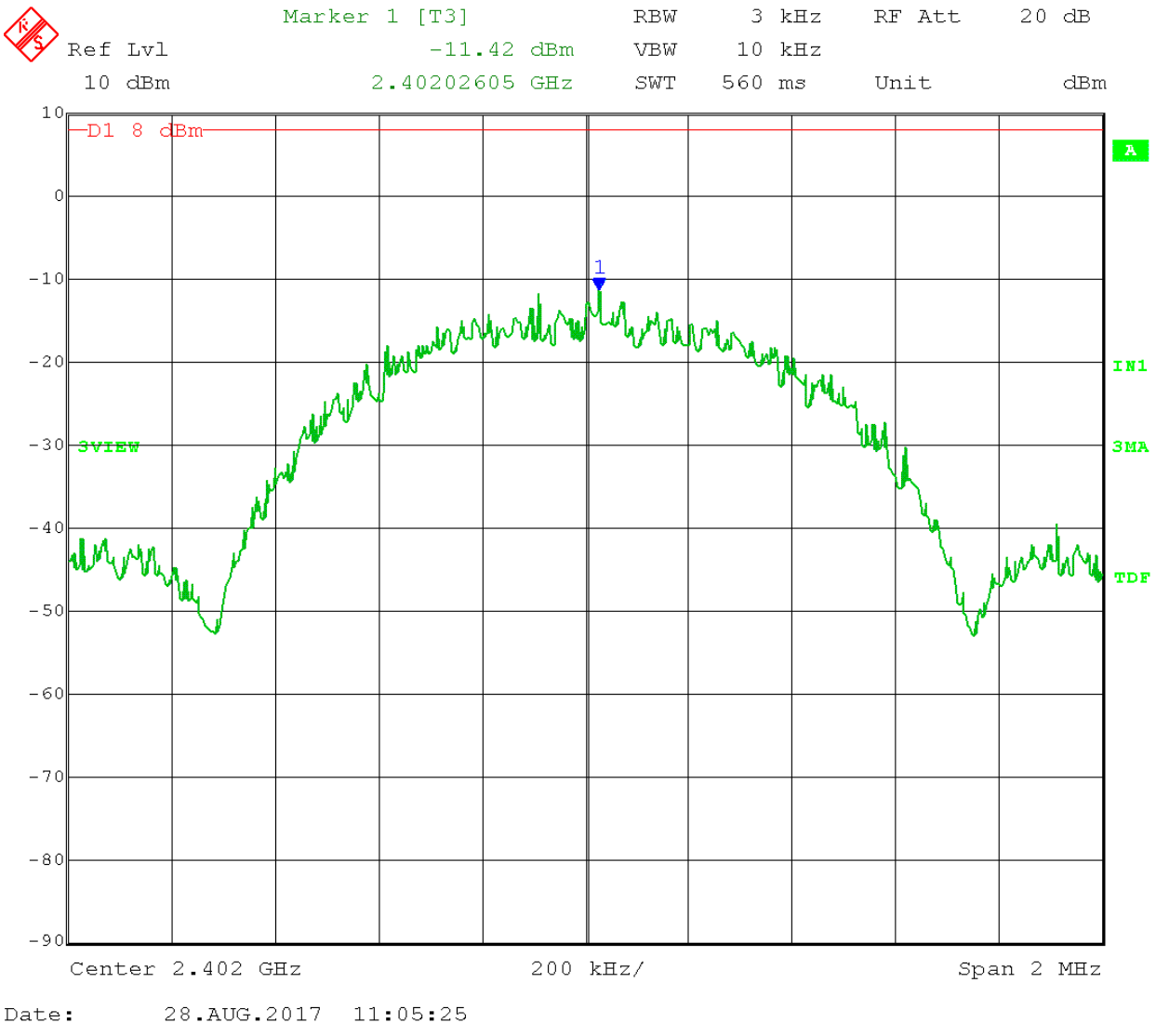
Notes: This was an RF conducted measurement. The EUT was connected to the measuring equipment through a temporary external antenna connector. Cable loss and attenuation were accounted for in the transducer factors set in the analyzer.

The EUT was tested at the low, middle, and high channels of operation.
The output power setting was set to 4 for this test.
(The power setting was later changed to 0 meet the radiated restricted band limits.)

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Power Spectral Density - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Low Channel: 2402 MHz

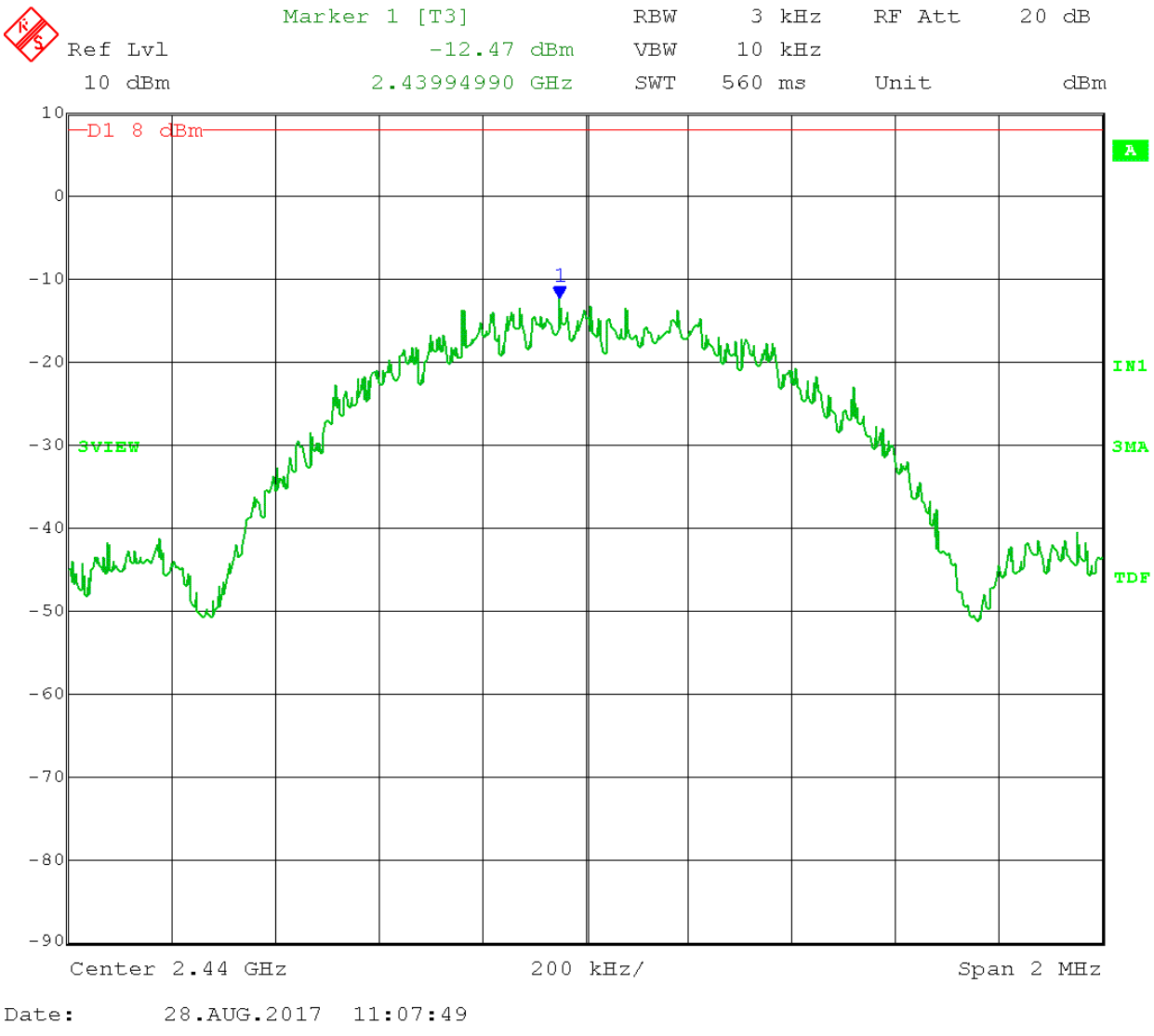
Power in 3 kHz Bandwidth = -11.42 dBm



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Power Spectral Density - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Mid Channel: 2440 MHz

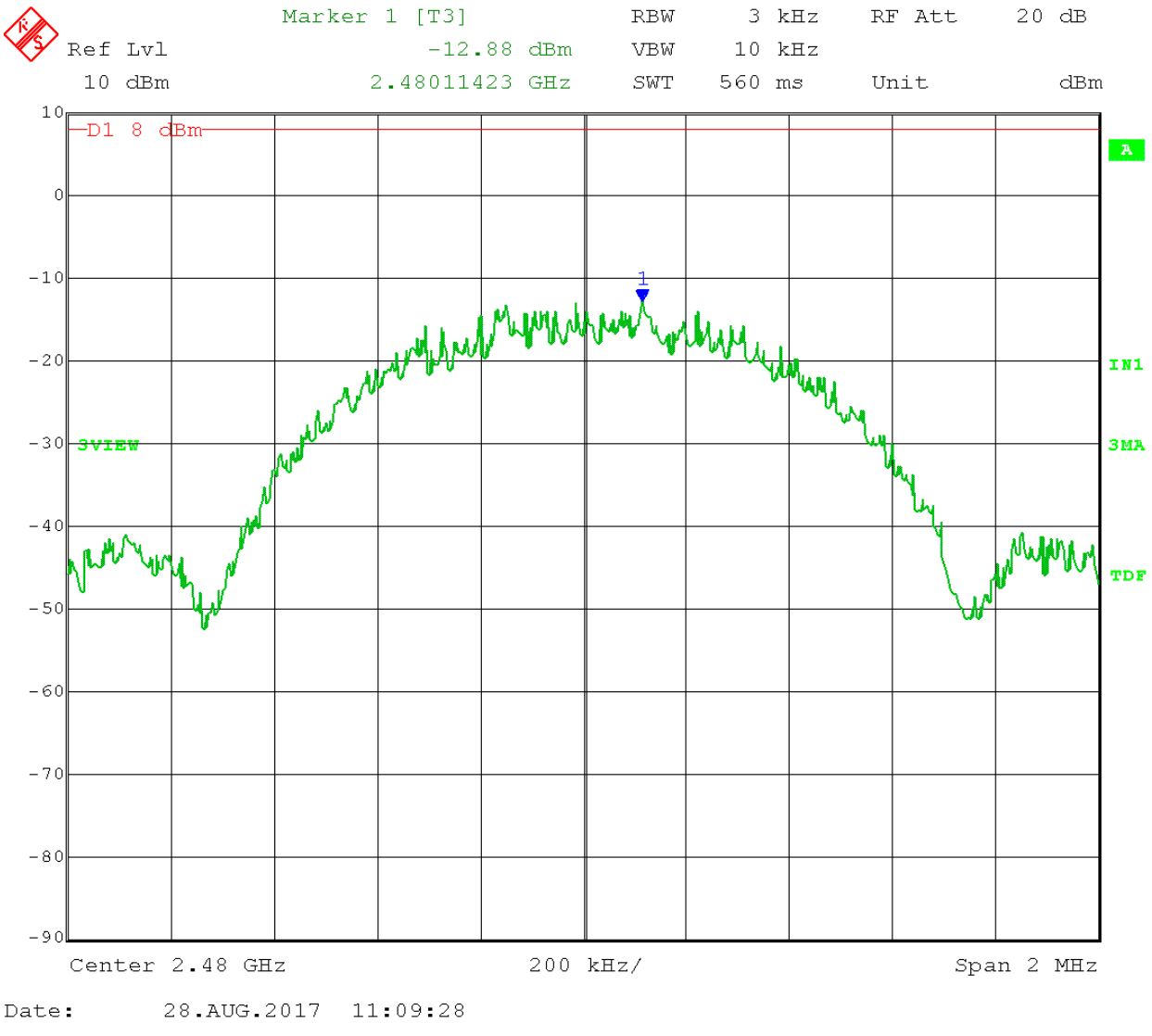
Power in 3 kHz Bandwidth = -12.47 dBm



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Power Spectral Density - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
High Channel: 2480 MHz

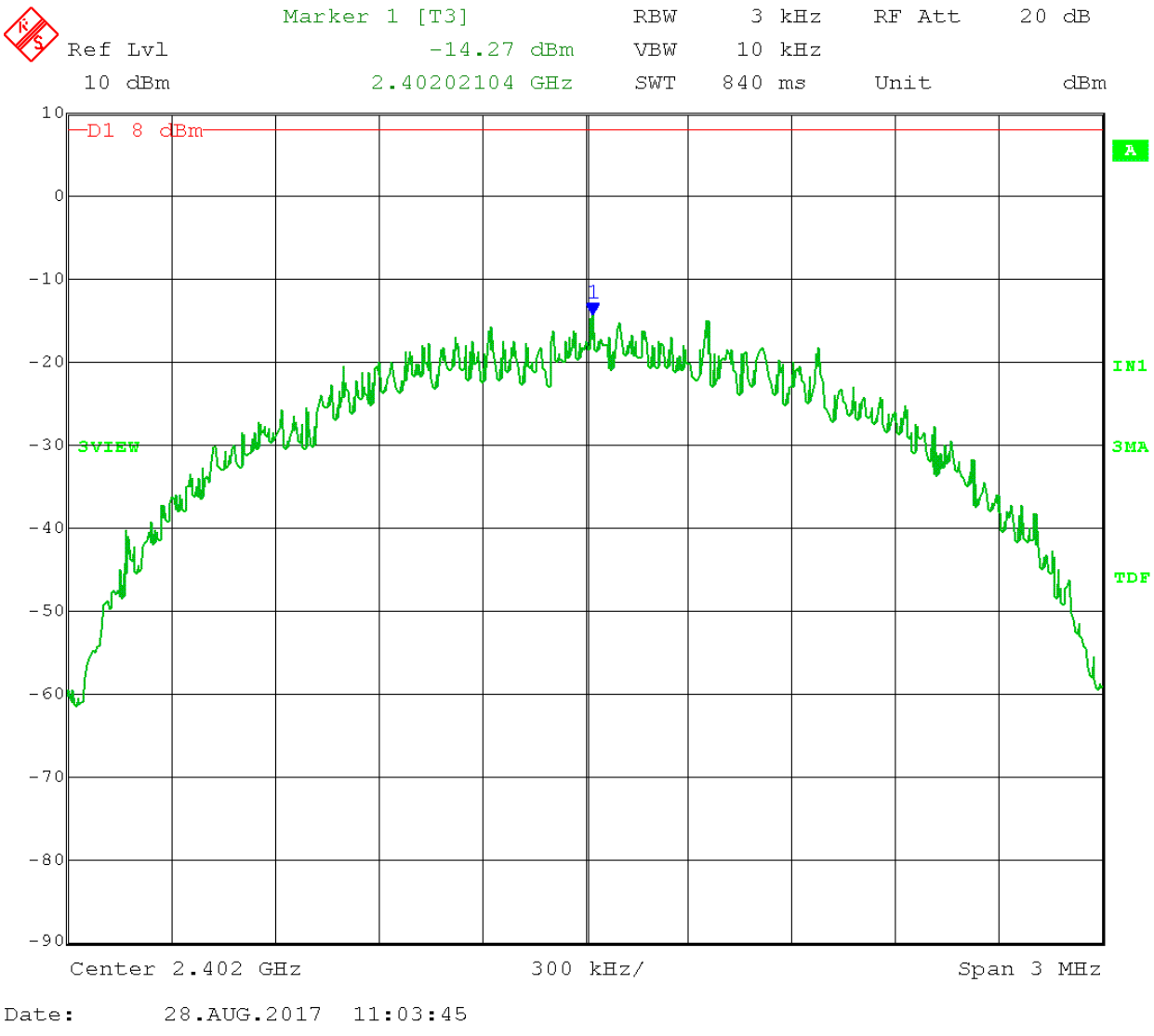
Power in 3 kHz Bandwidth = -12.88 dBm



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Power Spectral Density - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Low Channel: 2402 MHz

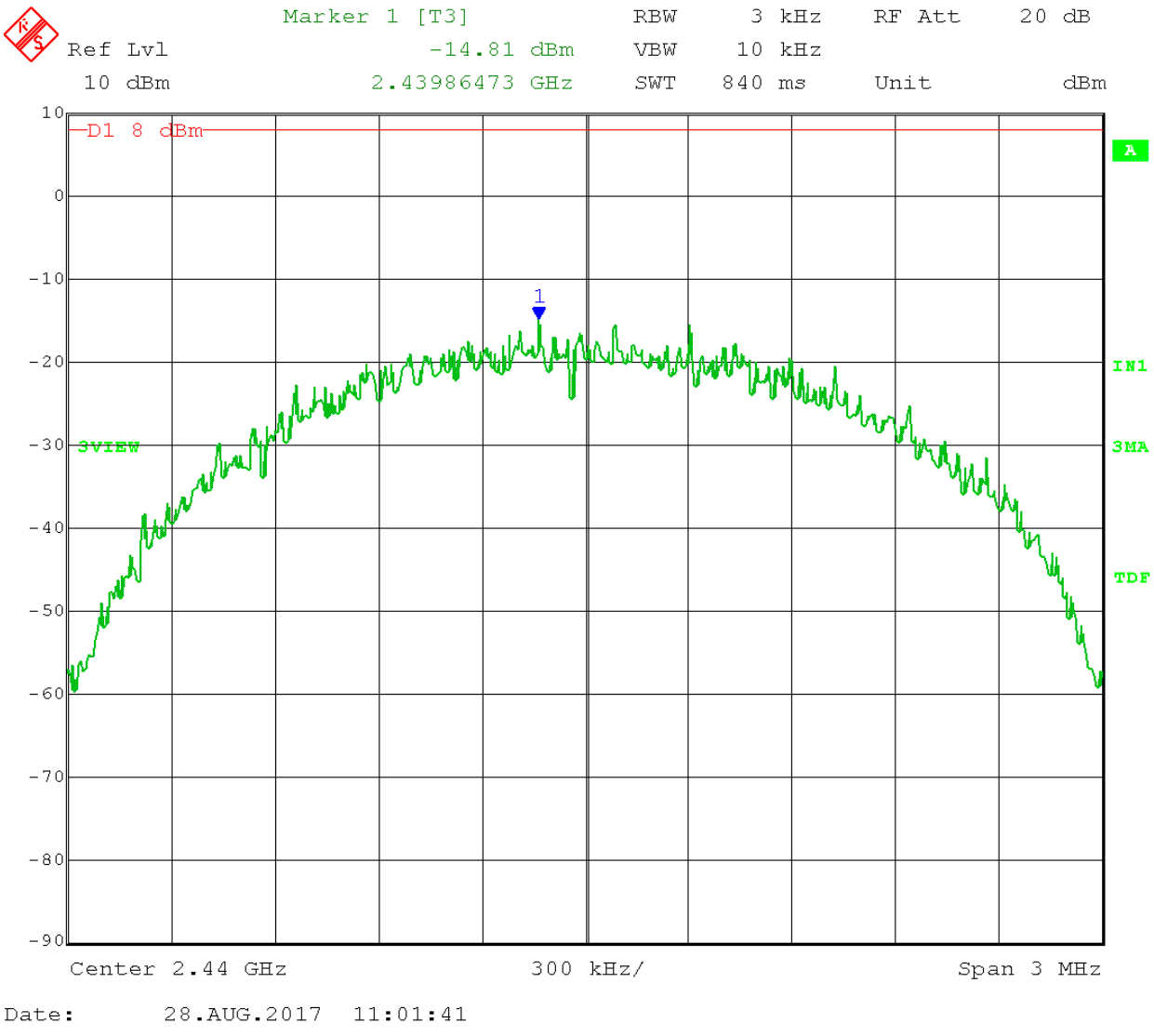
Power in 3 kHz Bandwidth = -14.81 dBm



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Power Spectral Density - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Mid Channel: 2440 MHz

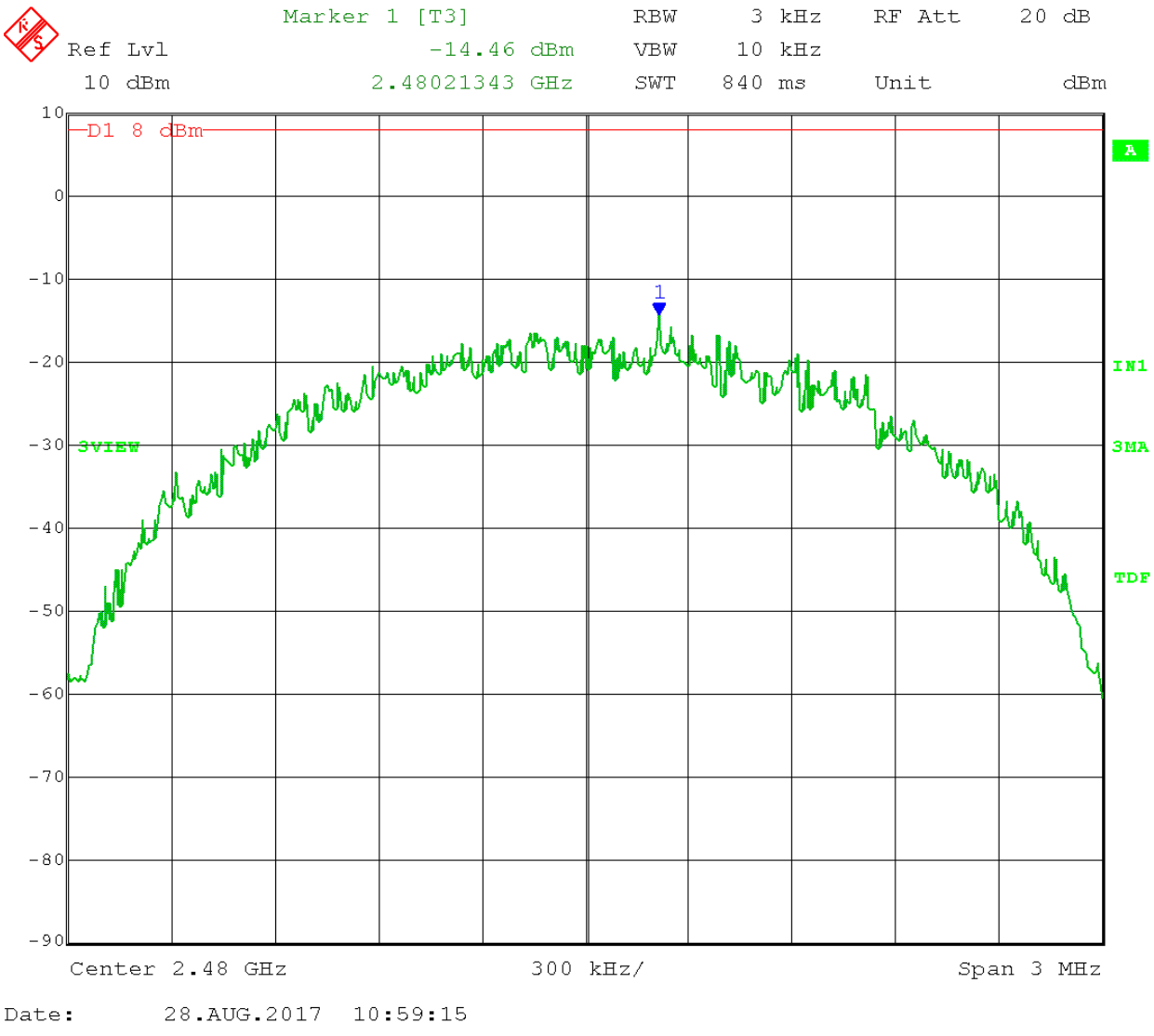
Power in 3 kHz Bandwidth = -14.81 dBm



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Power Spectral Density - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
High Channel: 2480 MHz

Power in 3 kHz Bandwidth = -14.46 dBm



166 South Carter, Genoa City, WI 53128

Appendix B

B5.0 Emissions in Non-Restricted Frequency Bands – RF Conducted

Rule Part: FCC 15.247(d)

Test Procedure: ANSI C63.10-2013, sections 11.11, 11.11.2 & 11.11.3

Limit: 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

Results: Compliant

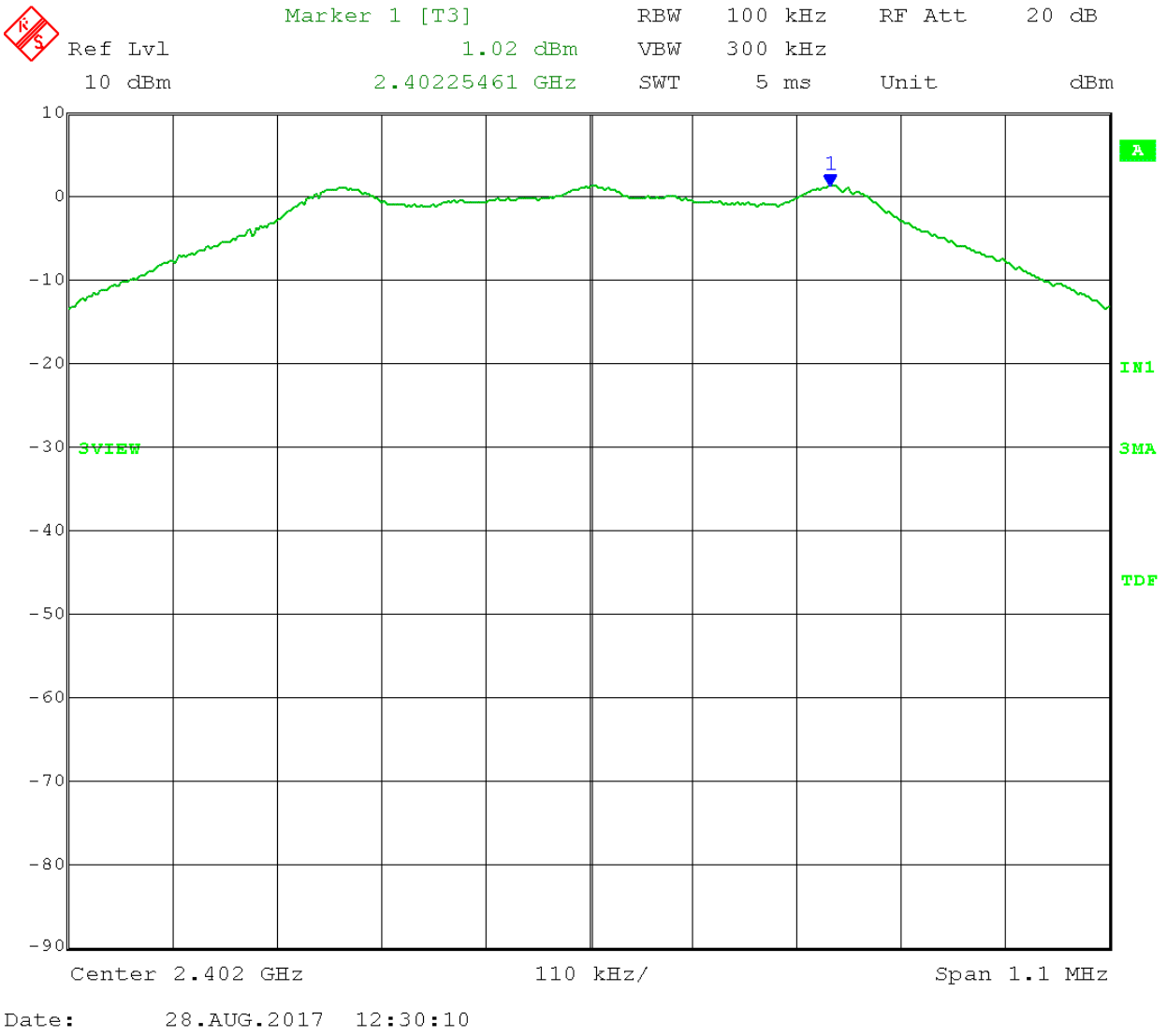
Notes: This was an RF conducted measurement. The EUT was connected to the measuring equipment through a temporary external antenna connector. Cable loss and attenuation were accounted for in the transducer factors set in the analyzer.

The EUT was tested at the low, middle, and high channels of operation.
The output power setting was set to 4 for this test.
(The power setting was later changed to 0 meet the radiated restricted band limits.) A peak detector was used for this test.

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Low Channel: 2402 MHz
Reference Level measurement

Reference Level = 1.02 dBm
Limit= 1.02 dBm – 20 dB = -18.98 dBm

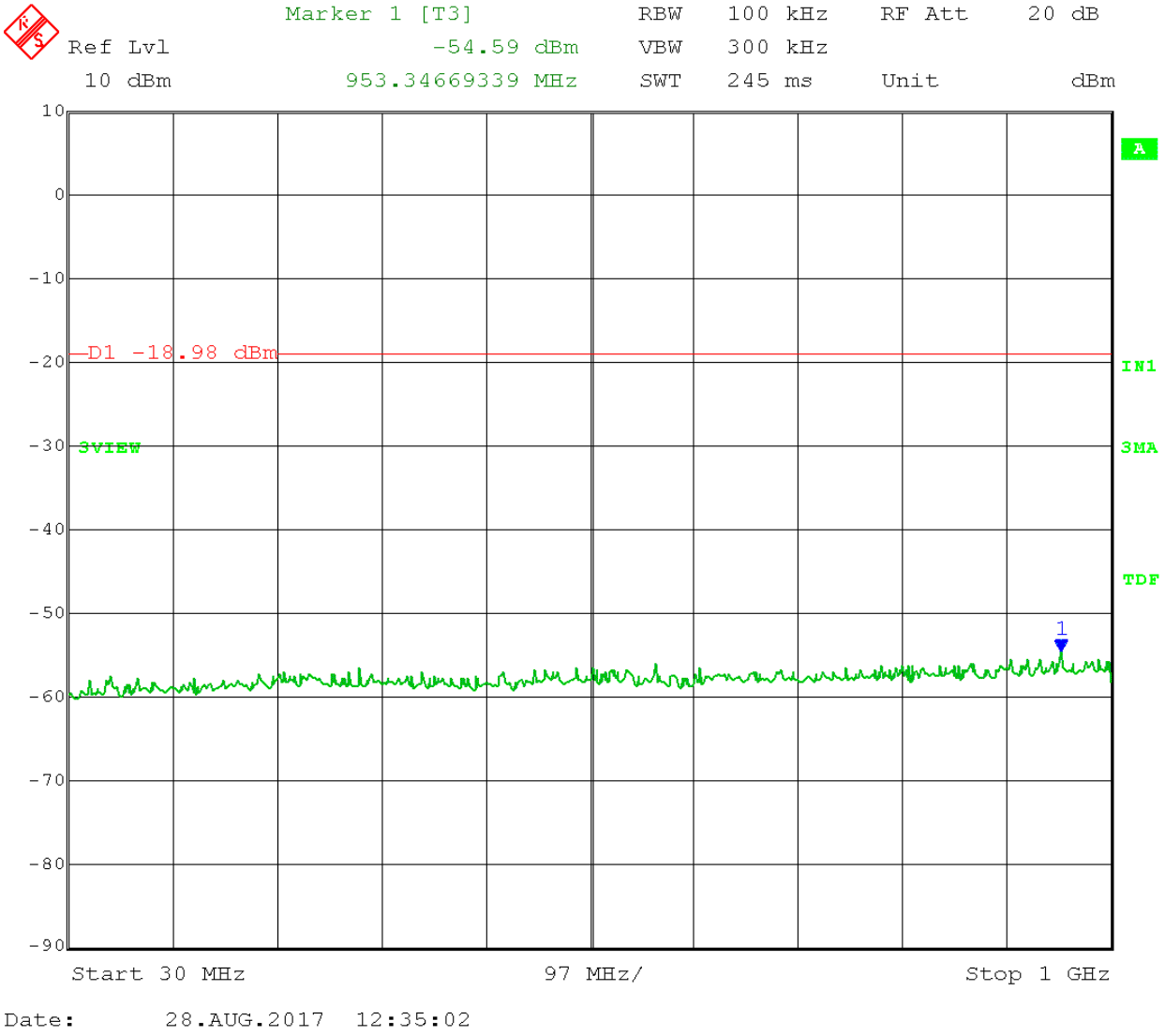


Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Low Channel: 2402 MHz
Emission Level measurement

Reference Level = 1.02 dBm
Limit= 1.02 dBm – 20 dB = -18.98 dBm

Frequency Range: 30 – 1000 MHz



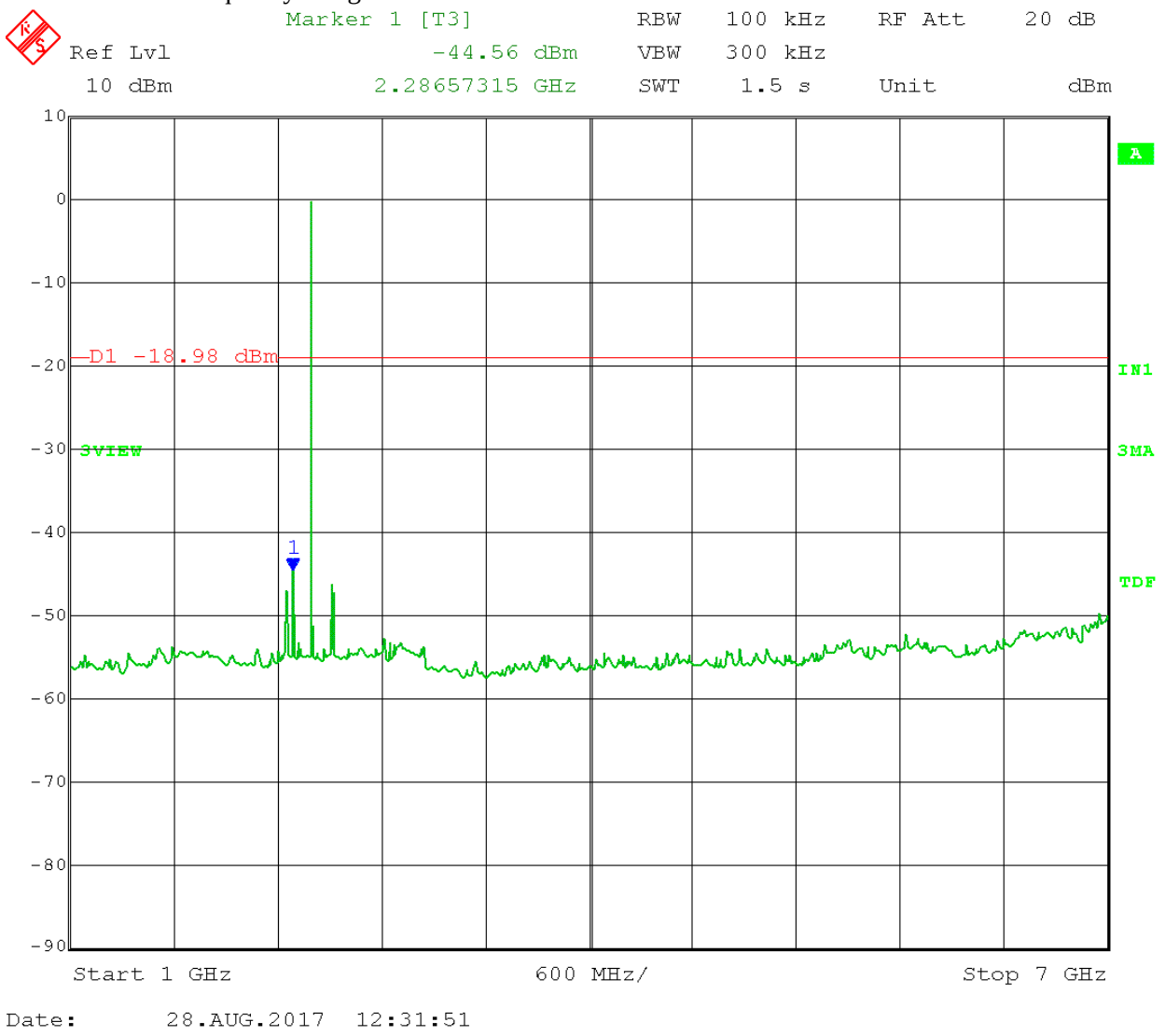
Date: 28.AUG.2017 12:35:02

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Low Channel: 2402 MHz
Emission Level measurement

Reference Level = 1.02 dBm
Limit= 1.02 dBm – 20 dB = -18.98 dBm

Frequency Range: 1 – 7 GHz



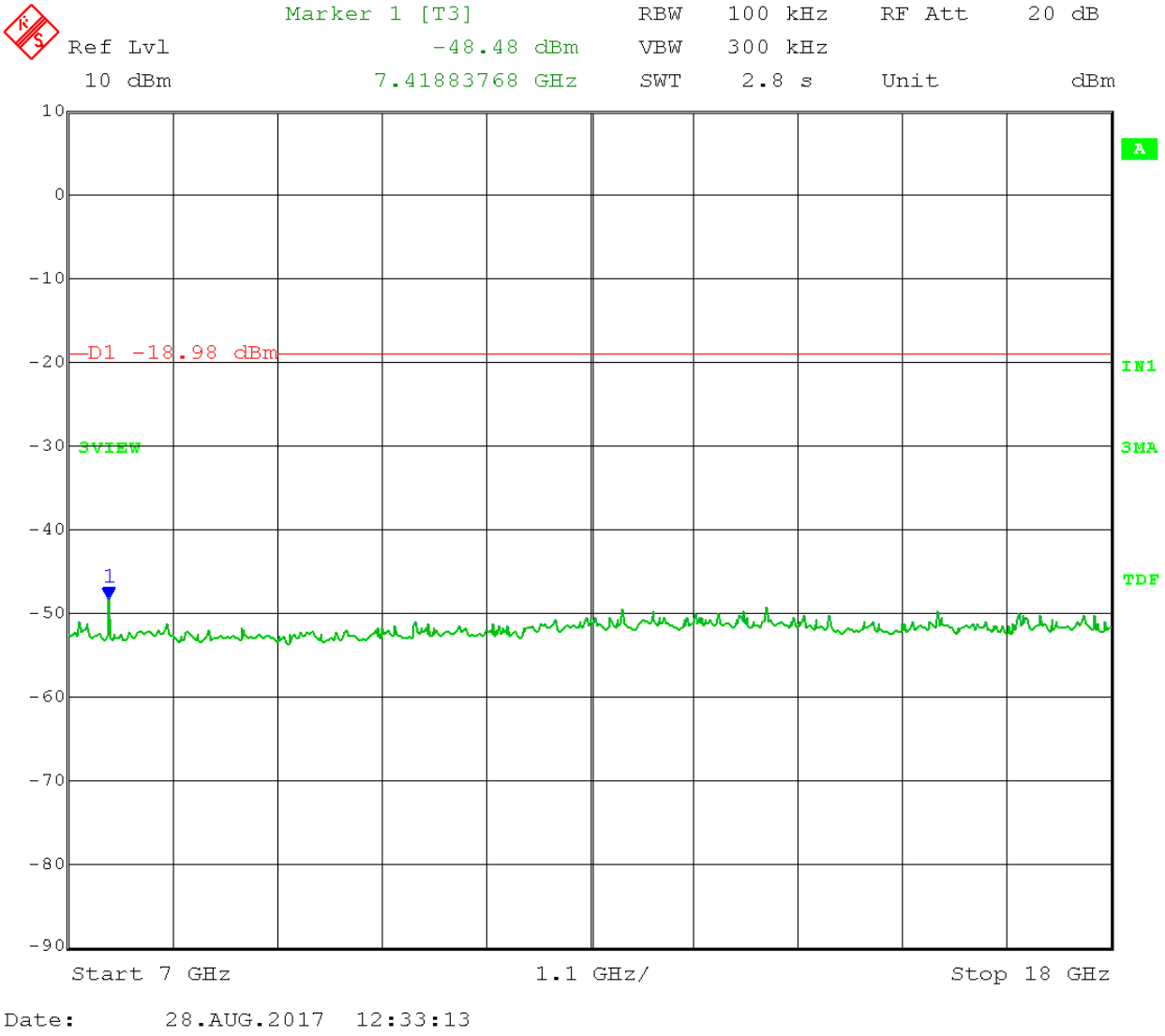
Date: 28.AUG.2017 12:31:51

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Low Channel: 2402 MHz
Emission Level measurement

Reference Level = 1.02 dBm
Limit= 1.02 dBm – 20 dB = -18.98 dBm

Frequency Range: 7 – 18 GHz



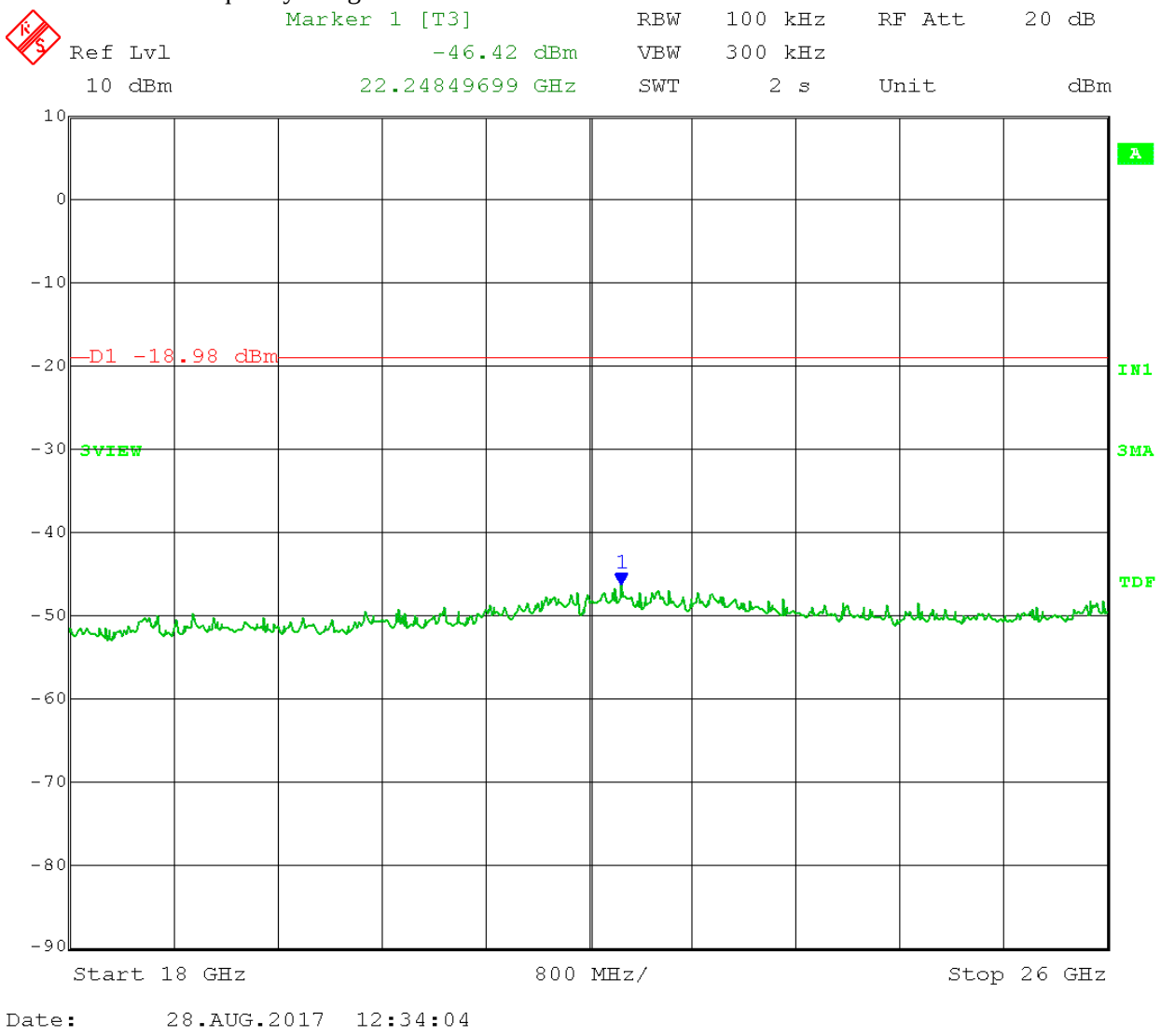
Date: 28.AUG.2017 12:33:13

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Low Channel: 2402 MHz
Emission Level measurement

