

TEST REPORT  
No.: 18-1-0039301T04







According to:  
**FCC Regulations**  
Part 1.1310  
Part 2.1091

for

Gemalto M2M GmbH

LTE Module Rel.13 CAT-M1 EMS31-V

FCC-ID: QIPEMS31-V

Laboratory Accreditation and Listings		
 <p>Deutsche Akkreditierungsstelle D-PL-12047-01-01</p> <p>Accredited EMC-Test Laboratory</p>	 <p>Industry Canada Reg. No.: 3462D-1 Reg. No.: 3462D-2 Reg. No.: 3462D-3</p>	 <p>Voluntary Controls for Electromagnetic Emissions Reg. No.: R-20013, C-20009, T-20006, G-20013</p>
 <p>AUTHORIZED RF LABORATORY</p>	 <p>Authorized™ Test Lab Lab Code: 20011130-00</p>	 <p>COMMUNICATIONS FEDERAL COMMUNICATIONS COMMISSION U.S.A. MRA US-EU 0003</p>
accredited according to DIN EN ISO/IEC 17025		
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Laboratory Accreditation and Listings		

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The listed attachments are an integral part of this report.

## 1. Summary of test results

The test results apply exclusively to the test samples as presented in this Report. The CETECOM GmbH does not assume responsibility for any conclusions and generalizations taken in conjunction with other specimens or samples of the type of the item presented to tests.

The Equipment Under Test (in this report, hereinafter referred as EUT) supports radiofrequency technologies. This test report shows results for LTE (4G) technologies only. Other implemented wireless technologies were not considered within this test report.

Following tests have been performed to show compliance with applicable FCC Part 2.1091 and FCC Part 1.1310 of the FCC CFR 47 Rules.

### 1.1. Summary of tests results

RF-Exposure Evaluation (separation distance user to RF-radiating element greater 20cm)						
Test cases	Port	References & Limits		EUT set-up	EUT op. mode	Result
		FCC Standard	Test Limit			
Radio frequency radiation exposure Requirements	Cabinet	§1.1310 §2.1091	FCC: §1.1310 Table 1, Limits for General Population	1	2	Pass

**Remark:** Calculations based on Datasheet delivered by applicant



.....  
Dipl.-Ing. Rachid Acharkaoui  
Responsible for test section



.....  
M.Schäfers  
Responsible for test report

## 2. Administrative Data

### 2.1. Identification of the testing laboratory

Company name:	CETECOM GmbH
Address:	Im Teelbruch 116 45219 Essen - Kettwig Germany
Responsible for testing laboratory:	Dipl.-Ing. Rachid Acharkaoui
Deputy:	Dipl.-Ing. Niels Jeß

### 2.2. Test location

#### 2.2.1. Test laboratory "CTC"

Company name:	see chapter 2.1. Identification of the testing laboratory
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### 2.3. Organizational items

Responsible for test report:	M. Schäfers
Receipt of EUT:	--
Date(s) of test:	--
Date of report:	2018-03-27

### 2.4. Applicant's details

Applicant's name:	Gemalto M2M GmbH
Address:	Werinherstrasse 81 81541 Munich Germany
Contact person:	Mr. Axel Heike

### 2.5. Manufacturer's details

Manufacturer's name:	please see applicant's details
Address:	please see applicant's details

