

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)

FCC ID: 2AR2SPDB70

EUT Specification

EUT	LED TV
Frequency band (Operating)	☒ WLAN: 5150MHz-5250MHz ☒ WLAN: 5250MHz-5350MHz ☒ WLAN: 5470MHz-5725MHz ☒ WLAN: 5725MHz-5850MHz ☐ Others
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation) ☐ Others ____
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm ²) ☒ General Population/Uncontrolled exposure (S=1mW/cm ²)
Antenna diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Max. output power	14.45 dBm for UNII-1 15.53 dBm for UNII-2A 13.91 dBm for UNII-2C 14.39 dBm for UNII-3
Antenna gain (Max)	4.64 dBi (for per antenna port Max)
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: $P_d = \frac{P_{out} \cdot G}{4 \cdot \pi \cdot R^2}$

Where

P_d = Power density in mW/cm², P_{out} =output power to antenna in Mw

G = gain of antenna in linear scale, $\pi=3.1416$

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

For 5GHz Band:

Operation Mode	Channel Number	Channel Frequency (MHz)	Measurement Level (dBm)	Limit (dBm)	Verdict
802.11a	CH36	5180	13.45	24	PASS
	CH40	5200	13.29	24	PASS
	CH48	5240	13.34	24	PASS
	CH52	5260	15.13	24	PASS
	CH60	5300	15.26	24	PASS
	CH64	5320	15.14	24	PASS
	CH100	5500	13.31	24	PASS
	CH116	5580	13.28	24	PASS
	CH144	5720	13.37	24	PASS
	CH149	5745	14.36	30	PASS
	CH157	5785	14.39	30	PASS
	CH165	5825	14.32	30	PASS
802.11n (VHT20)	CH36	5180	13.02	30	Pass
	CH40	5200	13.06	30	Pass
	CH48	5240	13.08	30	Pass
	CH52	5260	15.28	24	Pass
	CH60	5300	15.35	24	Pass
	CH64	5320	15.32	24	Pass
	CH100	5500	13.41	24	Pass
	CH116	5580	13.43	24	Pass
	CH144	5720	13.39	24	Pass
	CH149	5745	14.34	30	Pass
	CH157	5785	14.31	30	Pass
	CH165	5825	14.34	30	Pass
802.11n (VHT40)	CH38	5190	14.45	30	Pass
	CH46	5230	14.37	30	Pass
	CH54	5270	15.31	24	Pass
	CH62	5310	15.29	24	Pass
	CH102	5510	13.72	24	Pass
	CH110	5550	13.64	24	Pass
	CH142	5710	13.66	24	Pass
	CH151	5755	14.02	30	Pass
802.11ac (VHT20)	CH159	5795	14.07	30	Pass
	CH36	5180	13.48	30	Pass
	CH40	5200	13.42	30	Pass

	CH48	5240	13.43	30	Pass
	CH52	5260	15.42	24	Pass
	CH60	5300	15.53	24	Pass
	CH64	5320	15.45	24	Pass
	CH100	5500	13.34	24	Pass
	CH116	5580	13.26	24	Pass
	CH144	5720	13.38	24	Pass
	CH149	5745	14.18	30	Pass
	CH157	5785	14.23	30	Pass
	CH165	5825	14.24	30	Pass
802.11ac (VHT40)	CH38	5190	13.69	30	Pass
	CH46	5230	13.61	30	Pass
	CH54	5270	15.44	24	Pass
	CH62	5310	15.43	24	Pass
	CH102	5510	13.86	24	Pass
	CH110	5550	13.87	24	Pass
	CH142	5710	13.91	24	Pass
	CH151	5755	14.02	30	Pass
	CH159	5795	14.07	30	Pass
802.11ac (VHT80)	CH42	5210	13.94	30	Pass
	CH58	5290	15.28	24	Pass
	CH106	5530	13.25	24	Pass
	CH138	5690	13.29	24	Pass
	CH155	5775	13.22	30	Pass

