

RF Exposure Evaluation

FCC ID: OYR-CF-813B

1. Client Information

Applicant	:	Shenzhen Four Seas Global Link Network Technology Co., Ltd.
Address	:	Room 607-610, Block B, TAOJINDI Electronic Business Incubation Base, Tenglong Road, Longhua District, Shenzhen, China
Manufacturer	:	Shenzhen Four Seas Global Link Network Technology Co., Ltd.
Address	:	Room 607-610, Block B, TAOJINDI Electronic Business Incubation Base, Tenglong Road, Longhua District, Shenzhen, China

2. General Description of EUT

EUT Name	:	AC Wireless Network Card	
Model(s) No.	:	CF-813B, CF-723B, CF-725B, CF-726B, CF-727B, CF-927B, CF-759B, CF-963B, CF-728B, CF-729B	
Model Different	:	All PCB boards and circuit diagrams are the same, the only difference is that names and appearance color.	
Product Description	:	Operation Frequency:	Bluetooth 4.2(BT):2402MHz~2480MHz Bluetooth 4.2(BLE): 2402MHz~2480MHz 802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz U-NII-1: 5180MHz~5240MHz U-NII-3: 5745MHz~5825MHz
		Number of Channel:	Bluetooth 4.2(BLE): 79 channels Bluetooth 4.2(BLE): 40 channels 802.11b/g/n(HT20):11 channels 802.11n(HT40): 7 channels U-NII-1: 7 channels U-NII-3: 8 channels
		Antenna Gain:	2dBi Metal Antenna
		Modulation Type:	GFSK π /4-DQPSK 8-DPSK 802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n:OFDM(BPSK,QPSK,16QAM,64 QAM) 802.11a: OFDM (QPSK, BPSK, 16QAM)

TB-RF-074-1.0

		802.11n: OFDM (QPSK, BPSK, 16QAM, 64QAM) 802.11ac: OFDM (QPSK, BPSK, 16QAM, 64QAM, 256QAM)
Power Rating	:	DC 5V
Software Version	:	V1.0
Hardware Version	:	V1.0
Connecting I/O Port(S)	:	Please refer to the User's Manual
Remark: The antenna gain provided by the applicant, the adapter and verified for the RF conduction test and adapter provided by TOBY test lab.		

Note: More test information about the EUT please refer the RF Test Report.

SAR Test Exclusion Calculations

1. FCC: According to KDB 447498 D01 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies v06.

- (1) Clause 4.3: General SAR test reduction and exclusion guidance

- Sub clause 4.31: Standalone SAR test exclusion considerations

- 1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6GHz at test separation distance ≤ 5 mm are determined by:

- [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)] * $[\sqrt{f_{\text{GHz}}}] \leq 3.0$ for 1-g SAR

- [(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)] * $[\sqrt{f_{\text{GHz}}}] \leq 7.5.0$ for 10-g SAR

2. Calculation:

Test separation: 5mm						
BLE Mode (1Mbps)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	-2.8	-2 ± 1	-1	0.794	0.246	3.0
2.442	-3.85	-3 ± 1	-2	0.631	0.197	3.0
2.480	-3.14	-3 ± 1	-2	0.631	0.199	3.0
802.11b						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.412	8.09	8 ± 1	9	7.943	2.462	3.0
2.437	8.36	8 ± 1	9	7.943	2.483	3.0
2.462	8.13	8 ± 1	9	7.943	2.502	3.0
802.11g						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.412	8.25	8 ± 1	9	7.943	2.462	3.0
2.437	7.88	7 ± 1	8	6.310	1.972	3.0
2.462	7.77	7 ± 1	8	6.310	1.987	3.0
802.11n(HT20)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.412	7.51	7 ± 1	8	6.310	1.956	3.0
2.437	7.11	7 ± 1	8	6.310	1.972	3.0
2.462	7.95	7 ± 1	8	6.310	1.987	3.0
802.11n(HT40)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.422	7.22	7 ± 1	8	6.310	1.964	3.0
2.437	7.15	7 ± 1	8	6.310	1.970	3.0
2.452	7.03	7 ± 1	8	6.310	1.976	3.0
802.11a (U-NII-1)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
5.180	7.83	7 ± 1	8	6.310	2.872	3.0
5.200	7.62	7 ± 1	8	6.310	2.878	3.0
5.240	7.42	7 ± 1	8	6.310	2.889	3.0

802.11n20 (U-NII-1)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
5.180	7.78	7±1	8	6.310	2.872	3.0
5.200	7.01	7±1	8	6.310	2.878	3.0
5.240	7.64	7±1	8	6.310	2.889	3.0
802.11n40 (U-NII-1)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
5.190	7.22	7±1	8	6.310	2.875	3.0
5.230	7.09	7±1	8	6.310	2.886	3.0
802.11ac20 (U-NII-1)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
5.180	7.08	7±1	8	6.310	2.872	3.0
5.200	7.08	7±1	8	6.310	2.878	3.0
5.240	7.28	7±1	8	6.310	2.889	3.0
802.11ac40 (U-NII-1)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
5.190	7.82	7±1	8	6.310	2.875	3.0
5.230	7.44	7±1	8	6.310	2.886	3.0
802.11ac80 (U-NII-1)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
5.210	7.46	7±1	8	6.310	2.880	3.0
802.11a (U-NII-3)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
5.745	6.79	6±1	7	5.012	2.403	3.0
5.785	6.57	6±1	7	5.012	2.411	3.0
5.825	6.85	6±1	7	5.012	2.419	3.0
802.11n20 (U-NII-3)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
5.745	6.19	6±1	7	5.012	2.403	3.0
5.785	6.62	6±1	7	5.012	2.411	3.0
5.825	6.69	6±1	7	5.012	2.419	3.0

802.11n40 (U-NII-3)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
5.755	6.76	6±1	7	5.012	2.405	3.0
5.795	6.97	6±1	7	5.012	2.413	3.0
802.11ac20 (U-NII-3)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
5.745	6.46	6±1	7	5.012	2.403	3.0
5.785	6.95	6±1	7	5.012	2.411	3.0
5.825	6.71	6±1	7	5.012	2.419	3.0
802.11ac40 (U-NII-3)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
5.755	6.30	6±1	7	5.012	2.405	3.0
5.795	6.42	6±1	7	5.012	2.413	3.0
802.11ac80 (U-NII-3)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
5.775	6.86	6±1	7	5.012	2.409	3.0

Conclusion:

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06.

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