
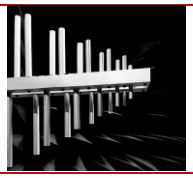
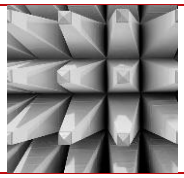

CETECOM™
CETECOM ICT Services
consulting - testing - certification

TEST REPORT

Test report no.: 1-8141/14-01-11

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-12076-01-00

Testing laboratory

CETECOM ICT Services GmbH
Untertuerkheimer Strasse 6 – 10
66117 Saarbruecken / Germany
Phone: + 49 681 5 98 - 0
Fax: + 49 681 5 98 - 9075
Internet: http://www.cetecom.com
e-mail: ict@cetecom.com

Accredited Testing Laboratory:
The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2005) by the Deutsche Akkreditierungsstelle GmbH (DAkkS)
The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12076-01-00

Applicant

beyerdynamic GmbH & Co. KG
Theresienstraße 8
74072 Heilbronn / GERMANY
Phone: +49 7131 617-0
Fax: +49 7131 617-215
Contact: Ulrich Roth
e-mail: roth@beyerdynamic.de
Phone: +49 7131 617-155

Manufacturer

beyerdynamic GmbH & Co. KG
Theresienstraße 8
74072 Heilbronn / GERMANY

Test standard/s

47 CFR Part 15	Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio frequency devices
RSS - 210 Issue 8	Spectrum Management and Telecommunications Radio Standards Specification - Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment
RSS - 210 Issue 8 Amendment 1	RSS-210, Amendment 1 — Licence-Exempt, Low-Power Radio Apparatus Operating in the Television Bands (February 2015)

For further applied test standards please refer to section 3 of this test report.

Test Item

Kind of test item:	**Wireless Microphone System**
Model name:	**Quinta**
FCC ID:	**OSDQUINTATH**
IC:	**3628A-QUINTATH**
Frequency:	UNII bands: 5150 MHz to 5250 MHz & 5725 MHz to 5850 MHz
Technology tested:	Proprietary DSSS
Antenna:	2 integrated antennas
Power supply:	3.0 V DC by battery
Temperature range:	0°C to +40°C

This test report is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

Test report authorised:

cn=Marco Bertolino, o=CETECOM ICT Services GmbH, ou=BTL-100826, email=marco.bertolino@cetecom.com, c=DE
2015.04.16 15:31:06 +02'00'

Marco Bertolino
Radio Communications & EMC

Test performed:

cn=Christoph Schneider, o=CETECOM ICT Services GmbH, ou=SND-120402, email=christoph.schneider@cetecom.com, c=DE
2015.04.16 15:29:44 +02'00'

Christoph Schneider
Radio Communications & EMC

1 Table of contents

2 General information

2.1 Notes and disclaimer

The test results of this test report relate exclusively to the test item specified in this test report. CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item.
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This test report is electronically signed and valid without handwritten signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

2.2 Application details

Date of receipt of order:	2014-12-08
Date of receipt of test item:	2015-04-07
Start of test:	2015-04-07
End of test:	2015-04-16
Person(s) present during the test:	-/-

3 Test standard/s

Test standard	Date	Test standard description
47 CFR Part 15	-/-	Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio frequency devices
RSS - 210 Issue 8	01.12.2010	Spectrum Management and Telecommunications Radio Standards Specification - Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment
RSS - 210 Issue 8 Amendment 1	05.02.2015	RSS-210, Amendment 1 — Licence-Exempt, Low-Power Radio Apparatus Operating in the Television Bands (February 2015)

3.1 Measurement guidance

UNII: KDB 789033	2014-06	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E

4 Test environment

Temperature:	T_{nom}	+22	°C during room temperature tests
	T_{max}	+40	°C during high temperature tests
	T_{min}	0	°C during low temperature tests
Relative humidity content:		44 %	
Barometric pressure:		not relevant for this kind of testing	
Power supply:	V_{nom}	3.0 V	DC by battery
	V_{max}	3.2 V	
	V_{min}	2.0 V	

5 Test item

Kind of test item	:	Wireless Microphone System
Type identification	:	Quinta
S/N serial number	:	Conducted: QPSK 20965 / BPSK 20964 Radiated QPSK / BPSK 20957 & 20963
HW hardware status	:	Rev. 2
SW software status	:	RF test software
Frequency band	:	UNII bands: 5150 MHz to 5250 MHz & 5725 MHz to 5850 MHz (lowest channel 5180 MHz; highest channel 5814 MHz)
Type of radio transmission **Use of frequency spectrum**	: :	DSSS
Type of modulation	:	BPSK & QPSK
Number of channels	:	3 (test software)
Antenna	:	2 integrated antennas
Power supply	:	3.0 V DC by battery
Temperature range	:	0°C to +40°C

5.1 Additional information

The content of the following annexes is defined in the QA. It may be that not all of the listed annexes are necessary for this report, thus some values in between may be missing.

Test setup- and EUT-photos are included in test report: 1-8141/14-01-01_AnnexA
1-8141/14-01-01_AnnexB
1-8141/14-01-01_AnnexD

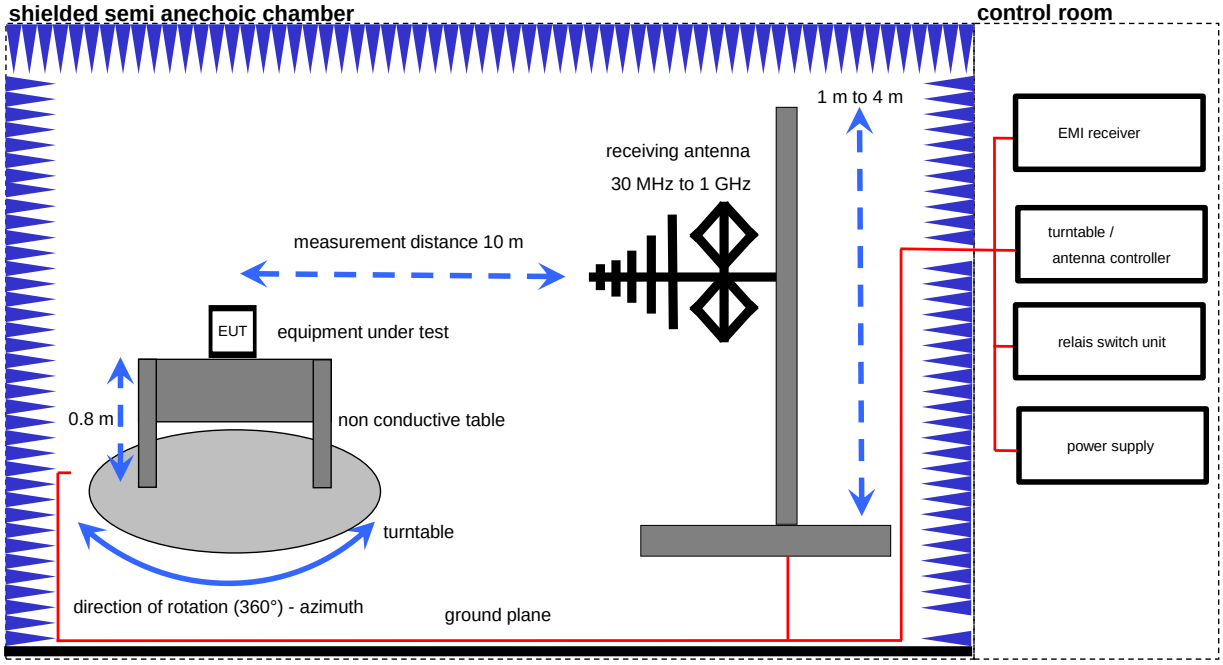
6 Test laboratories sub-contracted

None

7 Description of the test setup

7.1 Radiated measurements chamber F

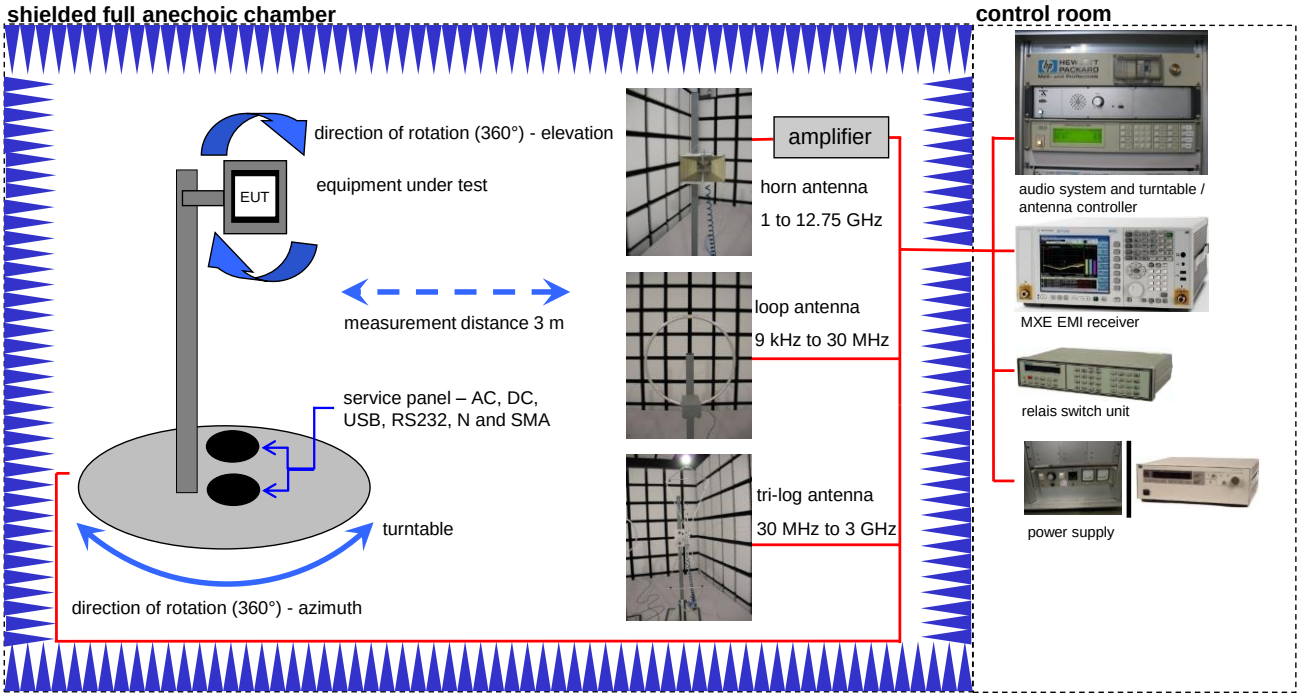
The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 1 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas are confirmed with specifications ANSI C63. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test setups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received. The wanted and unwanted emissions are received by spectrum analysers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63.



Equipment table:

Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom
Software	EMC32 V.| 9.12.05	R&S	-/-	-/-
Switch-Unit	3488A	HP Meßtechnik	2719A14505	300000368
DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2920A04466	300000580
EMI Test Receiver	ESCI 3	R&S	100083	300003312
Amplifier	JS42-00502650-28-5A	MITEQ	1084532	300003379
Antenna Tower	Model 2175	ETS-LINDGREN	64762	300003745
Positioning Controller	Model 2090	ETS-LINDGREN	64672	300003746
Turntable Interface-Box	Model 105637	ETS-LINDGREN	44583	300003747
TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	295	300003787

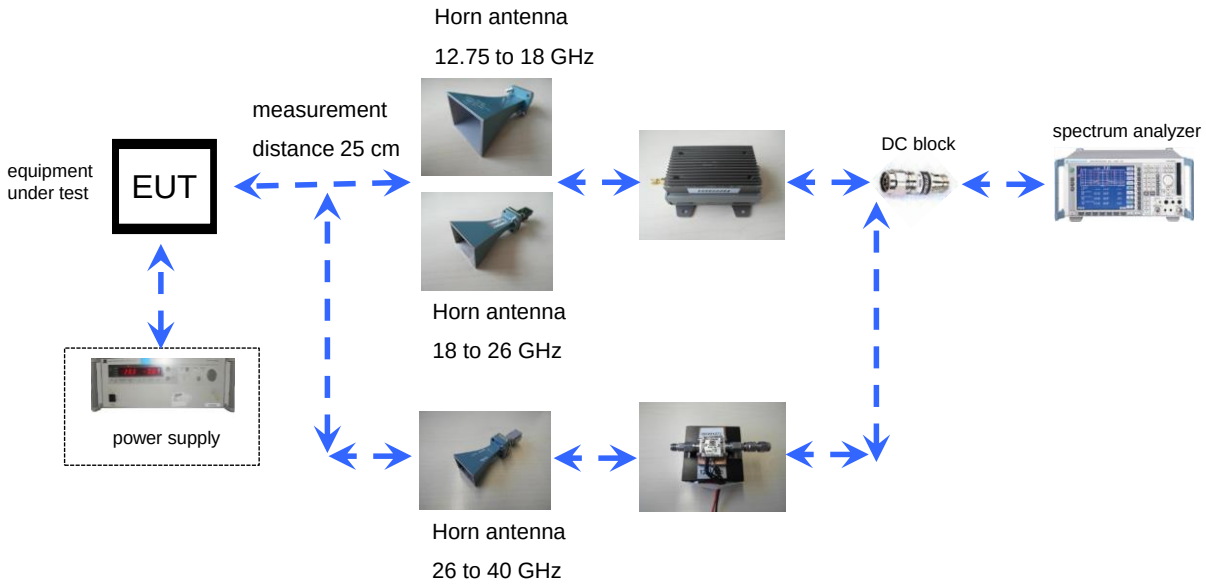
7.2 Radiated measurements chamber C



Equipment table:

Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom
MXE EMI Receiver 20 Hz bis 26,5 GHz	N9038A	Agilent Technologies	MY51210197	300004405
Highpass Filter	WHKX7.0/18G-8SS	Wainwright	18	300003789
Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032
Active Loop Antenna	6502	EMCO	8905-2342	300000256
Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996
Switch / Control Unit	3488A	HP Meßtechnik	*	300000199
Switch / Control Unit	3488A	HP Meßtechnik	2719A15013	300001156
Isolating Transformer	MPL IEC625 Bus Regeltrenntravo	Erfi	91350	300001155
Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000997
Amplifier	js42-00502650-28-5a	Parzich GMBH	928979	300003143

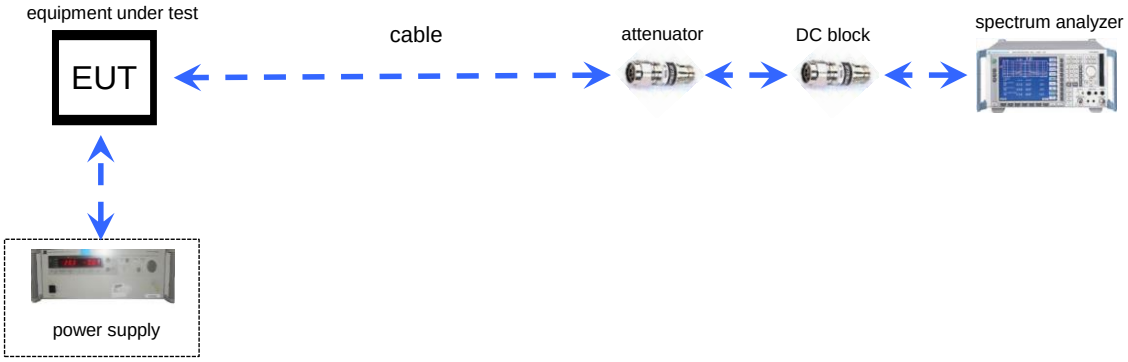
7.3 Radiated measurements 12.75 GHz to 40 GHz



Equipment table:

Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom
Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda	8402	300000787
Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda	8205	300002442
Microwave System Amplifier, 0.5-26.5 GHz	83017A	HP Meßtechnik	00419	300002268
Std. Gain Horn Antenna 26.5-40.0 GHz	V637	Narda	7911	300001751
Broadband Low Noise Amplifier 18-50 GHz	CBL18503070-XX	CERNEX	19338	300004273
Spectrum Analyzer 20 Hz - 50 GHz	FSU50	R&S	200012	300003443
Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517

7.4 Conducted measurements



Equipment table:

Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom
Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517

8 Summary of measurement results

☒	No deviations from the technical specifications were ascertained
☐	There were deviations from the technical specifications ascertained
☐	This test report is only a partial test report. The content and verdict of the performed test cases are listed below.

TC Identifier	Description	Verdict	Date	Remark
RF-Testing	CFR Part 15 RSS 210, Issue 8, Annex 9	see table	2015-04-16	-/-

Test specification clause	Test case	Temperature conditions	Power source voltages	Pass	Fail	NA	NP	Remark
-/-	Gain	Nominal	Nominal	☐	☐	☐	☐	No passed / fail criteria!
U-NII Part 15	Duty cycle	Nominal	Nominal	☐	☐	☒	☐	EUT provided 100% DC.
§15.407(a) RSS-210	Maximum output power (conducted & radiated)	Nominal	Nominal	☒	☐	☐	☐	complies
§15.407(a) RSS-210	Power spectral density	Nominal	Nominal	☒	☐	☐	☐	complies
§15.407(a) RSS-210	Spectrum bandwidth 26dB bandwidth	Nominal	Nominal	☒	☐	☐	☐	complies
§15.407(a) RSS-210	Peak excursion measurements	Nominal	Nominal	☒	☐	☐	☐	complies
§15.205 RSS-210	Band edge compliance radiated	Nominal	Nominal	☒	☐	☐	☐	complies
§15.407(b) RSS-210	TX spurious emissions radiated	Nominal	Nominal	☒	☐	☐	☐	complies
§15.109 RSS-Gen	RX spurious emissions radiated	Nominal	Nominal	☒	☐	☐	☐	complies
§15.209(a) RSS-Gen	Spurious emissions radiated < 30 MHz	Nominal	Nominal	☒	☐	☐	☐	complies
§15.107(a) §15.207	Spurious emissions conducted emissions < 30 MHz	Nominal	Nominal	☐	☐	☒	☐	Battery powered only.

Note: NA = Not Applicable; NP = Not Performed

9 Additional comments

Reference documents: None

Special test descriptions: None

Configuration descriptions: Power setting: d2 B0 00 05 04

Test mode:

☐ No test mode available.

☒ Special software is used.
EUT is transmitting pseudo random data by itself

10 Measurement results

10.1 Gain

Description:

Measurement of the maximum output power conduced and radiated

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	5s
Resolution bandwidth:	3 MHz
Video bandwidth:	8 MHz / 10 MHz
Span:	See complete signal!
Trace-Mode:	Max Hold

Limits:

Antenna Gain
Maximum 6 dBi

Result: Antenna A

Band 5150 MHz to 5250 MHz	Gain		
Channel	Lowest 5180 MHz	Lowest 5210 MHz	Highest 5240 MHz
Radiated power for gain calculation	12.16	11.47	11.76
Conducted power for gain calculation	6.46	6.99	7.21
Gain	5.70	4.48	4.55
Measurement uncertainty	± 3 dB		

Band 5725 MHz to 5850 MHz	Gain		
Channel	Lowest 5736 MHz	Middle 5762 MHz	Highest 5814 MHz
Radiated power for gain calculation	6.78	7.32	9.16
Conducted power for gain calculation	2.66	3.80	6.12
Gain	4.12	3.52	3.04
Measurement uncertainty	± 3 dB		

Verdict: complies

Result: Antenna B

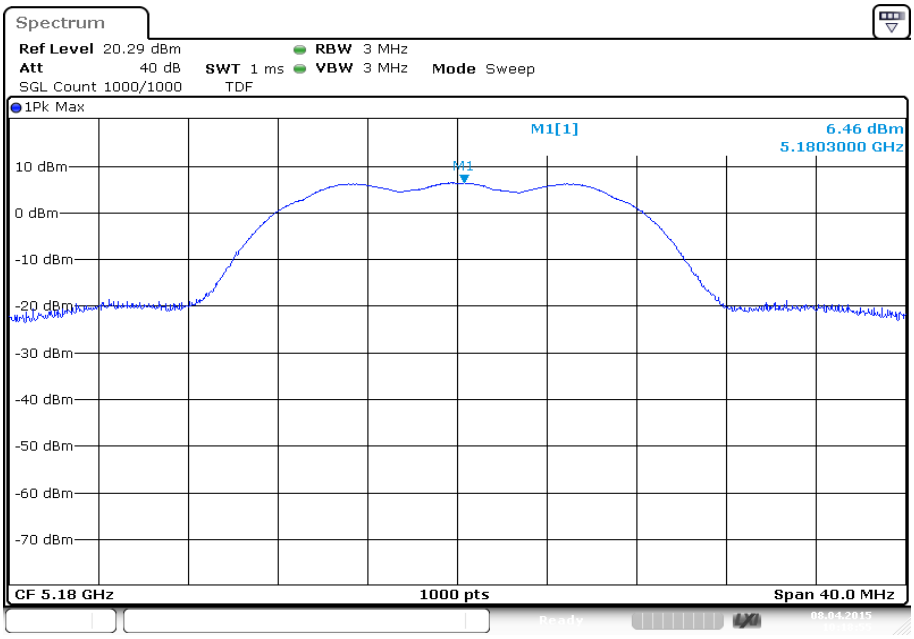
Band 5150 MHz to 5250 MHz	Gain		
Channel	Lowest 5180 MHz	Lowest 5210 MHz	Highest 5240 MHz
Radiated power for gain calculation	11.38	11.36	10.20
Conducted power for gain calculation	5.38	5.51	4.88
Gain	6.00	5.85	5.32
Measurement uncertainty	± 3 dB		

Band 5725 MHz to 5850 MHz	Gain		
Channel	Lowest 5736 MHz	Middle 5762 MHz	Highest 5814 MHz
Radiated power for gain calculation	11.60	12.07	12.98
Conducted power for gain calculation	9.13	9.56	9.07
Gain	2.47	2.51	3.91
Measurement uncertainty	± 3 dB		

Verdict: complies

Plots: Antenna A

Plot 1: 5180 MHz



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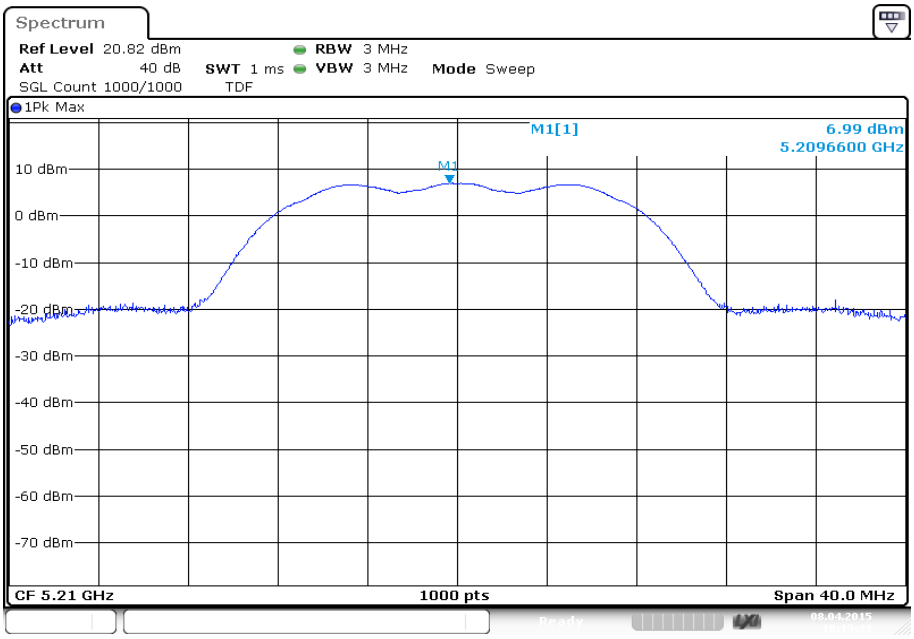
Plot 2: 5210 MHz



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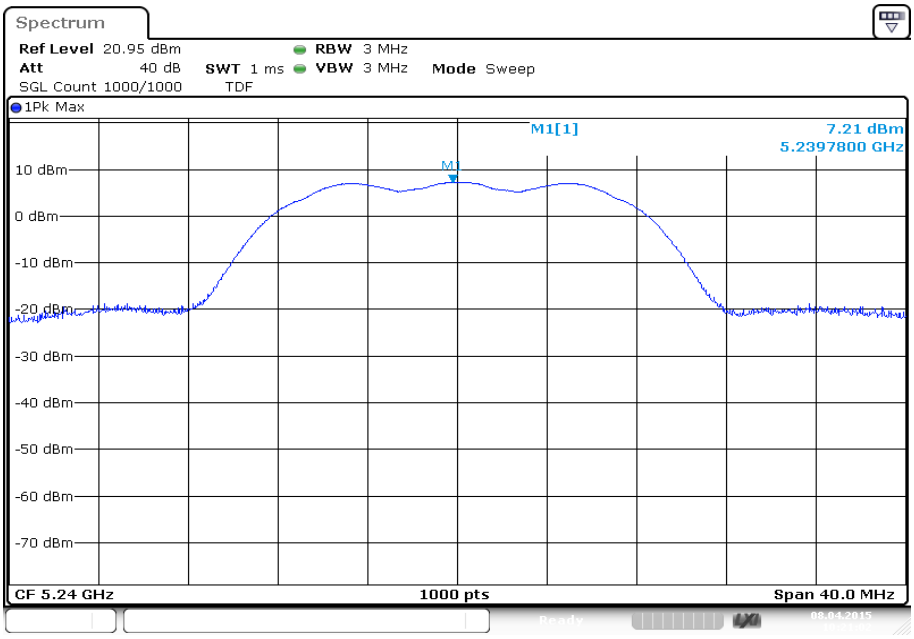
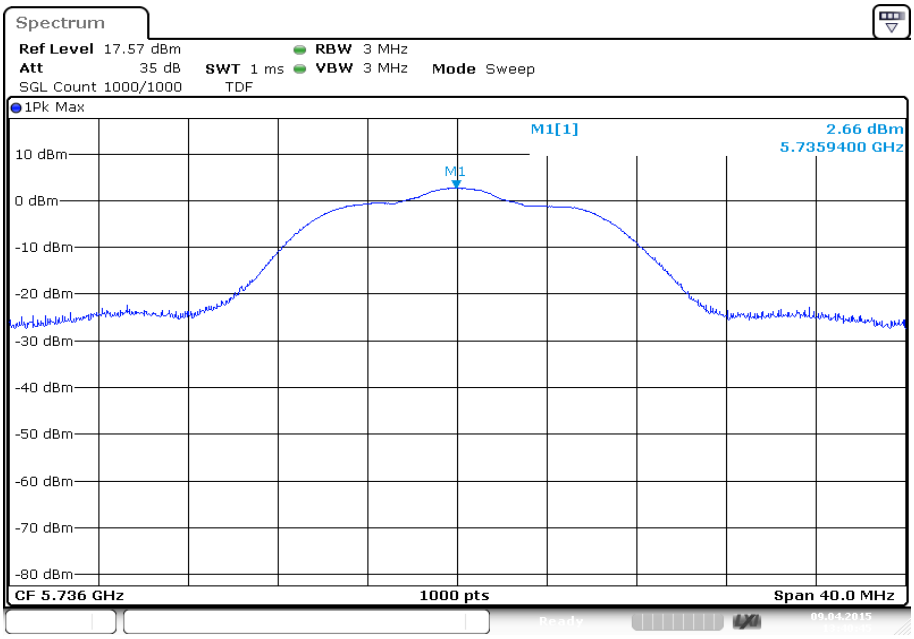
Plot 3: 5240 MHz



Date: 8.APR.2015 10:21:02

Plot 4: 5736 MHz



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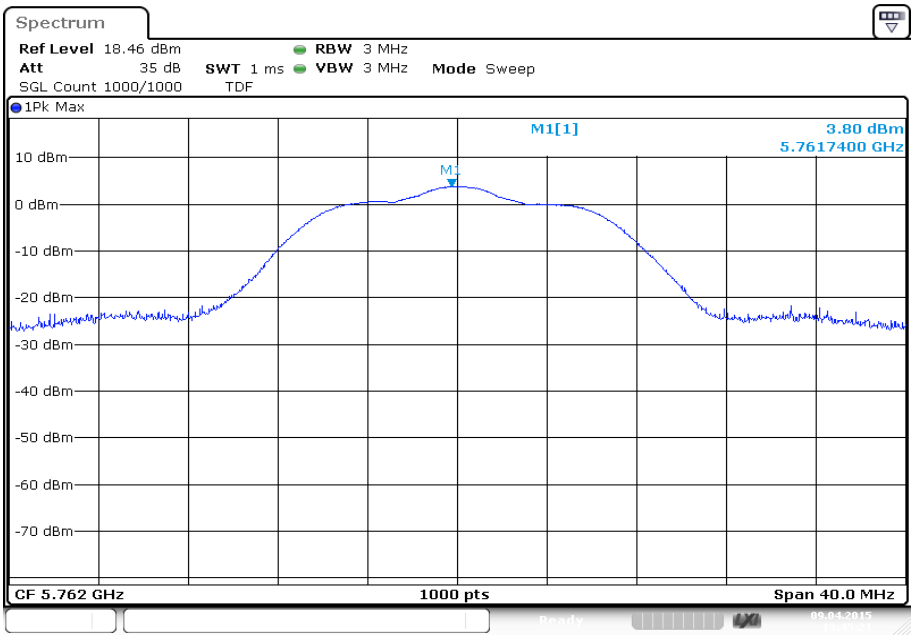
Plot 5: 5762 MHz



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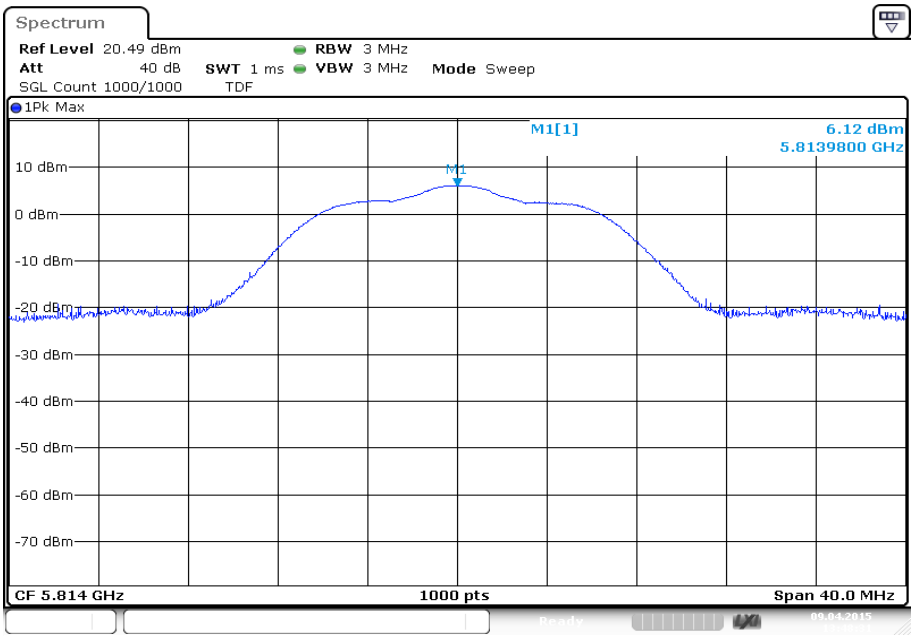
Plot 6: 5814 MHz



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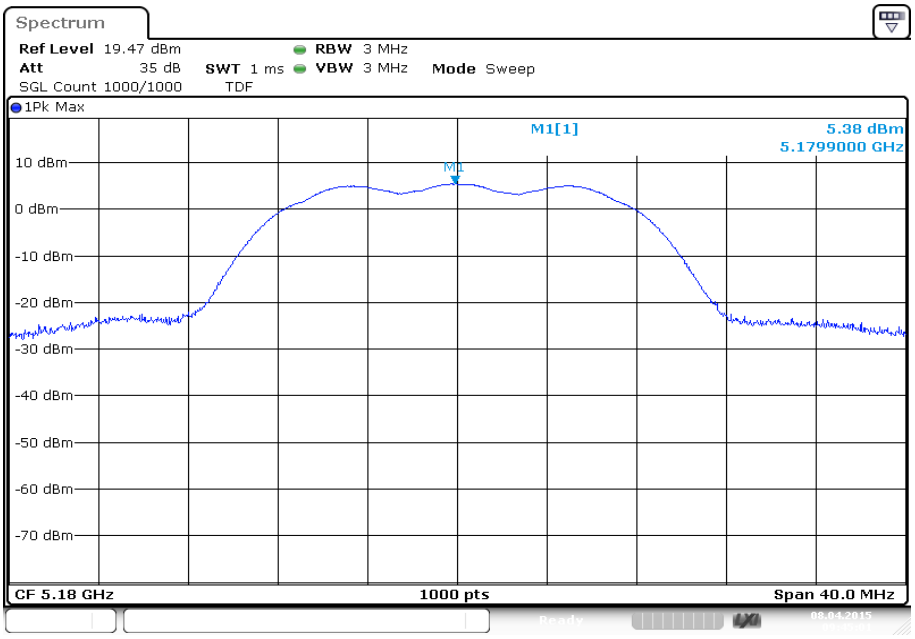
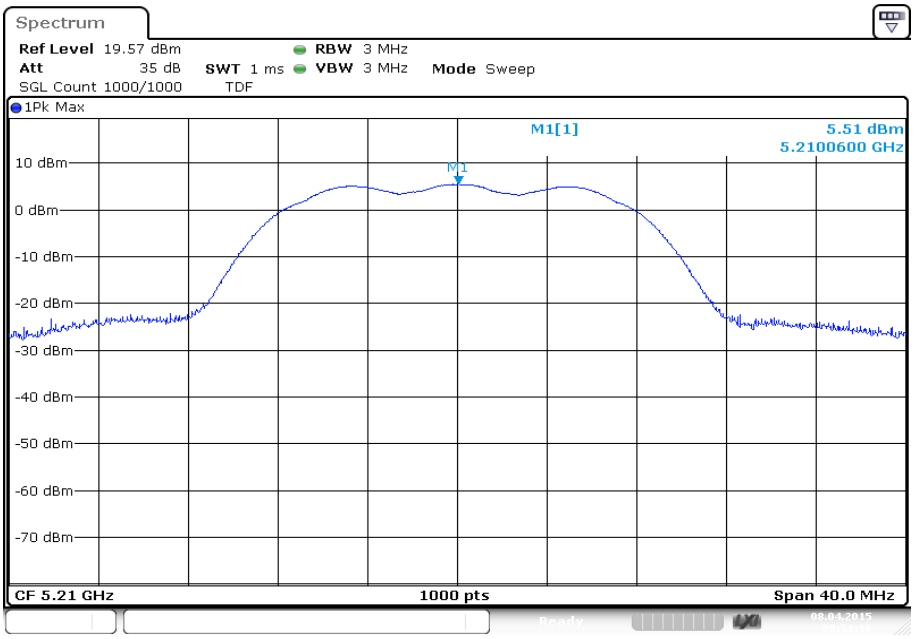
Plots: Antenna B

Plot 1: 5180 MHz



Date: 8.APR.2015 09:45:02

Plot 2: 5210 MHz



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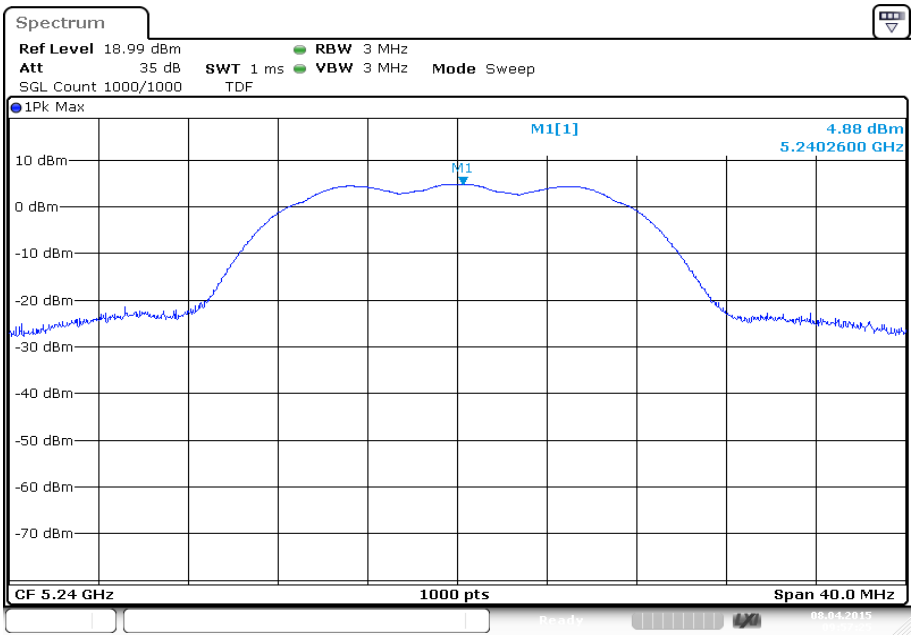
Plot 3: 5240 MHz



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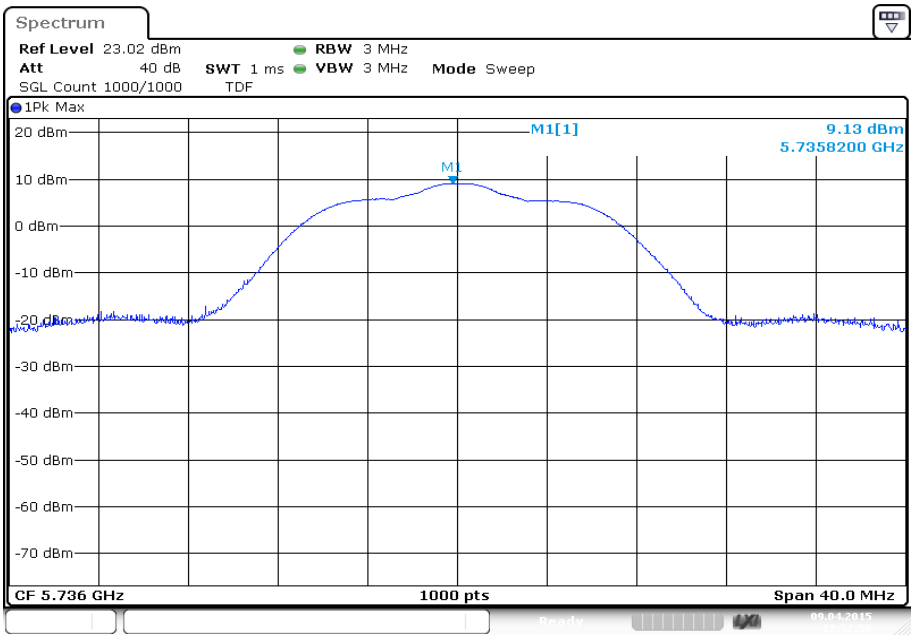
Plot 4: 5736 MHz



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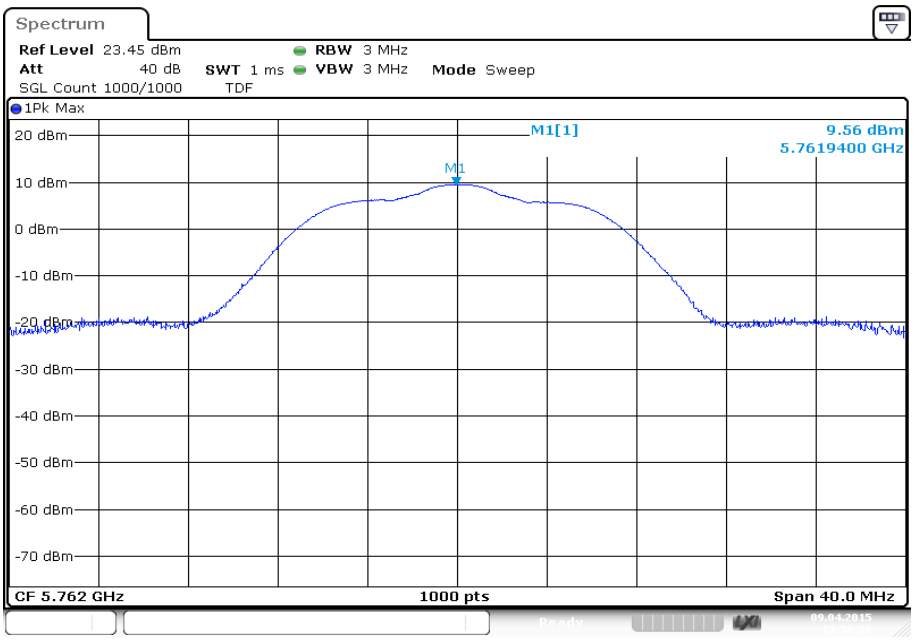
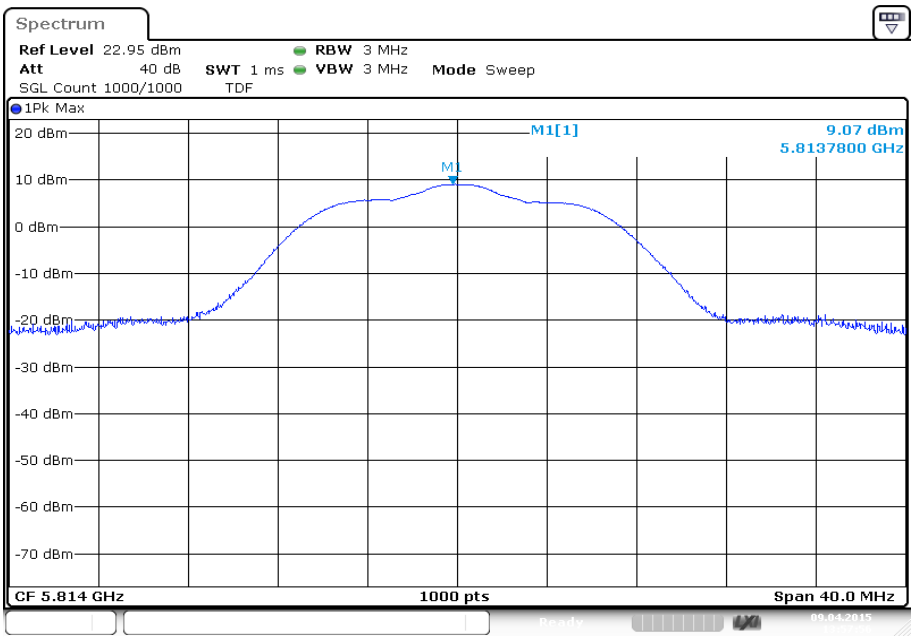
Plot 5: 5762 MHz



Date: 9.APR.2015 13:56:00

Plot 6: 5814 MHz



Date: 9.APR.2015 13:57:56

10.2 Duty cycle

Results:

Duty cycle:

DSSS / QPSK: 100 % duty cycle

DSSS / BPSK: 99.9 % duty cycle

10.3 Maximum output power conducted

Description:

Measurement of the maximum output power conduced

Measurement:

Measurement parameter	
Detector:	RMS
Sweep time:	≥10*(swp points)*(total on/off time)
Resolution bandwidth:	1 MHz
Video bandwidth:	≥ 3 MHz
Span:	> EBW
Trace-Mode:	Max hold
Analyzer function	Band power / channel power Interval > 26 dB EBW

Limits:

Radiated output power	Conducted output power
Conducted power + 6dBi antenna gain	250mW 5.150-5.250 GHz (FCC) The lesser one of 200 mW or 10 dBm + 10 log Bandwidth 5.150-5.250 GHz (IC) 250mW or 11 dBm + 10 log Bandwidth 5.250-5.350 GHz 250mW or 11 dBm + 10 log Bandwidth 5.470-5.725 GHz 1W or 17 dBm + 10 log Bandwidth 5.725-5.825 GHz (IC) (where Bandwidth is the 26dB Bandwidth [MHz]) 1W 5.725-5.85 GHz (FCC)

Result: Antenna A

DSSS / QPSK	Maximum output power conducted [dBm]			
Channel	Lowest 5180 MHz	Middle 5200 MHz	Highest 5240 MHz	-/-
Conducted output power	8.61	9.05	9.49	-/-
Channel	Lowest 5736 MHz	Middle 5762 MHz	Highest 5814 MHz	-/-
Conducted output power	3.14	4.03	6.35	-/-
Measurement uncertainty	± 1 dB			

Verdict: complies

Result: Antenna A

DSSS / BPSK	Maximum output power conducted [dBm]			
Channel	Lowest 5180 MHz	Middle 5200 MHz	Highest 5240 MHz	-/-
Conducted output power	3.21	3.27	3.43	-/-
Channel	Lowest 5736 MHz	Middle 5762 MHz	Highest 5814 MHz	-/-
Conducted output power	2.66	2.56	1.78	-/-
Measurement uncertainty	± 1 dB			

Verdict: complies

Result: Antenna B

DSSS / QPSK	Maximum output power conducted [dBm]			
Channel	Lowest 5180 MHz	Middle 5200 MHz	Highest 5240 MHz	-/-
Conducted output power	7.61	7.31	6.77	-/-
Channel	Lowest 5736 MHz	Middle 5762 MHz	Highest 5814 MHz	-/-
Conducted output power	9.39	9.83	9.36	-/-
Measurement uncertainty	± 1 dB			

Verdict: complies

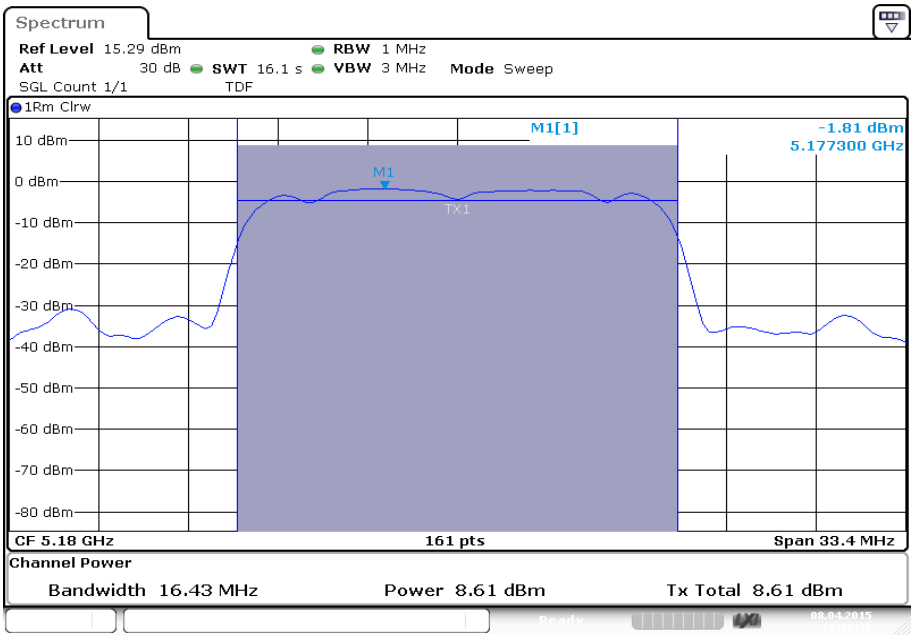
Result: Antenna B

DSSS / BPSK	Maximum output power conducted [dBm]			
Channel	Lowest 5180 MHz	Middle 5200 MHz	Highest 5240 MHz	-/-
Conducted output power	2.51	1.68	1.53	-/-
Channel	Lowest 5736 MHz	Middle 5762 MHz	Highest 5814 MHz	-/-
Conducted output power	3.62	2.47	1.27	-/-
Measurement uncertainty	± 1 dB			

Verdict: complies

Plots: Antenna A - QPSK

Plot 1: 5180 MHz



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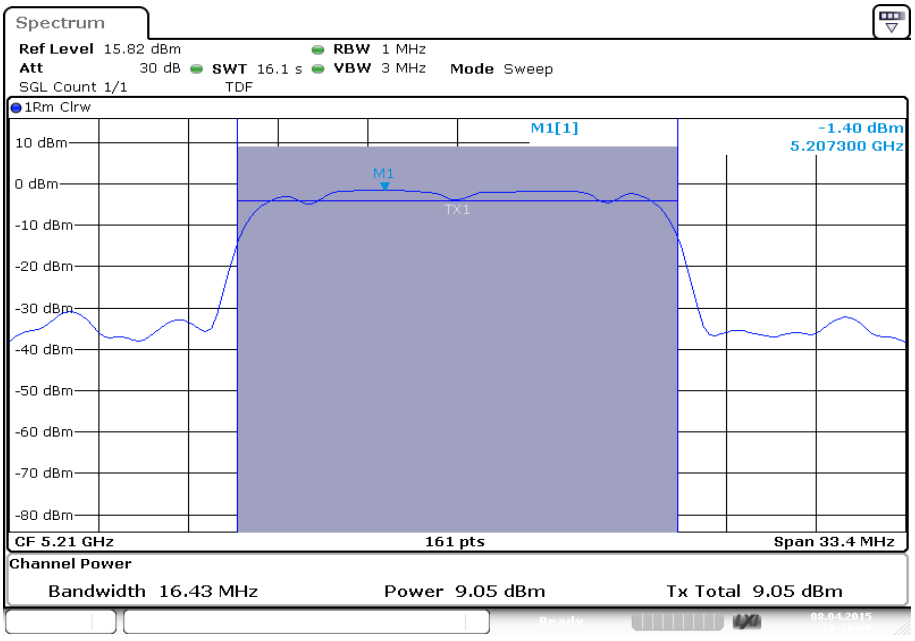
Plot 2: 5210 MHz



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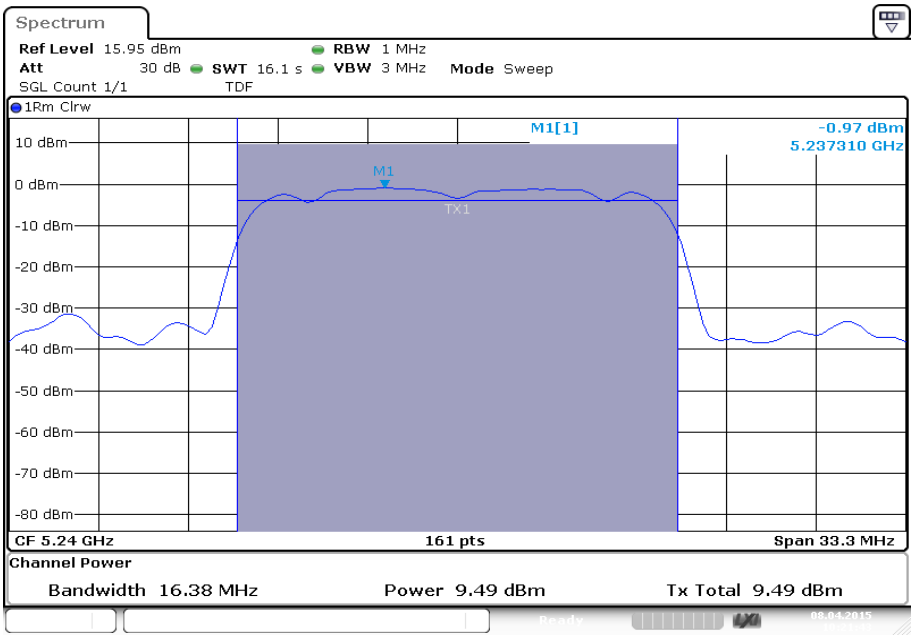
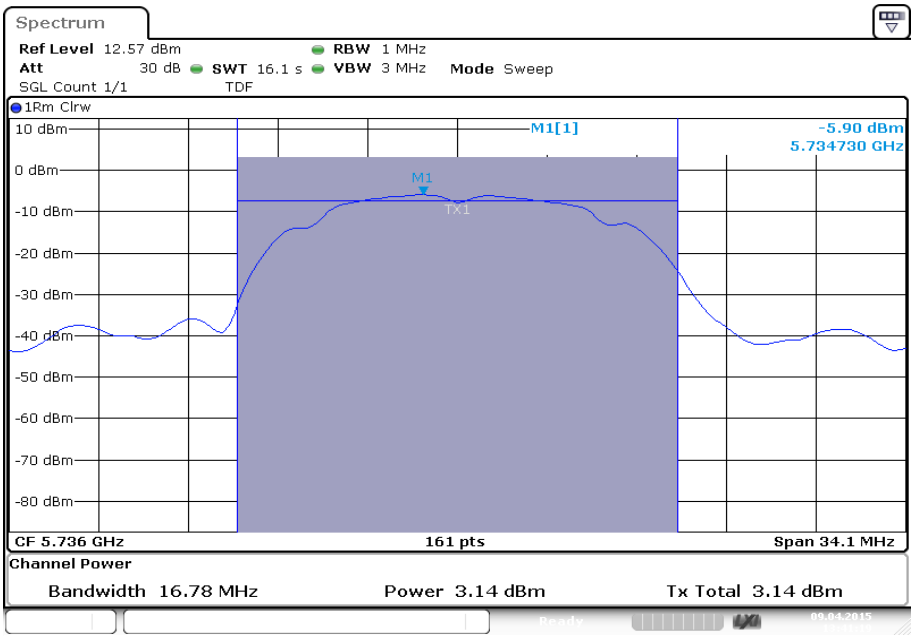
Plot 3: 5240 MHz



