









# **TEST REPORT**

Test report no.: 1-6128/18-01-04



BNetzA-CAB-02/21-102

# Testing laboratory

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#### **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-12076-01-03

### **Applicant**

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#### Manufacturer

#### Oticon A/S

Kongebakken 9

2765 Smørum / DENMARK

#### Test standard/s

FCC - Title 47 CFR FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio

Part 15 frequency devices

RSS - 210 Issue 9 Spectrum Management and Telecommunications Radio Standards Specification -

Licence-Exempt Radio Apparatus: Category I Equipment

RSS - Gen Issue 5 Spectrum Management and Telecommunications Radio Standards Specification

- General Requirements for Compliance of Radio Apparatus

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

**Test Item** 

Kind of test item: Hearing Aid Module

Model name: Aurora miniRITE 312 T Rc

FCC ID: U28AUMRTRC IC: 1350B-AUMRTRC

Frequency: 3.84 MHz

Technology tested: Magnetic coupling

Antenna: Integrated ferrite coil antenna

Power supply: 3.4 V to 4.2 V DC by Li-lon battery

Temperature range: 0°C to +40°C

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.

Test report authorized:	Test performed:
p.o.	
Christoph Schneider	Tobias Wittenmeier

**Testing Manager** 

Radio Communications & EMC

Lab Manager Radio Communications & EMC



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### 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. CTC advanced 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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## 2.2 Application details

Date of receipt of order: 2018-11-09
Date of receipt of test item: 2018-12-05
Start of test: 2018-12-05
End of test: 2018-12-06

Person(s) present during the test: -/-

#### 2.3 Test laboratories sub-contracted

None

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## 3 Test standard/s and references

Test standard	Date	Description
FCC - Title 47 CFR Part 15		FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio frequency devices
RSS - 210 Issue 9	August 2016	Spectrum Management and Telecommunications Radio Standards Specification - Licence-Exempt Radio Apparatus: Category I Equipment
RSS - Gen Issue 5	April 2018	Spectrum Management and Telecommunications Radio Standards Specification - General Requirements for Compliance of Radio Apparatus

Guidance	Version	Description
ANSI C63.4-2014 ANSI C63.10-2013	-/-	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 American national standard of procedures for compliance testing of unlicensed wireless devices

# 4 Test environment

Temperature	T <sub>nom</sub> +22 °C during room temperature tests : T <sub>max</sub> +40 °C during high temperature tests* T <sub>min</sub> 0 °C during low temperature tests*		
Relative humidity content	• •		55 %
Barometric pressure			1021 hpa
Power supply	:	V <sub>nom</sub> V <sub>max</sub> V <sub>min</sub>	4.2 V DC by Li-lon battery 4.2 V* 3.4 V*

<sup>\*</sup>No tests under extreme conditions required.

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## 5 Test item

# 5.1 General description

Kind of test item :	Hearing Aid Module
Type identification :	Aurora miniRITE 312 T Rc
HMN :	N/A
PMN :	Aurora miniRITE 312 T Rc
HVIN :	Aurora miniRITE 312 T Rc
FVIN :	N/A
S/N serial number :	TX 53656432 RX 53656870
Hardware status :	Final LAB
Software status :	Neptune SR611.b IP611.b
Firmware status :	No information available
Frequency band :	3.84 MHz
Type of radio transmission: Use of frequency spectrum:	Modulated carrier
Type of modulation :	A1D
Number of channels :	1
Antenna :	Integrated ferrite coil antenna
Power supply :	3.4 V to 4.2 V DC by Li-lon battery
Temperature range :	0°C to +40°C

## 5.2 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: 1-6128/18-01-01\_AnnexA

1-6128/18-01-01\_AnnexB 1-6128/18-01-01\_AnnexD

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# 6 Description of the test setup

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 signaling 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).

#### Agenda: Kind of Calibration

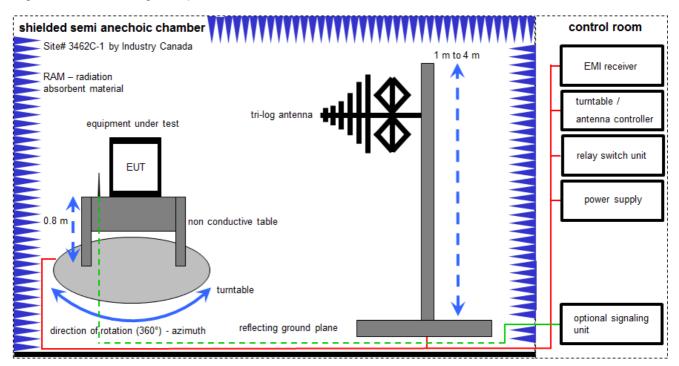
k	calibration / calibrated	EK	limited calibration
ne	not required (k, ev, izw, zw not required)	ZW	cyclical maintenance (external cyclical maintenance)
ev	periodic self verification	izw	internal cyclical maintenance
Ve	long-term stability recognized	g	blocked for accredited testing
vlkl!	Attention: extended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

