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

## TEST REPORT

Test report no.: 1-8368/14-01-02-A

Deutsche  
Akkreditierungsstelle  
D-PL-12076-01-00

### Testing laboratory

**CETECOM ICT Services GmbH**

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Internet: <http://www.cetecom.com>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-12076-01-00

### Applicant

**Continental Automotive GmbH**

Heinrich-Hertz-Str. 45

78052 Villingen-Schwenningen / GERMANY

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Fax: +49 772 167 792880

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Phone: +49 772 167-2880

### Manufacturer

**Continental Automotive GmbH**

Heinrich-Hertz-Str. 45

78052 Villingen-Schwenningen / GERMANY

### Test standard/s

47 CFR Part 22 Title 47 of the Code of Federal Regulations; Chapter I; Part 22 - Public mobile services

47 CFR Part 24 Title 47 of the Code of Federal Regulations; Chapter I; Part 24 - Personal communications services

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

### Test Item

**Kind of test item:** Tachograph**Model name:** EOBR**FCC ID:** LHJ137830Frequency: GSM 850: 824.2 – 849.2MHz  
GSM 1900: 1850.2 – 1909.8MHz

Technology tested: GSM

Antenna: Integrated antenna

Power supply: 12V DC by Battery

Temperature range: -40°C to +85°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:

p.o.

Stefan Bös  
Professional  
Radio Communications & EMC

### Test performed:

David Lang  
Specialist  
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. 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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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.

### 2.2 Application details

Date of receipt of order:	2014-07-21
Date of receipt of test item:	2014-07-23
Start of test:	2014-07-23
End of test:	2014-07-23
Person(s) present during the test:	-/-

## 3 Test standard/s

Test standard	Date	Test standard description
47 CFR Part 22	01.10.2012	Title 47 of the Code of Federal Regulations; Chapter I; Part 22 - Public mobile services
47 CFR Part 24	01.10.2012	Title 47 of the Code of Federal Regulations; Chapter I; Part 24 - Personal communications services
RSS - 132 Issue 3	01.01.2013	Spectrum Management and Telecommunications Radio Standards Specification - Cellular Telephone Systems Operating in the Bands 824-849 MHz and 869-894 MHz
RSS - 133 Issue 6	01.01.2013	Spectrum Management and Telecommunications Policy - Radio Standards Specifications, 2 GHz Personal Communication Services

#### 4 Test environment

Temperature:	$T_{nom}$	+22 °C during room temperature tests
	$T_{max}$	+85 °C during high temperature tests
	$T_{min}$	-40 °C during low temperature tests
Relative humidity content:		55 %
Barometric pressure:		not relevant for this kind of testing
Power supply:	$V_{nom}$	12 V DC by Battery
	$V_{max}$	18 V
	$V_{min}$	9 V

#### 5 Test item

Kind of test item	:	Tachograph
Type identification	:	EOBR
S/N serial number	:	Rad. 11014070000070 Cond. -/-
HW hardware status	:	02
SW software status	:	30.01.01
Frequency band [MHz]	:	GSM 850: 824.2 – 849.2MHz GSM 1900: 1850.2 – 1909.8MHz
Type of radio transmission	:	GSM 850 / GSM 1900
Use of frequency spectrum	:	
Type of modulation	:	GMSK
Antenna	:	Integrated antenna
Power supply	:	12 V DC by Battery
Temperature range	:	-40°C to +85 °C

##### 5.1 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: 1-8368/14-01-01\_AnnexA  
1-8368/14-01-01\_AnnexB  
1-8368/14-01-01\_AnnexD

The DUT contains the Cinterion BGS2-W GSM/GPRS module (FCC ID: QIPBGS2).  
For conducted test data please refer to the module test report 2-20795542b/11 issued by Cetecom GmbH 2011-03-02.

#### 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 22, 24, 27 RSS 132, 133, 139	Passed	2014-08-28	Reduced tests according customer test plan

### 7.1 GSM 850

Test Case	temperature conditions	power source voltages	Pass	Fail	NA	NP	Remark
RF Output Power	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-/-
Frequency Stability	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	*
Spurious Emissions Radiated	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-/-
Spurious Emissions Conducted	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	*
Block Edge Compliance	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	*
Occupied Bandwidth	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	*

