



CTC Laboratories, Inc.

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Maximum Permissible Exposure Evaluation

FCC ID: 2AXBCSNP-LW3600W

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)

EUT Specification

Product Name:	DLP Laser Projector
Trade Mark:	Sonnoc
Model/Type reference:	SNP-LW3600W
Listed Model(s):	SNP-LX3200W, SNP-LX3201W, SNP-LX3202W, SNP-LX3203W, SNP-LX3204W, SNP-LX3120W, SNP-LX3121W, SNP-LX3122W, SNP-LX3123W, SNP-LX3124W, SNP-LX3105W, SNP-LX3106W, SNP-LX3107W, SNP-LX3108W, SNP-LX3109W, SNP-LX3600W, SNP-LX3601W, SNP-LX3602W, SNP-LX3603W, SNP-LX3604W, SNP-LX3520W, SNP-LX3521W, SNP-LX3522W, SNP-LX3523W, SNP-LX3524W, SNP-LX3505W, SNP-LX3506W, SNP-LX3507W, SNP-LX3508W, SNP-LX3509W, SNP-LW3200W, SNP-LW3201W, SNP-LW3202W, SNP-LW3203W, SNP-LW3204W, SNP-LW3120W, SNP-LW3121W, SNP-LW3122W, SNP-LW3123W, SNP-LW3124W, SNP-LW3105W, SNP-LW3106W, SNP-LW3107W, SNP-LW3108W, SNP-LW3109W, SNP-LW3601W, SNP-LW3602W, SNP-LW3603W, SNP-LW3604W, SNP-LW3520W, SNP-LW3521W, SNP-LW3522W, SNP-LW3523W, SNP-LW3524W, SNP-LW3505W, SNP-LW3506W, SNP-LW3507W, SNP-LW3508W, SNP-LW3509W, SNP-LH3200W, SNP-LH3201W, SNP-LH3202W, SNP-LH3203W, SNP-LH3204W, SNP-LH3120W, SNP-LH3121W, SNP-LH3122W, SNP-LH3123W, SNP-LH3124W, SNP-LH3105W, SNP-LH3106W, SNP-LH3107W, SNP-LH3108W, SNP-LH3109W, SNP-LX3230W, SNP-LX3231W, SNP-LX3232W, SNP-LX3233W, SNP-LX3234W, SNP-LX3630W, SNP-LX3631W, SNP-LX3632W, SNP-LX3633W, SNP-LX3634W, SNP-LW3230W, SNP-LW3231W, SNP-LW3232W, SNP-LW3233W, SNP-LW3234W, SNP-LW3630W, SNP-LW3631W, SNP-LW3632W, SNP-LW3633W, SNP-LW3634W, SNP-LH3230W, SNP-LH3231W, SNP-LH3232W, SNP-LH3233W, SNP-LH3234W
Frequency band (Operating)	☐ BT: 2.402GHz ~ 2.480GHz ☐ BLE: 2.402GHz ~ 2.480GHz ☒ WLAN: 2.412GHz ~ 2.462GHz ☒ RLAN: 5.150GHz ~ 5.250GHz ☒ RLAN: 5.725GHz ~ 5.850GHz ☐ Others
Device category	☐ Portable (<5mm separation) ☐ Mobile (>20cm separation) ☒ fixed (>20cm separation) ☐ Others
Exposure classification	☐ Occupational/Controlled exposure (S=5mW/cm2) ☒ General Population/Uncontrolled exposure (S=1mW/cm2)

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Antenna diversity	☒ Single antenna ☐ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Antenna gain (Max)	2dBi for 2.4GHz WIFI 2dBi for 5GHz WIFI
Evaluation applied	☒ MPE Evaluation ☐ SAR Evaluation

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
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

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 = gain of antenna in linear scale

π = 3.1416

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

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

2.4G WIFI							
Type	Channel frequency (MHz)	Max. Measured Power (dBm)	Tune up tolerance (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm ²)	Power density Limits (mW/cm ²)
802.11 b	2412	17.25	17±1	18	2	0.01989	1
802.11 g	2412	17.02	17±1	18	2	0.01989	1
802.11 n20	2412	16.40	16±1	17	2	0.01580	1
802.11 n40	2422	16.52	16±1	17	2	0.01580	1

5G WIFI U-NII-1							
Type	Channel frequency (MHz)	Max. Measured Power (dBm)	Tune up tolerance (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm ²)	Power density Limits (mW/cm ²)
802.11a	5240	9.35	9±1	10	2	0.00315	1
802.11 n20	5240	9.75	9±1	10	2	0.00315	1

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802.11 ac20	5240	8.92	9±1	10	2	0.00315	1
802.11 n40	5230	8.55	8±1	9	2	0.00250	1
802.11 ac40	5230	9.04	9±1	10	2	0.00315	1
802.11 ac80	5210	7.44	7±1	8	2	0.00199	1

5G WIFI U-NII-3							
Type	Channel frequency (MHz)	Max. Measured Power (dBm)	Tune up tolerance (dBm)	Max. Tune up Power (dBm)	Antenna Gain (dBi)	Power density at 20cm (mW/cm ²)	Power density Limits (mW/cm ²)
802.11a	5745	8.89	9±1	10	2	0.00315	1
802.11 n20	5745	8.98	9±1	10	2	0.00315	1
802.11 ac20	5745	8.21	8±1	9	2	0.00250	1
802.11 n40	5755	7.44	7±1	8	2	0.00199	1
802.11 ac40	5755	7.82	7.5±1	8.5	2	0.00223	1
802.11 ac80	5775	7.78	7.5±1	8.5	2	0.00223	1

Note

For a more detailed features description, please refer to the RF Test Report.

*****THE END*****