Accredited testing-laboratory

DAR registration number: DGA-PL-176/94-D1

Federal Motor Transport Authority (KBA)
DAR registration number: KBA-P 00070-97

Recognized by the Federal Communications Commission
Anechoic chamber registration no.: 90462 (FCC)
Anechoic chamber registration no.: 3462C-1 (IC)
Certification ID: DE 0001
Accreditation ID: DE 0002

Accredited Bluetooth® Test Facility (BQTF)

Test report no.	**:**	**1-1796-01-04/09-A**
Type identification	**:**	**50001589-XX**
Applicant	**:**	**Digi International GmbH**
FCC ID	**:**	**MCQ-50M1589**
IC Certification No	**:**	**1846A-50M1589**
Test standards	**:**	**47 CFR Part 15**
		RSS - 210 Issue 7

Table of contents

1 General information

1.1 Notes

The test results of this test report relate exclusively to the test item specified in 3.1.1. The CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalisations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM ICT Services GmbH.

Test laboratory manager:

cn=Meheza Walla, o=CETECOM ICT, ou=WAL-100601, email=meheza.walla@ict.cetecom.de, c=DE
2010.06.08 22:52:48 +02'00'

2010-06-08	**Meheza Kpelou Walla**	
Date	Name	Signature

Technical responsibility for area of testing:

cn=Jakob Reschke, o=CETECOM ICT Services GmbH, ou=RES-100323, email=Jakob.Reschke@ict.cetecom.de, c=DE
2010.06.09 07:28:33 +02'00'

2010-06-08	**Jakob Reschke**	
Date	Name	Signature

1.2 Testing laboratory

CETECOM ICT Services GmbH

Untertürkheimer Straße 6 - 10
66117 Saarbrücken
Germany
Phone: + 49 681 5 98 - 0
Fax: + 49 681 5 98 - 9075
e-mail: info@ICT.cetecom.de
Internet: http://www.cetecom-ict.de

State of accreditation:	**The test laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 DAR registration number: DGA-PL-176/94-D1**
Accredited by:	**Federal Motor Transport Authority (KBA) DAR registration number: KBA-P 00070-97**

Testing location, if different from CETECOM ICT Services GmbH:

Name :
Street :
Town :
Country :
Phone :
Fax :

1.3 Details of applicant

Name:	**Digi International GmbH Branch Breisach**
Street:	**Kueferstr.8**
Town:	**79206 Breisach**
Country:	**Germany**
Telephone:	
Fax:	**+49 7667 908 200**
Contact:	**Andreas Ortlieb**
E-mail:	**andreas.ortlieb@digi.com**
Telephone:	**+49 7667 908 136**

1.4 Application details

Date of receipt of order:	**2009-11-16**
Date of receipt of test item:	**2010-05-17**
Date of start test:	**2010-05-17**
Date of end test	**2010-06-08**
Persons(s) who have been present during the test:	**-/-**

2 Test standard/s

47 CFR Part 15	**2008-07**	**Title 47 of the Code of Federal Regulations; Chapter I-Federal Communications Commission subchapter A - general, Part 15-Radio frequency devices**
RSS - 210 Issue 7	**2007-06**	**Spectrum Management and Telecommunications - Radio Standards Specification Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment**

3 Technical tests

3.1 Details of manufacturer

Name:	**Digi International GmbH Branch Breisach**
Street:	**Kueferstr.8**
Town:	**79206 Breisach**
Country:	**Germany**

3.1.1 Test item

Kind of test item	:	**WLAN Modul a,b,g**
Type identification	:	**50001589-XX**
S/N serial number	:	**-/-**
HW hardware status	:	**-/-**
SW software status	:	**-/-**
Frequency Band [MHz]	:	**5.150 GHz – 5.250 GHz** **5.250 GHz – 5.350 GHz** **5.470 GHz – 5.725 GHz** **5.725 GHz – 5.825 GHz**
Type of Modulation	:	**OFDM**
Number of channels	:	**4** **4** **11** **4**
Antenna	:	**External rod. antenna**
Power Supply	:	**115 V AC / 60 Hz to 12 V DC from Power Adaptor TR10R0120**
Temperature Range	:	**-20 °C to +55 °C**

Max. power radiated: **16.50 dBm (calculated)**
Max. power conducted: **12.90 dBm (Refer to test report number: 3168437MPK-001)**

FCC ID: **MCQ-50M1589**
IC: **1846A-50M1589**

3.1.2 Additional EUT information For IC Canada (appendix 2)

IC Registration Number:	**1846A-50M1589**
Model Name:	**50001589-XX**
Manufacturer (complete Adress):	**Digi International GmbH** **Kueferstr.8** **79206 Breisach** **Germany**
Tested to Radio Standards Specification (RSS) No.:	**RSS-210 Issue 7**
Open Area Test Site Industry Canada Number:	**IC 3462C-1**
Frequency Range (or fixed frequency) [MHz]:	**5.150 GHz – 5.250 GHz** **5.250 GHz – 5.350 GHz** **5.470 GHz – 5.725 GHz** **5.725 GHz – 5.825 GHz**
RF: Power [W] (max):	**OFDM:** **[5.150 GHz – 5.250 GHz]** **Rad. EIRP(calculated): 22.91 mW** **Conducted: 10.00 mW** Refer to test report number: 3168437MPK-001 **[5.250 GHz – 5.350 GHz]** **Conducted: 8.32 mW** Refer to test report number: 3168437MPK-001 **[5.470 GHz – 5.725 GHz]** **Conducted: 19.50 mW** Refer to test report number: 3168437MPK-001 **[5.725 GHz – 5.825 GHz]** **Conducted: 14.13 mW** Refer to test report number: 3168437MPK-001
Antenna Type:	**External rod. antenna**
Occupied Bandwidth (99% BW) [kHz]:	**Not performed!** **Only delta measurement radiated**
Type of Modulation:	**OFDM**
Emission Designator (TRC-43):	**Not performed!** **Only delta measurement radiated**
Transmitter Spurious (worst case) [dBµV/m in 10m]:	**28.20**
Receiver Spurious (worst case) [dBµV/m in 10m]:	**32.60**

ATTESTATION:

I attest that the testing was performed or supervised by me; that the test measurements were made in accordance with the above-mentioned departmental standard(s), and that the radio equipment identified in this application has been subject to all applicable test conditions specified in the departmental standards and all of the requirements of the standards have been met.

Signature:

cn=Meheza Walla, o=CETECOM ICT, ou=WAL-100601,
email=meheza.walla@ict.cetecom.de, c=DE
2010.06.08 22:53:16 +02'00'

Test engineer: Meheza K. Walla
Date: 2010-06-08

3.1.3 EUT operating modes

EUT operating mode no.*)	Description of operating modes	Additional information
Op. 0	Normal mode	Normal temperature and power source conditions
Op. 1		low temperature, low power source conditions
Op. 2		low temperature, high power source conditions
Op. 3		high temperature, low power source conditions
Op. 4		high temperature, high power source conditions

*) EUT operating mode no. is used to simplify the test plan

3.1.4 Extreme conditions testing values

Description	Shortcut	Unit	Value
Nominal Temperature	T_{nom}	°C	**23**
Nominal Humidity	H_{nom}	%	**42**
Nominal Power Source	V_{nom}	V	**115 V AC / 60 Hz** **To 12 V DC**

Type of power source: **from Power Adapter TR10R0120**

4 Summary of Measurement Results and list of all performed test cases

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

☐ There were deviations from the technical specifications ascertained

TC identifier	Description	verdict	date	Remark
RF-Testing	FCC Part 15 §15.407 - CANADA RSS-210	PASS	2010-06-08	-/-

Test Specification Clause	Test Case	Pass	Fail	Not applicable	Not performed
Range:	5.150 GHz – 5.250 GHz; 5.250 GHz – 5.350 GHz; 5.470 GHz – 5.725 GHz; 5.725 GHz – 5.825 GHz				
§15.205	Band-edge compliance of radiated emissions	Yes			
§ 15.209	Spurious Emission -radiated (TX)	Yes			
§ 15.209	Spurious Emission -radiated (RX)	Yes			
§ 15.107/207	Conducted Emissions <30 MHz	Yes			

5 RF measurement testing

5.1 Description of test set-up

5.1.1 Radiated measurements

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 20 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 C63.2-1996 clause 15 and ANSI C63.4-2003 clause 4.1.5. 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 set-ups 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 C63.4-2003 clause 4.2.
Antennas are confirmed with ANSI C63.2-1996 item 15.

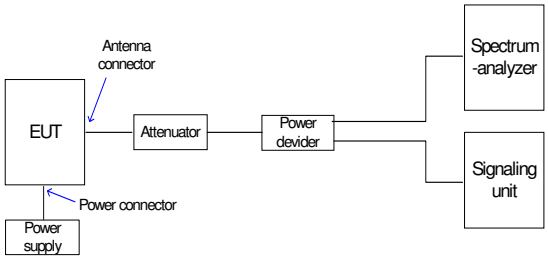
9 kHz - 150 MHz: Quasi Peak measurement, 200 Hz Bandwidth, passive loop antenna.
150 kHz - 30 MHz: Quasi Peak measurement, 9 kHz Bandwidth, passive loop antenna.
30 MHz - 200 MHz: Quasi Peak measurement, 120 kHz Bandwidth, biconical antenna
200MHz - 1GHz: Quasi Peak measurement, 120 kHz Bandwidth, log periodic antenna
>1GHz: Average, RBW 1MHz, VBW 10 Hz, wave guide horn

All measurement settings are according to FCC 15.209 and 15.207

5.1.2 Conducted measurements

Not performed!
Only delta measurements radiated

The EUT´s RF signal is coupled out by the antenna connector which is supplied by the manufacturer. The signal is connected to the spectrum analyzer. The specific losses for signal path are first checked within a calibration. The measurement readings on the spectrum analyzer are corrected by the specific test set-up loss. The attenuator, power divider, signalling unit and the spectrum analyzer are impedance matched on 50 Ohm.



5.2 Referenced Documents

Pre-certified WLAN-module used. Only delta-measurements performed.
Refer to test report number: 3168437MPK-001 for the full tests.

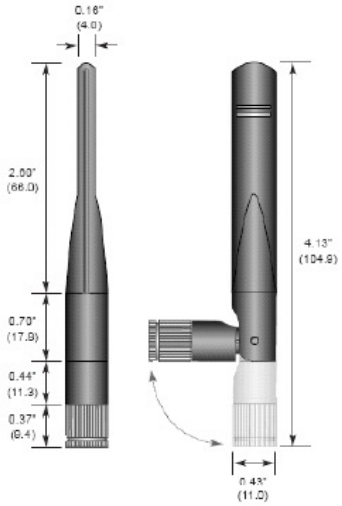
Antenna specification: 802.11a/b/g antenna

Attributes

Attribute	Band 1	Band 2
Frequency	2.4~2.483.5GHz	5.15GHz~6GHz
Bandwidth	120MHz	875MHz
Wavelength	¼ Wave	¼ Wave
Impedance	50 Ohm	50 Ohm
VSWR	< 1.9 typ. Center	< 1.9 typ. Center
Connector	RP-SMA	RP-SMA
Gain	2.3dBi	3.6dBi
Dimension	See measurements in the drawing after the table.	
Maximum Power level	TBD	TBD
Operationg temperature	TBD	TBD
Storage temperature	TBD	TBD
Part number	ANT-DB1-RAF-RPS	

Dimensions

Note: Dimensions are provided for reference purposes only. The actual antenna might vary.



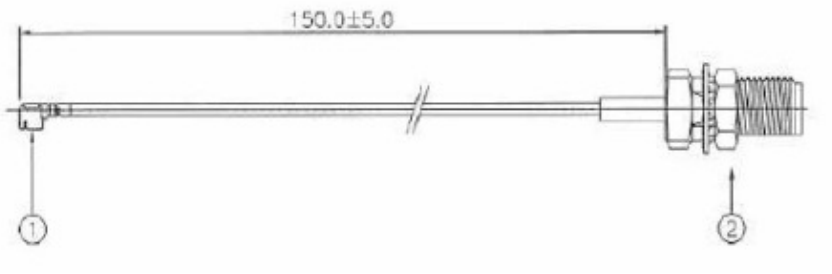
Cable specification : U.FL/W.FL to RP-SMA FEMALE

Attributes

Attribute	Property
Impedance	50 Ohm
Frequency Range	0 to 6 GHz
Length	150 mm /
Temperature Range	-40 to +90°C
Loss	3.8dB/m (3 GHz) 5.6dB/m (6 GHz)

Dimensions

Note: Dimensions are provided for reference purposes only. The actual cable might vary.



1 = U.FL
2 = RP-SMA

Note: This module obtained its complete certification by using the cable described here. End users in North America should use a cable that matches these specs to maintain the module's certification.

5.3 Additional comments

The manufacturer had a special software to set the EUT in continuous transmission with a duty cycle of 99%. The EUT was configured (configuration via HyperTerminal) to operate with the following settings using 6 Mbit/s:

Frequency Range	Power Index
5.150 GHz – 5.250 GHz	55
5.250 GHz – 5.350 GHz	42
5.470 GHz – 5.725 GHz	50
5.725 GHz – 5.825 GHz	55

The conducted output power was measured and it was the same as in the referenced test report.

5.4 Manufacturer´s Declaration

The manufacturer attests that the power settings used for testing are part of the firmware and cannot be changed by the user or host. The following measurements were performed with the specific power settings fulfilling the requirements of the FCC- and IC- rules

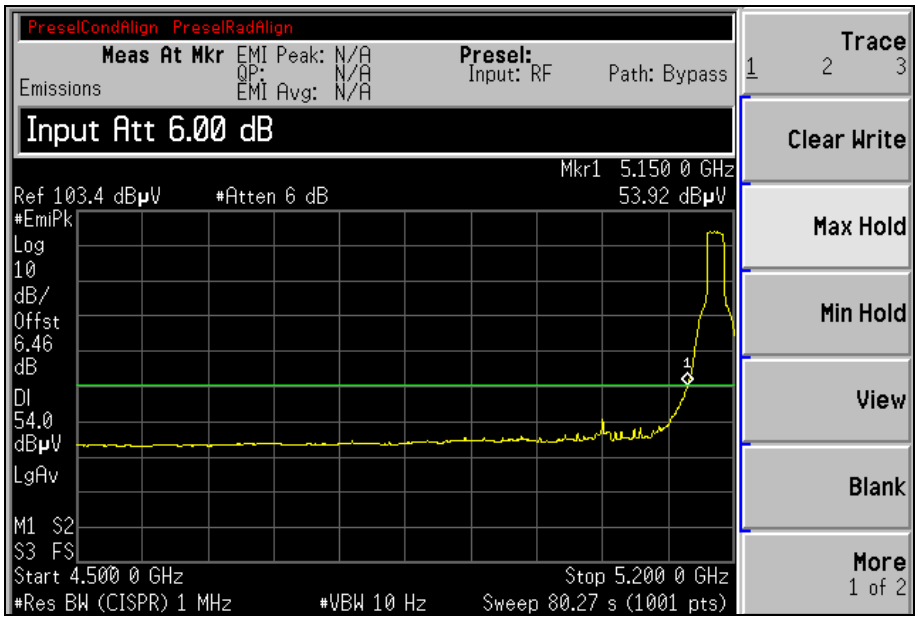
5.5 Antenna gain

Refer to “5.2 Referenced document” the antenna gain is 3.6 dBi.

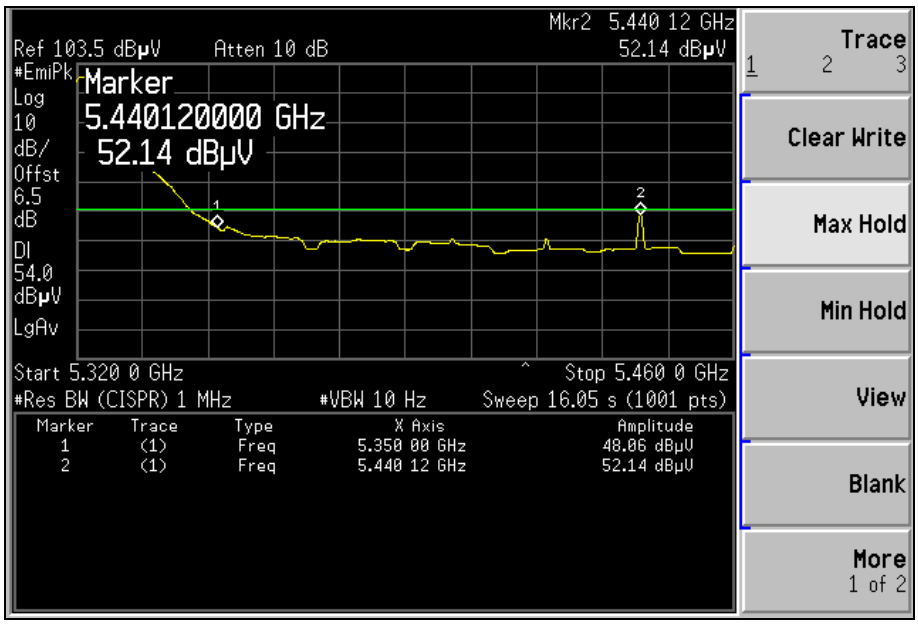
5.6 Band-edge compliance of radiated emissions §15.205

OFDM:

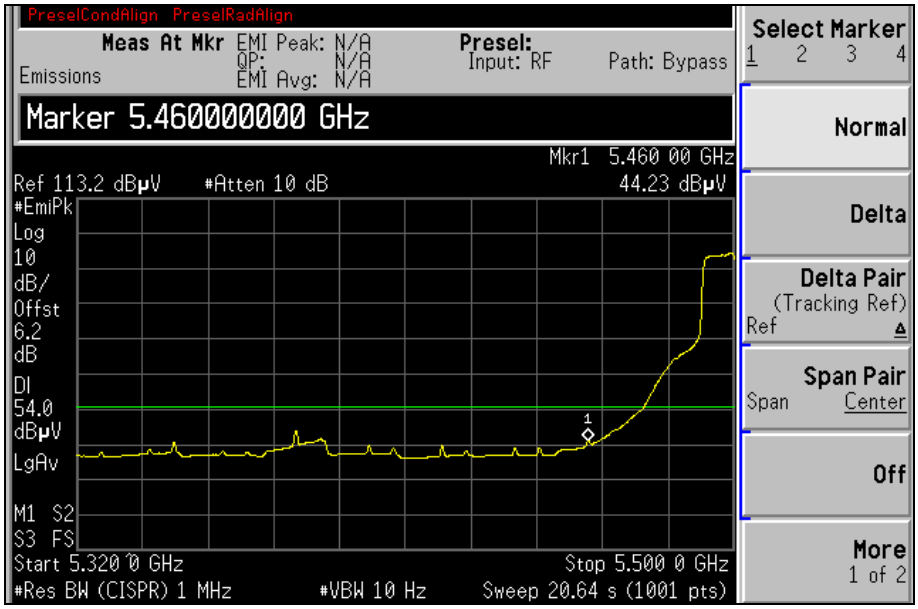
Plot 1 of 3:



Plot 2 of 3:



Plot 3 of 3:



Limit: 54 dBµV/m		**Complies**

5.7 Spurious Emissions - radiated (Transmitter) §15.209

OFDM: TX-Mode, 5180 MHz

Plot 1: 0.03 - 1 GHz, antenna vertical/horizontal @ 10 m

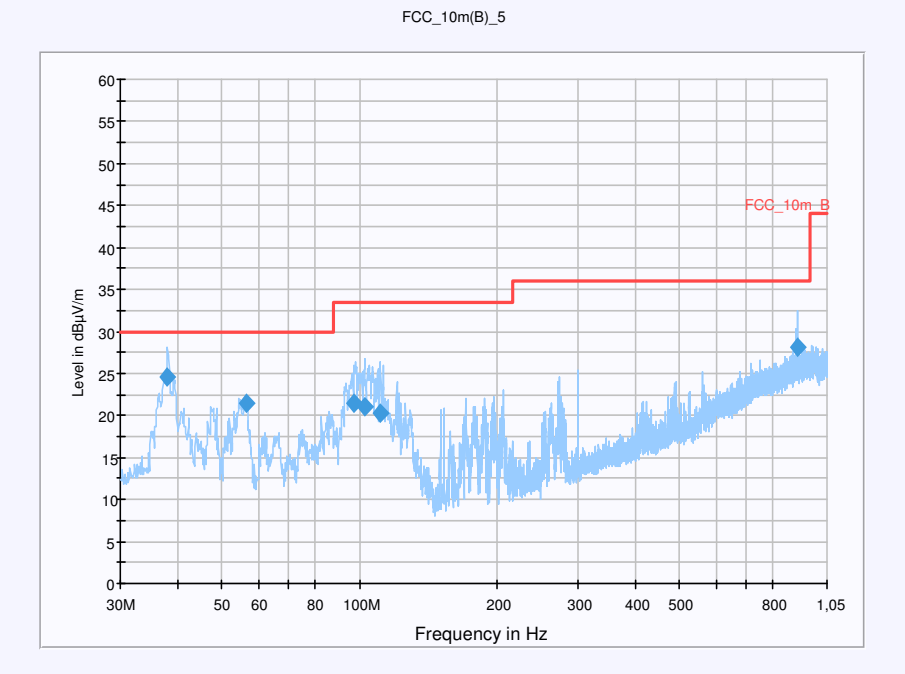
Information

EUT:	50001589-XX + AC/DC Adaptor
Serial Number:	Prototype + 24000093
Test Description:	FCC Part 15
Operating Conditions:	WLAN test mode, 5180 MHz
Operator Name:	Kraus
Comment:	power 115V / 60Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver

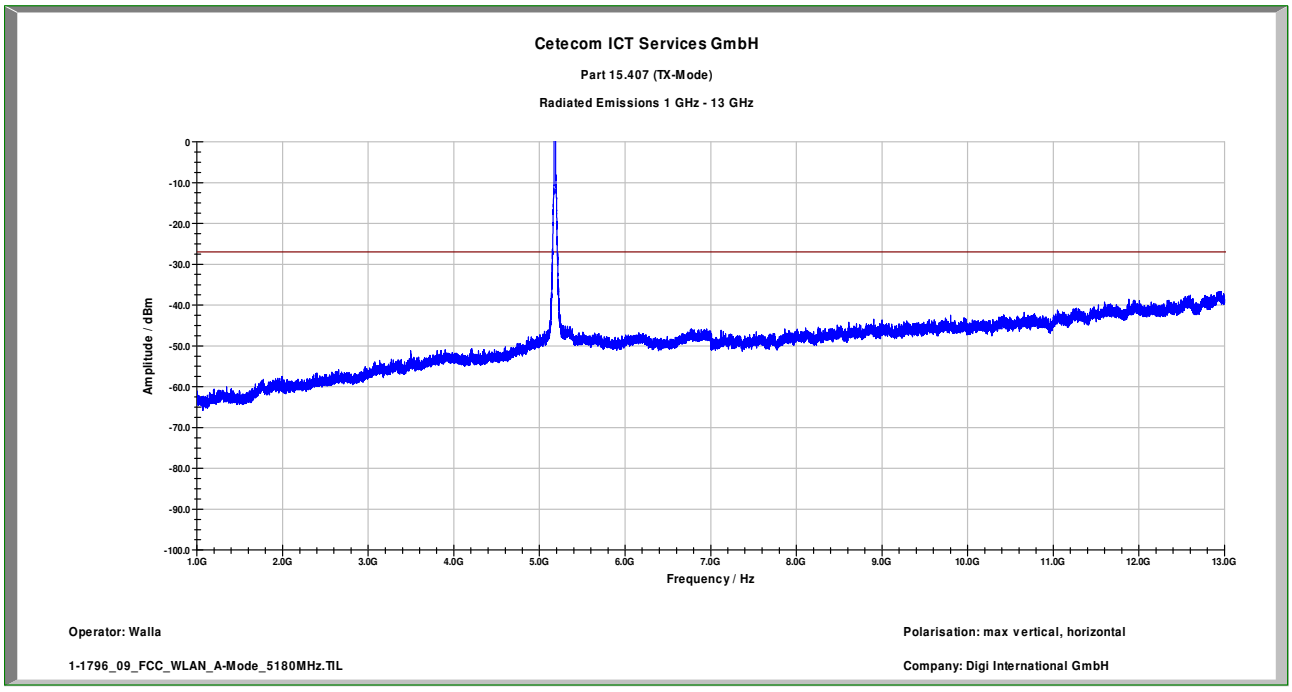


Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
38.040000	24.6	15000.000	120.000	120.0	V	155.0	13.3	5.4	30.0
56.400000	21.4	15000.000	120.000	220.0	V	30.0	12.5	8.6	30.0
97.200000	21.4	15000.000	120.000	119.0	V	266.0	11.5	12.1	33.5
102.480000	21.0	15000.000	120.000	98.0	V	169.0	11.7	12.5	33.5
111.120000	20.2	15000.000	120.000	98.0	V	169.0	10.9	13.3	33.5
901.680000	28.2	15000.000	120.000	109.0	H	324.0	25.2	7.8	36.0

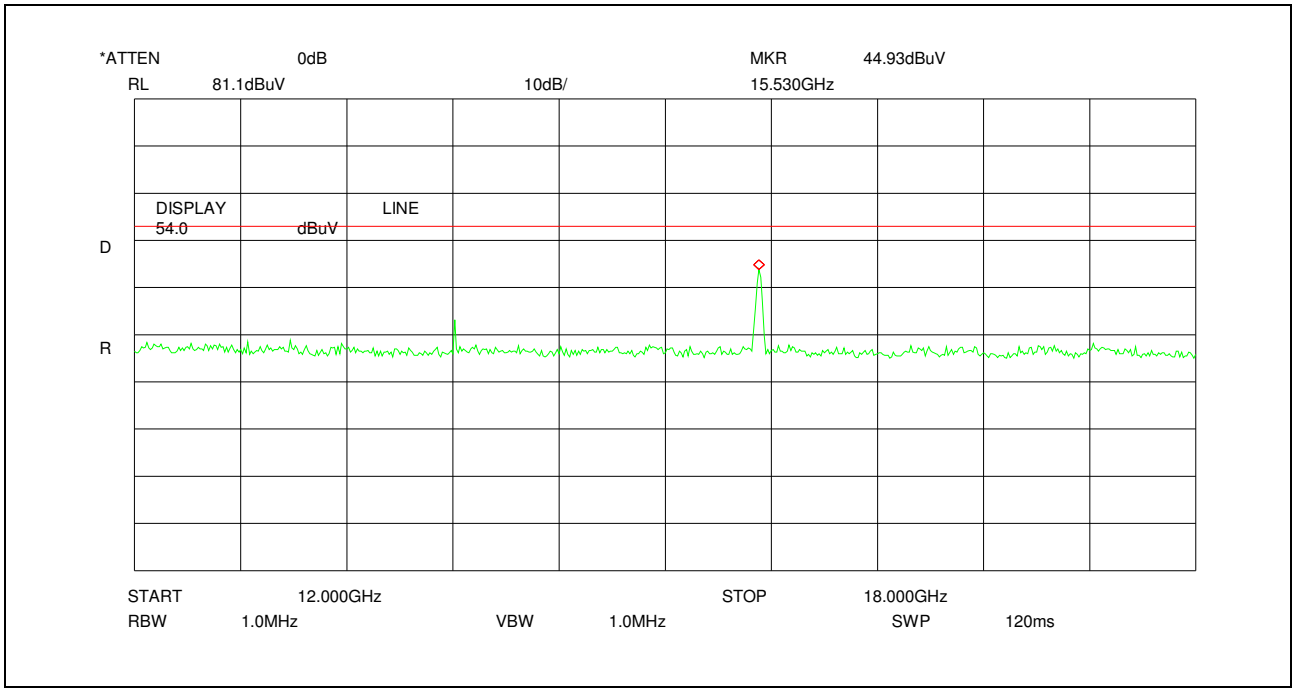
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1		
	Frequency Range:	30 MHz - 2 GHz
	Receiver:	Receiver [ESCI 3]
		@ GPIB0 (ADR 20), SN 100083/003, FW 4.32
	Signal Path:	without Notch
		FW 1.0
	Antenna:	VULB 9163
		SN 9163-295, FW ---
		Correction Table (vertical): VULP6113
		Correction Table (horizontal): VULP6113
		Correction Table: Cable_EN_1GHz (0909)
	Antenna Tower:	Tower [EMCO 2090 Antenna Tower]
		@ GPIB0 (ADR 8), FW REV 3.12
	Turntable:	Turntable [EMCO Turntable]
		@ GPIB0 (ADR 9), FW REV 3.12
	EMC 32 Version 8.10.00	