**Note:** NA = Not applicable; NP = Not performed

\*Refer to module test report 2-20795542b/11 issued by Cetecom GmbH 2011-03-02

### 7.2 PCS 1900

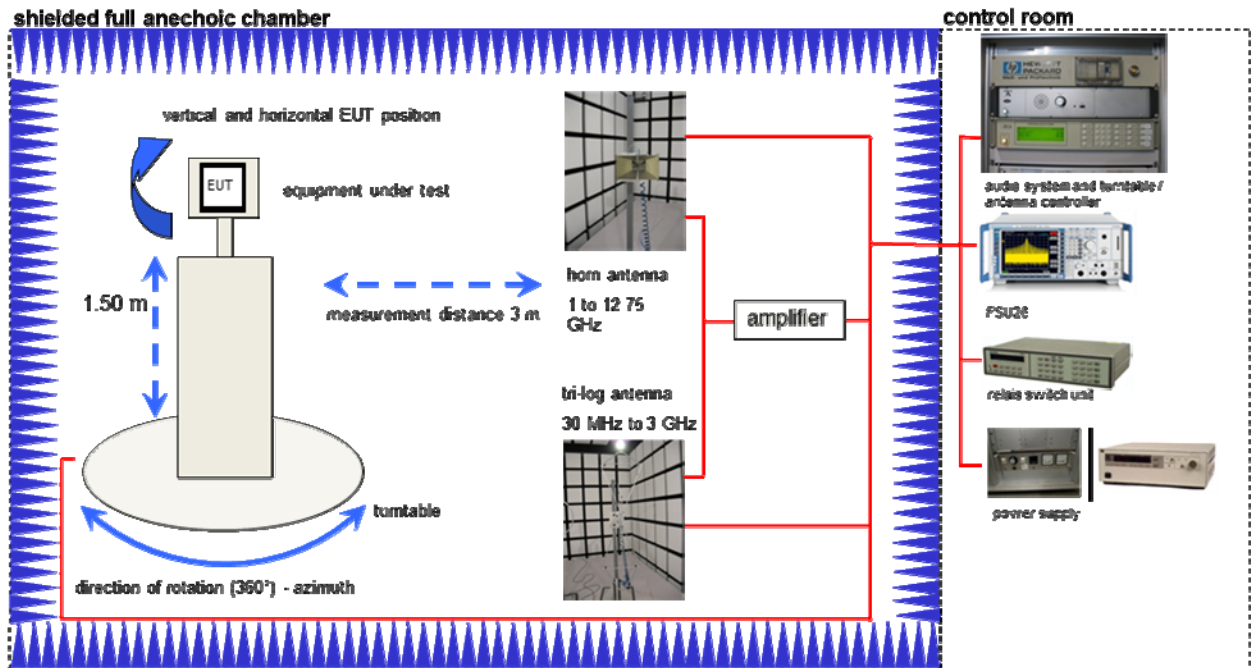
Test Case	temperature conditions	power source voltages	Pass	Fail	NA	NP	Remark
RF Output Power	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-/-
Frequency Stability	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	*
Spurious Emissions Radiated	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-/-
Spurious Emissions Conducted	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	*
Block Edge Compliance	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	*
Occupied Bandwidth	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	*

