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Test Report

Report Number:

F162281E3

Equipment under Test (EUT):

RF-Sensor RF-100

Applicant:

Dedrone GmbH

Manufacturer:

Dedrone GmbH



Deutsche
Akkreditierungsstelle
D-PL-17186-01-01
D-PL-17186-01-02
D-PL-17186-01-03



References

- [1] **ANSI C63.4-2014** American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
- [2] **FCC CFR 47 Part 15** Radio Frequency Devices
- [3] **RSS-135 Issue 2 (June 2009)** Digital Scanner Receivers
- [4] **RSS-Gen Issue 4 (November 2014)** General Requirements for Compliance of Radio Apparatus

Test result

The requirements of the tests performed as shown in the overview (clause 4) **were fulfilled** by the equipment under test.

The complete test results are presented in the following.

Tested and written by:	Bernward ROHDE	 Signature	01.03.2018
	Name		Date
Authorized reviewer:	Bernd STEINER	 Signature	01.03.2018
	Name		Date

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The test results herein refer only to the tested sample. PHOENIX TESTLAB GmbH is not responsible for any generalisations or conclusions drawn from these test results concerning further samples. Any modification of the tested samples is prohibited and leads to the invalidity of this test report. Each page necessarily contains the PHOENIX TESTLAB Logo and the TEST REPORT NUMBER.

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1 Identification

1.1 Applicant

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eMail Address:	info@dedrone.com
Applicant represented during the test by the following person:	Robin Jäger (partly)

1.2 Manufacturer

Name:	Dedrone GmbH
Address:	Miramstr. 87 34123 Kassel
Country:	Germany
Name for contact purposes:	Mr. Robin Jäger
Phone:	+49 561 861799-0
Fax:	+49 561 861799-111
eMail Address:	info@dedrone.com
Applicant represented during the test by the following person:	Robin Jäger (partly)

1.3 Test Laboratory

The tests were carried out at:

PHOENIX TESTLAB GmbH
Königswinkel 10
32825 Blomberg
Germany

accredited by Deutsche Akkreditierungsstelle GmbH (DAkkS) in compliance with DIN EN ISO/IEC 17025 under Reg. No. D-PL-17186-01-02, FCC Test Firm Accreditation with the registration number 469623, designation number DE0004 and Industry Canada Test site registration SITE# IC3469A-1.

1.4 EUT (Equipment Under Test)

Product description:*	Digital Scanning Receiver
Brand name:*	Dedrone GmbH
PMN (Product Marketing Name):*	RF-Sensor RF-100
HVIN (Hardware Version Identification Number):*	RF-Sensor RF-100
FVIN (Firmware Version Identification Number):*	2.6.9
FCC ID:*	2AO3N-TH45J6VPCS
IC number:*	23389-TH45J6VPCS
Serial number:*	DR1703A1001059
PCB identifier:*	23A-GB258-027 OF

* As declared by the applicant

1.5 Technical data of equipment

Rated RF output power: *	None – receiver only for passive scanning					
Antenna type: *	Dipole antenna					
Antenna names: *	HG2458RD-RSP (HackRF) Antenna WLAN Rubber duck, Shanghai Universe (WiFi)					
Antenna connector: *	4 x RP SMA					
Power supply	In final application via active PoE+ (802.3at)					
Supply Voltage: *	U _{nom}	48 V DC	U _{min}	36 V DC	U _{max}	57 V DC
Temperature range: *	-20 °C - +50°C					
Lowes / Highest internal frequency:*	32 kHz (quartz) / 5870 MHz					

*: declared by the applicant.

Ports / Connectors			
Identification	Connector		Length during test
	EUT	Ancillary	
Data	RJ45	RJ45	2.5 m
Power	Power jack	Power jack	3 m
2 x Antenna	SMA reverse	Antenna 10 cm	-
2 x Antenna	SMA reverse	Antenna 15 cm	-

1.6 Ancillary equipment used for test

Ancillary Equipment	
Laptop PC:*	Lenovo G580, S/N CB16493443
PoE injector*	ZyXEL, PoE12-HP
WLAN Router*	Edimax; Model: BR-6478AC V2

*Provided by the applicant

1.7 Dates

Date of receipt of test sample:	07.02.2017
Start of test:	07.02.2017
End of test:	13.10.2017

2 Operational states and test setup

Description of function of the EUT:

The DT RF Sensor is a passive, network-attached sensor for the detection of radio frequencies. It supplements a Drone Tracker System with information about captured remote-control signals of drones and captures Wi-Fi signals. The captured signals are sent along with an alert to a server based Drone Tracker System. The receiver is tested as "(digital) scanning receiver".

The Wi-Fi signals are captured by an internal network card; the drone recognition is done by HackRF board. The DT RF Sensor is intended for civil commercial and private use in conjunction with a Drone Tracker system.

The RS Sensor is a receiver only; therefore only receiver tests were documented. The cyclically scanned frequency bands are:

1. 433.05 – 434.79 MHz
2. 902 – 928 MHz
3. 2280 – 2600 MHz
4. 5780 – 5875 MHz

The following states were defined as the operating conditions:

During the test-case 5.2 Maximum unwanted emissions the EUT was powered with 12 V DC via laboratory power supply instead of PoE injector. Delta measurements were done with and without injector.

The receiver cyclic scans its complete frequency range without the ability to stop on certain detected frequencies; therefore only one mode was measured.

No standby mode was implemented.

Operation mode	Description of the operation mode
1	Continuous receiving

Photo of the EUT:



3 Additional information

The test-case "Maximum unwanted emissions" was tested with a DC supply instead of PoE due to the emissions caused by the delivered PoE injector.

The sample tested was not equipped with the final label; the label location can be seen on the picture below:



4 Overview

Application	Frequency range [MHz]	FCC 47 CFR Part 15 section [2]	RSS-Gen, Issue 4 [4] and RSS 135, Issue 2 [3]	Status	Refer page
Conducted emissions on supply line	0.15 – 30	15.107	8.8 [4]	Passed	8 et seq.
Radiated emissions	30 – 40,000	15.105 15.109	7.1 [4]	Passed	12 et seq.