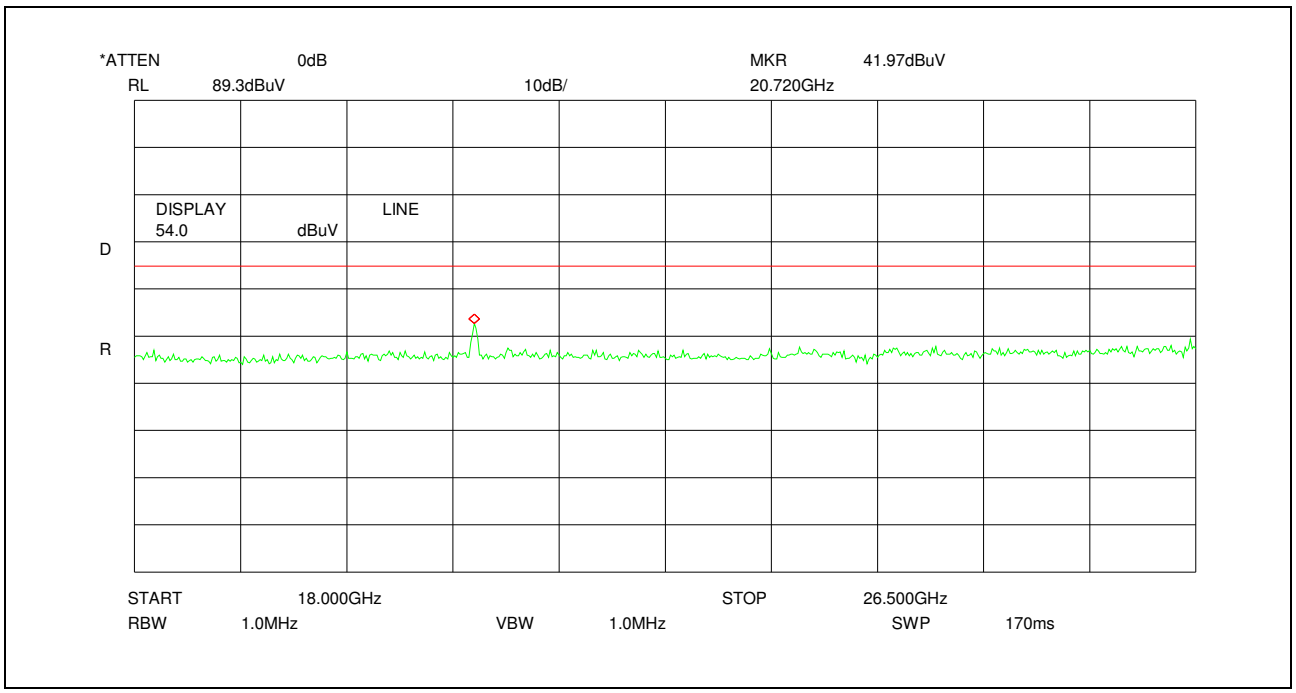
Plot 2: 1 - 12 GHz, antenna vertical/horizontal @ 3 m



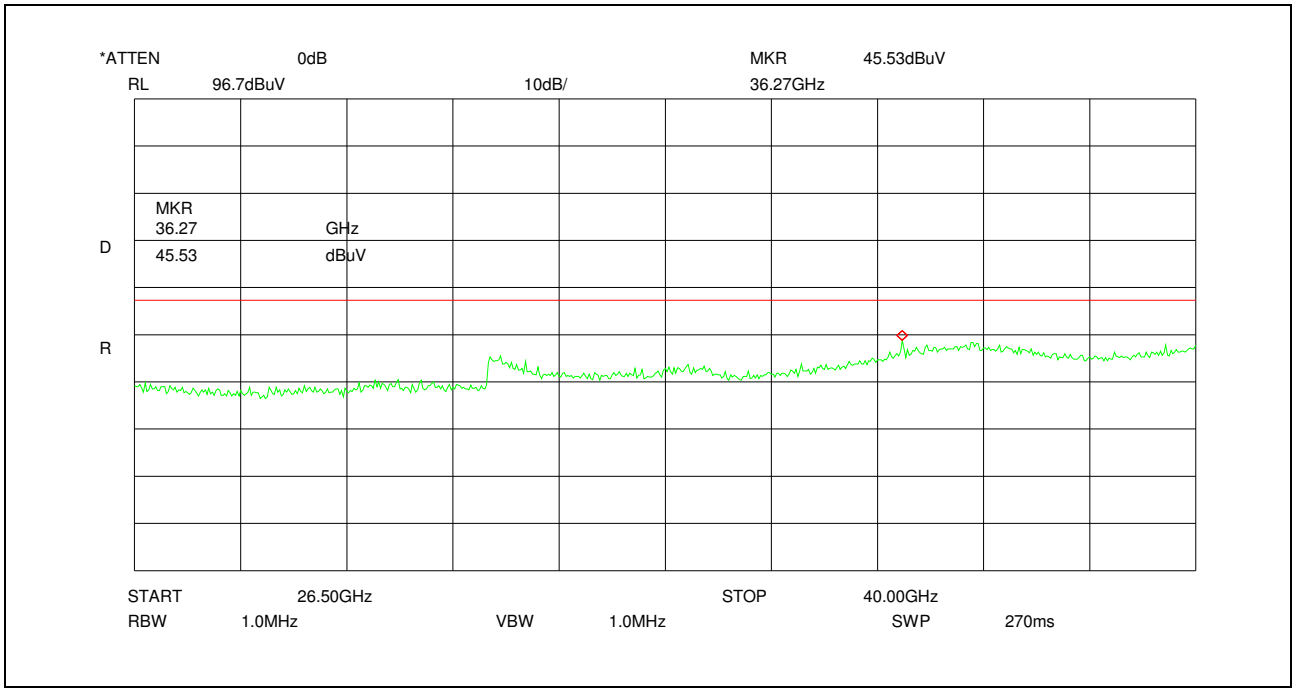
Plot 3: 12 – 18 GHz, antenna vertical/horizontal



Plot 4: 18 – 26.5 GHz, antenna vertical/horizontal



Plot 5: 26.5 – 40 GHz, antenna vertical/horizontal



OFDM: TX-Mode, 5240 MHz

Plot 6: 0.03 - 1 GHz, antenna vertical/horizontal @ 10 m

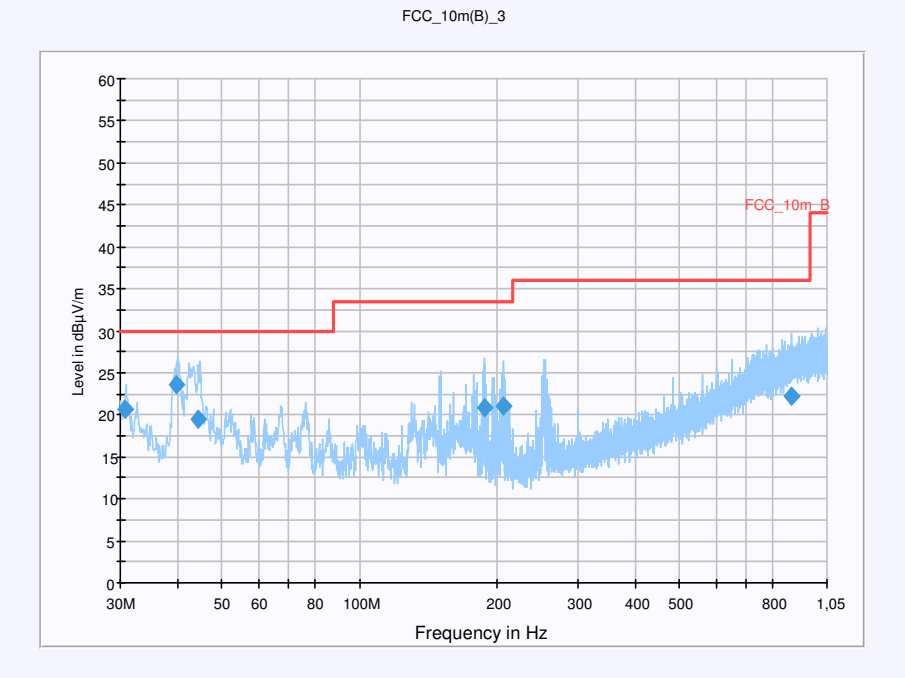
Information

EUT:	50001589-XX + AC/DC Adaptor
Serial Number:	Prototype + 24000093
Test Description:	FCC Part 15
Operating Conditions:	WLAN test mode, 5240 MHz
Operator Name:	Kraus
Comment:	power 115V / 60Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver

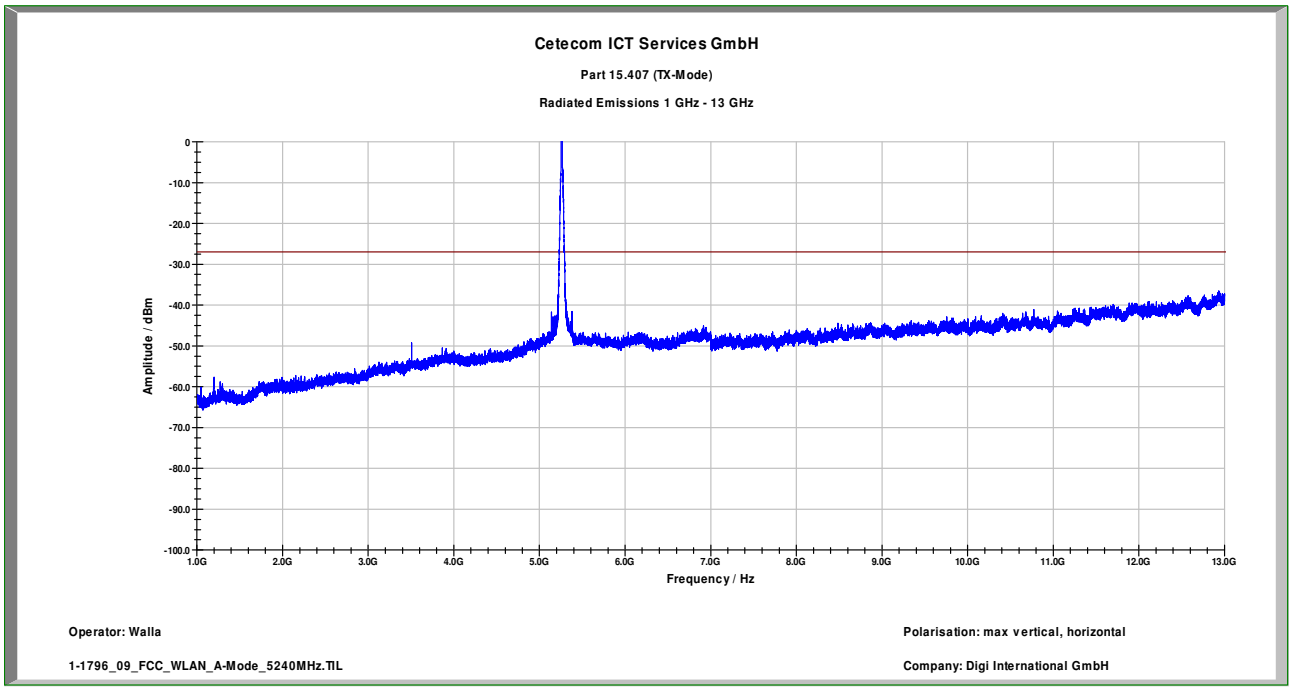


Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.702450	20.6	15000.000	120.000	98.0	V	260.0	12.6	9.4	30.0
39.775500	23.6	15000.000	120.000	98.0	V	86.0	13.4	6.4	30.0
44.445450	19.5	15000.000	120.000	166.0	V	13.0	13.3	10.5	30.0
187.900200	20.9	15000.000	120.000	105.0	V	288.0	10.9	12.6	33.5
206.245650	21.0	15000.000	120.000	153.0	V	13.0	11.9	12.5	33.5
876.041400	22.3	15000.000	120.000	220.0	V	288.0	24.9	13.7	36.0

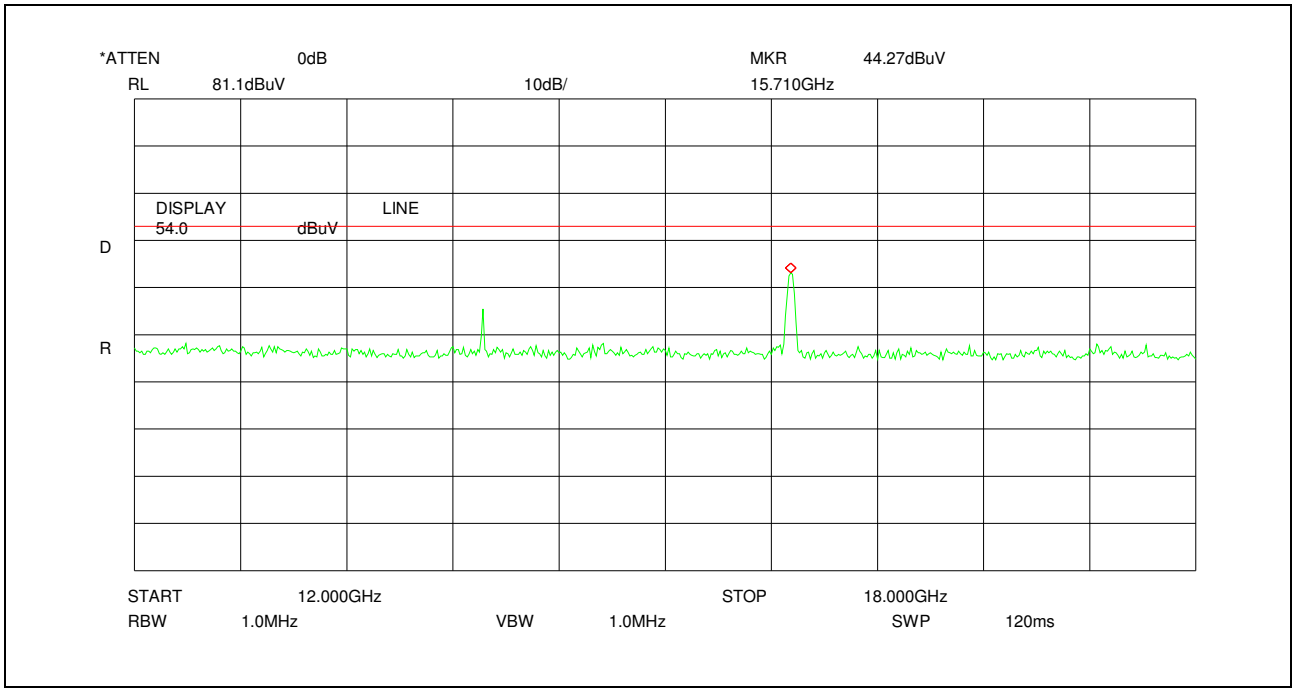
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1		
	Frequency Range:	30 MHz - 2 GHz
	Receiver:	Receiver [ESCI 3]
		@ GPIB0 (ADR 20), SN 100083/003, FW 4.32
	Signal Path:	without Notch
		FW 1.0
	Antenna:	VULB 9163
		SN 9163-295, FW ---
		Correction Table (vertical): VULP6113
		Correction Table (horizontal): VULP6113
		Correction Table: Cable_EN_1GHz (0909)
	Antenna Tower:	Tower [EMCO 2090 Antenna Tower]
		@ GPIB0 (ADR 8), FW REV 3.12
	Turntable:	Turntable [EMCO Turntable]
		@ GPIB0 (ADR 9), FW REV 3.12
	EMC 32 Version 8.10.00	

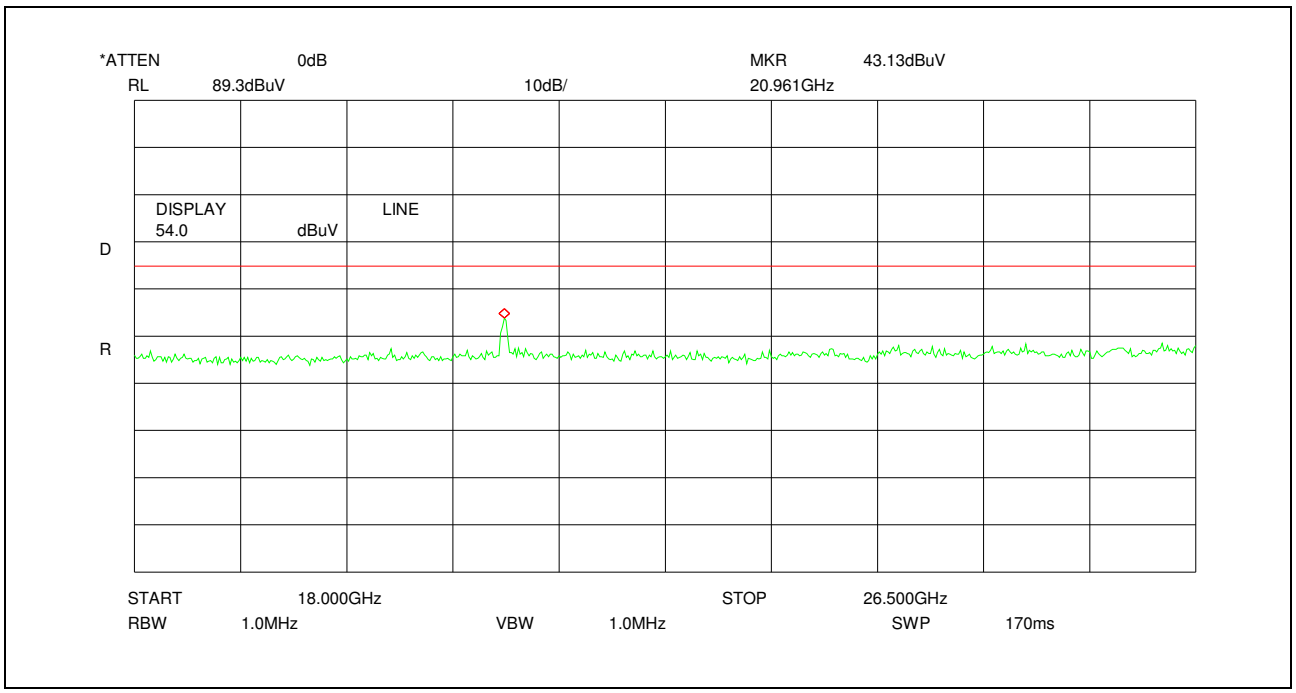
Plot 7: 1 - 12 GHz, antenna vertical/horizontal @ 3 m



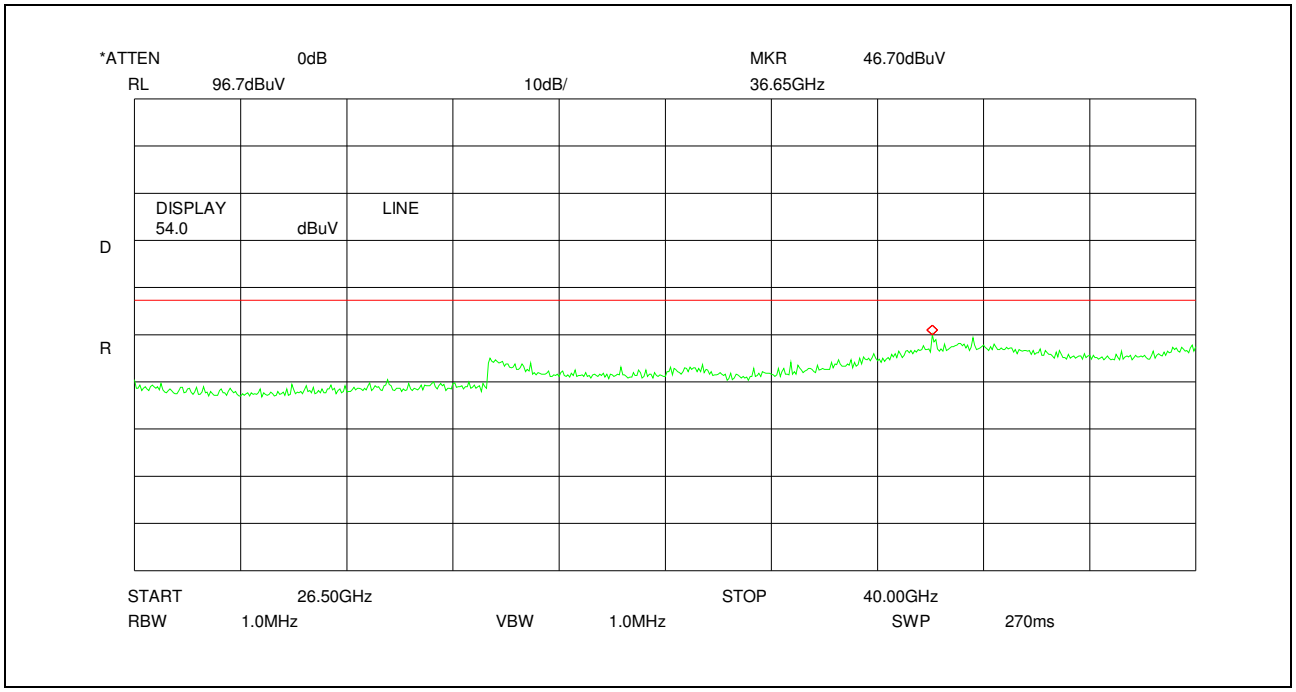
Plot 8: 12 – 18 GHz, antenna vertical/horizontal



Plot 9: 18 – 26.5 GHz, antenna vertical/horizontal



Plot 10: 26.5 – 40 GHz, antenna vertical/horizontal



OFDM: TX-Mode, 5260 MHz

Plot 11: 0.03 - 1 GHz, antenna vertical/horizontal @ 10 m

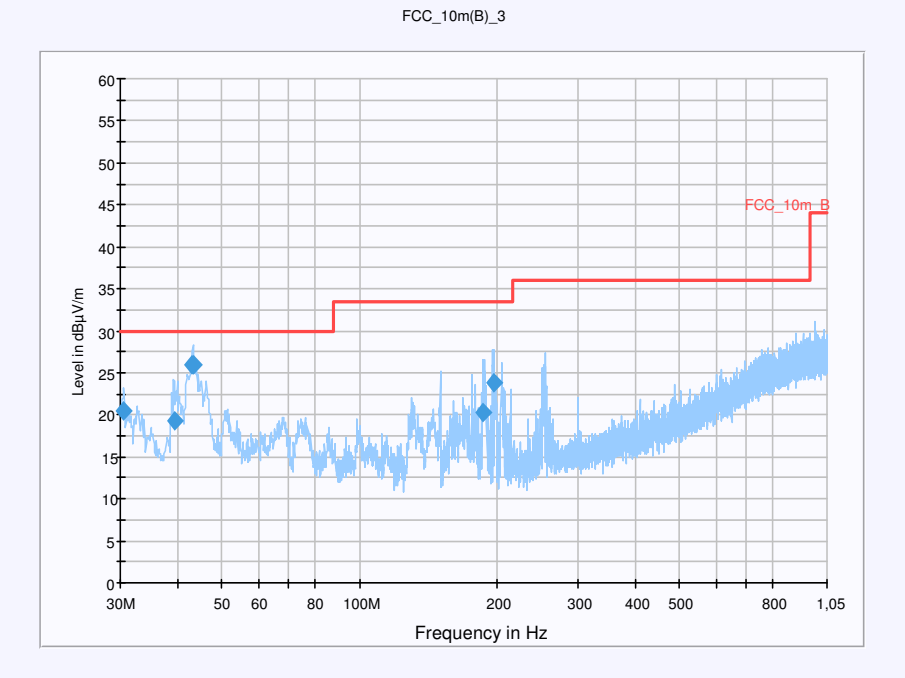
Information

EUT:	50001589-XX + AC/DC Adaptor
Serial Number:	Prototype + 24000093
Test Description:	FCC Part 15
Operating Conditions:	WLAN test mode, 5260 MHz
Operator Name:	Kraus
Comment:	power 115V / 60Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver

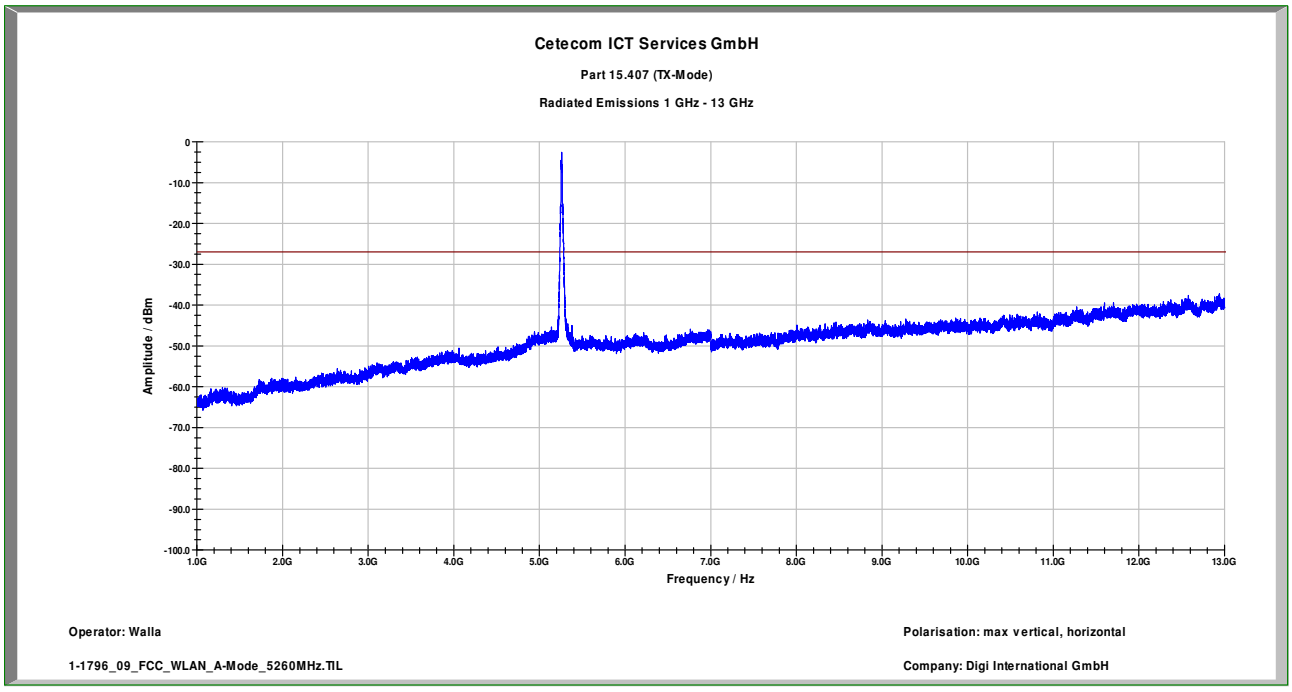


Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.409590	20.4	15000.000	120.000	98.0	V	172.0	12.5	9.6	30.0
39.424800	19.3	15000.000	120.000	98.0	V	-2.0	13.4	10.7	30.0
43.144500	26.0	15000.000	120.000	98.0	V	4.0	13.3	4.0	30.0
43.362150	26.0	15000.000	120.000	98.0	V	8.0	13.3	4.0	30.0
186.350850	20.2	15000.000	120.000	98.0	V	276.0	10.8	13.3	33.5
196.071450	23.8	15000.000	120.000	98.0	V	10.0	11.5	9.7	33.5

