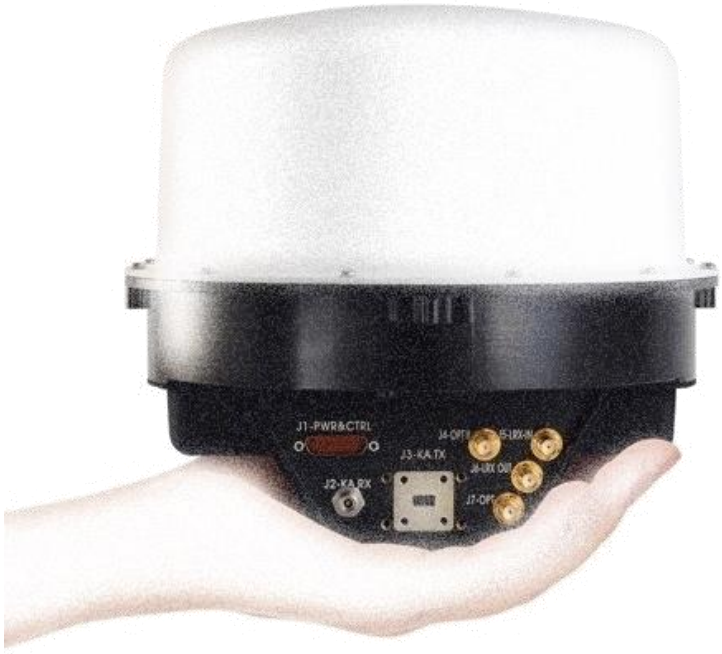

Satellite On The Move terminal

NanoSAT radiation analysis

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NANOSAT- RADIATION ANALYSIS

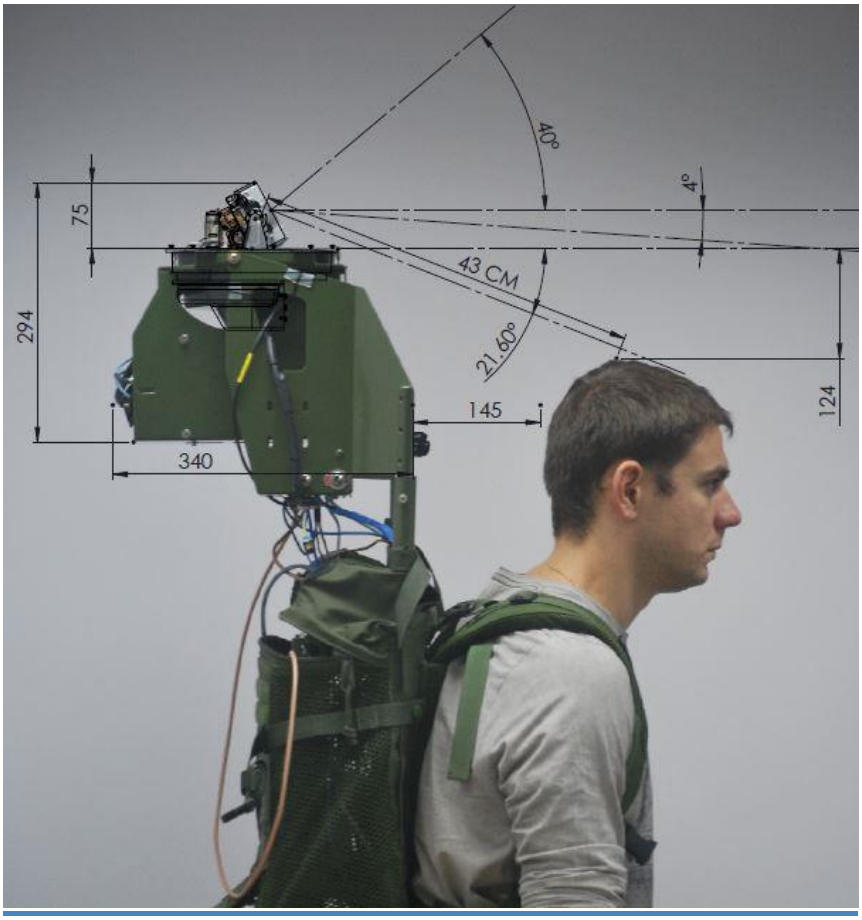

Figure 1: NanoSAT installation

The smallest angle between the beam and the operator' s head is 21.6°. At that angle the gain is lower by 20dB. The beam' s gain at its center is 27dBi, ergo the operator absorb 7 dBm of radiation.

Furthermore, the distance between the operator and the antenna also reduces the radiation intensity. The distance between the operator and the antenna is 43cm, where which the attenuation is 54.66dB.

A conservative assumption is that the whole 10w (40dBm) is radiated at the operator' s direction, the gain is 7dBm and attenuated due to the distance (-54.66dB). In total the operator absorbs **0.171mw** (-7.66dBm).

At higher elevation angles, the attenuation is even higher, which means less radiation reaches the operator.

The above calculations assume that the aerial' s aiming direction is straight forward. Any digression reduces even more the energy absorbed by the operator: higher elevation angle, or azimuth different than straight forward.

In case of AMOS4 SAT, from Israel:

Aerial gain= 27dBi

Aerial gain @ (-21.6)° when aerial points to 40°=-21.6dBm

Total gain= 27-21.6= +5.4dBm

Aerial power= 10w (40dBm)

Attenuation @ of 43cm=54.66dBm

Operator received energy= power+total gain-distance attenuation=40+5.4-54.66=-9.26dBm

Operator absorbs (-9.26dBm) =**0.119mw**