

Manufacturer:	Satel Oy, Meriniitynkatu 17, FI-24100 Salo, Finland
Model:	SATEL-EASy Pro+
FCC ID:	MRBSATEL-TA44
Test Laboratory:	SGS Fimko Oy
Address:	Karakaarenkuja 4, FI-02610 Espoo, Finland
Accreditation Body:	FINAS
CAB Identifier:	T004

REFERENCE DOCUMENTS

KDB 447498 D04 Interim General RF Exposure Guidance v01
 47 CFR §1.1310 Radiofrequency radiation exposure limits
 47 CFR §2.1091 Radiofrequency radiation exposure evaluation: mobile devices

EUT SPECIFICATION

The equipment under test is a UHF radio modem.

Operating Frequency Range:	403...473 MHz
Channel Width:	12.5 / 25 kHz
Channel Separation:	12.5 / 20 / 25 kHz
Maximum Transmit Power:	35 W
Modulation:	4FSK, 8FSK, 16FSK, GMSK
Maximum Antenna Gain:	14 dBi
Device Category:	Mobile
Environment:	General Population/Uncontrolled

ASSESSMENT

Maximum permissible exposure (MPE) limits:

For operations within the frequency range of 300 kHz and 6 GHz (inclusive), the limits for MPE, derived from whole-body SAR limits and listed in table below, may be used instead of whole-body SAR limits to evaluate the environmental impact of human exposure to RF radiation, except for portable devices.

Frequency Range [MHz]	Electric Field Strength [V/m]	Magnetic Field Strength [A/m]	Power Density [mW/cm ²]	Averaging Time [minutes]
Limits for Occupational/Controlled Exposure				
300-1500	-	-	$f / 300$	< 6
Limits for General Population/Uncontrolled Exposure				
300-1500	-	-	$f / 1500$	< 30

f = frequency in MHz.

At 403 MHz the power density limits for occupational and general population exposure are 1.34 mW/cm² and 0.27 mW/cm², respectively.

Assessment results:

The plane-wave equivalent power density is calculated with the following equation:

$$S = \frac{PG}{4\pi R^2}$$

where P = transmit power, G = antenna gain (linear), R = distance.

Using the equation and power density limits the compliance distance from the EUT is calculated:

EUT		Antenna		General Population		Occupational	
Frequency	Power	Gain		Limit	Distance	Limit	Distance
MHz	mW	dBi	linear	mW/cm ²	cm	mW/cm ²	cm
403	35000	0	1.00	0.27	101.82	1.34	45.53
		4	2.51		161.37		72.17
		6	3.98		203.15		90.85
		8	6.31		255.75		114.38
		10	10.00		321.98		143.99
		12	15.85		405.34		181.27
		14	25.12		510.30		228.21

CONCLUSION

The assessment shows that the compliance distance for general population exposure is 5.2 m when 14 dBi antenna is used.

Date: November 28, 2022

A handwritten signature in blue ink, appearing to read "Henri Mäki".

Henri Mäki
Test Engineer