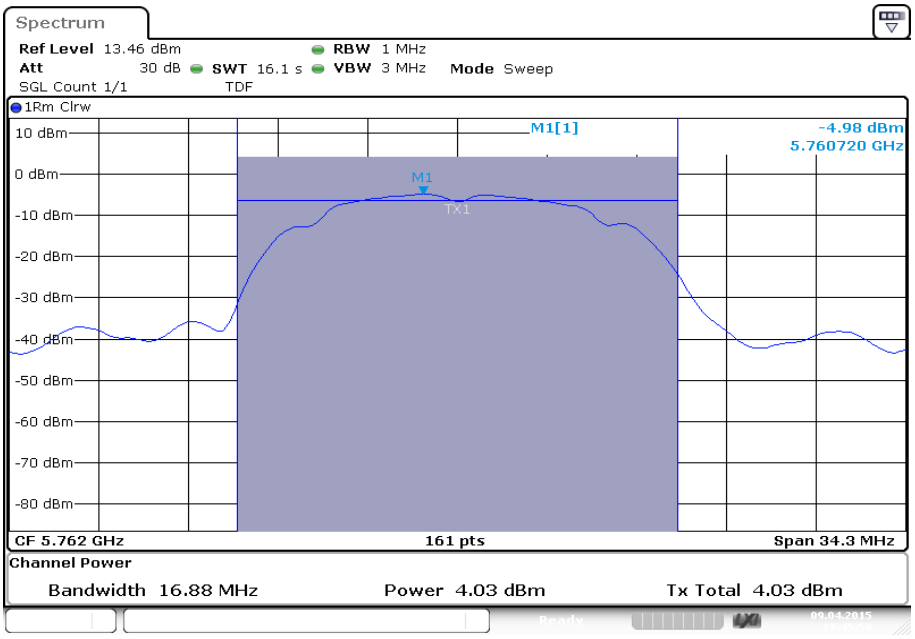
Date: 8.APR.2015 10:21:44

Plot 4: 5736 MHz



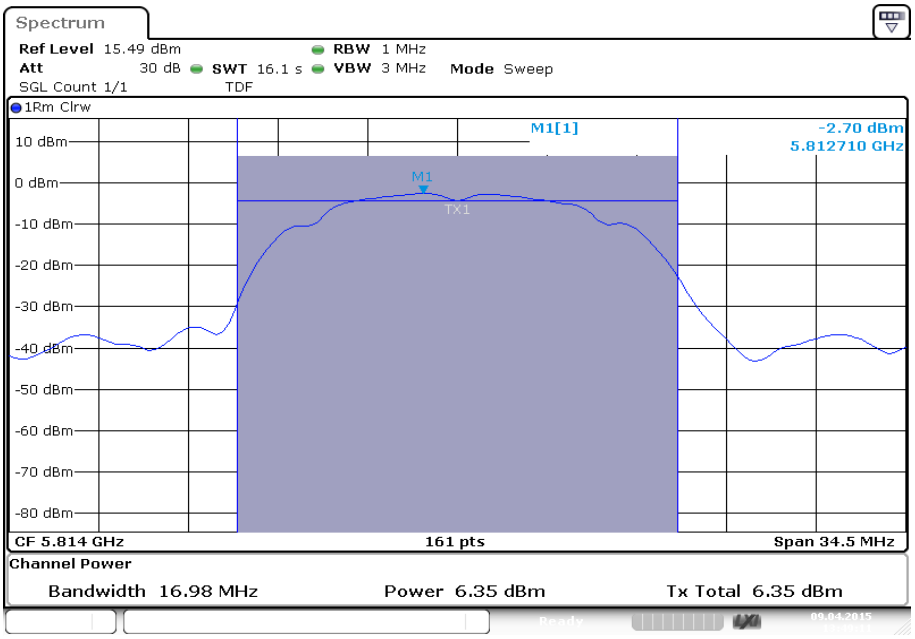
Date: 9.APR.2015 13:41:19

Plot 5: 5762 MHz



Date: 9.APR.2015 13:45:58

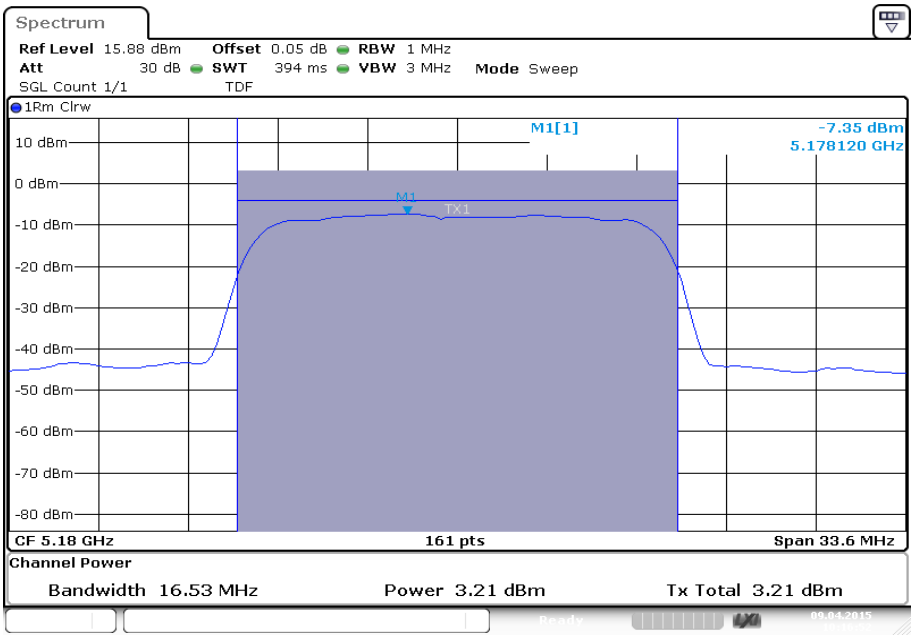
Plot 6: 5814 MHz



Date: 9.APR.2015 13:49:10

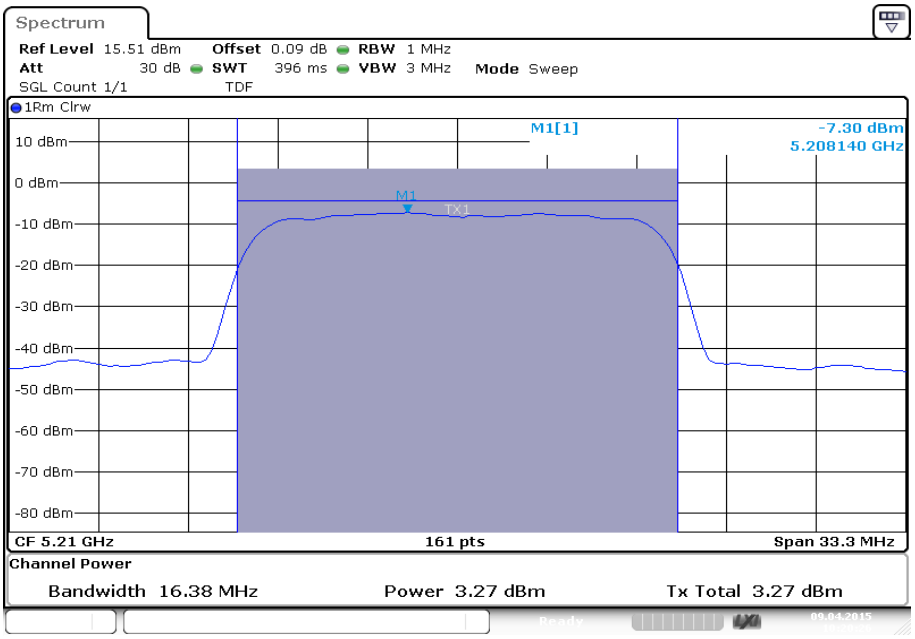
Plots: Antenna A - BPSK

Plot 1: 5180 MHz



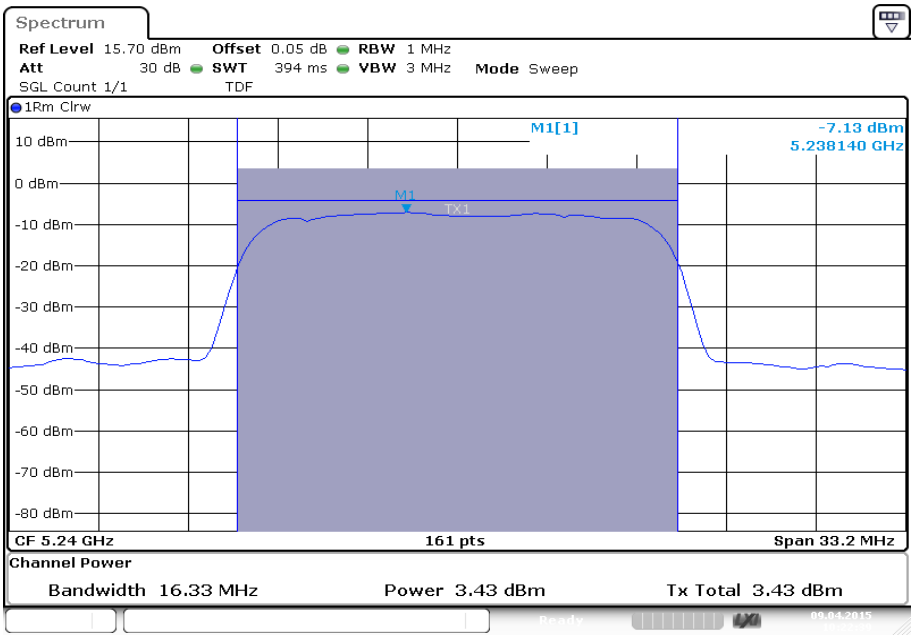
Date: 9.APR.2015 10:16:52

Plot 2: 5210 MHz



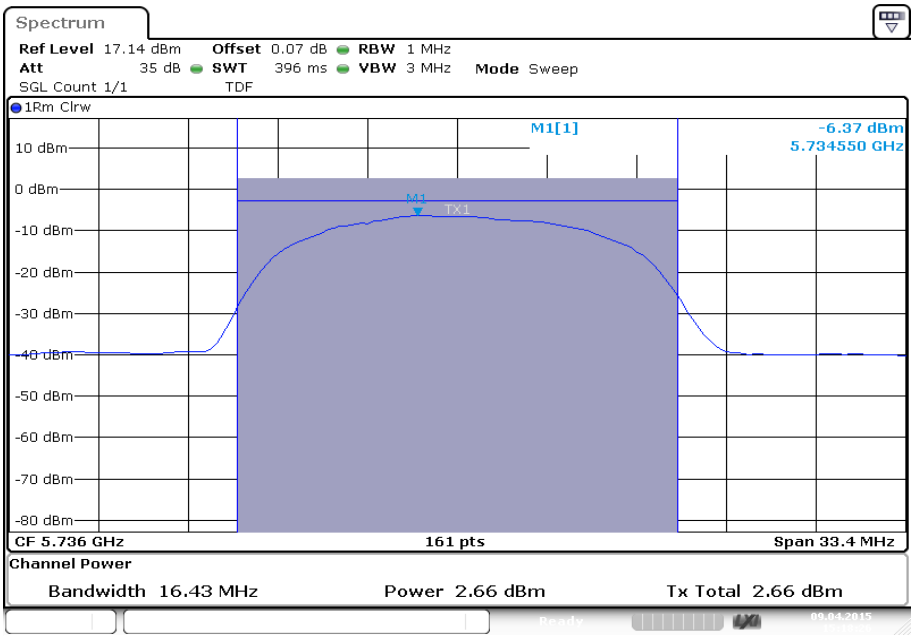
Date: 9.APR.2015 10:20:26

Plot 3: 5240 MHz



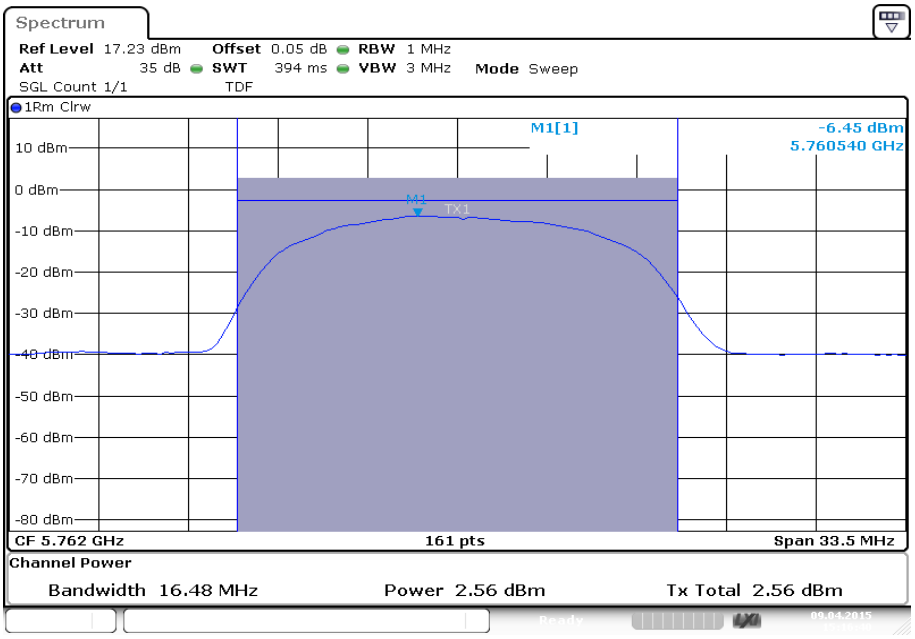
Date: 9.APR.2015 10:22:39

Plot 4: 5736 MHz



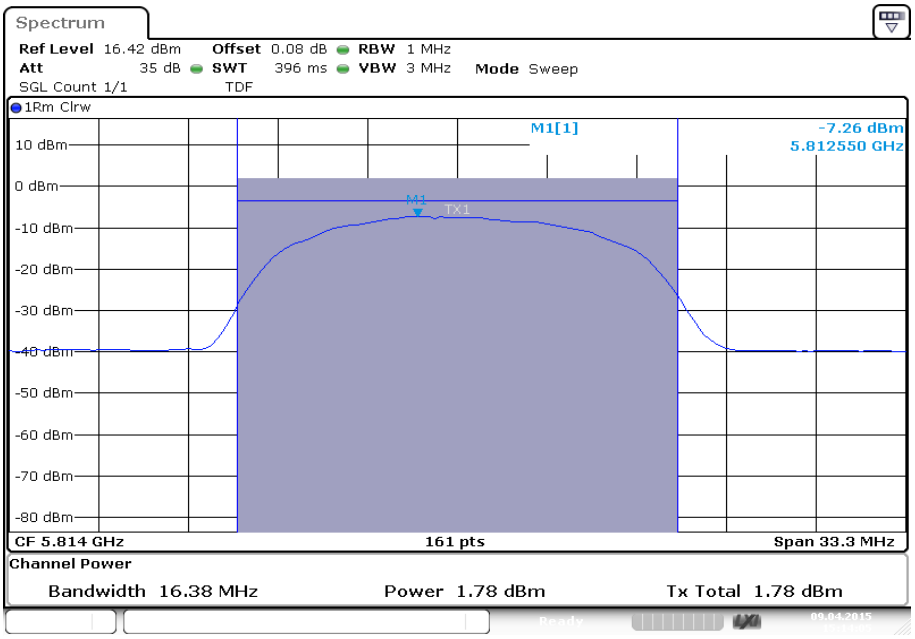
Date: 9.APR.2015 15:18:25

Plot 5: 5762 MHz



Date: 9.APR.2015 15:16:40

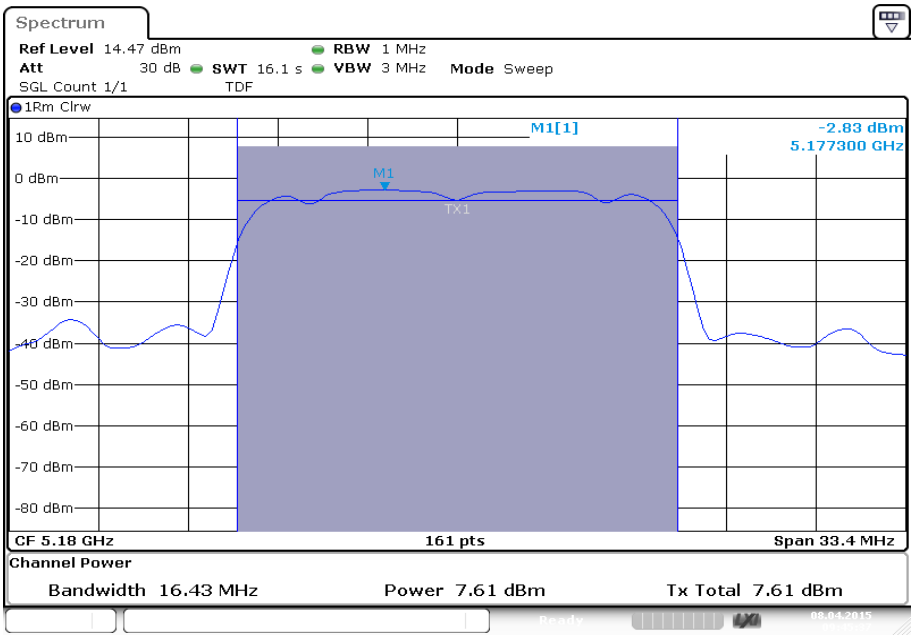
Plot 6: 5814 MHz



Date: 9.APR.2015 15:14:05

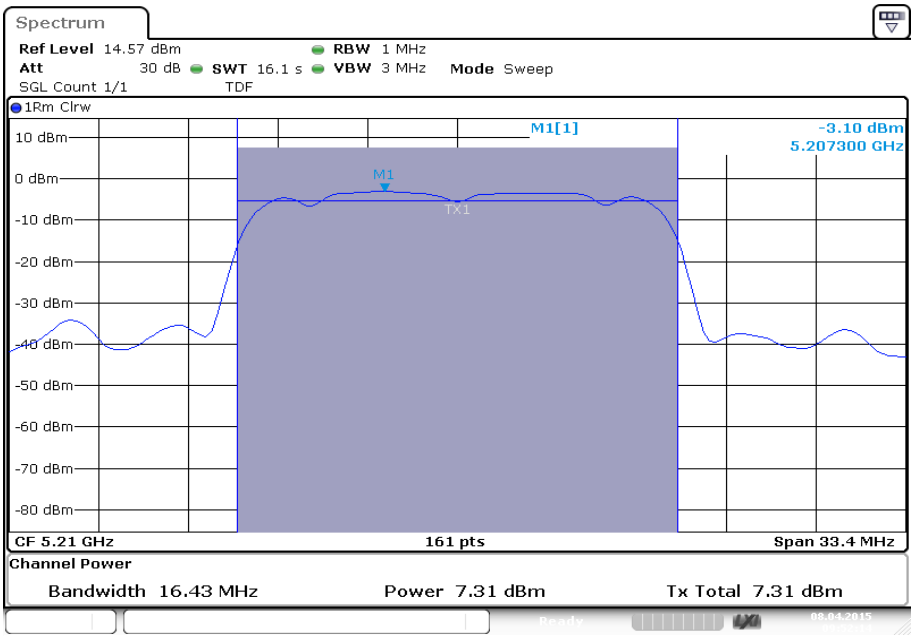
Plots: Antenna B - QPSK

Plot 1: 5180 MHz



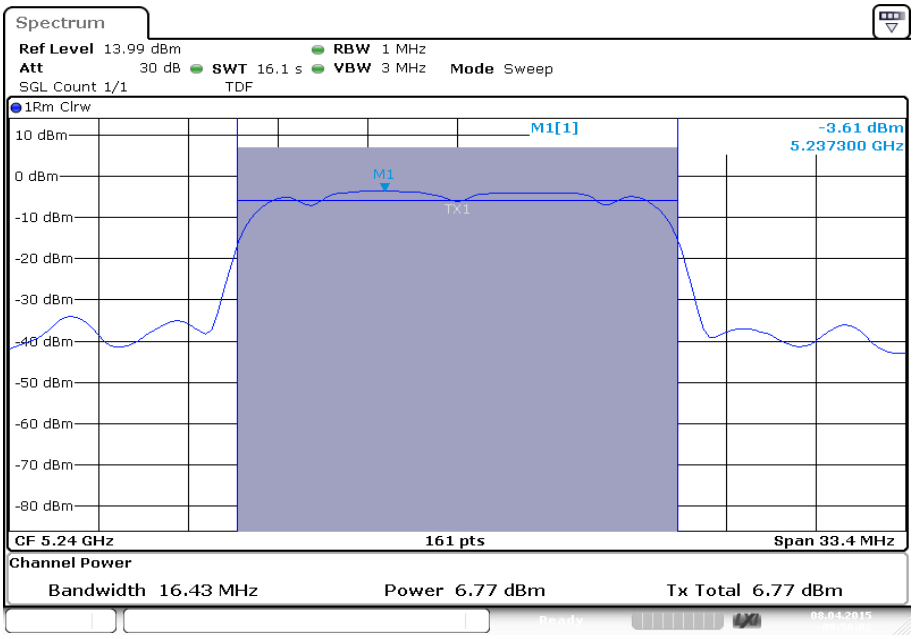
Date: 8.APR.2015 09:45:38

Plot 2: 5210 MHz



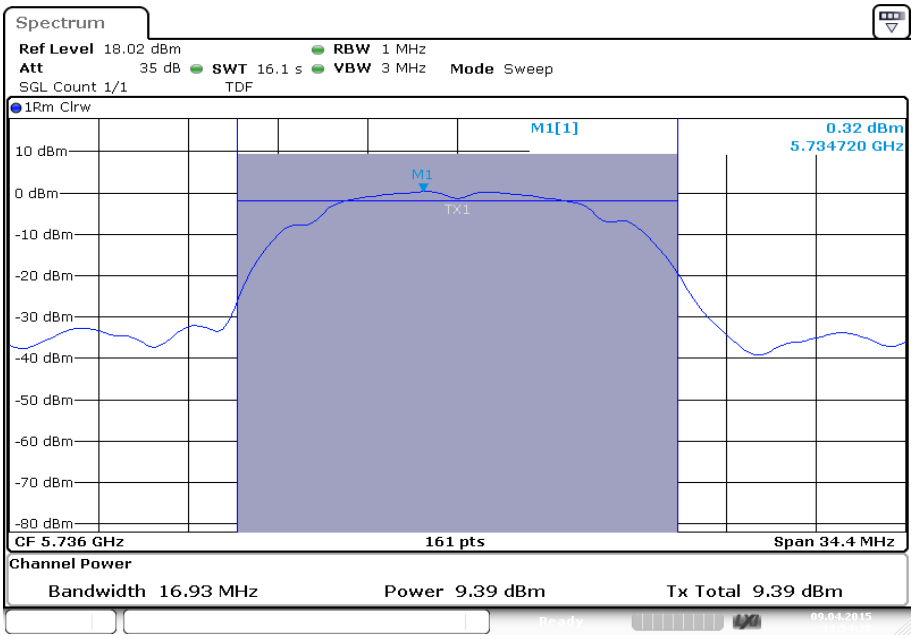
Date: 8.APR.2015 09:52:14

Plot 3: 5240 MHz



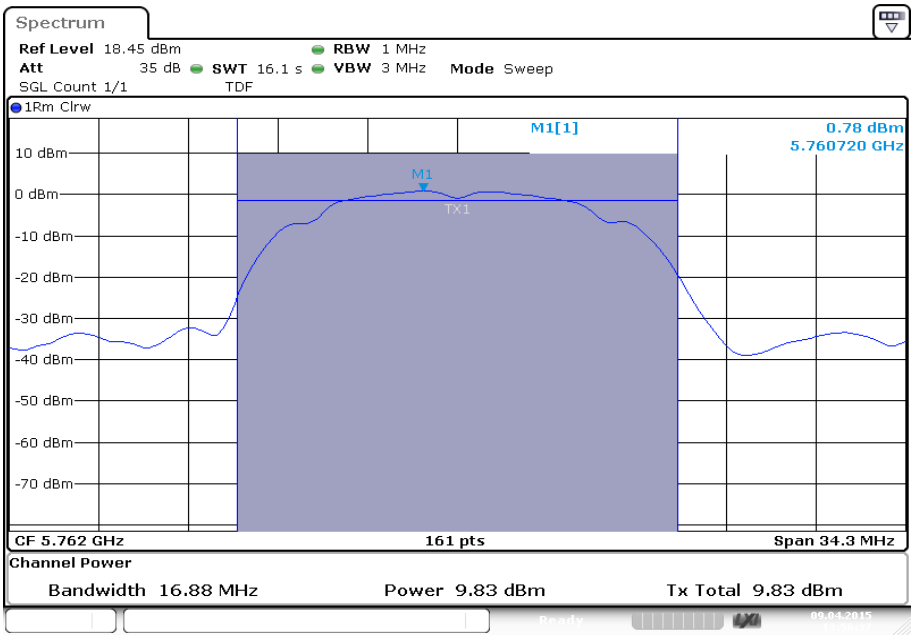
Date: 8.APR.2015 09:58:02

Plot 4: 5736 MHz



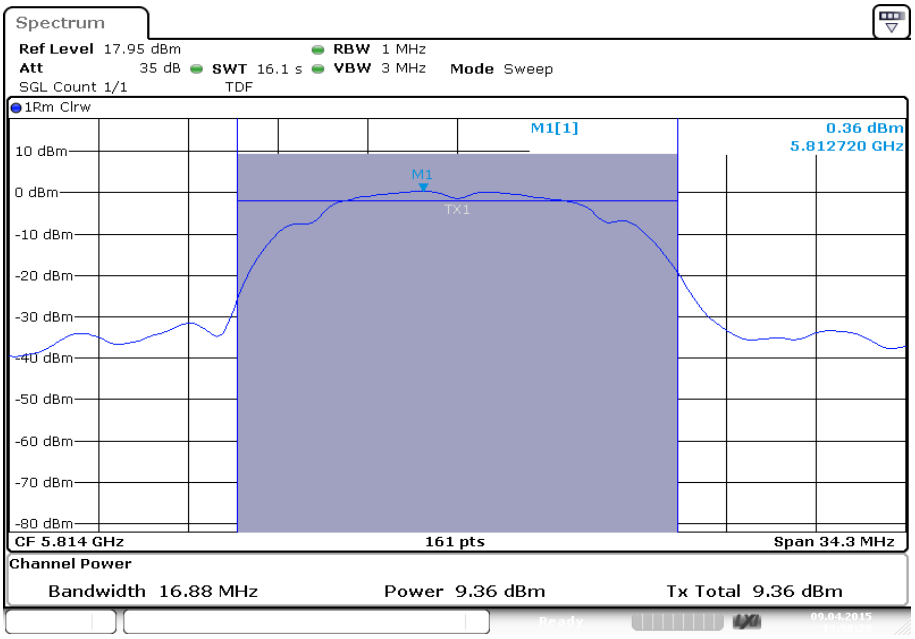
Date: 9.APR.2015 13:54:38

Plot 5: 5762 MHz



Date: 9.APR.2015 13:56:37

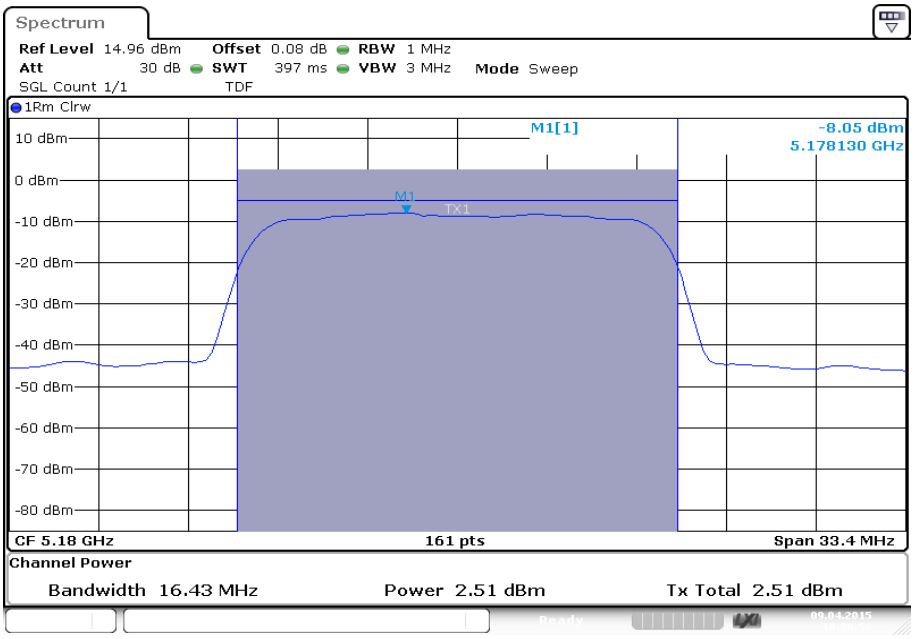
Plot 6: 5814 MHz



Date: 9.APR.2015 13:58:29

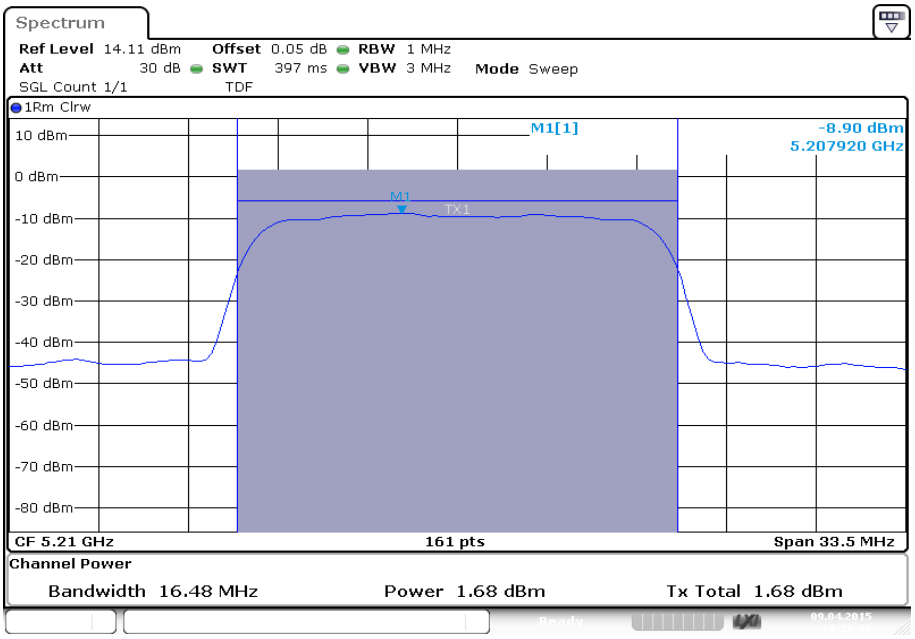
Plots: Antenna B - BPSK

Plot 1: 5180 MHz



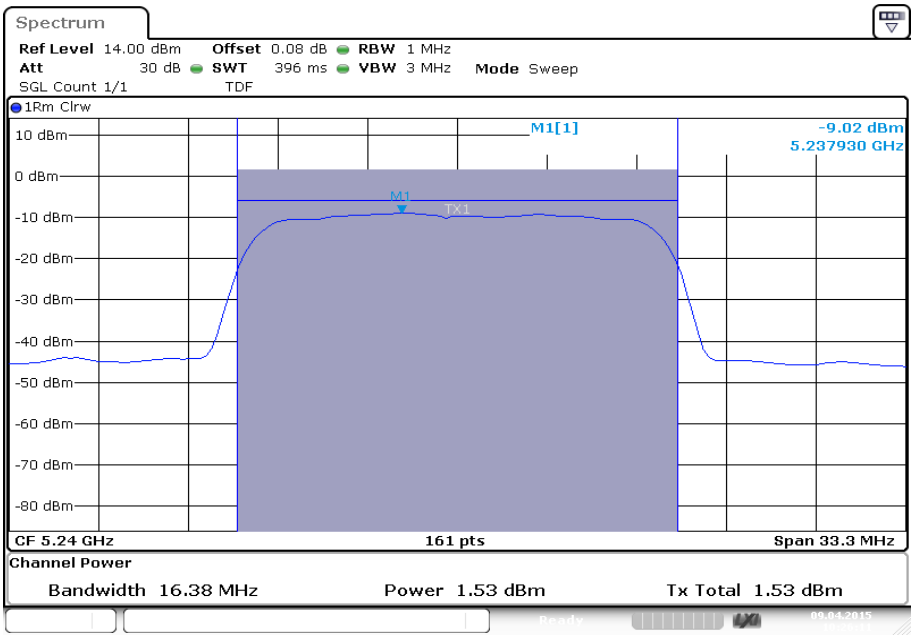
Date: 9.APR.2015 10:30:55

Plot 2: 5210 MHz



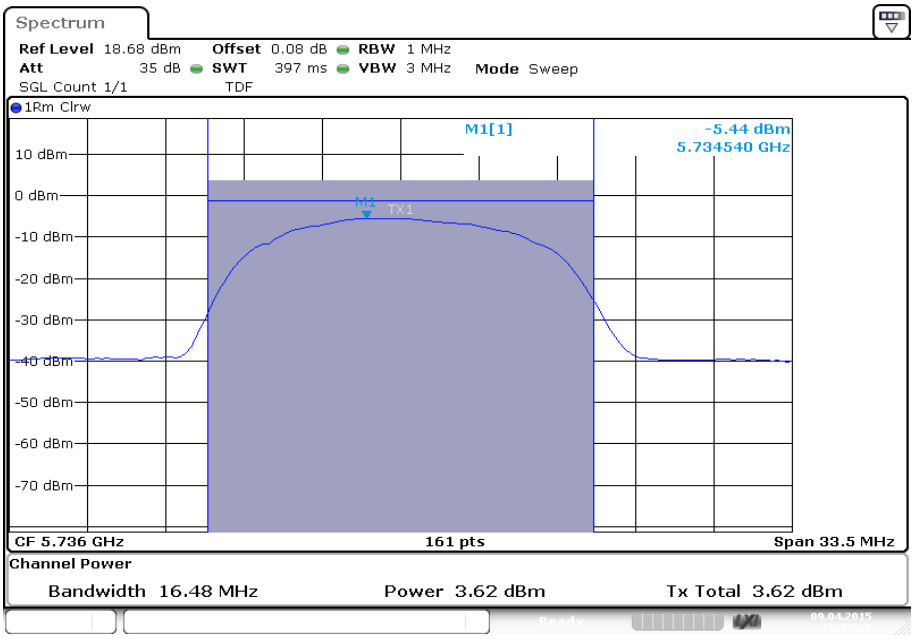
Date: 9.APR.2015 10:28:08

Plot 3: 5240 MHz



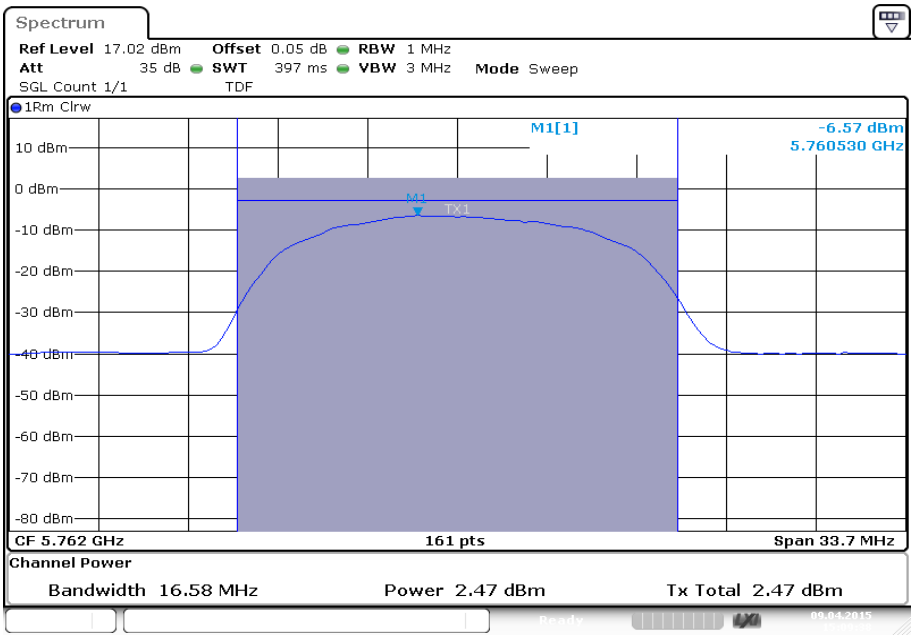
Date: 9.APR.2015 10:26:11

Plot 4: 5736 MHz



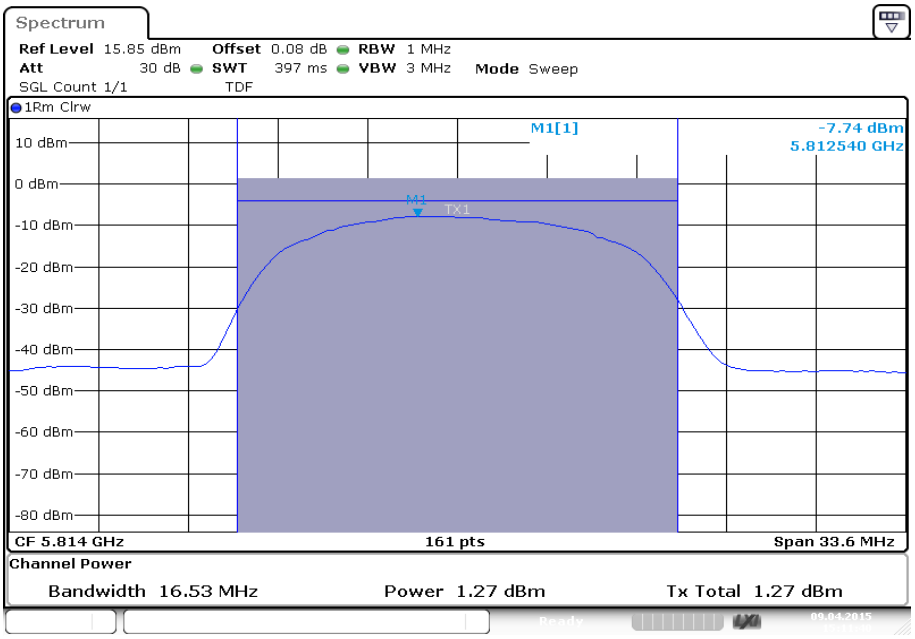
Date: 9.APR.2015 15:05:29

Plot 5: 5762 MHz



Date: 9.APR.2015 15:09:37

Plot 6: 5814 MHz



Date: 9.APR.2015 15:11:40

10.4 Power spectral density

Description:

Measurement of the power spectral density of a digital modulated system. The measurement is repeated at the lowest, middle and highest channel.

Measurement:

Measurement parameter	
Detector:	RMS
Sweep time:	≥10*(swp points)*(total on/off time)
Resolution bandwidth:	1 MHz (500 kHz for 5.8 GHz band)
Video bandwidth:	≥ 3xRBW
Span:	> EBW
Trace-Mode:	Max hold

Limits:

Power Spectral Density
power spectral density conducted ≤ 11 dBm in any 1 MHz band (band 5150 – 5250 MHz) power spectral density conducted ≤ 11 dBm in any 1 MHz band (band 5250 – 5350 MHz) power spectral density conducted ≤ 11 dBm in any 1 MHz band (band 5470 – 5725 MHz) power spectral density conducted ≤ 30 dBm in any 1 MHz band (band 5725 – 5850 MHz)

Result: Antenna A

DSSS / QPSK	Power Spectral density [dBm/MHz]			
Channel	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
Power spectral density	-1.81	-1.40	-0.97	-/-
Channel	Lowest 5736 MHz	Middle 5762 MHz	Highest 5814 MHz	-/-
Power spectral density	-8.72	-7.64	-5.26	-/-
Measurement uncertainty	± 1 dB			

Verdict: complies

Result: Antenna A

DSSS / BPSK	Power Spectral density [dBm/MHz]			
Channel	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
Power spectral density	-7.35	-7.30	-7.13	-/-
Channel	Lowest 5736 MHz	Middle 5762 MHz	Highest 5814 MHz	-/-
Power spectral density	-9.21	-9.29	-10.12	-/-
Measurement uncertainty	± 1 dB			

Verdict: complies

Result: Antenna B

DSSS / QPSK	Power Spectral density [dBm/MHz]			
Channel	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
Power spectral density	-2.83	-3.10	-3.61	-/-
Channel	Lowest 5736 MHz	Middle 5762 MHz	Highest 5814 MHz	-/-
Power spectral density	-2.14	-1.73	-2.20	-/-
Measurement uncertainty	± 1 dB			

Verdict: complies

Result: Antenna B

DSSS / BPSK	Power Spectral density [dBm/MHz]			
Channel	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
Power spectral density	-8.05	-8.90	-9.02	-/-
Channel	Lowest 5736 MHz	Middle 5762 MHz	Highest 5814 MHz	-/-
Power spectral density	-8.26	-9.41	-10.60	-/-
Measurement uncertainty	± 1 dB			

Verdict: complies

10.5 Spectrum bandwidth – 26 dB bandwidth

Description:

Measurement of the 26 dB bandwidth of the modulated signal.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	1% EBW
Video bandwidth:	≥ RBW
Span:	> complete signal!
Trace-Mode:	Max hold

Limits:

Spectrum Bandwidth – 26 dB Bandwidth
-/-

Result: Antenna A

DSSS / QPSK	26 dB BANDWIDTH [MHz]			
Channel	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
26 dB bandwidth	16.43	16.43	16.38	-/-
Channel	Lowest 5736 MHz	Middle 5762 MHz	Highest 5814 MHz	-/-
26 dB bandwidth	16.78	16.88	16.98	-/-
Measurement uncertainty	± 1 dB			

Verdict: complies

Result: Antenna A

DSSS / BPSK	26 dB BANDWIDTH [MHz]			
Channel	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
26 dB bandwidth	16.53	16.38	16.33	-/-
Channel	Lowest 5736 MHz	Middle 5762 MHz	Highest 5814 MHz	-/-
26 dB bandwidth	16.43	16.48	16.38	-/-
Measurement uncertainty	± 1 dB			

Verdict: complies

Result: Antenna B

DSSS / QPSK	26 dB BANDWIDTH [MHz]			
Channel	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
26 dB bandwidth	16.43	16.43	16.43	-/-
Channel	Lowest 5736 MHz	Middle 5762 MHz	Highest 5814 MHz	-/-
26 dB bandwidth	16.93	16.88	16.88	-/-
Measurement uncertainty	± 1 dB			

Verdict: complies

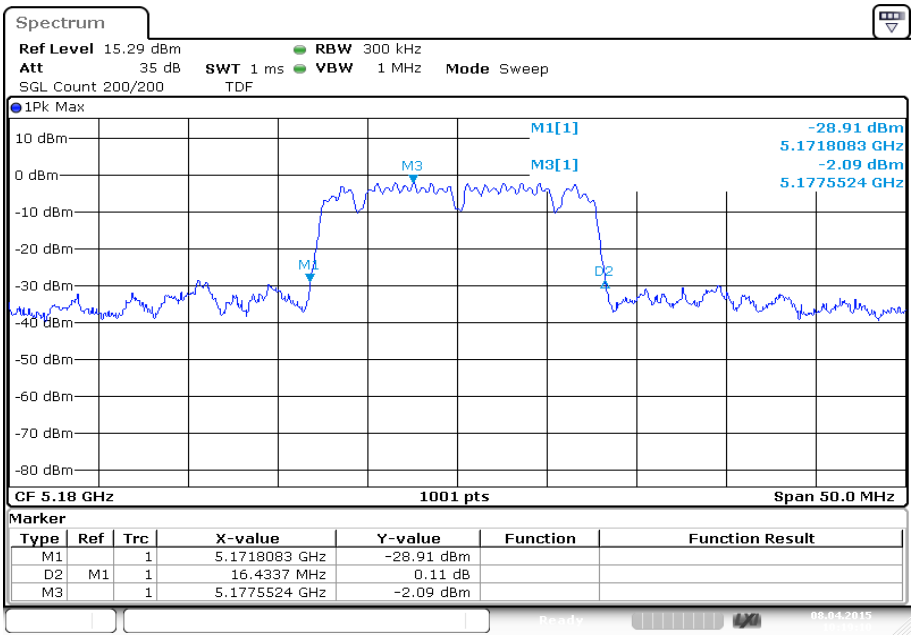
Result: Antenna B

DSSS / BPSK	26 dB BANDWIDTH [MHz]			
Channel	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
26 dB bandwidth	16.43	16.48	16.38	-/-
Channel	Lowest 5736 MHz	Middle 5762 MHz	Highest 5814 MHz	-/-
26 dB bandwidth	16.48	16.58	16.53	-/-
Measurement uncertainty	± 1 dB			