**Note:** NA = Not applicable; NP = Not performed

\*Refer to module test report 2-20795542b/11 issued by Cetecom GmbH 2011-03-02

## 8 Description of the test setup

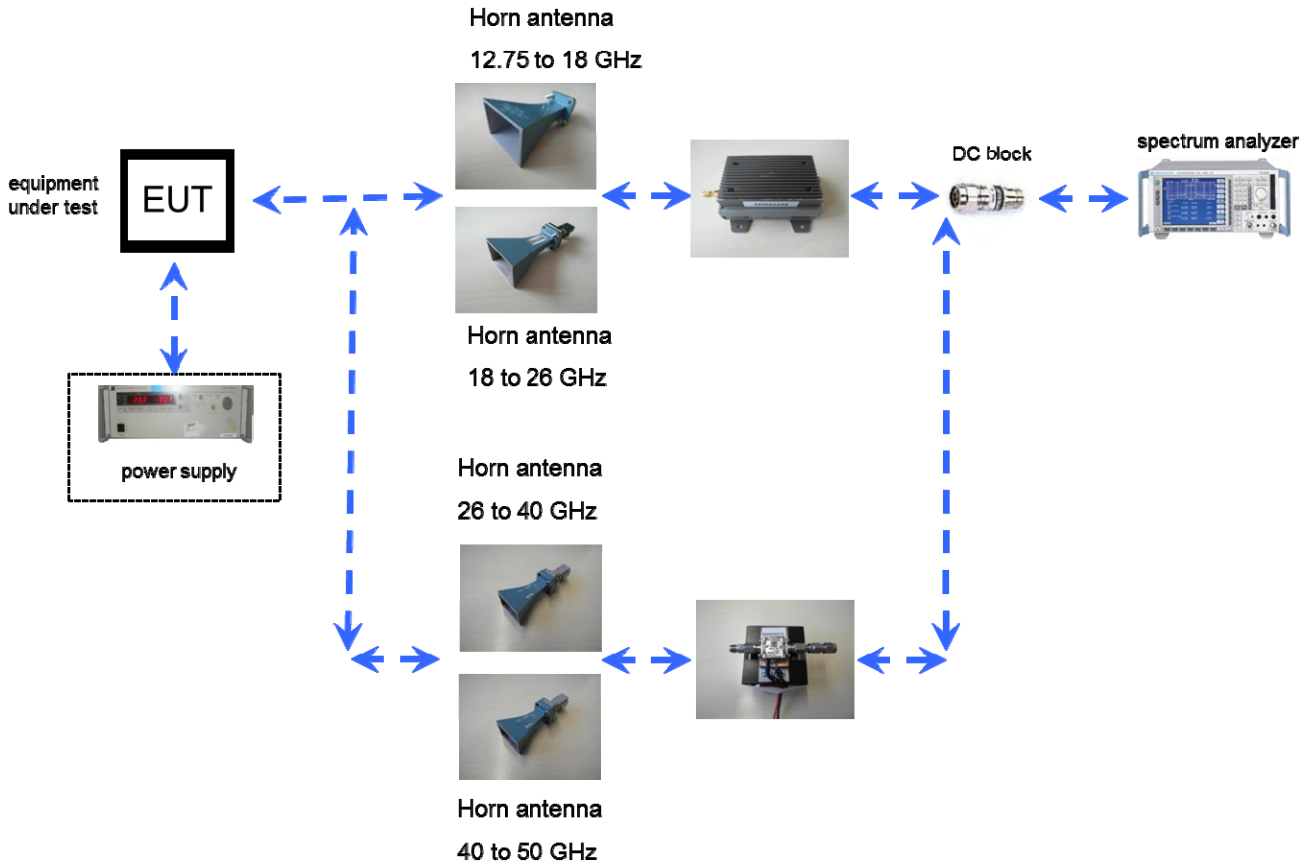
### 8.1 Radiated Halle A



#### Equipment table:

Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom
Band Notch Filter (2400)	WRCG 2400/2483-2375/2505-50/10SS	Wainwright	26	300003792
High Pass Filter 2.6 GHz	WHKX 2.6/18G-10SS	Wainwright	2	300003788
High Pass Filter 7.0 GHz	WHKX 7.0/18G-8SS	Wainwright	18	300003789
High Pass Filter 3.5 GHz	VHF-3500+	Mini-Circuits	%	%
Low Pass Filter	SLP-300+	Mini-Circuits	%	%
Low Pass Filter	SLP-1000+	Mini-Circuits	%	%
Amplifier 0.5-18 GHz	CBLU5184540	Cernex	22050	300004482
RF Switch Platform	L4491A	Agilent Technologies	MY50000032	300004510
Spectrum Analyzer	FSU26	Rohde & Schwarz	200809	300003874
Signal Generator	SMR20	Rohde & Schwarz	101697/020	300003593
Controller	CO 2000	Inn co	CO2000/42 1/16330507/L	%
Trilog Antenna	VULB 9163-318	Schwarzbeck	3/8	300003696
Horn Antenna	3115	EMCO	9709-5290	300000212
Spiralantenna	3102L	EMCO	51918	300003384

## 8.2 Radiated measurements 12.75 GHz to 50 GHz



### Equipment table:

Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom
Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda	8402	30000787
Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda	8205	300002442
Microwave System Amplifier, 0.5-26.5 GHz	83017A	HP Meßtechnik	00419	300002268
Spectrum Analyzer 20 Hz - 50 GHz	FSU50	R&S	200012	300003443
Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517

### 8.3 Results GSM 850

All GSM-band measurements are done in GSM mode only.

All relevant tests have been repeated using EDGE mode if supported. All tests were performed with one timeslot in uplink activated and one timeslot in downlink activated. For each mode the highest output power was determined and used.

#### 8.3.1 RF output power

**Description:**

This paragraph contains average power, peak output power and ERP measurements for the mobile station. In all cases, the peak output power is within the required mask (this mask is specified in the JTC standards, TIA PN3389 Vol. 1 Chap 7, and is no FCC requirement).

**Measurement:**

The mobile was set up for the maximum output power with pseudo random data modulation.

Measurement parameters	
Detector:	Peak and RMS (Power in Burst)
Sweep time:	Auto
Video bandwidth:	1 MHz
Resolution bandwidth:	1 MHz
Span:	Zero Span
Trace-Mode:	Max Hold

**Limits:**

FCC	IC
CFR Part 22.913 CFR Part 2.1046	RSS 132
Nominal Peak Output Power	
+38.45 dBm	
In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.	