Reference Level = 1.02 dBm
Limit= 1.02 dBm – 20 dB = -18.98 dBm

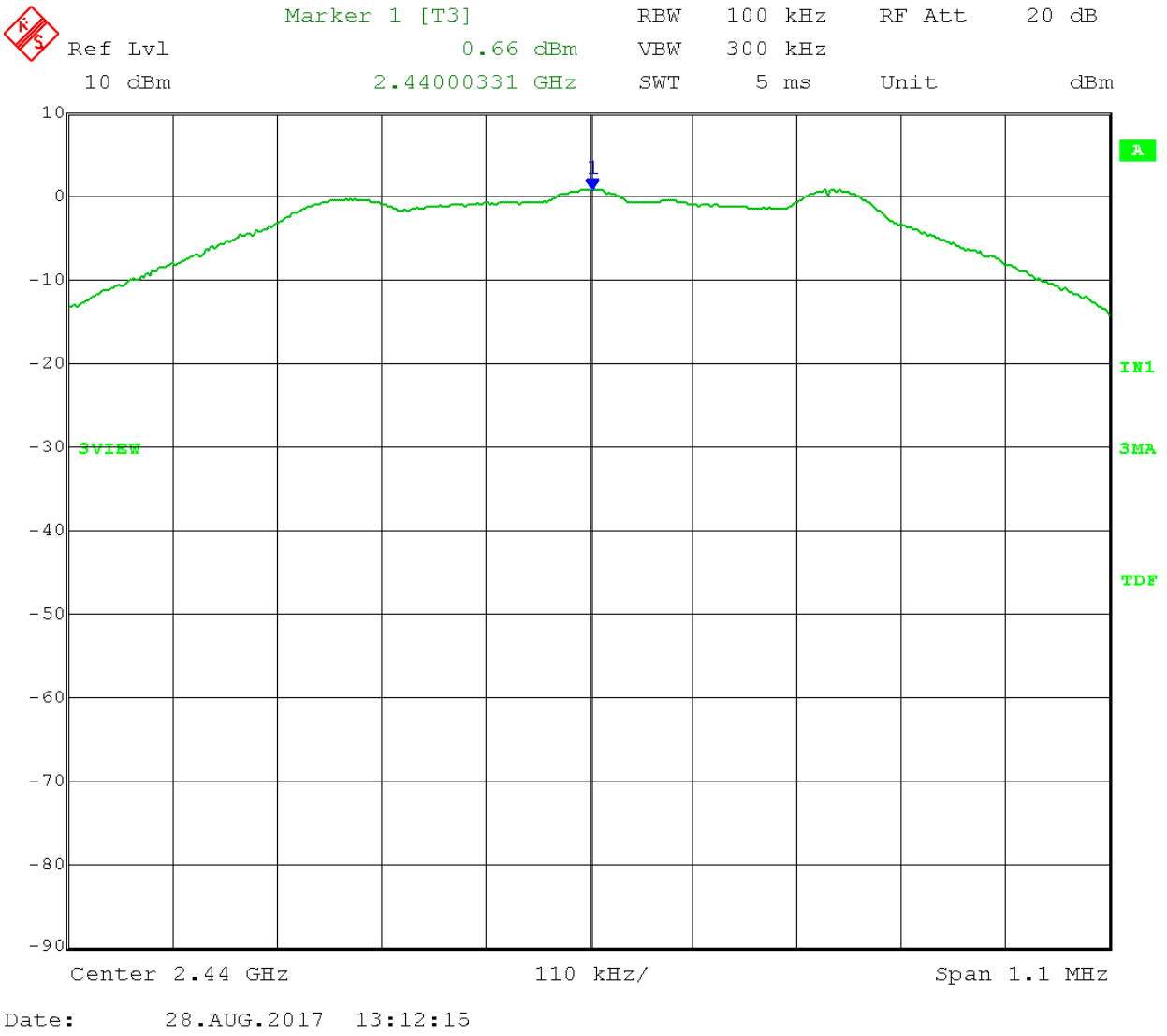
Frequency Range: 18 – 26 GHz



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Mid Channel: 2440 MHz
Reference Level measurement

Reference Level = 0.66 dBm
Limit= 0.66 dBm – 20 dB = -19.34 dBm

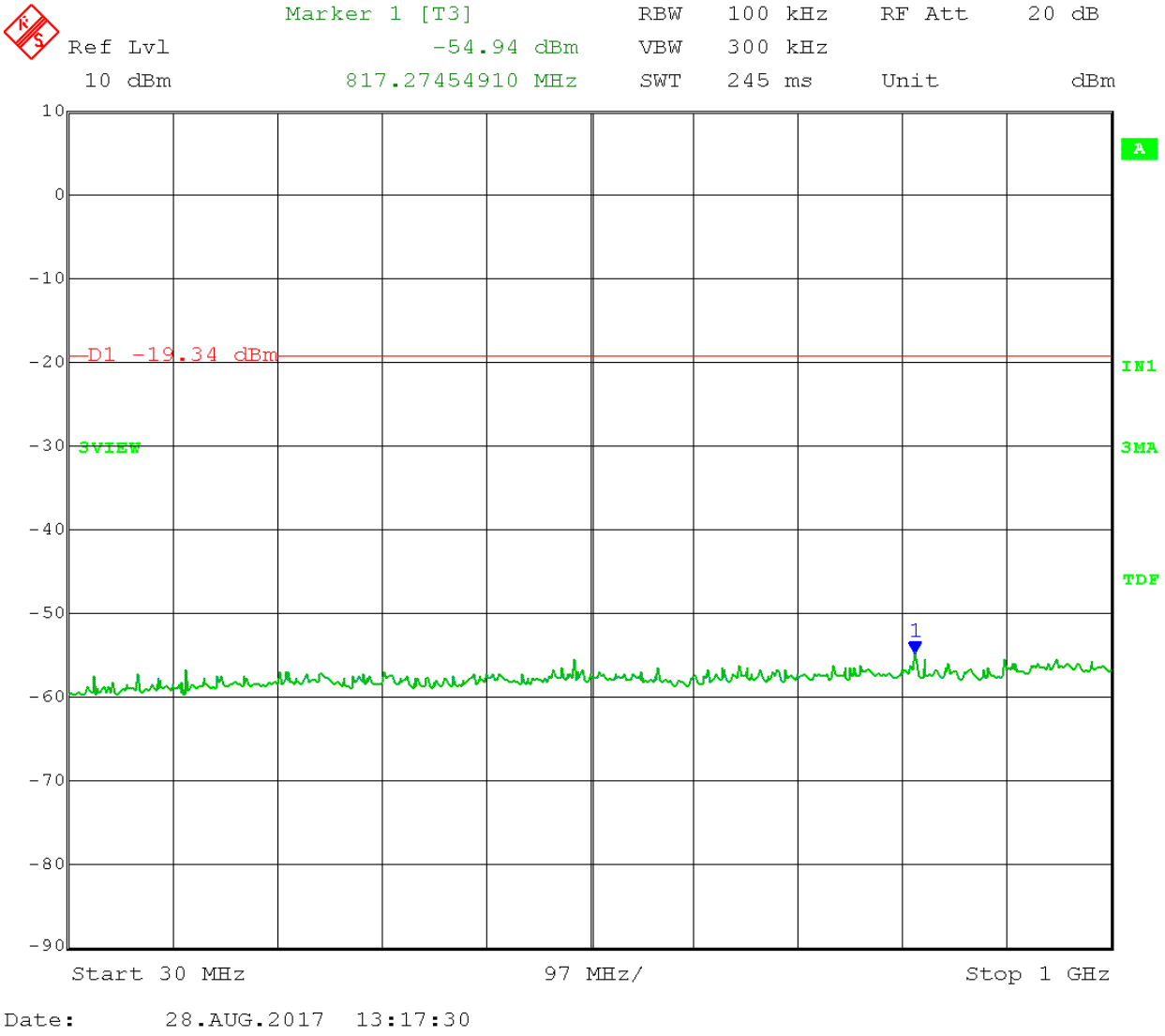


Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Mid Channel: 2440 MHz
Emission Level measurement

Reference Level = 0.66 dBm
Limit= 0.66 dBm – 20 dB = -19.34 dBm

Frequency Range: 30 – 1000 MHz

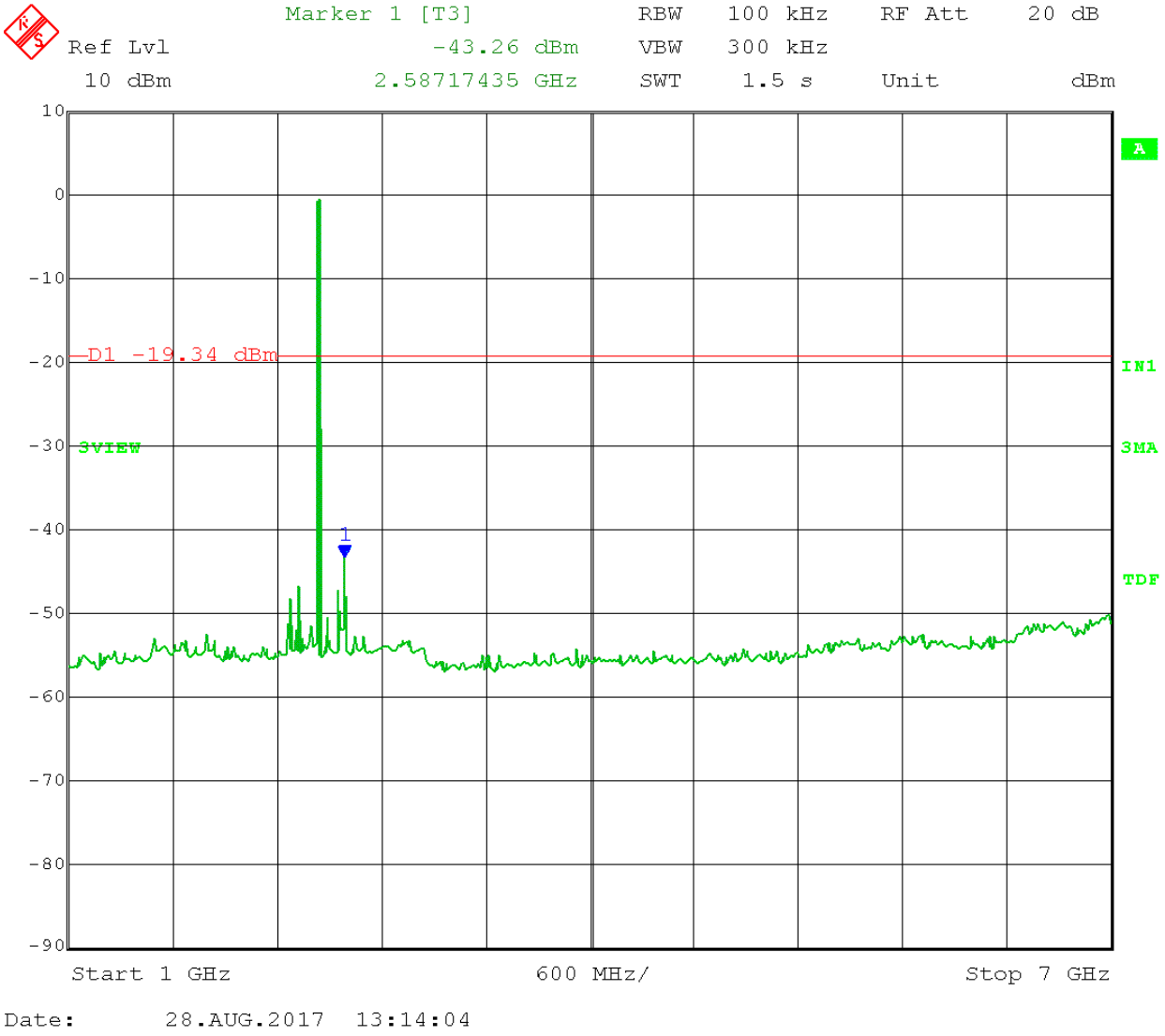


Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Mid Channel: 2440 MHz
Emission Level measurement

Reference Level = 0.66 dBm
Limit= 0.66 dBm – 20 dB = -19.34 dBm

Frequency Range: 1 – 7 GHz

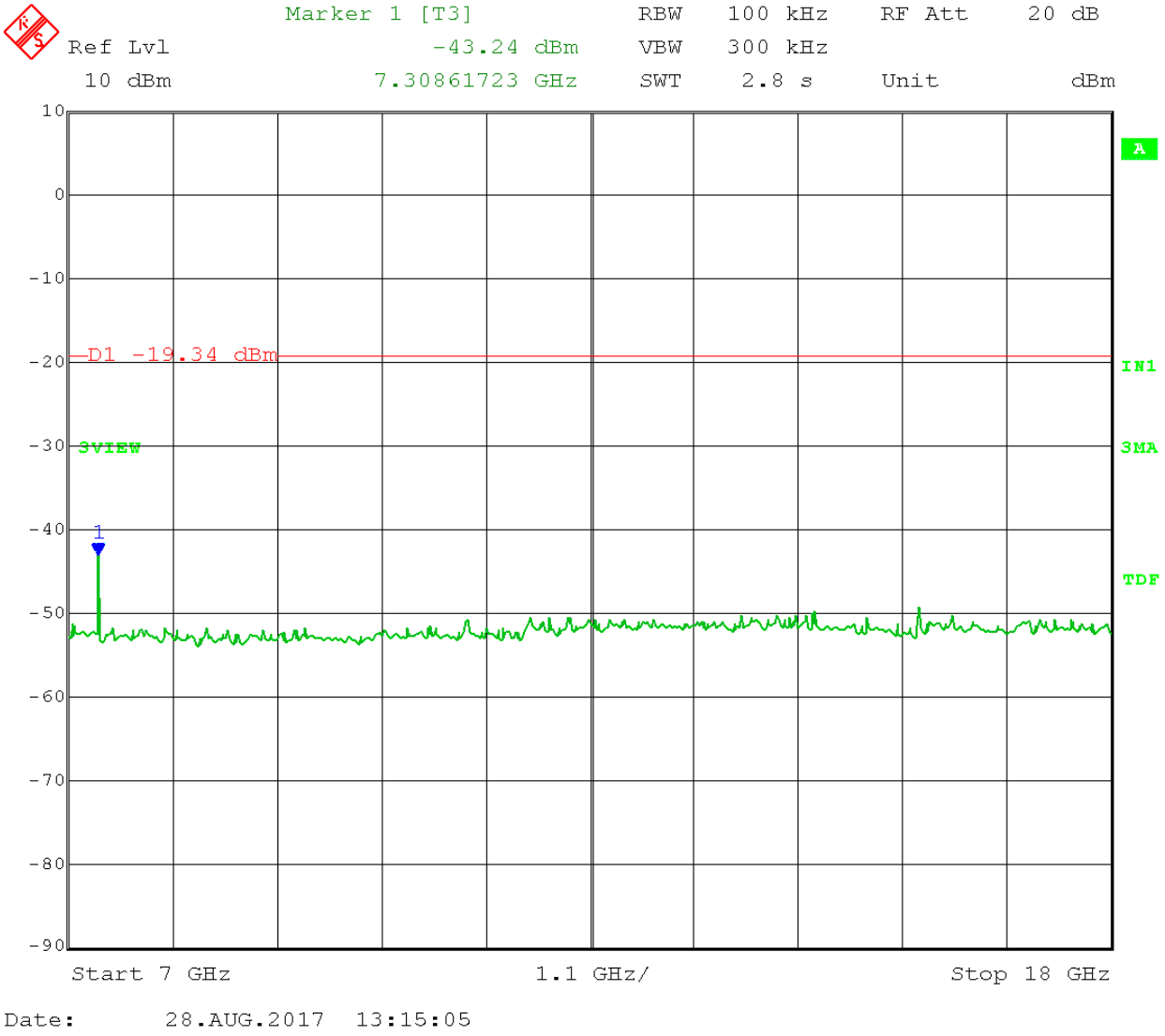


Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Mid Channel: 2440 MHz
Emission Level measurement

Reference Level = 0.66 dBm
Limit= 0.66 dBm – 20 dB = -19.34 dBm

Frequency Range: 7 – 18 GHz



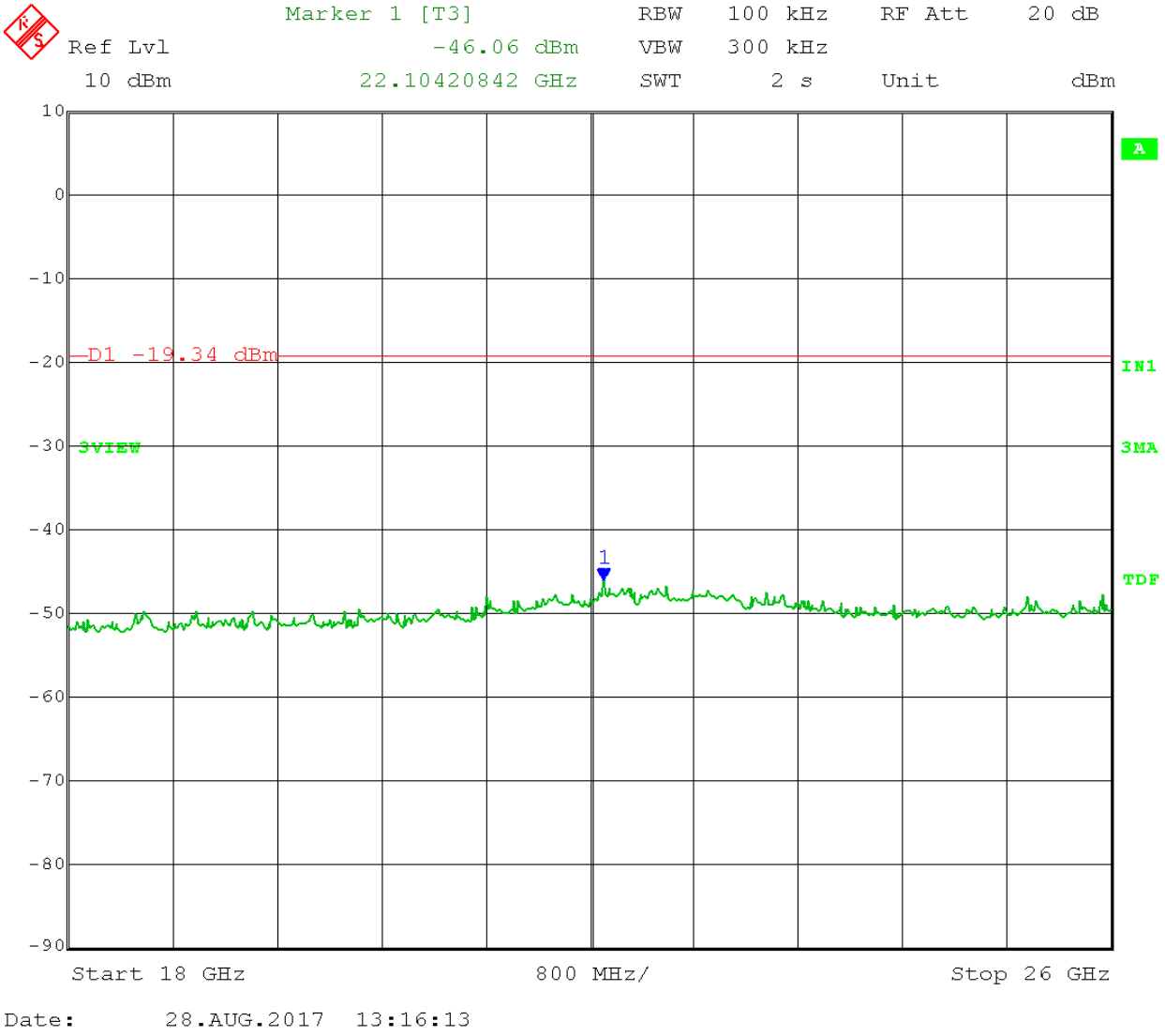
Date: 28.AUG.2017 13:15:05

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Mid Channel: 2440 MHz
Emission Level measurement

Reference Level = 0.66 dBm
Limit= 0.66 dBm – 20 dB = -19.34 dBm

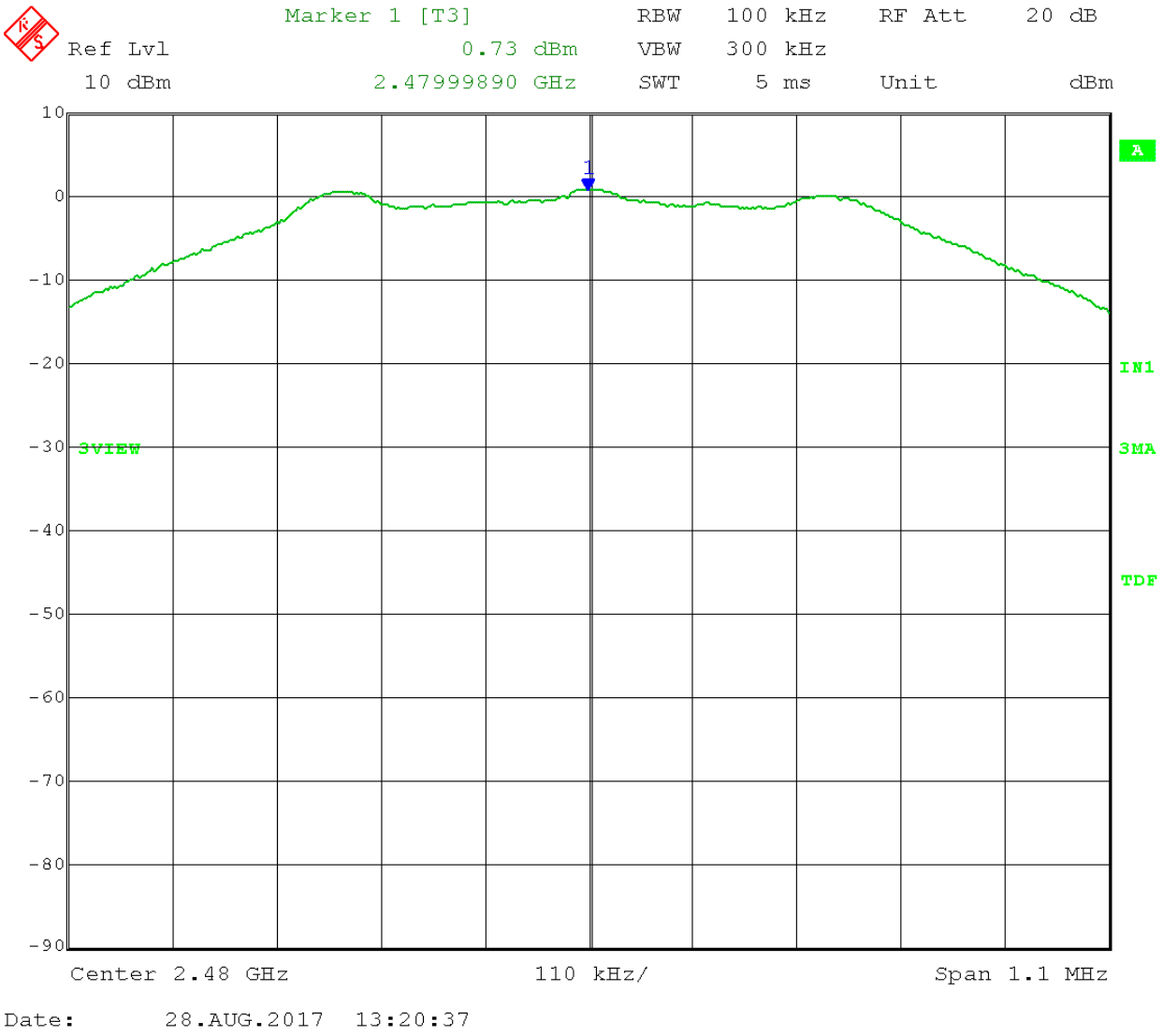
Frequency Range: 18 – 26 GHz



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
High Channel: 2480 MHz
Reference Level measurement

Reference Level = 0.73 dBm
Limit= 0.73 dBm – 20 dB = -19.27 dBm

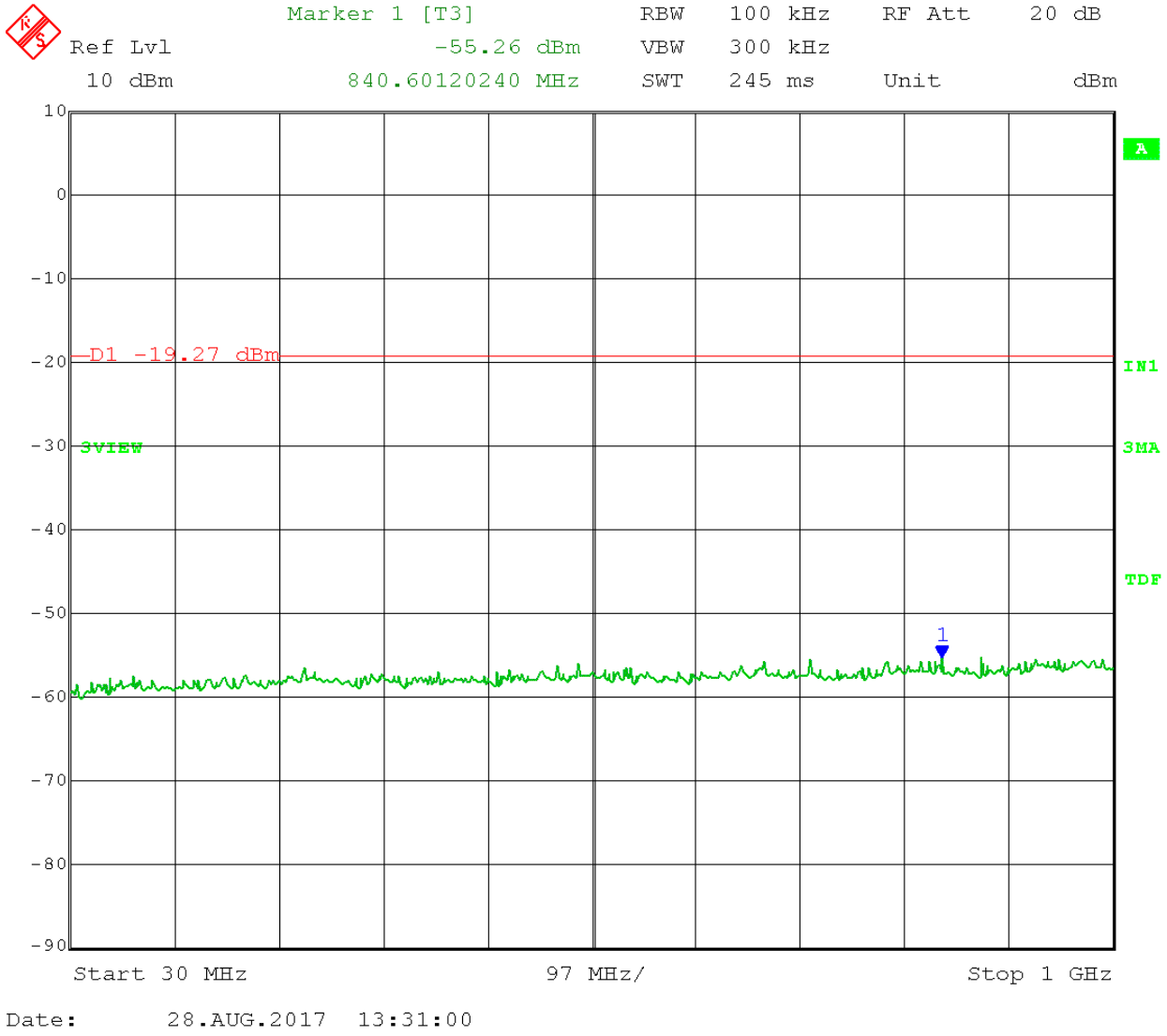


Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
High Channel: 2480 MHz
Emission Level measurement

Reference Level = 0.73 dBm
Limit= 0.73 dBm – 20 dB = -19.27 dBm

Frequency Range: 30 – 1000 MHz

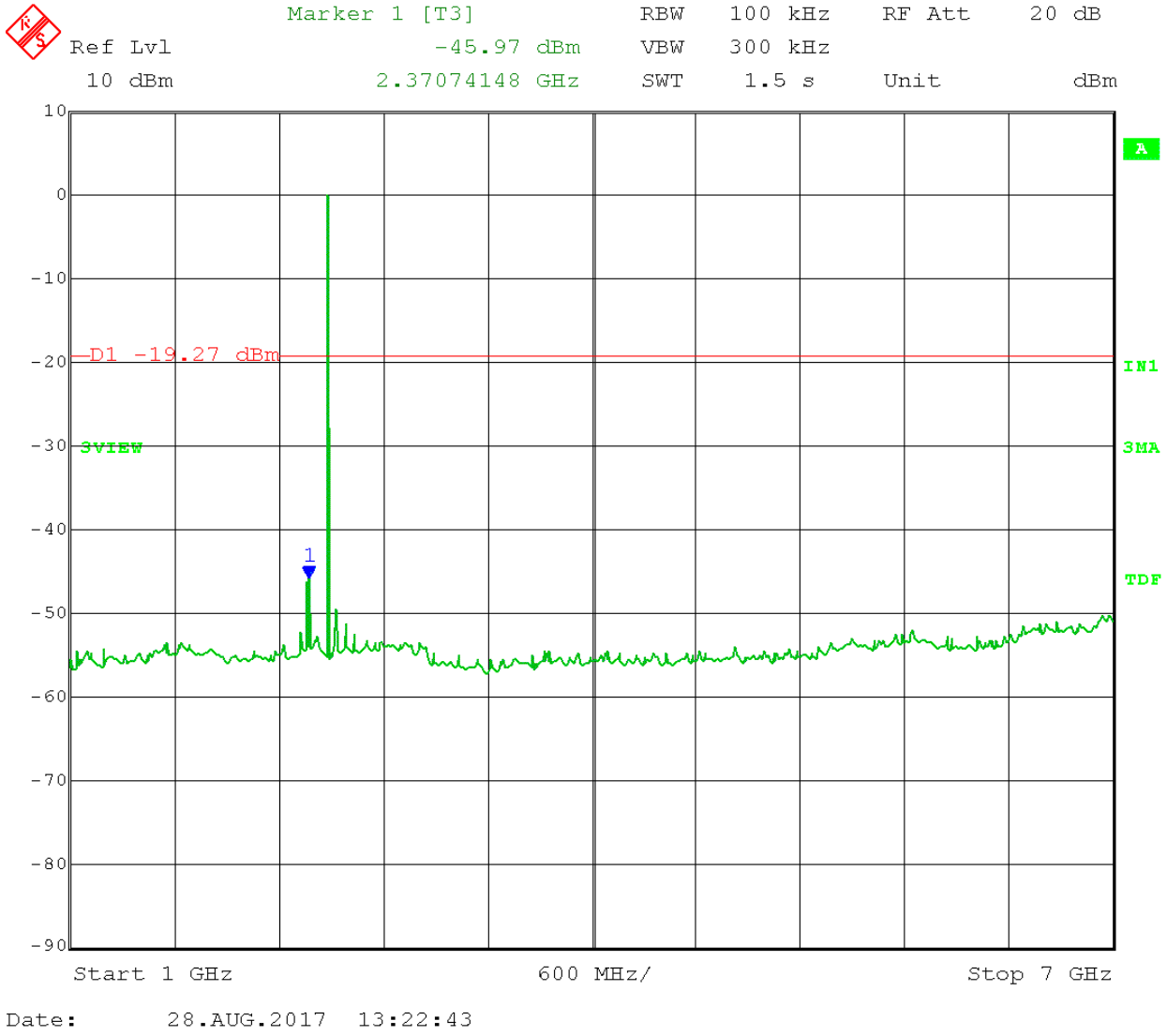


Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
High Channel: 2480 MHz
Emission Level measurement

Reference Level = 0.73 dBm
Limit= 0.73 dBm – 20 dB = -19.27 dBm

Frequency Range: 1 – 7 GHz



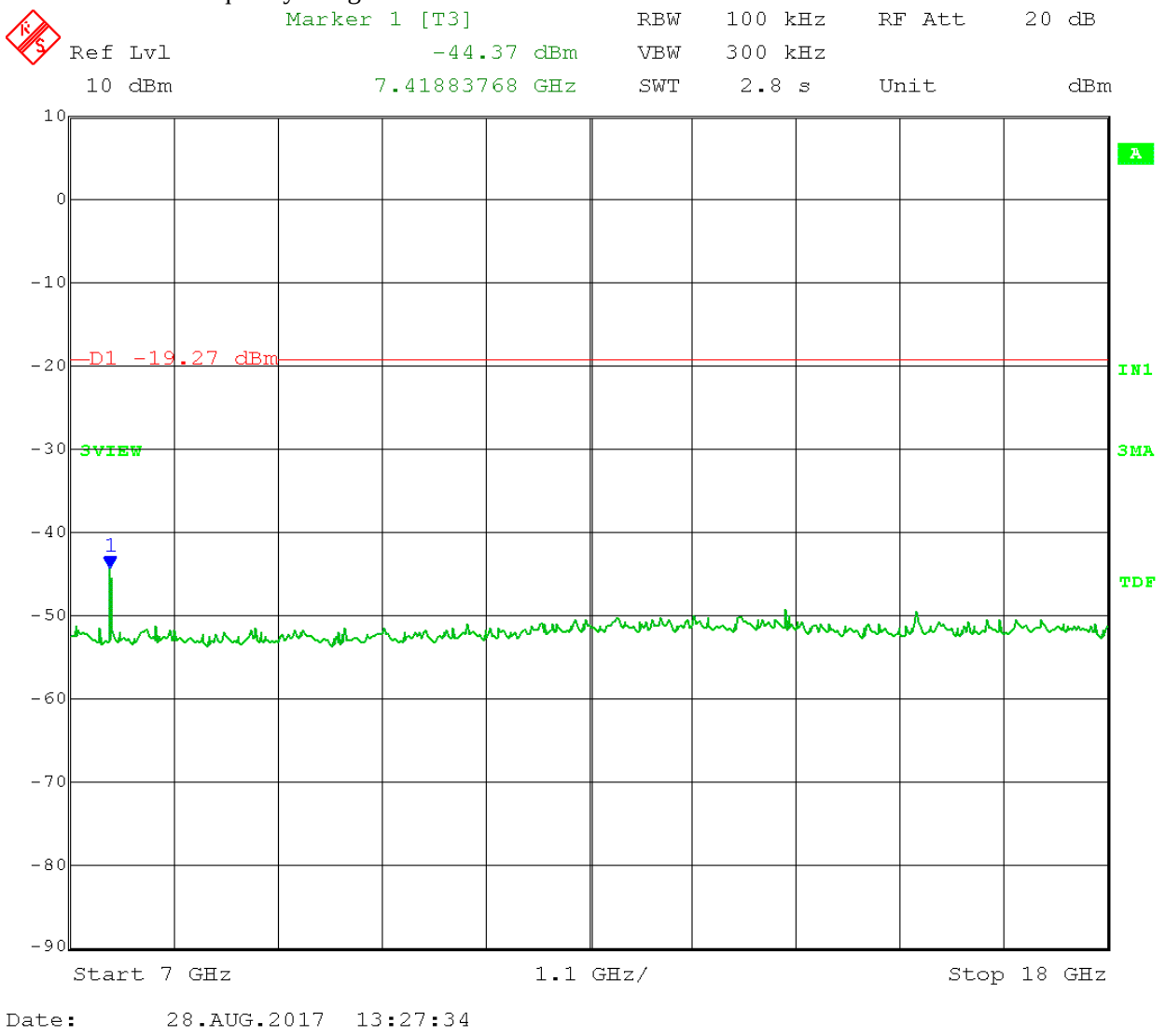
Date: 28.AUG.2017 13:22:43

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
High Channel: 2480 MHz
Emission Level measurement

Reference Level = 0.73 dBm
Limit= 0.73 dBm – 20 dB = -19.27 dBm

Frequency Range: 7 – 18 GHz



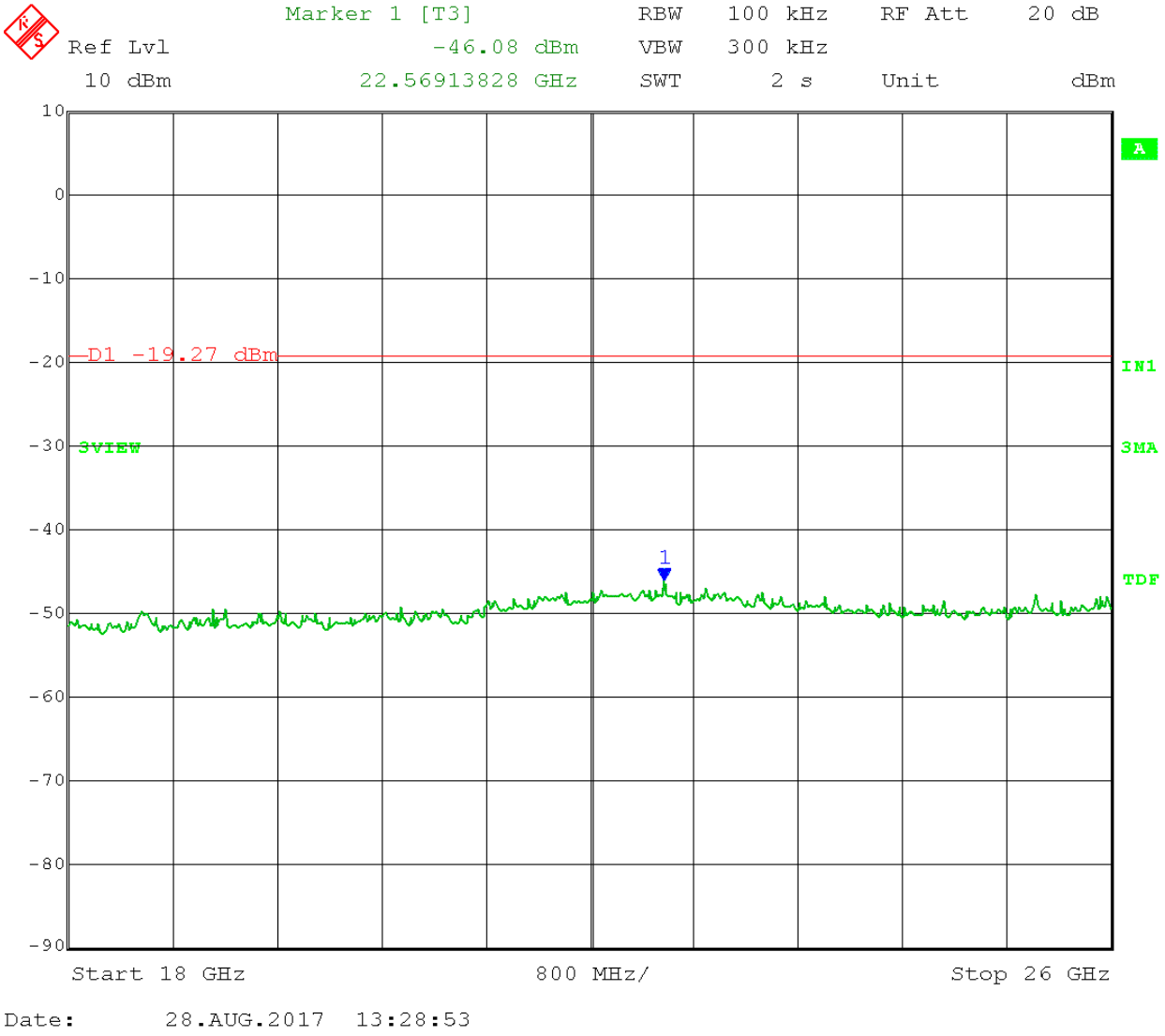
Date: 28.AUG.2017 13:27:34

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
High Channel: 2480 MHz
Emission Level measurement

Reference Level = 0.73 dBm
Limit= 0.73 dBm – 20 dB = -19.27 dBm

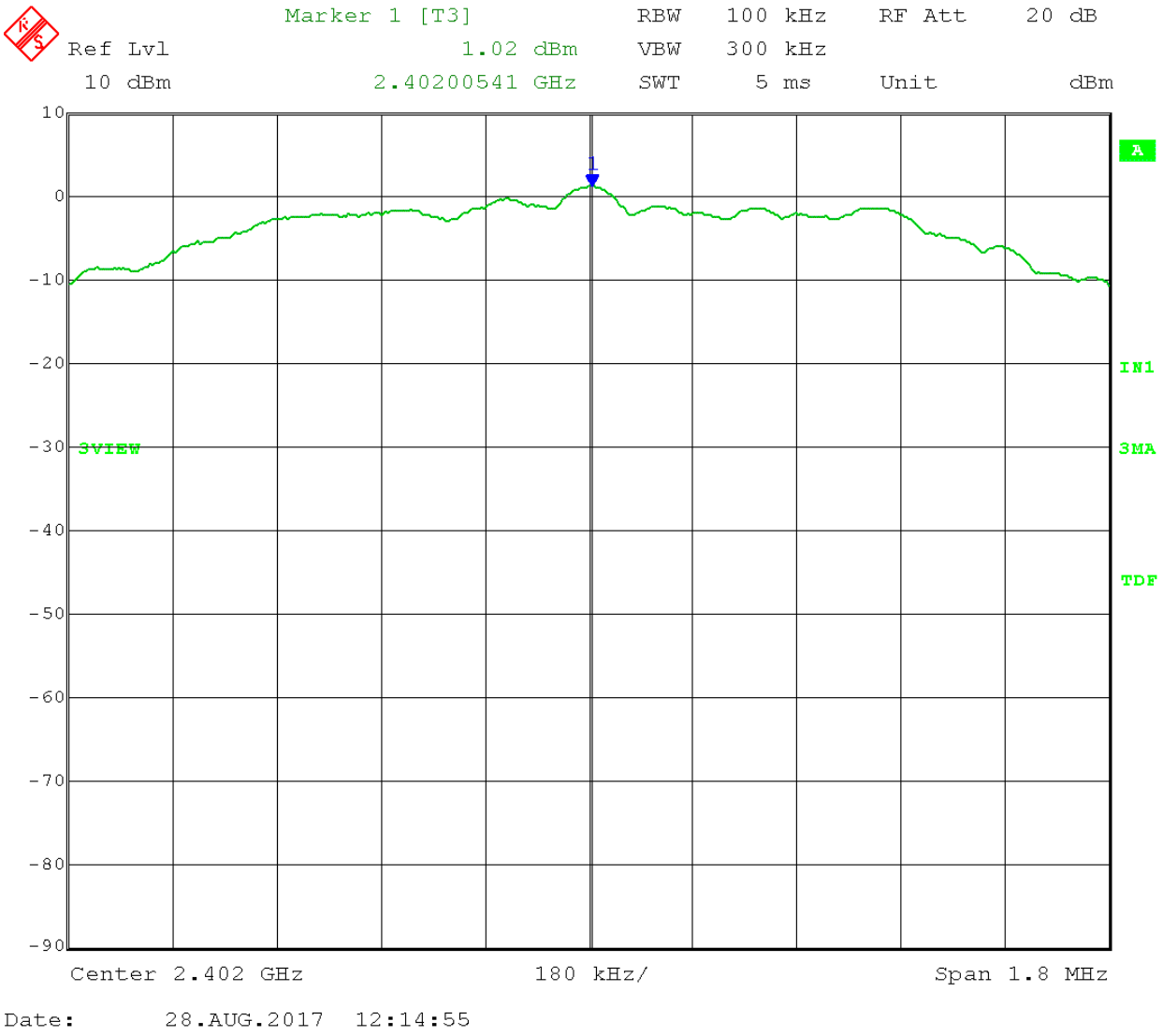
Frequency Range: 18 – 26 GHz



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Low Channel: 2402 MHz
Reference Level measurement