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### 6.1 Shielded semi anechoic chamber

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 30 MHz 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 conform to 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 analyzers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63.



EMC32 software version: 10.30.0

FS = UR + CL + AF

(FS-field strength; UR-voltage at the receiver; CL-loss of the cable; AF-antenna factor)

#### Example calculation:

FS  $[dB\mu V/m] = 12.35 [dB\mu V/m] + 1.90 [dB] + 16.80 [dB/m] = 31.05 [dB\mu V/m] (35.69 \( \mu V/m \))$ 

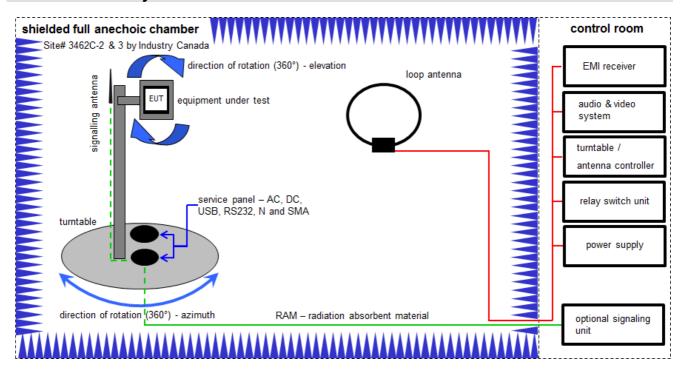
### **Equipment table:**

No.	Lab / Item	Equipment	Туре	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	Α	Switch-Unit	3488A	HP	2719A14505	300000368	ev	-/-	-/-
2	Α	Meßkabine 1	HF-Absorberhalle	MWB AG 300023		300000551	ne	-/-	-/-
3	Α	EMI Test Receiver	ESCI 3	R&S	100083	300003312	k	15.12.2017	14.12.2018
4	Α	Analyzer-Reference- System (Harmonics and Flicker)	ARS 16/1	SPS	A3509 07/0 0205	300003314	vIKI!	15.01.2018	14.01.2020
5	Α	Antenna Tower	Model 2175	ETS-Lindgren	64762	300003745	izw	-/-	-/-
6	Α	Positioning Controller	Model 2090	ETS-Lindgren	64672	300003746	izw	-/-	-/-
7	Α	Turntable Interface- Box	Model 105637	ETS-Lindgren	44583	300003747	izw	-/-	-/-
8	Α	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck Mess - Elektronik	371	300003854	vlKl!	24.11.2017	23.11.2020

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## 6.2 Shielded fully anechoic chamber



Measurement distance: loop antenna 3 meter / 1 meter

FS = UR + CA + AF

(FS-field strength; UR-voltage at the receiver; CA-loss of the signal path; AF-antenna factor)

### Example calculation:

 $FS [dB\mu V/m] = 40.0 [dB\mu V/m] + (-35.8) [dB] + 32.9 [dB/m] = 37.1 [dB\mu V/m] (71.61 \ \mu V/m)$ 

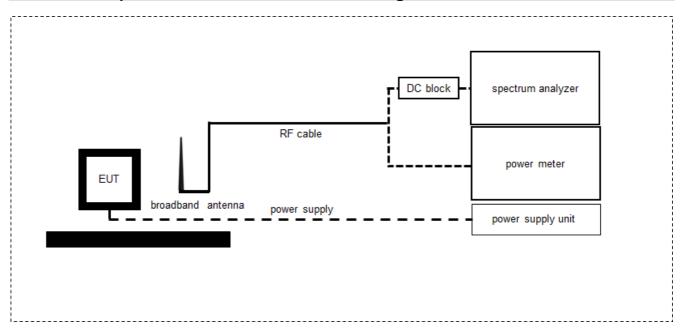
#### **Equipment table:**

No.	Lab / Item	Equipment	Туре	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	Α	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996	ev	-/-	-/-
2	Α	Switch / Control Unit	3488A	HP	*	300000199	ne	-/-	-/-
3	А	EMI Test Receiver 20Hz- 26,5GHz	ESU26	R&S	100037	300003555	k	20.12.2017	19.12.2018
4	А	4U RF Switch Platform	L4491A	Agilent Technologies	MY50000037	300004509	ne	-/-	-/-
5	Α	NEXIO EMV- Software	BAT EMC V3.16.0.49	EMCO		300004682	ne	-/-	-/-
6	Α	PC	ExOne	F+W		300004703	ne	-/-	-/-