5 Results

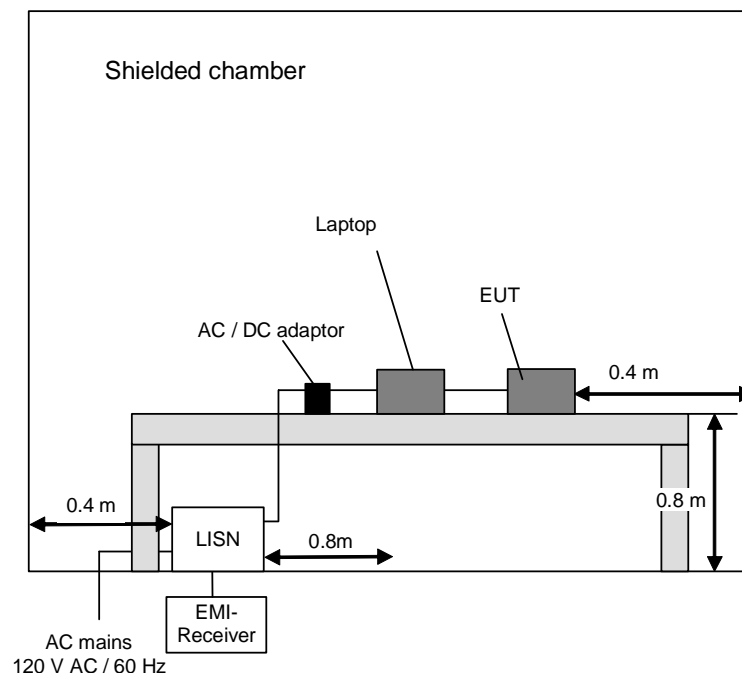
5.1 Conducted emission measurement on ac mains (150 kHz to 30 MHz)

5.1.1 Method of measurement conducted emission

This test will be carried out in a shielded chamber. Table top devices will set up on a non-conducting support with a size of 1 m by 1.5 m and a height of 80 cm above the ground plane. Floor-standing devices will be placed directly on the ground plane. The setup of the Equipment under test will be in accordance to ANSI C63.4 [1].

The frequency range 150 kHz to 30 MHz will be measured with an EMI Receiver set to MAX Hold mode with peak and average detector and a resolution bandwidth of 9 kHz. A scan will be carried out on the phase (or plus pole in case of DC powered devices) of the AC mains network. If levels detected 10 dB below the appropriate limit, this emission will be measured with the average and quasi-peak detector on all lines.

Frequency range	Resolution bandwidth
150 kHz to 30 MHz	9 kHz

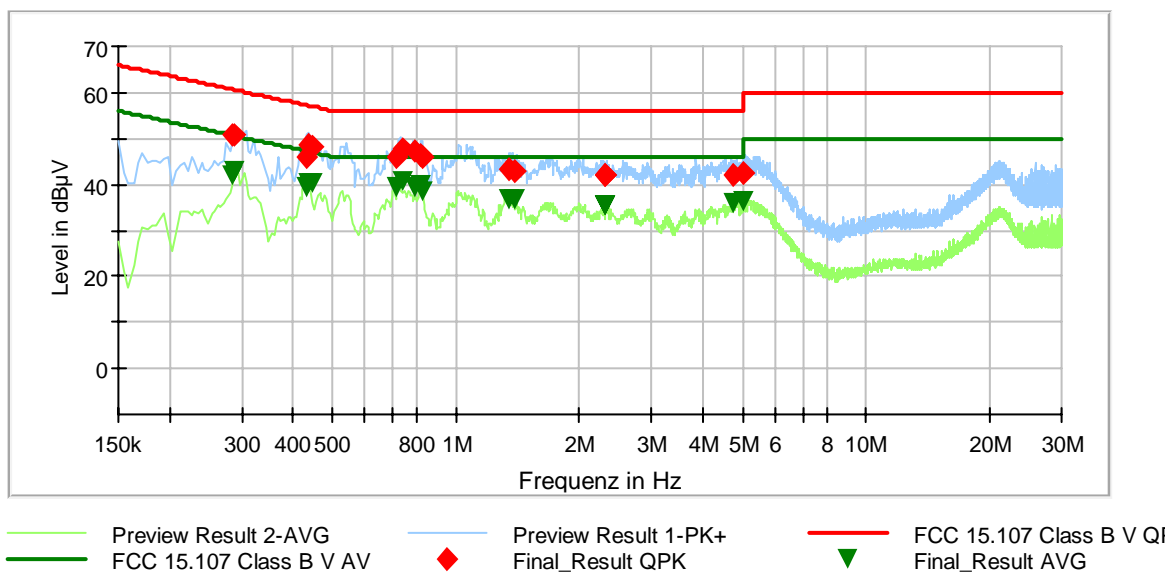


5.1.2 Test result (conducted emission measurement on AC mains)

Ambient temperature:	20 °C
Test conducted by:	M. Dinter

Relative humidity:	45 %
Date	12.10.2017

- Position of EUT: The EUT was set-up on a wooden table of a height of 0.8 m.
- Cable guide: The cable of the EUT was fixed on the wooden table. For further information of the cable guide refer to the pictures in annex A of this test report.
- Test record: The test was carried out in normal operation mode of the EUT (scanning radio frequencies). All results are shown in the following.
- Power supply: During this test the EUT was supplied with 48 V DC via a PoE (Power over Ethernet) injector. The PoE injector was supplied by 120 V AC / 60 Hz AC-mains network.
- Operation states: As described in chapter 2.



