

MAXIMUM PERMISSIBLE EXPOSURE

KDB 447498 D01 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies v06.

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

FCC ID	2AY2P-WMF51
EUT	Wireless Multiview Presentation Switcher
Frequency band (Operating)	☐ BT: 2.402GHz ~ 2.480GH ☒ WLAN: 2.412GHz ~ 2.462GHz ☐ RLAN: 5.180GHz ~ 5.240GHz ☐ RLAN: 5.260GHz ~ 5.320GHz ☐ RLAN: 5.500GHz ~ 5.700GHz ☒ RLAN: 5.745GHz ~ 5.825GHz ☐ Others:
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others ____
Exposure classification	☐ Occupational/Controlled exposure ☒ General Population/Uncontrolled exposure
Antenna diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Max. output power	Module: RTL8811CU WiFi 2.4G: 18.60dBm 0.0724W WiFi 5.8G: 16.90dBm 0.0490W Module: RTL8822CS WiFi 2.4G: 16.23dBm 0.0420W WiFi 5.8G: 15.43dBm 0.0349W
Antenna gain (Max)	Module: RTL8811CU WiFi 2.4G: 3.06dBi WiFi 5.8G: 3.09dBi Module: RTL8822CS WiFi 2.4G ANT1/ANT2: 3.06dBi WiFi 5.8G ANT1/ANT2: 3.09dBi



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	30
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. 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.

Max Measurement Result

Module	Operating Mode	Measured Power	Tune up tolerance	Max. Tune up Power	Antenna Gain	Power density at 20cm	Power density Limits
		(dBm)	(dBm)	(dBm)	(dBi)	(mW/cm ²)	(mW/cm ²)
RTL8811CU	WiFi 2.4G	18.60	18.60 ±1	19.60	3.06	0.0367	1
	WiFi 5.8G	16.90	16.90 ±1	17.90	3.09	0.0250	1
RTL8822CS	WiFi 2.4G ANT1	13.89	13.89 ±1	14.89	3.06	0.0124	1
	WiFi 2.4G ANT2	12.61	12.61 ±1	13.61	3.06	0.0092	1
	WiFi 5.8G ANT1	11.91	11.91 ±1	12.91	3.09	0.0079	1
	WiFi 5.8G ANT2	12.93	12.93 ±1	13.93	3.09	0.0100	1



No. Applicable Simultaneous Transmission

1. WiFi 2.4G+WiFi 2.4G ANT1
2. WiFi 2.4G+WiFi 5.8G ANT1
3. WiFi 2.4G+WiFi 2.4G ANT2
4. WiFi 2.4G+WiFi 5.8G ANT2
5. WiFi 5.8G+WiFi 2.4G ANT1
6. WiFi 5.8G+WiFi 5.8G ANT1
7. WiFi 5.8G+WiFi 2.4G ANT2
8. WiFi 5.8G+WiFi 5.8G ANT2
9. WiFi 2.4G+WiFi 2.4G ANT1+WiFi 5.8G ANT2
10. WiFi 2.4G+WiFi 5.8G ANT1+WiFi 2.4G ANT2
11. WiFi 5.8G+WiFi 2.4G ANT1+WiFi 5.8G ANT2
12. WiFi 5.8G+WiFi 5.8G ANT1+WiFi 2.4G ANT2

The Maximum simultaneous transmission for WiFi 2.4G+WiFi 2.4G ANT1+WiFi 5.8G ANT2:

$$\sum_i \frac{S_i}{S_{Limit,i}}$$

$$\begin{aligned}
 &= S_{WiFi\ 2.4G} / S_{limit-2.4G} + S_{WiFi\ 5.8G} / S_{limit-5.8G} \\
 &= 0.0367 / 1 + 0.0124 / 1 + 0.0100 / 1 \\
 &= 0.0591 \\
 &< 1.0
 \end{aligned}$$

Result: No Standalone SAR test is required.