**Results:**

Output Power (conducted) GMSK mode		
Frequency (MHz)	Average Output Power (dBm)	Peak to Average Ratio (dB)
824.2	NP	NP
836.4	NP	NP
848.8	NP	NP
Measurement uncertainty	± 0.5 dB	

Output Power (radiated) GMSK mode	
Frequency (MHz)	Average Output Power (dBm) - ERP
824.2	27.2
836.4	31.1
848.8	22.8
Measurement uncertainty	± 2.0 dB

**Verdict:** [Passed](#)

### 8.3.2 Spurious emissions radiated

**Description:**

The following steps outline the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2009 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 848.8 MHz. This was rounded up to 12 GHz. The resolution bandwidth is set as outlined in Part 22.917. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the GSM-850 band.

The final open field emission (here 10m semi-anechoic chamber listed by FCC) test procedure is as follows:

- a) The test item was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna.
- b) The antenna output was terminated in a 50 ohm load (if possible).
- c) A double ridged wave guide antenna was placed on an adjustable height antenna mast 3 meters from the test item for emission measurements.
- d) Detected emissions were maximized at each frequency by rotating the test item and adjusting the receive antenna height and polarization. The maximum meter reading was recorded. The radiated emission measurements of the harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and 1 MHz bandwidth. If the harmonic could not be detected above the noise floor, the ambient level was recorded. The equivalent power into a dipole antenna was calculated from the field intensity levels measured at 3 meters.
- e) Now each detected emissions were substituted by the substitution method, in accordance with the TIA/EIA 603.

**Measurement:**

Measurement parameters	
Detector:	Peak
Sweep time:	2 sec.
Video bandwidth:	Below 1 GHz: 100 kHz Above 1 GHz: 1 MHz
Resolution bandwidth:	Below 1 GHz: 100 kHz Above 1 GHz: 1 MHz
Span:	100 MHz Steps
Trace-Mode:	Max Hold

**Limits:**

FCC	IC
CFR Part 22.917 CFR Part 2.1053	RSS 132
Spurious Emissions Radiated	
Attenuation $\geq 43 + 10\log(P)$ (P, Power in Watts)	
-13 dBm	

### Results:

Radiated emissions measurements were made only at the center carrier frequency of the GSM-850 band (824.2 MHz, 836.4 MHz and 848.8 MHz). It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the GSM-850 band into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this.

The final open field radiated levels are presented on the next pages.

All measurements were done in horizontal and vertical polarization; the plots show the worst case.

The plots show only the middle channel. If spurious were detected, the lowest and highest channel were checked too. The found values are stated in the table below.

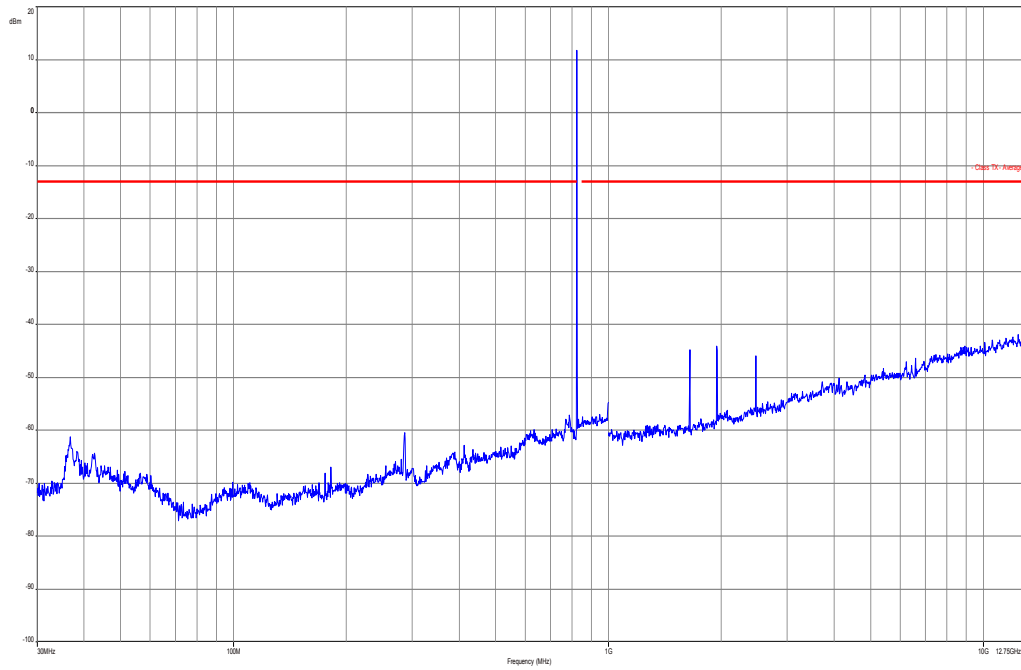
As can be seen from this data, the emissions from the test item were within the specification limit.