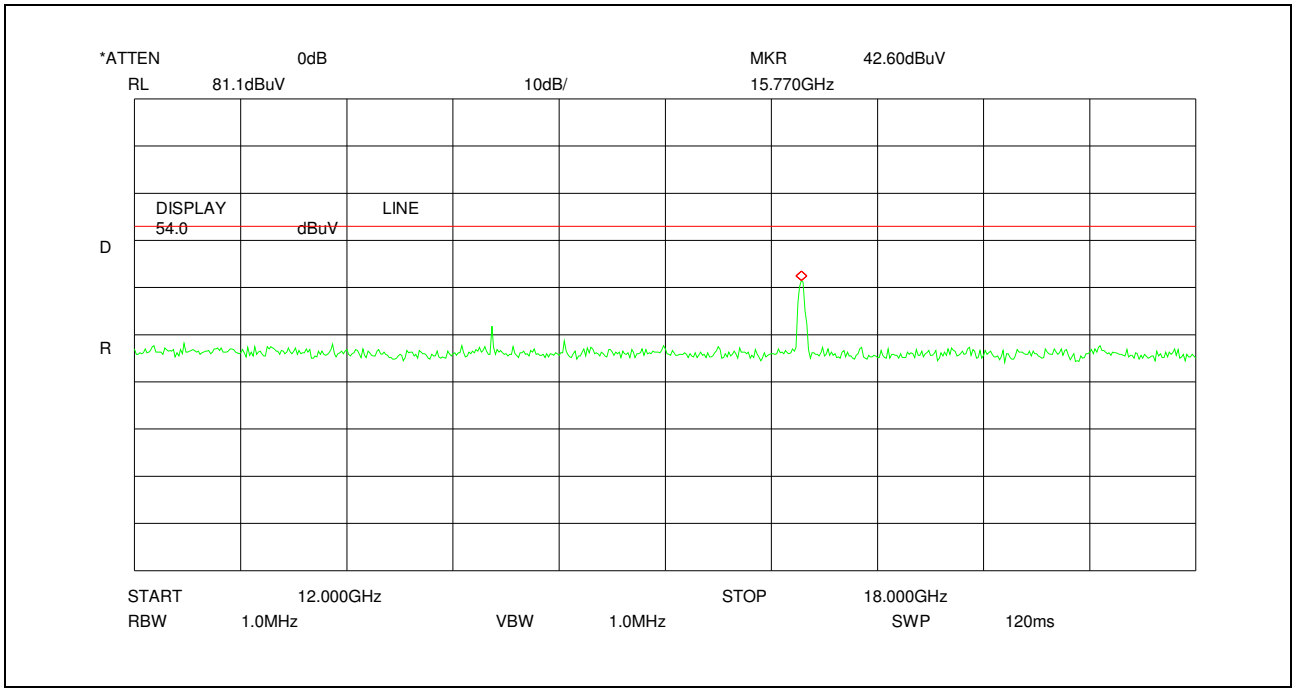
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1		
	Frequency Range:	30 MHz - 2 GHz
	Receiver:	Receiver [ESCI 3]
		@ GPIB0 (ADR 20), SN 100083/003, FW 4.32
	Signal Path:	without Notch
		FW 1.0
	Antenna:	VULB 9163
		SN 9163-295, FW ---
		Correction Table (vertical): VULP6113
		Correction Table (horizontal): VULP6113
		Correction Table: Cable_EN_1GHz (0909)
	Antenna Tower:	Tower [EMCO 2090 Antenna Tower]
		@ GPIB0 (ADR 8), FW REV 3.12
	Turntable:	Turntable [EMCO Turntable]
		@ GPIB0 (ADR 9), FW REV 3.12
	EMC 32 Version 8.10.00	

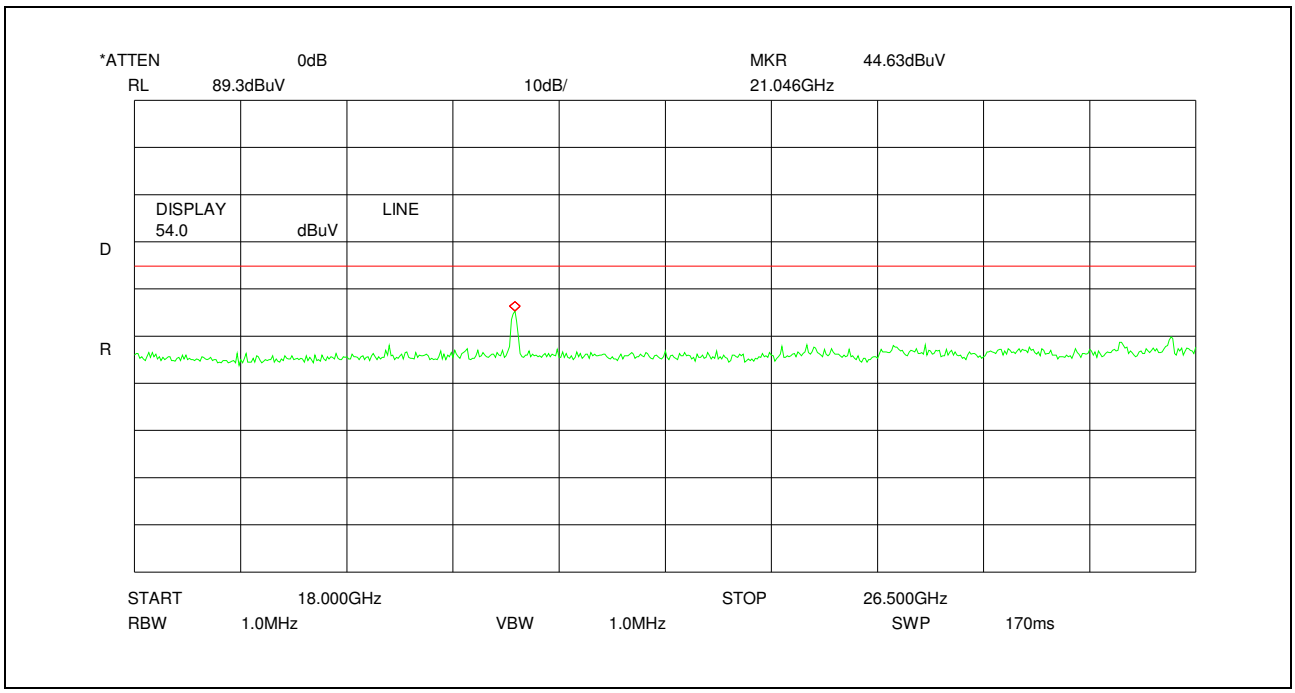
Plot 12: 1 - 12 GHz, antenna vertical/horizontal @ 3 m



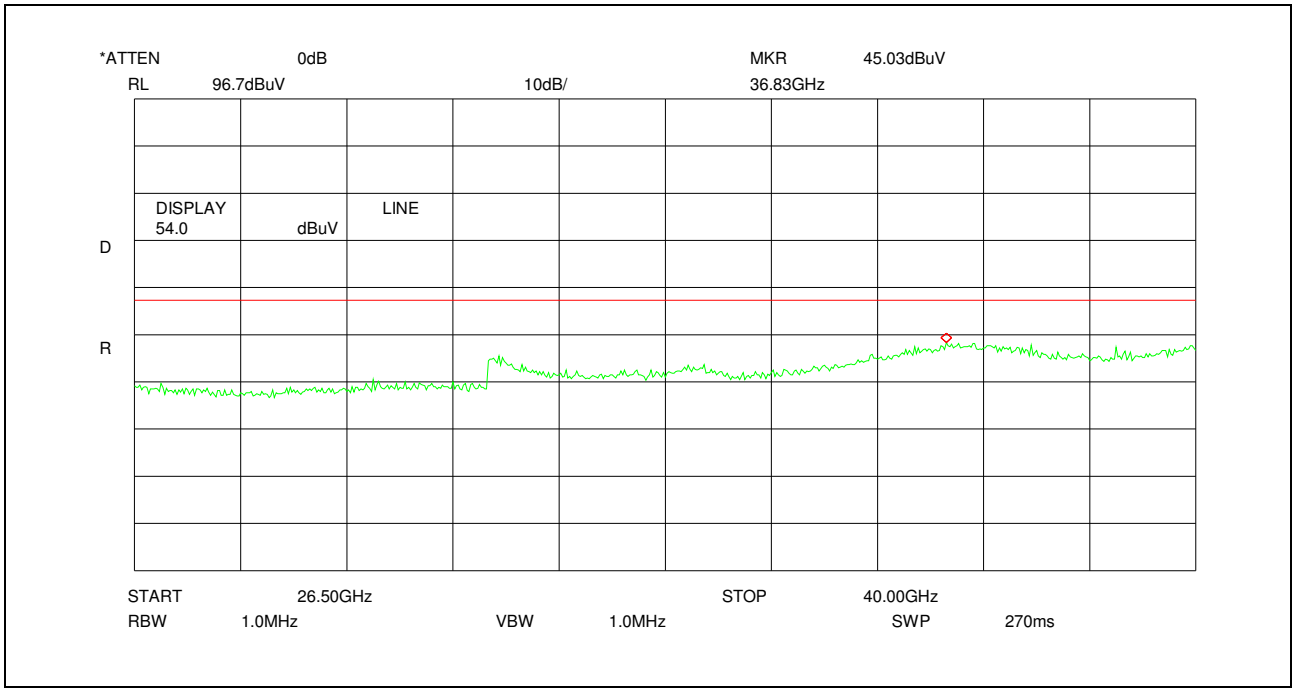
Plot 13: 12 – 18 GHz, antenna vertical/horizontal



Plot 14: 18 – 26.5 GHz, antenna vertical/horizontal



Plot 15: 26.5 – 40 GHz, antenna vertical/horizontal



OFDM: TX-Mode, 5320 MHz

Plot 16: 0.03 - 1 GHz, antenna vertical/horizontal @ 10 m

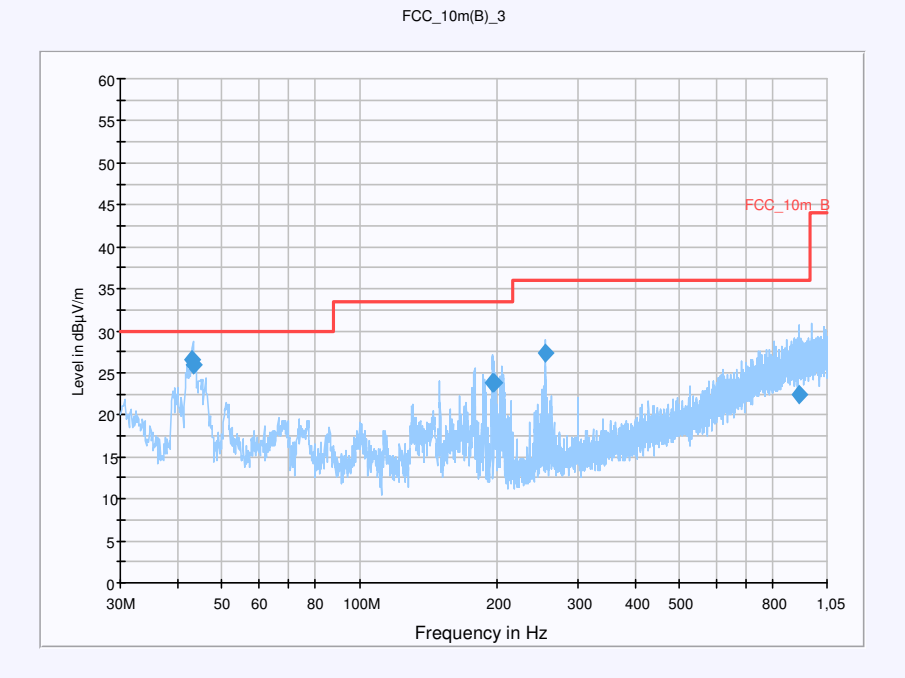
Information

EUT:	50001589-XX + AC/DC Adaptor
Serial Number:	Prototype + 24000093
Test Description:	FCC Part 15
Operating Conditions:	WLAN test mode, 5320 MHz
Operator Name:	Kraus
Comment:	power 115V / 60Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver

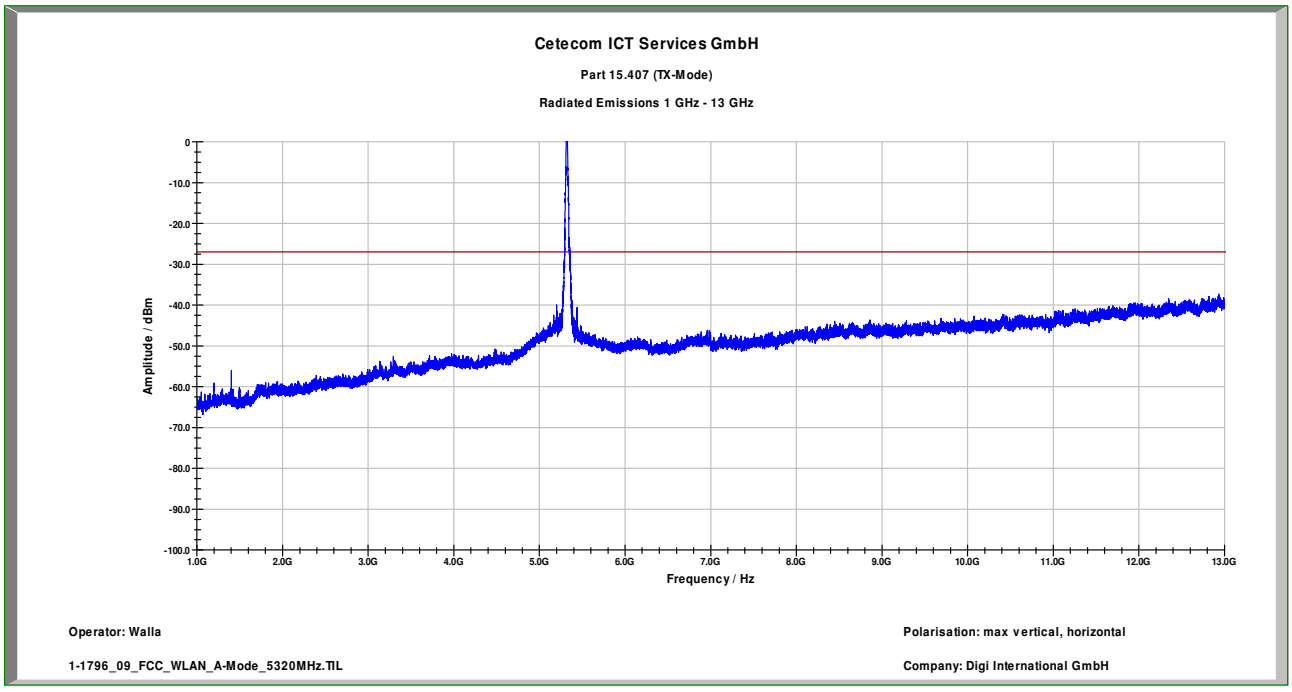


Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
43.163700	26.6	15000.000	120.000	98.0	V	87.0	13.3	3.4	30.0
43.342500	25.9	15000.000	120.000	104.0	V	110.0	13.3	4.1	30.0
195.386100	23.8	15000.000	120.000	98.0	V	-2.0	11.4	9.7	33.5
195.746100	23.8	15000.000	120.000	124.0	V	168.0	11.4	9.7	33.5
253.885800	27.4	15000.000	120.000	213.0	H	200.0	13.4	8.6	36.0
911.809350	22.4	15000.000	120.000	195.0	H	-3.0	25.2	13.6	36.0

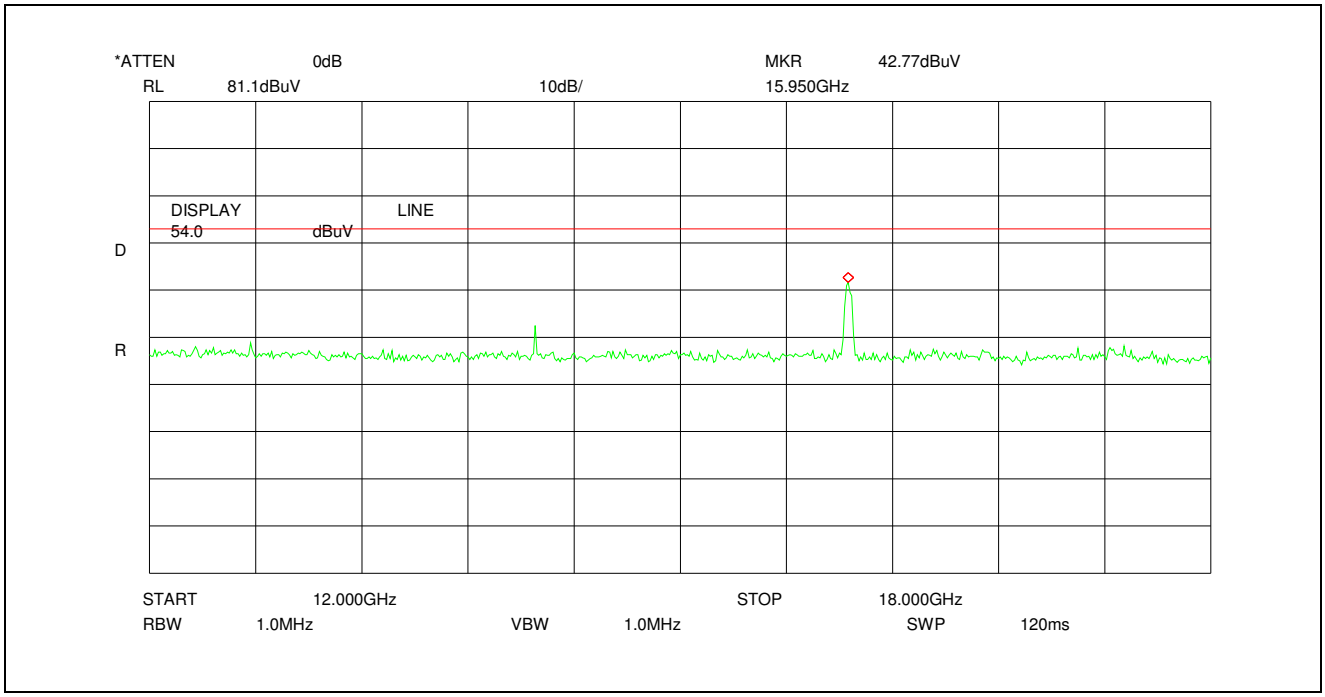
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1		
	Frequency Range:	30 MHz - 2 GHz
	Receiver:	Receiver [ESCI 3]
		@ GPIB0 (ADR 20), SN 100083/003, FW 4.32
	Signal Path:	without Notch
		FW 1.0
	Antenna:	VULB 9163
		SN 9163-295, FW ---
		Correction Table (vertical): VULP6113
		Correction Table (horizontal): VULP6113
		Correction Table: Cable_EN_1GHz (0909)
	Antenna Tower:	Tower [EMCO 2090 Antenna Tower]
		@ GPIB0 (ADR 8), FW REV 3.12
	Turntable:	Turntable [EMCO Turntable]
		@ GPIB0 (ADR 9), FW REV 3.12
	EMC 32 Version 8.10.00	

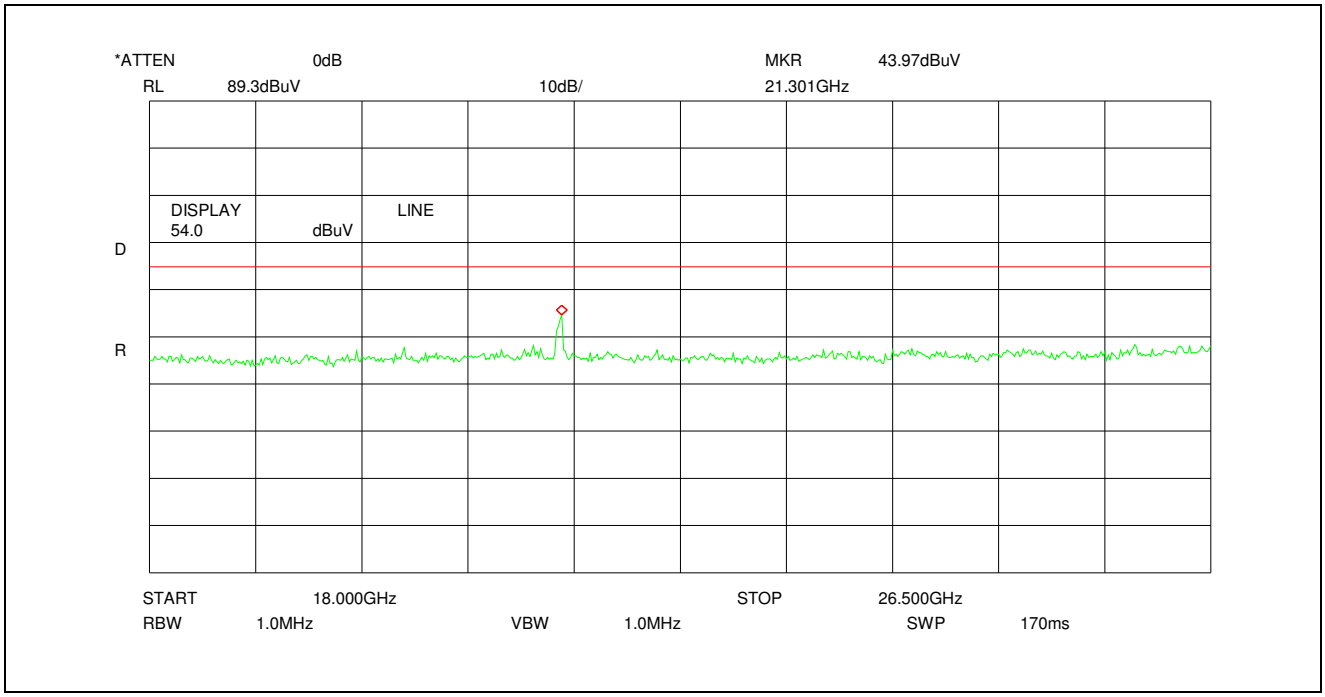
Plot 17: 1 - 12 GHz, antenna vertical/horizontal @ 3 m



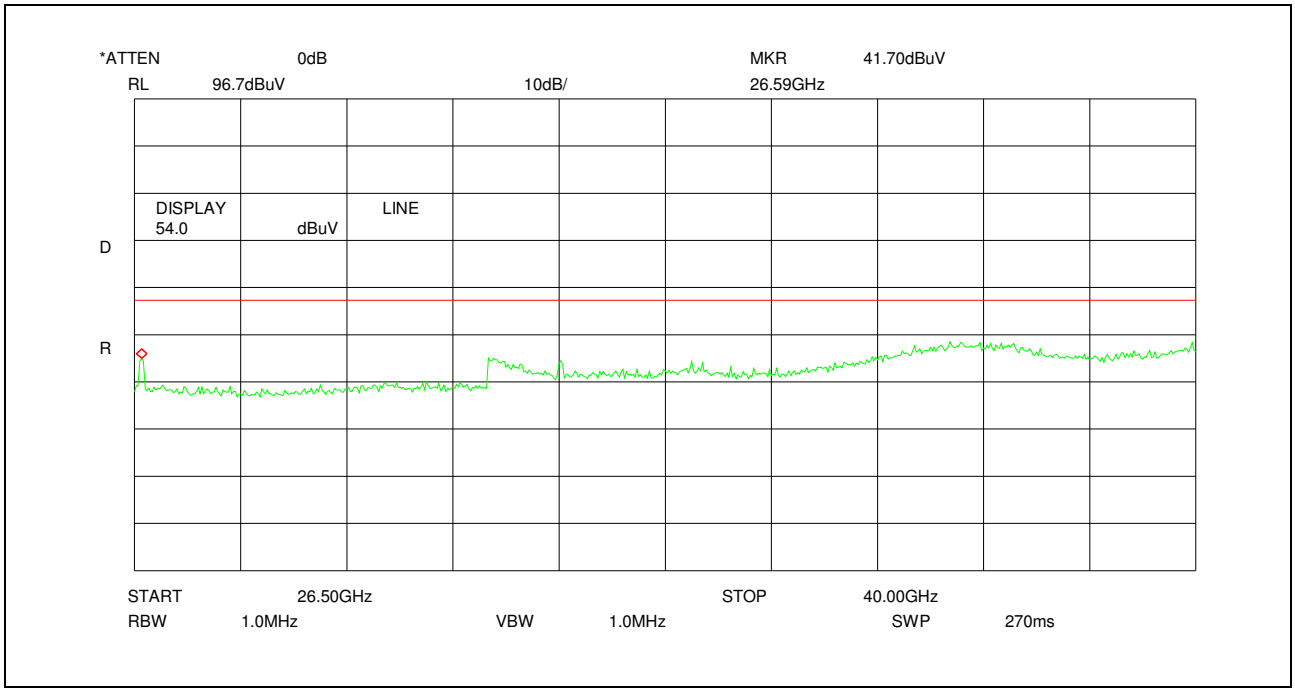
Plot 18: 12 – 18 GHz, antenna vertical/horizontal



Plot 19: 18 – 26.5 GHz, antenna vertical/horizontal



Plot 20: 26.5 – 40 GHz, antenna vertical/horizontal



OFDM: TX-Mode, 5500 MHz

Plot 21: 0.03 - 1 GHz, antenna vertical/horizontal @ 10 m

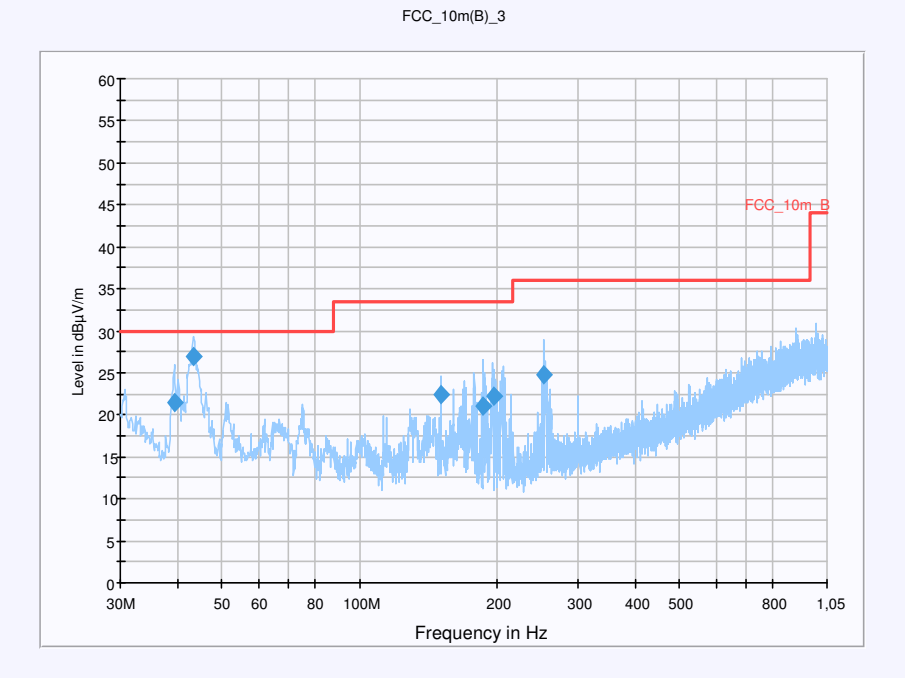
Information

EUT:	50001589-XX + AC/DC Adaptor
Serial Number:	Prototype + 24000093
Test Description:	FCC Part 15
Operating Conditions:	WLAN test mode, 5500 MHz
Operator Name:	Kraus
Comment:	power 115V / 60Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver

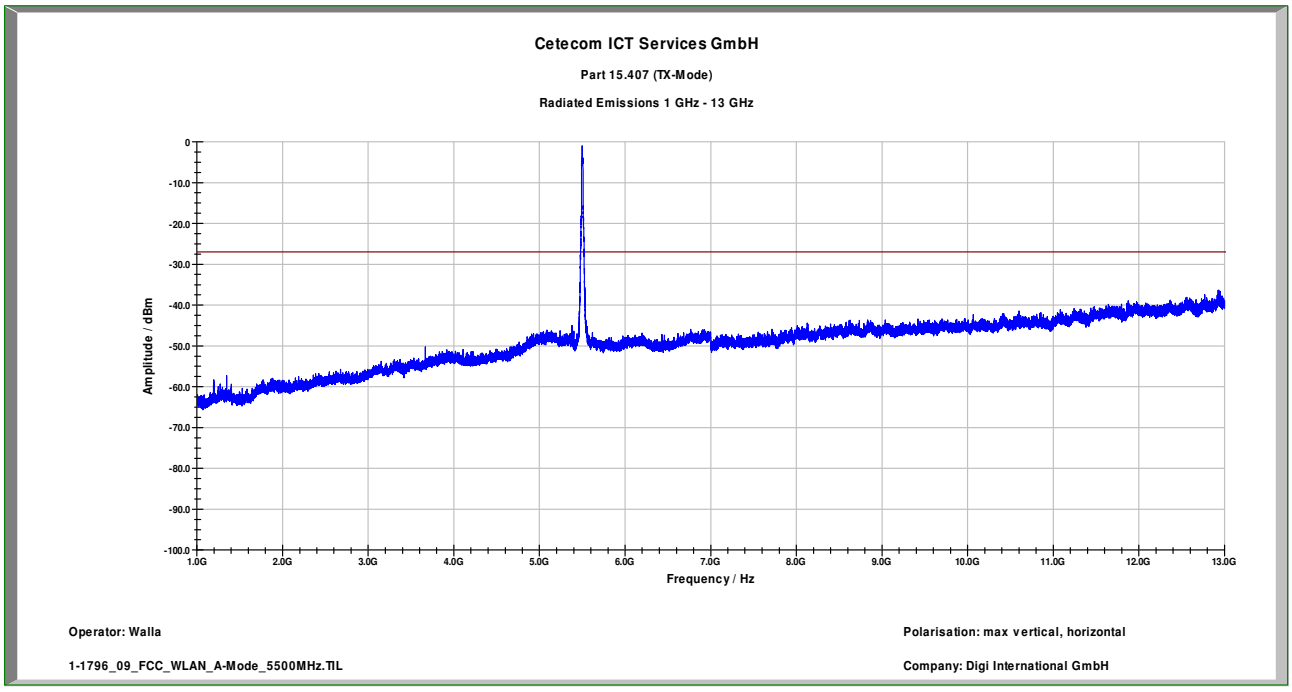


Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
39.335850	21.4	15000.000	120.000	112.0	V	0.0	13.4	8.6	30.0
43.415400	27.0	15000.000	120.000	98.0	V	92.0	13.3	3.0	30.0
150.252600	22.4	15000.000	120.000	98.0	V	255.0	8.9	11.1	33.5
186.297750	21.1	15000.000	120.000	98.0	V	177.0	10.8	12.4	33.5
195.744300	22.2	15000.000	120.000	116.0	V	288.0	11.4	11.3	33.5
252.756900	24.7	15000.000	120.000	98.0	V	186.0	13.4	11.3	36.0

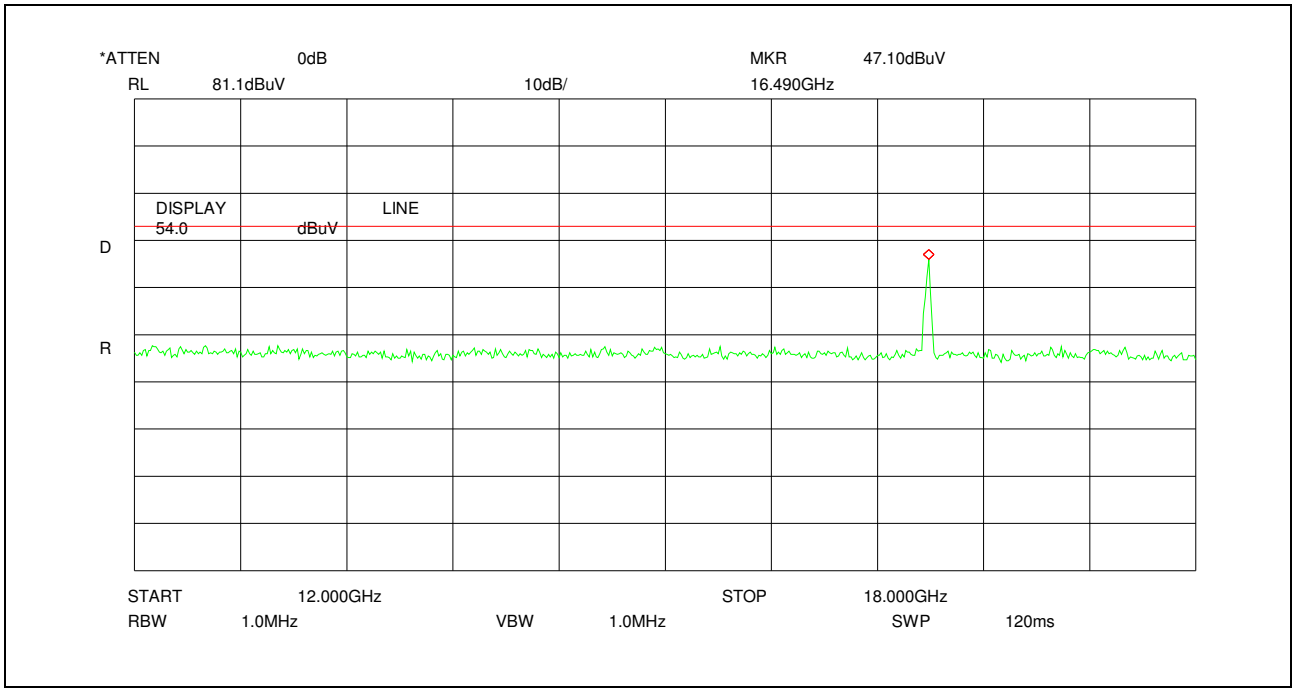
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1		
	Frequency Range:	30 MHz - 2 GHz
	Receiver:	Receiver [ESCI 3]
		@ GPIB0 (ADR 20), SN 100083/003, FW 4.32
	Signal Path:	without Notch
		FW 1.0
	Antenna:	VULB 9163
		SN 9163-295, FW ---
		Correction Table (vertical): VULP6113
		Correction Table (horizontal): VULP6113
		Correction Table: Cable_EN_1GHz (0909)
	Antenna Tower:	Tower [EMCO 2090 Antenna Tower]
		@ GPIB0 (ADR 8), FW REV 3.12
	Turntable:	Turntable [EMCO Turntable]
		@ GPIB0 (ADR 9), FW REV 3.12
	EMC 32 Version 8.10.00	

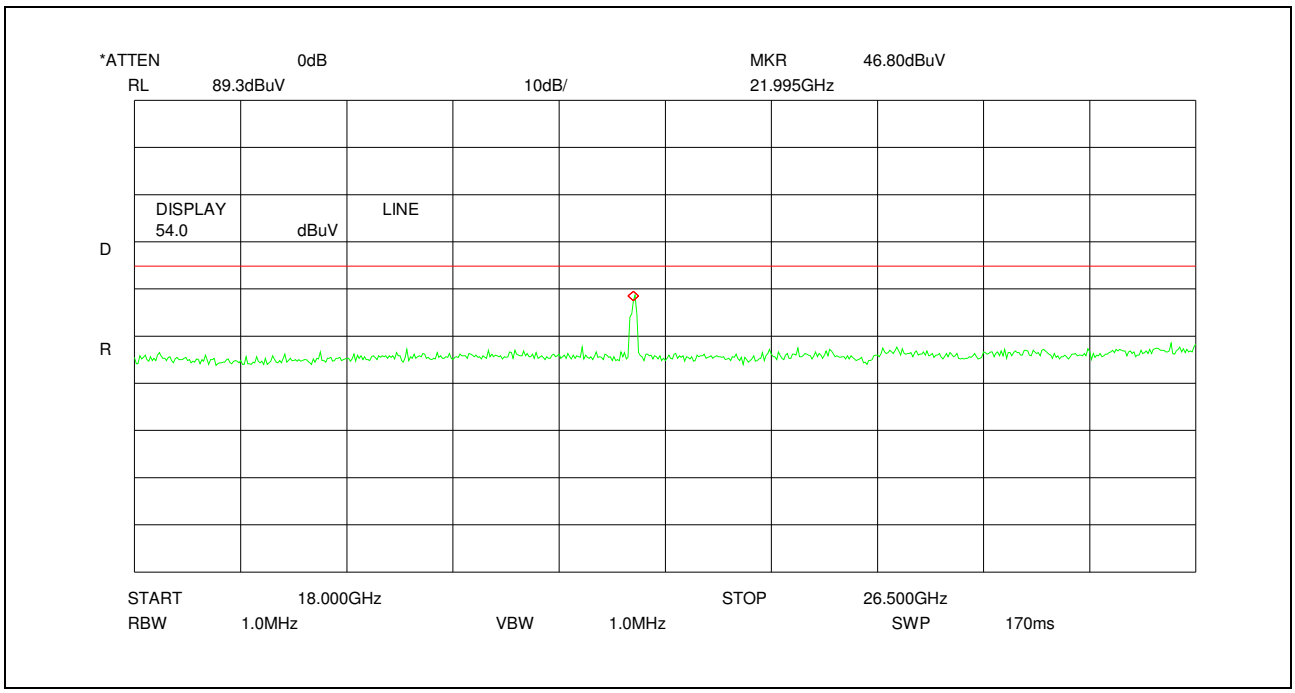
Plot 22: 1 - 12 GHz, antenna vertical/horizontal @ 3 m



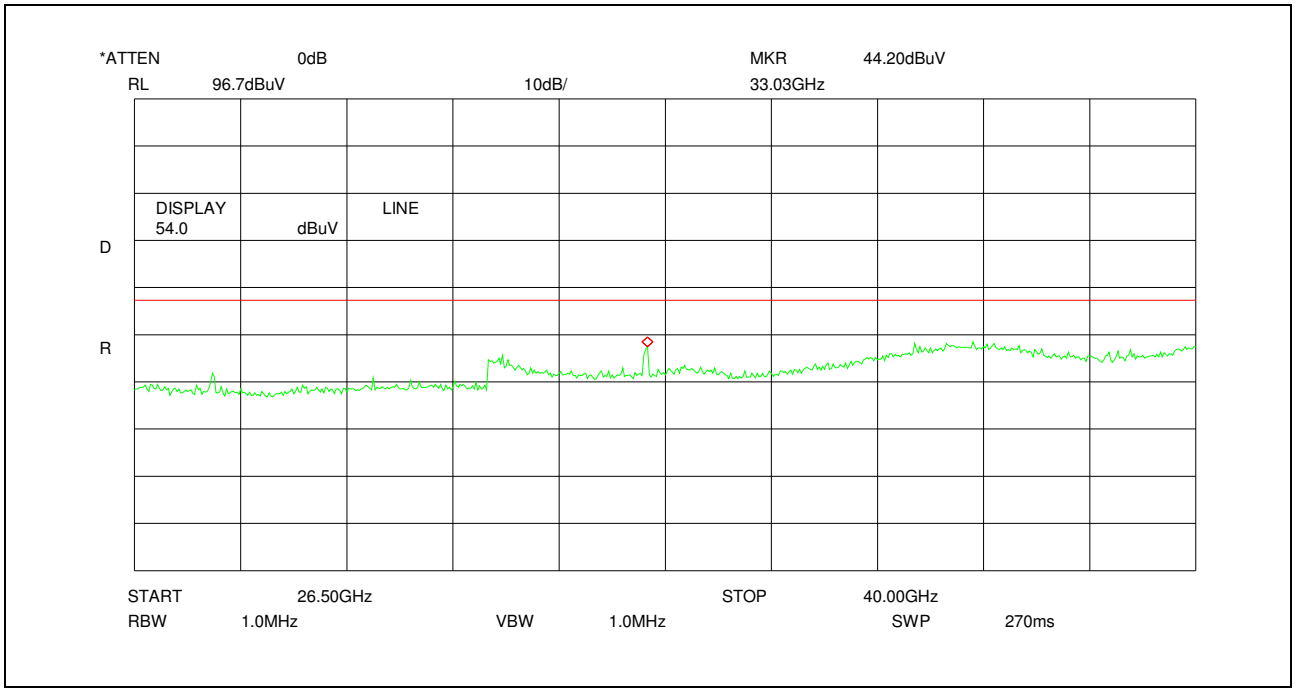
Plot 23: 12 – 18 GHz, antenna vertical/horizontal



Plot 24: 18 – 26.5 GHz, antenna vertical/horizontal



Plot 25: 26.5 – 40 GHz, antenna vertical/horizontal



OFDM: TX-Mode, 5600 MHz

Plot 26: 0.03 - 1 GHz, antenna vertical/horizontal @ 10 m

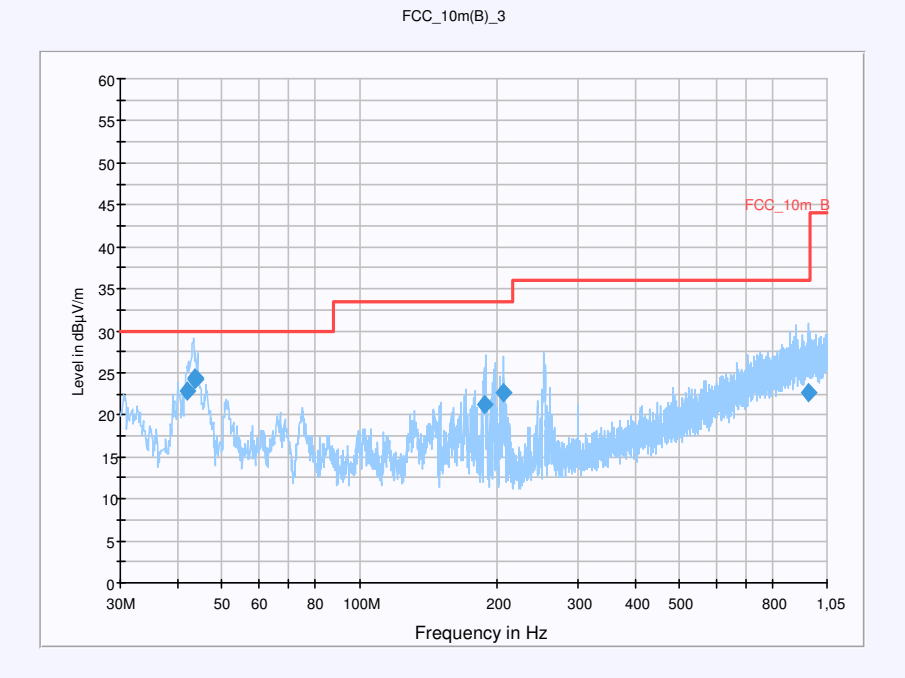
Information

EUT:	50001589-XX + AC/DC Adaptor
Serial Number:	Prototype + 24000093
Test Description:	FCC Part 15
Operating Conditions:	WLAN test mode, 5600 MHz
Operator Name:	Kraus
Comment:	power 115V / 60Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver

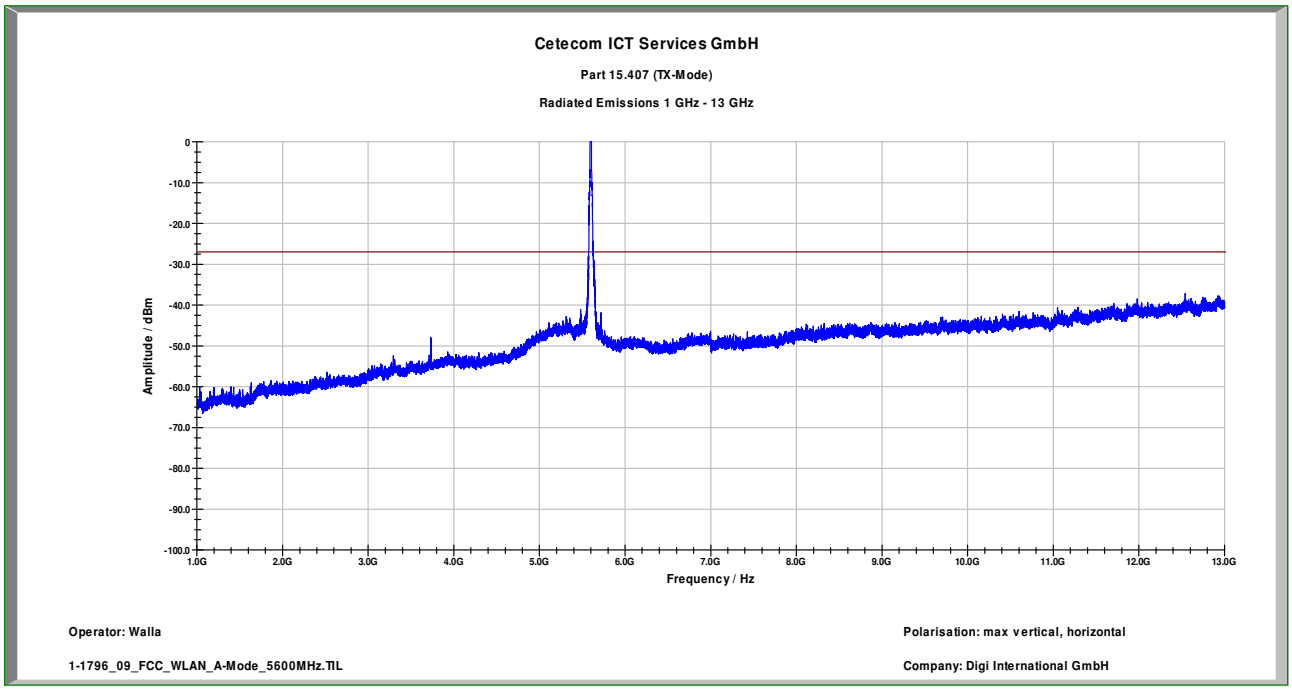


Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
42.080250	22.8	15000.000	120.000	98.0	V	106.0	13.4	7.2	30.0
43.521750	24.3	15000.000	120.000	216.0	V	170.0	13.3	5.7	30.0
43.792950	24.4	15000.000	120.000	98.0	V	82.0	13.3	5.6	30.0
188.142600	21.3	15000.000	120.000	117.0	V	181.0	11.0	12.2	33.5
206.031300	22.7	15000.000	120.000	109.0	V	92.0	11.9	10.8	33.5
953.126100	22.7	15000.000	120.000	98.0	H	172.0	25.4	13.3	36.0

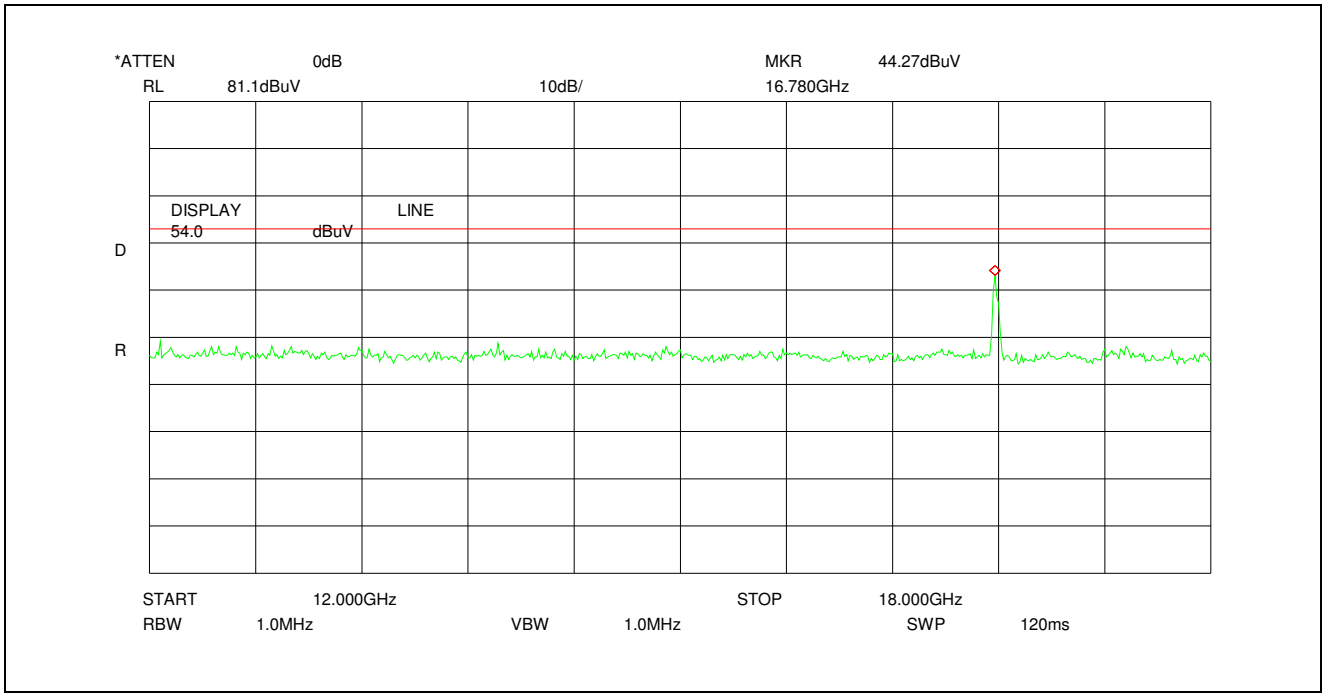
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1		
	Frequency Range:	30 MHz - 2 GHz
	Receiver:	Receiver [ESCI 3]
		@ GPIB0 (ADR 20), SN 100083/003, FW 4.32
	Signal Path:	without Notch
		FW 1.0
	Antenna:	VULB 9163
		SN 9163-295, FW ---
		Correction Table (vertical): VULP6113
		Correction Table (horizontal): VULP6113
		Correction Table: Cable_EN_1GHz (0909)
	Antenna Tower:	Tower [EMCO 2090 Antenna Tower]
		@ GPIB0 (ADR 8), FW REV 3.12
	Turntable:	Turntable [EMCO Turntable]
		@ GPIB0 (ADR 9), FW REV 3.12
	EMC 32 Version 8.10.00	

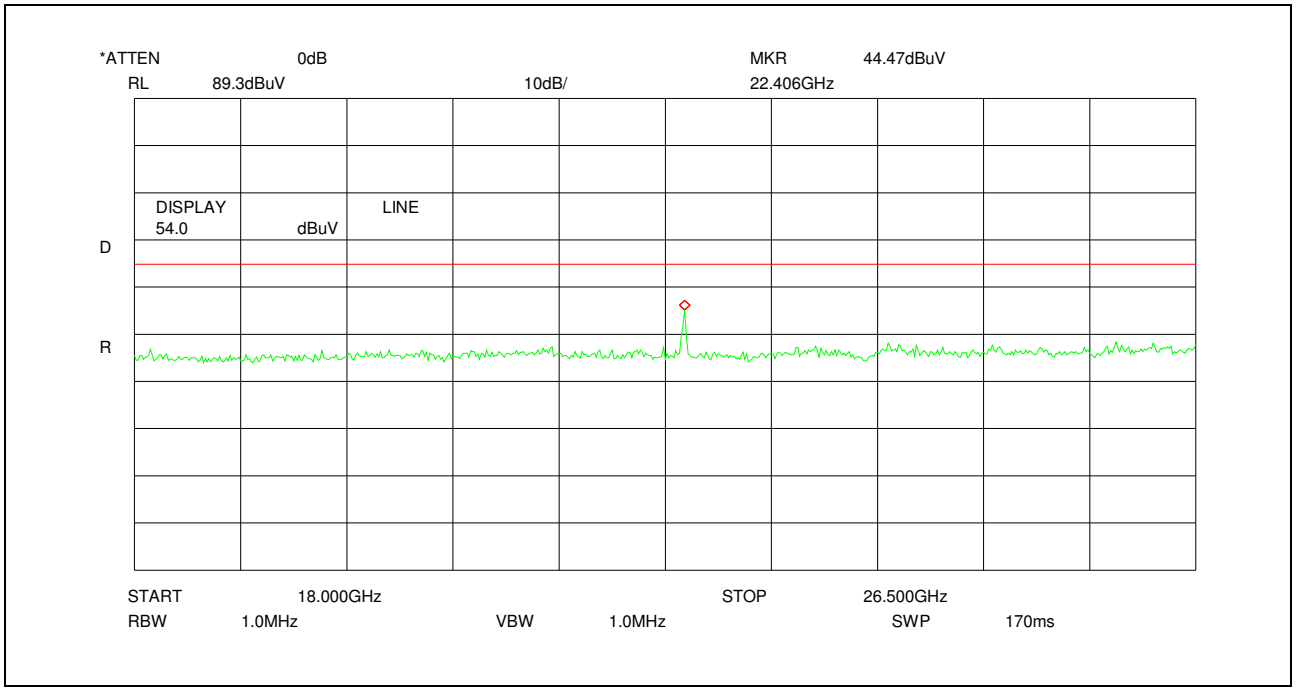
Plot 27: 1 - 12 GHz, antenna vertical/horizontal @ 3 m



