
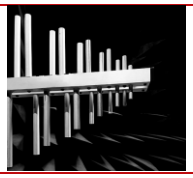
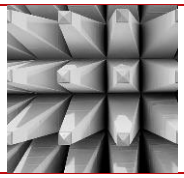

CETECOM™
CETECOM ICT Services
consulting - testing - certification

TEST REPORT

Test report no.: 1-6160/13-01-24

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

Pegatron Corporation
5F, No. 76, Ligong Street Beitou District
11261 Taipei City / TAIWAN
Fax: +88 68 99 48 82 38
Contact: Brian Chen
e-mail: brian3_chen@pegatroncorp.com
Phone: +88 64 37 02 22 33

Manufacturer

Pegatron Corporation
5F, No. 76, Ligong Street Beitou District
11261 Taipei City / TAIWAN

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

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

Test Item

Kind of test item:	**Car Media System**
Model name:	**SDIS1**
FCC ID:	**VUISDIS1**
IC:	**7582A-SDIS1**
Frequency:	UNII bands: 5150 MHz to 5350 MHz 5470 MHz to 5725 MHz 5725 MHz to 5850 MHz
Technology tested:	WLAN
Antenna:	Integrated antenna
Power supply:	12.0 V DC
Temperature range:	-20°C to +55°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
2014.11.11 11:07:16 +01'00'

Marco Bertolino
Specialist
Radio Communications & EMC

Test performed:

cn=Stefan Boes, o=CETECOM ICT Services GmbH, ou=BOE-111011, email=Stefan.Boes@cetecom.com, c=DE
2014.11.11 14:01:14 +01'00'

Stefan Bös
Professional
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:	2013-08-21
Date of receipt of test item:	2014-10-01
Start of test:	2014-10-01
End of test:	2014-10-30
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

3.1 Measurement guidance

DTS : KDB 558074	2014-06	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247
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}	+55 °C during high temperature tests
	T_{min}	-20 °C during low temperature tests
Relative humidity content:		54 %
Barometric pressure:		not relevant for this kind of testing
Power supply:	V_{nom}	12.0 V DC
	V_{max}	No tests under extreme conditions
	V_{min}	No tests under extreme conditions

5 Test item

Kind of test item	**:**	**Car Media System**
Type identification	**:**	**SDIS1**
S/N serial number	**:**	**Rad. Prototype #2** **Cond. Prototype #1**
HW hardware status	**:**	**C101**
SW software status	**:**	**SDIS1R_0.344_dev_AU_ER_sdis1_er-userdebug**
Frequency band [MHz]	**:**	**UNII bands:** **5150 MHz to 5350 MHz** **5470 MHz to 5725 MHz** **5725 MHz to 5850 MHz**
Type of radio transmission **Use of frequency spectrum**	**:** **:**	**OFDM**
Type of modulation	**:**	**BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM**
Number of channels	**:**	**24**
Antenna	**:**	**Integrated antenna**
Power supply	**:**	**12.0 V DC**
Temperature range	**:**	**-20°C to +55 °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: 1-6160/13-01-01_AnnexA
1-6160/13-01-01_AnnexB
1-6160/13-01-01_AnnexD

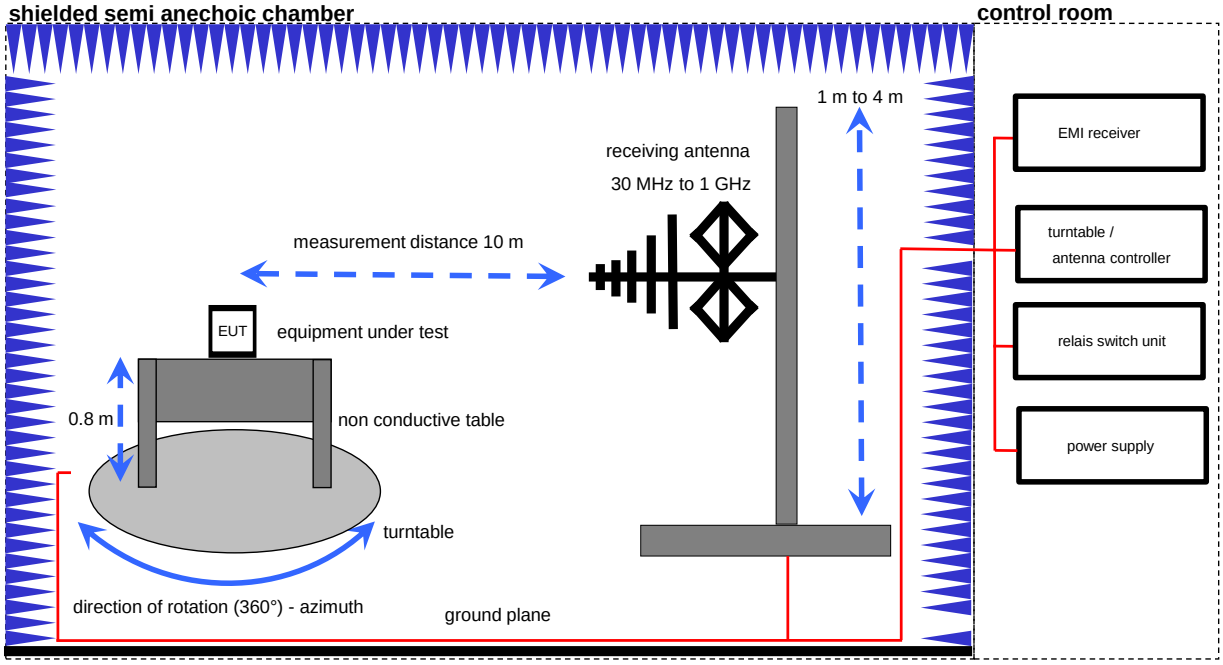
6 Test laboratories sub-contracted

None

7 Description of the test setup

7.1 Radiated measurements chamber F

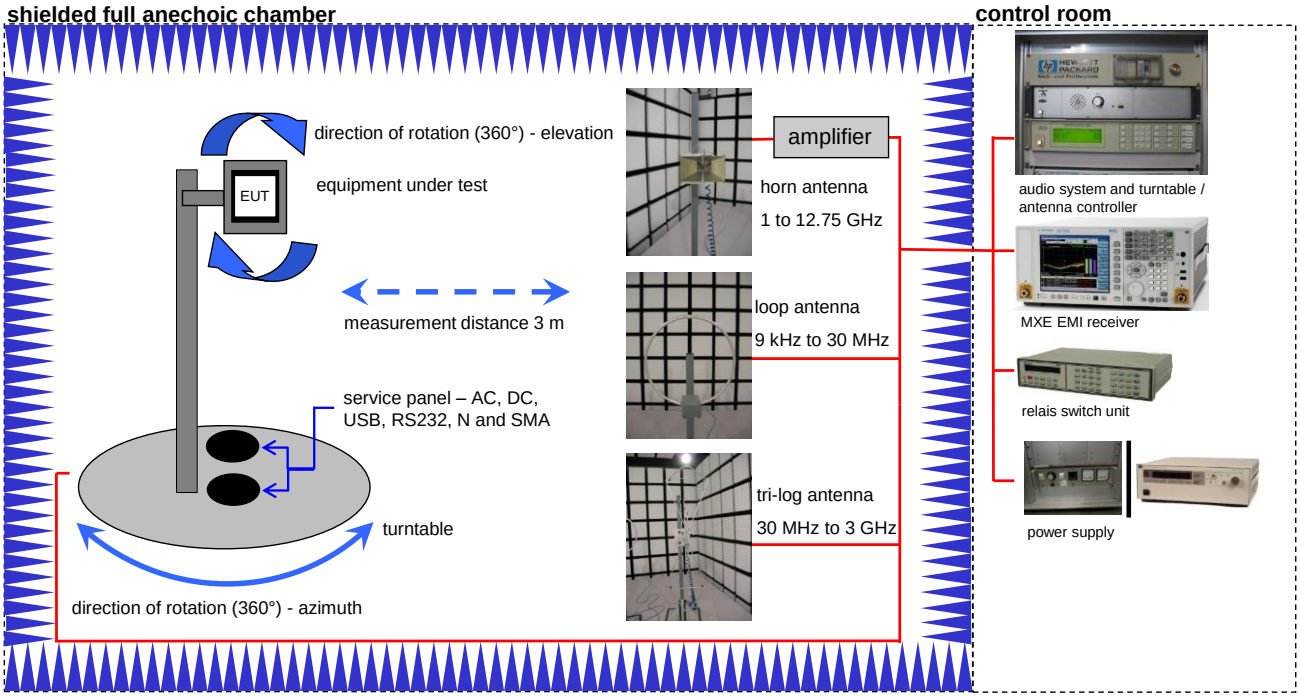
The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 1 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas 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

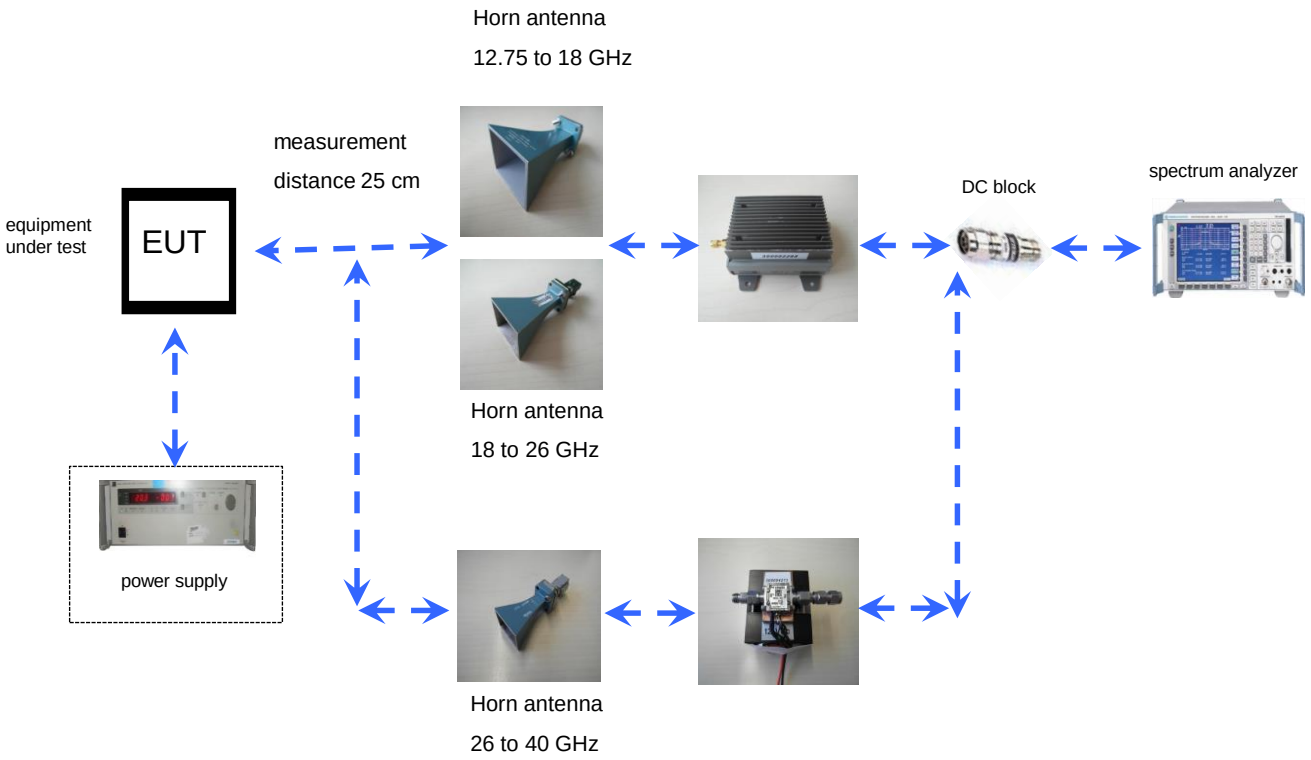
7.2 Radiated measurements chamber C



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
Spectrum Analyzer 20 Hz - 50 GHz	FSU50	R&S	200012	300003443

8 Summary of measurement results

☒	**No deviations from the technical specifications were ascertained**
☐	There were deviations from the technical specifications ascertained

TC Identifier	Description	Verdict	Date	Remark
RF-Testing	CFR Part 15 RSS 210, Issue 8, Annex 9	Passed	2014-11-11	Reduced tests according to customer test plan

Test specification clause	Test case	Temperature conditions	Power source voltages	Pass	Fail	NA	NP	Remark
-/-	Output power verification (conducted)	Nominal	Nominal	☐	☐	☐	☐	No passed / fail criteria!
-/-	Gain	Nominal	Nominal	☐	☐	☐	☐	No passed / fail criteria!
U-NII Part 15	Duty cycle	Nominal	Nominal	☐	☐	☐	☐	No passed / fail criteria!
§15.407(a) RSS-210	Maximum output power (conducted & radiated)	Nominal	Nominal	☒	☐	☐	☐	Only radiated measurements complies
§15.407(a) RSS-210	Power spectral density	Nominal	Nominal	☐	☐	☐	☒	-/-
§15.407(a) RSS-210	Spectrum bandwidth 26dB bandwidth	Nominal	Nominal	☐	☐	☐	☒	-/-
§15.407(a) RSS-210	Peak excursion measurements	Nominal	Nominal	☐	☐	☐	☒	-/-
§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	☐	☐	☐	☒	-/-

Note: NA = Not Applicable; NP = Not Performed

9 Additional comments

Reference documents: None

Special test descriptions: None

Configuration descriptions: None

Test mode: ☐ No test mode available.

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

10 Measurement results

10.1 Identify worst case datarate

Measurement:

All modes of the module will be measured with an average powermeter to identify the maximum transmission power on low, mid and high channel. In the case that only one or two channels are available, only these will be measured.

In further tests only the identified worst case modulation scheme or bandwidth will be measured.
Additional the band edge compliance test will be performed in the lowest and highest modulation scheme.

Measurement parameters:

Average Power Meter

Results:

Modulation	Modulation scheme / bandwidth						
Frequency	5180 MHz	5240 MHz	5260 MHz	5320 MHz	5500 MHz	5600 MHz	5700 MHz
OFDM / a – mode	6Mbit/s	6Mbit/s	6Mbit/s	6Mbit/s	6Mbit/s	6Mbit/s	6Mbit/s
OFDM / n/ac – mode HT20	MCS0	MCS0	MCS0	MCS0	MCS0	MCS0	MCS0
Frequency	5190 MHz	5230 MHz	5270 MHz	5310 MHz	5510 MHz	5590 MHz	5670 MHz
OFDM / n/ac – mode HT40	MCS0	MCS0	MCS0	MCS0	MCS0	MCS0	MCS0

Modulation	Modulation scheme / bandwidth						
Frequency	5745 MHz	5765 MHz	5805 MHz	-/-	-/-	-/-	-/-
OFDM / a – mode	6Mbit/s	6Mbit/s	6Mbit/s	-/-	-/-	-/-	-/-
OFDM / n/ac – mode HT20	MCS0	MCS0	MCS0	-/-	-/-	-/-	-/-
Frequency	5755 MHz	5795 MHz	-/-	-/-	-/-	-/-	-/-
OFDM / n/ac – mode HT40	MCS0	MCS0	-/-	-/-	-/-	-/-	-/-

10.2 Maximum output power conducted and radiated

Description:

Measurement of the maximum output power conduced and radiated

Measurement:

Measurement parameter	
Detector:	RMS
Sweep time:	60s
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	The lesser one of 50mW or 4 dBm + 10 log Bandwidth 5.150-5.250 GHz 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 (where Bandwidth is the 26dB Bandwidth [MHz])

Result: OFDM / a – mode

OFDM / a – mode	Maximum output power radiated - EIRP [dBm]			
Channel	Lowest 5180 MHz	Middle 5200 MHz	Highest 5240 MHz	Lowest 5260 MHz
	9.4	9.4	9.5	9.4
Channel	Middle 5280 MHz	Highest 5320 MHz	Lowest 5500 MHz	Middle 5600 MHz
	9.3	9.2	6.2	8.1
Channel	Highest 5700 MHz	-/-	-/-	-/-
	10.8	-/-	-/-	-/-
Measurement uncertainty	± 3 dB			

Result: **Passed**

Result: OFDM / n HT20 – mode

OFDM / n-HT20 – mode	Maximum output power radiated - EIRP [dBm]			
Channel	Lowest 5180 MHz	Middle 5200 MHz	Highest 5240 MHz	Lowest 5260 MHz
	9.4	9.4	9.4	9.3
Channel	Middle 5280 MHz	Highest 5320 MHz	Lowest 5500 MHz	Middle 5600 MHz
	9.1	8.9	6.8	8.3
Channel	Highest 5700 MHz	-/-	-/-	-/-
	10.9	-/-	-/-	-/-
Measurement uncertainty	± 3 dB			

Result: **Passed**

Result: OFDM / n HT40 – mode

OFDM / n-HT40 – mode	Maximum output power radiated - EIRP [dBm]			
Channel	Lowest 5190 MHz	Highest 5230 MHz	Lowest 5270 MHz	Highest 5310 MHz
	7.5	7.3	7.2	7.1
Channel	Lowest 5510 MHz	Middle 5590 MHz	Highest 5670 MHz	-/-
	5.2	7.4	9.5	-/-
Measurement uncertainty	± 3 dB			

Result: Passed

Description:

Measurement of the maximum output power conducted and radiated according the **FCC requirements for the 5.8 GHz band**. The measurements are performed using the data rate producing the highest conducted output power. The duty cycle is measured before and the resulting correction factor is added to every measurement as offset value. You can see the offset values in the plots.

Measurement:

Measurement parameter	
According to DTS clause: 9.2.2.5	
Detector:	RMS
Sweep time:	See Plots.
Resolution bandwidth:	500 kHz
Video bandwidth:	3 MHz
Span:	40 MHz
Integration bandwidth:	99% power - bandwidth (OBW)
Trace-Mode:	Max hold (allow trace to fully stabilize)
Measurement function:	Channel power with OBW

Limits:

FCC	
Maximum Output Power	
Conducted: 1.0 W – Antenna Gain max. 6 dBi	

Results:

DSSS / a – mode	Maximum Output Power [dBm]		
Frequency	Lowest 5745 MHz	Middle 5765 MHz	Highest 5805 MHz
	7.8	7.6	7.6
Measurement uncertainty	± 1.5 dB (cond.)		

Result: **Passed**

Results:

OFDM / n HT20 – mode	Maximum Output Power [dBm]		
Frequency	Lowest 5745 MHz	Middle 5765 MHz	Highest 5805 MHz
	7.7	7.4	7.5
Measurement uncertainty	± 1.5 dB (cond.)		

Result: **Passed**

Results:

OFDM / n HT40 – mode	Maximum Output Power [dBm]	
Frequency	Lowest 5765 MHz	Highest 5795 MHz
	7.3	7.2
Measurement uncertainty	± 1.5 dB (cond.)	

Result: **Passed**

Description:

Measurement of the maximum output power conducted and radiated according the **Canadian requirements**. The measurements are performed using the data rate producing the highest conducted output power.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Span:	40 MHz
Integration bandwidth:	75 % power - bandwidth (DTS BW)
Trace-Mode:	Max hold (allow trace to fully stabilize)
Measurement function:	Channel power with DTS BW

Limits:

	IC
Maximum Output Power	
Conducted: 1.0 W – Antenna Gain max. 6 dBi	

Results:

DSSS / a – mode	Maximum Output Power [dBm]		
Frequency	Lowest 5745 MHz	Middle 5765 MHz	Highest 5805 MHz
	14.1	13.9	13.9
Measurement uncertainty	± 1.5 dB (cond.)		

Result: **Passed**

Results:

OFDM / n HT20 – mode	Maximum Output Power [dBm]		
Frequency	Lowest 5745 MHz	Middle 5765 MHz	Highest 5805 MHz
	14.2	13.9	13.8
Measurement uncertainty	± 1.5 dB (cond.)		

Result: **Passed**

Results:

OFDM / n HT40 – mode	Maximum Output Power [dBm]	
Frequency	Lowest 5765 MHz	Highest 5795 MHz
	13.8	13.5
Measurement uncertainty	± 1.5 dB (cond.)	

10.3 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:

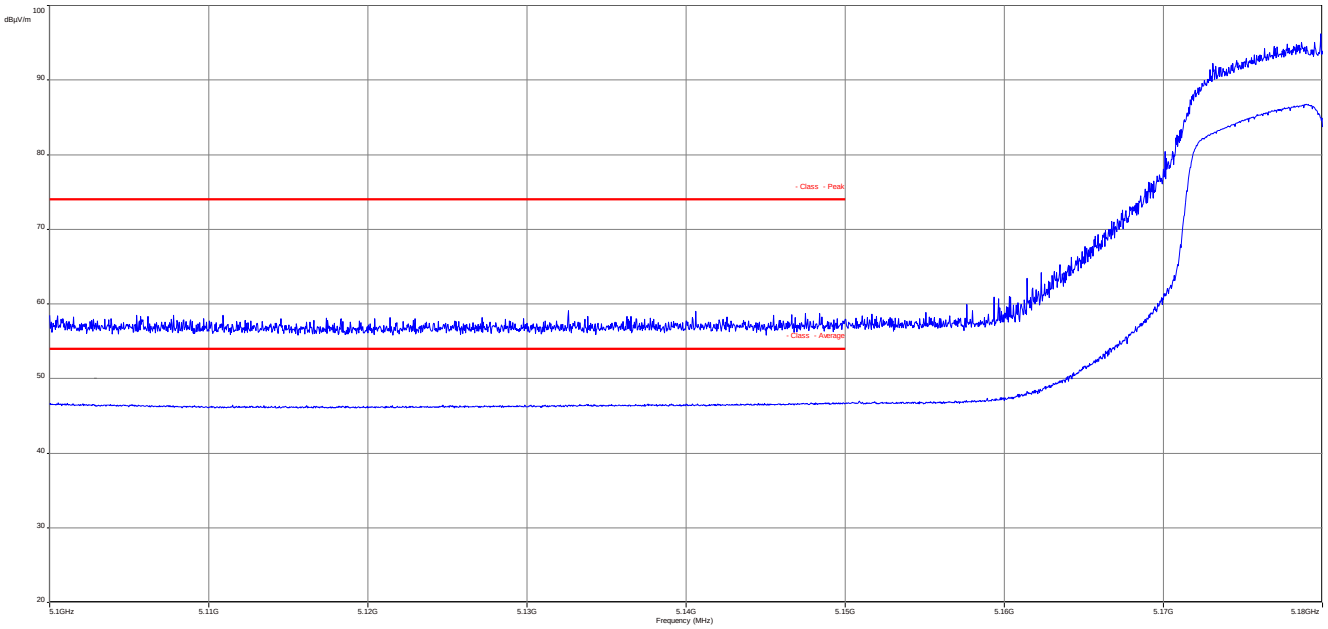
Band Edge Compliance Radiated
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within 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:

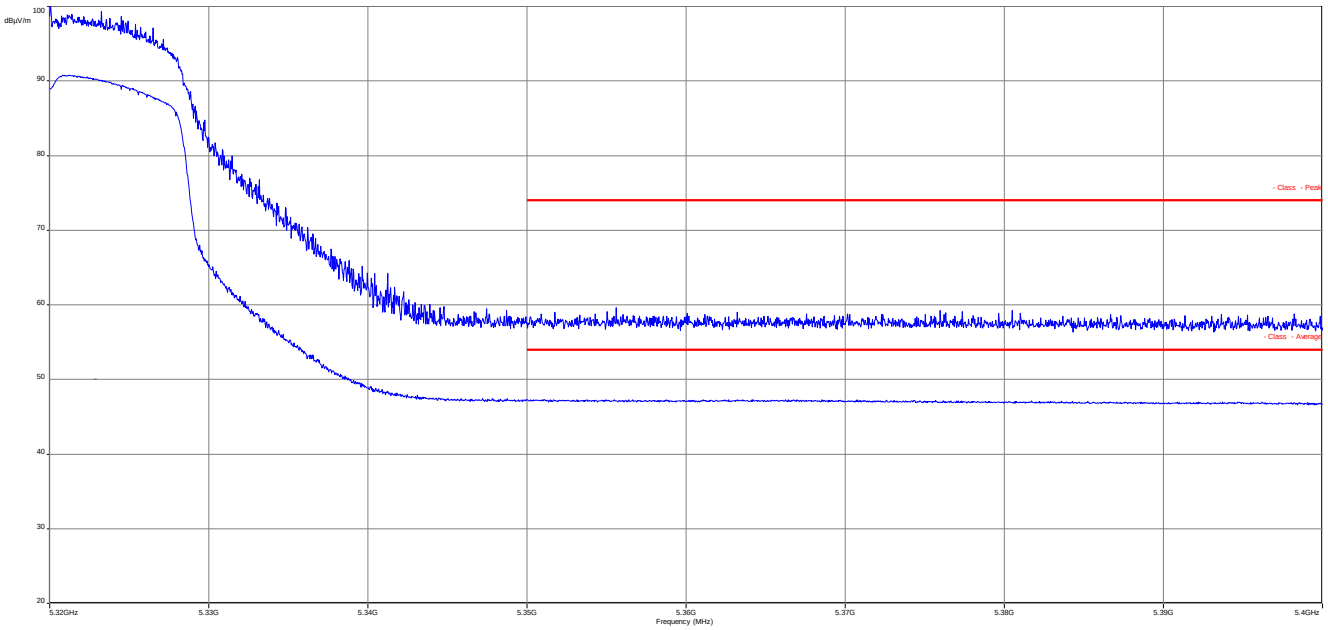
Scenario	Band Edge Compliance Radiated [dBµV/m]
band edge	< 74 dBµV/m (peak) < 54 dBµV/m (AVG)
Measurement uncertainty	± 3 dB

Plots:

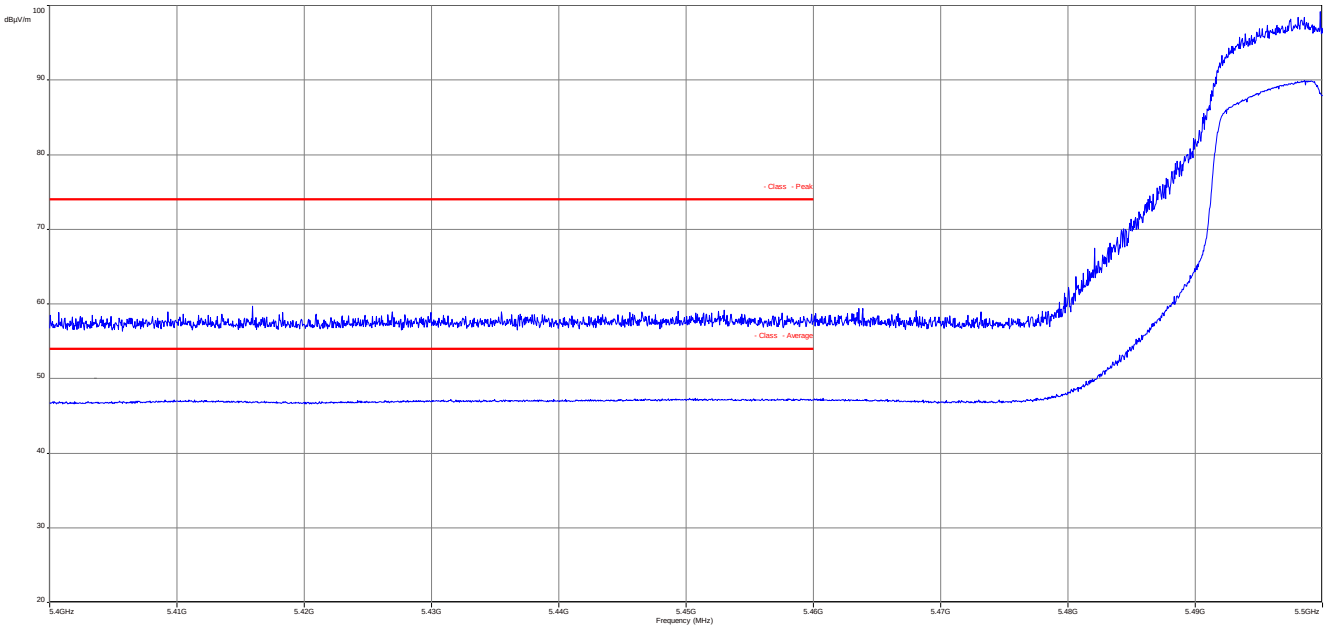
Plot 1: lower band edge, vertical & horizontal polarization (a mode), channel 36



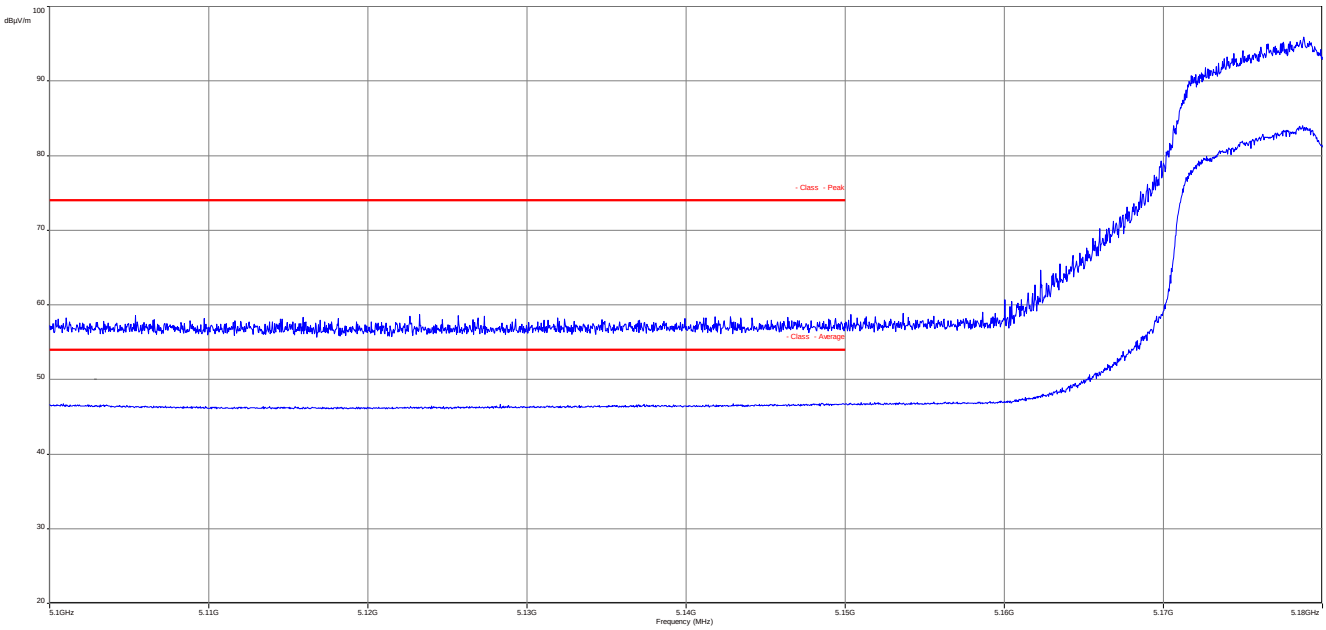
Plot 2: upper band edge, vertical & horizontal polarization (a mode), channel 64



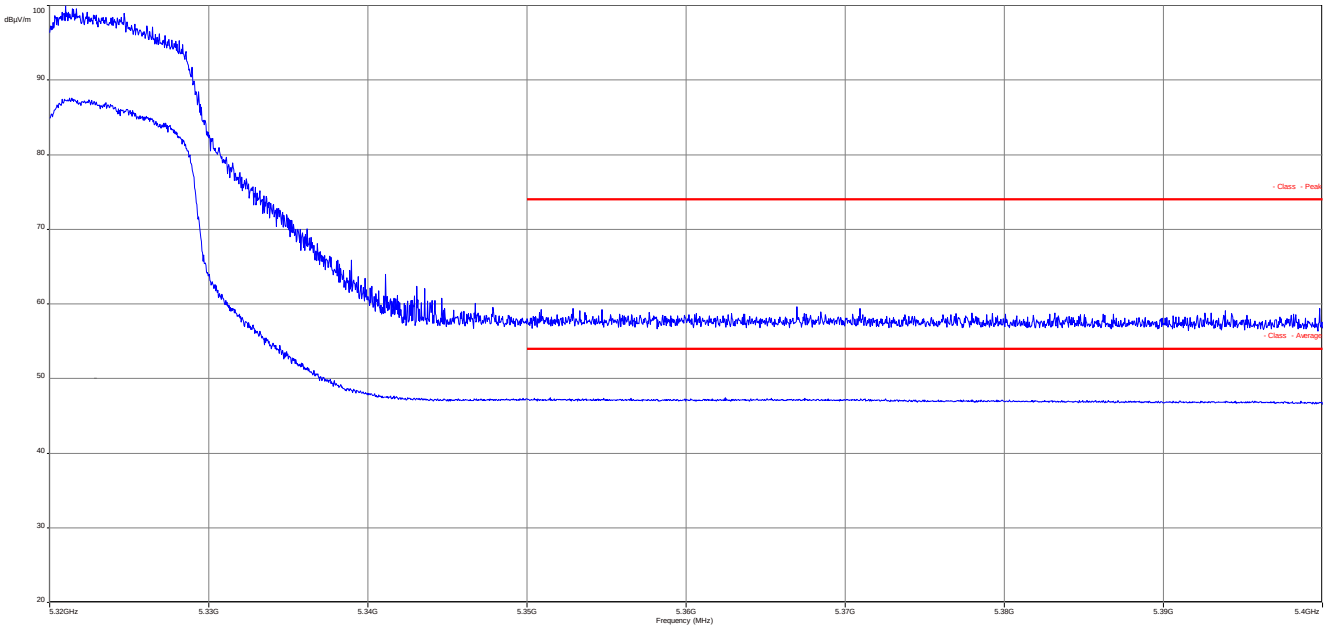
Plot 3: lower band edge, vertical & horizontal polarization (a mode), channel 100



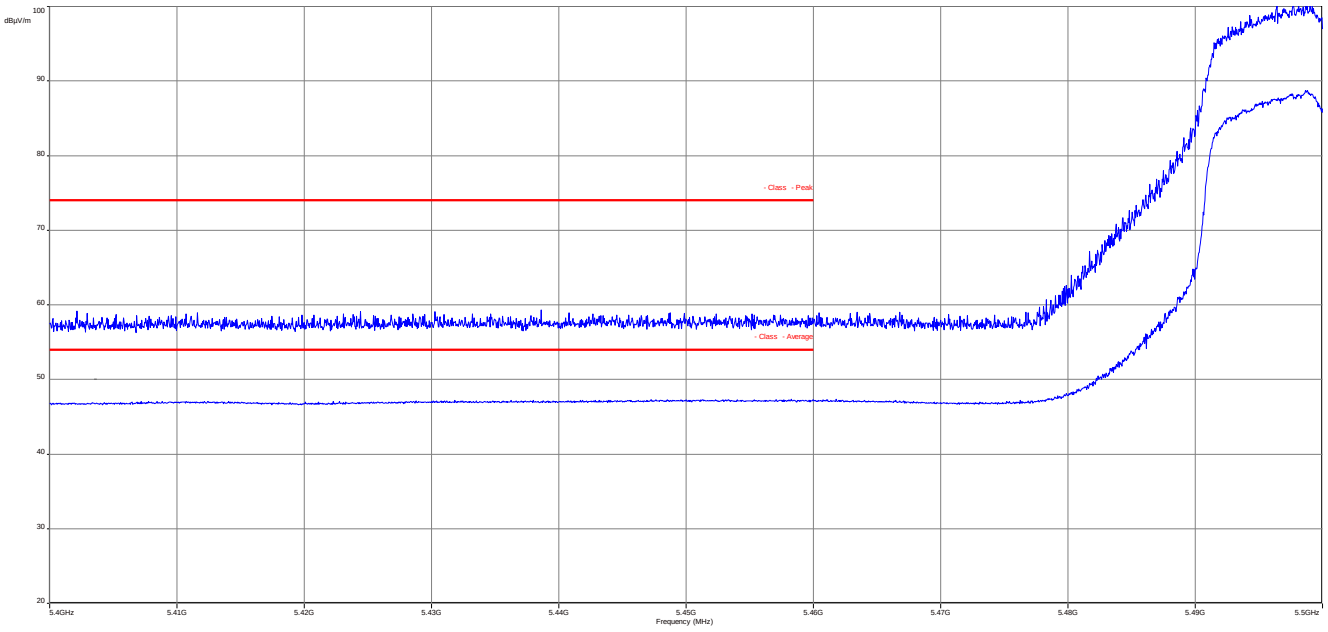
Plot 4: lower band edge, vertical & horizontal polarization (n HT 20 mode), channel 36



