

**CETECOM™****CETECOM ICT Services**  
consulting - testing - certification >>>

## TEST REPORT

**Test report no.: 1-4473/12-01-03-A****DAkkS**  
Deutsche  
Akkreditierungsstelle  
D-PL-12076-01-01

### Testing laboratory

**CETECOM ICT Services GmbH**Untertuerkheimer Strasse 6 – 10  
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e-mail: [ict@cetecom.com](mailto:ict@cetecom.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

Area of Testing: Radio/Satellite Communications

### Applicant

**Valeo Automotive Security System(Wuxi)co.Ltd.**

Building B11,Meiqing Road,Wuxi Hi-Tech Development Zone

214028 Wuxi City,Jiangsu Province / CHINA

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### Manufacturer

**Valeo Automotive Security System(Wuxi)co.Ltd.**

Building B11,Meiqing Road,Wuxi Hi-Tech Development Zone

214028 Wuxi City,Jiangsu Province / CHINA

### 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 8	Spectrum Management and Telecommunications - Radio Standards Specification Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment

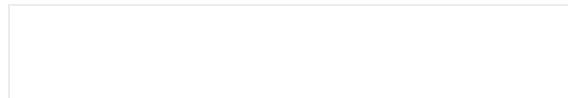
For further applied test standards please refer to section 3 of this test report.

### Test Item

Kind of test item:	315 MHz Flapkey
Model name:	B01T1AC
FCC ID:	AVL-B01T1AC
IC:	3248D-B01T1AC
Frequency:	314.9 MHz
Technology tested:	Modulated carrier
Antenna:	Integrated antenna
Power Supply:	3.0 V DC by battery CR 2032
Temperature Range:	-20 °C to +55 °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 authorised:**Stefan Bös  
Senior Testing Manager**Test performed:**Marco Bertolino  
Testing Manager

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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. CETECOM ICT Services 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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In no case this test report can be considered as a Letter of Approval.

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

### 2.2 Application details

Date of receipt of order:	2012-02-22
Date of receipt of test item:	2012-02-22
Start of test:	2012-02-22
End of test:	2012-02-23
Person(s) present during the test:	-/-

## 3 Test standard/s

Test standard	Date	Test standard description
47 CFR Part 15	2010-10	Title 47 of the Code of Federal Regulations; Chapter I Part 15 - Radio frequency devices
RSS - 210 Issue 8	2010-12	Spectrum Management and Telecommunications - Radio Standards Specification Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment

## 4 Test environment

Temperature:	$T_{\text{nom}}$	+22 °C during room temperature tests
	$T_{\text{max}}$	+55 °C during high temperature tests
	$T_{\text{min}}$	-20 °C during low temperature tests
Relative humidity content:		40 %
Barometric pressure:		not relevant for this kind of testing
Power supply:	$V_{\text{nom}}$	3.0 V DC by battery CR 2032
	$V_{\text{max}}$	-/-
	$V_{\text{min}}$	-/-

## 5 Test item

Kind of test item	:	315 MHz Flapkey
Type identification	:	B01T1AC
S/N serial number	:	13574863
HW hardware status	:	7.00
SW software status	:	3.40 A
Frequency band [MHz]	:	314.9 MHz!
Type of radio transmission	:	Modulated carrier
Use of frequency spectrum	:	
Channel access method	:	-/-
Type of modulation	:	OOK
Number of channels	:	1
Antenna	:	Integrated antenna
Power supply	:	3.0 V DC by battery CR 2032
Temperature range	:	-20 °C to +55 °C

## 6 Test laboratories sub-contracted

None

## 7 Summary of measurement results



No deviations from the technical specifications were ascertained



There were deviations from the technical specifications ascertained

TC Identifier	Description	Verdict	Date	Remark
RF-Testing	CFR Part 15 RSS 210, Issue 8, Annex 1	Passed	2012-03-09	-/-

Test Specification Clause	Test Case	Temperature Conditions	Power Source Voltages	Pass	Fail	NA	NP	Remark
§ 15.35 (c)/ RSS-GEN Issue 2	Timing of the transmitter (Duty cycle correction factor )	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§ 15.231 (a) (1)/ RSS-210 Issue 8	Switch off time	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§ 15.231 (3) (c)/ RSS-210 Issue 8	Emission Bandwidth	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§ 15.231 (b)/ RSS-210 Issue 8	Fieldstrength of Fundamental	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§ 15.209/ RSS-210 Issue 8	Fieldstrength of harmonics and spurious	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§ 15.209/ RSS-GEN Issue Section 6	Receiver spurious emissions (radiated)	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-/-

**Note:** NA = Not Applicable; NP = Not Performed

## 8 RF measurements

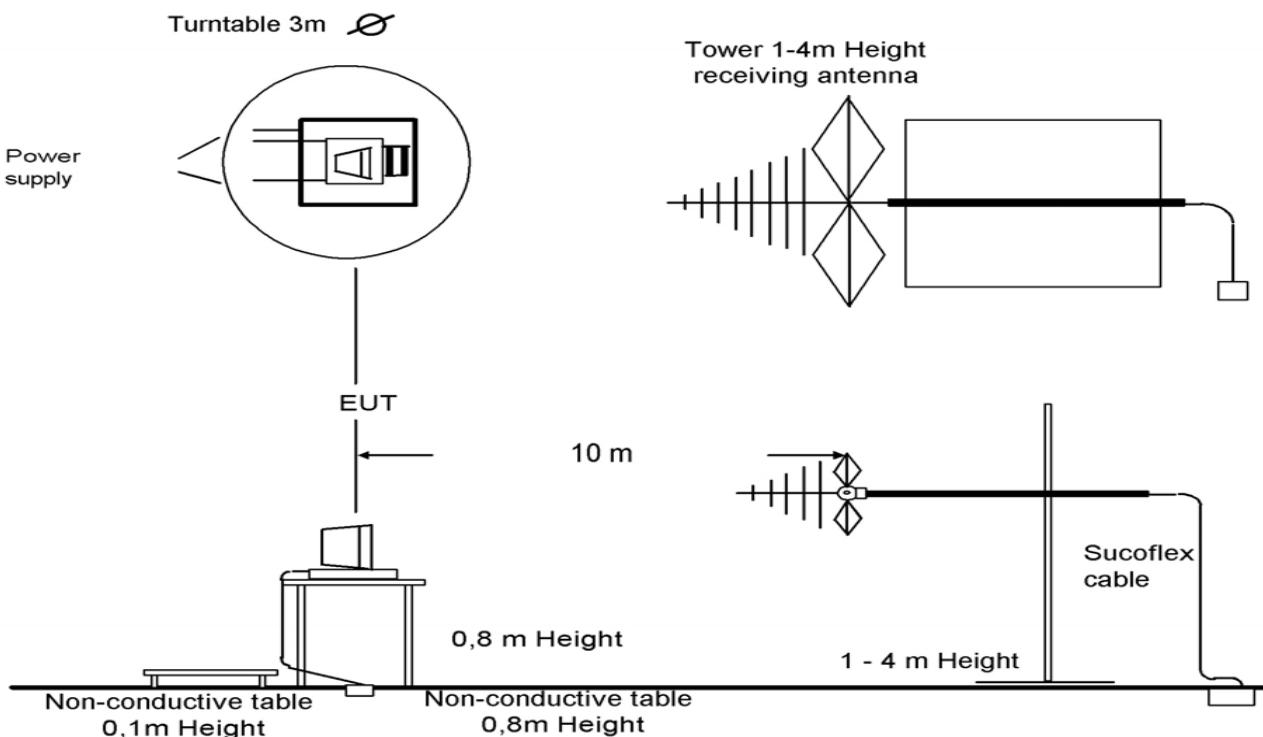
### 8.1 Description of test setup

#### 8.1.1 Radiated measurements

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 25 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas are confirmed with specifications ANSI C63.2-1996 clause 15 and ANSI C63.4-2009 clause 4.1.5. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test 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 analysers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63.4-2009 clause 4.2.

Antennas are confirmed with ANSI C63.2-1996 item 15.