Verdict: complies

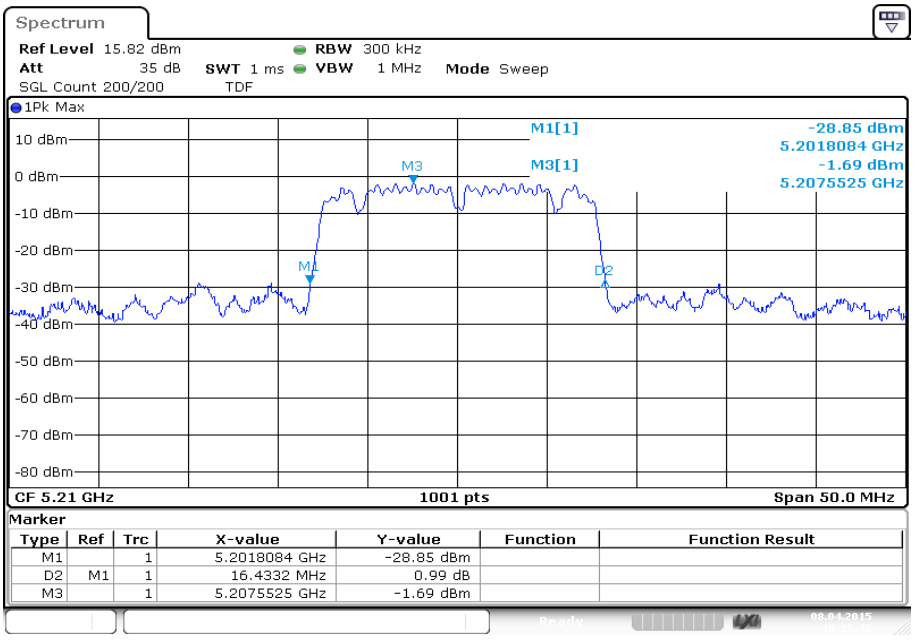
Plots: Antenna A - QPSK

Plot 1: 5180 MHz



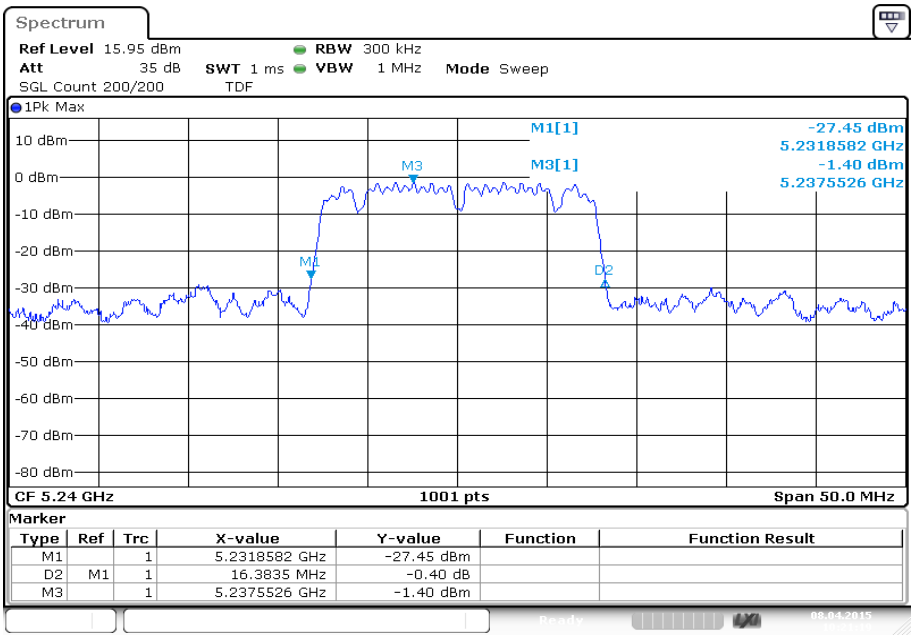
Date: 8.APR.2015 10:19:11

Plot 2: 5210 MHz



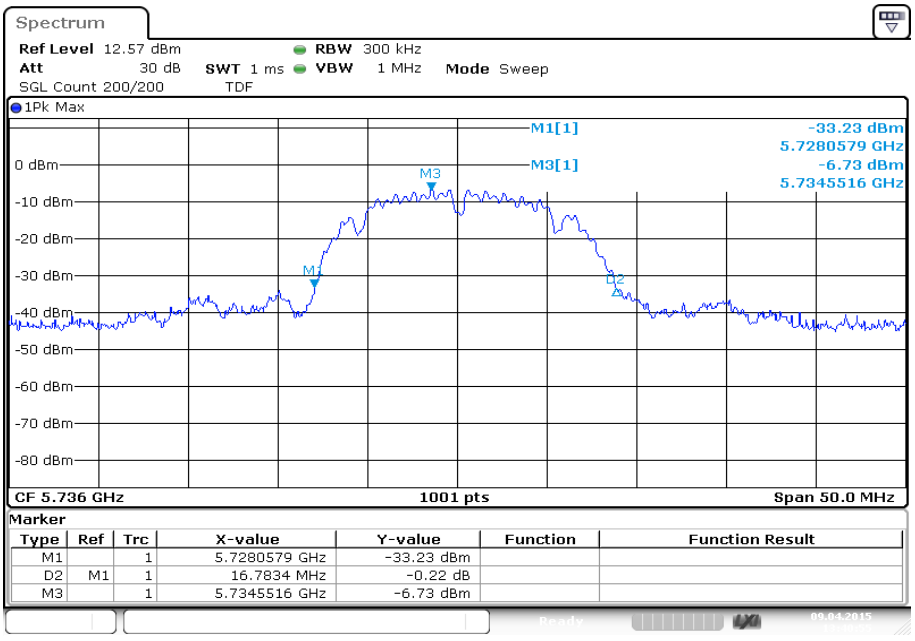
Date: 8.APR.2015 10:15:45

Plot 3: 5240 MHz



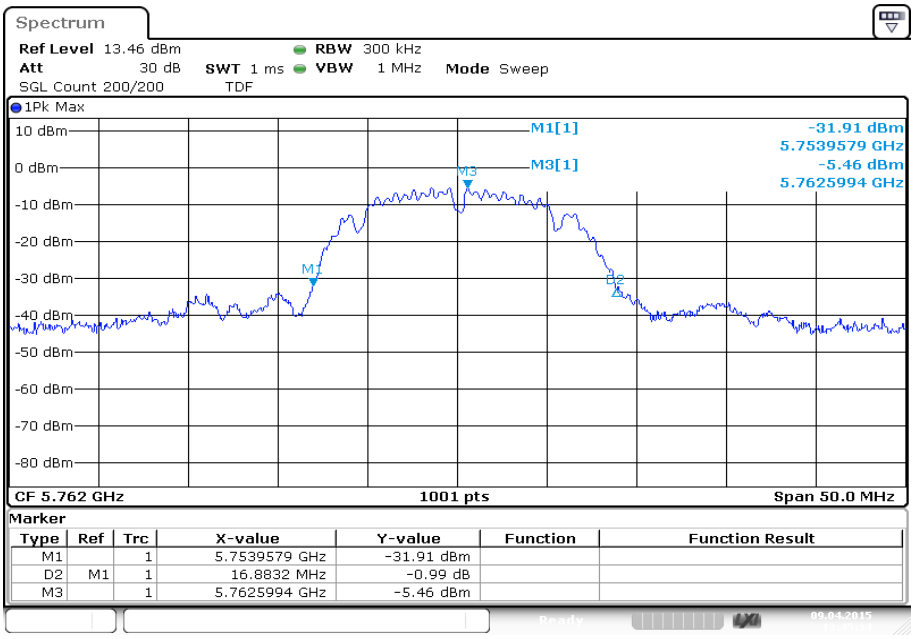
Date: 8.APR.2015 10:21:19

Plot 4: 5736 MHz



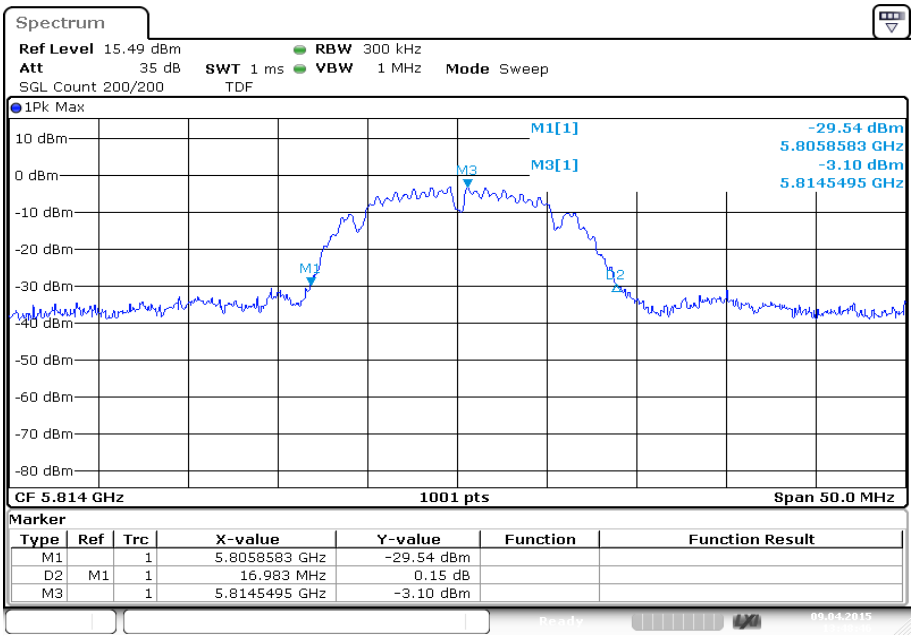
Date: 9.APR.2015 13:40:54

Plot 5: 5762 MHz



Date: 9.APR.2015 13:45:34

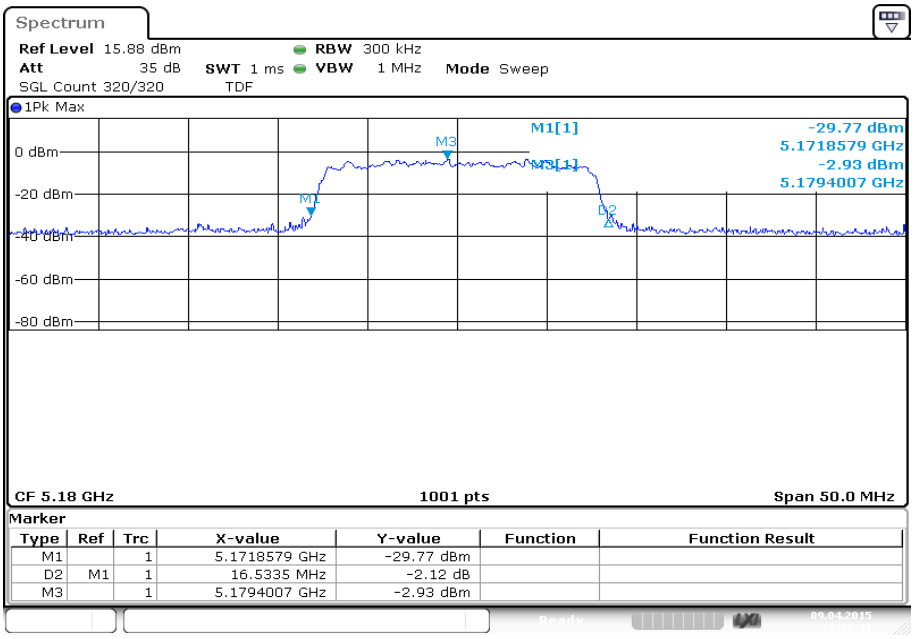
Plot 6: 5814 MHz



Date: 9.APR.2015 13:48:46

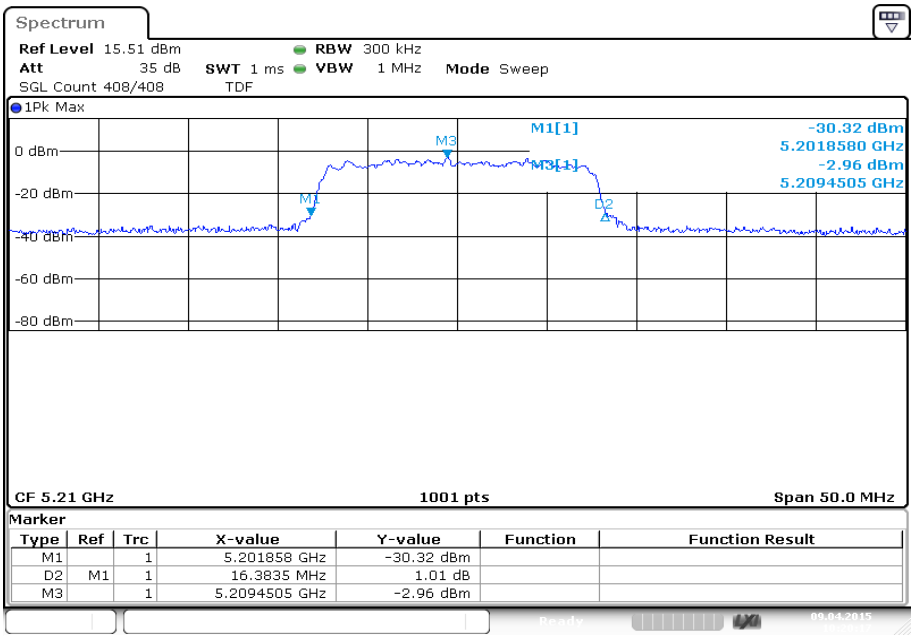
Plots: Antenna A - BPSK

Plot 1: 5180 MHz



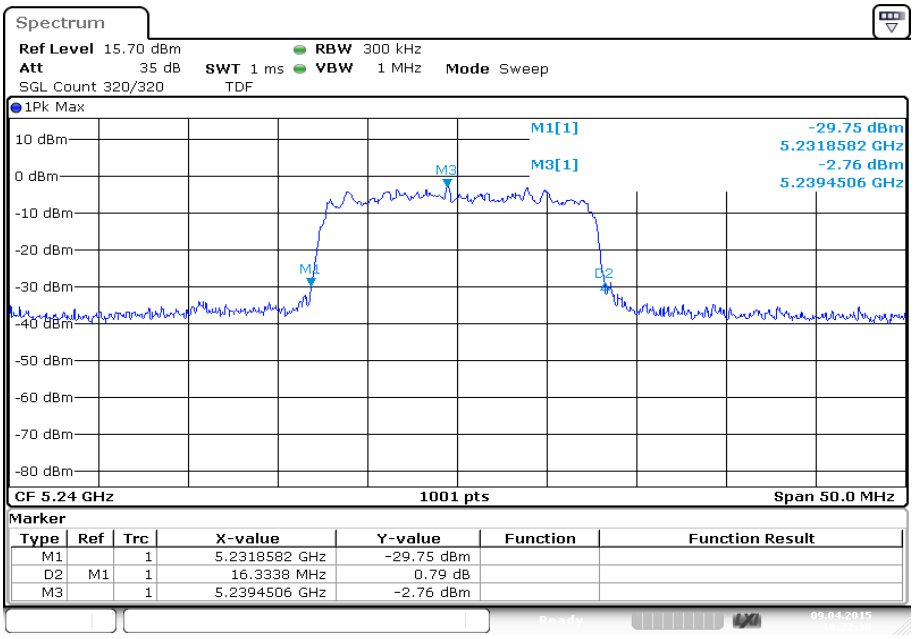
Date: 9.APR.2015 10:16:41

Plot 2: 5210 MHz



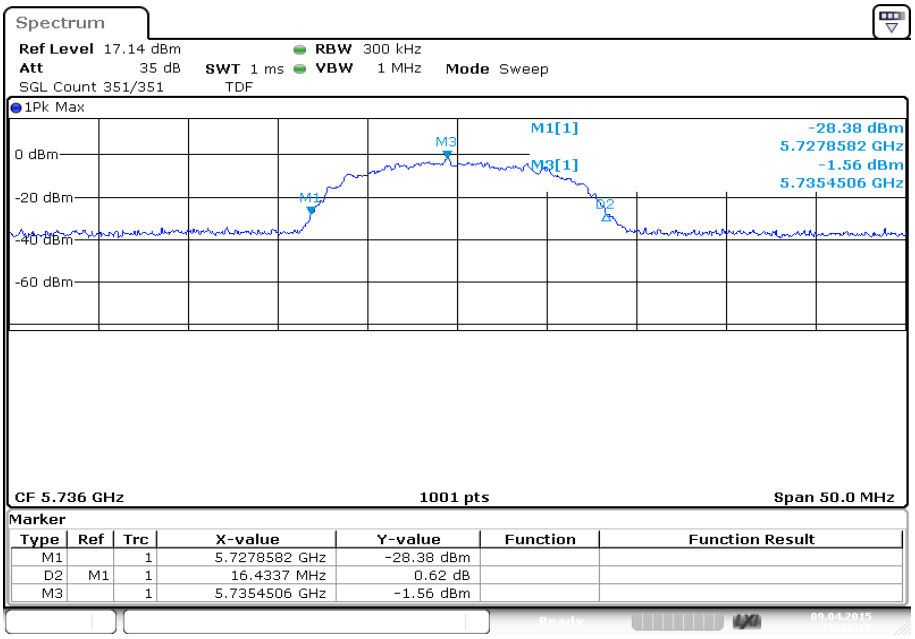
Date: 9.APR.2015 10:20:17

Plot 3: 5240 MHz



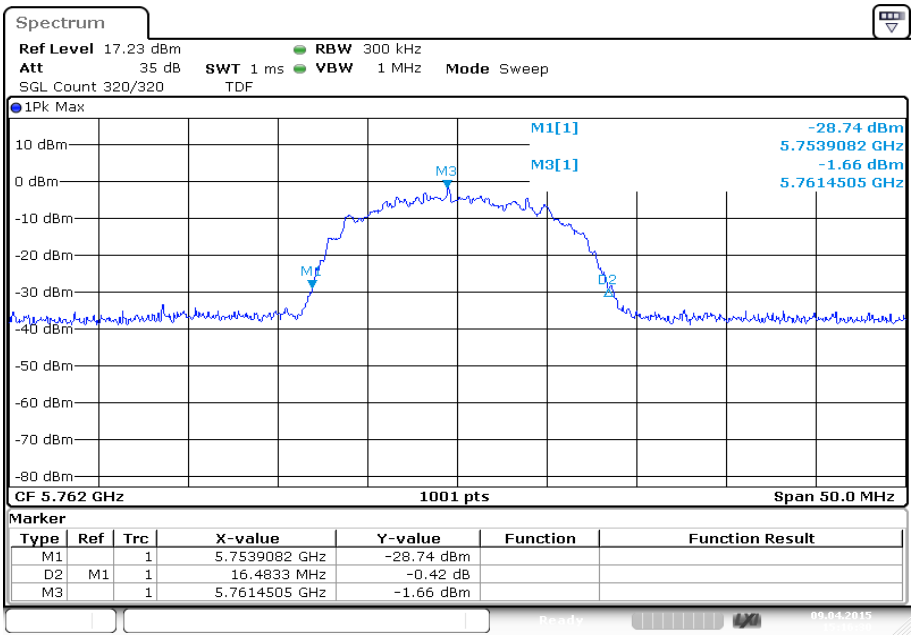
Date: 9.APR.2015 10:22:30

Plot 4: 5736 MHz



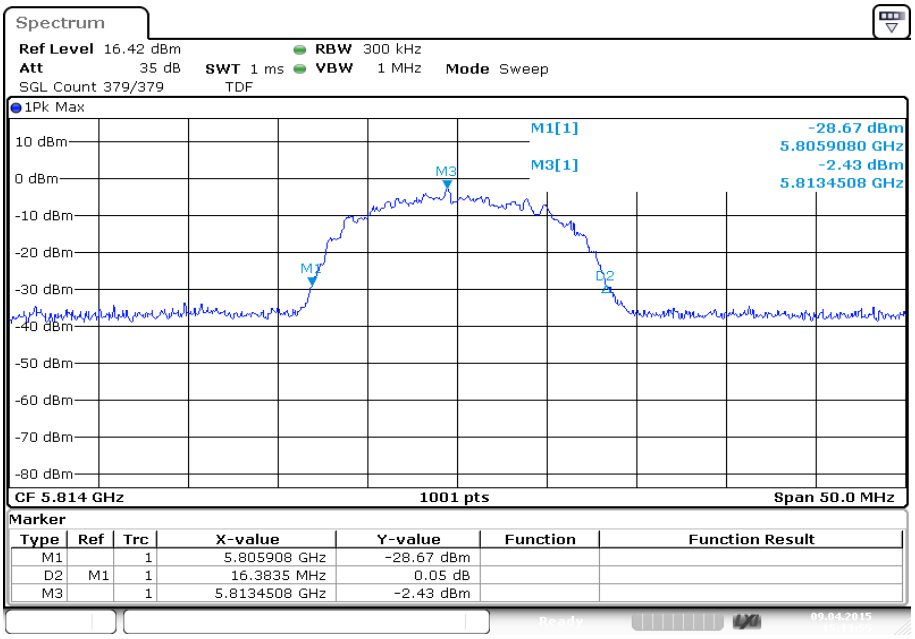
Date: 9.APR.2015 15:18:15

Plot 5: 5762 MHz



Date: 9.APR.2015 15:16:30

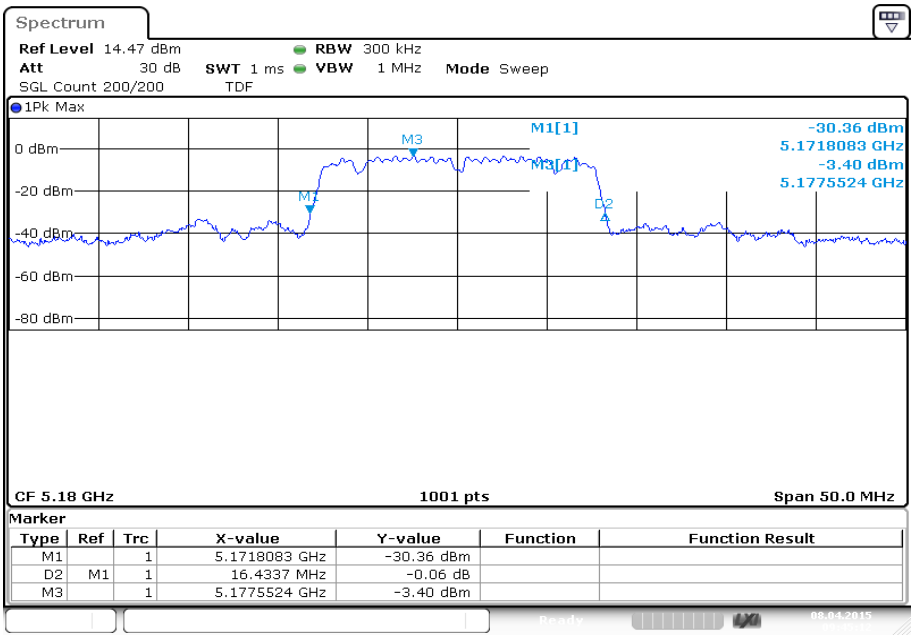
Plot 6: 5814 MHz



Date: 9.APR.2015 15:13:55

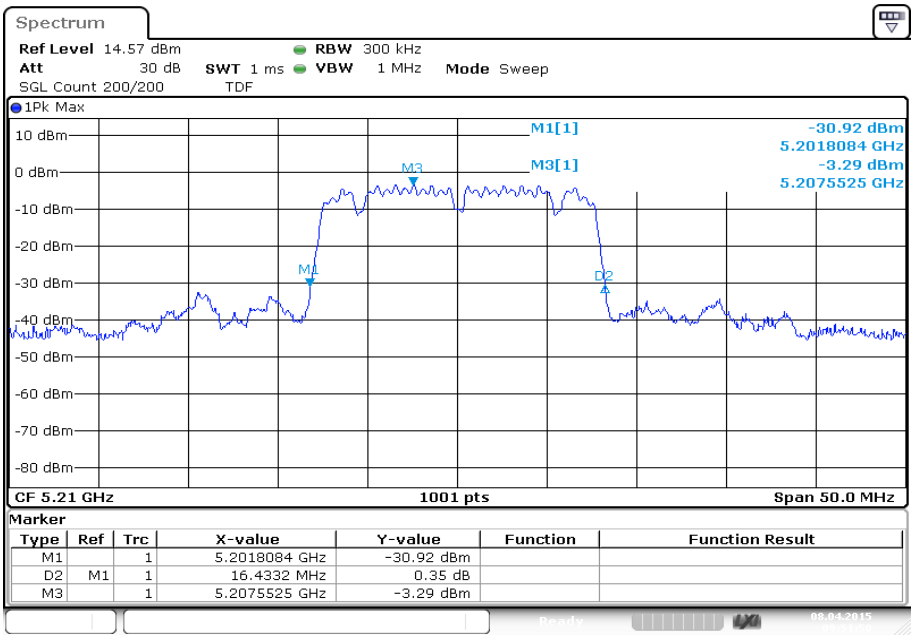
Plots: Antenna B - QPSK

Plot 1: 5180 MHz



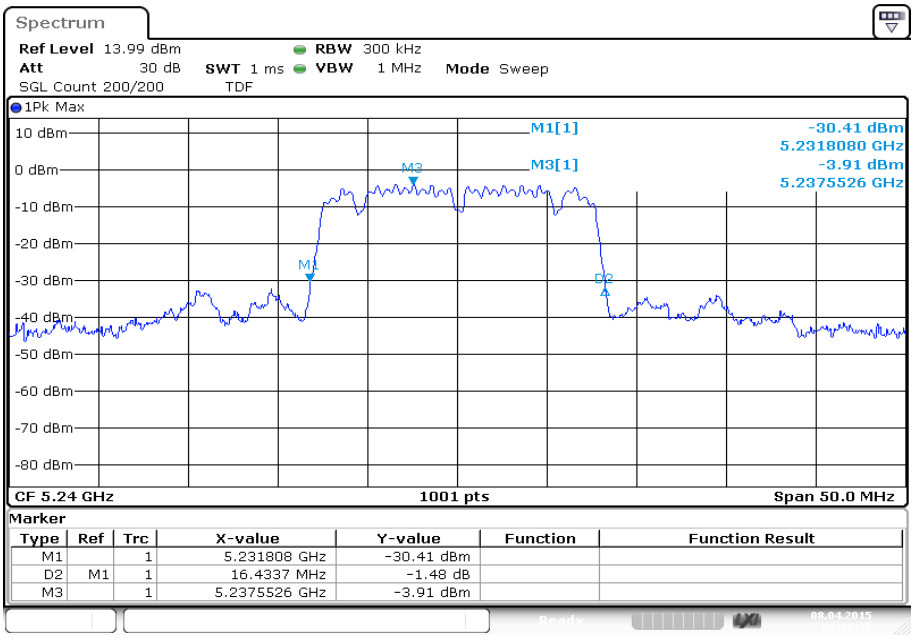
Date: 8.APR.2015 09:45:12

Plot 2: 5210 MHz



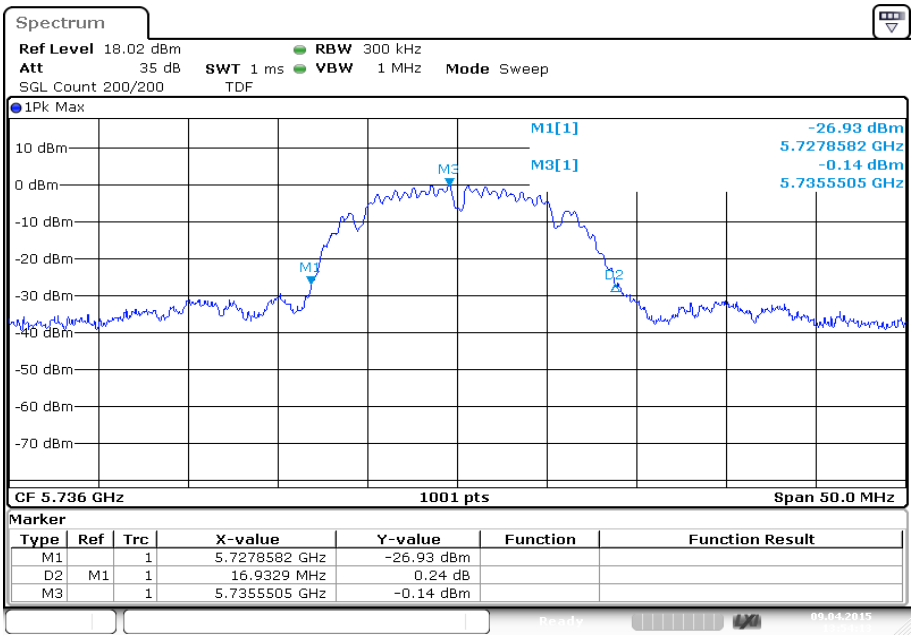
Date: 8.APR.2015 09:51:50

Plot 3: 5240 MHz



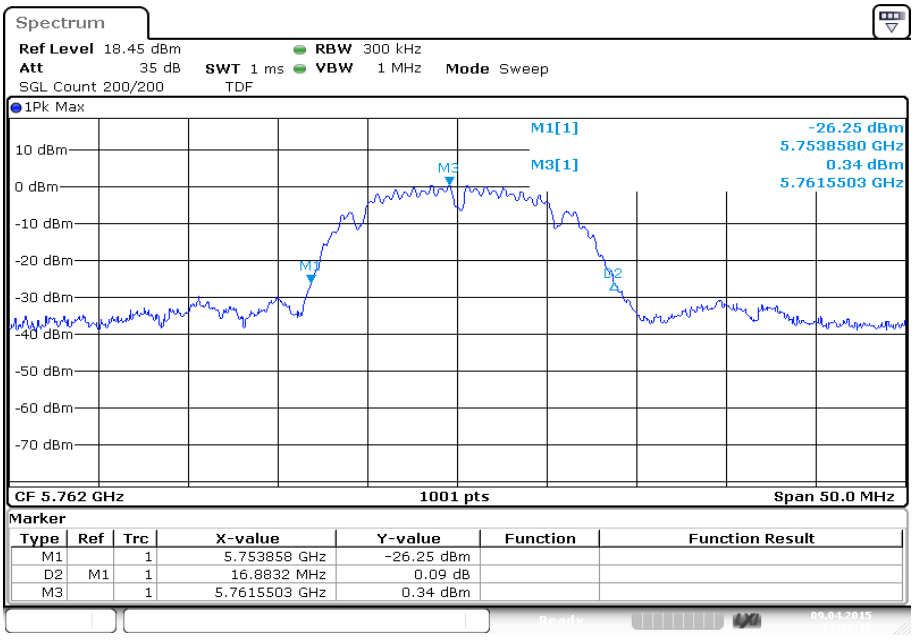
Date: 8.APR.2015 09:57:38

Plot 4: 5736 MHz



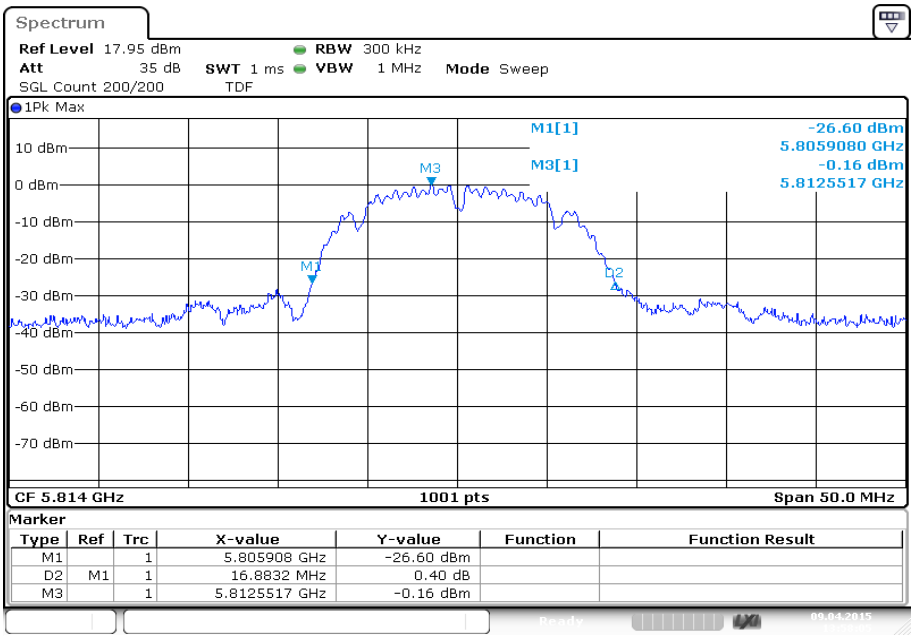
Date: 9.APR.2015 13:54:13

Plot 5: 5762 MHz



Date: 9.APR.2015 13:56:12

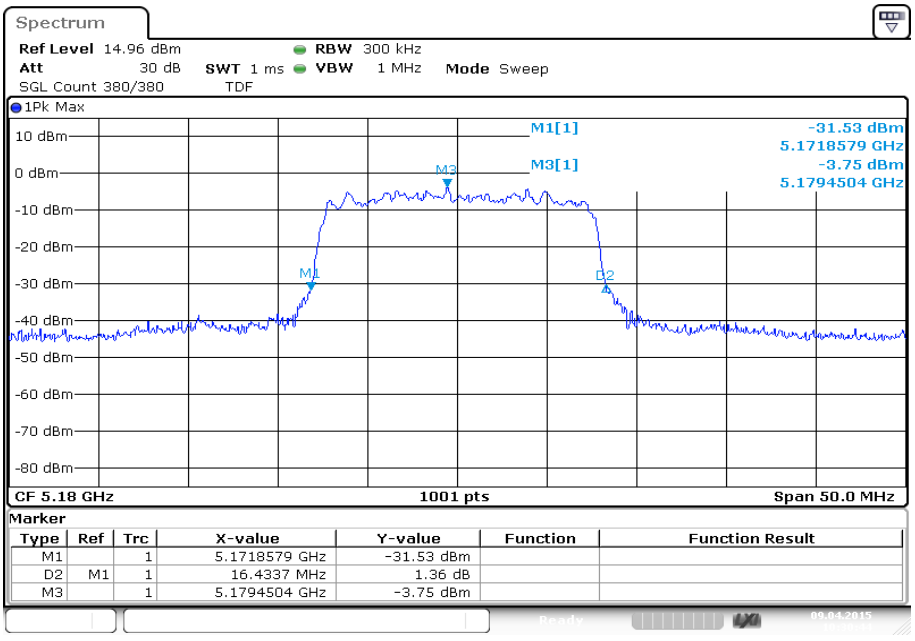
Plot 6: 5814 MHz



Date: 9.APR.2015 13:58:05

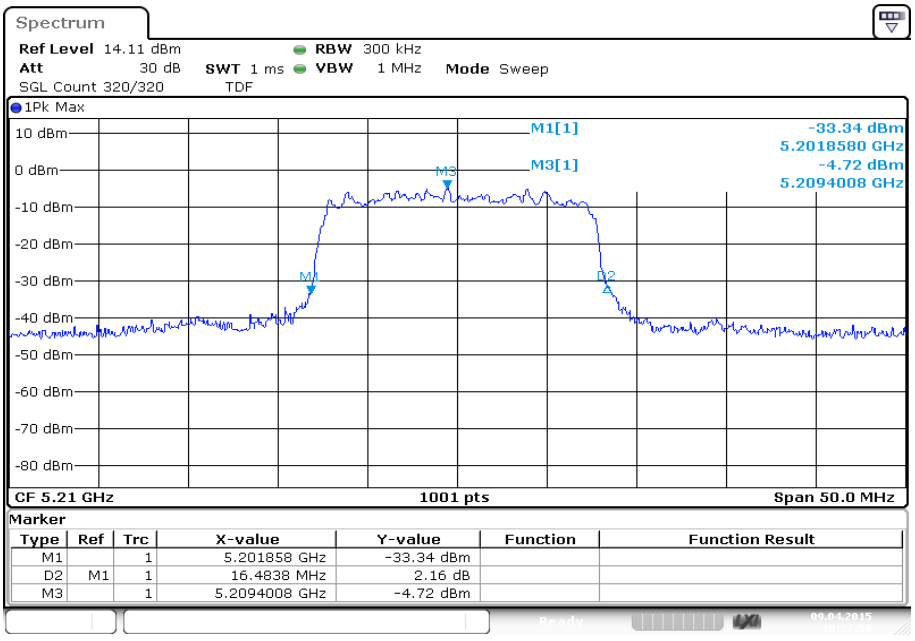
Plots: Antenna B - BPSK

Plot 1: 5180 MHz



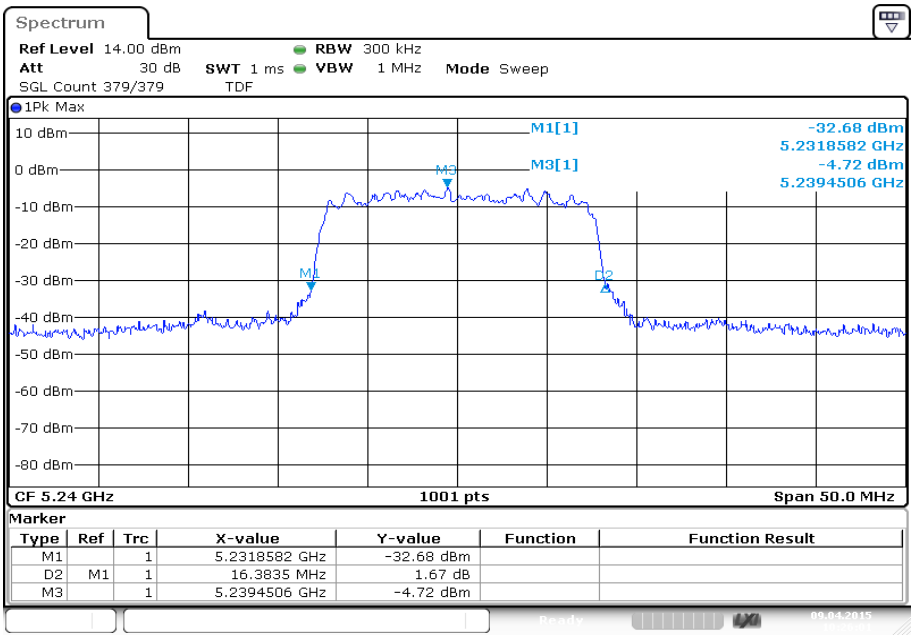
Date: 9.APR.2015 10:30:43

Plot 2: 5210 MHz



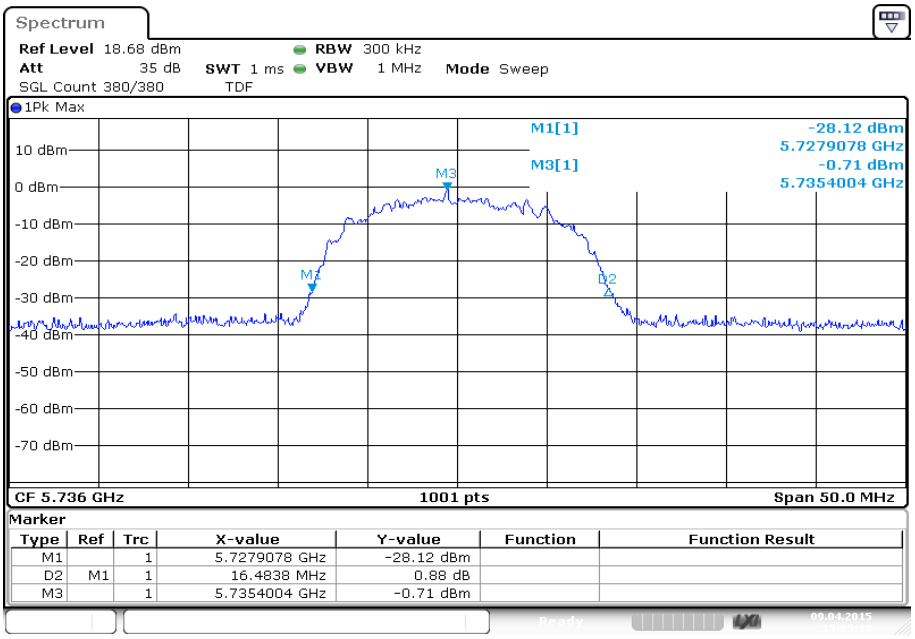
Date: 9.APR.2015 10:27:59

Plot 3: 5240 MHz



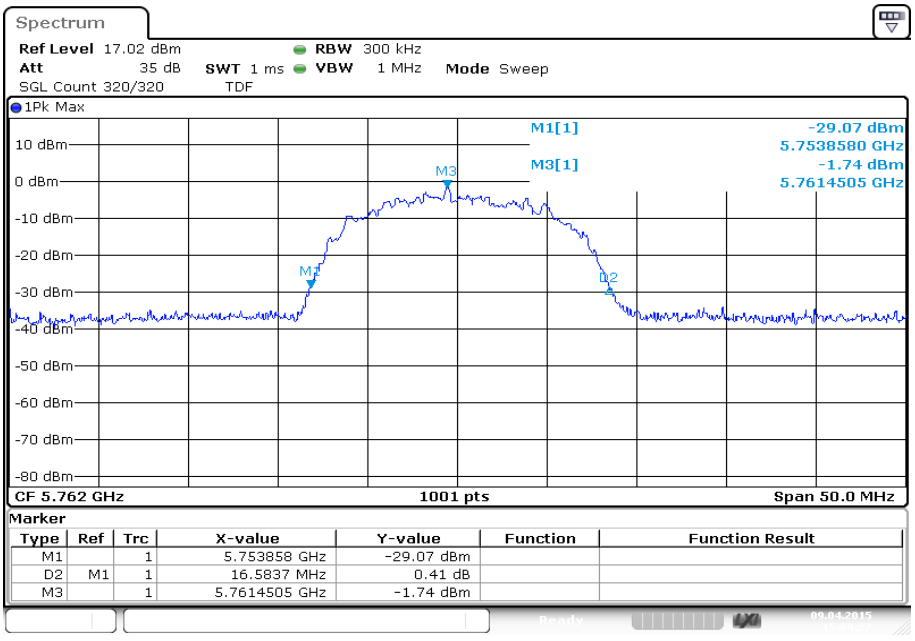
Date: 9.APR.2015 10:26:01

Plot 4: 5736 MHz



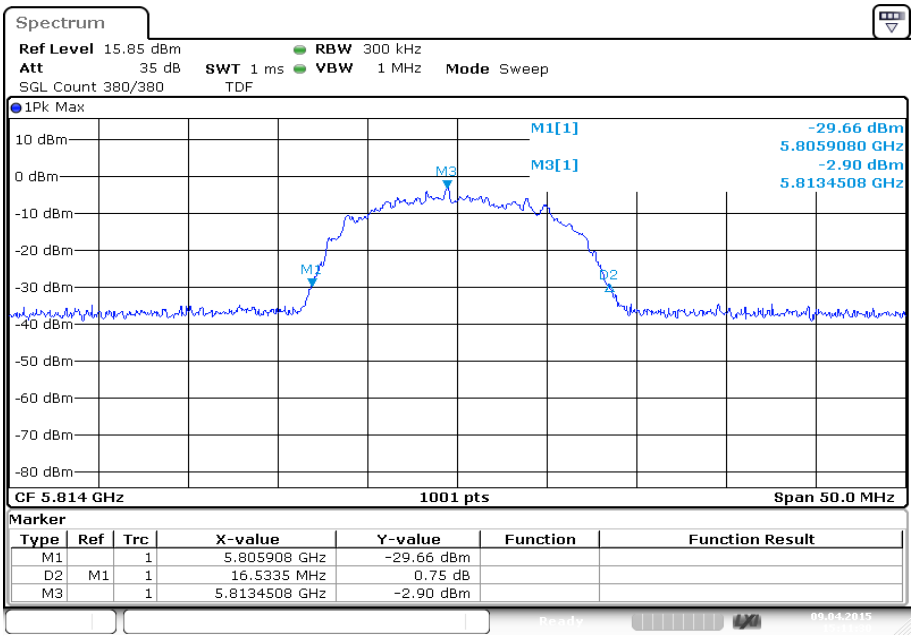
Date: 9.APR.2015 15:05:18

Plot 5: 5762 MHz



Date: 9.APR.2015 15:09:27

Plot 6: 5814 MHz



Date: 9.APR.2015 15:11:30

10.6 Peak excursion measurements

Description:

Peak to average value.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	60 s / 120 s
Resolution bandwidth:	1 MHz
Video bandwidth:	≥ 3 MHz
Span:	> Complete signal
Trace-Mode:	Max hold

Limits:

Peak excursion value
Does not exceed 13 dB.

Results: Antenna A

Modulation DSSS / QPSK	Peak excursion value		
Channel	5180 MHz	5210 MHz	5240 MHz
RMS	-1.81	-1.40	-0.97
Peak	1.51	1.89	2.25
Peak excursion value	3.32	3.29	3.22
Channel	5736 MHz	5762 MHz	5814 MHz
RMS	-8.72	-7.64	-5.26
Peak	-2.45	-1.69	0.63
Peak excursion value	6.27	5.95	5.89
Measurement uncertainty	± 1 dB		

Verdict: complies

Results: Antenna A

Modulation DSSS / BPSK	Peak excursion value		
Channel	5180 MHz	5210 MHz	5240 MHz
RMS	-7.35	-7.30	-7.13
Peak	0.89	0.90	1.11
Peak excursion value	8.24	8.20	8.24
Channel	5736 MHz	5762 MHz	5814 MHz
RMS	-9.21	-9.29	-10.12
Peak	2.20	2.14	1.31
Peak excursion value	11.41	11.43	11.43
Measurement uncertainty	± 1 dB		

Verdict: complies

Results: Antenna B

Modulation DSSS / QPSK	Peak excursion value		
Channel	5180 MHz	5210 MHz	5240 MHz
RMS	-2.83	-3.10	-3.61
Peak	0.35	0.46	-0.34
Peak excursion value	3.18	3.56	3.27
Channel	5736 MHz	5762 MHz	5814 MHz
RMS	-2.14	-1.73	-2.20
Peak	3.67	4.12	3.70
Peak excursion value	5.81	5.85	5.90
Measurement uncertainty	± 1 dB		

Verdict: complies

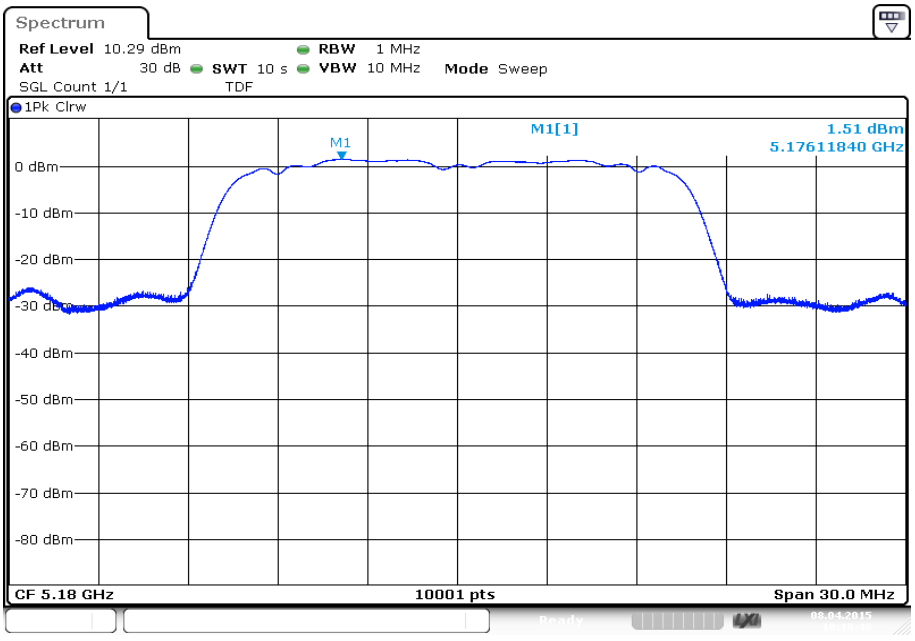
Results: Antenna B

Modulation DSSS / BPSK	Peak excursion value		
Channel	5180 MHz	5210 MHz	5240 MHz
RMS	-8.05	-8.90	-9.02
Peak	0.23	-0.56	-0.79
Peak excursion value	8.28	8.34	8.23
Channel	5736 MHz	5762 MHz	5814 MHz
RMS	-8.26	-9.41	-10.60
Peak	3.14	2.01	0.78
Peak excursion value	11.40	11.42	11.38
Measurement uncertainty	± 1 dB		

