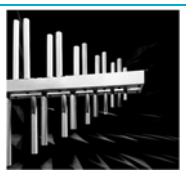
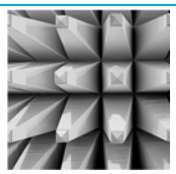

CTC advanced
member of RWTÜV group

TEST REPORT

Test report no.: 1-4086/17-03-03-A

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-12076-01-01

Testing laboratory

CTC advanced GmbH
Untertuerkheimer Strasse 6 – 10
66117 Saarbruecken / Germany
Phone: + 49 681 5 98 - 0
Fax: + 49 681 5 98 - 9075
Internet: http://www.ctcadvanced.com
e-mail: mail@ctcadvanced.com

Accredited Testing Laboratory:
The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2005) by the Deutsche Akkreditierungsstelle GmbH (DAkkS)
The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12076-01-01

Applicant

NBB Controls + Components GmbH
Otto-Hahn-Str. 3-5
75248 Ölbronn-Dürrn / GERMANY
Phone: -/-
Fax: -/-
Contact: Mr. Alex Gorynin
e-mail: alex.gorynin@nbb.de
Phone: +49 (0)72 37 99 95 37

Manufacturer

NBB Controls + Components GmbH
Otto-Hahn-Str. 3-5
75248 Ölbronn-Dürrn / GERMANY

Test standard/s

47 CFR Part 15	Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio frequency devices
RSS - 210 Issue 9	Spectrum Management and Telecommunications Radio Standards Specification - Licence-Exempt Radio Apparatus: Category I Equipment
RSS - Gen Issue 4	Spectrum Management and Telecommunications Radio Standards Specifications - General Requirements and Information for the Certification of Radio Apparatus

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

Test Item

Kind of test item:	**Transmitter – Short Range Device (Remote Control Unit)**
Model name:	**PocketEvo®**
FCC ID:	**SJ7PEVO**
IC:	**2634B-PEVO**
Frequency band:	13.553 MHz to 13.567 MHz
Technology tested:	NFC / RFID
Antenna:	Integrated loop antenna
Power supply:	2.5 V DC by 2x rechargeable AA type batteries 3.0 V DC by 2x AA type batteries
Temperature range:	-20°C to +70°C

This test report is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

Test report authorized:

cn=Andreas Luckenbill, o=CTC advanced GmbH, ou=LUC-170203, email=Andreas.Luckenbill@ctcadvanced.com, c=DE
2017.08.07 10:08:42 +02'00'

Andreas Luckenbill
Lab Manager
Radio Communications & EMC

Test performed:

cn=Marco Bertolino, o=CTC advanced GmbH, ou=BTL-161128, email=Marco.Bertolino@ctcadvanced.com, c=DE
2017.08.07 08:37:06 +02'00'

Marco Bertolino
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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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.

This test report replaces the test report with the number 1-4086/17-03-03 and dated 2017-08-03.

2.2 Application details

Date of receipt of order:	2017-07-07
Date of receipt of test item:	2017-07-24
Start of test:	2017-07-24
End of test:	2017-07-24
Person(s) present during the test:	Mr. Alex Gorynin

2.3 Test laboratories sub-contracted

None

3 Test standard/s and references

Test standard	Date	Description
47 CFR Part 15	-/-	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 4	November 2014	Spectrum Management and Telecommunications Radio Standards Specifications - General Requirements and Information for the Certification of Radio Apparatus

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

4 Test environment

Temperature	:	T_{nom} T_{max} T_{min}	+22 °C during room temperature tests +70 °C during high temperature tests -20 °C during low temperature tests
Relative humidity content	:		42 %
Barometric pressure	:		1029 hpa
Power supply	:	V_{nom} V_{max} V_{min}	2.5 V DC by 2x rechargeable AA type batteries 3.0 V DC by 2x AA type batteries 4.2 V 2.1 V

5 Test item

5.1 General description

Kind of test item	:	Transmitter – Short Range Device (Remote Control Unit)
Type identification	:	PocketEvo®
Additional products	:	Pocket*Evo* minor, Pocket*Evo* media, Pocket*Evo* magna
HMN	:	-/-
PMN	:	PocketEvo
HVIN	:	PocketEvo minor, PocketEvo media, PocketEvo magna
FVIN	:	-/-
S/N serial number	:	Radiated units: #1 (chamber C; laboratory measurements & photos) #2 (chamber F)
HW hardware status	:	2.100.1502, 2.100.1506, 2.100.1507, 2.100.1508, 2.100.1509, 2.100.1510, 2.103.1349
SW software status	:	pocket_evo_z_915
Frequency band	:	13.553 MHz to 13.567 MHz (Carrier frequency 13.56 MHz)
Type of radio transmission Use of frequency spectrum	: :	modulated carrier & clean carrier
Type of modulation	:	OOK
Number of channels	:	1
Antenna	:	Integrated loop antenna
Power supply	:	2.5 V DC by 2x rechargeable AA type batteries 3.0 V DC by 2x AA type batteries
Temperature range	:	-20°C to +70°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: 1-4086/17-03-01_AnnexA
1-4086/17-03-01_AnnexB
1-4086/17-03-01_AnnexD

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).