Semi anechoic chamber



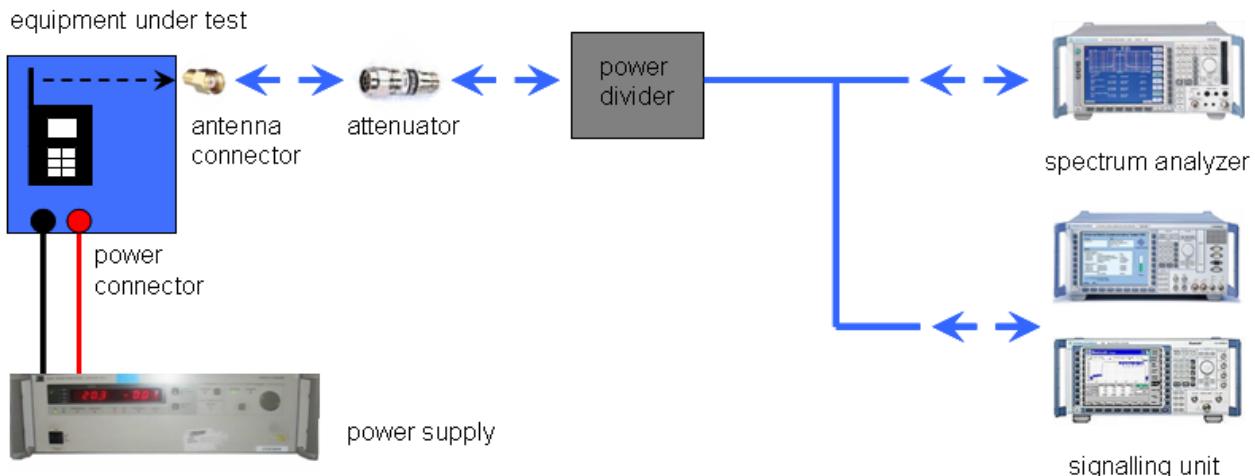
**Picture 1: Diagram radiated measurements**

9 kHz - 30 MHz:	active loop antenna
30 MHz – 1 GHz:	tri-log antenna
> 1 GHz:	horn antenna

The EUT is powered by an external power supply with nominal voltage. The signalling is performed from outside the chamber with a signalling unit (CMU200 or other) by air link using signalling antenna.

### 8.1.2 Conducted measurements

The EUT's RF signal is coupled out by the antenna connector which is supplied by the manufacturer. The signal is first 10dB attenuated before it is power divided (~6dB loss per branch). One of the signal paths is connected to the communication base Station (CMU200 or other), the other one is connected to the spectrum analyzer. The specific losses for both signal paths are first checked within a calibration. The measurement readings on the signalling unit/spectrum analyzer are corrected by the specific test set-up loss. The attenuator, power divider, signalling unit and the spectrum analyzer are impedance matched on 50 Ohm.



**Picture 2: Diagram conducted measurements**

### 8.2 Additional comments

Reference documents: None

Special test descriptions: None

Configuration descriptions: None

### 8.3 RSP100 test report cover sheet / performance test data

<b>Test Report Number</b>	:	1-4473/12-01-03-A
<b>Equipment Model Number</b>	:	B01T1AC
<b>Certification Number</b>	:	3248D-B01T1AC
<b>Manufacturer (complete Address)</b>	:	Valeo Automatic Security System(Wuxi)co.Ltd. Building B11,Meiqing Road,Wuxi Hi-Tech Development Zone 214028 Wuxi City,Jiangsu Province / CHINA
<b>Tested to radio standards specification no.</b>	:	RSS 210, Issue 8, Annex 1
<b>Open Area Test Site IC No.</b>	:	IC 3462C-1
<b>Frequency Range or fixed frequency</b>	:	314.9 MHz
<b>Field Strength [dB<math>\mu</math>V/m] (at which distance)</b>	:	57.73 AVG @ 3 m
<b>Occupied bandwidth (99%-BW) [kHz]</b>	:	41.67
<b>Type of modulation</b>	:	OOK
<b>Emission Designator (TRC-43)</b>	:	41K7A1D
<b>Antenna Information</b>	:	Integrated antenna
<b>Transmitter Spurious (worst case) [dB<math>\mu</math>V/m @ 3m]:</b>		52.63 dB $\mu$ V/m AVG @ 1574.2 MHz
<b>Receiver Spurious (worst case) [dB<math>\mu</math>V/m @ 3m]:</b>		No receiver integrated!

**ATTESTATION:**

**DECLARATION OF COMPLIANCE:**

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

**Laboratory Manager:**

2012-03-09	Marco Bertolino	
Date	Name	Signature

## 9 Measurement results

### 9.1 Timing of the transmitter

**Measurement:**

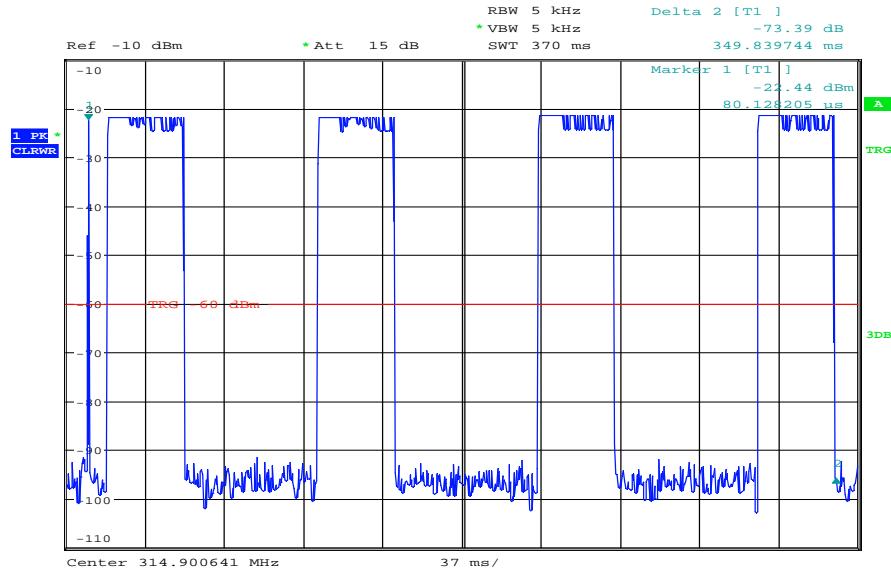
Measurement parameter	
Detector:	Peak
Sweep time:	370 ms / 50 ms
Resolution bandwidth:	5 kHz
Video bandwidth:	5 kHz
Span:	Zero span
Trace-Mode:	Clear write / Trigger video / single sweep

**Limits:**

FCC	IC
CFR Part SUBCLAUSE § 15.35 (c)	RSS-GEN Issue 2 Section 4.5
Timing of the transmitter	
<p>(c) Unless otherwise specified, e.g. Section 15.255(b), when the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value. The exact method of calculating the average field strength shall be submitted with any application for certification or shall be retained in the measurement data file for equipment subject to notification or verification.</p>	

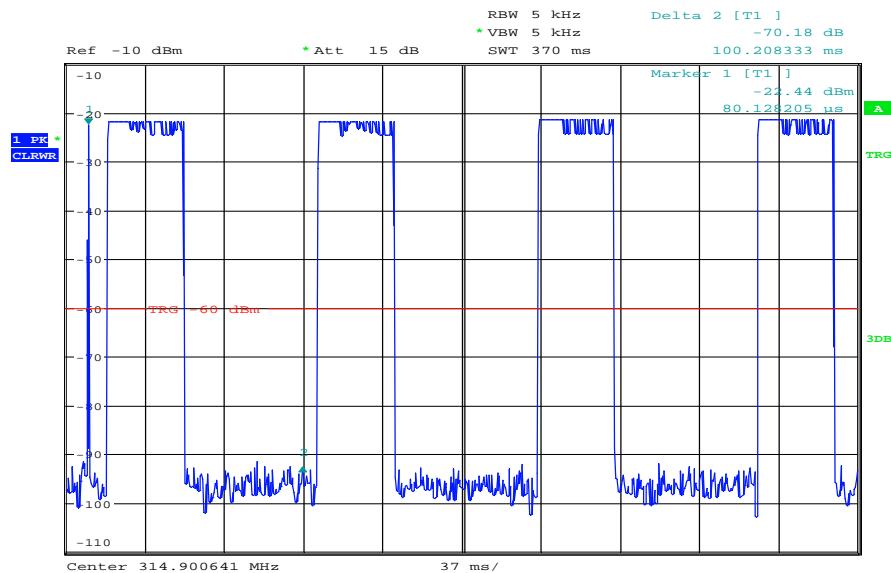
**Result:**

Plot 1: Pulse train



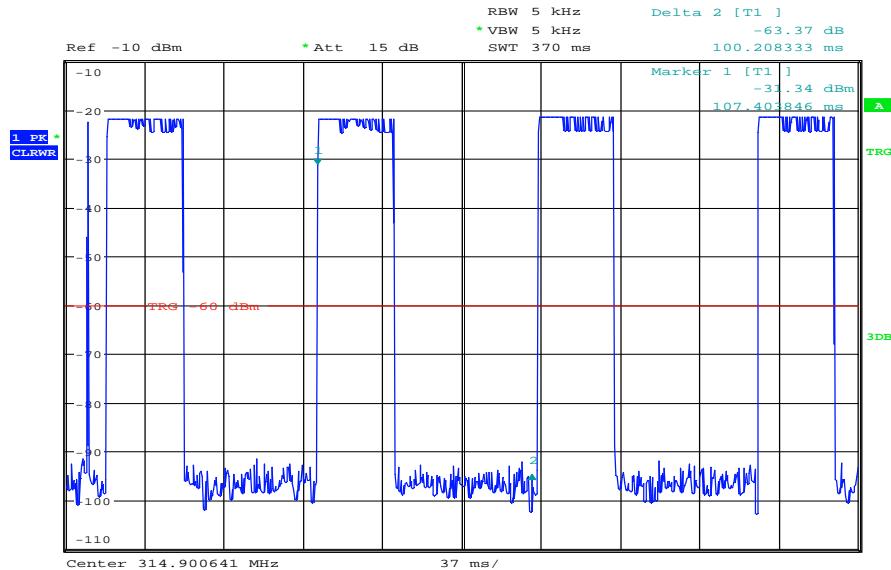
Date: 23.FEB.2012 07:54:48

Plot 2: 1 pulse / 100 ms (pulse No. 1)



