Test Report
18-1-0097201T26a-C1

Number of pages:	28	**Date of Report:**	2021-Sep-08
Testing company:	CETECOM GmbH Im Teelbruch 116 45219 Essen Germany Tel. + 49 (0) 20 54 / 95 19-0 Fax: + 49 (0) 20 54 / 95 19-150	**Applicant:**	Actia Nordic AB
Product:	**Telematics Device**		
Model:	**103360002**		
FCC ID:	2AGKK103360002	**IC:**	20839-103360002

Testing has been carried out in accordance with:

FCC Regulations
Part 1.1310
Part 2.1091

IC-Regulations
RSS-102, Issue 5

Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".

Tested Technology: GSM, W-CDMA, LTE, BT BDR EDR LE, WLAN2.4, WLAN5

Test Results: **☒ The EUT complies with the requirements in respect of all parameters subject to the test.**
The test results relate only to devices specified in this document
The current version of the Test Report CETECOM_TR18-1-0097201T26a-C1 replaces the Test Report CETECOM_TR18-1-0097201T26a dated 2021-May-28. The replaced test report is herewith invalid.

Signatures:

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Dipl.-Ing. Ninovic Perez	B.Eng. Martin Nunier
Test Lab Manager	Testing Expert
Authorization of test report	Responsible of test report

Table of Contents

Table of Annex			
Annex No.	**Contents**	**Reference Description**	**Total Pages**
Annex 1	External photographs of EUT	**CETECOM_TR18_1_0097201T26a_A1_C1**	3
Annex 2	Tune up information	**MPE Information Requirements NA_103360002_1.2**	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.
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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:

RF Transceiver	GSM W-CDMA LTE BT BDR/ EDR BLE WLAN 2.4 WLAN 5

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 - 26	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:	**DAkkS Webpage: FCC ISED**
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:

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:	Actia Nordic AB
Address:	Hammarbacken 4A, 3tr 191 49 Sollentuna Sweden
Contact Person:	Salah Alazawi
Contact Person's Email:	salah.alazawi@actia.se

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	--	Telematics Device	103360002	ACU6	--	H1	1

*) 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 1	--	Cellular Antenna	CALEARO LTE antenna	--	16MA800CP	N/A
AE 2	--	WLAN Antenna	CALEARO WiFi antenna	--	16MA396CP	N/A
AE 3	--	Bluetooth Antenna	--	--	N/A	N/A
AE 4	--	GNSS Antenna	CALEARO GNSS antenna	--	16MA439CP	N/A

*) 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 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 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 + AE 1 + AE 2 + AE 3 + AE 4	External antenna, used for theoretical calculation
SET 02	EUT 01	Internal antenna, 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 (voice)	Only theoretical calculation
op. 2	GPRS 850 1 slot	Only theoretical calculation
op. 3	GPRS 850 2 slot	Only theoretical calculation
op. 4	GPRS 850 3 slot	Only theoretical calculation
op. 5	GPRS 850 4 slot	Only theoretical calculation
op. 6	EGPRS 850 1 slot	Only theoretical calculation
op. 7	EGPRS 850 2 slot	Only theoretical calculation
op. 8	EGPRS 850 3 slot	Only theoretical calculation
op. 9	EGPRS 850 4 slot	Only theoretical calculation
op. 10	GSM 1900 CS (voice)	Only theoretical calculation
op. 11	GPRS 1900 1 slot	Only theoretical calculation
op. 12	GPRS 1900 2 slot	Only theoretical calculation
op. 13	GPRS 1900 3 slot	Only theoretical calculation
op. 14	GPRS 1900 4 slot	Only theoretical calculation
op. 15	EGPRS 1900 1 slot	Only theoretical calculation
op. 16	EGPRS 1900 2 slot	Only theoretical calculation
op. 17	EGPRS 1900 3 slot	Only theoretical calculation
op. 18	EGPRS 1900 4 slot	Only theoretical calculation
op. 19	W-CDMA FDDII	Only theoretical calculation
op. 20	W-CDMA FDDIV	Only theoretical calculation
op. 21	W-CDMA FDDV	Only theoretical calculation
op. 22	LTE B02	Only theoretical calculation
op. 23	LTE B04	Only theoretical calculation
op. 24	LTE B05	Only theoretical calculation
op. 25	LTE B12	Only theoretical calculation
op. 26	LTE B66	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

Product	Telematics Device
Model	103360002
Type	ACU6
Radio access technology	GSM, W-CDMA, LTE, Bluetooth BDR EDR LE, WLAN 2.4, WLAN 5
For further details refer Applicants Declaration and technical documents	

3.2 Detailed Technical data of Main EUT as Declared by Applicant

Frequency Band	GSM 850 GSM 1900 W-CDMA FDDII W-CDMA FDDIV W-CDMA FDDV LTE B02 LTE B04 LTE B05 LTE B12 LTE B66
Antenna Type(s)	External antenna
Antenna Gain(s)	Please refer to Annex 1
FCC label attached	No
For further details refer Applicants Declaration and technical documents	

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	See Chapter 2.1
Equipment	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	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.
FCC § 2.1091	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/cm²]	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/f²)	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:

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 mW/cm² 1500–100.000 MHz: 1.0 mW/cm²
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 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**

4.5 Results for fixed and mobile operations

4.5.1 Results for FCC Standard

4.5.1.1 Results for cellular frequencies < 1500 MHz external antenna

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) (dBm)	Duty cycle (%)	Calculated Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	MPE Limit accord. Table 1 (mW/cm^2)	MPE-Value (mW/cm^2)	Margin to limit: (mW/cm^2)	Fraction for Co-Location calculations	Max. Fraction-Value within Frequency-Band
GSM / GPRS 1UL (AV Burst Power)	824.2	33	2.0	1.8	1.87	34.93	12.5%	3.112	389	0.5495	0.0585	**0.4910**	0.1065	0.1065
	837	33	2.0	1.8	1.87	34.93		3.112	389	0.5580	0.0585	**0.4995**	0.1049	
	848.8	33	2.0	1.8	1.87	34.93		3.112	389	0.5659	0.0585	**0.5074**	0.1034	
GPRS 4UL (AV Burst Power)	824.2	33	2.0	1.8	1.87	34.93	50%	3.112	1556	0.5495	0.2340	**0.3154**	0.4260	0.4260
	837	33	2.0	1.8	1.87	34.93		3.112	1556	0.5580	0.2340	**0.3240**	0.4194	
	848.8	33	2.0	1.8	1.87	34.93		3.112	1556	0.5659	0.2340	**0.3318**	0.4136	
EDGE 4UL (AV Burst Power)	824.2	27	2.0	1.8	1.87	28.93	50%	0.782	391	0.5495	0.0588	**0.4907**	0.1070	0.1070
	837	27	2.0	1.8	1.87	28.93		0.782	391	0.5580	0.0588	**0.4992**	0.1054	
	848.8	27	2.0	1.8	1.87	28.93		0.782	391	0.5659	0.0588	**0.5071**	0.1039	
WCDMA FDD Band 5 (RMS-Value)	826.4	24	1.0	1.8	1.87	24.93	100%	0.311	311	0.5509	0.0468	**0.5041**	0.0850	0.0850
	836.4	24	1.0	1.8	1.87	24.93		0.311	311	0.5576	0.0468	**0.5108**	0.0839	
	846.6	24	1.0	1.8	1.87	24.93		0.311	311	0.5644	0.0468	**0.5176**	0.0829	
LTE Band 5 (RMS-Value)	824.7	23	2.0	1.8	1.87	24.93	100%	0.311	311	0.5498	0.0468	**0.5030**	0.0851	0.0851
	836.5	23	2.0	1.8	1.87	24.93		0.311	311	0.5577	0.0468	**0.5109**	0.0839	
	848.3	23	2.0	1.8	1.87	24.93		0.311	311	0.5655	0.0468	**0.5187**	0.0828	
LTE Band 12 (RMS-Value)	699.7	23	2.0	-3.9	1.77	19.33	100%	0.086	86	0.4665	0.0129	**0.4536**	0.0276	0.0276
	707.4	23	2.0	-3.9	1.77	19.33		0.086	86	0.4716	0.0129	**0.4587**	0.0273	
	715.3	23	2.0	-3.9	1.77	19.33		0.086	86	0.4769	0.0129	**0.4640**	0.0270	