Reference Level = 1.02 dBm
Limit= 1.02 dBm – 20 dB = -18.98 dBm

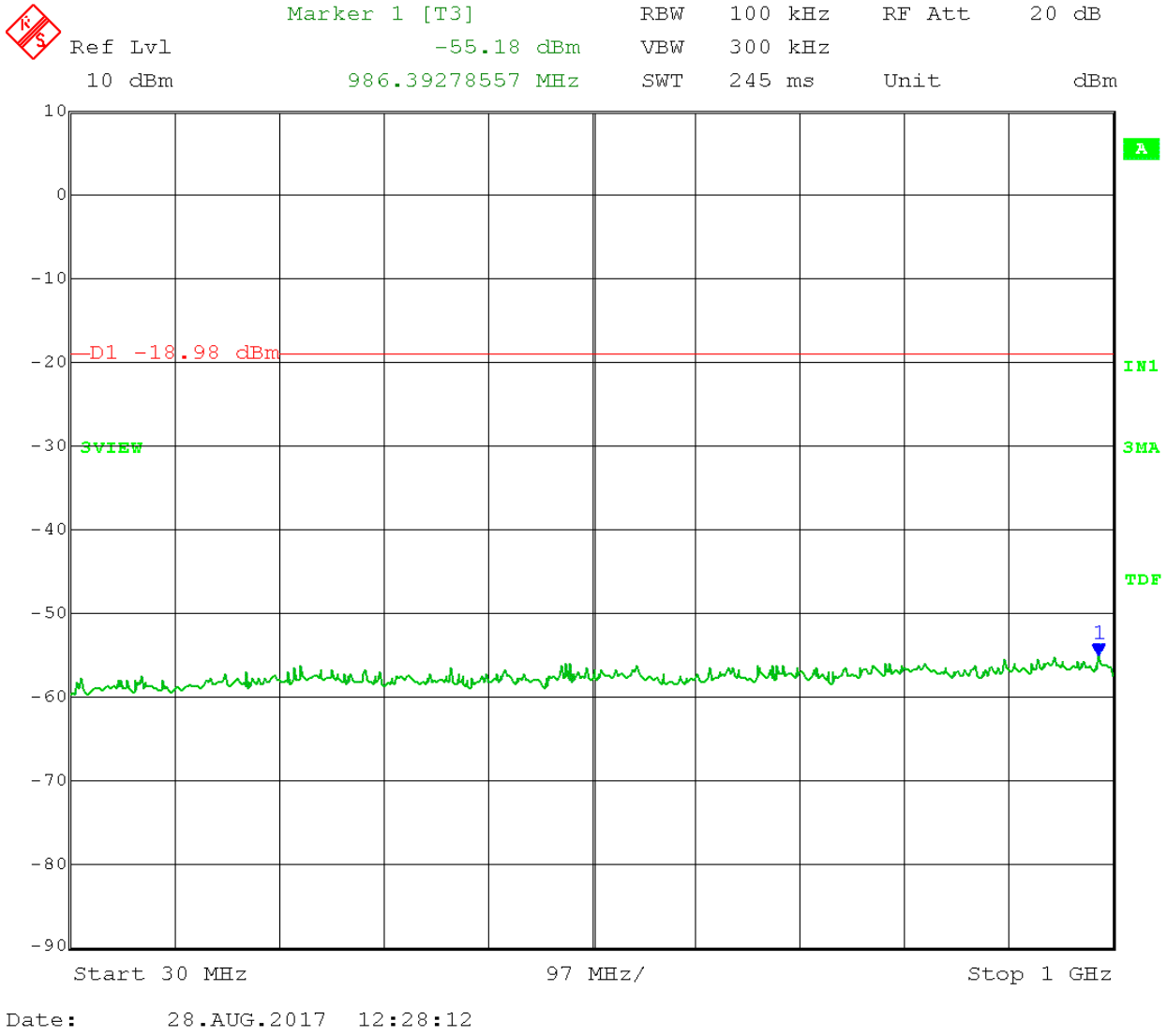


Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Low Channel: 2402 MHz
Emission Level measurement

Reference Level = 1.02 dBm
Limit= 1.02 dBm – 20 dB = -18.98 dBm

Frequency Range: 30 – 1000 MHz



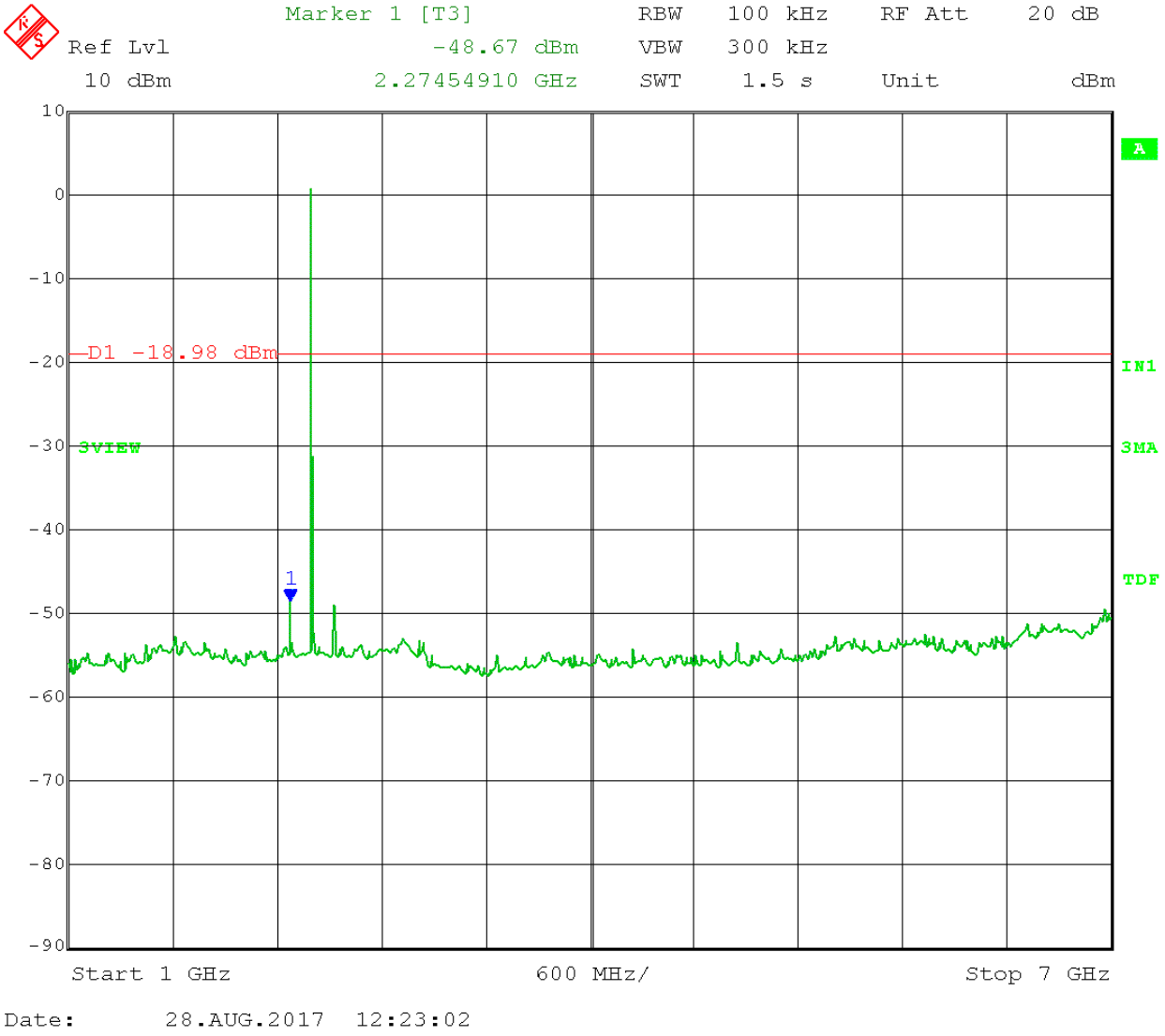
Date: 28.AUG.2017 12:28:12

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Low Channel: 2402 MHz
Emission Level measurement

Reference Level = 1.02 dBm
Limit= 1.02 dBm – 20 dB = -18.98 dBm

Frequency Range: 1 – 7 GHz



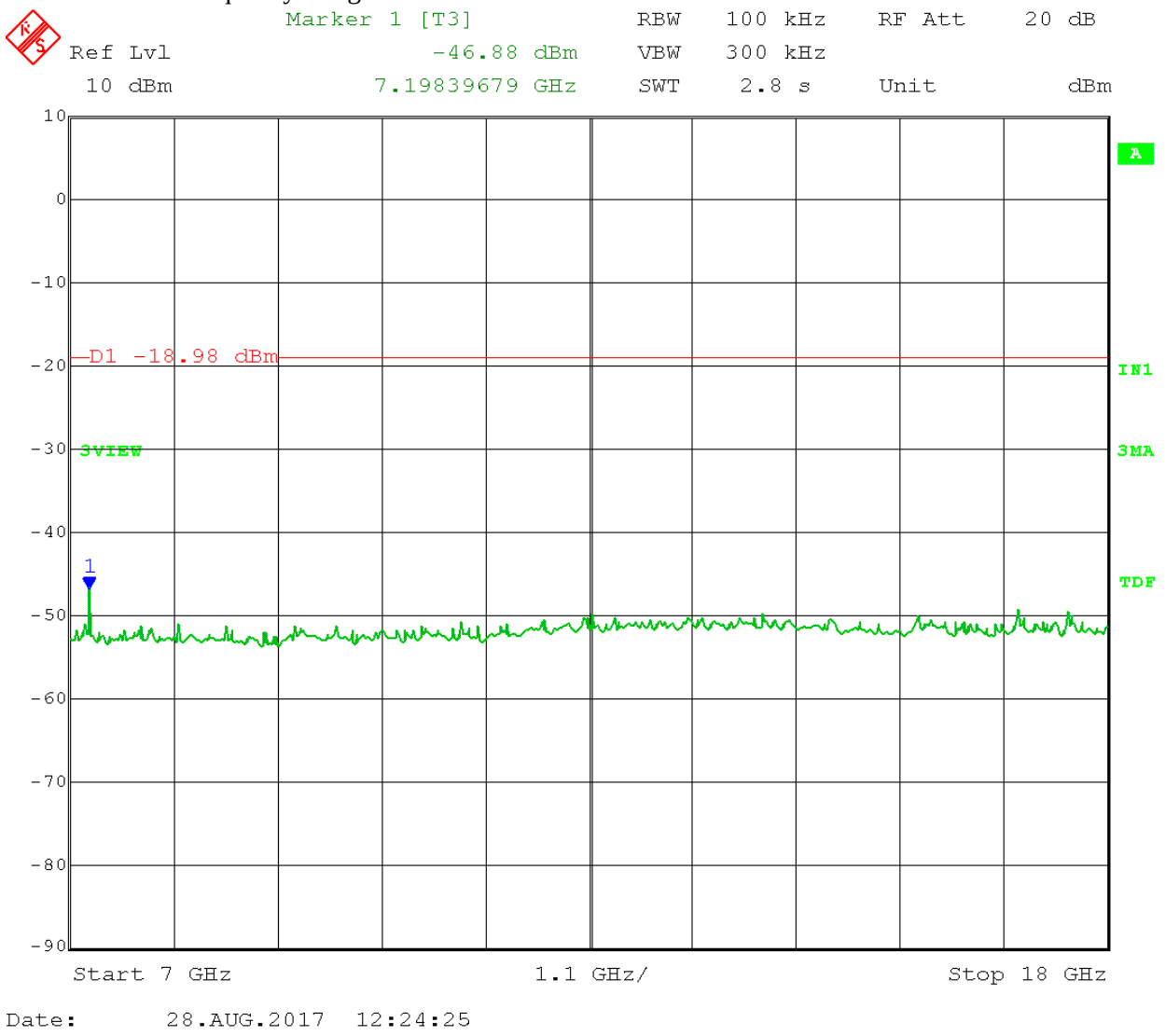
Date: 28.AUG.2017 12:23:02

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Low Channel: 2402 MHz
Emission Level measurement

Reference Level = 1.02 dBm
Limit= 1.02 dBm – 20 dB = -18.98 dBm

Frequency Range: 7 – 18 GHz



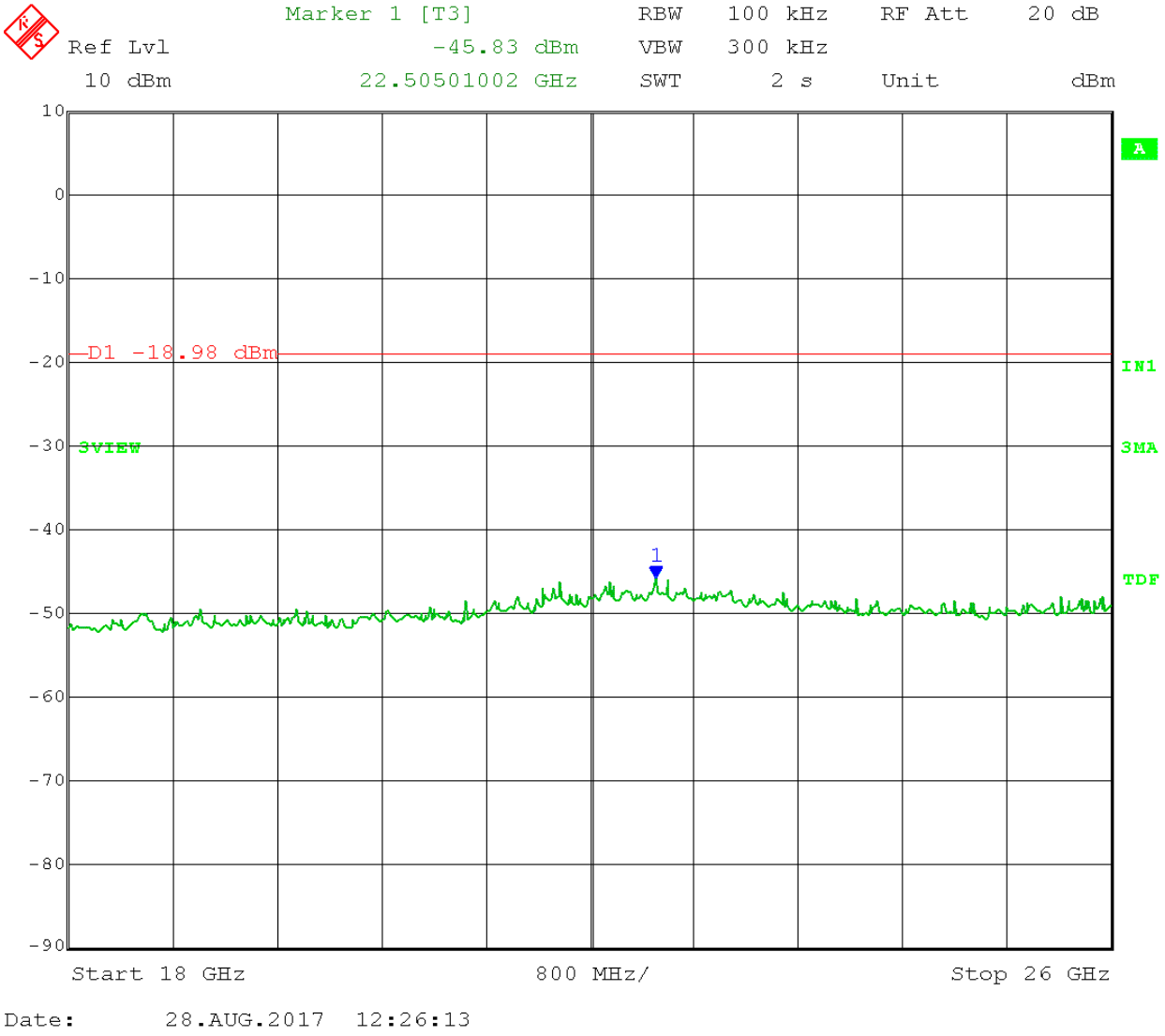
Date: 28.AUG.2017 12:24:25

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Low Channel: 2402 MHz
Emission Level measurement

Reference Level = 1.02 dBm
Limit= 1.02 dBm – 20 dB = -18.98 dBm

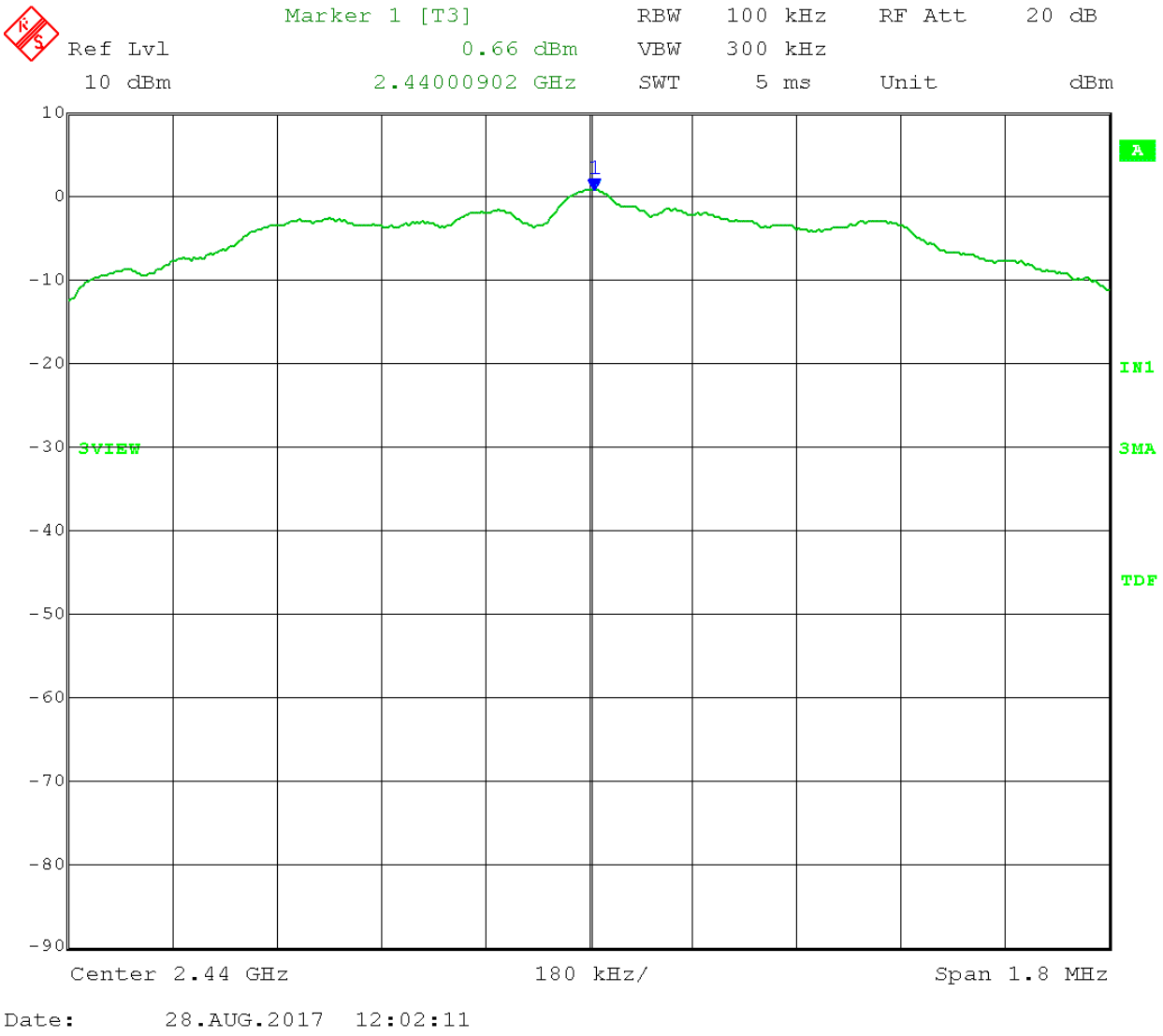
Frequency Range: 18 – 26 GHz



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Mid Channel: 2440 MHz
Reference Level measurement

Reference Level = 0.66 dBm
Limit= 0.66 dBm – 20 dB = -19.34 dBm

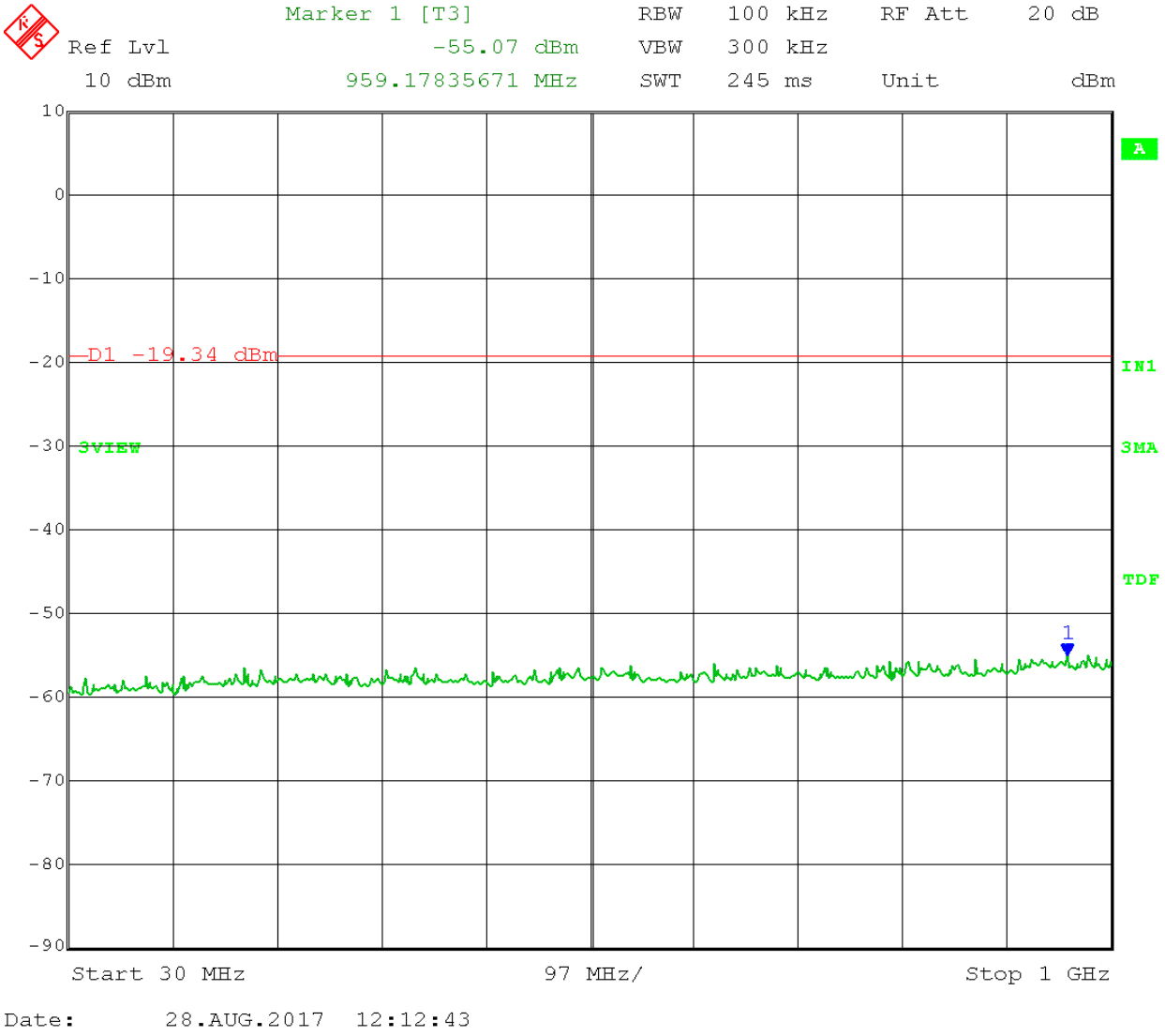


Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Mid Channel: 2440 MHz
Emission Level measurement

Reference Level = 0.66 dBm
Limit= 0.66 dBm – 20 dB = -19.34 dBm

Frequency Range: 30 – 1000 MHz

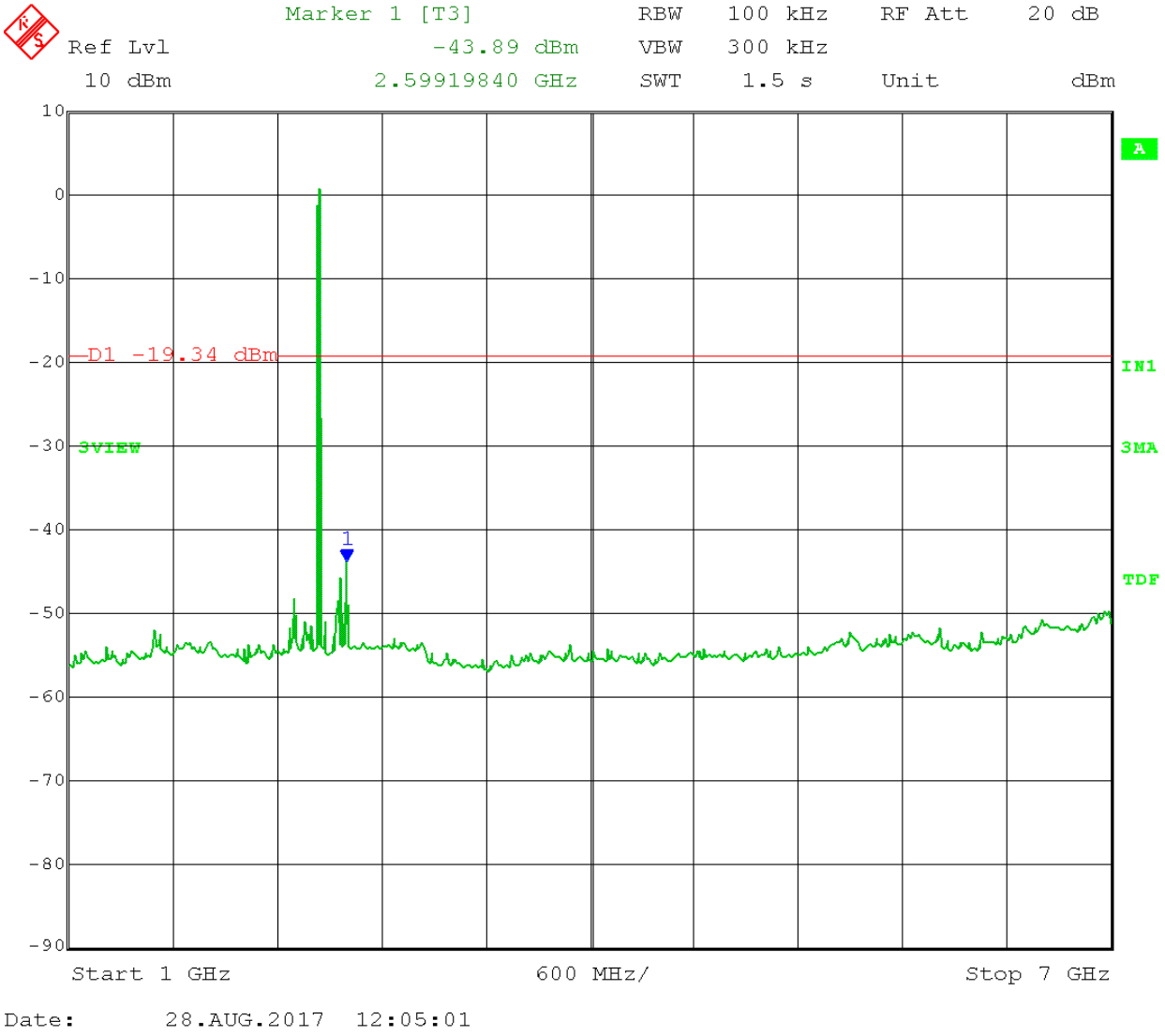


Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Mid Channel: 2440 MHz
Emission Level measurement

Reference Level = 0.66 dBm
Limit= 0.66 dBm – 20 dB = -19.34 dBm

Frequency Range: 1 – 7 GHz



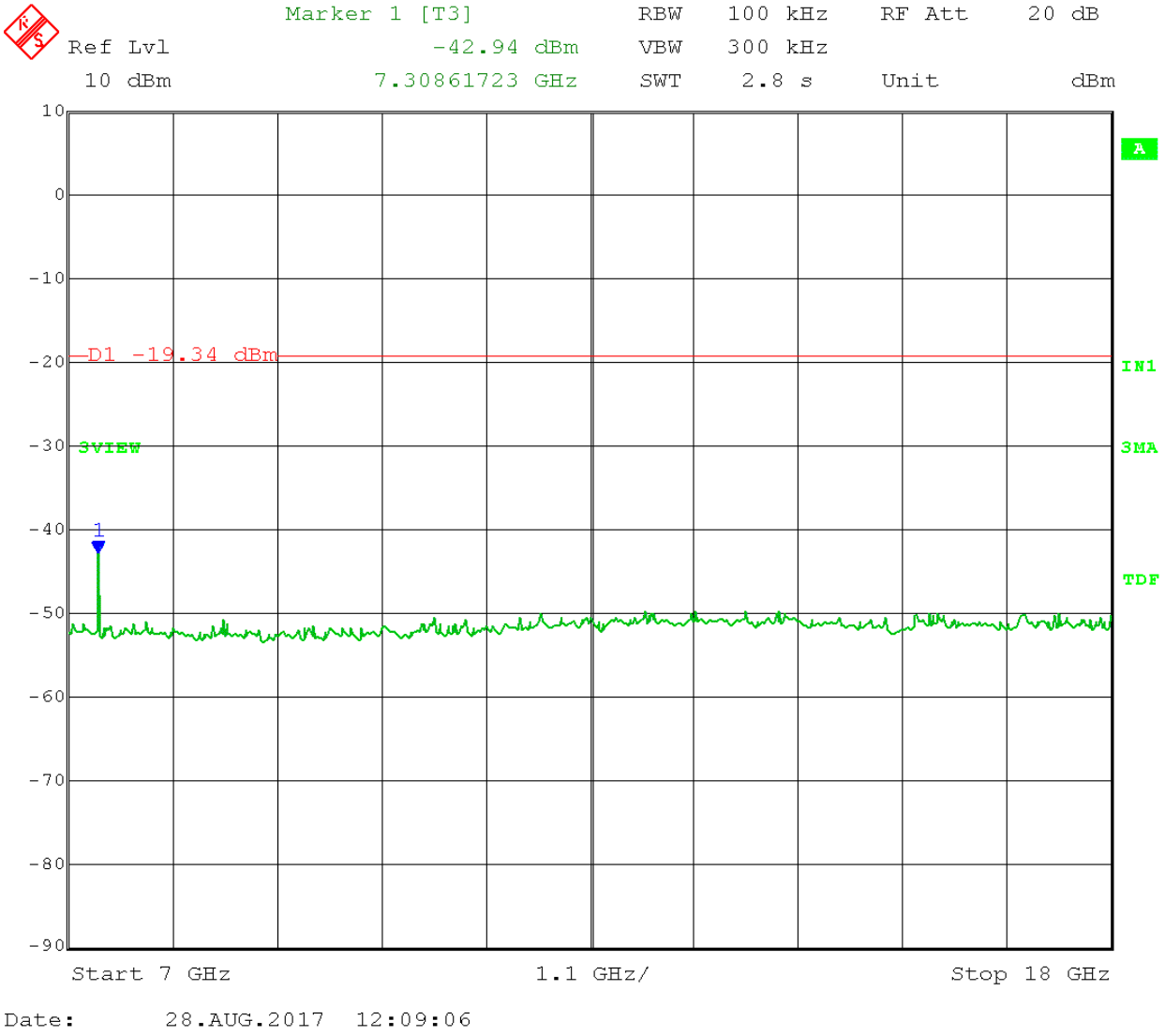
Date: 28.AUG.2017 12:05:01

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Mid Channel: 2440 MHz
Emission Level measurement

Reference Level = 0.66 dBm
Limit= 0.66 dBm – 20 dB = -19.34 dBm

Frequency Range: 7 – 18 GHz

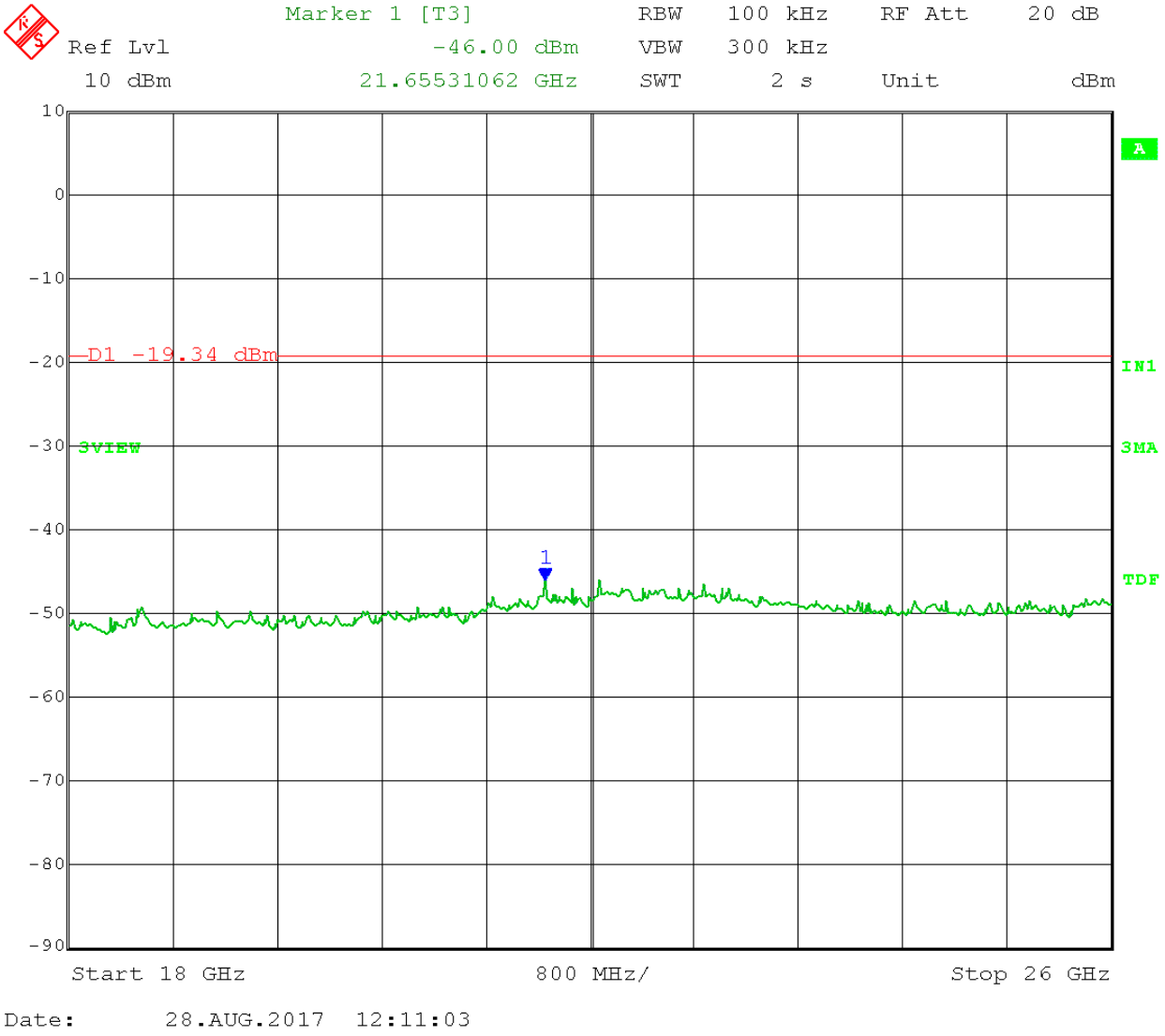


Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Mid Channel: 2440 MHz
Emission Level measurement

Reference Level = 0.66 dBm
Limit= 0.66 dBm – 20 dB = -19.34 dBm

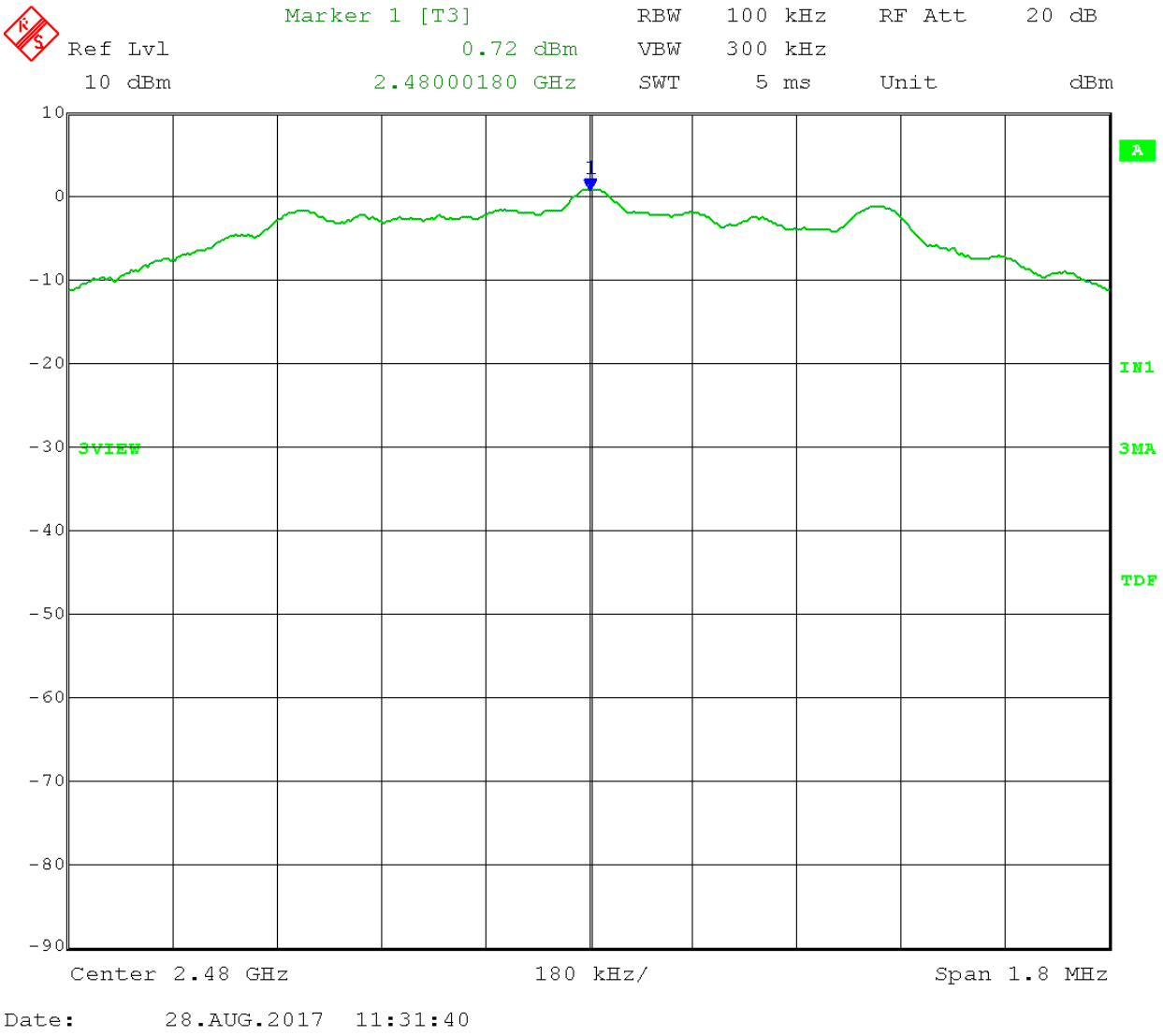
Frequency Range: 18 – 26 GHz



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
High Channel: 2480 MHz
Reference Level measurement

Reference Level = 0.72 dBm
Limit= 0.72 dBm – 20 dB = -19.28 dBm

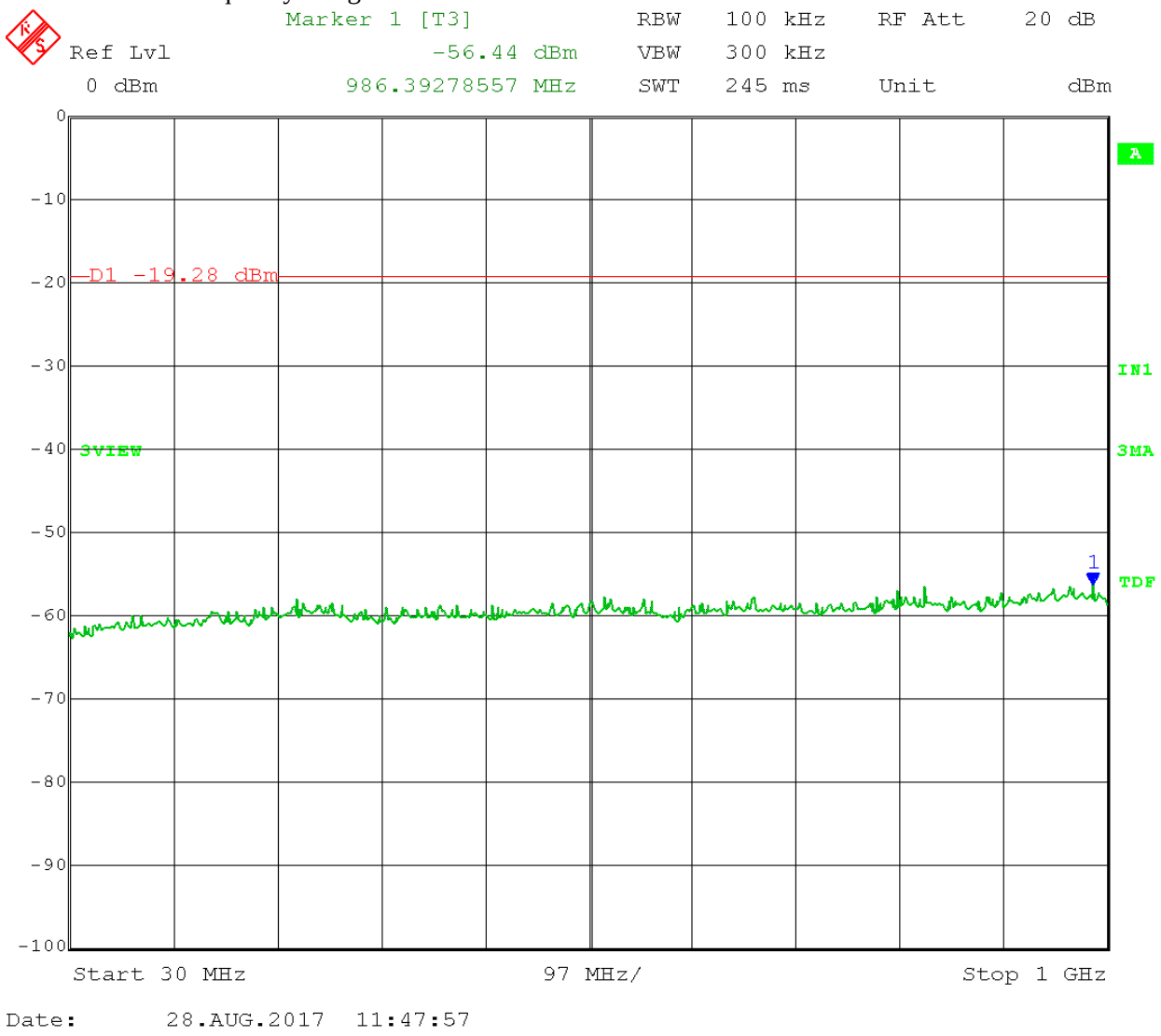


Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
High Channel: 2480 MHz
Emission Level measurement