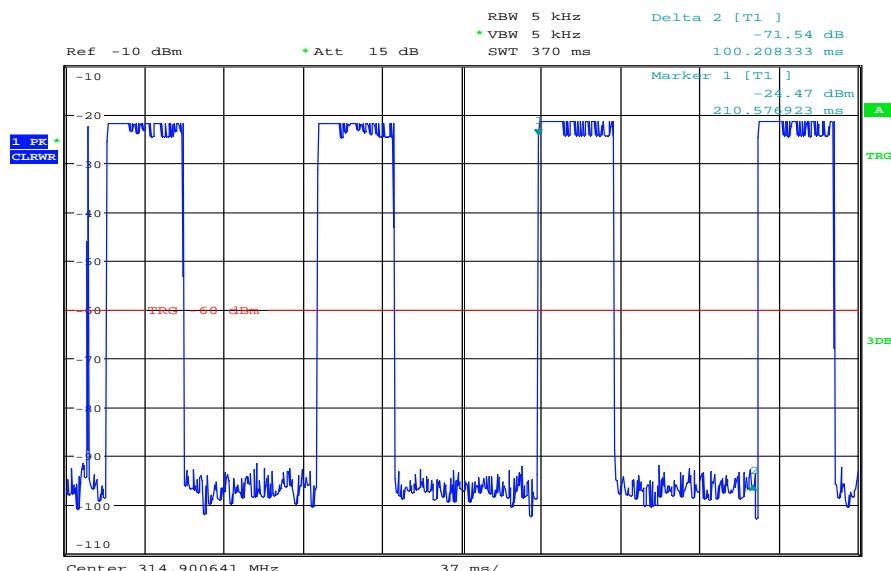
Date: 23.FEB.2012 07:52:47

Plot 3: 1 pulse / 100 ms (pulse No. 2)



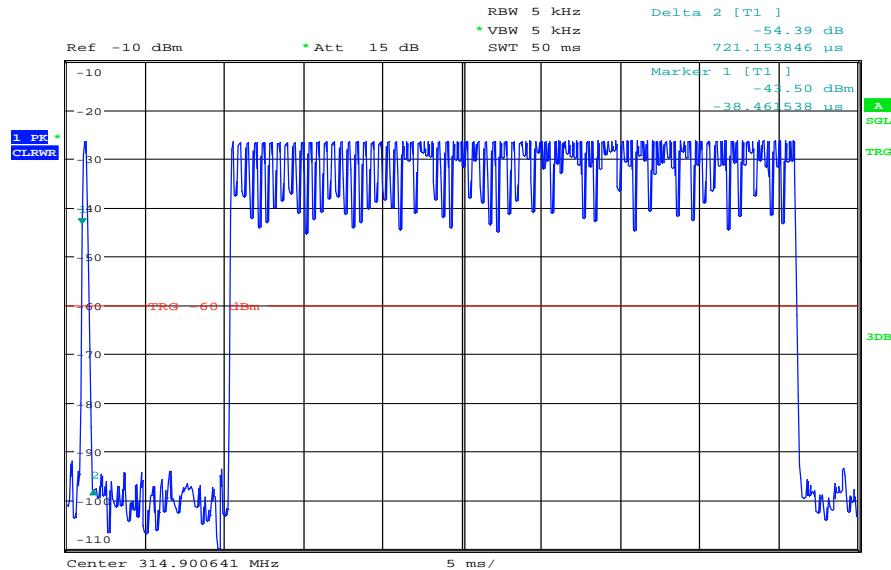
Date: 23.FEB.2012 07:53:33

Plot 4: 1 pulse / 100 ms (pulse No. 3)

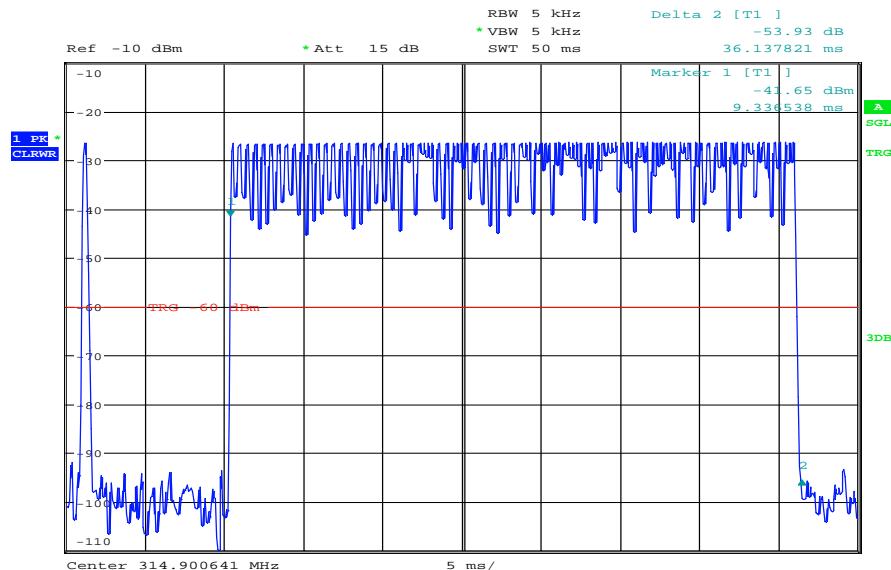


Date: 23.FEB.2012 07:53:57

Plot 5: zoomed pulse (pulse No.1)



Plot 6: zoomed pulse (pulse No.1)



Transmit time (Tx on 1) = 721.15  $\mu$ s (Plot 5)

Transmit time (Tx on 2) = 36.14 ms (Plot 6)

TX on time gesamt = 36.86 ms

Duty cycle = 36.86 % (100 ms range)

The peak-to-average correction factor is calculated with  $20 \log [Tx \text{ on} / (Tx \text{ on} + Tx \text{ off})]$ .  
Hereby the peak-to-average correction factor is.

peak-to-average correction factor: 8.67 dB

**Result: The measurement is passed.**

## 9.2 Switch off time

### Measurement:

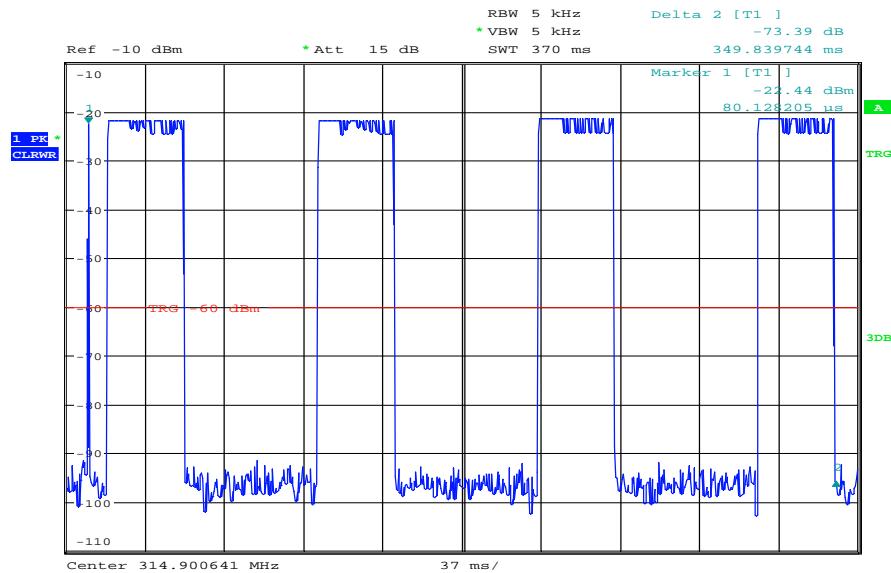
Measurement parameter	
Detector:	Peak
Sweep time:	370 ms
Resolution bandwidth:	5 kHz
Video bandwidth:	5 kHz
Span:	Zero span
Trace-Mode:	Clear write / Trigger video / single sweep

### Limits:

FCC	IC
CFR Part SUBCLAUSE § 15.231 (a) (1)	RSS-GEN Issue 2 Section 4.5
Switch off time	
A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.	

**Results:**

Plot 1: Pulse train



Date: 23.FEB.2012 07:54:48

The EUT automatically ceases transmission within not more than 350 ms after releasing the switch.