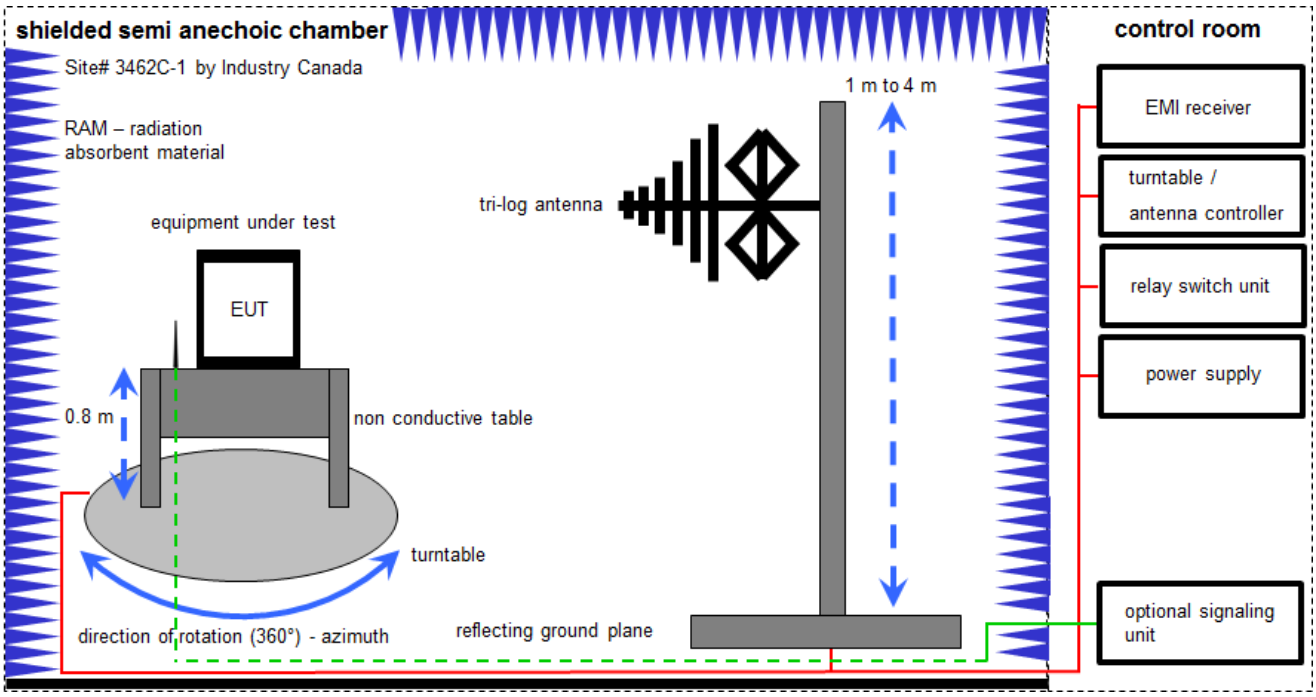
In order to simplify the identification of the equipment used at some special tests, some items of test equipment and ancillaries can be provided with an identifier or number in the equipment list below (Lab/Item).

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

6.1 Shielded semi anechoic chamber

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



Measurement distance: tri-log antenna 10 meter

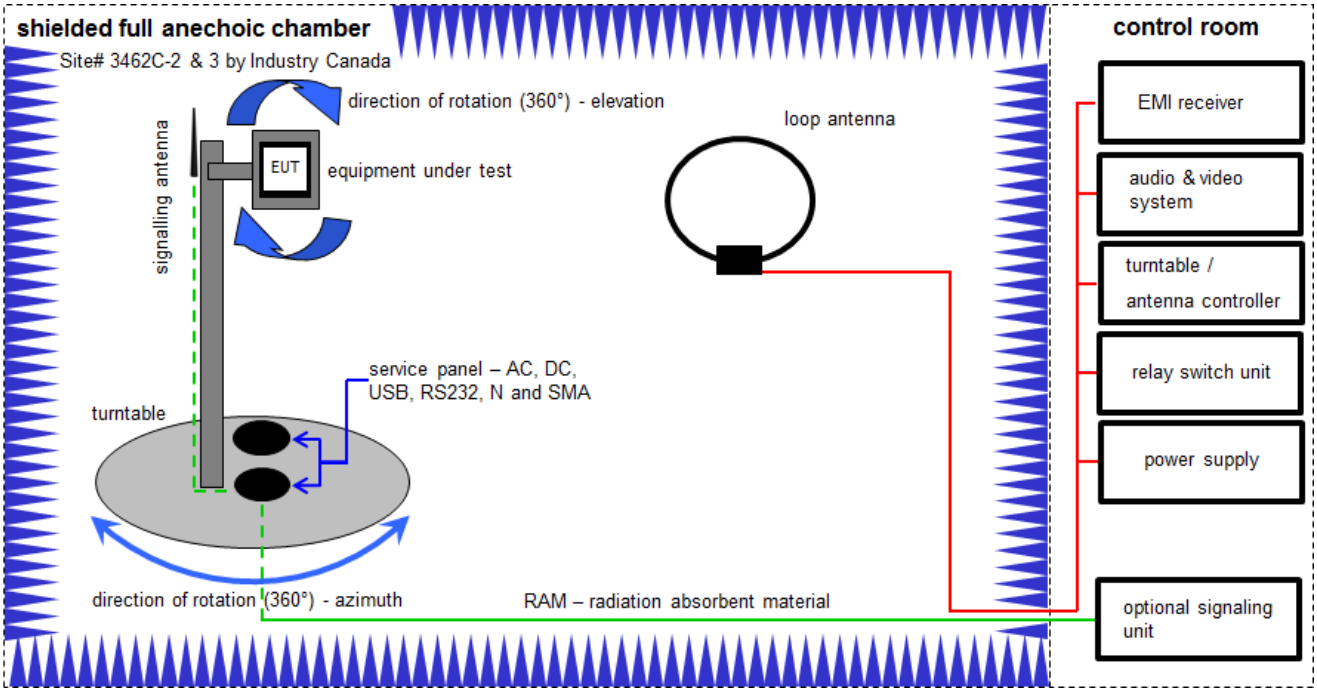
FS = UR + CL + AF
(FS-field strength; UR-voltage at the receiver; CL-loss of the cable; AF-antenna factor)