Spurious Emission Level (dBm)								
Harmonic	Ch. 128 Freq. (MHz)	Level [dBm]	Harmonic	Ch. 189 Freq. (MHz)	Level [dBm]	Harmonic	Ch. 251 Freq. (MHz)	Level [dBm]
2	1648.4	-	2	1672.8	-45.1	2	1697.6	-
3	2472.6	-	3	2509.2	-45.0	3	2546.4	-
4	3296.8	-	4	3345.6	-	4	3395.2	-
5	4121.0	-	5	4182.0	-	5	4244.0	-
6	4945.2	-	6	5018.4	-	6	5092.8	-
7	5769.4	-	7	5854.8	-	7	5941.6	-
8	6593.6	-	8	6691.2	-	8	6790.4	-
9	7417.8	-	9	7527.6	-	9	7639.2	-
10	8242.0	-	10	8364.0	-	10	8488.0	-
Measurement uncertainty					± 3dB			

**Verdict: Passed**

**Plots:**

**Plot 1:** Channel 189 (Traffic mode 30 MHz to 12.75 GHz)



## 8.4 Results PCS 1900

All GSM-band measurements are done in GSM mode only.

All relevant tests have been repeated using EDGE mode if supported. All tests were performed with one timeslot in uplink activated and one timeslot in downlink activated. For each mode the highest output power was determined and used.

### 8.4.1 RF output power

#### Description:

This paragraph contains average power, peak output power and EIRP measurements for the mobile station. In all cases, the peak output power is within the required mask (this mask is specified in the JTC standards, TIA PN3389 Vol. 1 Chap 7, and is no FCC requirement).

#### Measurement:

The mobile was set up for the maximum output power with pseudo random data modulation.

Measurement parameters	
Detector:	Peak and RMS (Power in Burst)
Sweep time:	Auto
Video bandwidth:	1 MHz
Resolution bandwidth:	1 MHz
Span:	Zero Span
Trace-Mode:	Max Hold

#### Limits:

FCC	IC
CFR Part 24.232 CFR Part 2.1046	RSS 133
Nominal Peak Output Power	
+33.00 dBm	
In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.	

**Results:**

Output Power (conducted) GMSK mode		
Frequency (MHz)	Average Output Power (dBm)	Peak to Average Ratio (dB)
1850.2	NP	NP
1880.0	NP	NP
1909.8	NP	NP
Measurement uncertainty	± 0.5 dB	

Output Power (radiated) GMSK mode	
Frequency (MHz)	Average Output Power (dBm) - EIRP
1850.2	31.2
1880.0	32.0
1909.8	32.0
Measurement uncertainty	± 2.0 dB

**Verdict:** **Passed**

### 8.4.2 Spurious emissions radiated

**Description:**

The following steps outline the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2009 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 1910 MHz. Measurement made up to 25 GHz. The resolution bandwidth is set as outlined in Part 24.238. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the PCS1900 band.

The final open field emission (here 10m semi-anechoic chamber listed by FCC) test procedure is as follows:

- a) The test item was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna.
- b) The antenna output was terminated in a 50 ohm load (if possible).
- c) A double ridged wave guide antenna was placed on an adjustable height antenna mast 3 meters from the test item for emission measurements.
- d) Detected emissions were maximized at each frequency by rotating the test item and adjusting the receive antenna height and polarization. The maximum meter reading was recorded. The radiated emission measurements of the harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and 1 MHz bandwidth. If the harmonic could not be detected above the noise floor, the ambient level was recorded. The equivalent power into a dipole antenna was calculated from the field intensity levels measured at 3 meters.
- e) Now each detected emissions were substituted by the substitution method, in accordance with the TIA/EIA 603.

**Measurement:**

Measurement parameters	
Detector:	Peak
Sweep time:	2 sec.
Video bandwidth:	Below 1 GHz: 100 kHz Above 1 GHz: 1 MHz
Resolution bandwidth:	Below 1 GHz: 100 kHz Above 1 GHz: 1 MHz
Span:	100 MHz Steps
Trace-Mode:	Max Hold

**Limits:**

FCC	IC
CFR Part 24.238 CFR Part 2.1053	RSS 133
Spurious Emissions Radiated	
Attenuation $\geq 43 + 10\log(P)$ (P, Power in Watts)	
-13 dBm	

### Results:

Radiated emissions measurements were made only at the upper, center, and lower carrier frequencies of the PCS1900 band (1850.2 MHz, 1880.0 MHz and 1909.8 MHz). It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the PCS1900 band into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this.

The final open field radiated levels are presented on the next pages. All measurements were done in horizontal and vertical polarization; the plots show the worst case. The plots show only the middle channel. If spurious were detected, the lowest and highest channel were checked too. The found values are stated in the table below.

As can be seen from this data, the emissions from the test item were within the specification limit.