### 3. Equipment under test (EUT)

#### 3.1. Summary of product description

TX-frequency range (E-UTRA operating bands)		<input type="checkbox"/> LTE Band 2: 1850 - 1910 MHz (Uplink), 1930-1990 MHz (Downlink) <input checked="" type="checkbox"/> LTE Band 4: 1710 - 1755 MHz (Uplink), 2110 - 2155 MHz (Downlink) <input type="checkbox"/> LTE Band 5: 824 - 849 MHz (Uplink), 869-894 MHz (Downlink) <input type="checkbox"/> LTE Band 7: 824 - 849 MHz (Uplink), 869-894 MHz (Downlink) <input checked="" type="checkbox"/> LTE Band 13: 777 - 787 MHz (Uplink), 746-756 MHz (Downlink) <input type="checkbox"/> LTE Band 17: 704 - 716 MHz (Uplink), 734 - 746 MHz (Downlink)		
Type of modulation		QPSK, 16-QAM		
Data rates		Cat. M1, Downlink: max. 300kbps, Uplink: max. 375kbps		
Number of channels – Table 5.4.4-1 accord. 3GPP TS36.521-1  (See Note in 3GPP-Standard about channels not to be used depending on channel bandwidths)		<input type="checkbox"/> LTE Band 2: UARFCN range 18600 - 19199 <input checked="" type="checkbox"/> LTE Band 4: UARFCN range 19950 - 20399 <input type="checkbox"/> LTE Band 5: UARFCN range 20400 - 20649 <input type="checkbox"/> LTE Band 7: UARFCN range 20750 - 21449 <input checked="" type="checkbox"/> LTE Band 13: UARFCN range 23180 - 23279 <input type="checkbox"/> LTE Band 17: UARFCN range 23730 - 23849		
Emission designator(s)		Channel bandwidth	QPSK Modulation:	16-QAM Modulation Remark 1:
	LTE Band 13	5MHz (remark2)	1M15G7D	1M00W7D
	LTE Band 4	5MHz (remark 1)	1M14G7D	1M00W7D
Antenna Type		<input type="checkbox"/> Integrated <input type="checkbox"/> External, no RF- connector <input checked="" type="checkbox"/> External, separate RF-connector		
Antenna Gain		698 – 960MHz: 1dBi 1710-2170MHz: 2.4 dBi		
MAX PEAK Output Power: Radiated           LTE-Mode 4 LTE Band 13:		ERP: 25.38dBm +2.4 dBi = 27.78 dBm EIRP ERP: dBm +1dBi - 2.15 dB = 23.98dBm ERP		
MAX PEAK Output Power: Conducted        LTE-Mode 4 LTE Mode 13		25.38 dBm (AV) 25.13 dBm (AV)		
Installed option		<input type="checkbox"/> W-LAN, Bluetooth <sup>®</sup> , ANT+ wireless technologies <input type="checkbox"/> battery charging option <input type="checkbox"/> GPS (not tested within this test report) <input type="checkbox"/> FM-Radio (Receiver only)		
Power supply		<input checked="" type="checkbox"/> DC power only: 9-12 Volt on DSB75-Adapter with external AC/DC AC-power supply Converted to voltage range of 3.3 V to 4.41 V by DSB75-Adapter board or direct connection to DC		
Special EMI components		--		
EUT sample type		<input checked="" type="checkbox"/> Production	<input type="checkbox"/> Pre-Production	<input type="checkbox"/> Engineering
FCC label attached		<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no	<input type="checkbox"/> other:

Remarks:

- 1.) For 16-QAM maximum 5RBs could be activated in regard to category M1 device (3GPP 36.101, Annex 2.1.3) therefore nominal signal-bandwidth of 3/5/10/15/20MHz not possible
- 2.) For 16-QAM maximum 5RBs could be activated in regard to category M1 device (3GPP 36.101, Annex 2.1.3) therefore nominal signal-bandwidth of 5/10MHz not possible

### 3.2. EUT: Type, S/N etc. and short descriptions used in this test report

Short description*)	EUT	Type	S/N serial number	HW hardware status	SW software status
EUT A	LTE Module Rel.13 CAT-M1	EMS31-V	004401082207 149	B2.1.1	5.0.0.0d

\*) EUT short description is used to simplify the identification of the EUT in this test report.

### 3.3. Auxiliary Equipment (AE): Type, S/N etc. and short descriptions

AE short description *)	Auxiliary Equipment	Type	S/N serial number	HW hardware status	SW software status
AE 1	--	--	--	--	--

\*) AE short description is used to simplify the identification of the auxiliary equipment in this test report.

### 3.4. EUT set-ups

EUT set-up no. *)	Combination of EUT and AE	Remarks
set. 1	EUT A	Only theoretically calculation

\*) EUT set-up no. is used to simplify the identification of the EUT set-up in this test report.

