

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: 2AR2STAB8905

EUT Specification

EUT	Soundbar Speaker, Wireless Subwoofer
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	15.16 dBm for UNII-1 15.21 dBm for UNII-2A 14.72 dBm for UNII-2C 14.86 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	15.12	24	Pass
	CH40	5200	15.16	24	Pass
	CH48	5240	15.13	24	Pass
	CH52	5260	15.17	24	Pass
	CH60	5300	15.19	24	Pass
	CH64	5320	15.19	24	Pass
	CH100	5500	14.67	24	Pass
	CH116	5580	14.72	24	Pass
	CH144	5720	14.69	24	Pass
	CH149	5745	14.82	30	Pass
	CH157	5785	14.86	30	Pass
	CH165	5825	14.83	30	Pass
802.11n (VHT20)	CH36	5180	14.86	30	Pass
	CH40	5200	14.83	30	Pass
	CH48	5240	14.87	30	Pass
	CH52	5260	14.86	24	Pass
	CH60	5300	14.83	24	Pass
	CH64	5320	14.87	24	Pass
	CH100	5500	14.12	24	Pass
	CH116	5580	14.27	24	Pass
	CH144	5720	14.19	24	Pass
	CH149	5745	14.74	30	Pass
	CH157	5785	14.72	30	Pass
	CH165	5825	14.76	30	Pass
802.11n (VHT40)	CH38	5190	14.37	30	Pass
	CH46	5230	14.39	30	Pass
	CH54	5270	14.92	24	Pass
	CH62	5310	14.92	24	Pass
	CH102	5510	14.36	24	Pass
	CH110	5550	14.38	24	Pass
	CH142	5710	14.36	24	Pass
	CH151	5755	14.52	30	Pass
	CH159	5795	14.52	30	Pass
802.11ac (VHT20)	CH36	5180	14.52	30	Pass
	CH40	5200	14.52	30	Pass

	CH48	5240	14.52	30	Pass
	CH52	5260	15.09	24	Pass
	CH60	5300	15.18	24	Pass
	CH64	5320	15.16	24	Pass
	CH100	5500	14.67	24	Pass
	CH116	5580	14.57	24	Pass
	CH144	5720	14.59	24	Pass
	CH149	5745	14.56	30	Pass
	CH157	5785	14.53	30	Pass
	CH165	5825	14.58	30	Pass
802.11ac (VHT40)	CH38	5190	14.38	30	Pass
	CH46	5230	14.36	30	Pass
	CH54	5270	14.86	24	Pass
	CH62	5310	14.73	24	Pass
	CH102	5510	14.11	24	Pass
	CH110	5550	14.16	24	Pass
	CH142	5710	14.13	24	Pass
	CH151	5755	14.18	30	Pass
	CH159	5795	14.15	30	Pass
802.11ac (VHT80)	CH42	5210	13.88	30	Pass
	CH58	5290	14.05	24	Pass
	CH106	5530	13.85	24	Pass
	CH138	5690	13.87	24	Pass
	CH155	5775	13.56	30	Pass

Operating Mode	Test Channel	Tune up tolerance (dBm)	Max tune up conducte d power(d Bm)	Output Peak power (mW)	Ant. Gain (dBi)	Ant. Gain (numeric)	Power density at 20cm (mW/ cm ²)	Power densit y Limits (mW/ cm ²)
802.11a	CH36	15±1	16	39.811	4.64	2.911	0.0230531	1
	CH40	15±1	16	39.811	4.64	2.911	0.0230531	1
	CH48	15±1	16	39.811	4.64	2.911	0.0230531	1
	CH52	15±1	16	39.811	4.64	2.911	0.0230531	1
	CH60	15±1	16	39.811	4.64	2.911	0.0230531	1
	CH64	15±1	16	39.811	4.64	2.911	0.0230531	1
	CH100	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH116	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH144	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH149	14±1	15	31.623	3.44	2.208	0.0138909	1
	CH157	14±1	15	31.623	3.44	2.208	0.0138909	1
	CH165	14±1	15	31.623	3.44	2.208	0.0138909	1
802.11n (VHT20)	CH36	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH40	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH48	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH52	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH60	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH64	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH100	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH116	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH144	14±1	15	31.623	3.44	2.208	0.0138909	1
	CH149	14±1	15	31.623	3.44	2.208	0.0138909	1
802.11n (VHT40)	CH157	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH165	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH38	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH46	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH54	15±1	16	39.811	4.64	2.911	0.0230531	1
	CH62	15±1	16	39.811	4.64	2.911	0.0230531	1
	CH102	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH110	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH142	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH151	14±1	15	31.623	3.44	2.208	0.0138909	1
	CH159	14±1	15	31.623	3.44	2.208	0.0138909	1
802.11ac (VHT20)	CH36	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH40	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH48	14±1	15	31.623	4.64	2.911	0.0183117	1
	CH52	15±1	16	39.811	4.64	2.911	0.0230531	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	14±1	15	25.119	4.64	2.911	0.014546	1
	CH116	14±1	15	25.119	4.64	2.911	0.014546	1
	CH144	14±1	15	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	14±1	15	25.119	4.64	2.911	0.014546	1
	CH46	14±1	15	25.119	4.64	2.911	0.014546	1
	CH54	14±1	15	39.811	4.64	2.911	0.023053	1
	CH62	14±1	15	39.811	4.64	2.911	0.023053	1
	CH102	14±1	15	25.119	4.64	2.911	0.014546	1
	CH110	14±1	15	25.119	4.64	2.911	0.014546	1
	CH142	14±1	15	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	14±1	15	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:



Sam Lv

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