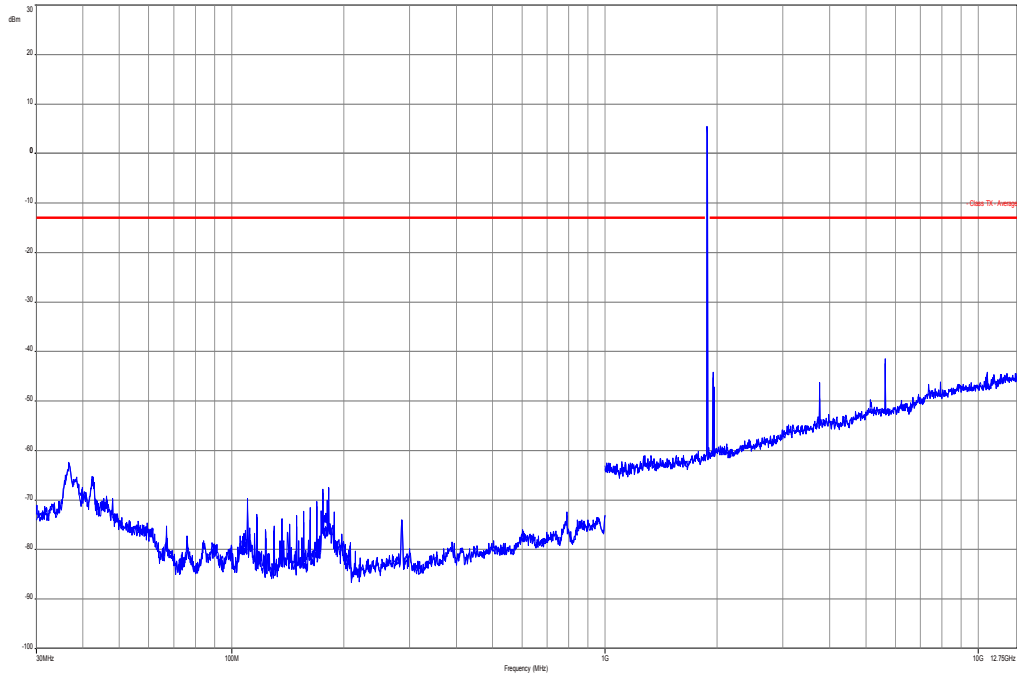
Spurious Emission Level (dBm)								
Harmonic	Ch. 512 Freq. (MHz)	Level [dBm]	Harmonic	Ch. 661 Freq. (MHz)	Level [dBm]	Harmonic	Ch. 810 Freq. (MHz)	Level [dBm]
2	3700.4	-	2	3760.0	-46.3	2	3819.6	-
3	5550.6	-	3	5640.0	-41.4	3	5729.4	-
4	7400.8	-	4	7520.0	-	4	7639.2	-
5	9251.0	-	5	9400.0	-	5	9549.0	-
6	11101.2	-	6	11280.0	-	6	11458.8	-
7	12951.4	-	7	13160.0	-	7	13368.6	-
8	14801.6	-	8	15040.0	-	8	15278.4	-
9	16651.8	-	9	16920.0	-	9	17188.2	-
10	18502.0	-	10	18800.0	-	10	19098.0	-
Measurement uncertainty					± 3dB			

