

# RF Exposure Evaluation

## FCC ID: OYRCF-924AC

### 1. Client Information

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

### 2. General Description of EUT

<b>EUT Name</b>	:	AC Wireless Network Card
<b>Model No.</b>	:	CF-924AC V2, CF-821AC, CF-813B, CF-727B, CF-938AC, CF-926AC, CF-926AC PRO, CF-WU785AC, CF-WU783AC, CF-958AC, CF-939AC
<b>Sample ID</b>	:	20210402-14-1#& 20210402-14-2#
<b>Model Difference</b>	:	All these models are identical in the same PCB, layout and electrical circuit, The only difference is appearance color and model name.
<b>Product Description</b>	:	Operation Frequency: 802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz U-NII-1: 5180MHz~5240MHz U-NII-3: 5745MHz~5825MHz
<b>Power Rating</b>	:	USB Input: DC 5V
<b>Software Version</b>	:	N/A
<b>Hardware Version</b>	:	N/A
<b>Remark</b>	:	The antenna gain provided by the applicant, the verified for the RF conduction test 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  $\leq 5$  mm are determined by:

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

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

### 2. Antenna Gain

Antenna	Brand	Model Name	Type	2.4G/5G Antenna Gain(dBi)
ANT. A	N/A	N/A	Dipole	2
ANT. B	N/A	N/A	Dipole	2

**3. Calculation:**

[2.4GHz WLAN]									
Mode	Frequency (MHz)	Conducted Output Power (dBm)		Tolerance $\pm$ (dB)		Calculation Value			Threshold Value
		Ant.A	Ant.B	Ant.A	Ant.B	Ant.A	Ant.B	Total	
IEEE 802.11b	2412	4.07	3.97	4 $\pm$ 1	4 $\pm$ 1	0.982	0.982	/	3.0
	2437	3.42	3.99	4 $\pm$ 1	4 $\pm$ 1	0.987	0.987	/	3.0
	2462	2.73	4.23	3 $\pm$ 1	4 $\pm$ 1	0.788	0.992	/	3.0
IEEE 802.11g	2412	3.53	4.17	4 $\pm$ 1	4 $\pm$ 1	0.982	0.982	/	3.0
	2437	3.97	4.06	4 $\pm$ 1	4 $\pm$ 1	0.987	0.987	/	3.0
	2462	4.13	4.08	4 $\pm$ 1	4 $\pm$ 1	0.992	0.992	/	3.0
IEEE 802.11n HT20	2412	3.13	3.16	3 $\pm$ 1	3 $\pm$ 1	0.780	0.780	1.560	3.0
	2437	2.73	2.86	3 $\pm$ 1	3 $\pm$ 1	0.784	0.784	1.568	3.0
	2462	2.58	3.53	3 $\pm$ 1	3 $\pm$ 1	0.788	0.788	1.576	3.0
IEEE 802.11n HT40	2422	3.51	3.57	3 $\pm$ 1	3 $\pm$ 1	0.782	0.782	1.564	3.0
	2437	3.50	3.59	3 $\pm$ 1	3 $\pm$ 1	0.784	0.784	1.568	3.0
	2452	3.44	3.45	3 $\pm$ 1	3 $\pm$ 1	0.787	0.787	1.574	3.0

Note: At separation distance of  $\leq 5$  mm

[5GHz WLAN U-NII-1]									
Mode	Frequency (MHz)	Conducted Output Power (dBm)		Tolerance $\pm$ (dB)		Calculation Value			Threshold Value
		Ant.A	Ant.B	Ant.A	Ant.B	Ant.A	Ant.B	Total	
IEEE 802.11a	5180	3.135	3.032	3 $\pm$ 1	3 $\pm$ 1	1.143	1.143	/	3.0
	5200	3.130	3.230	3 $\pm$ 1	3 $\pm$ 1	1.146	1.146	/	3.0
	5240	3.275	3.054	3 $\pm$ 1	3 $\pm$ 1	1.150	1.150	/	3.0
IEEE 802.11n HT20	5180	0.989	0.445	1 $\pm$ 1	1 $\pm$ 1	0.721	0.721	1.442	3.0
	5200	0.848	0.203	1 $\pm$ 1	1 $\pm$ 1	0.723	0.723	1.446	3.0
	5240	0.326	0.509	1 $\pm$ 1	1 $\pm$ 1	0.726	0.726	1.452	3.0
IEEE 802.11ac VHT20	5180	0.038	0.133	1 $\pm$ 1	1 $\pm$ 1	0.721	0.721	1.442	3.0
	5200	0.532	0.166	1 $\pm$ 1	1 $\pm$ 1	0.723	0.723	1.446	3.0
	5240	0.276	0.436	1 $\pm$ 1	1 $\pm$ 1	0.726	0.726	1.452	3.0
IEEE 802.11n HT40	5190	0.734	0.416	1 $\pm$ 1	1 $\pm$ 1	0.722	0.722	1.444	3.0
	5230	0.690	0.828	1 $\pm$ 1	1 $\pm$ 1	0.725	0.725	1.450	3.0
IEEE 802.11ac VHT40	5190	0.247	0.286	1 $\pm$ 1	1 $\pm$ 1	0.722	0.722	1.444	3.0
	5230	0.749	0.027	1 $\pm$ 1	1 $\pm$ 1	0.725	0.725	1.450	3.0
IEEE 802.11ac VHT80	5210	0.864	0.300	1 $\pm$ 1	1 $\pm$ 1	0.724	0.724	1.448	3.0

