
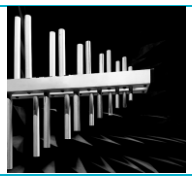
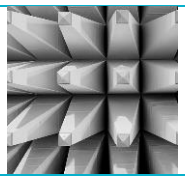

CTC advanced
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Bundesnetzagentur

BNetzA-CAB-02/21-102

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Maximum Permissible Exposure (MPE) & Exposure evaluation

Report identification number: 1-0037/20-02-04-A MPE (FCC)

Manufacturer:	**hiSky SCS Ltd**
Product:	**Dynamic Terminal Ka 8X8 V3**
Kind of test item:	**Dynamic Smartellite Terminal Ka 8x8 V3**
FCC ID:	**2A4L8-DKA8X8V3**

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.

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Document History:

Version	Applied Changes	Date of Release
	Initial Release	2022-10-29
-A	Corrected WLAN and BT power according module data sheet.	2023-05-15

EUT technologies:

Technologies:	Max. power		Antenna gain max.: [dBi] *	Max average EIRP Declared by customer	#
	conducted	EIRP			
Ka-Band 27.5 to 30.0 GHz	--	28.353 GHz: 49.2 dBm 29.253 GHz: 49.0 dBm 29.997 GHz: 51.0 dBm (peak values)	--	36.3 dBm (=4.25 W)	A
WLAN 2450 MHz	--	--	--	18.5 dBm (= 70.8 mW)	B
BT EDR / LE	--	--	--	11.7 dBm (= 14.8 mW)	B

)* worst case of all antenna types, channels and modulations (overrated)

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

#	Results from:	Additional information
A	1-0037/20-02-02 CTC advanced GmbH	Max PEAK-EIRP page 19 Duty Cycle correction of 3.37% (See Annex A of this document)
B	Module Datasheet: wl1387mod	

Collocation overview:

Active scenario: / **Technology**	**1**	**2**	**3**	**4**
Ka-Band	x		x	
WLAN 2450 MHz	x	x		
BT EDR/LE 2450 MHz	x			x

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”

Frequency Range (MHz)	Power Density (mW/cm^2)	Averaging Time (minutes)
300 -1500	f/1500	30
1500 - 100000	1.0	30

where f = Frequency (MHz)

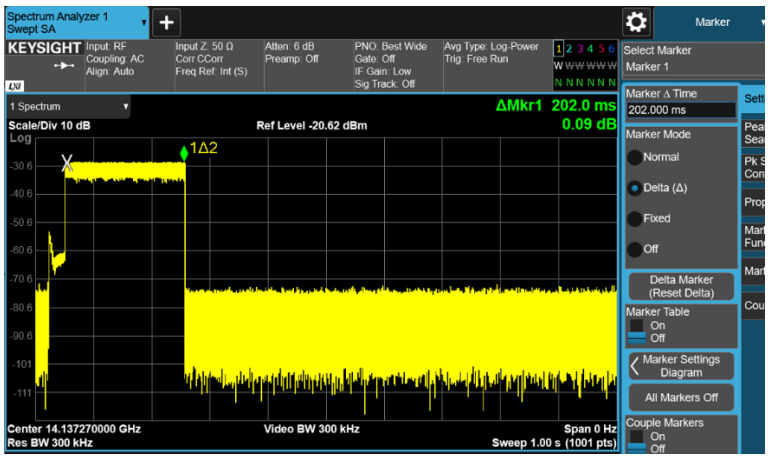
Prediction: worst case

	Technologies:	WLAN	BT EDR	Ka-Band	
	Frequency (MHz)	2450	2450	29997	
PG	Declared max power (EIRP)	18.5	11.7	36.3	dBm
R	Distance	20	20	20	cm
S	MPE limit for uncontrolled exposure	1	1	1	mW/cm^2
	Calculated Power density:	0.0141	0.0029	0.8491	mW/cm^2
	Calculated percentage of Limit:	1.41%	0.29%	84.91%	
	Collocation:				
	Scenario 4: ALL ACTIVE Calculated percentage of Limit:	86.61%			

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.

Annex A: Duty cycle of the EUT (Ka-Band):



Duty Cycle 3.37%

Plot data:
Transmission Period: 6s
Pulse Duration: 202 ms
Number of pulses in 360 Seconds = 60
Total Transmission time in 360 Seconds: 60 · 202ms = 12.12s