Maximum calculated MPE value:		
Lowest MPE-Limit in Frequency-Band:	0.4665	[mW/cm^2]
Highest MPE value in frequency-band:	0.2340	[mW/cm^2]
Lowest margin to limit in frequency band:	0.3154	[mW/cm^2]

Remark: Distance to antenna declared by customer with 23 cm

4.5.1.2 Results for cellular frequencies < 1500 MHz internal antenna

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) (dBm)	Duty cycle (%)	Calculated Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	MPE Limit accord. Table 1 (mW/cm^2)	MPE-Value (mW/cm^2)	Margin to limit: (mW/cm^2)	Fraction for Co-Location calculations	Max. Fraction-Value within Frequency-Band
GSM / GPRS 1UL (AV Burst Power)	824.2	33	2.0	0.2	0.60	34.6	12.5%	2.884	361	0.5495	0.0593	**0.4902**	0.1079	0.1079
	837	33	2.0	0.2	0.60	34.6		2.884	361	0.5580	0.0593	**0.4987**	0.1062	
	848.8	33	2.0	0.2	0.60	34.6		2.884	361	0.5659	0.0593	**0.5066**	0.1047	
GPRS 4UL (AV Burst Power)	824.2	33	2.0	0.2	0.60	34.6	50%	2.884	1442	0.5495	0.2371	**0.3124**	0.4315	0.4315
	837	33	2.0	0.2	0.60	34.6		2.884	1442	0.5580	0.2371	**0.3209**	0.4249	
	848.8	33	2.0	0.2	0.60	34.6		2.884	1442	0.5659	0.2371	**0.3288**	0.4190	
EDGE 4UL (AV Burst Power)	824.2	27	3.0	0.2	0.60	29.6	50%	0.912	456	0.5495	0.0750	**0.4745**	0.1364	0.1364
	837	27	3.0	0.2	0.60	29.6		0.912	456	0.5580	0.0750	**0.4830**	0.1344	
	848.8	27	3.0	0.2	0.60	29.6		0.912	456	0.5659	0.0750	**0.4909**	0.1325	
WCDMA FDD Band 5 (RMS-Value)	826.4	24	1.0	0.2	0.60	24.6	100%	0.288	288	0.5509	0.0474	**0.5035**	0.0861	0.0861
	836.4	24	1.0	0.2	0.60	24.6		0.288	288	0.5576	0.0474	**0.5102**	0.0850	
	846.6	24	1.0	0.2	0.60	24.6		0.288	288	0.5644	0.0474	**0.5170**	0.0840	
LTE Band 5 (RMS-Value)	824.7	23	2.0	0.2	0.60	24.6	100%	0.288	288	0.5498	0.0474	**0.5024**	0.0862	0.0862
	836.5	23	2.0	0.2	0.60	24.6		0.288	288	0.5577	0.0474	**0.5102**	0.0850	
	848.3	23	2.0	0.2	0.60	24.6		0.288	288	0.5655	0.0474	**0.5181**	0.0838	
LTE Band 12 (RMS-Value)	699.7	23	2.0	0.2	0.60	24.6	100%	0.288	288	0.4665	0.0474	**0.4190**	0.1017	0.1017
	707.4	23	2.0	0.2	0.60	24.6		0.288	288	0.4716	0.0474	**0.4242**	0.1005	
	715.3	23	2.0	0.2	0.60	24.6		0.288	288	0.4769	0.0474	**0.4294**	0.0994	

Maximum calculated MPE value:		
Lowest MPE-Limit in Frequency-Band:	0.4665	[mW/cm^2]
Highest MPE value in frequency-band:	0.2371	[mW/cm^2]
Lowest margin to limit in frequency band:	0.3124	[mW/cm^2]

Remark: Distance to antenna declared by customer with 22 cm

4.5.1.3 Results for cellular frequencies > 1500 MHz external antenna

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) (dBm)	Duty cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	MPE Limit accord. Table 1 (mW/cm^2	MPE-Value (mW/cm^2)	Margin to limit: (mW/cm^2)	Fraction for Co-Location calculations	Max. Fraction-Value within Frequency-Band
W-CDMA Band 4 (RMS-Value)	1712.4	24.00	1.0	2.8	2.69	25.11	100%	0.3243	324.3	1.0000	0.0488	0.9512	0.048790	0.0487904
	1740.0	24.00	1.0	2.8	2.69	25.11		0.3243	324.3	1.0000	0.0488	0.9512	0.048790	
	1752.6	24.00	1.0	2.8	2.69	25.11		0.3243	324.3	1.0000	0.0488	0.9512	0.048790	
LTE Band 4 (RMS-Value)	1710.7	23.00	2.0	2.8	2.69	25.11	100%	0.3243	324.3	1.0000	0.0488	0.9512	0.048790	0.0487904
	1732.5	23.00	2.0	2.8	2.69	25.11		0.3243	324.3	1.0000	0.0488	0.9512	0.048790	
	1754.3	23.00	2.0	2.8	2.69	25.11		0.3243	324.3	1.0000	0.0488	0.9512	0.048790	

Maximum calculated MPE value:		
Lowest MPE-Limit in frequency-band:	1.0000	[mW/cm^2]
Highest MPE value in frequency-band:	0.0488	[mW/cm^2]
Lowest margin to limit in frequency-band:	0.95	[mW/cm^2]

Operation Mode	Frequency on channel (MHz)	Declared maximum conducted output power (dBm)	Max. positive tolerance according manfacturer (dB)	Antenna Gain (dBi)	Ext. Path Loss to antenna (external cables) (dB)	Declared maximum EIRP (Measured+ Tune-up+ Antenna Gain) (dBm)	Duty cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	MPE Limit accord. Table 1 (mW/cm^2)	MPE-Value (mW/cm^2)	Margin to limit: (W/m^2)	Fraction for Co-Location calculations	Max. Fraction-Value within Frequency-Band
GSM/ GPRS 1UL (AV Burst Power)	1850.2	30.0	2.00	3.2	2.84	32.36	12.5%	1.722	215	1.0000	0.0324	0.9676	0.032378	0.0323776
	1880.0	30.0	2.00	3.2	2.84	32.36		1.722	215	1.0000	0.0324	0.9676	0.032378	
	1909.8	30.0	2.00	3.2	2.84	32.36		1.722	215	1.0000	0.0324	0.9676	0.032378	
GPRS 4UL (AV Burst Power)	1850.2	30.0	2.00	3.2	2.84	32.36	50%	1.722	861	1.0000	0.1295	0.8705	0.129510	0.1295103
	1880.0	30.0	2.00	3.2	2.84	32.36		1.722	861	1.0000	0.1295	0.8705	0.129510	
	1909.8	30.0	2.00	3.2	2.84	32.36		1.722	861	1.0000	0.1295	0.8705	0.129510	
EDGE 4UL (AV Burst value)	1850.2	26.0	3.00	3.2	2.84	29.36	50%	0.863	431	1.0000	0.0649	0.9351	0.064909	0.0649089
	1880.0	26.0	3.00	3.2	2.84	29.36		0.863	431	1.0000	0.0649	0.9351	0.064909	
	1909.8	26.0	3.00	3.2	2.84	29.36		0.863	431	1.0000	0.0649	0.9351	0.064909	
W-CDMA FDD Band 2 (RMS-Value)	1852.4	24.00	1.00	3.2	2.84	25.36	100%	0.344	344	1.0000	0.0517	0.9483	0.051681	0.0516814
	1880.0	24.00	1.00	3.2	2.84	25.36		0.344	344	1.0000	0.0517	0.9483	0.051681	
	1907.6	24.00	1.00	3.2	2.84	25.36		0.344	344	1.0000	0.0517	0.9483	0.051681	
LTE Band 2 (RMS-Value)	1850.7	23.00	2.00	3.2	2.84	25.36	100%	0.344	344	1.0000	0.0517	0.9483	0.051681	0.0516814
	1880.0	23.00	2.00	3.2	2.84	25.36		0.344	344	1.0000	0.0517	0.9483	0.051681	
	1909.3	23.00	2.00	3.2	2.84	25.36		0.344	344	1.0000	0.0517	0.9483	0.051681	
LTE Band 66 (RMS-Value)	1710.7	23.00	2.00	2.8	2.69	25.11	100%	0.324	324	1.0000	0.0488	0.9512	0.048790	0.0487904
	1755.0	23.00	2.00	2.8	2.69	25.11		0.324	324	1.0000	0.0488	0.9512	0.048790	
	1779.3	23.00	2.00	2.8	2.69	25.11		0.324	324	1.0000	0.0488	0.9512	0.048790	