Operating Mode	Test Channel	Tune up tolerance (dBm)	Max tune up conducted power(dBm)	Output Peak power (mW)	Ant. Gain (dBi)	Ant. Gain (numeric)	Power density at 20cm (mW/cm ²)	Power density Limits (mW/cm ²)
802.11a	CH36	13±1	14	25.119	4.64	2.911	0.014546	1
	CH40	13±1	14	25.119	4.64	2.911	0.014546	1
	CH48	13±1	14	25.119	4.64	2.911	0.014546	1
	CH52	15±1	16	39.811	4.64	2.911	0.023053	1
	CH60	15±1	16	39.811	4.64	2.911	0.023053	1
	CH64	15±1	16	39.811	4.64	2.911	0.023053	1
	CH100	13±1	14	25.119	4.64	2.911	0.014546	1
	CH116	13±1	14	25.119	4.64	2.911	0.014546	1
	CH144	13±1	14	25.119	4.64	2.911	0.014546	1
	CH149	14±1	15	31.623	3.44	2.208	0.013891	1
	CH157	14±1	15	31.623	3.44	2.208	0.013891	1
	CH165	14±1	15	31.623	3.44	2.208	0.013891	1
802.11n (VHT20)	CH36	13±1	14	25.119	4.64	2.911	0.014546	1
	CH40	13±1	14	25.119	4.64	2.911	0.014546	1
	CH48	13±1	14	25.119	4.64	2.911	0.014546	1
	CH52	15±1	16	39.811	4.64	2.911	0.023053	1
	CH60	15±1	16	39.811	4.64	2.911	0.023053	1
	CH64	15±1	16	39.811	4.64	2.911	0.023053	1
	CH100	13±1	14	25.119	4.64	2.911	0.014546	1
	CH116	13±1	14	25.119	4.64	2.911	0.014546	1
	CH144	13±1	14	25.119	3.44	2.208	0.011034	1
	CH149	14±1	15	31.623	3.44	2.208	0.013891	1
802.11n (VHT40)	CH157	14±1	15	31.623	4.64	2.911	0.018312	1
	CH165	14±1	15	31.623	4.64	2.911	0.018312	1
	CH38	14±1	15	31.623	4.64	2.911	0.018312	1
	CH46	14±1	15	31.623	4.64	2.911	0.018312	1
	CH54	15±1	16	39.811	4.64	2.911	0.023053	1
	CH62	15±1	16	39.811	4.64	2.911	0.023053	1
	CH102	13±1	14	25.119	4.64	2.911	0.014546	1
	CH110	13±1	14	25.119	4.64	2.911	0.014546	1
	CH142	13±1	14	25.119	4.64	2.911	0.014546	1
	CH151	14±1	15	31.623	3.44	2.208	0.013891	1
	CH159	14±1	15	31.623	3.44	2.208	0.013891	1
802.11ac (VHT20)	CH36	13±1	14	25.119	4.64	2.911	0.014546	1
	CH40	13±1	14	25.119	4.64	2.911	0.014546	1
	CH48	13±1	14	25.119	4.64	2.911	0.014546	1
	CH52	15±1	16	39.811	4.64	2.911	0.023053	1
	CH60	15±1	16	39.811	4.64	2.911	0.023053	1

	CH64	15±1	16	39.811	4.64	2.911	0.023053	1
	CH100	13±1	14	25.119	4.64	2.911	0.014546	1
	CH116	13±1	14	25.119	4.64	2.911	0.014546	1
	CH144	13±1	14	25.119	4.64	2.911	0.014546	1
	CH149	14±1	15	31.623	4.64	2.911	0.018312	1
	CH157	14±1	15	31.623	3.44	2.208	0.013891	1
	CH165	14±1	15	31.623	3.44	2.208	0.013891	1
802.11ac (VHT40)	CH38	13±1	14	25.119	4.64	2.911	0.014546	1
	CH46	13±1	14	25.119	4.64	2.911	0.014546	1
	CH54	15±1	16	39.811	4.64	2.911	0.023053	1
	CH62	15±1	16	39.811	4.64	2.911	0.023053	1
	CH102	13±1	14	25.119	4.64	2.911	0.014546	1
	CH110	13±1	14	25.119	4.64	2.911	0.014546	1
	CH142	13±1	14	25.119	4.64	2.911	0.014546	1
	CH151	14±1	15	31.623	3.44	2.208	0.013891	1
	CH159	14±1	15	31.623	3.44	2.208	0.013891	1
802.11ac (VHT80)	CH42	13±1	14	25.119	4.64	2.911	0.014546	1
	CH58	15±1	16	39.811	4.64	2.911	0.023053	1
	CH106	13±1	14	25.119	4.64	2.911	0.014546	1
	CH138	13±1	14	25.119	4.64	2.911	0.014546	1
	CH155	13±1	14	25.119	3.44	2.208	0.011034	1

Signature:



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