### 3.5. EUT operating modes

EUT operating mode no. *)	Description of operating modes	Additional information
op. 1	LTE-Band 4  eMTC Mode Auto RMC99	A communication link is established between the mobile station (UE) and the test simulator. The transmitter is operated on its maximum rated output power class: 23dBm nominal. The input signal to the receiver is modulated with normal test modulation: QPSK or 16-QAM Modulation. The wanted RF input signal level to the receiver of the mobile station is set to a level to provide a stable communication link.
op. 2	LTE-Band 13  eMTC Mode Auto	A communication link is established between the mobile station (UE) and the test simulator. The transmitter is operated on its maximum rated output power class: 23dBm nominal. The input signal to the receiver is modulated with normal test modulation: QPSK or 16-QAM Modulation. The wanted RF input signal level to the receiver of the mobile station is set to a level to provide a stable communication link.

\*) EUT operating mode no. is used to simplify the test report.

## 4. Measurements

### 4.1. Radio Frequency Exposure Evaluation §2.1091

#### 4.1.1. Test location and equipment (for reference numbers please see chapter 'List of test equipment')

test location	<input checked="" type="checkbox"/> CETECOM Essen (Chapter. 2.2.1)	<input type="checkbox"/> Please see Chapter. 2.2.2	<input type="checkbox"/> Please see Chapter. 2.2.3
	For Evaluation instruments are not needed. Results are determined by calculation based on applicants delivered Tune-Up procedure.		

#### 4.1.2. Requirements

FCC: §1.1310	<p>The criteria used for the evaluation of human exposure to radio frequency radiation is table 1 according FCC §1.1310 and table chapter 4.2 of RSS-102 standard and it is subject for evaluation of the RF exposure prior to equipment authorization.</p> <p>As the mobile equipment is authorized under Part 22 (Subpart H) and Part 24 of the FCC Rules, it is subject for evaluation of the RF exposure prior to equipment authorization.</p>
FCC § 2.1091	<p>Further information on evaluating compliance with these limits can be found in the FCC's OST/OET Bulletin Number 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation."</p> <p>For purposes of these requirements mobile devices are defined by the FCC as transmitters designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between radiating structures and the body of the user or nearby persons. These devices are normally evaluated for exposure potential with relation to the MPE limits given in Table 1 of Appendix A.</p>

##### 4.1.2.1. Valid for FCC

Table 1: LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)				
Frequency range [MHz]	Electric field strength [V/m]	Magnetic field strength [A/m]	Power density [mW/cm <sup>2</sup> ]	Averaging time [minutes]
30 - 300	61.4	0.163	1.0	6
300 - 1500	-	-	f/300	6
1500 - 100,000	-	-	5	6
(B) Limits for General Population / Uncontrolled Exposure				
0.3 - 1.34	614	1.63	*(100)	30
1.34 - 30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30 - 300	27.5	0.073	0.2	30
300 - 1500	-	-	f/1500	30
1500 - 100,0	-	-	1.0	30

f=frequency in MHz

\*Plane-wave equivalent power density

NOTE1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure. These limits apply to amateur station licensees and members of their immediate household as discussed in the text.

NOTE2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure. As discussed in the text, these limits apply to neighbours living near amateur radio stations.

**4.1.3 General Limits:**

FCC: §1.1307	Cellular Radiotelephone Service (subpart H of part 22) Non-building-mounted antennas: height above ground level to lowest point of antenna < 10 m and total power of all channels > 1000 W ERP (1640 W EIRP)
FCC §1.1307	Personal Communications Services (part 24) Broadband PCS (subpart E): non-building-mounted antennas: height above ground level to lowest point of antenna < 10 m and total power of all channels > 2000 W ERP (3280 W EIRP)
FCC §1.1310	LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE) Table 1(B) Limits for General Population/Uncontrolled Exposure 300–1500 MHz: $f/1500 \text{ mW/cm}^2$ 1500–100,000 MHz: $1.0 \text{ mW/cm}^2$
FCC §2.1091	Subject to routine evaluation is required when the device operate at frequencies of 1.5 GHz or below and their effective radiated power (ERP) is 1.5 watts or more, or if they operate at frequencies above 1.5 GHz and their ERP is 3 watts or more.
FCC §24.232	(a) Base stations are limited to 1640 watts peak equivalent isotropically radiated power (e.i.r.p.) with an antenna height up to 300 meters HAAT. b) Mobile/portable stations are limited to 2 watts e.i.r.p. peak power, ...
FCC §22.913	(a) Maximum ERP. The effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts. The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.
FCC §27.50 (C)(10)	(10) Portable stations (hand-held devices) are limited to 3 watts ERP; and
FCC §27.50(d)	(4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band are limited to 1 watt EIRP.
KDBs	No. 447498 D01 v06



## 4.2. MPE Calculation method

Predication of MPE limit at a given distance  
Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{EIRP}{4\pi R^2} = \frac{P * G}{4\pi R^2}$$

$$G_{NUMERIC} = \frac{S * 4\pi R^2}{P}$$

Where: S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the centre of radiation of the antenna

## 4.3. Evaluation Method

### Valid for LTE Mode:

- The power was checked on 3 frequencies (lowest/middle/highest) within each operable FDD-band (see separate report for W-CDMA technology) and the results compared to applicant's declared power values (tune-up info). A RMS detector was used.
- No duty-cycle correction factor is applicable

Please find in the following tables the calculations based on applicants tune-up information for the power values. Also the maximum admissible allowed antenna gain is calculated which is not exceeding the MPE limit for fixed and mobile operations.

### 4.4. Results for fixed and mobile

#### 4.4.1. Results for lower operational band: LTE Band 13

##### 4.4.1.1. MPE results

Operating Mode	Frequency on channel (MHz)	Declared maximum conducted output power (dBm)	Max. positive tolerance according manufacturer (dB)	Calculated maximum ERP (declared+ Tune-up+ antenna Gain) (dBm)	Duty cycle (%)	Declared Maximum ERP (W)	Equivalent ERP (maximum ERP x duty cycle) (mW)	MPE Limit accord. Table 1 (mW/cm <sup>2</sup> )	MPE-Value (mW/cm <sup>2</sup> )	Margin to limit: (mW/cm <sup>2</sup> )	Fraction for Co-Location calculations	Max. Fraction-Value within Frequency-Band
LTE Band 13 (QPSK, #RB=1, RMS-Value)	779,5	23,0	2,5	25,5	100%	0,355	355	0,5197	0,0706	0,4491	0,1358	0,1358
	782	23,0	2,5	25,5		0,355	355	0,5213	0,0706	0,4507	0,1354	
	784,5	23,0	2,5	25,5		0,355	355	0,5230	0,0706	0,4524	0,1350	
LTE Band 13 (16QAM, #RB=1, RMS-Value)	779,5	23,0	2,5	25,5	100%	0,355	355	0,5197	0,0706	0,4491	0,1358	0,1358
	782	23,0	2,5	25,5		0,355	355	0,5213	0,0706	0,4507	0,1354	
	784,5	23,0	2,5	25,5		0,355	355	0,5230	0,0706	0,4524	0,1350	

Maximum calculated MPE value:		
Lowest MPE-Limit in Frequency-Band:	0,4665	[mW/cm <sup>2</sup> ]
Highest MPE value in frequency-band:	0,0706	[mW/cm <sup>2</sup> ]
Lowest margin to limit in frequency band:	0,4491	[mW/cm <sup>2</sup> ]

**Maximum antenna gain considerations for fixed/mobile operations for complying with limits:**

P	Maximum power input to the antenna incl. Duty cycle [mW]: (Avg. Burst Power or RMS)	355
R	Distance [cm]:	20
S	MPE limit acc. §1.1310 for uncontrolled exposure [mW/cm <sup>2</sup> ]: (FCC use mW/cm <sup>2</sup> )	0,47
G <sub>1</sub>	Maximum Antenna gain to comply with MPE limit [dBi]:	8,67

(For G1 the lowest measured channel to reach minimum ant. Gain selected)

	ERP power limit according to §2.1091 [W]: (Avg. Burst Power or RMS)	1,50
G <sub>2</sub>	Max. Antenna gain to comply with limit incl. Duty cycle [dBi]:	8,41

(For G2 select the max. Avg. Burst Power or RMS value incl. Duty cycle)

	ERP power limit according to §27.50(b)(10) [W ERP]:	3,00
G <sub>3</sub> (698MHz)	Max. Antenna gain to comply with limit [dBi]:	11,42

(For G3 select the max. Average burst power value excluding Duty cycle)

G <sub>850 MHz band</sub>	Min (G <sub>1</sub> , G <sub>2</sub> , G <sub>3</sub> ) [dBi]	8,41
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<b>Summarized results:</b>	The max. ant. gain for mobile operation at 700/850MHz band to comply with MPE and EIRP limits incl. path loss shall not exceed (dBi):	8,41	dBi
		6,26	dBd

#### 4.4.2. Results for upper operational band: LTE Band 4

##### 4.4.2.1. MPE results

Operating Mode	Frequency on channel	Declared maximum conducted output power	Max. positive tolerance according manufacturer	Calculated maximum ERP (declared+ Tune-up+ antenna Gain) (dBm)	Duty cycle	Declared Maximum ERP	Equivalent ERP (maximum ERP x duty cycle)	MPE Limit accord. Table 1	MPE-Value	Margin to limit:	Fraction for Co-Location calculations	Max. Fraction-Value within Frequency-Band
	(MHz)	(dBm)	(dB)	(dBm)	%	(W)	(mW)	(mW/cm <sup>2</sup> )	(mW/cm <sup>2</sup> )	(mW/cm <sup>2</sup> )		
LTE Band 4 (QPSK, #1RB, RMS-Value)	1710,7	23,0	2,5	25,5	100%	0,3548	354,8	1,0000	0,0706	0,9294	0,070588	0,0705879
	1732,5	23,0	2,5	25,5		0,3548	354,8	1,0000	0,0706	0,9294	0,070588	
	1754,3	23,0	2,5	25,5		0,3548	354,8	1,0000	0,0706	0,9294	0,070588	
LTE Band 4 (16QAM, #1RB, RMS-Value)	1710,7	23,0	2,5	25,5	100%	0,3548	354,8	1,0000	0,0706	0,9294	0,070588	0,0705879
	1732,5	23,0	2,5	25,5		0,3548	354,8	1,0000	0,0706	0,9294	0,070588	
	1754,3	23,0	2,5	25,5		0,3548	354,8	1,0000	0,0706	0,9294	0,070588	

Maximum calculated MPE value:		
Lowest MPE-Limit in frequency-band:	1,0000	[mW/cm <sup>2</sup> ]
Highest MPE value in frequency-band:	0,0706	[mW/cm <sup>2</sup> ]
Lowest margin to limit in frequency-band:	0,93	[mW/cm <sup>2</sup> ]

#### Maximum antenna gain considerations for fixed/mobile operations for complying with limits:

P	Maximum power input to the antenna incl. Duty cycle (mW): (Avg. Burst Power or RMS)	355
R	Distance (cm):	20
S	MPE limit acc. §1.1310 for uncontrolled exposure (mW/cm <sup>2</sup> ): (FCC use mW)	1,00
G <sub>1</sub>	Maximum Antenna gain to comply with MPE limit (dBi):	11,51

(For G<sub>1</sub> the lowest measured channel to reach minimum ant. Gain selected)

ERP power limit according to §2.1091 [W]: (Avg. Burst Power or RMS)		3,00
G <sub>2</sub>	Max. Antenna gain to comply with this limit incl. Duty cycle (dBi):	11,42

(For G<sub>2</sub> select the max. Avg. Burst Power or RMS value incl. Duty cycle)

EIRP power limit according to §27.50(d)(4) [W]:		1,00
G <sub>3</sub>	Max. Antenna gain to comply with this limit (dBi):	4,50

(For G<sub>3</sub> select the max. Average burst power value excluding Duty cycle)

Min (G <sub>1</sub> , G <sub>2</sub> , G <sub>3</sub> ) (dBi)		4,50
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<b>Summarized results:</b>	The max. ant. gain for mobile operation at 1700 MHz band to comply with MPE and EIRP limits incl. path loss shall not exceed (dBi):	<b>4,50</b>
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### 4.5. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

### 4.6. Measurement uncertainties

The reported uncertainties are calculated based on the standard uncertainty multiplied with the appropriate coverage factor **k**, such that a confidence level of approximately 95% is achieved.

For uncertainty determination, each component used in the concrete measurement set-up was taken in account and it's contribution to the overall uncertainty according to its statistical distribution calculated.

Following table shows expectable uncertainties for each measurement type performed.

