

# Test Report

## 20-1-0159101T04a



Deutsche  
Akreditierungsstelle  
D-PL-12047-01-01  
D-PL-12047-01-03  
D-PL-12047-01-04

<b>Number of pages:</b>	21	<b>Date of Report:</b>	2021-May-17
<b>Testing company:</b>	CETECOM GmbH Im Teelbruch 116 45219 Essen Germany Tel. + 49 (0) 20 54 / 95 19-0 Fax: + 49 (0) 20 54 / 95 19-150	<b>Applicant:</b>	MobilityCloud Inc.
<b>Product:</b>	<b>Bikeshare System Controller</b>		
<b>Model:</b>	<b>QR Controller</b>		
<b>FCC ID:</b>	2AY2H010321QR1	<b>IC:</b>	27012-010321QR1
<b>Testing has been carried out in accordance with:</b>	<b>FCC Regulations</b> Part 1.1310 Part 2.1091  <b>IC-Regulations</b> RSS-102, Issue 5  Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".		
<b>Tested Technology:</b>	GSM, UMTS, LTE, BLE		
<b>Test Results:</b>	<input checked="" type="checkbox"/> <b>The EUT complies with the requirements in respect of all parameters subject to the test.</b> The test results relate only to devices specified in this document		
<b>Signatures:</b>	<div style="display: flex; justify-content: space-between;"><div style="width: 45%;"><p>Dipl.-Ing. Ninovic Perez Test Lab Manager Authorization of test report</p></div><div style="width: 45%; text-align: right;"><p>B.Eng. Martin Nunier Testing Expert Responsible of test report</p></div></div>		

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Table of Annex			
Annex No.	Contents	Reference Description	Total Pages
Annex 1	External photographs of EUT	CETECOM_TR20_1_0159101T04a_A1	3
Annex 2	Tune up and Antenna gain Information	MPE Information Requirements	1
The listed attachments are separate documents.			

## **1 General information**

### **1.1 Disclaimer and Notes**

The test results of this test report relate exclusively to the test item specified in this test report as specified in chapter 2.7. CETECOM 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.

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CETECOM.

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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 electronic signatures, the public keys can be requested at the testing laboratory.

The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 10 years at CETECOM.

Also we refer on special conditions which the applicant should fulfill according §2.927 to §2.948, special focus regarding modification of the equipment and availability of sample equipment for market surveillance tests.

### **1.2 Attestation**

I declare that all measurements were performed by me or under my supervision and that all measurements have been performed and are correct to my best knowledge and belief to Industry Canada standards. All of the above requirements are met in accordance with enumerated standards.

### 1.3 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 presented Equipment Under Test (in this report, hereinafter referred as EUT) integrates following RF Transceiver:

<b>RF Transceiver</b>	GSM W-CDMA LTE BLE
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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 and ICED RSS standards.

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	RSS Standard	Test Limit			
Radio frequency radiation exposure Requirements	Cabinet	§1.1310 §2.1091	RF-Field Strength Limits: FCC: "general population/ uncontrolled" environment	RSS-102, Issue 5	Chapter 4 Table 4	1	1 to 32	PASSED

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

- PASSED                      The EUT complies with the essential requirements in the standard.
- FAILED                     The EUT does not comply with the essential requirements in the standard.
- NP                            The test was not performed by the CETECOM Laboratory.
- NT                            Not tested
- N/A                          Not applicable

## 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:	Ninovic Perez
Accreditation scope:	<a href="#">DAkkS Webpage</a>
Test location:	CETECOM GmbH; Im Teelbruch 116; 45219 Essen - Kettwig

### 2.2 General limits for environmental conditions

Temperature:	22±2 °C
Relative. humidity:	45±15% rH

### 2.3 Test Laboratories sub-contracted

Company name:	
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### 2.4 Organizational Items

Responsible test manager:	B.Eng. Martin Nunier
Receipt of EUT:	--
Date(s) of test:	--
Version of template:	21.1

### 2.5 Applicant's details

Applicant's name:	MobilityCloud Inc.
Address:	244 Madison Avenue 10016 New York New York United States of America
Contact Person:	Marcin Pyla
Contact Person's Email:	marcin@mobility.cloud

### 2.6 Manufacturer's details

Manufacturer's name:	See applicant's details
Address:	See applicant's details

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

Short description*)	PMT Sample No.	Product	Model	Type	S/N	HW status	SW status
EUT 01	--	Bikeshare System Controller	QR Controller	QR1	--	1	1.2.3

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

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

Short description*)	PMT Sample No.	Auxiliary Equipment	Type	S/N	HW status	SW status
AE 01	--	--	--	--	--	--

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

## 2.9 Connected cables

Short description*)	PMT Sample No.	Cable type	Connectors	Length
CAB 01	--	--	--	--

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

## 2.10 Software

Short description*)	PMT Sample No.	Software	Type	S/N	HW status	SW status
SW 01	--	--	--	--	--	--

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

## 2.11 EUT set-ups

set-up no. *)	Combination of EUT and AE	Description
SET 01	EUT 01	Used for theoretical calculation