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# 6.3 Test setup for normalized measurement configurations



FS = UR + CA + AF

(FS-field strength; UR-voltage at the receiver; CA-loss of the signal path; AF-antenna factor)

### Example calculation:

 $\overline{\text{FS [dB}\mu\text{V/m]}} = 40.0 \text{ [dB}\mu\text{V/m]} + (-35.8) \text{ [dB]} + 32.9 \text{ [dB/m]} = 37.1 \text{ [dB}\mu\text{V/m]} (71.61 \ \mu\text{V/m})$ 

### **Equipment table:**

No.	Lab / Item	Equipment	Туре	Manufacturer	Serial No.	INV. No.		Last Calibration	Next Calibration
1	А	EMI Test Receiver 9 kHz - 3 GHz incl. Preselector	ESPI3	R&S	101713	300004059	k	13.12.2017	12.12.2018
2	Α	Loop Antenna		ZEG TS Steinfurt		400001208	ev	-/-	-/-
3	A	RF Cable BNC	RG58	Huber & Suhner		400001209	ev	-/-	-/-

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# 7 Sequence of testing

# 7.1 Sequence of testing radiated spurious 9 kHz to 30 MHz

#### Setup

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer.
- If the EUT is a tabletop system, it is placed on a table with 0.8 m height.
- If the EUT is a floor standing device, it is placed directly on the turn table.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C 63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measurement distance is 3 m (see ANSI C 63.4) see test details.
- EUT is set into operation.

#### Premeasurement\*

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna height is 1 m.
- At each turntable position the analyzer sweeps with positive-peak detector to find the maximum of all emissions.

#### Final measurement

- Identified emissions during the pre-measurement are maximized by the software by rotating the turntable from 0° to 360°.
- Loop antenna is rotated about its vertical axis for maximum response at each azimuth about the EUT.
   (For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT)
- The final measurement is done in the position (turntable and elevation) causing the highest emissions with quasi-peak (as described in ANSI C 63.4).
- Final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. A plot with the graph of the premeasurement and the limit is stored.

\*)Note: The sequence will be repeated three times with different EUT orientations.

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# 7.2 Sequence of testing radiated spurious 30 MHz to 1 GHz

#### Setup

- The equipment is set up to simulate normal operation mode as described in the user manual or defined by the manufacturer.
- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables are positioned to simulate normal operation conditions as described in ANSI C 63.4.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- Measurement distance is 10 m or 3 m (see ANSI C 63.4) see test details.
- EUT is set into operation.

#### **Premeasurement**

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna is polarized vertical and horizontal.
- The antenna height changes from 1 m to 3 m.
- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

#### **Final measurement**

- The final measurement is performed for at least six highest peaks according to the requirements of the ANSI C63.4.
- Based on antenna and turntable positions at which the peak values are measured the software maximize the peaks by changing turntable position ± 45° and antenna height between 1 and 4 m.
- The final measurement is done with quasi-peak detector (as described in ANSI C 63.4).
- Final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit are recorded. A plot with the graph of the premeasurement with marked maximum final results and the limit is stored.

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# 8 Measurement uncertainty

Measurement uncertainty						
Test case	Uncertainty					
Occupied bandwidth	± used RBW					
Field strength of the fundamental	± 3 dB					
Field strength of the harmonics and spurious	± 3 dB					
Receiver spurious emissions and cabinet radiations	± 3 dB					
Conducted limits	± 2.6 dB					

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# 9 Summary of measurement results

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

TC Identifier	Description	Verdict	Date	Remark
RF-Testing	CFR Part 15 RSS 210 Issue 8	See table!	2019-01-17	1
Kr-resting	RSS Gen Issue 4	See lable:	2019-01-17	-/-

Test specification clause	Test case	Temperature conditions	Power source conditions	С	NC	NA	NP	Remark
RSS Gen Issue 4 (6.6)	Occupied bandwidth	Nominal	Nominal	$\boxtimes$				-/-
§ 15.209	Field strength of the fundamental	Nominal	Nominal	$\boxtimes$				-/-
§ 15.209 RSS Gen Issue 4 (6.13)	Field strength of the harmonics and spurious	Nominal	Nominal	$\boxtimes$				-/-
§ 15.109	Receiver spurious emissions and cabinet radiations	Nominal	Nominal	$\boxtimes$				-/-
§15.107 §15.207	Conducted limits	Nominal	Nominal			$\boxtimes$		Battery powered only!