Example calculation:
FS [dBµV/m] = 12.35 [dBµV/m] + 1.90 [dB] + 16.80 [dB/m] = 31.05 [dBµV/m] (35.69 µV/m)

Equipment table:

No.	Lab / Item	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	A	Switch-Unit	3488A	HP	2719A14505	300000368	ev	-/-	-/-
2	A	Meßkabine 1	HF-Absorberhalle	MWB AG 300023	-/-	300000551	ne	-/-	-/-
3	A	EMI Test Receiver	ESCI 3	R&S	100083	300003312	k	01.02.2017	31.01.2018
4	A	Analyzer-Reference-System (Harmonics and Flicker)	ARS 16/1	SPS	A3509 07/0 0205	300003314	Ve	02.02.2016	02.02.2018
5	A	Antenna Tower	Model 2175	ETS-Lindgren	64762	300003745	izw	-/-	-/-
6	A	Positioning Controller	Model 2090	ETS-Lindgren	64672	300003746	izw	-/-	-/-
7	A	Turntable Interface-Box	Model 105637	ETS-Lindgren	44583	300003747	izw	-/-	-/-
8	A	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	295	300003787	k	25.04.2016	25.04.2018

6.2 Shielded fully anechoic chamber



Measurement distance: loop antenna 3 meter

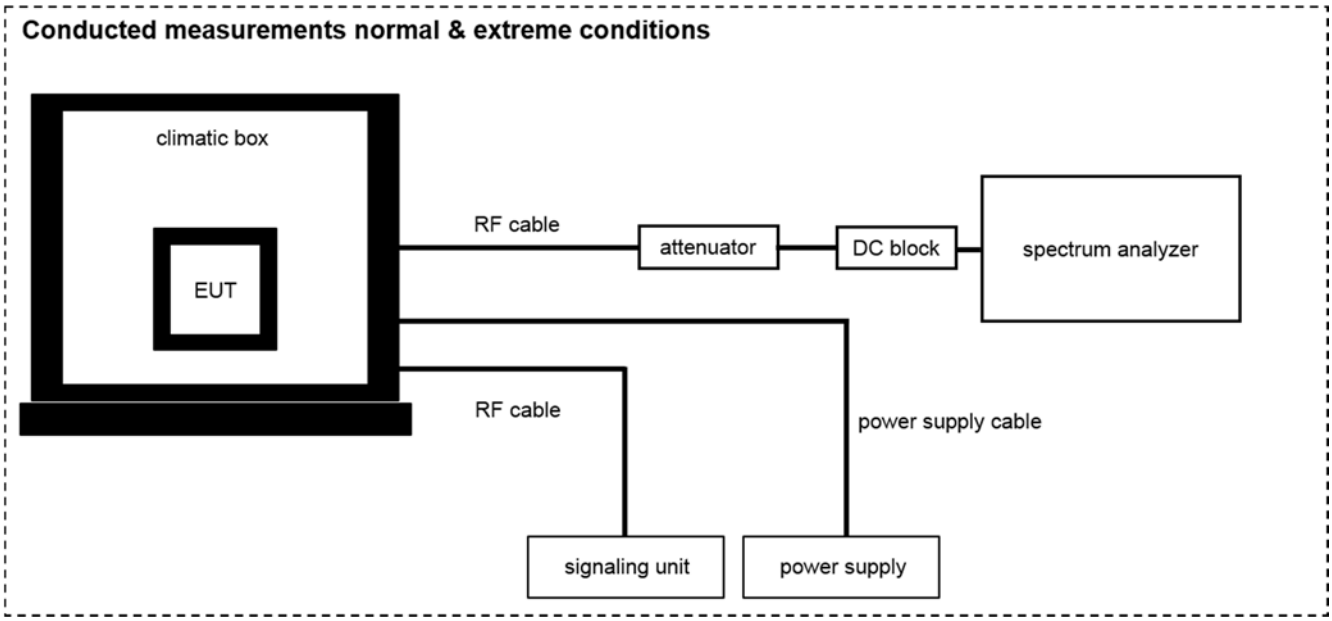
FS = UR + CA + AF
(FS-field strength; UR-voltage at the receiver; CA-loss of the signal path; AF-antenna factor)