Frequency (MHz)	QuasiPeak (dB μ V)	Average (dB μ V)	Limit (dB μ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.285900	---	42.04	50.64	8.60	5000.0	9.000	L1	FLO	9.9
0.285900	50.74	---	60.64	9.90	5000.0	9.000	L1	FLO	9.9
0.287700	---	42.79	50.59	7.80	5000.0	9.000	L1	FLO	9.9
0.287700	50.80	---	60.59	9.79	5000.0	9.000	L1	FLO	9.9
0.429900	---	39.35	47.25	7.90	5000.0	9.000	L1	GND	9.9
0.429900	46.17	---	57.25	11.08	5000.0	9.000	L1	GND	9.9
0.435300	48.62	---	57.15	8.53	5000.0	9.000	L1	FLO	9.9
0.435300	---	40.37	47.15	6.78	5000.0	9.000	L1	FLO	9.9
0.447000	48.25	---	56.93	8.68	5000.0	9.000	L1	GND	9.9
0.447000	---	40.10	46.93	6.83	5000.0	9.000	L1	GND	9.9
0.715200	---	39.53	46.00	6.47	5000.0	9.000	L1	FLO	9.9
0.715200	46.09	---	56.00	9.91	5000.0	9.000	L1	FLO	9.9
0.737700	47.78	---	56.00	8.22	5000.0	9.000	L1	GND	9.9
0.737700	---	40.71	46.00	5.29	5000.0	9.000	L1	GND	9.9
0.791700	47.11	---	56.00	8.89	5000.0	9.000	L1	FLO	9.9
0.791700	---	39.32	46.00	6.68	5000.0	9.000	L1	FLO	9.9
0.819600	---	39.99	46.00	6.01	5000.0	9.000	L1	GND	9.9
0.819600	46.41	---	56.00	9.59	5000.0	9.000	L1	GND	9.9
0.832200	---	38.46	46.00	7.54	5000.0	9.000	L1	FLO	9.9
0.832200	45.94	---	56.00	10.06	5000.0	9.000	L1	FLO	9.9
1.338000	43.15	---	56.00	12.85	5000.0	9.000	L1	GND	9.9
1.338000	---	36.97	46.00	9.03	5000.0	9.000	L1	GND	9.9
1.394700	42.85	---	56.00	13.15	5000.0	9.000	L1	FLO	9.9
1.394700	---	36.63	46.00	9.37	5000.0	9.000	L1	FLO	9.9
2.308200	41.90	---	56.00	14.10	5000.0	9.000	L1	GND	10.2
2.308200	---	35.42	46.00	10.58	5000.0	9.000	L1	GND	10.2
2.309100	41.95	---	56.00	14.05	5000.0	9.000	L1	GND	10.2
2.309100	---	35.45	46.00	10.55	5000.0	9.000	L1	GND	10.2
4.720200	---	35.80	46.00	10.20	5000.0	9.000	L1	GND	10.3
4.720200	41.89	---	56.00	14.11	5000.0	9.000	L1	GND	10.3
5.008200	---	36.40	50.00	13.60	5000.0	9.000	L1	GND	10.3
5.008200	42.56	---	60.00	17.44	5000.0	9.000	L1	GND	10.3
Measurement uncertainty: +2.76 dB / -2.76 dB									

Test: Passed

TEST EQUIPMENT USED:

1 – 5

5.2 Maximum unwanted emissions

5.2.1 Method of measurement (radiated emissions)

The radiated emission measurement is subdivided into five stages.

- A final measurement carried out on an open area test site with reflecting ground plane and various antenna heights in the frequency range 30 MHz to 1 GHz.
- A preliminary measurement carried out in a fully anechoic chamber with a variable antenna distance and height in the frequency range above 1 GHz.
- A final measurement carried out in a fully anechoic chamber with a fixed antenna height in the frequency range above 1 GHz.

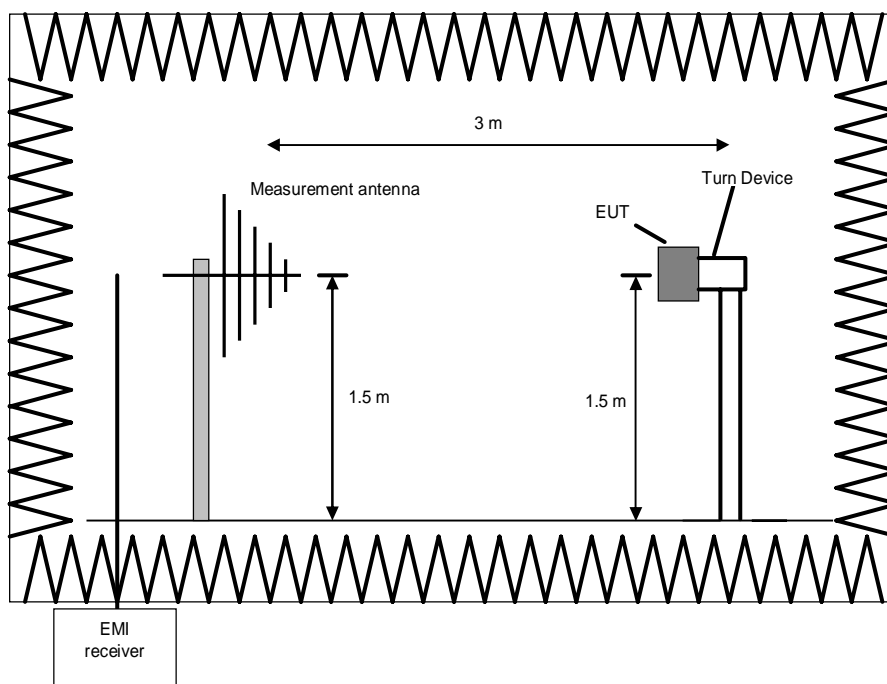
Preliminary measurement (30 MHz to 1 GHz)

In the first stage a preliminary measurement will be performed in a fully anechoic chamber with a measuring distance of 3 meter. Table top devices will set up on a non-conducting turn device on the height of 1.5m. Floor-standing devices will be placed directly on the turntable/ground plane. The setup of the Equipment under test will be in accordance to [1].

The frequency range 30 MHz to 1 GHz will be measured with an EMI Receiver set to MAX Hold mode and a resolution bandwidth of 100 kHz. The measurement will be performed in horizontal and vertical polarization of the measuring antenna and while rotating the EUT in its vertical axis in the range of 0 ° to 360 °. This measurement is repeated after raising the EUT in 30° steps according 8.3.1.1 in [1].

The resolution bandwidth of the EMI Receiver will be set to the following values:

Frequency range	Resolution bandwidth
30 MHz to 230 MHz	100 kHz
230 MHz to 1 GHz	100 kHz



Procedure preliminary measurement:

Pre-scans were performed in the frequency range 30 MHz to 230 MHz and 230 MHz to 1 GHz.