Maximum calculated MPE value:		
Lowest MPE-Limit in frequency-band:	1.0000	[mW/cm^2]
Highest MPE value in frequency-band:	0.1295	[mW/cm^2]
Margin to limit in frequency-band:	0.8705	[mW/cm^2]

Remark: Distance to antenna declared by customer with 23 cm

4.5.1.4 Results for cellular frequencies > 1500 MHz internal antenna

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) (dBm)	Duty cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	MPE Limit accord. Table 1 (mW/cm^2	MPE-Value (mW/cm^2)	Margin to limit: (mW/cm^2)	Fraction for Co-Location calculations	Max. Fraction-Value within Frequency-Band
W-CDMA Band 4 (RMS-Value)	1712.4	24.00	1.0	0.2	0.60	24.6	100%	0.2884	288.4	1.0000	0.0474	0.9526	0.047418	0.0474182
	1740.0	24.00	1.0	0.2	0.60	24.6		0.2884	288.4	1.0000	0.0474	0.9526	0.047418	
	1752.6	24.00	1.0	0.2	0.60	24.6		0.2884	288.4	1.0000	0.0474	0.9526	0.047418	
LTE Band 4 (RMS-Value)	1710.7	23.00	2.0	0.2	0.60	24.6	100%	0.2884	288.4	1.0000	0.0474	0.9526	0.047418	0.0474182
	1732.5	23.00	2.0	0.2	0.60	24.6		0.2884	288.4	1.0000	0.0474	0.9526	0.047418	
	1754.3	23.00	2.0	0.2	0.60	24.6		0.2884	288.4	1.0000	0.0474	0.9526	0.047418	

Maximum calculated MPE value:		
Lowest MPE-Limit in frequency-band:	1.0000	[mW/cm^2]
Highest MPE value in frequency-band:	0.0474	[mW/cm^2]
Lowest margin to limit in frequency-band:	0.95	[mW/cm^2]

Operation Mode	Frequency on channel (MHz)	Declared maximum conducted output power (dBm)	Max. positive tolerance according manfacturer (dB)	Antenna Gain (dBi)	Ext. Path Loss to antenna (external cables) (dB)	Declared maximum EIRP (Measured+ Tune-up+ Antenna Gain) (dBm)	Duty cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	MPE Limit accord. Table 1 (mW/cm^2)	MPE-Value (mW/cm^2)	Margin to limit: (W/m^2)	Fraction for Co-Location calculations	Max. Fraction-Value within Frequency-Band
GSM/ GPRS 1UL (AV Burst Power)	1850.2	30.0	2.00	0.2	0.60	31.60	12.5%	1.445	181	1.0000	0.0297	0.9703	0.029707	0.0297067
	1880.0	30.0	2.00	0.2	0.60	31.60		1.445	181	1.0000	0.0297	0.9703	0.029707	
	1909.8	30.0	2.00	0.2	0.60	31.60		1.445	181	1.0000	0.0297	0.9703	0.029707	
GPRS 4UL (AV Burst Power)	1850.2	30.0	2.00	0.2	0.60	31.60	50%	1.445	723	1.0000	0.1188	0.8812	0.118827	0.1188269
	1880.0	30.0	2.00	0.2	0.60	31.60		1.445	723	1.0000	0.1188	0.8812	0.118827	
	1909.8	30.0	2.00	0.2	0.60	31.60		1.445	723	1.0000	0.1188	0.8812	0.118827	
EDGE 4UL (AV Burst value)	1850.2	26.0	3.00	0.2	0.60	28.60	50%	0.724	362	1.0000	0.0596	0.9404	0.059555	0.0595545
	1880.0	26.0	3.00	0.2	0.60	28.60		0.724	362	1.0000	0.0596	0.9404	0.059555	
	1909.8	26.0	3.00	0.2	0.60	28.60		0.724	362	1.0000	0.0596	0.9404	0.059555	
W-CDMA FDD Band 2 (RMS-Value)	1852.4	24.00	1.00	0.2	0.60	24.60	100%	0.288	288	1.0000	0.0474	0.9526	0.047418	0.0474182
	1880.0	24.00	1.00	0.2	0.60	24.60		0.288	288	1.0000	0.0474	0.9526	0.047418	
	1907.6	24.00	1.00	0.2	0.60	24.60		0.288	288	1.0000	0.0474	0.9526	0.047418	
LTE Band 2 (RMS-Value)	1850.7	23.00	2.00	0.2	0.60	24.60	100%	0.288	288	1.0000	0.0474	0.9526	0.047418	0.0474182
	1880.0	23.00	2.00	0.2	0.60	24.60		0.288	288	1.0000	0.0474	0.9526	0.047418	
	1909.3	23.00	2.00	0.2	0.60	24.60		0.288	288	1.0000	0.0474	0.9526	0.047418	
LTE Band 66 (RMS-Value)	1710.7	23.00	2.00	0.2	0.60	24.6	100%	0.288	288	1.0000	0.0474	0.9526	0.047418	0.0474182
	1755.0	23.00	2.00	0.2	0.60	24.6		0.288	288	1.0000	0.0474	0.9526	0.047418	
	1779.3	23.00	2.00	0.2	0.60	24.6		0.288	288	1.0000	0.0474	0.9526	0.047418	

Maximum calculated MPE value:		
Lowest MPE-Limit in frequency-band:	1.0000	[mW/cm^2]
Highest MPE value in frequency-band:	0.1188	[mW/cm^2]
Margin to limit in frequency-band:	0.8812	[mW/cm^2]

Remark: Distance to antenna declared by customer with 22 cm

4.5.1.5 Results for WLAN frequencies external antenna

Operation Mode	Frequency on channel (MHz)	Declared maximum conducted output power	Max. positive tolerance according manfacturer (dB)	Antenna Gain (dBi)	Ext. Path Loss to antenna (external cables) (dB)	Declared maximum EIRP (Measured+ Tune-up) (dBm)	Duty cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	MPE Limit accord. Table 1 (mW/cm^2)	MPE-Value (mW/cm^2)	Margin to Limit:	Fraction for Co-Location calculations	Max. Fraction-Value within Frequency-Band
WLAN 2.4GHz	2402.0	13.0	2.0	0.0	2.11	12.9	100%	0.0195	19.5	1.0000	0.0029	0.9971	0.002926	0.0029264
	2442.0	13.0	2.0	0.0	2.11	12.9		0.0195	19.5	1.0000	0.0029	0.9971	0.002926	
	2462.0	13.0	2.0	0.0	2.11	12.9		0.0195	19.5	1.0000	0.0029	0.9971	0.002926	

Maximum calculated MPE value:		
Lowest MPE-Limit:	1.0000	[mW/cm^2]
Highest MPE value:	0.0029	[mW/cm^2]
Lowest Margin to limit:	0.9971	[mW/cm^2]

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)	Declared maximum EIRP (Measured+ Tune-up) (dBm)	Duty cycle (%)	Maximum EIRP (W)	Equivalent EIRP (EIRP x duty cycle) (mW)	MPE-Value (mW/cm^2)	MPE-Value (mW/cm^2)	Margin (mW/cm^2)	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band
W-LAN 5GHz (20MHZ BW)	5180.0	13.00	2.00	3.00	5.85	12.15	100%	0.016	16.41	1.0000	0.00247	0.9975	0.0025	0.0025
	5240.0	13.00	2.00	3.00	5.85	12.15	100%	0.016	16.41	1.0000	0.00247	0.9975	0.0025	
W-LAN 5GHz (20MHZ BW)	5745.0	17.00	2.00	3.00	5.85	16.15	100%	0.041	41.21	1.0000	0.00620	0.9938	0.0062	0.0062
	5785.0	17.00	2.00	3.00	5.85	16.15	100%	0.041	41.21	1.0000	0.00620	0.9938	0.0062	
	5825.0	17.00	2.00	3.00	5.85	16.15	100%	0.041	41.21	1.0000	0.00620	0.9938	0.0062	

Maximum calculated MPE value:		
5GHz		
Lowest MPE-Limit:	1.0000	[W/m^2]
Highest MPE-value:	0.0062	[W/m^2]
Margin to limit	0.9938	[W/m^2]

Remark: Distance to antenna declared by customer with 23 cm

4.5.1.6 Results for WLAN and BT frequencies internal antenna

Operation Mode	Frequency on channel (MHz)	Declared maximum conducted output power	Max. positive tolerance according manfacturer (dB)	Antenna Gain (dBi)	Ext. Path Loss to antenna (external cables) (dB)	Declared maximum EIRP (Measured+ Tune-up) (dBm)	Duty cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	MPE Limit accord. Table 1 (mW/cm^2)	MPE-Value (mW/cm^2)	Margin to Limit:	Fraction for Co-Location calculations	Max. Fraction-Value within Frequency-Band
WLAN 2.4GHz	2402.0	13.0	2.0	3.0	0.31	17.7	100%	0.0587	58.7	1.0000	0.0097	0.9903	0.009659	0.0096593
	2442.0	13.0	2.0	3.0	0.31	17.7		0.0587	58.7	1.0000	0.0097	0.9903	0.009659	
	2462.0	13.0	2.0	3.0	0.31	17.7		0.0587	58.7	1.0000	0.0097	0.9903	0.009659	
Bluetooth BDR 2.4GHz	2402.0	12.0	2.0	0.0	0.31	14.0	100%	0.0251	25.1	1.0000	0.0041	0.9959	0.004130	0.0041299
	2442.0	12.0	2.0	0.0	0.31	14.0		0.0251	25.1	1.0000	0.0041	0.9959	0.004130	
	2480.0	12.0	2.0	0.0	0.31	14.0		0.0251	25.1	1.0000	0.0041	0.9959	0.004130	
Bluetooth EDR 2.4GHz	2402.0	10.0	2.0	0.0	0.31	12.0	100%	0.0158	15.8	1.0000	0.0026	0.9974	0.002606	0.0026058
	2442.0	10.0	2.0	0.0	0.31	12.0		0.0158	15.8	1.0000	0.0026	0.9974	0.002606	
	2480.0	10.0	2.0	0.0	0.31	12.0		0.0158	15.8	1.0000	0.0026	0.9974	0.002606	
Bluetooth LE 2.4GHz	2402.0	7.4	2.0	0.0	0.31	9.4	100%	0.0087	8.7	1.0000	0.0014	0.9986	0.001432	0.0014320
	2442.0	7.4	2.0	0.0	0.31	9.4		0.0087	8.7	1.0000	0.0014	0.9986	0.001432	
	2480.0	7.4	2.0	0.0	0.31	9.4		0.0087	8.7	1.0000	0.0014	0.9986	0.001432	

Maximum calculated MPE value:		
Lowest MPE-Limit:	1.0000	[mW/cm^2]
Highest MPE value:	0.0097	[mW/cm^2]
Lowest Margin to limit:	0.9903	[mW/cm^2]

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)	Declared maximum EIRP (Measured+ Tune-up) (dBm)	Duty cycle (%)	Maximum EIRP (W)	Equivalent EIRP (EIRP x duty cycle) (mW)	MPE-Value (mW/cm^2)	MPE-Value (mW/cm^2)	Margin (mW/cm^2)	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band
W-LAN 5GHz (20MHZ BW)	5180.0	13.00	2.00	3.00	2.55	15.45	100%	0.035	35.08	1.0000	0.00577	0.9942	0.0058	0.0058
	5240.0	13.00	2.00	3.00	2.55	15.45	100%	0.035	35.08	1.0000	0.00577	0.9942	0.0058	
W-LAN 5GHz (20MHZ BW)	5745.0	17.00	2.00	3.00	2.55	19.45	100%	0.088	88.10	1.0000	0.01449	0.9855	0.0145	0.0145
	5785.0	17.00	2.00	3.00	2.55	19.45	100%	0.088	88.10	1.0000	0.01449	0.9855	0.0145	
	5825.0	17.00	2.00	3.00	2.55	19.45	100%	0.088	88.10	1.0000	0.01449	0.9855	0.0145	

Maximum calculated MPE value:		
5GHz		
Lowest MPE-Limit:	1.0000	[W/m^2]
Highest MPE-value:	0.0145	[W/m^2]
Margin to limit	0.9855	[W/m^2]

Remark: Distance to antenna declared by customer with 22 cm

4.5.2 Co-location assessment (scenario)

Following table shows calculations with LTE technology active in the device.

Also it shows the MPE calculations on a scenario when additional to the cellular transmitter a non-licensed modular transmitter is active at same time. Special limitations such as interactions between the transmitting RF-antennas due small physical distance between them, are not sufficient modeled by the far field formula for power density. For such cases a non-linear program electromagnetic software or MPE measurements should be performed.

External antenna

		GSM 850	GPRS 850	EGPRS 850	GSM 1900	GPRS 1900	EGPRS 1900	W-CDMA FDD Band 2	W-CDMA FDD Band 4	W-CDMA FDD Band 5	LTE B02	LTE B04	LTE B05	LTE B12	LTE B66
	Ratio of MPE-Value/Limit	0.106488602	0.425954408	0.10699491	0.032377587	0.129510347	0.064908933	0.051681423	0.04879041	0.084964091	0.051681423	0.04879041	0.085139232	0.027638461	0.04879041
WLAN 2.4GHz	0.002926405	0.109415007	0.428880813	0.109921315	0.035303992	0.132436753	0.067835338	0.054607828	0.051716815	0.087890496	0.054607828	0.051716815	0.088065637	0.030564866	0.051716815
WLAN 5GHz	0.006199183	0.112687785	0.432153591	0.113194093	0.03857677	0.13570953	0.071108116	0.057880606	0.054989593	0.091163274	0.057880606	0.054989593	0.091338415	0.033837644	0.054989593
WLAN 2.4 + 5 GHz	0.009125588	0.11561419	0.435079997	0.116120498	0.041503175	0.138635936	0.074034521	0.060807011	0.057915998	0.094089679	0.060807011	0.057915998	0.09426482	0.036764049	0.057915998
Maximum-Value		0.43508													

Internal antenna

		GSM 850	GPRS 850	EGPRS 850	GSM 1900	GPRS 1900	EGPRS 1900	W-CDMA FDD Band 2	W-CDMA FDD Band 4	W-CDMA FDD Band 5	LTE B02	LTE B04	LTE B05	LTE B12	LTE B66
	Ratio of MPE-Value/Limit	0.107873169	0.431492675	0.136449965	0.029706726	0.118826903	0.059554527	0.047418168	0.047418168	0.086068795	0.047418168	0.047418168	0.086246214	0.101653927	0.047418168
WLAN 2.4GHz	0.00965928	0.117532449	0.441151955	0.146109245	0.039366006	0.128486184	0.069213807	0.057077449	0.057077449	0.095728076	0.057077449	0.057077449	0.095905494	0.111313207	0.057077449
WLAN 5GHz	0.014485876	0.122359045	0.445978551	0.150935841	0.044192602	0.133312779	0.074040403	0.061904045	0.061904045	0.100554672	0.061904045	0.061904045	0.10073209	0.116139803	0.061904045
Bluetooth BDR 2.4GHz	0.00412995	0.112003119	0.435622625	0.140579914	0.033836676	0.122956853	0.063684477	0.051548118	0.051548118	0.090198745	0.051548118	0.051548118	0.090376164	0.105783877	0.051548118
Bluetooth EDR 2.4GHz	0.002605822	0.110478991	0.434098497	0.139055787	0.032312548	0.121432725	0.062160349	0.050023991	0.050023991	0.088674618	0.050023991	0.050023991	0.088852036	0.104259749	0.050023991
Bluetooth LE 2.4GHz	0.001432006	0.109305175	0.432924681	0.13788197	0.031138732	0.120258909	0.060986533	0.048850174	0.048850174	0.087500801	0.048850174	0.048850174	0.08767822	0.103085933	0.048850174
WLAN 2.4 + 5 GHz	0.024145157	0.132018326	0.455637832	0.160595121	0.053851883	0.14297206	0.083699684	0.071563325	0.071563325	0.110213952	0.071563325	0.071563325	0.110391371	0.125799084	0.071563325
Maximum-Value		0.45563783													

According KDB447498 D01 v05r02 simultaneous transmission MPE test exclusion applies, when the sum of ratio MPE-Value/MPE-Limit for all active transmitters is equal/less 1. (<=1).

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

4.5.3 Results for RSS Standard

4.5.3.1 Results for cellular frequecies < 1500 MHz external antenna

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) (dBm)	Duty-Cycle (%)	Calculated Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	MPE Limit accord. Table 4 (EIRP-Limit) (W/m^2)	MPE-Value (EIRP refered) (W/m^2)	Margin to limit: (W/m^2)	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band
GSM / GPRS 1UL (AV Burst Power)	824.2	33	2.0	1.8	1.87	34.93	12.5%	3.1117	0.3890	2.5760	0.5851	1.9909	0.227139	0.227139
	837	33	2.0	1.8	1.87	34.93	12.5%	3.1117	0.3890	2.6033	0.5851	2.0182	0.224760	
	848.8	33	2.0	1.8	1.87	34.93	12.5%	3.1117	0.3890	2.6283	0.5851	2.0432	0.222620	
GPRS 4UL (AV Burst Power)	824.2	33	2.0	1.8	1.87	34.93	50%	3.1117	1.5559	2.5760	2.3405	0.2356	0.908557	0.908557
	837	33	2.0	1.8	1.87	34.93	50%	3.1117	1.5559	2.6033	2.3405	0.2628	0.899039	
	848.8	33	2.0	1.8	1.87	34.93	50%	3.1117	1.5559	2.6283	2.3405	0.2879	0.890478	
EDGE 4UL (AV Burst Power)	824.2	27	2.0	1.8	1.87	28.93	50%	0.7816	0.3908	2.5760	0.5879	1.9881	0.228219	0.228219
	837	27	2.0	1.8	1.87	28.93	50%	0.7816	0.3908	2.6033	0.5879	2.0154	0.225828	
	848.8	27	2.0	1.8	1.87	28.93	50%	0.7816	0.3908	2.6283	0.5879	2.0404	0.223678	
WCDMA FDD Band 5 (RMS-Value)	826.4	24	1.0	1.8	1.87	24.93	100%	0.3112	0.3112	2.5807	0.4681	2.1126	0.181381	0.181381
	836.4	24	1.0	1.8	1.87	24.93	100%	0.3112	0.3112	2.6020	0.4681	2.1339	0.179896	
	846.6	24	1.0	1.8	1.87	24.93	100%	0.3112	0.3112	2.6237	0.4681	2.1556	0.178412	
LTE Band 5 (RMS-Value)	824.7	23	2.0	1.8	1.87	24.93	100%	0.3112	0.3112	2.5771	0.4681	2.1090	0.181636	0.181636
	836.5	23	2.0	1.8	1.87	24.93	100%	0.3112	0.3112	2.6022	0.4681	2.1342	0.179881	
	848.3	23	2.0	1.8	1.87	24.93	100%	0.3112	0.3112	2.6273	0.4681	2.1592	0.178167	
LTE Band 12 (RMS-Value)	699.7	23	2.0	-3.9	1.77	19.33	100%	0.0857	0.0857	2.3033	0.1289	2.1744	0.055974	0.055974
	707.4	23	2.0	-3.9	1.77	19.33	100%	0.0857	0.0857	2.3206	0.1289	2.1917	0.055557	
	715.3	23	2.0	-3.9	1.77	19.33	100%	0.0857	0.0857	2.3383	0.1289	2.2093	0.055137	

Maximum calculated MPE value:		
Lowest MPE-Limit within frequency-band:	2.3033	[W/m^2]
Highest MPE value within frequency-band:	2.3405	[W/m^2]
Lowest margin to limit within frequency-band:	0.2356	[W/m^2]

Remark: Distance to antenna declared by customer with 23 cm

4.5.3.2 Results for cellular frequecies < 1500 MHz internal antenna

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) (dBm)	Duty-Cycle (%)	Calculated Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	MPE Limit accord. Table 4 (EIRP-Limit) (W/m^2)	MPE-Value (EIRP refered) (W/m^2)	Margin to limit: (W/m^2)	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band
GSM / GPRS 1UL (AV Burst Power)	824.2	33	2.0	0.2	0.60	34.60	12.5%	2.8840	0.3605	2.5760	0.5927	1.9833	0.230093	0.230093
	837	33	2.0	0.2	0.60	34.60	12.5%	2.8840	0.3605	2.6033	0.5927	2.0106	0.227682	
	848.8	33	2.0	0.2	0.60	34.60	12.5%	2.8840	0.3605	2.6283	0.5927	2.0356	0.225514	
GPRS 4UL (AV Burst Power)	824.2	33	2.0	0.2	0.60	34.60	50%	2.8840	1.4420	2.5760	2.3709	0.2051	0.920370	0.920370
	837	33	2.0	0.2	0.60	34.60	50%	2.8840	1.4420	2.6033	2.3709	0.2324	0.910728	
	848.8	33	2.0	0.2	0.60	34.60	50%	2.8840	1.4420	2.6283	2.3709	0.2574	0.902056	
EDGE 4UL (AV Burst Power)	824.2	27	3.0	0.2	0.60	29.60	50%	0.9120	0.4560	2.5760	0.7497	1.8263	0.291047	0.291047
	837	27	3.0	0.2	0.60	29.60	50%	0.9120	0.4560	2.6033	0.7497	1.8536	0.287997	
	848.8	27	3.0	0.2	0.60	29.60	50%	0.9120	0.4560	2.6283	0.7497	1.8786	0.285255	
WCDMA FDD Band 5 (RMS-Value)	826.4	24	1.0	0.2	0.60	24.60	100%	0.2884	0.2884	2.5807	0.4742	2.1066	0.183739	0.183739
	836.4	24	1.0	0.2	0.60	24.60	100%	0.2884	0.2884	2.6020	0.4742	2.1279	0.182235	
	846.6	24	1.0	0.2	0.60	24.60	100%	0.2884	0.2884	2.6237	0.4742	2.1495	0.180732	
LTE Band 5 (RMS-Value)	824.7	23	2.0	0.2	0.60	24.60	100%	0.2884	0.2884	2.5771	0.4742	2.1029	0.183998	0.183998
	836.5	23	2.0	0.2	0.60	24.60	100%	0.2884	0.2884	2.6022	0.4742	2.1281	0.182220	
	848.3	23	2.0	0.2	0.60	24.60	100%	0.2884	0.2884	2.6273	0.4742	2.1531	0.180484	
LTE Band 12 (RMS-Value)	699.7	23	2.0	0.2	0.60	24.60	100%	0.2884	0.2884	2.3033	0.4742	1.8291	0.205872	0.205872
	707.4	23	2.0	0.2	0.60	24.60	100%	0.2884	0.2884	2.3206	0.4742	1.8464	0.204338	
	715.3	23	2.0	0.2	0.60	24.60	100%	0.2884	0.2884	2.3383	0.4742	1.8641	0.202793	

Maximum calculated MPE value:		
Lowest MPE-Limit within frequency-band:	2.3033	[W/m^2]
Highest MPE value within frequency-band:	2.3709	[W/m^2]
Lowest margin to limit within frequency-band:	0.2051	[W/m^2]

Remark: Distance to antenna declared by customer with 22 cm

4.5.3.3 Results for cellular frequecies > 1500 MHz external antenna

Operating Mode	Channel frequency (MHz)	Declared maximum conducted output power (dBm)	Max. positive tolerance according manfacturer's tune-up info (dB)	Declared Antenna Gain (dBi)	Calculated maximum EIRP (declared+ Tune-up+ antenna Gain) (dBm)	Calculated Maximum EIRP (W)	Duty-Cycle (%)	Equivalent EIRP (maximum EIRP x duty cycle) (W)	MPE Limit accord. Table 4 (W/m^2)	MPE-Value (W/m^2)	Margin to Limit (W/m^2)	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band
W-CDMA Band 4 (RMS-Value)	1712.4	24.00	1.0	2.8	25.1	0.32	100%	0.3243396	4.2460	0.4879	3.7581	0.114908765	0.114908765
	1740.0	24.00	1.0	2.8	25.1	0.32		0.3243396	4.2927	0.4879	3.8048	0.113659989	
	1752.6	24.00	1.0	2.8	25.1	0.32		0.3243396	4.3139	0.4879	3.8260	0.113100919	
LTE Band 4 (RMS-Value)	1710.7	23.00	2.0	2.8	25.1	0.32	100%	0.3243396	4.2431	0.4879	3.7552	0.114986791	0.114986791
	1732.5	23.00	2.0	2.8	25.1	0.32		0.3243396	4.2800	0.4879	3.7921	0.113996015	
	1754.3	23.00	2.0	2.8	25.1	0.32		0.3243396	4.3167	0.4879	3.8288	0.113026007	

Maximum calculated MPE value:		
Lowest MPE-Limit within frequency-band:	4.2431	[W/cm^2]
Highest MPE value within frequency-band:	0.4879	[W/cm^2]
Lowest margin to limit within frequency-band:	3.7552	[W/cm^2]

Operation Mode	Frequency on channel (MHz)	Declared maximum conducted output power (dBm)	Max. positive tolerance according manfacturer (dB)	Antenna Gain (dBi)	Ext. Path Loss to antenna (external cables) (dB)	Calculated maximum EIRP (Measured+ Tune-up+ Antenna Gain) (dBm)	Duty-Cycle (%)	Calculated Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (W)	MPE Limit accord. Table 4 (W/m^2)	MPE-Value (W/m^2)	Margin to Limit (W/m^2)	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band
GSM/ GPRS 1UL (AV Burst Power)	1850.2	30.0	2.00	3.2	2.84	32.4	50%	1.7219	0.8609	4.4766	1.2951	3.1815	0.28930219	0.2893022
	1880.0	30.0	2.00	3.2	2.84	32.4		1.7219	0.8609	4.5258	1.2951	3.2307	0.28616037	
	1909.8	30.0	2.00	3.2	2.84	32.4		1.7219	0.8609	4.5747	1.2951	3.2796	0.28310129	
GPRS 4UL (AV Burst Power)	1850.2	30.0	2.00	3.2	2.84	32.4	50%	1.7219	0.8609	4.4766	1.2951	3.1815	0.28930219	0.2893022
	1880.0	30.0	2.00	3.2	2.84	32.4		1.7219	0.8609	4.5258	1.2951	3.2307	0.28616037	
	1909.8	30.0	2.00	3.2	2.84	32.4		1.7219	0.8609	4.5747	1.2951	3.2796	0.28310129	
EDGE 4UL (AV Burst value)	1850.2	26.0	3.00	3.2	2.84	29.36	100%	0.8630	0.8630	4.4766	1.2982	3.1785	0.28998913	0.2899891
	1880.0	26.0	3.00	3.2	2.84	29.36		0.8630	0.8630	4.5258	1.2982	3.2276	0.28683985	
	1909.8	26.0	3.00	3.2	2.84	29.36		0.8630	0.8630	4.5747	1.2982	3.2765	0.28377350	
W-CDMA FDD Band 2 (RMS-Value)	1852.4	24.00	1.00	3.2	2.84	25.36	100%	0.3436	0.3436	4.4803	0.5168	3.9635	0.11535303	0.1153530
	1880.0	24.00	1.00	3.2	2.84	25.36		0.3436	0.3436	4.5258	0.5168	4.0090	0.11419300	
	1907.6	24.00	1.00	3.2	2.84	25.36		0.3436	0.3436	4.5711	0.5168	4.0543	0.11306129	
LTE Band 2 (RMS-Value)	1850.7	23.00	2.00	3.2	2.84	25.36	100%	0.3436	0.3436	4.4775	0.5168	3.9607	0.11542544	0.1154254
	1880.0	23.00	2.00	3.2	2.84	25.36		0.3436	0.3436	4.5258	0.5168	4.0090	0.11419300	
	1909.3	23.00	2.00	3.2	2.84	25.36		0.3436	0.3436	4.5739	0.5168	4.0571	0.11299248	
LTE Band 66 (RMS-Value)	1710.7	23.00	2.00	2.8	2.69	25.11	100%	0.3243	0.3243	4.2431	0.4879	3.7552	0.11498679	0.1149868
	1755.0	23.00	2.00	2.8	2.69	25.11		0.3243	0.3243	4.3179	0.4879	3.8300	0.11299520	
	1779.3	23.00	2.00	2.8	2.69	25.11		0.3243	0.3243	4.3587	0.4879	3.8708	0.11193829	

Maximum calculated MPE value:		
Lowest MPE-Limit within frequency-band:	4.2431	[W/m^2]
Highest MPE value within frequency-band:	1.2982	[W/m^2]
Lowest margin to limit within frequency-band:	3.1785	[W/m^2]

Remark: Distance to antenna declared by customer with 23 cm

4.5.3.4 Results for cellular frequecies > 1500 MHz internal antenna

Operating Mode	Channel frequency (MHz)	Declared maximum conducted output power (dBm)	Max. positive tolerance according manfacturer's tune-up info (dB)	Declared Antenna Gain (dBi)	Path Loss module to ext. antenna connector according manufacturer (dB)	Calculated maximum EIRP (declared+ Tune-up+ antenna Gain) (dBm)	Calculated Maximum EIRP (W)	Duty-Cycle (%)	Equivalent EIRP (maximum EIRP x duty cycle) (W)	MPE Limit accord. Table 4 (W/m^2)	MPE-Value (W/m^2)	Margin to Limit (W/m^2)	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band
W-CDMA Band 4 (RMS-Value)	1712.4	24.00	1.0	0.2	0.60	24.6	0.29	100%	0.2884032	4.2460	0.4742	3.7718	0.111676931	0.111676931
	1740.0	24.00	1.0	0.2	0.60	24.6	0.29		0.2884032	4.2927	0.4742	3.8185	0.110463276	
	1752.6	24.00	1.0	0.2	0.60	24.6	0.29		0.2884032	4.3139	0.4742	3.8397	0.109919931	
LTE Band 4 (RMS-Value)	1710.7	23.00	2.0	0.2	0.60	24.6	0.29	100%	0.2884032	4.2431	0.4742	3.7690	0.111752761	0.111752761
	1732.5	23.00	2.0	0.2	0.60	24.6	0.29		0.2884032	4.2800	0.4742	3.8058	0.110789852	
	1754.3	23.00	2.0	0.2	0.60	24.6	0.29		0.2884032	4.3167	0.4742	3.8426	0.109847125	

Maximum calculated MPE value:		
Lowest MPE-Limit within frequency-band:	4.2431	[W/cm^2]
Highest MPE value within frequency-band:	0.4742	[W/cm^2]
Lowest margin to limit within frequency-band:	3.7690	[W/cm^2]

Operation Mode	Frequency on channel (MHz)	Declared maximum conducted output power (dBm)	Max. positive tolerance according manfacturer (dB)	Antenna Gain (dBi)	Ext. Path Loss to antenna (external cables) (dB)	Calculated maximum EIRP (Measured+ Tune-up+ Antenna Gain) (dBm)	Duty-Cycle (%)	Calculated Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (W)	MPE Limit accord. Table 4 (W/m^2)	MPE-Value (W/m^2)	Margin to Limit (W/m^2)	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band
GSM/ GPRS 1UL (AV Burst Power)	1850.2	30.0	2.00	0.2	0.60	31.6	50%	1.4454	0.7227	4.4766	1.1883	3.2884	0.26543735	0.2654374
	1880.0	30.0	2.00	0.2	0.60	31.6		1.4454	0.7227	4.5258	1.1883	3.3375	0.26255471	
	1909.8	30.0	2.00	0.2	0.60	31.6		1.4454	0.7227	4.5747	1.1883	3.3864	0.25974797	
GPRS 4UL (AV Burst Power)	1850.2	30.0	2.00	0.2	0.60	31.6	50%	1.4454	0.7227	4.4766	1.1883	3.2884	0.26543735	0.2654374
	1880.0	30.0	2.00	0.2	0.60	31.6		1.4454	0.7227	4.5258	1.1883	3.3375	0.26255471	
	1909.8	30.0	2.00	0.2	0.60	31.6		1.4454	0.7227	4.5747	1.1883	3.3864	0.25974797	
EDGE 4UL (AV Burst value)	1850.2	26.0	3.00	0.2	0.60	28.60	100%	0.7244	0.7244	4.4766	1.1911	3.2856	0.26606762	0.2660676
	1880.0	26.0	3.00	0.2	0.60	28.60		0.7244	0.7244	4.5258	1.1911	3.3347	0.26317813	
	1909.8	26.0	3.00	0.2	0.60	28.60		0.7244	0.7244	4.5747	1.1911	3.3836	0.26036473	
W-CDMA FDD Band 2 (RMS-Value)	1852.4	24.00	1.00	0.2	0.60	24.60	100%	0.2884	0.2884	4.4803	0.4742	4.0061	0.10583744	0.1058374
	1880.0	24.00	1.00	0.2	0.60	24.60		0.2884	0.2884	4.5258	0.4742	4.0516	0.10477310	
	1907.6	24.00	1.00	0.2	0.60	24.60		0.2884	0.2884	4.5711	0.4742	4.0969	0.10373475	
LTE Band 2 (RMS-Value)	1850.7	23.00	2.00	0.2	0.60	24.60	100%	0.2884	0.2884	4.4775	0.4742	4.0033	0.10590387	0.1059039
	1880.0	23.00	2.00	0.2	0.60	24.60		0.2884	0.2884	4.5258	0.4742	4.0516	0.10477310	
	1909.3	23.00	2.00	0.2	0.60	24.60		0.2884	0.2884	4.5739	0.4742	4.0997	0.10367162	
LTE Band 66 (RMS-Value)	1710.7	23.00	2.00	0.2	0.60	24.60	100%	0.2884	0.2884	4.2431	0.4742	3.7690	0.11175276	0.1117528
	1755.0	23.00	2.00	0.2	0.60	24.60		0.2884	0.2884	4.3179	0.4742	3.8437	0.10981718	
	1779.3	23.00	2.00	0.2	0.60	24.60		0.2884	0.2884	4.3587	0.4742	3.8845	0.10879000	

Maximum calculated MPE value:		
Lowest MPE-Limit within frequency-band:	4.2431	[W/m^2]
Highest MPE value within frequency-band:	1.1911	[W/m^2]
Lowest margin to limit within frequency-band:	3.2856	[W/m^2]

Remark: Distance to antenna declared by customer with 22 cm

4.5.3.5 Results for WLAN frequencies external antenna

Operation Mode	Frequency on channel (MHz)	Declared maximum conducted output power (dBm)	Max. positive tolerance according manfacturer's tune-up info (dB)	Declared Antenna Gain (dBi)	Path Loss to ext. antenna connector according manufacturer (dB)	Calculated maximum EIRP (Measured+ Tune-up) (dBm)	Duty-Cycle (%)	Calculated Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (W)	MPE Limit accord. Table 4 (W/m^2)	MPE-Value (W/m^2)	Margin to Limit: (W/m^2)	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band
WLAN 2.4GHz	2402.0	13.0	2.0	0.0	2.11	12.89	100%	0.0195	0.019	5.3508	0.0293	5.3215	0.00547	0.00547
	2442.0	13.0	2.0	0.0	2.11	12.89	100%	0.0195	0.019	5.4115	0.0293	5.3823	0.00541	
	2462.0	13.0	2.0	0.0	2.11	12.89	100%	0.0195	0.019	5.4418	0.0293	5.4125	0.00538	

Maximum calculated MPE value:		
	2.4GHz Band	
Lowest MPE-Limit:	5.3508	[W/m^2]
Highest MPE value:	0.0293	[W/m^2]
Lowest margin to limit	5.3215	[W/m^2]

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)	Calculated maximum EIRP (Measured+ Tune-up) (dBm)	Duty cycle (%)	Calculated Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	MPE Limit accord. Table 4 (W/m^2)	MPE-Value (W/m^2)	Margin to Limit: (W/m^2)	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band
W-LAN 5GHz (20MHZ BW)	5180.0	11.00	2.00	3.00	5.85	10.15	100%	0.010	10.35	9.0471	0.0156	9.0315	0.0017	0.0017
	5240.0	11.00	2.00	3.00	5.85	10.15	100%	0.010	10.35	9.1186	0.0156	9.1030	0.0017	
W-LAN 5GHz (20MHZ BW)	5745.0	17.00	2.00	3.00	5.85	16.15	100%	0.041	41.21	9.7103	0.0620	9.6483	0.0064	0.0064
	5785.0	17.00	2.00	3.00	5.85	16.15	100%	0.041	41.21	9.7565	0.0620	9.6945	0.0064	
	5825.0	17.00	2.00	3.00	5.85	16.15	100%	0.041	41.21	9.8025	0.0620	9.7406	0.0063	

Maximum calculated MPE value:		
	5GHz	
Lowest MPE-Limit:	9.0471	[W/m^2]
Highest MPE-value:	0.0620	[W/m^2]
Margin to limit	9.0315	[W/m^2]

Remark: Distance to antenna declared by customer with 23 cm

4.5.3.6 Results for WLAN and BT frequencies internal antenna

Operation Mode	Frequency on channel (MHz)	Declared maximum conducted output power (dBm)	Max. positive tolerance according manfacturer's tune-up info (dB)	Declared Antenna Gain (dBi)	Path Loss to ext. antenna connector according manufacturer (dB)	Calculated maximum EIRP (Measured+ Tune-up) (dBm)	Duty-Cycle (%)	Calculated Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (W)	MPE Limit accord. Table 4 (W/m^2)	MPE-Value (W/m^2)	Margin to Limit: (W/m^2)	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band
WLAN 2.4GHz	2402.0	13.0	2.0	3.0	0.31	17.69	100%	0.0587	0.059	5.3508	0.0966	5.2542	0.01805	0.01805
	2442.0	13.0	2.0	3.0	0.31	17.69	100%	0.0587	0.059	5.4115	0.0966	5.3149	0.01785	
	2462.0	13.0	2.0	3.0	0.31	17.69	100%	0.0587	0.059	5.4418	0.0966	5.3452	0.01775	
Bluetooth BDR 2.4GHz	2402.0	12.0	2.0	0.0	0.31	13.7	100%	0.0234	0.023	5.3508	0.0385	5.3124	0.00719	0.00719
	2442.0	12.0	2.0	0.0	0.31	13.7	100%	0.0234	0.023	5.4115	0.0385	5.3731	0.00711	
	2480.0	12.0	2.0	0.0	0.31	13.7	100%	0.0234	0.023	5.4689	0.0385	5.4305	0.00703	
Bluetooth EDR 2.4GHz	2402.0	10.0	2.0	0.0	0.31	11.7	100%	0.0148	0.015	5.3508	0.0243	5.3265	0.00453	0.00453
	2442.0	10.0	2.0	0.0	0.31	11.7	100%	0.0148	0.015	5.4115	0.0243	5.3873	0.00448	
	2480.0	10.0	2.0	0.0	0.31	11.7	100%	0.0148	0.015	5.4689	0.0243	5.4447	0.00444	
Bluetooth LE 2.4GHz	2402.0	7.4	2.0	0.0	0.31	9.1	100%	0.0081	0.008	5.3508	0.0133	5.3375	0.00249	0.00249
	2442.0	7.4	2.0	0.0	0.31	9.1	100%	0.0081	0.008	5.4115	0.0133	5.3982	0.00246	
	2480.0	7.4	2.0	0.0	0.31	9.1	100%	0.0081	0.008	5.4689	0.0133	5.4556	0.00244	

Maximum calculated MPE value:		
	2.4GHz Band	
Lowest MPE-Limit:	5.3508	[W/m^2]
Highest MPE value:	0.0966	[W/m^2]
Lowest margin to limit	5.2542	[W/m^2]

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)	Calculated maximum EIRP (Measured+ Tune-up) (dBm)	Duty cycle (%)	Calculated Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	MPE Limit accord. Table 4 (W/m^2)	MPE-Value (W/m^2)	Margin to Limit: (W/m^2)	Fraction for Co-location calculations	Maximum Fraction Value within Frequency band
W-LAN 5GHz (20MHZ BW)	5180.0	8.00	2.00	3.00	2.55	10.45	100%	0.011	11.09	9.0471	0.0182	9.0288	0.0020	0.0020
	5240.0	8.00	2.00	3.00	2.55	10.45	100%	0.011	11.09	9.1186	0.0182	9.1003	0.0020	
W-LAN 5GHz (20MHZ BW)	5745.0	17.00	2.00	3.00	2.55	19.45	100%	0.088	88.10	9.7103	0.1449	9.5655	0.0149	0.0149
	5785.0	17.00	2.00	3.00	2.55	19.45	100%	0.088	88.10	9.7565	0.1449	9.6116	0.0148	
	5825.0	17.00	2.00	3.00	2.55	19.45	100%	0.088	88.10	9.8025	0.1449	9.6577	0.0148	

Maximum calculated MPE value:		
	5GHz	
Lowest MPE-Limit:	9.0471	[W/m^2]
Highest MPE-value:	0.1449	[W/m^2]
Margin to limit	9.0288	[W/m^2]

Remark: Distance to antenna declared by customer with 22 cm

4.5.4 Co-location assessment (scenario)

Following table shows calculations with cellular technology active in the device.

Also it shows the MPE calculations on a scenario when additional to the cellular transmitter a non-licensed modular transmitter is active at same time. Special limitations such as interactions between the transmitting RF-antennas due small physical distance between them, are not sufficient modeled by the far field formula for power density. For such cases a non-linear program electromagnetic software or MPE measurements should be performed.

External antenna

	Ratio of MPE-Value/Limit	GSM 850	GPRS 850	EGPRS 850	GSM 1900	GPRS 1900	EGPRS 1900	W-CDMA Band2	W-CDMA Band4	W-CDMA Band5	LTE B02	LTE B04	LTE B05	LTE B12	LTE B66
		0.227139305	0.90855722	0.228219255	0.289302193	0.289302193	0.289989132	0.115353034	0.114908765	0.1813807146	0.115425437	0.114986791	0.181636148	0.05597398	0.114986791
WLAN 2.4GHz	0.005469094	0.2326084	0.91402631	0.23368835	0.29477129	0.29477129	0.29545823	0.120822128	0.120377859	0.18684981	0.12089453	0.12045588	0.18710524	0.06144307	0.12045588
WLAN 5 GHz	0.006384107	0.23352341	0.91494133	0.23460336	0.2956863	0.2956863	0.29637324	0.121737141	0.121292872	0.18776482	0.12180954	0.1213709	0.18802025	0.06235809	0.1213709
WLAN 2.4 + 5 GHZ	0.0118532	0.23899251	0.92041042	0.24007246	0.30115539	0.30115539	0.30184233	0.127206235	0.126761966	0.19323392	0.12727864	0.12683999	0.19348935	0.06782718	0.12683999
Maximum-Value		0.9204104													

Internal antenna

	Ratio of MPE-Value/Limit	GSM 850	GPRS 850	EGPRS 850	GSM 1900	GPRS 1900	EGPRS 1900	W-CDMA Band 2	W-CDMA Band 4	W-CDMA Band 5	LTE B02	LTE B04	LTE B05	LTE B12	LTE B66
		0.230092574	0.920370297	0.291046643	0.265437352	0.265437352	0.266067625	0.105837441	0.111676931	0.1837390299	0.105903871	0.111752761	0.183997784	0.205871629	0.111752761
WLAN 2.4GHz	0.018052015	0.24814459	0.93842231	0.30909866	0.28348937	0.28348937	0.28411964	0.123889456	0.129728946	0.20179104	0.12395589	0.12980478	0.2020498	0.22392364	0.12980478
WLAN 5 GHz	0.014917995	0.24501057	0.93528829	0.30596464	0.28035535	0.28035535	0.28098562	0.120755437	0.126594926	0.19865703	0.12082187	0.12667076	0.19891578	0.22078962	0.12667076
Bluetooth BDR 2.4GHz	0.007186637	0.23727921	0.92755693	0.29823328	0.27262399	0.27262399	0.27325426	0.113024078	0.118863567	0.19092567	0.11309051	0.1189394	0.19118442	0.21305827	0.1189394
Bluetooth DER 2.4GHz	0.004534461	0.23462704	0.92490476	0.2955811	0.26997181	0.26997181	0.27060209	0.110371903	0.116211392	0.18827349	0.11043833	0.11628722	0.18853225	0.21040609	0.11628722
Bluetooth LE 2.4GHz	0.002491872	0.23258445	0.92286217	0.29353851	0.26792922	0.26792922	0.2685595	0.108329313	0.114168802	0.1862309	0.10839574	0.11424463	0.18648966	0.2083635	0.11424463
WLAN 2.4 +5 GHz	0.03297001	0.26306258	0.95334031	0.32401665	0.29840736	0.29840736	0.29903763	0.138807452	0.144646941	0.21670904	0.13887388	0.14472277	0.21696779	0.23884164	0.14472277
Maximum-Value		0.9533403													

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	Innovation, Science and Economic Development Canada
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 it 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_{CISPR})	-	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 1 GHz - 18 GHz 18-26.5 GHz	5.83 dB 4.91 dB 5.06 dB						Electrical Field strength

7 Versions of test reports (change history)

Version	Applied changes	Date of release
--	Initial release	2021-May-28
C1	Chapter 4.5.2 and 4.5.4 updated because Dual Band Simultaneous (DBS) mode for WLAN	2021-Sep-08
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End Of Test Report