Example calculation:
FS [dBµV/m] = 40.0 [dBµV/m] + (-35.8) [dB] + 32.9 [dB/m] = 37.1 [dBµV/m] (71.61 µV/m)

Equipment table:

No.	Lab / Item	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	A	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996	ev	-/-	-/-
2	A	Switch / Control Unit	3488A	HP	-/-	300000199	ne	-/-	-/-
3	A	Active Loop Antenna 10 kHz to 30 MHz	6502	EMCO/2	8905-2342	300000256	k	24.06.2017	24.06.2019
4	A	EMI Test Receiver 20Hz- 26,5GHz	ESU26	R&S	100037	300003555	k	31.01.2017	30.01.2018
5	A	4U RF Switch Platform	L4491A	Agilent Technologies	MY50000037	300004509	ne	-/-	-/-
6	A	NEXIO EMV-Software	BAT EMC V3.16.0.49	EMCO	-/-	300004682	ne	-/-	-/-
7	A	PC	ExOne	F+W	-/-	300004703	ne	-/-	-/-

6.3 Laboratory measurements under normal and extreme conditions



OP = AV + CA
(OP-output power; AV-analyzer value; CA-loss signal path)

Example calculation:
OP [dBm] = 6.0 [dBm] + 11.7 [dB] = 17.7 [dBm] (58.88 mW)

Equipment table:

No.	Lab / Item	Equipment	Type	Manufacturer	Serial No.	INV. No.	Kind of Calibration	Last Calibration	Next Calibration
1	A, B	DC Power Supply 0 – 32V	1108-32	Heiden Elektronik	001702	300001392	vlKI!	26.01.2017	25.01.2020
2	B	Temperature Test Chamber	VT 4002	Heraeus Voetsch	521/83761	300002326	ev	03.09.2015	03.09.2017
3	A, B	Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517	k	25.01.2017	24.01.2018
4	A, B	RF-Cable	ST18/SMAm/SMAm/ 72	Huber & Suhner	Batch no. 699714	400001184	ev	-/-	-/-
5	A, B	DC-Blocker 0.1-40 GHz	8141A	Inmet	-/-	400001185	ev	-/-	-/-
6	A, B	Synchron Power Meter	SPM-4	CTC	1	400001294	ev	-/-	-/-

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, a 2-axis positioner with 1.5 m height is used.
- 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 1.5 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 premeasurement are maximized by the software by rotating the turntable from 0° to 360°. In case of the 2-axis positioner is used the elevation axis is also rotated from 0° to 360°.
- 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.

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.

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

9 Summary of measurement results

☒	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 9 RSS Gen Issue 4	See table!	2017-08-07	-/-

Test specification clause	Test case	Temperature conditions	Power source conditions	C	NC	NA	NP	Remark
RSS Gen Issue 4	Occupied bandwidth	Nominal	Nominal	☒	☐	☐	☐	-/-
§ 15.225 (a) RSS 210 Issue 9	Field strength of the fundamental	Nominal	Nominal	☒	☐	☐	☐	-/-
§ 15.209 & § 15.225 (b-d)	Field strength of the harmonics and spurious	Nominal	Nominal	☒	☐	☐	☐	-/-
§ 15.109	Receiver spurious emissions and cabinet radiations	Nominal	Nominal	☐	☐	☒	☐	No stand-alone RX mode!
§15.107 §15.207	Conducted limits	Nominal	Nominal	☐	☐	☒	☐	Battery powered only!
§ 15.225 (a) RSS 210 Issue 9	Frequency tolerance	Normal & extreme conditions	Normal & extreme conditions	☒	☐	☐	☐	-/-

Notes:

C	Compliant	**NC**	Not compliant	**NA**	Not applicable	**NP**	Not performed

10 Additional comments

Reference documents: Customer questionnaire

Special test descriptions: None

Configuration descriptions: None

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
Analyzer function:	99 % power function
Used equipment:	See chapter 6.3 A
Measurement uncertainty:	See chapter 8

Limit:

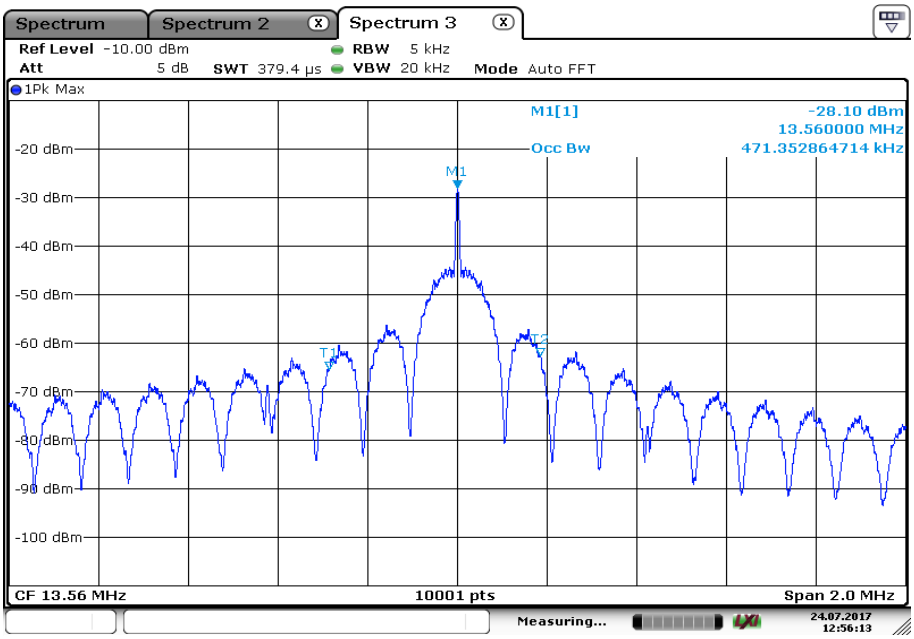
IC
for RSP-100 test report coversheet only