The following procedure will be used:

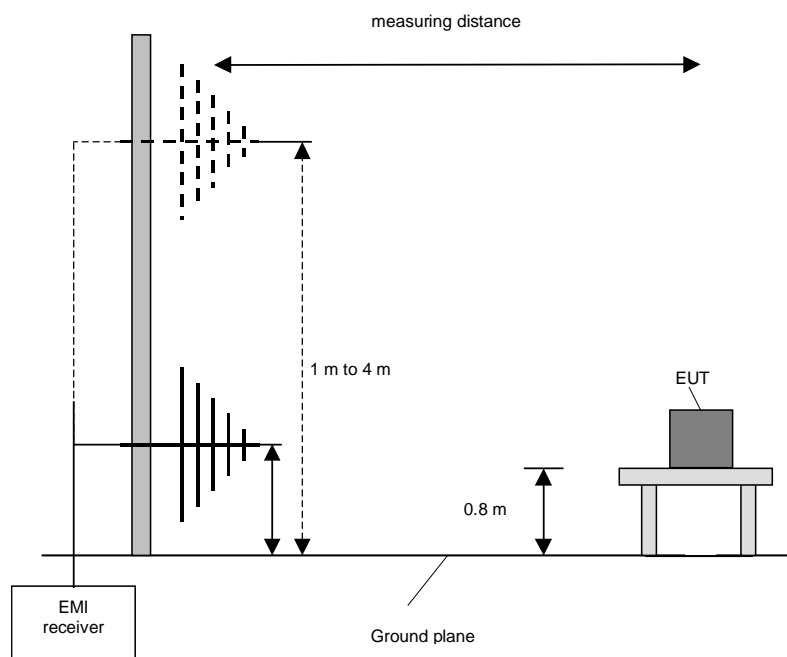
1. Monitor the frequency range at horizontal polarization and a EUT azimuth of 0 °.
2. Manipulate the system cables within the range to produce the maximum level of emission.
3. Rotate the EUT by 360 ° to maximize the detected signals.
4. Repeat 1) to 3) with the vertical polarization of the measuring antenna.
5. Make a hardcopy of the spectrum.
6. Repeat 1) to 5) with the EUT raised by an angle of 0° (45°, 90°) according to 8.3.1.1 in [1].
7. Measure the frequency of the detected emissions with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.

Final measurement (30 MHz to 1 GHz)

A final measurement on an open area test site will be performed on selected frequencies found in the preliminary measurement. During this test the EUT will be rotated in the range of 0 ° to 360 °, the measuring antenna will be set to horizontal and vertical polarization and raised and lowered in the range from 1 m to 4 m to find the maximum level of emissions.

The resolution bandwidth of the EMI Receiver will be set to the following values:

Frequency range	Resolution bandwidth
30 MHz to 1 GHz	120 kHz



Procedure final measurement:

The following procedure will be used:

- 1) Measure on the selected frequencies at an antenna height of 1 m and a EUT azimuth of 23 °.
- 2) Move the antenna from 1 m to 4 m and note the maximum value at each frequency.
- 3) Rotate the EUT by 45 ° and repeat 2) until an azimuth of 337 ° is reached.
- 4) Repeat 1) to 3) for the other orthogonal antenna polarization.
- 5) Move the antenna and the turntable to the position where the maximum value is detected.
- 6) Measure while moving the antenna slowly +/- 1 m.
- 7) Set the antenna to the position where the maximum value is found.
- 8) Measure while moving the turntable +/- 45 °.
- 9) Set the turntable to the azimuth where the maximum value is found.
- 10) Measure with Final detector (QP and AV) and note the value.
- 11) Repeat 5) to 10) for each frequency.
- 12) Repeat 1) to 11) for each orthogonal axes of the EUT.

Preliminary and final measurement (1 GHz to 40 GHz)

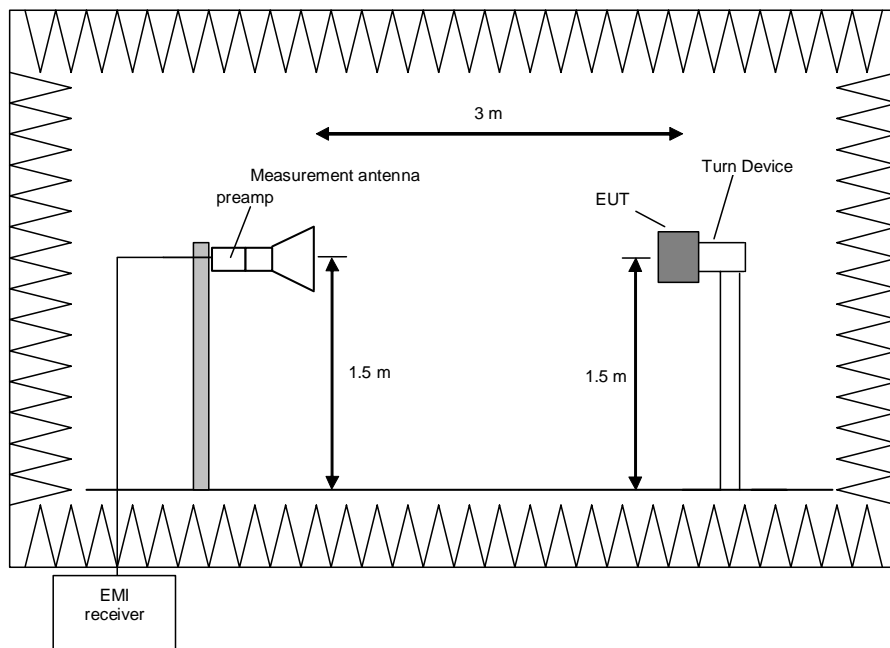
This measurement will be performed in a fully anechoic chamber. Table top devices will set up on a non-conducting turn device on the height of 1.5m. The set-up of the Equipment under test will be in accordance to [1].

Preliminary measurement (1 GHz to 40 GHz)

The frequency range will be divided into different sub ranges depending of the frequency range of the used horn antenna. The spectrum analyzer set to MAX Hold mode and a resolution bandwidth of 100 kHz. The measurement will be performed in horizontal and vertical polarization of the measuring antenna and while rotating the EUT in its vertical axis in the range of 0 ° to 360 °. This measurement is repeated after raising the EUT in 30° steps according 8.3.1.2 in [1].