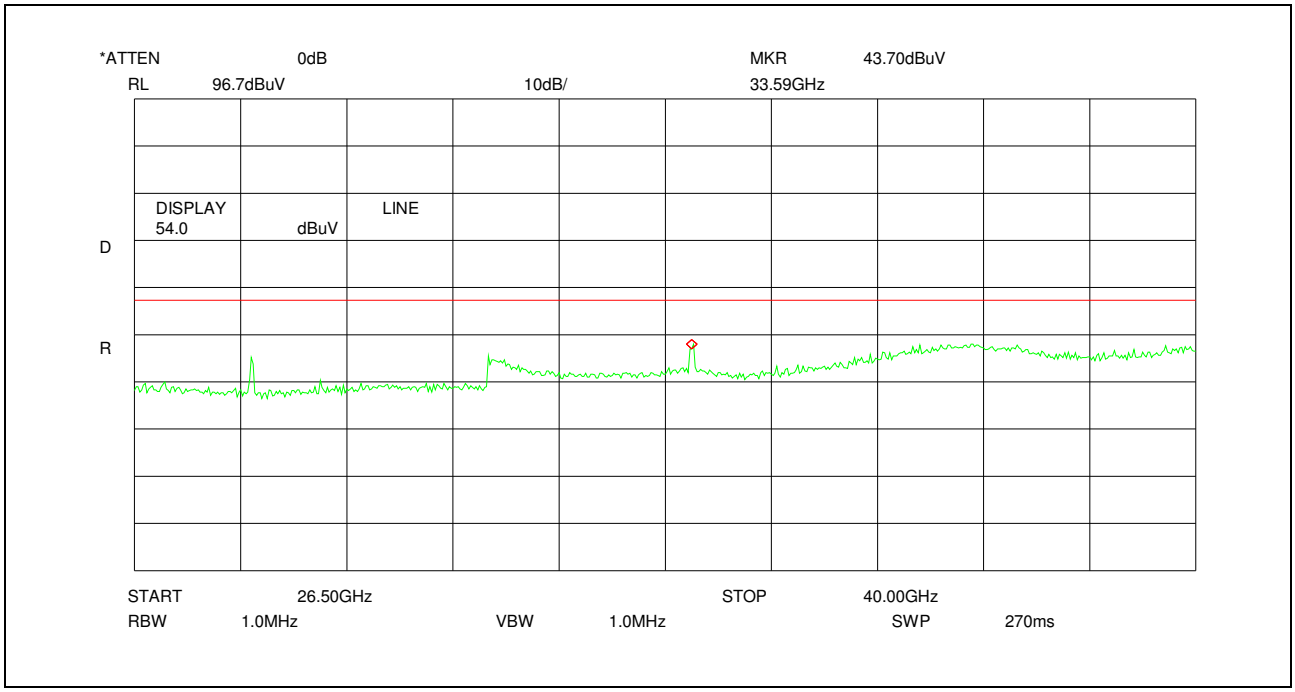
Plot 28: 12 – 18 GHz, antenna vertical/horizontal



Plot 29: 18 – 26.5 GHz, antenna vertical/horizontal



Plot 30: 26.5 – 40 GHz, antenna vertical/horizontal



OFDM: TX-Mode, 5700 MHz

Plot 31: 0.03 - 1 GHz, antenna vertical/horizontal @ 10 m

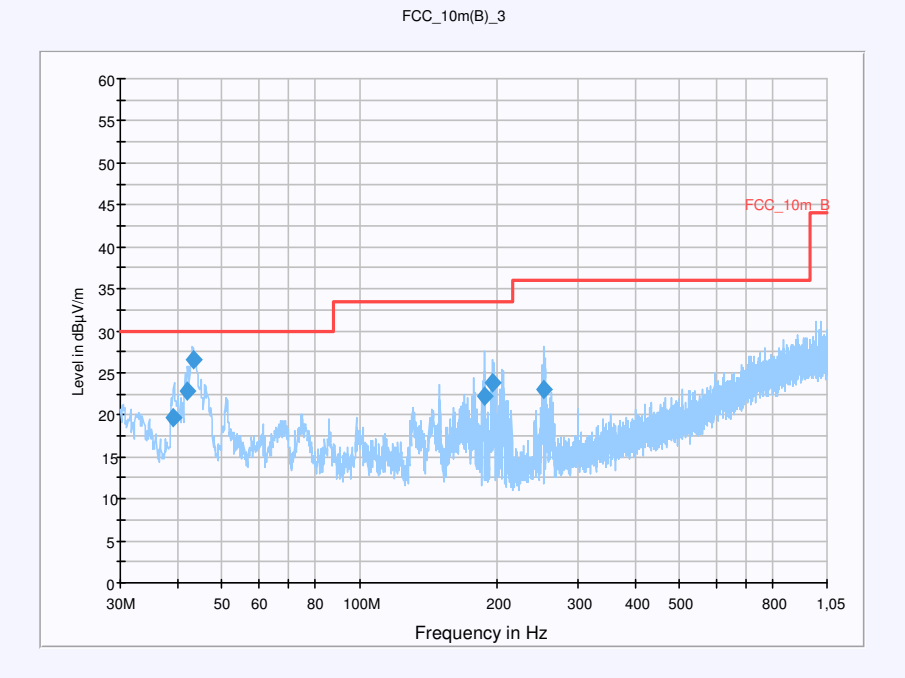
Information

EUT:	50001589-XX + AC/DC Adaptor
Serial Number:	Prototype + 24000093
Test Description:	FCC Part 15
Operating Conditions:	WLAN test mode, 5700 MHz
Operator Name:	Kraus
Comment:	power 115V / 60Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver

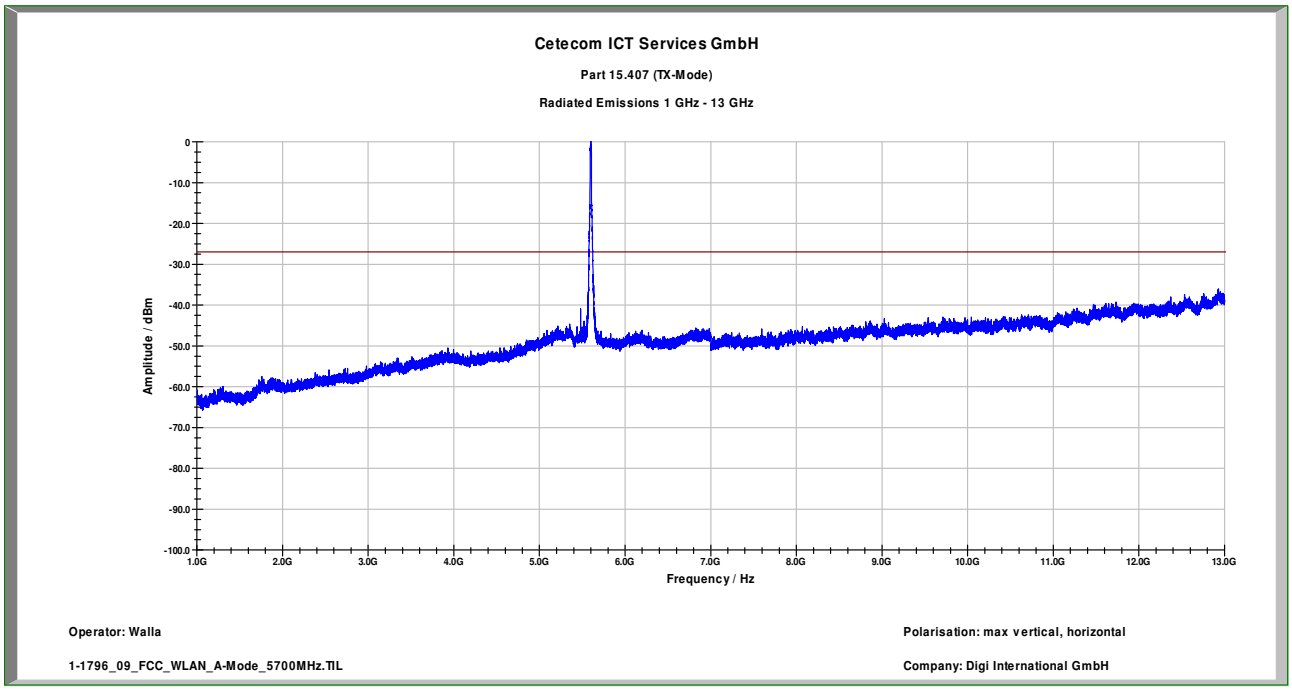


Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
39.072450	19.6	15000.000	120.000	98.0	V	260.0	13.4	10.4	30.0
41.899050	22.9	15000.000	120.000	98.0	V	94.0	13.4	7.1	30.0
43.378650	26.6	15000.000	120.000	98.0	V	92.0	13.3	3.4	30.0
187.288350	22.2	15000.000	120.000	108.0	V	184.0	10.9	11.3	33.5
195.521700	23.8	15000.000	120.000	98.0	V	18.0	11.4	9.7	33.5
252.532950	23.0	15000.000	120.000	106.0	V	200.0	13.4	13.0	36.0

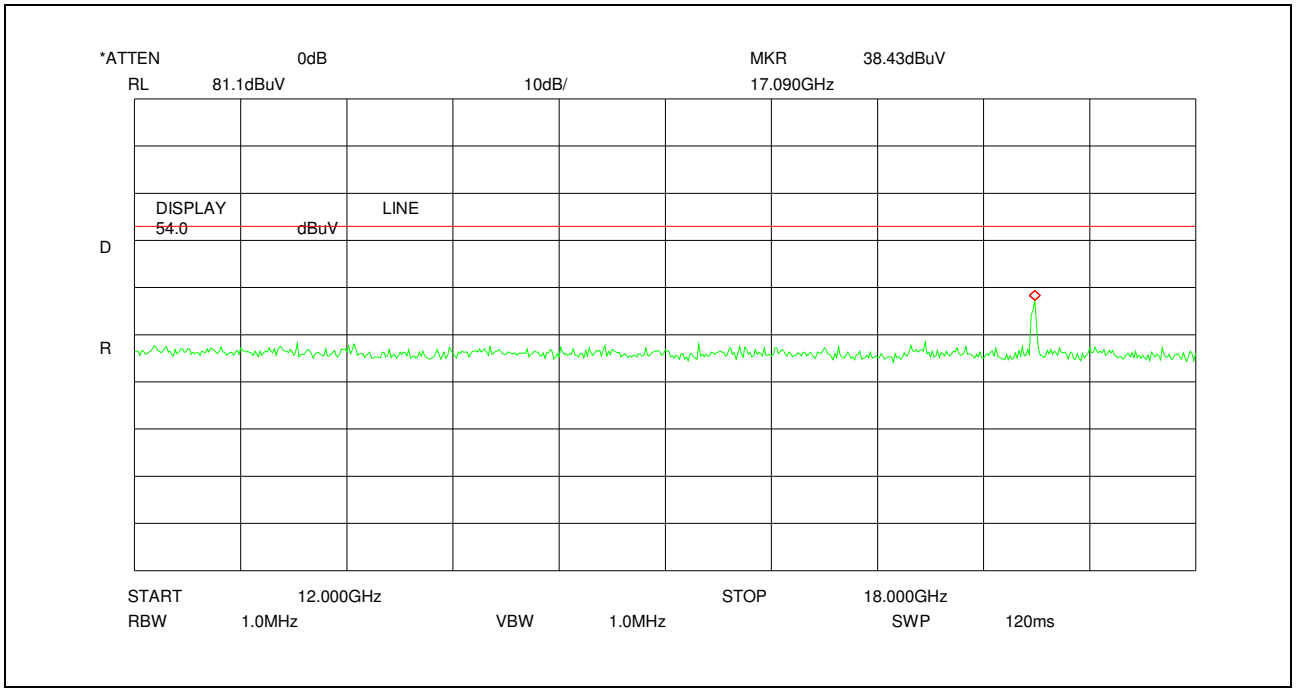
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1		
	Frequency Range:	30 MHz - 2 GHz
	Receiver:	Receiver [ESCI 3]
		@ GPIB0 (ADR 20), SN 100083/003, FW 4.32
	Signal Path:	without Notch
		FW 1.0
	Antenna:	VULB 9163
		SN 9163-295, FW ---
		Correction Table (vertical): VULP6113
		Correction Table (horizontal): VULP6113
		Correction Table: Cable_EN_1GHz (0909)
	Antenna Tower:	Tower [EMCO 2090 Antenna Tower]
		@ GPIB0 (ADR 8), FW REV 3.12
	Turntable:	Turntable [EMCO Turntable]
		@ GPIB0 (ADR 9), FW REV 3.12
	EMC 32 Version 8.10.00	

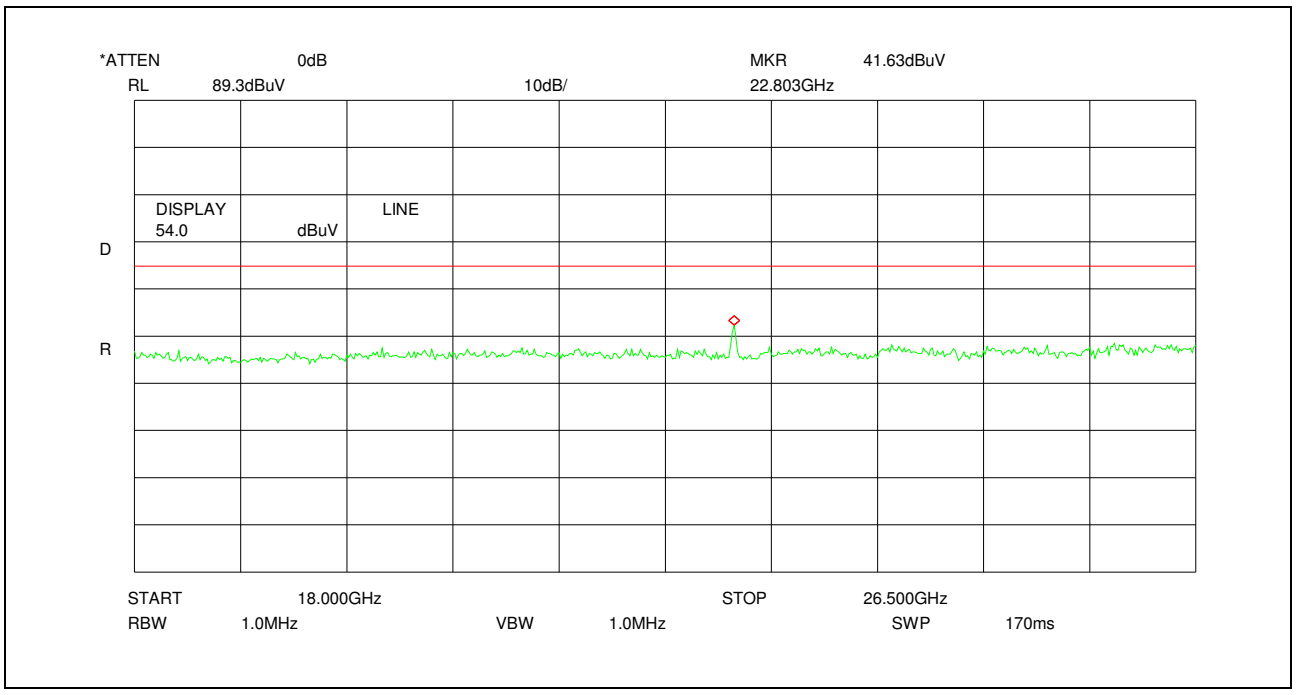
Plot 32: 1 - 12 GHz, antenna vertical/horizontal @ 3 m



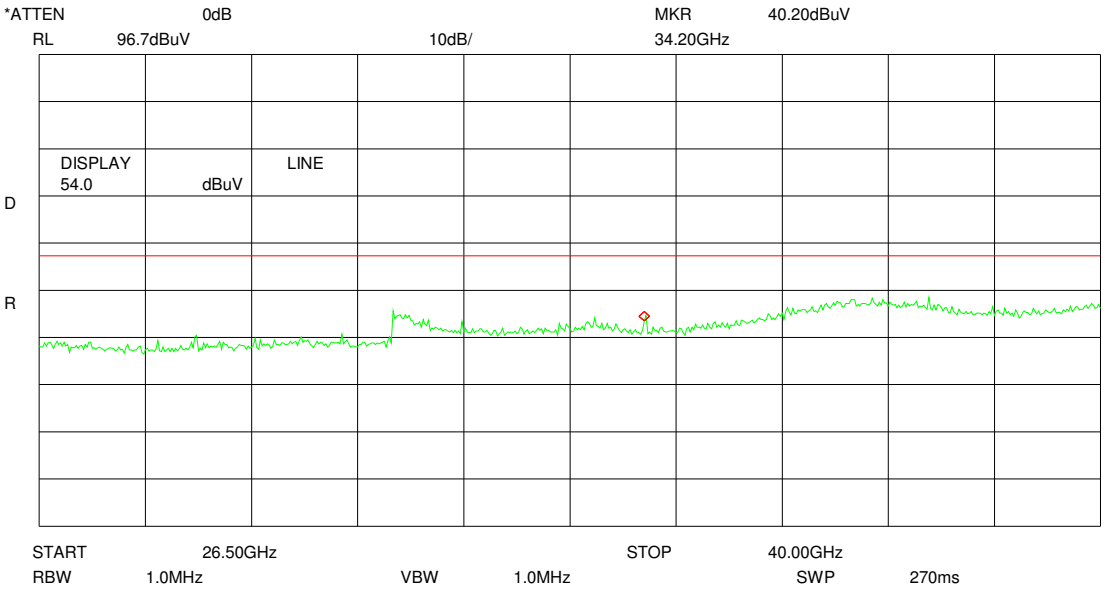
Plot 33: 12 – 18 GHz, antenna vertical/horizontal



Plot 34: 18 – 26.5 GHz, antenna vertical/horizontal



Plot 35: 26.5 – 40 GHz, antenna vertical/horizontal



OFDM: TX-Mode, 5745 MHz

Plot 36: 0.03 - 1 GHz, antenna vertical/horizontal @ 10 m

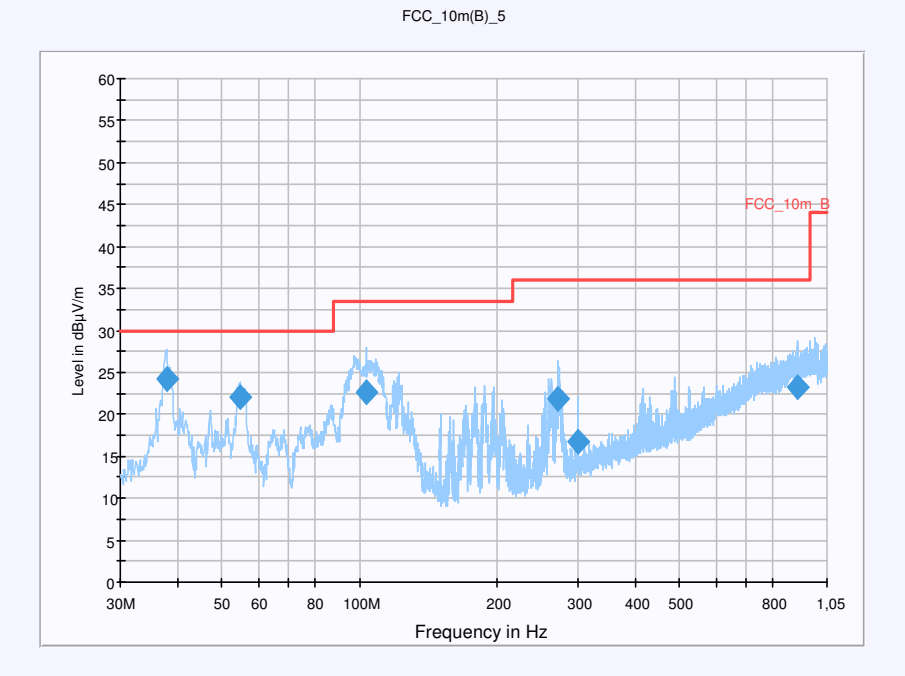
Information

EUT:	50001589-XX + AC/DC Adaptor
Serial Number:	Prototype + 24000093
Test Description:	FCC Part 15
Operating Conditions:	WLAN test mode, 5745 MHz
Operator Name:	Kraus
Comment:	power 115V / 60Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver

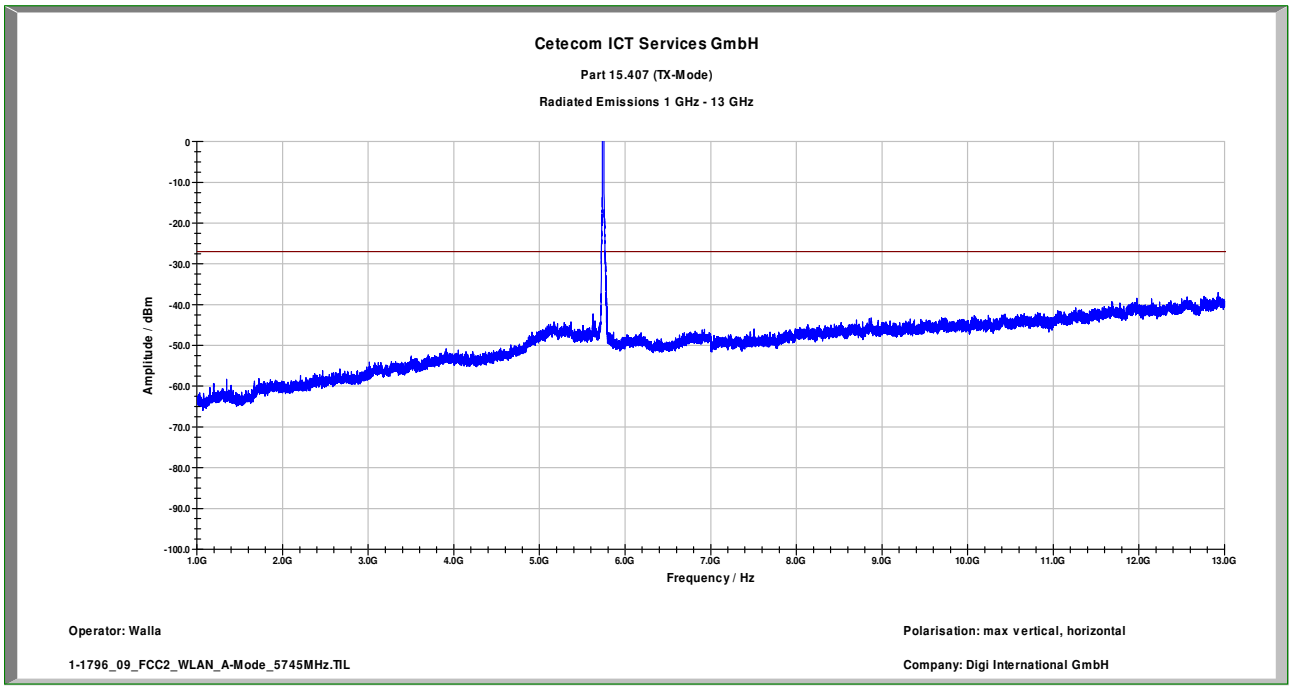


Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
37.800000	24.2	15000.000	120.000	122.0	V	158.0	13.3	5.8	30.0
54.840000	22.1	15000.000	120.000	220.0	V	59.0	12.9	7.9	30.0
103.440000	22.7	15000.000	120.000	98.0	V	272.0	11.6	10.8	33.5
271.320000	21.9	15000.000	120.000	98.0	V	112.0	13.7	14.1	36.0
300.000000	16.7	15000.000	120.000	98.0	V	104.0	14.4	19.3	36.0
901.440000	23.2	15000.000	120.000	122.0	H	166.0	25.2	12.8	36.0

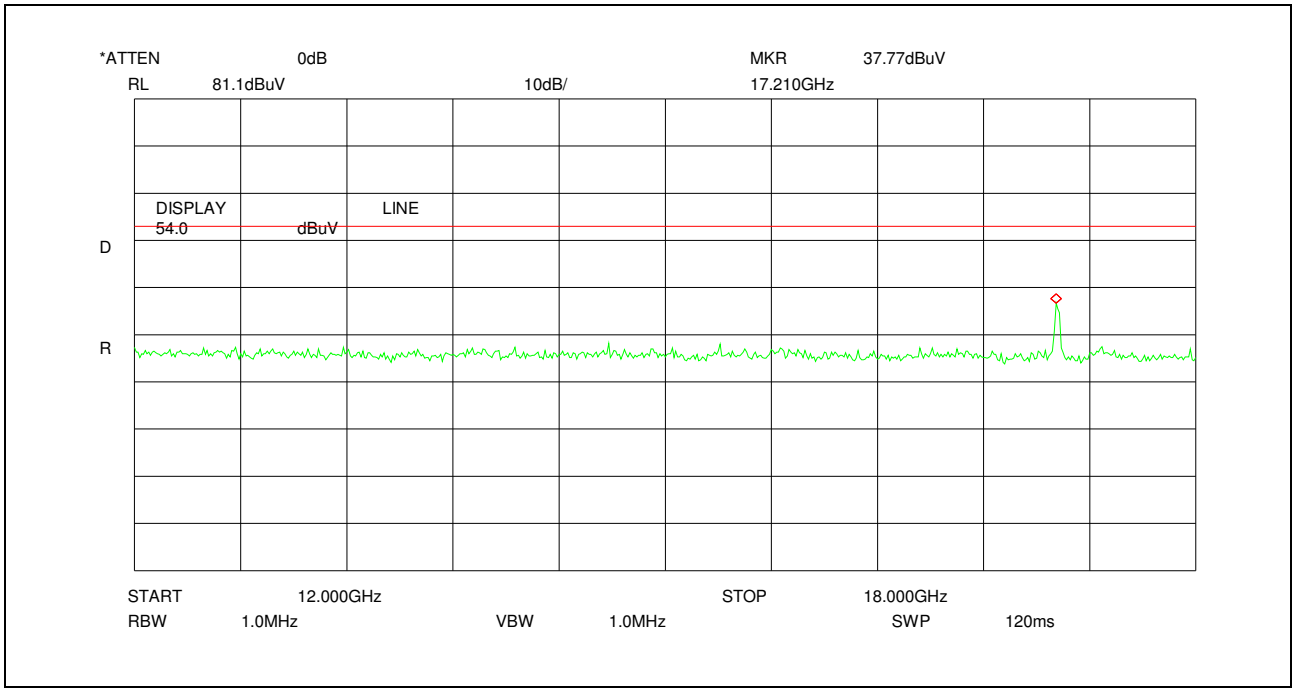
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1		
	Frequency Range:	30 MHz - 2 GHz
	Receiver:	Receiver [ESCI 3]
		@ GPIB0 (ADR 20), SN 100083/003, FW 4.32
	Signal Path:	without Notch
		FW 1.0
	Antenna:	VULB 9163
		SN 9163-295, FW ---
		Correction Table (vertical): VULP6113
		Correction Table (horizontal): VULP6113
		Correction Table: Cable_EN_1GHz (0909)
	Antenna Tower:	Tower [EMCO 2090 Antenna Tower]
		@ GPIB0 (ADR 8), FW REV 3.12
	Turntable:	Turntable [EMCO Turntable]
		@ GPIB0 (ADR 9), FW REV 3.12
	EMC 32 Version 8.10.00	