Note: NA = Not applicable; NP = Not performed; C = Compliant; NC = Not compliant

## 10 Additional comments

Reference documents: None

Special test descriptions: None

Configuration descriptions: None

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## 11 Measurement results

# 11.1 Occupied bandwidth

### **Measurement:**

The emission bandwidth (x dB) is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated x dB below the maximum in-band spectral density of the modulated signal.

Measurement parameters			
Detector:	Peak		
Resolution bandwidth:	1 % – 5 % of the occupied bandwidth		
Video bandwidth:	≥ 3x RBW		
Trace mode:	Max hold		
Analyser function:	99 % power function		
Used test setup:	See sub clause 6.3 – A		
Measurement uncertainty:	See sub clause 8		

### Limit:

IC
for RSP-100 test report coversheet only

### Result:

99% emission bandwidth
CO/C CHILOCICH DANIGHTAN
360 kHz

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## Plot:

Plot 1: 99 % emission bandwidth



Date: 5.DEC.2018 11:26:22

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# 11.2 Field strength of the fundamental

## **Measurement:**

The maximum detected field strength for the carrier signal.

Measurement parameters			
Detector:	Quasi peak / peak (worst case)		
Resolution bandwidth:	9 kHz		
Video bandwidth:	≥ 3x RBW		
Trace mode:	Max hold		
Used test setup	See sub clause 6.2 – A		
Measurement uncertainty:	See sub clause 8		

## Limit:

FCC & IC					
Frequency	Field strength	Measurement distance			
(MHz)	(dBµV/m)	(m)			
1.705 – 30.0	30	30			

## **Recalculation:**

According to ANSI C63.10					
Frequency	Formula Correction value				
3.84 MHz	FSlimit = FS <sub>max</sub> $-40 \log \left(\frac{d_{nearfield}}{d_{measure}}\right) - 20 \log \left(\frac{d_{limit}}{d_{nearfield}}\right)$ FSlimit is the calculation of field strength at the limit distance, expressed in dBµV/m is the measured field strength, expressed in dBµV/m distance is the $\lambda/2\pi$ distance of the measurement point from FLT.	-51.4			
	d <sub>measure</sub> is the distance of the measurement point from EUT is the reference limit distance				

## Result:

Field strength of the fundamental					
Frequency	3.84 MHz				
Distance	@ 1 m @ 30 m				
Measured / calculated value (peak measurement)	56.8 dBµV/m	5.4 dBμV/m			
Measured / calculated value (QP measurement)	55.2 dBμV/m	3.8 dBμV/m			

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# 11.3 Field strength of the harmonics and spurious

## **Measurement:**

The maximum detected field strength for the harmonics and spurious.

Measurement parameters				
Detector:	Quasi peak / average or			
Detector.	peak (worst case – pre-scan)			
	F < 150 kHz: 200 Hz			
Resolution bandwidth:	150 kHz < F < 30 MHz: 9 kHz			
	30 MHz < F < 1 GHz: 120 kHz			
	F < 150 kHz: 1 kHz			
Video bandwidth:	150 kHz < F < 30 MHz: 100 kHz			
	30 MHz < F < 1 GHz: 300 kHz			
Trace mode:	Max hold			
Lload toot acture	9 kHz to 30 MHz: see sub clause 6.2 – A			
Used test setup:	30 MHz to 1 GHz: see sub clause 6.1 – A			
Measurement uncertainty:	See sub clause 8			

## Limit:

FCC & IC					
Frequency	Field strength	Measurement distance			
(MHz)	(dBµV/m)	(m)			
0.009 - 0.490	2400/F(kHz)	300			
0.490 - 1.705	24000/F(kHz)	30			
1.705 – 30	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			