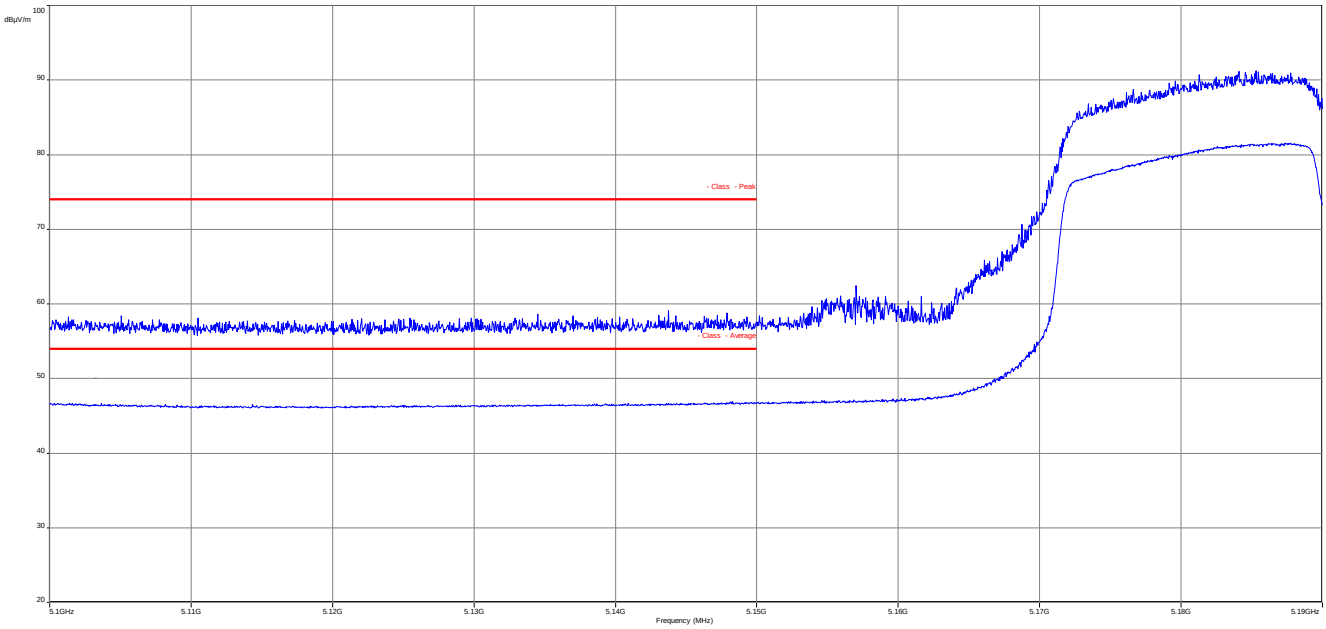
Plot 5: upper band edge, vertical & horizontal polarization (n HT 20 mode), channel 64



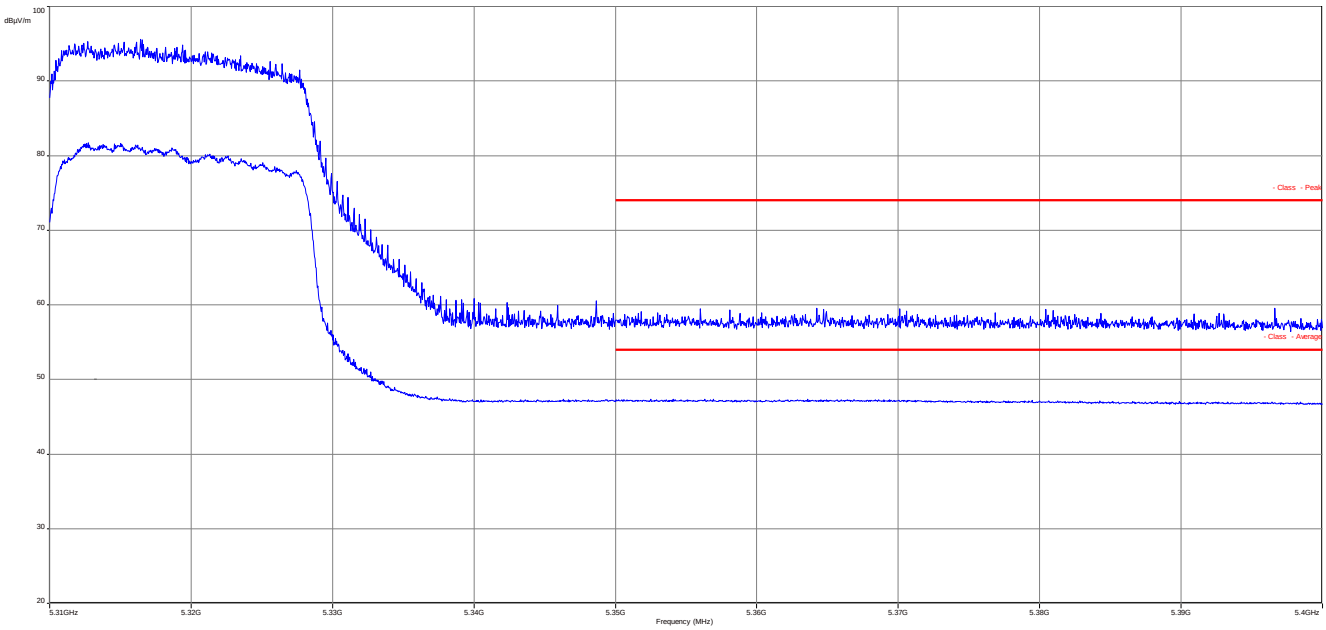
Plot 6: lower band edge, vertical & horizontal polarization (n HT 20 mode), channel 100



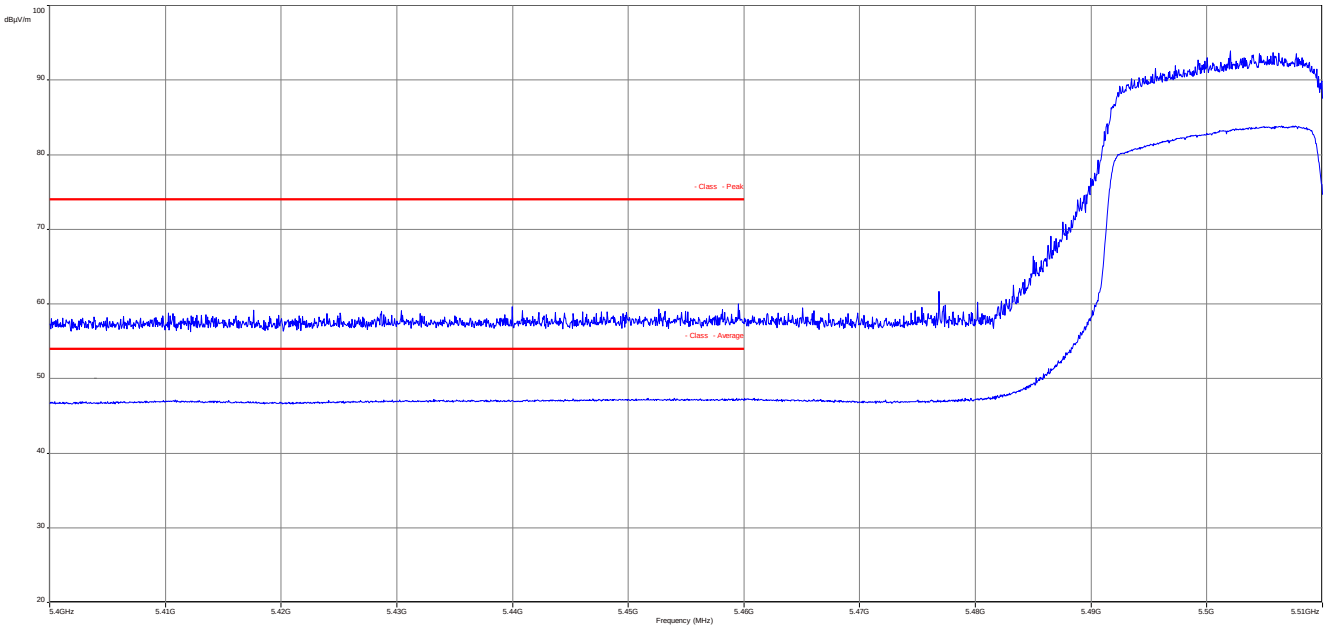
Plot 7: lower band edge, vertical & horizontal polarization (n HT 40 mode), channel 38



Plot 8: upper band edge, vertical & horizontal polarization (n HT 40 mode), channel 62



Plot 9: lower band edge, vertical & horizontal polarization (n HT 40 mode), channel 102



Result: **Passed**

10.4 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:	> 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:

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: OFDM / a – mode

TX Spurious Emissions Radiated [dBµV/m] / dBm								
OFDM a – mode								
Lowest 5180 MHz						Highest 5240 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dBµV/m] / dBm								
OFDM a – mode								
Lowest 5260 MHz						Highest 5320 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dBµV/m] / dBm								
OFDM a – mode								
Lowest 5500 MHz			Middle 5600 MHz			Highest 5700 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dBµV/m] / dBm								
OFDM a – mode								
Lowest 5745 MHz			Middle 5765 MHz			Highest 5805 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

Result: **Passed**

Results: OFDM / n HT20 – mode

TX Spurious Emissions Radiated [dBµV/m] / dBm								
OFDM n – mode HT20								
Lowest 5180 MHz						Highest 5240 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dBµV/m] / dBm								
OFDM n – mode HT20								
Lowest 5260 MHz						Highest 5320 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dBµV/m] / dBm								
OFDM n – mode HT20								
Lowest 5500 MHz			Middle 5600 MHz			Highest 5700 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dBµV/m] / dBm								
OFDM n – mode HT20								
Lowest 5745 MHz			Middle 5765 MHz			Highest 5805 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

Result: **Passed**

Results: OFDM / n HT40 – mode

TX Spurious Emissions Radiated [dBµV/m] / dBm								
OFDM n – mode HT40								
Lowest 5190 MHz			Middle 5230 MHz			Highest 5270 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dBµV/m] / dBm								
OFDM n – mode HT40								
Lowest 5310 MHz			Middle 5510 MHz			Highest 5590 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dBµV/m] / dBm								
OFDM n – mode HT40								
Lowest 5670 MHz			Middle 5765 MHz			Highest 5795 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No peaks found.			No peaks found.			No peaks found.		
Measurement uncertainty			± 3 dB					

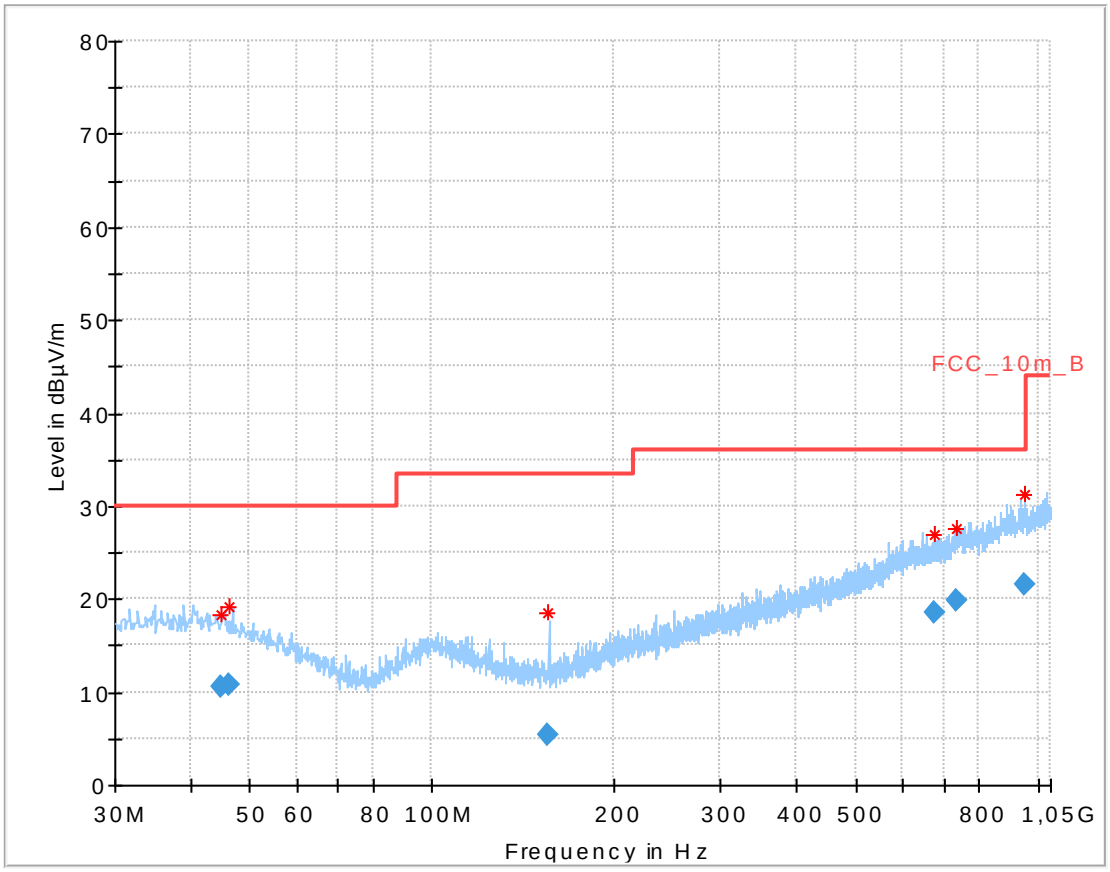
Result: **Passed**

Note:

Results of the OFDM / a – mode and HT40 are added to show the behaviour of the EUT.

Plots: OFDM / a – mode

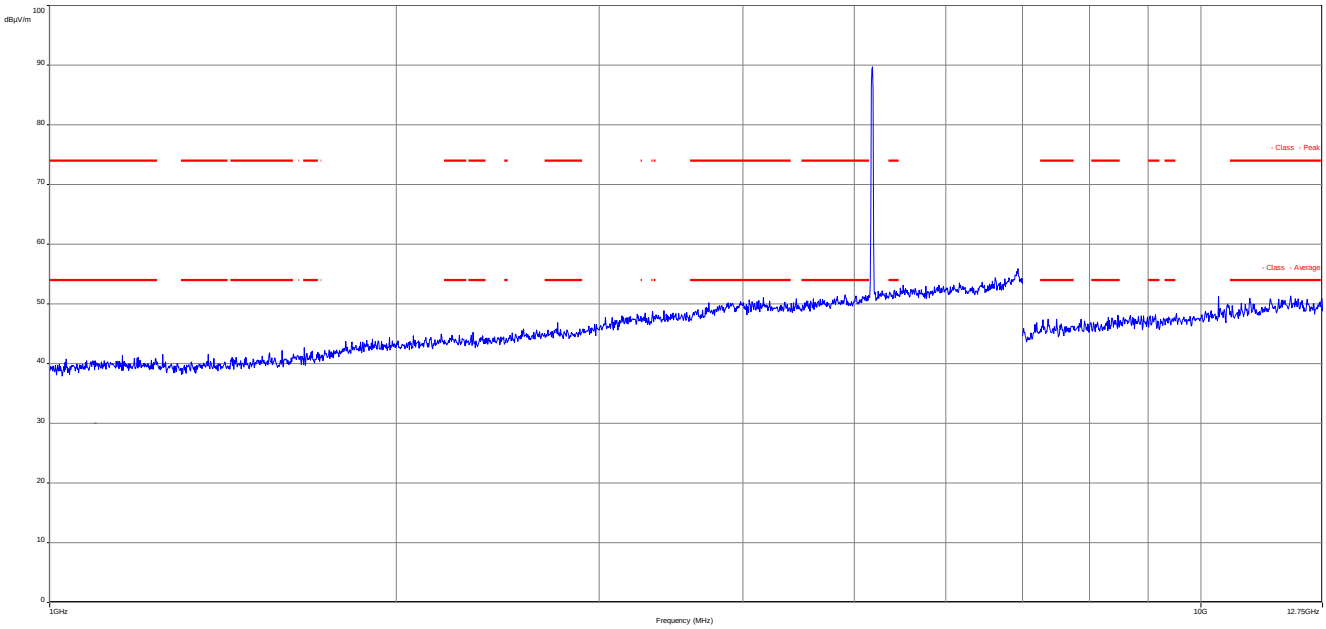
Plot 1: 30 MHz to 1 GHz, 5180 MHz, vertical & horizontal polarization



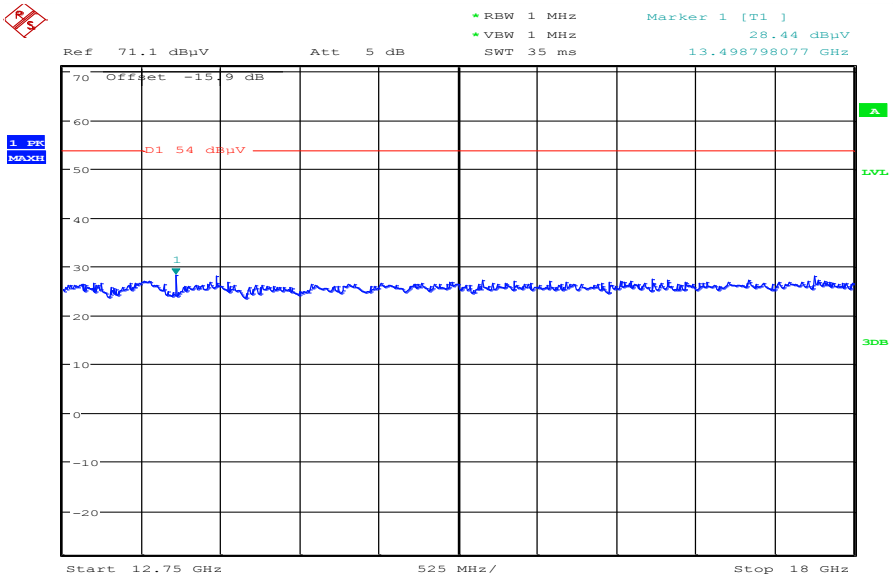
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
44.771250	10.67	30.00	19.33	1000.0	120.000	170.0	H	90	13.9
46.447500	10.87	30.00	19.13	1000.0	120.000	101.0	V	25	13.5
155.477250	5.44	33.50	28.06	1000.0	120.000	170.0	V	-25	9.0
673.873950	18.61	36.00	17.39	1000.0	120.000	170.0	V	-25	21.3
735.470100	19.74	36.00	16.26	1000.0	120.000	101.0	V	245	22.4
948.056100	21.55	36.00	14.45	1000.0	120.000	170.0	H	-25	24.3

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

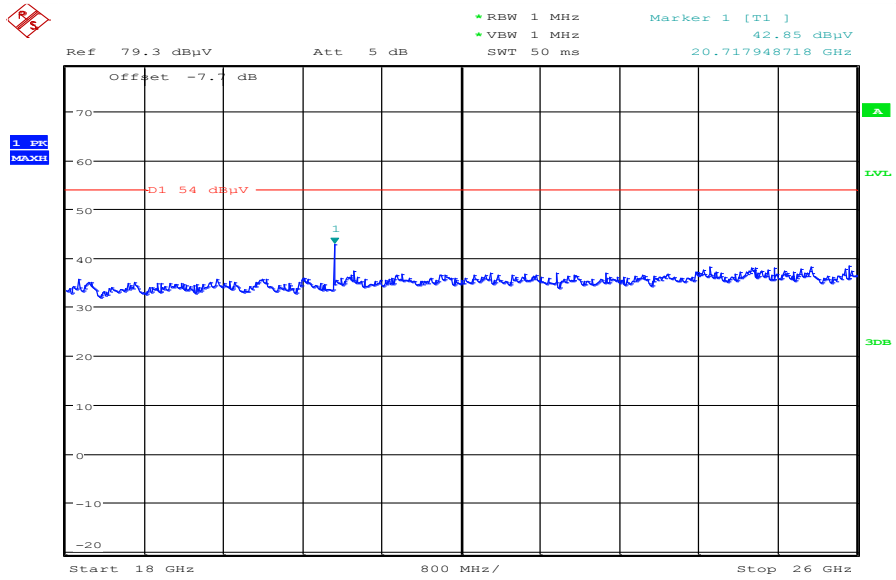


Plot 3: 12 GHz to 18 GHz, 5180 MHz, vertical & horizontal polarization



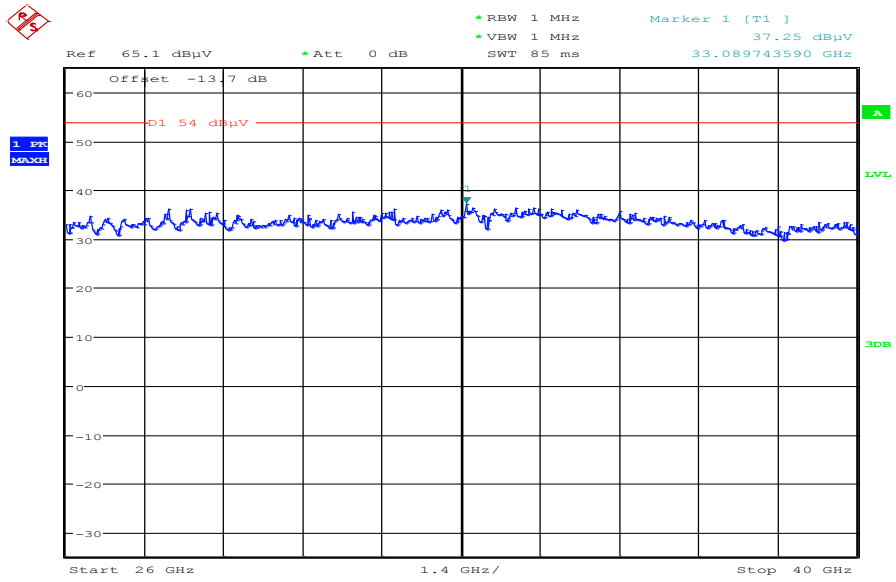
Date: 24.OCT.2014 08:54:45

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



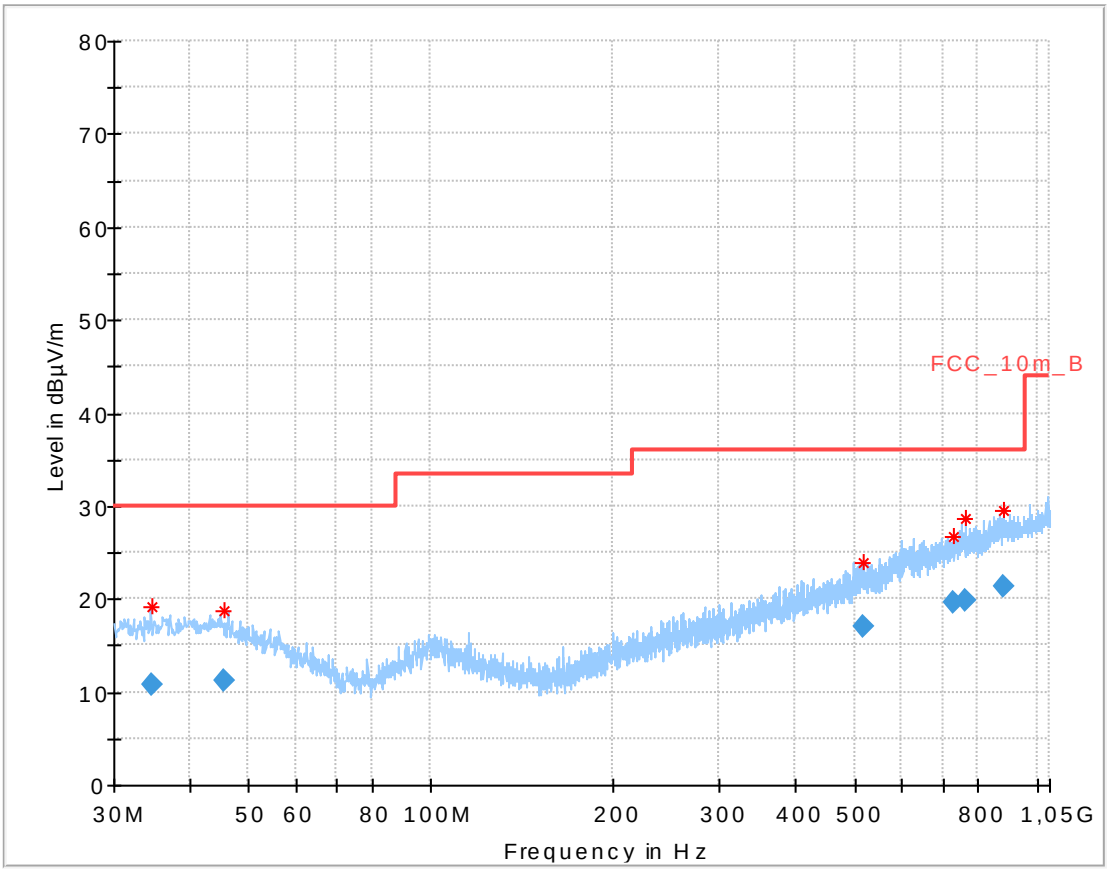
Date: 24.OCT.2014 10:04:12

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



Date: 24.OCT.2014 11:08:07

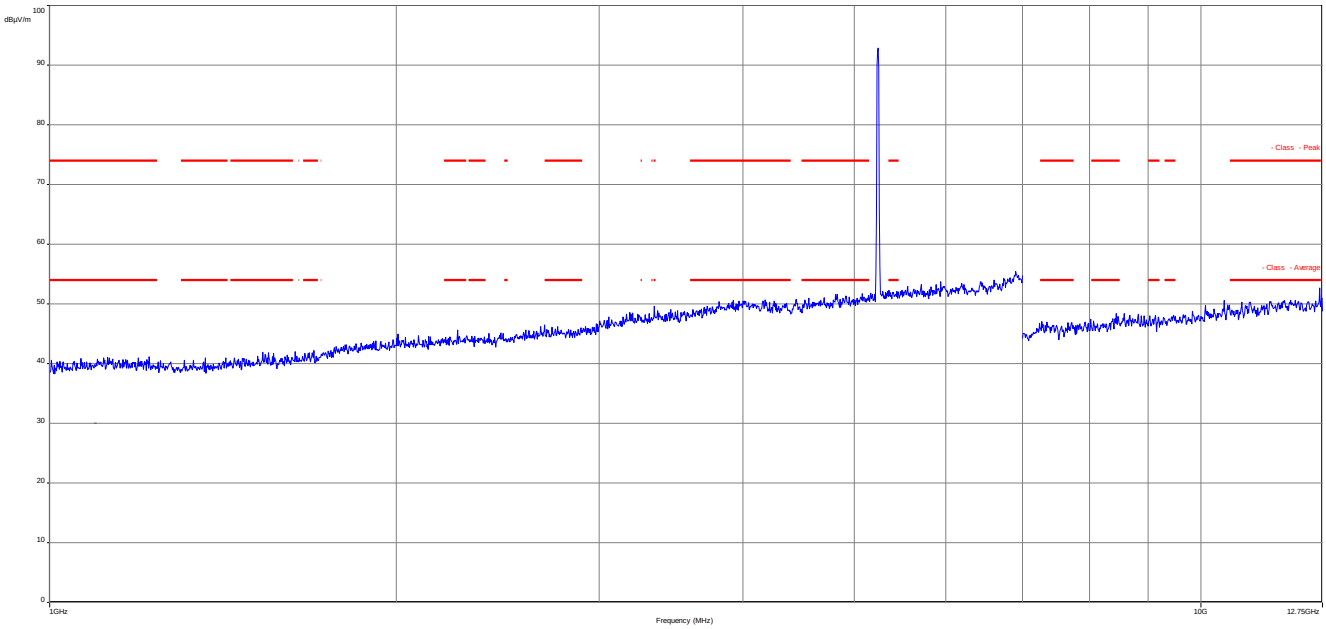
Plot 6: 30 MHz to 1 GHz, 5240 MHz, vertical & horizontal polarization



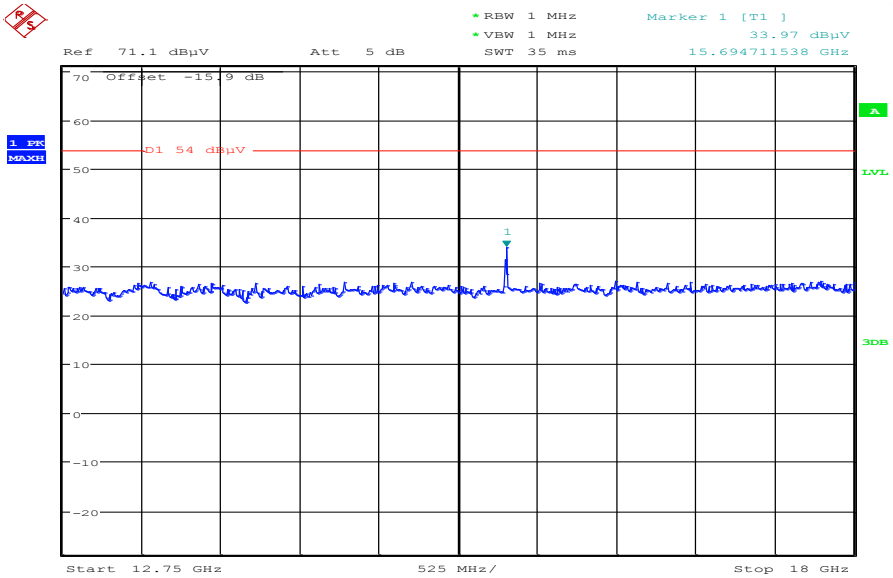
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
34.766100	10.69	30.00	19.31	1000.0	120.000	101.0	H	155	13.8
45.735600	11.25	30.00	18.75	1000.0	120.000	101.0	V	180	13.7
515.790150	16.99	36.00	19.01	1000.0	120.000	170.0	V	180	18.9
728.309550	19.60	36.00	16.40	1000.0	120.000	170.0	H	205	22.2
765.471900	19.92	36.00	16.08	1000.0	120.000	170.0	V	25	22.7
881.577750	21.35	36.00	14.65	1000.0	120.000	170.0	H	91	23.9

Plot 7: 1 GHz to 12.75 GHz, 5240 MHz, vertical & horizontal polarization

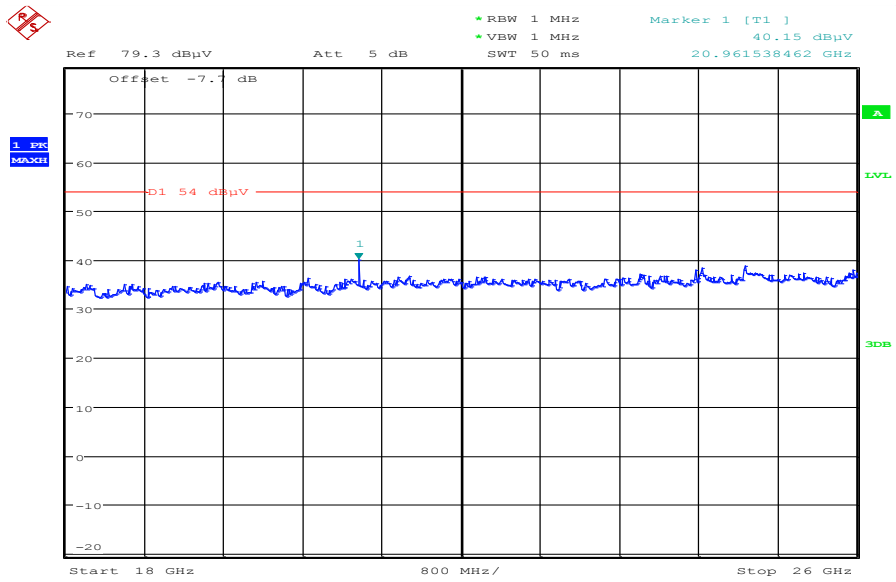


Plot 8: 12 GHz to 18 GHz, 5240 MHz, vertical & horizontal polarization



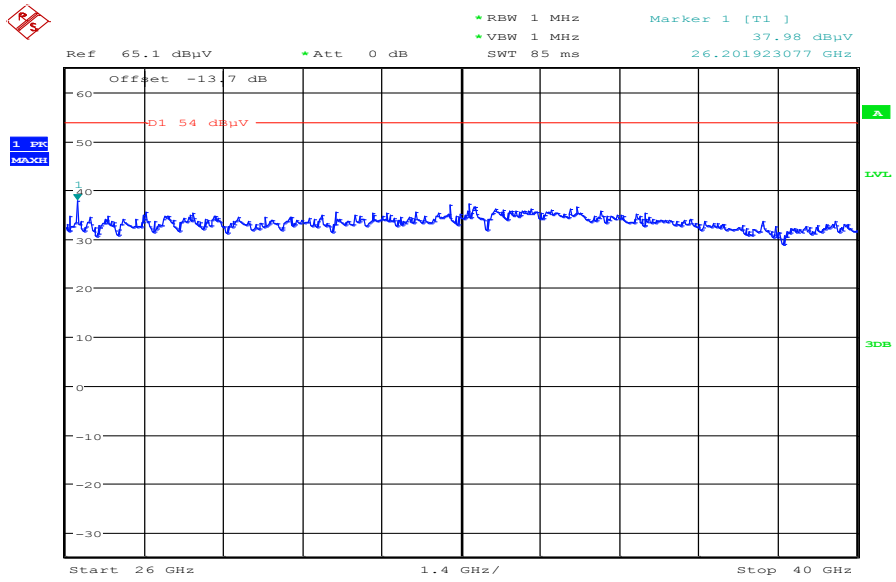
Date: 24.OCT.2014 09:00:24

Plot 9: 18 GHz to 26 GHz, 5240 MHz, vertical & horizontal polarization



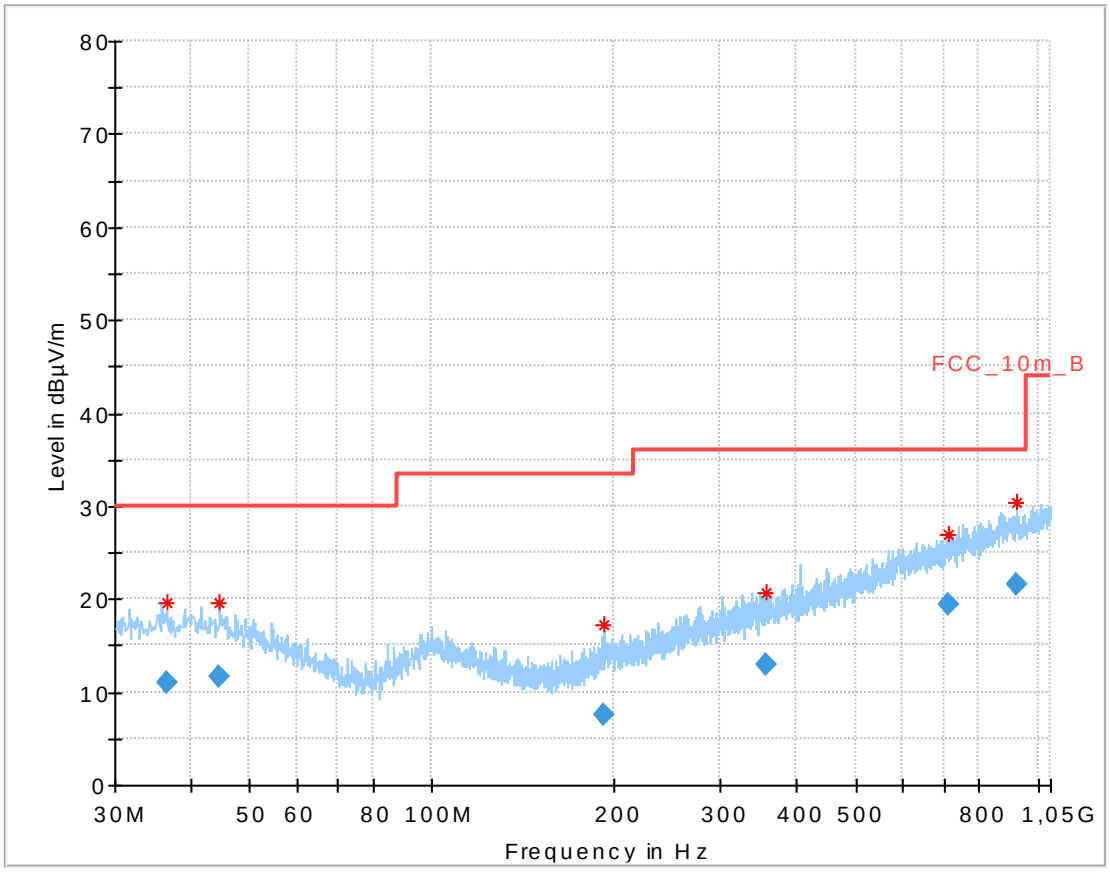
Date: 24.OCT.2014 10:05:19

Plot 10: 26 GHz to 40 GHz, 5240 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:09:40