Verdict: complies

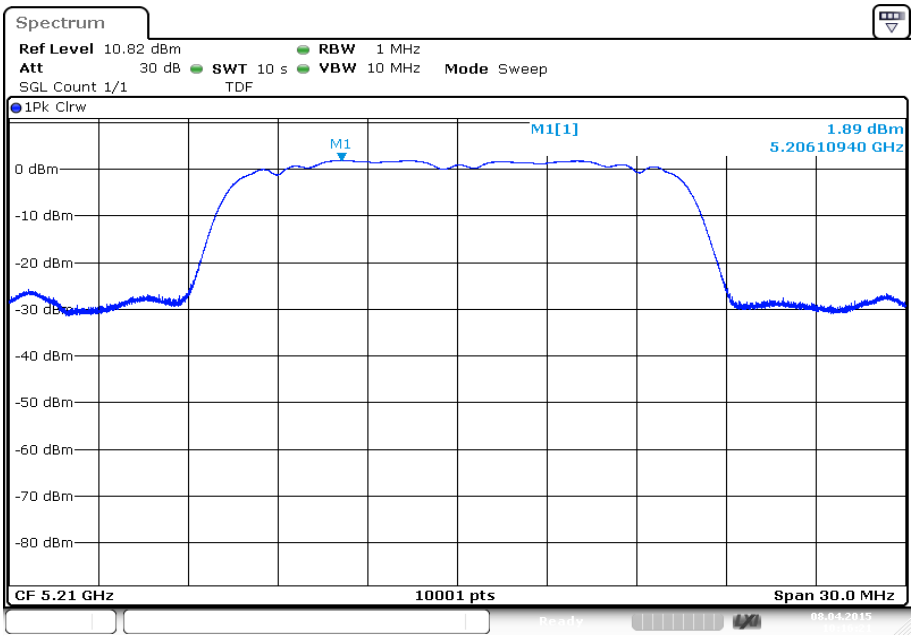
Plots: Antenna A - QPSK

Plot 1: 5180 MHz



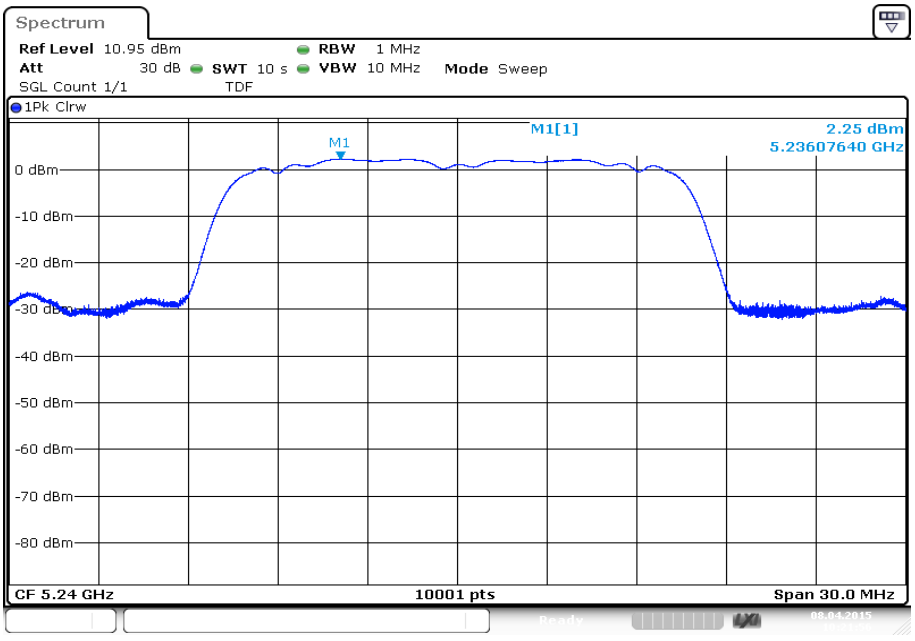
Date: 8.APR.2015 10:19:49

Plot 2: 5210 MHz



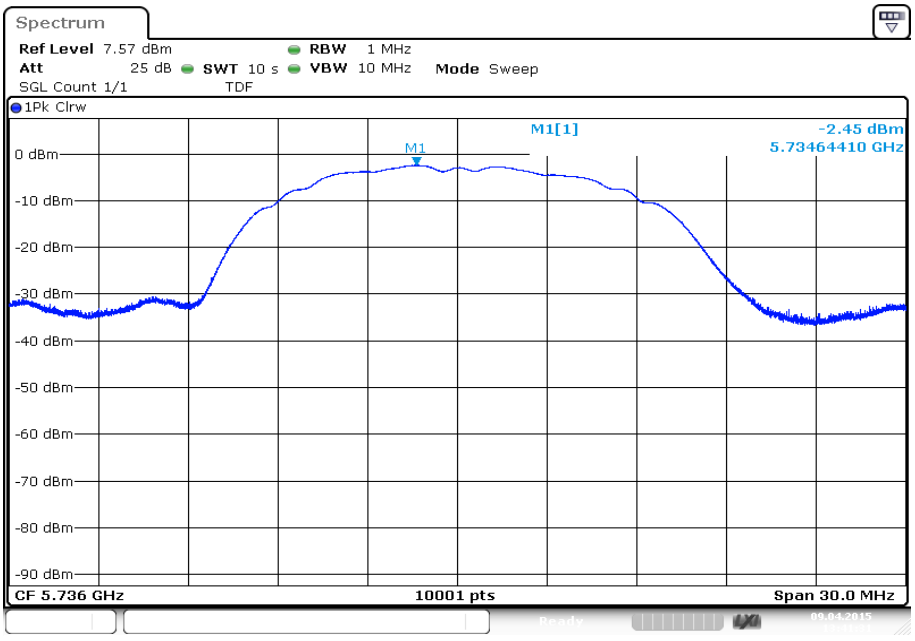
Date: 8.APR.2015 10:16:22

Plot 3: 5240 MHz



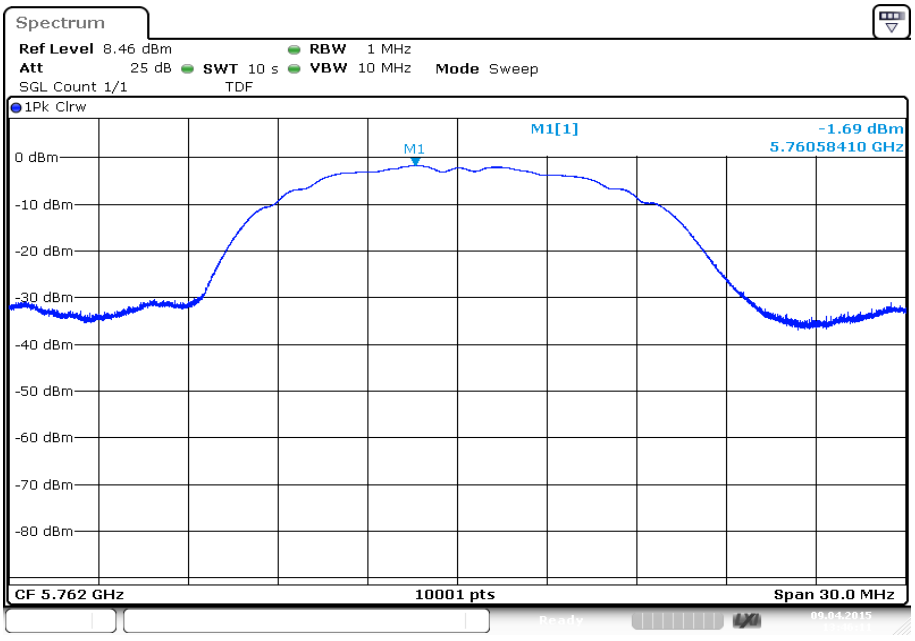
Date: 8.APR.2015 10:21:56

Plot 4: 5736 MHz



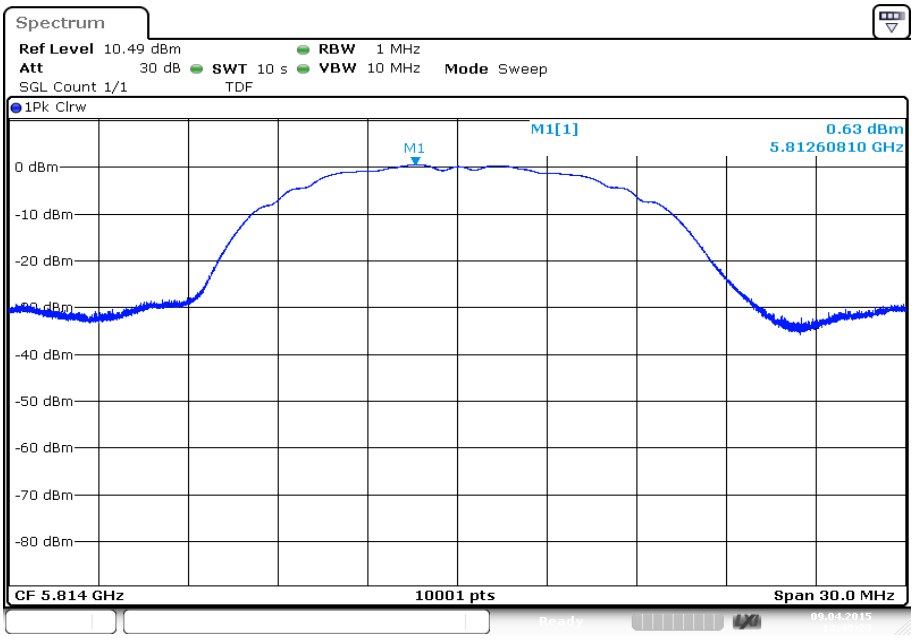
Date: 9.APR.2015 13:41:31

Plot 5: 5762 MHz



Date: 9.APR.2015 13:46:11

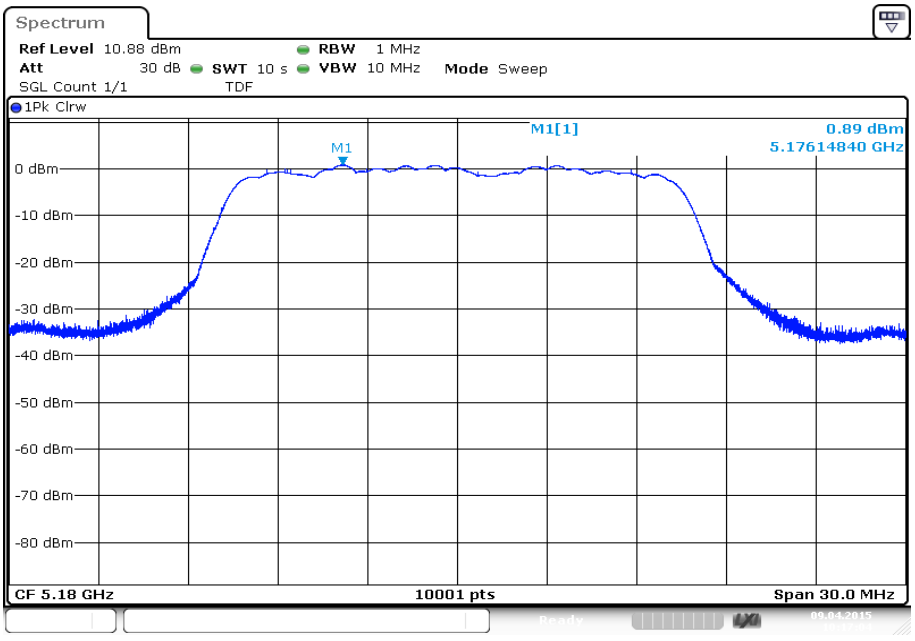
Plot 6: 5814 MHz



Date: 9.APR.2015 13:49:22

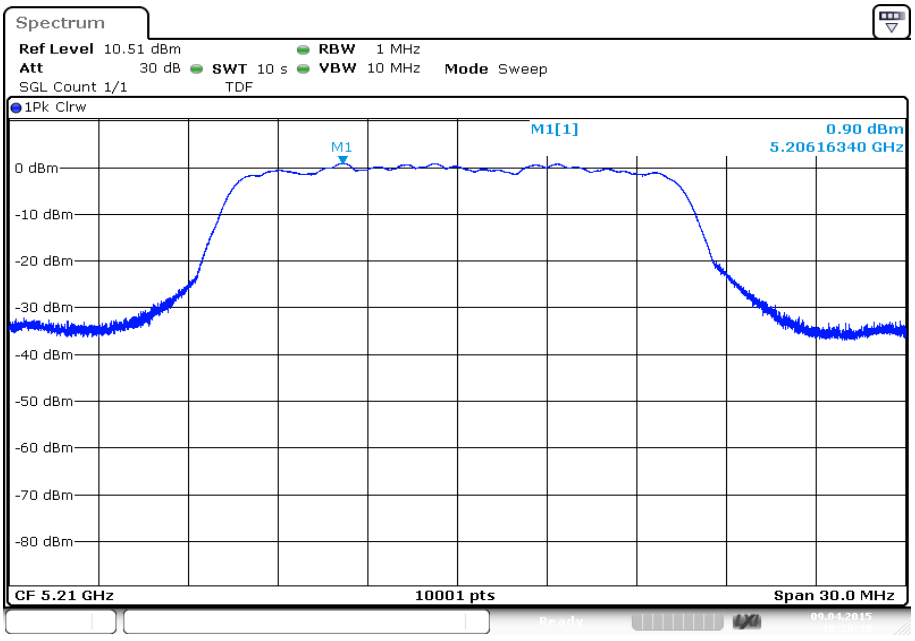
Plots: Antenna A - BPSK

Plot 1: 5180 MHz



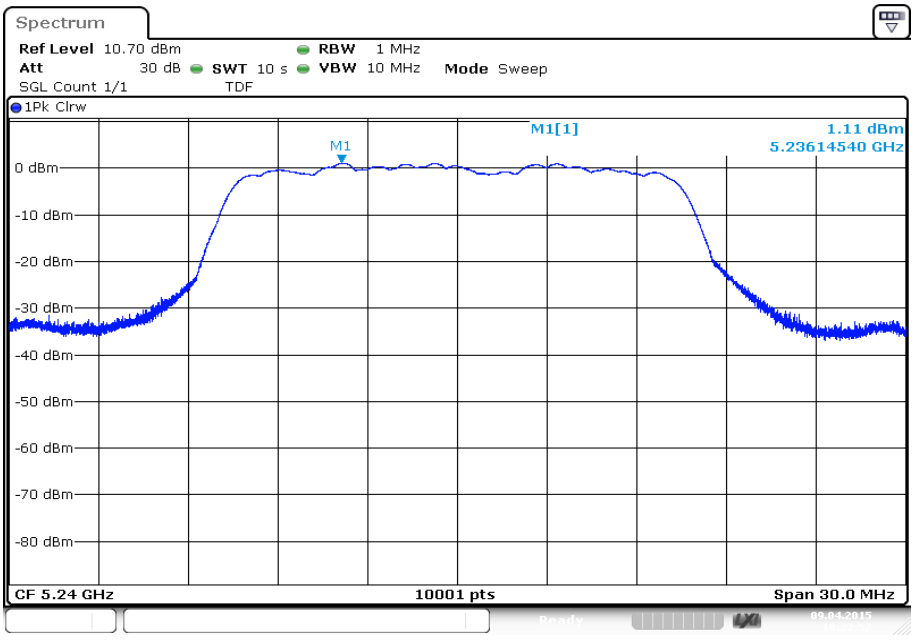
Date: 9.APR.2015 10:17:04

Plot 2: 5210 MHz



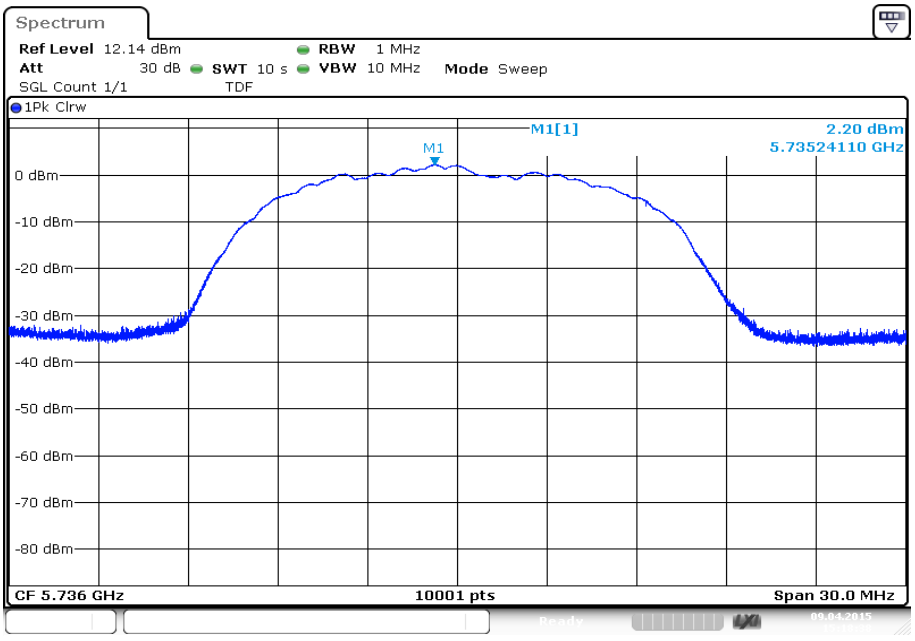
Date: 9.APR.2015 10:20:39

Plot 3: 5240 MHz



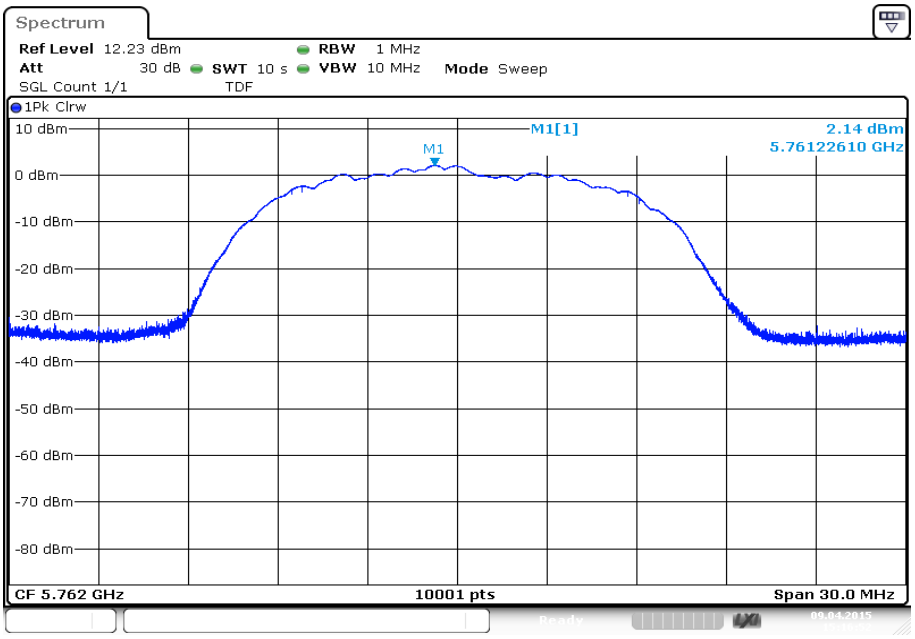
Date: 9.APR.2015 10:22:51

Plot 4: 5736 MHz

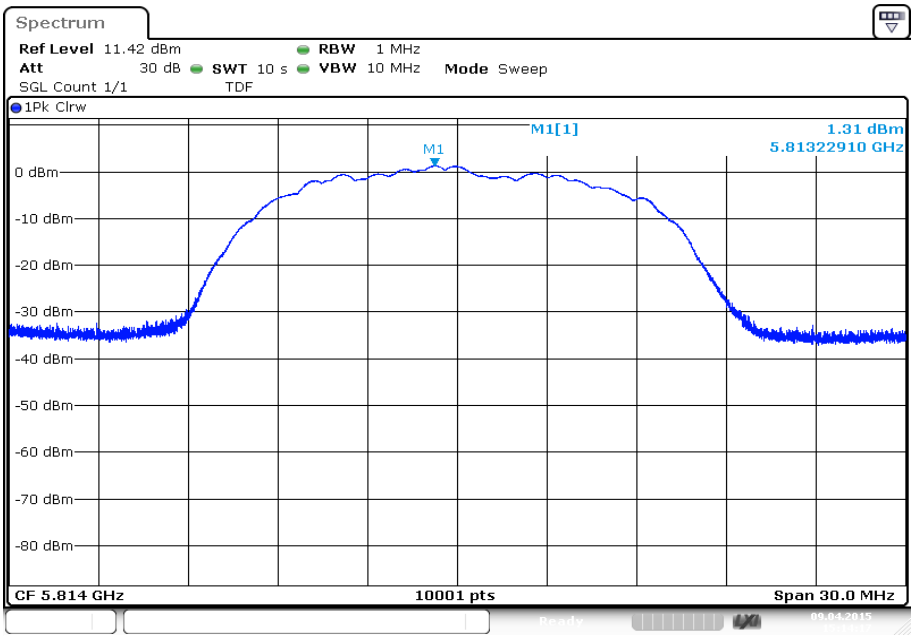


Date: 9.APR.2015 15:18:38

Plot 5: 5762 MHz

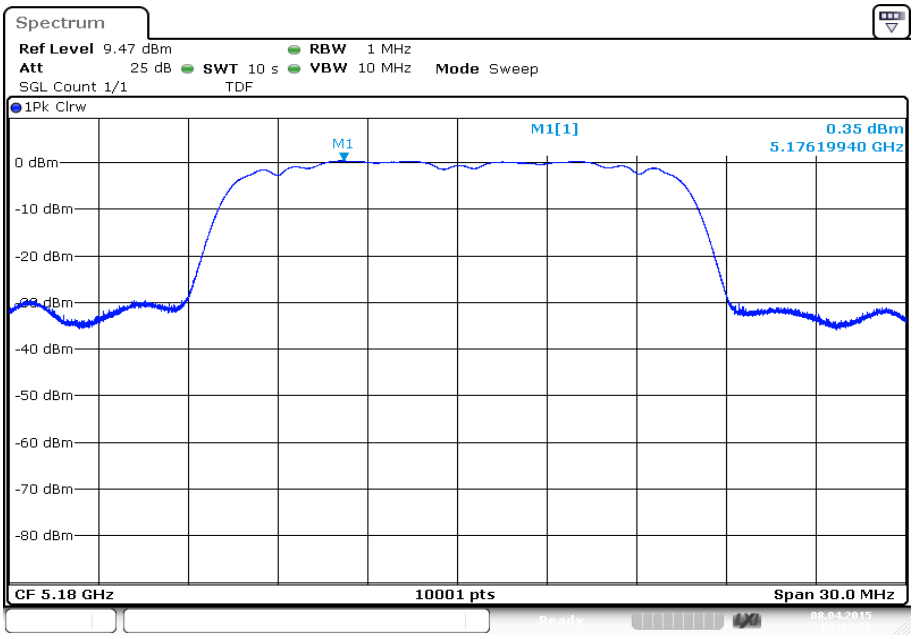


Plot 6: 5814 MHz



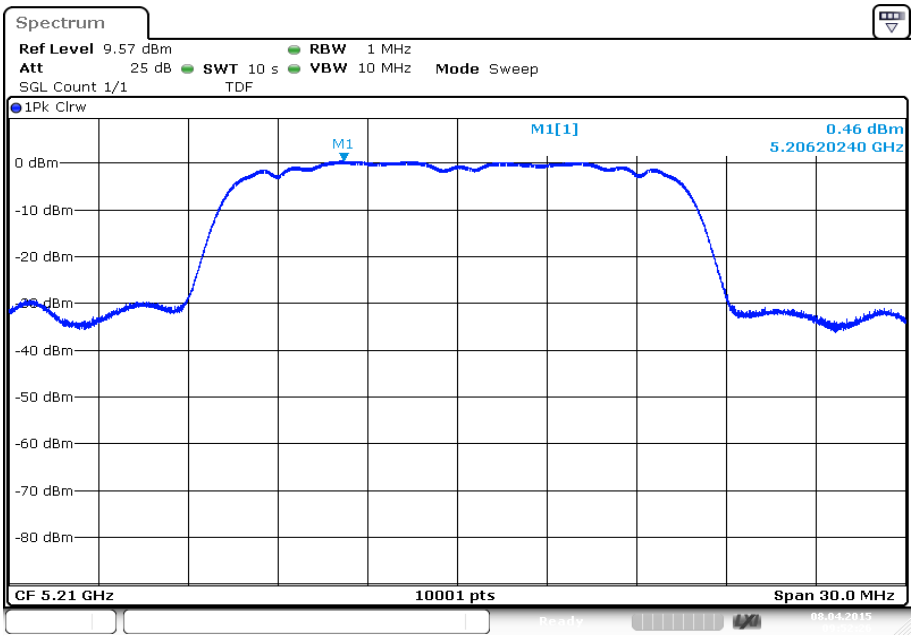
Plots: Antenna B - QPSK

Plot 1: 5180 MHz



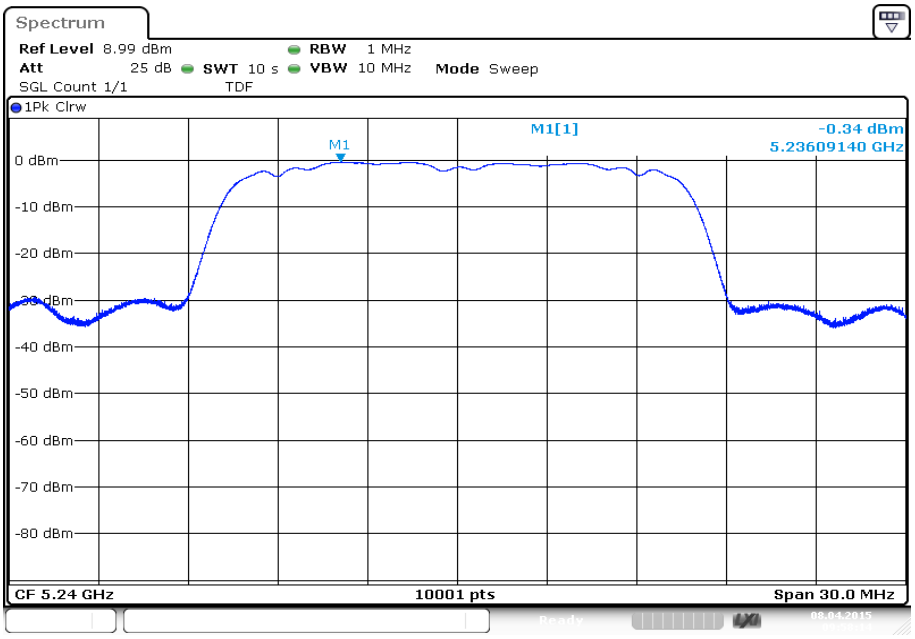
Date: 8.APR.2015 09:45:50

Plot 2: 5210 MHz



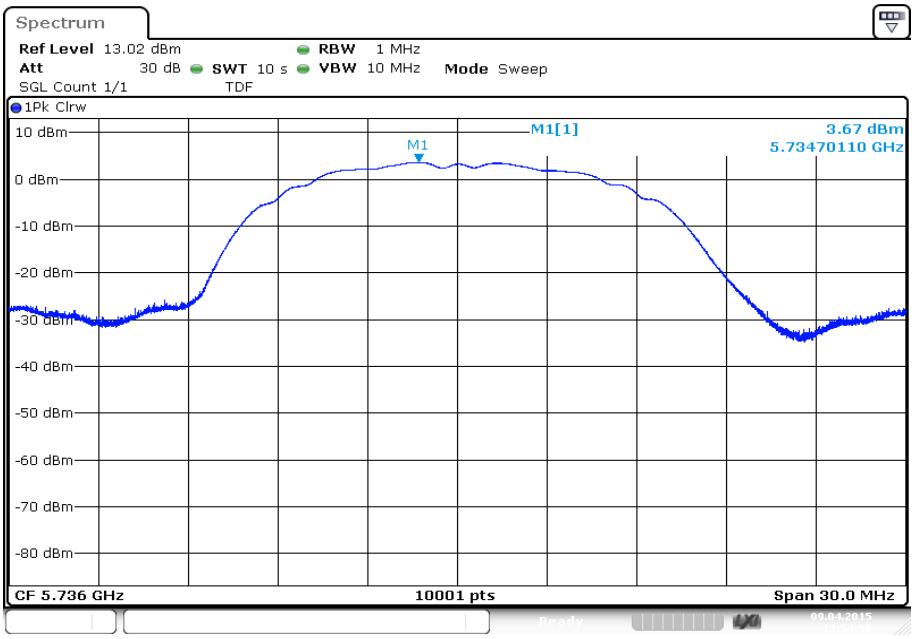
Date: 8.APR.2015 09:52:27

Plot 3: 5240 MHz



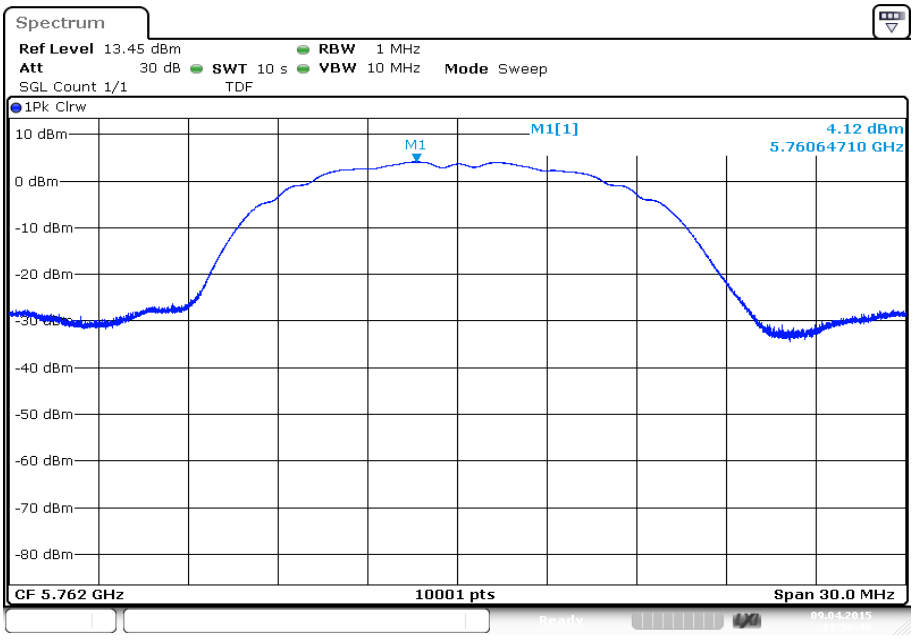
Date: 8.APR.2015 09:58:14

Plot 4: 5736 MHz



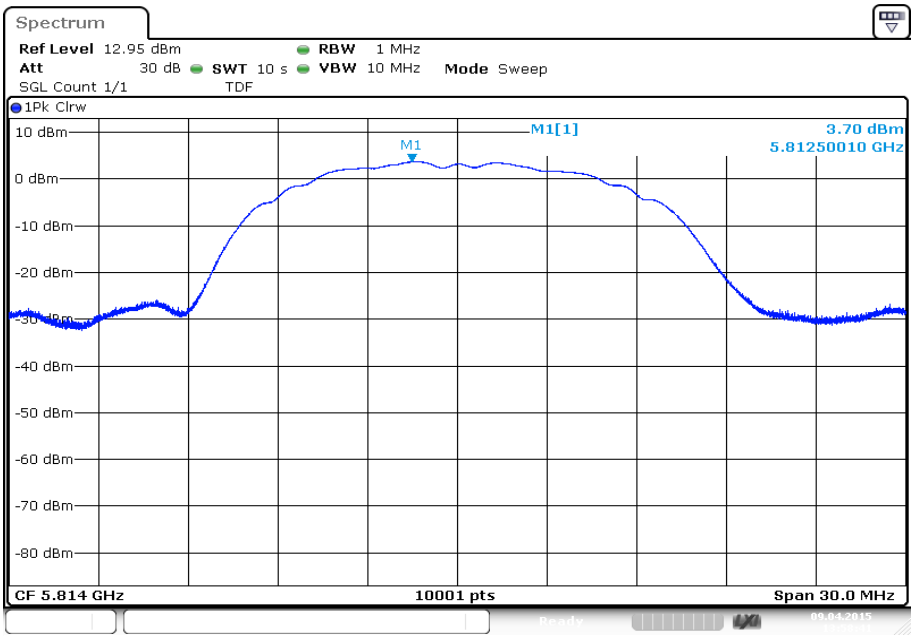
Date: 9.APR.2015 13:54:50

Plot 5: 5762 MHz



Date: 9.APR.2015 13:56:49

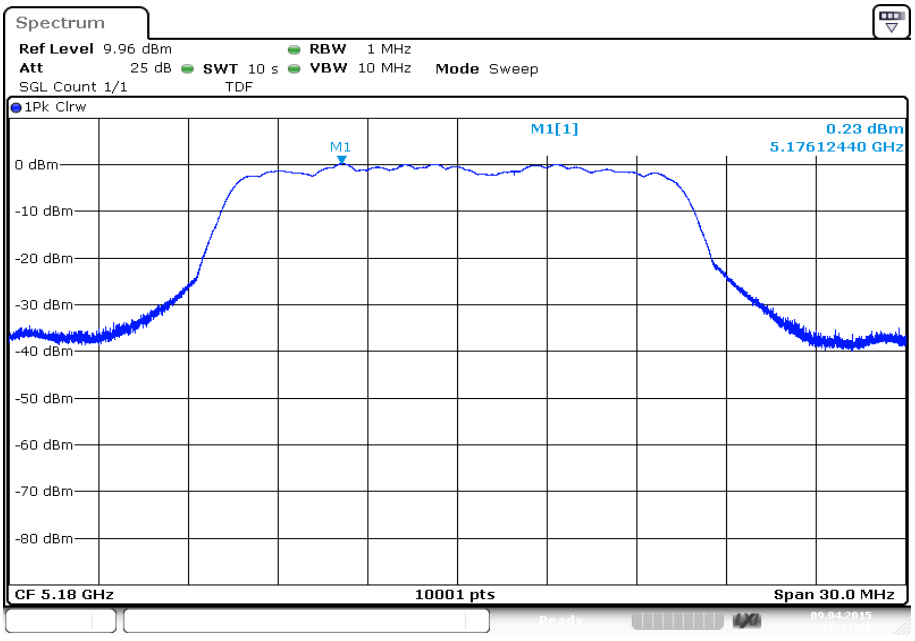
Plot 6: 5814 MHz



Date: 9.APR.2015 13:58:41

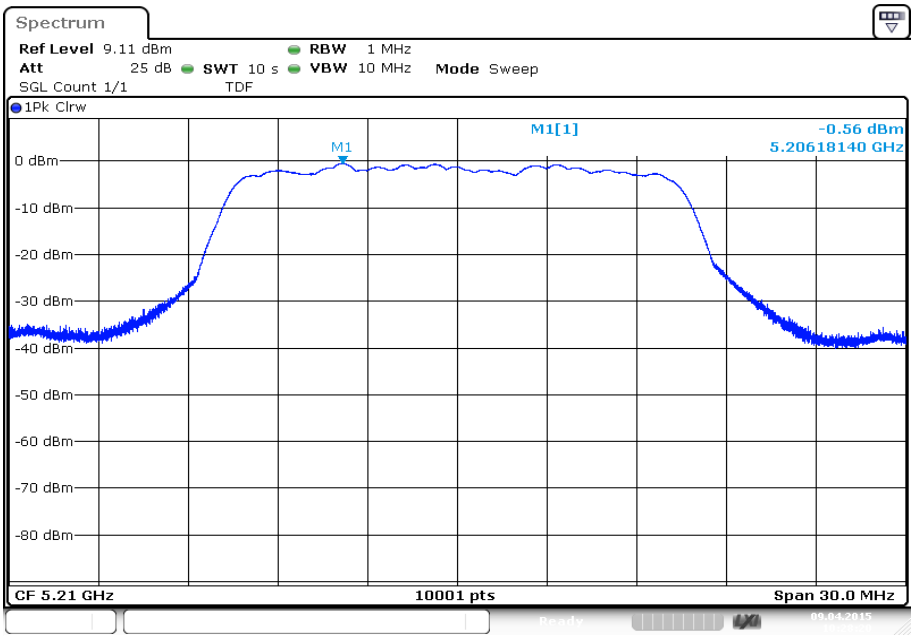
Plots: Antenna B - BPSK

Plot 1: 5180 MHz



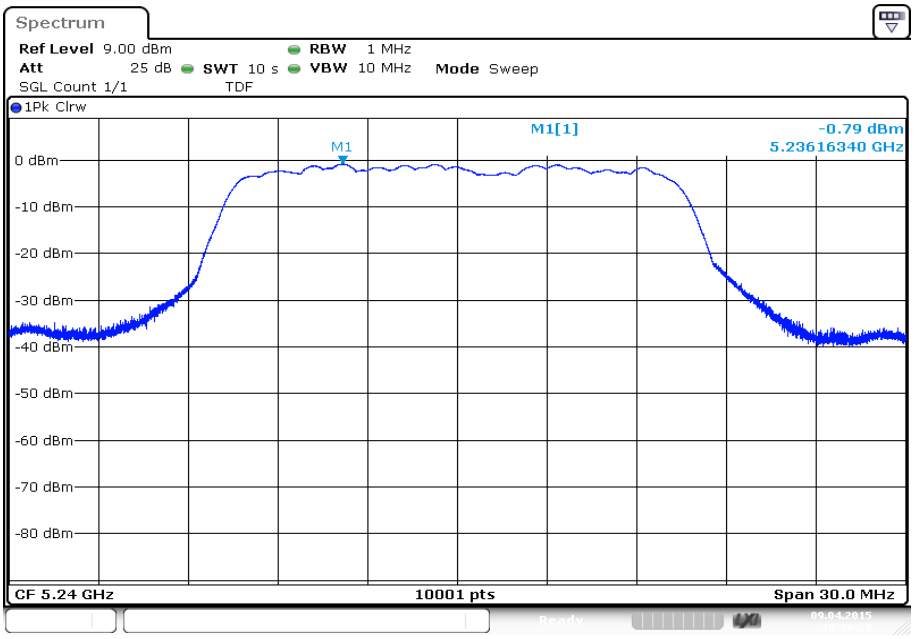
Date: 9.APR.2015 10:31:08

Plot 2: 5210 MHz



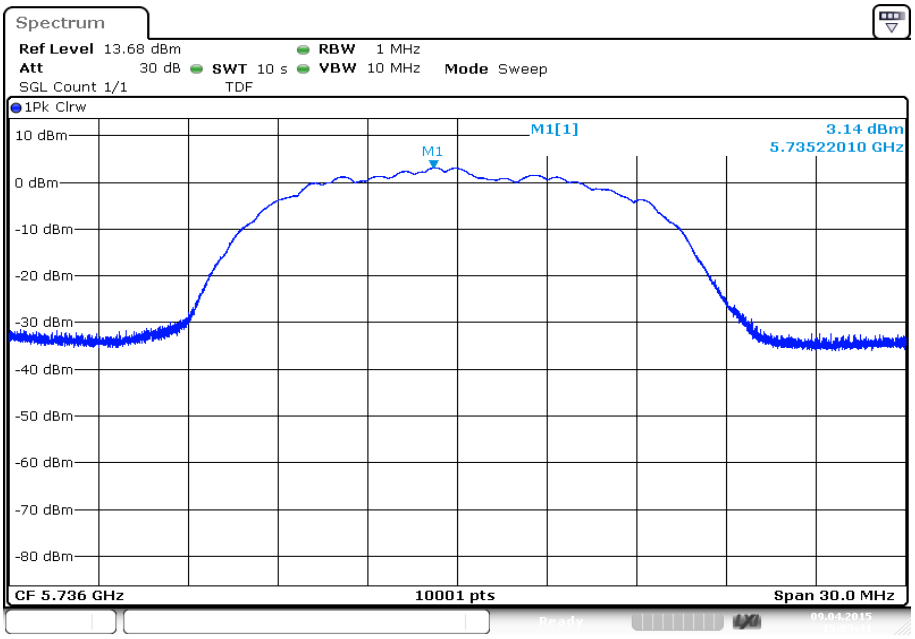
Date: 9.APR.2015 10:28:20

Plot 3: 5240 MHz



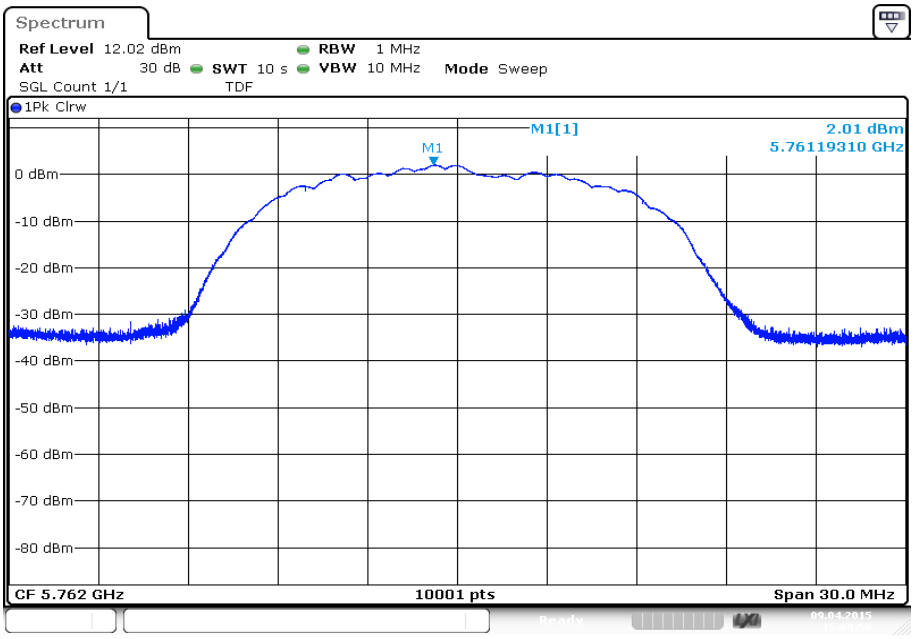
Date: 9.APR.2015 10:26:23

Plot 4: 5736 MHz



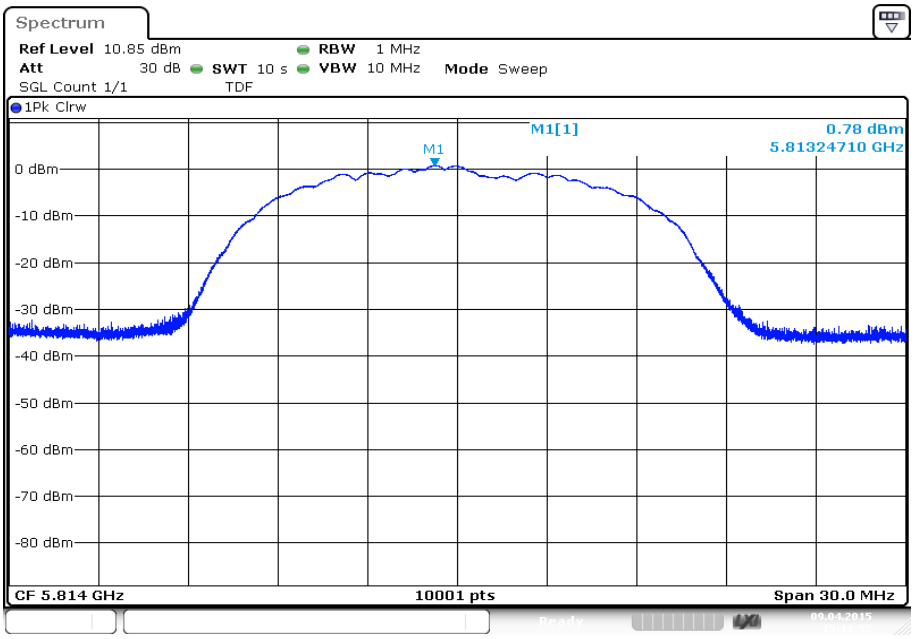
Date: 9.APR.2015 15:05:41

Plot 5: 5762 MHz



Date: 9.APR.2015 15:09:50

Plot 6: 5814 MHz



Date: 9.APR.2015 15:11:52

10.7 Band edge compliance radiated

Description:

Measurement of the radiated band edge compliance. The EUT is turned in the position that results in the maximum level at the band edge. Then a sweep over the corresponding restricted band is performed. The EUT is set to the lowest channel for the lower restricted band and to the highest channel for the upper restricted band. Measurement distance is 3m.

Measurement:

Measurement parameter	
Detector:	Peak / RMS
Sweep time:	Auto
Resolution bandwidth:	1 MHz
Video bandwidth:	1 MHz
Span:	See plots!
Trace-Mode:	Max Hold

Limits:

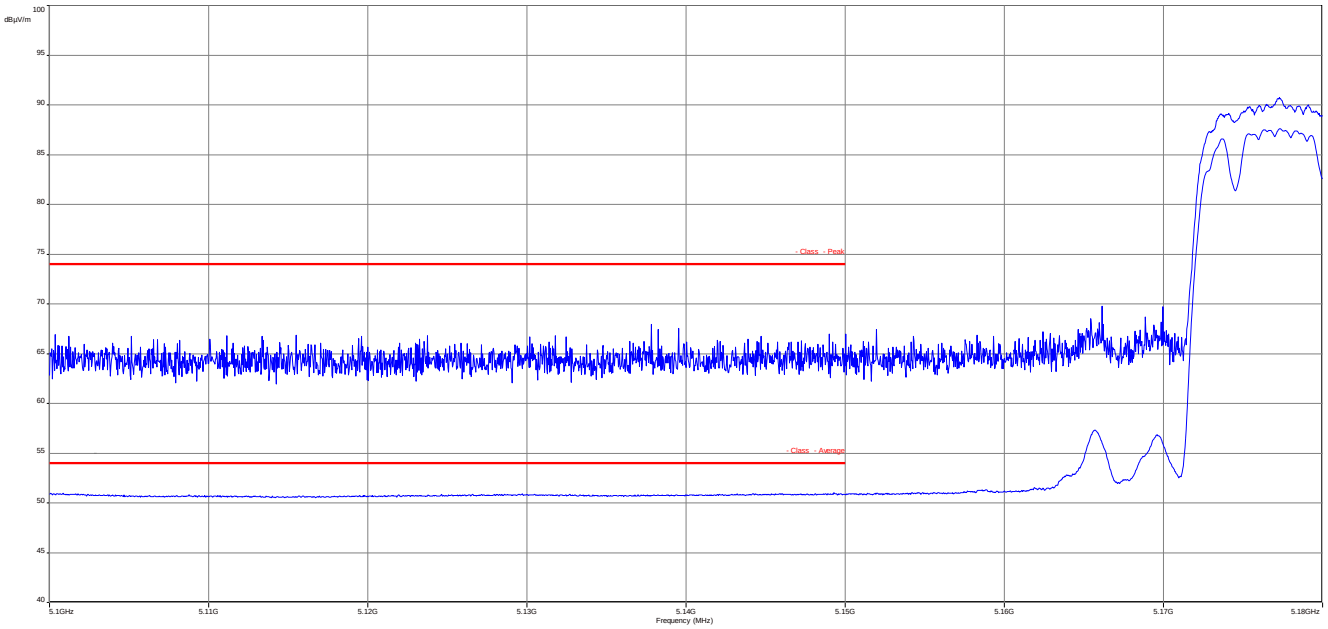
Band Edge Compliance Radiated
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 5.205(c)).
74 dBµV/m PEAK 54 dBµV/m AVG

Result:

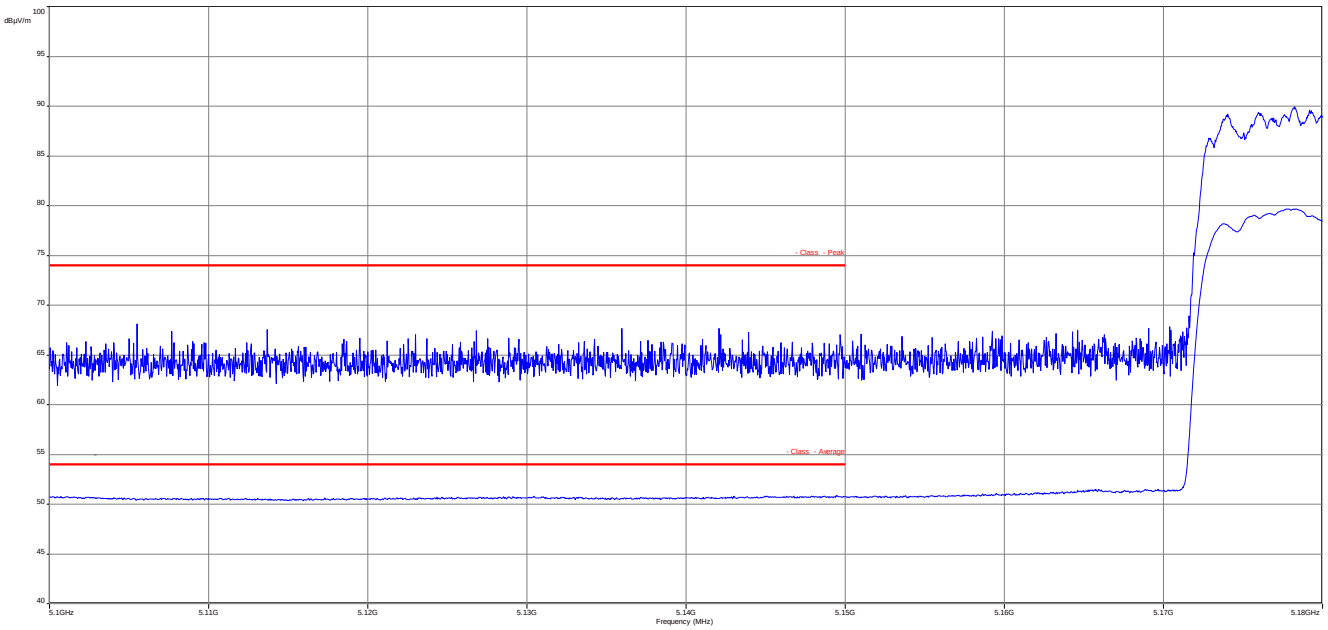
Scenario	Band Edge Compliance Radiated [dBµV/m]
band edge	< 74 dBµV/m (PEAK) < 54 dBµV/m (AVG)
Measurement uncertainty	± 3 dB

Plots: band edge to the restricted band

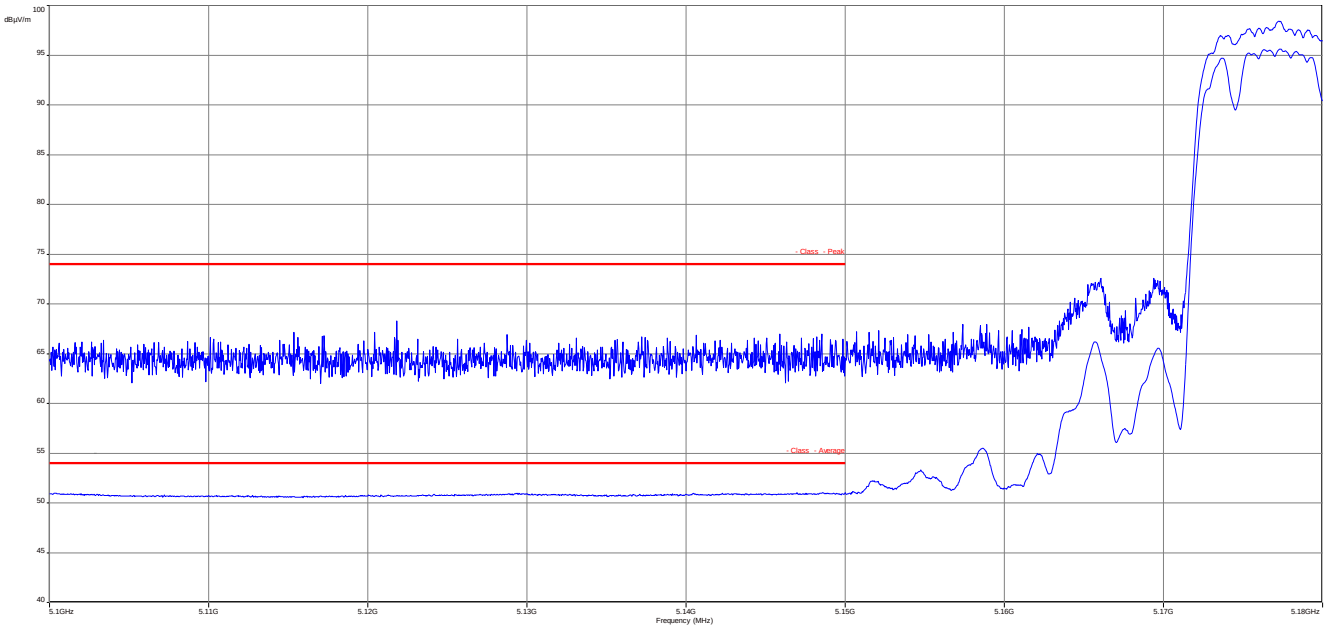
Plot 1: lower band edge, vertical & horizontal polarization, QPSK, 5180 MHz, antenna A



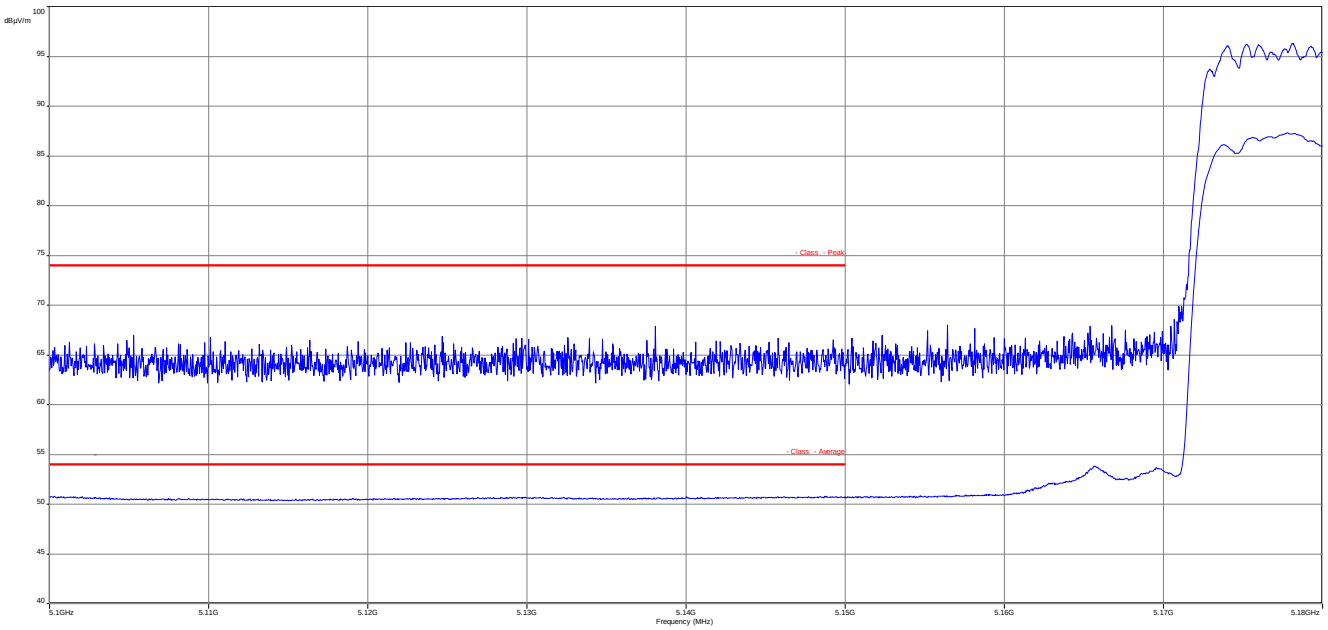
Plot 2: lower band edge, vertical & horizontal polarization, BPSK, 5180 MHz, antenna A



Plot 3: lower band edge, vertical & horizontal polarization, QPSK, 5180 MHz, antenna B



Plot 4: lower band edge, vertical & horizontal polarization, BPSK, 5180 MHz, antenna B



Verdict: **complies**

10.8 TX spurious emissions radiated

Description:

Measurement of the radiated spurious emissions in transmit mode. The measurement is performed at lowest, middle and highest channel.

Measurement:

Measurement parameter	
Detector:	Quasi Peak below 1 GHz (alternative Peak) Peak above 1 GHz / RMS
Sweep time:	Auto
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Video bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: ≥ 3 MHz / 1 MHz
Span:	30 MHz to 40 GHz
Trace-Mode:	Max Hold / Average with 100 counts + 20 log (1 / X) for duty cycle lower than 100 %

Limits:

TX Spurious Emissions Radiated		
§15.209		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3
§15.407		
Outside the restricted bands!	-27 dBm / MHz	

Results: Antenna A, QPSK

TX Spurious Emissions Radiated								
Lowest 5180 MHz			Middle 5210 MHz			Highest 5240 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
All detected peak emissions are below the average limit.			All detected peak emissions are below the average limit.			All detected peak emissions are below the average limit.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated								
Lowest 5736 MHz			Middle 5762 MHz			Highest 5814 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
11472	Peak	55.85	11524	Peak	55.19	11628	Peak	56.72
	RMS	52.91		RMS	52.74		RMS	53.00
Measurement uncertainty			± 3 dB					

Results: Antenna A, BPSK

TX Spurious Emissions Radiated								
Lowest 5180 MHz			Middle 5210 MHz			Highest 5240 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
All detected peak emissions are below the average limit.			All detected peak emissions are below the average limit.			All detected peak emissions are below the average limit.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated								
Lowest 5736 MHz			Middle 5762 MHz			Highest 5814 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
All detected peak emissions are below the average limit.			All detected peak emissions are below the average limit.			All detected peak emissions are below the average limit.		
Measurement uncertainty			± 3 dB					

Verdict: **complies**

Results: Antenna B, QPSK

T TX Spurious Emissions Radiated								
Lowest 5180 MHz			Middle 5210 MHz			Highest 5240 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
All detected peak emissions are below the average limit.			All detected peak emissions are below the average limit.			All detected peak emissions are below the average limit.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated								
Lowest 5736 MHz			Middle 5762 MHz			Highest 5814 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
11472	Peak	55.73	11524	Peak	57.24	11628	Peak	57.98
	RMS	52.78		RMS	53.27		RMS	53.66
Measurement uncertainty			± 3 dB					

Results: Antenna B, BPSK

TX Spurious Emissions Radiated								
Lowest 5180 MHz			Middle 5210 MHz			Highest 5240 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
All detected peak emissions are below the average limit.			All detected peak emissions are below the average limit.			All detected peak emissions are below the average limit.		
Measurement uncertainty			± 3 dB					

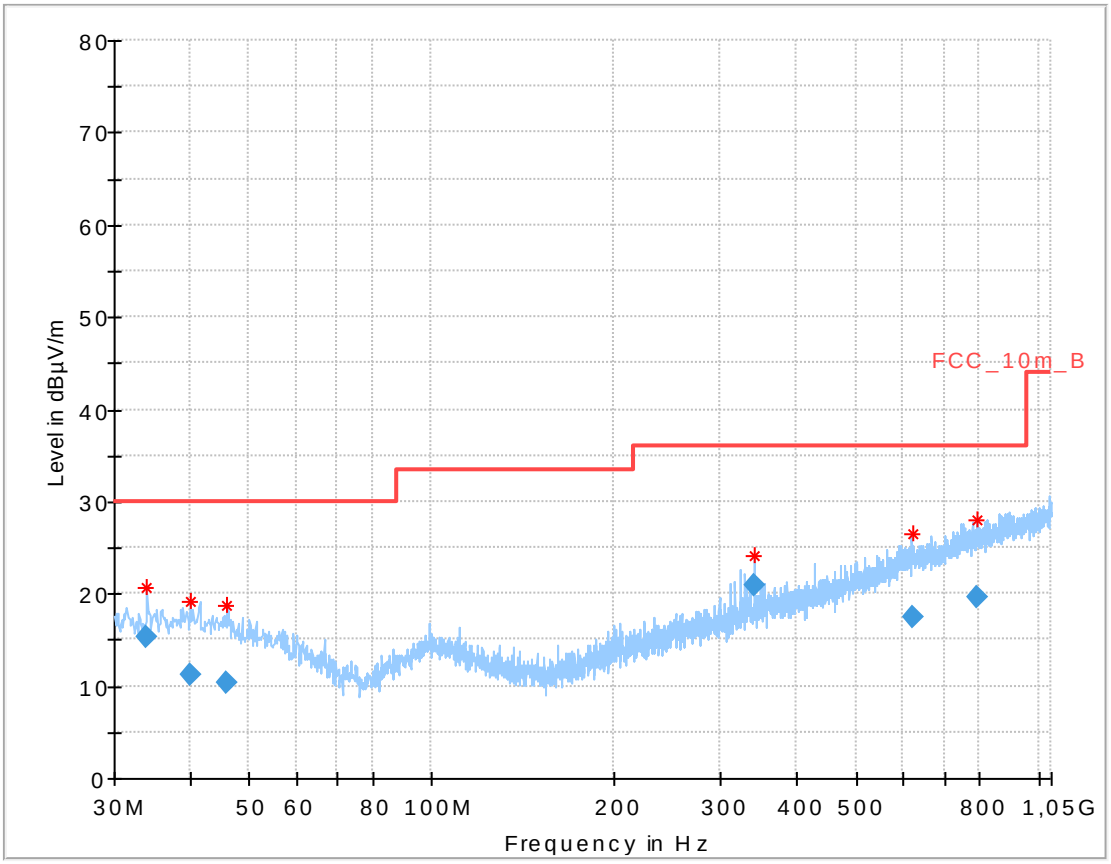
TX Spurious Emissions Radiated								
Lowest 5736 MHz			Middle 5762 MHz			Highest 5814 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
All detected peak emissions are below the average limit.			All detected peak emissions are below the average limit.			All detected peak emissions are below the average limit.		
Measurement uncertainty			± 3 dB					

Verdict: **complies**

Note: Only the middle channel for BPSK mode is added to show the EUT behaviour.

