



MPE REPORT

FCC ID: 2AWVE0IRISIANVERSAN

Product Name	:	VERSA N
Model Name	:	J80
Brand Name	:	IRISIAN
Report No.	:	PTC20051404901E-FC04
Prepared for		
Shanghai Irisian Optronics Technology Co.,Ltd		
Floor 8, No. 800, Second West Huanhu Road, Pudong New District, Shanghai		
Prepared by		
Precise Testing & Certification Corp., Ltd.		
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TEST RESULT CERTIFICATION

Applicant's name : Shanghai Irisian Optronics Technology Co.,Ltd
Address : Floor 8, No. 800, Second West Huanhu Road, Pudong New District, Shanghai

Manufacture's name : Shanghai Irisian Optronics Technology Co.,Ltd
Address : Floor 8, No. 800, Second West Huanhu Road, Pudong New District, Shanghai

Product name : VERSA N
Model name : J80

RF Exposure : KDB 447498 D01 v06
Procedures: :
Test Date : June 10, 2020 to June 28, 2020
Date of Issue : July 08, 2020

This device described above has been tested by PTC, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Test Engineer:

Leo Yang / Engineer

Technical Manager:

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RF EXPOSURE EVALUATION

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)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
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
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	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
300-1,500			f/1500	30
1,500-100,000			1.0	30

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

MPE Calculation Method

Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.1415926

R = distance between observation point and center of the radiator in cm (20cm)

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

Measurement Result

R=20cm

2.4G WIFI:

Channel Freq. (MHz)	modulation	conducted power		Tune-up power		Max				Antenna		Evaluation result at 20cm			Power density Limits
		(dBm)		(dBm)		tune-up power				Gain		Power density(mW/cm2)			(mW/cm2)
						(dBm)		(mW)		Numeric					
		Ant 0	Ant 1	Ant 0	Ant 1	Ant 0	Ant 1	Ant 0	Ant 1	Ant 0	Ant 1	Ant 0	Ant 1	Sum	
2412	802.11b	24.76	/	24.76 ±1	/	25.76	/	376.7	/	2	/	0.1499	/	/	
2437		24.95	/	24.95 ±1	/	25.95	/	393.6	/	2	/	0.1566	/	/	1
2462		24.57	/	24.57 ±1	/	25.57	/	360.6	/	2	/	0.1435	/	/	1
2412	802.11g	23.38	22.87	23.38 ±1	22.87 ±1	24.38	23.87	274.2	243.8	2	2	0.1091	0.0970	0.2061	1
2437		23.55	23.22	23.55 ±1	23.22 ±1	24.55	24.22	285.1	264.2	2	2	0.1134	0.1050	0.2184	1
2462		23.38	22.89	23.38 ±1	22.89 ±1	24.38	23.89	274.2	244.9	2	2	0.1091	0.0974	0.2065	1
2412	802.11n H20	21.98	21.99	21.98 ±1	21.99 ±1	22.98	22.99	198.6	199.1	2	2	0.0790	0.0792	0.1582	1
2437		22.14	22.16	22.14 ±1	22.16 ±1	23.14	23.16	206.1	207	2	2	0.0820	0.0824	0.1644	1
2462		21.63	21.60	21.63 ±1	21.60 ±1	22.63	22.60	183.2	182	2	2	0.0729	0.0724	0.1453	1

BT:

Peak Power: [2441MHz, 5.5 ± 1 dBm (4.5mW) output power]

Gain:2

$$Pd = (P_{out} * G) / (4 * \pi * R^2)$$

So , Pd= 0.0018 mW/cm2

LTE:

Band	Channel Freq. (MHz)	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power	Gain		(mW/cm2)	(mW/cm2)	
				(dBm)	(mW)	(dBi)			Numeric
2	1880	23.1	23±1	24	251.189	2.0	2.0	0.0999	1
4	1732.5	22.72	23±1	24	251.189	2.0	2.0	0.0999	1
5	846.5	22.56	23±1	24	251.189	2.0	2.0	0.0999	0.56

simultaneous transmit:

BT+WIFI + LTE Band 2 =

$$0.0018 + 0.2184 + 0.0999 = 0.3201 \text{ mW/cm}^2$$



BT+WIFI + LTE Band 4 =

$$0.0018+0.2184+0.0999=0.3201\text{mW/cm}^2$$

BT+WIFI+ (LTE Band 5/ Power density Limits) =

$$0.2202+(0.0999/0.56)= 0.2202+0.1784=0.3986\text{mW/cm}^2$$

Conclusion:

For the max result: $0.3986 \leq 1.0$ for 1g SAR, No SAR is required

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