RF-Measurement	Reference	Frequency range	Calculated uncertainty based on a confidence level of 95%					Remarks
Conducted emissions (U <sub>CISPR</sub> )	CISPR 16-2-1	9 kHz - 150 kHz	4.0 dB					-
		150 kHz - 30 MHz	3.6 dB					
Radiated emissions Enclosure	CISPR 16-2-3	30 MHz - 1 GHz	4.2 dB					E-Field
		1 GHz - 18 GHz	5.1 dB					
Disturbance power	CISPR 16-2-2	30 MHz - 300 MHz	-					-
Power Output radiated	-	30 MHz - 4 GHz	3.17 dB					Substitution method
Power Output conducted	-	Set-up No.	Cel-C1	Cel-C2	BT1	W1	W2	-
		9 kHz - 12.75 GHz	N/A	0.60	--	--	--	
		12.75 - 26.5GHz	N/A	0.82	--	--	--	
Conducted emissions on RF-port	-	9 kHz - 2.8 GHz	0.70	N/A	--	--	--	N/A - not applicable
		2.8 GHz - 12.75GHz	1.48	N/A	--	--	--	
		12.75 GHz - 18GHz	1.81	N/A	--	--	--	
		18 GHz - 26.5GHz	1.83	N/A	--	--	--	
Occupied bandwidth	-	9 kHz - 4 GHz	0.1272 ppm (Delta Marker)					Frequency error
			1.0 dB					Power
Emission bandwidth	-	9 kHz - 4 GHz	0.1272 ppm (Delta Marker)					Frequency error
			See above: 0.70 dB					Power
Frequency stability	-	9 kHz - 20 GHz	0.0636 ppm					-
Radiated emissions Enclosure	-	150 kHz - 30 MHz	5.0 dB					Magnetic field E-field Substitution
		30 MHz - 1 GHz	4.2 dB					
		1 GHz - 20 GHz	3.17 dB					

**Table: measurement uncertainties, valid for conducted/radiated measurements**

## 5. Abbreviations used in this report

The abbreviations	
ANSI	American National Standards Institute
AV , AVG, CAV	Average detector
EIRP	Equivalent isotropically radiated power, determined within a separate measurement
EGPRS	Enhanced General Packet Radio Service
EUT	Equipment Under Test
FCC	Federal Communications Commission, USA
IC	Industry Canada
n.a.	not applicable
Op-Mode	Operating mode of the equipment
PK	Peak
RBW	resolution bandwidth
RF	Radio frequency
RSS	Radio Standards Specification, Dokuments from Industry Canada
Rx	Receiver
TCH	Traffic channel
Tx	Transmitter
QP	Quasi peak detector
VBW	Video bandwidth
ERP	Effective radiated power

## 6. Accreditation details of CETECOM's laboratories and test sites

Ref.-No.	Accreditation Certificate	Valid for laboratory area or test site	Accreditation Body
-	D-PL-12047-01-01	All laboratories and test sites of CETECOM GmbH, Essen	DAkkS, Deutsche Akkreditierungsstelle GmbH
337 487 558 348 348	MRA US-EU 0003	Radiated Measurements 30 MHz to 1 GHz, 3 m / 10 m (OATS) Radiated Measurements 30 MHz to 1 GHz, 3 m (SAR) Radiated Measurements above 1 GHz, 3 m (FAR) Mains Ports Conducted Interference Measurements Telecommunication Ports Conducted Interference Measur.	FCC, Federal Communications Commission Laboratory Division, USA
337 487 550 558	3462D-1 3462D-2 3462D-2 3462D-3	Radiated Measurements 30 MHz to 1 GHz, 3 m / 10 m (OATS) Radiated Measurements 30 MHz to 1 GHz, 3 m (SAR) Radiated Measurements 1 GHz to 6 GHz, 3 m (SAR) Radiated Measurements above 1 GHz, 3 m (FAR)	IC, Industry Canada Certification and Engineering Bureau
487 550 348 348	R-2666 G-301 C-2914 T-1967	Radiated Measurements 30 MHz to 1 GHz, 3 m (SAR) Radiated Measurements 1 GHz to 6 GHz, 3 m (SAR) Mains Ports Conducted Interference Measurements Telecommunication Ports Conducted Interference Measur.	VCCI, Voluntary Control Council for Interference by Information Technology Equipment, Japan
OATS = Open Area Test Site, SAR = Semi Anechoic Room, FAR = Fully Anechoic Room			

## 8. Versions of test reports (change history)

Version	Applied changes	Date of release
--	Initial release	2018-03-27