

FCC 47 CFR MPE REPORT

Moka Technology(Guangdong)Co.,Ltd.

Interactive Display

Model Number: IFP6504E-AE

Additional Model: ****65**** (* can be A-Z,0-9 or "-"or blank)

FCC ID: 2BFQX-IFP65A

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Maximum Permissible Exposure

1. Applicable Standards

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

1.1. Limits for Maximum Permissible Exposure (MPE)

(a) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-10000			5	6

(b) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-10000			1.0	30

Note: f=frequency in MHz; *Plane-wave equivalent power density

1.2. MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric Field (V/m)

P = Peak RF output Power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained

2. Conducted Power Result

Mode	Frequency (MHz)	Antenna	Peak output power (dBm)	Peak output power (mW)
IEEE 802.11b	2412	ant 1	20.43	110.408
		ant 2	15.12	32.509
	2437	ant 1	19.9	97.724
		ant 2	15.19	33.037
	2462	ant 1	19.15	82.224
		ant 2	15.74	37.497
IEEE 802.11g	2412	ant 1	24.47	279.898
		ant 2	19.4	87.096
	2437	ant 1	23.94	247.742
		ant 2	19.58	90.782
	2462	ant 1	23.17	207.491
		ant 2	19.95	98.855
IEEE 802.11n HT20	2412	ant 1	23.17	207.491
		ant 2	17.37	54.576
	2437	ant 1	22.68	185.353
		ant 2	17.61	57.677
	2462	ant 1	21.86	153.462
		ant 2	18.05	63.826
IEEE 802.11n HT40	2422	ant 1	23.02	200.447
		ant 2	17.35	54.325
	2437	ant 1	21.1	128.825
		ant 2	18.91	77.804
	2452	ant 1	20.65	116.145
		ant 2	19.12	81.658
IEEE 802.11a	5180	ant 1	17.69	58.749
		ant 2	16.15	41.210
	5200	ant 1	17.57	57.148
		ant 2	15.33	34.119
	5240	ant 1	16.59	45.604
		ant 2	15.8	38.019
	5745	ant 1	17.07	50.933
		ant 2	17.2	52.481
	5785	ant 1	16.51	44.771
		ant 2	16.92	49.204

		5825	ant 1	15.96	39.446
			ant 2	16.71	46.881
IEEE 802.11n HT20	5180		ant 1	16.13	41.020
			ant 2	14.28	26.792
	5200		ant 1	15.88	38.726
			ant 2	13.5	22.387
	5240		ant 1	14.66	29.242
			ant 2	13.89	24.491
	5745		ant 1	14.56	28.576
			ant 2	14.15	26.002
	5785		ant 1	13.71	23.496
			ant 2	13.81	24.044
	5825		ant 1	13.43	22.029
			ant 2	13.67	23.281
IEEE 802.11ac VHT20	5180		ant 1	15.81	38.107
			ant 2	13.92	24.660
	5200		ant 1	15.65	36.728
			ant 2	13.3	21.380
	5240		ant 1	14.53	28.379
			ant 2	13.77	23.823
	5745		ant 1	14.51	28.249
			ant 2	14.12	25.823
	5785		ant 1	13.52	22.491
			ant 2	13.74	23.659
	5825		ant 1	13.12	20.512
			ant 2	13.55	22.646
IEEE 802.11n HT40	5190		ant 1	15.77	37.757
			ant 2	14.11	25.763
	5230		ant 1	14.91	30.974
			ant 2	13.85	24.266
	5755		ant 1	14.16	26.062
			ant 2	13.84	24.210
	5795		ant 1	13.66	23.227
			ant 2	13.79	23.933
IEEE 802.11ac VHT40	5190		ant 1	15.66	36.813
			ant 2	13.96	24.889
	5230		ant 1	14.76	29.923
			ant 2	13.78	23.878