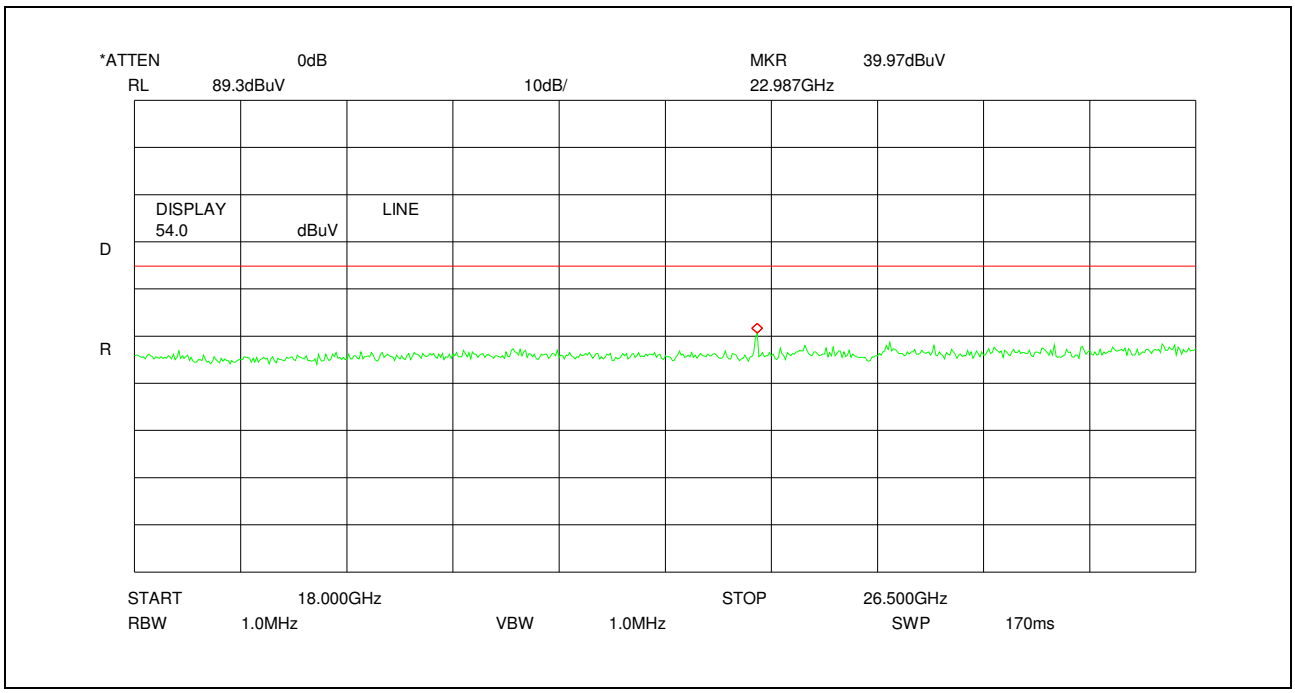
Plot 37: 1 - 12 GHz, antenna vertical/horizontal @ 3 m



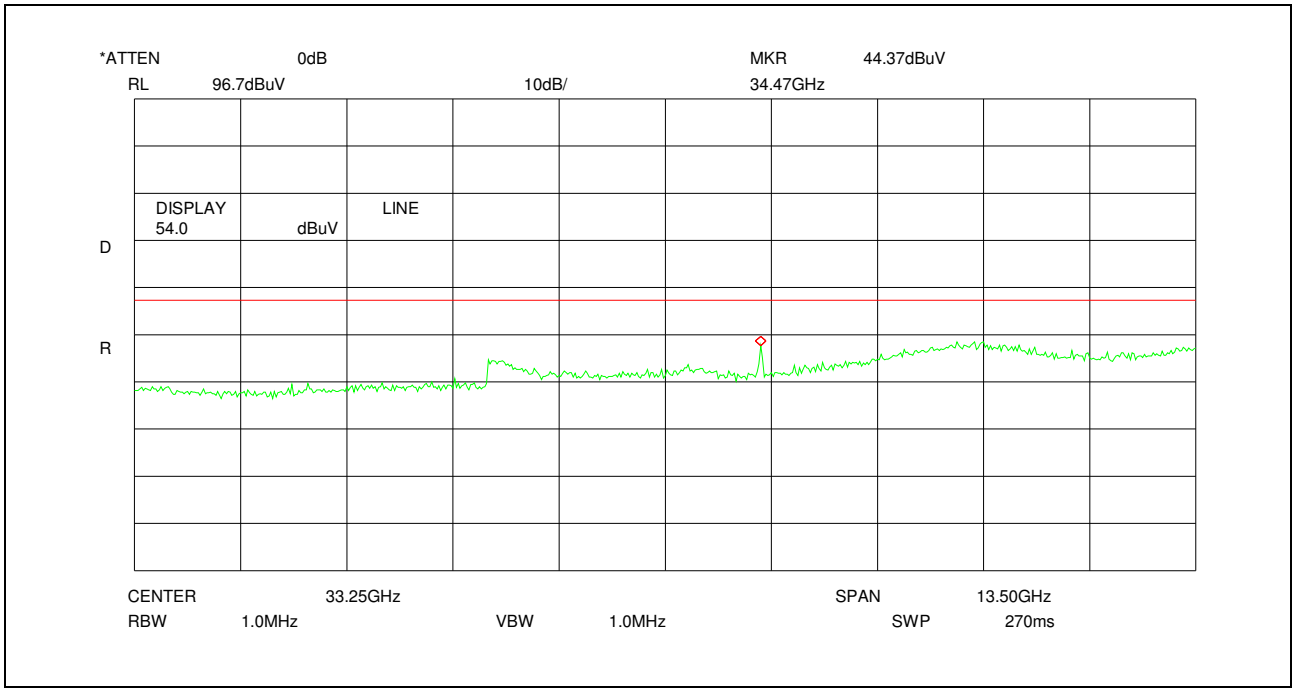
Plot 38: 12 – 18 GHz, antenna vertical/horizontal



Plot 39: 18 – 26.5 GHz, antenna vertical/horizontal



Plot 40: 26.5 – 40 GHz, antenna vertical/horizontal



OFDM: TX-Mode, 5785 MHz

Plot 41: 0.03 - 1 GHz, antenna vertical/horizontal @ 10 m

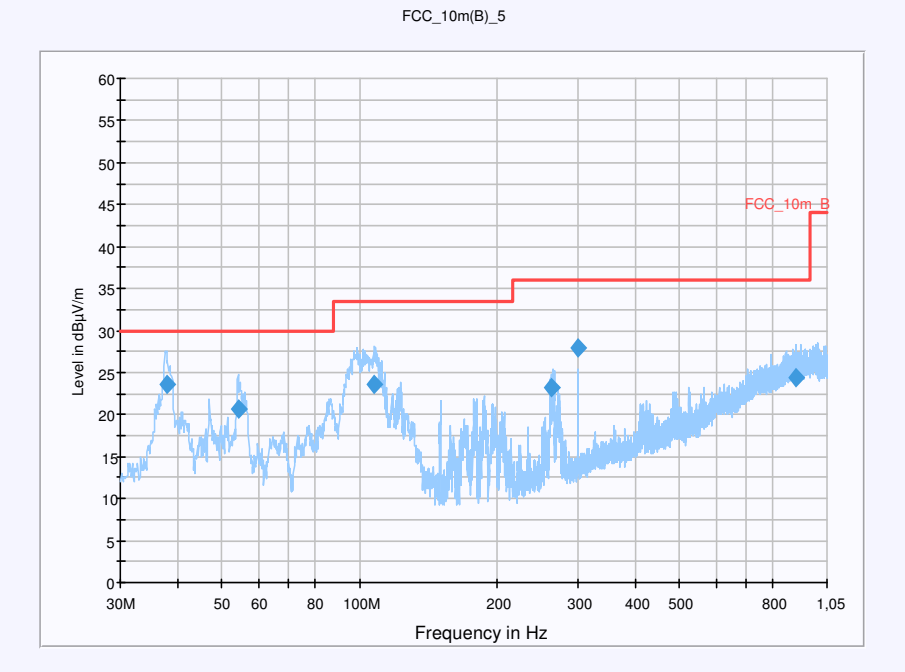
Information

EUT:	50001589-XX + AC/DC Adaptor
Serial Number:	Prototype + 24000093
Test Description:	FCC Part 15
Operating Conditions:	WLAN test mode, 5785 MHz
Operator Name:	Kraus
Comment:	power 115V / 60Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver

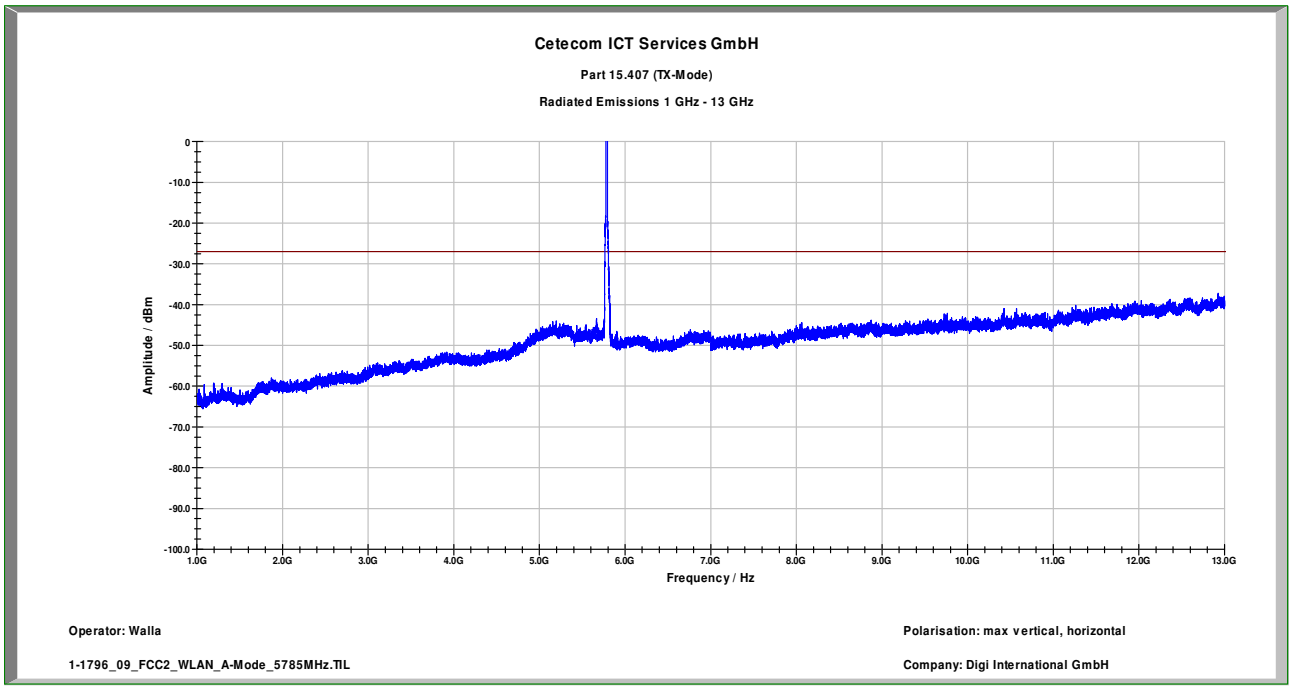


Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
37.800000	23.6	15000.000	120.000	173.0	V	109.0	13.3	6.4	30.0
54.240000	20.7	15000.000	120.000	220.0	V	42.0	13.0	9.3	30.0
107.880000	23.7	15000.000	120.000	98.0	V	146.0	11.2	9.8	33.5
261.720000	23.3	15000.000	120.000	220.0	H	-2.0	13.5	12.7	36.0
300.480000	27.9	15000.000	120.000	220.0	H	182.0	14.4	8.1	36.0
897.360000	24.5	15000.000	120.000	113.0	H	146.0	25.2	11.5	36.0

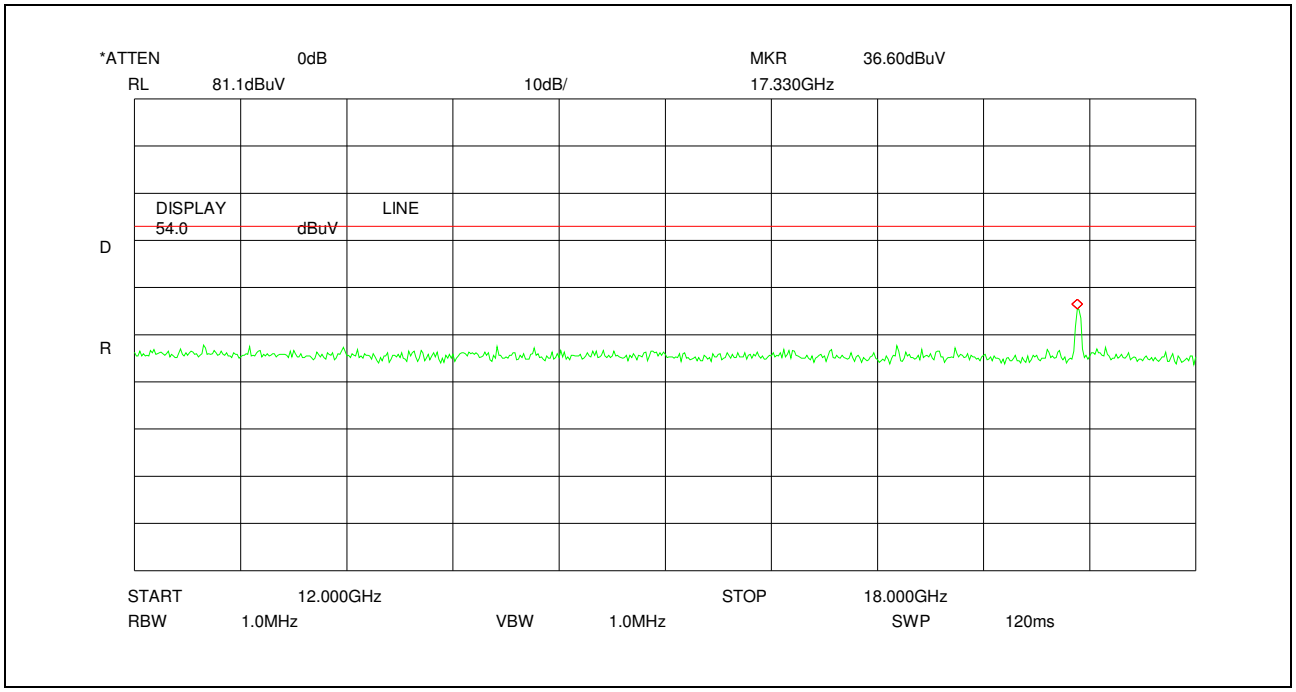
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1		
	Frequency Range:	30 MHz - 2 GHz
	Receiver:	Receiver [ESCI 3]
		@ GPIB0 (ADR 20), SN 100083/003, FW 4.32
	Signal Path:	without Notch
		FW 1.0
	Antenna:	VULB 9163
		SN 9163-295, FW ---
		Correction Table (vertical): VULP6113
		Correction Table (horizontal): VULP6113
		Correction Table: Cable_EN_1GHz (0909)
	Antenna Tower:	Tower [EMCO 2090 Antenna Tower]
		@ GPIB0 (ADR 8), FW REV 3.12
	Turntable:	Turntable [EMCO Turntable]
		@ GPIB0 (ADR 9), FW REV 3.12
	EMC 32 Version 8.10.00	

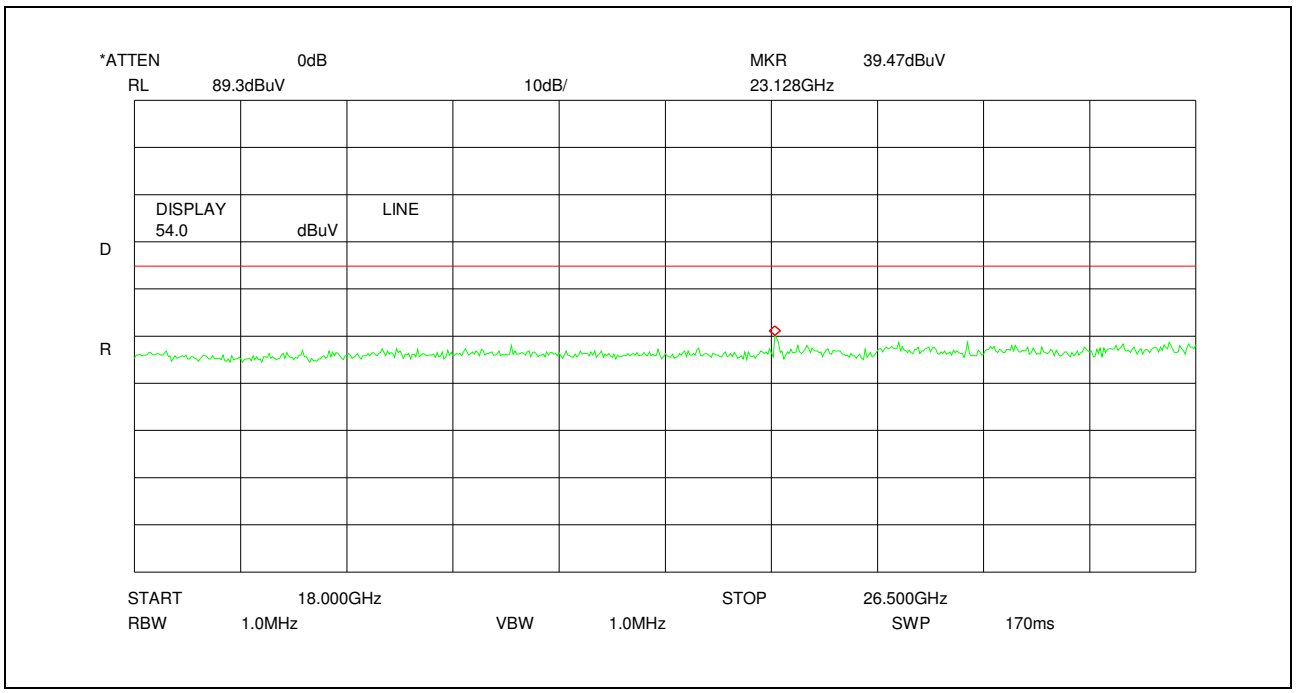
Plot 42: 1 - 12 GHz, antenna vertical/horizontal @ 3 m



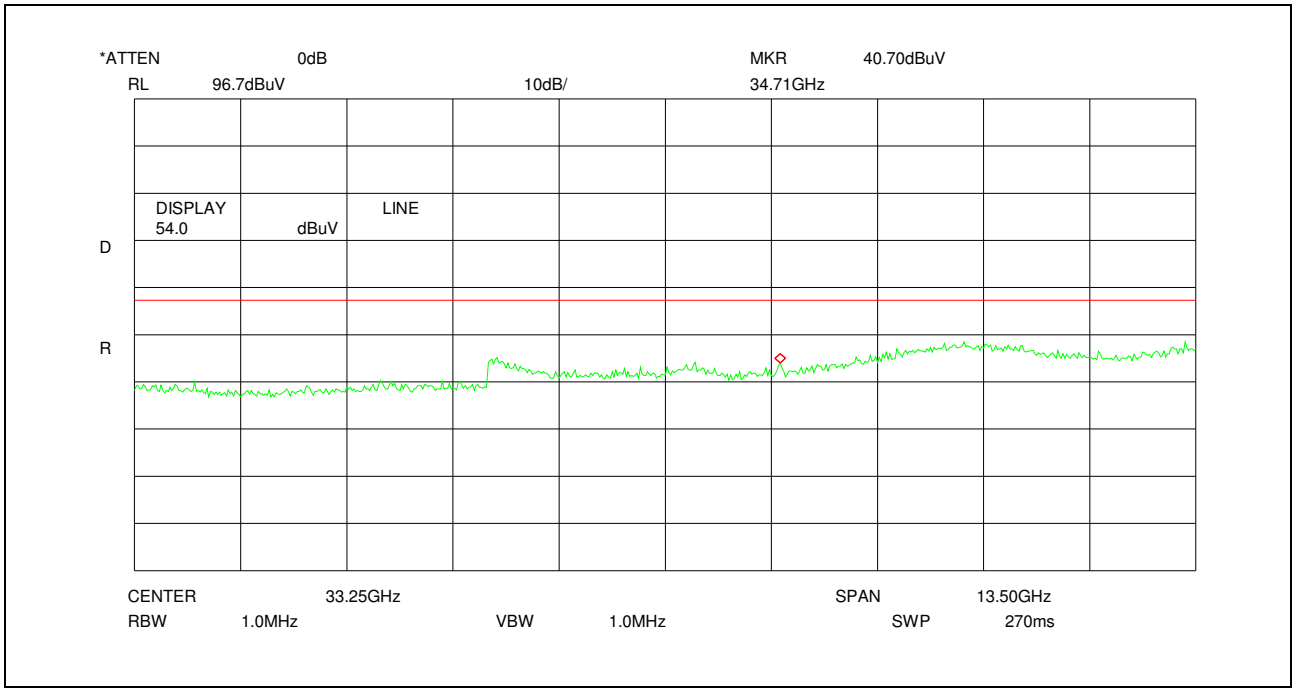
Plot 43: 12 – 18 GHz, antenna vertical/horizontal



Plot 44: 18 – 26.5 GHz, antenna vertical/horizontal



Plot 45: 26.5 – 40 GHz, antenna vertical/horizontal



OFDM: TX-Mode, 5805 MHz

Plot 46: 0.03 - 1 GHz, antenna vertical/horizontal @ 10 m

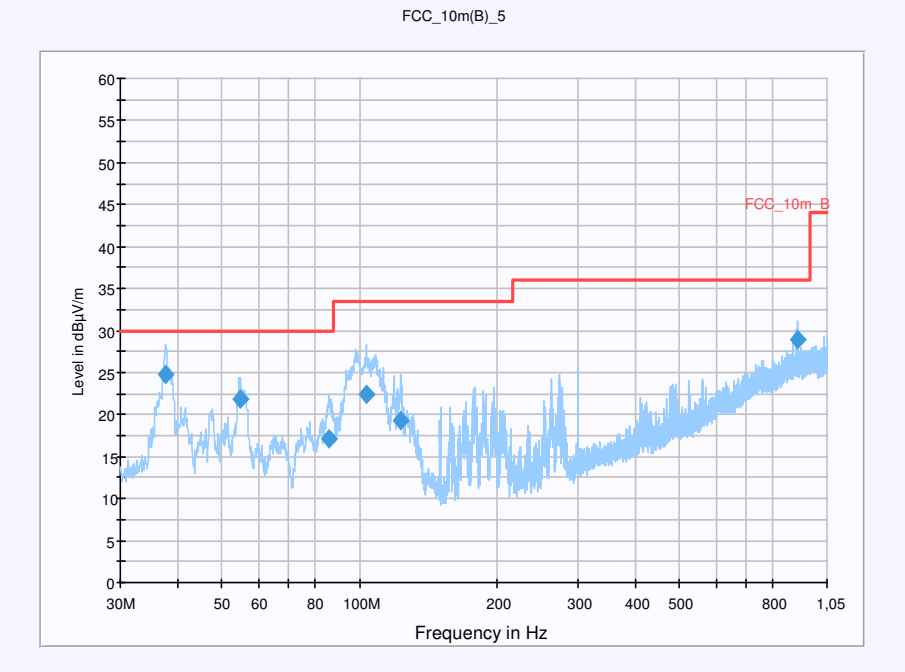
Information

EUT:	50001589-XX + AC/DC Adaptor
Serial Number:	Prototype + 24000093
Test Description:	FCC Part 15
Operating Conditions:	WLAN test mode, 5805 MHz
Operator Name:	Kraus
Comment:	power 115V / 60Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver

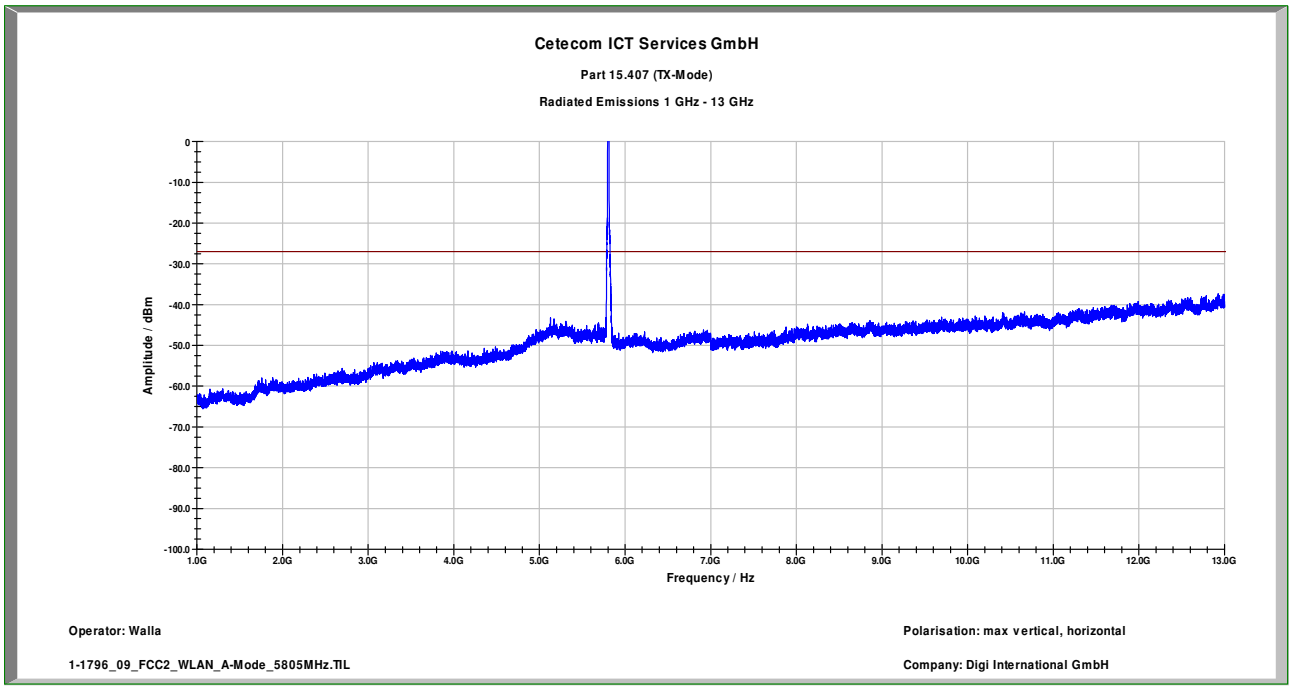


Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
37.680000	24.8	15000.000	120.000	106.0	V	64.0	13.3	5.2	30.0
54.960000	21.8	15000.000	120.000	220.0	V	55.0	12.9	8.2	30.0
85.680000	17.1	15000.000	120.000	220.0	V	192.0	9.9	12.9	30.0
103.560000	22.4	15000.000	120.000	98.0	V	192.0	11.6	11.1	33.5
122.640000	19.3	15000.000	120.000	98.0	V	64.0	10.0	14.2	33.5
901.680000	29.0	15000.000	120.000	98.0	H	306.0	25.2	7.0	36.0