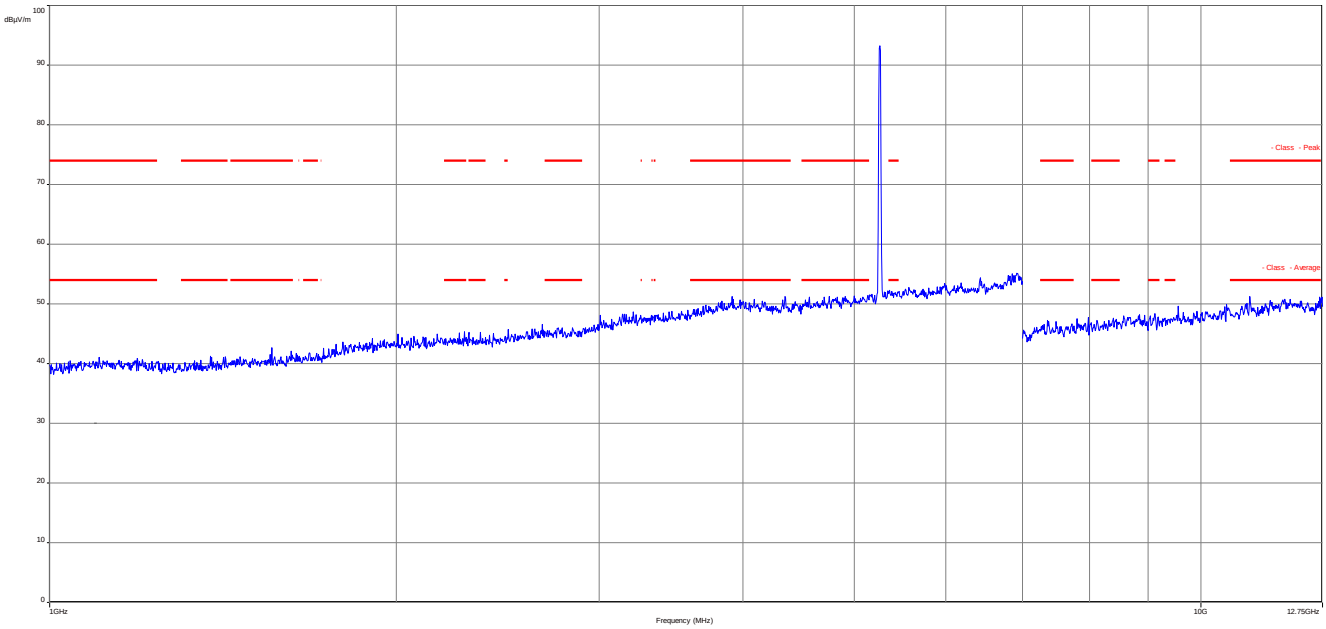
Plot 11: 30 MHz to 1 GHz, 5260 MHz, vertical & horizontal polarization



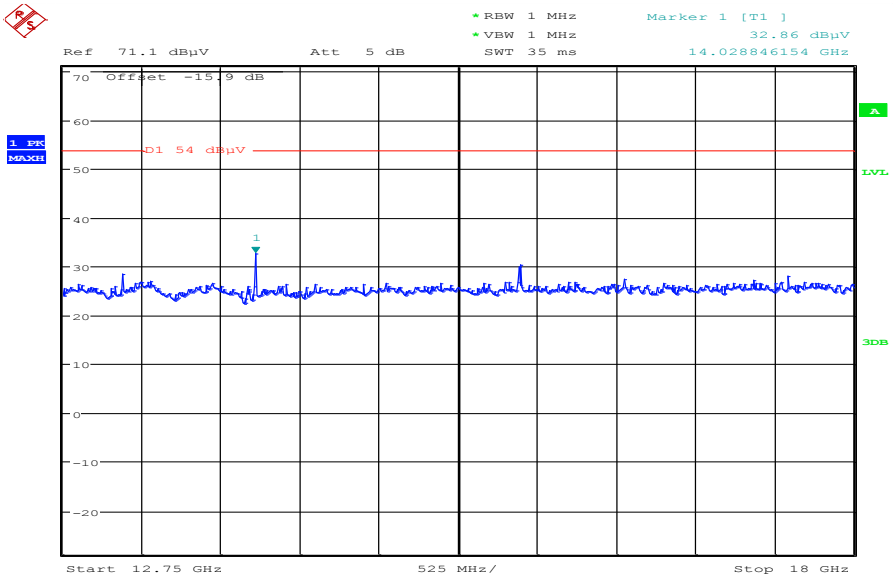
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
36.442350	10.96	30.00	19.04	1000.0	120.000	101.0	V	66	13.9
44.529450	11.57	30.00	18.43	1000.0	120.000	170.0	V	89	13.9
192.698700	7.56	33.50	25.94	1000.0	120.000	98.0	H	90	11.2
354.854550	12.98	36.00	23.02	1000.0	120.000	101.0	V	25	16.1
714.793050	19.40	36.00	16.60	1000.0	120.000	101.0	V	93	21.9
923.022000	21.57	36.00	14.43	1000.0	120.000	170.0	H	115	24.2

Plot 12: 1 GHz to 12.75 GHz, 5260 MHz, vertical & horizontal polarization

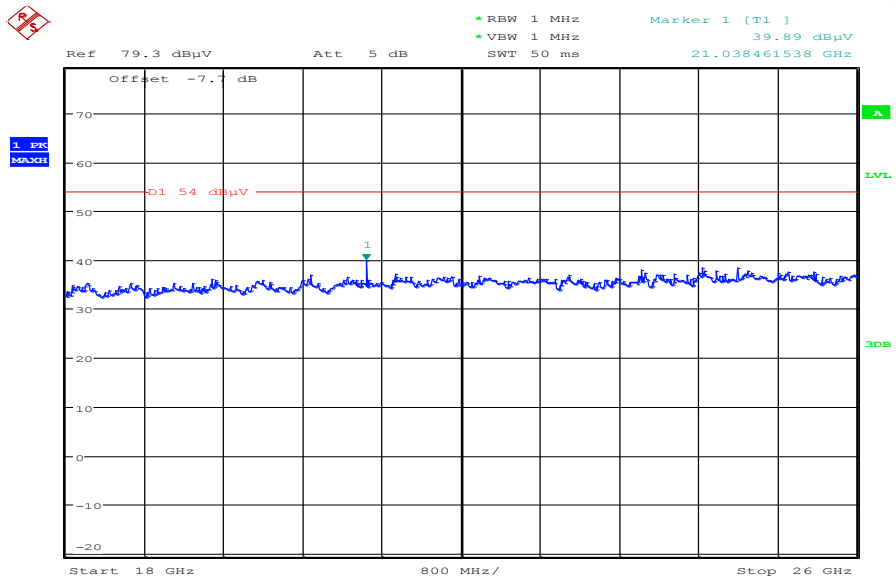


Plot 13: 12 GHz to 18 GHz, 5260 MHz, vertical & horizontal polarization



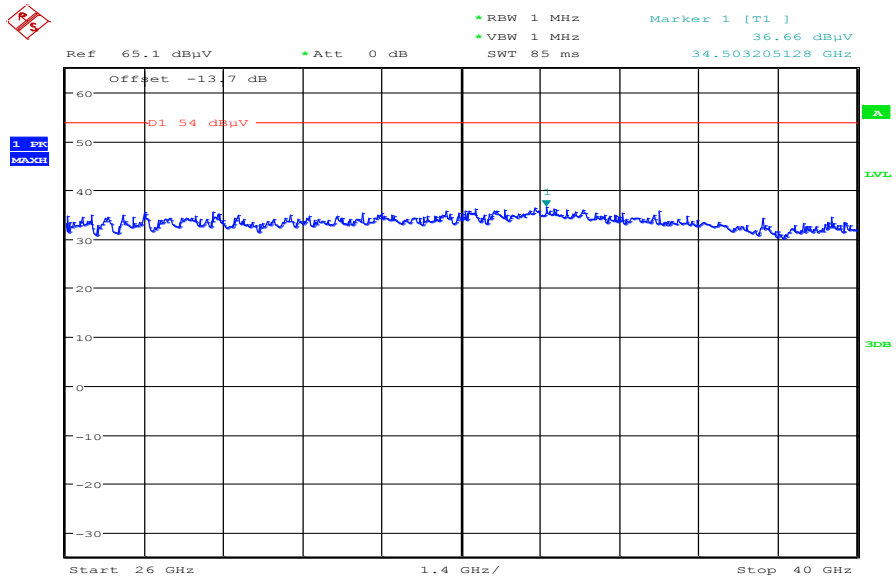
Date: 24.OCT.2014 09:02:09

Plot 14: 18 GHz to 26 GHz, 5260 MHz, vertical & horizontal polarization



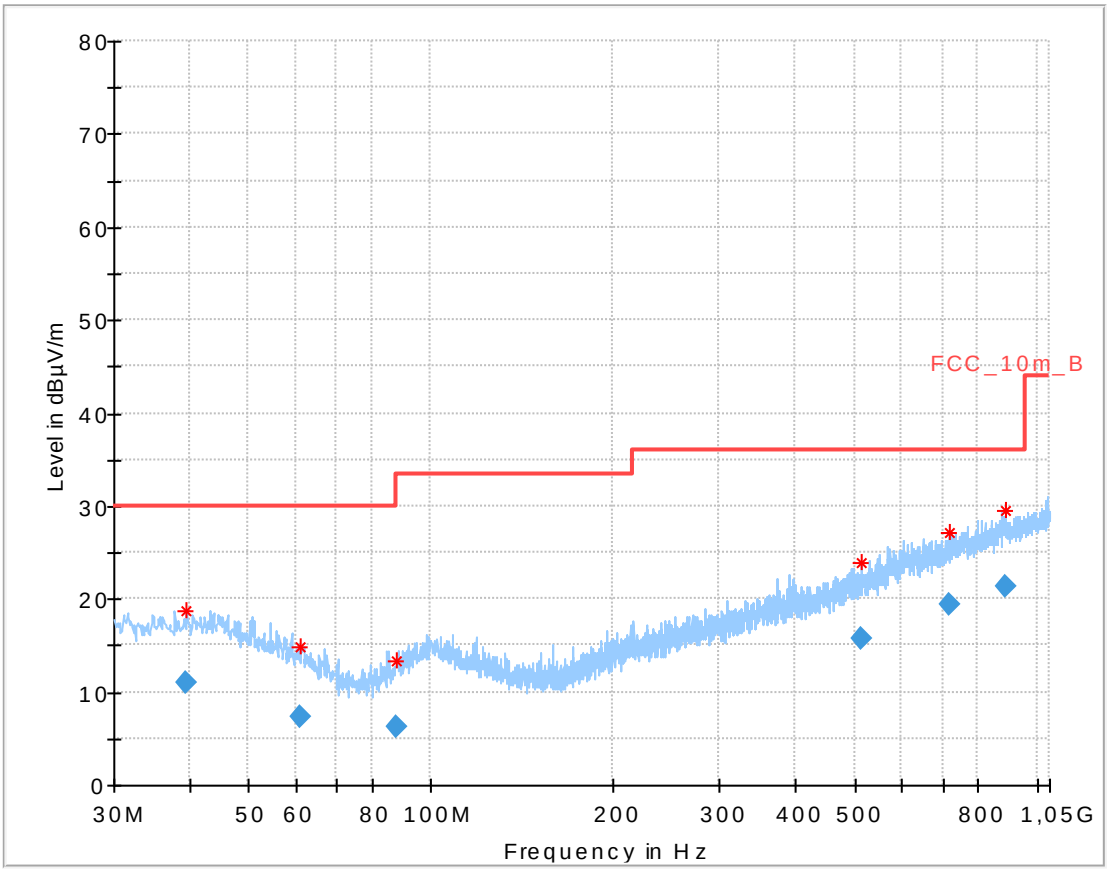
Date: 24.OCT.2014 10:06:33

Plot 15: 26 GHz to 40 GHz, 5260 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:10:48

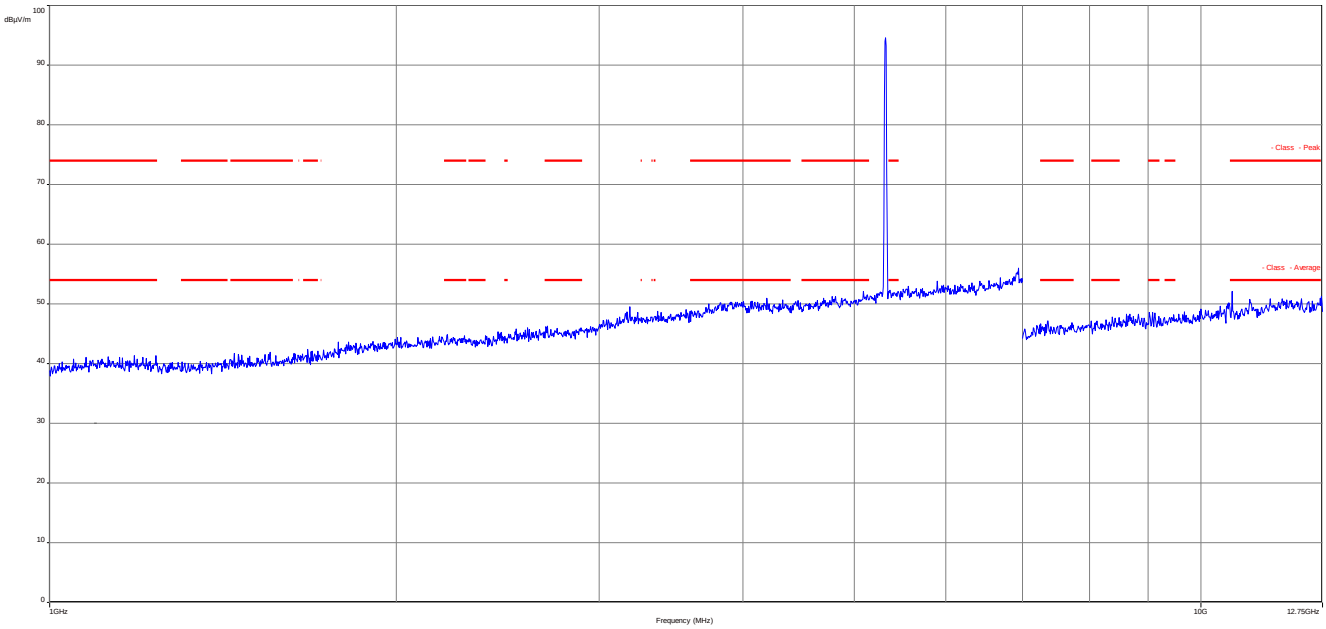
Plot 16: 30 MHz to 1 GHz, 5320 MHz, vertical & horizontal polarization



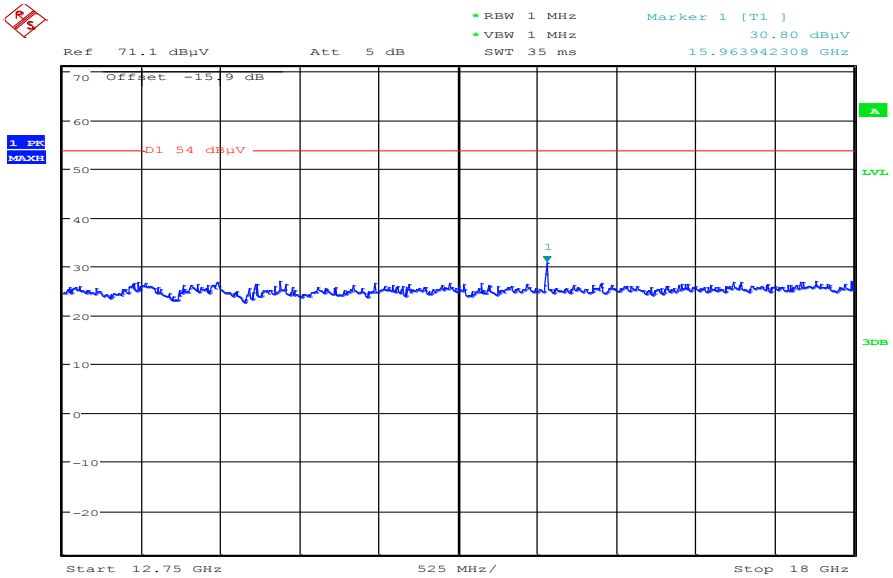
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
39.510000	10.96	30.00	19.04	1000.0	120.000	101.0	V	115	14.0
60.693450	7.40	30.00	22.60	1000.0	120.000	101.0	H	90	10.4
87.831150	6.24	30.00	23.76	1000.0	120.000	98.0	V	-1	9.9
512.101500	15.76	36.00	20.24	1000.0	120.000	170.0	H	180	18.9
718.684350	19.38	36.00	16.62	1000.0	120.000	170.0	V	65	22.0
891.086100	21.45	36.00	14.55	1000.0	120.000	98.0	H	205	24.0

Plot 17: 1 GHz to 12.75 GHz, 5320 MHz, vertical & horizontal polarization

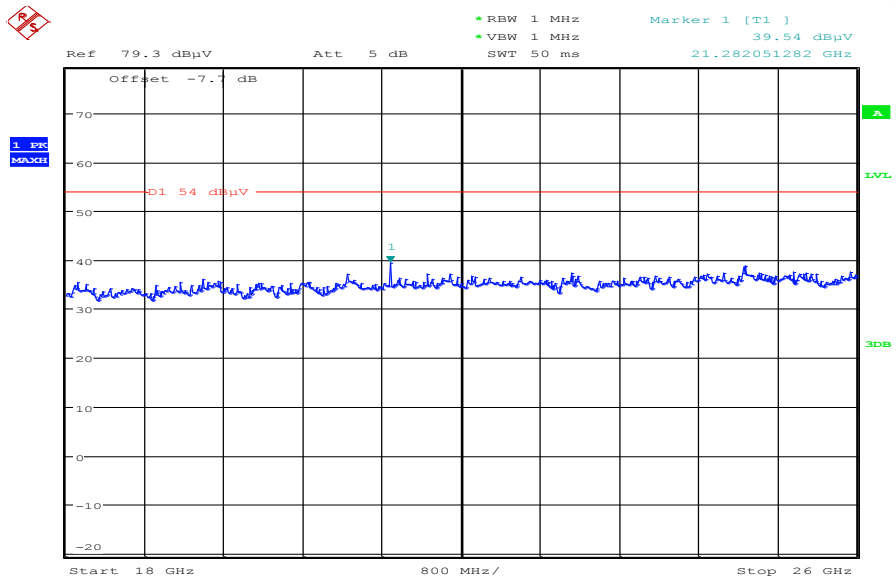


Plot 18: 12 GHz to 18 GHz, 5320 MHz, vertical & horizontal polarization



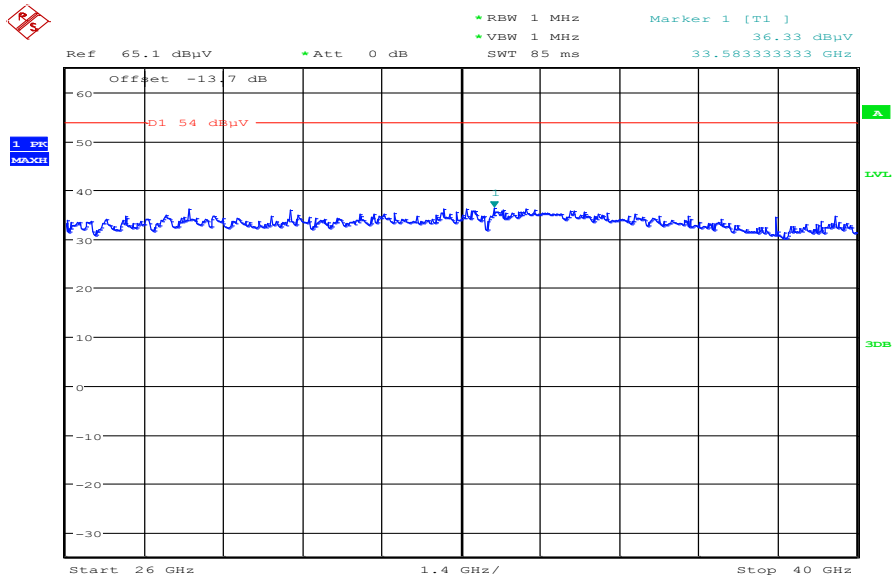
Date: 24.OCT.2014 09:03:35

Plot 19: 18 GHz to 26 GHz, 5320 MHz, vertical & horizontal polarization



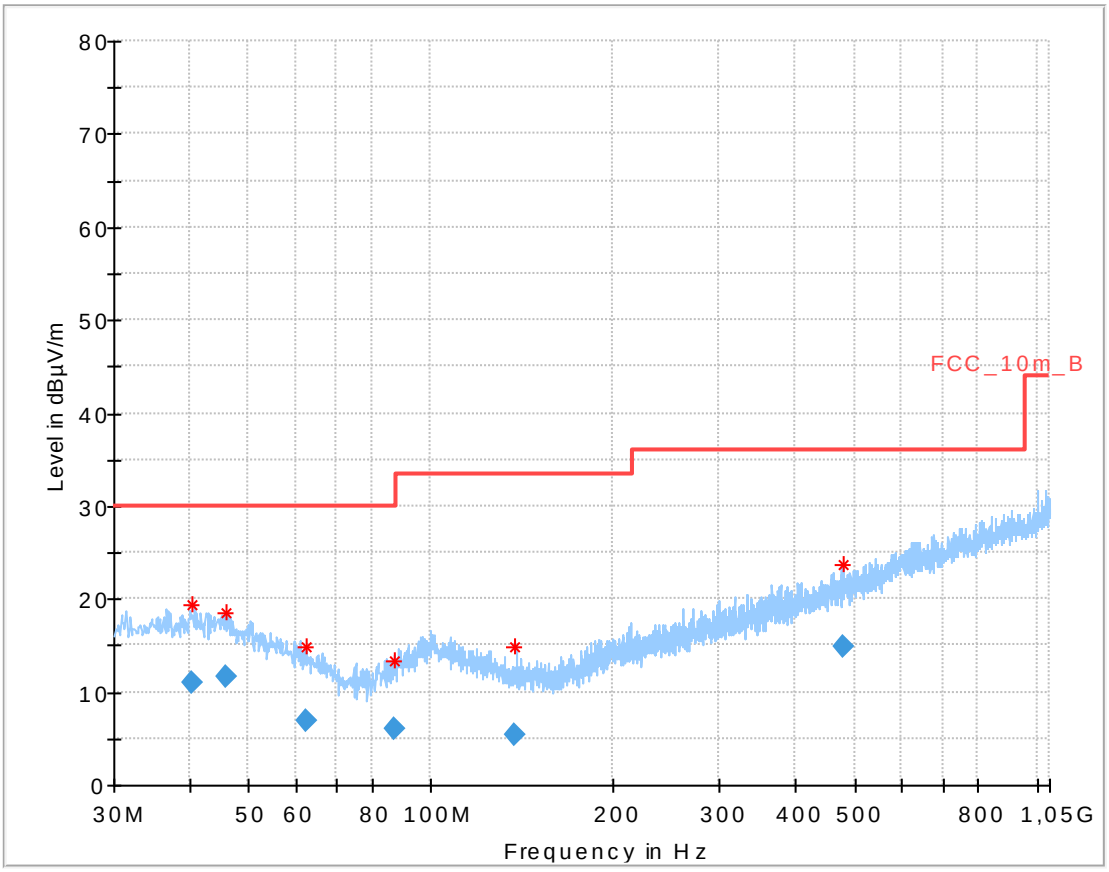
Date: 24.OCT.2014 10:09:01

Plot 20: 26 GHz to 40 GHz, 5320 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:12:08

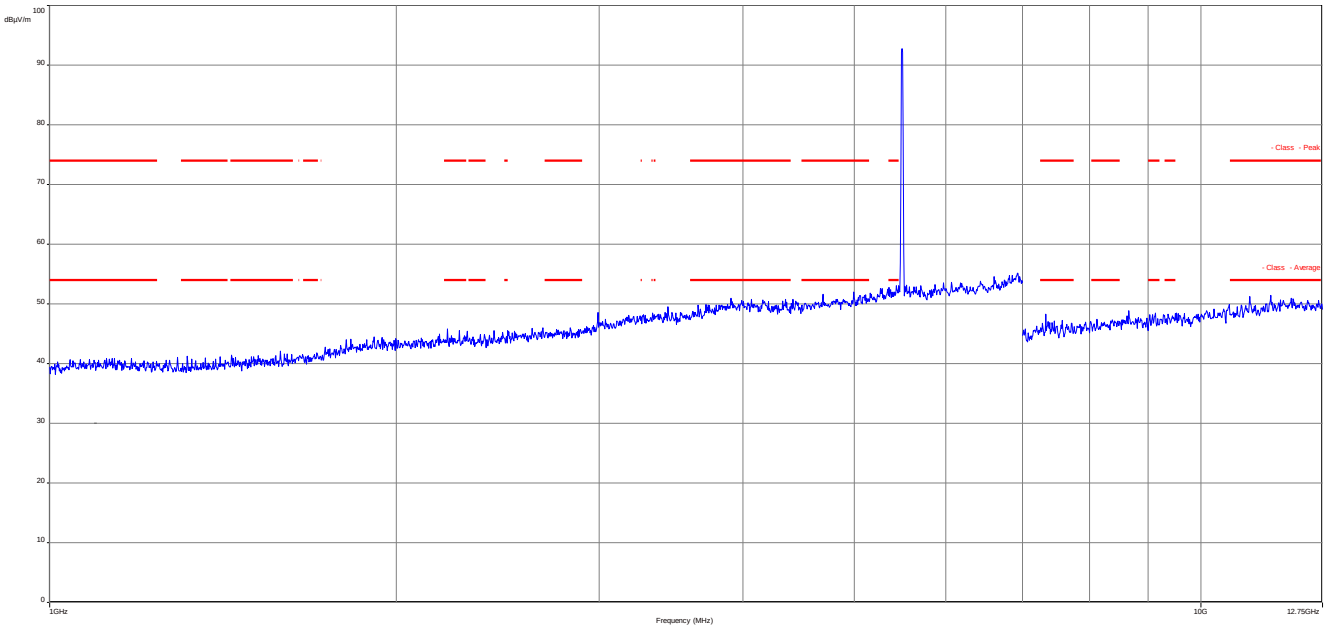
Plot 21: 30 MHz to 1 GHz, 5500 MHz, vertical & horizontal polarization



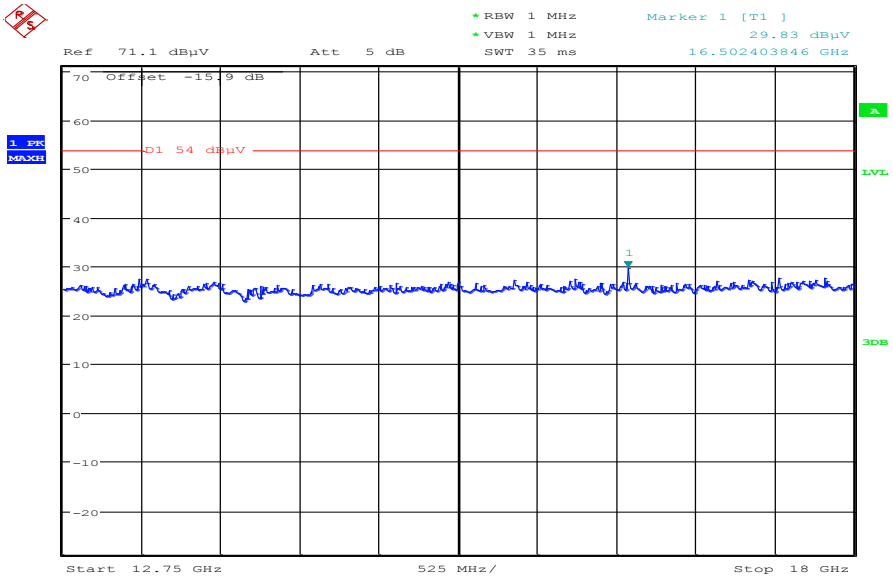
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.368000	11.08	30.00	18.92	1000.0	120.000	170.0	V	180	14.0
45.901800	11.63	30.00	18.37	1000.0	120.000	101.0	V	180	13.6
62.181600	6.96	30.00	23.04	1000.0	120.000	170.0	V	155	10.1
86.871150	6.10	30.00	23.90	1000.0	120.000	170.0	H	25	9.7
137.849100	5.34	33.50	28.16	1000.0	120.000	170.0	V	0	8.8
478.087950	14.96	36.00	21.04	1000.0	120.000	170.0	H	115	18.2

Plot 22: 1 GHz to 12.75 GHz, 5500 MHz, vertical & horizontal polarization

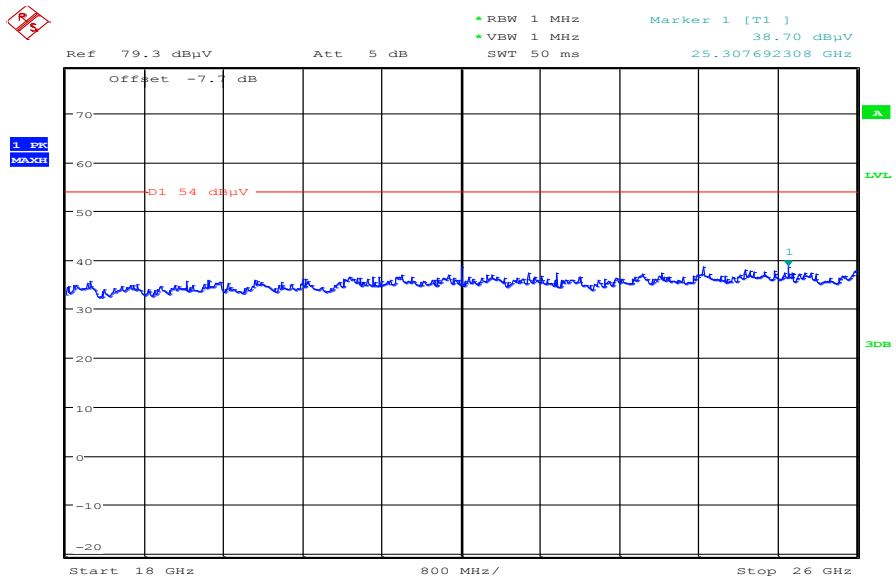


Plot 23: 12 GHz to 18 GHz, 5500 MHz, vertical & horizontal polarization



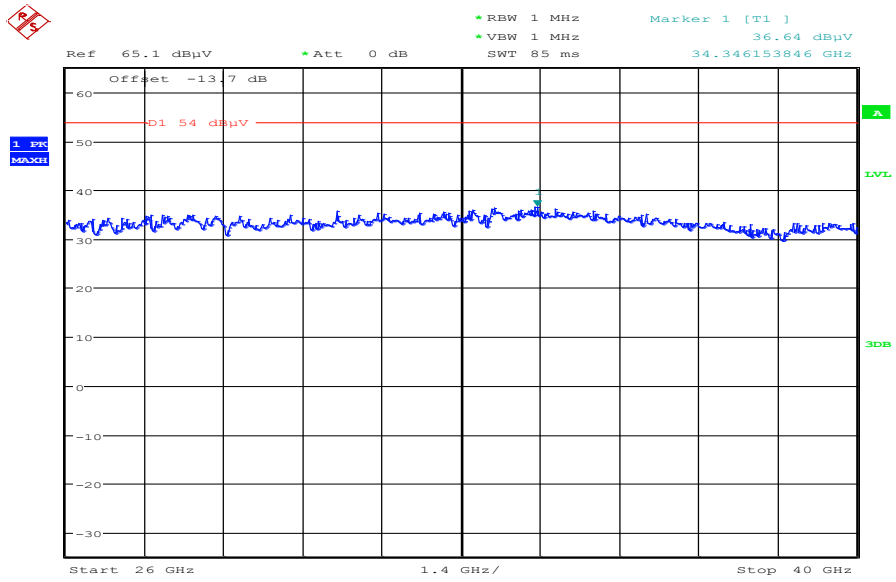
Date: 24.OCT.2014 09:05:17

Plot 24: 18 GHz to 26 GHz, 5500 MHz, vertical & horizontal polarization



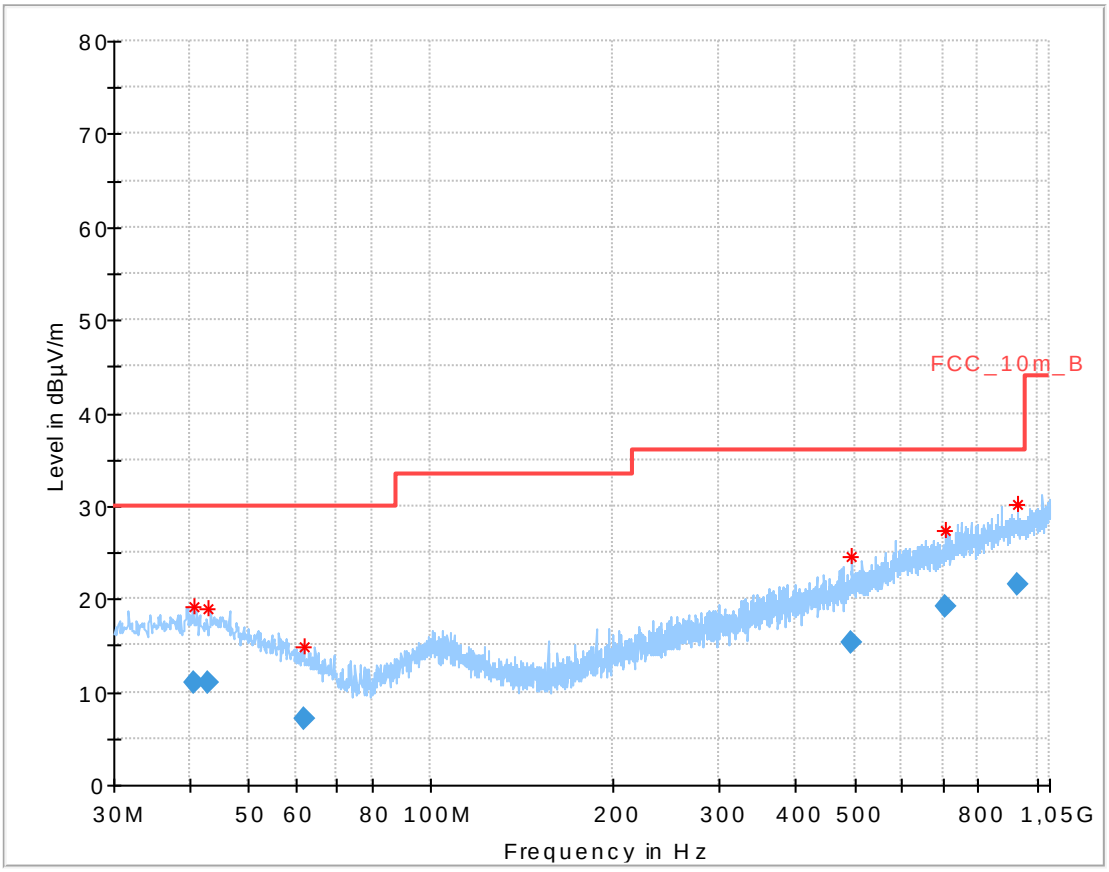
Date: 24.OCT.2014 10:10:31

Plot 25: 26 GHz to 40 GHz, 5500 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:13:18