Result:

99% emission bandwidth
471 kHz

Plot:

Plot 1: 99 % emission bandwidth



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:	120 kHz
Video bandwidth:	≥ 3x RBW
Trace mode:	Max hold
Used equipment:	See chapter 6.2 A
Measurement uncertainty:	See chapter 8

Limit:

FCC & IC		
Frequency (MHz)	Field strength (µV/m)	Measurement distance (m)
13.553 to 13.567	15,848 (84 dBµV/m)	30

Recalculation:

According to ANSI C63.10		
Frequency	Formula	Correction value
13.56 MHz	$FS_{limit} = FS_{max} - 40\log\left(\frac{d_{nearfield}}{d_{measure}}\right) - 20\log\left(\frac{d_{limit}}{d_{nearfield}}\right)$ FS_{limit} is the calculation of field strength at the limit distance, expressed in dBµV/m FS_{max} is the measured field strength, expressed in dBµV/m $d_{near\ field}$ is the λ/2π distance $d_{measure}$ is the distance of the measurement point from EUT d_{limit} is the reference limit distance	-21.4 from 3m to 30m

Result:

Field strength of the fundamental		
Frequency	13.56 MHz	
Distance	@ 3 m	@ 30 m
Measured / calculated value (PP)	39.3 dBµV/m	17.9 dBµV/m
Measured / calculated value (QP)	38.0 dBµV/m	16.6 dBµV/m

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 peak (worst case – pre-scan)
Resolution bandwidth:	F < 150 kHz: 200 Hz 150 kHz < F < 30 MHz: 9 kHz 30 MHz < F < 1 GHz: 120 kHz
Video bandwidth:	F < 150 kHz: 1 kHz 150 kHz < F < 30 MHz: 100 kHz 30 MHz < F < 1 GHz: 300 kHz
Trace mode:	Max hold
Used equipment:	See chapter 6.1 A
Measurement uncertainty:	See chapter 8

Limit:

FCC & IC		
Frequency (MHz)	Field strength (dBµV/m)	Measurement distance (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

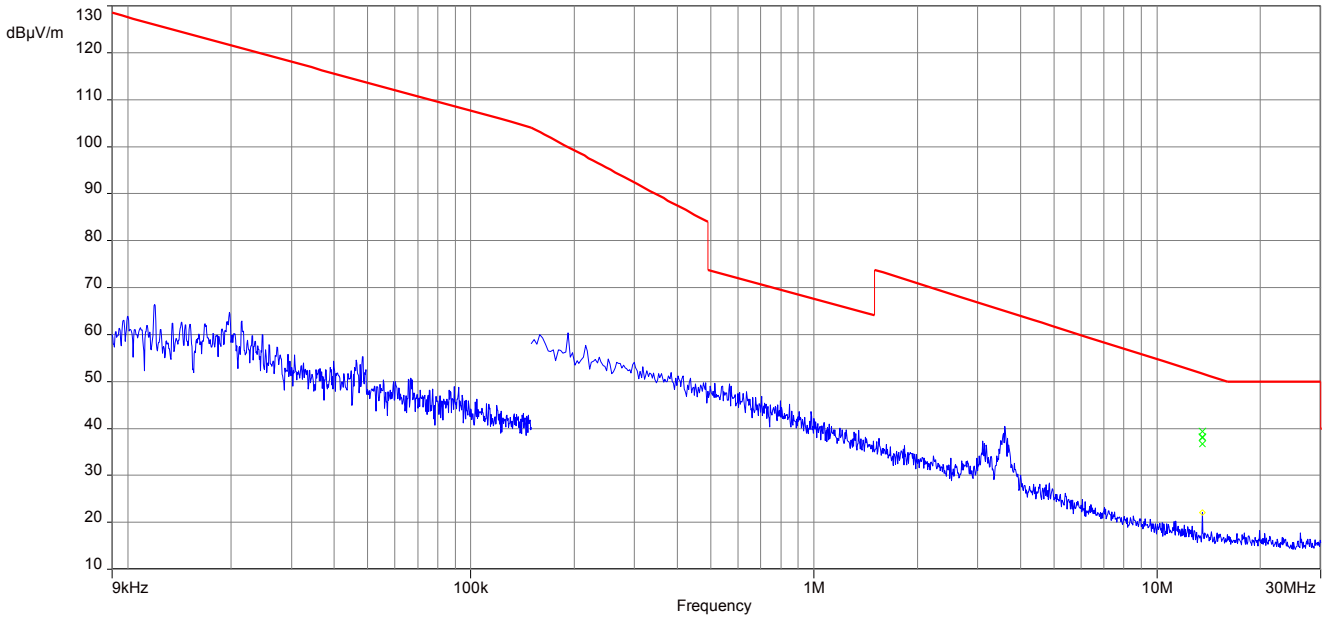
Note: For a reduced measurement distance, please take a look at the limit line and the ANSI C63.10-2013 sub clause 6.4 radiated emissions from unlicensed wireless devices below 30 MHz.

