



Maximum Permissible Exposure

FCC ID: 2AHU2NCSP3DC

APPLICANT: ASA Electronics Shenzhen Limited

Application Type: Certification

Product: NCSP3 Display Commander

Model No.: NCSP3DC

Trademark: iN • Command

FCC Rule Part(s): Part 2.1091 (Mobile)

Test Date: September 8, 2020 ~ September 24, 2020

Reviewed By

: 

(Paddy Chen)

Approved By

: 

(Chenz Ker)



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report. Test results reported herein relate only to the item(s) tested.

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Revision History

Report No.	Version	Description	Issue Date
2009TW5501-U4	1.0	Original Report	2020-10-05

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	NCSP3 Display Commander
Model No.	NCSP3DC
Trademark	iN • Command
Supports Radios Spec.	2.4G: 802.11b/g/n-20 (1TX/1RX) Bluetooth Dual Mode: V4.2
Operating Frequency	2.4GHz-WIFI: For 802.11b/g/n-HT20: 2412 ~ 2462 MHz BT: For 2402~2480MHz
Type of modulation	BT/BLE: GFSK 2.4G WIFI: 802.11b: DSSS, DBPSK, DQPSK, CCK 802.11g/n-20M: OFDM, BPSK, QPSK, 16QAM, 64QAM

1.2. Antenna Description

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Master Wave Technology Co.,Ltd	CL-1105-03-1R	PCB	4.6dBi

2. Maximum Permissible Exposure(MPE)

2.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
0.3-1.4	614	1.63	*100	30
1.34-30	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

Note : (1) f= Frequency in MHz , (2) * = Plane-wave equivalent power density

Calculation Formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

r = distance between observation point and center of the radiator in cm

Under normal use condition, is at least 20cm away from the body of the user .

So, this device is classified as **Mobile Device**.

2.2. Test Result

Frequency Band (MHz)	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412 ~ 2462	24.13	258.8213	4.6	20	0.1485	1
2402 ~ 2480	3.85	2.4266	4.6	20	0.0014	1

Conclusion :

$$CPD1/LPD1 + CPD2/LPD2 + \dots + CPDN/LPDN \leq 1$$

CPD : Calculation Power Density

LPD : Limit of Power Density

Mode	Power Density	Limit	Conclusion	Result (≤ 1)
BT	0.1485	1	0.1625	Pass
WIFI	0.0014	1		

Therefore, the maximum calculations are less than the “1” limit. Complies with FCC radiation exposure requirement specified in the FCC Rule 2.1091.

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