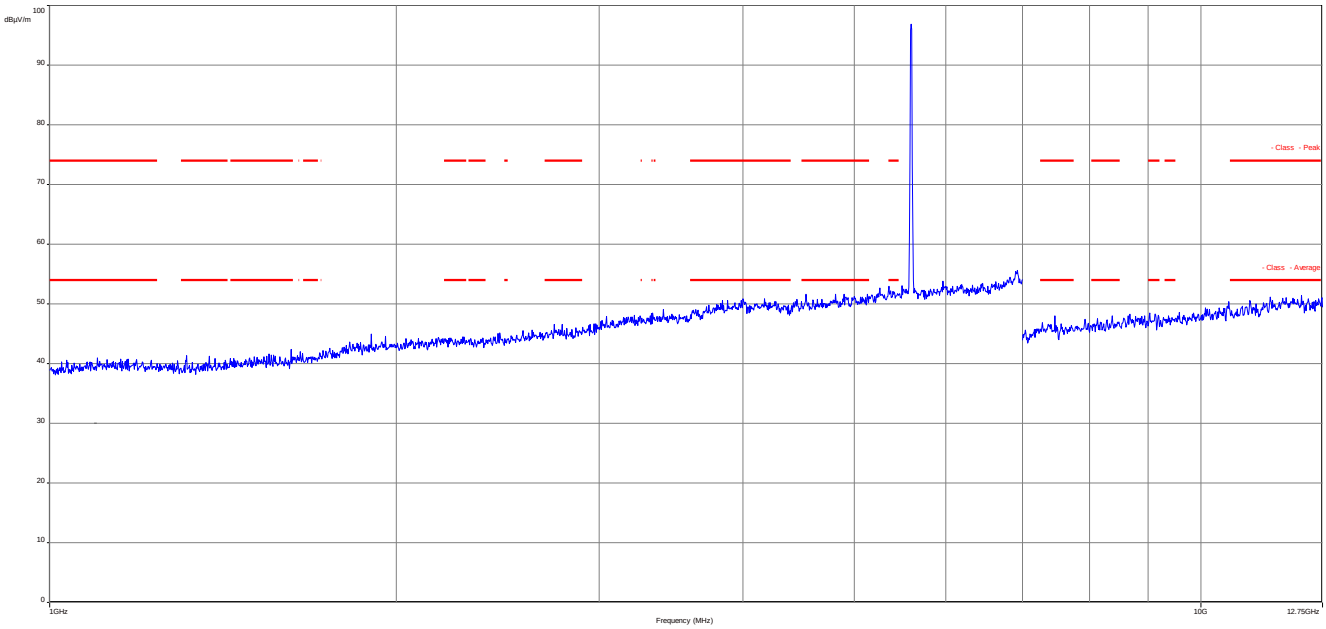
Plot 26: 30 MHz to 1 GHz, 5600 MHz, vertical & horizontal polarization



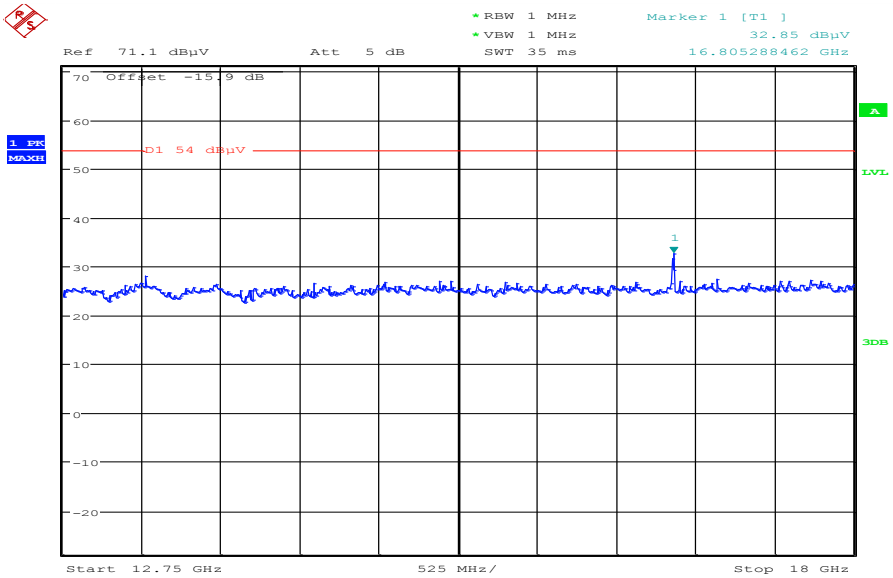
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.755900	11.08	30.00	18.92	1000.0	120.000	98.0	V	0	14.0
42.972450	10.92	30.00	19.08	1000.0	120.000	101.0	V	65	13.9
61.668450	7.14	30.00	22.86	1000.0	120.000	101.0	V	0	10.2
495.494700	15.37	36.00	20.63	1000.0	120.000	101.0	H	0	18.6
706.435500	19.19	36.00	16.81	1000.0	120.000	170.0	V	-1	21.7
930.757050	21.59	36.00	14.41	1000.0	120.000	100.0	H	65	24.2

Plot 27: 1 GHz to 12.75 GHz, 5600 MHz, vertical & horizontal polarization

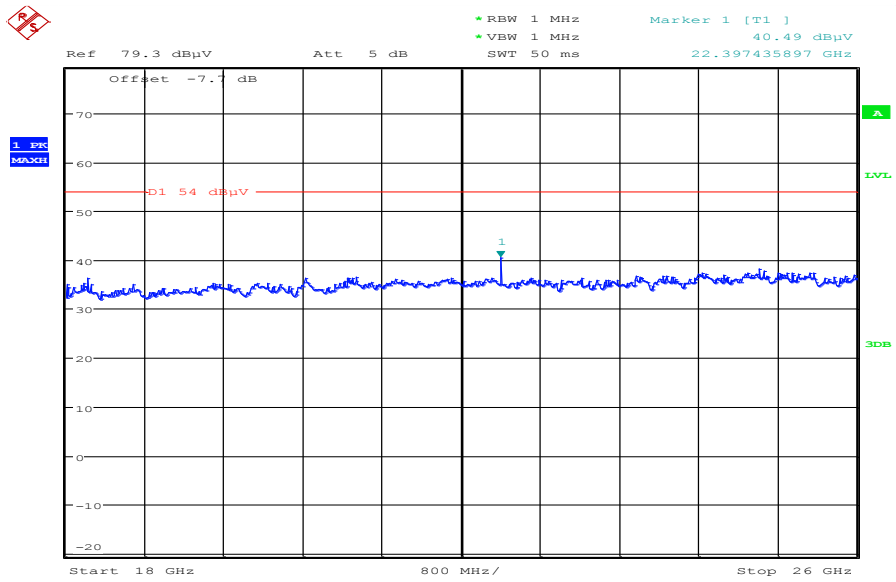


Plot 28: 12 GHz to 18 GHz, 5600 MHz, vertical & horizontal polarization



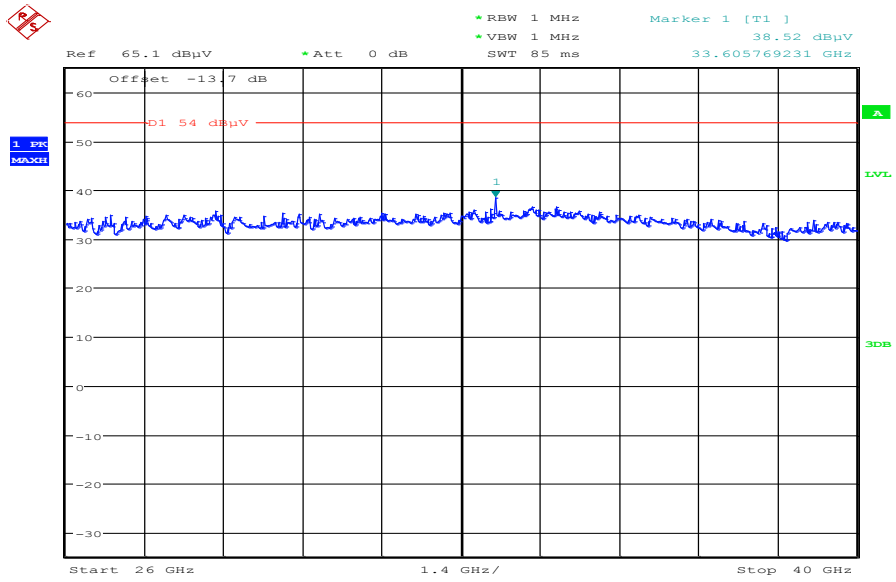
Date: 24.OCT.2014 09:06:35

Plot 29: 18 GHz to 26 GHz, 5600 MHz, vertical & horizontal polarization



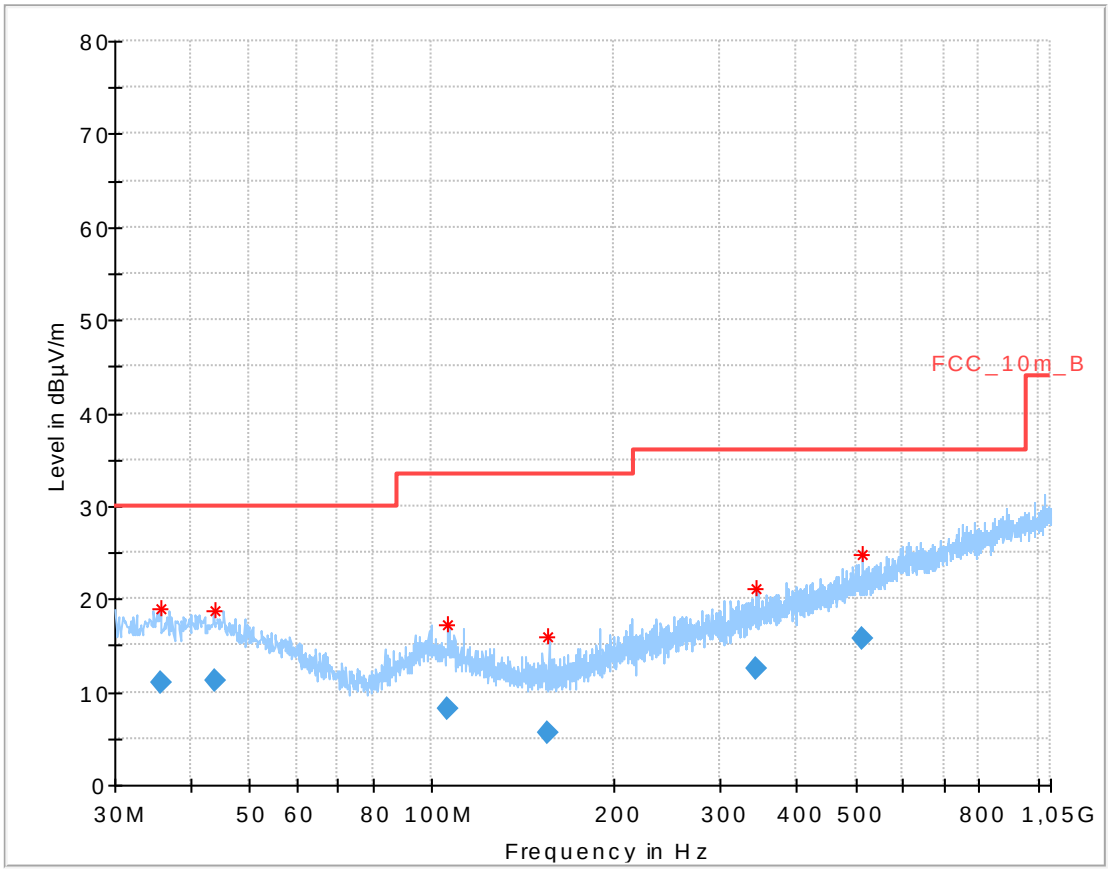
Date: 24.OCT.2014 10:12:20

Plot 30: 26 GHz to 40 GHz, 5600 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:14:16

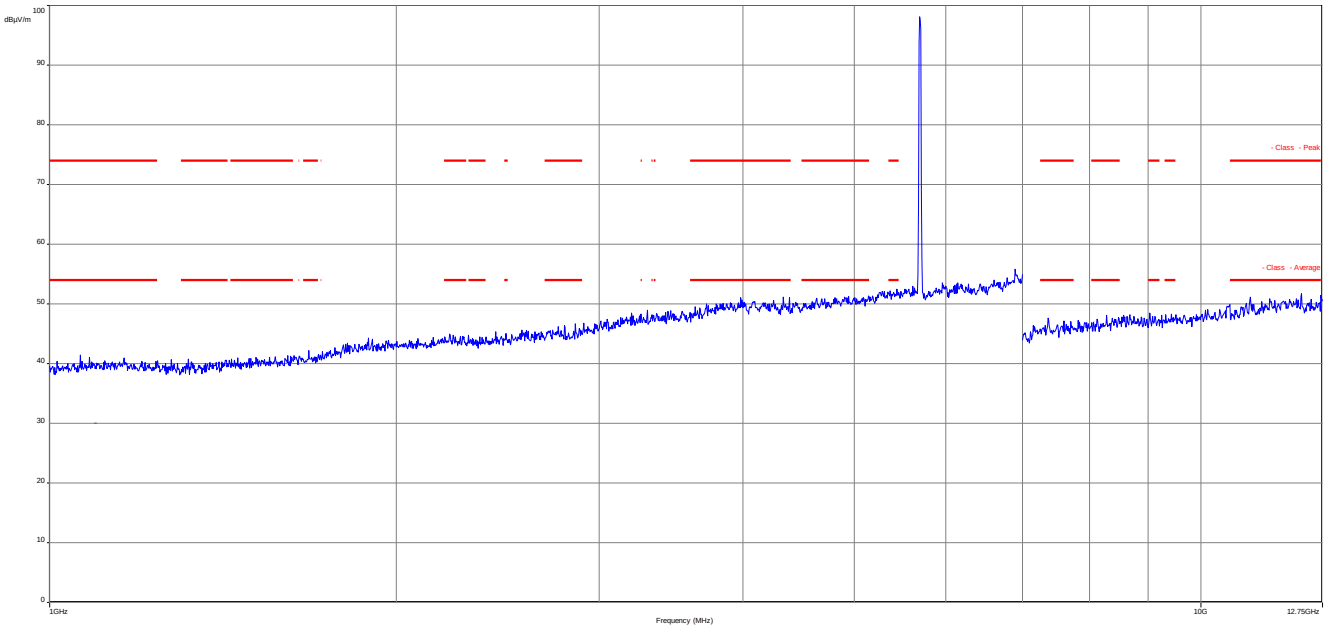
Plot 31: 30 MHz to 1 GHz, 5700 MHz, vertical & horizontal polarization



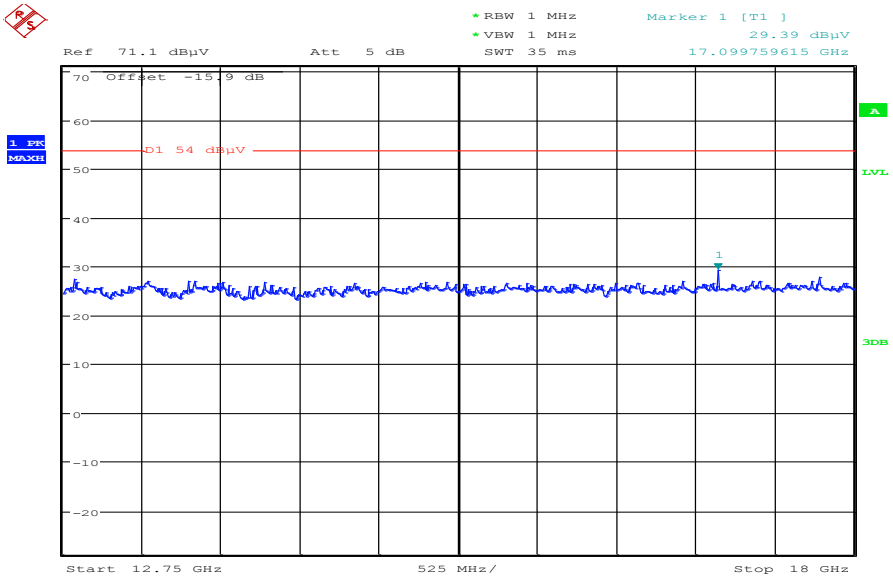
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
35.715900	10.99	30.00	19.01	1000.0	120.000	170.0	V	115	13.8
43.912950	11.17	30.00	18.83	1000.0	120.000	101.0	V	-25	13.9
105.997350	8.10	33.50	25.40	1000.0	120.000	101.0	H	0	11.5
155.675550	5.50	33.50	28.00	1000.0	120.000	98.0	V	295	9.0
343.020600	12.49	36.00	23.51	1000.0	120.000	170.0	V	270	15.8
514.253250	15.70	36.00	20.30	1000.0	120.000	170.0	H	90	18.9

Plot 32: 1 GHz to 12.75 GHz, 5700 MHz, vertical & horizontal polarization

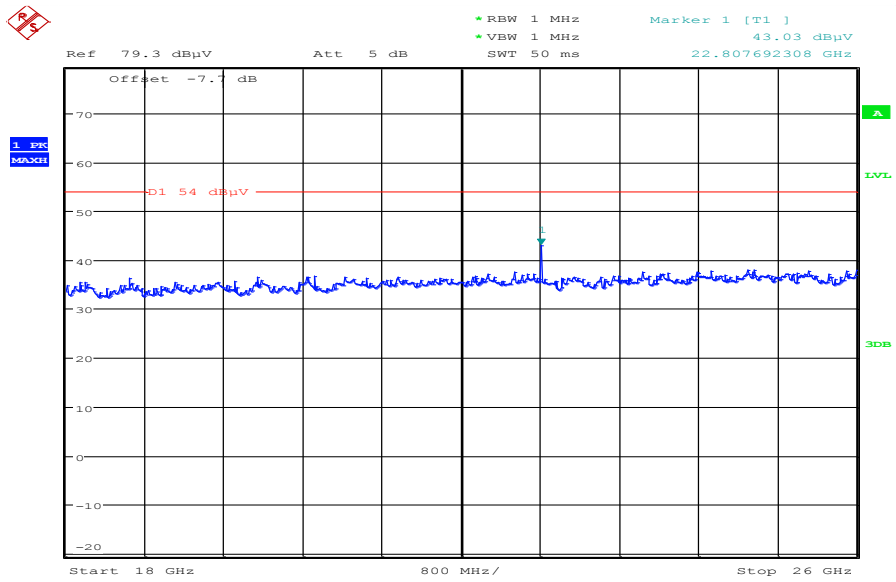


Plot 33: 12 GHz to 18 GHz, 5700 MHz, vertical & horizontal polarization



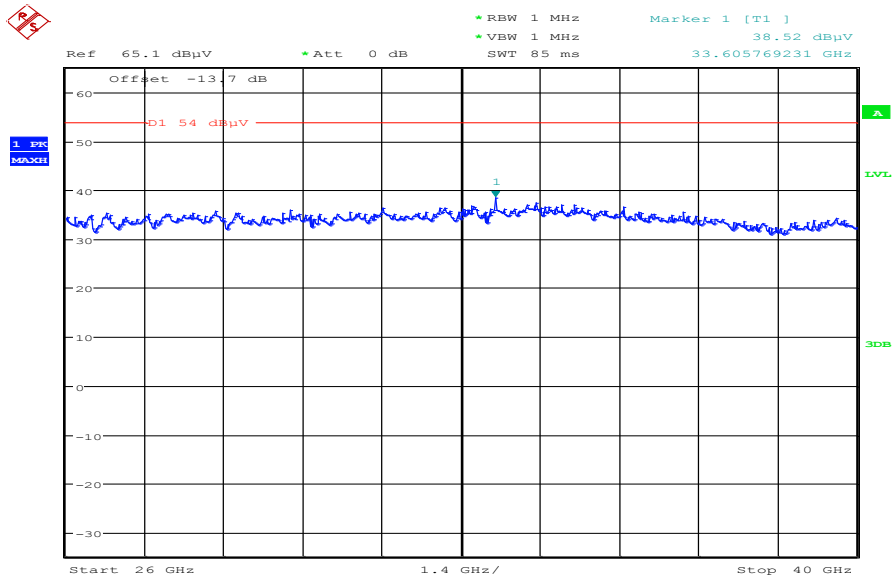
Date: 24.OCT.2014 09:07:54

Plot 34: 18 GHz to 26 GHz, 5700 MHz, vertical & horizontal polarization



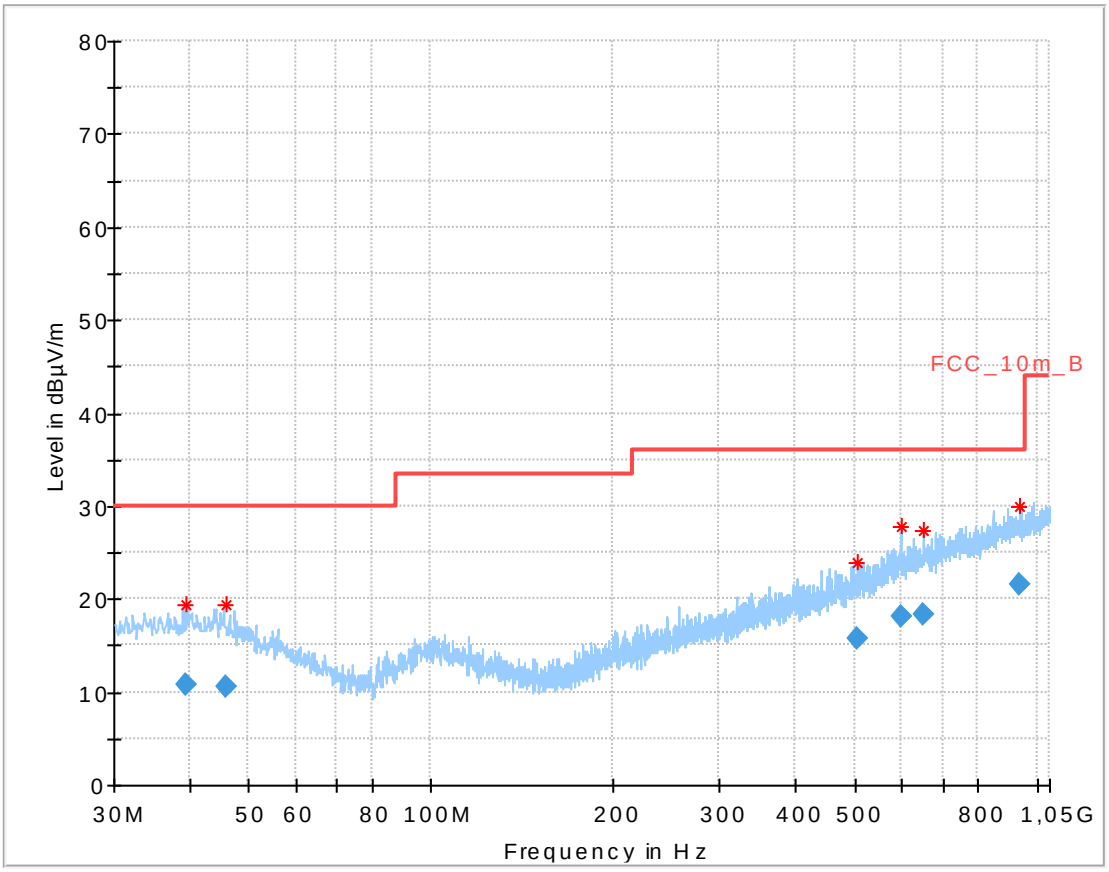
Date: 24.OCT.2014 10:14:04

Plot 35: 26 GHz to 40 GHz, 5700 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:16:42

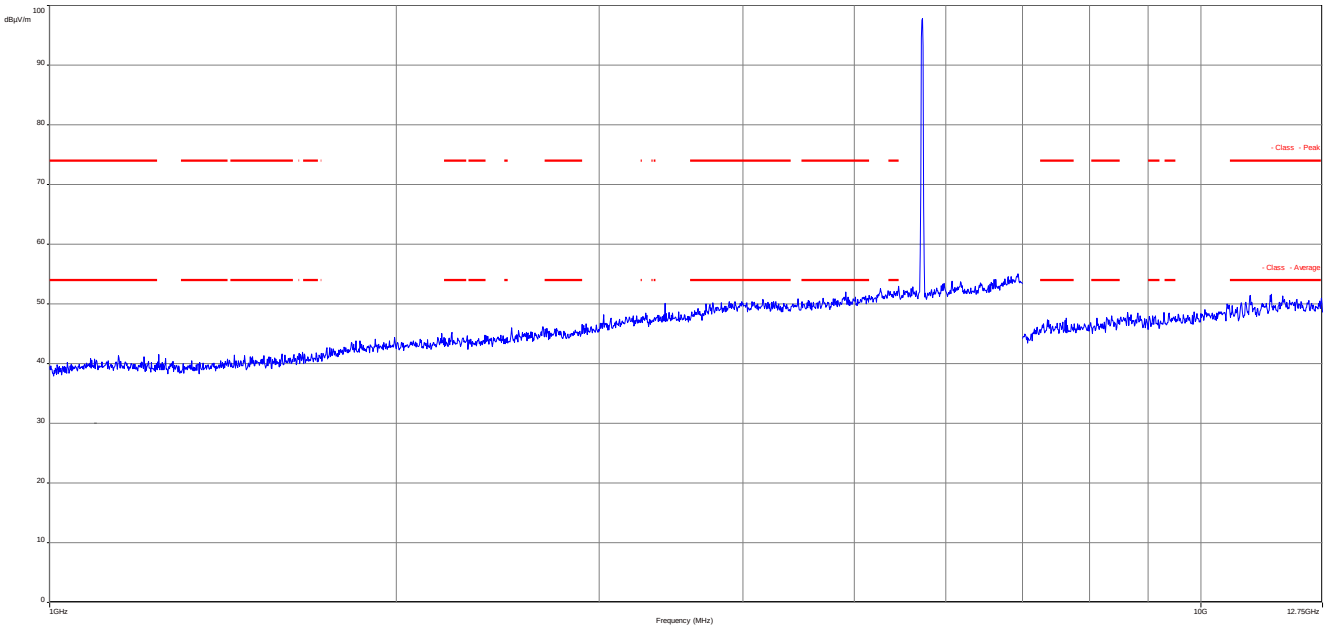
Plot 36: 30 MHz to 1 GHz, 5745 MHz, vertical & horizontal polarization



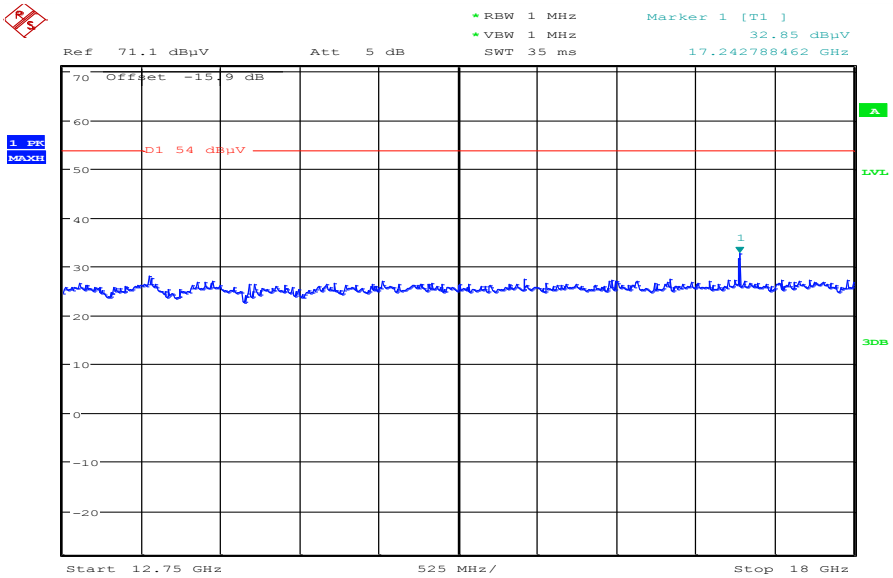
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
39.578550	10.87	30.00	19.13	1000.0	120.000	170.0	H	-25	14.0
46.017000	10.47	30.00	19.53	1000.0	120.000	170.0	H	270	13.6
506.155350	15.74	36.00	20.26	1000.0	120.000	101.0	V	205	18.8
596.191200	18.03	36.00	17.97	1000.0	120.000	170.0	H	25	20.6
648.711750	18.43	36.00	17.57	1000.0	120.000	98.0	H	155	21.1
935.531700	21.50	36.00	14.50	1000.0	120.000	100.0	H	89	24.2

Plot 37: 1 GHz to 12.75 GHz, 5745 MHz, vertical & horizontal polarization

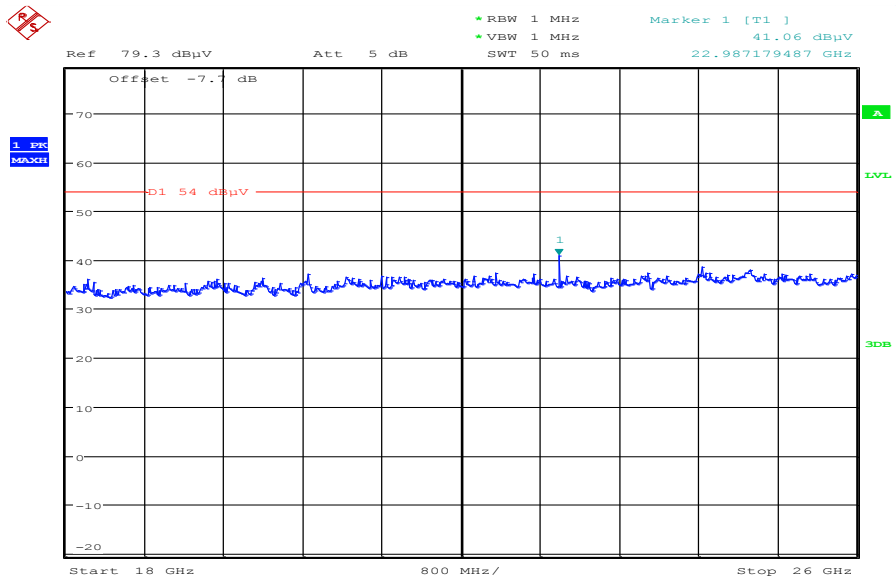


Plot 38: 12 GHz to 18 GHz, 5745 MHz, vertical & horizontal polarization



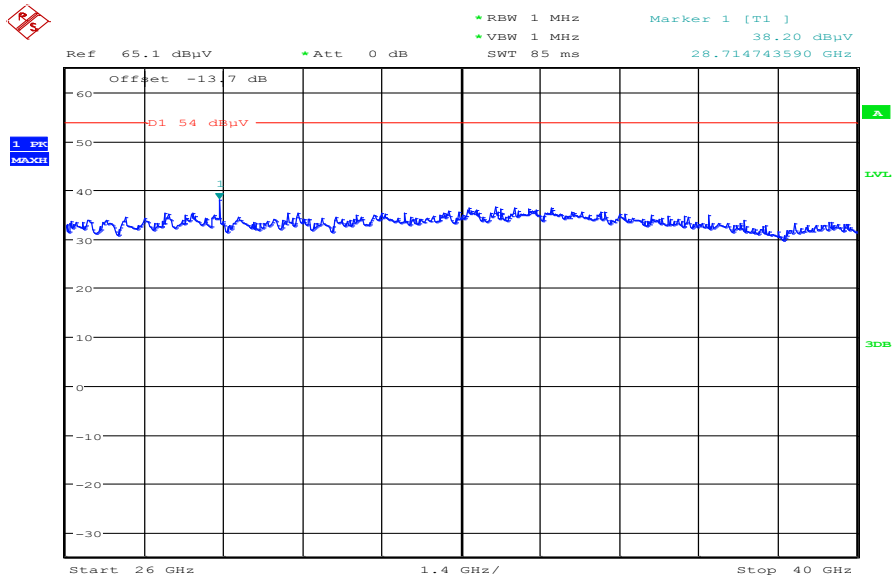
Date: 24.OCT.2014 09:09:44

Plot 39: 18 GHz to 26 GHz, 5745 MHz, vertical & horizontal polarization



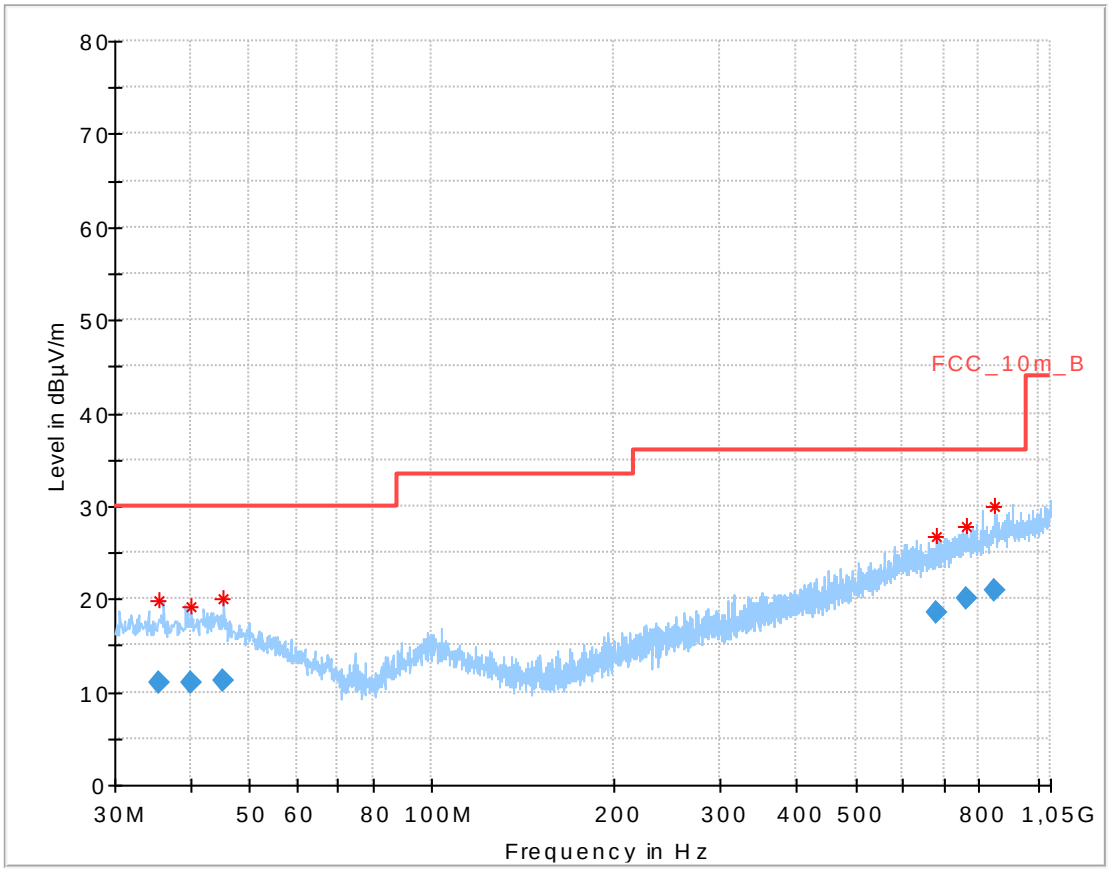
Date: 24.OCT.2014 10:15:12

Plot 40: 26 GHz to 40 GHz, 5745 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:17:44

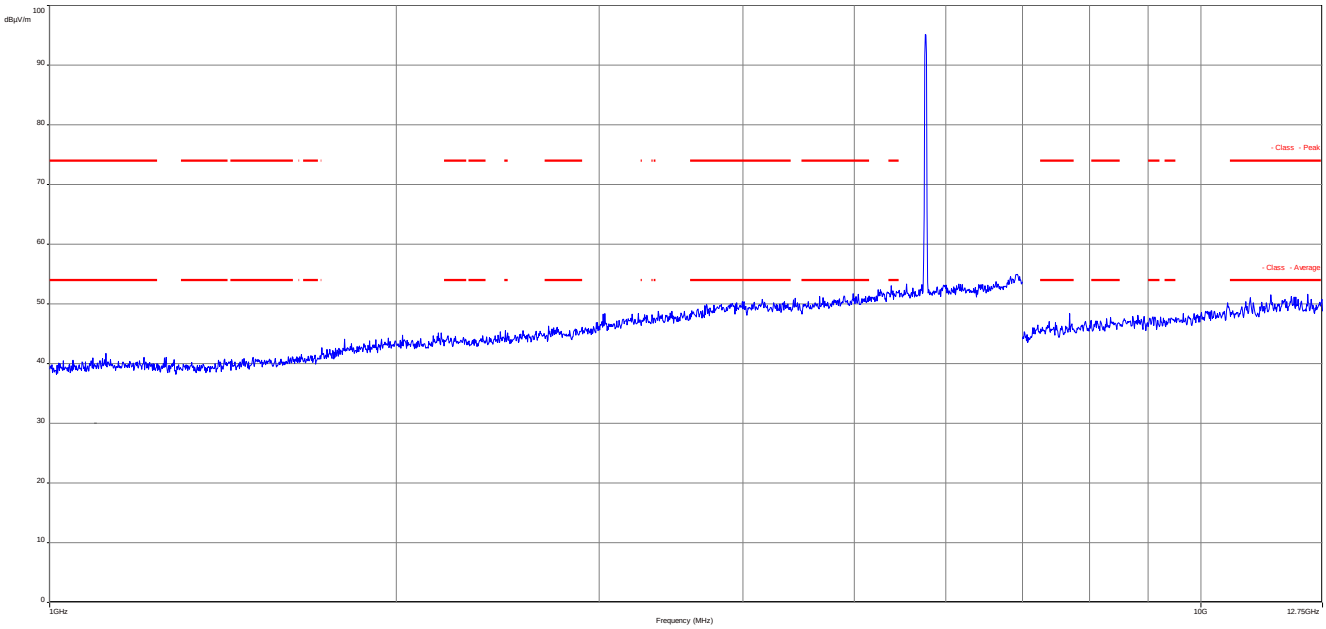
Plot 41: 30 MHz to 1 GHz, 5765 MHz, vertical & horizontal polarization



