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BNetzA-CAB-02/21-102



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D-PL-12047-01-00

## Maximum Permissible Exposure (MPE) & Exposure evaluation

**Report identification number: 1-5965-23-02-04\_TR1-R01 MPE (FCC\_ISED)**

Certification numbers and labeling requirements	
FCC ID	PGP-R600V-01
ISED number	24812-R600VV01
HVIN (Hardware Version Identification Number)	11188367-2 11209335-2 11228779-2 11205779-2 11221283-2 11225384-2 11724913-2
PMN (Product Marketing Name)	R600V.DAE0-11188367 R600V.DAE0-11209335 R600V.DAE0-11228779 R600V.DAH5-11205779 R600V.DAH5-11221283 R600V.RAH5-11225384 R600V-DAE0-11724913
FVIN (Firmware Version Identification Number)	R600VMOF_S R600VMSF_S R600VMSF_S R600VSOF_S R600VM8F_S R600VRTF_S R600VCAF_S
HMN (Host Marketing Name)	-/-

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

### Document authorised:



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**EUT technologies:**

Technologies:	Max. power [dBm]		Antenna gain max.: [dBi]	#
	conducted	EIRP		
FMCW RADAR 122 – 123 GHz	--	meas. 19.65 (avg)	--	A

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

#	Results from:	Additional information
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**Minimum safety distance declared by manufacturer: 20cm**

**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 47 CFR 1.1310 (e) (1).

Frequency Range (MHz)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minutes)
1500 – 3 000 000 <sup>1)</sup>	1.0	30

where f = Frequency (MHz)

<sup>1)</sup> Extended according FCC 19-126

**Prediction: worst case**

Technology	FMCW RADAR	
Frequency	122500	MHz
P·G Meas. EIRP	19.65	dBm
R Distance	20	cm
S MPE limit for uncontrolled exposure	1.0	mW/cm <sup>2</sup>
<b>Calculated Power density:</b>	0.0184	mW/cm <sup>2</sup>
<b>Calculated percentage of limit:</b>	1.84%	

**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 - 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 <sup>2</sup> )	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	$3.142 f^{0.3417}$	$0.008335 f^{0.3417}$	$0.02619 f^{0.3417}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	$616000 / f^{1.2}$
<b>150000-300000</b>	<b>0.158 f<sup>0.5</sup></b>	<b><math>4.21 \times 10^{-4} f^{0.5}</math></b>	<b><math>6.67 \times 10^{-5} f</math></b>	<b><math>616000 / f^{1.2}</math></b>

**Note:** f is frequency in MHz.

### Prediction: worst case

	Technology	FMCW RADAR	
	Frequency	122500	MHz
P-G	Meas. EIRP	19.65	dBm
R	Distance	20	cm
S	MPE limit for uncontrolled exposure	8.17	W/m <sup>2</sup>
	<b>Calculated Power density:</b>	0.184	W/m <sup>2</sup>
	<b>Calculated percentage of limit:</b>	2.25%	

**Conclusion:** RF exposure evaluation is not required.