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Maximum Permissible Exposure Report

1. Product Information

FCC ID : YUHDG22

EUT : DeskID UHF v2 FCC
Test Model : DeskID UHF v2 FCC

Additional Model No. : Art. Nr. 22003360 (FCC)

Model Declaration : PCB board, structure and internal of these model(s) are the same, So no

additional models were tested

Ratings : Input: DC 5V, 350mA, Max 2W

Hardware Version : DeskID_UHF_v2_0100

Software Version : 0105

Frequency Range : 902MHz~928MHz

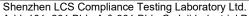
Channel Number : 50 channels
Channel Spacing : 500kHz
Modulation Type : ASK

Antenna Description : Internal Antenna, 4.0dBi(Max.)

Exposure category : General population/uncontrolled environment

EUT Type : Production Unit Device Type : Fixed Device







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2. Evaluation Method

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

In accordance with KDB447498D01 for Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modelled or measured field strengths or power density, is ≤ 1.0. The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to MPE limit, at the test frequency. Either the maximum peak or spatially averaged results from measurements or numerical simulations may be used to determine the MPE ratios. Spatial averaging does not apply when MPE is estimated using simple calculations based on far-field plane-wave equivalent conditions. The antenna installation and operating requirements for the host device must meet the minimum test separation distances required by all antennas, in both standalone and simultaneous transmission operations, to satisfy compliance.

3. Limit

3. 1 Refer Evaluation Method

ANSI C95.1–2019: IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz

<u>FCC KDB publication 447498 D01 General 1 RF Exposure Guidance v06:</u> Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

FCC CFR 47 part1 1.1310: Radiofrequency radiation exposure limits.

FCC CFR 47 part2 2.1091: Radiofrequency radiation exposure evaluation: mobile devices.

3. 2 Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency	Electric Field	ric Field Magnetic Field Power De		Averaging Time	
Range(MHz)	Strength(V/m)	Strength(A/m)	(mW/cm²)	(minute)	
Limits for Occupational/Controlled Exposure					
0.3 – 3.0 614		1.63	(100) *	6	
3.0 – 30	3.0 – 30 1842/f		(900/f ²)*	6	
30 – 300 61.4		0.163	1.0	6	
300 – 1500	/	/	f/300	6	
1500 – 100,000	/	/	5	6	

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	•		Power Density (mW/cm²)	Averaging Time (minute)		
Range(MHz) Strength(V/m) Strength(A/m) (mW/cm²) (minute) Limits for Occupational/Uncontrolled Exposure						
0.3 – 3.0 614		1.63 (100) *		30		
3.0 – 30	824/f	2.19/f	(180/f ²)*	30		
30 – 300	27.5	0.073	0.2	30		
300 – 1500	/		f/1500	30		
1500 – 100,000	/	/	1.0	30		

F=frequency in MHz

*=Plane-wave equivalent power density



Shenzhen LCS Compliance Testing Laboratory Ltd.

Add: 101, 201 Bldg Å & 301 Bldg Č, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China



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Predication of MPE limit at a given distance 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 antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

5. Antenna Information

EUT can only use antennas certificated as follows provided by manufacturer;

The state of	Internal/External Antenna type and Identification antenna number		Operate frequency band	Maximum antenna gain	
1	Internal	Internal Antenna	902MHz~928MHz	4.0dBi	

6. Conducted Power

	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)		
1 902.750		902.750	10.61		
	26 915.250		11.00		
	50	927.250	11.45		

7. Manufacturing Tolerance

u	facturing Toleran	ice			
ASK(Peak)					
Channel		Channel 1	Channel 26	Channel 50	
	Target (dBm)	11.0	11.0	11.0	
Tolerance ± (dB)		1.0	1.0	1.0	



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Add: 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China

Tel: +(86) 0755-82591330 | E-mail: webmaster@lcs-cert.com | Web: www.lcs-cert.com Scan code to check authenticity

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8.1 Standalone MPE Evaluation

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance, r =20cm, as well as the gain of the used antenna refer to antenna information, the RF power density can be obtained.

Modulation Type	Output power		Antenna	Antenna Gain	MPE	MPE
	dBm	mW	Gain (dBi)	(linear)	(mW/cm2)	Limits (mW/cm2)
ASK	12.0	15.849	4.0	2.5119	0.0079	0.6013

Remark:

- 1. Output power including tune-up tolerance;
- 2. Output power was adjust to duty cycle at 100% if measured duty cycle less than 98%;
- 3. MPE evaluate distance is 20cm from user manual provide by manufacturer.

8.2 Simultaneous Transmission MPE Evaluation

The EUT equiped with one module and one antenna. So no need consider simultaneous transmission.

9. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device