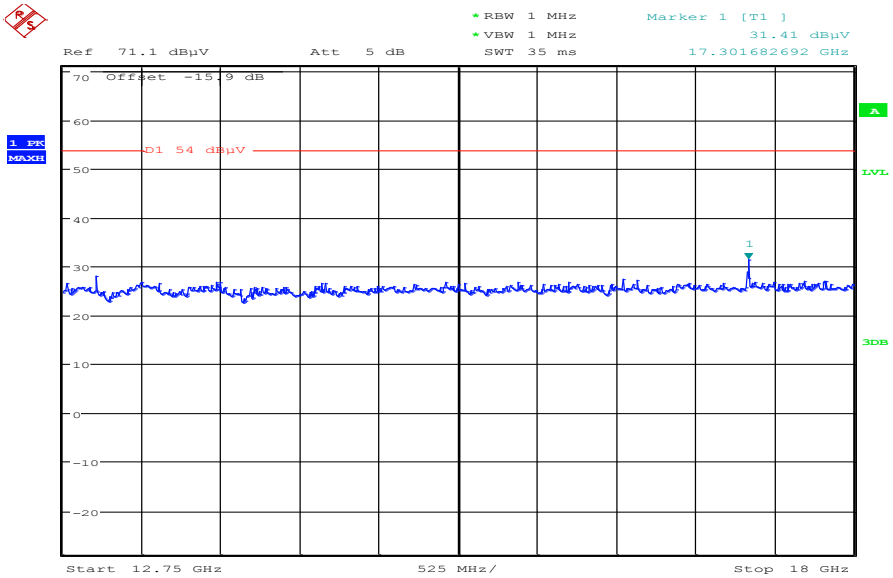
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
35.532900	10.97	30.00	19.03	1000.0	120.000	170.0	V	0	13.8
40.066200	11.06	30.00	18.94	1000.0	120.000	170.0	V	155	14.0
45.347100	11.32	30.00	18.68	1000.0	120.000	170.0	V	65	13.8
678.408900	18.62	36.00	17.38	1000.0	120.000	101.0	H	295	21.3
764.682600	19.95	36.00	16.05	1000.0	120.000	170.0	H	180	22.7
849.680850	20.92	36.00	15.08	1000.0	120.000	170.0	V	90	23.4

Plot 42: 1 GHz to 12.75 GHz, 5765 MHz, vertical & horizontal polarization

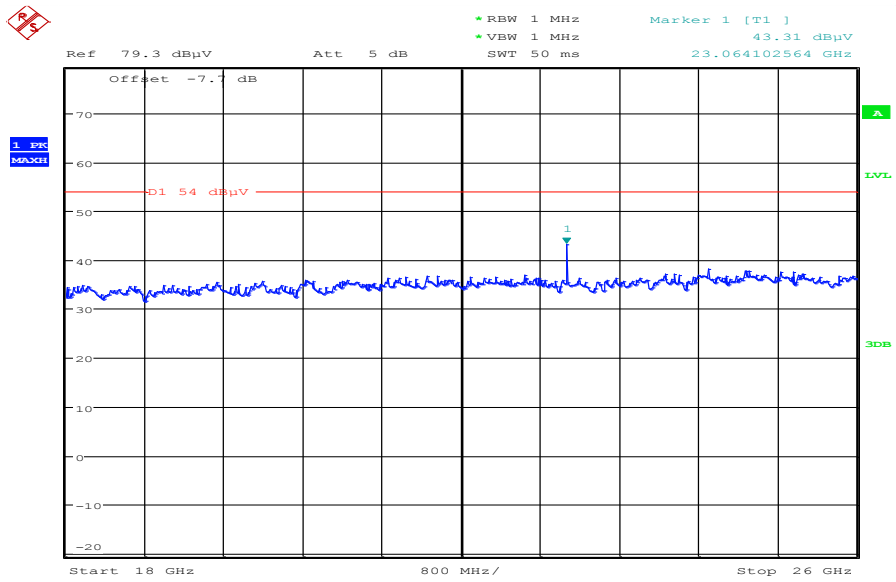


Plot 43: 12 GHz to 18 GHz, 5765 MHz, vertical & horizontal polarization



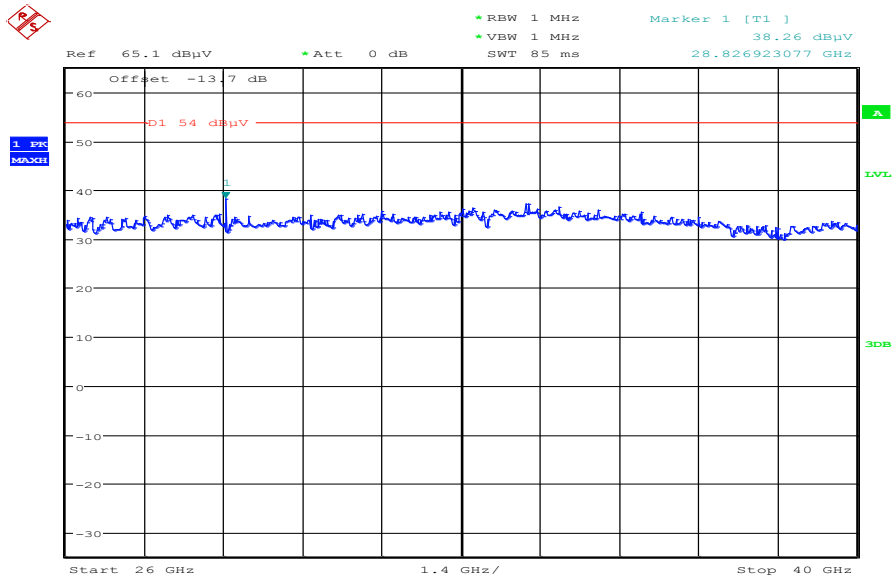
Date: 24.OCT.2014 09:11:04

Plot 44: 18 GHz to 26 GHz, 5765 MHz, vertical & horizontal polarization



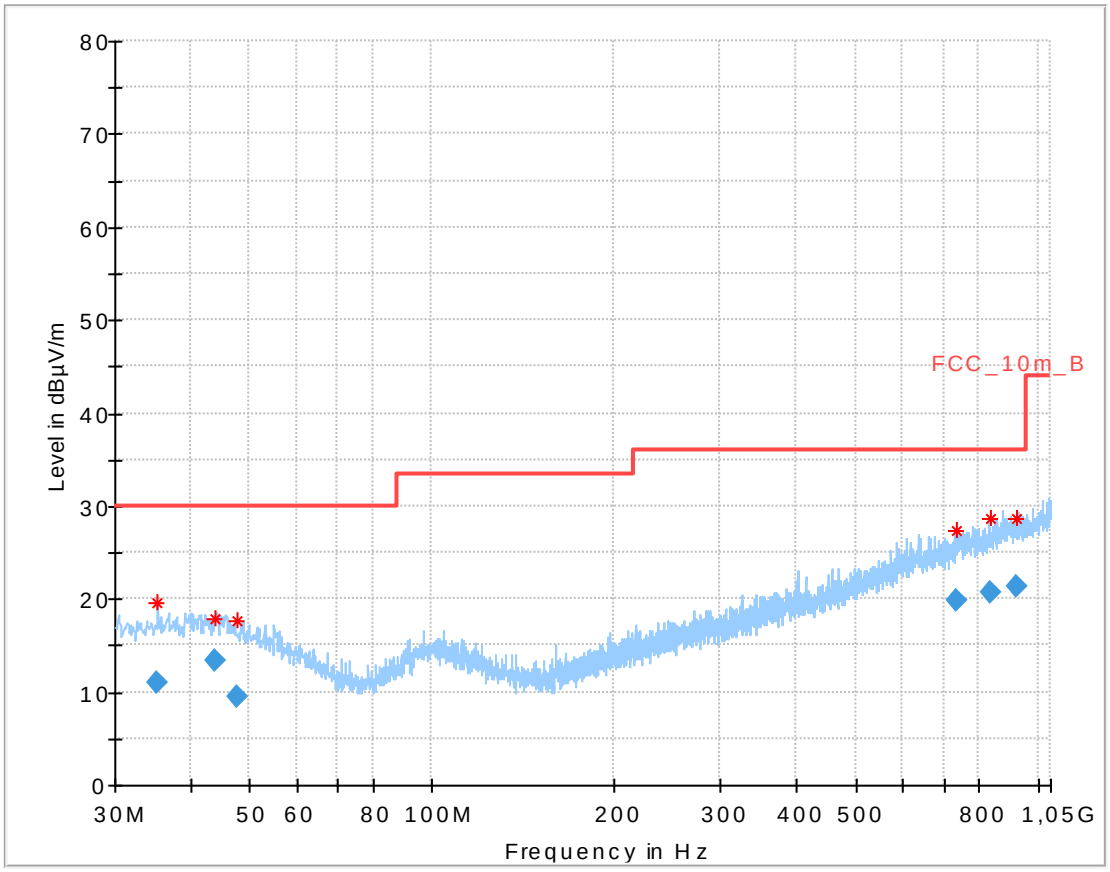
Date: 24.OCT.2014 10:16:35

Plot 45: 26 GHz to 40 GHz, 5765 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:19:07

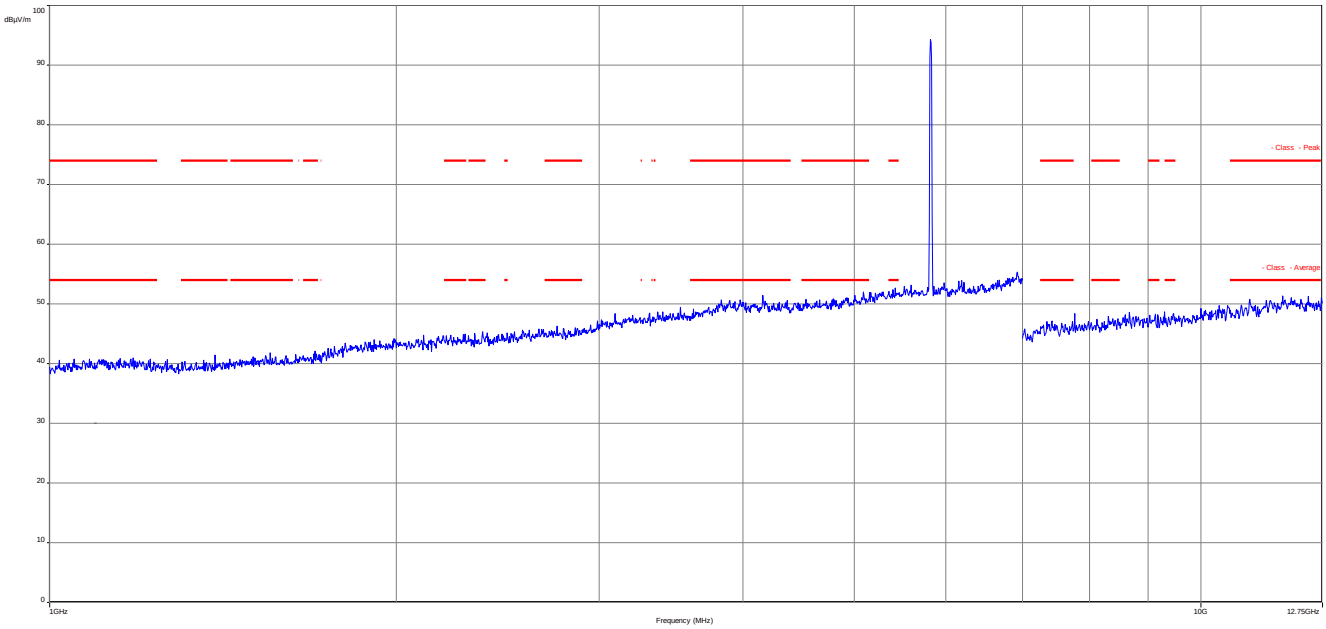
Plot 46: 30 MHz to 1 GHz, 5805 MHz, vertical & horizontal polarization



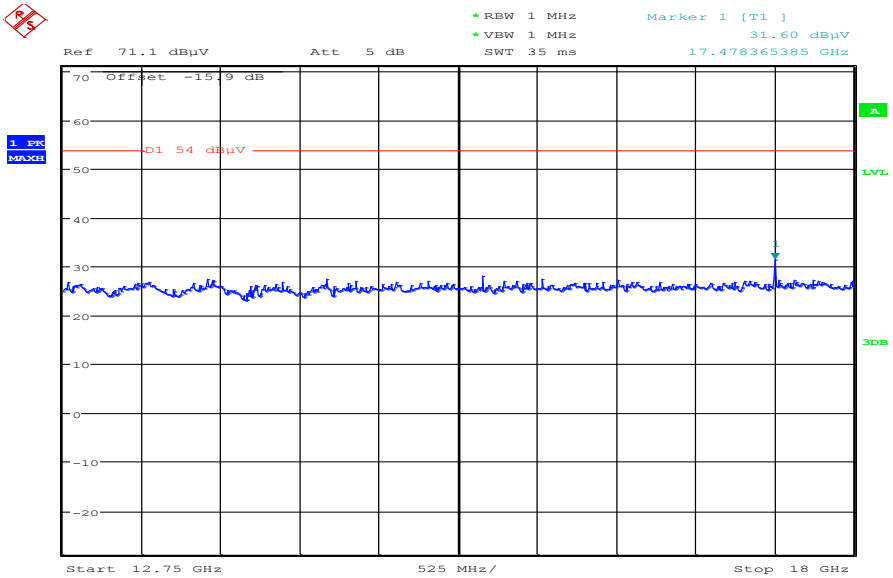
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
35.145000	10.89	30.00	19.11	1000.0	120.000	100.0	V	205	13.8
43.951950	13.45	30.00	16.55	1000.0	120.000	98.0	V	295	13.9
47.720400	9.49	30.00	20.51	1000.0	120.000	101.0	H	180	13.2
735.324900	19.76	36.00	16.24	1000.0	120.000	170.0	H	89	22.4
832.937700	20.63	36.00	15.37	1000.0	120.000	170.0	H	295	23.2
920.939850	21.44	36.00	14.56	1000.0	120.000	170.0	V	179	24.2

Plot 47: 1 GHz to 12.75 GHz, 5805 MHz, vertical & horizontal polarization

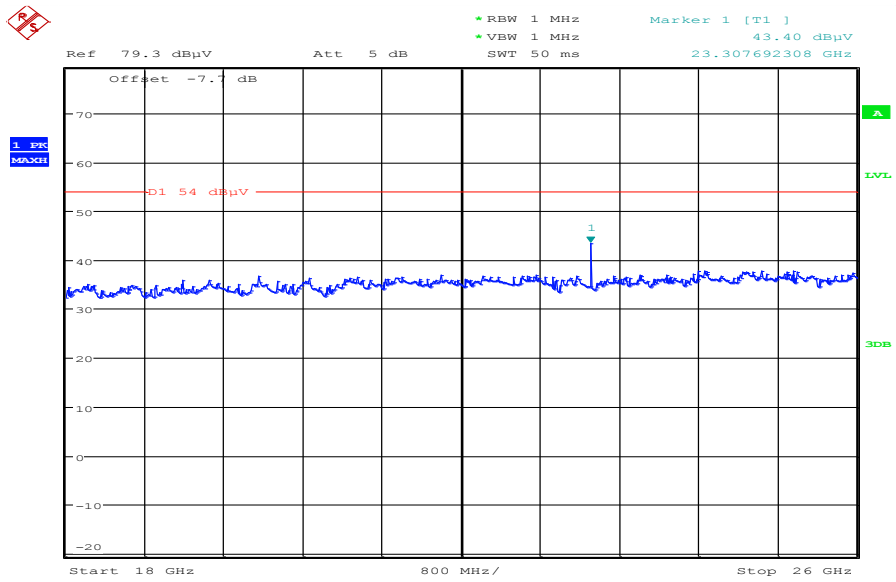


Plot 48: 12 GHz to 18 GHz, 5805 MHz, vertical & horizontal polarization



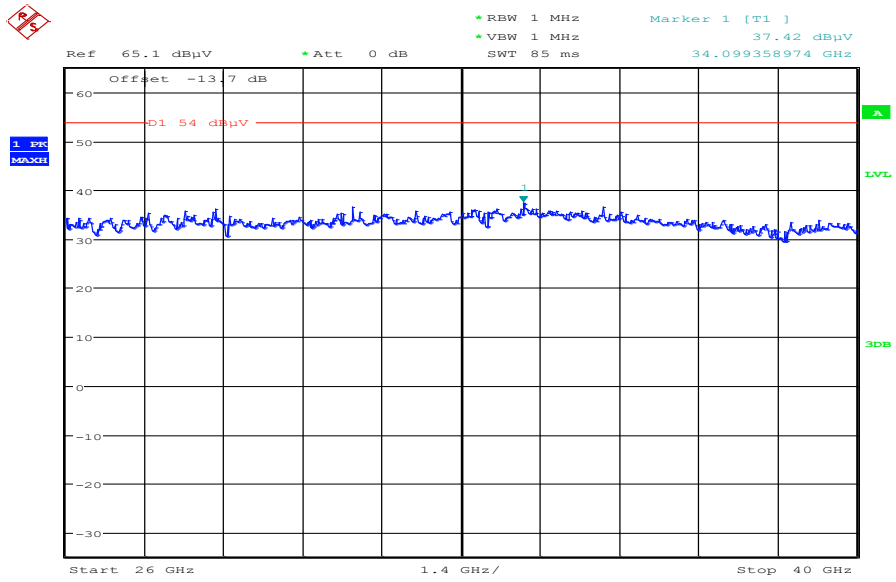
Date: 24.OCT.2014 09:12:37

Plot 49: 18 GHz to 26 GHz, 5805 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 10:17:43

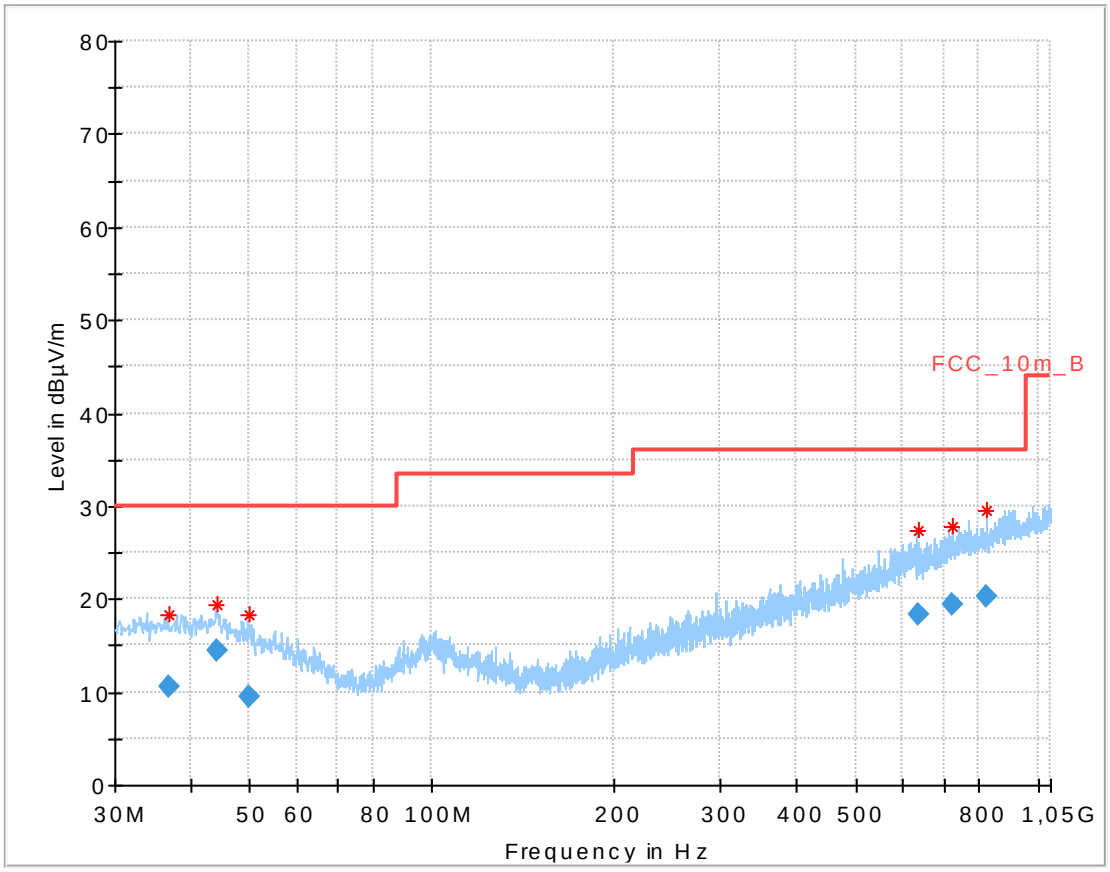
Plot 50: 26 GHz to 40 GHz, 5805 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:20:33

Plots: OFDM / n – mode HT40

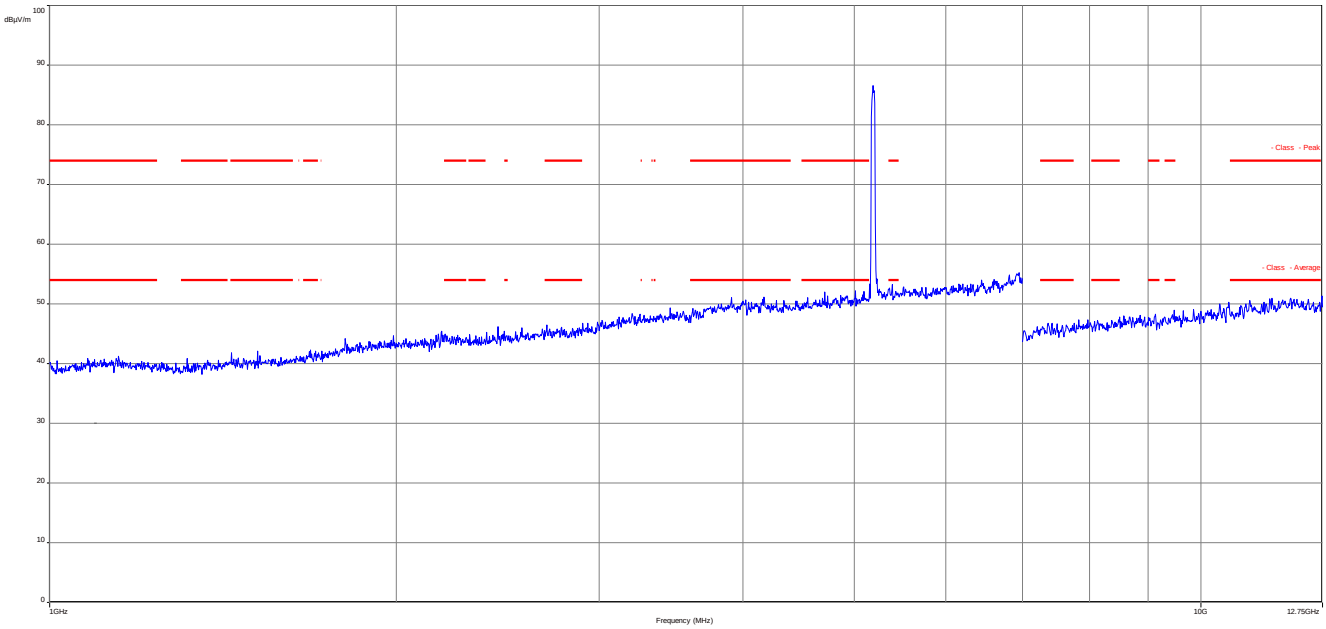
Plot 1: 30 MHz to 1 GHz, 5190 MHz, vertical & horizontal polarization



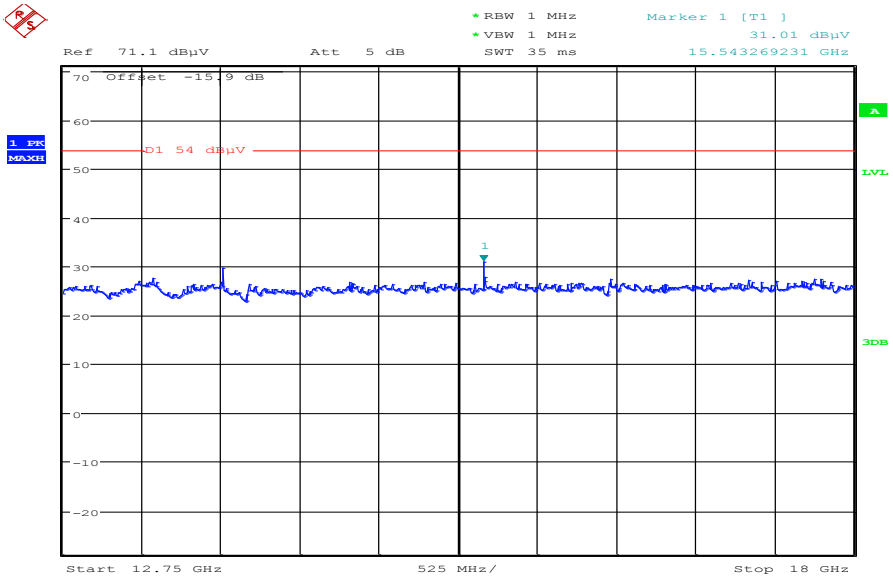
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
36.731400	10.66	30.00	19.34	1000.0	120.000	170.0	H	90	13.9
44.354850	14.34	30.00	15.66	1000.0	120.000	101.0	V	25	13.9
49.823100	9.47	30.00	20.53	1000.0	120.000	101.0	V	115	12.7
632.978550	18.29	36.00	17.71	1000.0	120.000	170.0	H	115	21.0
721.810800	19.40	36.00	16.60	1000.0	120.000	170.0	H	295	22.0
821.514750	20.30	36.00	15.70	1000.0	120.000	98.0	H	91	23.0

Plot 2: 1 GHz to 12.75 GHz, 5190 MHz, vertical & horizontal polarization

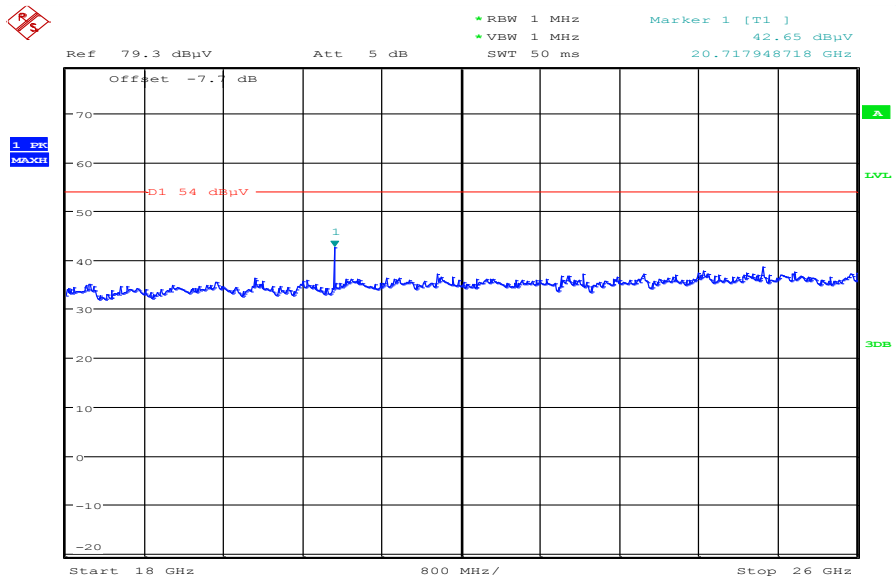


Plot 3: 12 GHz to 18 GHz, 5190 MHz, vertical & horizontal polarization



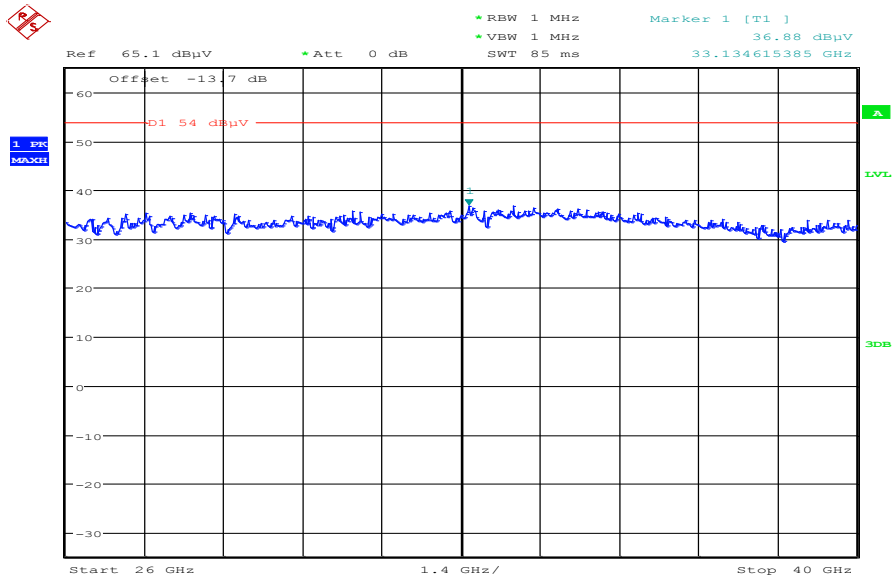
Date: 24.OCT.2014 09:19:01

Plot 4: 18 GHz to 26 GHz, 5190 MHz, vertical & horizontal polarization



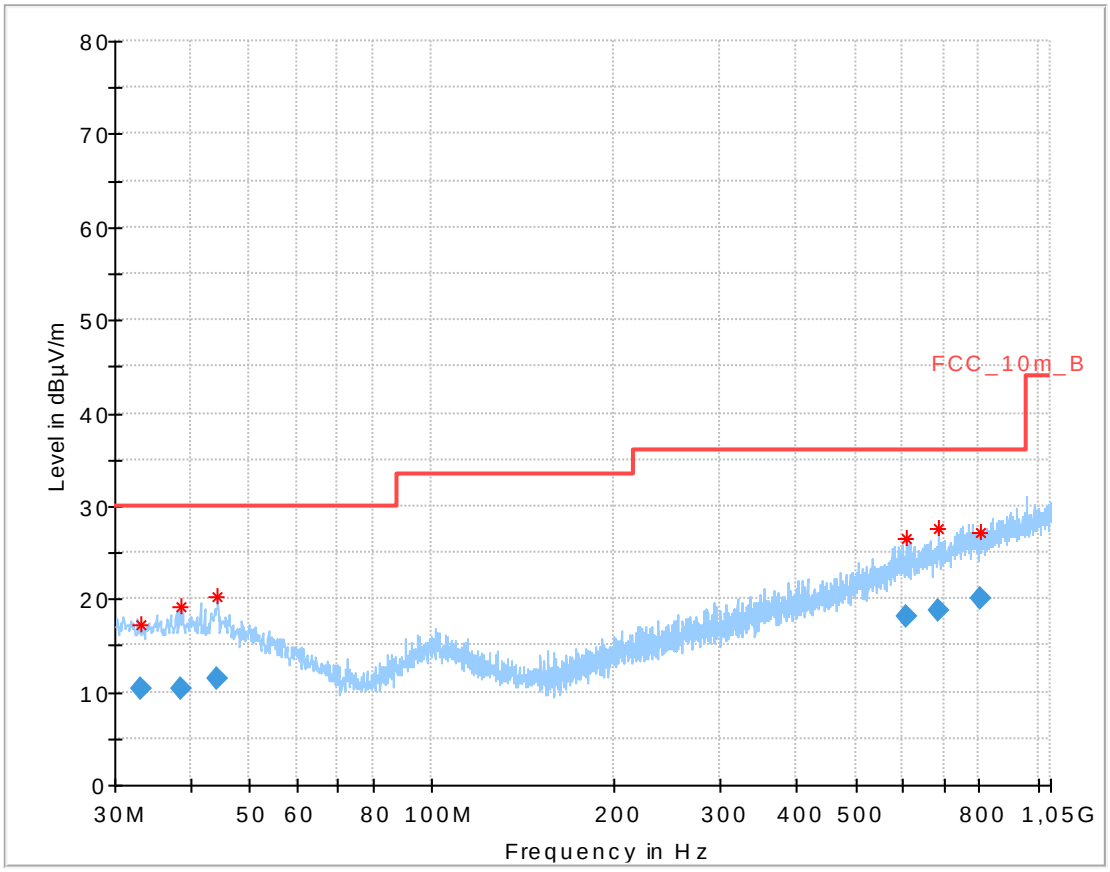
Date: 24.OCT.2014 10:19:21

Plot 5: 26 GHz to 40 GHz, 5190 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:21:10

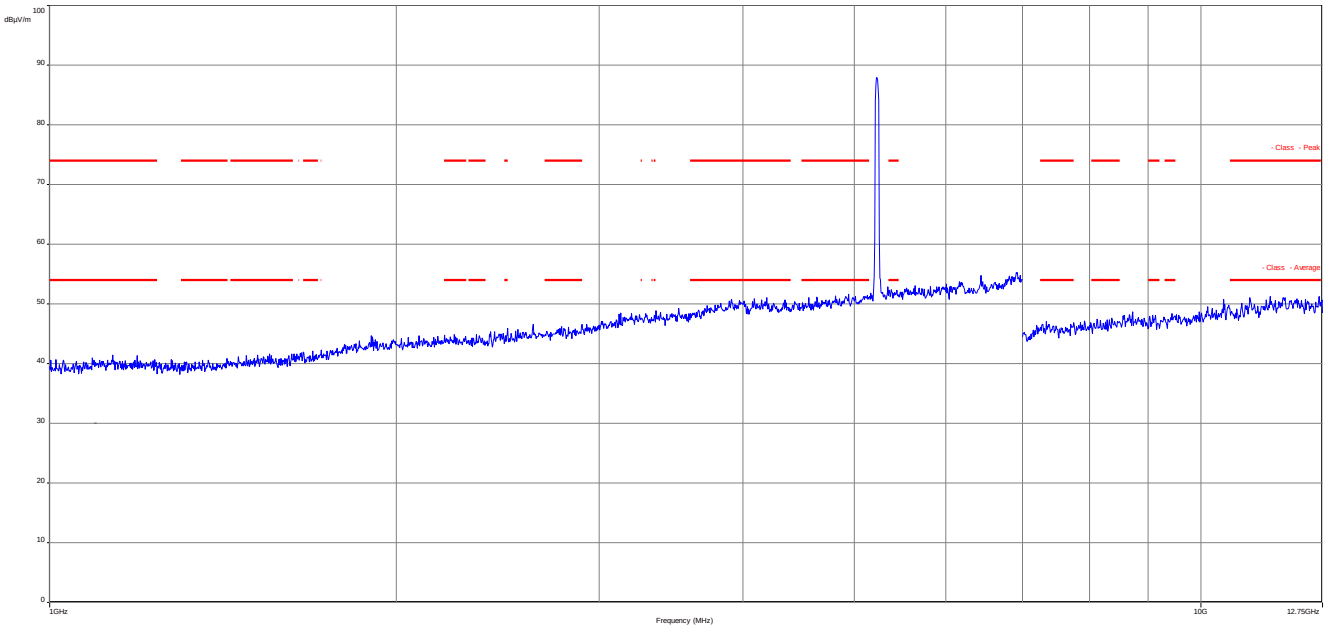
Plot 6: 30 MHz to 1 GHz, 5230 MHz, vertical & horizontal polarization