**Result: Passed**



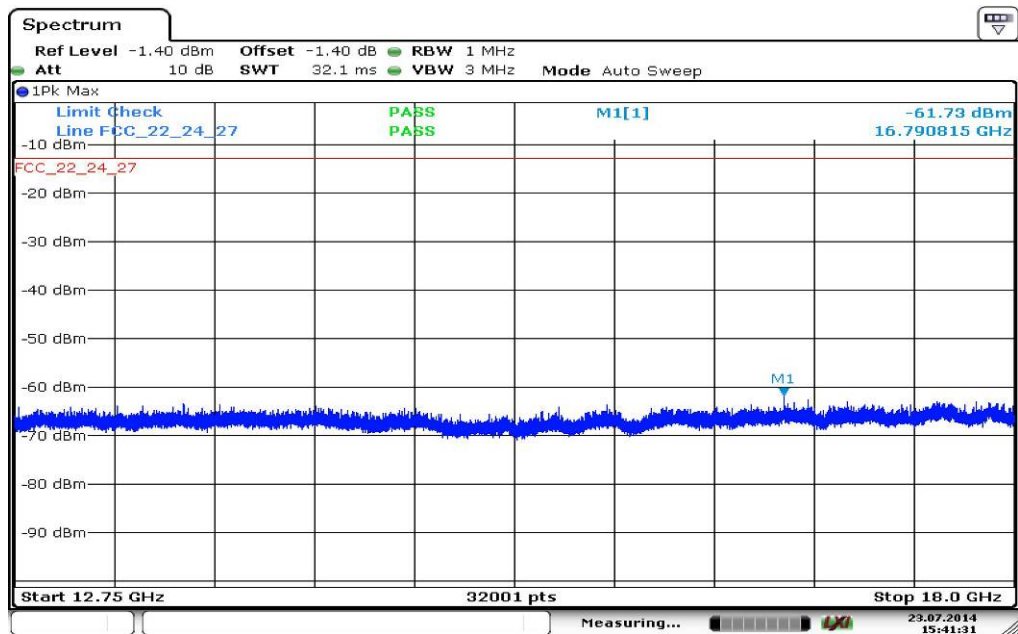
**Plots:**

**Plot 1:** Channel 661 (30 MHz – 12.75 GHz)



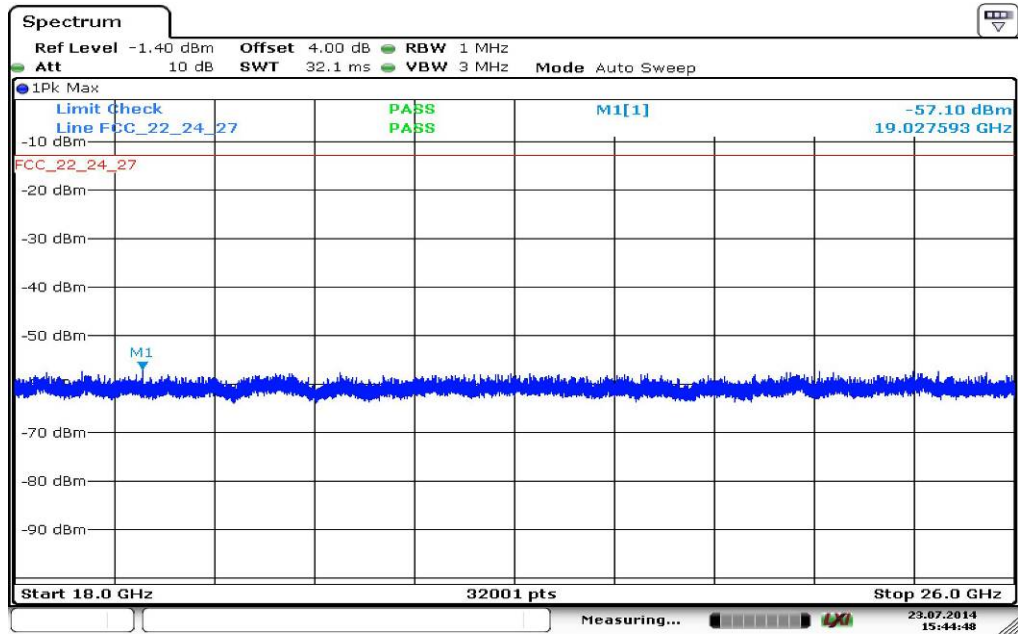
*Carrier notched with 1.9 GHz rejection filter*

**Plot 2:** Channel 661 (12 GHz - 18 GHz)



Date: 23.JUL.2014 15:41:30

Plot 2: Channel 661 (18 GHz – 26 GHz)



Date: 23.JUL.2014 15:44:48

## 9 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 (Lab/Item).

No.	Lab / Item	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Kind of Calibration	Last Calibration	Next Calibration
1	n. a.	Netzgerät 0-20V	6632A	HP Meßtechnik	2851A01814	300000924	ne	09.11.2005	
2	n. a.	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO Elektronik	9709-5290	300000212	k	23.07.2013	23.07.2015
3	n. a.	Universal Communication Tester	CMU200	R&S	106826	300003346	k	27.01.2014	27.01.2015
4	n. a.	Highpass Filter	WHK1.1/15G-10SS	Wainwright	37	400000148	ne		
5	n. a.	TRIOLOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	318	300003696	k	22.04.2014	22.04.2017
6	n. a.	Spectrum-Analyzer	FSU26	R&S	200809	300003874	k	22.01.2014	22.01.2015
7	n. a.	Broadband Amplifier 0.5-18 GHz	CBLU5184540	CERNEX	22050	300004482	ev		
8	n. a.	4U RF Switch Platform	L4491A	Agilent Technologies	MY50000032	300004510	ne		
9	n. a.	Messrechner und Monitor	Intel Core i3 3220/3,3 GHz, Prozessor		2V2403033A54 21	300004591	ne		
10	n. a.	Channel Notch Filter (1900)	WRCD 1879.5/1880.5-5EE	Wainwright	33	300002713	ne		
11	n. a.	Channel Notch Filter (850)	WRCT 837-0.2/50-8EE	Wainwright	1	300003129	ne		
12	n. a.	NEXIO EMV-Software	BAT EMC	EMCO		300004682	ne		
13	11b	Microwave System Amplifier, 0.5-26.5 GHz	83017A	HP Meßtechnik	00419	300002268	ev		
14	A026	Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda	8402	300000787	k	22.07.2013	22.07.2015
15	A029	Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda	8205	300002442	k	19.07.2013	19.07.2015
16	n. a.	Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517	k	21.01.2014	21.01.2015

