



CTC Laboratories, Inc.

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Maximum Permissible Exposure Evaluation

FCC ID: WNA-SK-R6215

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:	Wi-Fi 6 Mesh Router
Trade Mark:	SKYWORTH
Model/Type Reference:	SK-R6215
Listed Model(s):	SK-G6210, SK-G6215, SK-G6225, TZN20
Model Differences:	All these models have the same product appearance, PCB, layout, material, RF circuit, and software and hardware, and will not affect the RF characteristics. The difference lies in the product model.
Frequency Band (Operating)	WLAN: 2412MHz ~ 2462MHz U-NII-1: 5180MHz ~ 5240MHz U-NII-2A: 5260MHz ~ 5320MHz U-NII-2C: 5500MHz ~ 5700MHz U-NII-3: 5745MHz ~ 5825MHz
Device Category	<input type="checkbox"/> Portable (<5mm separation) <input type="checkbox"/> Mobile (>20cm separation) <input checked="" type="checkbox"/> Fixed (>20cm separation) <input type="checkbox"/> Others ____
Exposure Classification	<input type="checkbox"/> Occupational/Controlled exposure (S=5mW/cm ²) <input type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm ²)
Antenna Diversity	<input type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
Antenna Gain (Max)	WLAN: 3.37dBi U-NII-1: 3.88dBi U-NII-2A: 3.88dBi U-NII-2C: 3.88dBi U-NII-3: 3.88dBi
Evaluation Applied	<input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> SAR Evaluation

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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				
300-1500	--	--	F/300	<6
1500-100000	--	--	5	<6
(B) Limits for General Population/Uncontrolled Exposure				
300-1500	--	--	F/1500	<30
1500-100000	--	--	1	<30

Calculation Method

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

Where:

Pd= 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

Pd limit of MPE is 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****Ant0+Ant1:**

Mode	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Tune Up Tolerance (dB)	Max. Tune Up Power (dBm)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Result
WLAN 802.11n(HT40)	2422	3.37	13.9	±1	14	0.01086	1	PASS
RLAN U-NII-1 802.11ax(HE20)	5240	3.88	20.58	±1	21	0.06120	1	PASS
RLAN U-NII-2A 802.11ax(HE40)	5270	3.88	20.09	±1	21	0.06120	1	PASS
RLAN U-NII-2C 802.11ax(HE40)	5670	3.88	20.21	±1	21	0.06120	1	PASS
RLAN U-NII-3 802.11ac(VHT40)	5785	3.88	24.1	±1	25	0.15372	1	PASS

Ant0+Ant2:

Mode	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Tune Up Tolerance (dB)	Max. Tune Up Power (dBm)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Result
RLAN U-NII-1 802.11ax(HE40)	5190	3.88	20.04	±1	21	0.06120	1	PASS
RLAN U-NII-2A 802.11ax(HE80)	5290	3.88	20.09	±1	21	0.06120	1	PASS
RLAN U-NII-2C 802.11ax(HE80)	5670	3.88	20.35	±1	21	0.06120	1	PASS
RLAN U-NII-3 802.11ac(VHT40)	5795	3.88	25.01	±1	26	0.19353	1	PASS

Worst case (2.4G Ant0+Ant1 & 5G Ant0+Ant1)

Type	Frequency (MHz)	Antenna Gain (dBi)	Power Density at 20cm (mW/cm ²)	WLAN+RLAN Power density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Result
WLAN 802.11n(HT40)	2422	3.37	0.01086	0.16458	1	PASS
RLAN U-NII-3 802.11ac(VHT40)	5785	3.88	0.15372		1	PASS

Worst case (2.4G Ant0+Ant1 & 5G Ant0+Ant2)

Type	Frequency (MHz)	Antenna Gain (dBi)	Power Density at 20cm (mW/cm ²)	WLAN+RLAN Power density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Result
WLAN 802.11n(HT40)	2422	3.37	0.01086	0.20439	1	PASS
RLAN U-NII-3 802.11ac(VHT40)	5795	3.88	0.19353		1	PASS

Note:

1. Calculate in the worst-case mode.
2. Max. Tune Up Power is declared by manufacturer, and used to calculate.
3. For a more detailed features description, please refer to the RF Test Report.
4. 2.4G support Ant0+Ant1, 5G support Ant0+Ant1 and Ant0+Ant2. 2.4G and 5G can transmit simultaneously.

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

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