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

## 2.12 EUT operation modes

EUT operating mode no.*)	Operating modes	Additional information
op. 1	GSM 850 CS	Only theoretical calculation
op. 2	GPRS 850 PD 1 slot	Only theoretical calculation
op. 3	GPRS 850 PD 2 slots	Only theoretical calculation
op. 4	GPRS 850 PD 3 slots	Only theoretical calculation
op. 5	GPRS 850 PD 4 slots	Only theoretical calculation
op. 6	EGPRS 850 PD 1 slot	Only theoretical calculation
op. 7	EGPRS 850 PD 2 slots	Only theoretical calculation
op. 8	EGPRS 850 PD 3 slots	Only theoretical calculation
op. 9	EGPRS 850 PD 4 slots	Only theoretical calculation
op. 10	GSM 1900 CS	Only theoretical calculation
op. 11	GPRS 1900 PD 1 slot	Only theoretical calculation
op. 12	GPRS 1900 PD 2 slots	Only theoretical calculation
op. 13	GPRS 1900 PD 3 slots	Only theoretical calculation
op. 14	GPRS 1900 PD 4 slots	Only theoretical calculation
op. 15	EGPRS 1900 PD 1 slot	Only theoretical calculation
op. 16	EGPRS 1900 PD 2 slots	Only theoretical calculation
op. 17	EGPRS 1900 PD 3 slots	Only theoretical calculation
op. 18	EGPRS 1900 PD 4 slots	Only theoretical calculation
op. 19	W-CDMA FDD II	Only theoretical calculation
op. 20	W-CDMA FDD IV	Only theoretical calculation
op. 21	W-CDMA FDD V	Only theoretical calculation
op. 22	LTE Band 02	Only theoretical calculation
op. 23	LTE Band 04	Only theoretical calculation
op. 24	LTE Band 05	Only theoretical calculation
op. 25	LTE Band 07	Only theoretical calculation
op. 26	LTE Band 12	Only theoretical calculation
op. 27	LTE Band 13	Only theoretical calculation
op. 28	LTE Band 25	Only theoretical calculation
op. 29	LTE Band 26	Only theoretical calculation
op. 30	LTE Band 38	Only theoretical calculation
op. 31	LTE Band 41	Only theoretical calculation
op. 32	BLE	Only theoretical calculation

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

### 3 Equipment under test (EUT)

#### 3.1 General Data of Main EUT as Declared by Applicant

<b>Product</b>	Bikeshare System Controller
<b>Model</b>	QR Controller
<b>Type</b>	QR1
<b>Radio access technology</b>	GSM WCDMA LTE BLE
<b>For further details refer Applicants Declaration and technical documents</b>	

#### 3.2 Detailed Technical data of Main EUT as Declared by Applicant

<b>Frequency Band</b>	<p>GSM 850: 824 - 849 MHz (Uplink), 869 - 894 MHz (Downlink)  GSM 1900: 1850 - 1910 MHz (Uplink), 1930 - 1990 MHz (Downlink)</p> <p>W-CDMA FDD II: 1850 - 1910 MHz (Uplink), 1930 - 1990 MHz (Downlink)  W-CDMA FDD IV: 1710 - 1755 MHz (Uplink), 2110 - 2155 MHz (Downlink)  W-CDMA FDD V: 824 - 849 MHz (Uplink), 869 - 894 MHz (Downlink)</p> <p>LTE Band 2: 1850 - 1910 MHz (Uplink), 1930 - 1990 MHz (Downlink)  LTE Band 4: 1710 - 1755 MHz (Uplink), 2110 - 2155 MHz (Downlink)  LTE Band 5: 824 - 849 MHz (Uplink), 869 - 894 MHz (Downlink)  LTE Band 7: 2500 - 2570 MHz (Uplink), 2620 - 2690 MHz (Downlink)  LTE Band 12: 699 - 716 MHz (Uplink), 729 - 746 MHz (Downlink)  LTE Band 13: 777 - 787 MHz (Uplink), 746 - 756 MHz (Downlink)  LTE Band 25: 1850 - 1915 MHz (Uplink), 1930 - 1995 MHz (Downlink)  LTE Band 26: 814 - 849 MHz (Uplink), 859 - 894 MHz (Downlink)  LTE Band 38: 2570 - 2620 MHz (Uplink and Downlink)  LTE Band 41: 2496 - 2690 MHz (Uplink and Downlink)</p> <p>BLE: 2402 – 2480 MHz (Uplink and Downlink)</p>
<b>Antenna Type(s)</b>	Integrated
<b>Antenna Gain(s)</b>	Antenna gain see Annex 2
<b>FCC label attached</b>	No
<b>For further details refer Applicants Declaration and technical documents</b>	



## 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')

<b>Test location</b>	See Chapter 2.1
<b>Equipment</b>	For Evaluation instruments are not needed. Results are determined by calculation based on applicants delivered Tune-Up procedure.

#### 4.1.2 Requirements

<b>FCC: §1.1310</b>	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. 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.
<b>FCC § 2.1091</b>	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.” 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.

##### 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 neighbors living near amateur radio stations.

**4.1.3 General Limits:**

<b>FCC: §1.1307</b>	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)
<b>FCC §1.1307</b>	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)
<b>FCC §1.1310</b>	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: $1.0 \text{ mW/cm}^2$
<b>FCC §2.1091</b>	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.
<b>FCC §24.232</b>	(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, ...
<b>FCC §22.913</b>	(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.
<b>FCC §27.50 (C )(10)</b>	(10) Portable stations (hand-held devices) are limited to 3 watts ERP; and
<b>FCC §27.50(d)</b>	(4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band are limited to 1 watt EIRP.
<b>KDBs</b>	No. 447498 D01 v06

## 4.2 Requirements and limits for RSS Standard

RSS-102, Issue 5

### 2.5 Exemption Limits for Routine Evaluation

All transmitters are exempt from routine SAR and RF exposure evaluations provided that they comply with the requirements of [sections 2.5.1 or 2.5.2](#). **If the equipment under test (EUT) meets the requirements of sections 2.5.1 or 2.5.2, applicants are only required to submit a properly signed declaration of compliance (see [Annex C](#))**. The information contained in the RF exposure technical brief may be limited to the value(s) of the maximum output power, the information that demonstrates how the maximum output power of the transmitter was derived and the rationale for the separation distances applied (see [Table 1](#)), which must be based on the most conservative exposure condition for the applicable module or host platform test procedure requirements.

### 2.5.2 Exemption Limits for Routine Evaluation — RF Exposure Evaluation

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than  $4.49/f^{0.5}$  W (adjusted for tune-up tolerance), where  $f$  is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- **at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than  $1.31 \times 10^{-2} f^{0.6834}$  W (adjusted for tune-up tolerance), where  $f$  is in MHz;**
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

### 2.6 User Manual Requirements

The applicant is responsible for providing proper instructions to the user of the radio device, and any usage restrictions, including limits of exposure durations. The user manual shall provide installation and operation instructions, as well as any special usage conditions (e.g. proper accessory required, including the proper orientation of the device in the accessory, maximum antenna gain in the case of detachable antenna), in order to ensure compliance with SAR and/or RF field strength limits. For instance, compliance distance shall be clearly stated in the user manual.

The user manual of devices intended for controlled use shall also include information relating to the operating characteristics of the device; the operating instructions to ensure compliance with SAR and/or RF field strength limits; information on the installation and operation of accessories to ensure compliance with SAR and/or RF field strength limits; and contact information where the user can obtain Canadian information on RF exposure and compliance. Other related information may also be included.

### 4.3 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 center of radiation of the antenna

### 4.4 Evaluation Method

Please find in the following tables **the calculations based on applicants information.**

Customer declared minimum separation distance (cm):

<b>Distance (cm)</b>	30
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(from radiating element to end user)

## 4.5 Results for fixed and mobile operations

### 4.5.1 Results for FCC Standard

#### 4.5.1.1 Results for Transmitter below 1.5 Ghz

Operating Mode	Frequency on channel	Declared maximum conducted output power	Max. positive tolerance according manufacturer	Declared Antenna Gain	Ext. Path Loss to antenna (external cables)	Calculated maximum EIRP (declared + Tune-up + antenna Gain - Path loss)	Duty cycle	Calculated Maximum EIRP	Equivalent EIRP (maximum EIRP 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)	(dBi)	(dB)	(dBm)		(W)	(mW)	(mW/cm²)	(mW/cm²)	(mW/cm²)		
GSM/GPRS 850 (PK-Burst value)	824.2	33.0	0.0	0.77	0.0	33.77	12.5%	2.382	297.790	0.5495	0.0263	0.5231	0.0479	
	837.0	33.0	0.0	0.77	0.0	33.77		2.382	297.790	0.5580	0.0263	0.5317		0.0472
	848.8	33.0	0.0	0.77	0.0	33.77		2.382	297.790	0.5659	0.0263	0.5395		0.0465
GSM/GPRS 850 (PK-Burst value)	824.2	33.0	0.0	0.77	0.0	33.77	50%	2.382	1191.160	0.5495	0.1053	0.4441	0.1917	
	837.0	33.0	0.0	0.77	0.0	33.77		2.382	1191.160	0.5580	0.1053	0.4527		0.1887
	848.8	33.0	0.0	0.77	0.0	33.77		2.382	1191.160	0.5659	0.1053	0.4605		0.1861
EDGE 850 (PK-Burst value)	824.2	27.0	0.0	0.77	0.0	27.77	12.5%	0.598	74.801	0.5495	0.0066	0.5429	0.0120	
	837.0	27.0	0.0	0.77	0.0	27.77		0.598	74.801	0.5580	0.0066	0.5514		0.0119
	848.8	27.0	0.0	0.77	0.0	27.77		0.598	74.801	0.5659	0.0066	0.5593		0.0117
EDGE 850 (PK-Burst value)	824.2	27.0	0.0	0.77	0.0	27.77	50%	0.598	299.206	0.5495	0.0265	0.5230	0.0481	
	837.0	27.0	0.0	0.77	0.0	27.77		0.598	299.206	0.5580	0.0265	0.5315		0.0474
	848.8	27.0	0.0	0.77	0.0	27.77		0.598	299.206	0.5659	0.0265	0.5394		0.0468
WCDMA FDD Band 5 (RMS-Value)	826.4	24.0	0.0	0.77	0.0	24.77	100%	0.300	299.916	0.5509	0.0265	0.5244	0.0481	
	836.4	24.0	0.0	0.77	0.0	24.77		0.300	299.916	0.5576	0.0265	0.5311		0.0476
	846.6	24.0	0.0	0.77	0.0	24.77		0.300	299.916	0.5644	0.0265	0.5379		0.0470
LTE Band 5 (RMS-Value)	824.7	23.0	0.0	0.77	0.0	23.77	100%	0.238	238.232	0.5498	0.0211	0.5287	0.0383	
	836.5	23.0	0.0	0.77	0.0	23.77		0.238	238.232	0.5577	0.0211	0.5366		0.0378
	848.3	23.0	0.0	0.77	0.0	23.77		0.238	238.232	0.5655	0.0211	0.5445		0.0372
LTE Band 12 (RMS-Value)	699.7	23.0	0.0	-0.21	0.0	22.79	100%	0.190	190.108	0.4665	0.0168	0.4497	0.0360	
	707.4	23.0	0.0	-0.21	0.0	22.79		0.190	190.108	0.4716	0.0168	0.4548		0.0356
	715.3	23.0	0.0	-0.21	0.0	22.79		0.190	190.108	0.4769	0.0168	0.4601		0.0352
LTE Band 13 (RMS-Value)	779.5	23.0	0.0	-0.21	0.0	22.79	100%	0.190	190.108	0.5197	0.0168	0.5029	0.0323	
	782.0	23.0	0.0	-0.21	0.0	22.79		0.190	190.108	0.5213	0.0168	0.5045		0.0322
	784.5	23.0	0.0	-0.21	0.0	22.79		0.190	190.108	0.5230	0.0168	0.5062		0.0321
LTE Band 26 (RMS-Value)	814.7	23.0	0.0	0.77	0.0	23.77	100%	0.238	238.232	0.5431	0.0211	0.5221	0.0388	
	831.5	23.0	0.0	0.77	0.0	23.77		0.238	238.232	0.5543	0.0211	0.5333		0.0380
	848.3	23.0	0.0	0.77	0.0	23.77		0.238	238.232	0.5655	0.0211	0.5445		0.0372

Maximum calculated MPE value:		
Lowest MPE Limit in Frequency-Band:	0.4665	[mW/cm²]
Highest MPE value in frequency-band:	0.1053	[mW/cm²]
Lowest margin to limit in frequency band:	0.4441	[mW/cm²]

4.5.1.2 Results for Transmitter above 1.5 Ghz

Operating Mode	Frequency on channel (MHz)	Declared maximum conducted output power (dBm)	Max. positive tolerance according manufacturer (dB)	Declared Antenna Gain (dBi)	Ext. Path Loss to antenna (external cables) (dB)	Calculated maximum EIRP (declared + Tune-up + antenna Gain - Path Loss) (dBm)	Duty cycle (%)	Calculated Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	MPE Limit accord. Table 1 (mW/cm²)	MPE-Value (mW/cm²)	Margin to limit: (mW/cm²)	Fraction for Co-Location calculations	Max. Fraction-Value within Frequency-Band
WCDMA FDD Band 4 (RMS-Value)	1712.4	24.0	0.0	3.05	0.0	27.05	100%	0.5070	507.0	1.0000	0.0448	0.9552	0.044828	0.0448278
	1740.0	24.0	0.0	3.05	0.0	27.05		0.5070	507.0	1.0000	0.0448	0.9552	0.044828	
	1752.6	24.0	0.0	3.05	0.0	27.05		0.5070	507.0	1.0000	0.0448	0.9552	0.044828	
LTE Band 4 (RMS-Value)	1710.7	23.0	0.0	3.05	0.0	26.05	100%	0.4027	402.7	1.0000	0.0356	0.9644	0.035608	0.0356080
	1732.5	23.0	0.0	3.05	0.0	26.05		0.4027	402.7	1.0000	0.0356	0.9644	0.035608	
	1754.3	23.0	0.0	3.05	0.0	26.05		0.4027	402.7	1.0000	0.0356	0.9644	0.035608	

Maximum calculated MPE value:		
Lowest MPE-Limit in Frequency-Band:	1.0000	[mW/cm²]
Highest MPE value in frequency-band:	0.0448	[mW/cm²]
Lowest margin to limit in frequency band:	0.96	[mW/cm²]

Operating Mode	Frequency on channel (MHz)	Declared maximum conducted output power (dBm)	Max. positive tolerance according manufacturer (dB)	Declared Antenna Gain (dBi)	Ext. Path Loss to antenna (external cables) (dB)	Calculated maximum EIRP (declared + Tune-up + antenna Gain - Path Loss) (dBm)	Duty cycle (%)	Calculated Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	MPE Limit accord. Table 1 (mW/cm²)	MPE-Value (mW/cm²)	Margin to limit: (mW/cm²)	Fraction for Co-Location calculations	Max. Fraction-Value within Frequency-Band
GSM/GPRS 1900 (PK-Burst value)	1850.2	30.0	0.0	2.92	0.0	32.92	12.5%	1.959	245	1.0000	0.0216	0.9784	0.021650	0.0216500
	1880.0	30.0	0.0	2.92	0.0	32.92		1.959	245	1.0000	0.0216	0.9784	0.021650	
	1909.8	30.0	0.0	2.92	0.0	32.92		1.959	245	1.0000	0.0216	0.9784	0.021650	
GSM/GPRS 1900 (PK-Burst value)	1850.2	30.0	0.0	2.92	0.0	32.92	50%	1.959	979	1.0000	0.0866	0.9134	0.086600	0.0866999
	1880.0	30.0	0.0	2.92	0.0	32.92		1.959	979	1.0000	0.0866	0.9134	0.086600	
	1909.8	30.0	0.0	2.92	0.0	32.92		1.959	979	1.0000	0.0866	0.9134	0.086600	
EDGE 1900 (PK-Burst value)	1850.2	26.0	0.0	2.92	0.0	28.92	12.5%	0.780	97	1.0000	0.0086	0.9914	0.008619	0.0086190
	1880.0	26.0	0.0	2.92	0.0	28.92		0.780	97	1.0000	0.0086	0.9914	0.008619	
	1909.8	26.0	0.0	2.92	0.0	28.92		0.780	97	1.0000	0.0086	0.9914	0.008619	
EDGE 1900 (PK-Burst value)	1850.2	26.0	0.0	2.92	0.0	28.92	50%	0.780	390	1.0000	0.0345	0.9655	0.034476	0.0344761
	1880.0	26.0	0.0	2.92	0.0	28.92		0.780	390	1.0000	0.0345	0.9655	0.034476	
	1909.8	26.0	0.0	2.92	0.0	28.92		0.780	390	1.0000	0.0345	0.9655	0.034476	
WCDMA FDD Band 2 (RMS-Value)	1852.4	24.00	0.0	2.92	0.0	26.92	100%	0.492	492	1.0000	0.0435	0.9565	0.043506	0.0435058
	1880.0	24.00	0.0	2.92	0.0	26.92		0.492	492	1.0000	0.0435	0.9565	0.043506	
	1907.6	24.00	0.0	2.92	0.0	26.92		0.492	492	1.0000	0.0435	0.9565	0.043506	
LTE Band 2 (RMS-Value)	1850.7	23.00	0.0	2.92	0.0	25.92	100%	0.391	391	1.0000	0.0346	0.9654	0.034558	0.0345579
	1880.0	23.00	0.0	2.92	0.0	25.92		0.391	391	1.0000	0.0346	0.9654	0.034558	
	1909.3	23.00	0.0	2.92	0.0	25.92		0.391	391	1.0000	0.0346	0.9654	0.034558	
LTE Band 25 (RMS-Value)	1850.7	23.00	0.0	2.92	0.0	25.92	100%	0.391	391	1.0000	0.0346	0.9654	0.034558	0.0345579
	1882.5	23.00	0.0	2.92	0.0	25.92		0.391	391	1.0000	0.0346	0.9654	0.034558	
	1914.3	23.00	0.0	2.92	0.0	25.92		0.391	391	1.0000	0.0346	0.9654	0.034558	
LTE Band 38 (RMS-Value)	2572.5	23.00	0.0	3.72	0.0	26.72	100%	0.470	470	1.0000	0.0415	0.9585	0.041548	0.0415478
	2595.0	23.00	0.0	3.72	0.0	26.72		0.470	470	1.0000	0.0415	0.9585	0.041548	
	2617.5	23.00	0.0	3.72	0.0	26.72		0.470	470	1.0000	0.0415	0.9585	0.041548	
LTE Band 41 (RMS-Value)	2498.5	23.00	0.0	3.72	0.0	26.72	100%	0.470	470	1.0000	0.0415	0.9585	0.041548	0.0415478
	2593.0	23.00	0.0	3.72	0.0	26.72		0.470	470	1.0000	0.0415	0.9585	0.041548	
	2687.5	23.00	0.0	3.72	0.0	26.72		0.470	470	1.0000	0.0415	0.9585	0.041548	

Maximum calculated MPE value:		
Lowest MPE-Limit in frequency-band:	1.0000	[mW/cm²]
Highest MPE value in frequency-band:	0.0866	[mW/cm²]
Margin to limit in frequency-band:	0.9134	[mW/cm²]

Operation Mode	Frequency on channel (MHz)	Declared maximum conducted output power (dBm)	Max. positive tolerance according manufacturer (dB)	Declared Antenna Gain (dBi)	Ext. Path Loss to antenna (external cables) (dB)	Calculated maximum EIRP (declared + Tune-up + antenna Gain - Path Loss) (dBm)	Duty cycle (%)	Calculated Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	MPE Limit accord. Table 1 (mW/cm²)	MPE-Value (mW/cm²)	Margin to limit: (mW/cm²)	Fraction for Co-Location calculations	Max. Fraction-Value within Frequency-Band
Bluetooth LE 2.4 GHz	2402.0	4.0	0.0	0.0	0.0	4.0	100%	0.0025	2.5	1.0000	0.0005	0.9995	0.000500	0.0004997
	2442.0	4.0	0.0	0.0	0.0	4.0		0.0025	2.5	1.0000	0.0005	0.9995	0.000500	
	2480.0	4.0	0.0	0.0	0.0	4.0		0.0025	2.5	1.0000	0.0005	0.9995	0.000500	

Maximum calculated MPE value:		
Lowest MPE-Limit:	1.0000	[mW/cm²]
Highest MPE value:	0.0005	[mW/cm²]
Lowest Margin to limit:	0.9995	[mW/cm²]

4.5.1.3 Co-location assessment (scenario)

	Ratio of MPE-Value/Limit	Bluetooth LE 2.4 GHz
GSM/GPRS 850 (PK-Burst value)	0.19167977	0.192179494
EDGE 850 (PK-Burst value)	0.048147781	0.048647505
WCDMA FDD Band 5 (RMS-Value)	0.048133626	0.04863335
LTE Band 5 (RMS-Value)	0.038312712	0.038812436
LTE Band 12 (RMS-Value)	0.036035206	0.03653493
LTE Band 13 (RMS-Value)	0.032346163	0.032845887
LTE Band 26 (RMS-Value)	0.038782979	0.039282703
WCDMA FDD Band 4 (RMS-Value)	0.044827821	0.045327545
LTE Band 4 (RMS-Value)	0.035608004	0.036107728
GSM/GPRS 1900 (PK-Burst value)	0.086599948	0.087099672
EDGE 1900 (PK-Burst value)	0.03447606	0.034975784
WCDMA FDD Band 2 (RMS-Value)	0.043505847	0.044005571
LTE Band 2 (RMS-Value)	0.034557923	0.035057646
LTE Band 25 (RMS-Value)	0.034557923	0.035057646
LTE Band 38 (RMS-Value)	0.041547761	0.042047485
LTE Band 41 (RMS-Value)	0.041547761	0.042047485
<b>Maximum-Value</b>		<b>0.192179494</b>

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

## 4.5.2 Results for RSS Standard

### 4.5.2.1 Results for Transmitter below 1.5 Ghz

Operating Mode	Channel frequency (MHz)	Declared maximum conducted output power (dBm)	Max. positive tolerance according manufacturer's tune-up info (dB)	Declared Antenna Gain (dBi)	Ext. Path Loss to antenna (external cables) (dB)	Max. positive path loss uncertainty (dB)	Calculated maximum EIRP (declared + Tune-up + antenna Gain - Path Loss) (dBm)	Duty-Cycle (%)	Calculated Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (W)	MPE Limit accord. Table 4 (EIRP-Limit) (W/m²)	MPE-Value (EIRP referred) (W/m²)	Margin to limit: (W/m²)	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band
GSM/GPRS 850 (PK-Burst value)	824.2	33.0	0.0	0.77	0.0	0.0	33.77	12.5%	2.3823	0.2978	2.5760	0.2633	2.3127	0.1022	0.102213
	837.0	33.0	0.0	0.77	0.0	0.0	33.77	12.5%	2.3823	0.2978	2.6033	0.2633	2.3400	0.1011	
	848.8	33.0	0.0	0.77	0.0	0.0	33.77	12.5%	2.3823	0.2978	2.6283	0.2633	2.3650	0.1002	
GSM/GPRS 850 (PK-Burst value)	824.2	33.0	0.0	0.77	0.0	0.0	33.77	50%	2.3823	1.1912	2.5760	1.0532	1.5228	0.4089	0.408851
	837.0	33.0	0.0	0.77	0.0	0.0	33.77	50%	2.3823	1.1912	2.6033	1.0532	1.5501	0.4046	
	848.8	33.0	0.0	0.77	0.0	0.0	33.77	50%	2.3823	1.1912	2.6283	1.0532	1.5751	0.4007	
EDGE 850 (PK-Burst value)	824.2	27.0	0.0	0.77	0.0	0.0	27.77	12.5%	0.5984	0.0748	2.5760	0.0661	2.5099	0.0257	0.025675
	837.0	27.0	0.0	0.77	0.0	0.0	27.77	12.5%	0.5984	0.0748	2.6033	0.0661	2.5372	0.0254	
	848.8	27.0	0.0	0.77	0.0	0.0	27.77	12.5%	0.5984	0.0748	2.6283	0.0661	2.5622	0.0252	
EDGE 850 (PK-Burst value)	824.2	27.0	0.0	0.77	0.0	0.0	27.77	50%	0.5984	0.2992	2.5760	0.2646	2.3115	0.1027	0.102699
	837.0	27.0	0.0	0.77	0.0	0.0	27.77	50%	0.5984	0.2992	2.6033	0.2646	2.3388	0.1016	
	848.8	27.0	0.0	0.77	0.0	0.0	27.77	50%	0.5984	0.2992	2.6283	0.2646	2.3638	0.1007	
WCDMA FDD Band 5 (RMS-Value)	826.4	24.0	0.0	0.77	0.0	0.0	24.77	100%	0.2999	0.2999	2.5807	0.2652	2.3156	0.102755	0.102755
	836.4	24.0	0.0	0.77	0.0	0.0	24.77	100%	0.2999	0.2999	2.6020	0.2652	2.3369	0.101914	
	846.6	24.0	0.0	0.77	0.0	0.0	24.77	100%	0.2999	0.2999	2.6237	0.2652	2.3585	0.101073	
LTE Band 5 (RMS-Value)	824.7	23.0	0.0	0.77	0.0	0.0	23.77	100%	0.2382	0.2382	2.5771	0.2106	2.3665	0.081736	0.081736
	836.5	23.0	0.0	0.77	0.0	0.0	23.77	100%	0.2382	0.2382	2.6022	0.2106	2.3916	0.080947	
	848.3	23.0	0.0	0.77	0.0	0.0	23.77	100%	0.2382	0.2382	2.6273	0.2106	2.4166	0.080175	
LTE Band 12 (RMS-Value)	699.7	23.0	0.0	-0.21	0.0	0.0	22.79	100%	0.1901	0.1901	2.3033	0.1681	2.1352	0.072979	0.072979
	707.4	23.0	0.0	-0.21	0.0	0.0	22.79	100%	0.1901	0.1901	2.3206	0.1681	2.1525	0.072435	
	715.3	23.0	0.0	-0.21	0.0	0.0	22.79	100%	0.1901	0.1901	2.3383	0.1681	2.1702	0.071888	
LTE Band 13 (RMS-Value)	779.5	23.0	0.0	-0.21	0.0	0.0	22.79	100%	0.1901	0.1901	2.4797	0.1681	2.3116	0.067787	0.067787
	782.0	23.0	0.0	-0.21	0.0	0.0	22.79	100%	0.1901	0.1901	2.4852	0.1681	2.3171	0.067639	
	784.5	23.0	0.0	-0.21	0.0	0.0	22.79	100%	0.1901	0.1901	2.4906	0.1681	2.3225	0.067491	
LTE Band 26 (RMS-Value)	814.7	23.0	0.0	0.77	0.0	0.0	23.77	100%	0.2382	0.2382	2.5557	0.2106	2.3451	0.082421	0.082421
	831.5	23.0	0.0	0.77	0.0	0.0	23.77	100%	0.2382	0.2382	2.5916	0.2106	2.3810	0.081279	
	848.3	23.0	0.0	0.77	0.0	0.0	23.77	100%	0.2382	0.2382	2.6273	0.2106	2.4166	0.080175	

Maximum calculated MPE value:		
Lowest MPE-Limit within frequency-band:	2.3033	[W/m²]
Highest MPE value within frequency-band:	1.0532	[W/m²]
Lowest margin to limit within frequency-band:	1.5228	[W/m²]



4.5.2.2 Results for Transmitter above 1.5 Ghz

Operating Mode	Channel frequency (MHz)	Declared maximum conducted output power (dBm)	Max. positive tolerance according manufacturer's tune-up info (dB)	Declared Antenna Gain (dBi)	Path Loss to ext. antenna connector according manufacturer (dB)	Max. positive path loss uncertainty (dB)	Calculated maximum EIRP (declared + Tune-up + antenna Gain - Path Loss) (dBm)	Calculated Maximum EIRP (W)	Duty-Cycle (%)	Equivalent EIRP (maximum EIRP x duty cycle) (W)	MPE Limit accord. Table 4 (W/m <sup>2</sup> )	MPE-Value (W/m <sup>2</sup> )	Margin to Limit (W/m <sup>2</sup> )	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band
WCDMA FDD Band 4 (RMS-Value)	1712.4	24.0	0.0	3.05	0.0	0.0	27.1	0.51	100%	0.5069907	4.2460	0.4483	3.7977	0.105576272	0.105576272
	1732.5	24.0	0.0	3.05	0.0	0.0	27.1	0.51		0.5069907	4.2800	0.4483	3.8317	0.104197652	
	1752.6	24.0	0.0	3.05	0.0	0.0	27.1	0.51		0.5069907	4.3139	0.4483	3.8656	0.103915253	
LTE Band 4 (RMS-Value)	1710.7	23.0	0.0	3.05	0.0	0.0	26.1	0.40	100%	0.4027170	4.2431	0.3561	3.8871	0.083919158	0.083919158
	1732.5	23.0	0.0	3.05	0.0	0.0	26.1	0.40		0.4027170	4.2800	0.3561	3.9239	0.083296074	
	1754.3	23.0	0.0	3.05	0.0	0.0	26.1	0.40		0.4027170	4.3167	0.3561	3.9607	0.082488147	

Maximum calculated MPE value:		
Lowest MPE-Limit within frequency-band:	4.2431	[W/m <sup>2</sup> ]
Highest MPE value within frequency-band:	0.4483	[W/m <sup>2</sup> ]
Lowest margin to limit within frequency-band:	3.7977	[W/m <sup>2</sup> ]

Operating Mode	Frequency on channel (MHz)	Declared maximum conducted output power (dBm)	Max. positive tolerance according manufacturer's tune-up info (dB)	Declared Antenna Gain (dBi)	Path Loss to ext. antenna connector according manufacturer (dB)	Max. positive path loss uncertainty (dB)	Calculated maximum EIRP (declared + Tune-up + antenna Gain - Path Loss) (dBm)	Duty-Cycle (%)	Calculated Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (W)	MPE Limit accord. Table 4 (W/m <sup>2</sup> )	MPE-Value (W/m <sup>2</sup> )	Margin to Limit (W/m <sup>2</sup> )	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band
GSM/GPRS 1900 (PK-Burst value)	1850.2	30.0	0.0	2.92	0.0	0.0	32.9	12.5%	1.9588	0.2449	4.4766	0.2165	4.2601	0.04836207	0.0483621
	1880.0	30.0	0.0	2.92	0.0	0.0	32.9		1.9588	0.2449	4.5258	0.2165	4.3093	0.04783686	
	1909.8	30.0	0.0	2.92	0.0	0.0	32.9		1.9588	0.2449	4.5747	0.2165	4.3582	0.04732548	
GSM/GPRS 1900 (PK-Burst value)	1850.2	30.0	0.0	2.92	0.0	0.0	32.9	50%	1.9588	0.9794	4.4766	0.8660	3.6106	0.19344829	0.1934483
	1880.0	30.0	0.0	2.92	0.0	0.0	32.9		1.9588	0.9794	4.5258	0.8660	3.6598	0.19134744	
	1909.8	30.0	0.0	2.92	0.0	0.0	32.9		1.9588	0.9794	4.5747	0.8660	3.7087	0.18930192	
EDGE 1900 (PK-Burst value)	1850.2	26.0	0.0	2.92	0.0	0.0	28.9	12.5%	0.7798	0.0975	4.4766	0.0862	4.3905	0.01925329	0.0192533
	1880.0	26.0	0.0	2.92	0.0	0.0	28.9		0.7798	0.0975	4.5258	0.0862	4.4396	0.01904420	
	1909.8	26.0	0.0	2.92	0.0	0.0	28.9		0.7798	0.0975	4.5747	0.0862	4.4885	0.01884061	
EDGE 1900 (PK-Burst value)	1850.2	26.0	0.0	2.92	0.0	0.0	28.9	50%	0.7798	0.3899	4.4766	0.3448	4.1319	0.07701315	0.0770132
	1880.0	26.0	0.0	2.92	0.0	0.0	28.9		0.7798	0.3899	4.5258	0.3448	4.1810	0.07617679	
	1909.8	26.0	0.0	2.92	0.0	0.0	28.9		0.7798	0.3899	4.5747	0.3448	4.2299	0.07536245	
WCDMA FDD Band 2 (RMS-Value)	1852.4	24.0	0.0	2.92	0.0	0.0	26.9	100%	0.4920	0.4920	4.4803	0.4351	4.0452	0.09710513	0.0971051
	1880.0	24.0	0.0	2.92	0.0	0.0	26.9		0.4920	0.4920	4.5258	0.4351	4.0907	0.09612861	
	1907.6	24.0	0.0	2.92	0.0	0.0	26.9		0.4920	0.4920	4.5711	0.4351	4.1340	0.09517592	
LTE Band 2 (RMS-Value)	1850.7	23.0	0.0	2.92	0.0	0.0	25.9	100%	0.3908	0.3908	4.4775	0.3456	4.1319	0.07718176	0.0771818
	1880.0	23.0	0.0	2.92	0.0	0.0	25.9		0.3908	0.3908	4.5258	0.3456	4.1802	0.07635767	
	1909.3	23.0	0.0	2.92	0.0	0.0	25.9		0.3908	0.3908	4.5739	0.3456	4.2283	0.0755491	
LTE Band 25 (RMS-Value)	1850.7	23.0	0.0	2.92	0.0	0.0	25.9	100%	0.3908	0.3908	4.4775	0.3456	4.1319	0.07718176	0.0771818
	1882.5	23.0	0.0	2.92	0.0	0.0	25.9		0.3908	0.3908	4.5299	0.3456	4.1843	0.07628835	
	1914.3	23.0	0.0	2.92	0.0	0.0	25.9		0.3908	0.3908	4.5821	0.3456	4.2365	0.07541999	
LTE Band 38 (RMS-Value)	2572.5	23.0	0.0	3.72	0.0	0.0	26.7	100%	0.4699	0.4699	5.6075	0.4155	5.1921	0.07409267	0.0740927
	2595.0	23.0	0.0	3.72	0.0	0.0	26.7		0.4699	0.4699	5.6410	0.4155	5.2255	0.07365304	
	2617.5	23.0	0.0	3.72	0.0	0.0	26.7		0.4699	0.4699	5.6744	0.4155	5.2589	0.07321977	
LTE Band 41 (RMS-Value)	2498.5	23.0	0.0	3.72	0.0	0.0	26.7	100%	0.4699	0.4699	5.4968	0.4155	5.0813	0.07558542	0.0755854
	2593.0	23.0	0.0	3.72	0.0	0.0	26.7		0.4699	0.4699	5.6380	0.4155	5.2226	0.07369185	
	2687.5	23.0	0.0	3.72	0.0	0.0	26.7		0.4699	0.4699	5.7777	0.4155	5.3622	0.07191101	