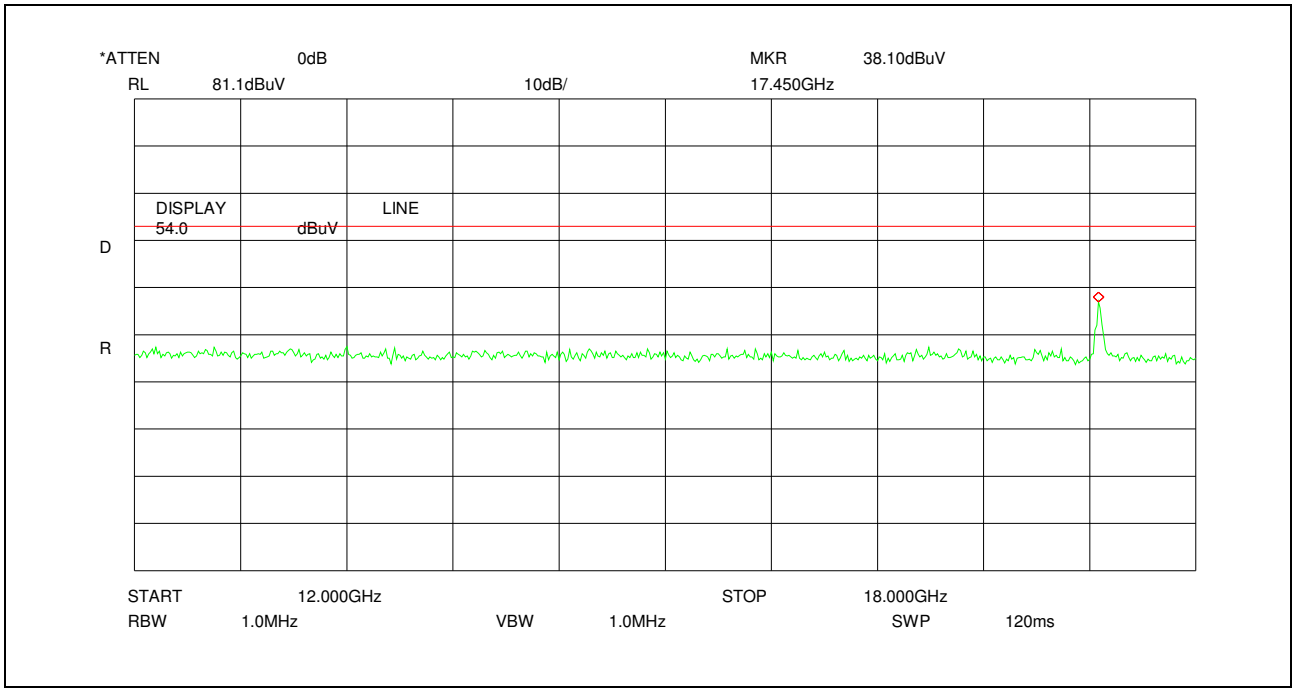
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1		
	Frequency Range:	30 MHz - 2 GHz
	Receiver:	Receiver [ESCI 3]
		@ GPIB0 (ADR 20), SN 100083/003, FW 4.32
	Signal Path:	without Notch
		FW 1.0
	Antenna:	VULB 9163
		SN 9163-295, FW ---
		Correction Table (vertical): VULP6113
		Correction Table (horizontal): VULP6113
		Correction Table: Cable_EN_1GHz (0909)
	Antenna Tower:	Tower [EMCO 2090 Antenna Tower]
		@ GPIB0 (ADR 8), FW REV 3.12
	Turntable:	Turntable [EMCO Turntable]
		@ GPIB0 (ADR 9), FW REV 3.12
	EMC 32 Version 8.10.00	

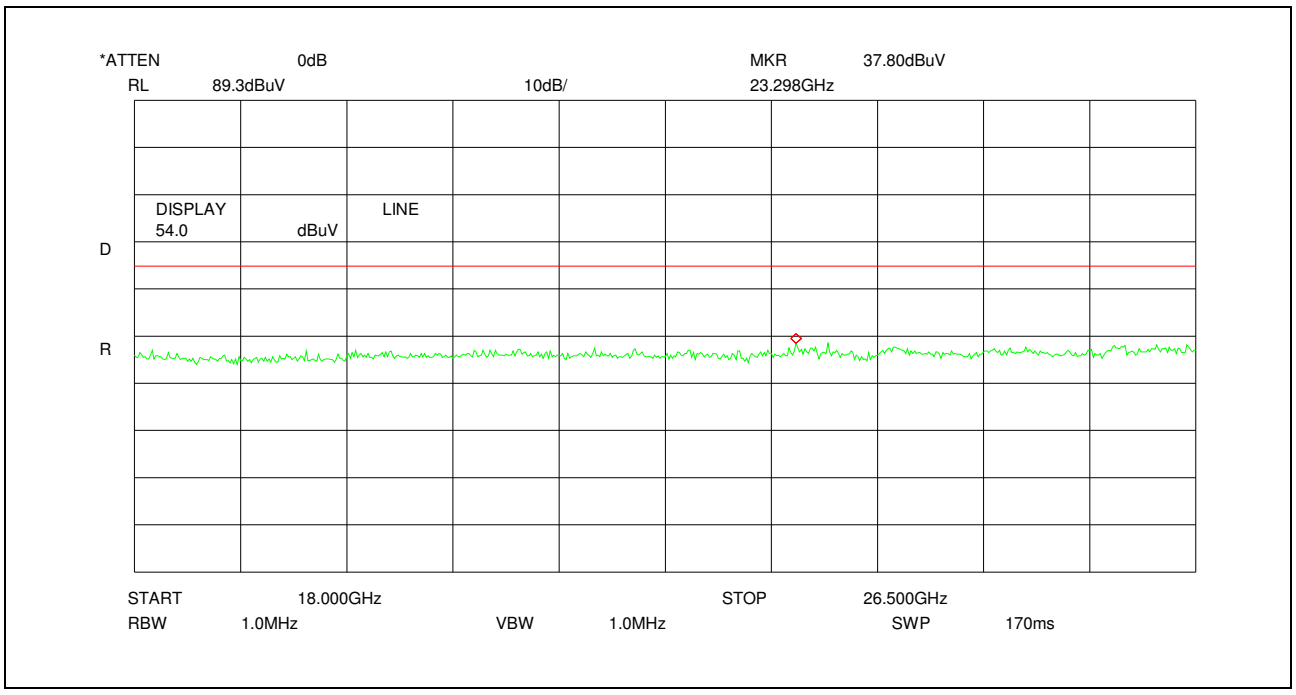
Plot 47: 1 - 12 GHz, antenna vertical/horizontal @ 3 m



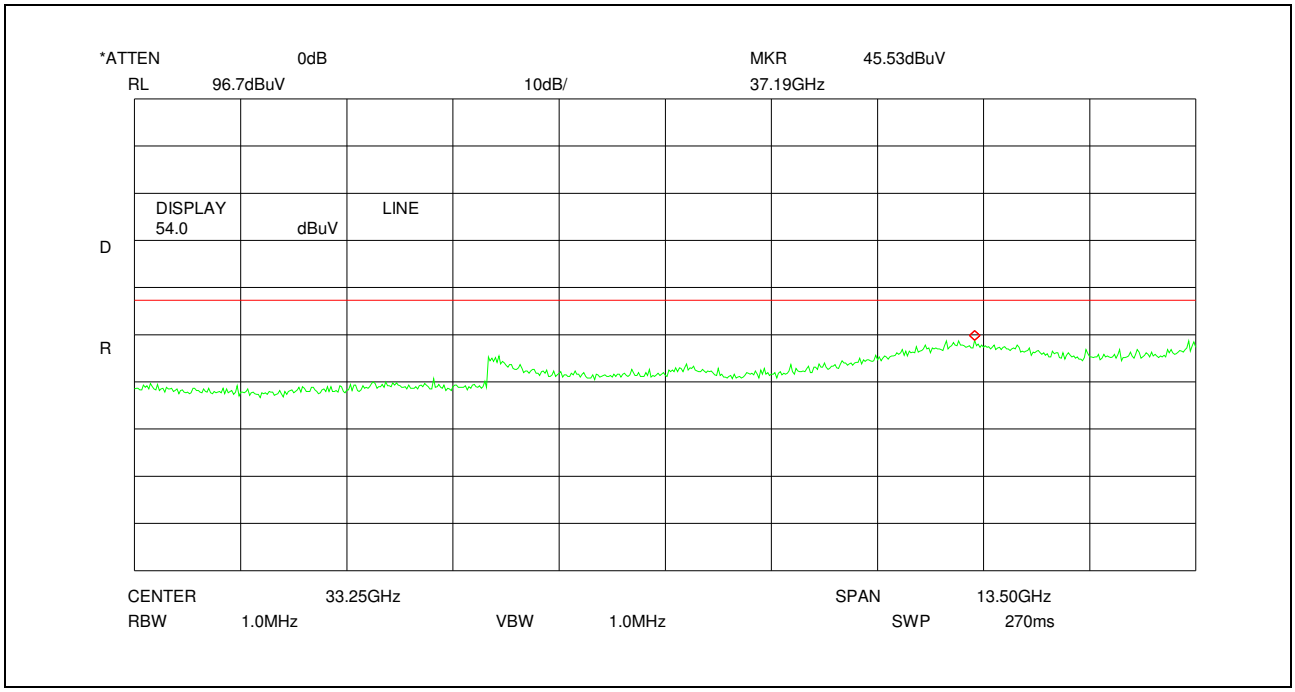
Plot 48: 12 – 18 GHz, antenna vertical/horizontal



Plot 49: 18 – 26.5 GHz, antenna vertical/horizontal



Plot 50: 26.5 – 40 GHz, antenna vertical/horizontal



Results:

SPURIOUS EMISSIONS LEVEL §15.209								
5180 MHz			5240 MHz			5260 MHz		
Frequency [MHz]	Detector	Level [dBµV/m]	Frequency [MHz]	Detector	Level [dBµV/m]	Frequency [MHz]	Detector	Level [dBµV/m]
15530	Peak	44.93	15.710	Peak	44.27	15770	Peak	42.60
36370	Peak	45.53	36650	Peak	46.70	21046	Peak	44.63
Measurement uncertainty			±3 dB					

f < 1 GHz : RBW/VBW: 100 kHz f ≥ 1GHz : RBW/VBW: 1 MHz

SPURIOUS EMISSIONS LEVEL §15.209								
5320 MHz			5500 MHz			5600 MHz		
Frequency [MHz]	Detector	Level [dBµV/m]	Frequency [MHz]	Detector	Level [dBµV/m]	Frequency [MHz]	Detector	Level [dBµV/m]
15950	Peak	42.77	16490	Peak	47.10	16780	Peak	44.27
21301	Peak	43.97	21995	Peak	46.80	22406	Peak	44.47
Measurement uncertainty			±3 dB					

f < 1 GHz : RBW/VBW: 100 kHz f ≥ 1GHz : RBW/VBW: 1 MHz

SPURIOUS EMISSIONS LEVEL §15.209								
5700 MHz			5745 MHz			5785 MHz		
Frequency [MHz]	Detector	Level [dBµV/m]	Frequency [MHz]	Detector	Level [dBµV/m]	Frequency [MHz]	Detector	Level [dBµV/m]
17090	Peak	38.43	17210	Peak	37.77	17330	Peak	36.60
22803	Peak	41.63	34470	Peak	44.37			
Measurement uncertainty			±3 dB					

f < 1 GHz : RBW/VBW: 100 kHz f ≥ 1GHz : RBW/VBW: 1 MHz

SPURIOUS EMISSIONS LEVEL §15.209								
5805 MHz			--			--		
Frequency [MHz]	Detector	Level [dBµV/m]	Frequency [MHz]	Detector	Level [dBµV/m]	Frequency [MHz]	Detector	Level [dBµV/m]
17450	Peak	38.10						
Measurement uncertainty			±3 dB					

f < 1 GHz : RBW/VBW: 100 kHz f ≥ 1GHz : RBW/VBW: 1 MHz

Limits:

Under normal test conditions only	See plots

Limits: **§ 15.247 (c)**

In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Limits: **§ 15.109**

Frequency (MHz)	Field strength (dBµV/m)	Measurement distance (m)
30 - 88	30.0	10
88 - 216	33.5	10
216 - 960	36.0	10
above 960	54.0	3

5.8 Spurious emissions radiated (RX) § 15.209

Plot 51: 0.03 - 1 GHz, antenna vertical/horizontal (receiver) @ 10m

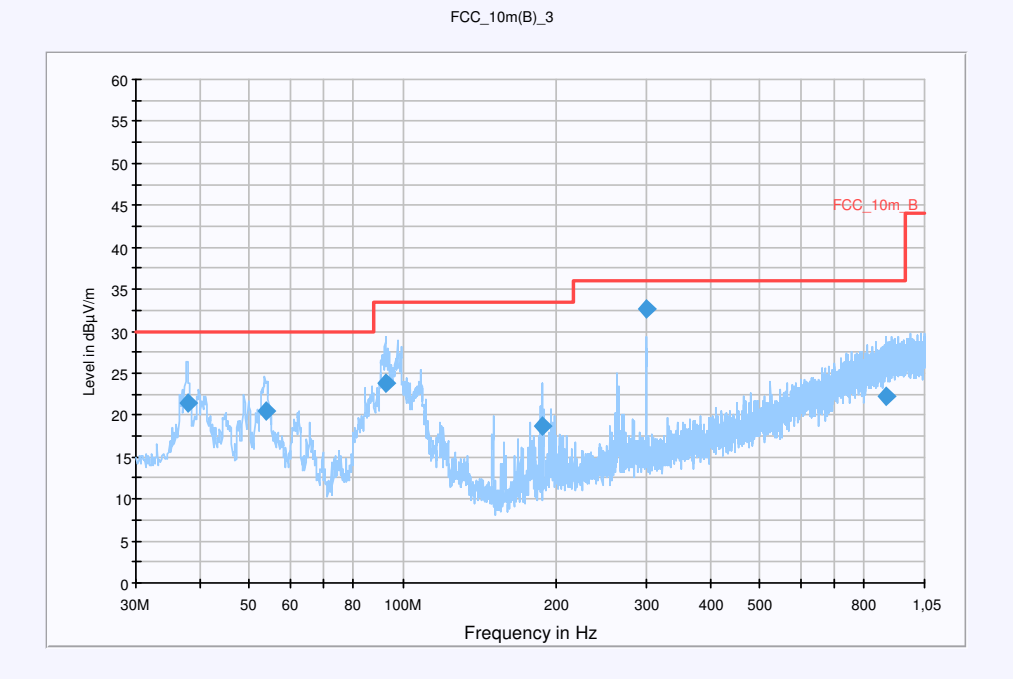
Information

EUT:	50001589-XX + AC/DC Adaptor
Serial Number:	Prototype + 24000093
Test Description:	FCC Part 15
Operating Conditions:	WLAN RX-Mode
Operator Name:	Kraus
Comment:	Powered with 115V / 60Hz

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Level Unit:	dBµV/m

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1,05 GHz	QuasiPeak	120 kHz	15 s	Receiver

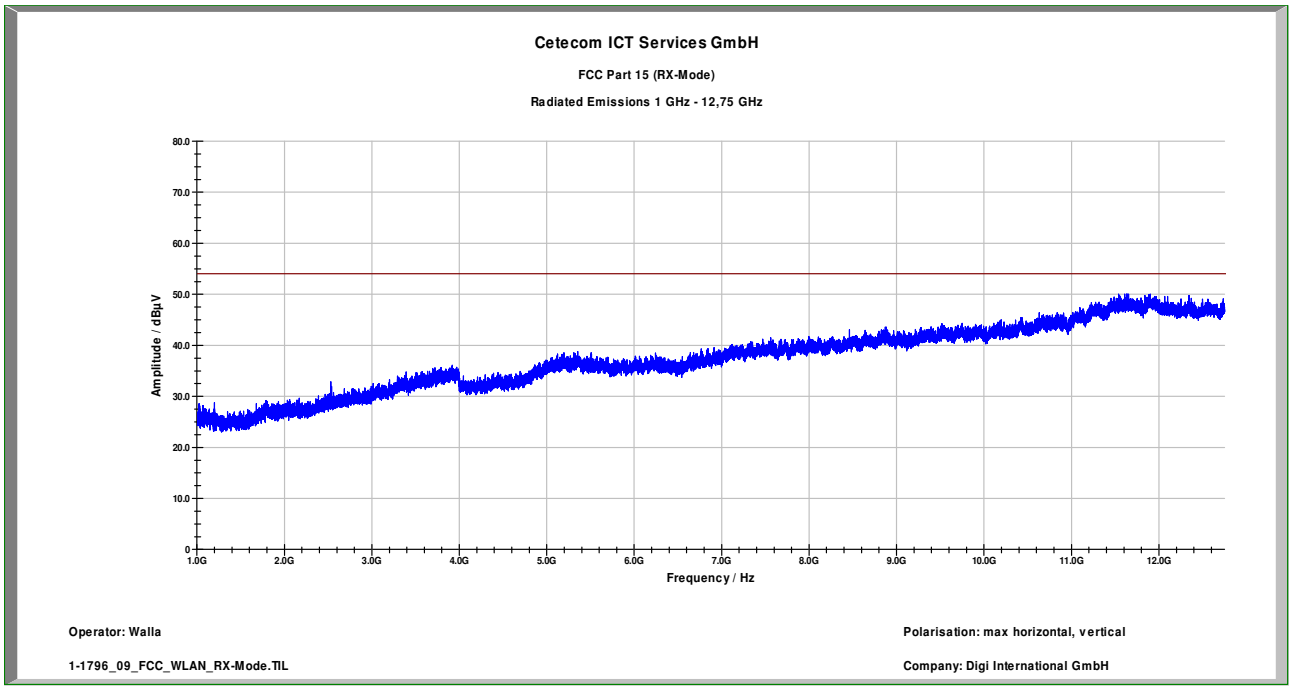


Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
37.838250	21.5	15000.000	120.000	125.0	V	52.0	13.3	8.5	30.0
53.781900	20.5	15000.000	120.000	182.0	V	7.0	13.0	9.5	30.0
92.307600	23.8	15000.000	120.000	115.0	V	297.0	10.9	9.7	33.5
187.131000	18.7	15000.000	120.000	98.0	V	206.0	10.8	14.8	33.5
299.164950	32.6	15000.000	120.000	220.0	H	184.0	14.4	3.4	36.0
882.904050	22.3	15000.000	120.000	220.0	H	261.0	25.0	13.7	36.0

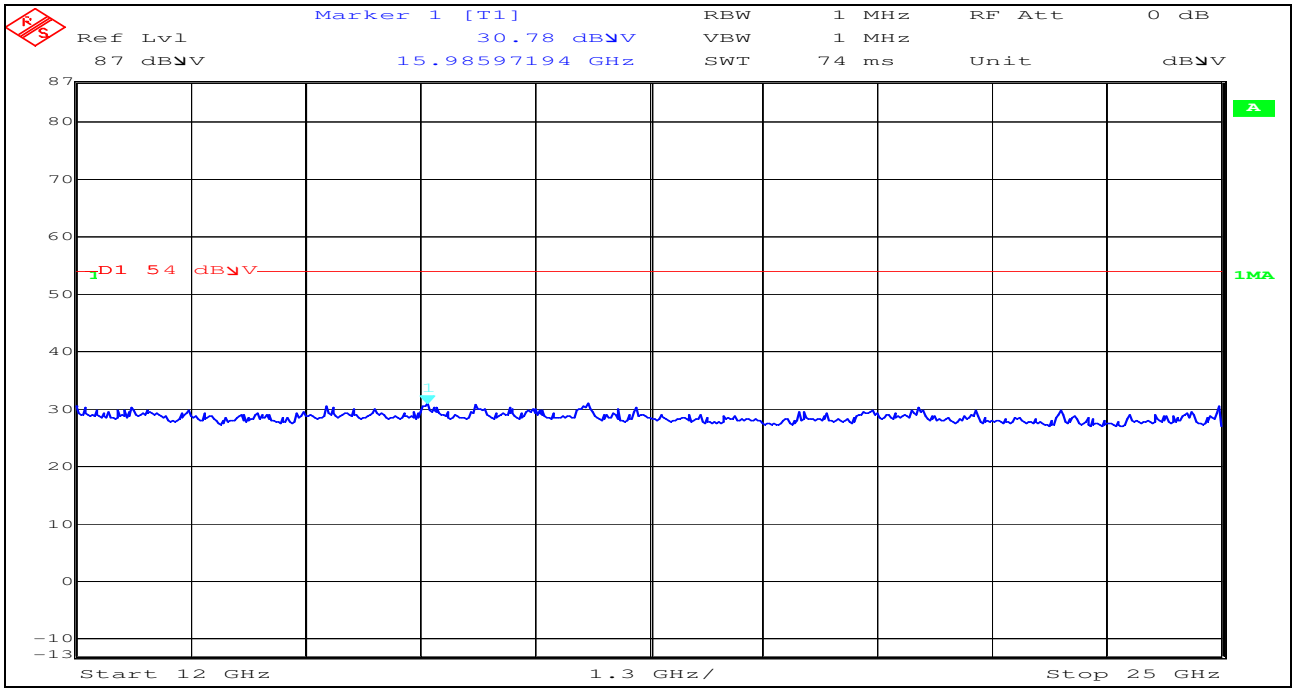
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1		
	Frequency Range:	30 MHz - 2 GHz
	Receiver:	Receiver [ESCI 3]
		@ GPIB0 (ADR 20), SN 100083/003, FW 4.32
	Signal Path:	without Notch
		FW 1.0
	Antenna:	VULB 9163
		SN 9163-295, FW ---
		Correction Table (vertical): VULP6113
		Correction Table (horizontal): VULP6113
		Correction Table: Cable_EN_1GHz (0909)
	Antenna Tower:	Tower [EMCO 2090 Antenna Tower]
		@ GPIB0 (ADR 8), FW REV 3.12
	Turntable:	Turntable [EMCO Turntable]
		@ GPIB0 (ADR 9), FW REV 3.12
	EMC 32 Version 8.10.00	

Plot 52: 1 - 12 GHz, antenna vertical/horizontal (receiver) @ 3m



Plot 53: 12- 25 GHz (receiver)



Results:

Spurious Emissisons level [dBµV/m]		
Frequency [MHz]	Detector	Level [dBµV/m]
No critical peaks detected!		
Measurement uncertainty	±3 dB	

f < 1 GHz : RBW/VBW: 100 kHz f ≥ 1GHz : RBW/VBW: 1 MHz
See above plots

Measurement distance see table

Limits: **§ 15.109**

Frequency (MHz)	Field strength (dBµV/m)	Measurement distance (m)
30 - 88	30.0	10
88 - 216	33.5	10
216 - 960	36.0	10
above 960	54.0	3

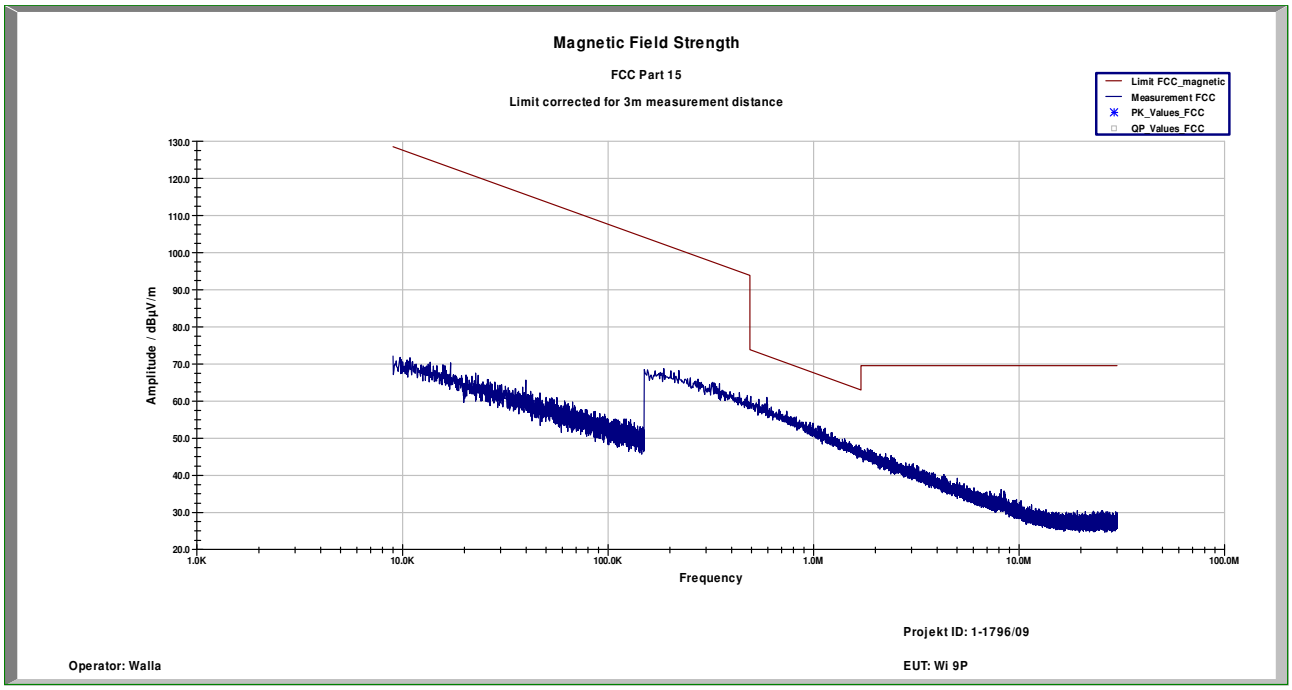
Limits:

Under normal test conditions only	See plots

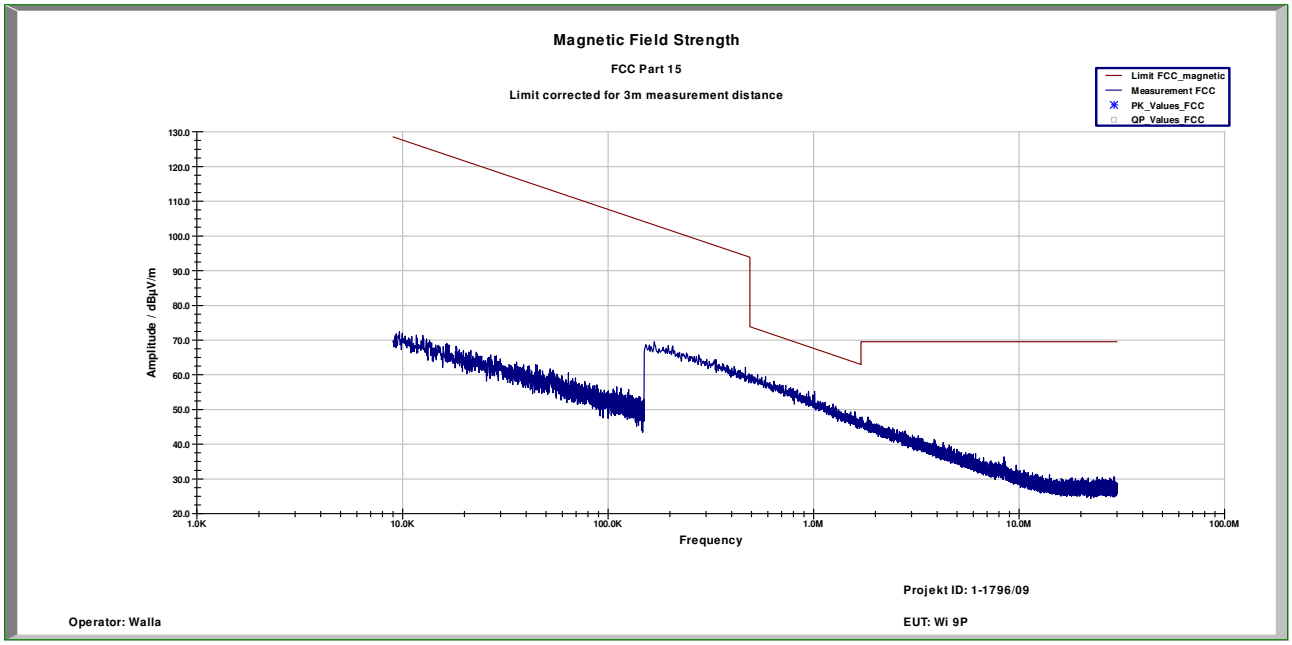
5.9 Spurious Emissions - radiated <30 MHz §15.109

Measured at 3 m distance.
Values recalculated with 40 dB/decade according to FCC rules.