Result:

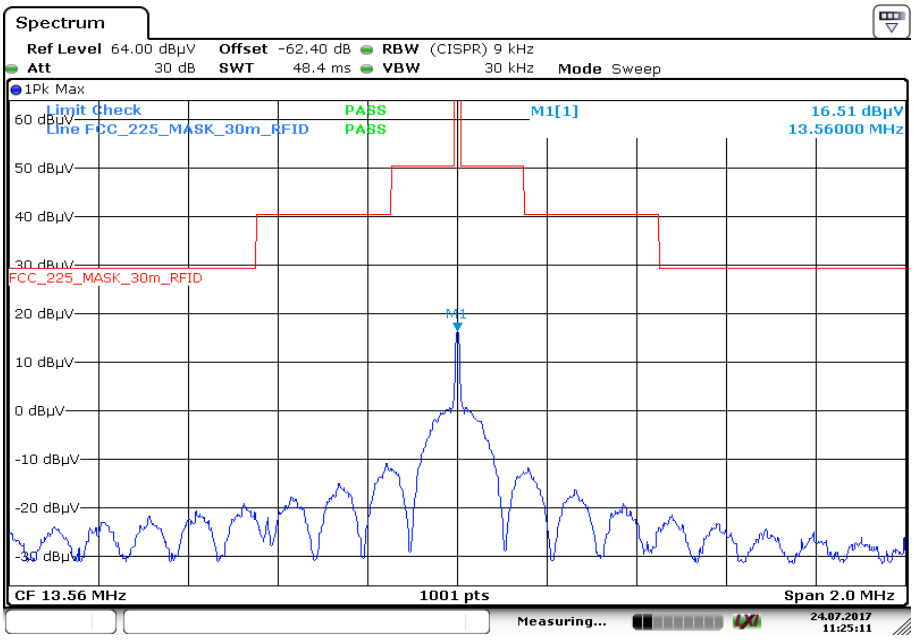
Detected emissions			
Frequency (MHz)	Detector	Resolution bandwidth (kHz)	Detected value (dBµV/m @ 3m)
See plots!			

Plots:

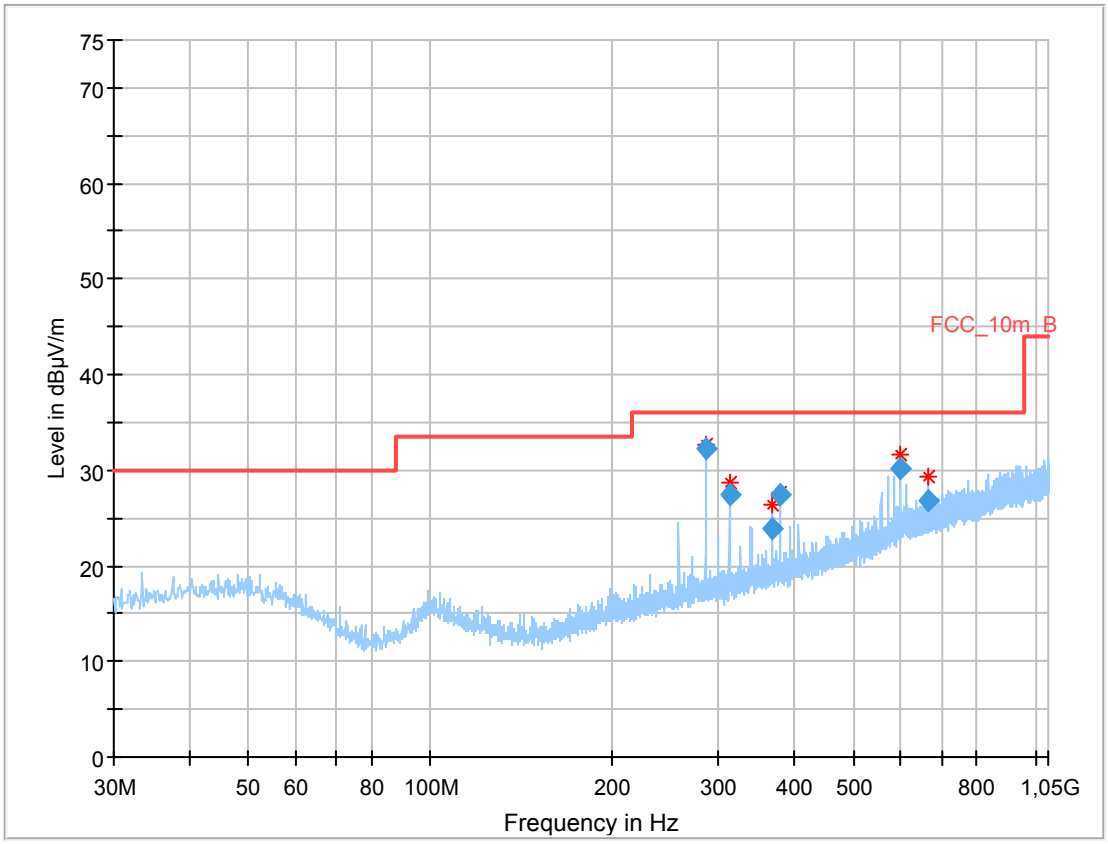
Plot 1: 9 kHz – 30 MHz, magnetic emissions