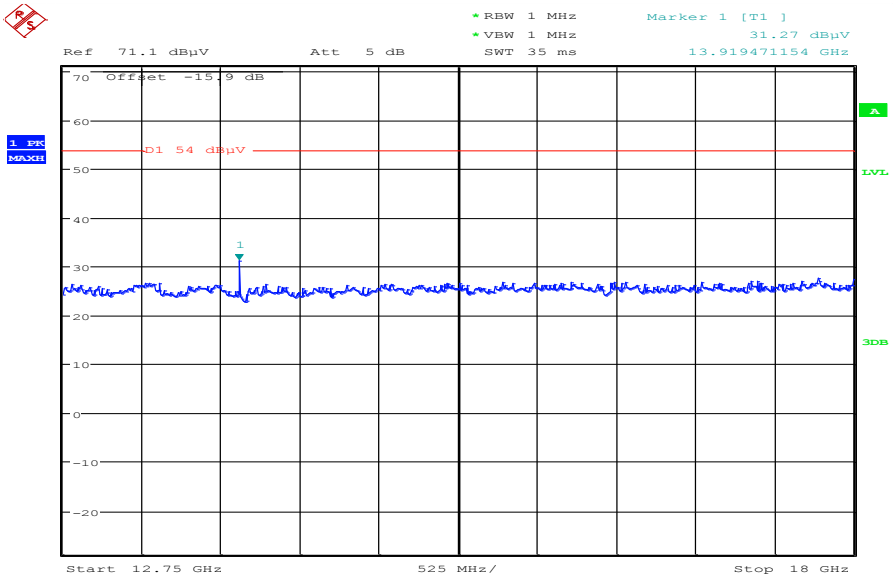
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
33.021150	10.43	30.00	19.57	1000.0	120.000	101.0	V	205	13.6
38.545500	10.32	30.00	19.68	1000.0	120.000	101.0	H	90	14.0
44.261850	11.47	30.00	18.53	1000.0	120.000	98.0	V	25	13.9
606.412350	18.08	36.00	17.92	1000.0	120.000	170.0	V	246	20.8
683.571900	18.66	36.00	17.34	1000.0	120.000	170.0	H	205	21.4
805.206900	20.00	36.00	16.00	1000.0	120.000	170.0	H	115	22.8

Plot 7: 1 GHz to 12.75 GHz, 5230 MHz, vertical & horizontal polarization

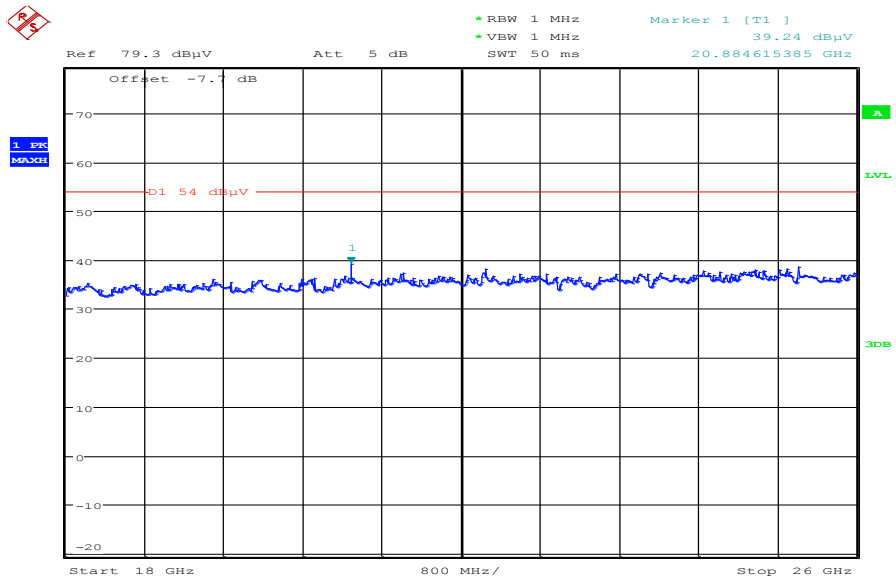


Plot 8: 12 GHz to 18 GHz, 5230 MHz, vertical & horizontal polarization



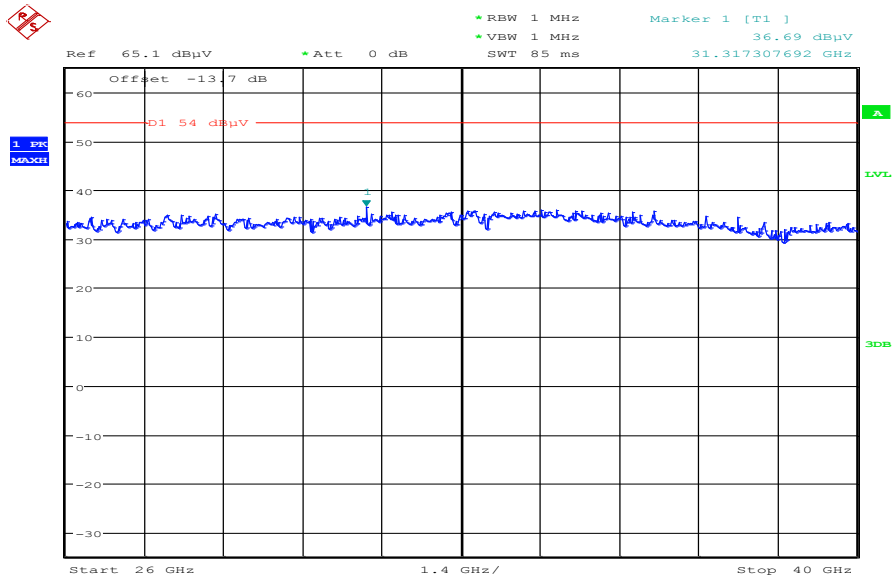
Date: 24.OCT.2014 09:20:29

Plot 9: 18 GHz to 26 GHz, 5230 MHz, vertical & horizontal polarization



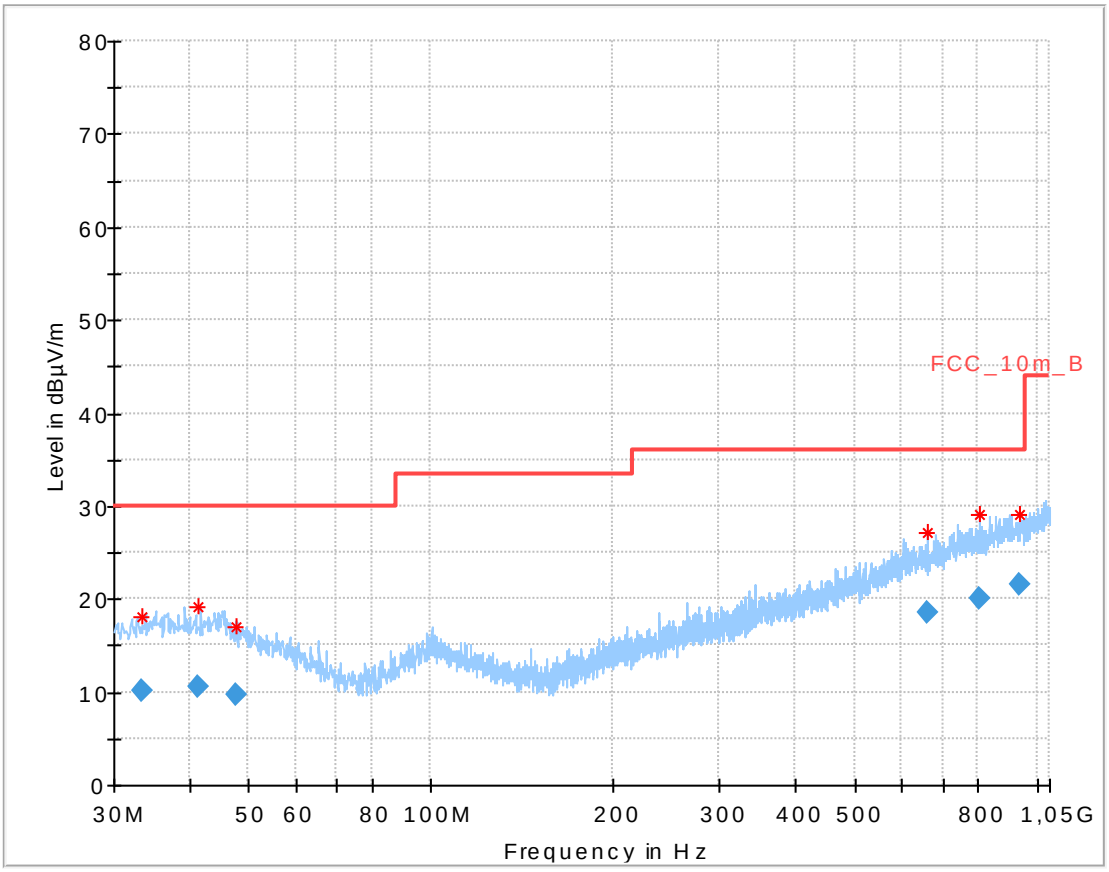
Date: 24.OCT.2014 10:21:13

Plot 10: 26 GHz to 40 GHz, 5230 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:22:14

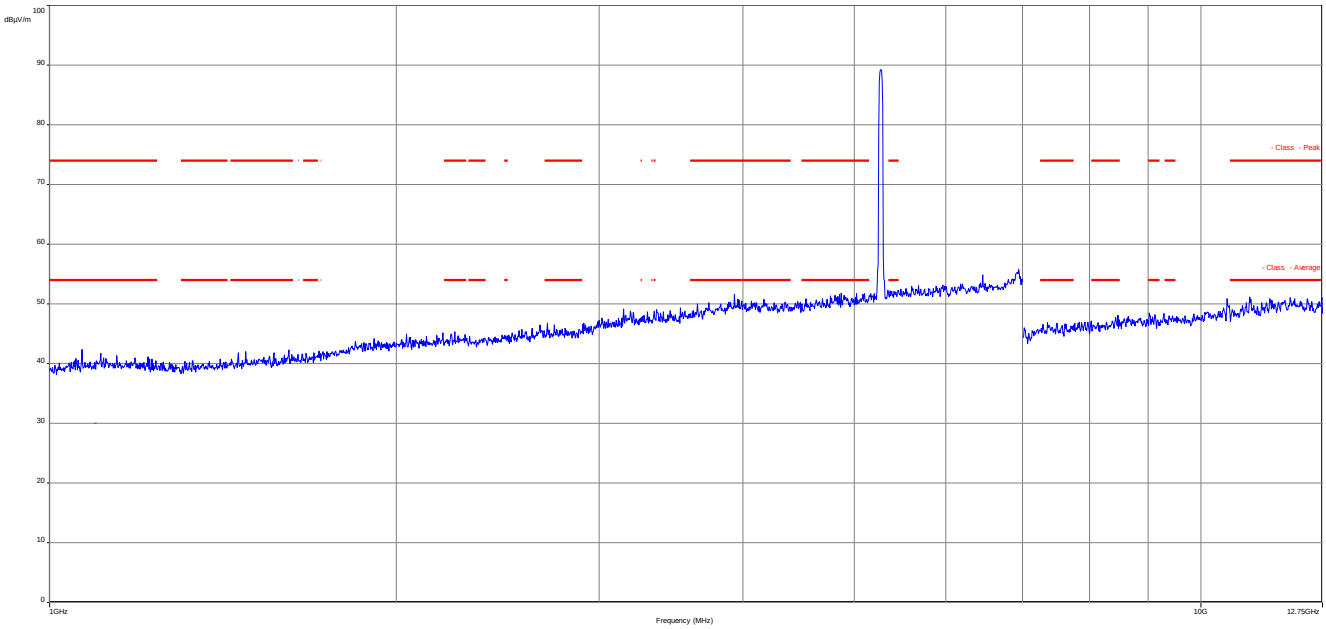
Plot 11: 30 MHz to 1 GHz, 5270 MHz, vertical & horizontal polarization



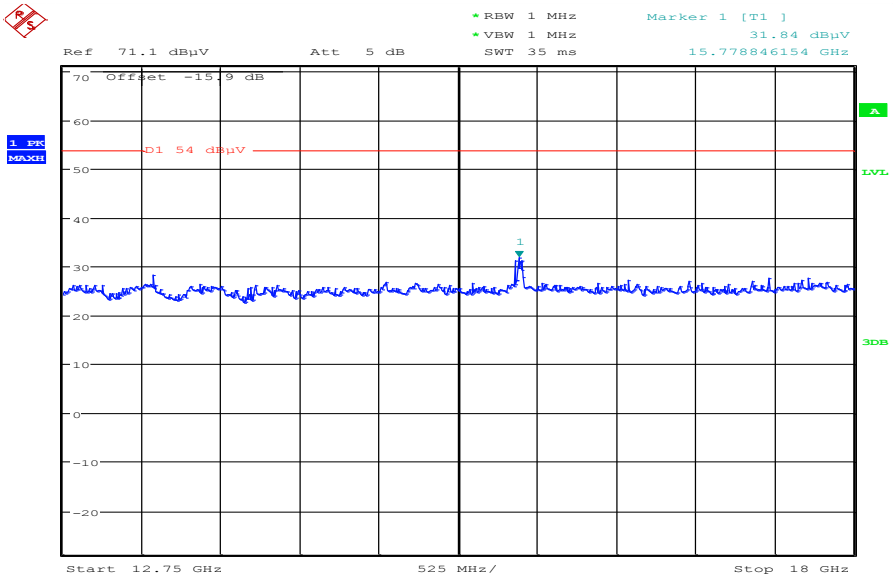
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
33.349050	10.24	30.00	19.76	1000.0	120.000	101.0	H	157	13.6
41.343000	10.66	30.00	19.34	1000.0	120.000	170.0	H	245	14.0
47.817300	9.81	30.00	20.19	1000.0	120.000	101.0	V	65	13.2
660.945450	18.51	36.00	17.49	1000.0	120.000	170.0	V	295	21.2
804.365550	20.00	36.00	16.00	1000.0	120.000	170.0	V	180	22.8
936.502500	21.50	36.00	14.50	1000.0	120.000	170.0	V	295	24.2

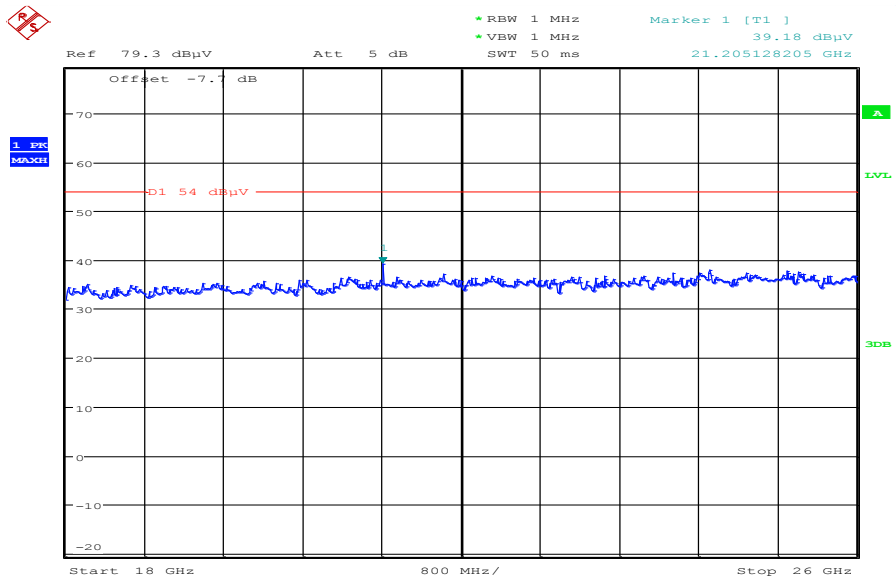
Plot 12: 1 GHz to 12.75 GHz, 5270 MHz, vertical & horizontal polarization



Plot 13: 12 GHz to 18 GHz, 5270 MHz, vertical & horizontal polarization

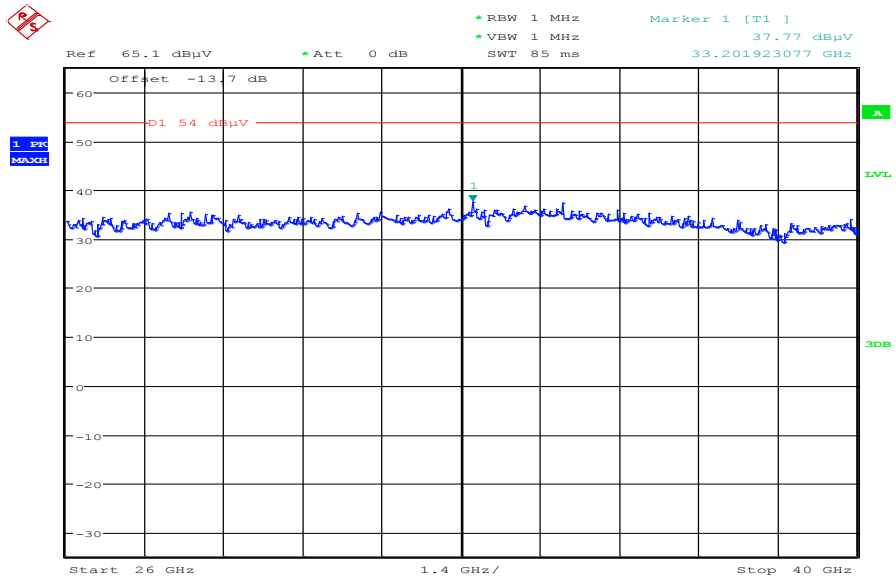


Plot 14: 18 GHz to 26 GHz, 5270 MHz, vertical & horizontal polarization



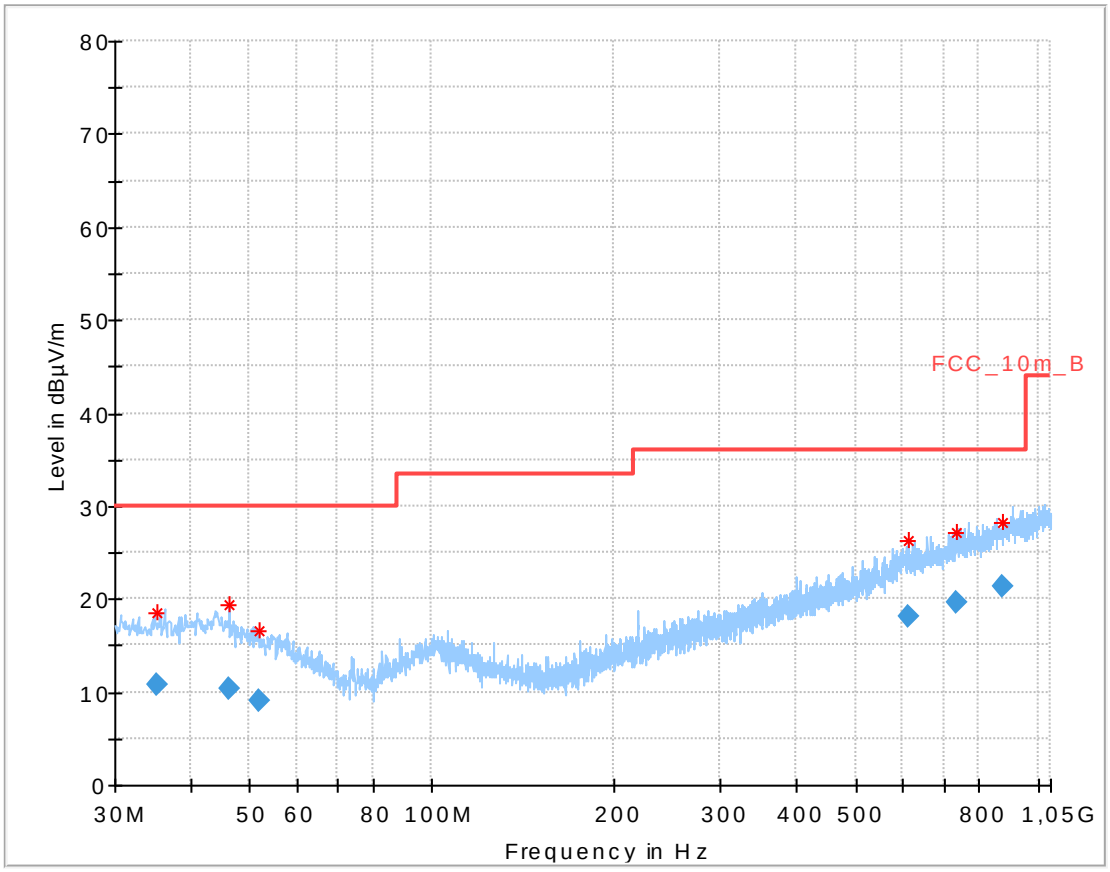
Date: 24.OCT.2014 10:34:49

Plot 15: 26 GHz to 40 GHz, 5270 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:23:21

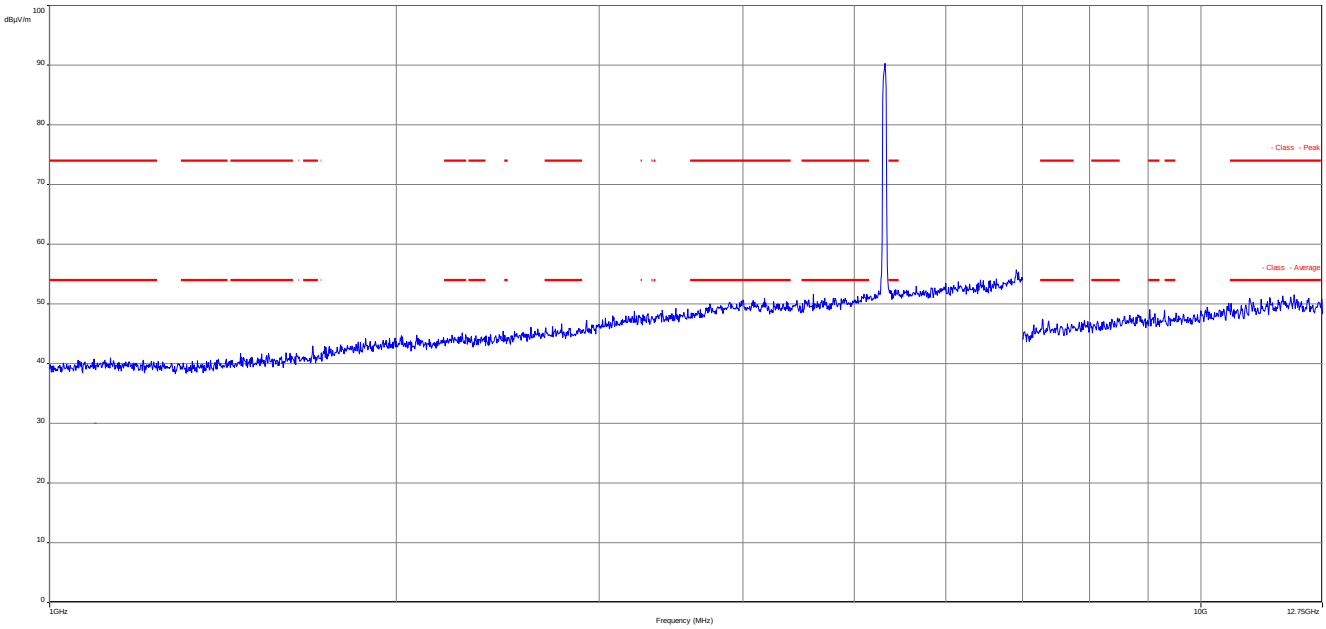
Plot 16: 30 MHz to 1 GHz, 5310 MHz, vertical & horizontal polarization



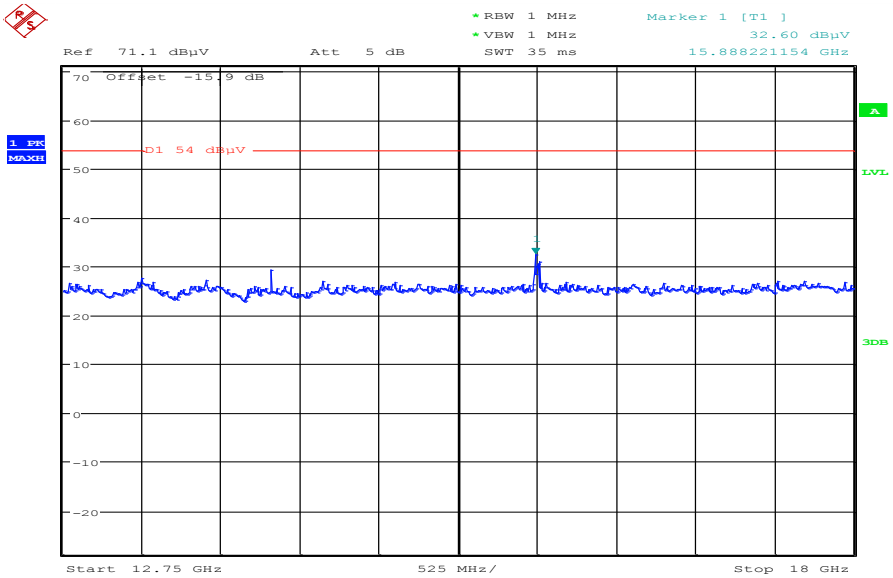
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
35.163750	10.85	30.00	19.15	1000.0	120.000	170.0	H	-1	13.8
46.166700	10.38	30.00	19.62	1000.0	120.000	101.0	H	245	13.6
51.768450	9.03	30.00	20.97	1000.0	120.000	98.0	H	295	12.4
612.439650	18.13	36.00	17.87	1000.0	120.000	170.0	V	115	20.8
732.104400	19.61	36.00	16.39	1000.0	120.000	98.0	V	270	22.3
877.564650	21.30	36.00	14.70	1000.0	120.000	170.0	V	90	23.8

Plot 17: 1 GHz to 12.75 GHz, 5310 MHz, vertical & horizontal polarization

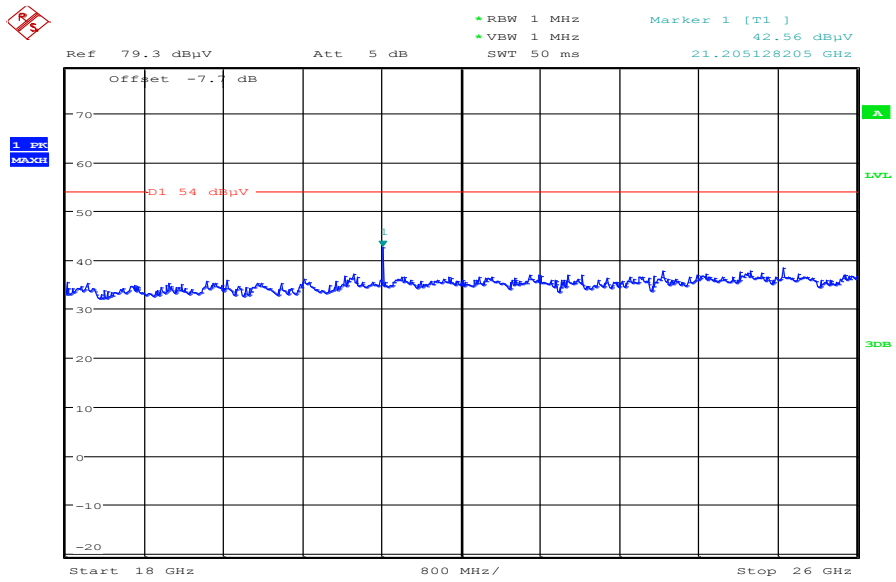


Plot 18: 12 GHz to 18 GHz, 5310 MHz, vertical & horizontal polarization



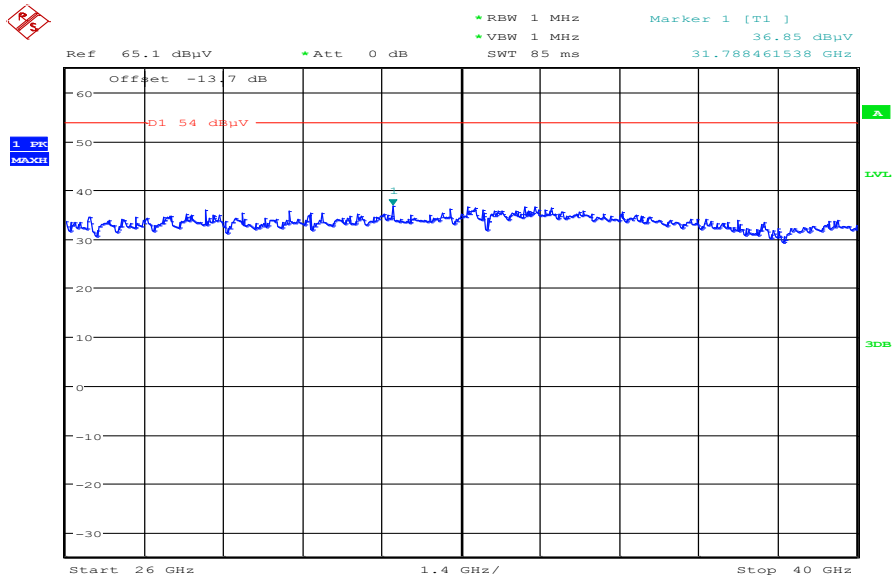
Date: 24.OCT.2014 09:23:17

Plot 19: 18 GHz to 26 GHz, 5310 MHz, vertical & horizontal polarization



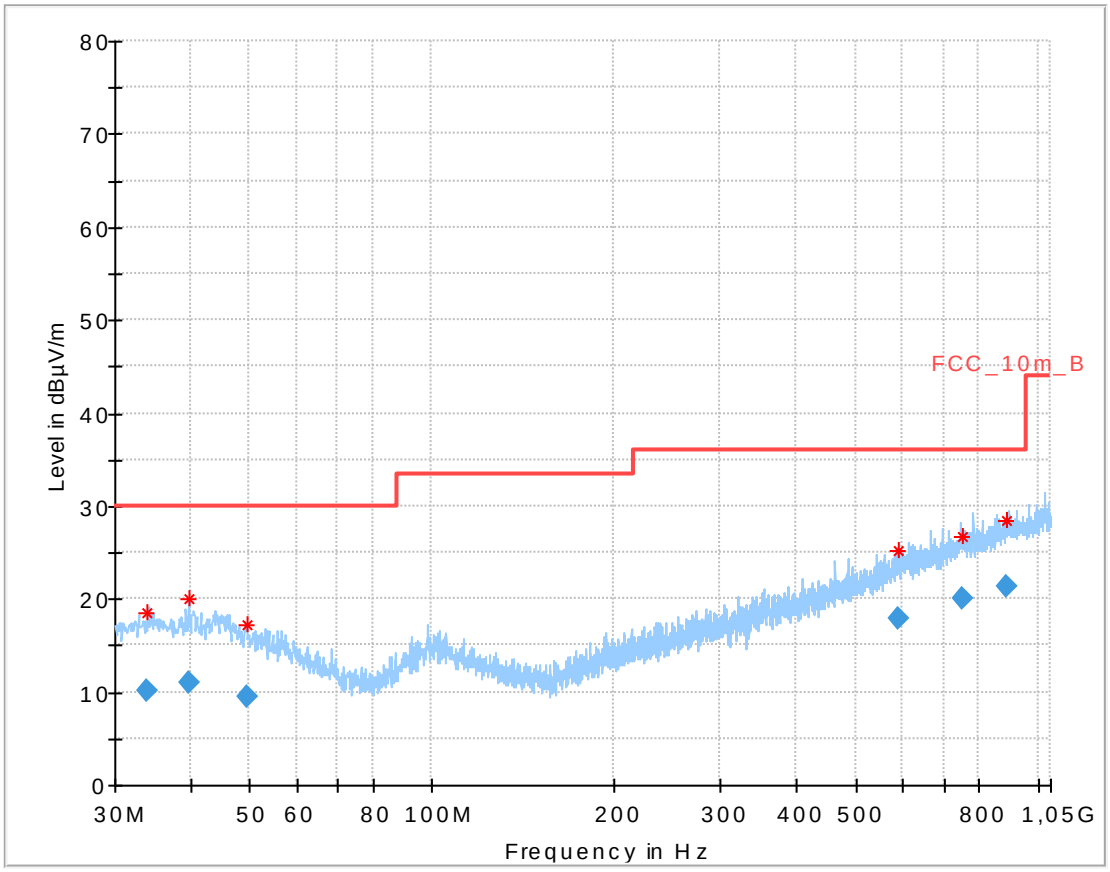
Date: 24.OCT.2014 10:23:35

Plot 20: 26 GHz to 40 GHz, 5310 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:26:07

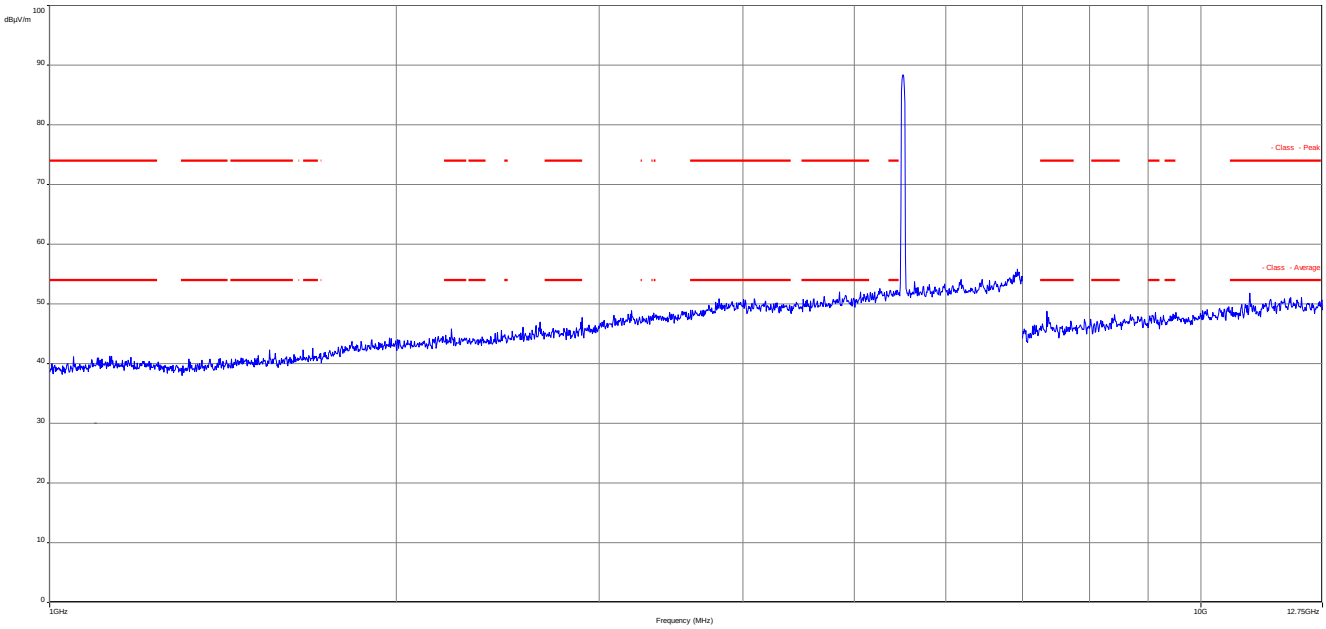
Plot 21: 30 MHz to 1 GHz, 5510 MHz, vertical & horizontal polarization



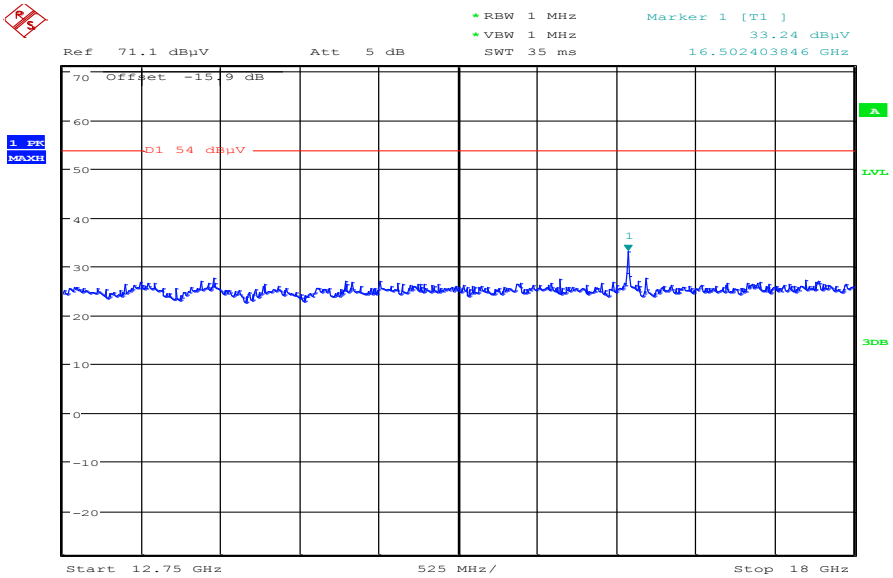
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
33.780000	10.21	30.00	19.79	1000.0	120.000	101.0	H	25	13.7
39.757350	10.94	30.00	19.06	1000.0	120.000	170.0	V	90	14.0
49.555800	9.39	30.00	20.61	1000.0	120.000	101.0	H	-25	12.7
590.641650	17.83	36.00	18.17	1000.0	120.000	170.0	V	115	20.5
751.849650	20.06	36.00	15.94	1000.0	120.000	170.0	V	0	22.7
890.258700	21.37	36.00	14.63	1000.0	120.000	170.0	V	115	24.0