The resolution bandwidth of the EMI Receiver will be set to the following values:

Frequency range	Resolution bandwidth
1 GHz to 4 GHz	100 kHz
4 GHz to 12 GHz	100 kHz
12 GHz to 18 GHz	100 kHz
18 GHz to 25 / 26.5 GHz	100 kHz
26.5 GHz to 40 GHz	100 kHz



Procedure preliminary measurement:

Pre-scans were performed in the frequency range 1 to 40 GHz.

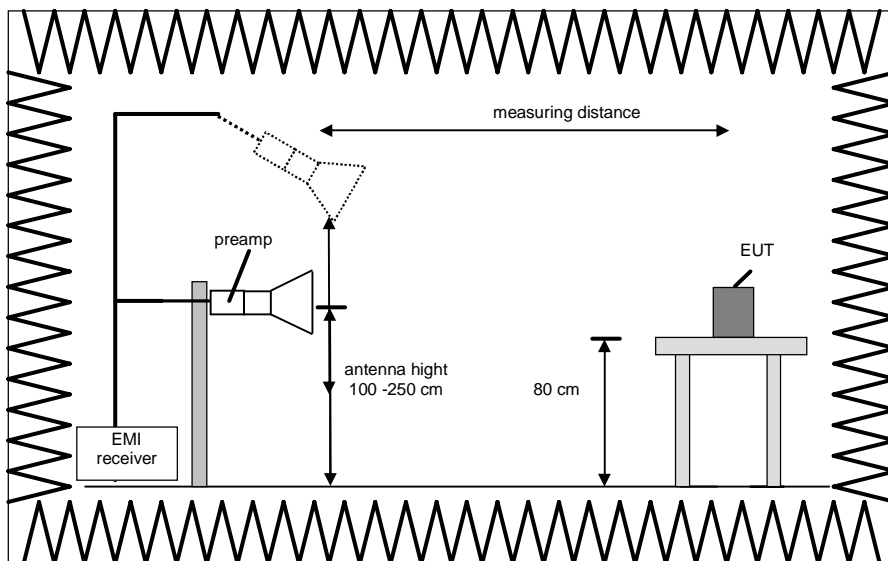
The following procedure will be used:

1. Monitor the frequency range at horizontal polarization and a EUT azimuth of 0 °.
2. Rotate the EUT by 360° to maximize the detected signals.
3. Repeat 1) to 2) with the vertical polarization of the measuring antenna.
4. Make a hardcopy of the spectrum.
5. Repeat 1) to 4) with the EUT raised by an angle of 30° (60°, 90°, 120° and 150°) according to 8.3.1.2 in [1].
6. Measure the frequency of the detected emissions with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.
7. The measurement antenna polarization, with the according EUT position (Turntable and Turn device) which produces the highest emission for each frequency will be used for the final measurement. The six closest values to the applicable limit will be used for the final measurement.

Final measurement (1 GHz to 40 GHz)

The frequency range will be divided into different sub ranges depending of the frequency range of the used antenna. The antenna high was varied from 100 cm up to 250 cm depending where the maximum was found during the preliminary measurement in a measuring distance of 1.9 m.

The EMI Receiver set to peak and average mode and a resolution bandwidth of 1 MHz. The measurement will be performed in horizontal and vertical polarisation of the measuring antenna and while rotating the EUT in its vertical axis in the range of 0 ° to 360 ° in order to have the antenna inside the cone of radiation.



Procedure of measurement:

The measurements were performed in the frequency range 1 to 40 GHz.

The following procedure will be used by software EMC32 assisted:

- 1) Monitor the frequency range at horizontal and vertical polarisation and turn the EUT 360°.
- 2) Change the antenna high and repeat 1) with 100, 125, 150, 175, 200, 225 and 250 cm high and an elevation pointing towards the EUT.
- 3) The EUT was turned around 360 ° at each antenna high and polarisation and the maximum values were stored by the EMC 32 software.
- 4) After storing the maximum plot the antenna was set to the position where the maximum value for each emission was found for the final measurement.
- 5) Start the single measurement mode in the EMC 32 software and do the final measurement at each frequency with the antenna polarisation and azimuth and the peak and average detector, which causes the maximum emission. Take the scan table for the final measurement with the correct resolution bandwidth, measure time, and detector and save the maximum values manually in the EMC 32.
- 6) Repeat steps 1) to 5) for the next antenna spot if the EUT is larger than the antenna beam width.

Step 1) to 4) are defined as preliminary measurement.

5.2.2 Test results (radiated emissions) – Emissions from 30 MHz –40 GHz

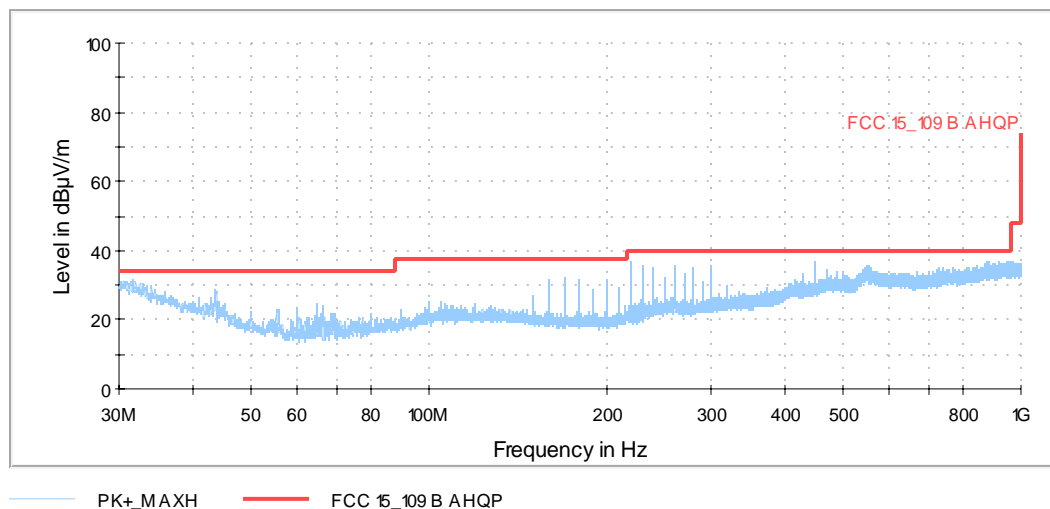
Ambient temperature:	22 °C
Test conducted by:	B. Rohde