**Result: The measurement is passed.**

### 9.3 Emission bandwidth

#### Measurement:

Measurement of the 20 dB bandwidth of the modulated signal

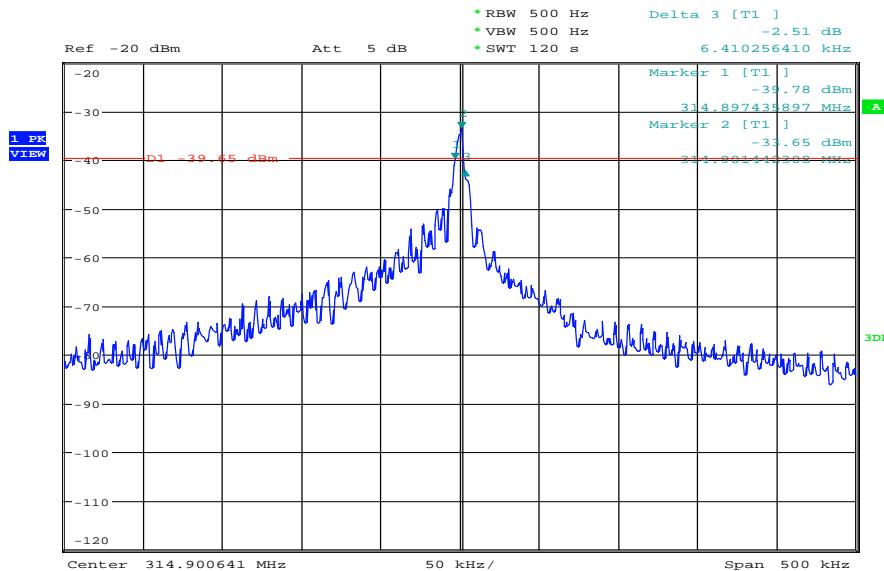
Measurement parameter	
Detector:	Peak
Sweep time:	120 s
Resolution bandwidth:	500 Hz
Video bandwidth:	500 Hz
Span:	500 kHz
Trace-Mode:	Max. hold

#### Limits:

FCC	IC
CFR Part SUBCLAUSE § 15.231 (c)	RSS-210 Issue 8 Section A1.1.3
Emission bandwidth	
The OBW shall not be wider than 0.25% of the centre frequency, here maximum 787.5 kHz.	

## Result:

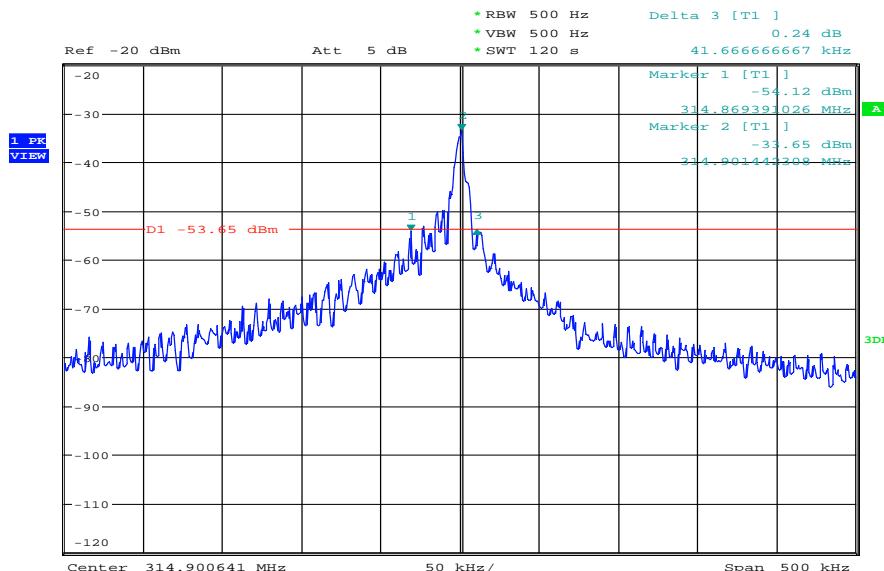
Plot 1: 6 dB bandwidth



Date: 23.FEB.2012 07:44:57

The emission bandwidth at 6 dB is 6.41 kHz

Plot 2: 20 dB bandwidth



Date: 23.FEB.2012 07:46:08

The emission bandwidth at 20 dB is 41.67 kHz

**Result:** The measurement is passed.

## 9.4 Field strength of the fundamental

### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	$\leq 3 \times$ RBW
Resolution bandwidth:	120 kHz
Trace-Mode:	Max. hold

### Limits:

FCC	IC	
CFR Part SUBCLAUSE § 15.231 (b)	RSS-210 Issue 8 Section A1.1.2 / 2.7 Table 4	
Field strength of the fundamental.		
In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:		
Fundamental Frequency (MHz)	Field strength of Fundamental ( $\mu$ V/m)	Measurement distance (m)
40.66 – 40.70	2,250	3
70-130	1,250	3
130-174	1,250 to 3,750	3
174-260	3,750	3
260-470	3,750 to 12,500	3
Above 470	12,500	3

Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows:

- for the band 130-174 MHz,  $\mu$ V/m at 3 meters =  $56.81818(F) - 6136.3636$ ;
- for the band 260-470 MHz,  $\mu$ V/m at 3 meters =  $41.6667(F) - 7083.3333$ .

**Note:**  $41.6667 * 314.9 \text{ MHz} - 7083.3333 = 6037.51 \Rightarrow 75.62 \text{ dB}\mu\text{V/m} @ 3 \text{ m}$

### Result:

TEST CONDITIONS		MAXIMUM POWER (dB $\mu$ V/m at 3 m distance)	
Frequency		MHz	MHz
Mode		Peak	Average (DC correction)
$T_{\text{nom}}$	$V_{\text{nom}}$	66.4	57.73
Measurement uncertainty		$\pm 3 \text{ dB}$	

\*Value recalculated from Peak-to-Average correction factor described in 6.1

**Result:** The measurement is passed.

## 9.5 Field strength of the harmonics and spurious

### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	120 kHz
Video bandwidth:	≤ 3x RBW
Trace-Mode:	Max. hold

### Limits:

FCC	IC	
CFR Part SUBCLAUSE § 15.231 (b)	RSS-210 Issue 8 Section A1.1.2 / 2.7 Table 4	
Field strength of the fundamental.		
In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:		
Fundamental Frequency (MHz)	Field strength of spurious (μV/m)	Measurement distance (m)
40.66 – 40.70	225	3
70-130	125	3
130-174	125 to 375	3
174-260	375	3
260-470	375 to 1,250	3
Above 470	1,250	3

The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in Section 15.209, whichever limit permits a higher field strength.

FCC	IC	
SUBCLAUSE § 15.209		
Field strength of the harmonics and spurious.		
Frequency (MHz)	Field strength (μV/m)	Measurement distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30 – 88	100	3
88 – 216	150	3
216 – 960	200	3
above 960	500	3

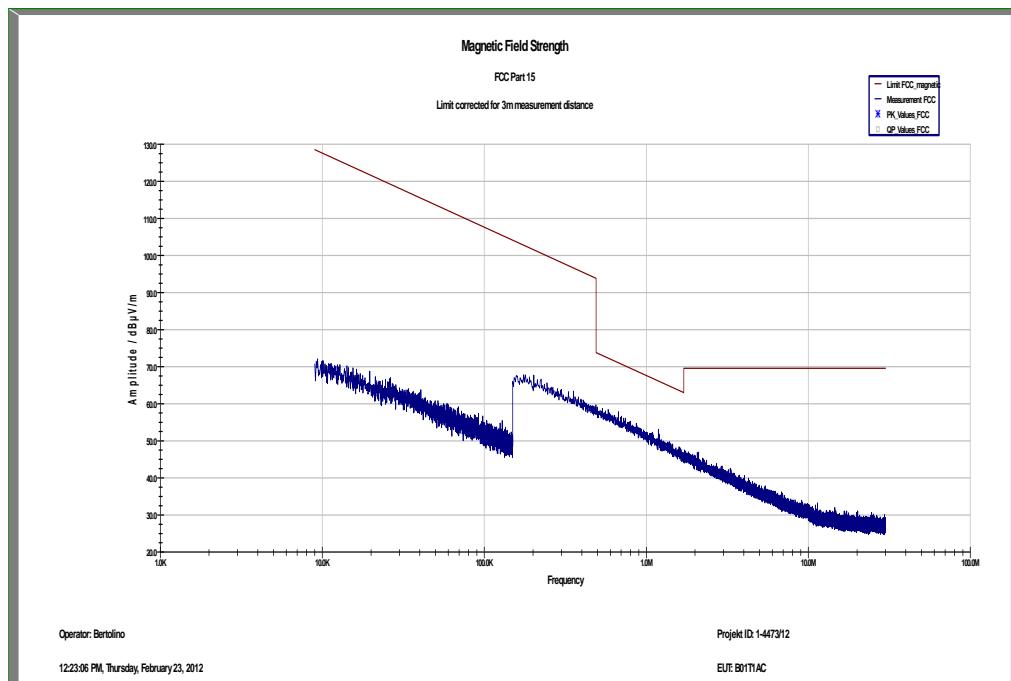
## Results:

EMISSION LIMITATIONS				
f [MHz]	Detector	Amplitude of emission [dB $\mu$ V/m] Peak @ 3 m	Amplitude of emission [dB $\mu$ V/m] AVG @ 3 m	Results
629.799	Peak / pulse AVG	42.6 @ 120 kHz RBW	33.93@ 120 kHz RBW	passed
944.706	Peak / pulse AVG	38.2@ 120 kHz RBW	29.53@ 120 kHz RBW	passed
1258.300	Peak / pulse AVG	48.2 @ 1 MHz RBW/VBW	39.53@ 1 MHz RBW/VBW	passed
1259.200	Peak / pulse AVG	54.4@ 1 MHz RBW/VBW	45.73@ 1 MHz RBW/VBW	passed
1574.200	Peak / pulse AVG	61.3@ 1 MHz RBW/VBW	52.63@ 1 MHz RBW/VBW	passed
1889.200	Peak / pulse AVG	48.0@ 1 MHz RBW/VBW	39.33@ 1 MHz RBW/VBW	passed
2204.200	Peak / pulse AVG	50.4@ 1 MHz RBW/VBW	41.73@ 1 MHz RBW/VBW	passed
2519.200	Peak / pulse AVG	55.9@ 1 MHz RBW/VBW	47.23@ 1 MHz RBW/VBW	passed
2834.200	Peak / pulse AVG	51.0@ 1 MHz RBW/VBW	42.33@ 1 MHz RBW/VBW	passed
3463.300	Peak / pulse AVG	51.1@ 1 MHz RBW/VBW	42.43@ 1 MHz RBW/VBW	passed
4408.300	Peak / pulse AVG	50.1@ 1 MHz RBW/VBW	41.43@ 1 MHz RBW/VBW	passed
4723.300	Peak / pulse AVG	53.9@ 1 MHz RBW/VBW	45.23@ 1 MHz RBW/VBW	passed
6298.300	Peak / pulse AVG	47.1@ 1 MHz RBW/VBW	38.43@ 1 MHz RBW/VBW	passed
7318.900	Peak / pulse AVG	41.8@ 1 MHz RBW/VBW	33.13@ 1 MHz RBW/VBW	passed
8237.800	Peak / pulse AVG	43.5@ 1 MHz RBW/VBW	34.83@ 1 MHz RBW/VBW	passed

**Result:** The measurement is passed.

**Plots of the measurements:**

Plot 1: 9 kHz – 30 MHz, Part 15.209 Magnetics, Measurement distance 3m

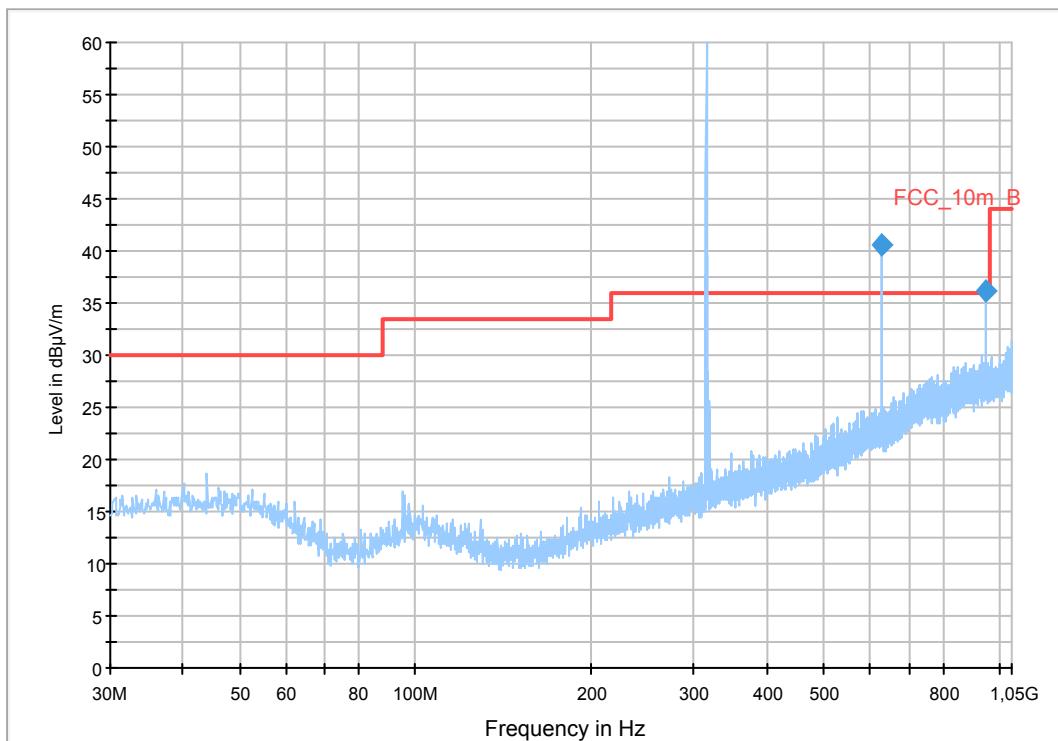


Plot 2: 30 MHz – 1000 MHz

**Common Information**

EUT: B01T1AC  
 Serial Number:  
 Test Description: FCC part 15 B  
 Operating Conditions: cont. TX mode  
 Operator Name: Kraus  
 Comment: battery powered

FCC\_10m(B)

**Final Result 1**

Frequency (MHz)	Peak (dB $\mu$ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimut h (deg)	Corr. (dB)			Comment
314.900000	66.4	1000.0	120.000	100.0	V	0.0	15.0			
629.799000	42.6	1000.0	120.000	98.0	V	165.0	21.0			
944.706000	38.2	1000.0	120.000	288.0	H	329.0	25.3			

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

	Subrange 1
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.42
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table (vertical): Cable_EN_1GHz (1005) Correction Table (horizontal): Cable_EN_1GHz (1005)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

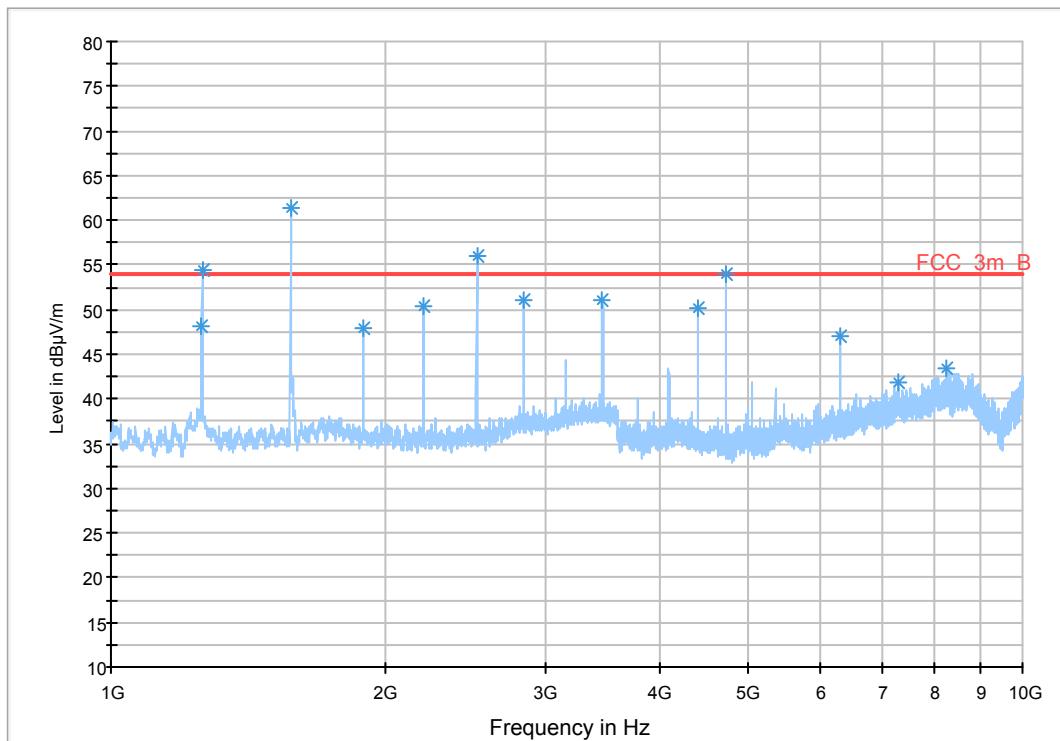
EMC 32 Version 8.10.00

Plot 2: 1000 MHz – 10000 MHz

## Common Information

EUT: B01T1AC  
 Serial Number:  
 Test Description: FCC part 15 B  
 Operating Conditions: cont. TX mode  
 Operator Name: Kraus  
 Comment: battery powered