Plot 22: 1 GHz to 12.75 GHz, 5510 MHz, vertical & horizontal polarization

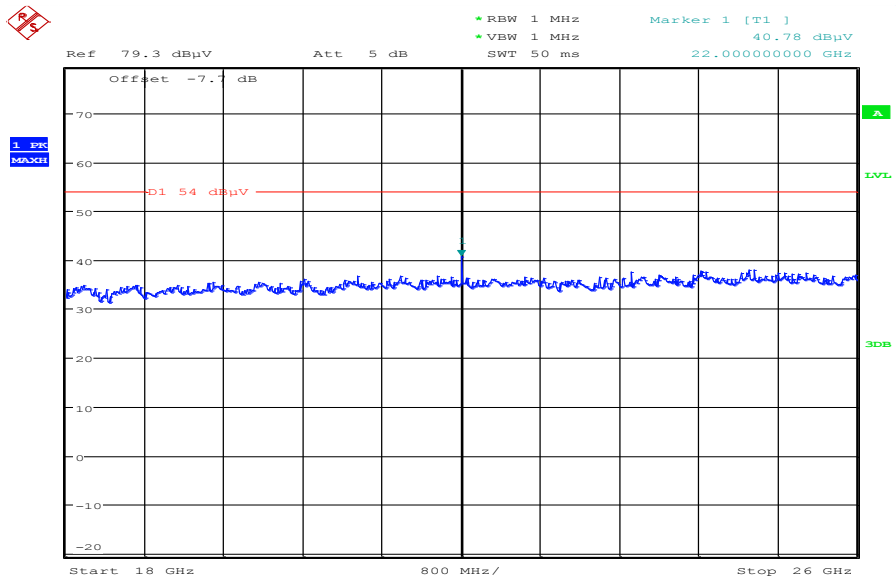


Plot 23: 12 GHz to 18 GHz, 5510 MHz, vertical & horizontal polarization



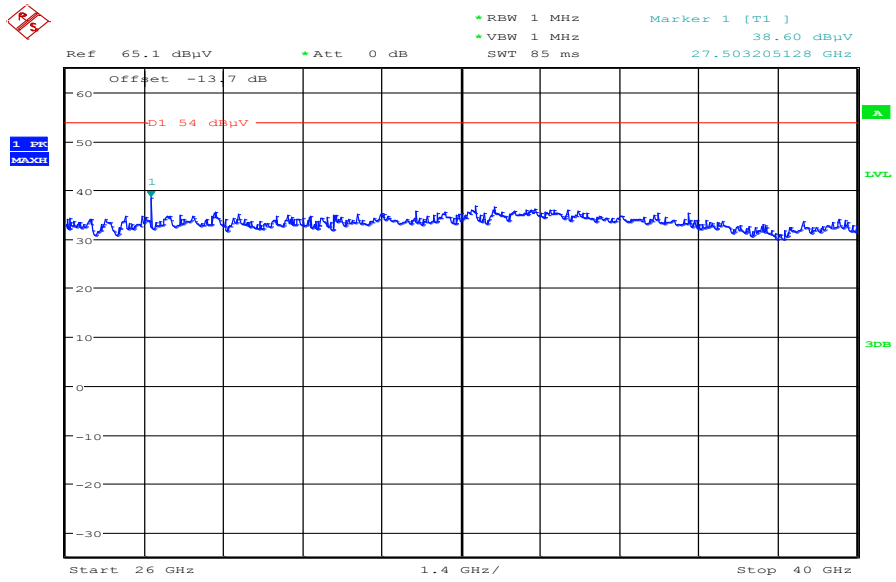
Date: 24.OCT.2014 09:25:07

Plot 24: 18 GHz to 26 GHz, 5510 MHz, vertical & horizontal polarization



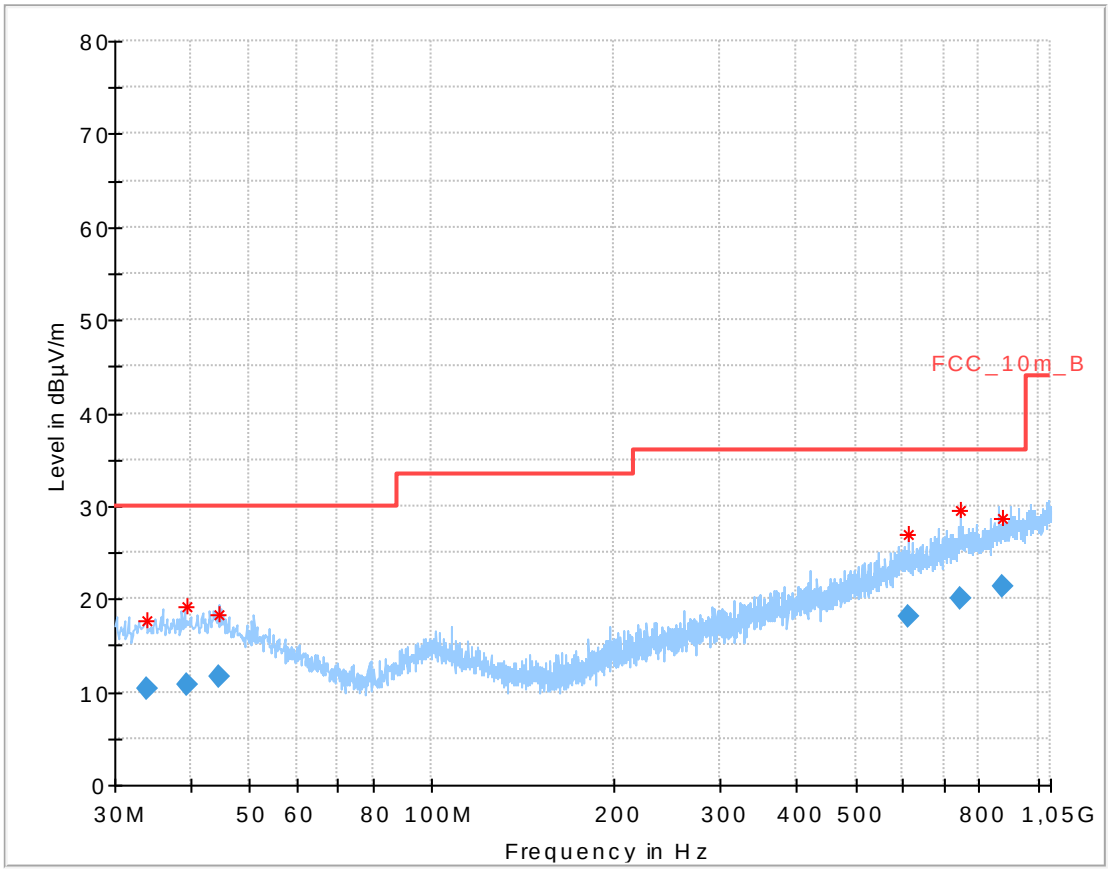
Date: 24.OCT.2014 10:25:29

Plot 25: 26 GHz to 40 GHz, 5510 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:27:32

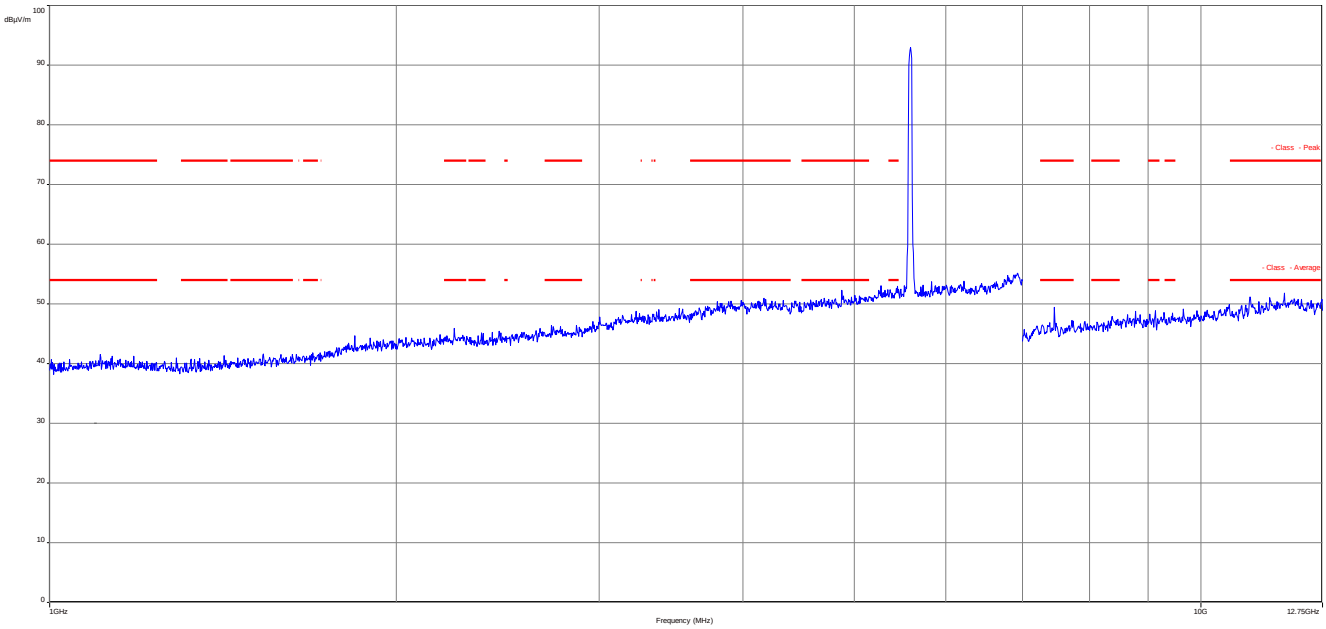
Plot 26: 30 MHz to 1 GHz, 5590 MHz, vertical & horizontal polarization



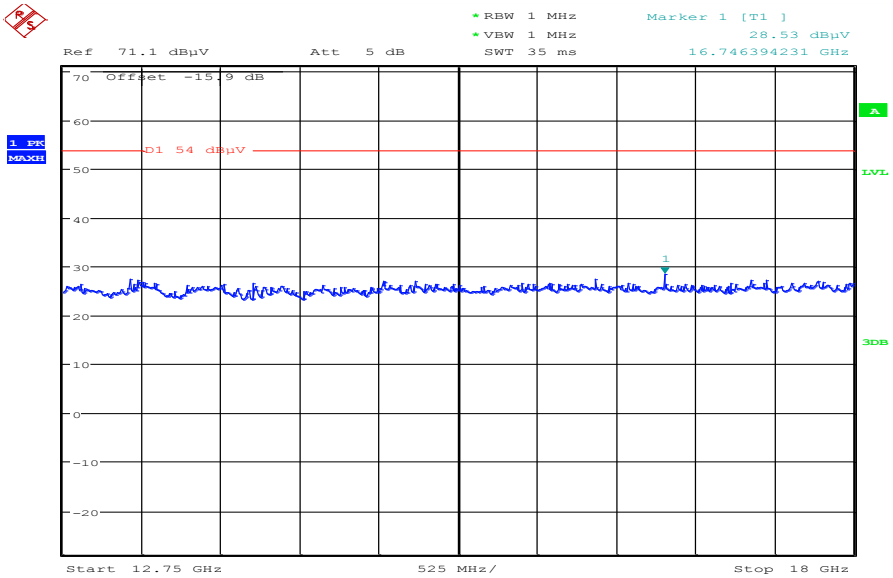
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
33.884550	10.27	30.00	19.73	1000.0	120.000	170.0	H	295	13.7
39.336900	10.81	30.00	19.19	1000.0	120.000	170.0	V	295	14.0
44.486550	11.72	30.00	18.28	1000.0	120.000	98.0	V	180	13.9
612.493500	18.13	36.00	17.87	1000.0	120.000	170.0	V	67	20.8
746.346150	19.95	36.00	16.05	1000.0	120.000	101.0	H	295	22.6
876.009600	21.31	36.00	14.69	1000.0	120.000	170.0	V	115	23.8

Plot 27: 1 GHz to 12.75 GHz, 5590 MHz, vertical & horizontal polarization

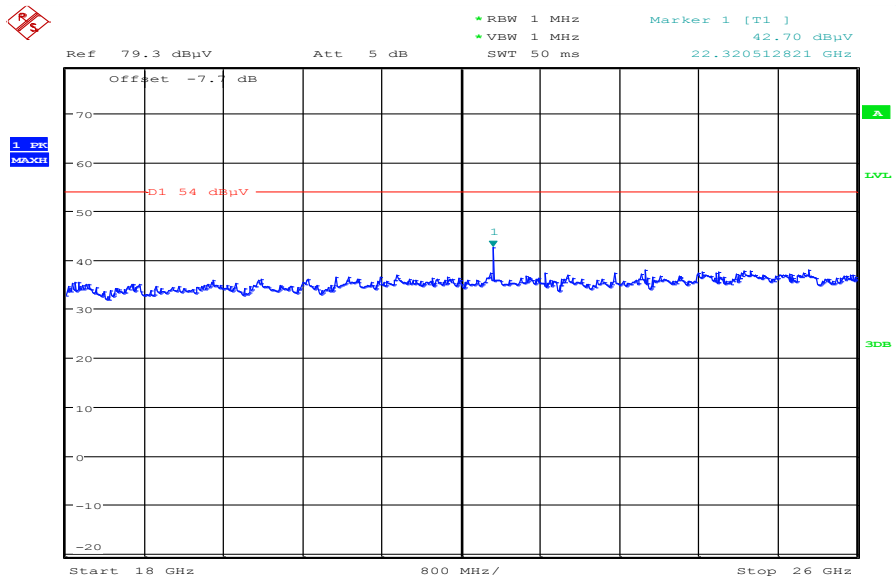


Plot 28: 12 GHz to 18 GHz, 5590 MHz, vertical & horizontal polarization



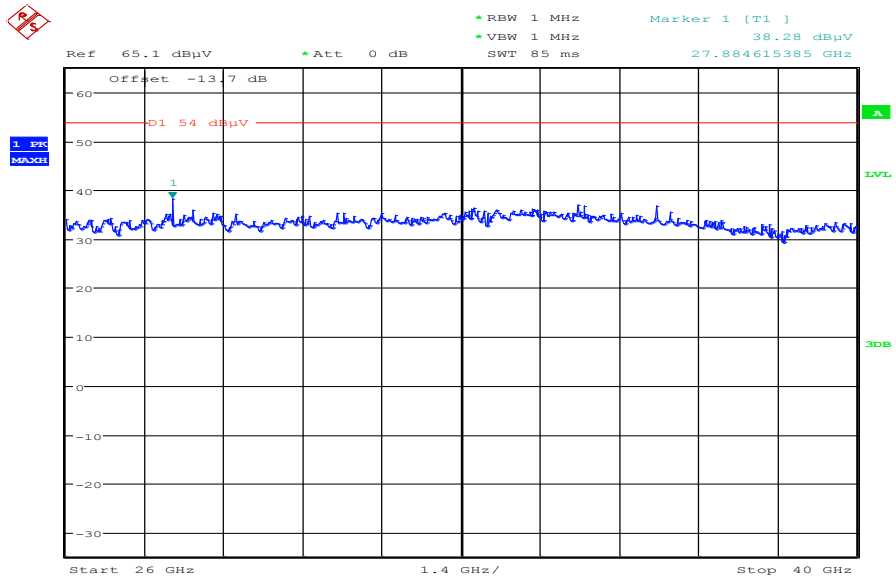
Date: 24.OCT.2014 09:26:32

Plot 29: 18 GHz to 26 GHz, 5590 MHz, vertical & horizontal polarization



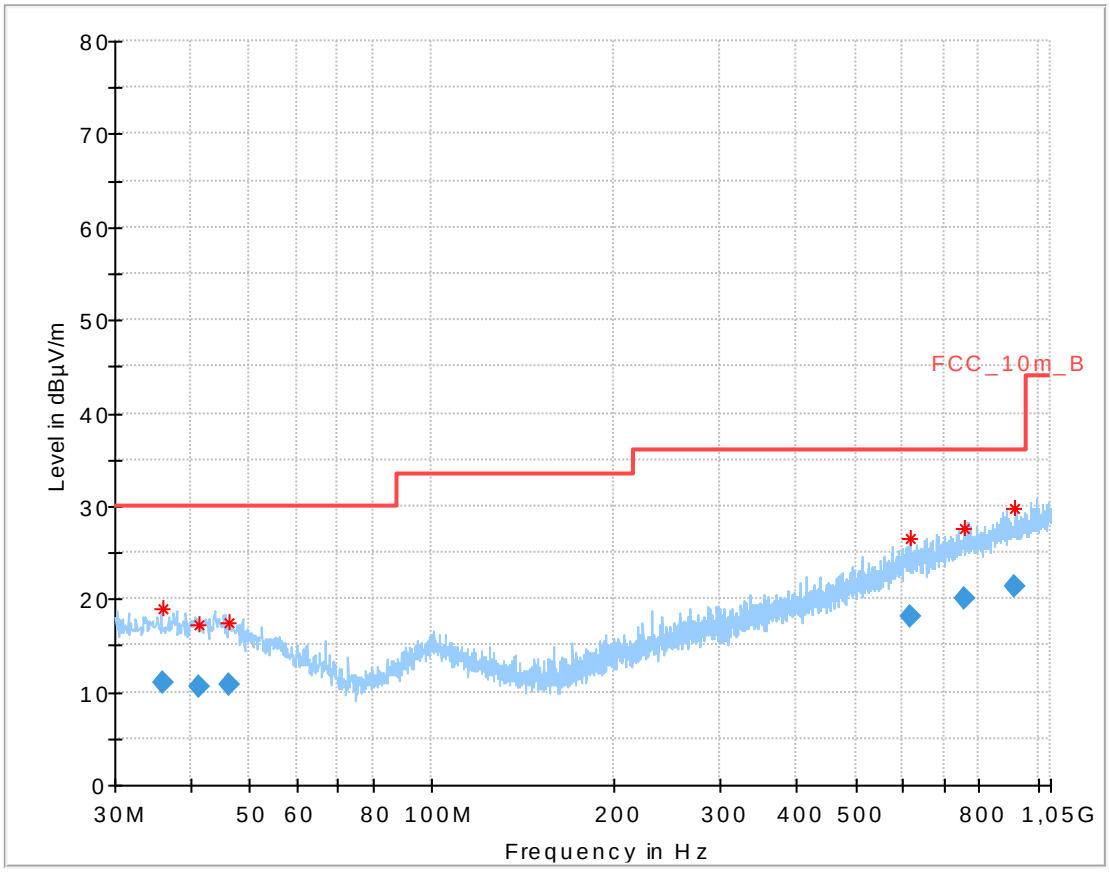
Date: 24.OCT.2014 10:27:05

Plot 30: 26 GHz to 40 GHz, 5590 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:28:34

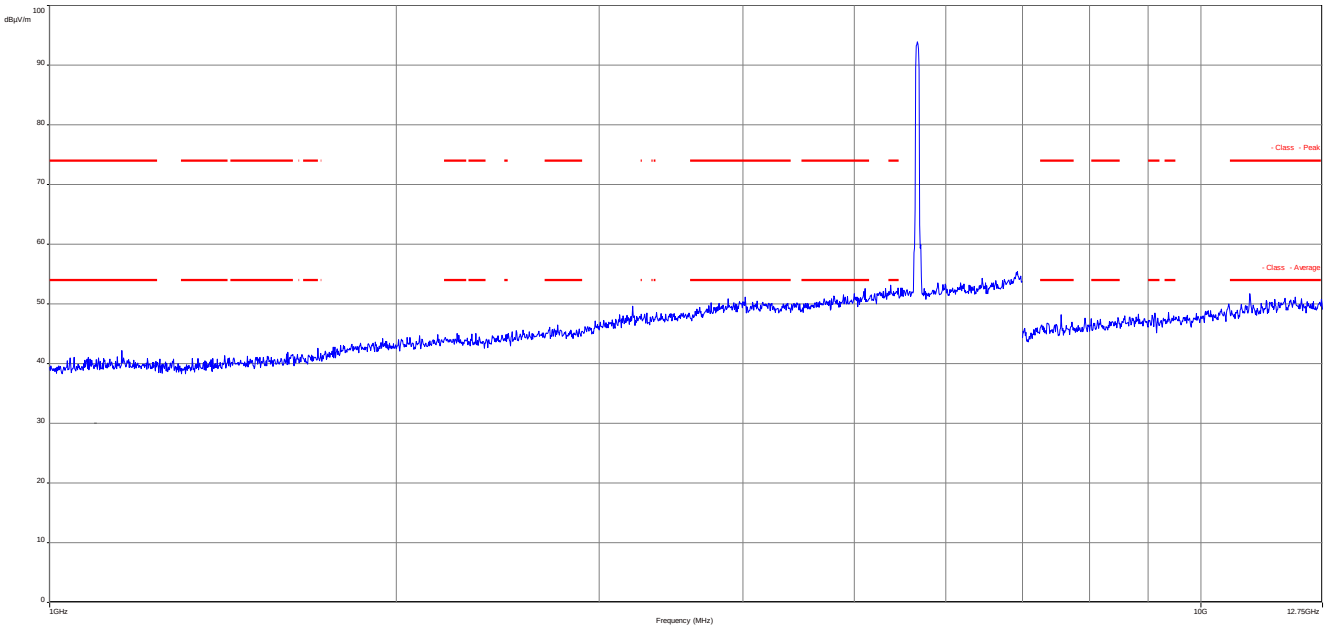
Plot 31: 30 MHz to 1 GHz, 5670 MHz, vertical & horizontal polarization



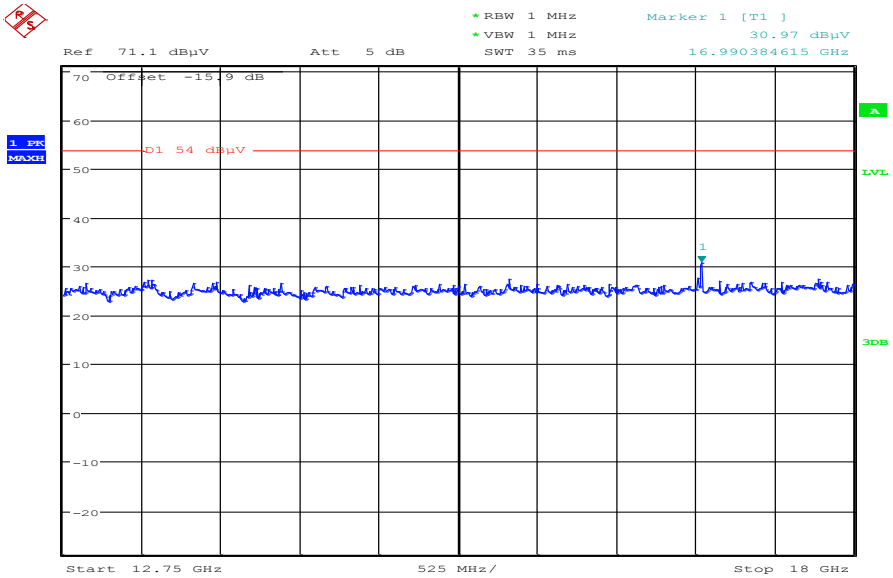
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
35.987550	10.94	30.00	19.06	1000.0	120.000	170.0	V	0	13.8
41.445750	10.61	30.00	19.39	1000.0	120.000	98.0	H	180	14.0
46.445850	10.74	30.00	19.26	1000.0	120.000	170.0	V	25	13.5
614.567100	18.15	36.00	17.85	1000.0	120.000	170.0	V	0	20.8
754.967550	20.01	36.00	15.99	1000.0	120.000	101.0	H	180	22.7
918.698400	21.38	36.00	14.62	1000.0	120.000	170.0	V	270	24.2

Plot 32: 1 GHz to 12.75 GHz, 5670 MHz, vertical & horizontal polarization

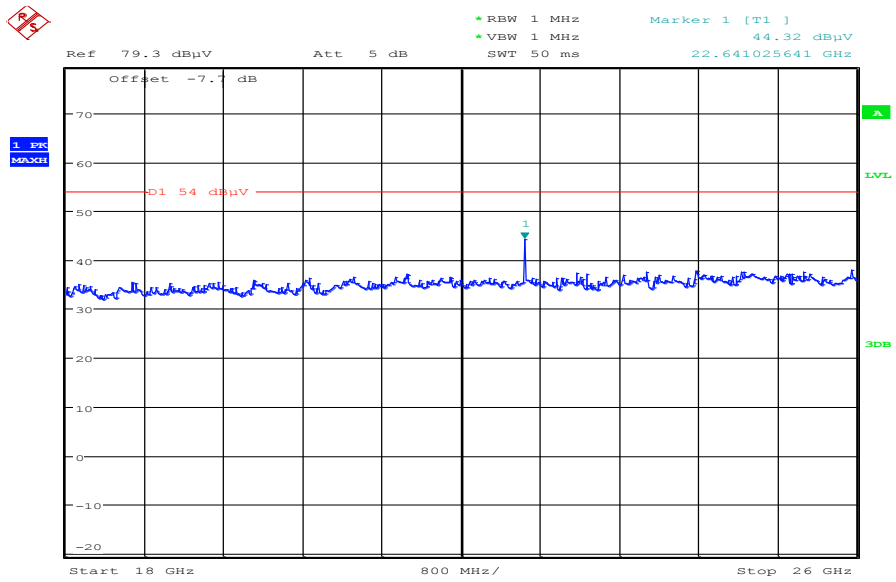


Plot 33: 12 GHz to 18 GHz, 5670 MHz, vertical & horizontal polarization



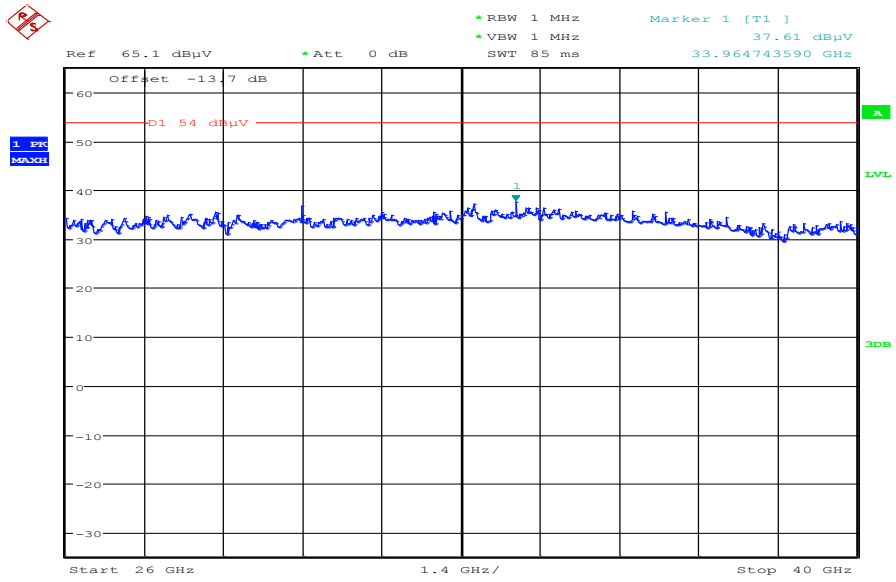
Date: 24.OCT.2014 09:28:14

Plot 34: 18 GHz to 26 GHz, 5670 MHz, vertical & horizontal polarization



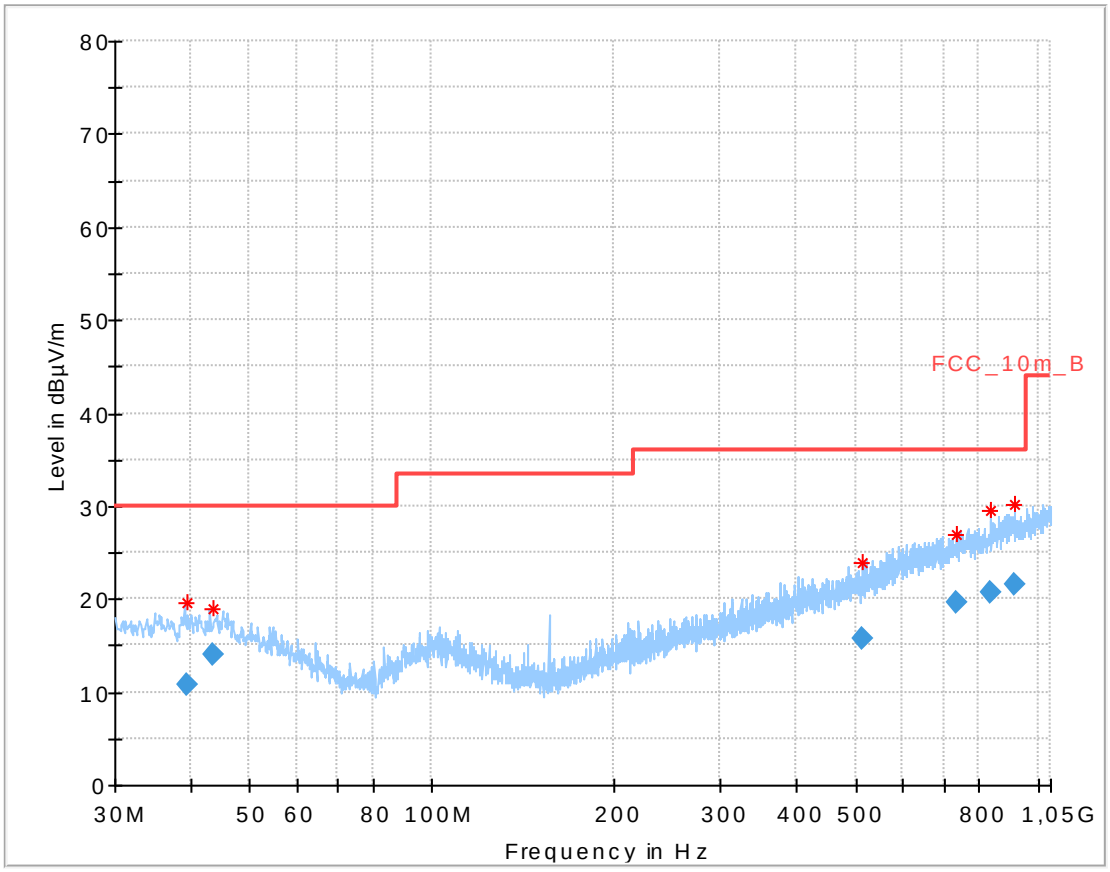
Date: 24.OCT.2014 10:28:06

Plot 35: 26 GHz to 40 GHz, 5670 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:29:55

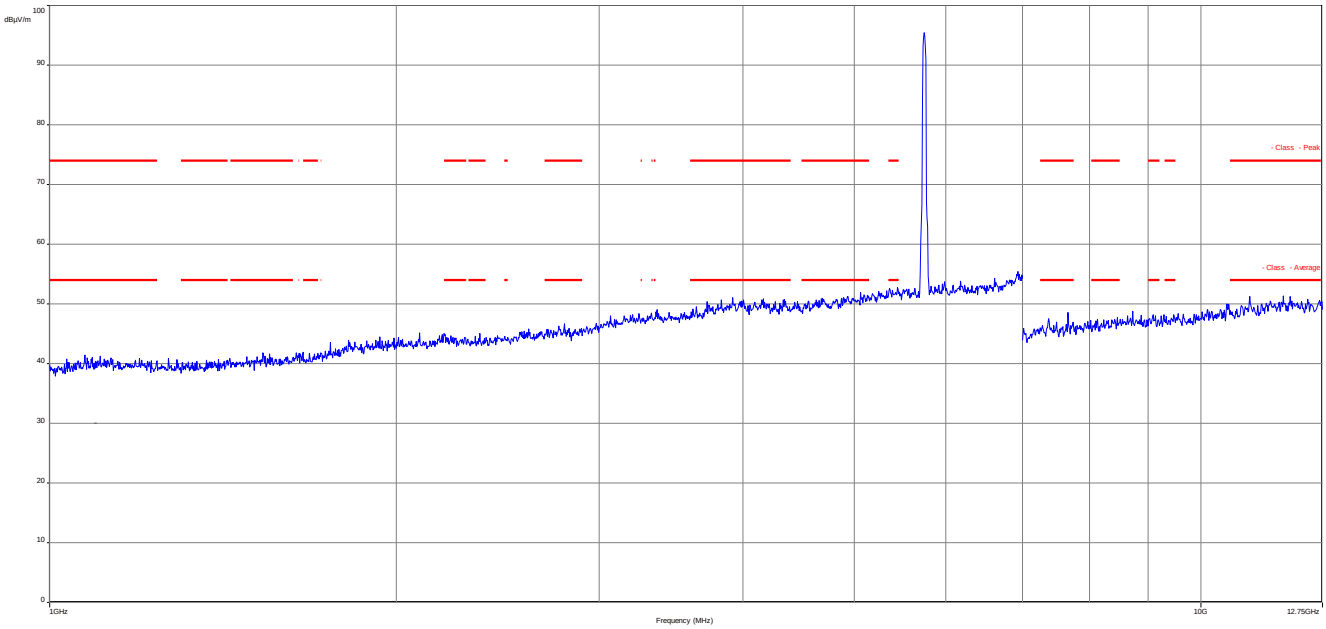
Plot 36: 30 MHz to 1 GHz, 5765 MHz, vertical & horizontal polarization



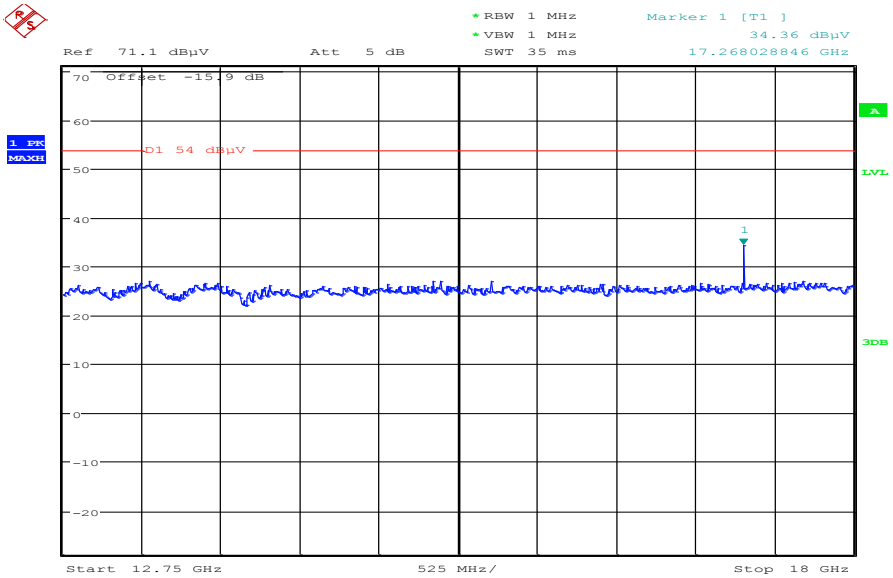
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
39.451500	10.85	30.00	19.15	1000.0	120.000	101.0	H	115	14.0
43.583550	14.04	30.00	15.96	1000.0	120.000	101.0	V	0	13.9
513.982800	15.77	36.00	20.23	1000.0	120.000	101.0	V	90	18.9
734.872650	19.67	36.00	16.33	1000.0	120.000	170.0	H	65	22.3
835.354200	20.60	36.00	15.40	1000.0	120.000	101.0	H	270	23.2
915.760050	21.53	36.00	14.47	1000.0	120.000	101.0	V	115	24.2