	5755	ant 1	14.18	26.182
		ant 2	13.93	24.717
	5795	ant 1	13.6	22.909
		ant 2	13.73	23.605
IEEE 802.11ac VHT80	5210	ant 1	15.58	36.141
		ant 2	14.57	28.642
	5775	ant 1	14.37	27.353
		ant 2	14.37	27.353

3. Calculated Result and Limit

Module NXP-88W8997-SISO

The Worst Mode	Antenna	Peak output power (dBm)	Target power (dBm)	MAX Target power (dBm)	Antenna gain		Power Density (S) (mW /cm ²)	Limited of Power Density (S) (mW /cm ²)	Test Result
					(dBi)	(Linear)			
2.4G Band									
IEEE 802.11b	ant 1	20.43	20±1	12	1.72	1.486	0.0047	1	Complies
	ant 2	15.74	15±1	16	1.72	1.486	0.0118	1	Complies
IEEE 802.11g	ant 1	24.47	24±1	25	1.72	1.486	0.0935	1	Complies
	ant 2	19.95	19±1	20	1.72	1.486	0.0296	1	Complies
IEEE 802.11n HT20	ant 1	23.17	23±1	24	1.72	1.486	0.0743	1	Complies
	ant 2	18.05	18±1	19	1.72	1.486	0.0235	1	Complies
IEEE 802.11n HT40	ant 1	23.02	23±1	24	1.72	1.486	0.0743	1	Complies
	ant 2	19.12	19±1	20	1.72	1.486	0.0296	1	Complies
5G Band									
IEEE 802.11a	ant 1	17.69	17±1	18	2.57	1.807	0.0227	1	Complies
	ant 2	17.2	17±1	18	2.57	1.807	0.0227	1	Complies
IEEE 802.11n HT20	ant 1	16.13	16±1	17	2.57	1.807	0.0180	1	Complies
	ant 2	14.28	14±1	15	2.57	1.807	0.0114	1	Complies
IEEE 802.11ac VHT20	ant 1	15.81	15±1	16	2.57	1.807	0.0143	1	Complies
	ant 2	14.12	14±1	15	2.57	1.807	0.0114	1	Complies
IEEE 802.11n HT40	ant 1	15.77	15±1	16	2.57	1.807	0.0143	1	Complies
	ant 2	14.11	14±1	15	2.57	1.807	0.0114	1	Complies
IEEE 802.11ac VHT40	ant 1	15.66	15±1	16	2.57	1.807	0.0143	1	Complies
	ant 2	13.96	13±1	14	2.57	1.807	0.0090	1	Complies
IEEE 802.11ac VHT80	ant 1	15.58	15±1	16	2.57	1.807	0.0143	1	Complies
	ant 2	14.57	14±1	15	2.57	1.807	0.0114	1	Complies

Module NXP-88W8997-MIMIO

Mode	Power Density (S) (mW/cm ²) Antenna 0	Power Density (S) (mW/cm ²) Antenna 1	Power Density (S) (mW/cm ²) Total	Limited of Power Density (S) (mW/cm ²)	Test Result
2.4G Band					
IEEE 802.11n HT20	0.0743	0.0235	0.0977	1	Complies
IEEE 802.11n HT40	0.0743	0.0296	0.1038	1	Complies
5G Band					
IEEE 802.11n HT20	0.0180	0.0114	0.0294	1	Complies
IEEE 802.11ac VHT20	0.0143	0.0114	0.0257	1	Complies
IEEE 802.11n HT40	0.0143	0.0114	0.0257	1	Complies
IEEE 802.11ac VHT40	0.0143	0.0090	0.0233	1	Complies
IEEE 802.11ac VHT80	0.0143	0.0114	0.0257	1	Complies

Module NXP-88W8997+RTL8852BE

MAX Power Density (S) (mW/cm ²) NXP-88W8997	MAX PowerDensity (S) (mW/cm ²) RTL8852BE	Total Ratio	Limit Ratio	Test Result
0.1038	0.44553	0.54933	1	Complies

Note: WIFI 2.4G and 5GHz bands are share an antenna, Cann't both the 2.4G and 5 GHz bands operate simultaneously.

End of Test Report