

CETECOM™

CETECOM ICT Services
consulting - testing - certification >>>



DAkkS
Deutsche
Akkreditierungsstelle
D-PL-12076-01-00

Maximum Permissible Exposure (MPE) & Exposure evaluation

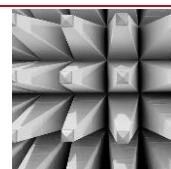
Report identification number: 1-1364/16-01-15

EUT: RoadLog made by Continental Automotive (offline version)	
Certification numbers and labeling requirements	
FCC ID	2AHPQ3290Z K7T-BPM2001 (BT module)
IC number	21323-3290Z 2377A-BPM2001 (BT module)
HVIN (Hardware Version Identification Number)	3290Z
PMN (Product Marketing Name)	RoadLog™
FVIN (Firmware Version Identification Number)	-/-
HMN (Host Marketing Name)	-/-

This test report is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

Document authorized:

Thomas Vogler
Testing Manager
Radio Communications & EMC



Prediction of MPE limit at given distance - FCC

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG / 4\pi R^2$$

where: S = Power density

P = Power input to the antenna

G = Antenna gain (declared by provider)

R = Distance to the center of radiation of the antenna

Note: for BT/BTLE the declared worst case EIRP has been assumed as P = 16 dBm with gain G = 0 dBi

The table below is excerpted from Table 1B of 47 CFR 1.1310 titled "Limits for Maximum Permissible Exposure (MPE), Limits for General Population/Uncontrolled Exposure"

Frequency Range (MHz)	Power Density (mW/cm ²)	Averaging Time (minutes)
300 -1500	f/1500	30
1500 - 100000	1.0	30

where f = Frequency (MHz)

		> 1500 MHz
Technology		BT 2.4 GHz
P Maximum power		16 dBm
R Distance		20 cm
G Antenna gain		0 dBi
S MPE limit for uncontrolled exposure		1 mW/cm ²
Calculated Power density:		0.0079 mW/cm²

This prediction demonstrates the following:

The power density levels for FCC at a distance of 20 cm are below the maximum levels allowed by regulations.



Prediction of MPE limit at given distance - IC

RSS-102, Issue 5, 2.5.2

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).

Note: for BT/BTLE the declared worst case EIRP has been assumed as $P = 16 \text{ dBm}$ with gain $G = 0 \text{ dBi}$

	Technology	BT 2.4 GHz
P	Max power	16 dBm
G	Antenna gain	0 dBi
S	MPE limit for uncontrolled exposure	2700 mW
	Calculated output power:	39.8 mW

Conclusion: for applications where minimum distance to radiating element is 20cm Annex C of RSS-102 should be filled out.