

Manufacturer: Trimble Inc., 4450 Gibson Drive, Tipp City, Ohio 45371, USA
Model / HVIN: TR400900
FCC ID: S9E123130
ISED ID: 5817A-123130

Test Laboratory: SGS Fimko Oy
Address: Karakaarenkuja 4, FI-02610 Espoo, FINLAND
Accreditation Body: FINAS
CAB Identifier: T004
ISED Company Number: 8708A

REFERENCE DOCUMENTS

KDB447498 D01 General RF Exposure Guidance v06, 23 October 2015
 FCC CFR 47 §1.1310, Radio frequency exposure limits
 FCC CFR 47 §2.1091, Radio frequency exposure evaluation: mobile devices
 RSS-102 Issue 5, 2015

EUT SPECIFICATION

RF module, 902.0 – 928.0 MHz, 1W, maximum Duty Cycle: 18.2%
 Using the maximum power (including tune-up tolerances), the power density was calculated. Maximum antenna gain was assumed (6 dBi).
 Minimum safety distance of 25 cm has been defined.

RF EXPOSURE RESULT

FCC

Test Description	Standard	Compliance distance
RF Exposure (General Public)	FCC CFR 47 §1.1310	=> 0.25 m when 6 dBi antenna used

ISED

Test Description	Standard	Compliance distance
RF Exposure (General Public)	RSS-102	=> 0.25 m when 6 dBi antenna used

RF EXPOSURE ASSESSMENT

FCC: Exposure Limits for Uncontrolled / Controlled Environment

Frequency Range /MHz	RF power density, occupational/controlled [mW/cm ²]	RF power density, general population/uncontrolled [mW/cm ²]
300 – 1500 MHz	f/300	f/1500

f = frequency in MHz

ISED: Exposure Limits for Uncontrolled Environment

Table 4: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
0.003-10 ²¹	83	90	-	Instantaneous*
0.1-10	-	0.73/ f	-	6**
1.1-10	87/ f ^{0.5}	-	-	6**
10-20	27.46	0.0728	2	6
20-48	58.07/ f ^{0.25}	0.1540/ f ^{0.25}	8.944/ f ^{0.5}	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 f ^{0.3417}	0.008335 f ^{0.3417}	0.02619 f ^{0.6834}	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ f ^{1.2}
150000-300000	0.158 f ^{0.5}	4.21 x 10 ⁻⁴ f ^{0.5}	6.67 x 10 ⁻⁵ f	616000/f ^{1.2}

Note: f is frequency in MHz.

* Based on nerve stimulation (NS).

** Based on specific absorption rate (SAR).

ISED: Exposure Limits for Controlled Environment

Table 6: RF Field Strength Limits for Controlled Use Devices (Controlled Environment)

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
0.003-10 ²³	170	180	-	Instantaneous*
0.1-10	-	1.6/ f	-	6**
1.29-10	193/ f ^{0.5}	-	-	6**
10-20	61.4	0.163	10	6
20-48	129.8/ f ^{0.25}	0.3444/ f ^{0.25}	44.72/ f ^{0.5}	6
48-100	49.33	0.1309	6.455	6
100-6000	15.60 f ^{0.25}	0.04138 f ^{0.25}	0.6455 f ^{0.5}	6
6000-15000	137	0.364	50	6
15000-150000	137	0.364	50	616000/ f ^{1.2}
150000-300000	0.354 f ^{0.5}	9.40 x 10 ⁻⁴ f ^{0.5}	3.33 x 10 ⁻⁴ f	616000/f ^{1.2}

Note: f is frequency in MHz.

* Based on nerve stimulation (NS).

** Based on specific absorption rate (SAR).

Single transmission RF Exposure Levels (mW/cm²)

FCC

Lowest frequency (902 MHz)

EUT			Antenna		General Public		Controlled Environment	
Freq.	Power	Duty Cycle	Gain		Limit	Safe R=25cm	Limit	Safe R=25cm
MHz	W		dBi	G	mW/cm ²	mW/cm ²	mW/cm ²	mW/cm ²
902	1.0	0.182	0	1.0	0.60	0.02	3.0	0.02
			4	2.5		0.06		0.06
			6	4.0		0.09		0.09

Highest frequency (928 MHz)

EUT			Antenna		General Public		Controlled Environment	
Freq.	Power	Duty Cycle	Gain		Limit	Safe R=25cm	Limit	Safe R=25cm
MHz	W		dBi	G	mW/cm ²	mW/cm ²	mW/cm ²	mW/cm ²
928	1.0	0.182	0	1.0	0.62	0.02	3.1	0.02
			4	2.5		0.06		0.06
			6	4.0		0.09		0.09

Formula used to calculate S: $S = \frac{PG}{4\pi R^2}$

Single transmission RF Exposure Levels (W/m²)

ISED

Lowest frequency (902 MHz)

EUT			Antenna		General Public		Controlled Environment	
Freq.	Power	Duty Cycle	Gain		Limit	Safe R=0.25m	Limit	Safe R=0.25m
MHz	W		dBi	G	W/m ²	W/m ²	W/m ²	W/m ²
902	1.0	0.182	0	1.0	2.74	0.23	19.39	0.23
			4	2.5		0.58		0.58
			6	4.0		0.93		0.93

Highest frequency (928 MHz)

EUT			Antenna		General Public		Controlled Environment	
Freq.	Power	Duty Cycle	Gain		Limit	Safe R=0.25m	Limit	Safe R=0.25m
MHz	W		dBi	G	W/m ²	W/m ²	W/m ²	W/m ²
928	1.0	0.182	0	1.0	2.79	0.23	19.66	0.23
			4	2.5		0.58		0.58
			6	4.0		0.93		0.93

Formula used to calculate S: $S = \frac{PG}{4\pi R^2}$

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