Relative humidity:	59 %
Date	10.04.2017

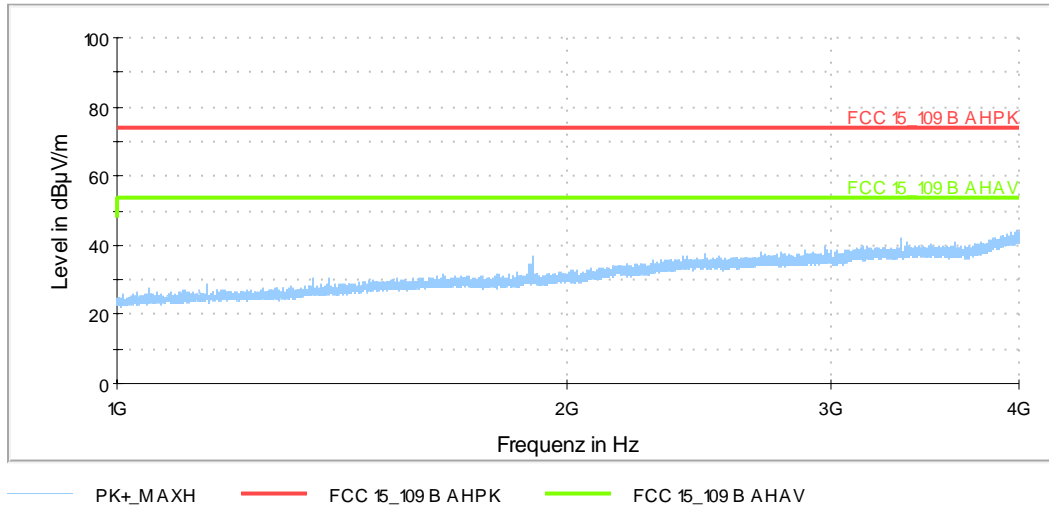
- Position of EUT: The EUT was set-up on a EUT turn device of a height of 1.5 m. The distance between EUT and antenna was 3 m.
For the final test on the open area test site the EUT was placed on a table with the height of 0.8 m. The distance between EUT and antenna was 3 m.
- Cable guide: For detail information of test set-up and the cable guide refer to the pictures in the annex A in the test report.
- Test record: Due to the fact, that the EUT is a receiver, which cyclic scans its complete frequency range only one mode was measured.
- Supply voltage: During this test the EUT was powered with 12 V DC via laboratory power supply.

5.2.2.1 Preliminary radiated emission measurement 30 MHz – 40 GHz

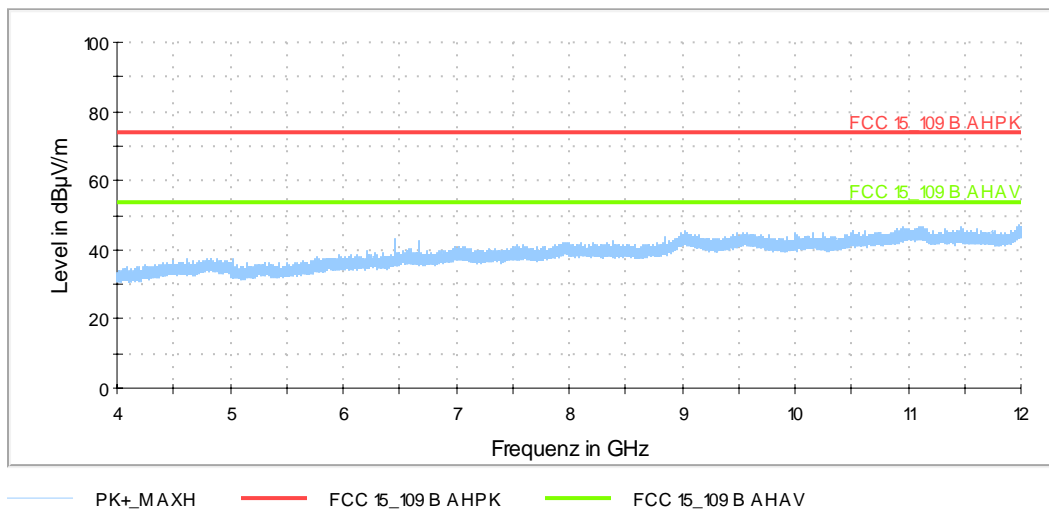
162281FCC_30-1000MHz: Spurious emissions from 30 MHz to 1000 MHz



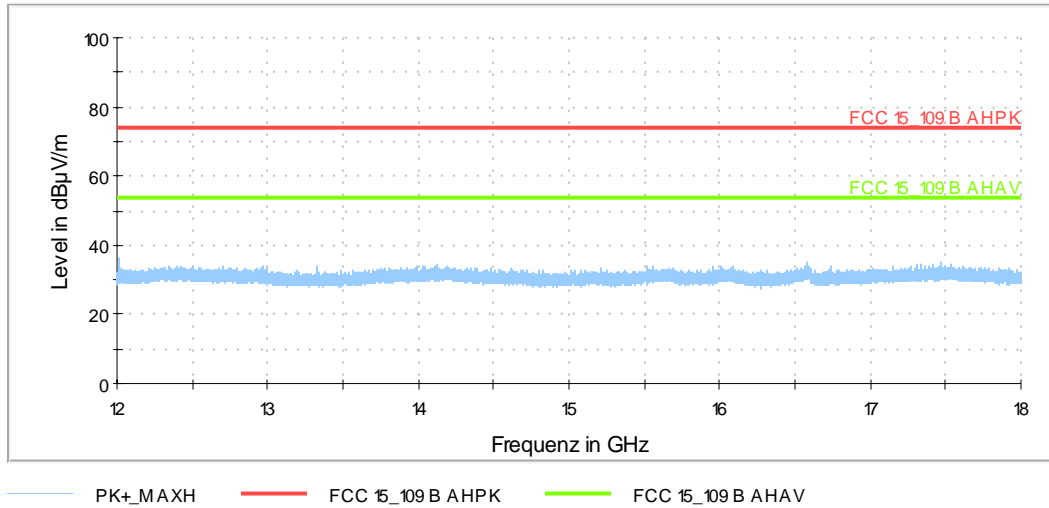
162281FCC 1-4G: Spurious emissions from 1 - 4 GHz



