

Maximum Permissible Exposure (MPE) & Exposure evaluation

Report identification number: 1-0696-25-01-04_TR1-R01 MPE (FCC_ISED)

Certification numbers and labeling requirements	
ISED number	20155-SST3051S
FCC ID	ASL-SST3051S
HVIN (Hardware Version Identification Number)	S-Band Pedestal
PMN (Product Marketing Name)	S-Band Pedestal
FVIN (Firmware Version Identification Number)	2.1.30.03
HMN (Host Marketing Name)	-/-

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EUT technologies:

Technologies:	Max. power [dBm]		Antenna gain max.: [dBi]	#
	conducted	EIRP		
2.9-3.1 GHz Radar	34.8	64.8	30	A,C

Details and origins of the measurements shown in the table above:

#	Results from:	Additional information
A	1-0696-25-01_02_TR1-R01 cetecom advanced GmbH	Cond. FCC page 22, 34.8 dBm
B	1-0696_25-01-03_TR1-R01 cetecom advanced GmbH	Cond. ISED page 42, 34.8 dBm
C	DMTA00074223 - SW- SSD - SSR Operation Mode OEM Customer documentation	Antenna Info, pg. 5, 30 dBi

Minimum safety distance declared by manufacturer: 630 cm

Prediction of MPE limit at given distance - FCC

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

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 (EIRP)

The table below is excerpted from Table 1 - Limits for Maximum Permissible Exposure (MPE) - "General Population/Uncontrolled Exposure" according according FCC 19-126A1

Frequency Range (MHz)	Power Density (mW/cm ²)	Averaging Time (minutes)
1500 – 3 000 000	1.0	30

where f = Frequency (MHz)

Prediction: worst case

	Technology	RADAR	
	Frequency	2900	MHz
P·G	Meas. EIRP	64.8	dBm
R	Distance	500	cm
S	MPE limit for uncontrolled exposure	1.0	mW/cm ²
	Calculated Power density:	0.9618	mW/cm ²
	Calculated percentage of limit:	96.18%	

This prediction demonstrates the following:

The power density levels for FCC at a distance of 500 cm are below the maximum levels allowed by regulations.

Prediction of MPE limit at given distance - ISED

RSS-102, Issue 6, chapter 6 Reference levels for general public (uncontrolled environment):

According to: RSS 102-ISSUE 06				
Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
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.				

Prediction: worst case

	Technology	RADAR	
	Frequency	2900	MHz
P·G	Meas. EIRP	64.8	dBm
R	Distance	630	cm
S	MPE limit for uncontrolled exposure	6.09	W/m ²
	Calculated Power density:	6.058	W/m ²
	Calculated percentage of limit:	99.54%	

Conclusion: RF exposure evaluation is not required.