Plot 54: TX – Mode



Plot 55: RX – Mode



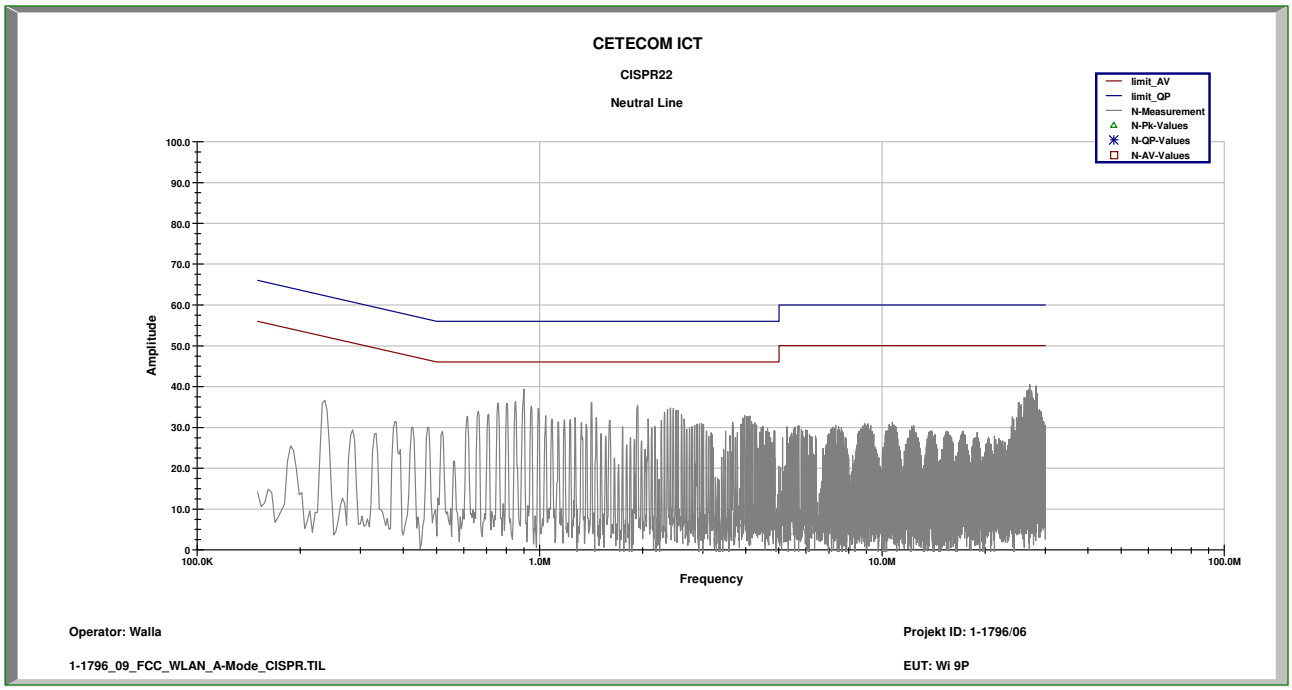
Limits:

Frequency (MHz)	Field strength (µV/m)	Measurement distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30 / 29.5 dBµV/m	30
30 - 88	100 / 40 dBµV/m	3
88 - 216	150 / 43.5 dBµV/m	3
216 - 960	200 / 46 dBµV/m	3
above 960	54 dBµV/m	3

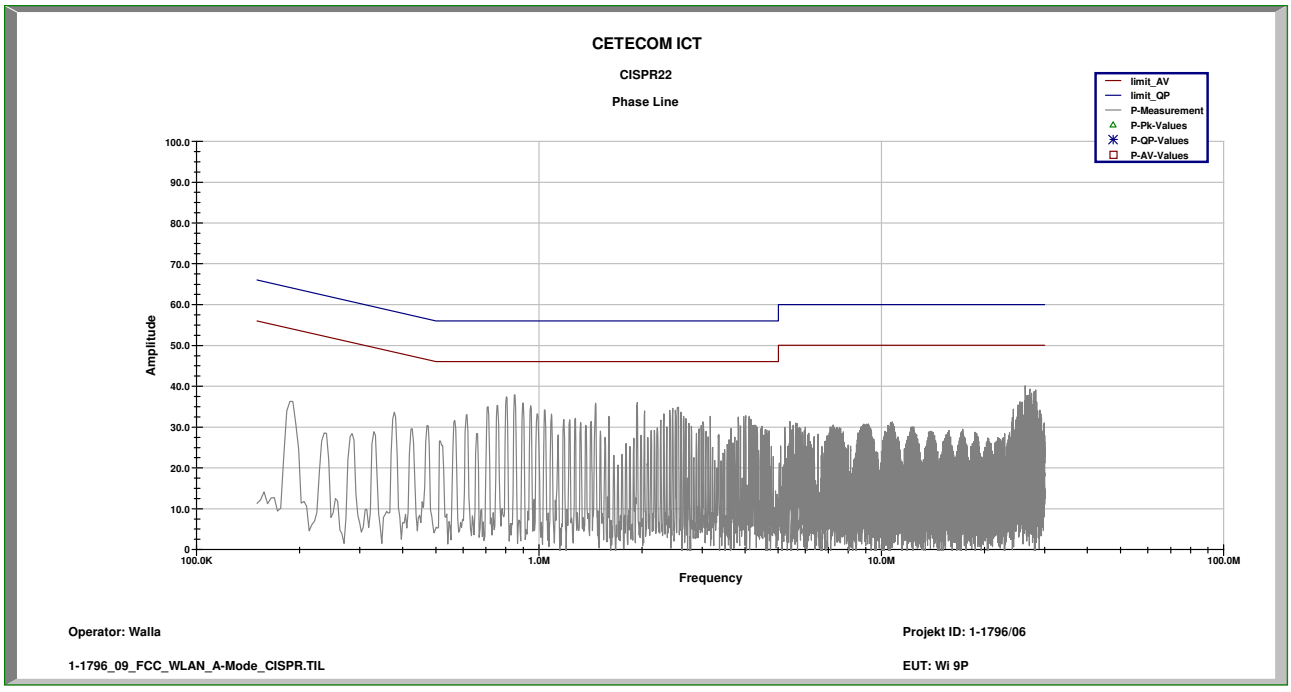
5.10 Conducted Emissions <30 MHz §15.107/207

OFDM:

Plot 56: TX – Mode, Neutral line



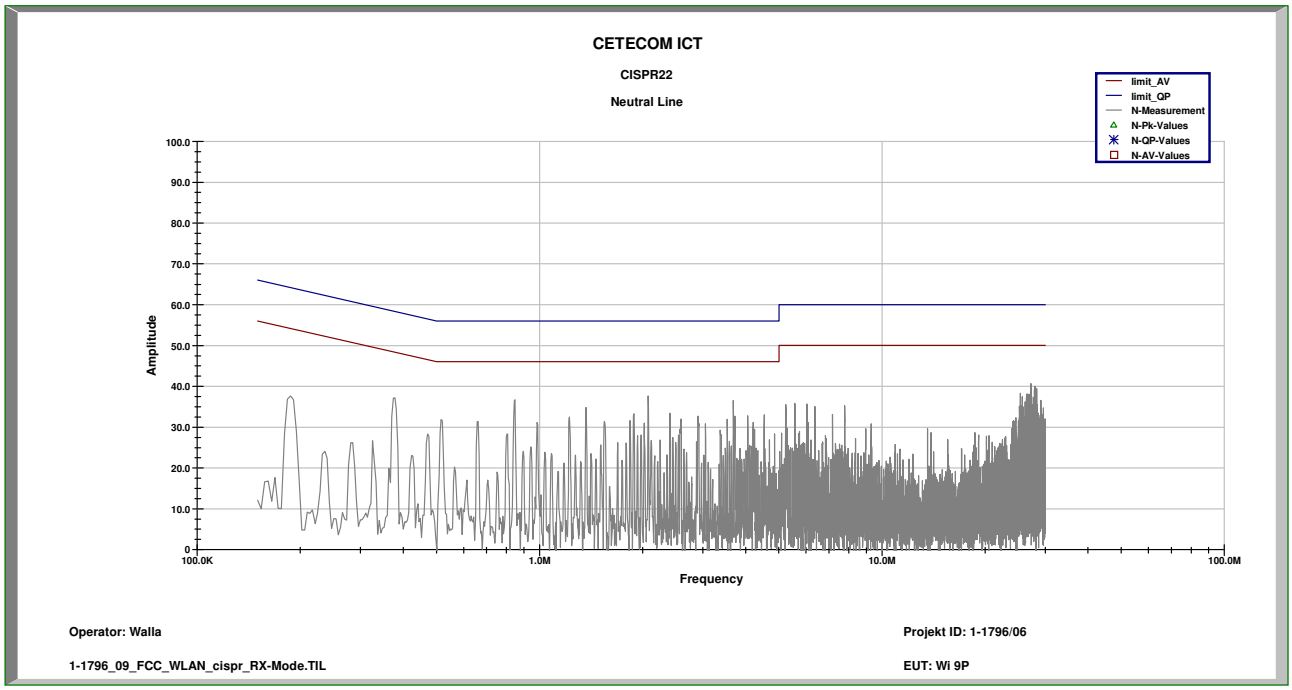
Plot 57: TX – Mode, Phase line



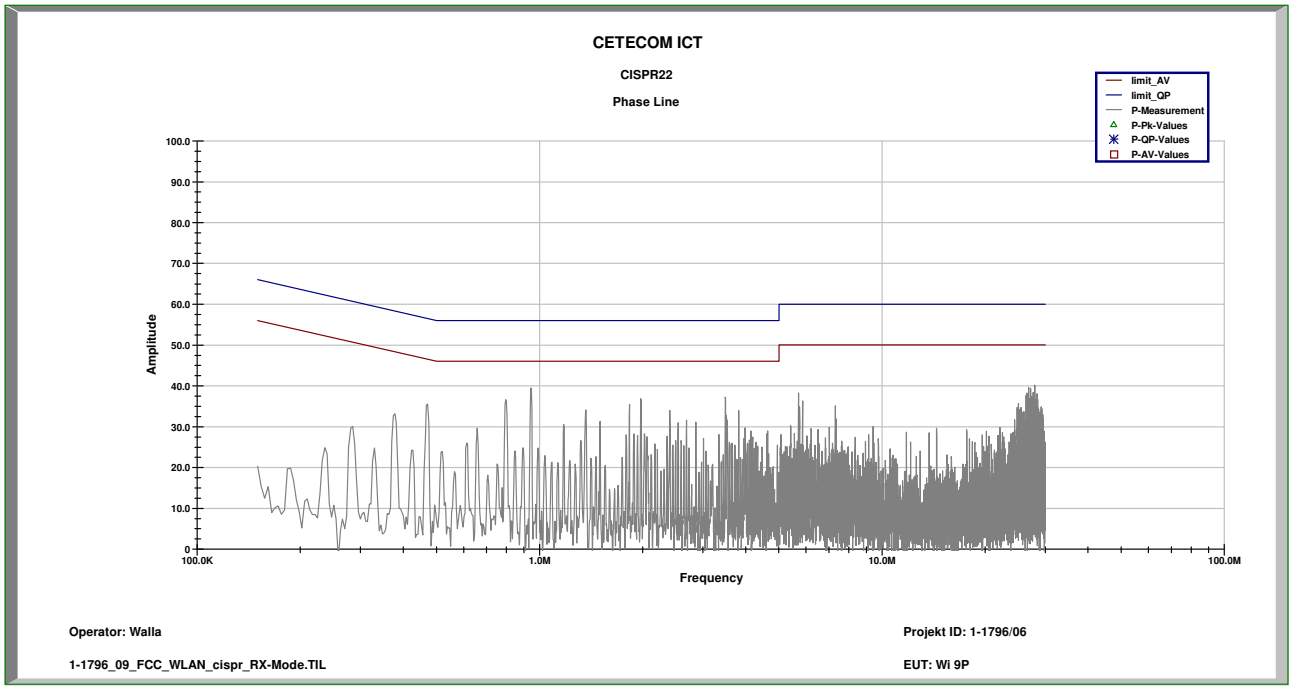
Limits:

Under normal test conditions only	See plots

Plot 58: RX – Mode, Neutral line



Plot 59: RX – Mode, Phase line



Limits:

Under normal test conditions only	See plots

6 Test equipment and ancillaries used for tests

In order to simplify the identification of the equipment used at each specific test, each item of test equipment and ancillaries are provided with an identifier or number in the equipment list below.

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).

No.	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Last Calibration	Next Calibration
1	System Autoranging DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2818A03450	300001040	08.01.2009	08.01.2012
2	PowerAttenuator	8325	Byrd	1530	300001595		
3	Double-Ridged Waveguide Horn Antenna 1-26.5GHz	3115	EMCO	8812-3088	300001032	05.03.2009	05.03.2011
4	Active Loop Antenna	6502	EMCO	2210	300001015		
5	Anechoic chamber		MWB	87400/02	300000996		
6	System rack for EMI measurement solution	85900	HP I.V.	*	300000222		
7	Artificial Mains 9 kHz to 30 MHz, 4 x 25 Ampere	ESH3-Z5	R&S	828576/020	300001210	06.01.2010	06.01.2012
8	Relais Matrix	3488A	HP Meßtechnik	2719A15013	300001156		
9	Relais Matrix	PSU	R&S	890167/024	300001168		
10	Isolating Transformer	RT5A	Grundig	9242	300001263		
11	Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000997		
12	Switch / Control Unit	3488A	HP	2605e08770	300001443		
13	Band Reject filter	WRCG1855/1910-1835/1925-40/8SS	Wainwright	7	300003350		
14	Band Reject filter	WRCG2400/2483-2375/2505-50/10SS	Wainwright	11	300003351		
15	TILE-Software Emission	Quantum Change, Modell TILE-ICS/FULL	EMCO	none	300003451		
16	Highpass Filter	WHKX2.9/18G-12SS	Wainwright	1	300003492		
17	Highpass Filter	WHK1.1/15G-10SS	Wainwright	3	300003255		
18	Highpass Filter	WHKX7.0/18G-8SS	Wainwright	18	300003789		

19	PSA Spectrum Analyzer 3 Hz - 26.5 GHz	E4440A	Agilent Vertr. Bad Hom	MY48250080	300003812	05.08.2008	05.08.2010
20	MXG Microwave Analog Signal Generator	N5183A	Agilent Vertr. Bad Hom	MY47420220	300003813	06.08.2008	06.08.2010
21	RF Filter Section 9kHz - 1GHz	N9039A	Agilent Vertr. Bad Hom	MY48260003	300003825	19.08.2008	19.08.2010
22	TRILOG Super Breitband Antenne	VULB9163	Schwarzbeck	371	300003854	17.12.2008	17.12.2010
23	DC Power Supply 0 – 32V	1108-32	Heiden	1802	300001383	13.05.2007	13.05.2010
24	Signal Analyzer 20Hz-26,5GHz-150 to + 30 DBM	FSiQ26	R&S	835111/0004	300002678	06.01.2009	06.01.2011
25	Switch-Unit	3488A	HP Meßtechnik	2719A14505	300000368		
26	Netzgerät	6032A	HP Meßtechnik	2920A04466	300000580	06.01.2009	06.01.2011
27	EMI-Messempfänger	ESCI 1166.5950.03	R&S	100083	300003312	08.01.2010	08.01.2012
28	Amplifier	JS42-00502650-28-5A	MITEQ	1084532	300003379		
29	Antennenmast	Model 2175	ETS-LINDGREN	64762	300003745		
30	Steuergerät	Model 2090	ETS-LINDGREN	64672	300003746		
31	Interface-Box für Drehtisch	Model 105637	ETS-LINDGREN	44583	300003747		
32	Breitbandantenne	VULB9163	Schwarzbeck	295	300003787	01.04.2010	01.04.2012
33	Spectrum-Analyzer	FSU26	R&S	200809	300003874	08.01.2010	08.01.2012

7 Photographs of the Test Set-up

Photo 1:

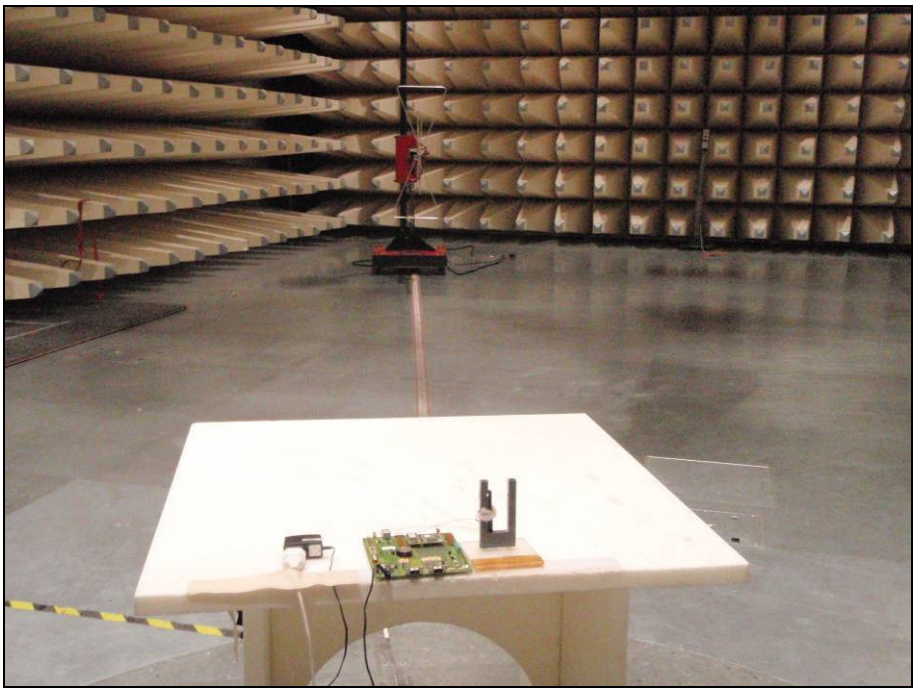


Photo 2:

8 Photographs of the EUT

Photo 3:

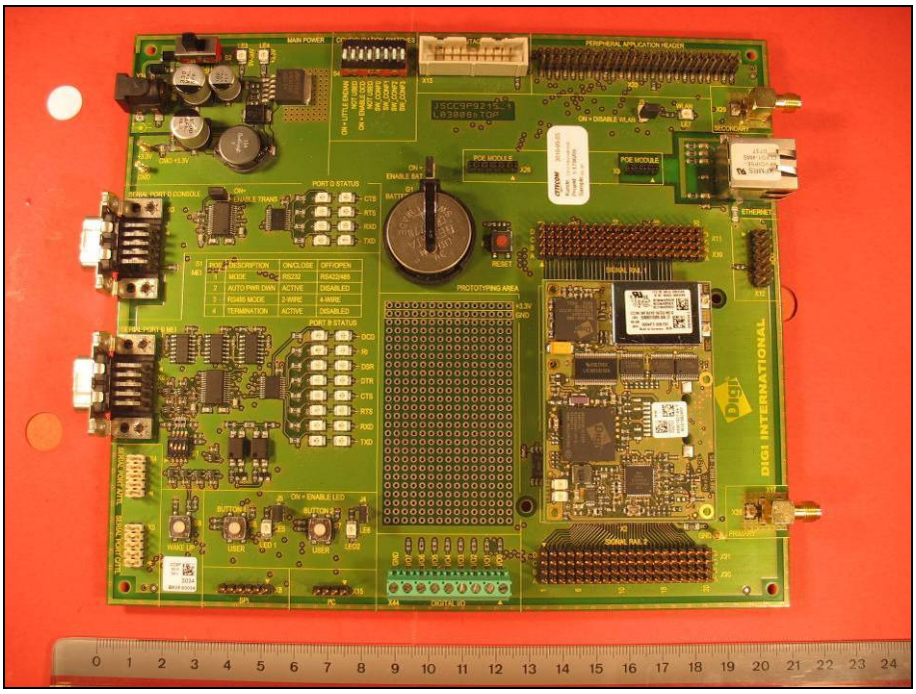
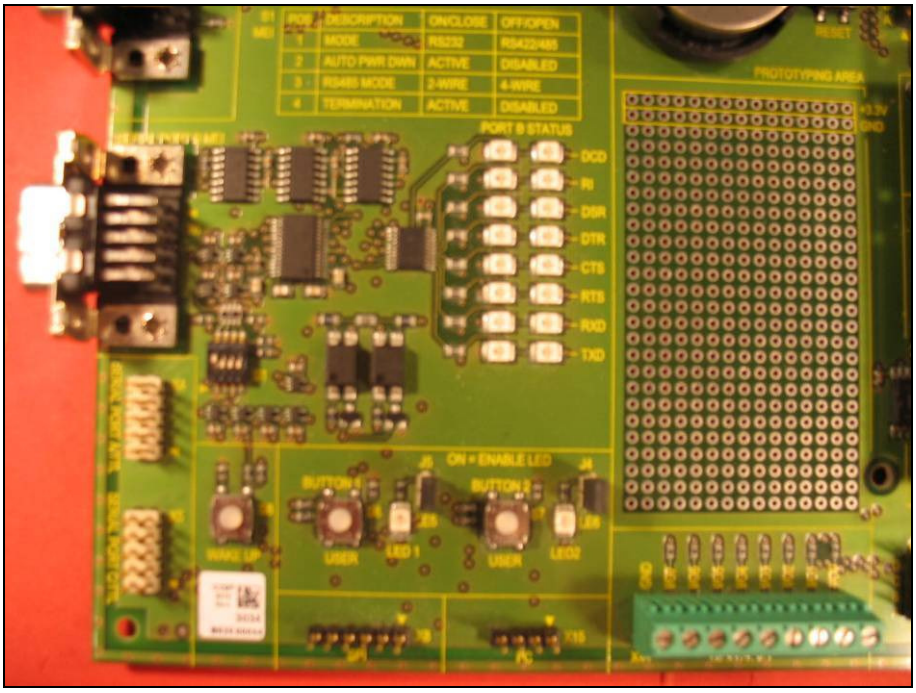


Photo 4:



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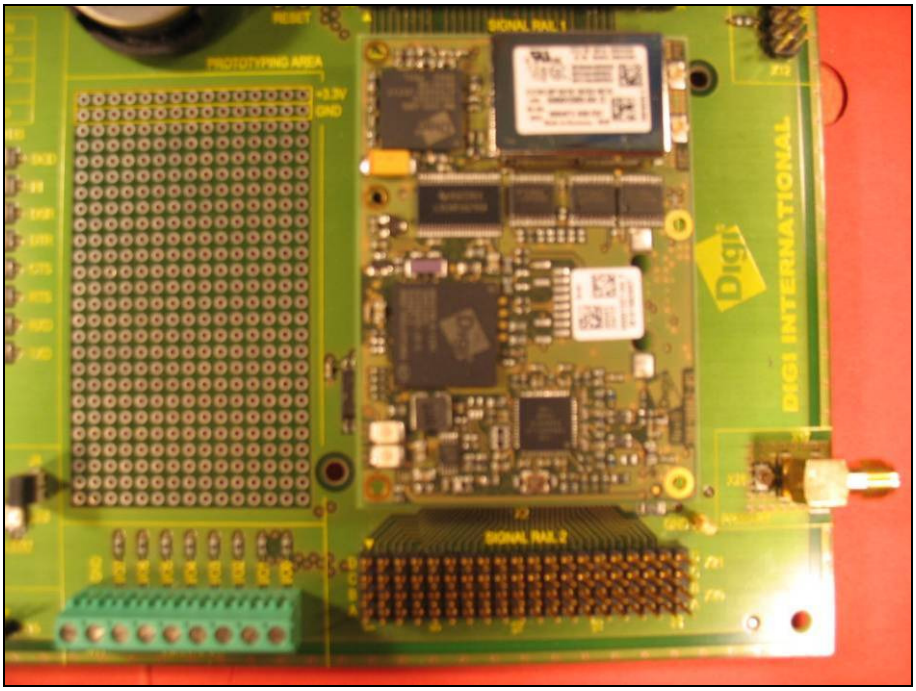

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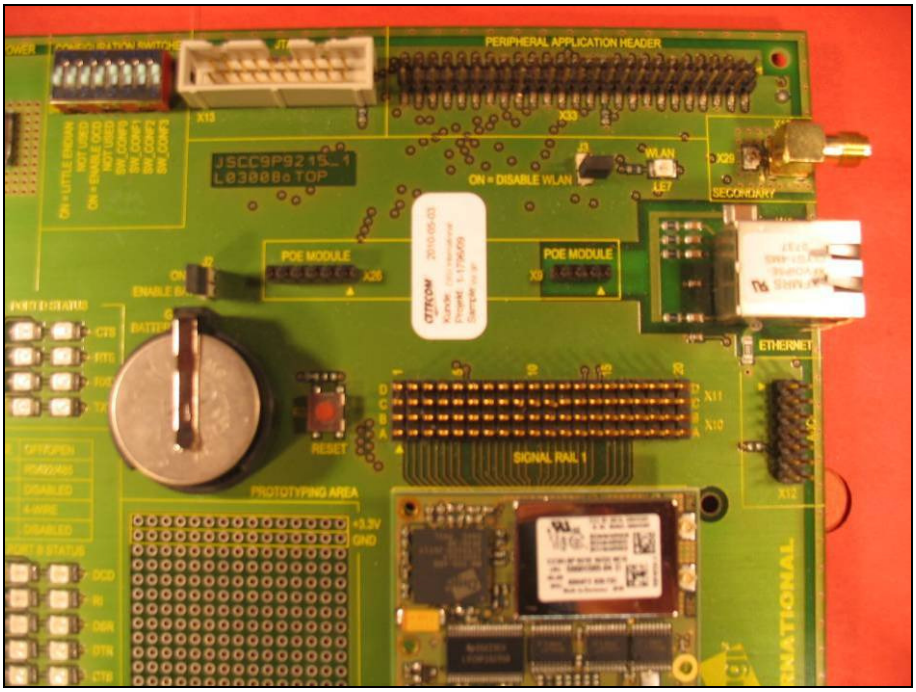

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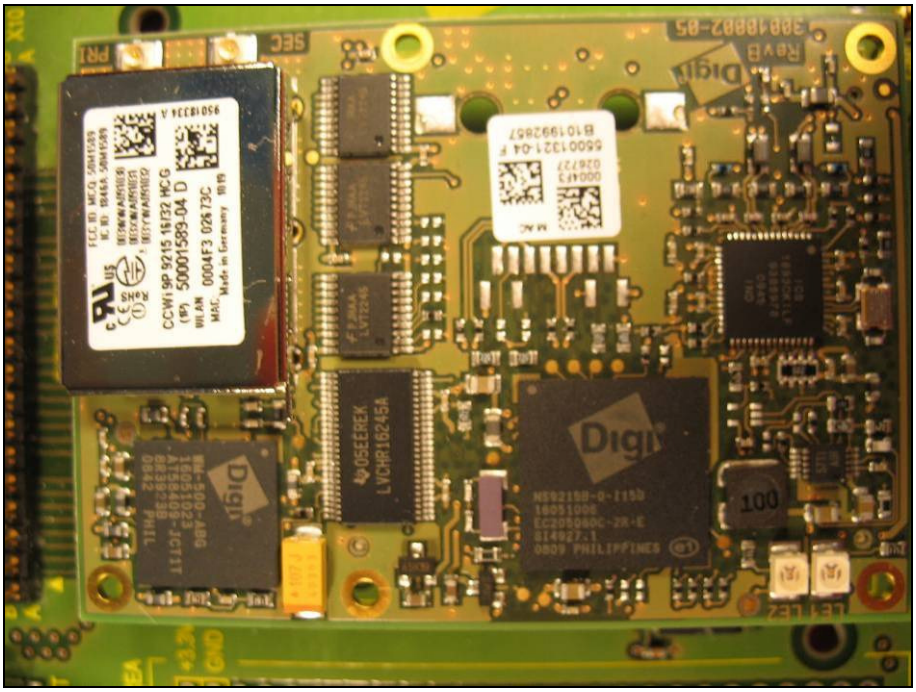

Photo 8: