PHOENIX TESTLAB

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Test Report

Report Number:

F170685E1

Equipment under Test (EUT):

**“CT-DECT M7 Module” together with “CT-Bluetoothmodule”
inside dedicated host device
“CT-DECT Multi M7”**

Applicant:

CeoTronics AG

Manufacturer:

CeoTronics AG

ilac-MRA

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

References

[1] **ANSI C63.10: 2013** American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

[2] **FCC CFR 47 Part 15** Radio Frequency Devices

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:	Michael DINTER		01.02.2021
	Name	Signature	Date
Reviewed and approved by:	Bernd STEINER		01.02.2021
	Name	Signature	Date

This test report is only valid in its original form.

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.

Contents: Page

1 Identification

1.1 Applicant

Name:	CeoTronics AG
Address:	Adam-Opel-Str. 6, 63322 Rödermark
Country:	Germany
Name for contact purposes:	Mr. Thomas GUENTHER
Phone:	+49 (0)6074-8751-721
eMail address:	thomas.guenther@ceotronics.com
Applicant represented during the test by the following person:	None

1.2 Manufacturer

Name:	CeoTronics AG
Address:	Adam-Opel-Str. 6, 63322 Rödermark
Country:	Germany
Name for contact purposes:	Mr. Thorsten NEUHAUS
Phone:	+49 (0)6074-8751-631
eMail address:	thorsten.neuhaus@ceotronics.com
Manufacturer represented during the test by the following person:	None

1.3 Test Laboratory

The tests were carried out by:

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-17186-01-06 and D-PL-17186-01-05, FCC Test Firm Designation Number DE0004, FCC Test Firm Registration Number 469623.

1.4 EUT (Equipment under Test)

Type of equipment: *	“CT-DECT M7 Module” together with “CT-Bluetoothmodule” inside dedicated host device “CT-DECT Multi M7”
PMN: *	-
HVIN: *	-
Host manufacturer	CeoTronics AG
Order number: *	2400105
Serial number:*	-
FCC ID: *	-
PCB identifier: *	4DT08-1011-031-01-02
Hardware version: *	Rev. 02
Software version (FVIN): *	1.6.0.32 FW-Package (Controller, Codec, DSP),

* Declared by the applicant

Note: Phoenix Testlab GmbH does not take samples. The samples used for tests are provided exclusively by the applicant.

1.5 Technical Data of Equipment

Supply	
Power supply:	3.7 V DC Lion Battery 2
Supply voltage[1]:	U_{nom} = 3.7 VDC
Highest and lowest internal frequency[1]:	2.483 MHz (BT) 11.0529 MHz

Remark [1]: As declared by the applicant.

Modules inside:

DECT	
Modular FCC ID *	L52CT-M7CEO1
Frequency Band(s) of Operation*:	1921.536 MHz – 1928.448 MHz
No. of Channels*	5
Channel frequency spacing*	1.728 MHz
Type of Modulation*	GFSK
Data rate*	1.152 kB/s
Antenna type (if applicable all used antennas)*	Inverted F, 2* Printed Circuit Board Antennas (¼ wave antenna)
Antenna gain*	Antenna 1: 3.5 dBi Antenna 2: 1.5 dBi

* declared by the applicant.

Bluetooth	
Module FCC ID*	L52CT-BT32I
Frequency Band(s) of Operation*:	2402 MHz to 2480 MHz
No. of Channels*	79
Channel frequency spacing*	1 MHz
Type of Modulation*	FHSS (GFSK, π/4-DQPSK, 8DPSK)
Data rate*	1 MBits, 2 MBits, 3 MBits
Antenna type (if applicable all used antennas)*	SMD antenna
Antenna gain*	3.29 dBi

* declared by the applicant.

Ports/Connectors of the EUT:

The following external I/O cables were used:

Identification	Connector		Length*
	EUT	Ancillary	
ComLink® SF	ODU Serie B	ODU Serie B	0.5 m

*: Length during the test.

Ancillary Equipment	
Mobile phone	Samsung S9 for BT connection
DECT device	CT-DECT Multi M7
Headset	CT-HD Headset

1.6 Dates

Date of receipt of test sample:	28.03.2019
Start of test:	11.06.2019
End of test:	24.06.2019

2 Operational States

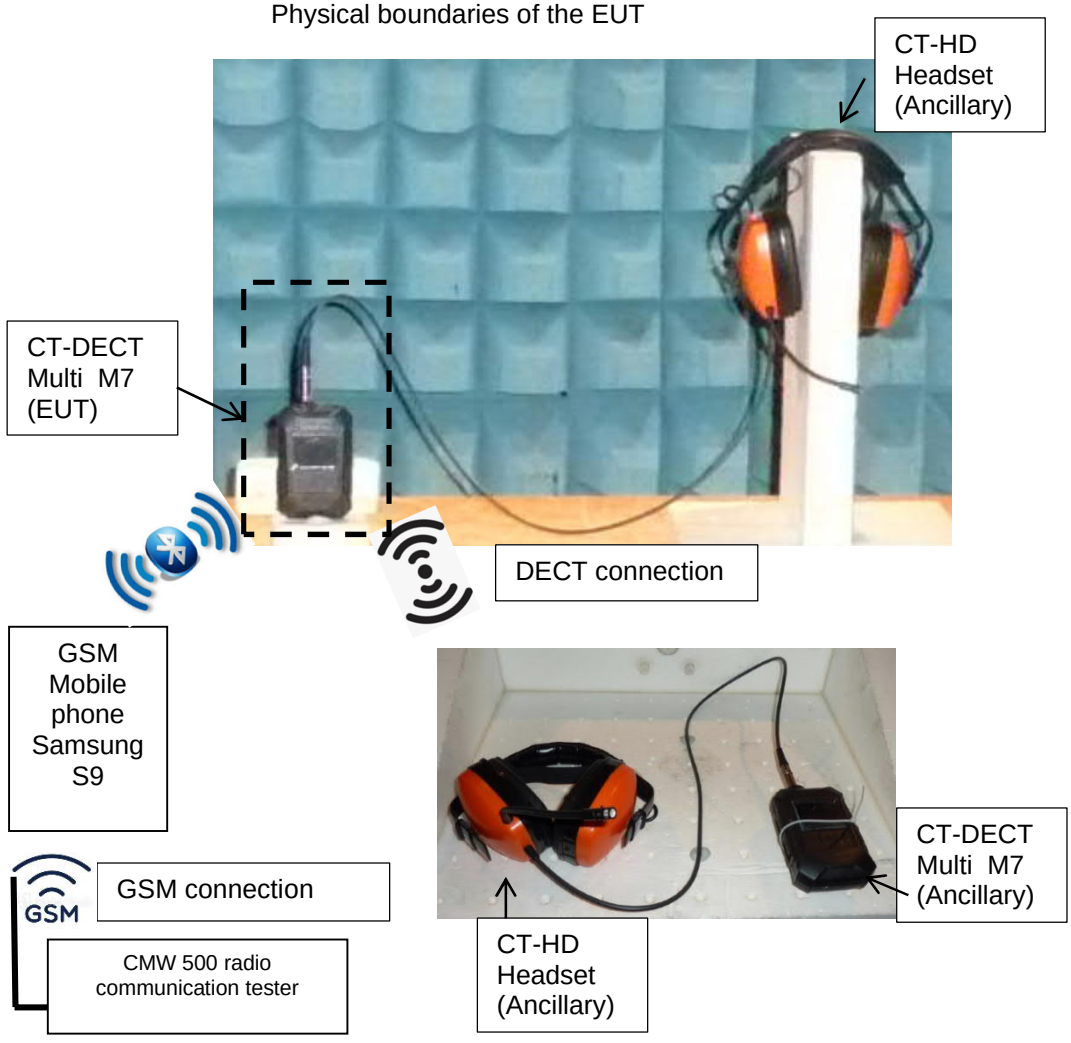
The EUT is part of a communication system for professional use.

The operation mode of the equipment under test was defined as follows:

- During the tests, the EUT was not labelled with a FCC-label.
- The EUT was battery supplied with 3.7 V DC and in fixed part mode.
- A BT link between the EUT and GSM Mobile was established and active during the test.
- Additionally a DECT connection 1921 MHz to another CT DECT Multi in portable part mode was established.

The physical boundaries of the EUT are shown below:

Physical boundaries of the EUT



3 Additional Information

The EUT was not labeled as required by FCC / IC.
Therefore some photos with the FCC were delivered by the Applicant as shown in the annex C.

4 Overview

Application	Frequency range [MHz]	FCC 47 CFR Part 15 section [2]	Status	Refer page
Conducted emissions on supply line	0.15 – 30	15.207 (a)	Not applicable	-
Radiated emissions	0.009 – 25.000**	15.205 (a) 15.209 (a)	Passed	11 et seq.
Antenna requirement	-	15.203 [2]	Passed *	-

*: Integrated antenna only, requirement fulfilled.

**: As declared by the applicant the highest radio clock frequency is 2.483 GHz.
Therefore the radiated emission measurement must be carried out up to 10th of the highest radio clock frequency in this case 25 GHz.

5 Results

5.1 Radiated emissions

5.1.1 Test method

The radiated emission measurement is subdivided into six stages.

- A preliminary measurement carried out in a fully anechoic chamber with a fixed antenna height in the frequency range 9 kHz to 1 GHz.
- A final measurement carried out on an outdoor test side without reflecting ground plane and a fixed antenna height in the frequency range 9 kHz to 30 MHz.
- A preliminary measurement carried out in a fully anechoic chamber with a fixed antenna height in the frequency range 30 MHz to 1 GHz.
- A final measurement carried out on an open area test side 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 fixed antenna height in the frequency range 1 GHz to 40 GHz.
- A final measurement carried out in a fully anechoic chamber with a fixed antenna height in the frequency range 1 GHz to 40 GHz.

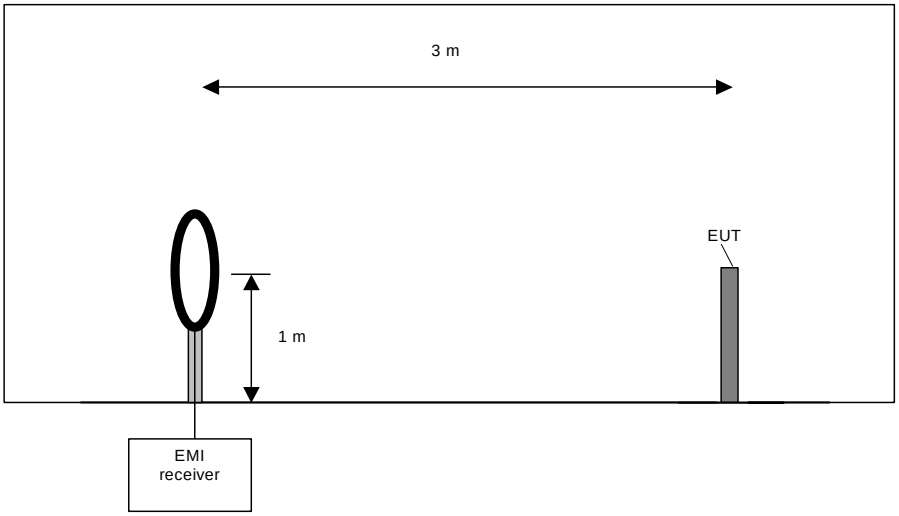
Preliminary measurement (9 kHz to 30 MHz):

In the first stage a preliminary measurement will be performed in a shielded room with a measuring distance of 3 meters. 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. Floor-standing devices will be placed directly on the turntable/ground plane. The set up of the Equipment under test will be in accordance to [1].

The frequency range 9 kHz to 30 MHz will be monitored with a spectrum analyser while the system and its cables will be manipulated to find out the configuration with the maximum emission levels if applicable. The EMI Receiver will be set to MAX Hold mode. The EUT and the measuring antenna will be rotated around their vertical axis to found the maximum emissions.

The resolution bandwidth of the spectrum analyser will be set to the following values:

Frequency range	Resolution bandwidth
9 kHz to 150 kHz	200 Hz
150 kHz to 30 MHz	10 kHz



Preliminary measurement procedure:

Prescans were performed in the frequency range 9 kHz to 150 kHz and 150 kHz to 30 MHz.

The following procedure will be used:

1) Monitor the frequency range at horizontal polarisation 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) Make a hardcopy of the spectrum.
5) Measure the frequencies of highest detected emission with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.
6) Repeat steps 1) to 5) with the other orthogonal axes of the EUT (because of EUT is a module and might be used in a handheld equipment application).
7) Rotate the measuring antenna and repeat steps 1) to 5).

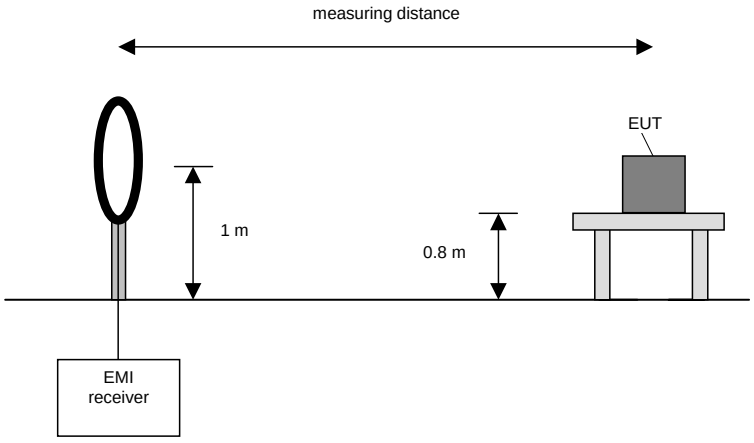
Final measurement (9 kHz to 30 MHz):

In the second stage a final measurement will be performed on an open area test site with no conducting ground plane in a measuring distances of 3 m, 10 m and 30 m. In the case where larger measuring distances are required the results will be extrapolated based on the values measured on the closer distances according to Section 15.31 (f) (2) [2]. The final measurement will be performed with a EMI Receiver set to Quasi Peak detector except for the frequency bands 9 kHz to 90 kHz and 110 kHz to 490 kHz where an average detector will be used according Section 15.209 (d) [2].

On the frequencies, which were detected during the preliminary measurements, the final measurement will be performed while rotating the EUT and the measuring antenna in the range of 0 ° to 360 ° around their vertical axis until the maximum value is found.

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

Frequency range	Resolution bandwidth
9 kHz to 150 kHz	200 Hz
150 kHz to 30 MHz	9 kHz



Final measurement procedure:

The following procedure will be used:

1) Monitor the frequency range with the measuring antenna at vertical orientation parallel to the EUT at an azimuth of 0 °.
2) Rotate the EUT by 360 ° to maximize the detected signals and note the azimuth and orientation.
3) Rotate the measuring antenna to find the maximum and note the value.
4) Rotate the measuring antenna and repeat steps 1) to 3) until the maximum value is found.
5) Repeat steps 1) to 4) with the other orthogonal axes of the EUT (if the EUT is a module and might be used in a handheld equipment application).

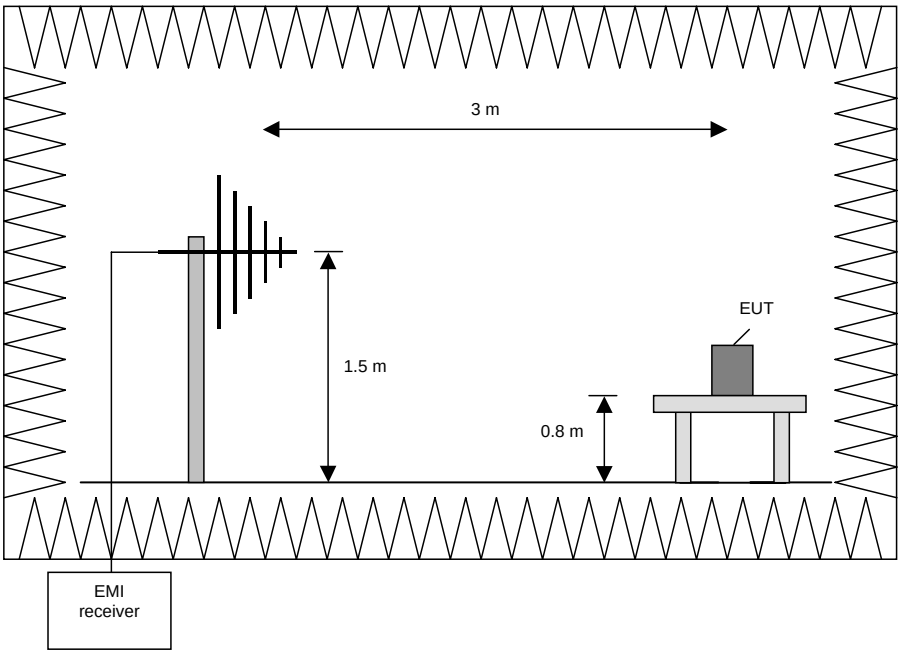
Preliminary measurement (30 MHz to 1 GHz)

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 support with a size of 1 m by 1.5 m and a height of 80 cm. Floor-standing devices will be placed directly on the turntable/ground plane. The set-up 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 120 kHz. 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 °.

The resolution bandwidth of the spectrum analyzer will be set to the following values:

Frequency range	Resolution bandwidth
30 MHz to 1 GHz	100 kHz



Procedure preliminary measurement:

Prescans were performed in the frequency range 30 MHz to 1 GHz.
The following procedure will be used:

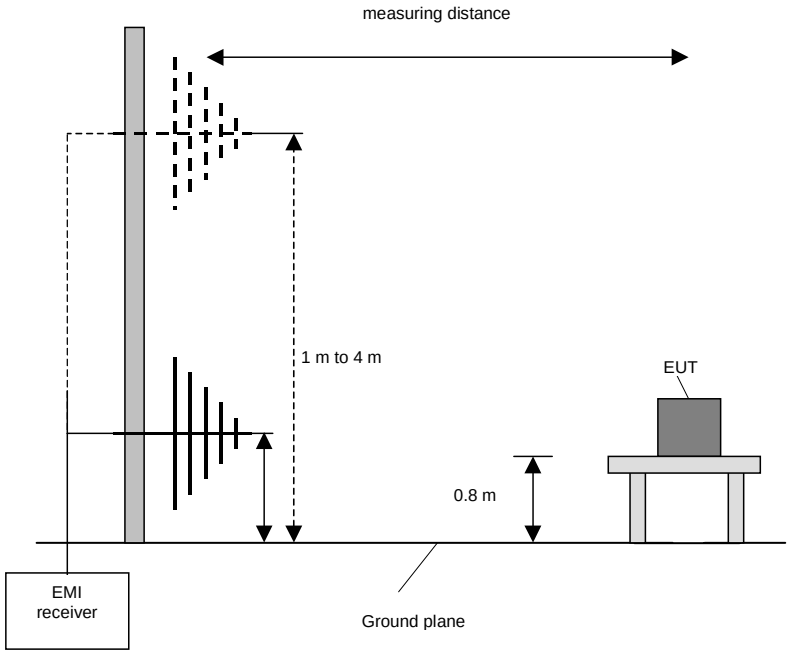
1. Monitor the frequency range at horizontal polarisation and a EUT azimuth of 0 °.
2. Manipulate the system cables within the range to produce the maximum level of emission.
3. Rotate the EUT by 360 ° to maximize the detected signals.
4. Make a hardcopy of the spectrum.
5. Measure the frequency of the detected emissions with a lower span and resolution bandwidth to increase the accuracy and note the frequency value.
6. Repeat 1) to 4) with the other orthogonal axes of the EUT if handheld equipment.
7. Repeat 1) to 5) with the vertical polarisation of the measuring antenna.

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 polarisation 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 if handheld equipment.

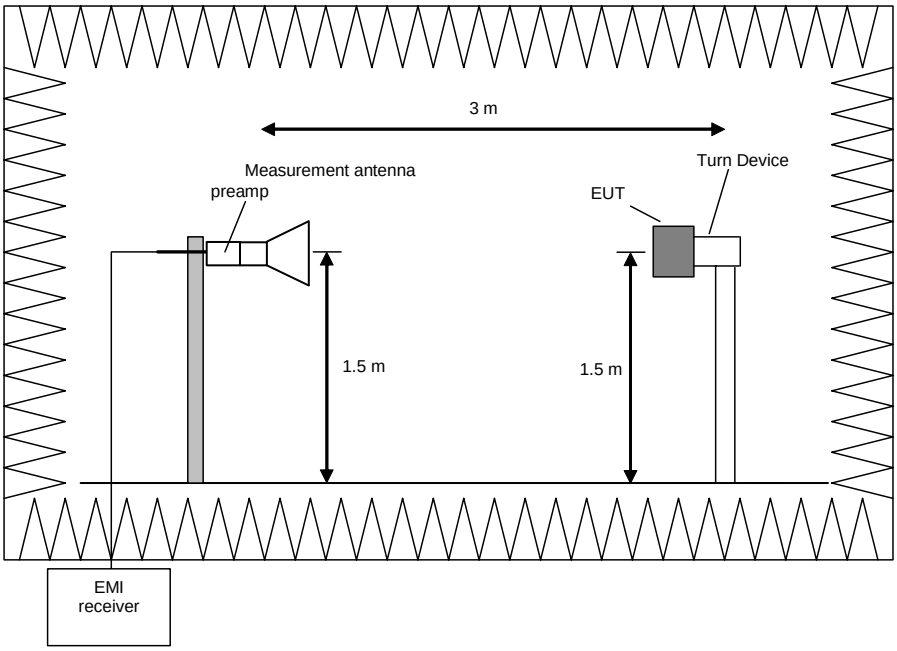
Preliminary and final measurement (1 GHz to 110 GHz)

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 1.5 m. The set-up of the Equipment under test will be in accordance to [1].

The frequency range will be divided into different sub ranges depending of the frequency range of the used horn antenna. The spectrum analyser set to MAX Hold mode and a resolution bandwidth of 100 kHz. 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 °. This measurement is repeated after raising the EUT in 30 ° steps according 6.6.5.4 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	1 MHz
4 GHz to 12 GHz	1 MHz
12 GHz to 18 GHz	1 MHz
18 GHz to 26.5 GHz	1 MHz
26.5 GHz to 40 GHz	1 MHz
40 GHz to 60 GHz	1 MHz
50 GHz to 75 GHz	1 MHz
75 GHz to 110 GHz	1 MHz



Procedure preliminary measurement:

Prescans were performed in the frequency range 1 to 110 GHz.
The following procedure will be used:

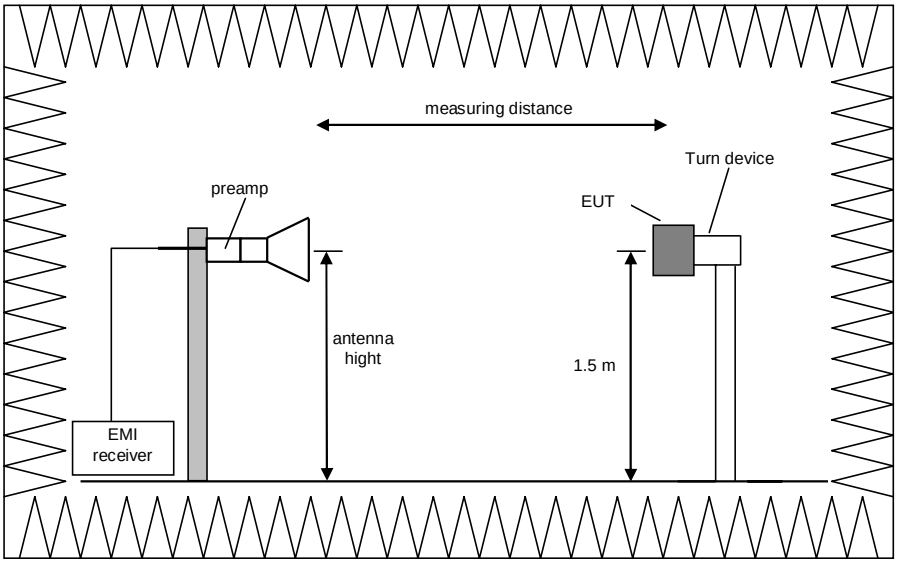
1. Monitor the frequency range at horizontal polarisation and a EUT azimuth of 0 °.
2. Rotate the EUT by 360° to maximize the detected signals.
3. Repeat 1) to 2) with the vertical polarisation of the measuring antenna.
4. Make a hardcopy of the spectrum.
5. Repeat 1) to 4) with the EUT raised by an angle of 30° (60°, 90°, 120° and 150°) according to 6.6.5.4 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 polarisation, 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 110 GHz)

The frequency range will be divided into different sub ranges depending of the frequency range of the used antenna. The EMI Receiver set to peak and average mode and a resolution bandwidth of 1 MHz. The measurement will be performed by rotating the turntable through 0 to 360° in the worst-case EUT orientation which was obtained during the preliminary measurements.

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

Frequency range	Resolution bandwidth
1 GHz to 4 GHz	1 MHz
4 GHz to 12 GHz	1 MHz
12 GHz to 18 GHz	1 MHz
18 GHz to 26.5 GHz	1 MHz
26.5 GHz to 40 GHz	1 MHz
40 GHz to 60 GHz	1 MHz
50 GHz to 75 GHz	1 MHz
75 GHz to 110 GHz	1 MHz



Procedure of measurement:

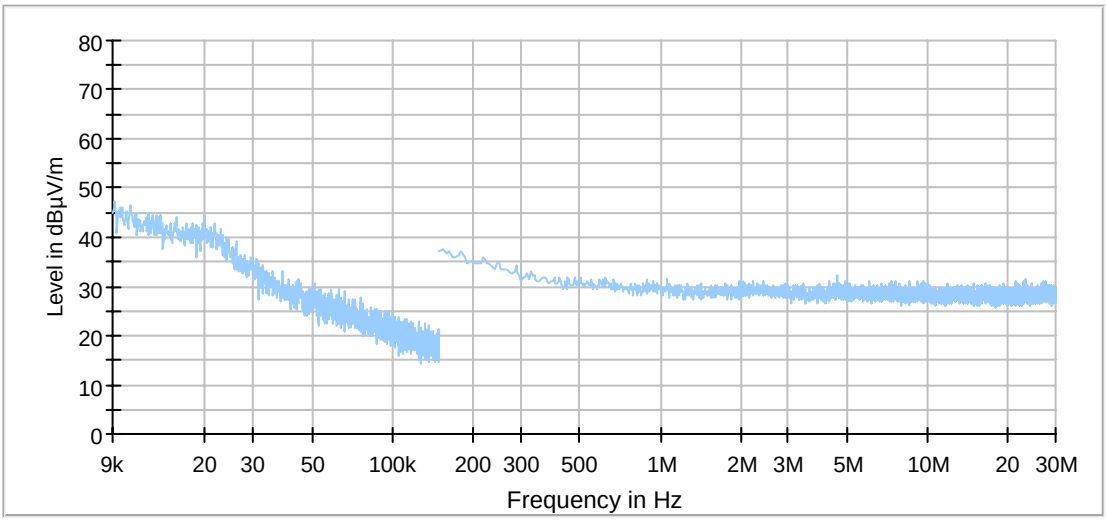
The measurements were performed in the frequency range 1 GHz to 110 GHz.
The following procedure will be used:

1) Set the turntable and the turn device to obtain the worst-case emission for the first frequency identified in the preliminary measurements.
2) Set the measurement antenna polarisation to the orientation with the highest emission for the first frequency identified in the preliminary measurements.
3) Set the spectrum analyser to EMI mode with peak and average detector activated.
4) Rotate the turntable from 0° to 360° to find the EUT angle that produces the highest emissions.
5) Note the highest displayed peak and average values
6) Repeat the steps 1) to 5) for each frequency detected during the preliminary measurements.

5.1.2 Results preliminary measurement 9 kHz to 30 MHz

Ambient temperature:	°C	Relative humidity:	%

Test description:	Radiated emission measurement
EUT:	CT-DECT Multi
Manufacturer:	CeoTronics AG
Operating conditions:	DECT connection established + BT connection
Test site:	PHOENIX TESTLAB GmbH, Anechoic Chamber M5
Operator:	M.Dinter
Comment:	Internal battery powered
Date of test	11.06.2019



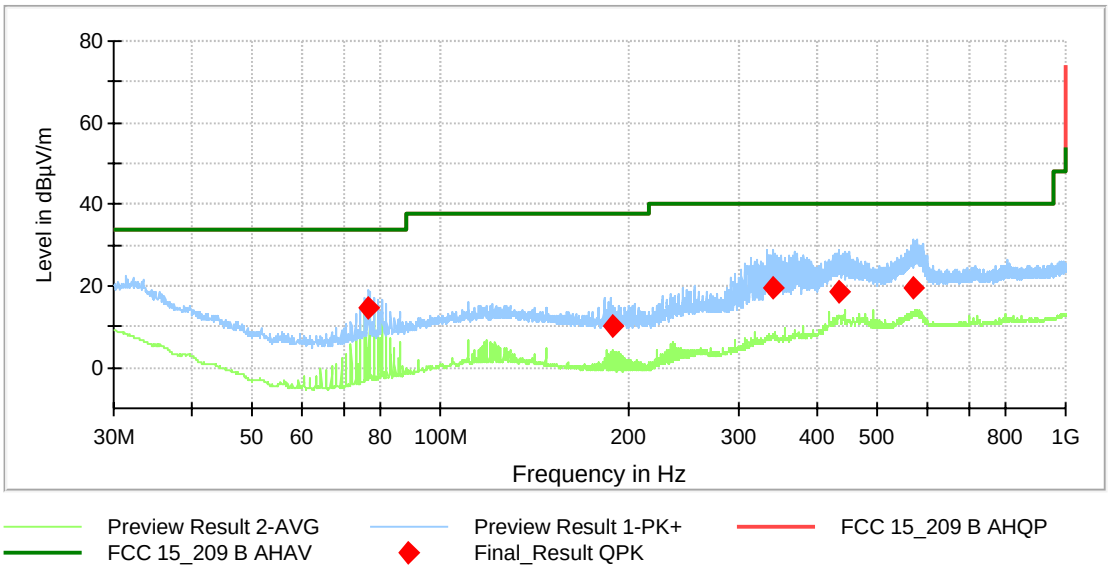
Remark: No significant emissions for the final measurement caused by the equipment under test were found.

Test equipment (please refer to chapter 6 for details)
1 - 6

5.1.3 Results preliminary measurement 30 MHz to 1 GHz

Ambient temperature:	22 °C	Relative humidity:	46 %

Test description:	Radiated emission measurement
EUT:	CT-DECT Multi
Manufacturer:	CeoTronics AG
Operating conditions:	DECT connection established + BT connection
Test site:	PHOENIX TESTLAB GmbH, Anechoic Chamber M5
Operator:	M.Dinter
Comment:	Internal battery powered
Date of test	11.06.2019



The following frequencies were found during the preliminary radiated emission test:

Frequency (MHz)
76.848000
187.956000
339.888000
434.892000
570.432000

These frequencies have to be measured with in a final measurement.

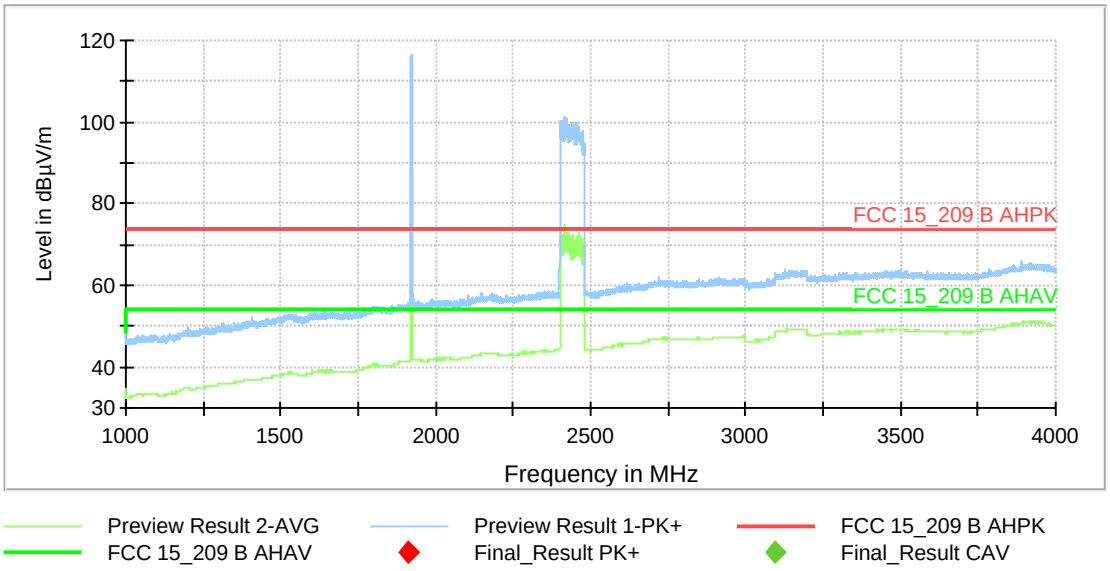
Test equipment (please refer to chapter 6 for details)
2 - 5, 7 - 8

5.1.4 Results preliminary measurement above 1 GHz

Ambient temperature:	22 °C	Relative humidity:	46 %

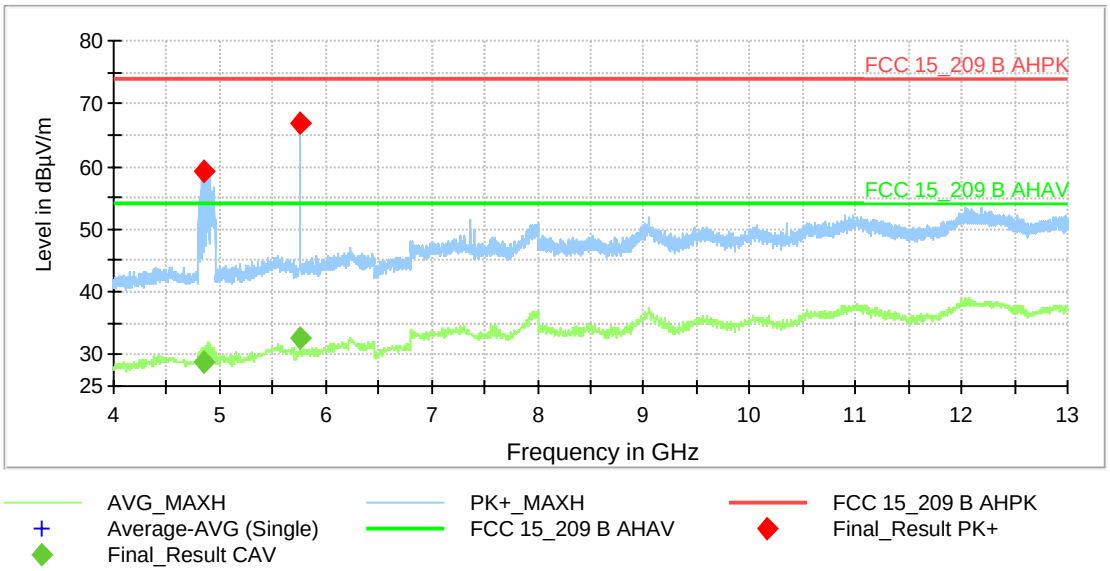
Test description:	Radiated emission measurement
EUT:	CT-DECT Multi
Manufacturer:	CeoTronics AG
Operating conditions:	DECT connection established + BT connection
Test site:	PHOENIX TESTLAB GmbH, Anechoic Chamber M20
Operator:	M.Dinter
Comment:	Internal battery powered
Date of test	11.06.2019

Radiated emissions from 1 to 4 GHz



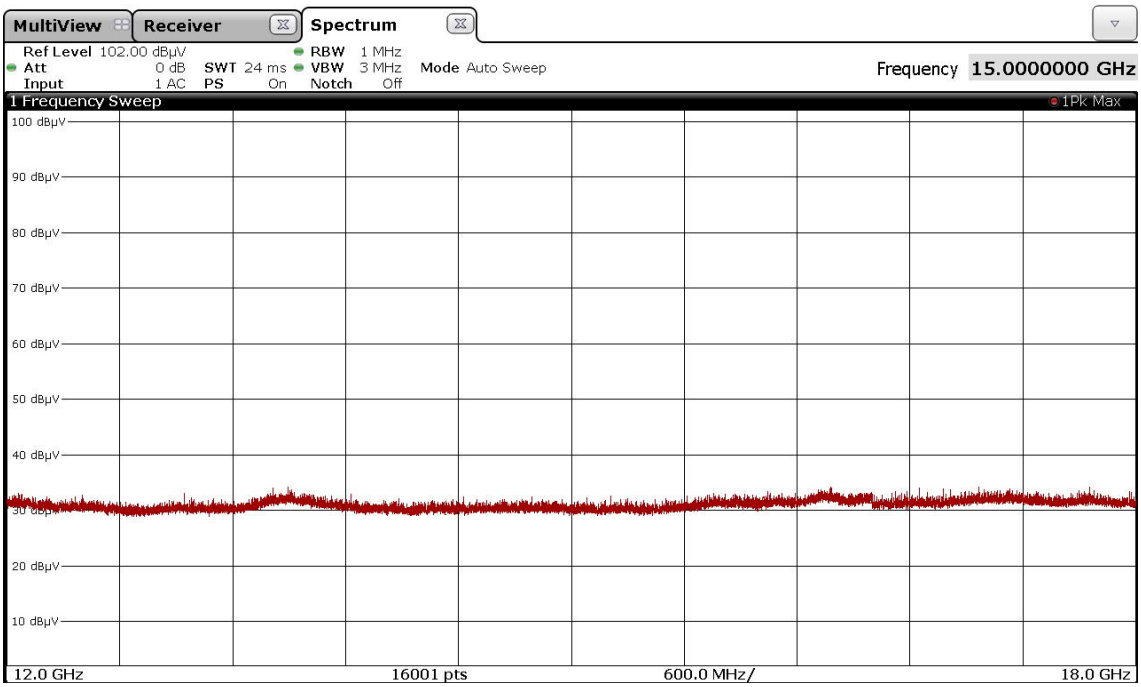
Emissions around 1921 MHz and 2.45 GHz were the wanted radio DECT and Bluetooth signals and have to be taken not in account for this measurement.

Radiated emissions from 4 to 12 GHz

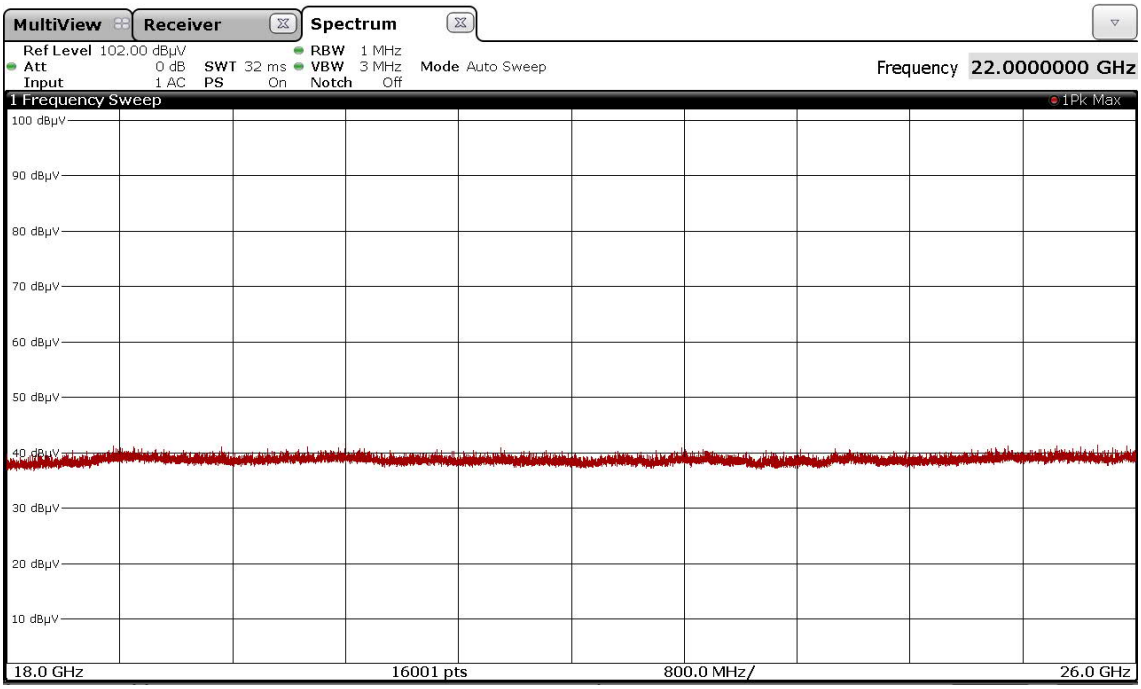


AVG_MAXH
Average-AVG (Single)
Final_Result CAV
PK+_MAXH
FCC 15_209 B AHAV
FCC 15_209 B AHPK
Final_Result PK+

Radiated emissions from 12 to 18 GHz



Radiated emissions from 18 to 26 GHz



The following frequencies were found during the preliminary radiated emission test:

Frequency (MHz)
4848.000
5764.500

These frequencies have to be measured with in a final measurement.

Test equipment (please refer to chapter 6 for details)
4, 9 - 25

5.1.5 Result final measurement from 9 kHz to 30 MHz

Ambient temperature	-°C	Relative humidity	- %

Results 9kHz - 30 MHz								
Frequency [MHz]	**Reading [dBµV]**	**Result* [dBµV/m]**	**Limit acc. 15.209 [dBµV/m]**	**Margin [dB]**	**Detector (acc. to §15.209 (d)**	**Antenna factor [dB/m]**	**Measuring Distance [m]**	**Distance correction factor** [dB]**
Measurement uncertainty			+/- 4.69 dB					

Emissions near the noise floor.
Therefore no final measurement was carried out.

Note: *Result @ norm dist = Reading + Antenna factor - Distance Extrapolation Factor

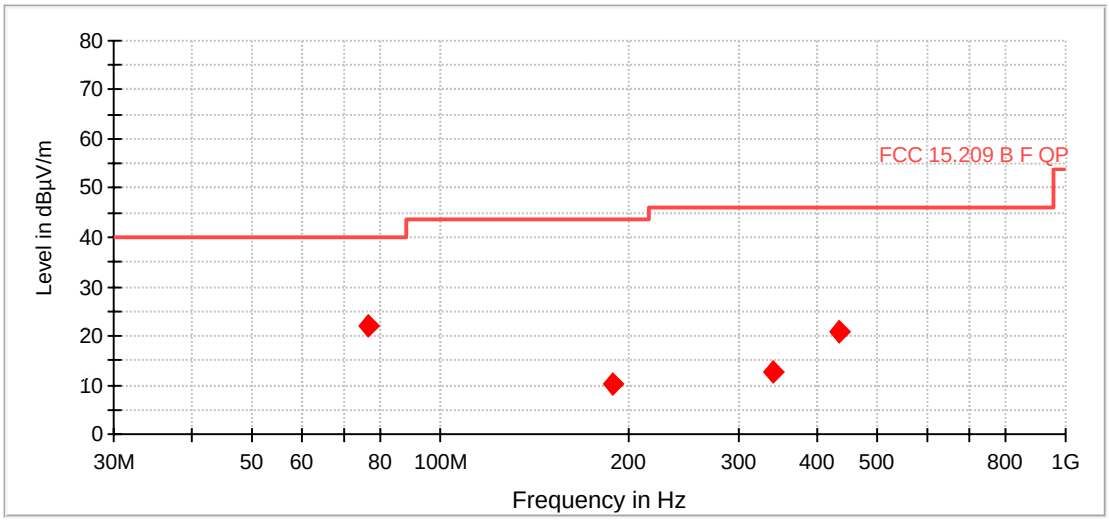
** 40dB/decade according Part §15.31 (f) (2)

5.1.6 Result final measurement from 30 MHz to 1 GHz

Ambient temperature	25 °C	Relative humidity	52 %

Test description:	Radiated emission measurement according to FCC PART 15
EUT:	CT-DECT Multi
Manufacturer:	CeoTronics AG
Operating conditions:	DECT connection established + BT connection
Test site:	PHOENIX TESTLAB GmbH, OATS M6
Operator:	M.Dinter
Comment:	Battery powered
Date of test	11.06.2019

The measured points and the limit line in the following diagram refer to the standard measurement of the emitted interference in compliance with the above mentioned standard. The measured points marked with "◆" are the measured results of the standard subsequent measurement on the open area test site.



The results of the standard subsequent measurement on the open area test site are indicated in the table below. The limits as well as the measured results (levels) refer to the above mentioned standard while taking account of the specified requirements for a 3 m measuring distance.

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
76.848000	22.07	40.00	17.93	1000.0	120.000	232.0	H	173.0	14.4
187.956000	10.23	43.50	33.27	1000.0	120.000	100.0	V	242.0	16.4
339.888000	12.46	46.00	33.54	1000.0	120.000	157.0	V	161.0	22.6
434.892000	20.89	46.00	25.11	1000.0	120.000	103.0	V	290.0	25.7
570.432000*	-	46.00	-	-	-	-	-	-	-
Measurement uncertainty: +/- 4.78 dB									

Test: Passed

The correction factor was calculated as follows.

Corr. (dB) = cable attenuation (dB) + 6 dB attenuator (dB) + antenna factor (dB)

Therefore the reading can be calculated as follows:

Reading (dBµV/m) = result QuasiPeak (dBµV/m) - Corr. (dB)

* Due to environmental disturbers no measurement at these frequencies was possible at the OATS. Therefore the values from the preliminary measurement in the fully anechoic chamber are reported.

Test equipment (please refer to chapter 6 for details)
26 - 32

5.1.7 Result final measurement above 1 GHz

Ambient temperature	23 °C	Relative humidity	51 %

Test description:	Radiated emission measurement according to FCC PART 15
EUT:	CT-DECT Multi
Manufacturer:	CeoTronics AG
Operating conditions:	DECT connection established + BT connection
Test site:	PHOENIX TESTLAB GmbH, OATS M6
Operator:	M.Dinter
Comment:	Battery powered
Date of test	24.06.2019

The results of the standard subsequent measurement above 1 GHz in an anechoic chamber are indicated in the table below. The limits as well as the measured results (levels) refer to the above mentioned standard while taking account of the specified requirements for a 3 m measuring distance.

Final_Result from 1 to 13 GHz

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m) PK/AV	Margin (dB)	Meas. Time (ms)	Band-width (MHz)	Height (cm)	Pol	Azimuth (deg)	Elevation (deg)	Corr. (dB)
4848.000	---	28.77	54.00	25.23	V	201.0	120.0	-2	4848.00	---	28.7
4848.000	59.18	---	74.00	14.82	V	201.0	120.0	-2	4848.00	59.18	---
5764.500	---	32.56	54.00	21.44	H	282.0	30.0	1	5764.50	---	32.5
5764.500	66.80	---	74.00	7.20	H	282.0	30.0	1	5764.50	66.80	---
Measurement uncertainty +/- 5.1 dB											

The correction factor was calculated as follows.

Corr. (dB) = cable attenuation (dB) + preamplifier (dB) + antenna factor (dB)

Therefore the reading can be calculated as follows:

Reading (dBµV/m) = result Peak or Average (dBµV/m) - Corr. (dB)

Test result: Passed

Test equipment (please refer to chapter 6 for details)
4, 9 - 25

6 Test Equipment used for Tests

No.	Test equipment	Type	Manufacturer	Serial No.	PM. No.	Cal. Date	Cal Due
1	EMI Receiver	ESIB 7	Rohde & Schwarz	100304	480521	26.02.2018	02.2020
2	Turntable	DS412	Deisel	412/317	480070	Calibration not necessary	
3	Fully anechoic chamber M5	B83117-S1-X156	Siemens	B83117-S1-X156	480073	Calibration not necessary	
4	Antenna mast	AS615P	Deisel	615/310	480187	Calibration not necessary	
5	Multiple Control Unit	MCU	Maturo GmbH	MCU/040/971107	480924	Calibration not necessary	
6	loop antenna	HFH2-Z2	Rohde & Schwarz	100417	481912	10.01.2019	01.2020
7	EMI Receiver / Spectrum Analyser	ESR7	Rohde & Schwarz	101939	482558	19.09.2017	09.2019
8	Antenna (Bilog)	CBL6112B	Schaffner EMV GmbH (-Chase)	2688	480328	19.06.2017	06.2020
9	Antenna (Log.Per.)	HL050	Rohde & Schwarz	100438	481170	09.10.2017	10.2020
10	RF-Cable No. 40	Sucoflex 106B	Suhner	0708/6B / Kabel 40	481330	Calibration not necessary	
11	standard gain horn antenna	18240-20	Flann Microwave	483	480294	Calibration not necessary	
12	Preamplifier 12 GHz - 18 GHz	JS3-12001800-16-5A	MITEQ Hauppauge N.Y.	571667	480343	10.07.2018	07.2020
13	standard gain horn antenna	20240-20	Flann Microwave	411	480297	Calibration not necessary	
14	Preamplifier 18 GHz - 26 GHz	JS4-18002600-20-5A	MITEQ Hauppauge N.Y.	658697	480342	10.07.2018	07.2020
15	Highpass Filter	WHK2.8/18G-10SS	Wainwright Instruments GmbH	1	480867	Calibration not necessary	
16	RF-cable No.3	Sucoflex 106B	Suhner	0563/6B / Kabel 3	480670	Calibration not necessary	
17	HF-Cable	Sucoflex 104	Huber+Suhner	517402	482392	Calibration not necessary	
18	Microwave cable 2m	Insulated Wire Inc.	Insulated Wire	KPS-1533-800-KPS	480302	Calibration not necessary	
19	Fully anechoic chamber M20	B83117-E2439-T232	Albatross Projects	103	480303	Calibration not necessary	
20	Turntable	DS420 HE	Deisel	420/620/00	480315	Calibration not necessary	
21	Multiple Control Unit	MCU	Maturo GmbH	MCU/043/971107	480832	Calibration not necessary	
22	Positioners	TDF 1.5- 10Kg	Maturo	15920215	482034	Calibration not necessary	
23	EMI Receiver / Spectrum Analyser	ESW44	Rohde & Schwarz	101635	482467	29.03.2018	03.2020
24	Software	WMS32	Rohde & Schwarz		481800	Calibration not necessary	
25	Preamplifier 100 MHz - 16 GHz	AFS6-00101600-23-10P-6-R	Narda MITEQ	2011215	482333	10.07.2018	07.2020
26	Open area test site M6	Freifeld M6	Phoenix Contact	-	480085	Calibration not necessary	
27	Antenna support	MA240-0	Inn-Co GmbH	MA240-0/030/6600603	480086	Calibration not necessary	
28	Turntable	DS412	Deisel	412/316	480087	Calibration not necessary	

29	Controller	HD100	Deisel	100/349	480139	Calibration not necessary	
30	Software	EMC32	Rohde & Schwarz	100061	481022	Calibration not necessary	
31	Antenna (Bilog)	CBL6111D	Schaffner Elektrotest GmbH / Teseq GmbH	25761	480894	19.10.2017	10.2020
32	EMI Receiver / Spectrum Analyser	ESIB 26	Rohde & Schwarz	100292	481182	28.02.2018	02.2020

7 Test site Validation

Test equipment	PM. No.	Freq. range	Type of validation	According to	Val. Date	Val Due
OATS Outdoor	480293	9 kHz – 30 MHz	-	ANSI C63.4-2014	-	-
OATS M6	480085	30 – 1000 MHz	NSA	ANSI C63.4-2014	25.10.2018	24.10.2020
Fully anechoic chamber M20	480303	1 -18 GHz	SVSWR	CISPR 16-1-4 Amd. 1	13.07.2018	12.07.2020

8 Report History

Report Number	Date	Comment
F170685E1	01.02.2021	Initial Test Report

9 List of Annexes

Annex A	Test Setup Photos	6 pages
Annex B	EUT External Photos	4 pages
Annex C	EUT Internal Photos	14 pages