Plots: Antenna A, QPSK

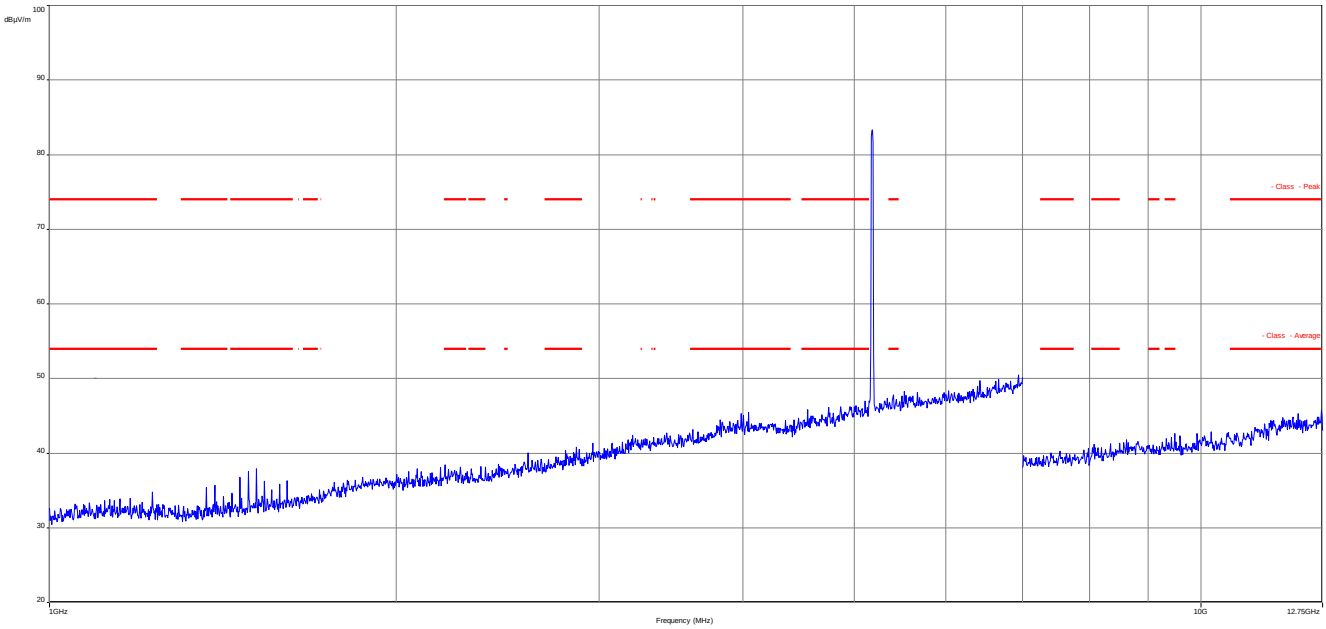
Plot 1: 30 MHz to 1 GHz, 5180 MHz, vertical & horizontal polarization



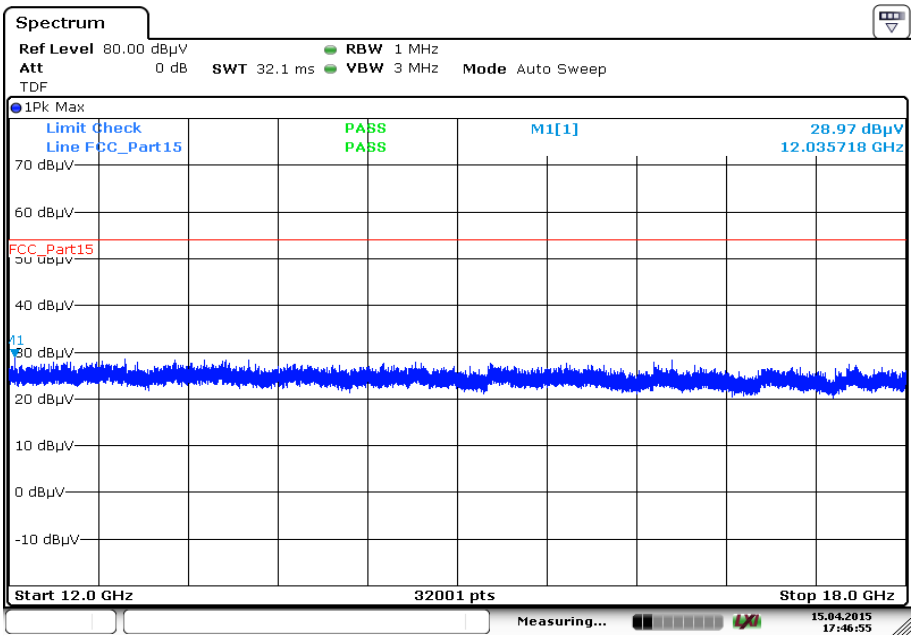
Final_Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
33.981450	15.35	30.00	14.65	1000.0	120.000	101.0	V	-7	13.7
40.043400	11.19	30.00	18.81	1000.0	120.000	101.0	V	115	14.0
45.930450	10.32	30.00	19.68	1000.0	120.000	101.0	H	-6	13.6
341.010450	20.91	36.00	15.09	1000.0	120.000	98.0	V	17	15.8
618.688650	17.56	36.00	18.44	1000.0	120.000	170.0	H	17	20.9
791.891850	19.52	36.00	16.48	1000.0	120.000	170.0	V	65	22.7

Plot 2: 1 GHz to 12.75 GHz, 5180 MHz, vertical & horizontal polarization



Plot 3: 12 GHz to 18 GHz, 5180 MHz, vertical & horizontal polarization



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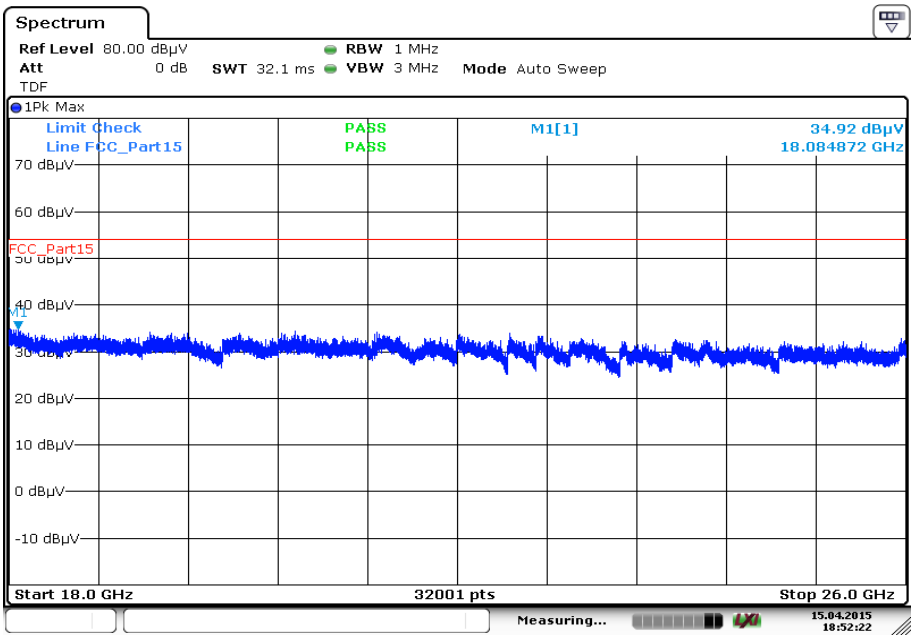
Plot 4: 18 GHz to 26 GHz, 5180 MHz, vertical & horizontal polarization



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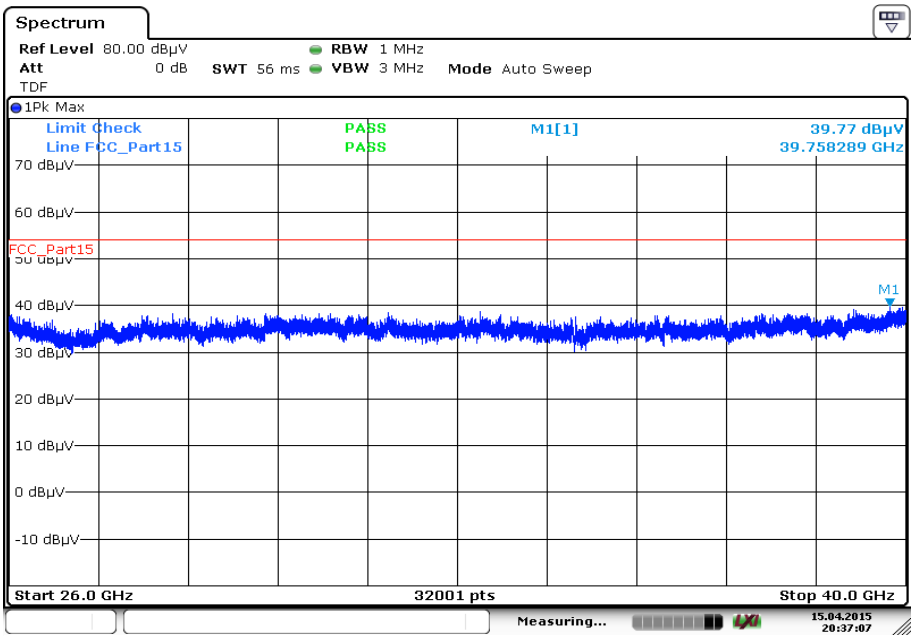
Plot 5: 26 GHz to 40 GHz, 5180 MHz, vertical & horizontal polarization



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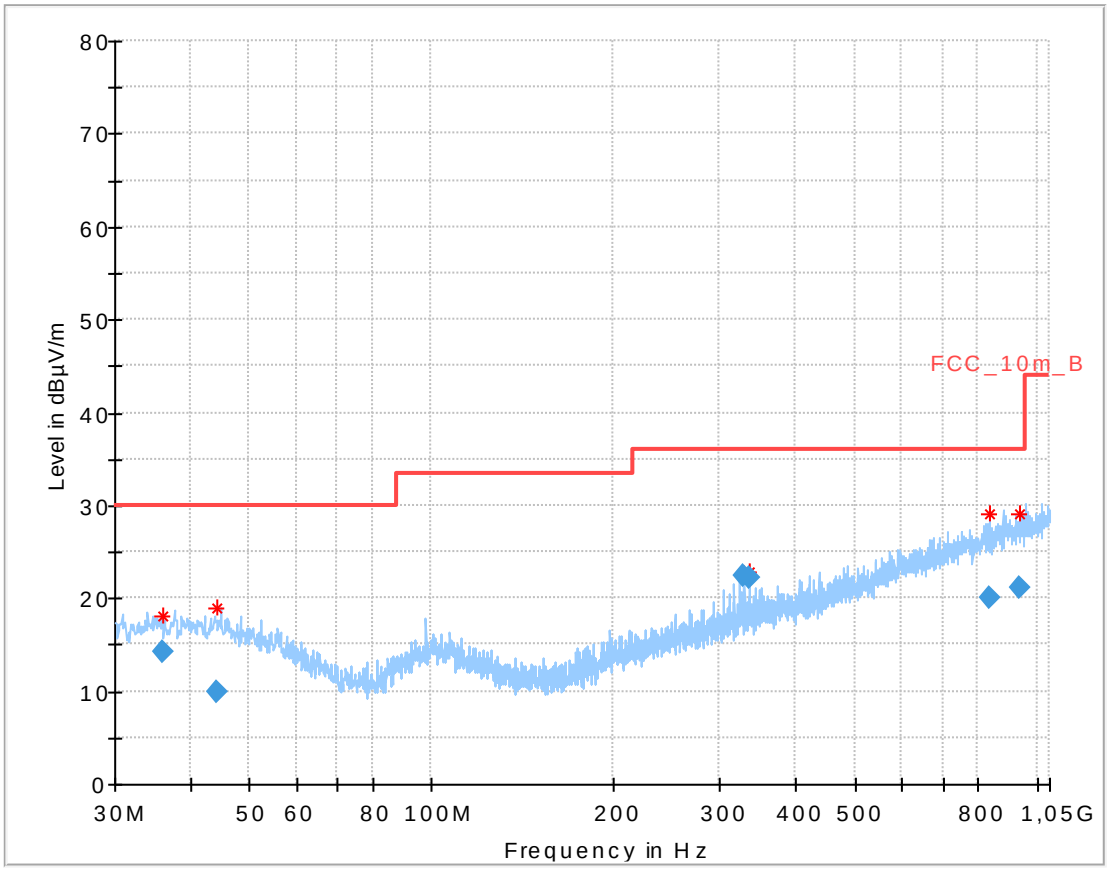
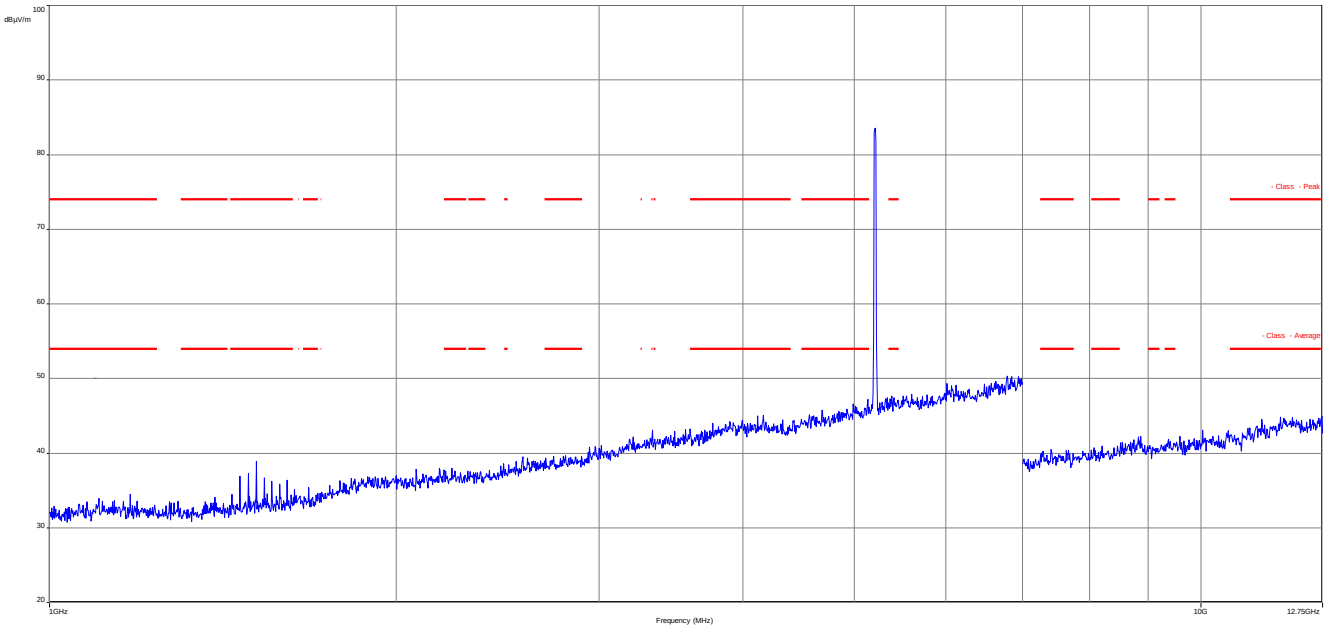
Plot 6: 30 MHz to 1 GHz, 5210 MHz, vertical & horizontal polarization



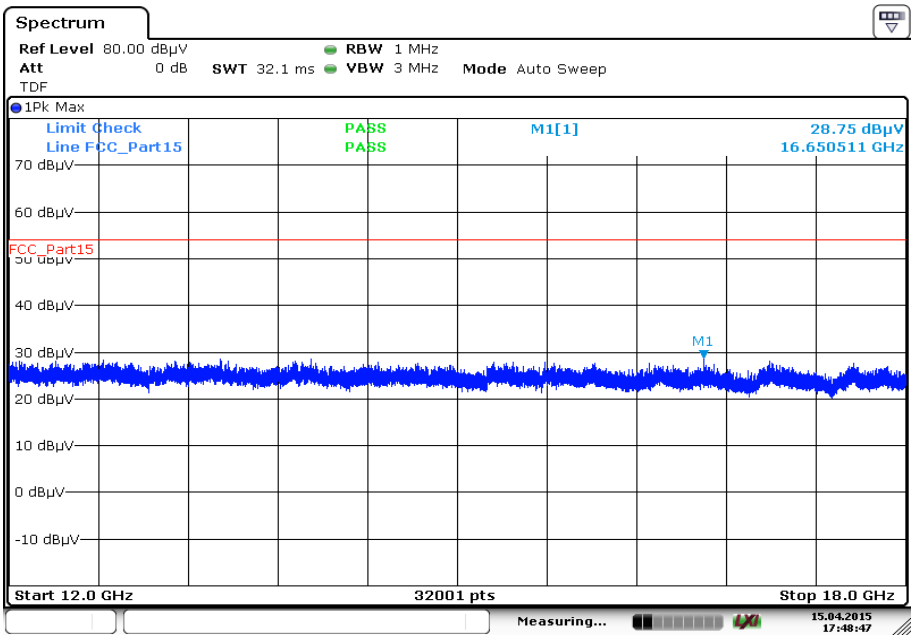
Final_Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
36.015750	14.22	30.00	15.78	1000.0	120.000	101.0	V	265	13.8
44.352150	9.99	30.00	20.01	1000.0	120.000	98.0	H	107	13.9
328.700100	22.51	36.00	13.49	1000.0	120.000	98.0	V	262	15.4
334.849650	22.11	36.00	13.89	1000.0	120.000	98.0	V	25	15.6
834.570900	20.12	36.00	15.88	1000.0	120.000	170.0	H	263	23.2
940.093950	21.06	36.00	14.94	1000.0	120.000	170.0	H	-6	24.2

Plot 7: 1 GHz to 12.75 GHz, 5210 MHz, vertical & horizontal polarization



Plot 8: 12 GHz to 18 GHz, 5210 MHz, vertical & horizontal polarization



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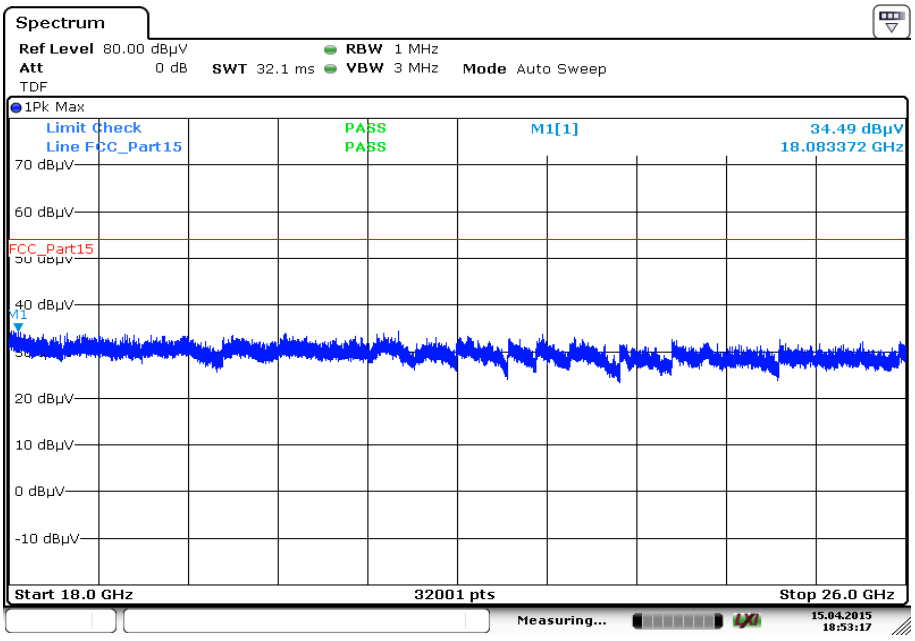
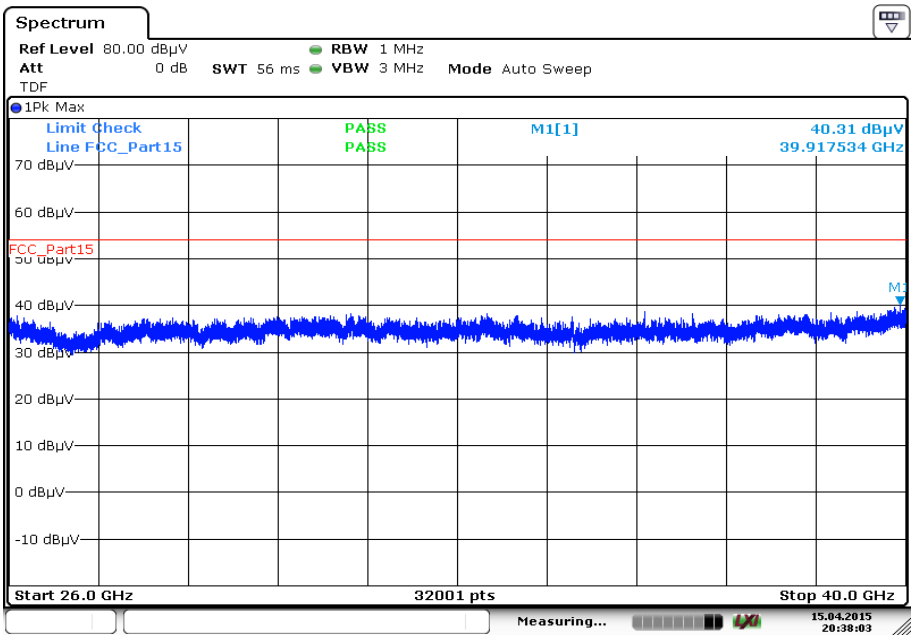
Plot 9: 18 GHz to 26 GHz, 5210 MHz, vertical & horizontal polarization



Date: 15.APR.2015 18:53:17

Plot 10: 26 GHz to 40 GHz, 5210 MHz, vertical & horizontal polarization



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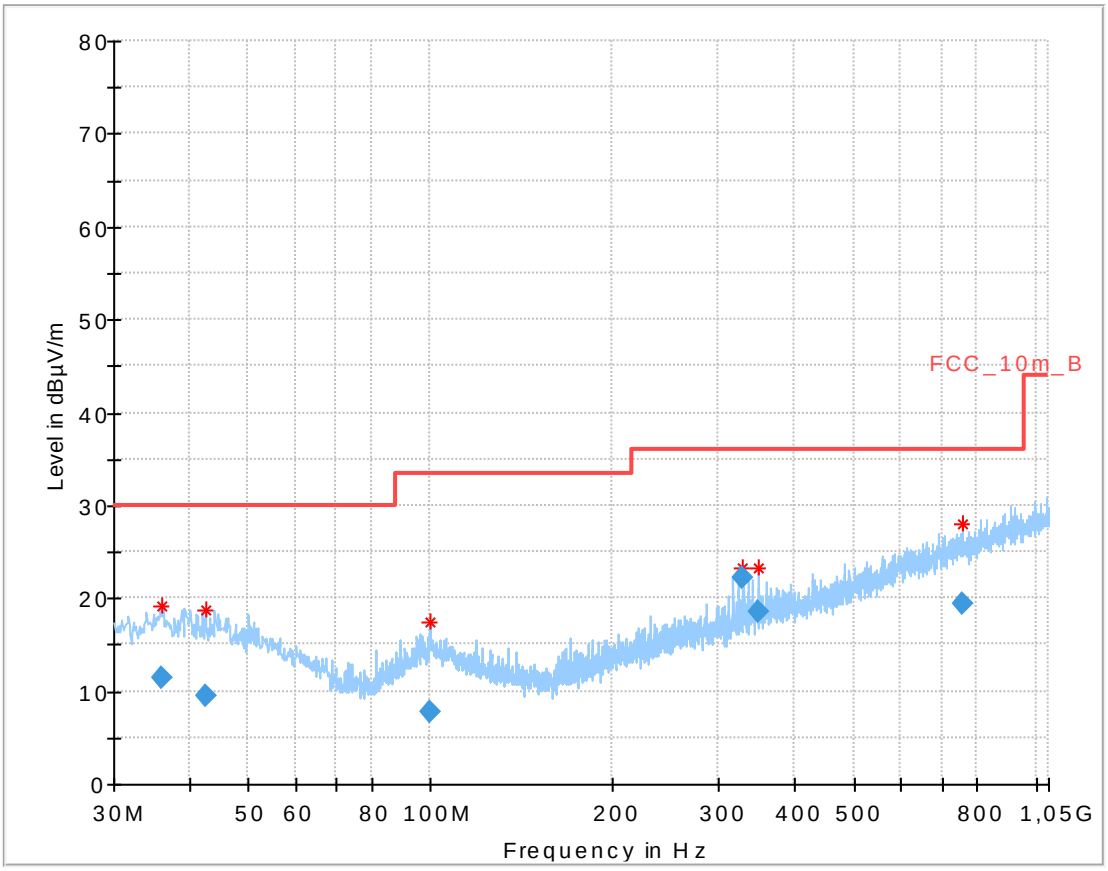
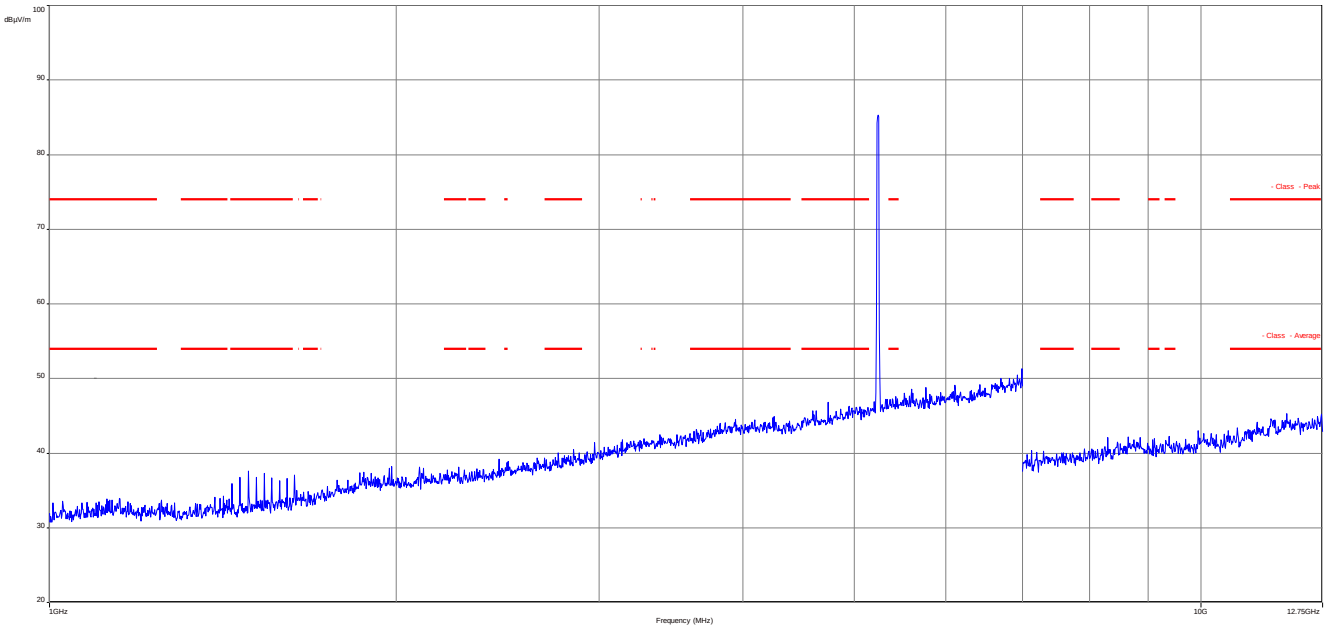
Plot 11: 30 MHz to 1 GHz, 5240 MHz, vertical & horizontal polarization



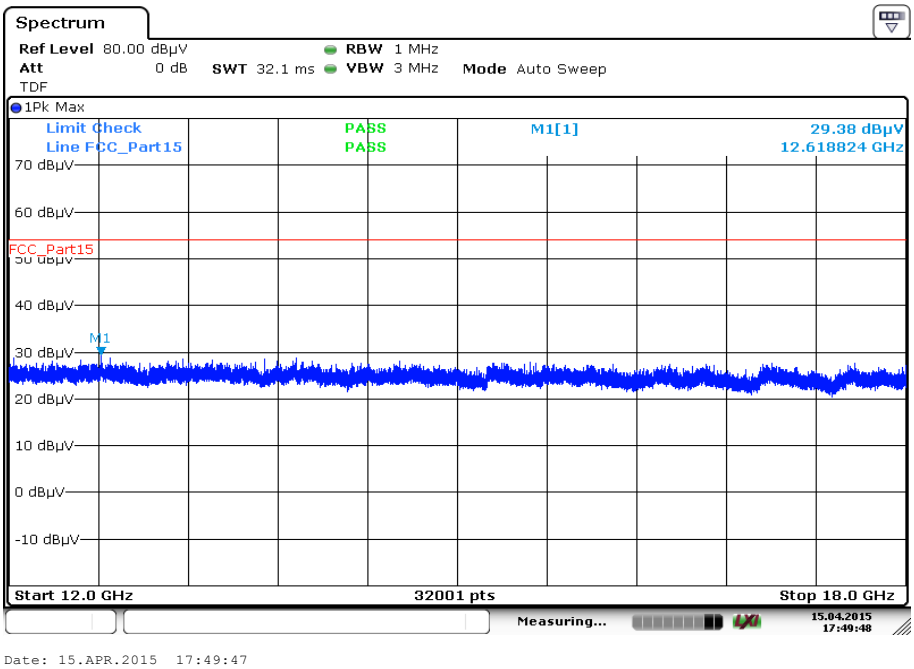
Final_Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
35.950350	11.39	30.00	18.61	1000.0	120.000	170.0	H	115	13.8
42.492450	9.41	30.00	20.59	1000.0	120.000	101.0	H	263	13.9
99.645900	7.69	33.50	25.81	1000.0	120.000	101.0	H	205	12.1
328.701150	22.29	36.00	13.71	1000.0	120.000	98.0	V	173	15.4
347.166000	18.61	36.00	17.39	1000.0	120.000	98.0	V	83	15.9
756.574050	19.39	36.00	16.61	1000.0	120.000	170.0	V	107	22.7

Plot 12: 1 GHz to 12.75 GHz, 5240 MHz, vertical & horizontal polarization

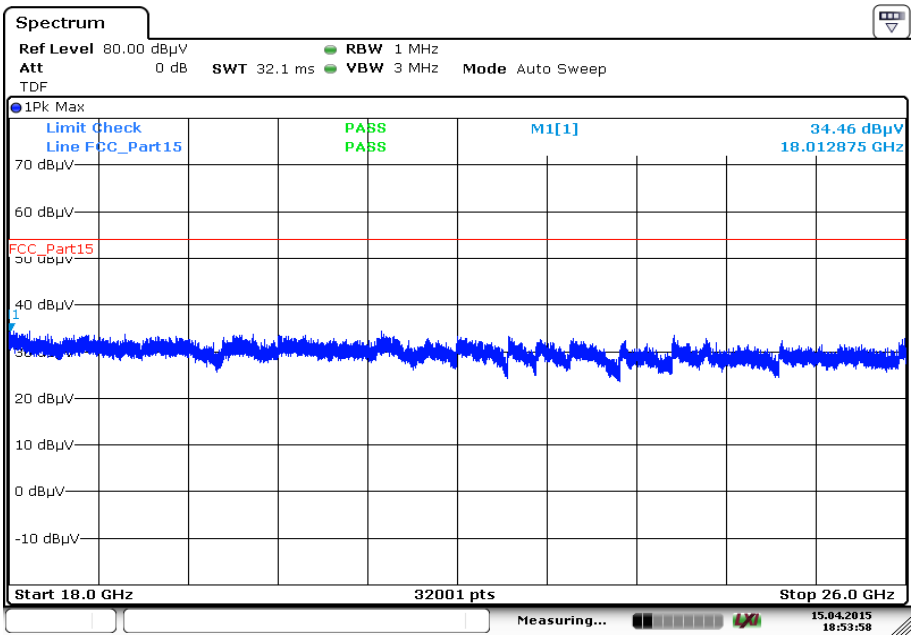


Plot 13: 12 GHz to 18 GHz, 5240 MHz, vertical & horizontal polarization



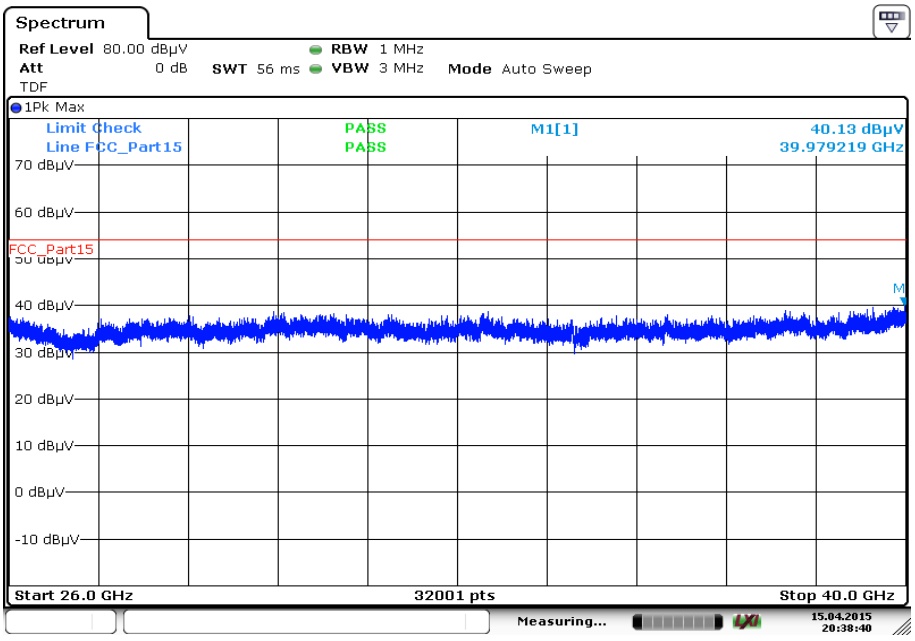
Date: 15.APR.2015 17:49:47

Plot 14: 18 GHz to 26 GHz, 5240 MHz, vertical & horizontal polarization



Date: 15.APR.2015 18:53:58

Plot 15: 26 GHz to 40 GHz, 5240 MHz, vertical & horizontal polarization



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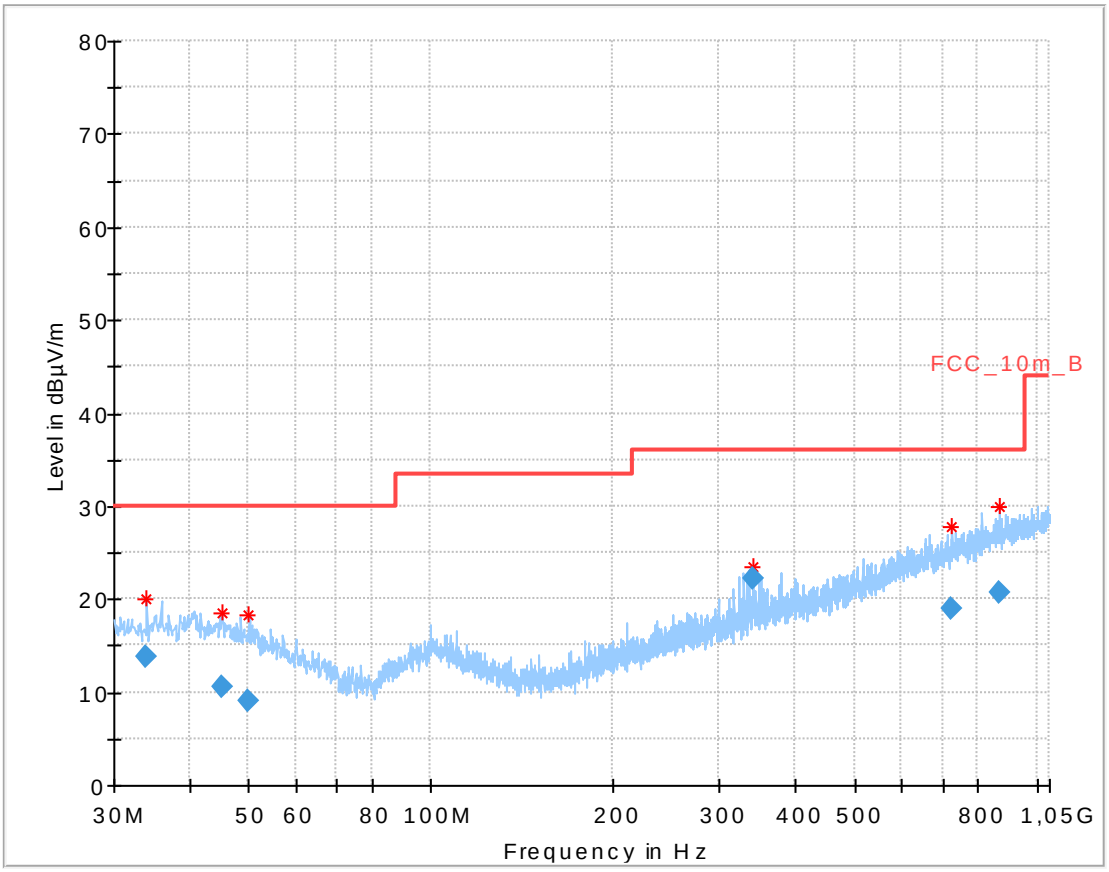
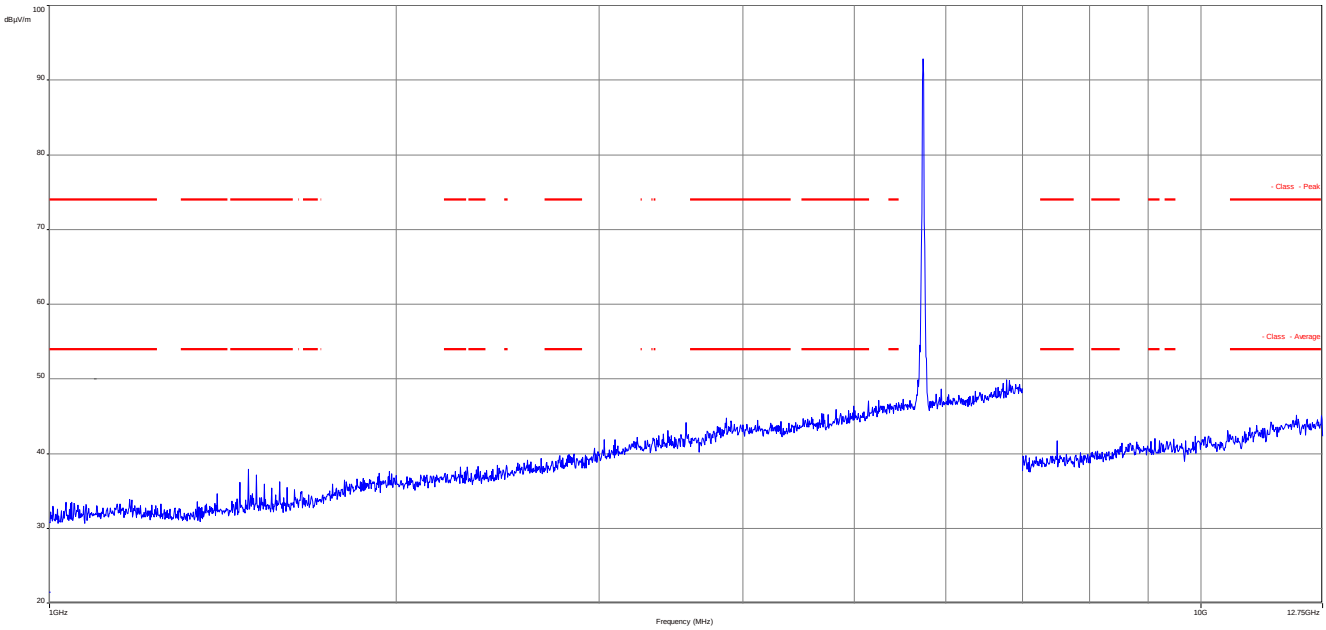
Plot 16: 30 MHz to 1 GHz, 5736 MHz, vertical & horizontal polarization



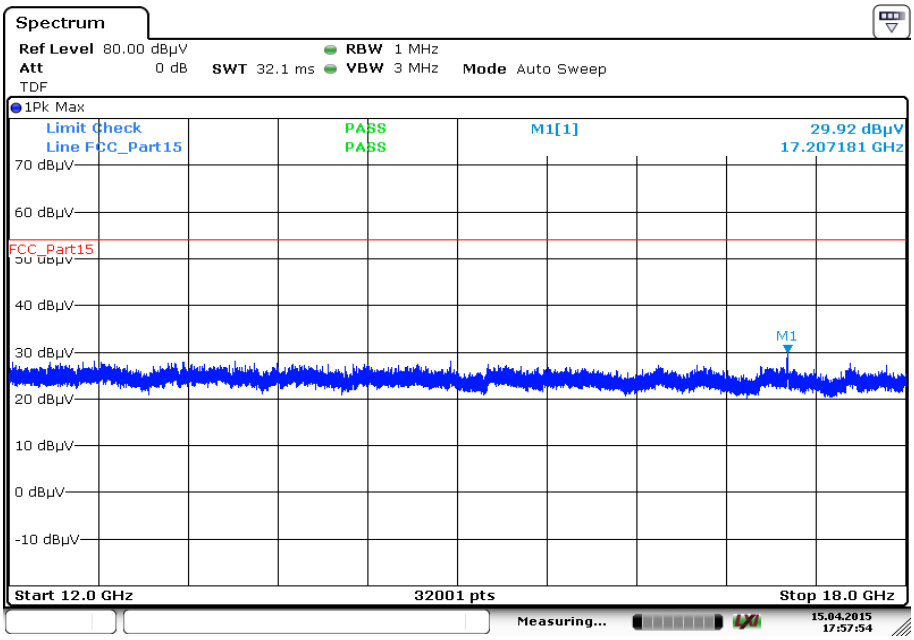
Final_Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
33.993750	13.75	30.00	16.25	1000.0	120.000	170.0	H	107	13.7
45.106950	10.49	30.00	19.51	1000.0	120.000	101.0	V	287	13.8
50.074200	9.13	30.00	20.87	1000.0	120.000	101.0	H	107	12.6
341.001000	22.19	36.00	13.81	1000.0	120.000	98.0	V	18	15.8
725.053950	19.02	36.00	16.98	1000.0	120.000	170.0	V	173	22.1
867.064650	20.67	36.00	15.33	1000.0	120.000	170.0	V	173	23.7

Plot 17: 1 GHz to 12.75 GHz, 5736 MHz, vertical & horizontal polarization



Plot 18: 12 GHz to 18 GHz, 5736 MHz, vertical & horizontal polarization



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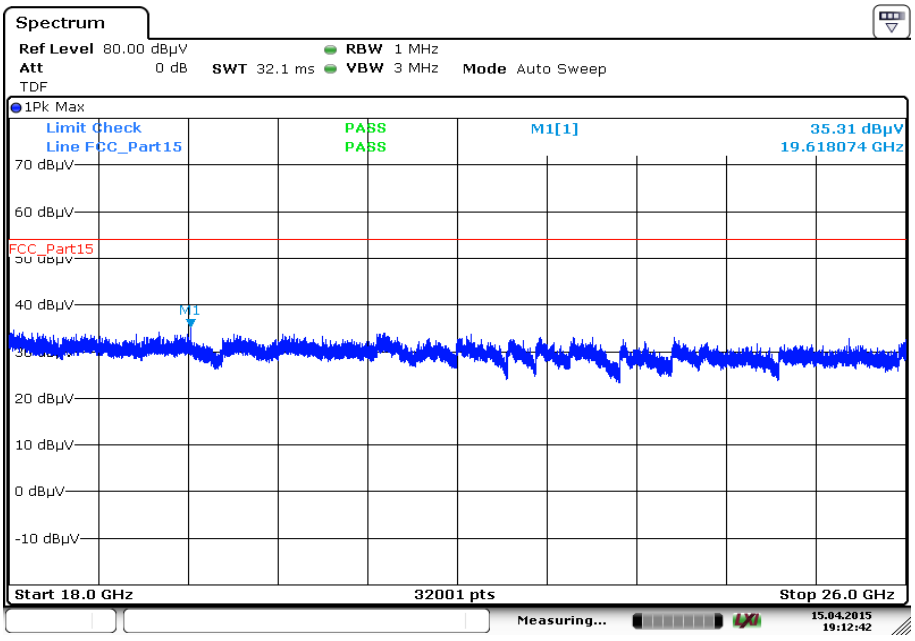
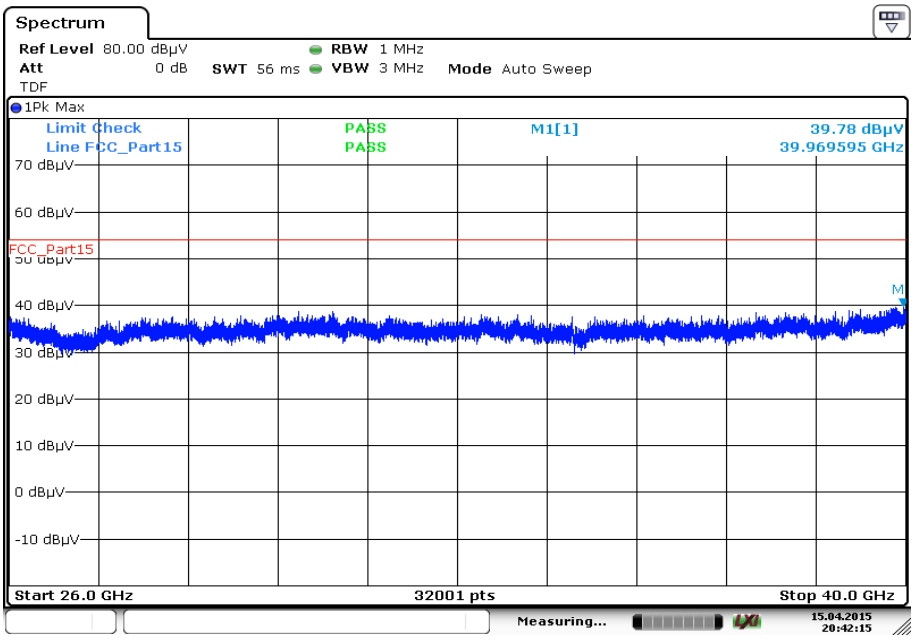
Plot 19: 18 GHz to 26 GHz, 5736 MHz, vertical & horizontal polarization



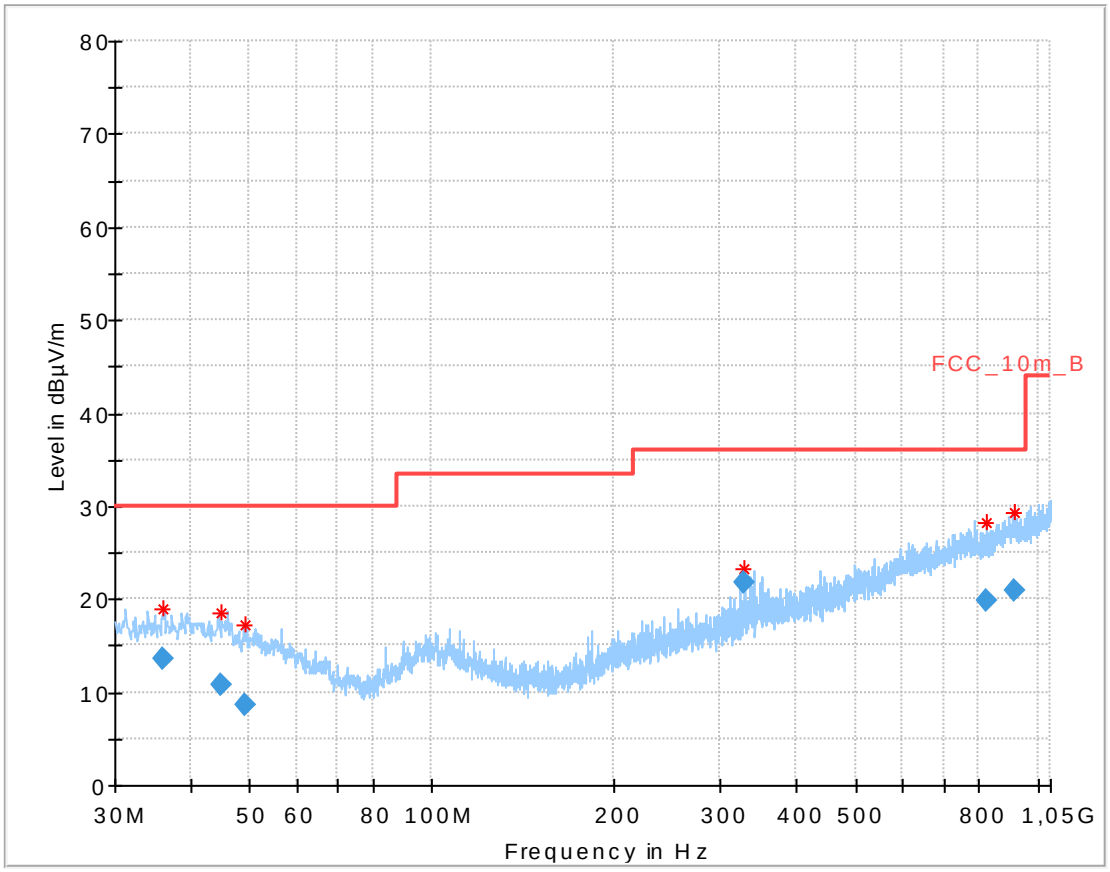
Date: 15.APR.2015 19:12:42

Plot 20: 26 GHz to 40 GHz, 5736 MHz, vertical & horizontal polarization



Date: 15.APR.2015 20:42:15

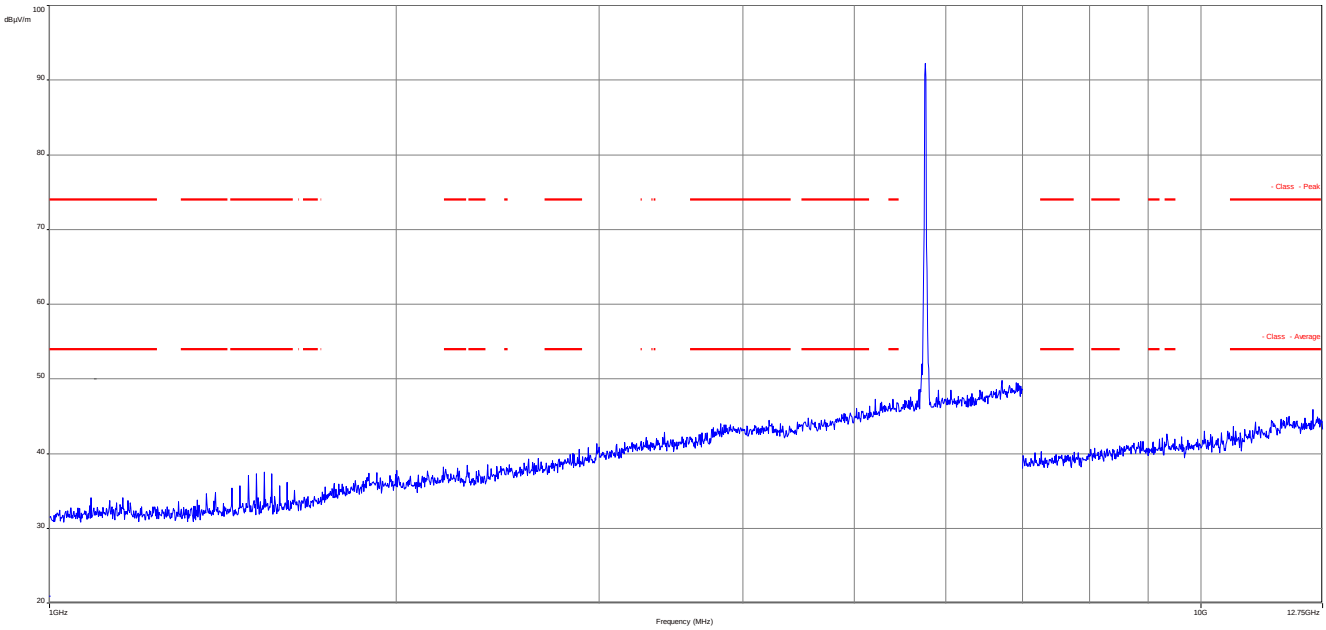
Plot 21: 30 MHz to 1 GHz, 5762 MHz, vertical & horizontal polarization



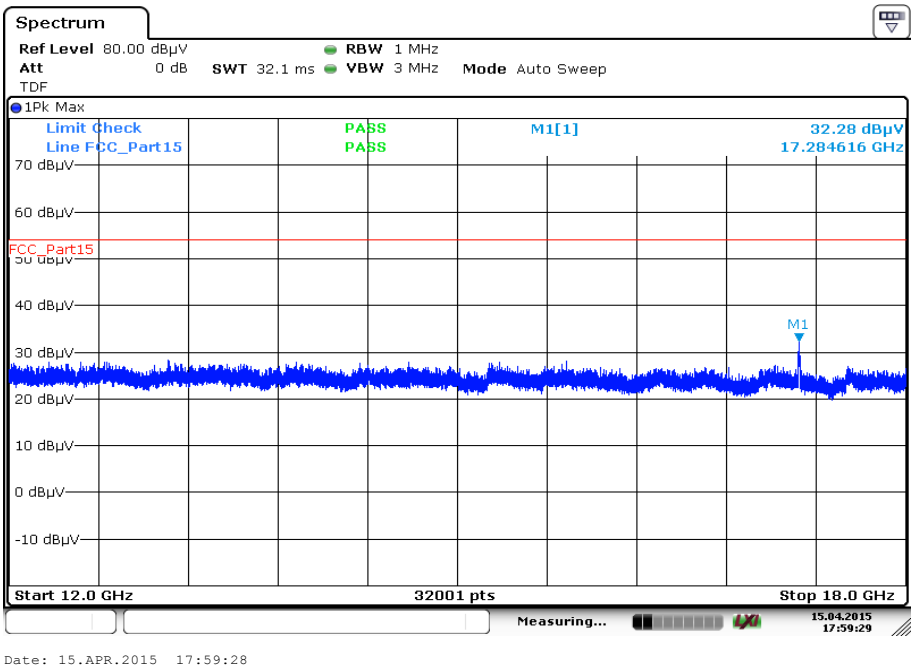
Final_Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
36.028650	13.59	30.00	16.41	1000.0	120.000	100.0	V	83	13.8
44.967000	10.88	30.00	19.12	1000.0	120.000	101.0	V	-6	13.9
49.094100	8.68	30.00	21.32	1000.0	120.000	100.0	V	205	12.9
328.708500	21.86	36.00	14.14	1000.0	120.000	98.0	H	245	15.4
823.246050	19.91	36.00	16.09	1000.0	120.000	170.0	H	115	23.1
912.553500	20.98	36.00	15.02	1000.0	120.000	170.0	V	82	24.1

Plot 22: 1 GHz to 12.75 GHz, 5762 MHz, vertical & horizontal polarization

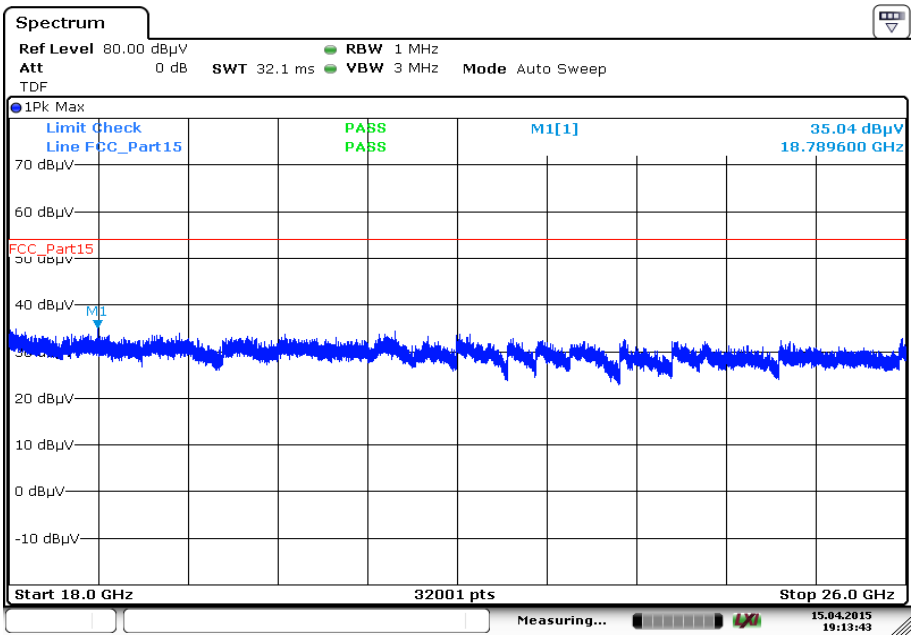


Plot 23: 12 GHz to 18 GHz, 5762 MHz, vertical & horizontal polarization



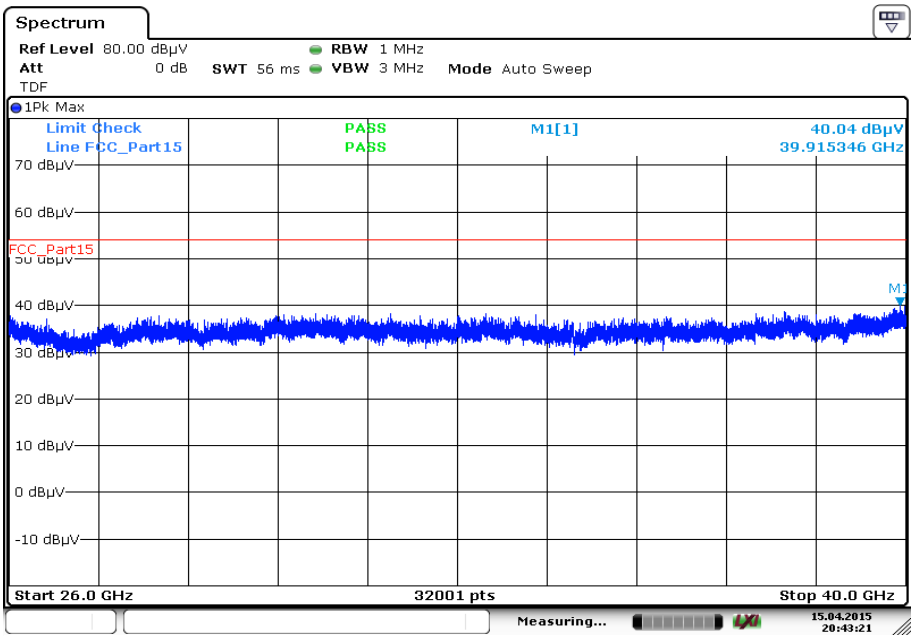
Date: 15.APR.2015 17:59:28

Plot 24: 18 GHz to 26 GHz, 5762 MHz, vertical & horizontal polarization



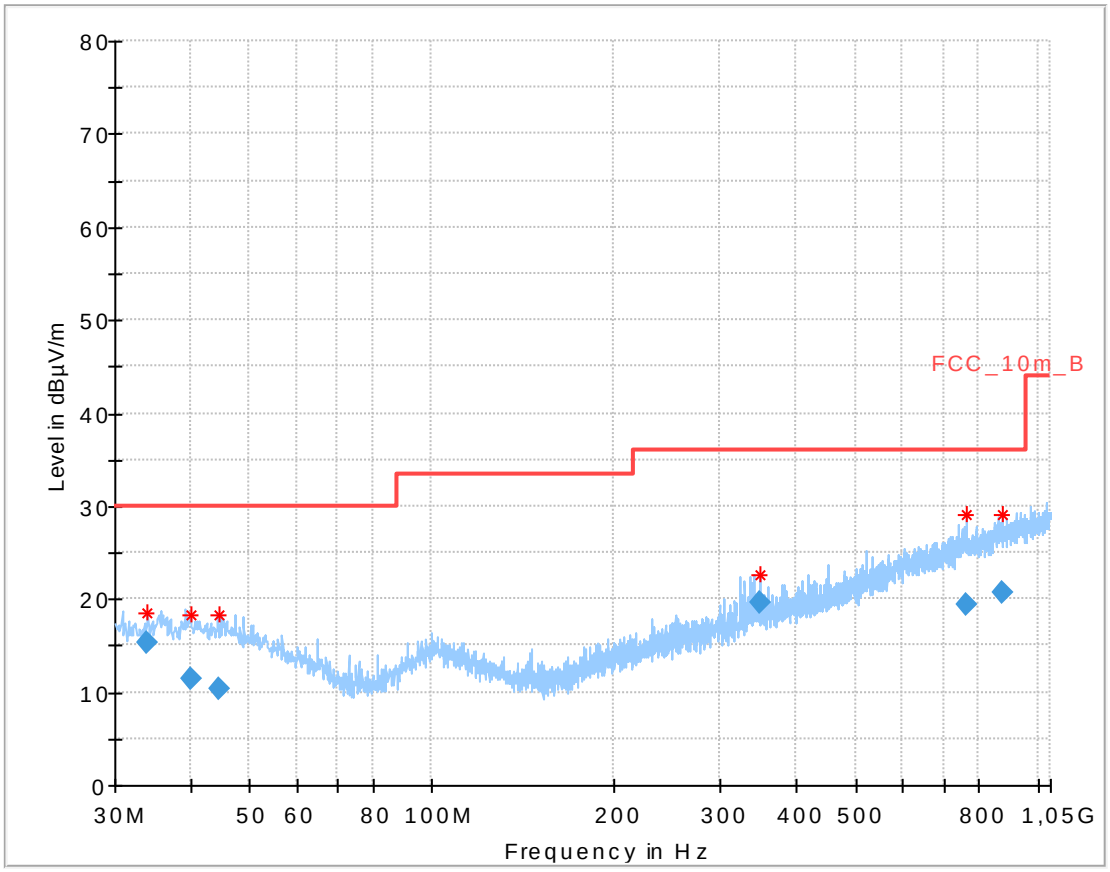
Date: 15.APR.2015 19:13:42

Plot 25: 26 GHz to 40 GHz, 5762 MHz, vertical & horizontal polarization



Date: 15.APR.2015 20:43:21

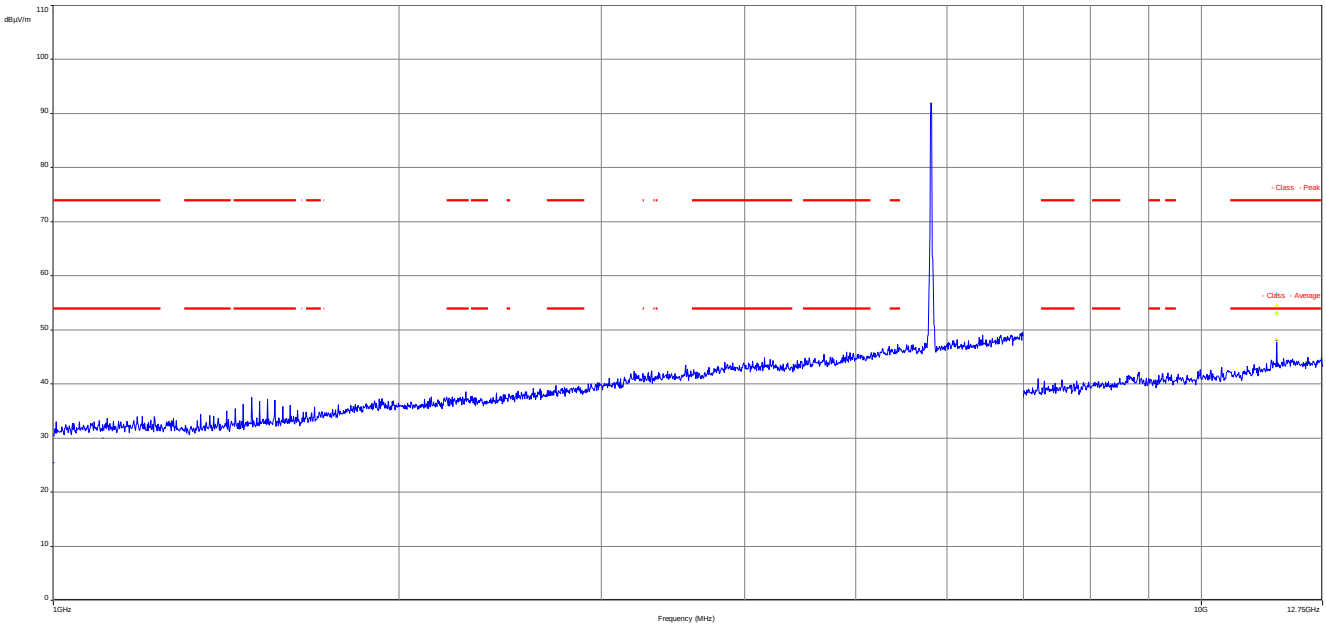
Plot 26: 30 MHz to 1 GHz, 5814 MHz, vertical & horizontal polarization