Note: At separation distance of  $\leq 5$  mm

**[5GHz WLAN U-NII-3]**

Mode	Frequency (MHz)	Conducted Output Power (dBm)		Tolerance $\pm$ (dB)		Calculation Value			Threshold Value
		Ant.A	Ant.B	Ant.A	Ant.B	Ant.A	Ant.B	Total	
IEEE 802.11a	5745	4.105	4.406	4 $\pm$ 1	4 $\pm$ 1	1.516	1.516	/	3.0
	5785	3.306	3.606	4 $\pm$ 1	4 $\pm$ 1	1.521	1.521	/	3.0
	5825	3.769	3.117	4 $\pm$ 1	4 $\pm$ 1	1.526	1.526	/	3.0
IEEE 802.11n HT20	5745	0.572	0.538	1 $\pm$ 1	1 $\pm$ 1	0.760	0.760	1.520	3.0
	5785	1.006	0.719	1 $\pm$ 1	1 $\pm$ 1	0.762	0.762	1.524	3.0
	5825	1.399	1.020	1 $\pm$ 1	1 $\pm$ 1	0.765	0.765	1.530	3.0
IEEE 802.11ac VHT20	5745	0.448	0.785	1 $\pm$ 1	0 $\pm$ 1	0.760	0.603	1.363	3.0
	5785	1.197	0.648	1 $\pm$ 1	0 $\pm$ 1	0.762	0.606	1.368	3.0
	5825	1.640	0.304	1 $\pm$ 1	0 $\pm$ 1	0.765	0.765	1.530	3.0
IEEE 802.11n HT40	5755	0.133	0.817	1 $\pm$ 1	0 $\pm$ 1	0.760	0.604	1.364	3.0
	5795	0.696	-0.180	1 $\pm$ 1	0 $\pm$ 1	0.763	0.763	1.526	3.0
IEEE 802.11ac VHT40	5755	0.192	-0.371	1 $\pm$ 1	0 $\pm$ 1	0.760	0.604	1.364	3.0
	5795	0.759	-0.574	1 $\pm$ 1	0 $\pm$ 1	0.763	0.606	1.369	3.0
IEEE 802.11ac VHT80	5775	0.379	-0.196	1 $\pm$ 1	0 $\pm$ 1	0.762	0.605	1.367	3.0

Note: At separation distance of  $\leq 5$  mm

**4. Summary simultaneous transmission information**

Modulation Type	Work Frequency Band	Transmit Antenna		Antenna A Antenna B Synchronization transmit
		Antenna A	Antenna B	
IEEE 802.11a	U-NII-1/ U-NII-3	Yes	Yes	No
IEEE 802.11b	2.4G	Yes	Yes	No
IEEE 802.11g	2.4G	Yes	Yes	No
IEEE802.11n HT20	2.4G	Yes	Yes	Yes
IEEE 802.11n HT20	U-NII-1/ U-NII-3	Yes	Yes	Yes
IEEE 802.11n HT40	2.4G	Yes	Yes	Yes
IEEE 802.11n HT40	U-NII-1/ U-NII-3	Yes	Yes	Yes
IEEE 802.11ac VHT20	U-NII-1/ U-NII-3	Yes	Yes	Yes
IEEE 802.11ac VHT40	U-NII-1/ U-NII-3	Yes	Yes	Yes
IEEE 802.11ac VHT80	U-NII-1/ U-NII-3	Yes	Yes	Yes

The EUT shares one RF chipset and equipped with two same antennas, the 2.4G WLAN and the 5G WLAN can not transmit at the same time.

**4 Conclusion:**

The measurement results comply with the RSS-102§4 Table 4 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06, No SAR is required.

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