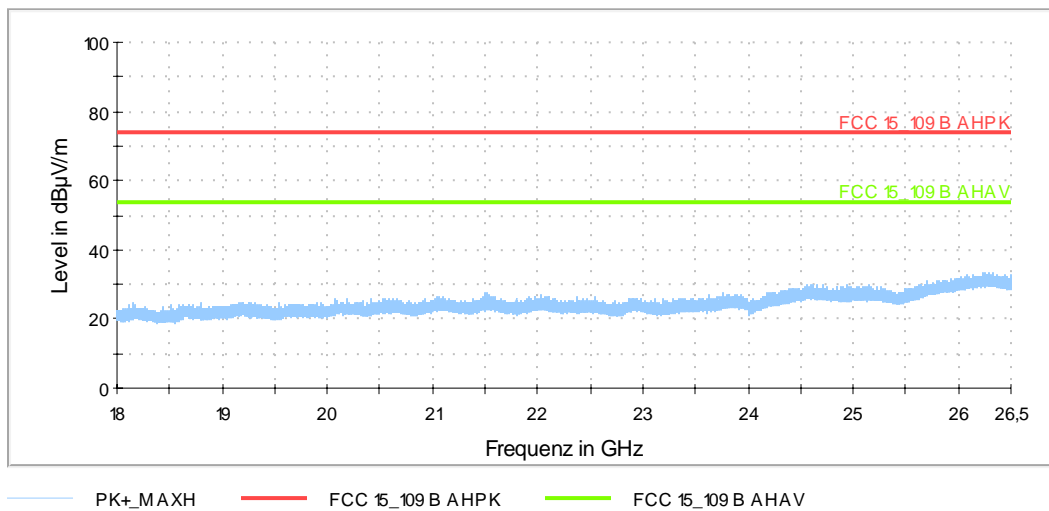
162281FCC 4-12G: Spurious emissions from 4 -12 GHz



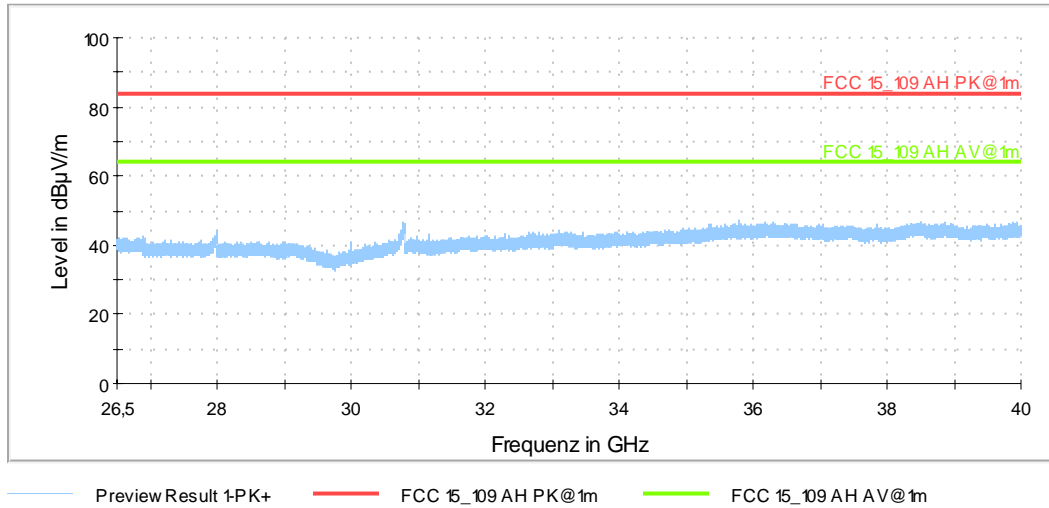
162281FCC 12-18G: Spurious emissions from 12 - 18GHz



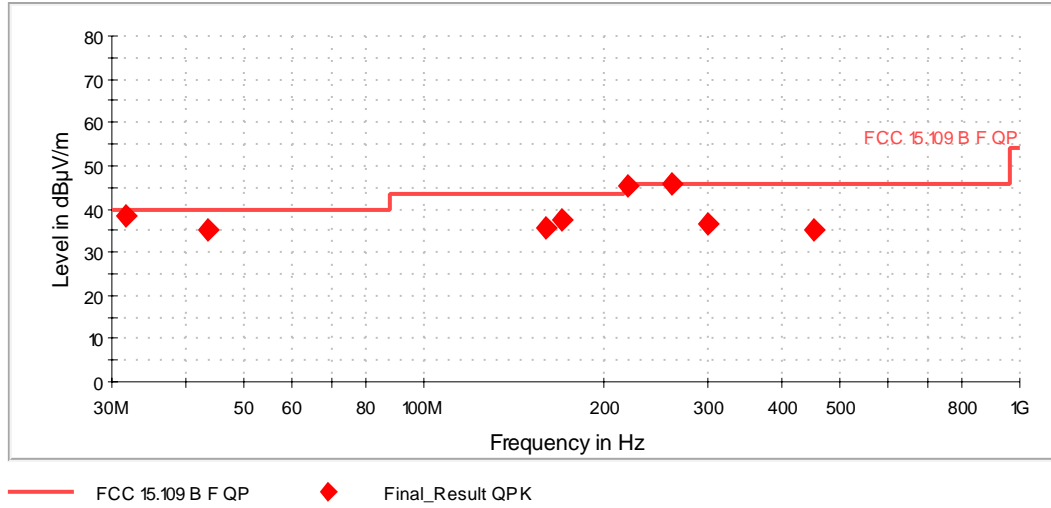
162281FCC 18-26.5G: Spurious emissions from 18 – 26.5 GHz