## Result:

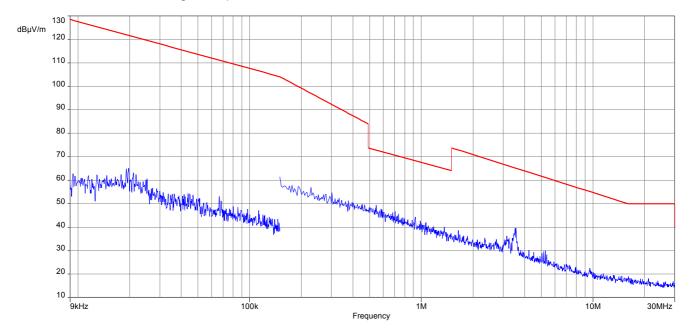
Detected emissions					
Frequency (MHz)	Detector	Resolution bandwidth (kHz)	Detected value		
All detected peak emissions below 30 MHz are more than 20 dB below the average limit.					
For emissions above 30 MHz, please look at the table below the 1 GHz plot.					

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## Plots:

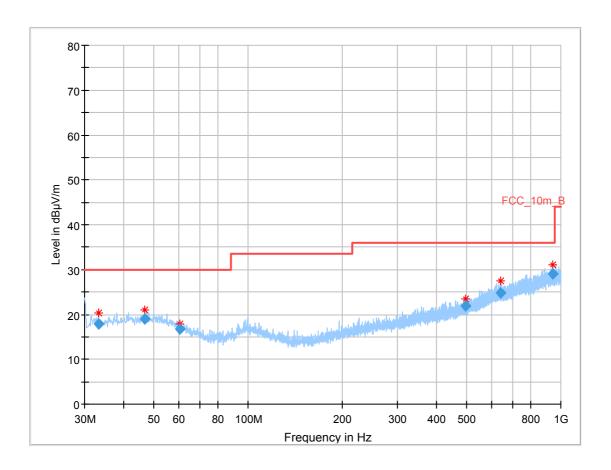
Plot 1: 9 kHz - 30 MHz, magnetic spurious emissions



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Plot 2: 30 MHz – 1 GHz, vertical and 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)
33.360	17.89	30.0	12.11	1000	120	101.0	V	346.0	13.5
46.742	19.01	30.0	10.99	1000	120	160.0	V	341.0	14.8
60.530	16.84	30.0	13.16	1000	120	101.0	Н	24.0	12.9
494.208	21.97	36.0	14.03	1000	120	98.0	V	294.0	18.2
640.756	24.86	36.0	11.14	1000	120	160.0	Н	286.0	20.7
944.686	29.14	36.0	6.86	1000	120	160.0	V	20.0	24.0

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# 11.4 Receiver spurious emissions and cabinet radiations

## **Measurement:**

The maximum detected field strength for the spurious.

Measurement parameters				
Detector:	Quasi peak / average or			
Detector.	peak (worst case – pre-scan)			
Resolution bandwidth:	30 MHz < F < 1 GHz: 120 kHz			
Video bandwidth:	30 MHz < F < 1 GHz: 300 kHz			
Trace mode:	Max hold			
Used test setup	30 MHz to 1 GHz: see sub clause 6.1 - A			
Measurement uncertainty:	See sub clause 8			

## Limit:

FCC & IC					
Frequency	Field strength	Measurement distance			
(MHz)	(dBµV/m)	(m)			
30 – 88	100 (40 dBμV/m)	3			
88 – 216	150 (43.5 dBµV/m)	3			
216 – 960	200 (46 dBμV/m)	3			

## Result:

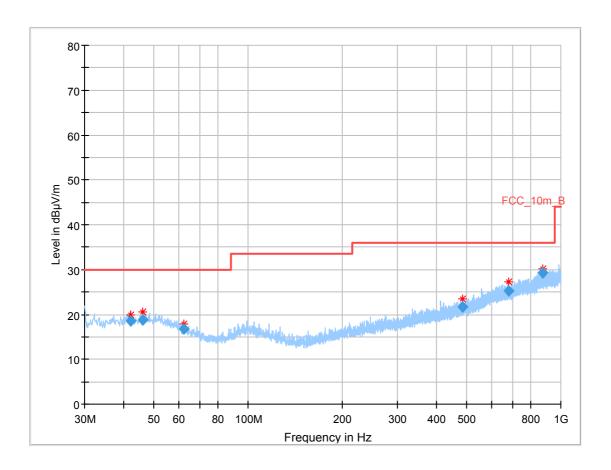
Detected emissions						
Frequency (MHz)	Detector	Resolution bandwidth (kHz)	Detected value			
Please look at the table below the 1 GHz plot.						