Plot 2: Spectrum mask (the limits are recalculated according to the ANSI C63.10-2013 sub clause 6.4)



Plot 3: 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)
284.753550	32.19	36.00	3.81	1000.0	120.000	100.0	V	60.0	14.1
311.869500	27.46	36.00	8.54	1000.0	120.000	100.0	V	95.0	14.8
366.113250	23.85	36.00	12.15	1000.0	120.000	100.0	V	275.0	16.3
379.685550	27.36	36.00	8.64	1000.0	120.000	100.0	V	60.0	16.5
596.635050	30.20	36.00	5.80	1000.0	120.000	202.0	V	278.0	20.6
664.420200	26.85	36.00	9.15	1000.0	120.000	100.0	H	15.0	21.3

11.4 Frequency error

Measurement:

The maximum detected field strength for the spurious.

Measurement parameters	
Detector:	Peak detector
Resolution bandwidth:	5 Hz / 20 kHz
Video bandwidth:	> RBW
Trace mode:	Max hold
Used equipment:	See chapter 6.3 B
Measurement uncertainty:	See chapter 8

Limit:

FCC & IC
The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. (±1.356 kHz) Carrier frequency stability shall be maintained to ±0.01% (±100 ppm/±1.356 kHz)

Result: Temperature variation

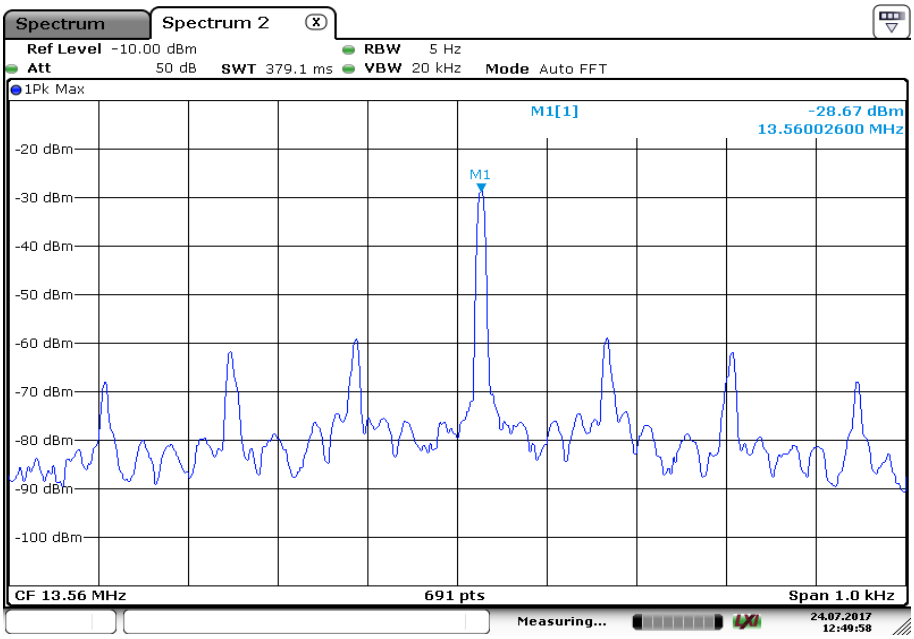
Frequency tolerance			
Measured frequency (MHz)	Frequency error (kHz)	Conditions	Result
13.560120	0.12	-20 °C & 100% voltage	compliant
13.560117	0.12	-10 °C & 100% voltage	compliant
13.560109	0.11	0 °C & 100% voltage	compliant
13.560071	0.07	+10 °C & 100% voltage	compliant
13.560026	0.03	+20 °C & 100% voltage	compliant
13.560020	0.02	+30 °C & 100% voltage	compliant
13.560023	0.03	+40 °C & 100% voltage	compliant
13.560029	0.03	+50 °C & 100% voltage	compliant
13.560033	0.03	+60 °C & 100% voltage	compliant
13.560032	0.03	+70 °C & 100% voltage	compliant

Result: Voltage variation

Frequency tolerance			
Measured frequency (MHz)	Frequency error (kHz)	Conditions	Result
13.560111	0.01	+20 °C & 85% voltage	compliant
13.560026	0.03	+20 °C & 100% voltage	compliant
13.560107	0.11	+20 °C & 115% voltage	compliant

Plots:

Plot 1: T_{nom} & V_{nom}



12 Observations

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

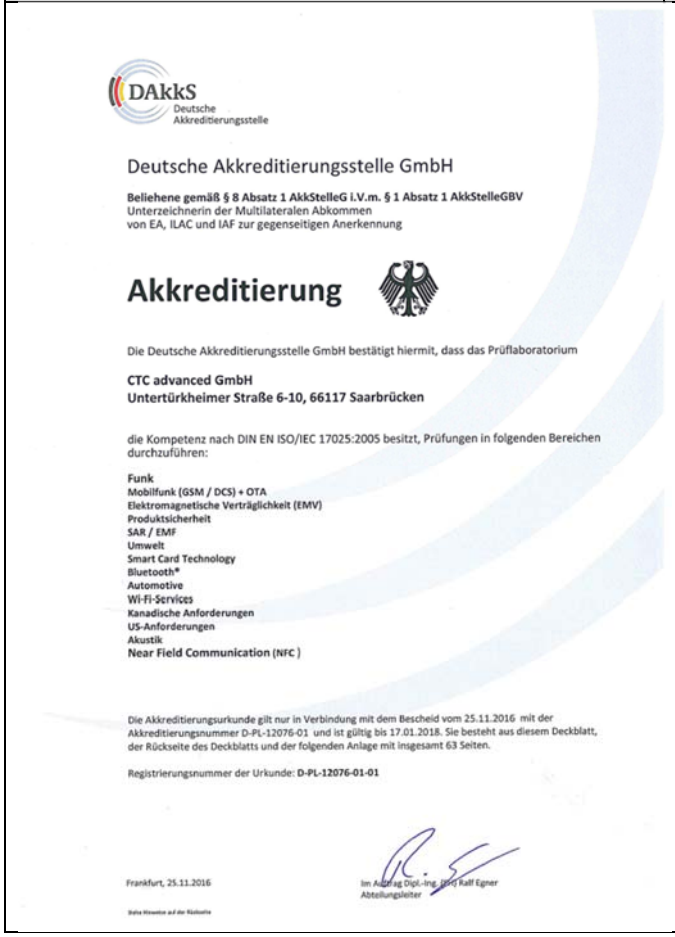
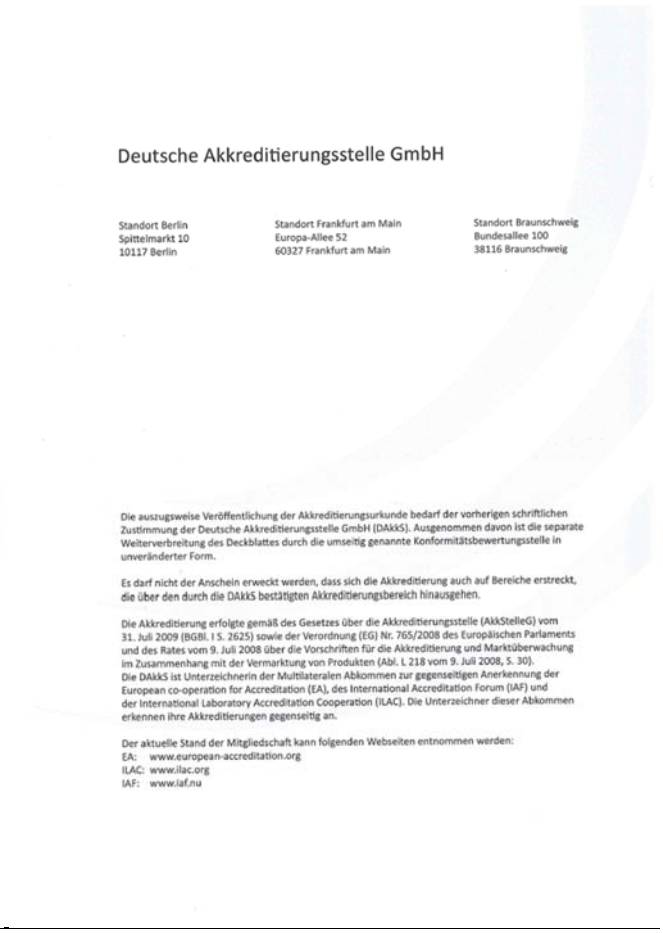
Annex A Glossary

EUT	Equipment under test
DUT	Device under test
UUT	Unit under test
ETSI	European Telecommunications Standard Institute
EN	European Standard
FCC	Federal Communication 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
C	Compliant
NC	Not compliant
NA	Not applicable
NP	Not performed
PP	Positive peak
QP	Quasi peak
AVG	Average
OC	Operating channel
OCW	Operating channel bandwidth
OBW	Occupied bandwidth
OOB	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

Annex B Document history

Version	Applied changes	Date of release
-/-	Initial release	2017-08-03
A	Added HVIN	2017-08-07

Annex C Accreditation Certificate

first page	last page
	

DAkkS
Deutsche Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH

Beliehene gemäß § 8 Absatz 1 AkkStelleG i.V.m. § 1 Absatz 1 AkkStelleGBV
Unterzeichnerin der Multilateralen Abkommen
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Akkreditierung

Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Prüflaboratorium

CTC advanced GmbH
Untertürkheimer Straße 6-10, 66117 Saarbrücken

die Kompetenz nach DIN EN ISO/IEC 17025:2005 besitzt, Prüfungen in folgenden Bereichen durchzuführen:

Funk
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SAR / EMF
Umwelt
Smart Card Technology
Bluetooth*
Automotive
Wi-Fi-Services
Kanadische Anforderungen
US-Anforderungen
Akustik
Near Field Communication (NFC)

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

Frankfurt, 25.11.2016

Im Auftrag Dipl.-Ing. (FH) Ralf Egner
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http://www.dakks.de/as/ast/d/D-PL-12076-01-01.pdf

http://www.dakks.de/as/ast/d/D-PL-12076-01-02.pdf