### 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
vkl!	Attention: extended calibration interval	*	next calibration ordered / currently in progress
NK!	Attention: not calibrated		

## 10 Observations

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

**Annex A Document history**

Version	Applied changes	Date of release
	Initial release	2014-08-28
-A	Cover page: FCC ID updated; IC ID removed	2014-08-28

**Annex B 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 C Accreditation Certificate

Front side of certificate

Back side of certificate



Deutsche Akkreditierungsstelle GmbH

Belehrung gemäß § 8 Absatz 1 AkkStelleG i.V.m. § 1 Absatz 1 AkkStelleGBV  
 Unterzeichnerin der Multilateralen Abkommen  
 von EA, ILAC und IAF zur gegenseitigen Anerkennung

### Akkreditierung



Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Prüflaboratorium

**CETECOM ICT Services GmbH**  
 Untertürkheimer Straße 6-10, 66117 Saarbrücken

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

Drahtgebundene Kommunikation einschließlich xDSL  
 VoIP und DECT  
 Akustik  
 Funk einschließlich WLAN  
 Short Range Devices (SRD)  
 RFID  
 WLAN und Richtfunk  
 Mobilfunk (GSM / GPRS, Over the Air (OTA) Performance)  
 Elektromagnetische Verträglichkeit (EMV) einschließlich Automotive  
 Produktsicherheit  
 SAR und Hearing Aid Compatibility (HAC)  
 Umweltsimulation  
 Smart Card, Terminals  
 Bluetooth  
 Wi-Fi-Services

Die Akkreditierungsurkunde gilt nur in Verbindung mit dem Bescheid vom 07.03.2014 mit der  
 Akkreditierungsnummer D-PL-12076-01 und ist gültig bis 17.01.2018. Sie besteht aus diesem Deckblatt, der  
 Rückseite des Deckblatts und der folgenden Anlage mit insgesamt 77 Seiten.

Registrierungsnummer der Urkunde: D-PL-12076-01-00

Frankfurt am Main, 07.03.2014

Date of issue of the certificate

*[Signature]*  
 In Auftrag gegeben von: CETECOM ICT Services GmbH  
 Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH

Standort Berlin  
Spittelmarkt 10  
10117 BerlinStandort Frankfurt am Main  
Gartenstraße 6  
60594 Frankfurt am MainStandort Braunschweig  
Bundesallee 100  
38115 Braunschweig

Die auszugsweise Veröffentlichung der Akkreditierungsurkunde bedarf der vorherigen schriftlichen  
 Zustimmung der Deutsche Akkreditierungsstelle GmbH (DAkkS). Ausgenommen davon ist die separate  
 Weiterverbreitung des Deckblatts durch die umseitig genannte Kontaktperson der Akkreditierungsstelle in  
 unveränderter Form.

Es darf nicht der Anschein erweckt werden, dass sich die Akkreditierung auch auf Bereiche erstreckt,  
 die über den durch die DAkkS bestätigten Akkreditierungsbereich hinausgehen.

Die Akkreditierung erfolgte gemäß des Gesetzes über die Akkreditierungsstelle (AkkStelleG) vom  
 31. Juli 2009 (BGBl. I S. 2625) sowie der Verordnung (EG) Nr. 765/2008 des Europäischen Parlaments  
 und des Rates vom 9. Juli 2008 über die Vorschriften für die Akkreditierung und Marktüberwachung  
 im Zusammenhang mit der Vermarktung von Produkten (Abt. L 228 vom 9. Juli 2008, S. 30).  
 Die DAkkS ist Unterzeichnerin der Multilateralen Abkommen zur gegenseitigen Anerkennung der  
 Funktionen im Zusammenhang mit Akkreditierung (EA), des Internationalen Akkreditationsforums (IAF) und der  
 International Laboratory Accreditation Cooperation (ILAC). Die Unterzeichner dieser Abkommen  
 erkennen ihre Akkreditierungen gegenseitig an.

Der aktuelle Stand der Veröffentlichung kann folgenden Webseiten entnommen werden:  
 EA: [www.european-accreditation.org](http://www.european-accreditation.org)  
 IAF: [www.iaf.or.jp](http://www.iaf.or.jp)  
 IAC: [www.ilac.org](http://www.ilac.org)

### 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/eu/de/cetecom-group/europa/deutschland-saarbruecken/akkreditierungen.html>