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## Plots:

Plot 1: 30 MHz – 1 GHz, vertical and 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)
41.978	18.56	30.0	11.44	1000	120	98.0	Н	350.0	14.5
45.959	18.77	30.0	11.23	1000	120	160.0	V	263.0	14.8
62.272	16.66	30.0	13.34	1000	120	100.0	V	25.0	12.5
483.740	21.75	36.0	14.25	1000	120	160.0	Н	315.0	18.0
679.818	25.21	36.0	10.79	1000	120	160.0	Н	115.0	21.0
877.585	29.31	36.0	6.69	1000	120	98.0	V	91.0	23.6

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# 12 Observations

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

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# Annex A Glossary

EUT	Equipment under test
DUT	Device under test
UUT	Unit under test
GUE	GNSS User Equipment
ETSI	European Telecommunications Standards Institute
EN	European Standard
FCC	Federal Communications Commission
FCC ID	Company Identifier at FCC
IC	Industry Canada
PMN	Product marketing name
HMN	Host marketing name
HVIN	Hardware version identification number
FVIN	Firmware version identification number
EMC	Electromagnetic Compatibility
HW	Hardware
SW	Software
Inv. No.	Inventory number
S/N or SN	Serial number
С	Compliant
NC	Not compliant
NA	Not applicable
NP	Not performed
PP	Positive peak
QP	Quasi peak
AVG	Average
ОС	Operating channel
ocw	Operating channel bandwidth
OBW	Occupied bandwidth
ООВ	Out of band
DFS	Dynamic frequency selection
CAC	Channel availability check
OP	Occupancy period
NOP	Non occupancy period
DC	Duty cycle
PER	Packet error rate
CW	Clean wave
MC	Modulated carrier
WLAN	Wireless local area network
RLAN	Radio local area network
DSSS	Dynamic sequence spread spectrum
OFDM	Orthogonal frequency division multiplexing
FHSS	Frequency hopping spread spectrum
GNSS	Global Navigation Satellite System
C/N <sub>0</sub>	Carrier to noise-density ratio, expressed in dB-Hz

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# Annex B Document history

Version	Applied changes	Date of release
-/-	Initial release	2019-01-17

## Annex C Accreditation Certificate

first page	last page
Deutsche Akkreditierungsstelle  Deutsche Akkreditierungsstelle GmbH  Entrusted according to Section 8 subsection 1 AkkStelleG in connection with Section 1 subsection 1 AkkStelleGBV Signatory to the Multilateral Jereements of EA, ILAC and IAF for Mutual Recognition  Accreditation  The Deutsche Akkreditierungsstelle GmbH attests that the testing laboratory  CTC advanced GmbH Untertürkheimer Straße 6-10, 66117 Saarbrücken  is competent under the terms of DIN EN ISO/IEC 17025:2005 to carry out tests in the following fields:  Telecommunication	Deutsche Akkreditierungsstelle GmbH  Office Berünschweig Spittelmarkt 10 10117 Berlin G0327 Frankfurt am Main G0528 Bundesallee 100 38116 Braunschweig The publication of extracts of the accreditation certificate is subject to the prior written approval by
The accreditation certificate shall only apply in connection with the notice of accreditation of 02.06.2017 with the accreditation number 0-Pt-12076-01 and is valid until 21.04.3021. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 43 pages.  Registration number of the certificate: D-Pt-12076-01-03  Frankfurt, 02.06.2017  Dipty grep aut sheet.  The interace hand.	Deutsche Alkrediterungsstelle GmbH (DAkS). Exempted is the unchanged form of separate disseminations of the cover sheet by the conformity assessment body mentioned overleaf.  No impression shall be made that the accreditation also extends to fields beyond the scope of accreditation attested by DAkS.  The accreditation attested by DAkS.  The accreditation was granted pursuant to the Act on the Accreditation Body (AkStelleG) of 31 July 2009 (Federal Law Gazette Ip. 2625) and the Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products (Official Journal of the European Intellect and L. 218 of 9 July 2008, p. 20). DAkS is a signatory to the Nutulal Recognition of the European co-operation for Accreditation (EA). International Accreditation Formu (RA) and International Laboratory Accreditation Cooperation (ILA). The signatories to these agreements recognise each other's accreditations.  The up-to-date state of membership can be retrieved from the following websites:  EA: www.european-accreditation.org ILAC: www.siac.org IAAC: www.siac.org

Note: The current certificate annex is published on the website (link see below) of the Accreditation Body DAkkS or may be received by CTC advanced GmbH on request

https://www.dakks.de/as/ast/d/D-PL-12076-01-03e.pdf

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