Plot 37: 1 GHz to 12.75 GHz, 5765 MHz, vertical & horizontal polarization

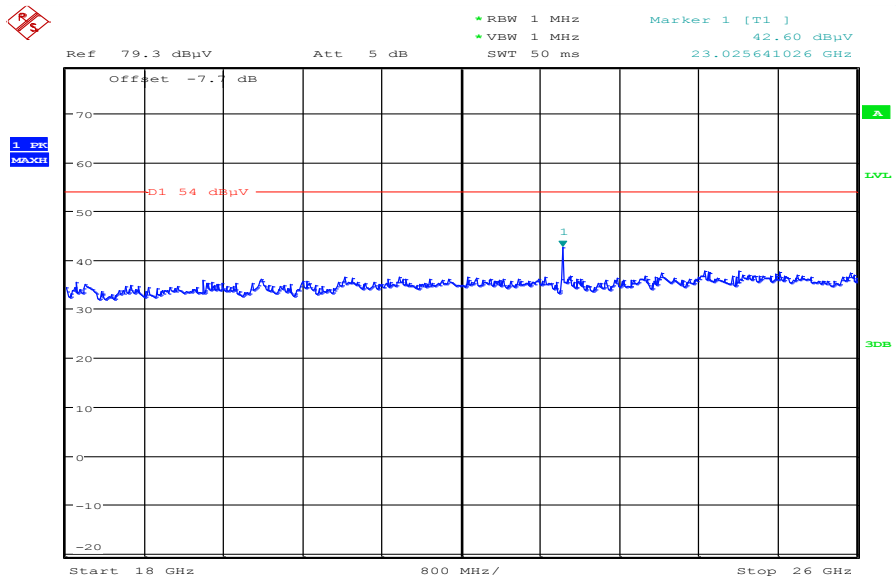


Plot 38: 12 GHz to 18 GHz, 5765 MHz, vertical & horizontal polarization



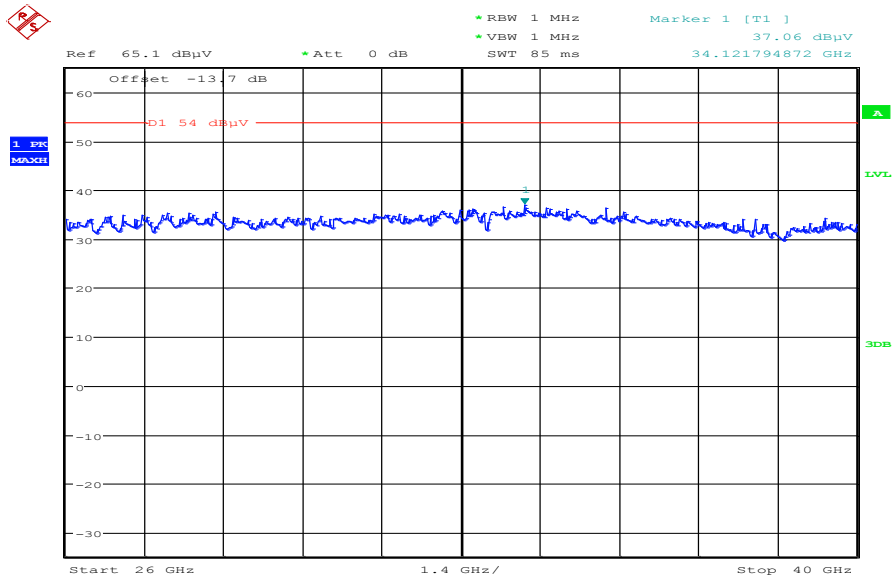
Date: 24.OCT.2014 09:30:05

Plot 39: 18 GHz to 26 GHz, 5765 MHz, vertical & horizontal polarization



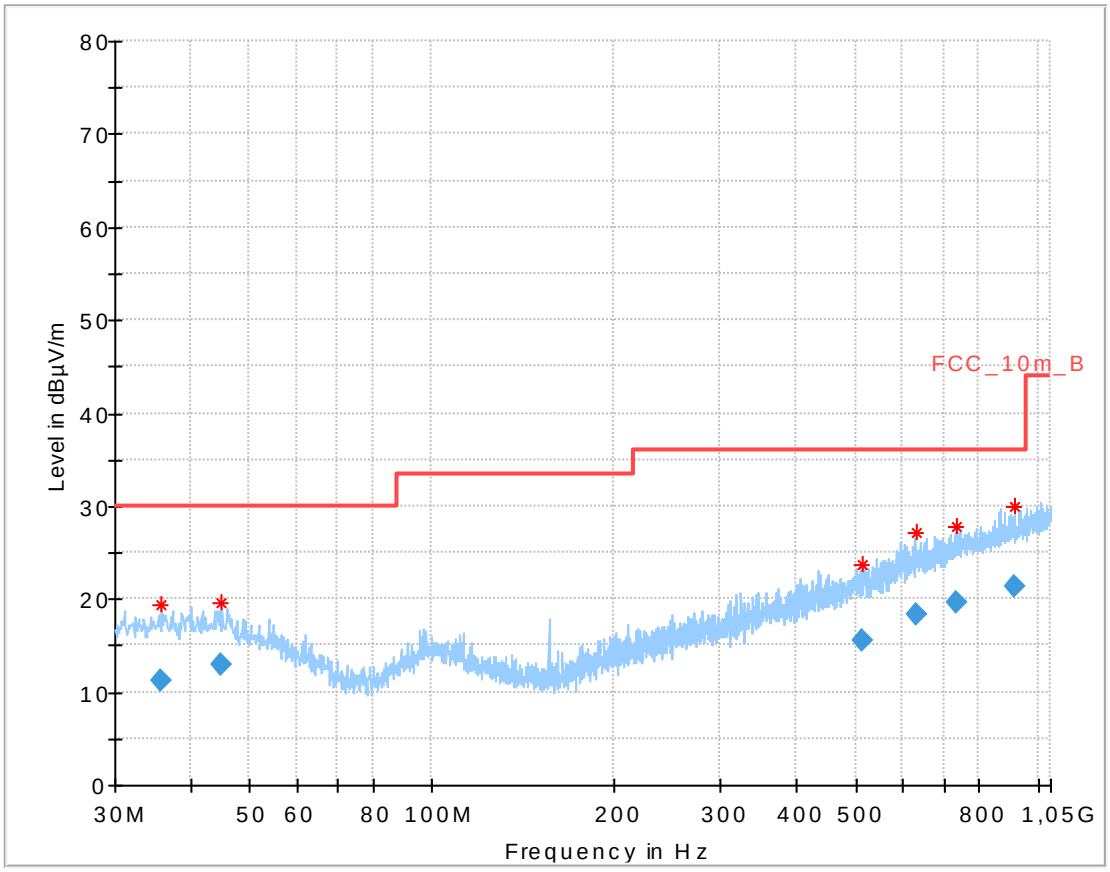
Date: 24.OCT.2014 10:29:14

Plot 40: 26 GHz to 40 GHz, 5765 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:30:59

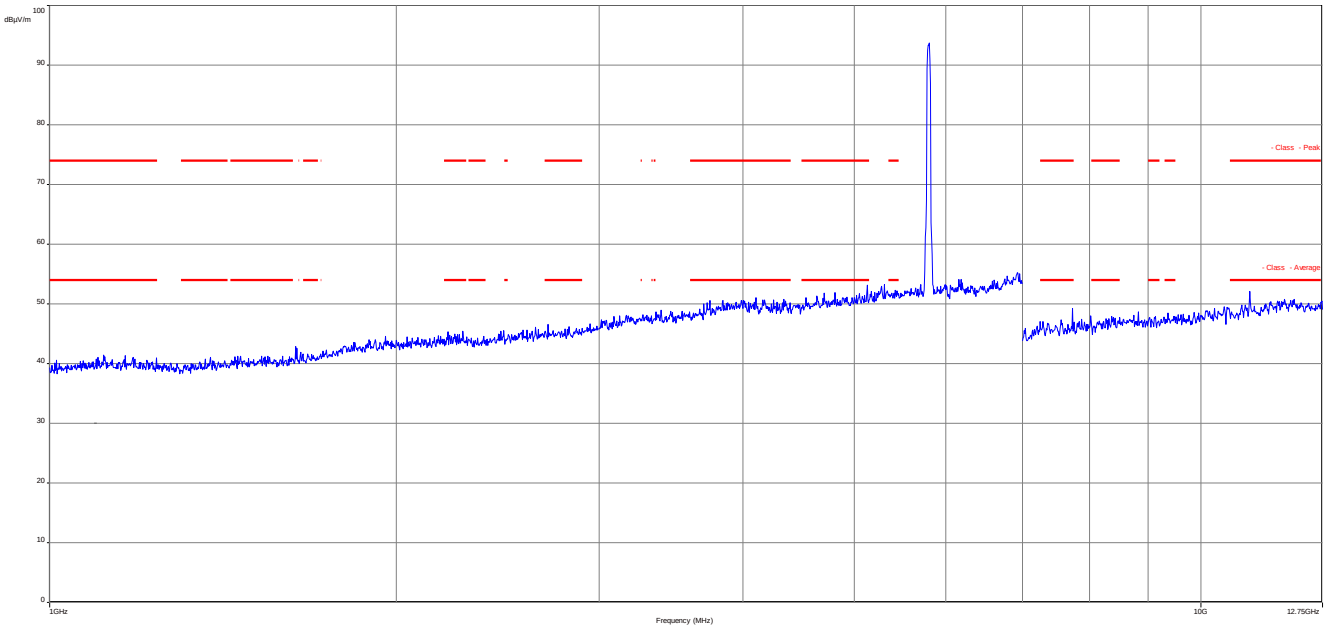
Plot 41: 30 MHz to 1 GHz, 5795 MHz, vertical & horizontal polarization



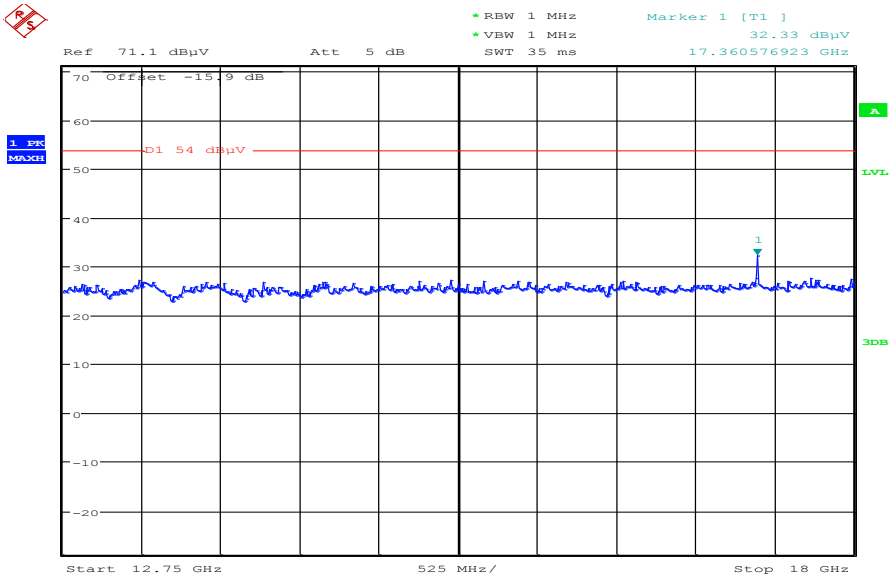
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
35.802600	11.20	30.00	18.80	1000.0	120.000	101.0	H	65	13.8
44.926950	12.97	30.00	17.03	1000.0	120.000	101.0	V	115	13.9
514.887450	15.63	36.00	20.37	1000.0	120.000	170.0	V	115	18.9
628.166250	18.26	36.00	17.74	1000.0	120.000	170.0	V	155	20.9
731.733150	19.65	36.00	16.35	1000.0	120.000	170.0	H	295	22.3
917.302350	21.39	36.00	14.61	1000.0	120.000	100.0	H	295	24.2

Plot 42: 1 GHz to 12.75 GHz, 5795 MHz, vertical & horizontal polarization

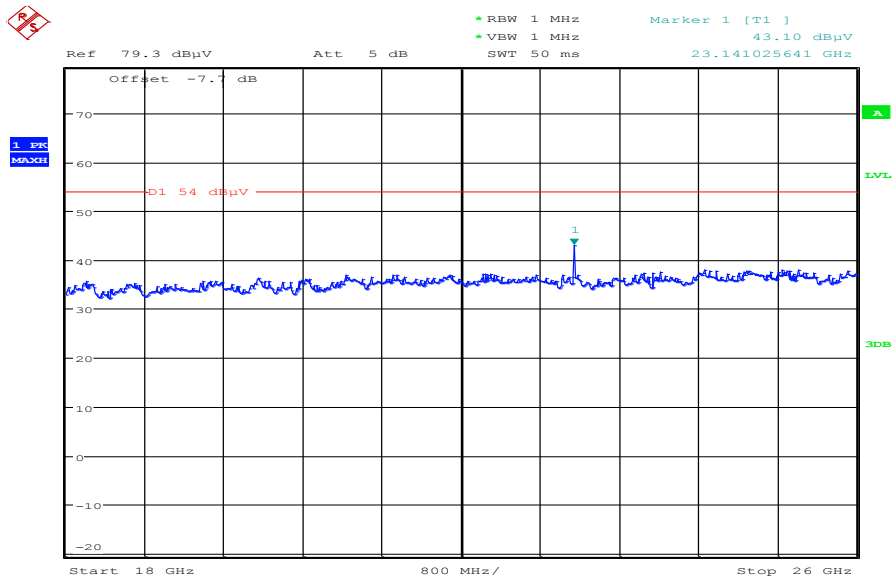


Plot 43: 12 GHz to 18 GHz, 5795 MHz, vertical & horizontal polarization



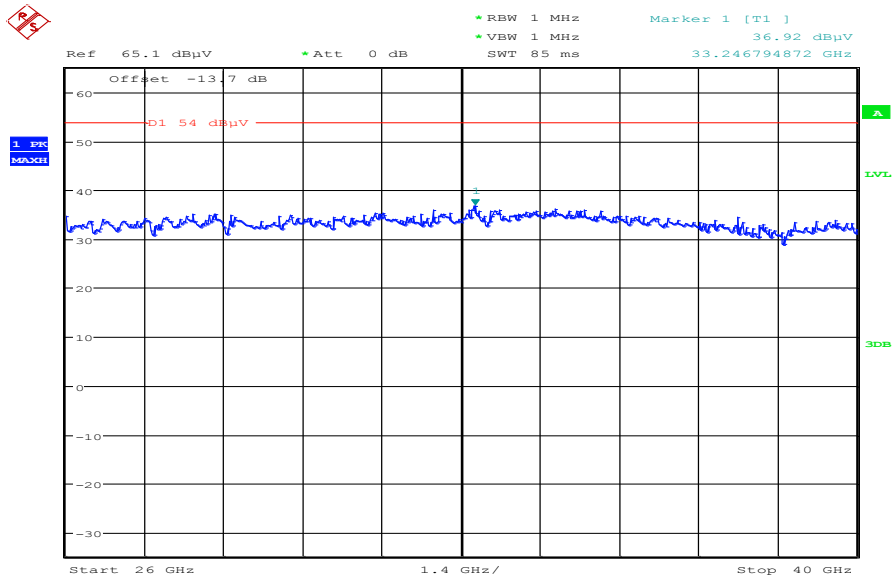
Date: 24.OCT.2014 09:34:37

Plot 44: 18 GHz to 26 GHz, 5795 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 10:30:38

Plot 45: 26 GHz to 40 GHz, 5795 MHz, vertical & horizontal polarization



Date: 24.OCT.2014 11:32:10

10.5 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: 100 kHz F > 1 GHz: ≥ 3 MHz /10 Hz
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:

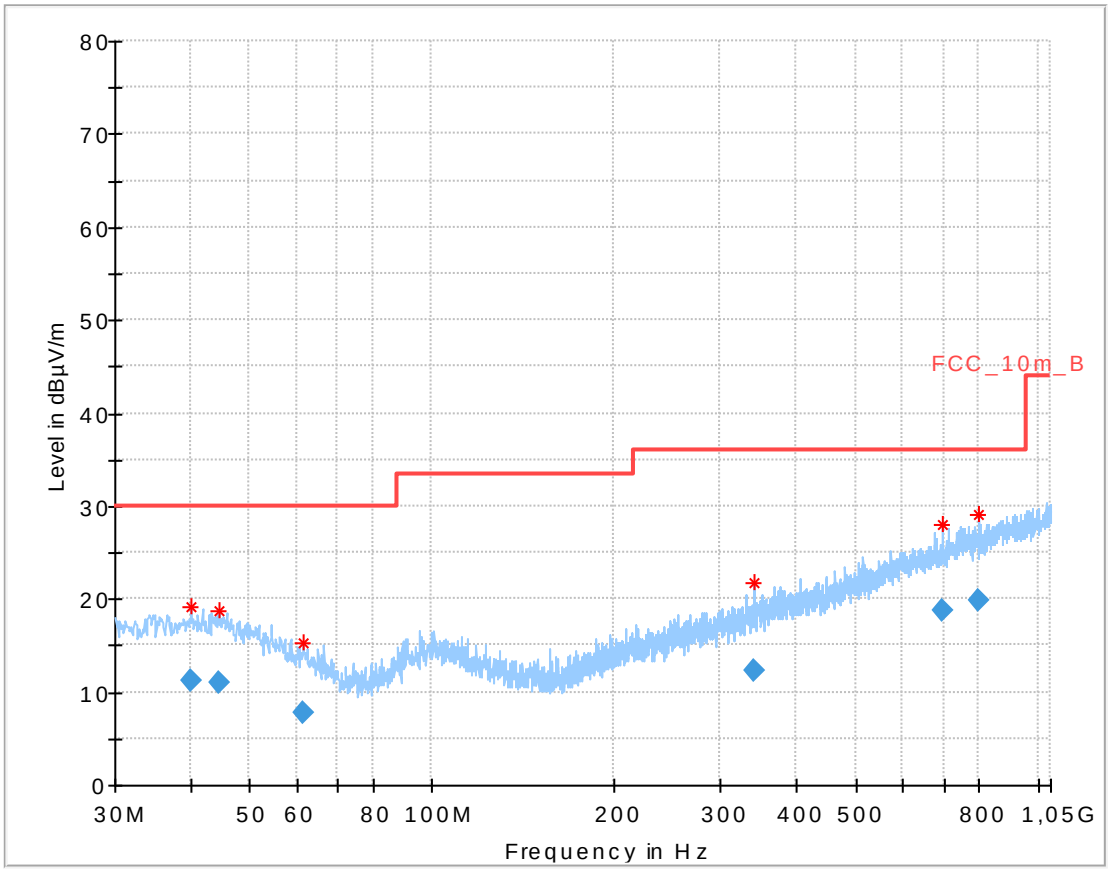
RX Spurious Emissions Radiated [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
No peaks found		
Measurement uncertainty	± 3 dB	

Result: **Passed**

Note: The limit was recalculated with 20 dB / decade (Part 15.31) for all radiated spurious emissions 30 MHz to 1 GHz from 3 meter limit to a 10 meter distance. (40dB/decade for emissions < 30MHz)

Plots: RX / Idle – mode

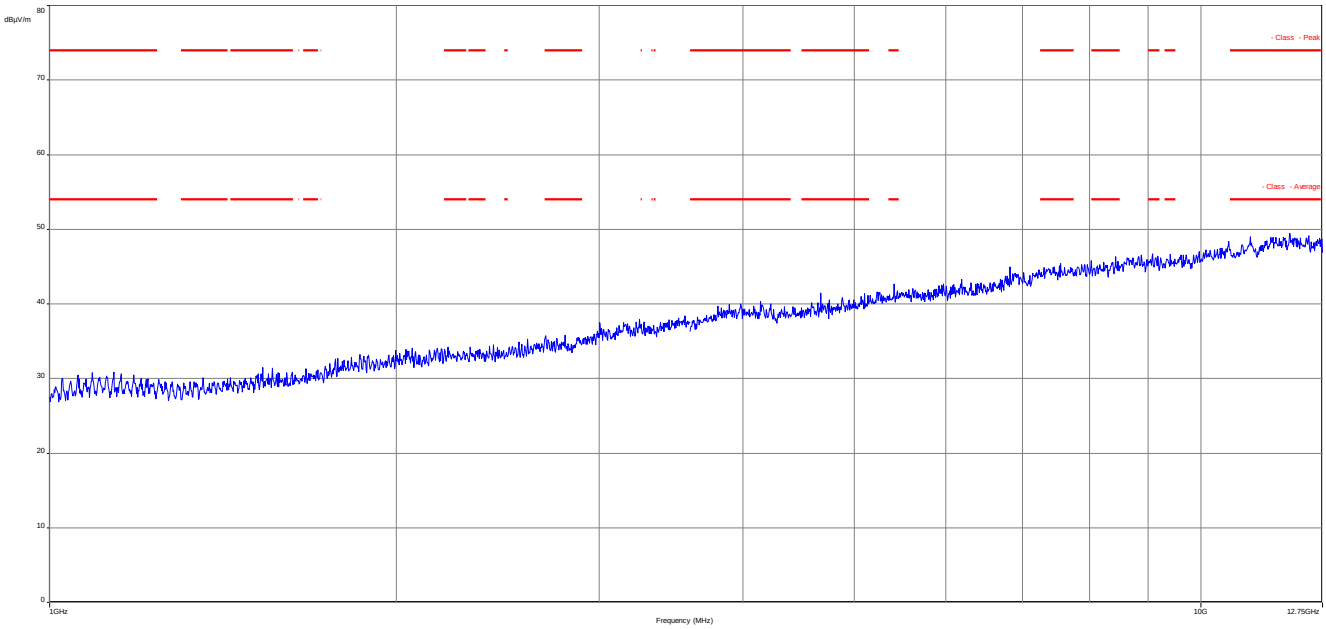
Plot 1: 30 MHz to 1 GHz, vertical & horizontal polarization



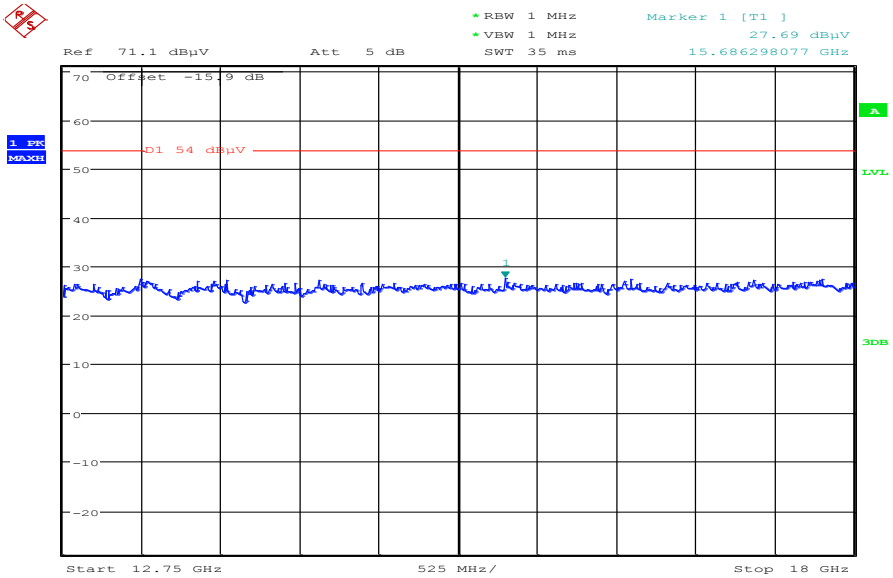
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.113000	11.32	30.00	18.68	1000.0	120.000	98.0	V	115	14.0
44.423400	11.07	30.00	18.93	1000.0	120.000	101.0	V	295	13.9
61.165650	7.72	30.00	22.28	1000.0	120.000	170.0	V	0	10.3
339.074250	12.30	36.00	23.70	1000.0	120.000	170.0	H	156	15.7
694.604550	18.84	36.00	17.16	1000.0	120.000	98.0	H	245	21.5
801.178500	19.92	36.00	16.08	1000.0	120.000	98.0	H	0	22.7

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

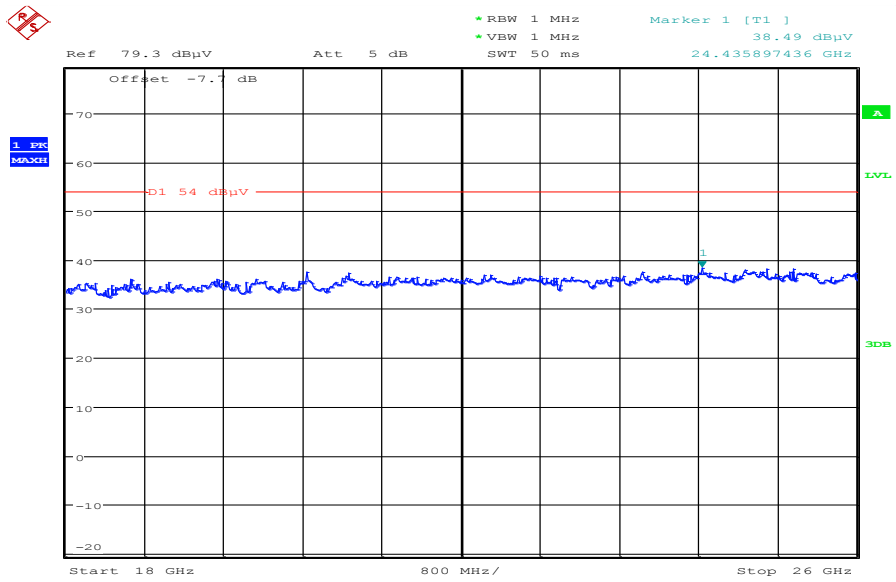


Plot 3: 12 GHz to 18 GHz, vertical & horizontal polarization



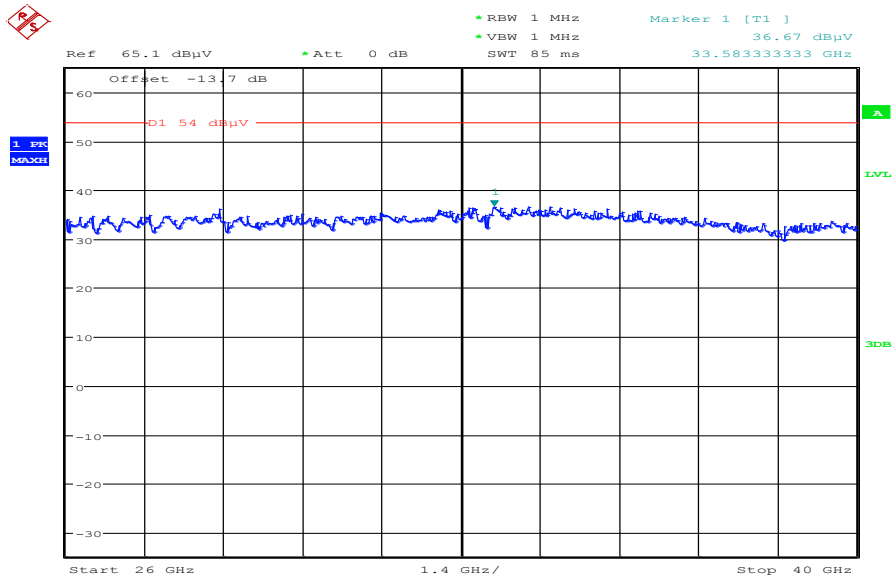
Date: 24.OCT.2014 09:59:46

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



Date: 24.OCT.2014 10:02:25

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



Date: 24.OCT.2014 11:06:39

10.6 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:

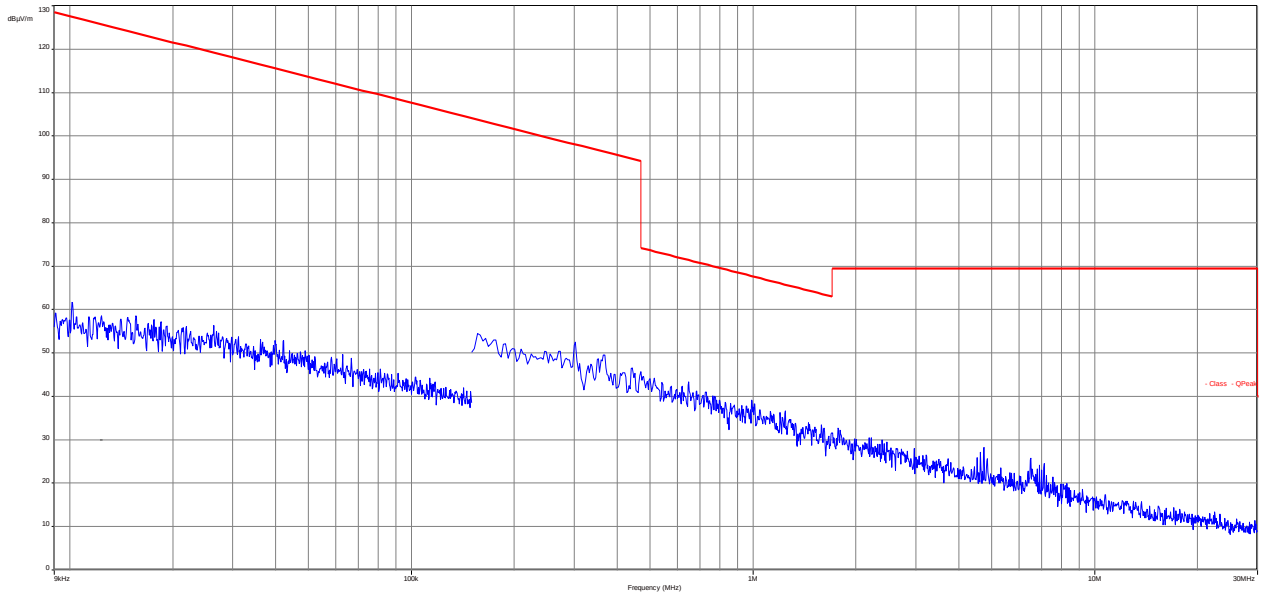
Spurious Emissions Radiated < 30 MHz [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
No peaks found		
Measurement uncertainty	± 3 dB	

Result: **Passed**

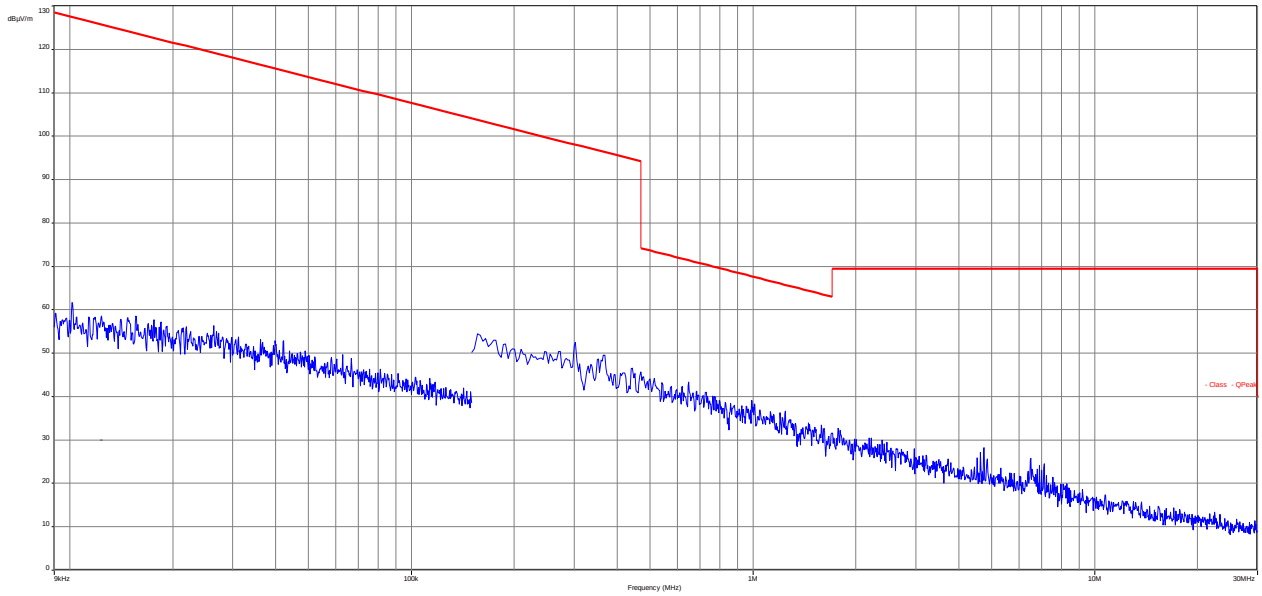
Note: The limit was recalculated with 20 dB / decade (Part 15.31) for all radiated spurious emissions 30 MHz to 1 GHz from 3 meter limit to a 10 meter distance. (40dB/decade for emissions < 30MHz)

Plots:

Plot 1: 9 kHz to 30 MHz, TX mode



Plot 2: 9 kHz to 30 MHz, RX mode



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	n. a.	Netztgerät 0-20V	6632A	HP Meßtechnik	2851A01814	300000924	ne	09.11.2005	
2	n. a.	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO Elektronik	9709-5290	300000212	k	23.07.2013	23.07.2015
3	n. a.	Highpass Filter	WHK1.1/15G-10SS	Wainwright	37	400000148	ne		
4	n. a.	Band Reject Filter	WRCG2400/2483-2375/2505-50/10SS	Wainwright	26	300003792	ne		
5	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	318	300003696	k	22.04.2014	22.04.2017
6	n. a.	Spectrum-Analyzer	FSU26	R&S	200809	300003874	k	22.01.2014	22.01.2015
7	n. a.	Broadband Amplifier 0.5-18 GHz	CBLU5184540	CERNEX	22050	300004482	ev		
8	n. a.	Broadband Amplifier	CBLU5135235	CERNEX	22011	300004492	ev		
9	n. a.	4U RF Switch Platform	L4491A	Agilent Technologies	MY50000032	300004510	ne		
10	n. a.	Messrechner und Monitor	Intel Core i3 3220/3,3 GHz, Prozessor		2V2403033A5421	300004591	ne		
11	n. a.	NEXIO EMV-Software	BAT EMC	EMCO		300004682	ne		

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	2014-11-11

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

Deutsche Akkreditierungsstelle GmbH

Beliehene gemäß § 8 Absatz 1 AkkStelleG i.V.m. § 1 Absatz 1 AkkStelleGBV
Unterzeichnerin der Multilateralen Abkommen
von EA, ILAC und IAF zur gegenseitigen Anerkennung

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

Die Akkreditierungsurkunde gilt nur in Verbindung mit dem Bescheid vom 07.03.2014 mit der Akkreditierungsnummer D-PL-12076-01 und ist gültig 17.01.2018. Sie besteht aus diesem Deckblatt, der Rückseite des Deckblatts und der folgenden Anlage mit insgesamt 77 Seiten.

Registrierungsnummer der Urkunde: **D-PL-12076-01-00**

Frankfurt am Main, 07.03.2014

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

Back side of certificate

Deutsche Akkreditierungsstelle GmbH

Standort Berlin
Spittelmarkt 10
10117 Berlin

Standort Frankfurt am Main
Gartenstraße 6
60594 Frankfurt am Main

Standort Braunschweig
Bundesallee 100
38116 Braunschweig

Die auszugsweise Veröffentlichung der Akkreditierungsurkunde bedarf der vorherigen schriftlichen Zustimmung der Deutsche Akkreditierungsstelle GmbH (DAkkS). Ausgenommen davon ist die separate Weiterveröffentlichung des Deckblattes durch die umseitig genannte Konformitätsbewertungsstelle in unveränderter Form.

Es darf nicht der Anschein erweckt werden, dass sich die Akkreditierung auch auf Bereiche erstreckt, die über den durch die DAkkS bestätigten Akkreditierungsbereich hinausgehen.

Die Akkreditierung erfolgte gemäß des Gesetzes über die Akkreditierungsstelle (AkkStelleG) vom 31. Juli 2009 (BGBl. I S. 2625) sowie der Verordnung (EG) Nr. 765/2008 des Europäischen Parlaments und des Rates vom 9. Juli 2008 über die Vorschriften für die Akkreditierung und Marktüberwachung im Zusammenhang mit der Vermarktung von Produkten (Abl. L 218 vom 9. Juli 2008, S. 30).
Die DAkkS ist Unterzeichnerin der Multilateralen Abkommen zur gegenseitigen Anerkennung der European co operation for Accreditation (EA), des International Accreditation Forum (IAF) und der International Laboratory Accreditation Cooperation (ILAC). Die Unterzeichner dieser Abkommen erkennen ihre Akkreditierungen gegenseitig an.

Der aktuelle Stand der Mitgliedschaft kann folgenden Webseiten entnommen werden:
EA: www.european-accreditation.org
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.

http://www.cetecom.com/eu/de/cetecom-group/europa/deutschland-saarbruecken/akkreditierungen.html