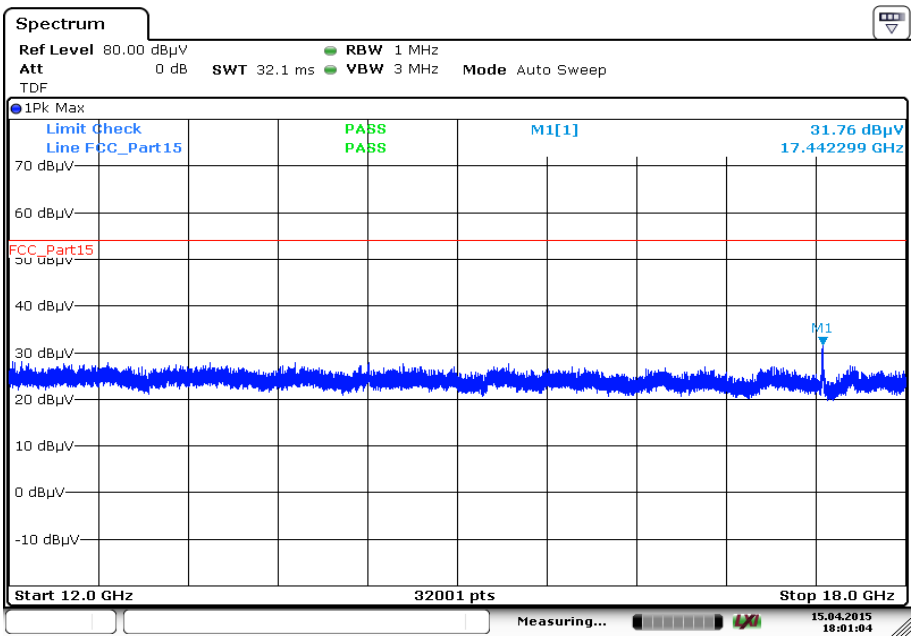
Final_Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
33.984000	15.25	30.00	14.75	1000.0	120.000	104.0	H	25	13.7
39.998100	11.51	30.00	18.49	1000.0	120.000	98.0	H	84	14.0
44.647350	10.25	30.00	19.75	1000.0	120.000	101.0	V	155	13.9
347.141550	19.72	36.00	16.28	1000.0	120.000	98.0	V	263	15.9
762.999900	19.45	36.00	16.55	1000.0	120.000	170.0	V	263	22.7
873.554250	20.78	36.00	15.22	1000.0	120.000	170.0	V	83	23.8

Plot 27: 1 GHz to 12.75 GHz, 5814 MHz, vertical & horizontal polarization

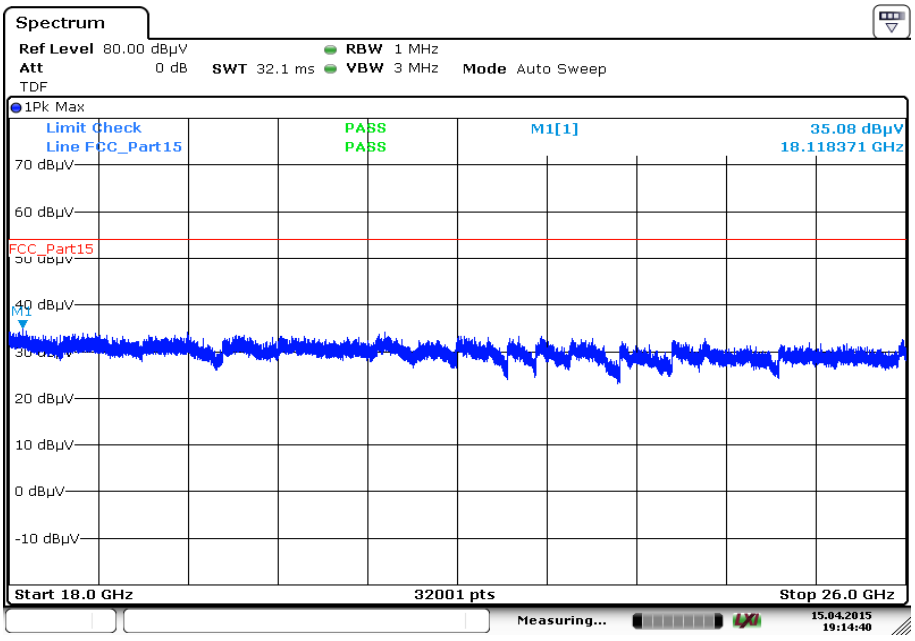


Plot 28: 12 GHz to 18 GHz, 5814 MHz, vertical & horizontal polarization



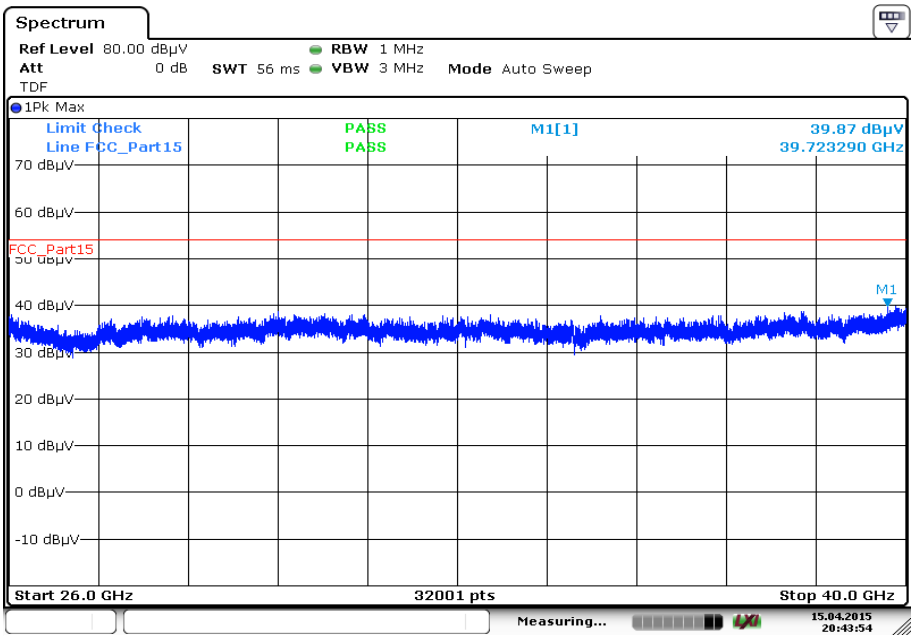
Date: 15.APR.2015 18:01:04

Plot 29: 18 GHz to 26 GHz, 5814 MHz, vertical & horizontal polarization



Date: 15.APR.2015 19:14:40

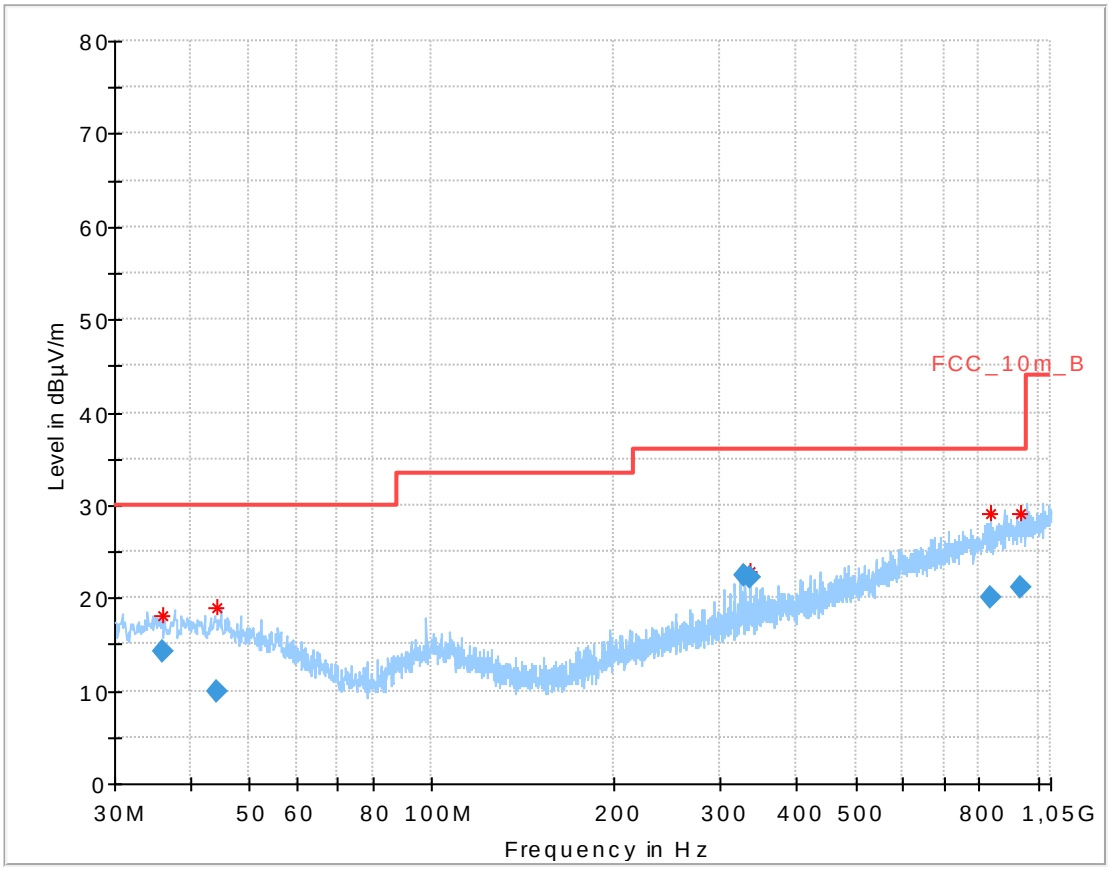
Plot 30: 26 GHz to 40 GHz, 5814 MHz, vertical & horizontal polarization



Date: 15.APR.2015 20:43:54

Plots: Antenna A, BPSK

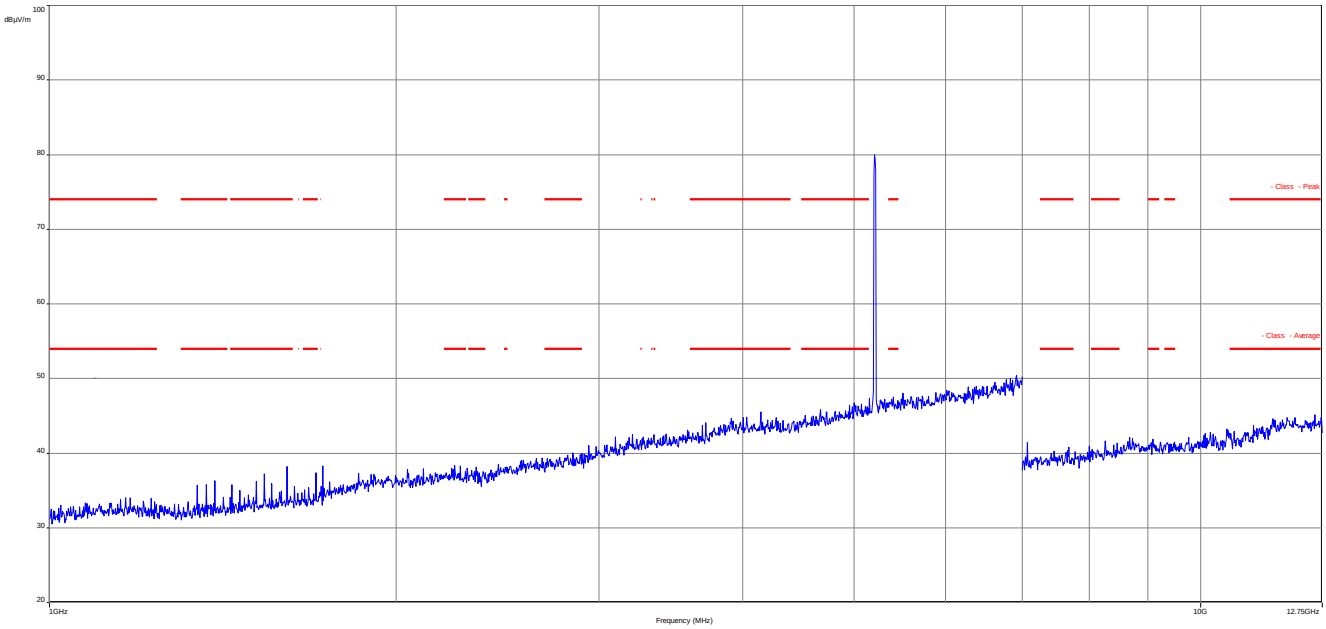
Plot 1: 30 MHz to 1 GHz, 5210 MHz, vertical & horizontal polarization



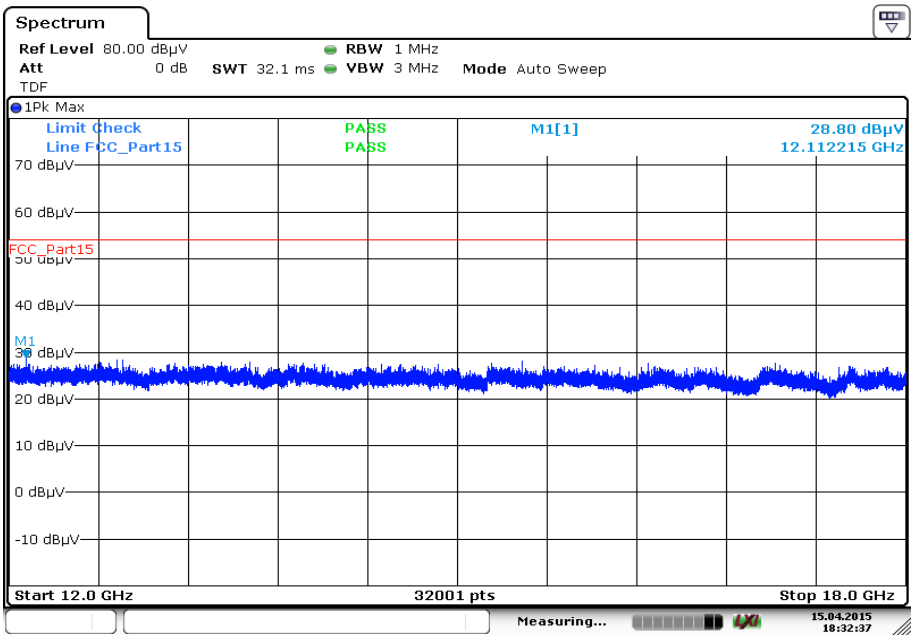
Final_Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
36.015750	14.22	30.00	15.78	1000.0	120.000	101.0	V	265	13.8
44.352150	9.99	30.00	20.01	1000.0	120.000	98.0	H	107	13.9
328.700100	22.51	36.00	13.49	1000.0	120.000	98.0	V	262	15.4
334.849650	22.11	36.00	13.89	1000.0	120.000	98.0	V	25	15.6
834.570900	20.12	36.00	15.88	1000.0	120.000	170.0	H	263	23.2
940.093950	21.06	36.00	14.94	1000.0	120.000	170.0	H	-6	24.2

Plot 2: 1 GHz to 12.75 GHz, 5210 MHz, vertical & horizontal polarization

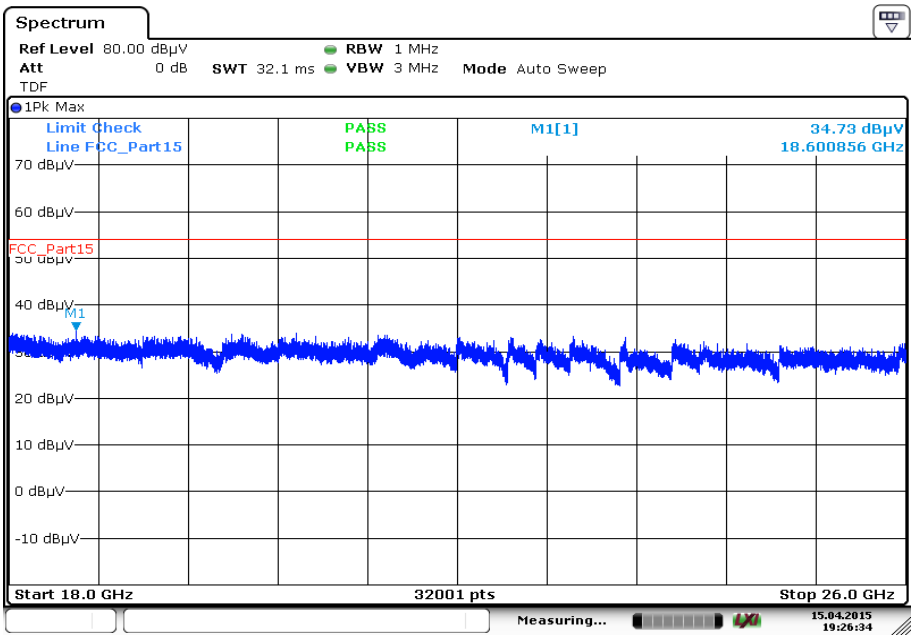


Plot 3: 12 GHz to 18 GHz, 5210 MHz, vertical & horizontal polarization



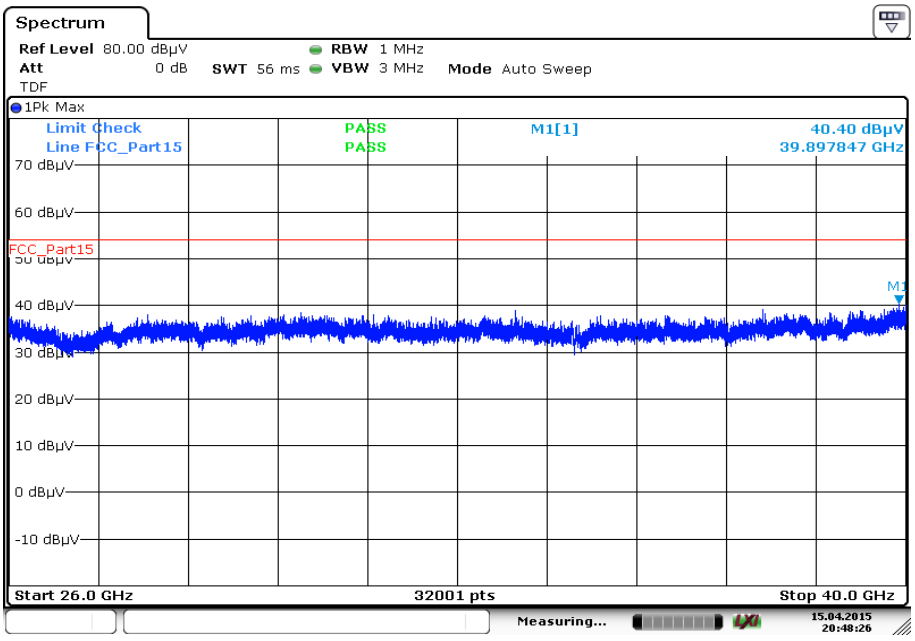
Date: 15.APR.2015 18:32:36

Plot 4: 18 GHz to 26 GHz, 5210 MHz, vertical & horizontal polarization



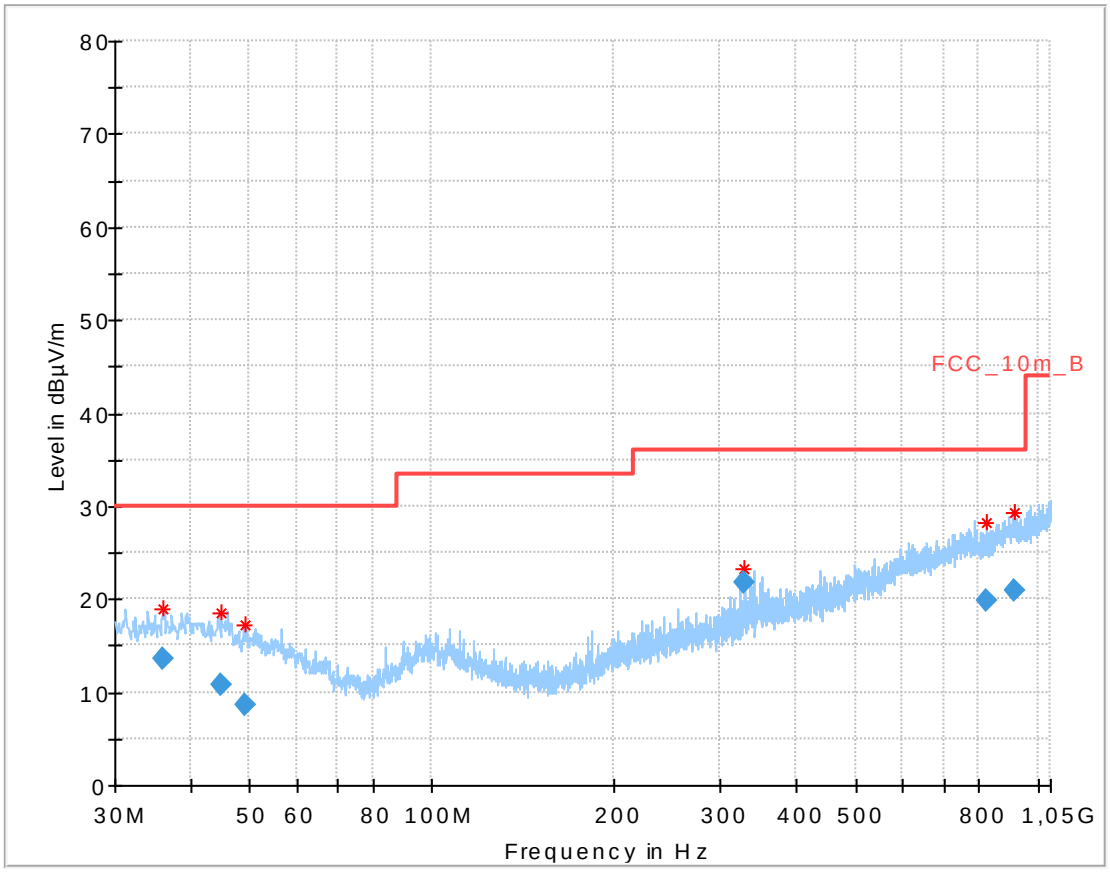
Date: 15.APR.2015 19:26:34

Plot 5: 26 GHz to 40 GHz, 5210 MHz, vertical & horizontal polarization



Date: 15.APR.2015 20:48:25

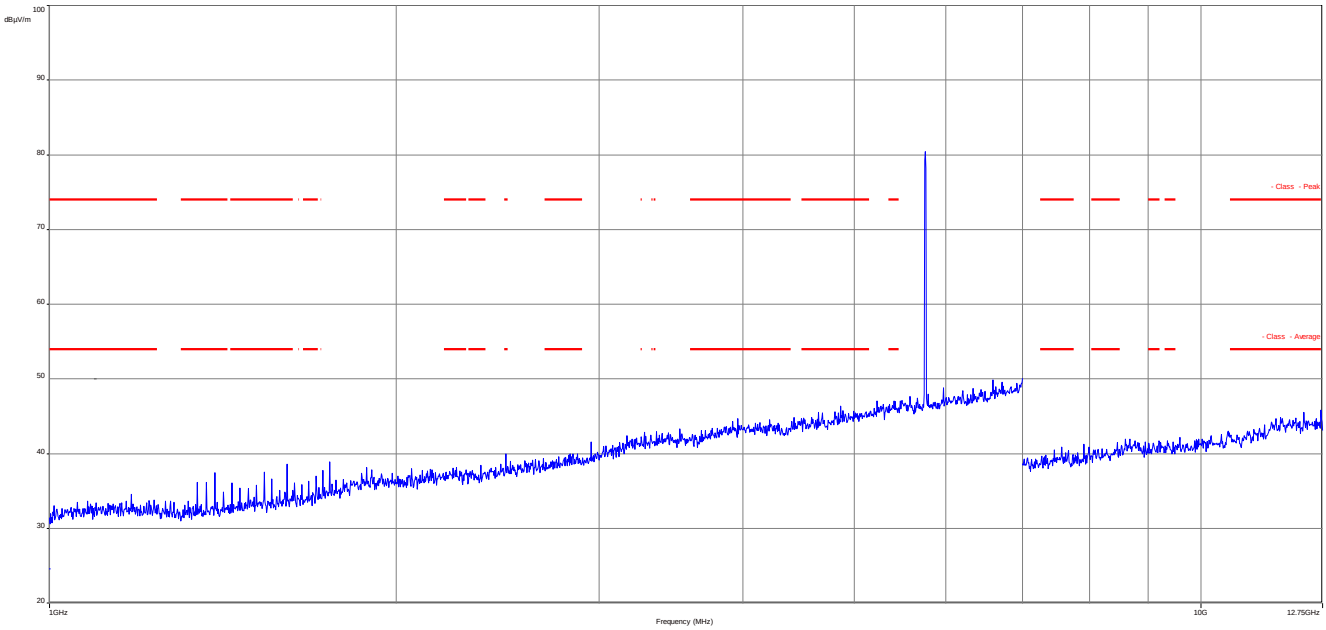
Plot 6: 30 MHz to 1 GHz, 5762 MHz, vertical & horizontal polarization



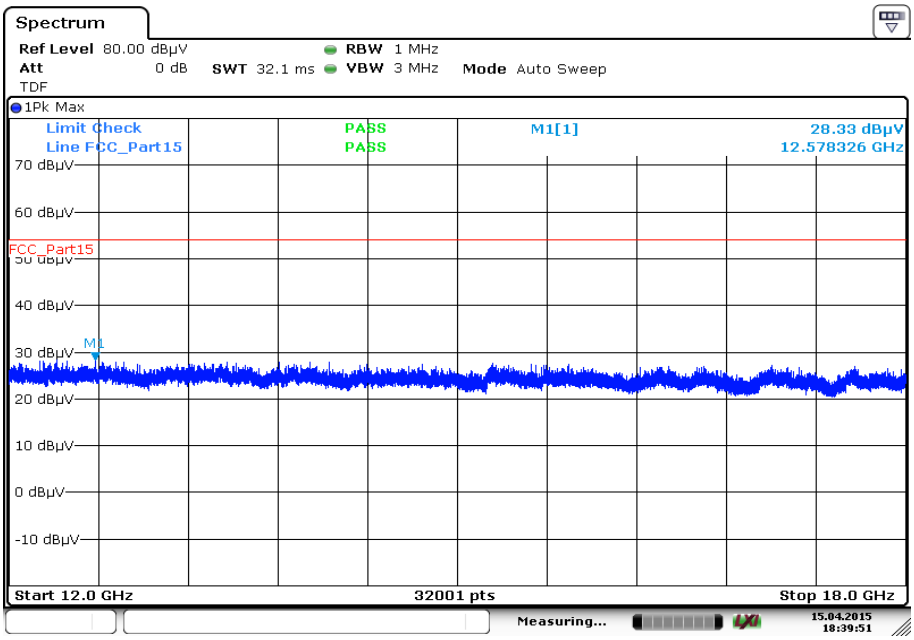
Final_Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
36.028650	13.59	30.00	16.41	1000.0	120.000	100.0	V	83	13.8
44.967000	10.88	30.00	19.12	1000.0	120.000	101.0	V	-6	13.9
49.094100	8.68	30.00	21.32	1000.0	120.000	100.0	V	205	12.9
328.708500	21.86	36.00	14.14	1000.0	120.000	98.0	H	245	15.4
823.246050	19.91	36.00	16.09	1000.0	120.000	170.0	H	115	23.1
912.553500	20.98	36.00	15.02	1000.0	120.000	170.0	V	82	24.1

Plot 7: 1 GHz to 12.75 GHz, 5762 MHz, vertical & horizontal polarization

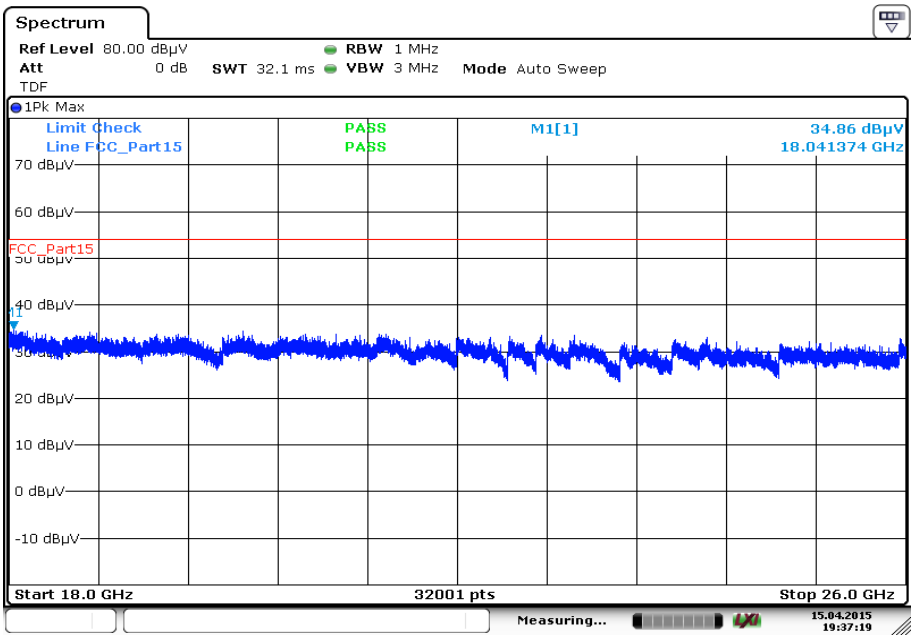


Plot 8: 12 GHz to 18 GHz, 5762 MHz, vertical & horizontal polarization



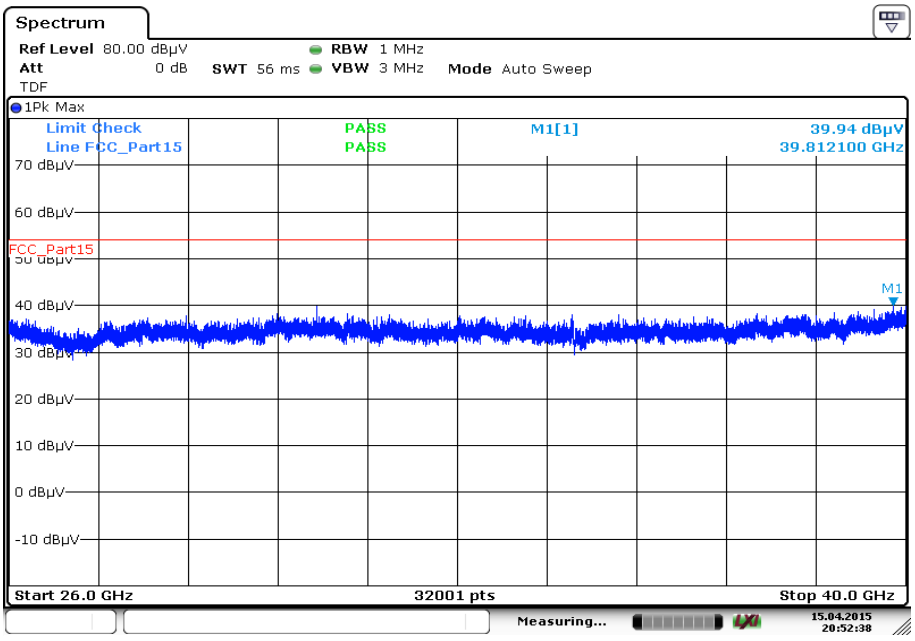
Date: 15.APR.2015 18:39:50

Plot 9: 18 GHz to 26 GHz, 5762 MHz, vertical & horizontal polarization



Date: 15.APR.2015 19:37:19

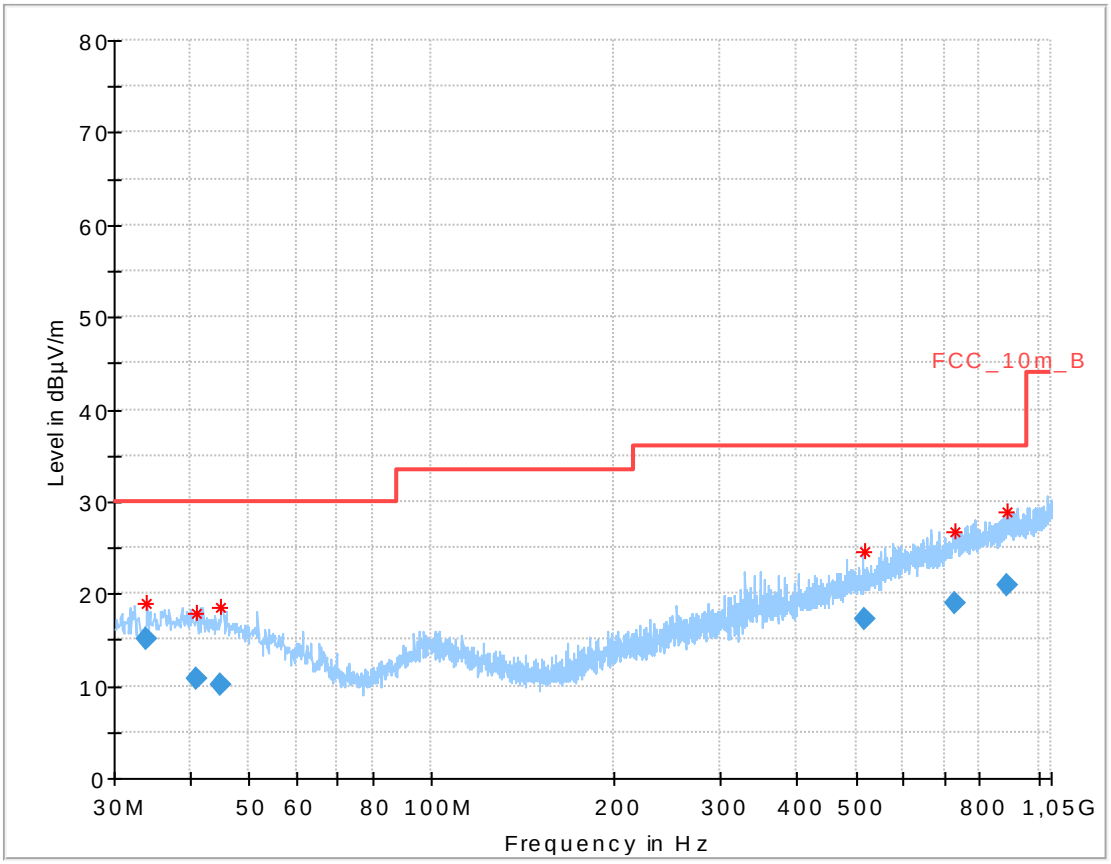
Plot 10: 26 GHz to 40 GHz, 5762 MHz, vertical & horizontal polarization



Date: 15.APR.2015 20:52:38

Plots: Antenna B, QPSK

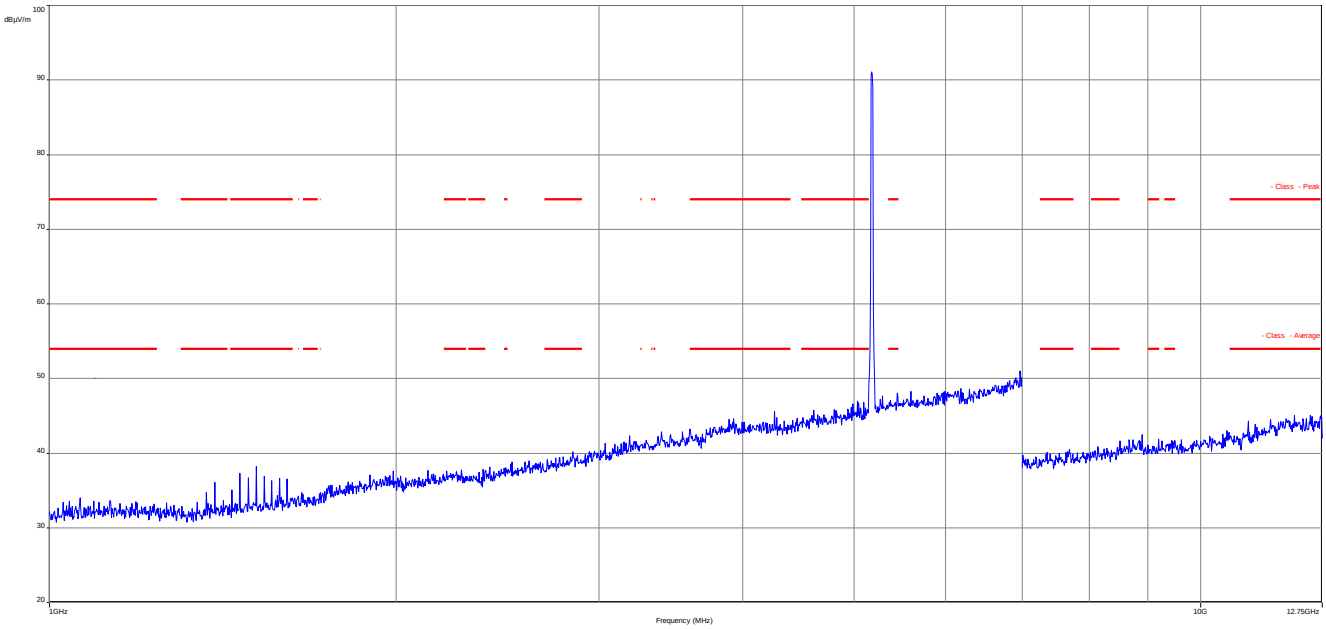
Plot 1: 30 MHz to 1 GHz, 5180 MHz, vertical & horizontal polarization



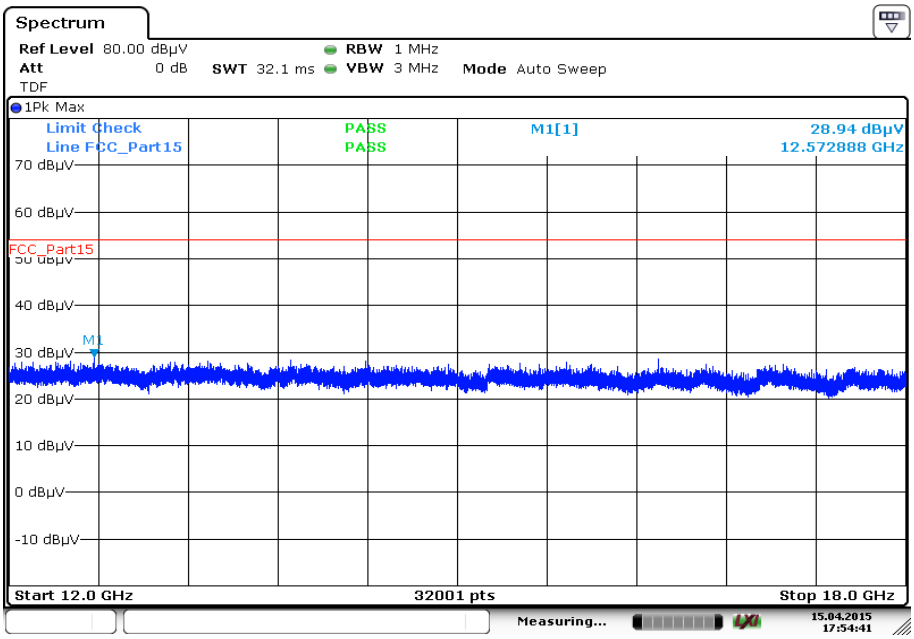
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
33.999450	15.19	30.00	14.81	1000.0	120.000	101.0	V	205	13.7
41.053050	10.72	30.00	19.28	1000.0	120.000	101.0	V	295	14.0
44.781150	10.24	30.00	19.76	1000.0	120.000	98.0	H	173	13.9
515.380950	17.19	36.00	18.81	1000.0	120.000	170.0	V	263	18.9
725.869050	18.98	36.00	17.02	1000.0	120.000	170.0	V	25	22.1
888.815850	20.95	36.00	15.05	1000.0	120.000	170.0	V	17	24.0

Plot 2: 1 GHz to 12.75 GHz, 5180 MHz, vertical & horizontal polarization

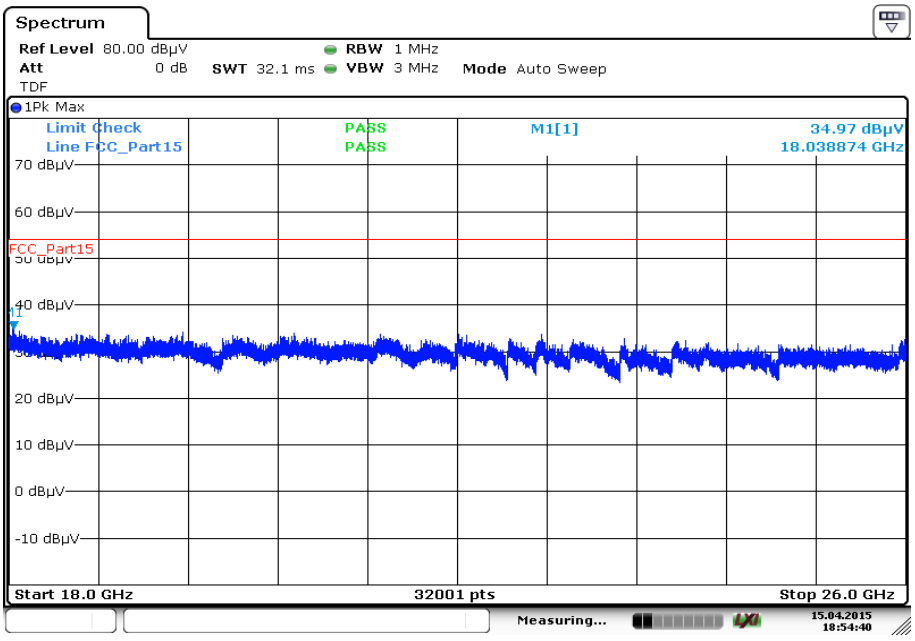


Plot 3: 12 GHz to 18 GHz, 5180 MHz, vertical & horizontal polarization



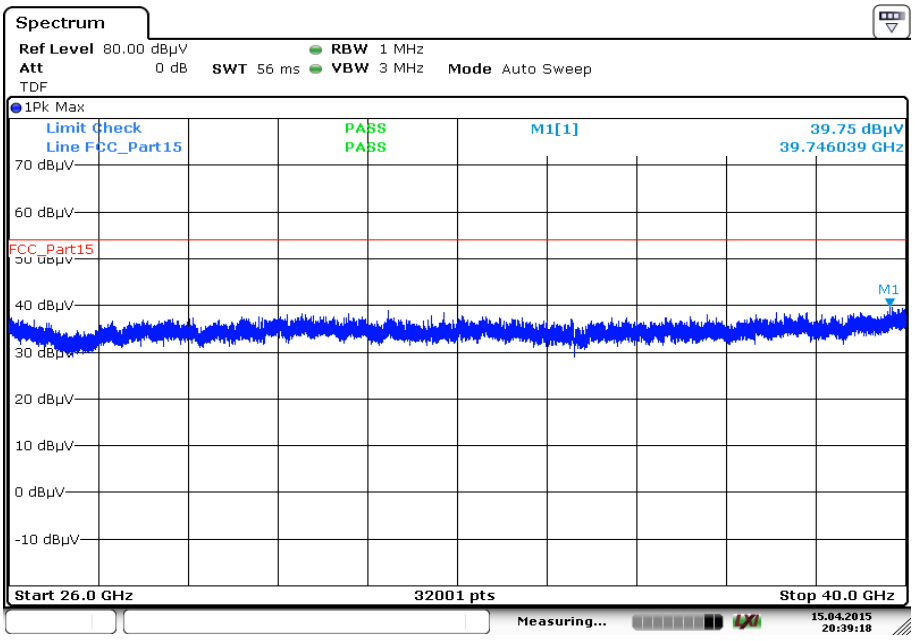
Date: 15.APR.2015 17:54:40

Plot 4: 18 GHz to 26 GHz, 5180 MHz, vertical & horizontal polarization



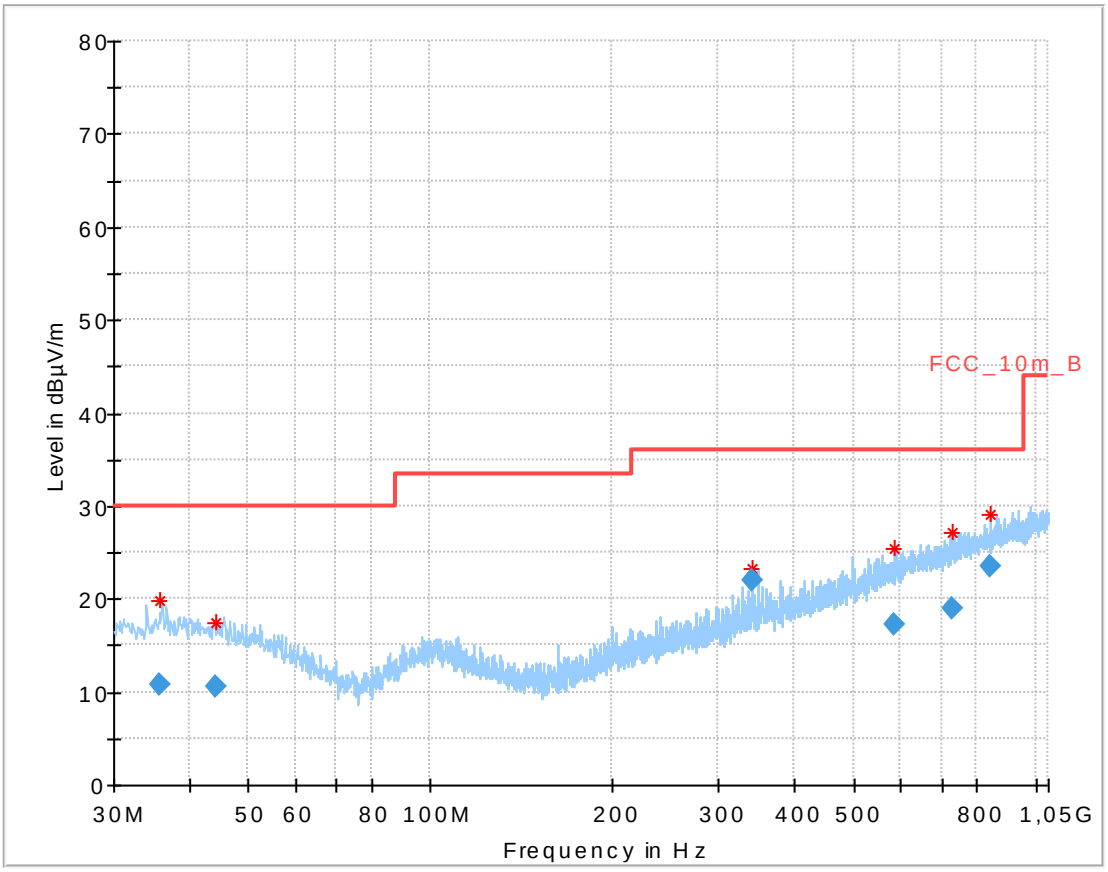
Date: 15.APR.2015 18:54:40

Plot 5: 26 GHz to 40 GHz, 5180 MHz, vertical & horizontal polarization



Date: 15.APR.2015 20:39:18

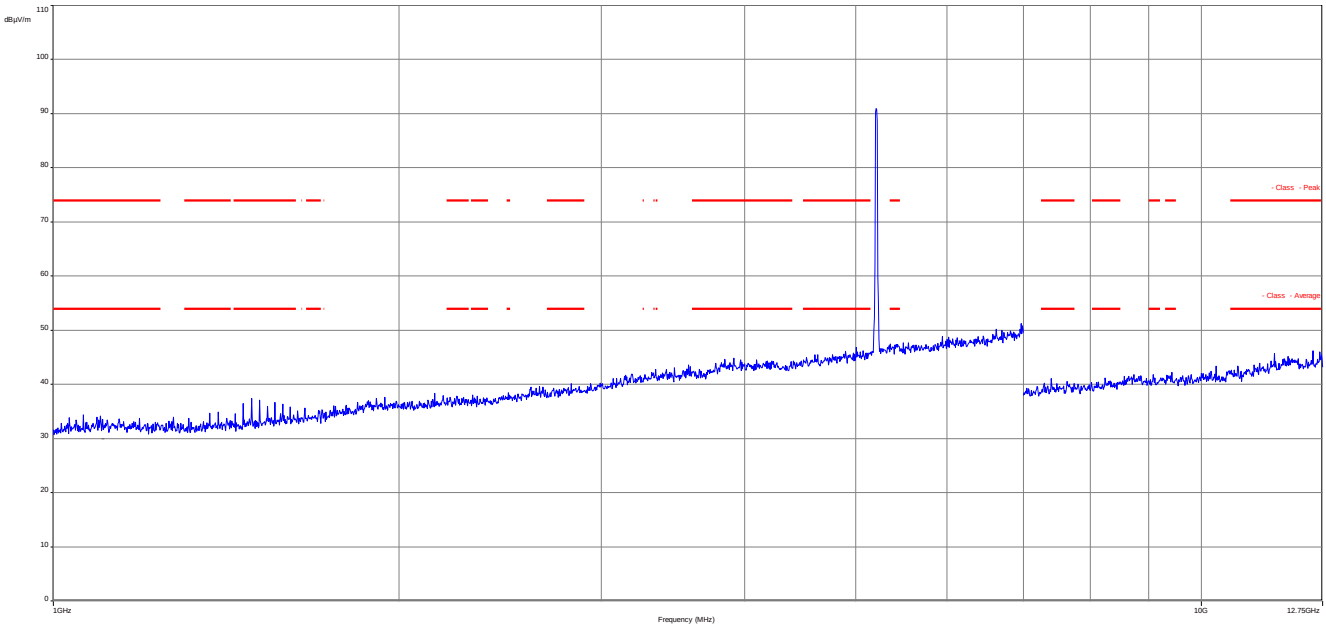
Plot 6: 30 MHz to 1 GHz, 5210 MHz, vertical & horizontal polarization



