



Maximum Permissible Exposure (MPE) & Exposure evaluation

Report identification number: 1-1515/20-01-04 MPE (FCC)

Certification numbers and labeling requirements	
FCC ID	UN6-DTRHFKQ21

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Document authorised:

cn=Alexander Hnatovskiy, o=CTC advanced
GmbH, ou=HNA-211126,
email=alexander.hnatovskiy@ctcadvanced.co
m, c=DE
2022.05.23 12:11:10 +02'00'

Alexander Hnatovskiy
Lab Manager
Radio Communications & EMC

cn=Marco Scigliano, o=CTC advanced
GmbH, ou=SCI-211118,
email=marco.scigliano@ctcadvanced.com,
c=DE
2022.05.23 12:09:51 +02'00'

Marco Scigliano
Testing Manager
Radio Communications & EMC

EUT technologies:

Technologies:	Max. power [dBm]		Antenna gain max.: [dBi] **
	conducted	EIRP	
RFID 13.56 MHz	27.0 dBm	-30.0 dBm	--

NOTE: information taken from 20220520_Block_Diagram_Operational_Description_DTI51x_ANT51x_en.pdf

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
 R = Distance to the center of radiation of the antenna
 PG = Output Power including antenna gain

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"

According to: CFR47, Subpart I - §1.1310 Radiofrequency radiation exposure limits				
Frequency Range (MHz)	Electric Field (V/m)	Magnetic Field (A/m)	Power density (mW/cm²)	Averaging time (minutes)
Occupational / Controlled Exposure				
0.3-3.0	614	1.63	100	6
3.0-30	1842/f	4.89/ f	900/f ²	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100000	--	--	5	6
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
1500-100000	--	--	1.0	30

where f = Frequency (MHz)

Prediction: worst case

Technologies:		RFID	
	Frequency (MHz)	13.56	
PG	Declared max power (worst case)	27	dBm
R	Distance	20	cm
S	MPE limit for uncontrolled exposure	0.98	mW/cm ²
	Calculated Power density:	0.0998	mW/cm ²
	Calculated percentage of Limit:	10.19%	

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.