162281FCC 26.5-40G: Spurious emissions from 26.5 – 40 GHz



5.2.2.2 Result final measurement from 30 MHz to 1 GHz



Operation mode 1				Receiver scanning				
Results		30 MHz - 1 GHz		Measurement uncertainty			+2.2 dB	-3.6 dB
Frequency [MHz]	Quasi Peak [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Pol	Azimuth [°]	Hight [m]	Correction [dB]	Result
31.746000	38.25	40.00	1.75	V	102.0	346.0	25.5	Passed
43.483000	35.28	40.00	4.72	V	102.0	90.0	20.3	Passed
159.955750	35.38	43.50	8.12	V	104.0	1.0	19.5	Passed
169.946750	37.31	43.50	6.19	V	146.0	191.0	18.7	Passed
219.950250	45.22	46.00	0.78	H	131.0	282.0	18.9	Passed
259.914250	45.89	46.00	0.11	H	116.0	290.0	21.2	Passed
299.926750	36.46	46.00	9.54	V	143.0	172.0	22.0	Passed
449.985750	34.97	46.00	11.03	V	100.0	344.0	26.1	Passed

Test equipment used (see chapter 6):

23, 26 - 32

5.2.2.3 Result final measurement from 1 – 40 GHz

Plots see above

Operation mode 1					Receiver scanning				
Results			1 - 40 GHz		Measurement uncertainty			+2.2 dB	-3.6 dB
Frequency [MHz]	Max Peak [dB μ V/m]	Average [dB μ V/m]	Limit [dB μ V/m]	Margin dB	Pol	Azimuth [°]	Elevation [°]	Correction [dB]	Result
Emissions are more than 20 dB below the limit – no final measurement done									

Test: Passed

Test equipment used (see chapter 6):

2 - 3, 6 - 32

6 Test equipment

No.	Test equipment	Type	Manufacturer	Serial No.	PM. No.	Cal. Date	Cal Due
1	LISN	NSLK8128	Schwarzbeck	8128155	480058	16.02.2016	02.2018
2	Software	EMC32	Rohde & Schwarz		481800	Calibration not necessary	
3	EMI Receiver / Spectrum Analyser	ESIB 26	Rohde & Schwarz	100292	481182	15.02.2016	02.2018
4	Shielded chamber M4	B83117-S1-X158	Siemens	190075	480088	Calibration not necessary	
5	Transient Filter Limiter	CFL 9206A	Teseq GmbH	38268	481982	18.02.2016	02.2018
6	Antenna mast	AS615P	Deisel	615/310	480187	Calibration not necessary	
7	Turntable	DS420 HE	Deisel	420/620/00	480315	Calibration not necessary	
8	Multiple Control Unit	MCU	Maturo GmbH	MCU/043/971107	480832	Calibration not necessary	
9	standard gain horn antenna	18240-20	Flann Microwave	483	480294	Calibration not necessary	
10	standard gain horn antenna	20240-20	Flann Microwave	411	480297	Calibration not necessary	
11	Microwave cable 2m	Insulated Wire Inc.	Insulated Wire	KPS-1533-800-KPS	480302	Calibration not necessary	
12	Preamplifier 100 MHz - 13 GHz	JS3-00101200-23-5A	MITEQ Hauppauge N.Y.	681851	480337	18.02.2016	02.2018
13	Preamplifier 18 GHz - 26 GHz	JS4-18002600-20-5A	MITEQ Hauppauge N.Y.	658697	480342	17.02.2016	02.2018
14	Preamplifier 12 GHz - 18 GHz	JS3-12001800-16-5A	MITEQ Hauppauge N.Y.	571667	480343	18.02.2016	02.2018
15	RF-cable No.3	Sucoflex 106B	Suhner	0563/6B / Kabel 3	480670	Calibration not necessary	
16	Antenna (Log.Per.) 0.85 – 26.5 GHz	HL050	Rohde & Schwarz	100438	481170	27.08.2014	08.2017
17	RF-Cable No. 40	Sucoflex 106B	Suhner	0708/6B / Kabel 40	481330	Calibration not necessary	
18	EMI Receiver / Spectrum Analyser	ESW44	Rohde & Schwarz	101635	482467	22.06.2017	06.2019
19	Highpass Filter	WHKX4.0/18G-8SS	Wainwright Instruments GmbH	1	480587	Calibration not necessary	
20	standard gain horn antenna	22240-20	Flann Microwave	469	480299	Calibration not necessary	
21	Fully anechoic chamber M20	B83117-E2439-T232	Albatross Projects	103	480303	Calibration not necessary	
22	Preamplifier 26 GHz - 40 GHz	JS4-26004000-25-5A	MITEQ Hauppauge N.Y.	563593	480344	18.02.2016	02.2018
23	Software	EMC32	Rohde & Schwarz	100061	481022	Calibration not necessary	
24	RF-cable No.36	Sucoflex 106B	Suhner	0587/6B / Kabel 36	480865	Calibration not necessary	
25	Antenna (Bilog)	CBL6112B	Schaffner EMV GmbH (-Chase)	2688	480328	19.06.2017	07.2020
26	Attenuator 6 dB	WA2-6	Weinschel	8254	410119	Calibration not necessary	

No.	Test equipment	Type	Manufacturer	Serial No.	PM. No.	Cal. Date	Cal Due
27	Open area test site M6	Freifeld M6	Phoenix Contact	-	480085	19.04.2017	05.2019
28	Antenna mast	MA240-0	Inn-Co GmbH	MA240-0/030/6600603	480086	Calibration not necessary	
29	Turntable	DS412	Deisel	412/316	480087	Calibration not necessary	
30	Controller	HD100	Deisel	100/349	480139	Calibration not necessary	
31	Antenna (Bilog)	CBL6111D	Schaffner Elektrottest GmbH / Teseq GmbH	25761	480894	18.09.2014	09.2017
32	EMI Receiver	ESIB 7	Rohde & Schwarz	100304	480521	18.02.2016	02.2018

7 Report history

Report Number	Date	Comment
F162281E1	01.03.2018	Document created

8 List of annexes

Annex A	Test setup photos	7 pages
Annex B	External photos	4 pages
Annex C	Internal photos	17 pages