Reference Level = 0.72 dBm
Limit= 0.72 dBm – 20 dB = -19.28 dBm

Frequency Range: 30 – 1000 MHz



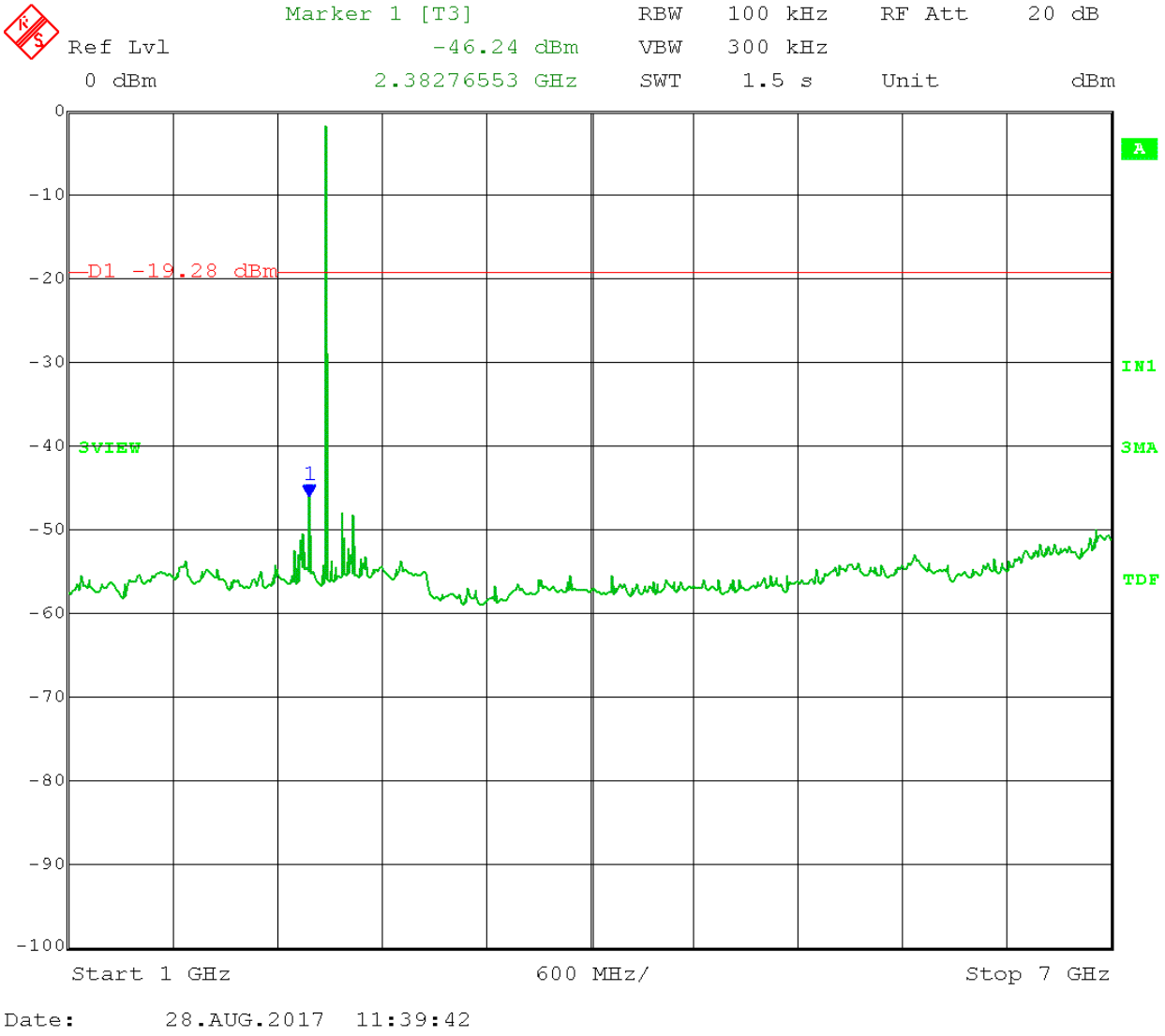
Date: 28.AUG.2017 11:47:57

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
High Channel: 2480 MHz
Emission Level measurement

Reference Level = 0.72 dBm
Limit= 0.72 dBm – 20 dB = -19.28 dBm

Frequency Range: 1 – 7 GHz



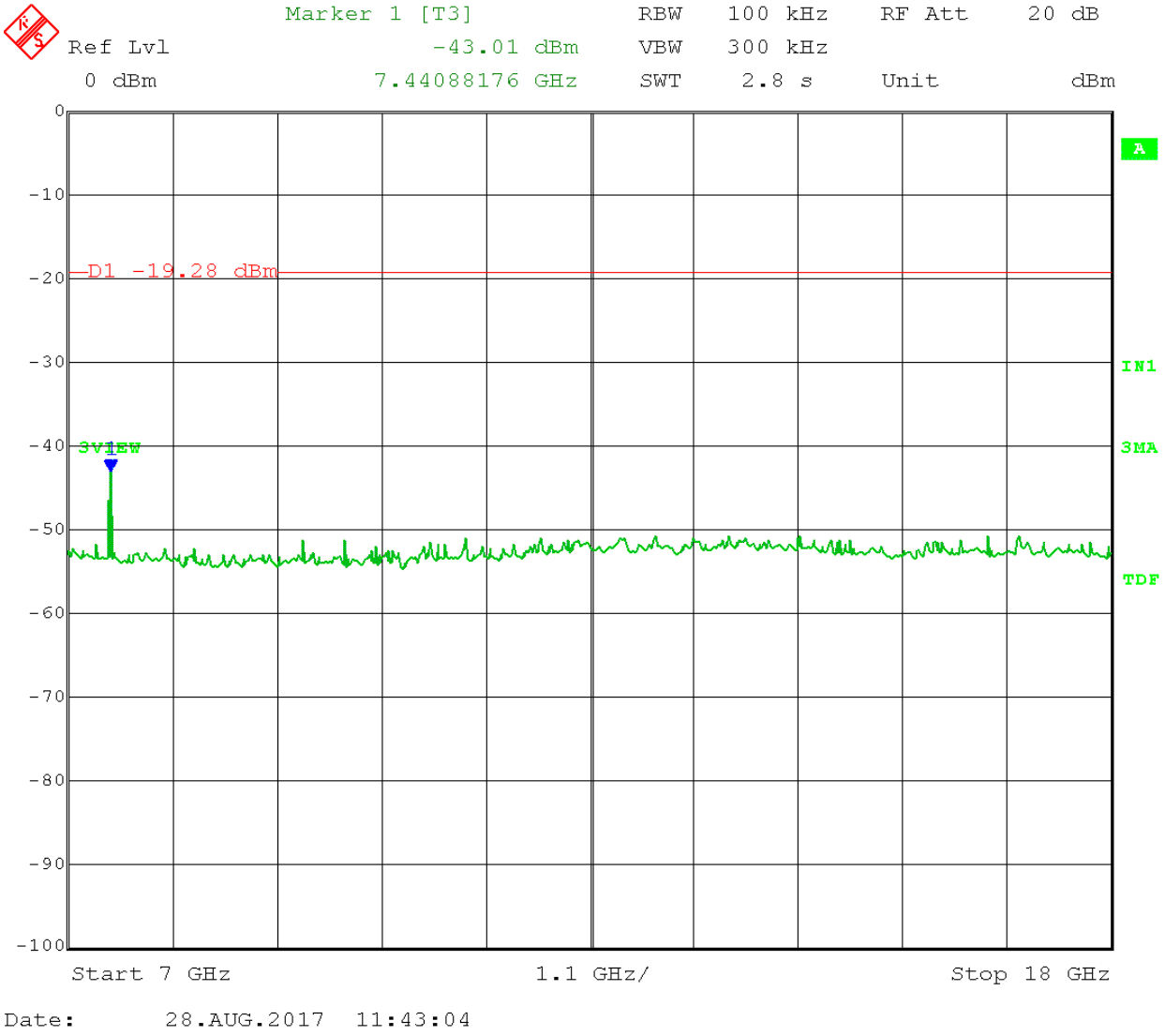
Date: 28.AUG.2017 11:39:42

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
High Channel: 2480 MHz
Emission Level measurement

Reference Level = 0.72 dBm
Limit= 0.72 dBm – 20 dB = -19.28 dBm

Frequency Range: 7 – 18 GHz

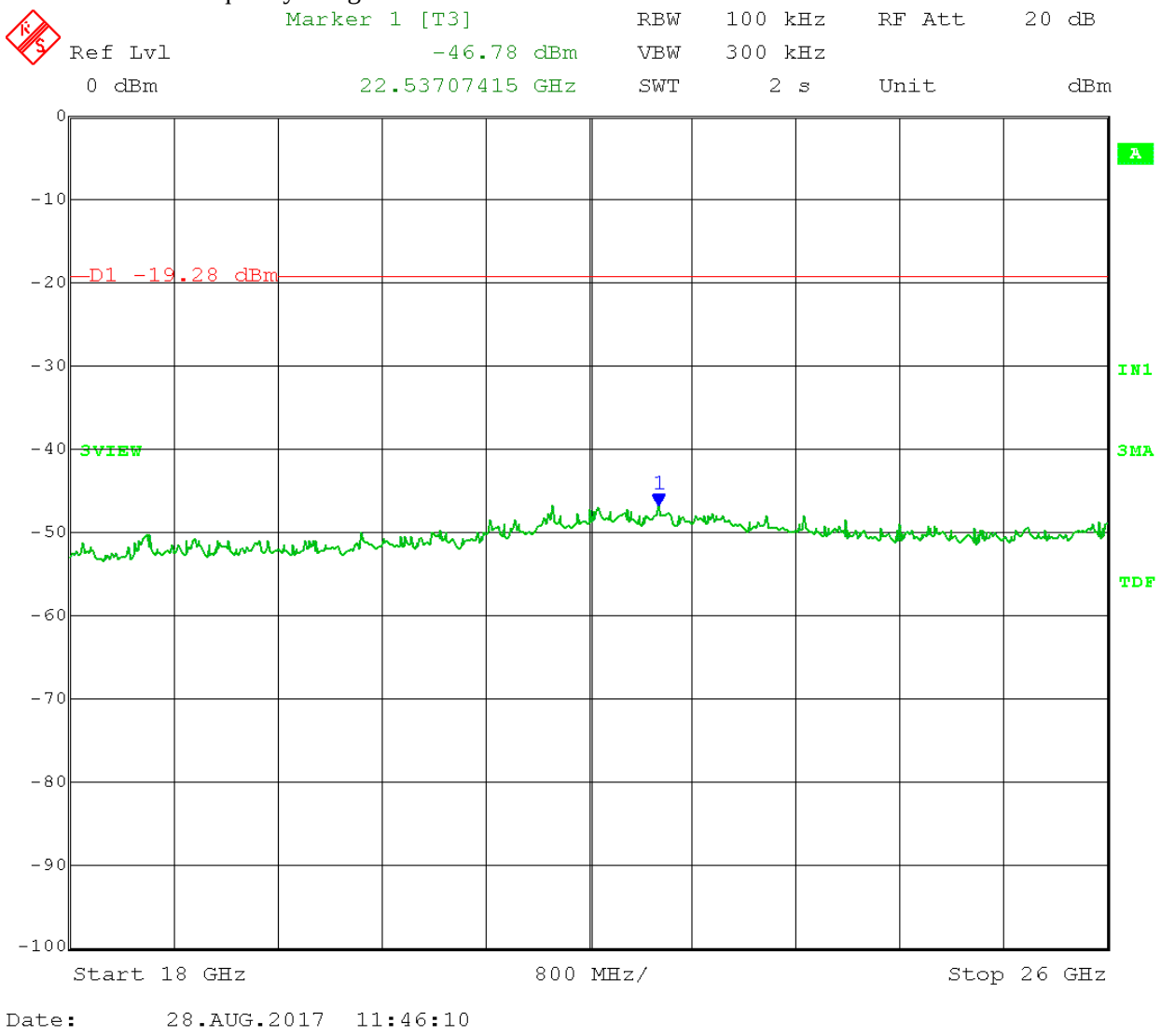


Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Emissions in Non-Restricted frequency bands - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
High Channel: 2480 MHz
Emission Level measurement

Reference Level = 0.72 dBm
Limit= 0.72 dBm – 20 dB = -19.28 dBm

Frequency Range: 18 – 26 GHz



166 South Carter, Genoa City, WI 53128

Appendix B

B6.0 Emissions in Restricted Frequency Bands – Radiated with antenna

Rule Part: FCC 15.247(d), 15.205(a), 15.209(a)

Test Procedure: ANSI C63.10-2013, sections 11.12 & 11.12.1

Limit: FCC 15.209

Results: Compliant

Notes: The EUT was set to transmit continuously at the low, middle, and high channels, with a 94.6% duty cycle at a 1 Mbps data rate, and an 89.8% duty cycle at a 2 Mbps data rate.

The output power setting was set to 0 for this test.

FCC 15.209

Electric Field Strength

EUT: X100G-Flash Tag
Manufacturer: Wilson
Operating Condition: 63 deg. F; 66% R.H.
Test Site: DLS Site 2
Operator: Craig B; #9121
Test Specification: Radiated emissions with antenna
Comment: Tx L,M,H channels, 1 Mbps & 2 Mbps
Date: 08-30-2017

TEXT: "Vert 3 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)

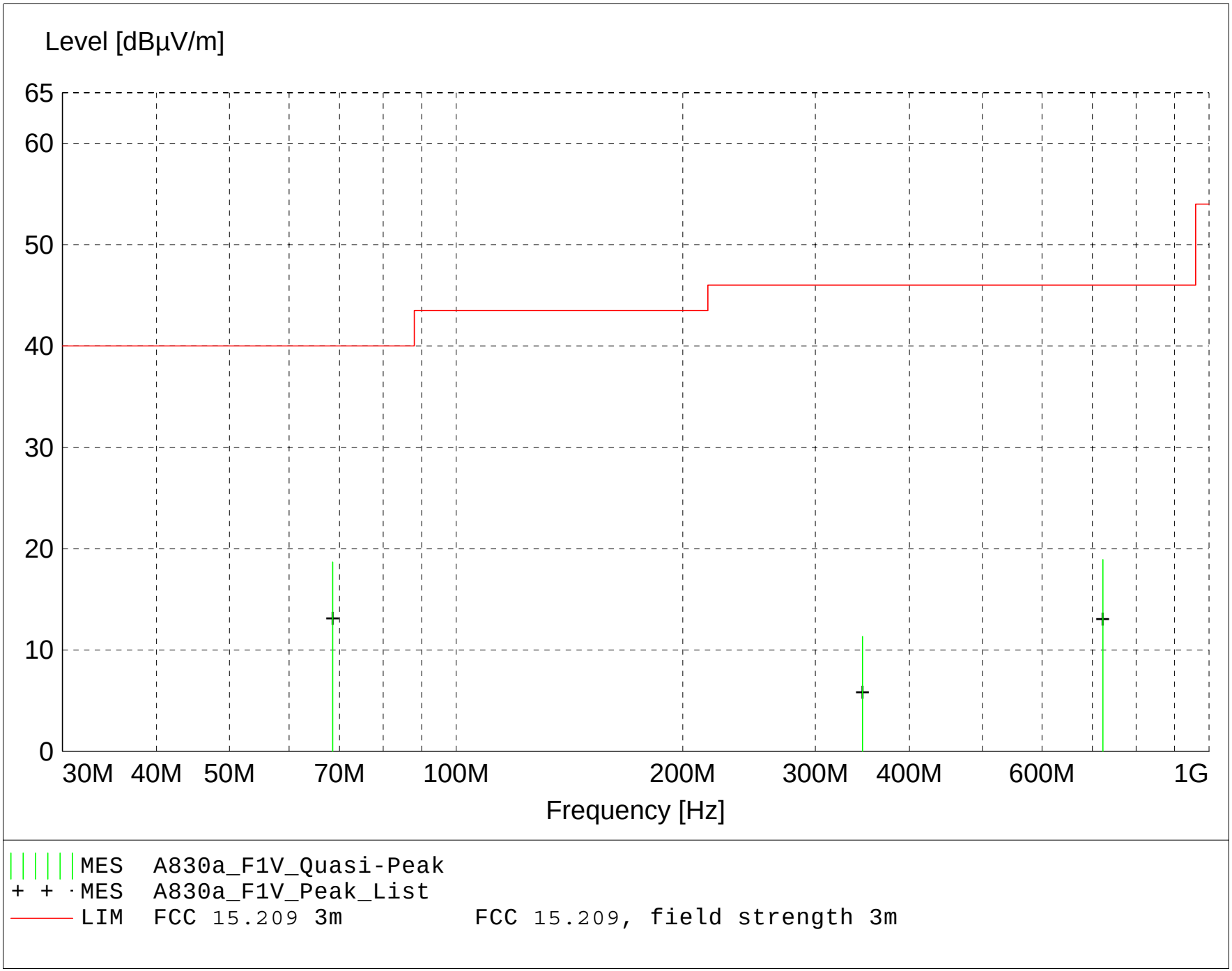
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)

Graph Markers: + Frequency marker (Level of marker not related to final level)

| Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

Final maximized level using Peak detector


Level [dBµV/m]
65
60
50
40
30
20
10
0
30M
40M
50M
70M
100M
200M
300M
400M
600M
1G
Frequency [Hz]
MES A830a_F1V_Quasi-Peak
MES A830a_F1V_Peak_List
LIM FCC 15.209 3m
FCC 15.209, field strength 3m

MEASUREMENT RESULT: "A830a_F1V_Final"

8/30/2017 9:46AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
68.570000	34.19	7.57	-23.1	18.7	40.0	21.3	1.00	0	QUASI-PEAK	noise floor
722.720000	16.54	21.31	-18.9	18.9	46.0	27.1	1.00	270	QUASI-PEAK	noise floor
346.560000	17.40	14.87	-20.9	11.3	46.0	34.7	1.00	125	QUASI-PEAK	noise floor

FCC 15.209

Electric Field Strength

EUT: X100G-Flash Tag
Manufacturer: Wilson
Operating Condition: 63 deg. F; 66% R.H.
Test Site: DLS Site 2
Operator: Craig B; #9121
Test Specification: Radiated emissions with antenna
Comment: Tx L,M,H channels, 1 Mbps & 2 Mbps
Date: 08-30-2017

TEXT: "Horz 3 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization

Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)

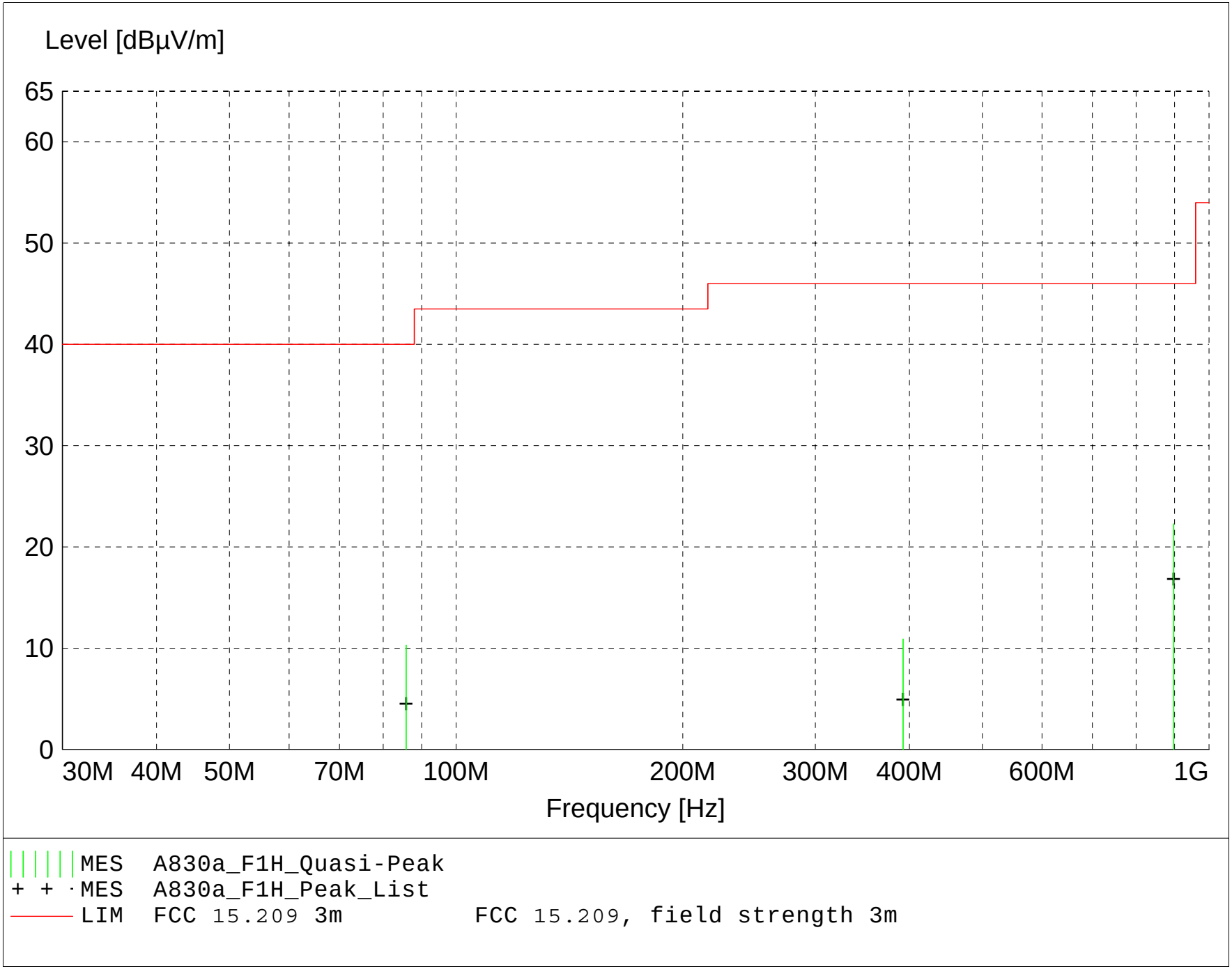
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)

Graph Markers: + Frequency marker (Level of marker not related to final level)

| Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

Final maximized level using Peak detector


Level [dBµV/m]
65
60
50
40
30
20
10
0
30M
40M
50M
70M
100M
200M
300M
400M
600M
1G
Frequency [Hz]
MES A830a_F1H_Quasi-Peak
MES A830a_F1H_Peak_List
LIM FCC 15.209 3m
FCC 15.209, field strength 3m

MEASUREMENT RESULT: "A830a_F1H_Final"

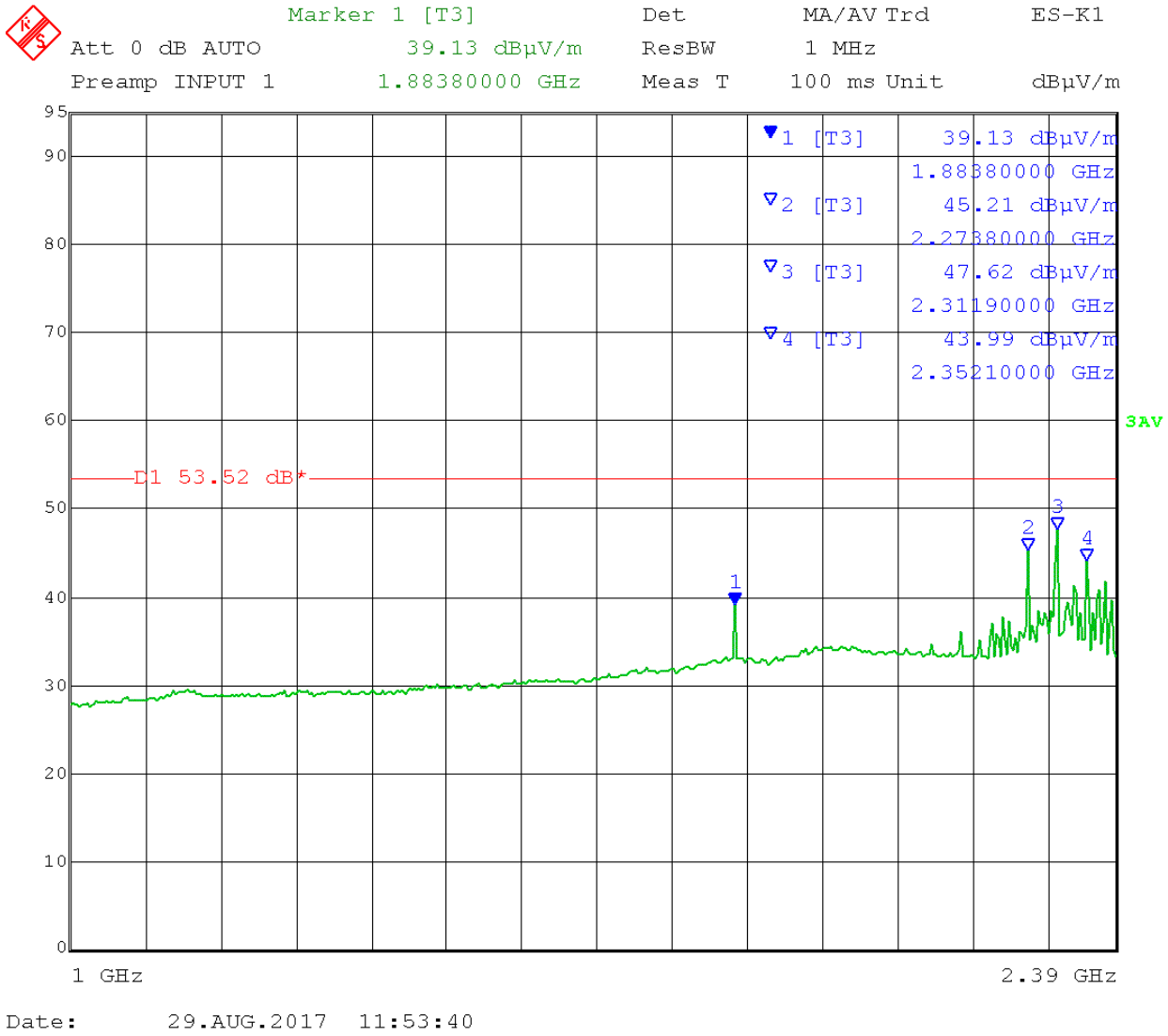
8/30/2017 10:09AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
897.380000	16.58	23.30	-17.6	22.3	46.0	23.7	1.50	225	QUASI-PEAK	noise floor
85.820000	25.84	7.25	-22.8	10.3	40.0	29.7	2.00	180	QUASI-PEAK	noise floor
392.360000	15.94	15.70	-20.7	10.9	46.0	35.1	2.00	180	QUASI-PEAK	noise floor

Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Unwanted Emissions in Restricted Bands – Radiated with antenna
Operator: Craig B

Comment: Data rate: 1 Mbps
Low, Mid, High Channels: 2402 MHz, 2440 MHz, 2480 MHz

Average (linear) Detector (max hold)
Limit: 54 dBµV/m – 0.48 dB (duty cycle cor.) = 53.52 dBµV/m @ 3meters
Vertical:

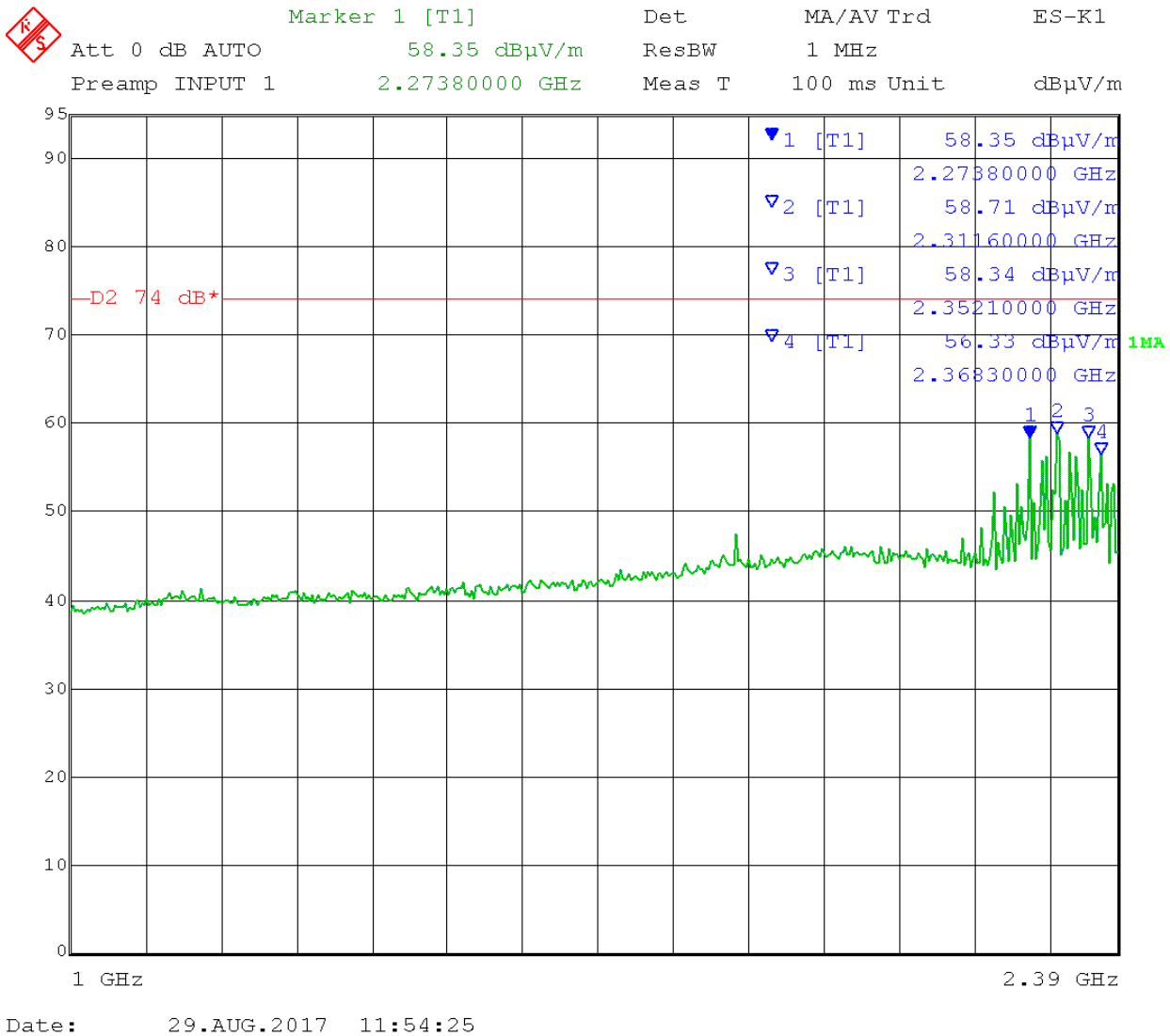


Date: 29.AUG.2017 11:53:40

Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Unwanted Emissions in Restricted Bands – Radiated with antenna
Operator: Craig B

Comment: Data rate: 1 Mbps
Low, Mid, High Channels: 2402 MHz, 2440 MHz, 2480 MHz

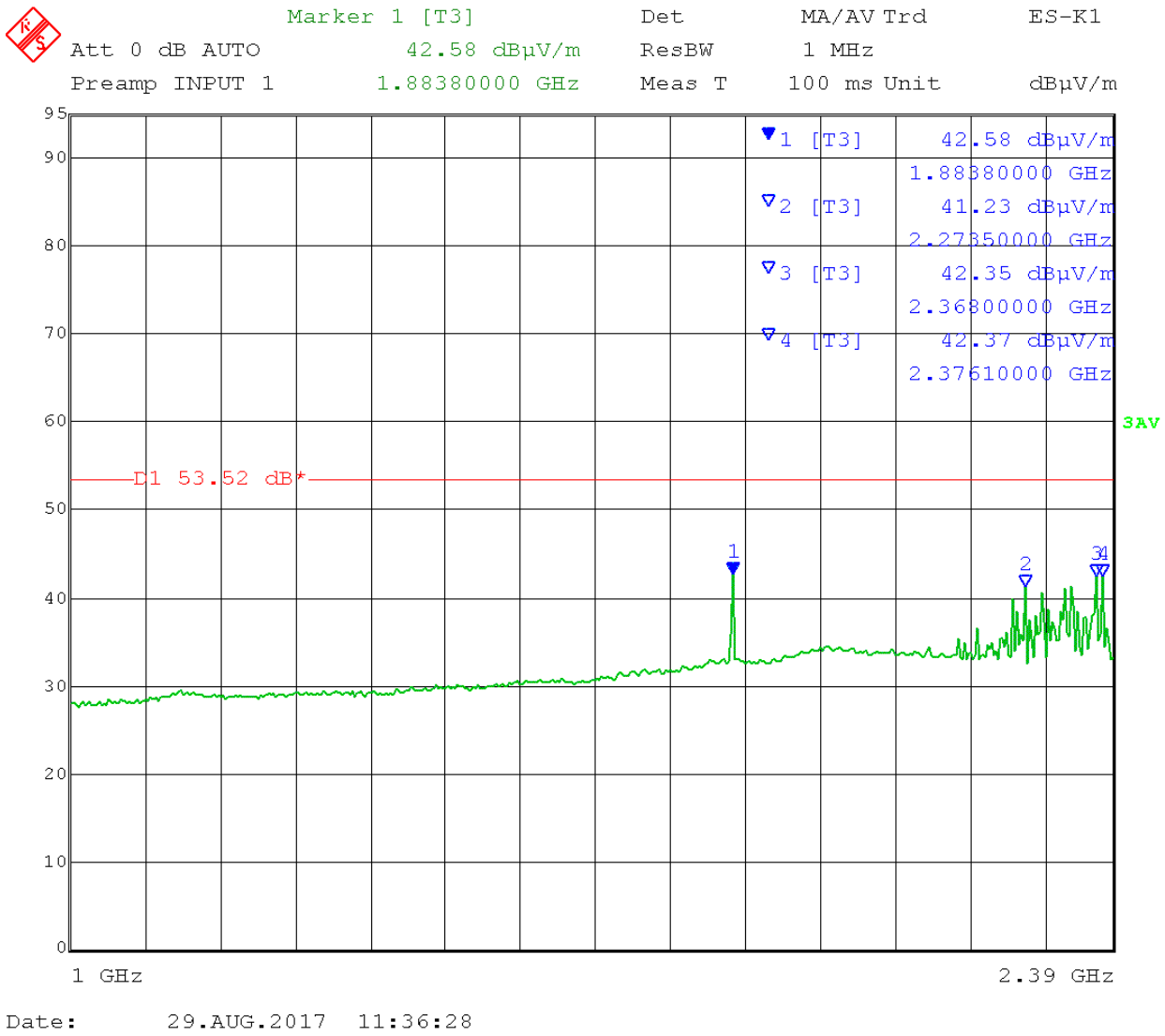
Peak Detector (max hold)
Limit: 74 dBµV/m@ 3meters
Vertical:



Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Unwanted Emissions in Restricted Bands – Radiated with antenna
Operator: Craig B

Comment: Data rate: 1 Mbps
Low, Mid, High Channels: 2402 MHz, 2440 MHz, 2480 MHz

Average (linear) Detector (max hold)
Limit: 54 dBµV/m – 0.48 dB (duty cycle cor.) = 53.52 dBµV/m @ 3meters
Horizontal:

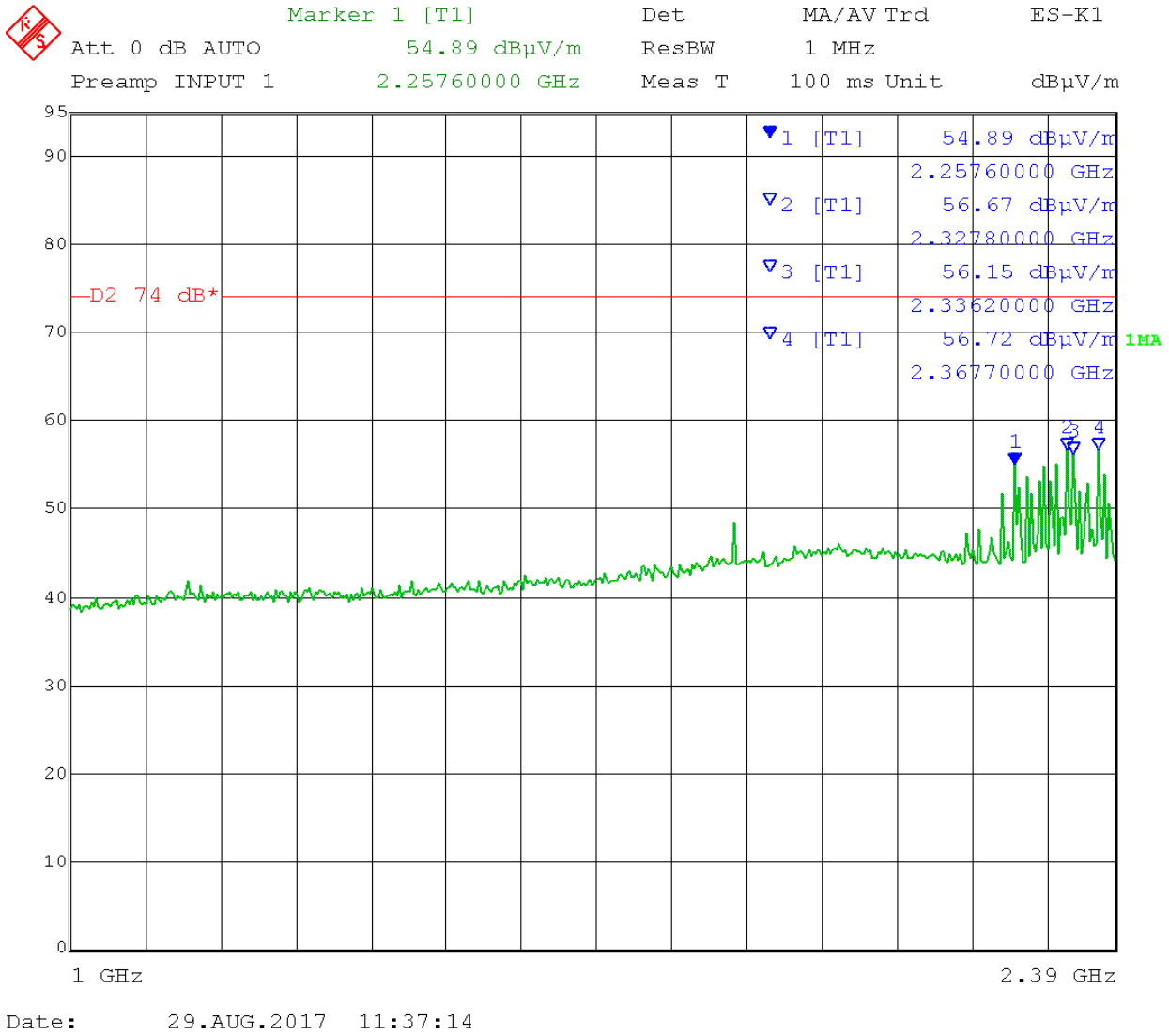


Date: 29.AUG.2017 11:36:28

Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Unwanted Emissions in Restricted Bands – Radiated with antenna
Operator: Craig B

Comment: Data rate: 1 Mbps
Low, Mid, High Channels: 2402 MHz, 2440 MHz, 2480 MHz

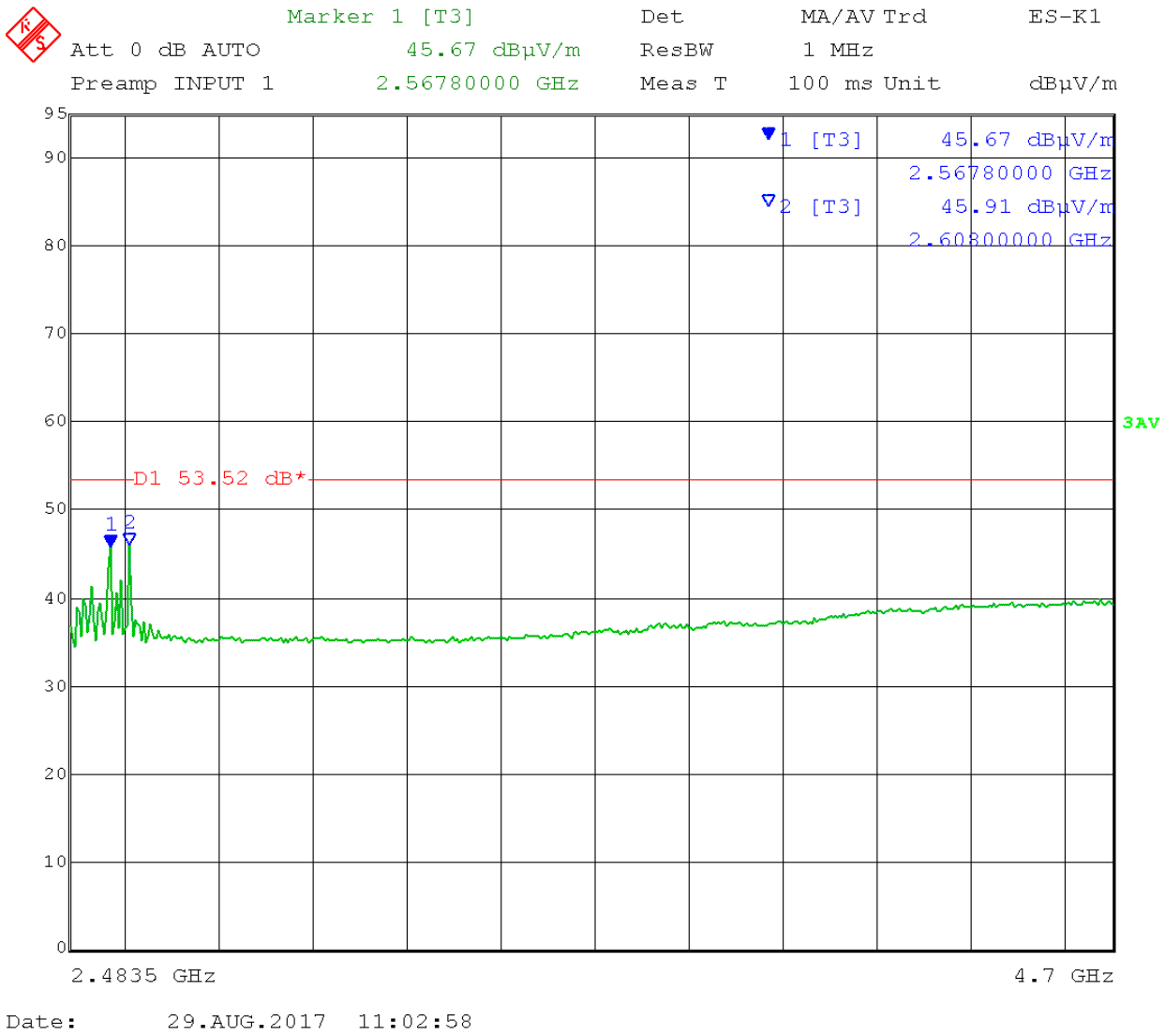
Peak Detector (max hold)
Limit: 74 dBµV/m@ 3meters
Horizontal:



Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Unwanted Emissions in Restricted Bands – Radiated with antenna
Operator: Craig B

Comment: Data rate: 1 Mbps
Low, Mid, High Channels: 2402 MHz, 2440 MHz, 2480 MHz

Average (linear) Detector (max hold)
Limit: 54 dBµV/m – 0.48 dB (duty cycle cor.) = 53.52 dBµV/m @ 3meters
Vertical:

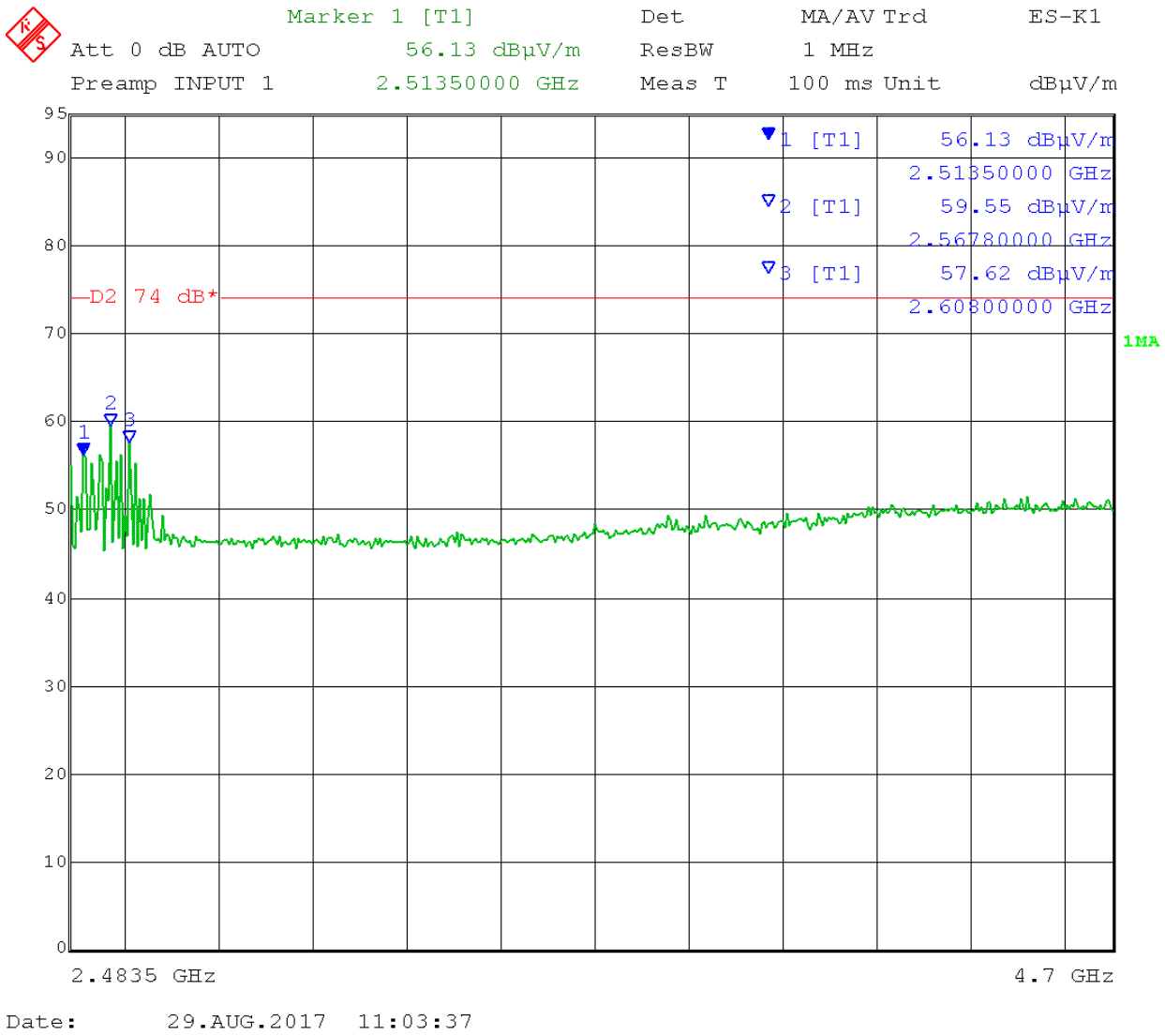


Date: 29.AUG.2017 11:02:58

Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Unwanted Emissions in Restricted Bands – Radiated with antenna
Operator: Craig B

Comment: Data rate: 1 Mbps
Low, Mid, High Channels: 2402 MHz, 2440 MHz, 2480 MHz

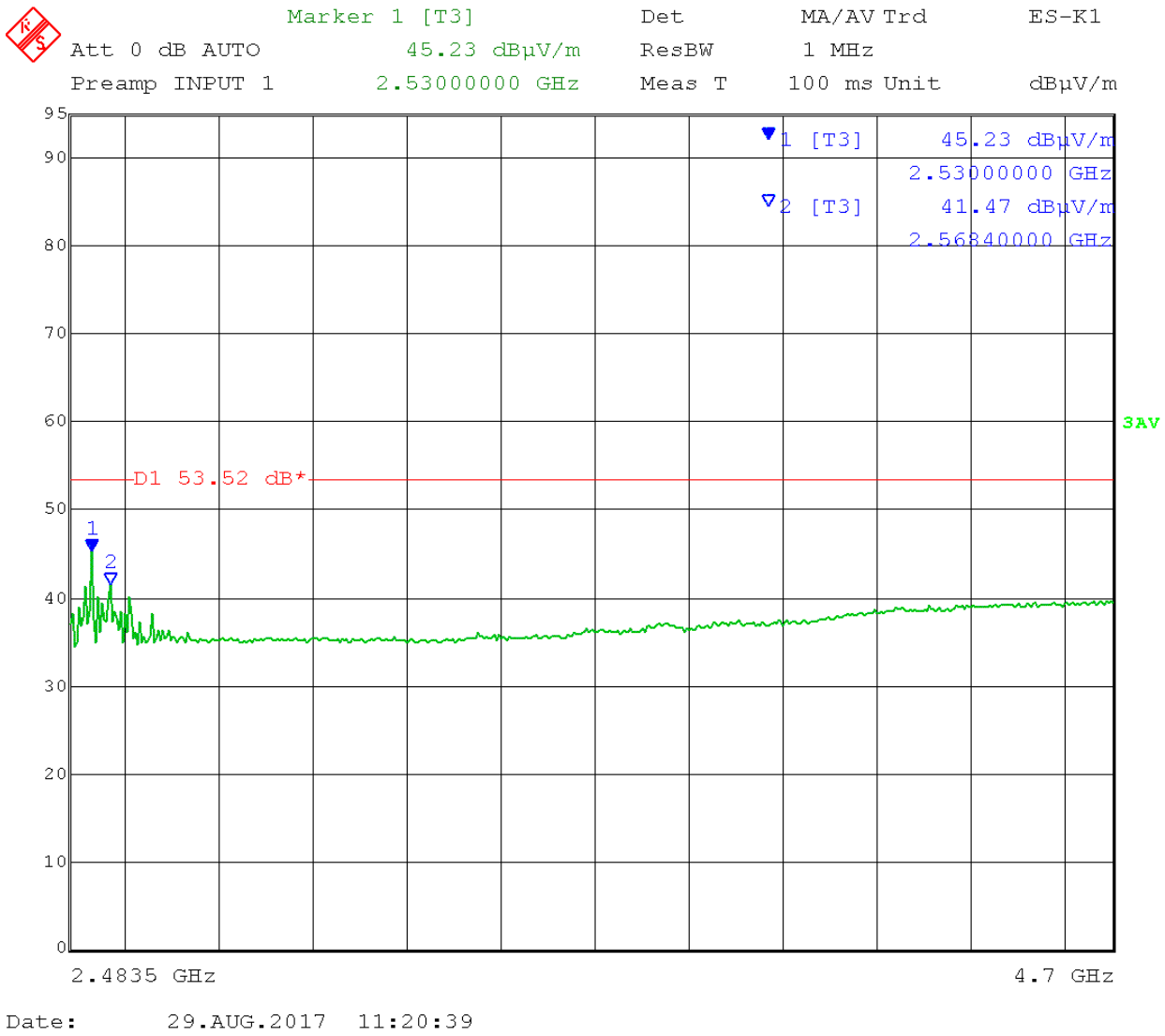
Peak Detector (max hold)
Limit: 74 dBµV/m@ 3meters
Vertical:



Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Unwanted Emissions in Restricted Bands – Radiated with antenna
Operator: Craig B

Comment: Data rate: 1 Mbps
Low, Mid, High Channels: 2402 MHz, 2440 MHz, 2480 MHz

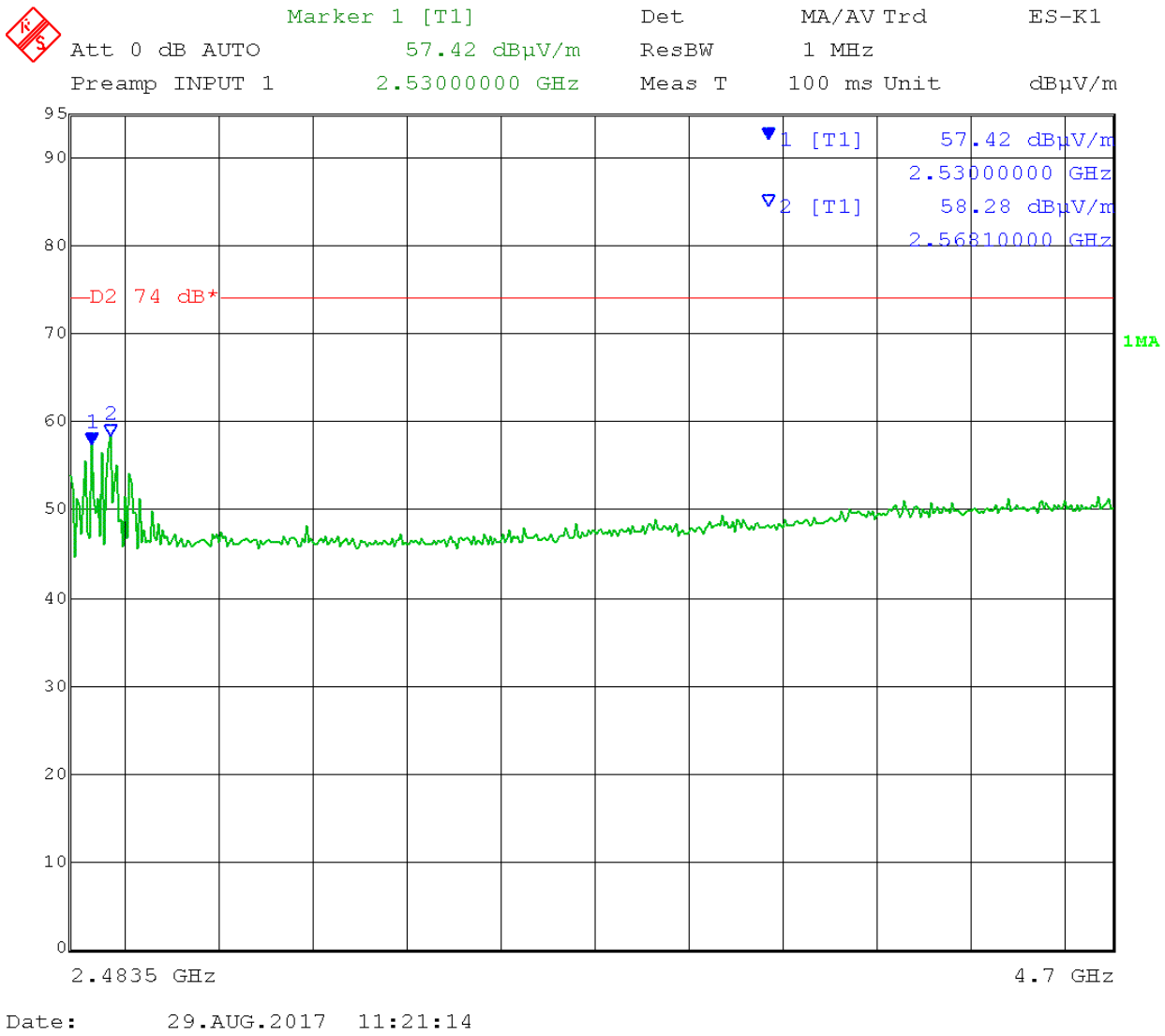
Average (linear) Detector (max hold)
Limit: 54 dBµV/m – 0.48 dB (duty cycle cor.) = 53.52 dBµV/m @ 3meters
Horizontal:



Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Unwanted Emissions in Restricted Bands – Radiated with antenna
Operator: Craig B

Comment: Data rate: 1 Mbps
Low, Mid, High Channels: 2402 MHz, 2440 MHz, 2480 MHz

Peak Detector (max hold)
Limit: 74 dBµV/m@ 3meters
Horizontal:



FCC 15.209

Electric Field Strength

EUT: X100G-Flash Tag
Manufacturer: Wilson
Operating Condition: 74 deg C 52% R.H.
Test Site: DLS O.F. G1
Operator: Craig B
Test Specification: Radiated in Restricted Bands
Comment: L,M,H channels; 1 Mbps
Date: 08-29-2017

TEXT: "Vert 3 meters"

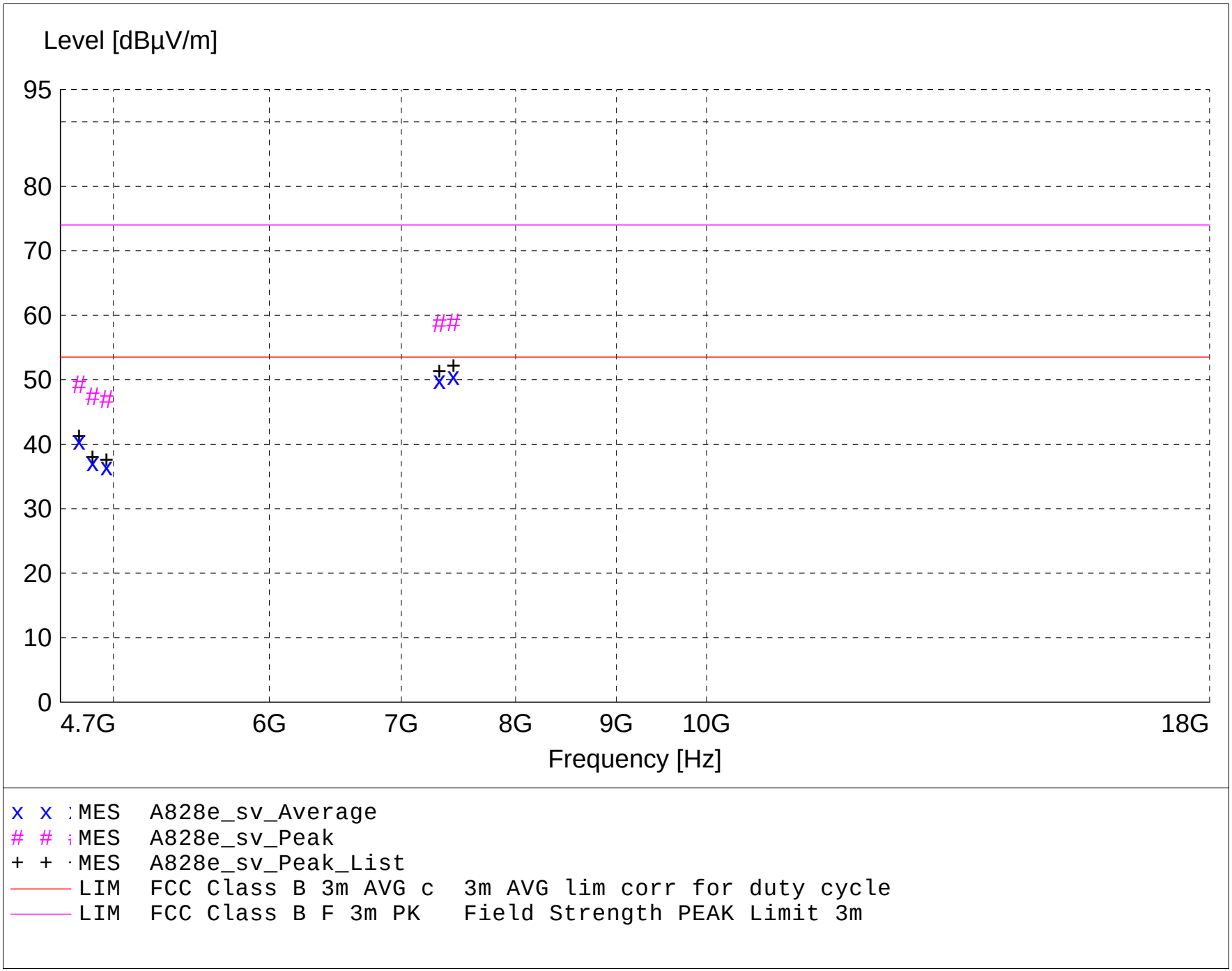
Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

Sample Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)
24.6 = 35.51 + (-22.1) + 11.20

Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)
15.4 = 40 - 24.6

Graph Markers:
+ Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average dector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



x x x	MES	A828e_sv_Average	
# # #	MES	A828e_sv_Peak	
+ + +	MES	A828e_sv_Peak_List	
———	LIM	FCC Class B 3m AVG c	3m AVG lim corr for duty cycle
———	LIM	FCC Class B F 3m PK	Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A828e_sv_Final"

8/29/2017 12:47PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
7439.340000	46.98	37.07	-33.5	50.5	53.5	3.0	1.49	184	AVERAGE	High ch
7319.348635	46.54	37.17	-33.8	50.0	53.5	3.6	1.46	167	AVERAGE	Mid ch
4804.010000	43.92	33.04	-36.5	40.5	53.5	13.0	1.40	186	AVERAGE	Low ch
7439.340000	55.38	37.07	-33.5	58.9	74.0	15.1	1.49	184	MAX PEAK	High ch
7319.348635	55.38	37.17	-33.8	58.8	74.0	15.2	1.46	167	MAX PEAK	Mid ch
4880.010000	40.71	33.02	-36.5	37.2	53.5	16.3	1.48	180	AVERAGE	Mid ch
4959.990000	39.96	33.20	-36.6	36.6	53.5	17.0	1.55	183	AVERAGE	High ch
4804.010000	52.74	33.04	-36.5	49.3	74.0	24.7	1.40	186	MAX PEAK	Low ch
4880.010000	50.99	33.02	-36.5	47.5	74.0	26.5	1.48	180	MAX PEAK	Mid ch
4959.990000	50.47	33.20	-36.6	47.1	74.0	26.9	1.55	183	MAX PEAK	High ch

FCC 15.209

Electric Field Strength

EUT: X100G-Flash Tag
Manufacturer: Wilson
Operating Condition: 74 deg C 52% R.H.
Test Site: DLS O.F. G1
Operator: Craig B
Test Specification: Radiated in Restricted Bands
Comment: L,M,H channels; 1 Mbps
Date: 08-29-2017

TEXT: "Horz 3 meters"

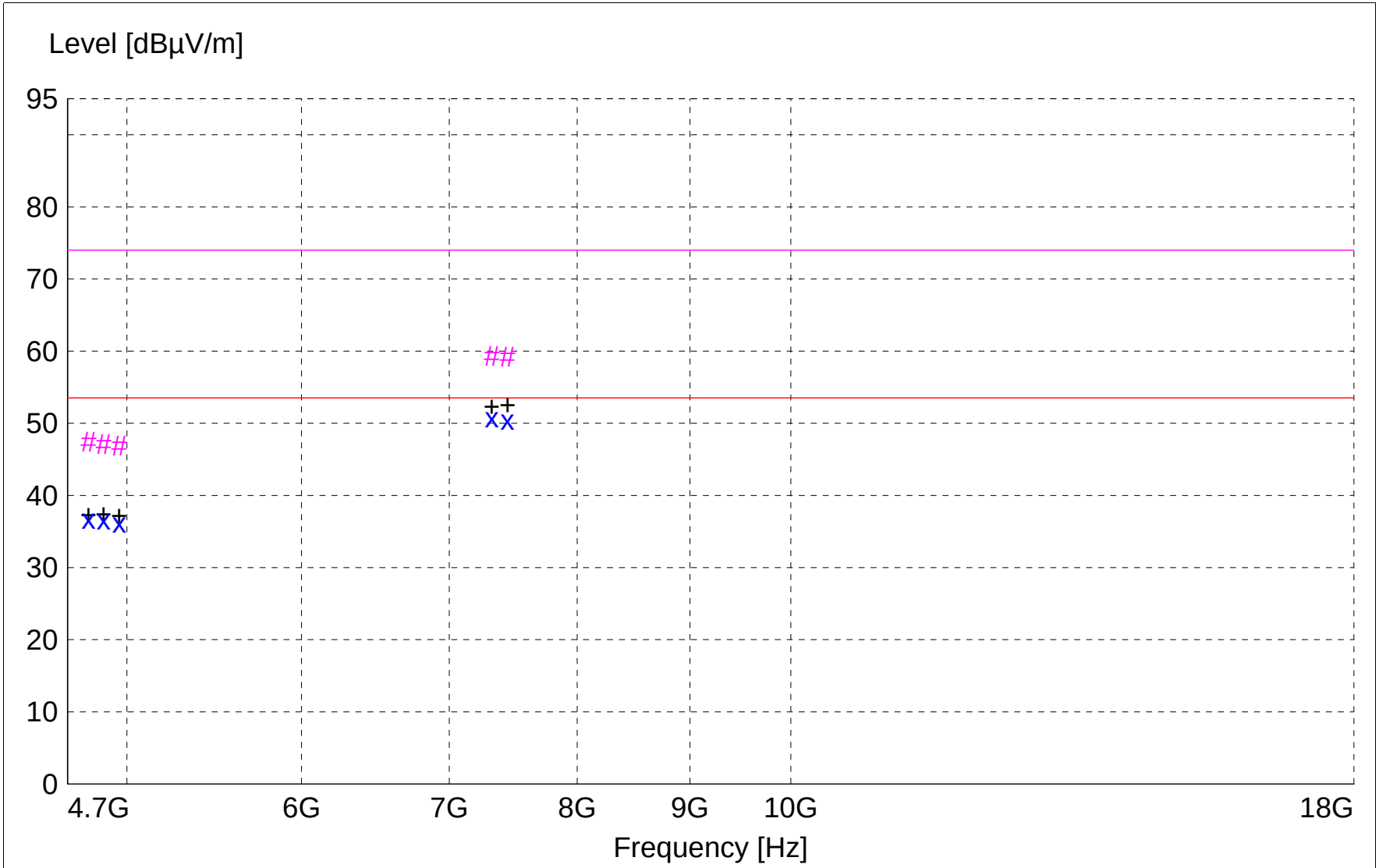
Short Description: Test Set-up

Test Set-up: EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization

Sample Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)
24.6 = 35.51 + (-22.1) + 11.20

Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)
15.4 = 40 - 24.6

Graph Markers:
+ Frequency marker (Level of marker not related to final level)
| Final maximized level using Quasi-Peak detector
X Final maximized level using Average dector
Final maximized level using Peak detector
- Background Scan Peak Detector (Optional)
- Background Scan Average Detector (Optional)



x x x MES A828e_sh_Average
MES A828e_sh_Peak
+ + + MES A828e_sh_Peak_List
——— LIM FCC Class B 3m AVG c 3m AVG lim corr for duty cycle
——— LIM FCC Class B F 3m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A828e_sh_Final"

8/29/2017 1:32PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
7319.340000	47.36	37.17	-33.8	50.8	53.5	2.7	1.08	177	AVERAGE	Mid ch
7439.320000	46.94	37.07	-33.5	50.5	53.5	3.0	1.81	177	AVERAGE	High ch
7319.340000	55.91	37.17	-33.8	59.3	74.0	14.7	1.08	177	MAX PEAK	Mid ch
7439.320000	55.65	37.07	-33.5	59.2	74.0	14.8	1.81	177	MAX PEAK	High ch
4804.000000	40.24	33.04	-36.5	36.8	53.5	16.7	1.56	181	AVERAGE	Low ch
4879.990000	40.15	33.02	-36.5	36.6	53.5	16.9	1.19	177	AVERAGE	Mid ch
4959.990000	39.64	33.20	-36.6	36.2	53.5	17.3	1.47	176	AVERAGE	High ch
4804.000000	50.86	33.04	-36.5	47.4	74.0	26.6	1.56	181	MAX PEAK	Low ch
4879.990000	50.60	33.02	-36.5	47.1	74.0	26.9	1.19	177	MAX PEAK	Mid ch
4959.990000	50.33	33.20	-36.6	46.9	74.0	27.1	1.47	176	MAX PEAK	High ch

FCC 15.209

Electric Field Strength

EUT: X100G-Flash Tag
Manufacturer: Wilson
Operating Condition: 63 deg. F; 66% R.H.
Test Site: DLS Site 2
Operator: Craig B; #9121
Test Specification: Radiated emissions with antenna
Comment: Tx L,M,H channels, 1 Mbps
Date: 08-30-2017

TEXT: "Vert 1 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 1 Meters with VERTICAL Antenna Polarization

Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)

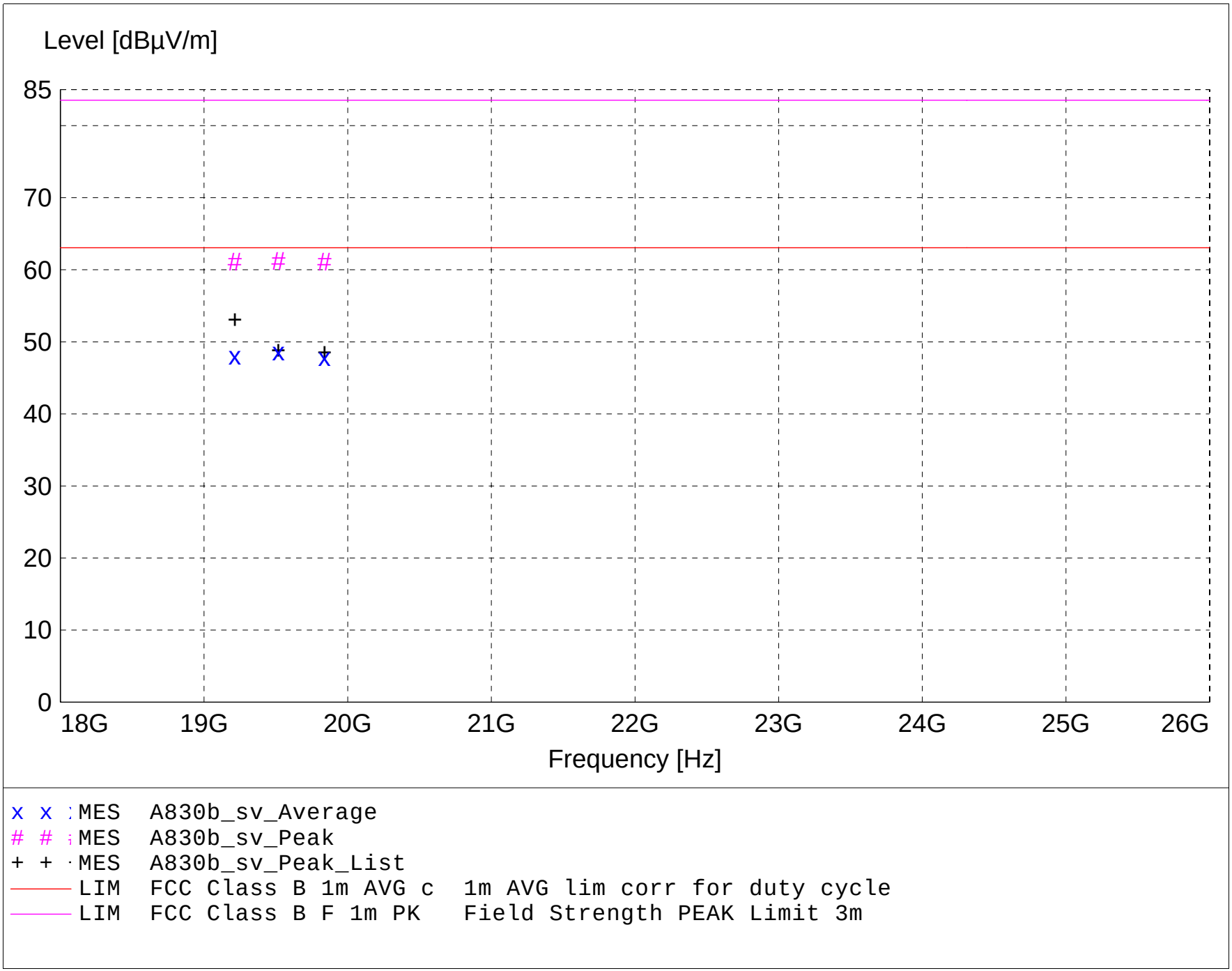
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)

Graph Markers: + Frequency marker (Level of marker not related to final level)

| Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

Final maximized level using Peak detector



x x x MES A830b_sv_Average
MES A830b_sv_Peak
+ + + MES A830b_sv_Peak_List
——— LIM FCC Class B 1m AVG c 1m AVG lim corr for duty cycle
——— LIM FCC Class B F 1m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A830b_sv_Final"

8/30/2017 11:06AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
19518.038000	39.54	45.93	-36.8	48.6	63.1	14.4	1.70	270	AVERAGE	Mid ch
19214.100000	39.54	45.53	-37.0	48.0	63.1	15.0	1.60	250	AVERAGE	Low ch
19838.110000	37.84	46.31	-36.3	47.8	63.1	15.2	1.50	275	AVERAGE	High ch
19518.038000	52.11	45.93	-36.8	61.2	83.5	22.4	1.70	270	MAX PEAK	Mid ch
19214.100000	52.63	45.53	-37.0	61.1	83.5	22.4	1.60	250	MAX PEAK	Low ch
19838.110000	51.08	46.31	-36.3	61.1	83.5	22.5	1.50	275	MAX PEAK	High ch

FCC 15.209

Electric Field Strength

EUT: X100G-Flash Tag
Manufacturer: Wilson
Operating Condition: 63 deg. F; 66% R.H.
Test Site: DLS Site 2
Operator: Craig B; #9121
Test Specification: Radiated emissions with antenna
Comment: Tx L,M,H channels, 1 Mbps
Date: 08-30-2017

TEXT: "Horz 1 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 1 Meters with HORIZONTAL Antenna Polarization

Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)

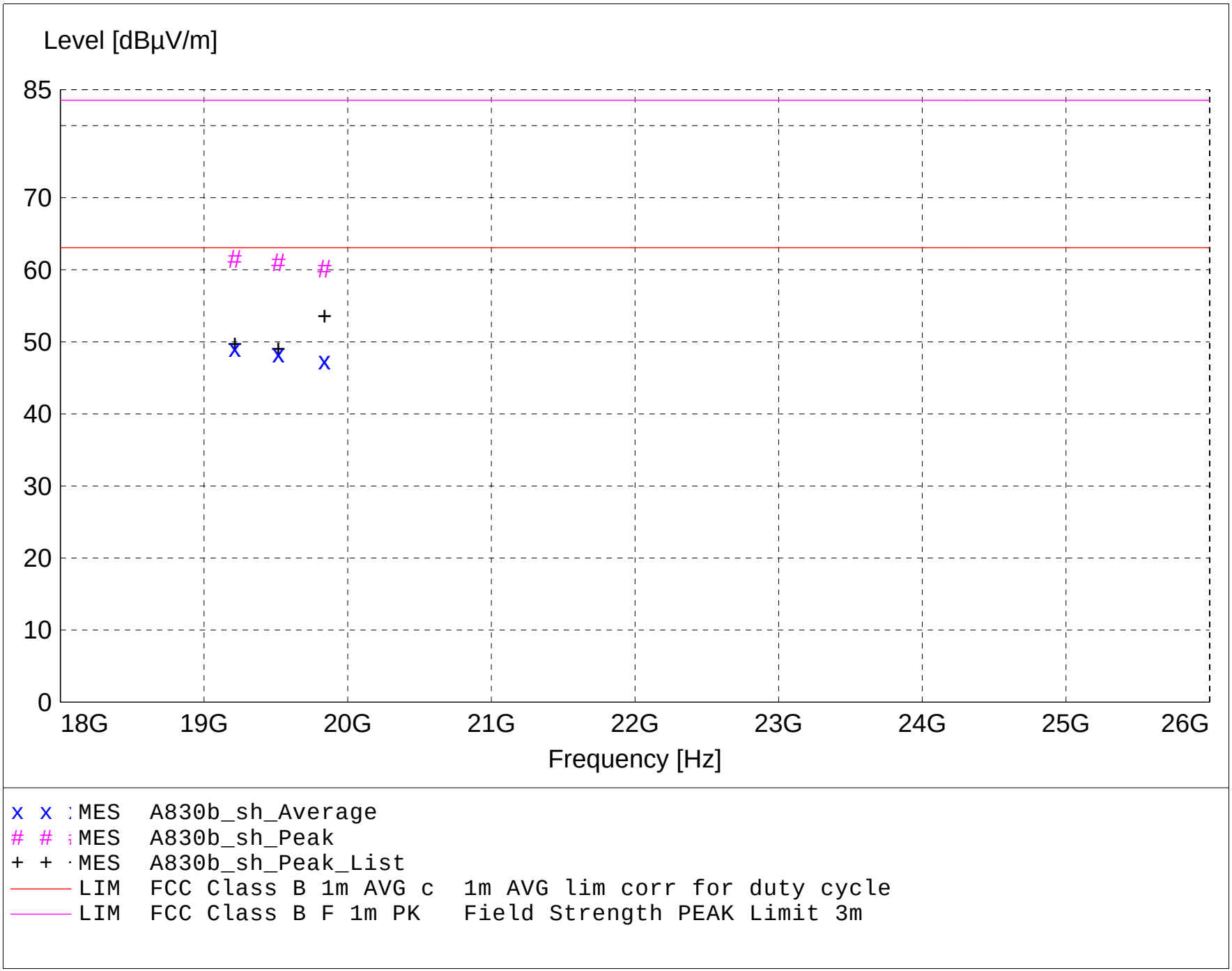
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)

Graph Markers: + Frequency marker (Level of marker not related to final level)

| Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

Final maximized level using Peak detector



x x x MES A830b_sh_Average
MES A830b_sh_Peak
+ + + MES A830b_sh_Peak_List
——— LIM FCC Class B 1m AVG c 1m AVG lim corr for duty cycle
——— LIM FCC Class B F 1m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A830b_sh_Final"

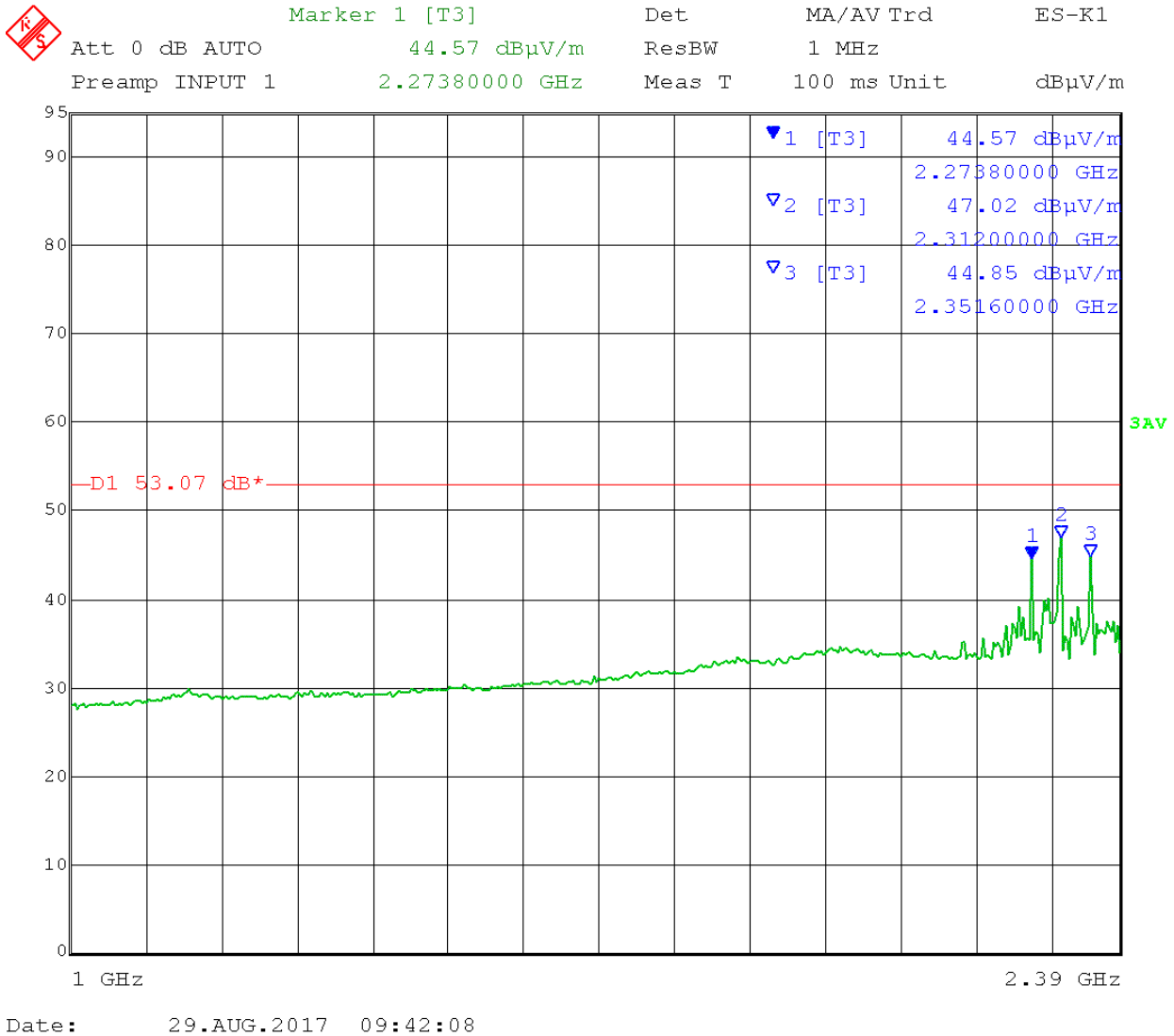
8/30/2017 11:21AM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
19214.020000	40.63	45.53	-37.0	49.1	63.1	14.0	1.60	90	AVERAGE	Low ch
19518.090000	39.30	45.93	-36.8	48.4	63.1	14.7	1.60	100	AVERAGE	Mid ch
19838.080000	37.36	46.31	-36.3	47.4	63.1	15.7	1.40	100	AVERAGE	High ch
19214.020000	53.03	45.53	-37.0	61.5	83.5	22.0	1.60	90	MAX PEAK	Low ch
19518.090000	51.97	45.93	-36.8	61.1	83.5	22.5	1.60	100	MAX PEAK	Mid ch
19838.080000	50.16	46.31	-36.3	60.2	83.5	23.4	1.40	100	MAX PEAK	High ch

Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Unwanted Emissions in Restricted Bands – Radiated with antenna
Operator: Craig B

Comment: Data rate: 2 Mbps
Low, Mid, High Channels: 2402 MHz, 2440 MHz, 2480 MHz

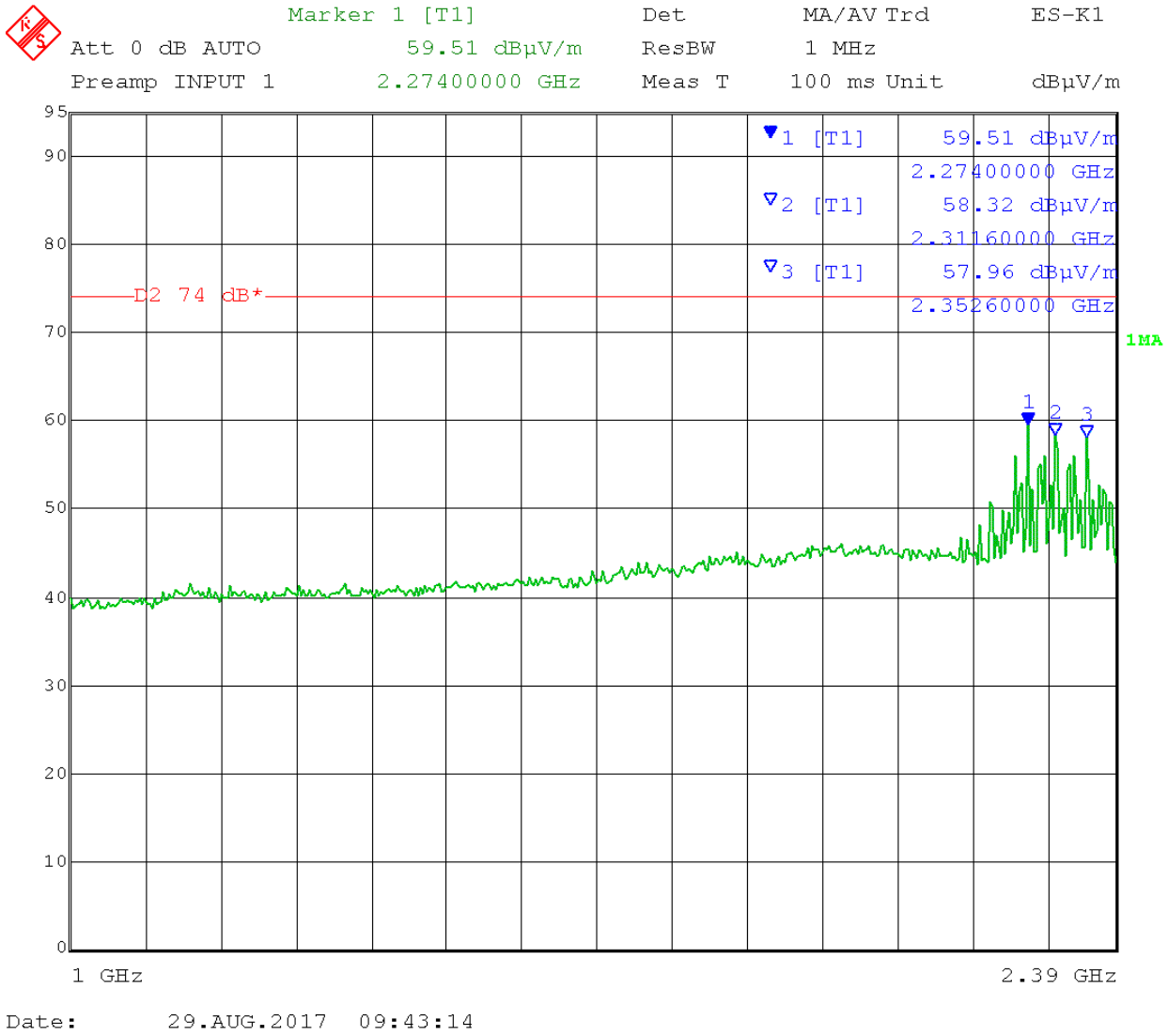
Average (linear) Detector (max hold)
Limit: 54 dBµV/m – 0.93 dB (duty cycle cor.) = 53.07 dBµV/m @ 3meters
Vertical:



Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Unwanted Emissions in Restricted Bands – Radiated with antenna
Operator: Craig B

Comment: Data rate: 2 Mbps
Low, Mid, High Channels: 2402 MHz, 2440 MHz, 2480 MHz

Peak Detector (max hold)
Limit: 74 dBµV/m@ 3meters
Vertical:

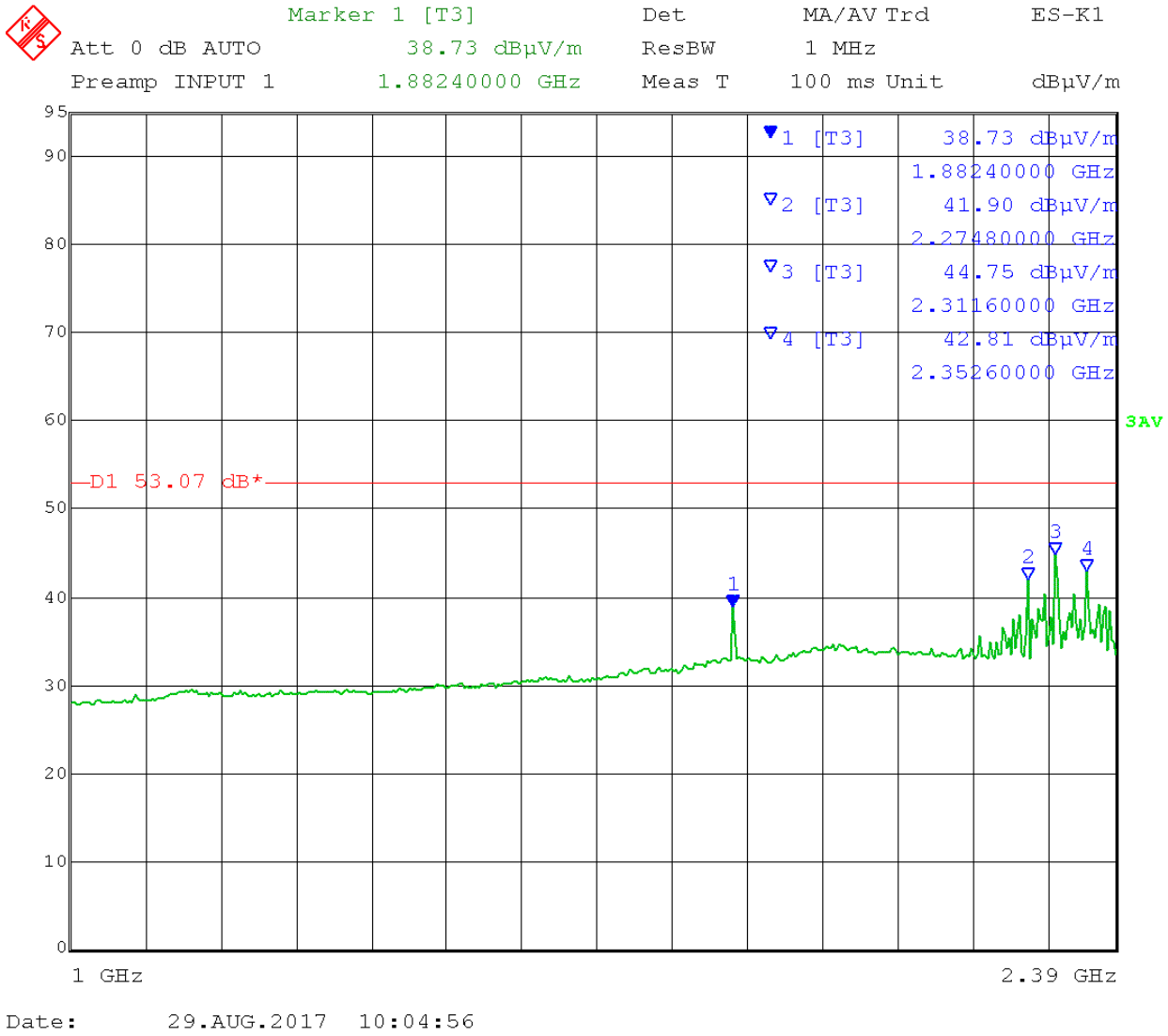


Date: 29.AUG.2017 09:43:14

Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Unwanted Emissions in Restricted Bands – Radiated with antenna
Operator: Craig B

Comment: Data rate: 2 Mbps
Low, Mid, High Channels: 2402 MHz, 2440 MHz, 2480 MHz

Average (linear) Detector (max hold)
Limit: 54 dBµV/m – 0.93 dB (duty cycle cor.) = 53.07 dBµV/m @ 3meters
Horizontal:

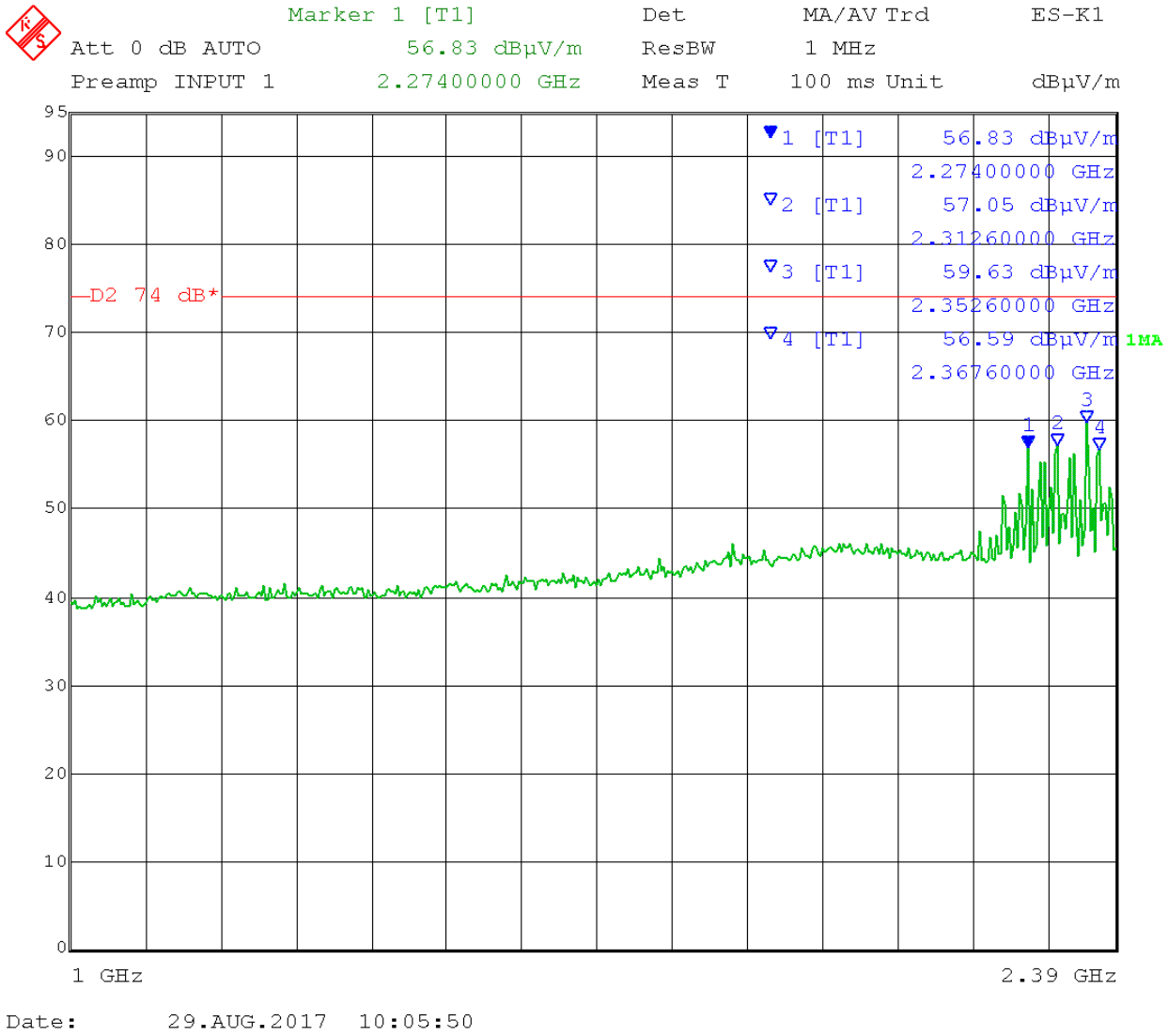


Date: 29.AUG.2017 10:04:56

Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Unwanted Emissions in Restricted Bands – Radiated with antenna
Operator: Craig B

Comment: Data rate: 2 Mbps
Low, Mid, High Channels: 2402 MHz, 2440 MHz, 2480 MHz

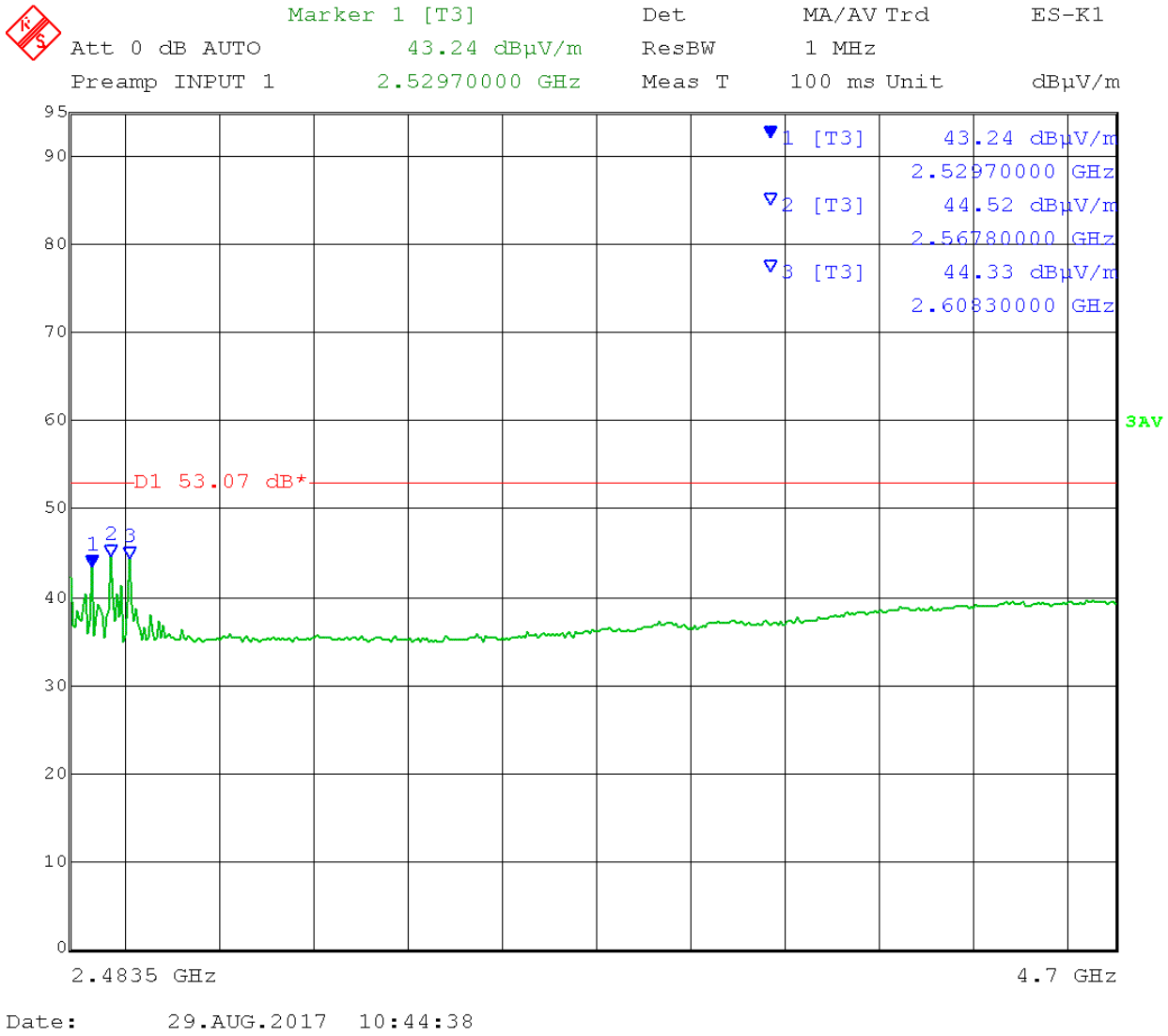
Peak Detector (max hold)
Limit: 74 dBµV/m@ 3meters
Horizontal:



Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Unwanted Emissions in Restricted Bands – Radiated with antenna
Operator: Craig B

Comment: Data rate: 2 Mbps
Low, Mid, High Channels: 2402 MHz, 2440 MHz, 2480 MHz

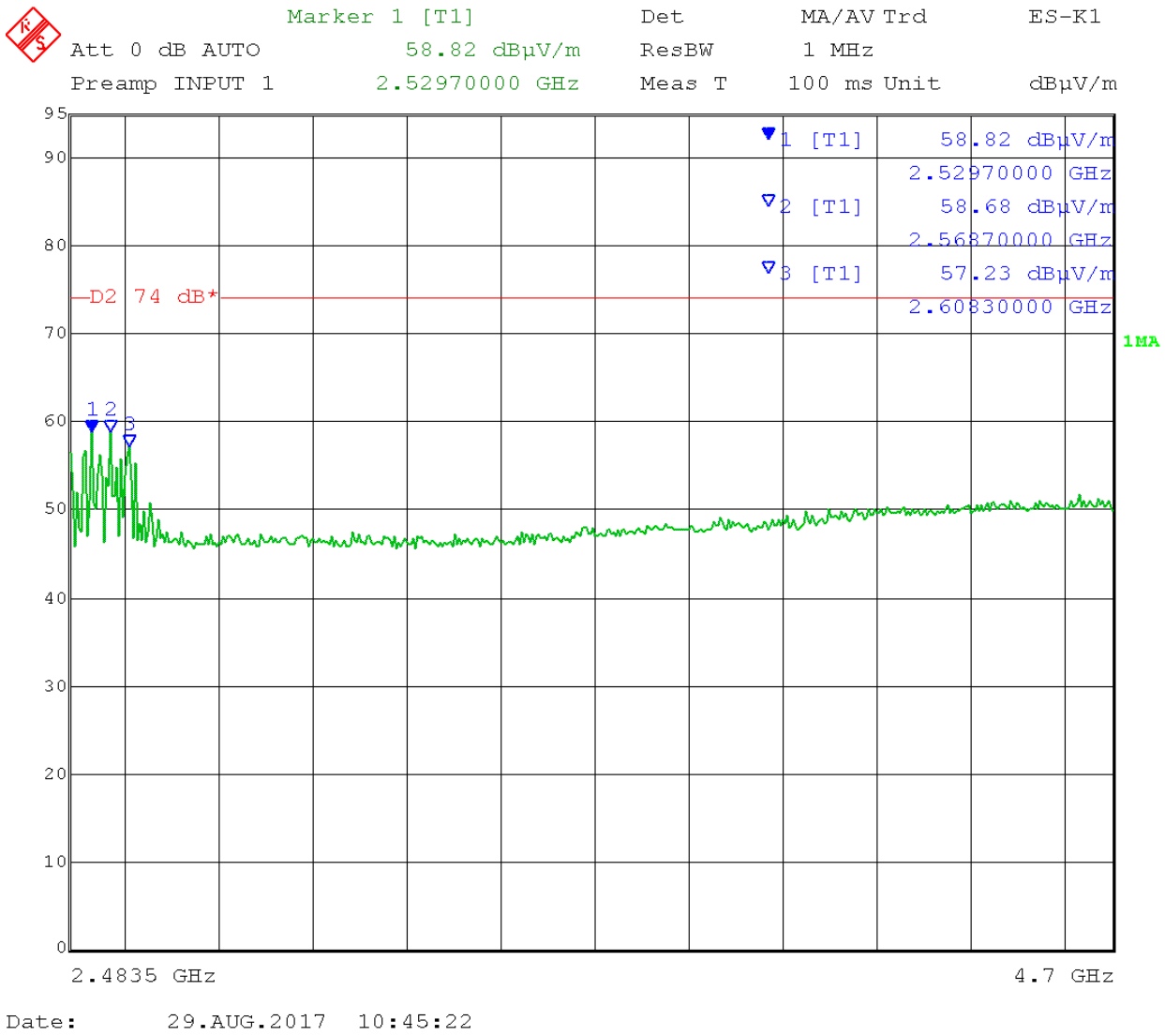
Average (linear) Detector (max hold)
Limit: 54 dBµV/m – 0.93 dB (duty cycle cor.) = 53.07 dBµV/m @ 3meters
Vertical:



Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Unwanted Emissions in Restricted Bands – Radiated with antenna
Operator: Craig B

Comment: Data rate: 2 Mbps
Low, Mid, High Channels: 2402 MHz, 2440 MHz, 2480 MHz

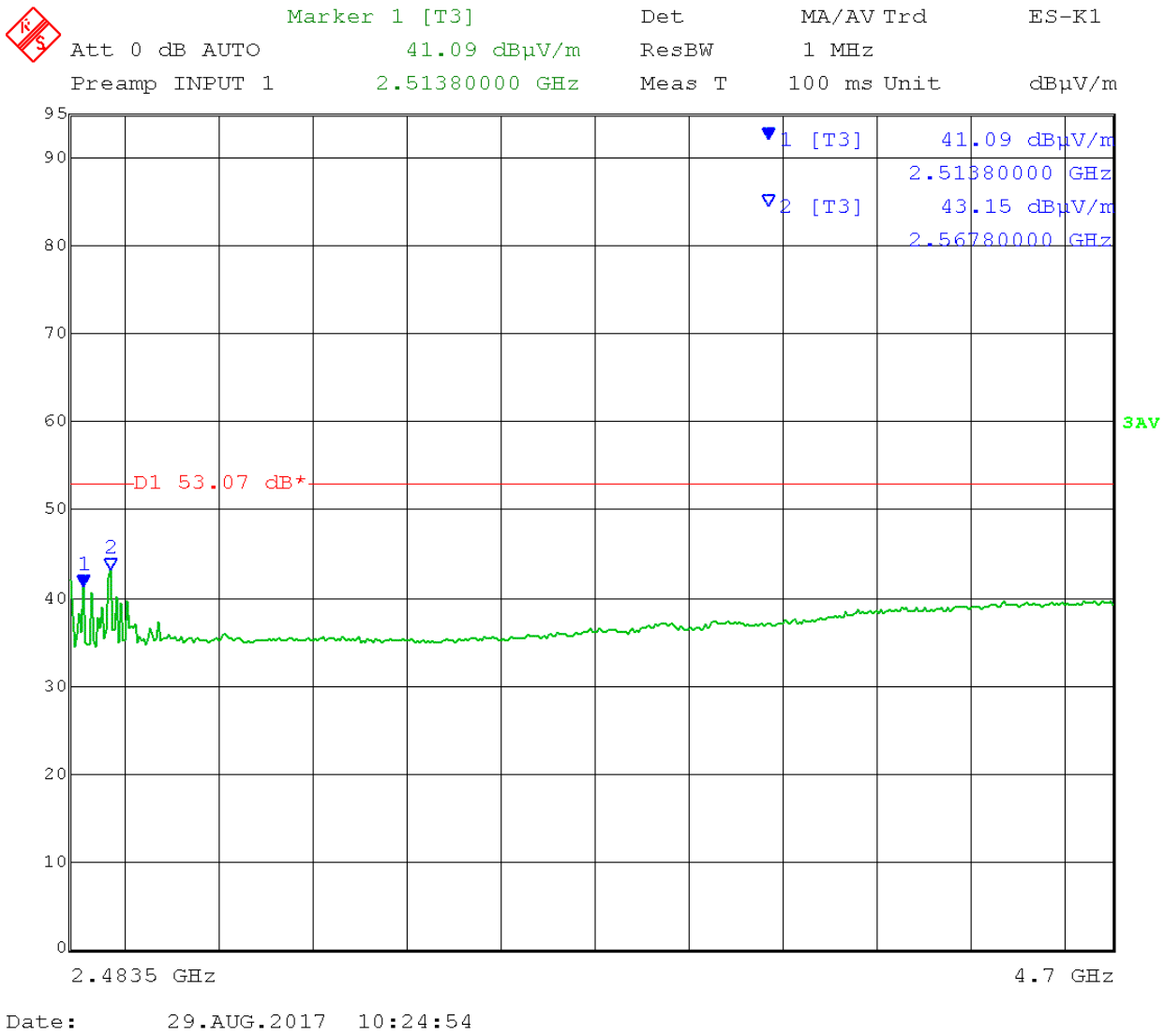
Peak Detector (max hold)
Limit: 74 dBµV/m@ 3meters
Vertical:



Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Unwanted Emissions in Restricted Bands – Radiated with antenna
Operator: Craig B

Comment: Data rate: 2 Mbps
Low, Mid, High Channels: 2402 MHz, 2440 MHz, 2480 MHz

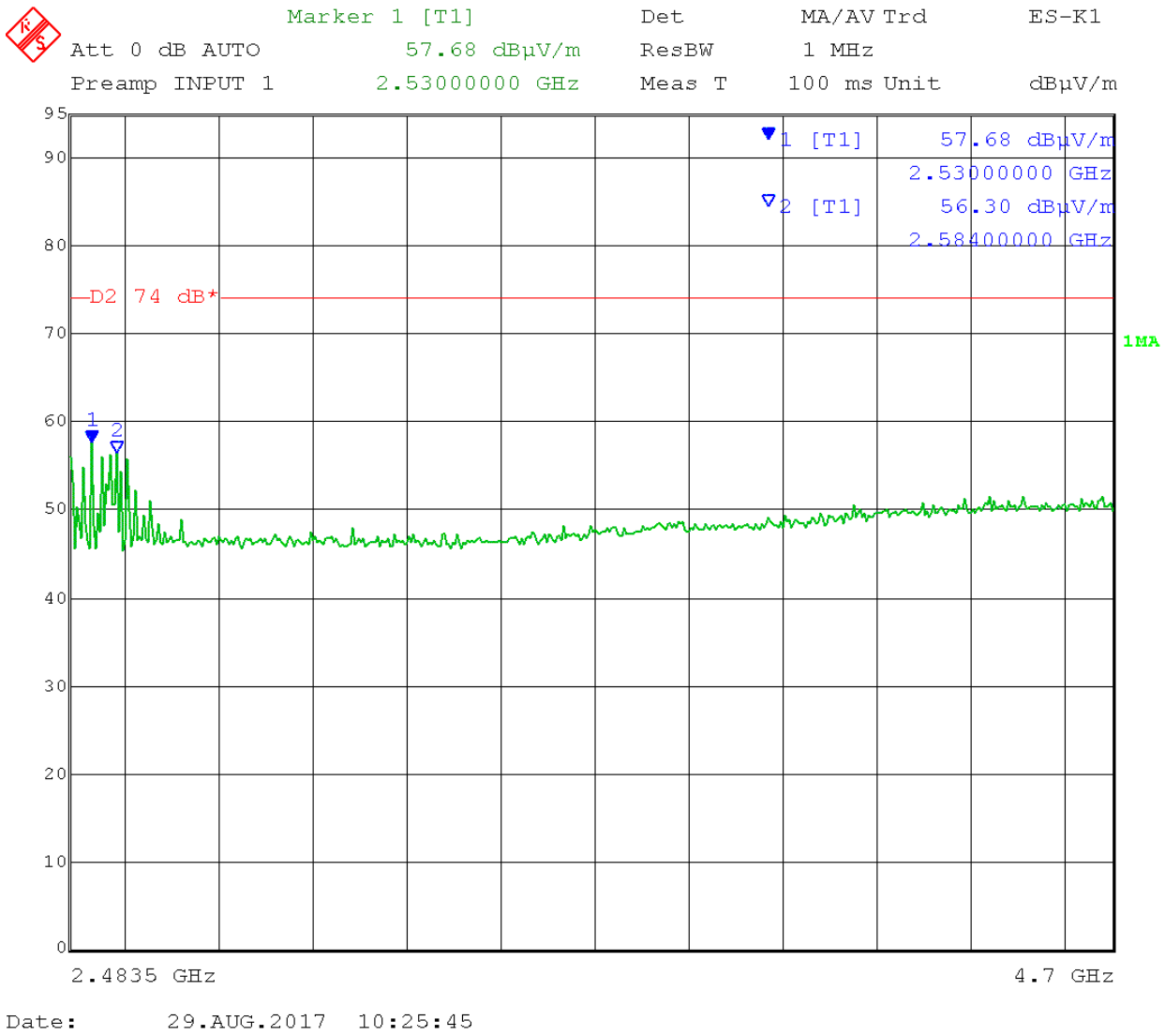
Average (linear) Detector (max hold)
Limit: 54 dBµV/m – 0.93 dB (duty cycle cor.) = 53.07 dBµV/m @ 3meters
Horizontal:



Test Date: 08-29-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Unwanted Emissions in Restricted Bands – Radiated with antenna
Operator: Craig B

Comment: Data rate: 2 Mbps
Low, Mid, High Channels: 2402 MHz, 2440 MHz, 2480 MHz

Peak Detector (max hold)
Limit: 74 dBµV/m@ 3meters
Horizontal:



FCC 15.209

Electric Field Strength

EUT: X100G-Flash Tag
Manufacturer: Wilson
Operating Condition: 74 deg C 52% R.H.
Test Site: DLS O.F. G1
Operator: Craig B
Test Specification: Radiated in Restricted Bands
Comment: L,M,H channels; 2 Mbps
Date: 08-29-2017

TEXT: "Vert 3 meters"

Short Description: Test Set-up

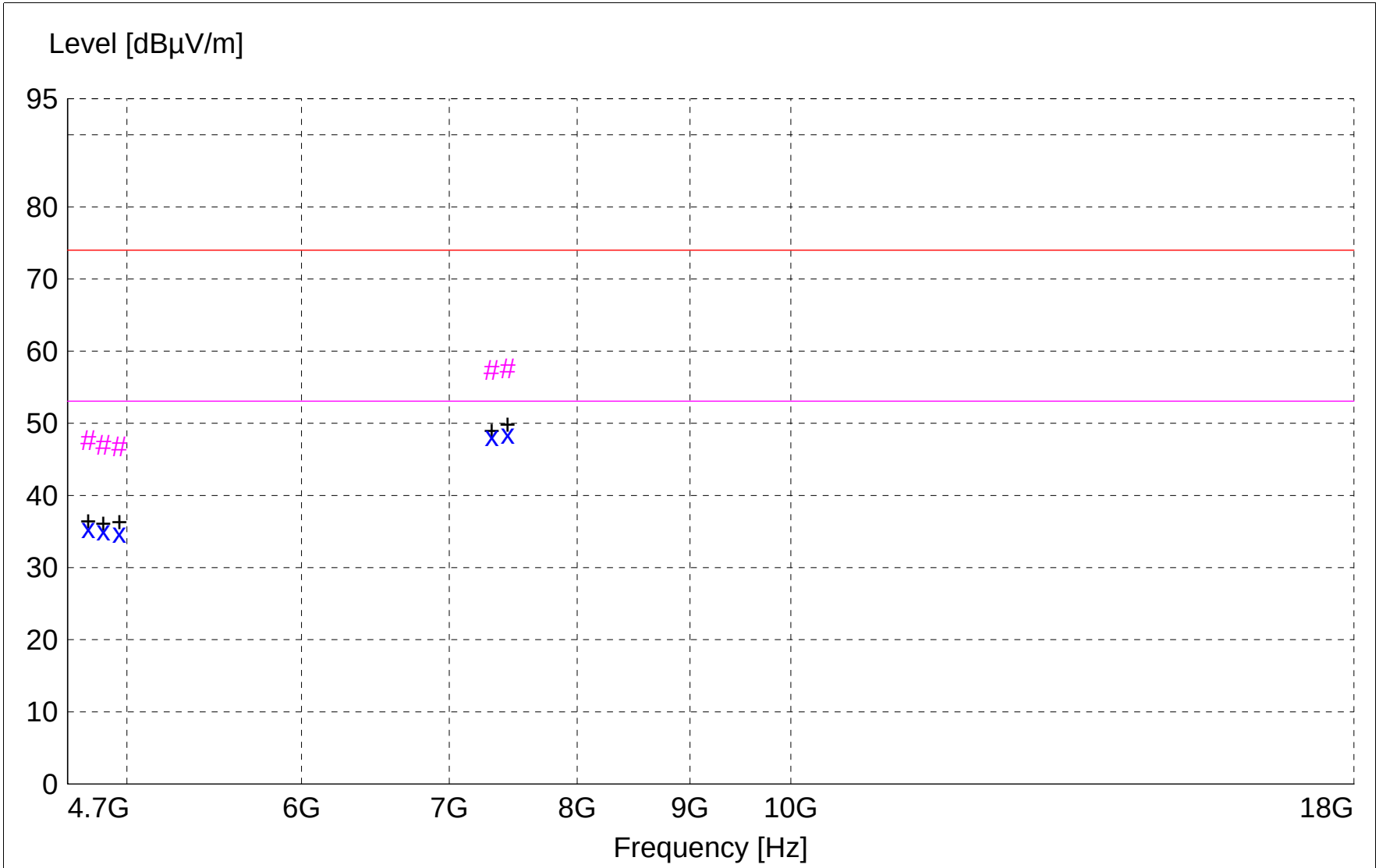
Test Set-up: EUT Measured at 3 Meters with VERTICAL Antenna Polarization

Sample Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)
24.6 = 35.51 + (-22.1) + 11.20

Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)
15.4 = 40 - 24.6

Graph Markers:

+	Frequency marker (Level of marker not related to final level)
|	Final maximized level using Quasi-Peak detector
X	Final maximized level using Average dector
#	Final maximized level using Peak detector
-	Background Scan Peak Detector (Optional)
-	Background Scan Average Detector (Optional)



x x x MES B828f_sv_Average
MES B828f_sv_Peak
+ + + MES B828f_sv_Peak_List
——— LIM FCC Class B 3m pk 3m Peak Limit
——— LIM FCC Class B 3m AVG c 3m AVG lim corr for duty cycle

MEASUREMENT RESULT: "B828f_sv_Final"

8/29/2017 3:05PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
7441.220000	44.94	37.07	-33.5	48.5	53.1	4.6	1.49	186	AVERAGE	High ch
7318.760000	44.83	37.17	-33.8	48.2	53.1	4.8	1.44	193	AVERAGE	Mid ch
7441.220000	54.03	37.07	-33.5	57.6	74.0	16.4	1.49	186	MAX PEAK	High ch
7318.760000	54.03	37.17	-33.8	57.4	74.0	16.6	1.44	193	MAX PEAK	Mid ch
4803.020000	38.84	33.04	-36.5	35.4	53.1	17.7	1.44	203	AVERAGE	Low ch
4879.030000	38.62	33.02	-36.5	35.1	53.1	17.9	1.46	185	AVERAGE	Mid ch
4960.930000	38.24	33.20	-36.6	34.8	53.1	18.2	1.52	183	AVERAGE	High ch
4803.020000	51.13	33.04	-36.5	47.7	74.0	26.3	1.44	203	MAX PEAK	Low ch
4879.030000	50.47	33.02	-36.5	47.0	74.0	27.0	1.46	185	MAX PEAK	Mid ch
4960.930000	50.20	33.20	-36.6	46.8	74.0	27.2	1.52	183	MAX PEAK	High ch

FCC 15.209

Electric Field Strength

EUT: X100G-Flash Tag
Manufacturer: Wilson
Operating Condition: 74 deg C 52% R.H.
Test Site: DLS O.F. G1
Operator: Craig B
Test Specification: Radiated in Restricted Bands
Comment: L,M,H channels; 2 Mbps
Date: 08-29-2017

TEXT: "Horz 3 meters"

Short Description: Test Set-up

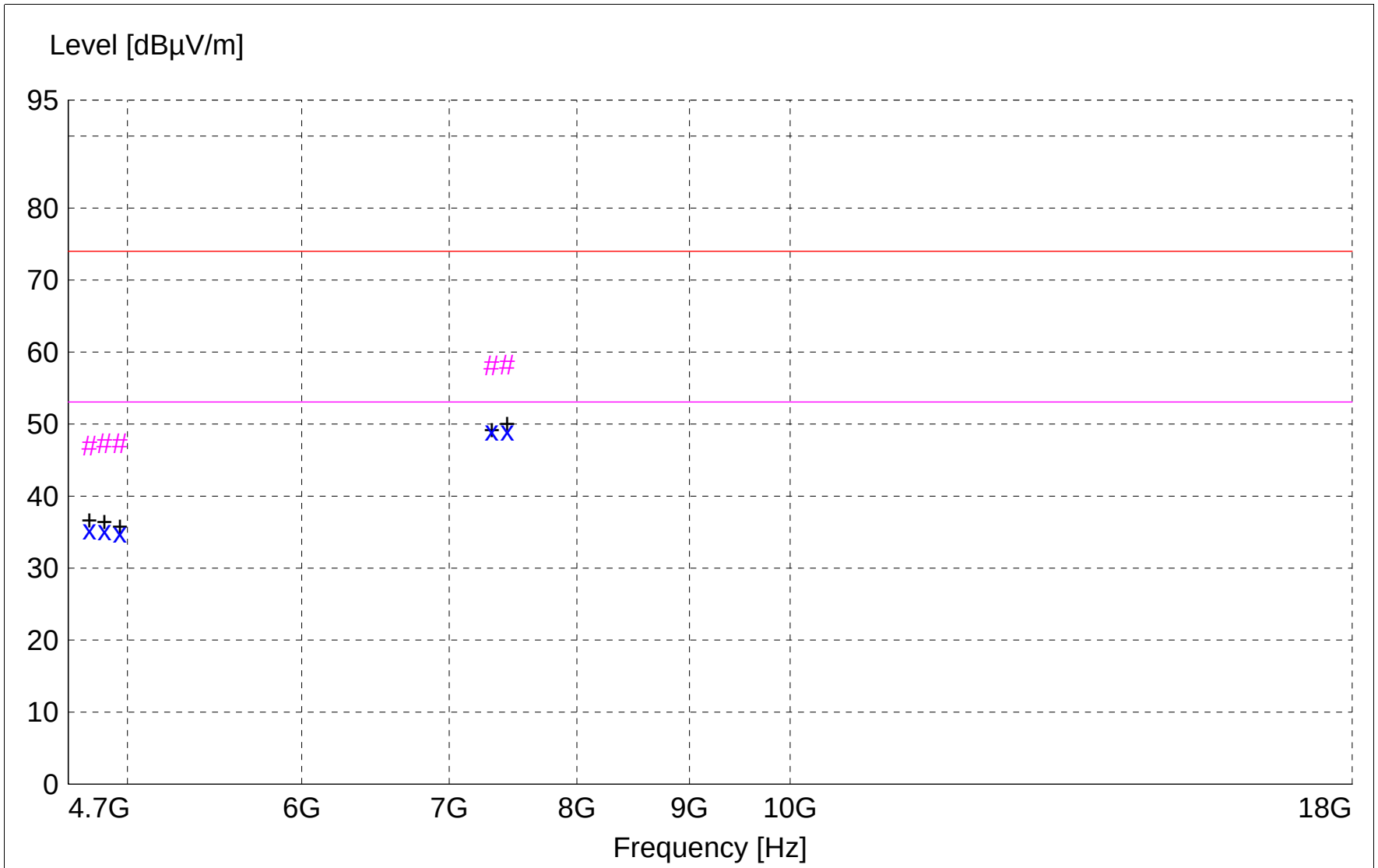
Test Set-up: EUT Measured at 3 Meters with HORIZONTAL Antenna Polarization

Sample Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)
24.6 = 35.51 + (-22.1) + 11.20

Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)
15.4 = 40 - 24.6

Graph Markers:

+	Frequency marker (Level of marker not related to final level)
|	Final maximized level using Quasi-Peak detector
X	Final maximized level using Average dector
#	Final maximized level using Peak detector
-	Background Scan Peak Detector (Optional)
-	Background Scan Average Detector (Optional)



x x x MES B828f_sh_Average
MES B828f_sh_Peak
+ + + MES B828f_sh_Peak_List
——— LIM FCC Class B 3m pk 3m Peak Limit
——— LIM FCC Class B 3m AVG c 3m AVG lim corr for duty cycle

MEASUREMENT RESULT: "B828f_sh_Final"

8/29/2017 3:06PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
7318.796208	45.66	37.17	-33.8	49.1	53.1	4.0	1.84	181	AVERAGE	Mid ch
7438.780000	45.51	37.07	-33.5	49.1	53.1	4.0	1.86	178	AVERAGE	High ch
7438.780000	54.71	37.07	-33.5	58.3	74.0	15.7	1.86	178	MAX PEAK	High ch
7318.796208	54.71	37.17	-33.8	58.1	74.0	15.9	1.84	181	MAX PEAK	Mid ch
4804.920000	38.78	33.04	-36.5	35.3	53.1	17.7	1.56	182	AVERAGE	Low ch
4880.990000	38.73	33.02	-36.5	35.2	53.1	17.8	1.55	183	AVERAGE	Mid ch
4960.990000	38.35	33.20	-36.6	34.9	53.1	18.1	1.49	181	AVERAGE	High ch
4880.990000	50.86	33.02	-36.5	47.4	74.0	26.6	1.55	183	MAX PEAK	Mid ch
4960.990000	50.73	33.20	-36.6	47.3	74.0	26.7	1.49	181	MAX PEAK	High ch
4804.920000	50.47	33.04	-36.5	47.0	74.0	27.0	1.56	182	MAX PEAK	Low ch

FCC 15.209

Electric Field Strength

EUT: X100G-Flash Tag
Manufacturer: Wilson
Operating Condition: 70 deg. F; 64% R.H.
Test Site: DLS Site 2
Operator: Craig B; #9121
Test Specification: Radiated emissions with antenna
Comment: Tx L,M,H channels, 2 Mbps
Date: 08-30-2017

TEXT: "Vert 1 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 1 Meters with VERTICAL Antenna Polarization

Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)

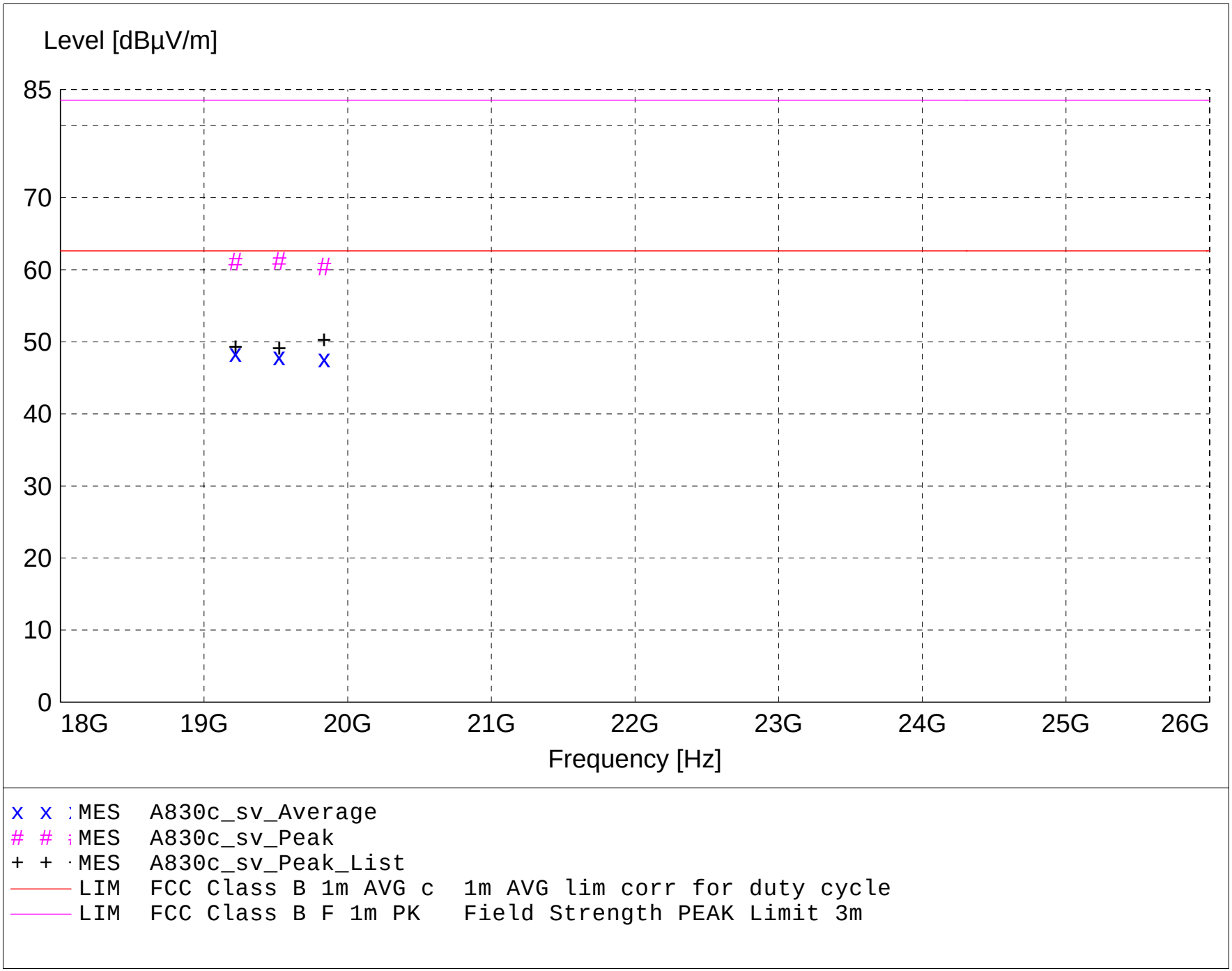
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)

Graph Markers: + Frequency marker (Level of marker not related to final level)

| Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

Final maximized level using Peak detector



x x x MES A830c_sv_Average
MES A830c_sv_Peak
+ + + MES A830c_sv_Peak_List
——— LIM FCC Class B 1m AVG c 1m AVG lim corr for duty cycle
——— LIM FCC Class B F 1m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A830c_sv_Final"

8/30/2017 12:34PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
19219.980000	40.01	45.53	-37.0	48.5	62.6	14.1	1.60	85	AVERAGE	Low ch
19523.980000	38.84	45.94	-36.8	47.9	62.6	14.7	1.50	95	AVERAGE	Mid ch
19836.040000	37.72	46.31	-36.3	47.7	62.6	14.9	1.50	80	AVERAGE	High ch
19523.980000	52.11	45.94	-36.8	61.2	83.5	22.3	1.50	95	MAX PEAK	Mid ch
19219.980000	52.63	45.53	-37.0	61.1	83.5	22.4	1.60	85	MAX PEAK	Low ch
19836.040000	50.42	46.31	-36.3	60.4	83.5	23.1	1.50	80	MAX PEAK	High ch

FCC 15.209

Electric Field Strength

EUT: X100G-Flash Tag
Manufacturer: Wilson
Operating Condition: 70 deg. F; 64% R.H.
Test Site: DLS Site 2
Operator: Craig B; #9121
Test Specification: Radiated emissions with antenna
Comment: Tx L,M,H channels, 2 Mbps
Date: 08-30-2017

TEXT: "Horz 1 meters"

Short Description: Test Set-up

Test Set-up: EUT Measured at 1 Meters with HORIZONTAL Antenna Polarization

Equations: Total Level(dBµV/m) = Level(dBµV) + System Loss(dB) + Antenna Factor(dBµV/m)

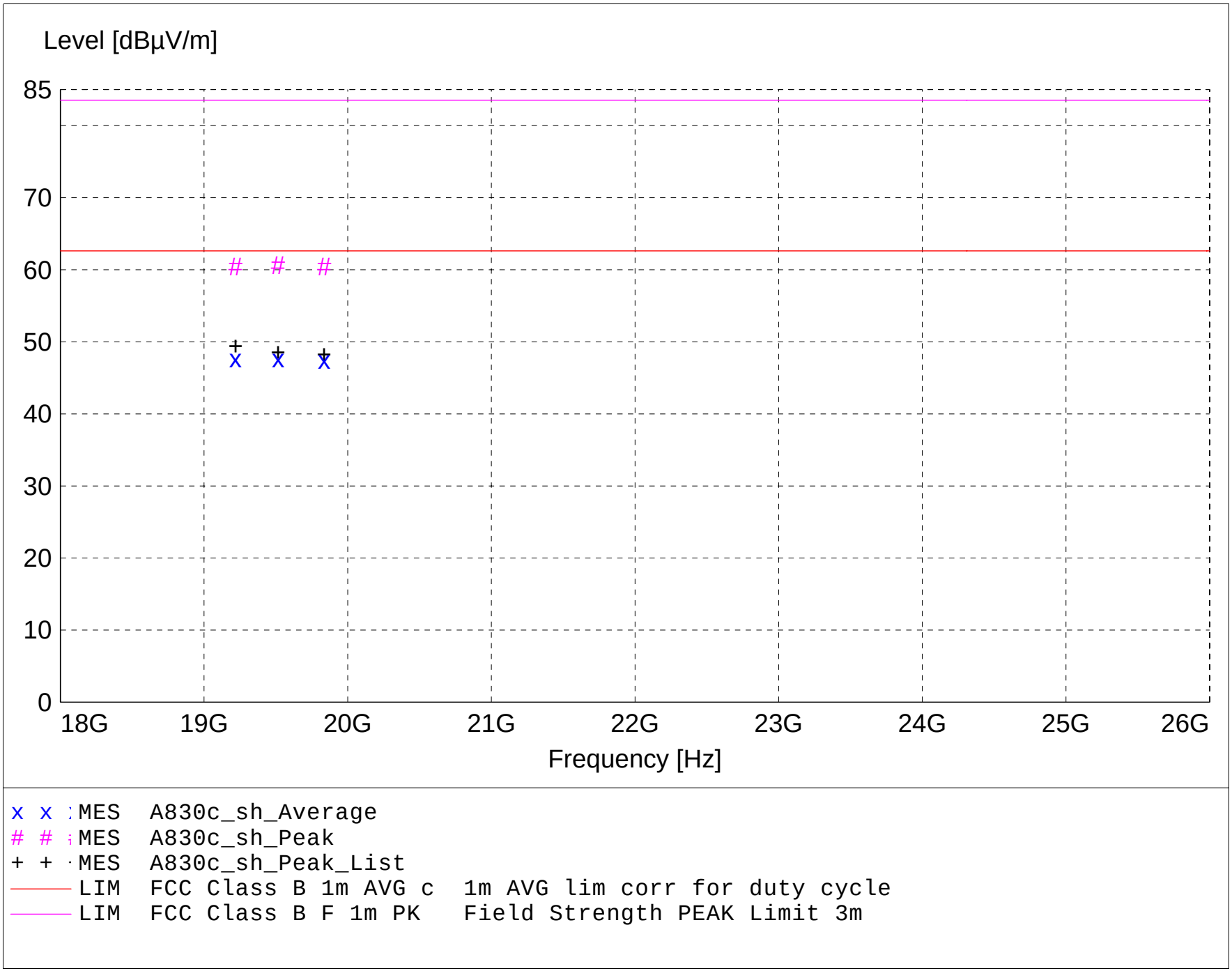
Margin(dB) = Limit(dBµV/m) - Total Level(dBµV/m)

Graph Markers: + Frequency marker (Level of marker not related to final level)

| Final maximized level using Quasi-Peak detector

X Final maximized level using Average dector

Final maximized level using Peak detector



x x x MES A830c_sh_Average
MES A830c_sh_Peak
+ + + MES A830c_sh_Peak_List
——— LIM FCC Class B 1m AVG c 1m AVG lim corr for duty cycle
——— LIM FCC Class B F 1m PK Field Strength PEAK Limit 3m

MEASUREMENT RESULT: "A830c_sh_Final"

8/30/2017 12:21PM

Frequency	Level	Antenna Factor	System Loss	Total Level	Limit	Margin	Height Ant.	EuT Angle	Final Detector	Comment
MHz	dBµV	dBµV/m	dB	dBµV/m	dBµV/m	dB	m	deg		
19219.900000	39.20	45.53	-37.0	47.7	62.6	14.9	1.65	110	AVERAGE	Low ch
19516.140000	38.57	45.93	-36.9	47.6	62.6	15.0	1.70	90	AVERAGE	Mid ch
19836.125000	37.54	46.31	-36.3	47.5	62.6	15.1	1.60	125	AVERAGE	High ch
19516.140000	51.59	45.93	-36.9	60.7	83.5	22.9	1.70	90	MAX PEAK	Mid ch
19219.900000	51.97	45.53	-37.0	60.5	83.5	23.1	1.65	110	MAX PEAK	Low ch
19836.125000	50.42	46.31	-36.3	60.4	83.5	23.1	1.60	125	MAX PEAK	High ch

166 South Carter, Genoa City, WI 53128

Appendix B

B7.0 Operating Band-Edge – RF Conducted

Rule Part: FCC 15.247(d)

Test Procedure: ANSI C63.10-2013, sections 11.11, 11.11.2 & 11.11.3

Limit: 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

Results: Compliant

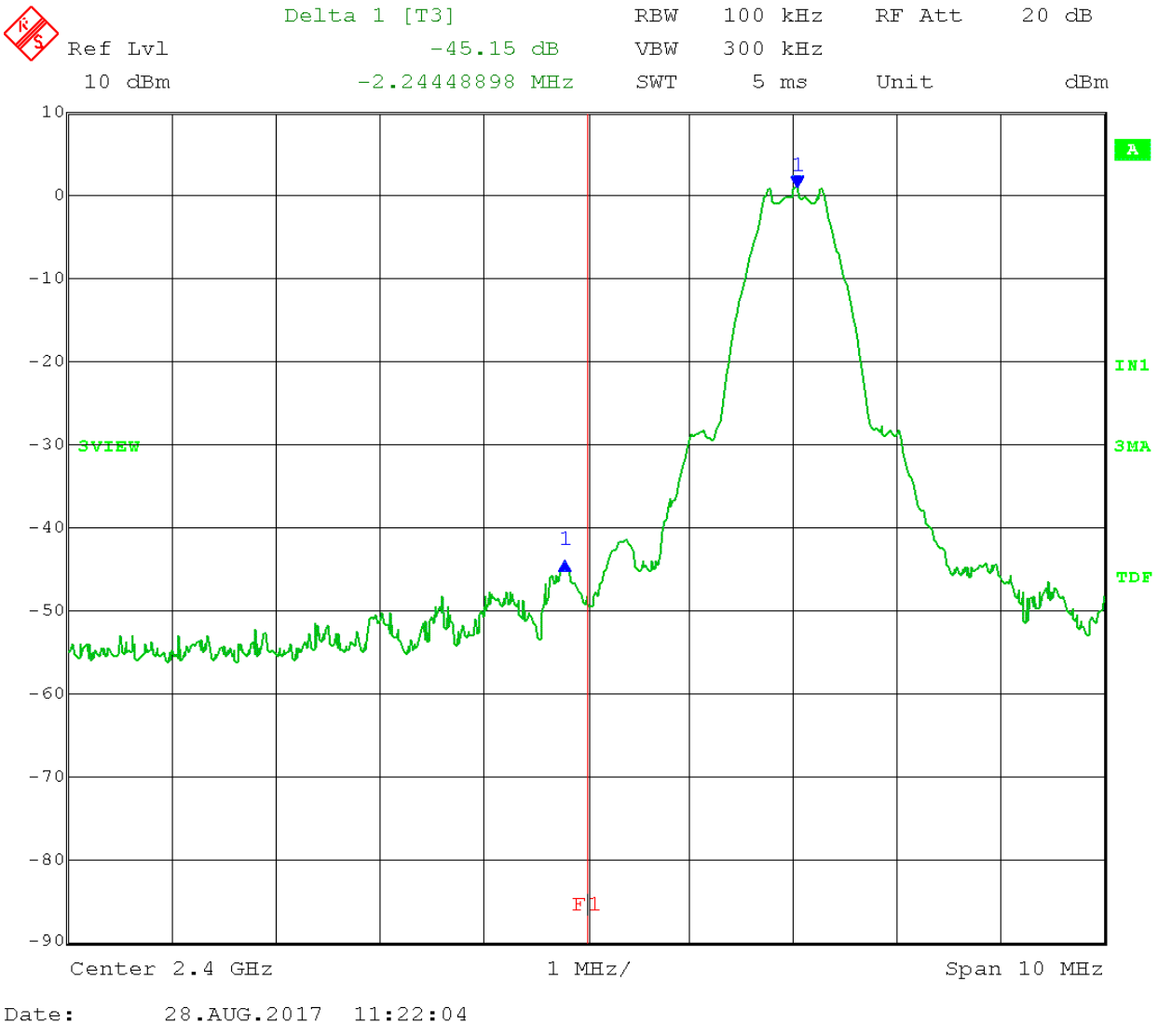
Notes: This was an RF conducted measurement. The EUT was connected to the measuring equipment through a temporary external antenna connector. Cable loss and attenuation were accounted for in the transducer factors set in the analyzer.

The EUT was tested at the low and high channels of operation.
The output power setting was set to 4 for this test.
(The power setting was later changed to 0 meet the radiated restricted band limits.)

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Lower Band Edge Compliance - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
Low Channel: 2402 MHz

Band-Edge Frequency = 2.4 GHz
Limit at Band-Edge > 20 dB Below Peak In-Band Emission

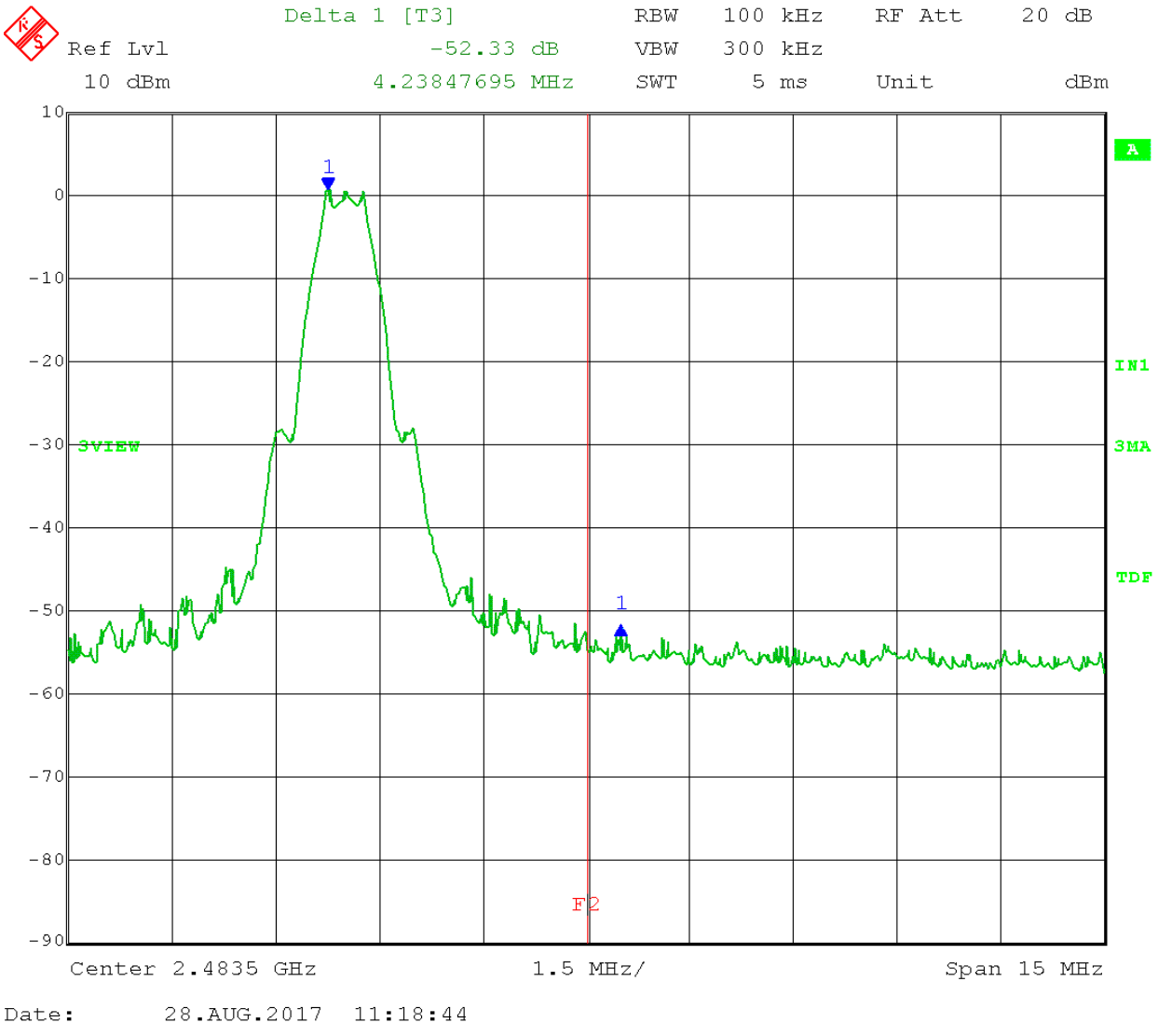


Date: 28.AUG.2017 11:22:04

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Upper Band Edge Compliance - Conducted
Operator: Craig B

Comment: Data rate: 1 Mbps
High Channel: 2480 MHz

Band-Edge Frequency = 2.4835 GHz
Limit at Band-Edge > 20 dB Below Peak In-Band Emission

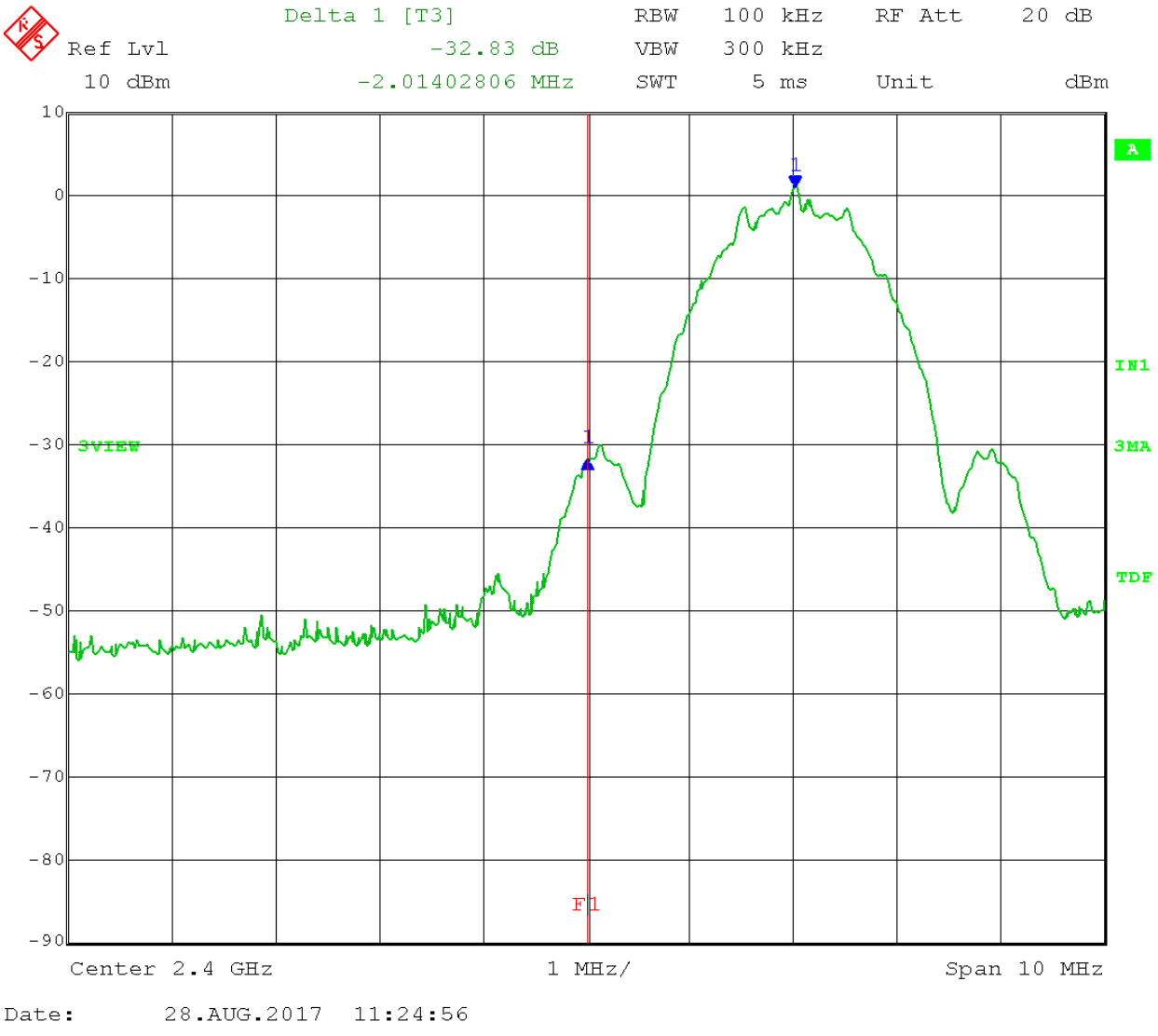


Date: 28.AUG.2017 11:18:44

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Lower Band Edge Compliance - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
Low Channel: 2402 MHz

Band-Edge Frequency = 2.4 GHz
Limit at Band-Edge > 20 dB Below Peak In-Band Emission

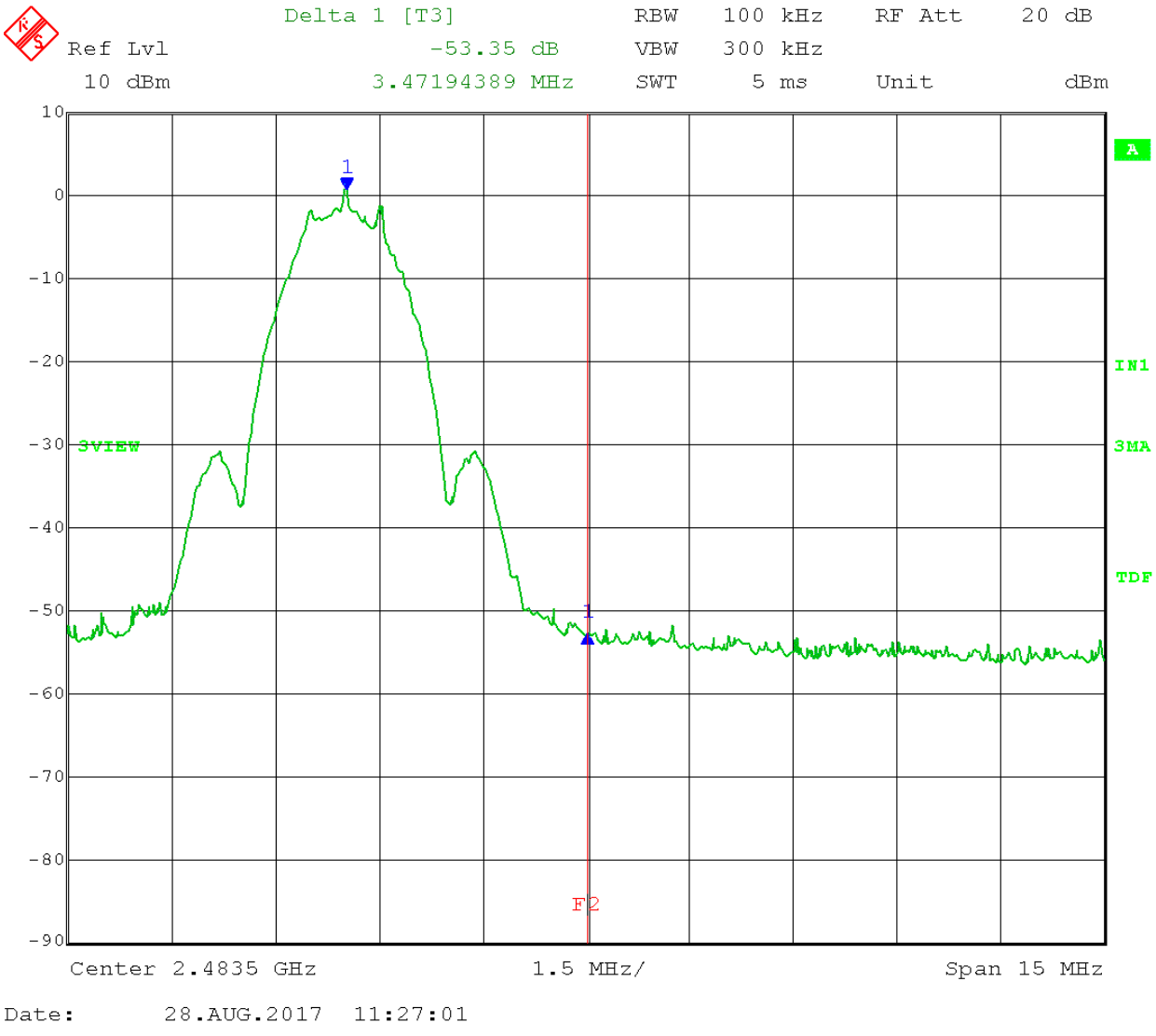


Date: 28.AUG.2017 11:24:56

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Upper Band Edge Compliance - Conducted
Operator: Craig B

Comment: Data rate: 2 Mbps
High Channel: 2480 MHz

Band-Edge Frequency = 2.4835 GHz
Limit at Band-Edge > 20 dB Below Peak In-Band Emission



166 South Carter, Genoa City, WI 53128

Appendix B

B8.0 Restricted Band-Edge – Radiated with antenna

Rule Part: FCC 15.247(d), 15.205(a), 15.209(a)

Test Procedure: ANSI C63.10-2013, sections 11.12, 11.12.1 & 11.13.3.4

Limit: FCC 15.209

Results: Compliant

Notes: The EUT was set to transmit continuously at the low, middle, and high channels, with a 94.6% duty cycle at a 1 Mbps data rate, and an 89.8% duty cycle at a 2 Mbps data rate.

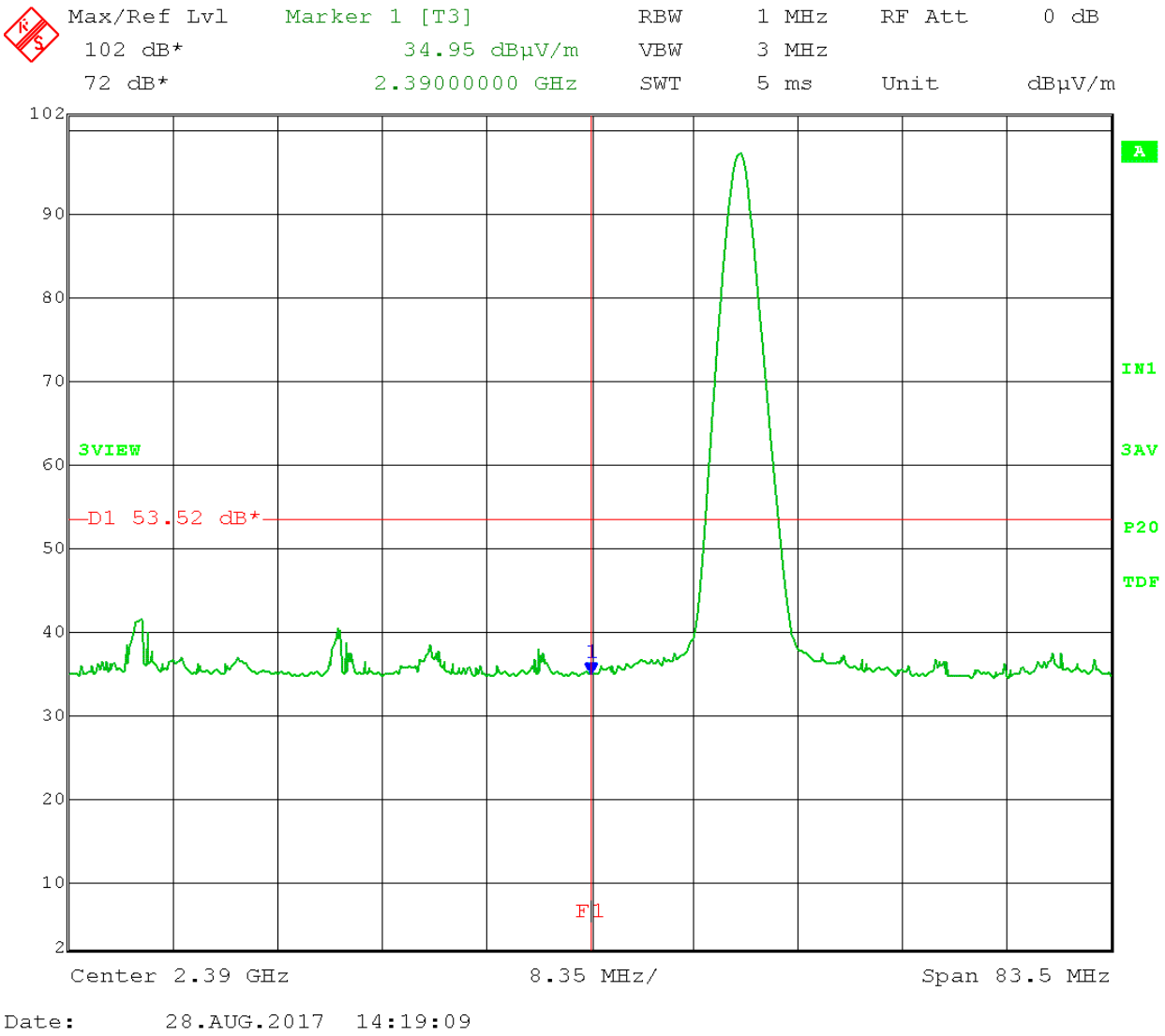
The EUT was tested at the low and high channels of operation.
The output power setting was set to 4 for this test.
(The power setting was later changed to 0 meet the radiated restricted band limits.)

The Average limit lines were reduced by a duty cycle correction factor to compensate for a duty cycle less than 100%.

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Lower Restricted Band Edge – Radiated with antenna
Operator: Craig B

Comment: Data rate: 1 Mbps
Low Channel: 2402 MHz

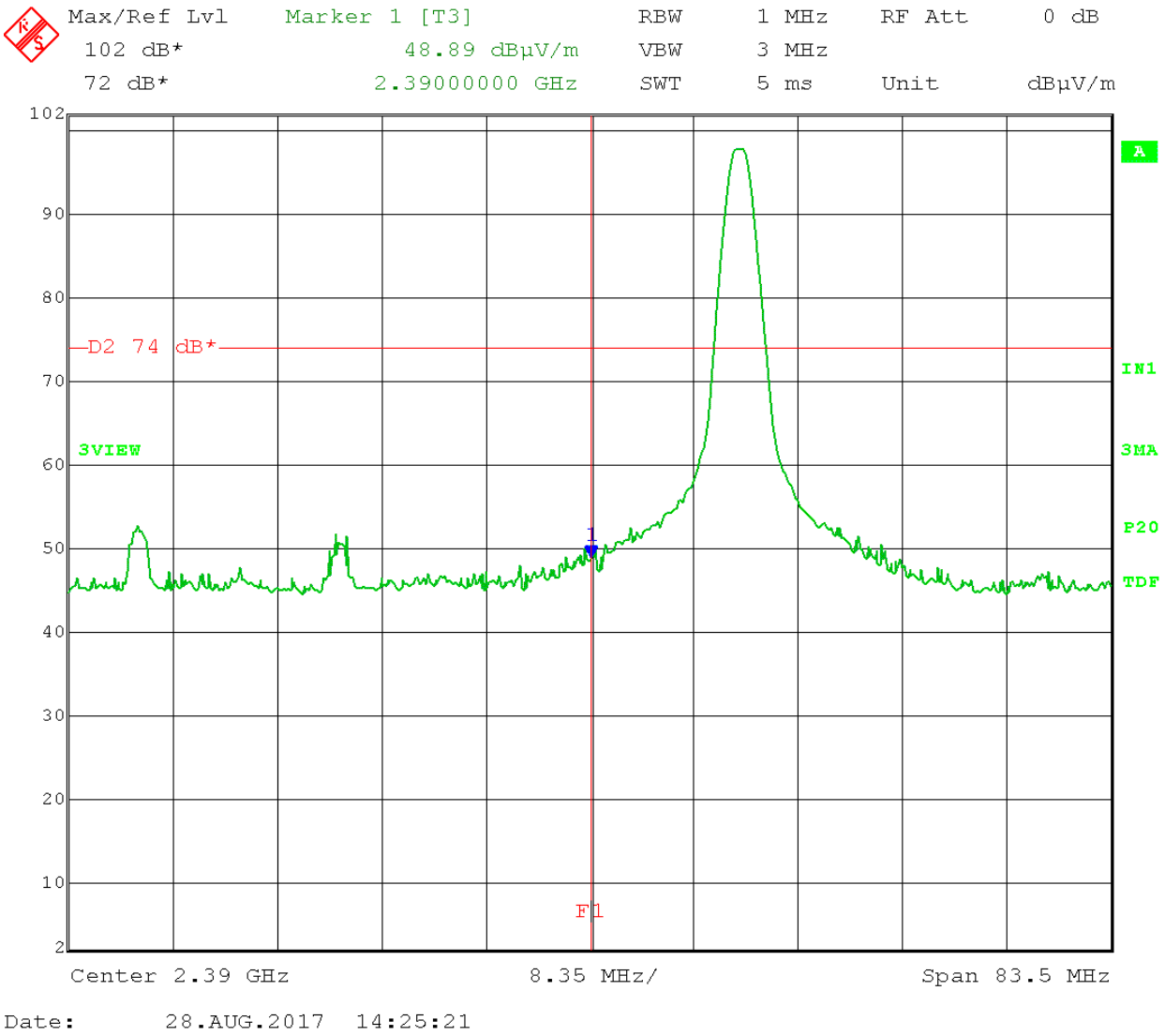
Average (linear) Detector
Limit: 54 dBµV/m – 0.48 dB (duty cycle cor.) = 53.52 dBµV/m @ 3meters
Vertical:



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Lower Restricted Band Edge – Radiated with antenna
Operator: Craig B

Comment: Data rate: 1 Mbps
Low Channel: 2402 MHz

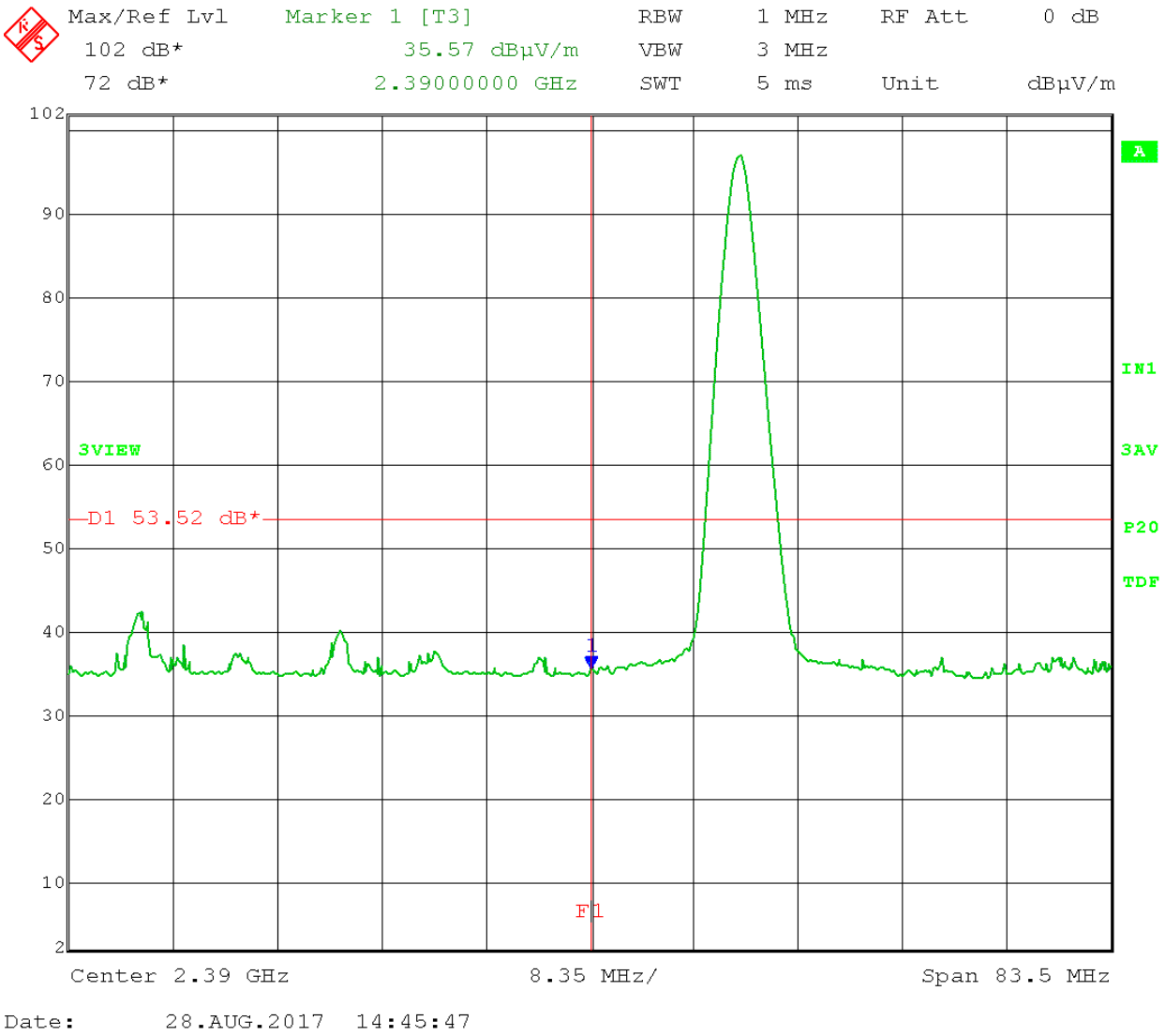
Peak Detector
Limit: 74 dBµV/m@ 3meters
Vertical:



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Lower Restricted Band Edge – Radiated with antenna
Operator: Craig B

Comment: Data rate: 1 Mbps
Low Channel: 2402 MHz

Average (linear) Detector
Limit: 54 dBµV/m – 0.48 dB (duty cycle cor.) = 53.52 dBµV/m @ 3meters
Horizontal:

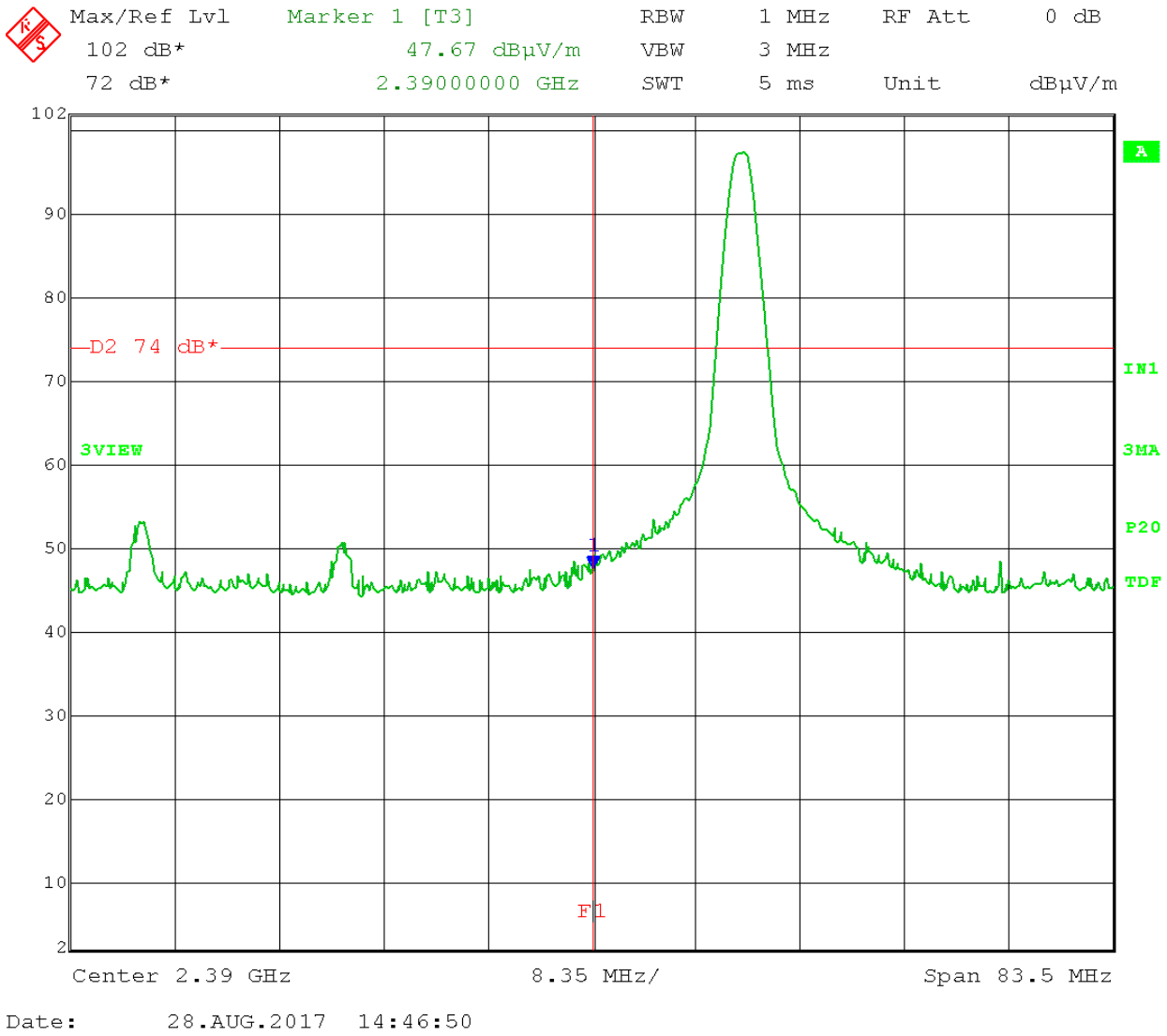


Date: 28.AUG.2017 14:45:47

Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Lower Restricted Band Edge – Radiated with antenna
Operator: Craig B

Comment: Data rate: 1 Mbps
Low Channel: 2402 MHz

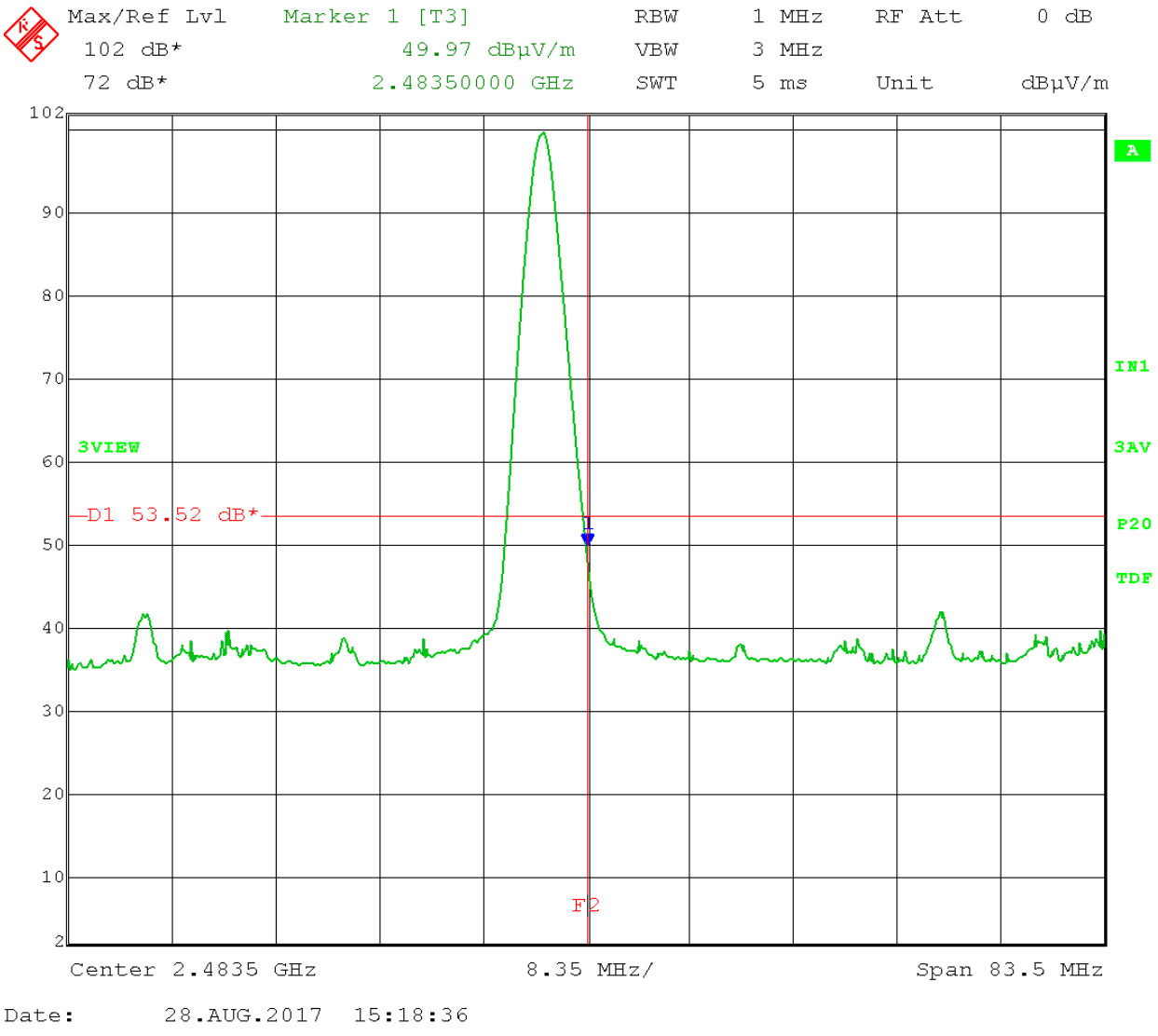
Peak Detector
Limit: 74 dBµV/m@ 3meters
Horizontal:



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Upper Restricted Band Edge – Radiated with antenna
Operator: Craig B

Comment: Data rate: 1 Mbps
High Channel: 2480 MHz

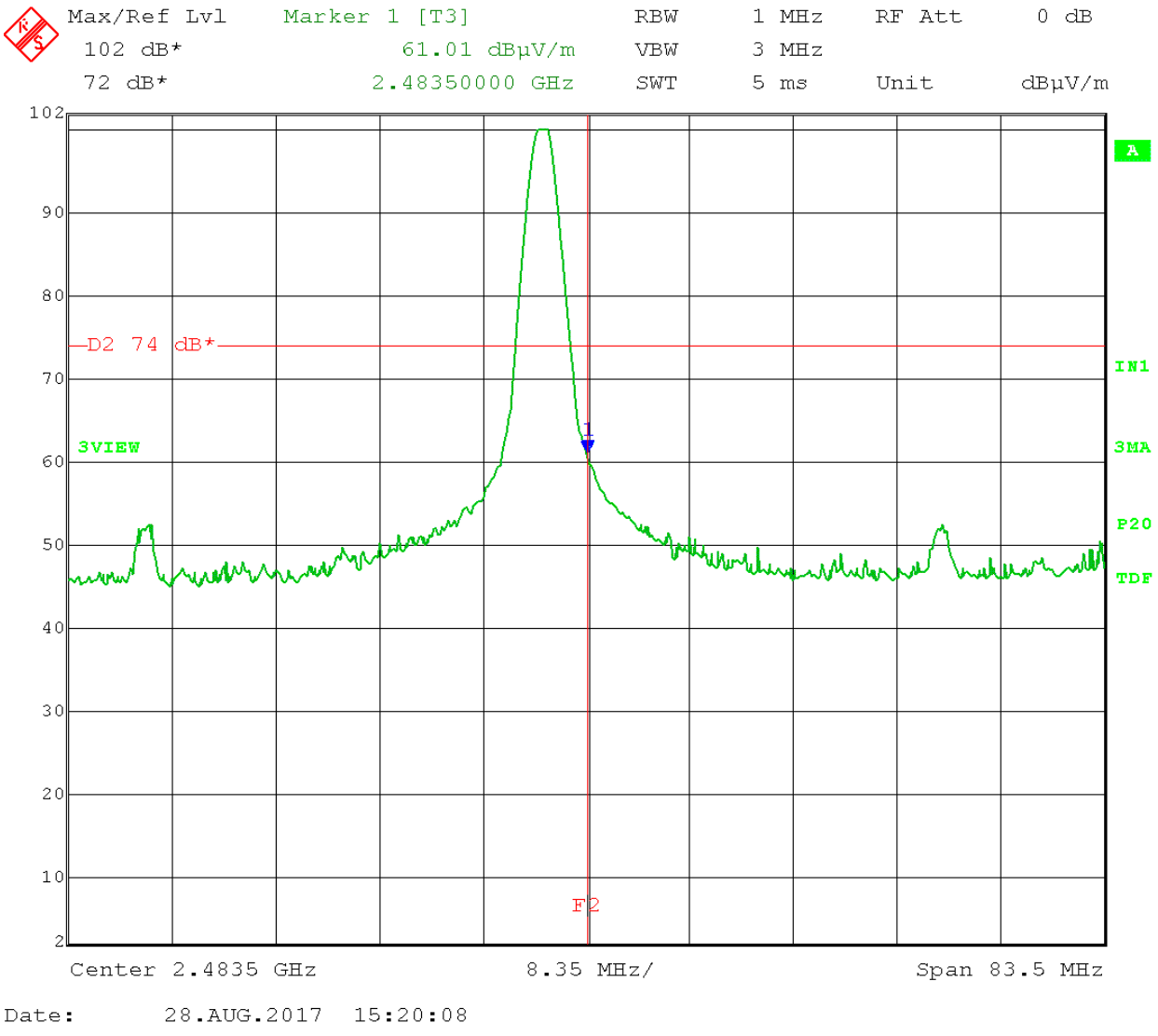
Average (linear) Detector
Limit: 54 dBµV/m – 0.48 dB (duty cycle cor.) = 53.52 dBµV/m @ 3meters
Vertical:



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Upper Restricted Band Edge – Radiated with antenna
Operator: Craig B

Comment: Data rate: 1 Mbps
High Channel: 2480 MHz

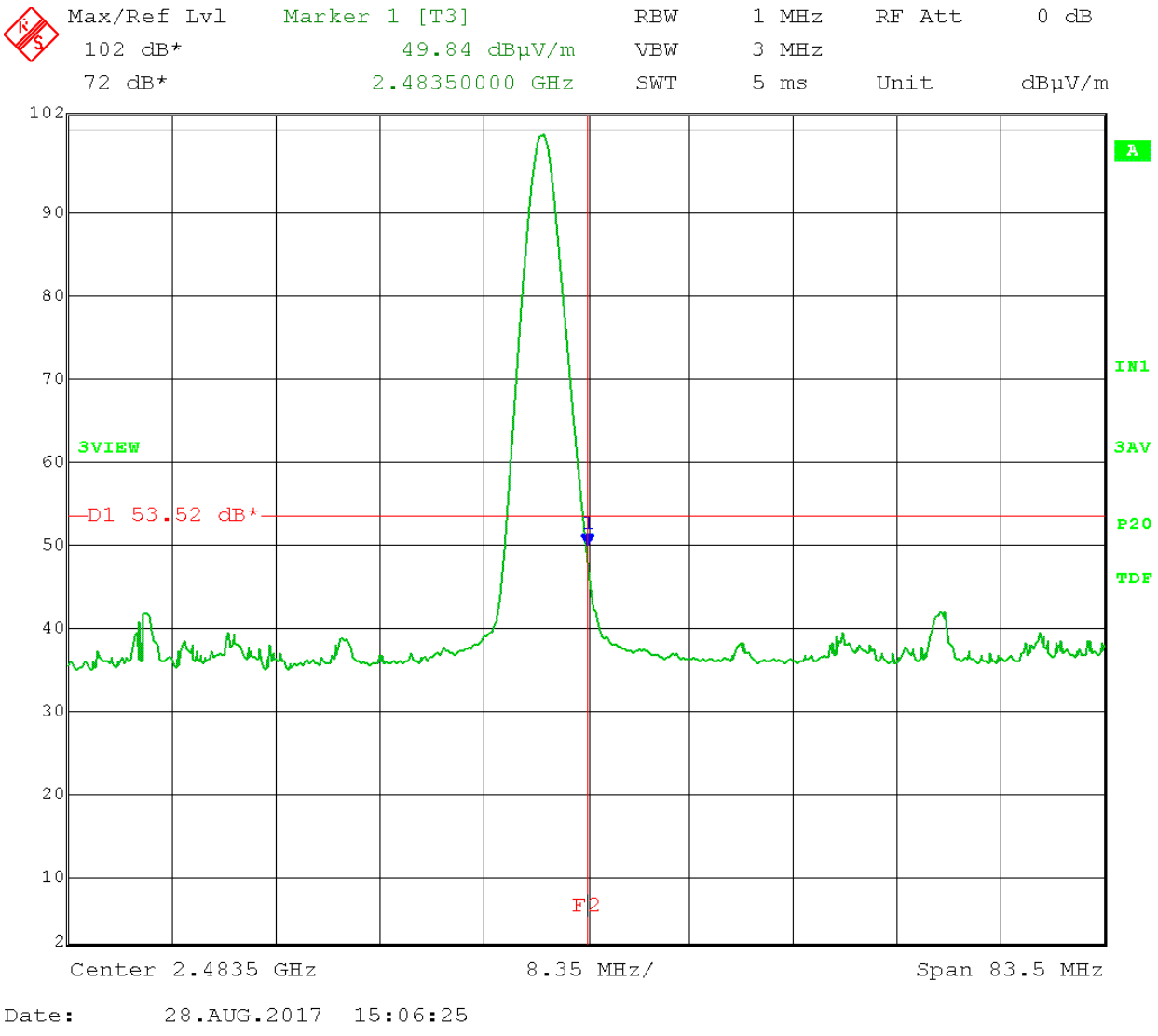
Peak Detector
Limit: 74 dBµV/m@ 3meters
Vertical:



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Upper Restricted Band Edge – Radiated with antenna
Operator: Craig B

Comment: Data rate: 1 Mbps
High Channel: 2480 MHz

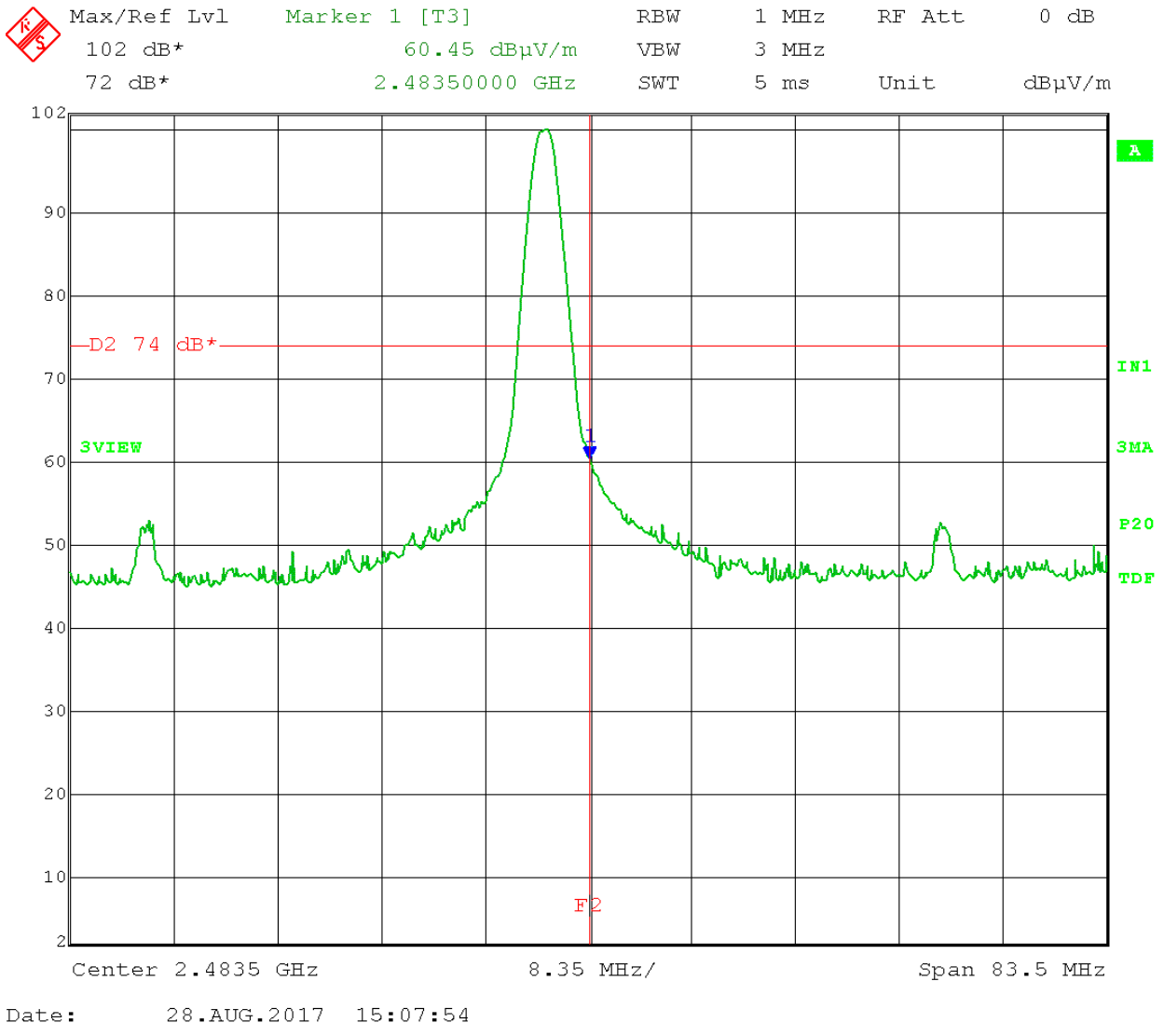
Average (linear) Detector
Limit: 54 dBµV/m – 0.48 dB (duty cycle cor.) = 53.52 dBµV/m @ 3meters
Horizontal:



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Upper Restricted Band Edge – Radiated with antenna
Operator: Craig B

Comment: Data rate: 1 Mbps
High Channel: 2480 MHz

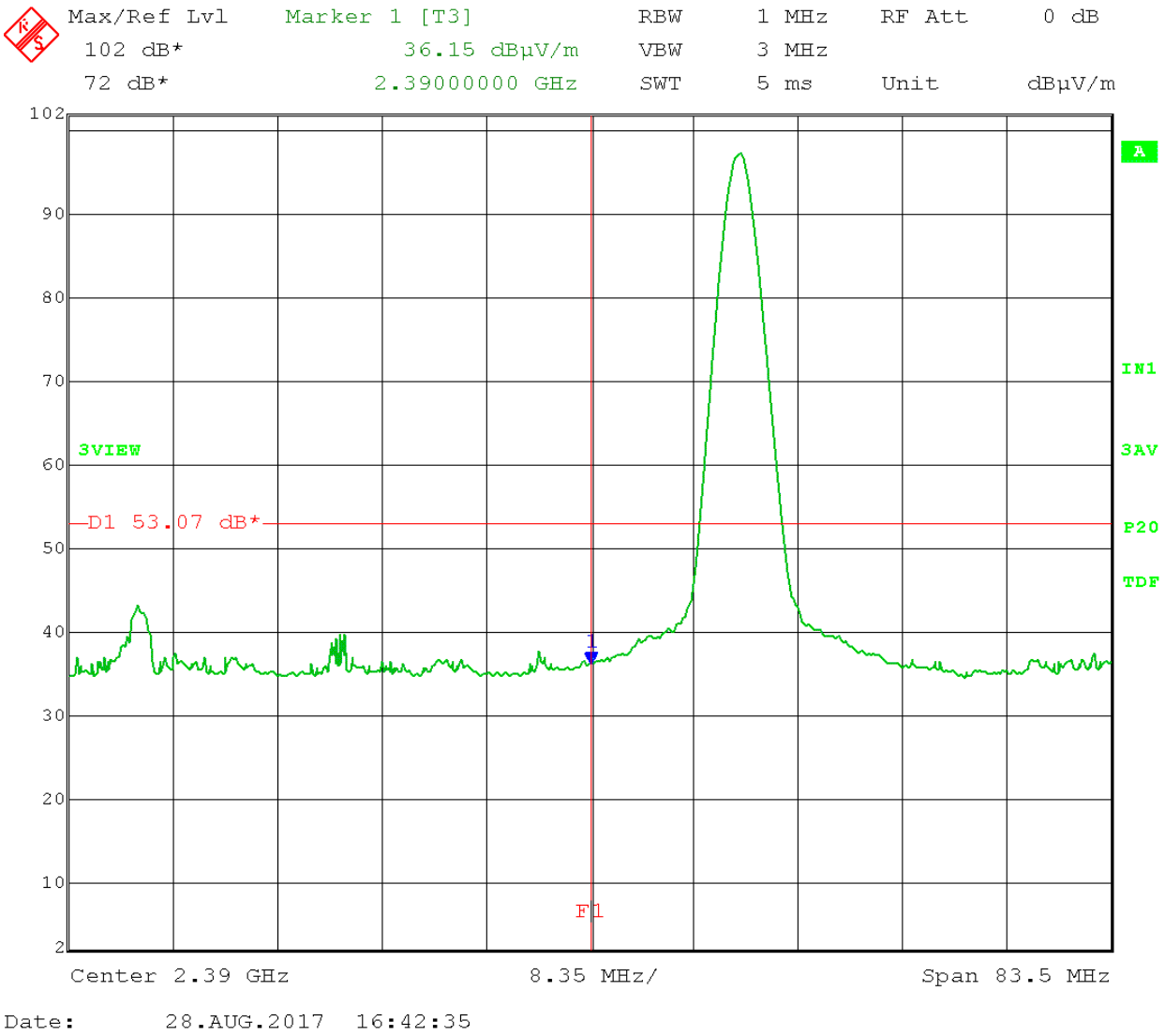
Peak Detector
Limit: 74 dBµV/m@ 3meters
Horizontal:



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Lower Restricted Band Edge – Radiated with antenna
Operator: Craig B

Comment: Data rate: 2 Mbps
Low Channel: 2402 MHz

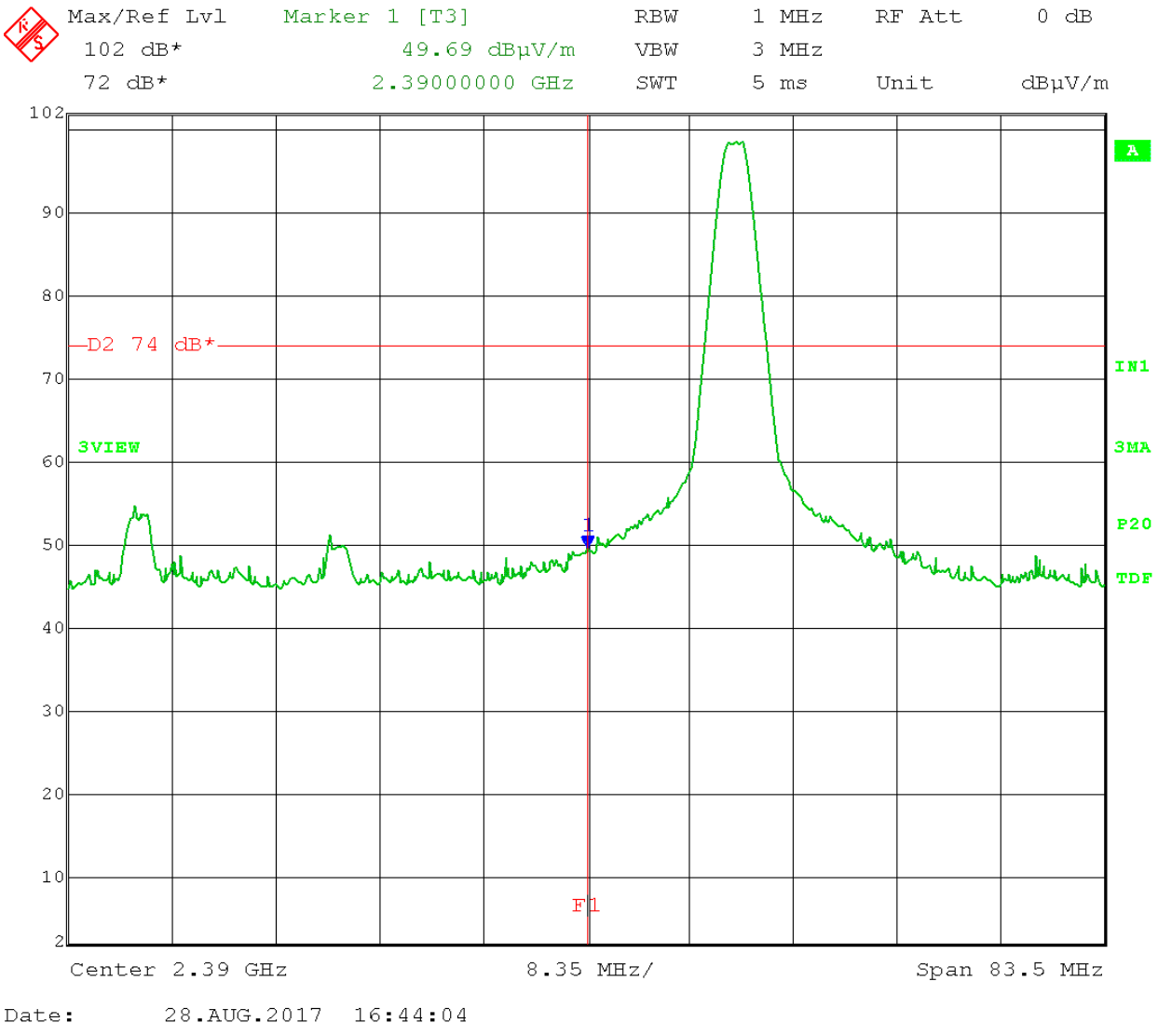
Average (linear) Detector
Limit: 54 dBµV/m – 0.93 dB (duty cycle cor.) = 53.07 dBµV/m @ 3meters
Vertical:



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Lower Restricted Band Edge – Radiated with antenna
Operator: Craig B

Comment: Data rate: 2 Mbps
Low Channel: 2402 MHz

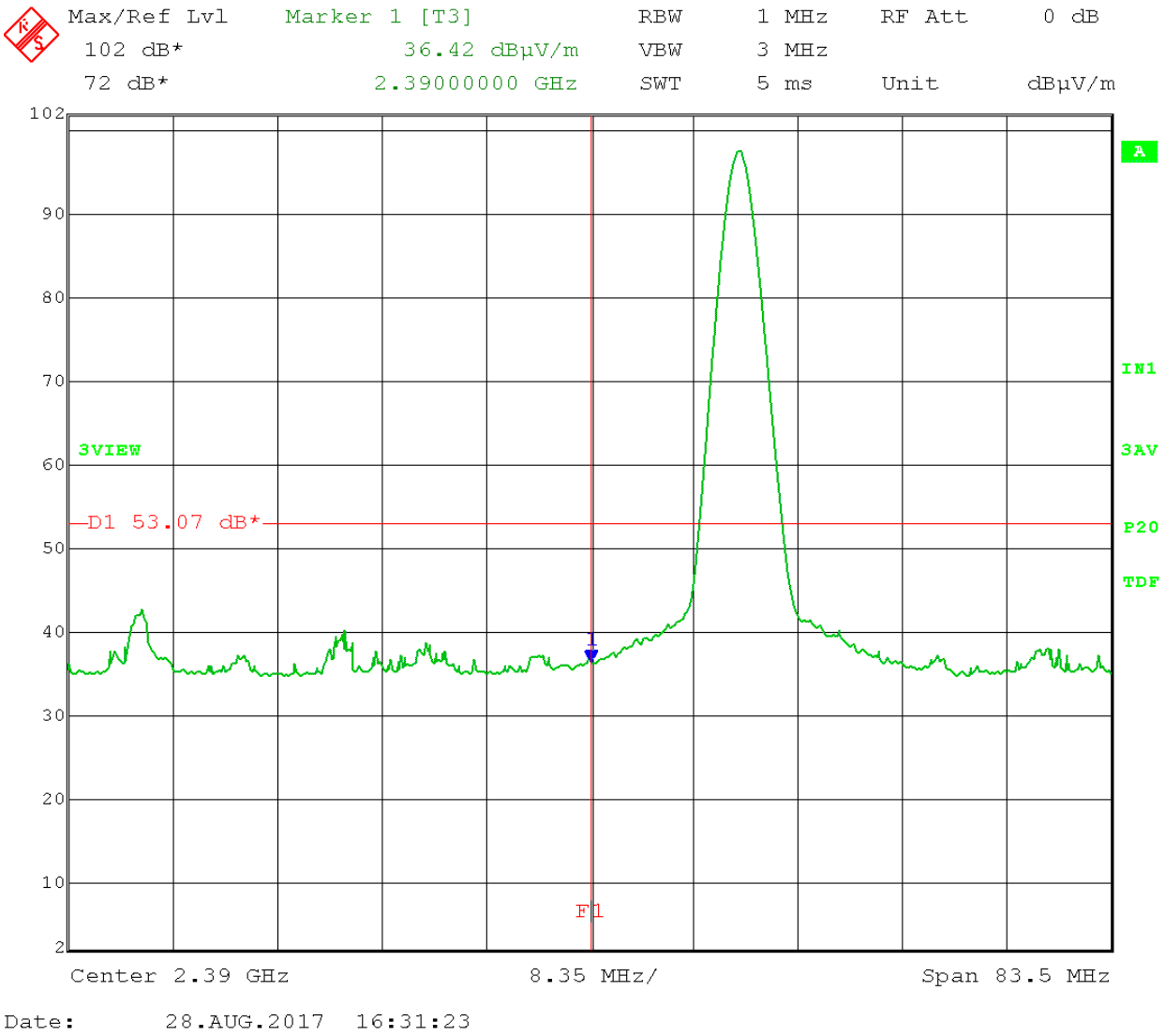
Peak Detector
Limit: 74 dBµV/m@ 3meters
Vertical:



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Lower Restricted Band Edge – Radiated with antenna
Operator: Craig B

Comment: Data rate: 2 Mbps
Low Channel: 2402 MHz

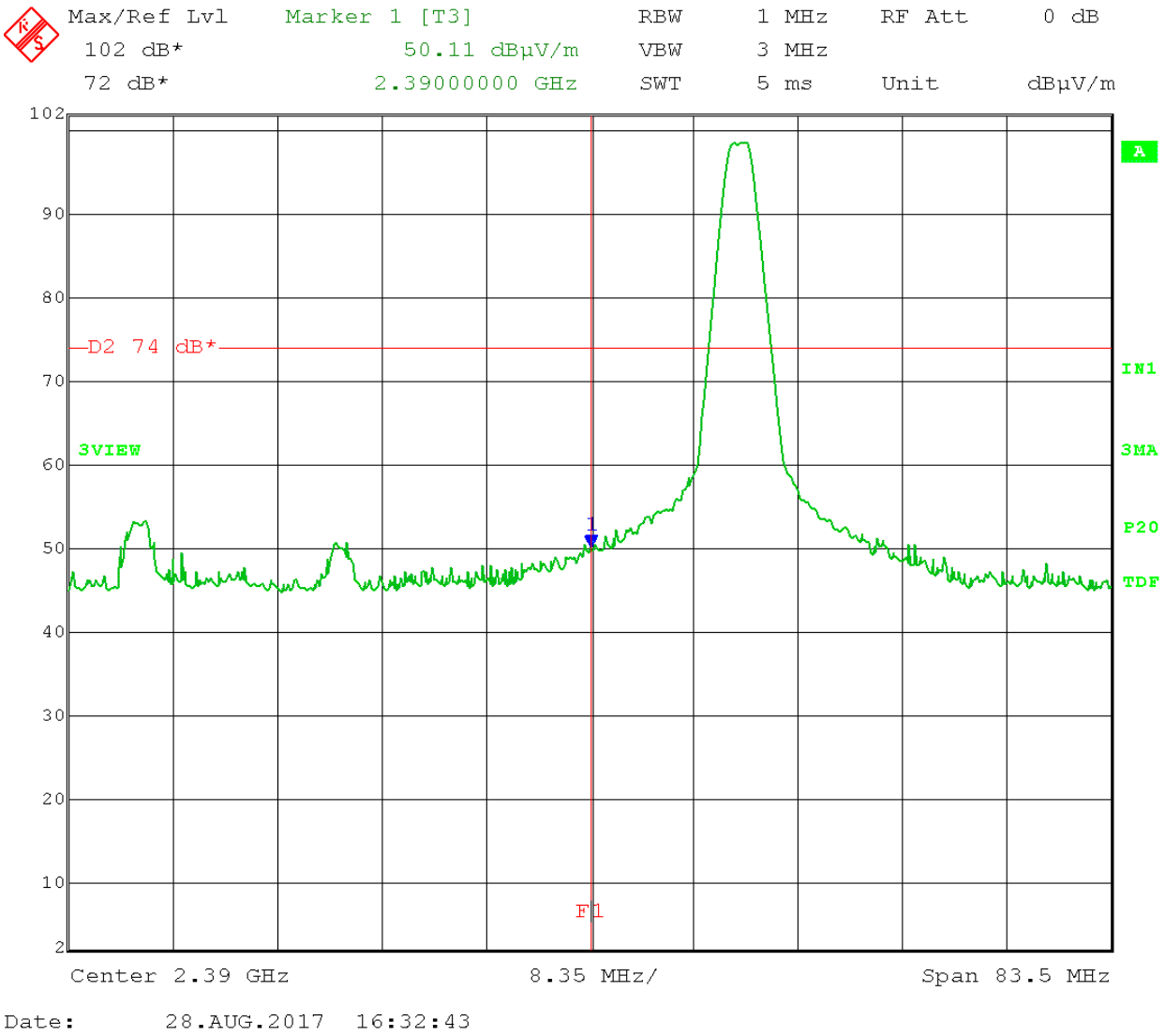
Average (linear) Detector
Limit: 54 dBµV/m – 0.93 dB (duty cycle cor.) = 53.07 dBµV/m @ 3meters
Horizontal:



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Lower Restricted Band Edge – Radiated with antenna
Operator: Craig B

Comment: Data rate: 2 Mbps
Low Channel: 2402 MHz

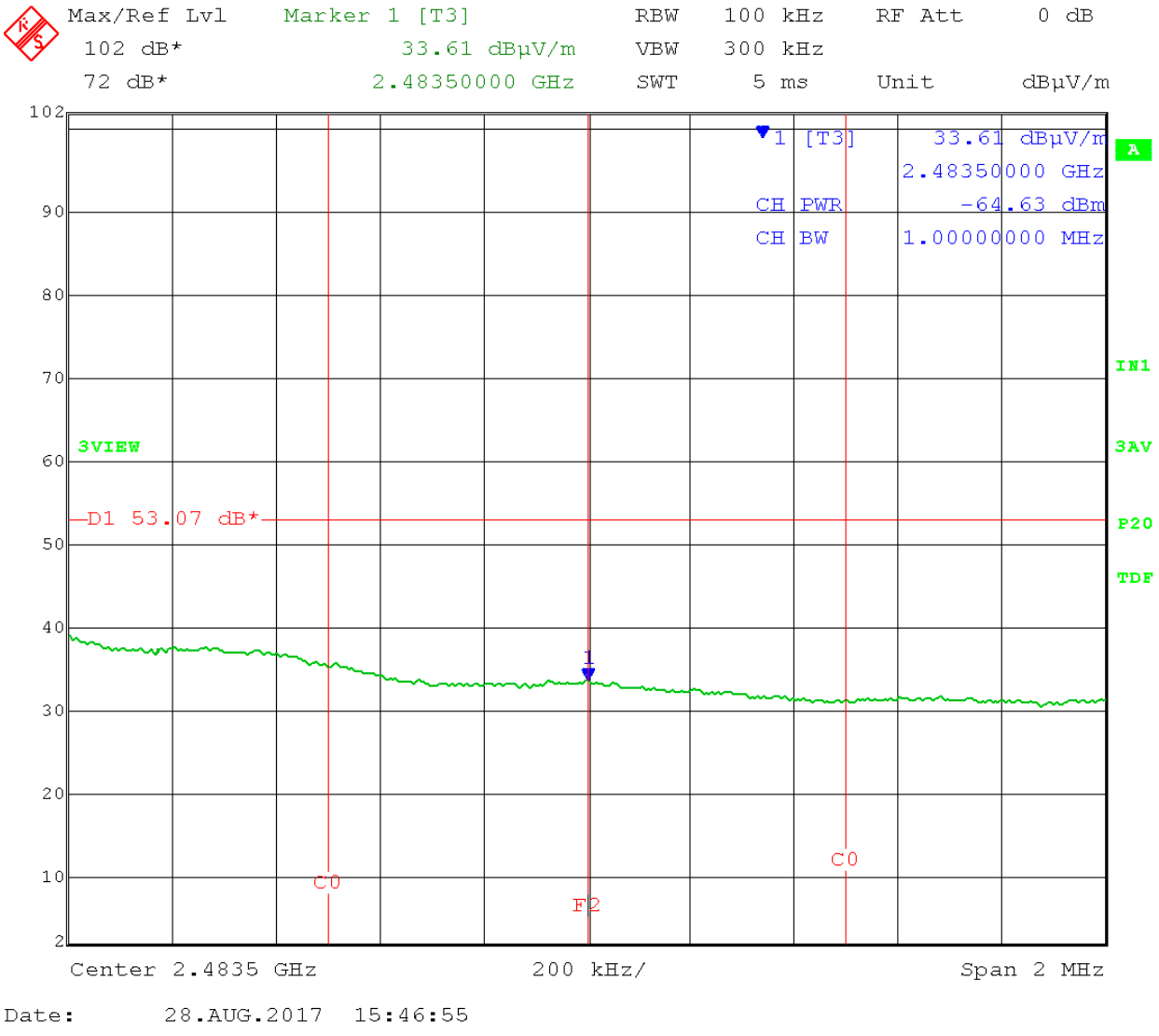
Peak Detector
Limit: 74 dBµV/m@ 3meters
Horizontal:



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Upper Restricted Band Edge – Radiated with antenna
Operator: Craig B

Comment: Data rate: 2 Mbps
High Channel: 2480 MHz

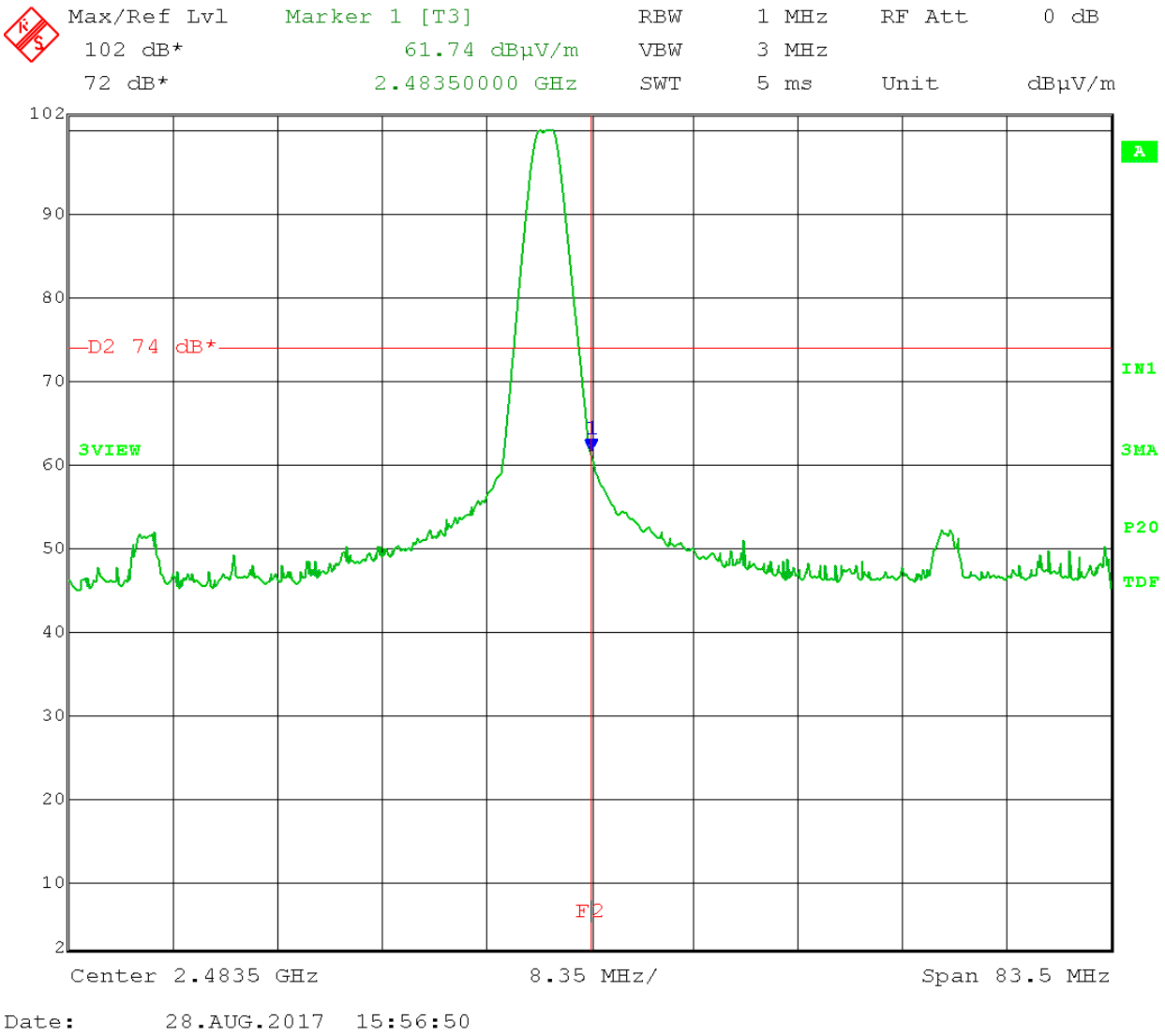
Average (linear) Detector
Limit: 54 dBµV/m – 0.93 dB (duty cycle cor.) = 53.07 dBµV/m @ 3meters
Vertical:
Using integration method:
Power measured in 1 MHz band at band edge = -64.63 dBm at 3 meters.
-64.63 dBm + 107 = 42.37 dBµV
Average field strength = **42.37** dBµV/m at 3 meters.



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Upper Restricted Band Edge – Radiated with antenna
Operator: Craig B

Comment: Data rate: 2 Mbps
High Channel: 2480 MHz

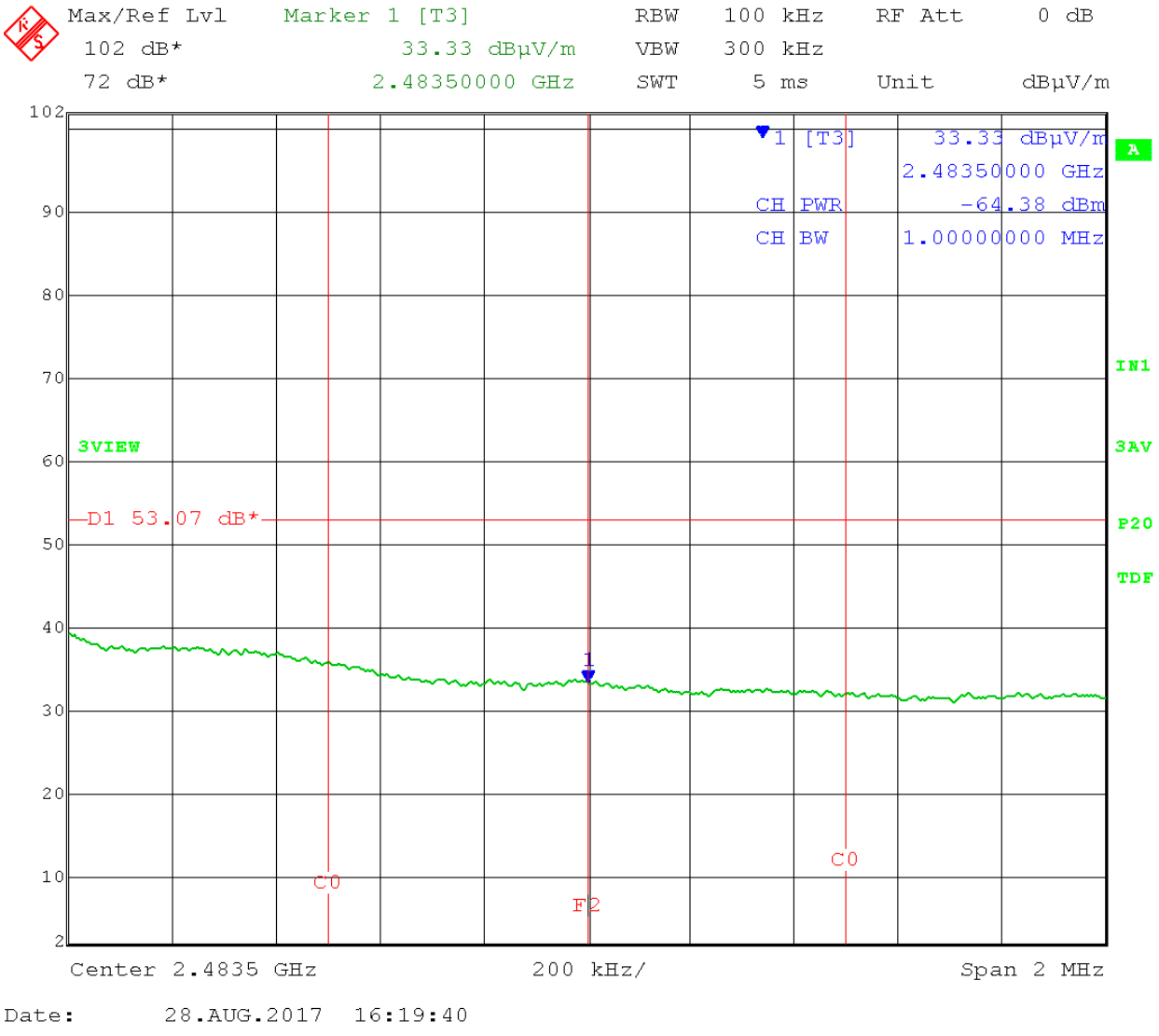
Peak Detector
Limit: 74 dBµV/m@ 3meters
Vertical:



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Upper Restricted Band Edge – Radiated with antenna
Operator: Craig B

Comment: Data rate: 2 Mbps
High Channel: 2480 MHz

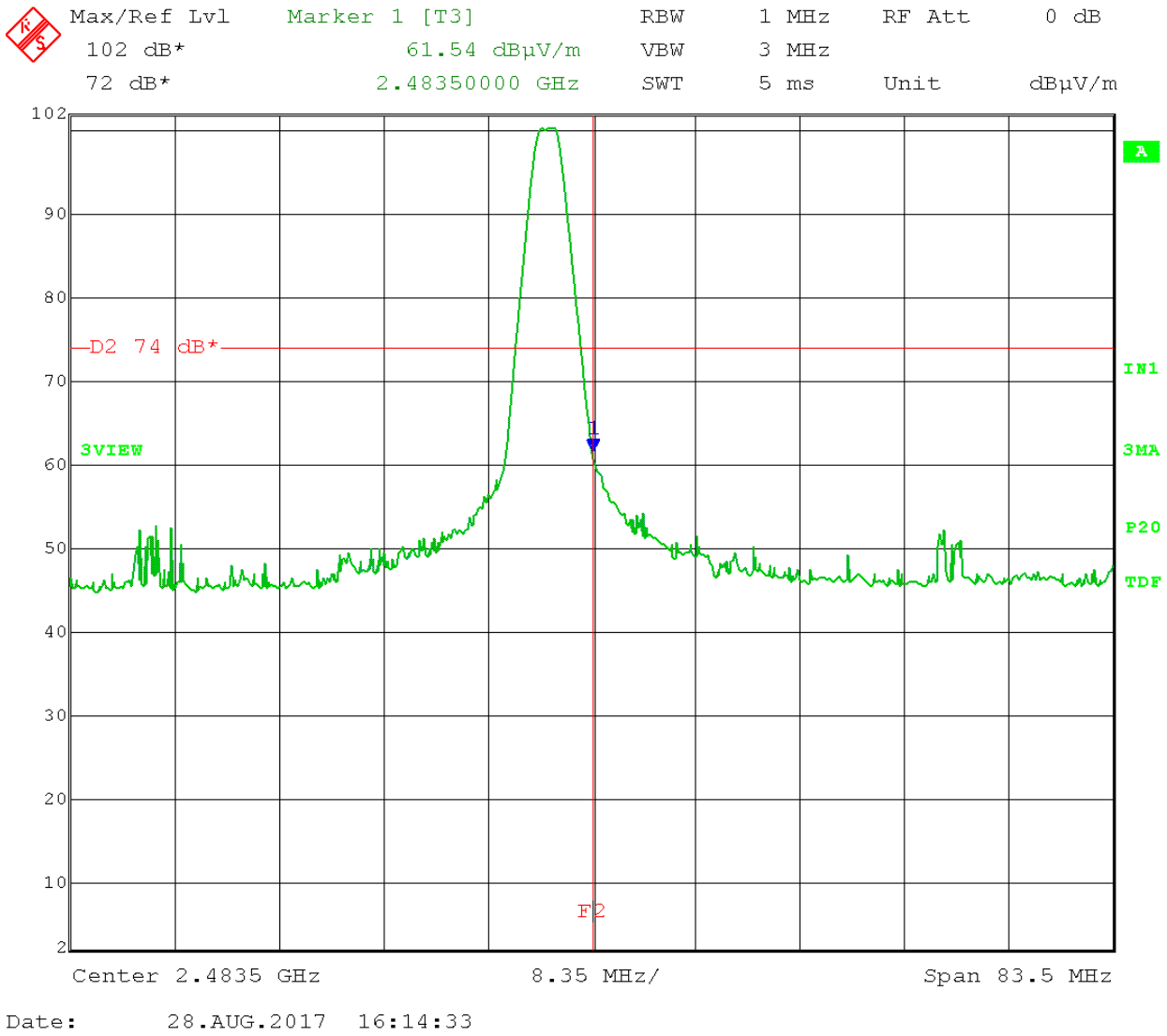
Average (linear) Detector
Limit: 54 dBµV/m – 0.93 dB (duty cycle cor.) = 53.07 dBµV/m @ 3meters
Horizontal:
Using integration method:
Power measured in 1 MHz band at band edge = -64.38 dBm at 3 meters.
-64.38 dBm + 107 = 42.62 dBµV
Average field strength = **42.62** dBµV/m at 3 meters.



Test Date: 08-28-2017
Company: Wilson
EUT: X100G-Flash Tag
Test: Upper Restricted Band Edge – Radiated with antenna
Operator: Craig B

Comment: Data rate: 2 Mbps
High Channel: 2480 MHz

Peak Detector
Limit: 74 dBµV/m@ 3meters
Horizontal:



166 South Carter, Genoa City, WI 53128

Appendix C – Measurement Uncertainty

Compliance with the limits in this standard are based on the results of the compliance measurement. Our calculated measurement uncertainty including the measurement instrumentation, associated connections between the various instruments in the measurement chain, and other contributions, are provided in this section of the test report.

Parameter		**Expanded Uncertainty (K=2)**
Occupied Channel Bandwidth		+/-1.14%
RF Output Power, Conducted		+/-0.89dB
Unwanted Emissions, Conducted		+/-2.62dB
All Emissions, Radiated		+/-4.95dB
DC and Low Frequency Voltages		+/-2.42%
Time		+/-0.01%
Duty Cycle		+/-0.05%

166 South Carter, Genoa City, WI 53128

Company: Wilson Sporting Goods
Model Tested: MSC1277
Report Number: 23051
DLS Project: 9121

END OF REPORT

Revision #	Date	Comments	By
1.0	August 31, 2017	Initial Release	CB