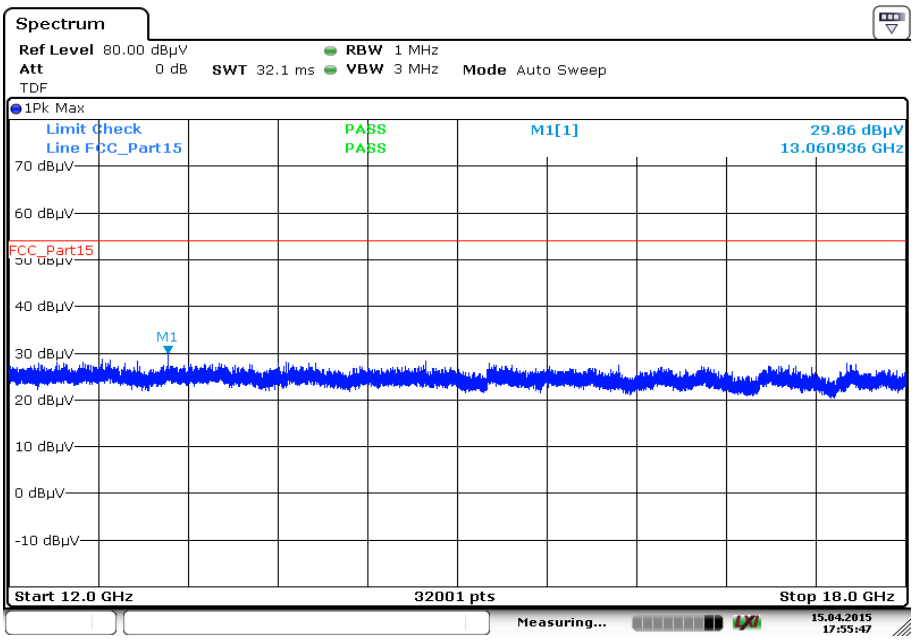
Final_Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
35.729100	10.87	30.00	19.13	1000.0	120.000	101.0	H	205	13.8
44.168250	10.65	30.00	19.35	1000.0	120.000	101.0	V	-7	13.9
340.995000	21.93	36.00	14.07	1000.0	120.000	98.0	V	65	15.8
584.631900	17.22	36.00	18.78	1000.0	120.000	170.0	H	83	20.3
726.218700	19.00	36.00	17.00	1000.0	120.000	101.0	V	295	22.1
840.030450	23.58	36.00	12.42	1000.0	120.000	170.0	V	65	23.3

Plot 7: 1 GHz to 12.75 GHz, 5210 MHz, vertical & horizontal polarization

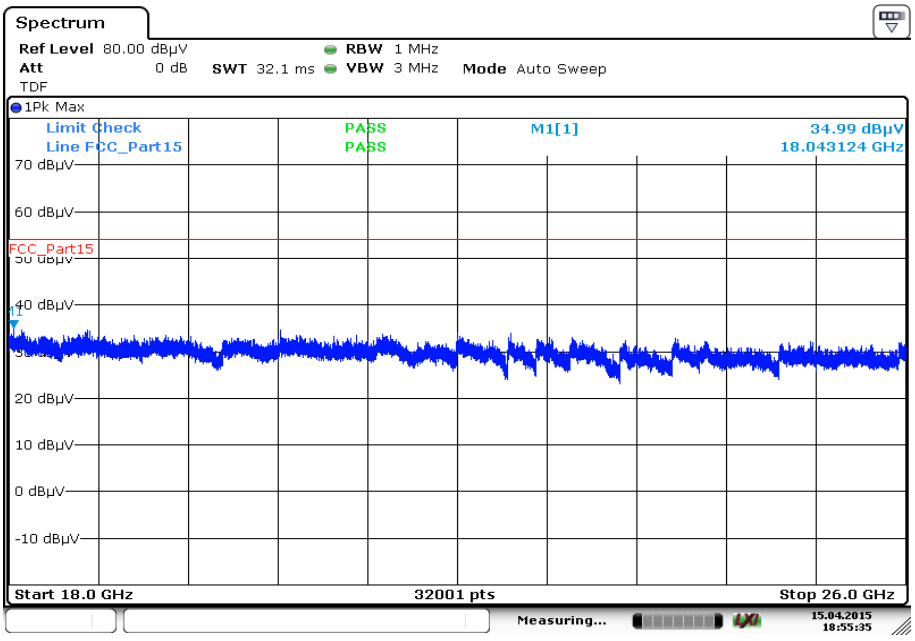


Plot 8: 12 GHz to 18 GHz, 5210 MHz, vertical & horizontal polarization



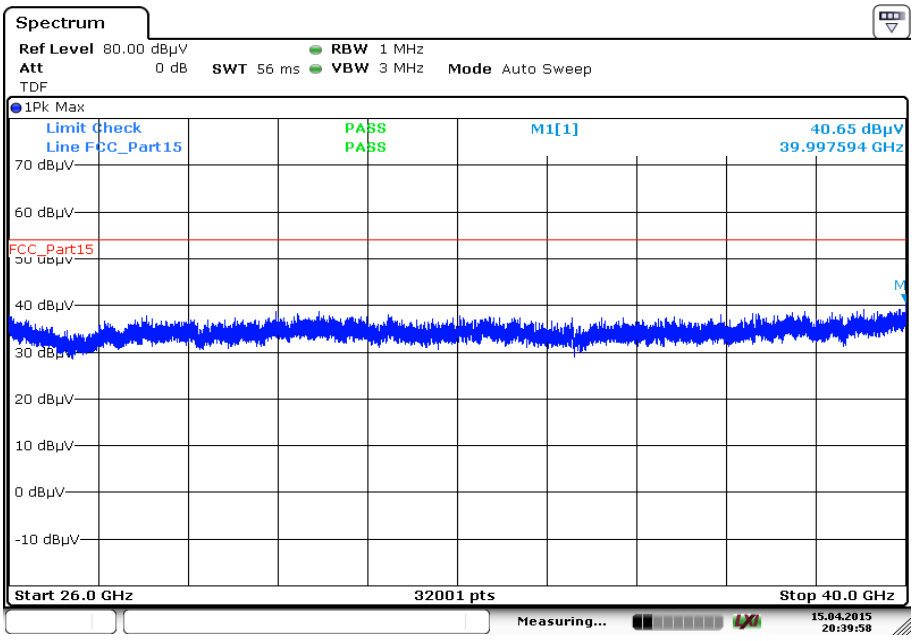
Date: 15.APR.2015 17:55:47

Plot 9: 18 GHz to 26 GHz, 5210 MHz, vertical & horizontal polarization



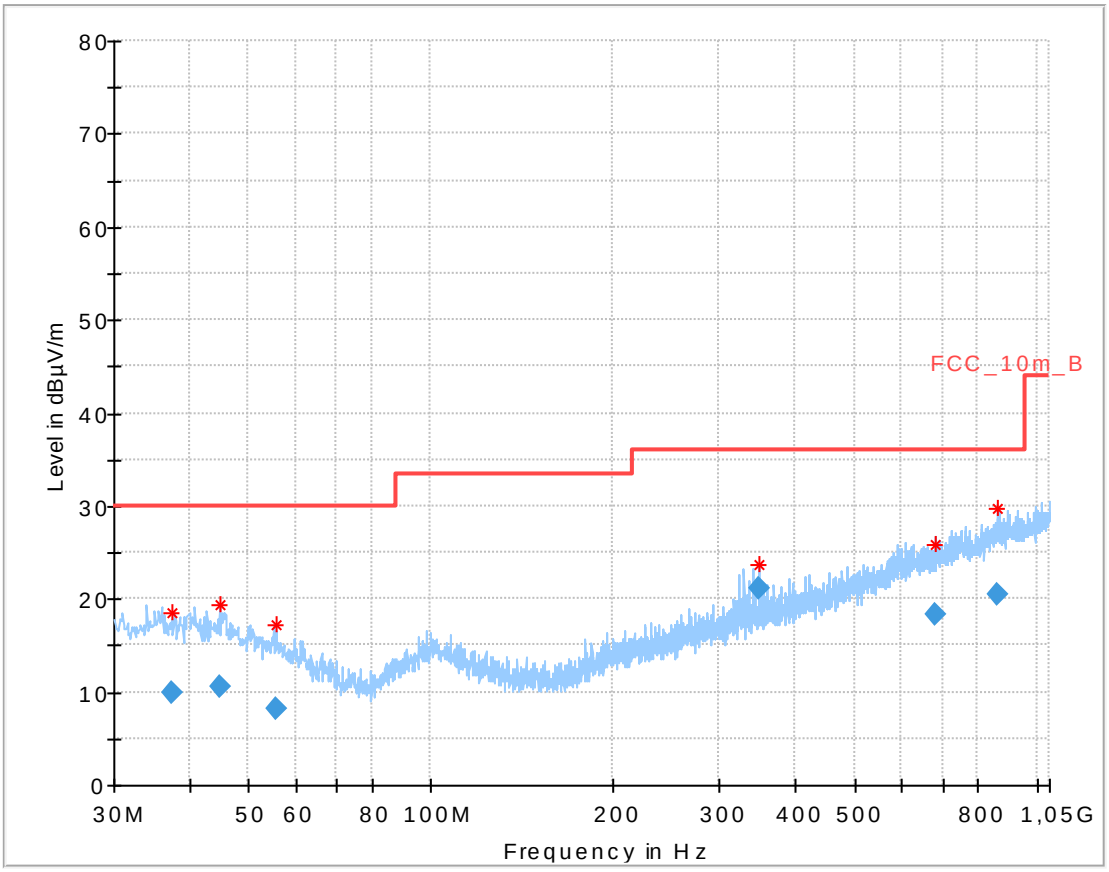
Date: 15.APR.2015 18:55:35

Plot 10: 26 GHz to 40 GHz, 5210 MHz, vertical & horizontal polarization



Date: 15.APR.2015 20:39:58

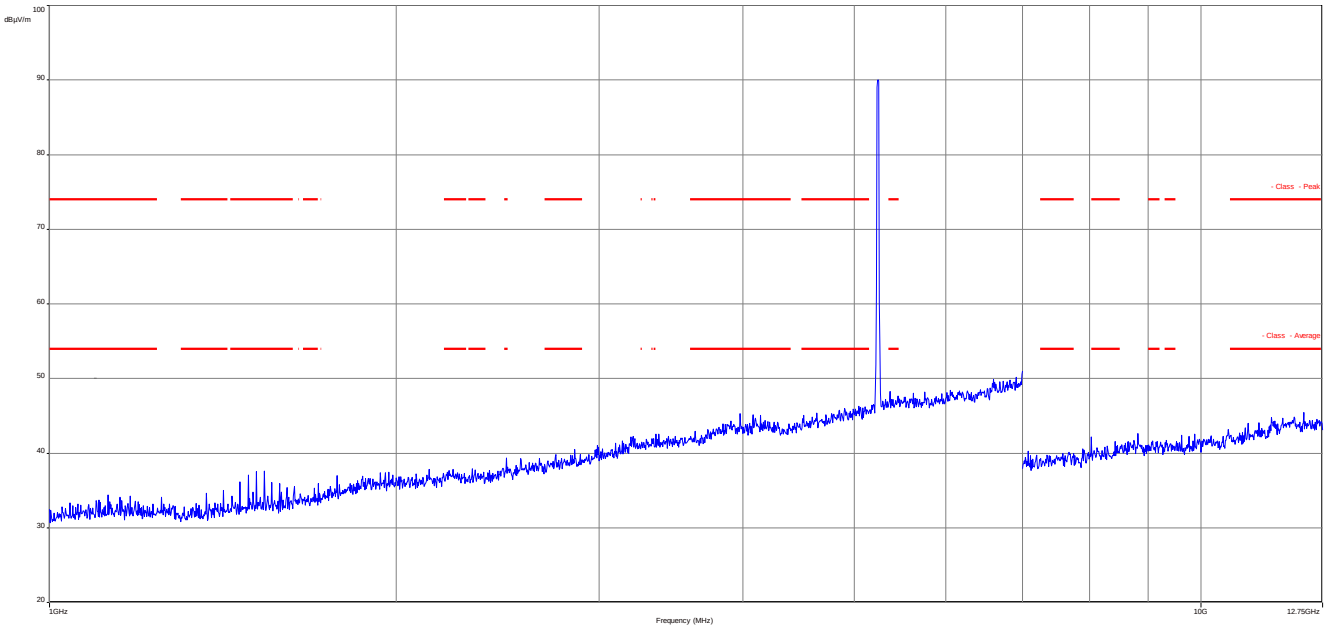
Plot 11: 30 MHz to 1 GHz, 5240 MHz, vertical & horizontal polarization



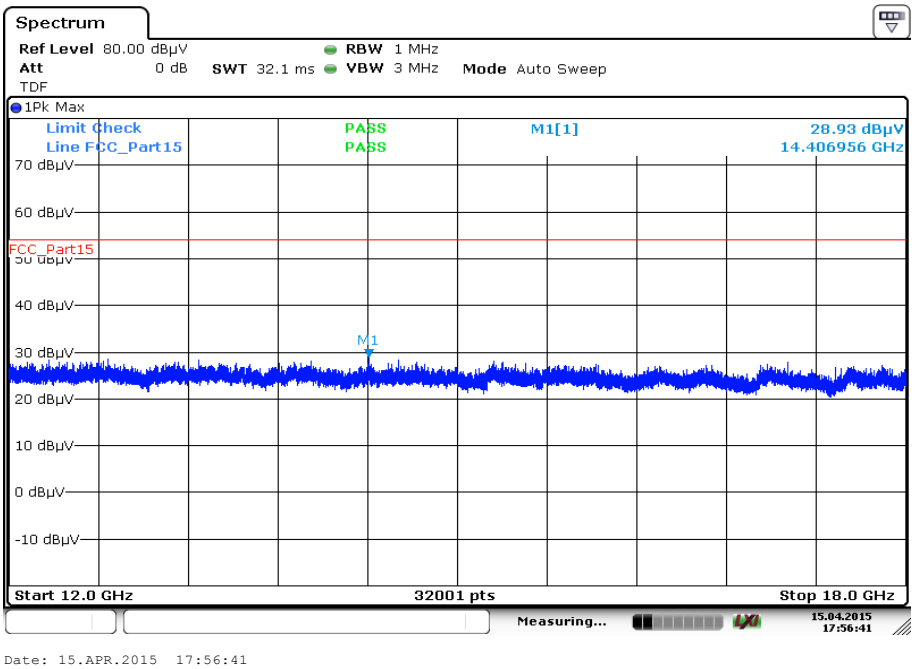
Final_Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
37.458300	9.82	30.00	20.18	1000.0	120.000	101.0	V	173	13.9
45.057450	10.53	30.00	19.47	1000.0	120.000	100.0	V	-6	13.8
55.537200	8.24	30.00	21.76	1000.0	120.000	100.0	V	-25	11.7
347.112150	21.05	36.00	14.95	1000.0	120.000	98.0	V	25	15.9
681.925650	18.26	36.00	17.74	1000.0	120.000	98.0	H	82	21.4
862.251300	20.59	36.00	15.41	1000.0	120.000	101.0	V	287	23.6

Plot 12: 1 GHz to 12.75 GHz, 5240 MHz, vertical & horizontal polarization

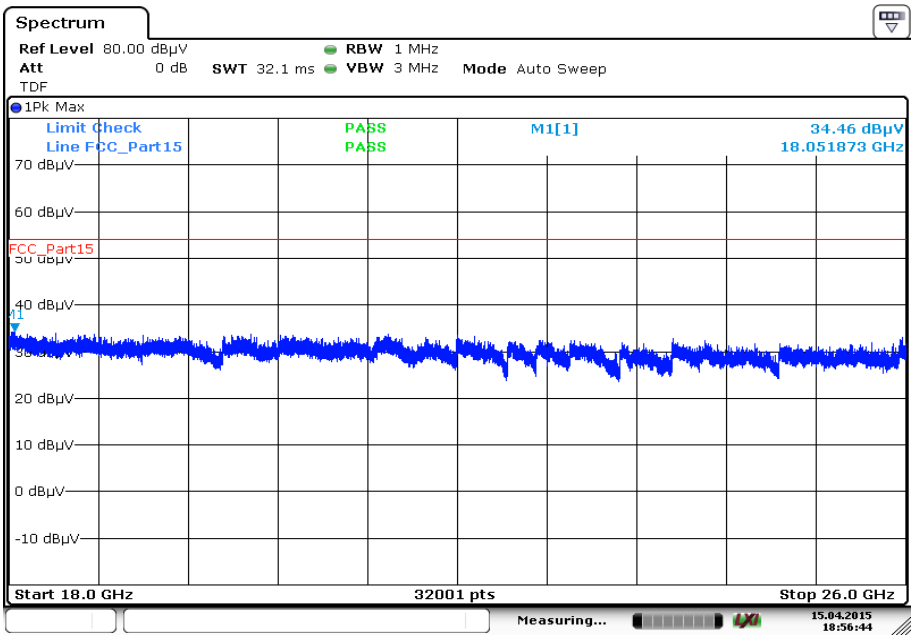


Plot 13: 12 GHz to 18 GHz, 5240 MHz, vertical & horizontal polarization



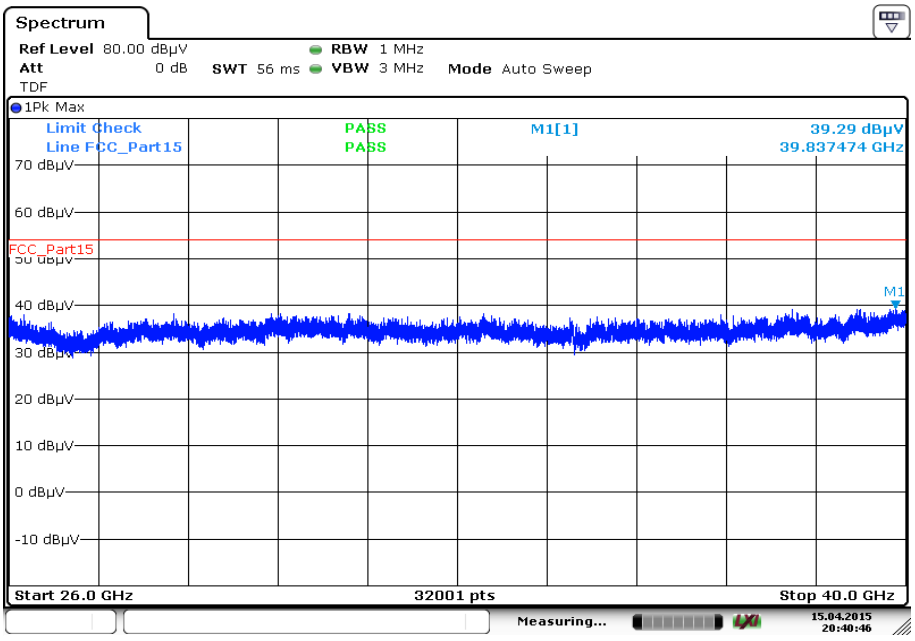
Date: 15.APR.2015 17:56:41

Plot 14: 18 GHz to 26 GHz, 5240 MHz, vertical & horizontal polarization



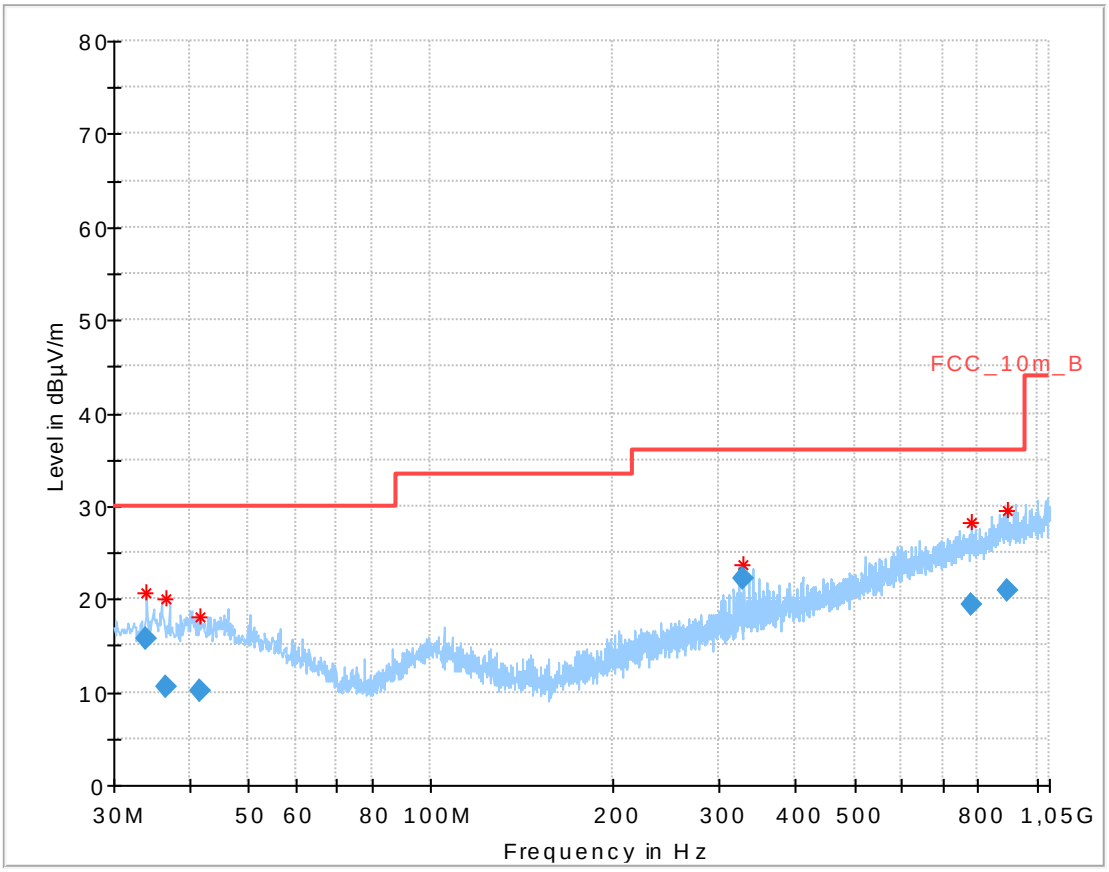
Date: 15.APR.2015 18:56:43

Plot 15: 26 GHz to 40 GHz, 5240 MHz, vertical & horizontal polarization



Date: 15.APR.2015 20:40:46

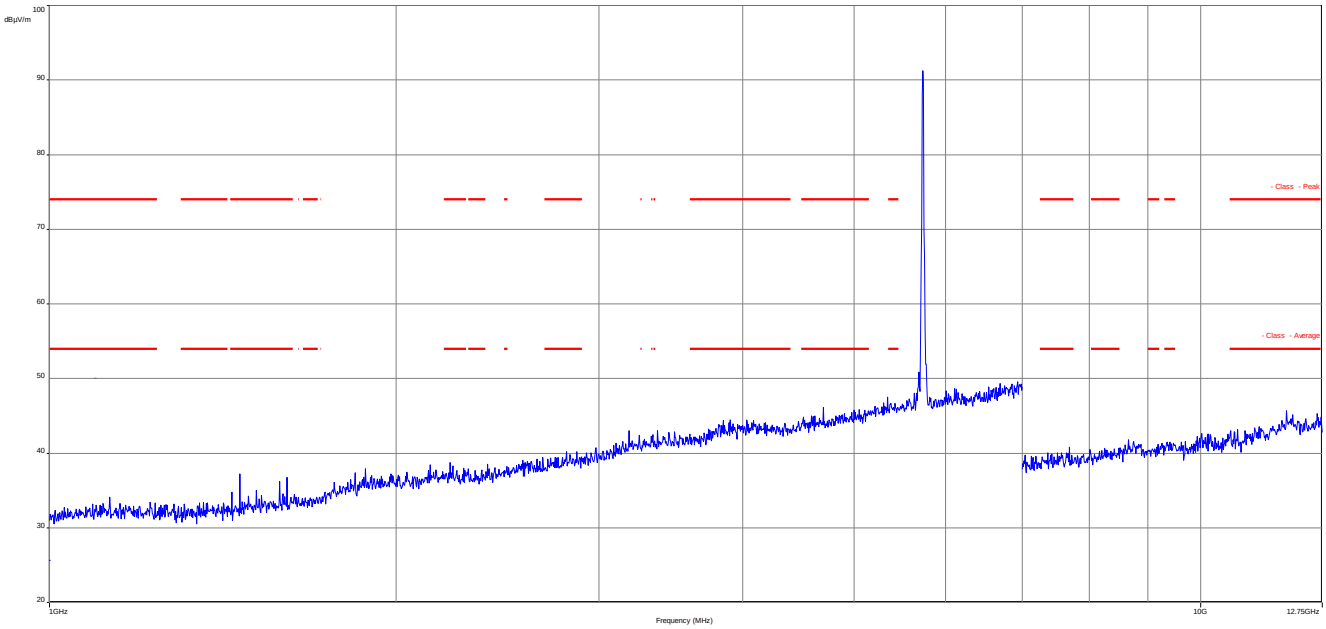
Plot 16: 30 MHz to 1 GHz, 5736 MHz, vertical & horizontal polarization



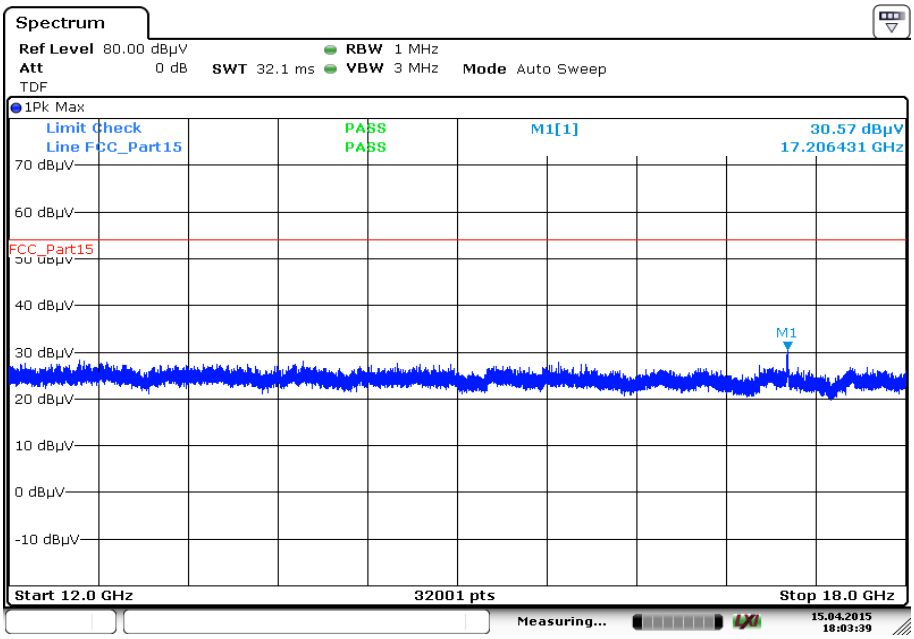
Final_Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
33.982650	15.67	30.00	14.33	1000.0	120.000	101.0	V	-5	13.7
36.522300	10.62	30.00	19.38	1000.0	120.000	170.0	H	205	13.9
41.770350	10.21	30.00	19.79	1000.0	120.000	101.0	V	83	14.0
328.697100	22.25	36.00	13.75	1000.0	120.000	98.0	V	17	15.4
780.078450	19.50	36.00	16.50	1000.0	120.000	170.0	V	17	22.7
892.262700	20.90	36.00	15.10	1000.0	120.000	170.0	H	65	24.0

Plot 17: 1 GHz to 12.75 GHz, 5736 MHz, vertical & horizontal polarization

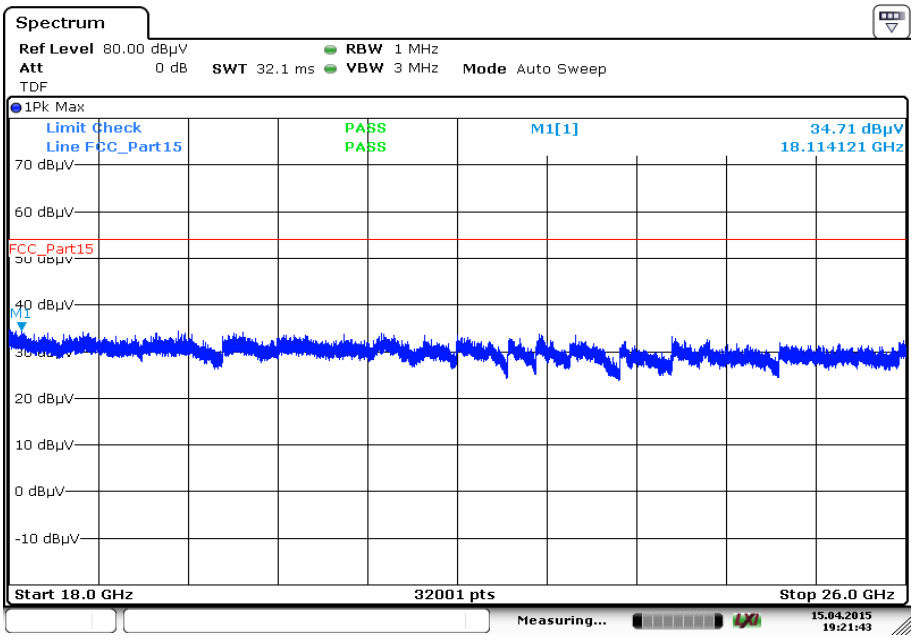


Plot 18: 12 GHz to 18 GHz, 5736 MHz, vertical & horizontal polarization



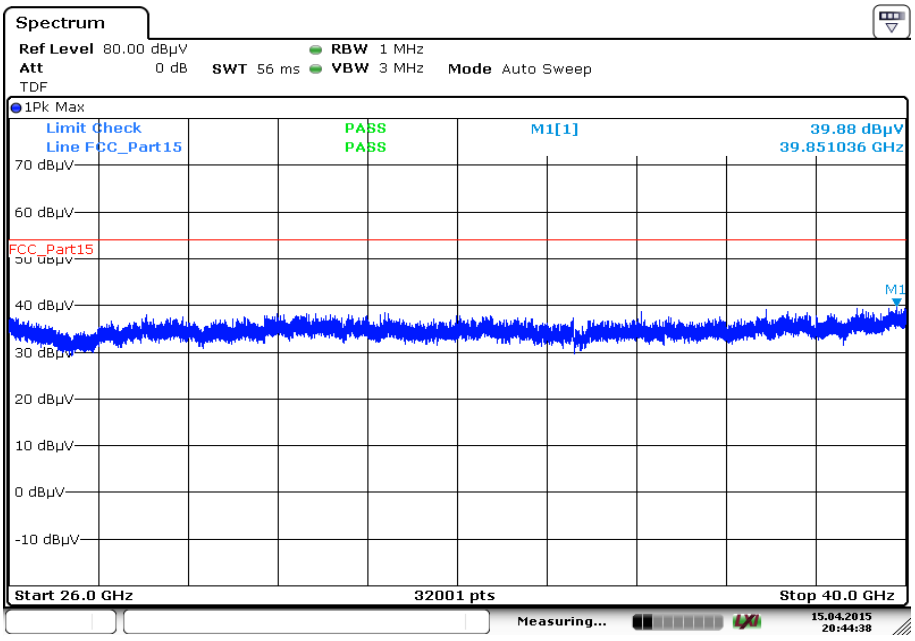
Date: 15.APR.2015 18:03:39

Plot 19: 18 GHz to 26 GHz, 5736 MHz, vertical & horizontal polarization



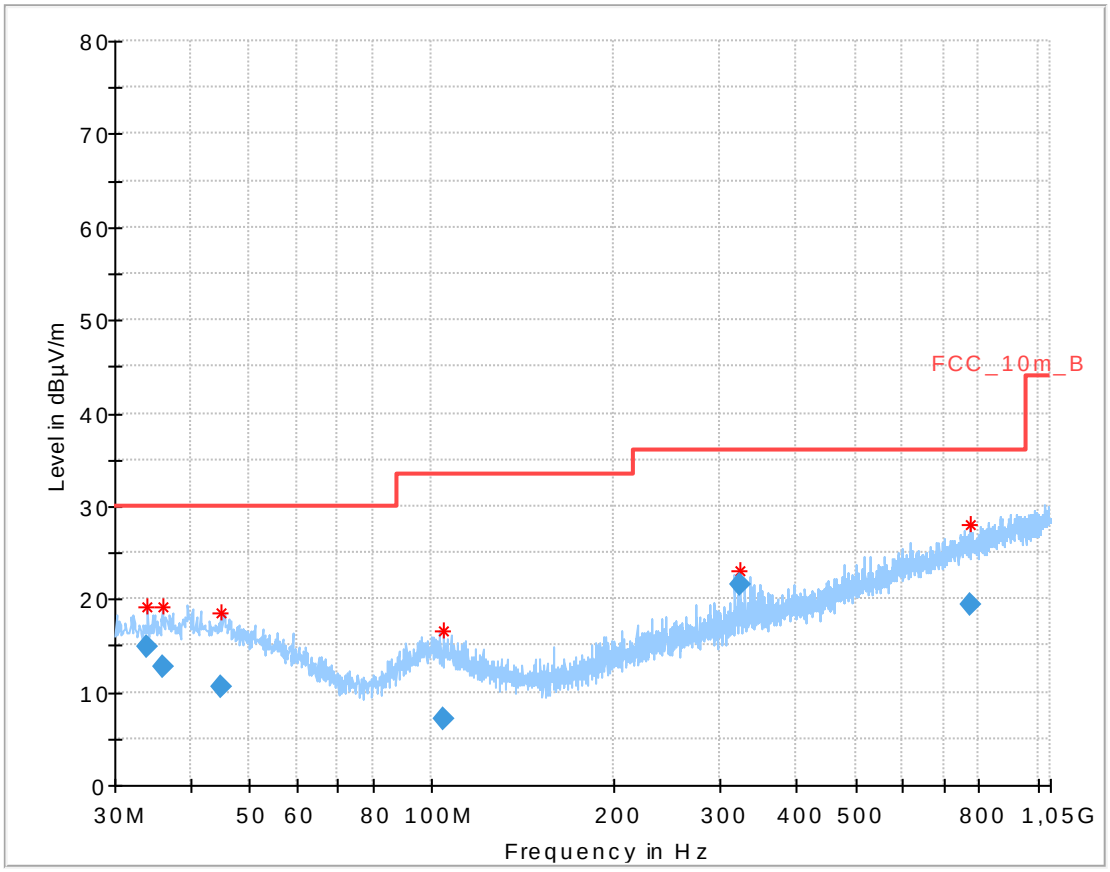
Date: 15.APR.2015 19:21:43

Plot 20: 26 GHz to 40 GHz, 5736 MHz, vertical & horizontal polarization



Date: 15.APR.2015 20:44:38

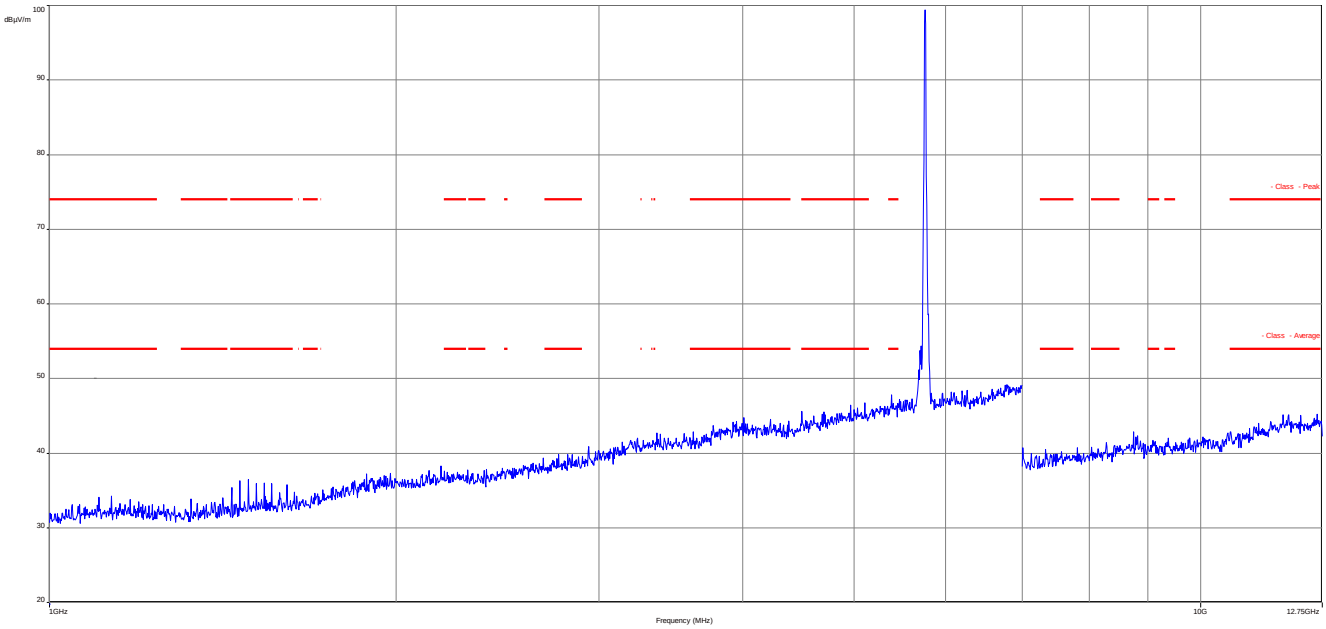
Plot 21: 30 MHz to 1 GHz, 5762 MHz, vertical & horizontal polarization



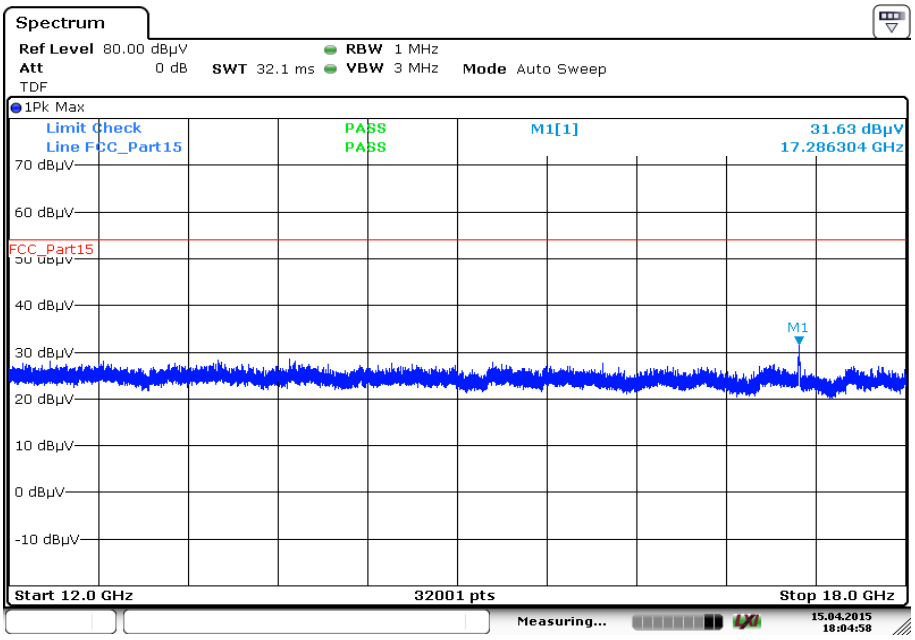
Final_Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
33.977100	14.96	30.00	15.04	1000.0	120.000	101.0	V	107	13.7
35.953800	12.76	30.00	17.24	1000.0	120.000	101.0	H	173	13.8
44.951550	10.58	30.00	19.42	1000.0	120.000	101.0	V	287	13.9
104.227050	7.07	33.50	26.43	1000.0	120.000	98.0	V	107	11.7
322.563450	21.58	36.00	14.42	1000.0	120.000	98.0	V	83	15.2
771.966600	19.48	36.00	16.52	1000.0	120.000	170.0	V	173	22.7

Plot 22: 1 GHz to 12.75 GHz, 5762 MHz, vertical & horizontal polarization

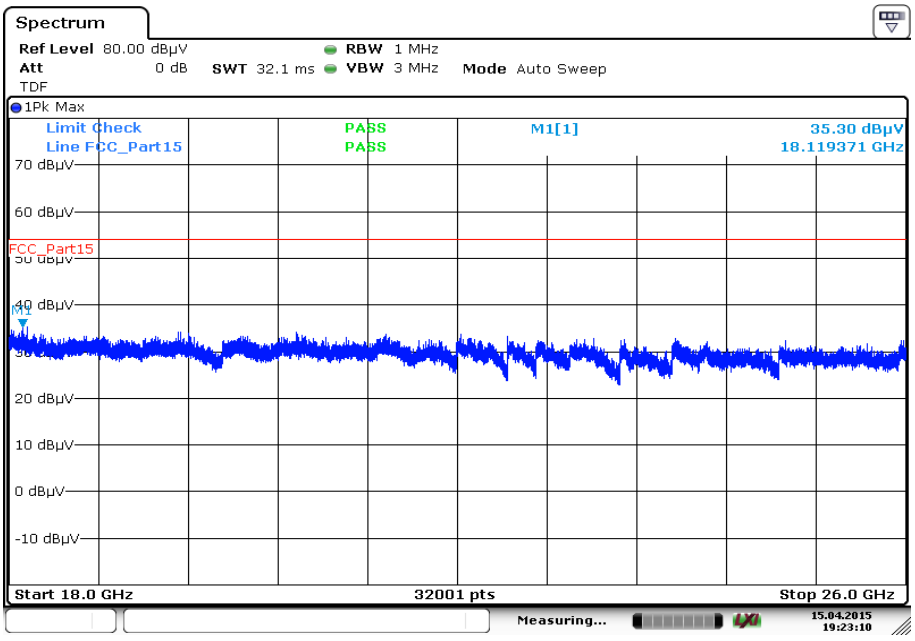


Plot 23: 12 GHz to 18 GHz, 5762 MHz, vertical & horizontal polarization



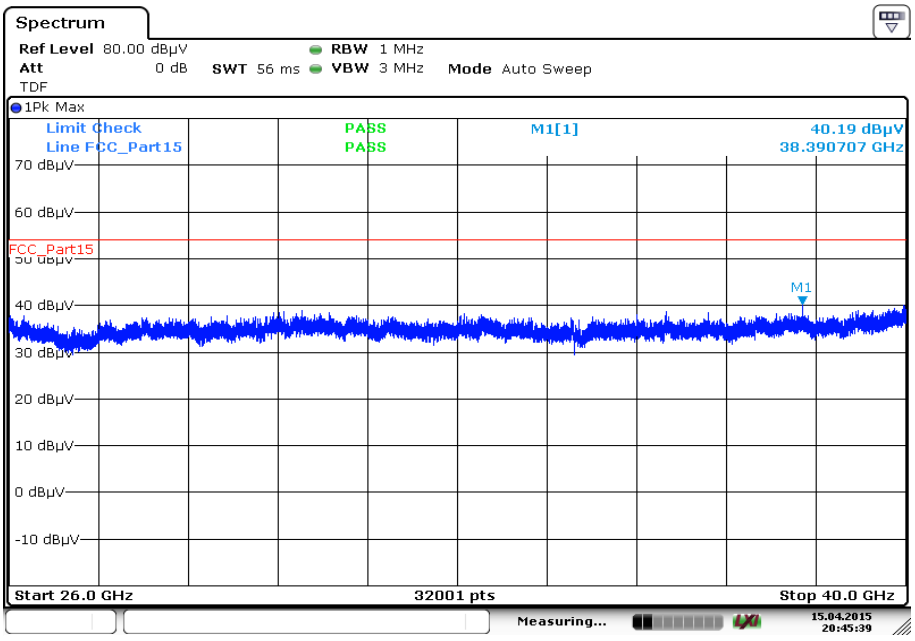
Date: 15.APR.2015 18:04:57

Plot 24: 18 GHz to 26 GHz, 5762 MHz, vertical & horizontal polarization



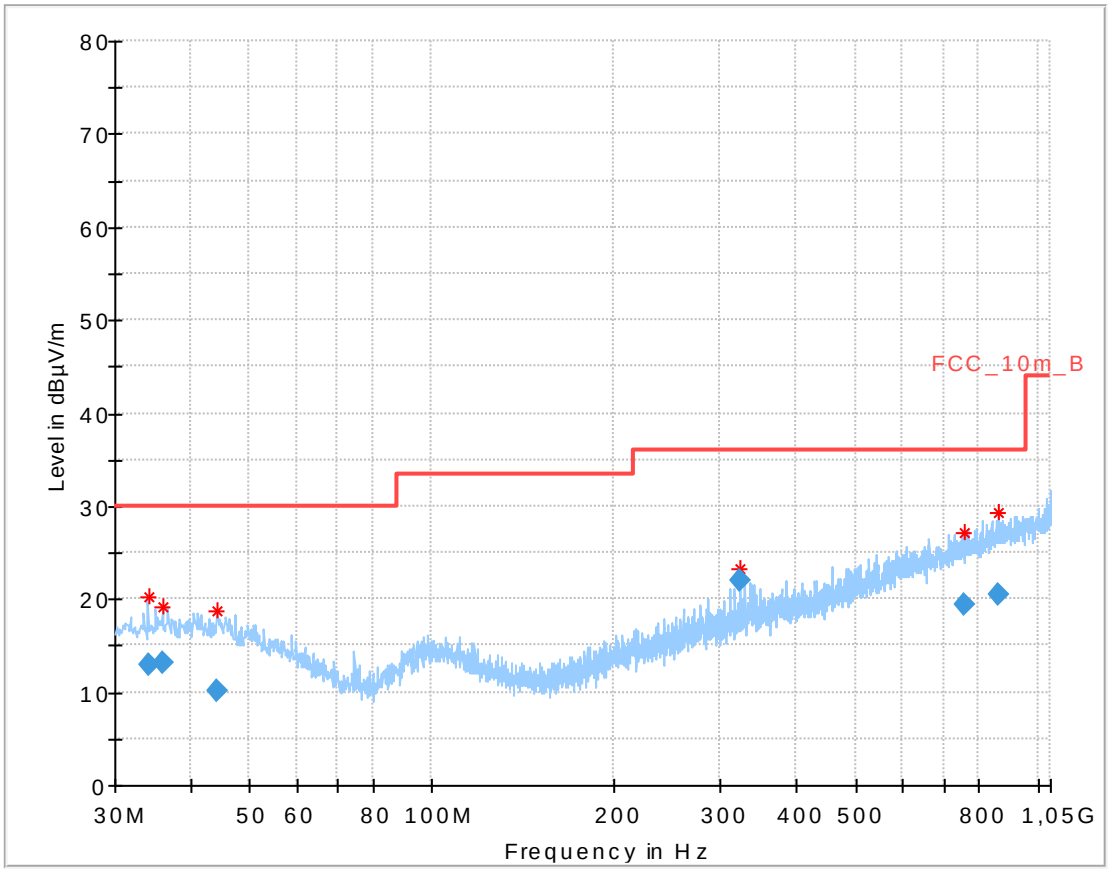
Date: 15.APR.2015 19:23:10

Plot 25: 26 GHz to 40 GHz, 5762 MHz, vertical & horizontal polarization



Date: 15.APR.2015 20:45:39

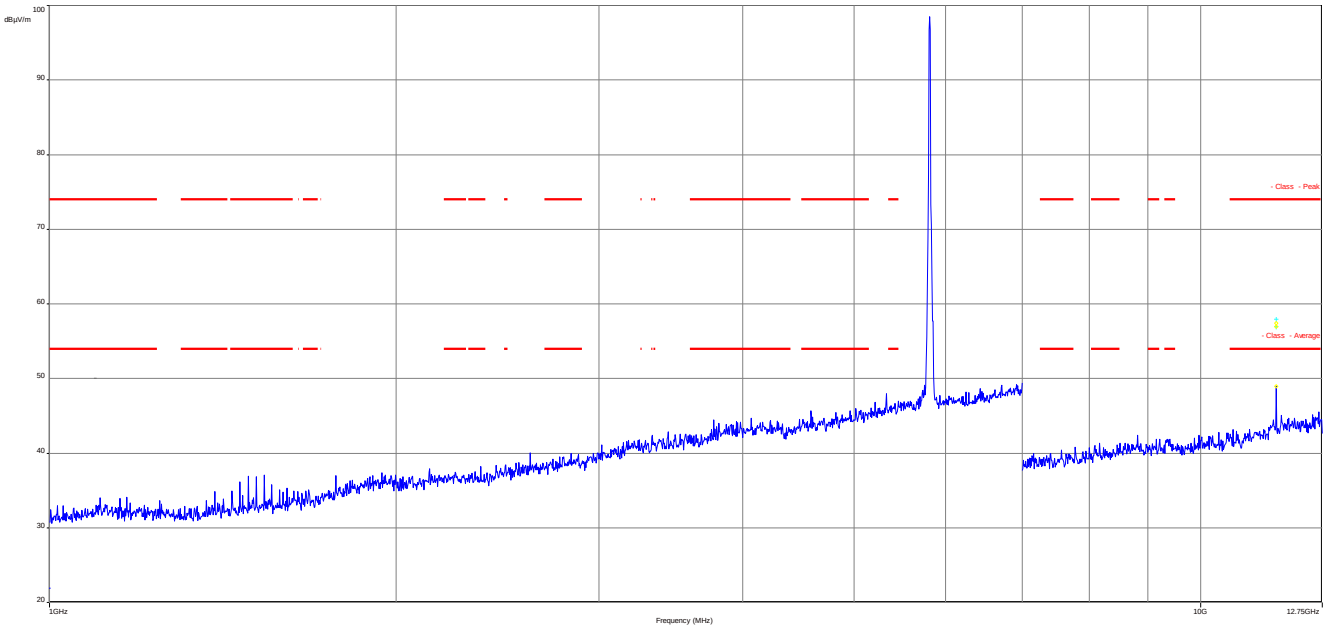
Plot 26: 30 MHz to 1 GHz, 5814 MHz, vertical & horizontal polarization



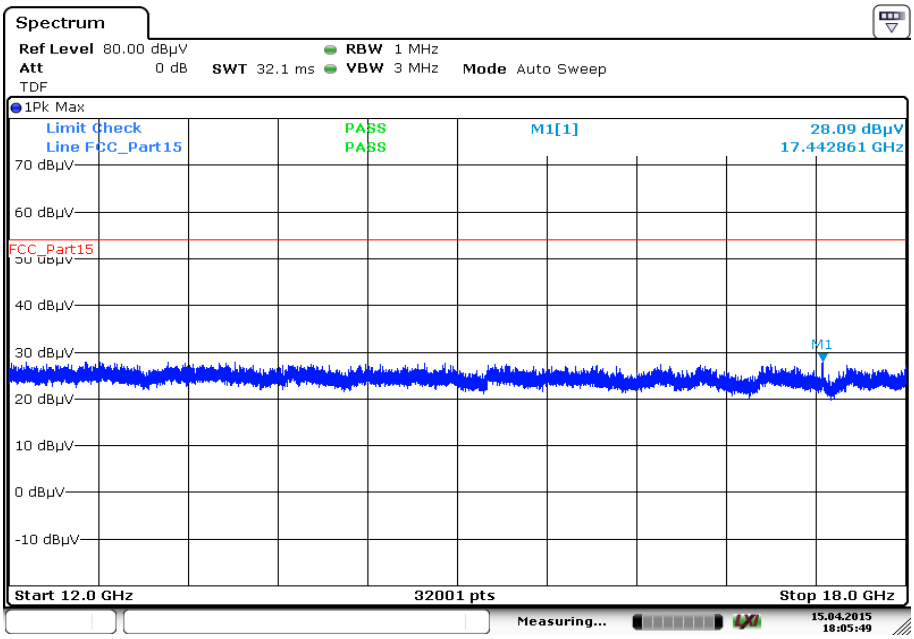
Final_Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
34.024350	12.90	30.00	17.10	1000.0	120.000	170.0	V	205	13.7
36.036150	13.06	30.00	16.94	1000.0	120.000	101.0	V	288	13.8
44.078250	10.12	30.00	19.88	1000.0	120.000	101.0	V	115	13.9
322.573500	22.09	36.00	13.91	1000.0	120.000	98.0	V	245	15.2
757.690500	19.46	36.00	16.54	1000.0	120.000	170.0	V	65	22.7
863.345400	20.58	36.00	15.42	1000.0	120.000	101.0	H	155	23.6