Maximum calculated MPE value:		
Lowest MPE-Limit within frequency-band:	4.4766	[W/m <sup>2</sup> ]
Highest MPE value within frequency-band:	0.8660	[W/m <sup>2</sup> ]
Lowest margin to limit within frequency-band:	3.6106	[W/m <sup>2</sup> ]

Operation Mode	Frequency on channel (MHz)	Declared maximum conducted output power (dBm)	Max. positive tolerance according manufacturer's tune-up info (dB)	Declared Antenna Gain (dBi)	Path Loss to ext. antenna connector according manufacturer (dB)	Max. positive path loss uncertainty (dB)	Calculated maximum EIRP (declared + Tune-up + antenna Gain - Path Loss) (dBm)	Duty-Cycle (%)	Calculated Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (W)	MPE Limit accord. Table 4 (W/m <sup>2</sup> )	MPE-Value (W/m <sup>2</sup> )	Margin to Limit (W/m <sup>2</sup> )	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band
Bluetooth LE 2.4 GHz	2402.0	4.0	0.0	0.0	0.00	0.00	4.0	100%	0.0025	0.003	5.3598	0.0022	5.3486	0.00042	0.00042
	2442.0	4.0	0.0	0.0	0.00	0.00	4.0	100%	0.0025	0.003	5.4115	0.0022	5.4093	0.00041	
	2480.0	4.0	0.0	0.0	0.00	0.00	4.0	100%	0.0025	0.003	5.4689	0.0022	5.4667	0.00041	

Maximum calculated MPE value:		
Lowest MPE-Limit within frequency-band:	5.3598	[W/m <sup>2</sup> ]
Highest MPE value within frequency-band:	0.0022	[W/m <sup>2</sup> ]
Lowest margin to limit within frequency-band:	5.3486	[W/m <sup>2</sup> ]

4.5.2.3 Co-location assessment (scenario)

	Ratio of MPE-Value/Limit	Bluetooth LE 2.4 GHz
		0.082227671
GSM/GPRS 850 (PK-Burst value)	0.40885136	0.491079031
EDGE 850 (PK-Burst value)	0.102698818	0.18492649
WCDMA FDD Band 5 (RMS-Value)	0.102755309	0.184982981
LTE Band 5 (RMS-Value)	0.081736389	0.16396406
LTE Band 12 (RMS-Value)	0.072979243	0.155206914
LTE Band 13 (RMS-Value)	0.067786778	0.15001445
LTE Band 26 (RMS-Value)	0.082420698	0.16464837
WCDMA FDD Band 4 (RMS-Value)	0.105576272	0.187803943
LTE Band 4 (RMS-Value)	0.083919158	0.166146829
GSM/GPRS 1900 (PK-Burst value)	0.193448287	0.275675959
EDGE 1900 (PK-Burst value)	0.07701315	0.159240822
WCDMA FDD Band 2 (RMS-Value)	0.097105132	0.179332804
LTE Band 2 (RMS-Value)	0.077181762	0.159409433
LTE Band 25 (RMS-Value)	0.077181762	0.159409433
LTE Band 38 (RMS-Value)	0.074092672	0.156320344
LTE Band 41 (RMS-Value)	0.075585425	0.157813096
<b>Maximum-Value</b>		<b>0.491079031</b>

The measurement results comply with the ISED Limit per RSS-102, Issue 5 for the uncontrolled RF Exposure of mobile device.

## 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
ERP	Effective radiated power
EUT	Equipment Under Test
FCC	Federal Communications Commission, USA
ISED	....
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, Documents from Industry Canada
Rx	Receiver
TCH	Traffic channel
Tx	Transmitter
QP	Quasi peak detector
VBW	Video bandwidth

## 6 Measurement Uncertainty valid for conducted/radiated measurements

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 its contribution to the overall uncertainty according its statistical distribution calculated.

RF-Measurement	Reference	Frequency range	Calculated uncertainty based on a confidence level of 95%						Remarks
Conducted emissions (U <sub>CISPR</sub> )	-	9 kHz - 150 kHz 150 kHz - 30 MHz	4.0 dB 3.6 dB						-
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	0.7	0.25	N/A	--	-
		12.75 GHz - 26.5 GHz	N/A	0.82	--	N/A	N/A	--	-
Conducted emissions on RF-port	-	9 kHz - 2.8 GHz	0.70	N/A	0.70	N/A	0.69	--	N/A - not applicable
		2.8 GHz - 12.75 GHz	1.48	N/A	1.51	N/A	1.43	--	
		12.75 GHz – 18 GHz	1.81	N/A	1.83	N/A	1.77	--	
		18 GHz - 26.5 GHz	1.83	N/A	1.85	N/A	1.79	--	
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	5.01dB						Magnetic field strength
		30 MHz - 1 GHz	5.83 dB						Electrical Field strength
		1 GHz - 18 GHz	4.91 dB						
		18-26.5 GHz	5.06 dB						

## 7 Versions of test reports (change history)

Version	Applied changes	Date of release
--	Initial release	2021-May-17
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**End Of Test Report**