FCC\_1\_10\_B\_5m



## Data Reduction Result 1 [1]

Frequency (MHz)	MaxPeak-MaxHold (dBµV/m)	Height (cm)	Polarization	Azimut h	Corr. (dB)	Comment
1258.300000	48.2	100.0	V	153.0	-2.7	
1259.200000	54.4	100.0	V	153.0	-2.7	
1574.200000	61.3	100.0	V	354.0	-4.5	
1889.200000	48.0	100.0	V	227.0	-4.2	
2204.200000	50.4	100.0	V	2.0	-3.9	
2519.200000	55.9	100.0	V	-1.0	-4.1	
2834.200000	51.0	100.0	V	211.0	-2.7	
3463.300000	51.1	100.0	V	237.0	-2.0	
4408.300000	50.1	100.0	H	19.0	-1.6	
4723.300000	53.9	100.0	H	311.0	-1.7	
6298.300000	47.1	100.0	V	118.0	1.2	
7318.900000	41.8	100.0	V	4.0	3.3	
8237.800000	43.5	100.0	H	211.0	4.4	

**Hardware Setup:** EMI radiated\BBHA\_5m - [EMI radiated]

	Subrange 1
Frequency Range:	1 GHz - 10 GHz
Receiver:	ESU [ESU 26] @ GPIB0 (ADR 17), SN 100037/026, FW 4.43
Signal Path:	1_6_EN FW 1.0 Correction Table: 3_5m Correction Table: LNA_EN (matix)
Antenna:	BBHA 9120 B Correction Table (vertical): BBHA9120 Correction Table (horizontal): BBHA9120 Correction Table (vertical): Cable_Horn_EN (1103) Correction Table (horizontal): Cable_Horn_EN (1103)
Antenna Tower:	Generic Tripod [Generic Tripod] @ GPIB0 (ADR 19), SN ?
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

## 9.6 Receiver spurious emission (radiated)

**No receiver integrated!**

**Measurement not applicable!**

## 10 Test equipment and ancillaries used for tests

Typically, the calibrations of the test apparatus are commissioned to and performed by an accredited calibration laboratory. The calibration intervals are determined in accordance with the DIN EN ISO/IEC 17025. In addition to the external calibrations, the laboratory executes comparison measurements with other calibrated test systems or effective verifications. Weekly chamber inspections and range calibrations are performed. Where possible, rf-generating and signalling equipment as well as measuring receivers and analyzers are connected to an external high-precision 10 MHz reference (GPS-based or rubidium frequency standard).

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 (Labor/Item).

No.	Lab / Item	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Kind of Calibration	Last Calibration	Next Calibration
1	45	Switch-Unit	3488A	HP Meßtechnik	2719A1450 5	30000036 8	g		
2	50	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2920A0446 6	30000058 0	ne		
3	n. a.	software	SPS_PHE 1.4f	Spitzberger & Spieß	B5981; 5D1081;B5 979	30000021 0	ne		
4	n. a.	EMI Test Receiver	ESCI 1166.5950. 03	R&S	100083	30000331 2	k	05.01.2011	05.01.2013
5	n. a.	Analyzer-Reference-System (Harmonics and Flicker)	ARS 16/1	SPS	A3509 07/0 0205	30000331 4	k	14.07.2011	14.07.2013
6	n. a.	Amplifier	JS42-00502650-28-5A	MITEQ	1084532	30000337 9	ev		
7	n. a.	Antenna Tower	Model 2175	ETS-LINDGREN	64762	30000374 5	izw		
8	n. a.	Positioning Controller	Model 2090	ETS-LINDGREN	64672	30000374 6	izw		
9	n. a.	Turntable Interface-Box	Model 105637	ETS-LINDGREN	44583	30000374 7	izw		
10	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	295	30000378 7	k	01.04.2010	01.04.2012
11	n. a.	Spectrum-Analyzer	FSU26	R&S	200809	30000387 4	k	10.01.2011	10.01.2013
12	n. a.	Active Loop Antenna	6502	EMCO	2210	30000101 5	ne		
13	n. a.	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	30000099 6		23.03.2009	
14	n. a.	Relais Matrix	3488A	HP Meßtechnik	2719A1501 3	30000115 6	ne		
15	n. a.	Relais Matrix	PSU	R&S	890167/024	30000116 8	ne		
16	n. a.	TILE-Software Emission	Quantum Change, Modell TILE-ICS/FULL	EMCO	none	30000345 1	ne		
17	n. a.	PSA Spectrum Analyzer 3 Hz - 26.5 GHz	E4440A	Agilent Technologies	MY482500 80	30000381 2	k	08.09.2010	08.09.2012
18	n. a.	RF Filter Section 9kHz - 1GHz	N9039A	Agilent Technologies	MY482600 03	30000382 5	vlKII	08.09.2010	08.09.2012
19	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	371	30000385 4	vlKII	14.10.2011	14.10.2014
20	n. a.	Spectrum Analyzer 20 Hz - 50 GHz	FSU50	R&S	200012	30000344 3	ve	01.07.2010	01.07.2012

**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

**11 Observations**

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

## Annex A Photographs of the test setup

Photo documentation:

Photo 1: chamber F



Photo 2: chamber F

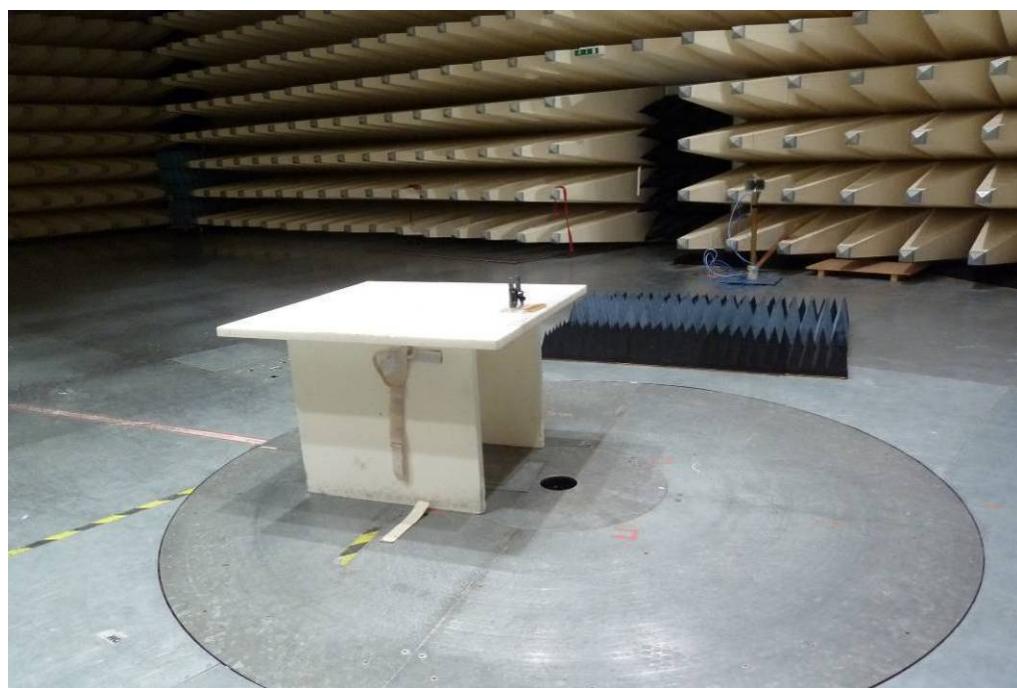


Photo 3: chamber F



Photo 4: chamber C

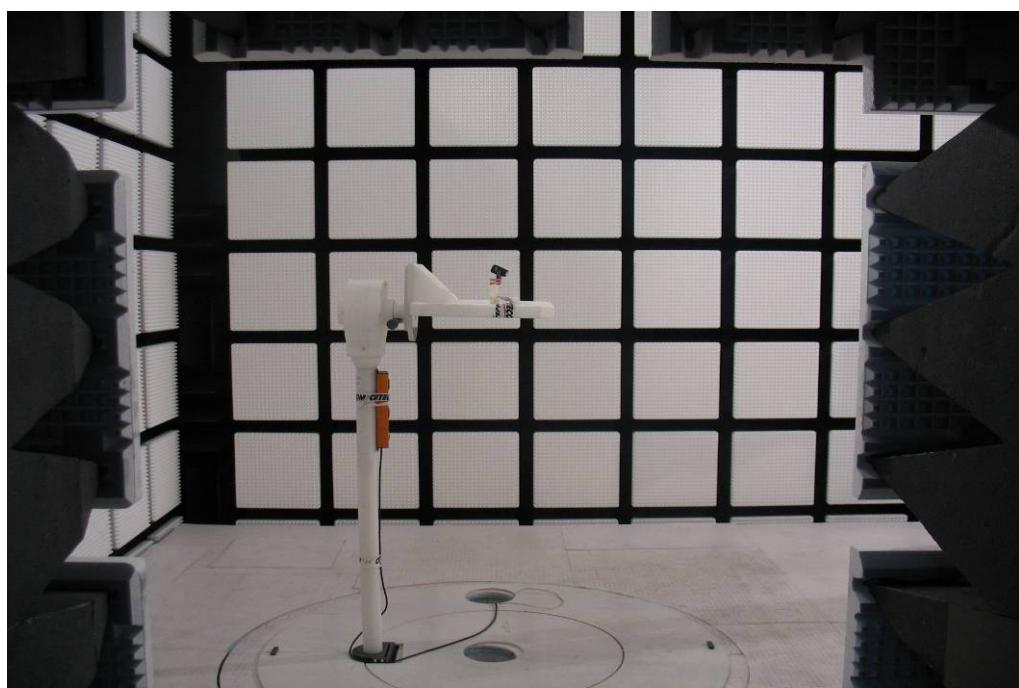


Photo 5: chamber C

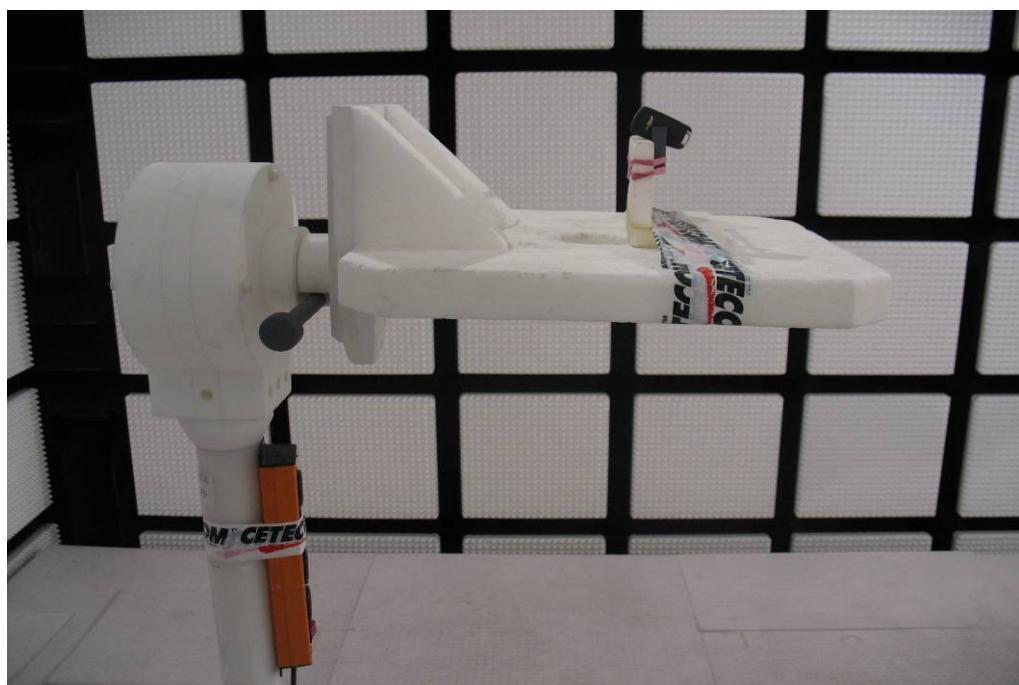


Photo 6: chamber C



Photo 7: chamber C

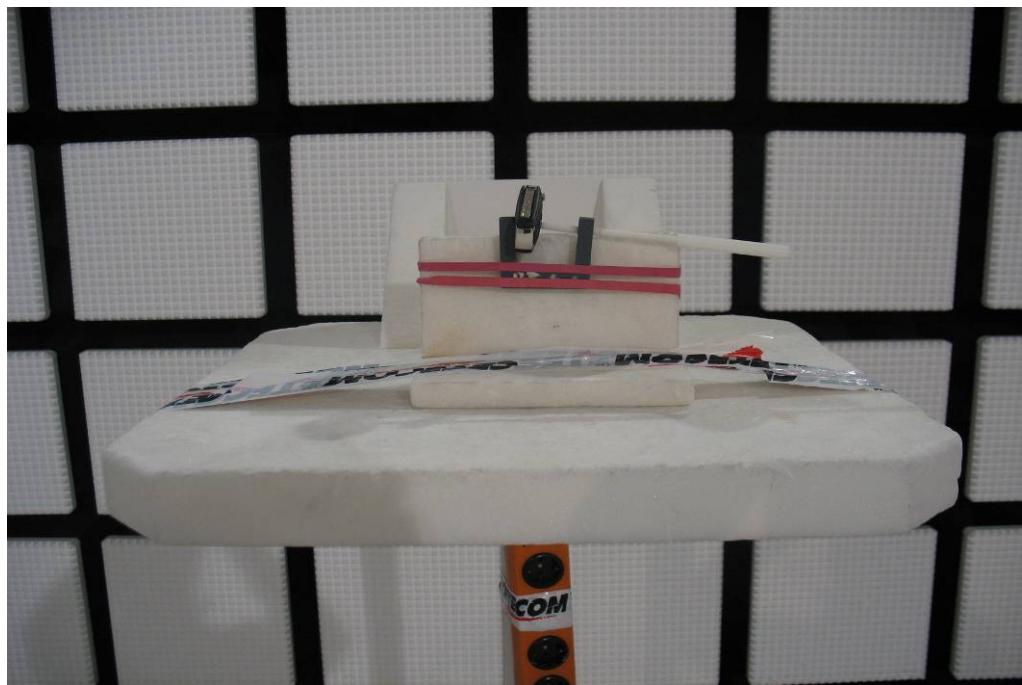
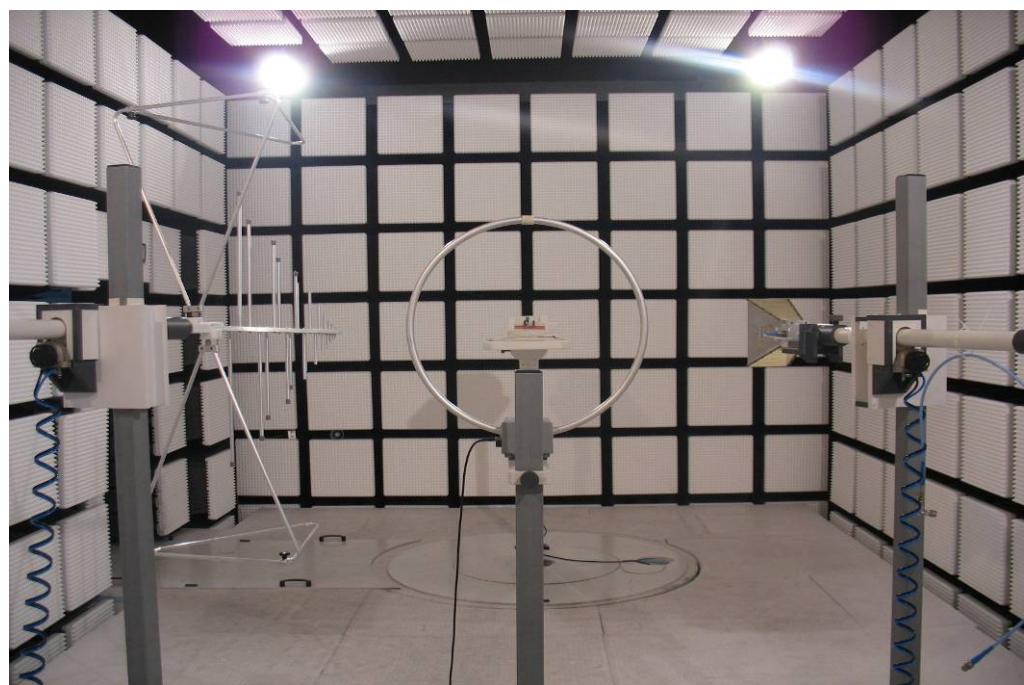


Photo 8: chamber C



Photo 9: chamber C



## Annex B External photographs of the EUT

Photo documentation:

Photo 1:



Photo 2:



Photo 3:



Photo 4:



Photo 5:



Photo 6:



Photo 7:



## Annex C Internal photographs of the EUT

Photo documentation:

Photo 1:

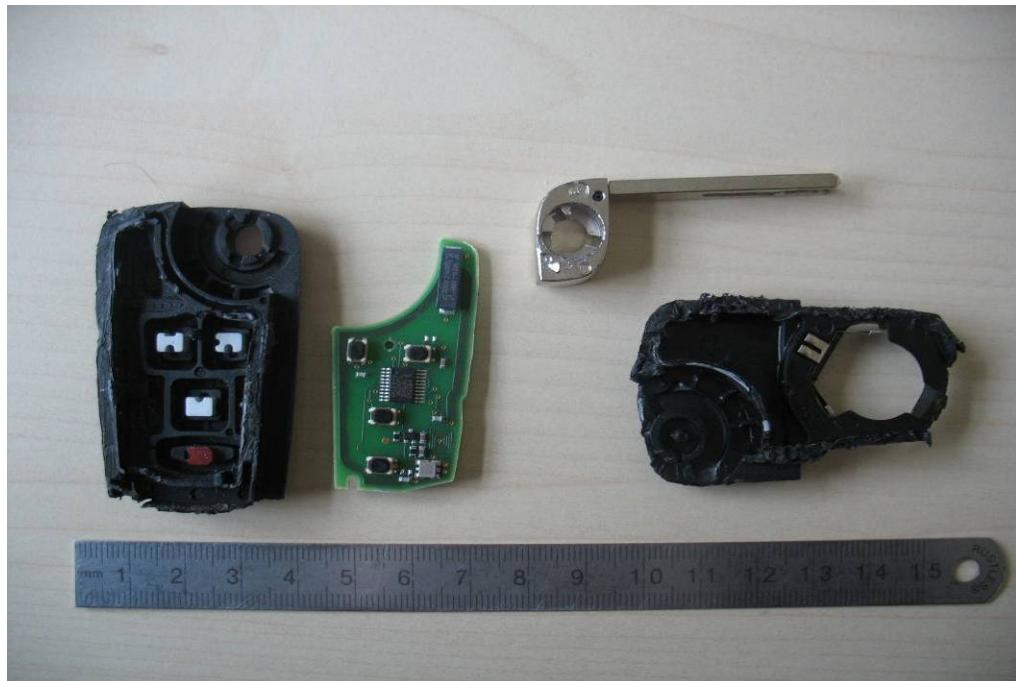


Photo 2:

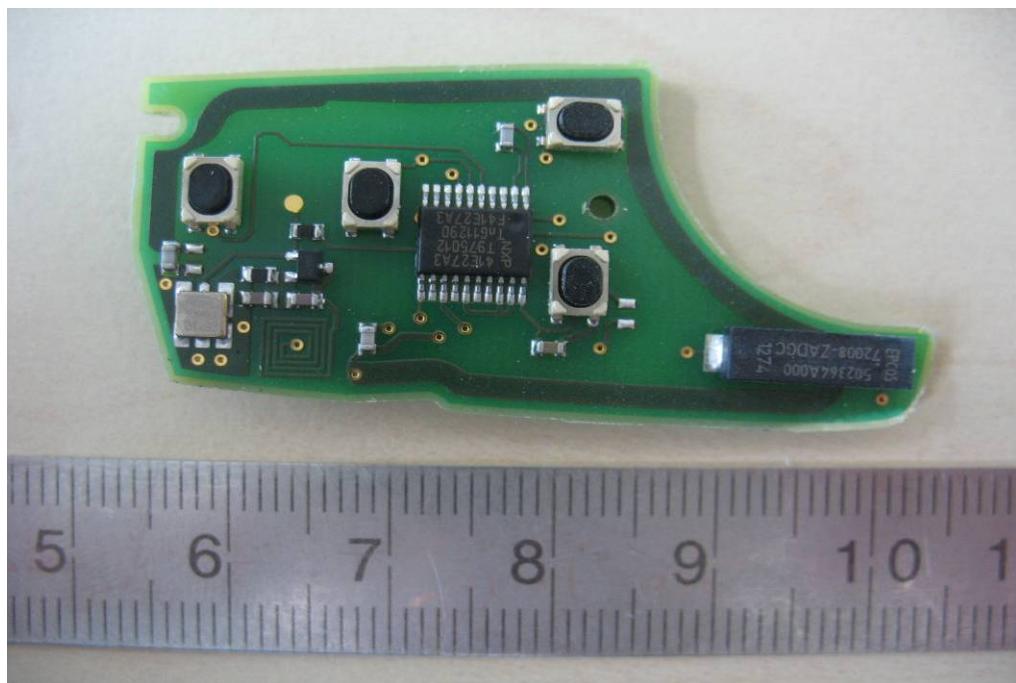
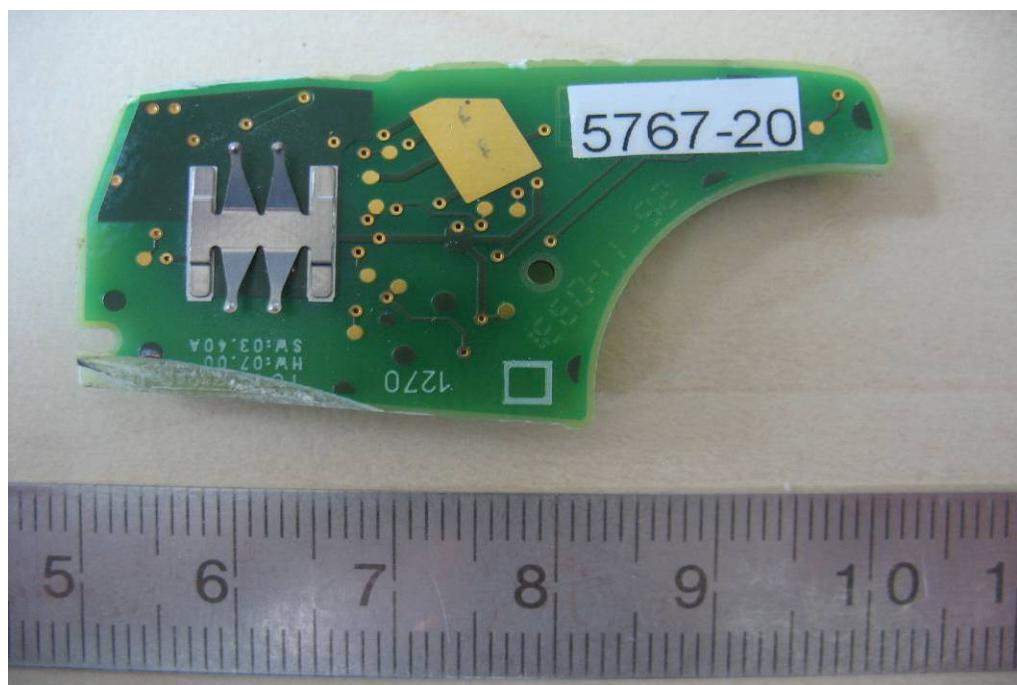


Photo 3:



**Annex D Document history**

Version	Applied changes	Date of release
1.0	Initial release	2012-02-23
-A		2012-03-09

**Annex E Further information****Glossary**

AVG	-	Average
DUT	-	Device under test
EMC	-	Electromagnetic Compatibility
EN	-	European Standard
EUT	-	Equipment under test
ETSI	-	European Telecommunications Standard Institute
FCC	-	Federal Communication Commission
FCC ID	-	Company Identifier at FCC
HW	-	Hardware
IC	-	Industry Canada
Inv. No.	-	Inventory number
N/A	-	Not applicable
PP	-	Positive peak
QP	-	Quasi peak
S/N	-	Serial number
SW	-	Software

## Annex F Accreditation Certificate



Deutsche Akkreditierungsstelle GmbH  
German Accreditation Body

Entrusted according to Section 8 subsection 1 AkkStelleG in connection with Section 1 subsection 1 AkkStelleGBV  
Signatory to the Multilateral Agreements of EA, ILAC and IAF for Mutual Recognition

### Accreditation



The Deutsche Akkreditierungsstelle GmbH (German Accreditation Body) attests that the testing laboratory

CETECOM ICT Services 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:

Wired communications and DECT  
Acoustic  
Radio  
Short Range Devices (SRD)  
RFID  
WiMax and Richtfunk  
Mobile radio (GSM / DCS), Over the Air (OTA) Performance  
Electromagnetic Compatibility (EMC) incl. Automotive  
Product safety  
SAR and Hearing Aid Compatibility (HAC)  
Environmental simulation  
Smart Card Terminals  
Bluetooth  
Wi-Fi-Services

The accreditation certificate shall only apply in connection with the notice of accreditation of 13.04.2011 with the accreditation number D-PL-12076-01 and is valid until 03.09.2014. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 82 pages.

Registration number of the certificate: D-PL-12076-01-01

Frankfurt am Main, 13.04.2011

Dipl.-Ing. (FH) Dr. Egerer

Head of Division 2

This document is a translation. The definitive version is the original German accreditation certificate.

See notes overleaf.

Deutsche Akkreditierungsstelle GmbH

Office Berlin  
Spittelmarkt 10  
10117 Berlin

Office Frankfurt am Main  
Gartenstraße 6  
60594 Frankfurt am Main

Office Braunschweig  
Bundesallee 100  
38116 Braunschweig

The publication of extracts of the accreditation certificate is subject to the prior written approval by Deutsche Akkreditierungsstelle GmbH (DAkkS). 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 DAkkS.

The accreditation was granted pursuant to the Act on the Accreditation Body (AkkStelleG) of 31 July 2009 (Federal Law Gazette I p. 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 Union L 218 of 9 July 2008, p. 30). DAkkS is a signatory to the Multilateral Agreements for Mutual Recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Cooperation (ILAC). 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](http://www.european-accreditation.org)  
ILAC: [www.ilac.org](http://www.ilac.org)  
IAF: [www.iaf.nu](http://www.iaf.nu)

Front side of certificate

Back side of certificate

### Note:

The current certificate including annex is published on our website (see link below) or may be received from CETECOM ICT Services on request.

[http://www.cetecom.com/fileadmin/de/CETECOM\\_D\\_Saarbruecken/accreditations\\_Jan\\_2010/DAKKS\\_Akkreditierung\\_EN17025-En\\_incl\\_Annex.pdf](http://www.cetecom.com/fileadmin/de/CETECOM_D_Saarbruecken/accreditations_Jan_2010/DAKKS_Akkreditierung_EN17025-En_incl_Annex.pdf)