Plot 27: 1 GHz to 12.75 GHz, 5814 MHz, vertical & horizontal polarization

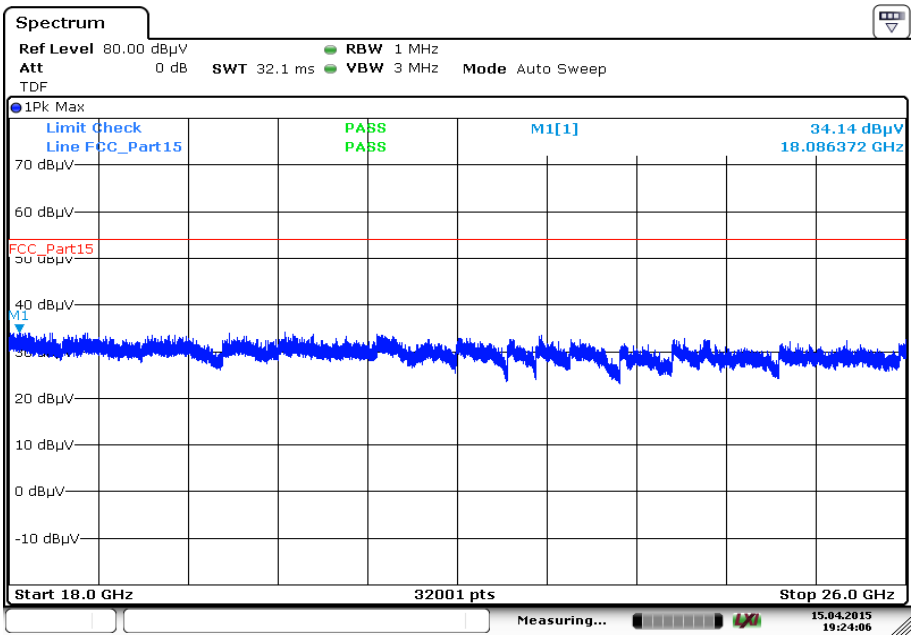


Plot 28: 12 GHz to 18 GHz, 5814 MHz, vertical & horizontal polarization



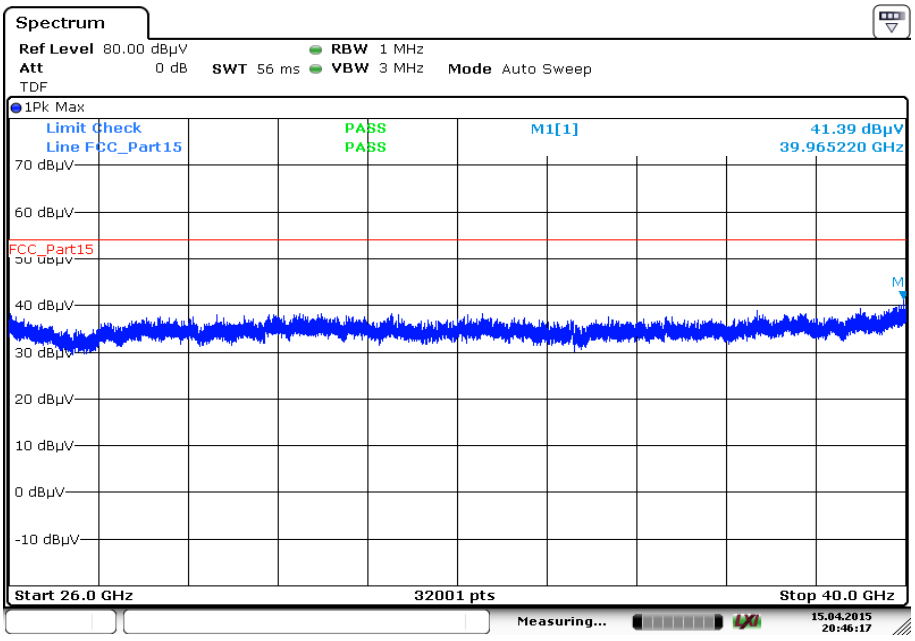
Date: 15.APR.2015 18:05:49

Plot 29: 18 GHz to 26 GHz, 5814 MHz, vertical & horizontal polarization



Date: 15.APR.2015 19:24:05

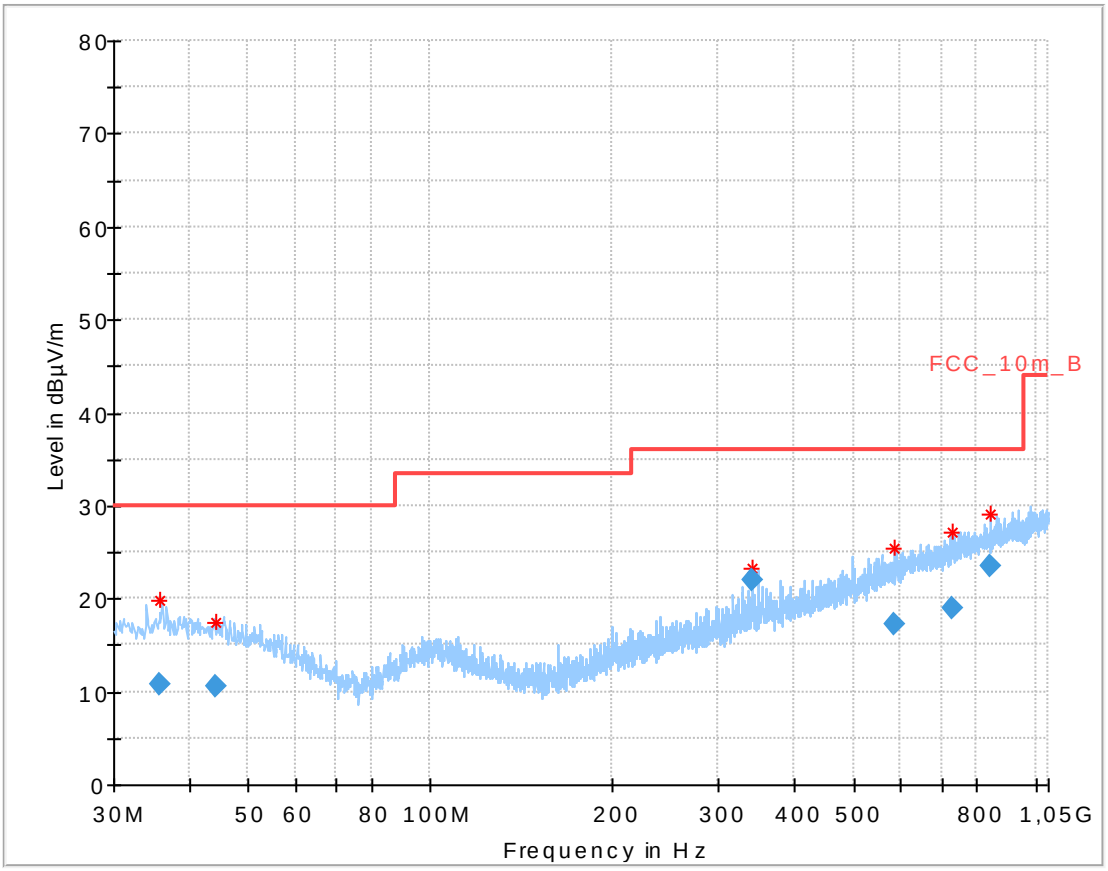
Plot 30: 26 GHz to 40 GHz, 5814 MHz, vertical & horizontal polarization



Date: 15.APR.2015 20:46:17

Plots: Antenna B, BPSK

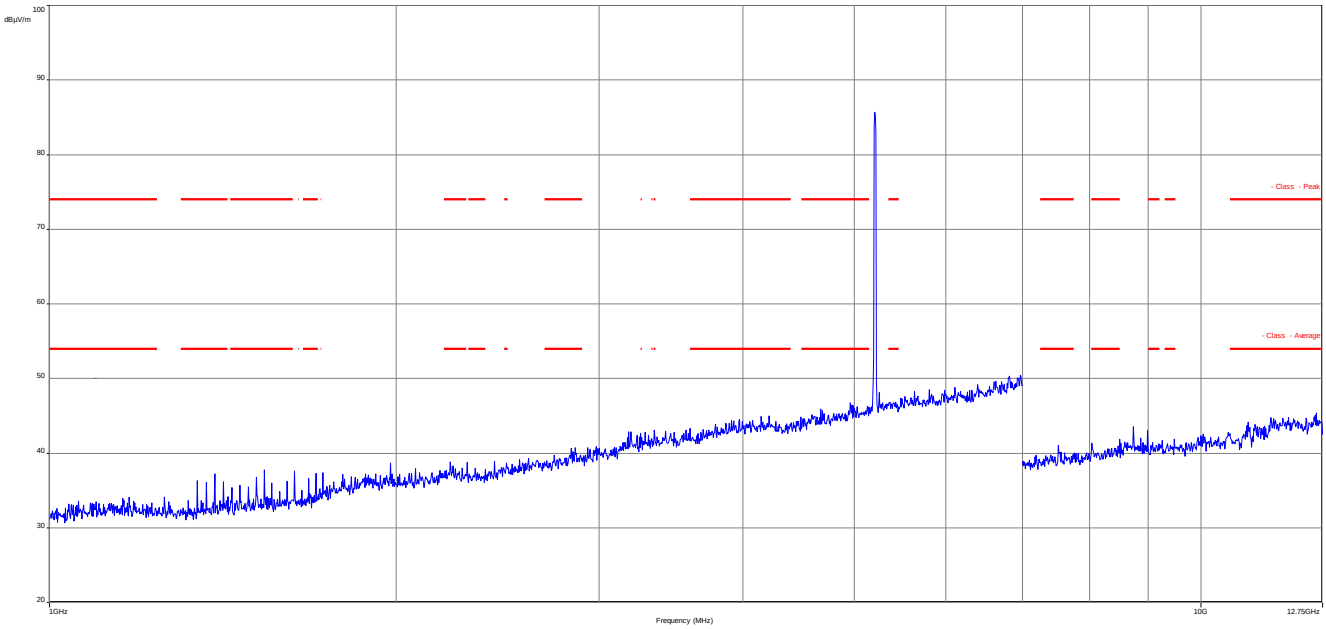
Plot 1: 30 MHz to 1 GHz, 5210 MHz, vertical & horizontal polarization



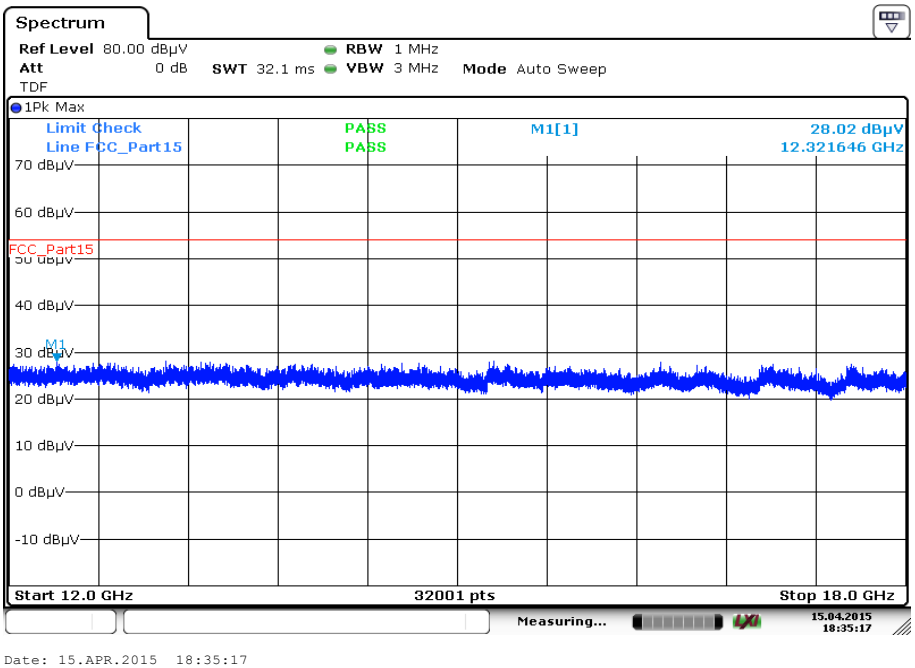
Final_Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
35.729100	10.87	30.00	19.13	1000.0	120.000	101.0	H	205	13.8
44.168250	10.65	30.00	19.35	1000.0	120.000	101.0	V	-7	13.9
340.995000	21.93	36.00	14.07	1000.0	120.000	98.0	V	65	15.8
584.631900	17.22	36.00	18.78	1000.0	120.000	170.0	H	83	20.3
726.218700	19.00	36.00	17.00	1000.0	120.000	101.0	V	295	22.1
840.030450	23.58	36.00	12.42	1000.0	120.000	170.0	V	65	23.3

Plot 2: 1 GHz to 12.75 GHz, 5210 MHz, vertical & horizontal polarization

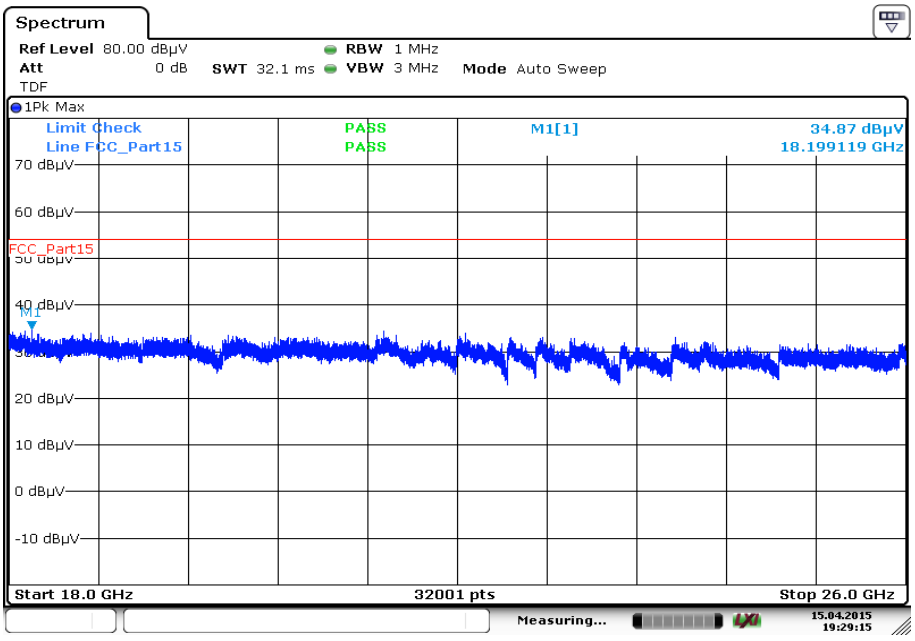


Plot 3: 12 GHz to 18 GHz, 5210 MHz, vertical & horizontal polarization



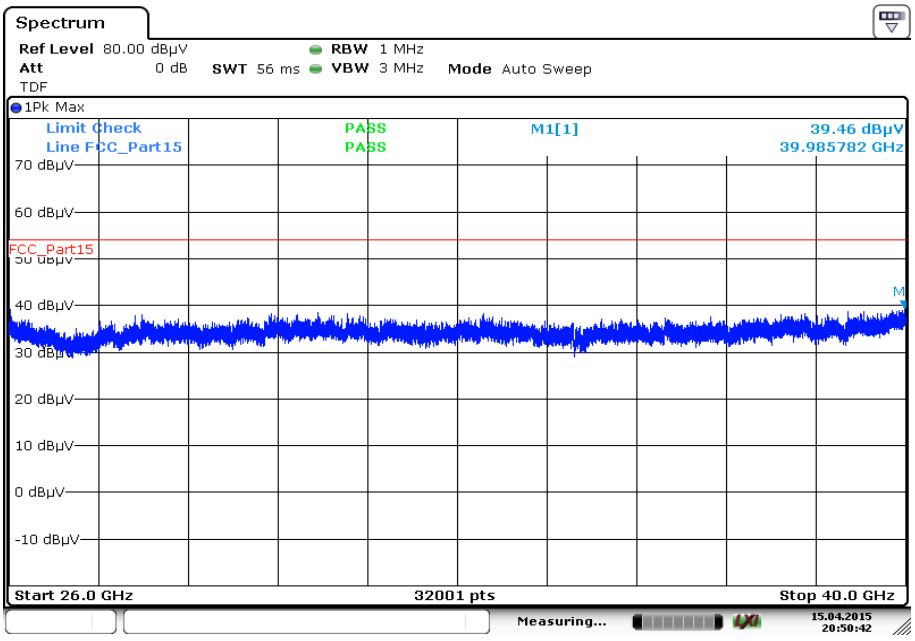
Date: 15.APR.2015 18:35:17

Plot 4: 18 GHz to 26 GHz, 5210 MHz, vertical & horizontal polarization



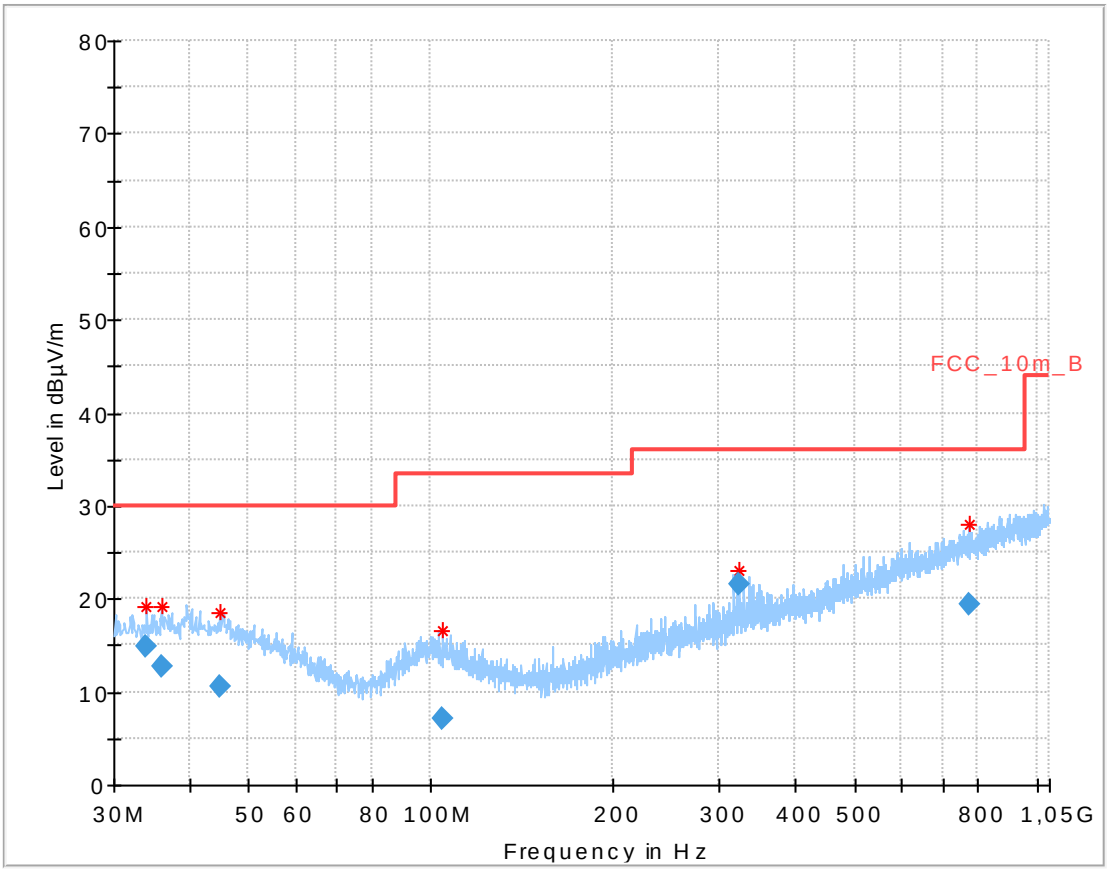
Date: 15.APR.2015 19:29:15

Plot 5: 26 GHz to 40 GHz, 5210 MHz, vertical & horizontal polarization



Date: 15.APR.2015 20:50:42

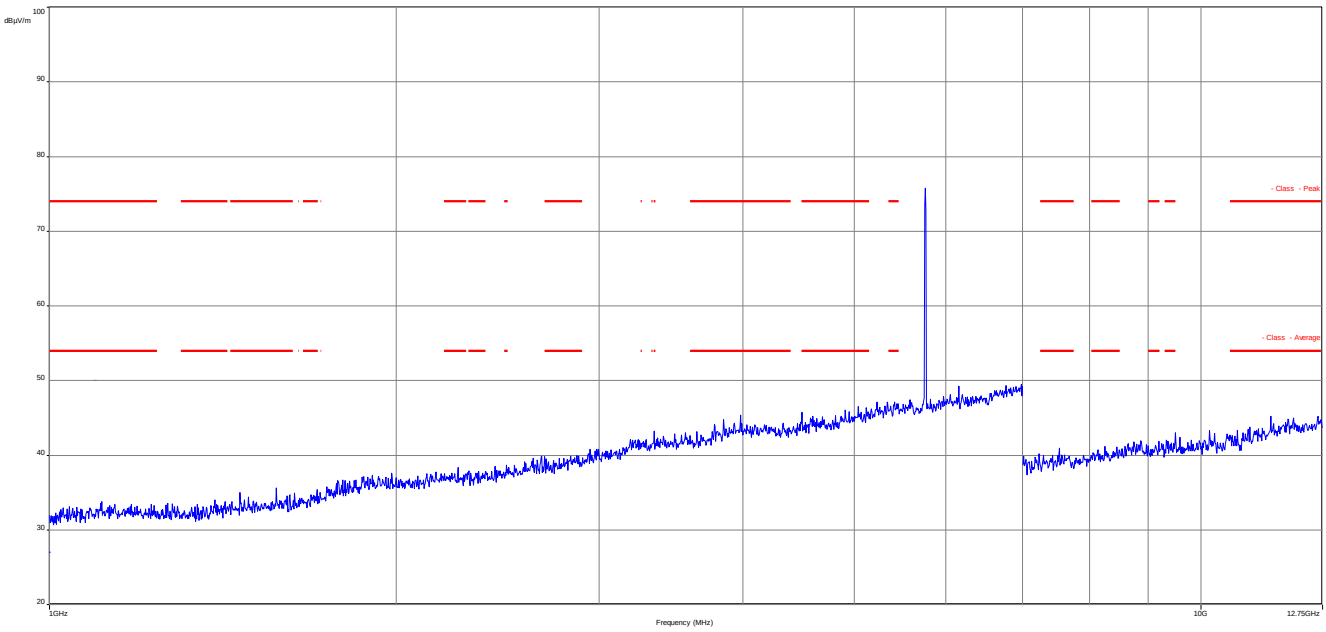
Plot 6: 30 MHz to 1 GHz, 5762 MHz, vertical & horizontal polarization



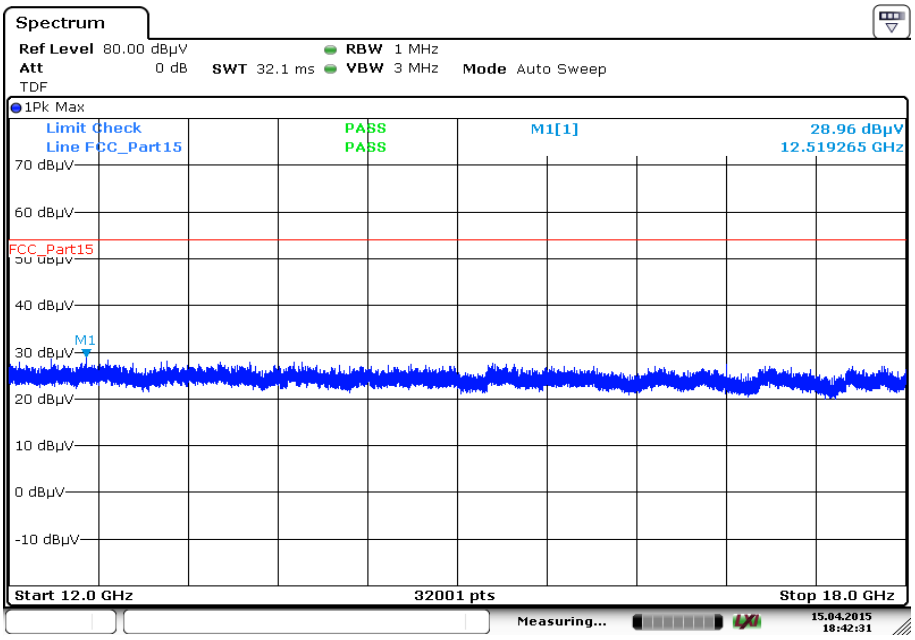
Final_Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
33.977100	14.96	30.00	15.04	1000.0	120.000	101.0	V	107	13.7
35.953800	12.76	30.00	17.24	1000.0	120.000	101.0	H	173	13.8
44.951550	10.58	30.00	19.42	1000.0	120.000	101.0	V	287	13.9
104.227050	7.07	33.50	26.43	1000.0	120.000	98.0	V	107	11.7
322.563450	21.58	36.00	14.42	1000.0	120.000	98.0	V	83	15.2
771.966600	19.48	36.00	16.52	1000.0	120.000	170.0	V	173	22.7

Plot 7: 1 GHz to 12.75 GHz, 5762 MHz, vertical & horizontal polarization

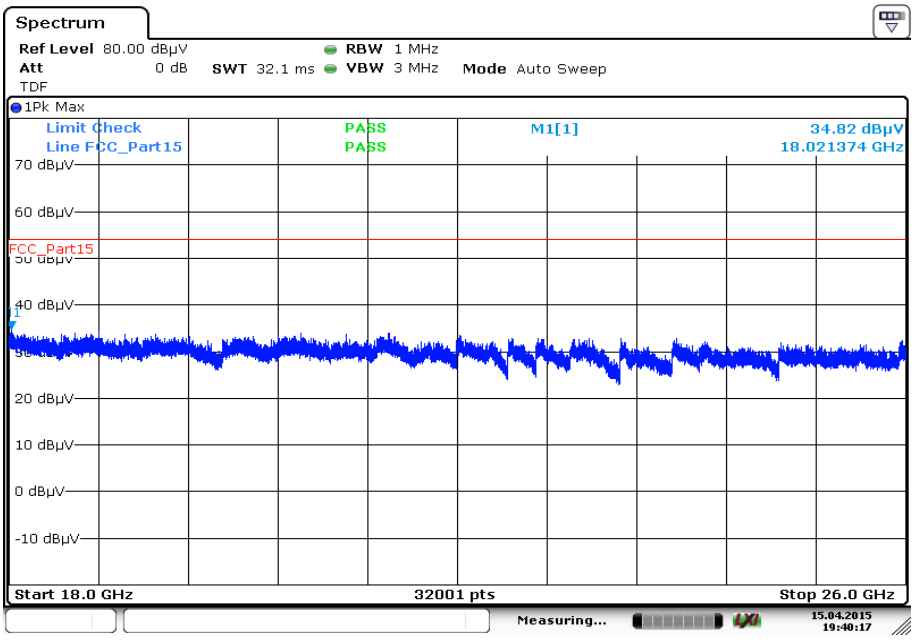


Plot 8: 12 GHz to 18 GHz, 5762 MHz, vertical & horizontal polarization



Date: 15.APR.2015 18:42:31

Plot 9: 18 GHz to 26 GHz, 5762 MHz, vertical & horizontal polarization



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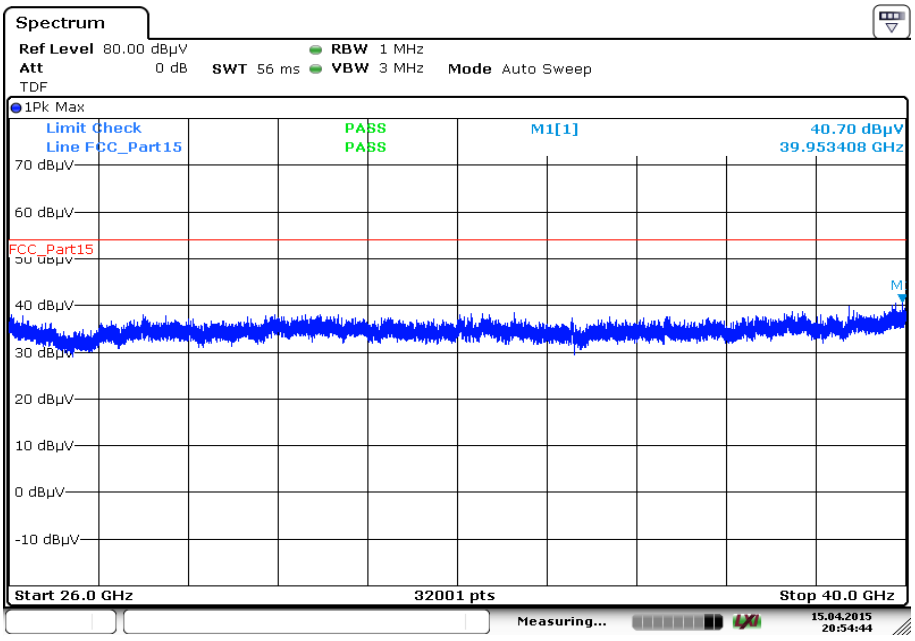
Plot 10: 26 GHz to 40 GHz, 5762 MHz, vertical & horizontal polarization



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10.9 RX spurious emissions radiated

Description:

Measurement of the radiated spurious emissions in idle/receive mode.

Measurement:

Measurement parameter	
Detector:	Quasi Peak below 1 GHz (alternative Peak) Peak above 1 GHz / RMS
Sweep time:	Auto
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Video bandwidth:	F < 1 GHz: ≥ RBW F > 1 GHz: ≥ RBW
Span:	30 MHz to 40 GHz
Trace-Mode:	Max Hold / Average with 100 counts + 20 log (1 / X) for duty cycle lower than 100 %

Limits:

RX Spurious Emissions Radiated		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3

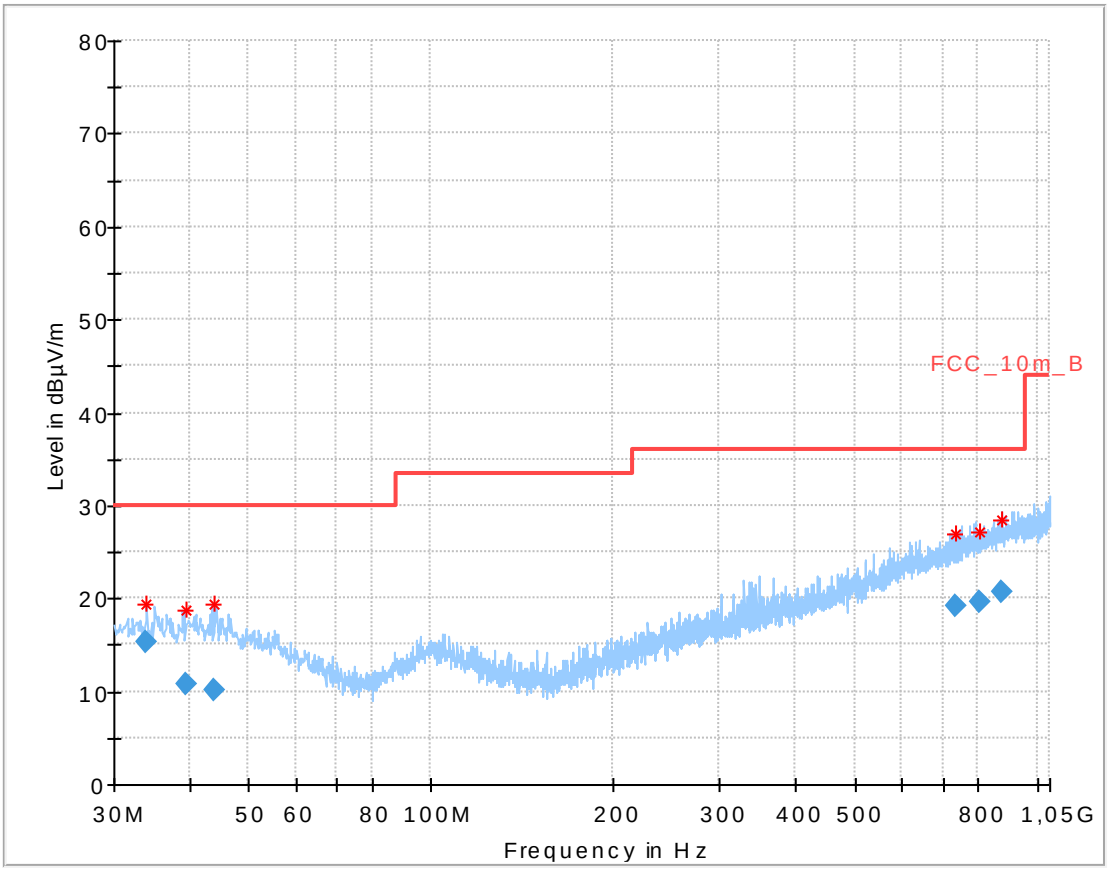
Results:

RX Spurious Emissions Radiated [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
Measurement uncertainty	± 3 dB	

Verdict: complies

Plots:

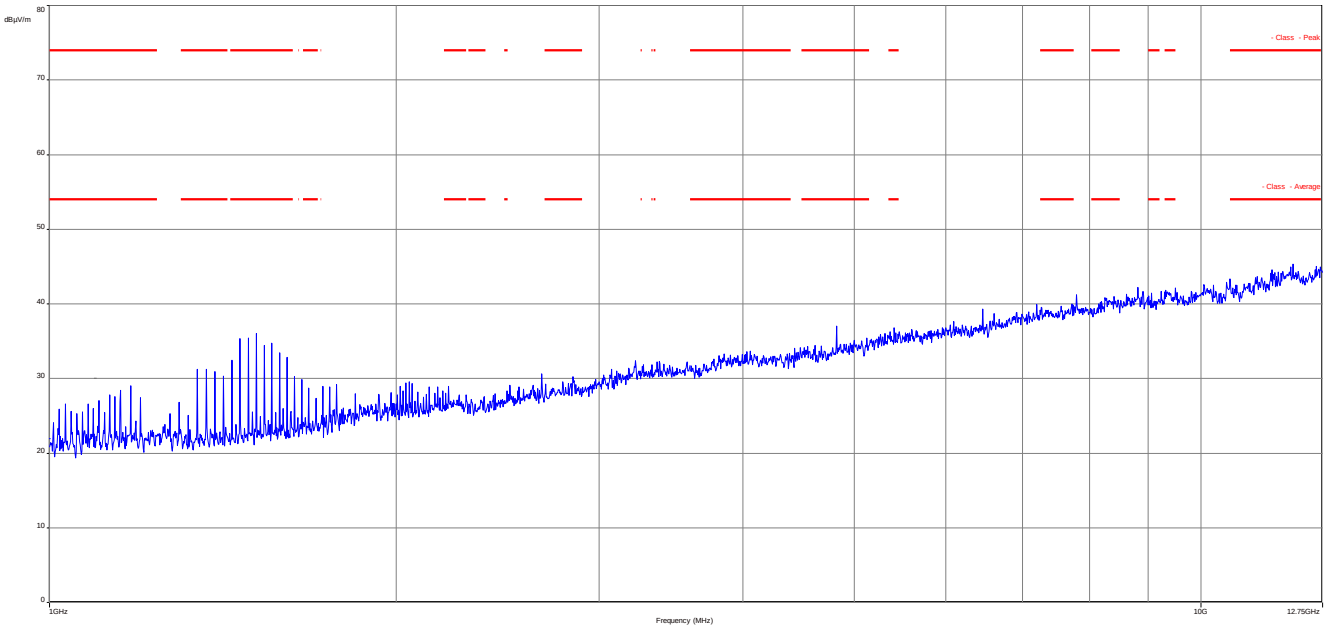
Plot 1: 30 MHz to 1 GHz, vertical & horizontal polarization



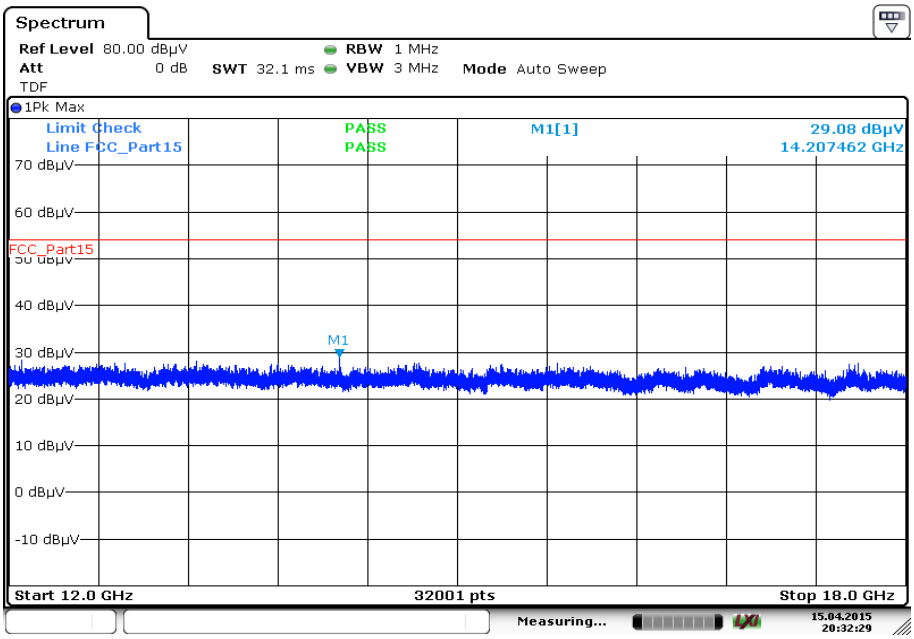
Final_Result:

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
33.989850	15.31	30.00	14.69	1000.0	120.000	101.0	V	196	13.7
39.455700	10.70	30.00	19.30	1000.0	120.000	101.0	V	25	14.0
43.753650	10.04	30.00	19.96	1000.0	120.000	101.0	V	295	13.9
734.682750	19.17	36.00	16.83	1000.0	120.000	170.0	V	295	22.3
803.368050	19.54	36.00	16.46	1000.0	120.000	170.0	H	205	22.8
874.185150	20.80	36.00	15.20	1000.0	120.000	170.0	V	-25	23.8

Plot 2: 1 GHz to 12.75 GHz, vertical & horizontal polarization

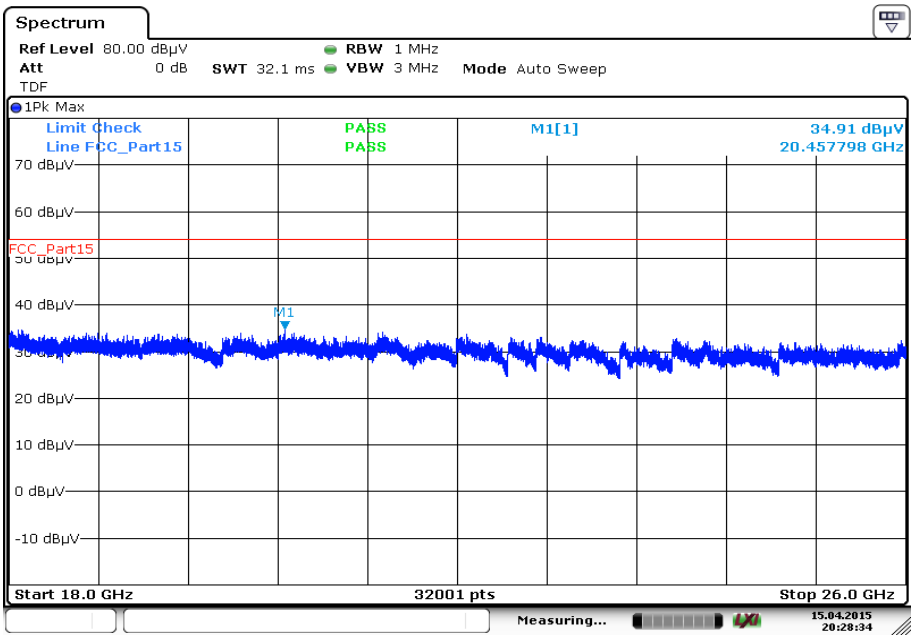


Plot 3: 12 GHz to 18 GHz, vertical & horizontal polarization



Date: 15.APR.2015 20:32:29

Plot 4: 18 GHz to 26 GHz, vertical & horizontal polarization



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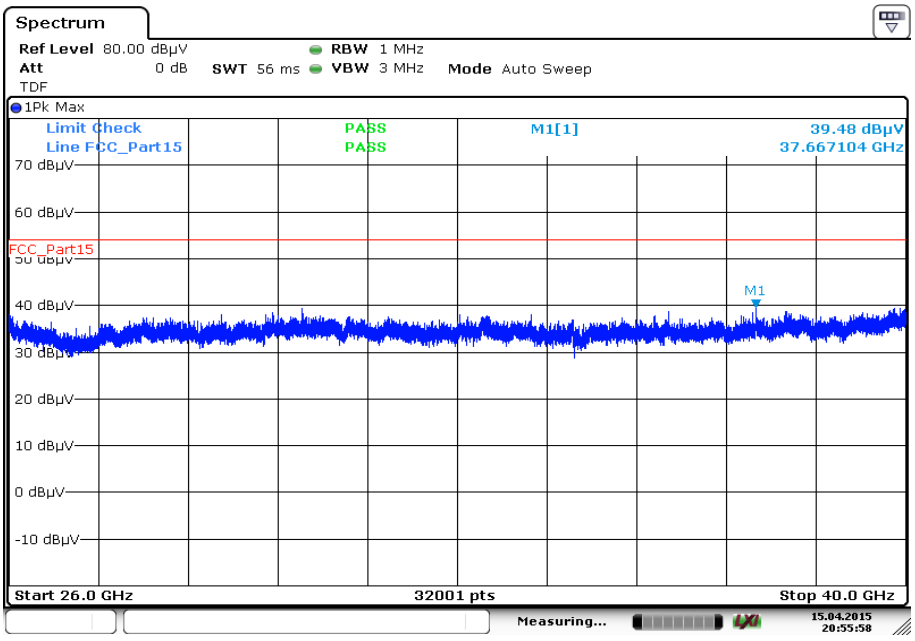
Plot 5: 26 GHz to 40 GHz, vertical & horizontal polarization



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10.10 Spurious emissions radiated < 30 MHz

Description:

Measurement of the radiated spurious emissions in transmit mode and receive mode below 30 MHz. The EUT is set first to middle channel. This measurement is representative for all channels and modes. If critical peaks are found the lowest channel and the highest channel will be measured too. Then the EUT is set to receive or idle mode. The limits are recalculated to a measurement distance of 3 m with 40 dB/decade according CFR Part 2.

Measurement:

Measurement parameter	
Detector:	Peak / Quasi Peak
Sweep time:	Auto
Video bandwidth:	F < 150 kHz: 200 Hz F > 150 kHz: 9 kHz
Resolution bandwidth:	F < 150 kHz: 1 kHz F > 150 kHz: 100 kHz
Span:	9 kHz to 30 MHz
Trace-Mode:	Max Hold

Limits:

Spurious Emissions Radiated < 30 MHz		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

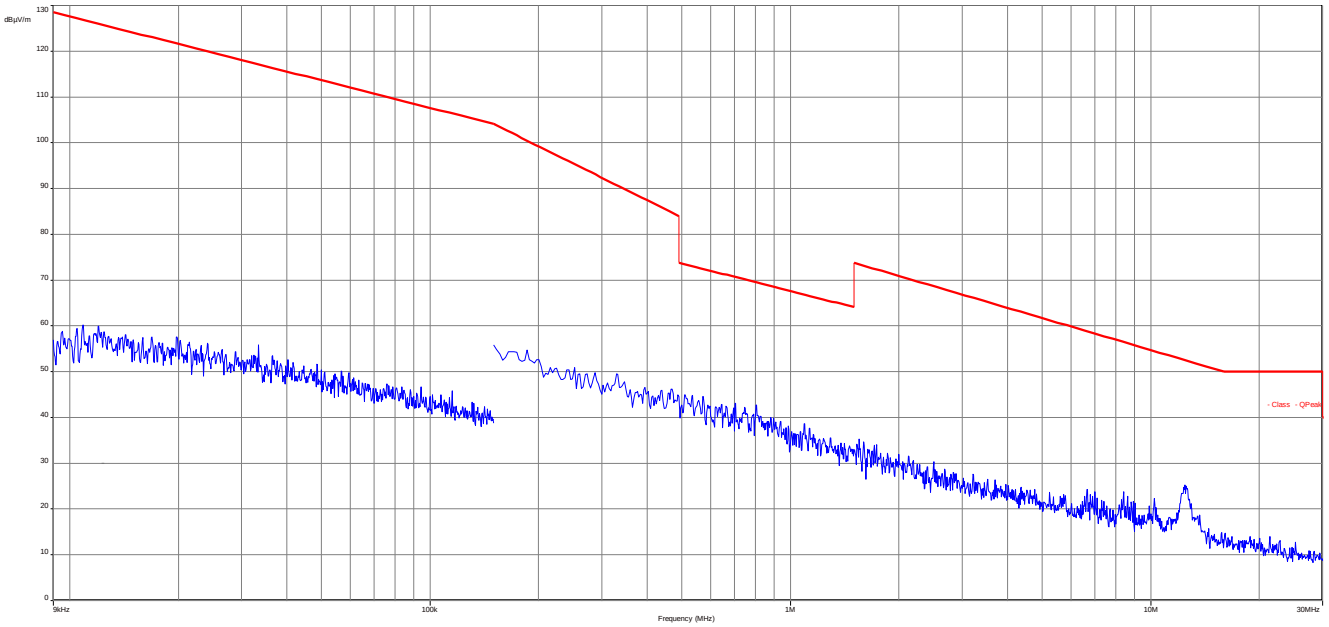
Results:

Spurious Emissions Radiated < 30 MHz [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
All detected peak emissions are below the average limit.		
Measurement uncertainty	± 3 dB	

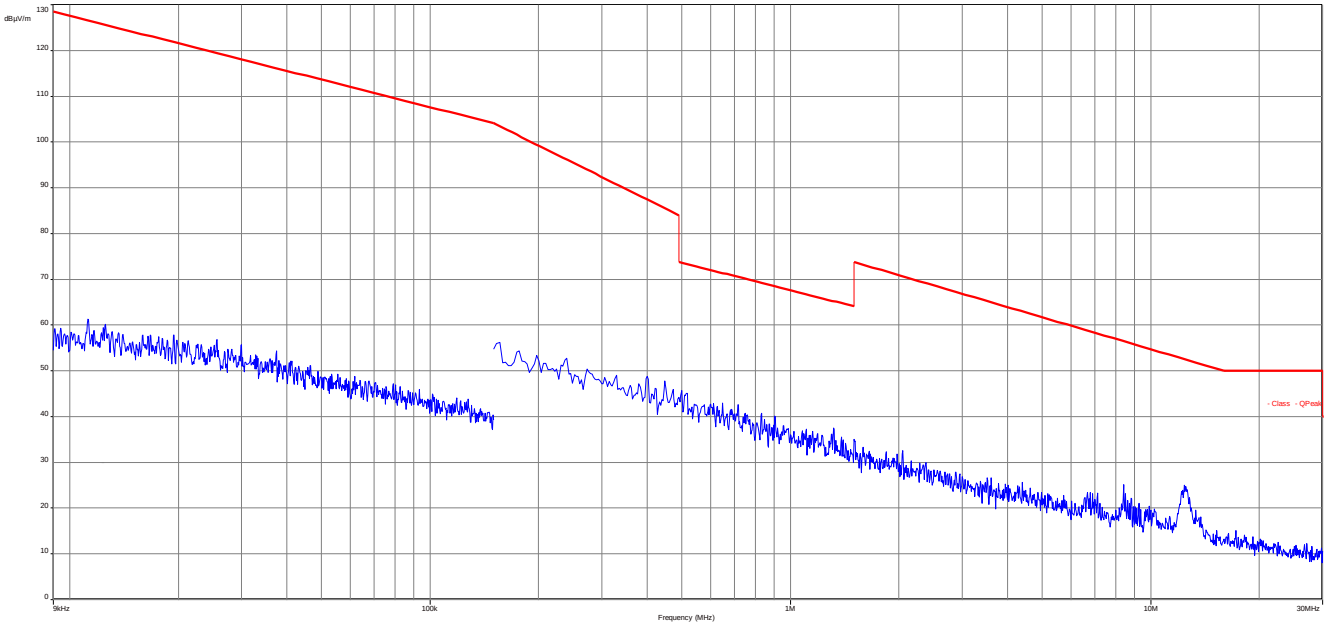
Verdict: complies

Plots:

Plot 1: 9 kHz to 30 MHz, Antenna A



Plot 2: 9 kHz to 30 MHz, Antenna B



11 Test equipment and ancillaries used for tests

Typically, the calibrations of the test apparatus are commissioned to and performed by an accredited calibration laboratory. The calibration intervals are determined in accordance with the DIN EN ISO/IEC 17025. In addition to the external calibrations, the laboratory executes comparison measurements with other calibrated test systems or effective verifications. Weekly chamber inspections and range calibrations are performed. Where possible, rf-generating and signalling equipment as well as measuring receivers and analyzers are connected to an external high-precision 10 MHz reference (GPS-based or rubidium frequency standard).

In order to simplify the identification of the equipment used at some special tests, some items of test equipment and ancillaries can be provided with an identifier or number in the equipment list below (Lab/Item).

No.	Lab / Item	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Kind of Calibration	Last Calibration	Next Calibration
1	45	Switch-Unit	3488A	HP	2719A14505	300000368	g		
2	50	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP	2920A04466	300000580	ne		
3	50	EMI Test Receiver	ESCI 3	R&S	100083	300003312	k	26.01.2015	26.01.2016
4	50	Antenna Tower	Model 2175	ETS-Lindgren	64762	300003745	izw		
5	50	Positioning Controller	Model 2090	ETS-Lindgren	64672	300003746	izw		
6	50	Turntable Interface-Box	Model 105637	ETS-Lindgren	44583	300003747	izw		
7	50	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	295	300003787	k	22.04.2014	22.04.2016
8	n. a.	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP	2818A03450	300001040	Ve	20.01.2015	20.01.2018
9	n. a.	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032	vlKl!	08.05.2013	08.05.2015
10	n. a.	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996	ev		
11	n. a.	Switch / Control Unit	3488A	HP	*	300000199	ne		
12	90	Active Loop Antenna 10 kHz to 30 MHz	6502	Kontron Psychotech	8905-2342	300000256	k	13.06.2013	13.06.2015
13	90	Amplifier	js42-00502650-28-5a	Parzich GMBH	928979	300003143	ne		
14	90	MXE EMI Receiver 20 Hz to 26,5 GHz	N9038A	Agilent Technologies	MY51210197	300004405	k	06.03.2015	06.03.2016
15	11b	Microwave System Amplifier, 0.5-26.5 GHz	83017A	HP	00419	300002268	ev		
16	A026	Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda	8402	300000787	k	22.07.2013	22.07.2015
17	A029	Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda	8205	300002442	k	19.07.2013	19.07.2015
18	A031	Std. Gain Horn Antenna 26.5 to 40.0 GHz	V637	Narda	8205	300000510	k	19.07.2013	19.07.2015
19	A031	Broadband Low Noise Amplifier 18-50 GHz	CBL18503070-XX	CERNEX	19338	300004273	ne		
20	A031	Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517	k	22.01.2015	22.01.2016
21	n. a.	Power Supply 0-20V, 0-5A	6632B	Agilent Technologies	GB42110541	400000562	vlKl!	10.01.2013	10.01.2016

Agenda: Kind of Calibration

k	calibration / calibrated	EK	limited calibration
ne	not required (k, ev, izw, zw not required)	zw	cyclical maintenance (external cyclical maintenance)
ev	periodic self verification	izw	internal cyclical maintenance
Ve	long-term stability recognized	g	blocked for accredited testing
vlkl!	Attention: extended calibration interval		
NK!	Attention: not calibrated	*)	next calibration ordered / currently in progress

12 Observations

No observations except those reported with the single test cases have been made.

Annex A Document history

Version	Applied changes	Date of release
	Initial release	2015-04-16

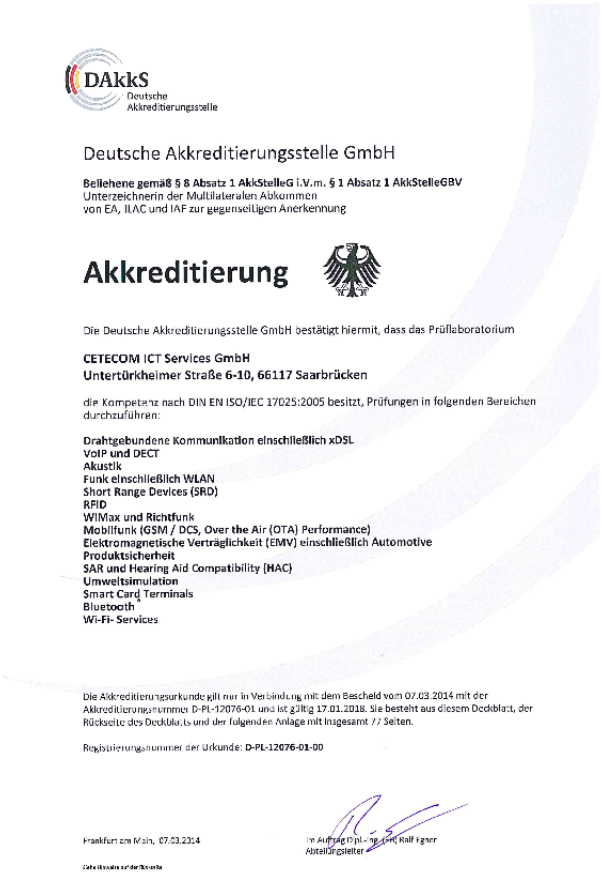
Annex B Further information

Glossary

AVG - Average
DUT - Device under test
EMC - Electromagnetic Compatibility
EN - European Standard
EUT - Equipment under test
ETSI - European Telecommunications Standard Institute
FCC - Federal Communication Commission
FCC ID - Company Identifier at FCC
HW - Hardware
IC - Industry Canada
Inv. No. - Inventory number
N/A - Not applicable
PP - Positive peak
QP - Quasi peak
S/N - Serial number
SW - Software

Annex C Accreditation Certificate

Front side of certificate



DAkkS
Deutsche Akkreditierungsstelle

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Unterzeichnerin der Multilateralen Abkommen
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Akkreditierung

Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Prüflaboratorium

CETECOM ICT Services GmbH
Untertürkheimer Straße 6-10, 66117 Saarbrücken

die Kompetenz nach DIN EN ISO/IEC 17025:2005 besitzt, Prüfungen in folgenden Bereichen durchzuführen:

Drahtgebundene Kommunikation einschließlich xDSL
VoIP und DECT
Akustik
Funk einschließlich WLAN
Short Range Devices (SRD)
RFID
WiMax und Richtfunk
Mobilfunk (GSM / DCS, Over the Air (OTA) Performance)
Elektromagnetische Verträglichkeit (EMV) einschließlich Automotive
Produktsicherheit
SAR und Hearing Aid Compatibility (HAC)
Umweltsimulation
Smart Card Terminals
Bluetooth
Wi-Fi- Services

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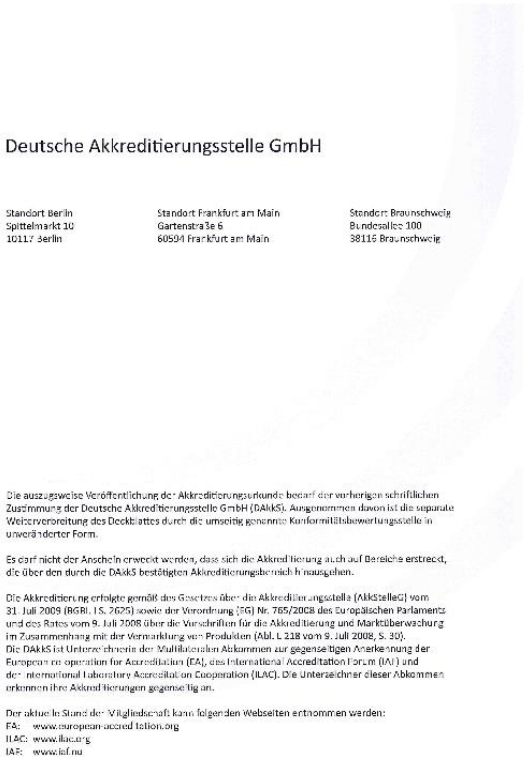
Frankfurt am Main, 07.03.2014

Im Auftrag Dipl.-Ing. (FH) Ralf Egner
Abteilungsleiter

Back side of certificate



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ILAC: www.ilac.org
IAF: www.iaf.nu

Note:

The current certificate including annex is published on our website (see link below) or may be received from CETECOM ICT Services on request.

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