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：2ACWIT500TAA4B

EUT Specification

EUT	**LED TV**
Frequency band (Operating)	☐WLAN: 2.412GHz ~ 2.462GHz ☒WLAN: 5.18GHz ~ 5.240GHz ☒WLAN: 5.745GHz ~ 5825GHz ☐Others
Device category	☐Portable (<20cm separation) ☒Mobile (>20cm separation) ☐Others ___
Exposure classification	☐Occupational/Controlled exposure (S = 5mW/cm2) ☒General Population/Uncontrolled exposure (S=1mW/cm2)
Antenna diversity	☐Single antenna ☒Multiple antennas ☐Tx diversity ☐Rx diversity ☐Tx/Rx diversity
Max. output power	17.40 dBm for UNII Band I; 15.55 dBm for UNII Band III
Antenna gain (Max)	5.0 dBi (for per antenna port Max) 8.01dBi for MIMO(Ant1+Ant2 Directional Gain)
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: Pd=(Pout*G)\(4*pi*R2)

Where
Pd= Power density in mW/cm^2, Pout=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
Pd 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
			Ant1	Ant2	Sum		
802.11a	CH36	5180	17.31	12.43		24	PASS
	CH40	5200	17.40	12.30		24	PASS
	CH48	5240	17.23	14.42		24	PASS
	CH149	5745	13.97	15.45		30	PASS
	CH157	5785	14.45	15.40		30	PASS
	CH165	5825	14.55	15.55		30	PASS
802.11n (VHT20)	CH36	5180	15.76	10.93	16.99	21.99	Pass
	CH40	5200	15.82	10.82	17.01	21.99	Pass
	CH48	5240	15.47	12.57	17.27	21.99	Pass
	CH149	5745	12.66	13.32	16.01	27.99	Pass
	CH157	5785	12.77	13.58	16.20	27.99	Pass
	CH165	5825	12.84	13.73	16.32	27.99	Pass
802.11n (VHT40)	CH38	5190	15.25	10.14	16.41	21.99	Pass
	CH46	5230	15.22	11.96	16.90	21.99	Pass
	CH151	5755	11.98	12.97	15.51	27.99	Pass
	CH159	5795	12.59	13.28	15.96	27.99	Pass
802.11ac (VHT20)	CH36	5180	15.84	10.64	16.99	21.99	Pass
	CH40	5200	15.87	10.22	16.92	21.99	Pass
	CH48	5240	15.40	12.59	17.23	21.99	Pass
	CH149	5745	12.57	13.39	16.01	27.99	Pass
	CH157	5785	13.10	13.66	16.40	27.99	Pass
	CH165	5825	13.17	13.81	16.51	27.99	Pass
802.11ac (VHT40)	CH38	5190	15.16	10.10	16.34	21.99	Pass
	CH46	5230	15.07	11.94	16.80	21.99	Pass
	CH151	5755	11.83	12.90	15.41	27.99	Pass
	CH159	5795	12.54	13.26	15.93	27.99	Pass
802.11ac (VHT80)	CH42	5210	13.89	9.54	15.25	21.99	Pass
	CH155	5775	11.34	12.18	14.79	27.99	Pass

Antenna 1

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	17±1	18	50.1187	5	3.162	0.0396944	1
	CH40	17±1	18	50.1187	5	3.162	0.0396944	1
	CH48	17±1	18	50.1187	5	3.162	0.0396944	1
	CH149	14±1	15	31.6228	5	3.162	0.0198943	1
	CH157	14±1	15	31.6228	5	3.162	0.0198943	1
	CH165	15±1	16	39.8107	5	3.162	0.0250455	1
802.11n (VHT20)	CH36	16±1	17	50.1187	5	3.162	0.0315304	1
	CH40	16±1	17	50.1187	5	3.162	0.0315304	1
	CH48	15±1	16	39.8107	5	3.162	0.0250455	1
	CH149	13±1	14	25.1189	5	3.162	0.0158026	1
	CH157	13±1	14	25.1189	5	3.162	0.0158026	1
	CH165	13±1	14	25.1189	5	3.162	0.0158026	1
802.11n (VHT40)	CH38	15±1	16	39.8107	5	3.162	0.0250455	1
	CH46	15±1	16	39.8107	5	3.162	0.0250455	1
	CH151	12±1	13	19.9526	5	3.162	0.0125525	1
	CH159	13±1	14	25.1189	5	3.162	0.0158026	1
802.11ac (VHT20)	CH36	16±1	17	50.1187	5	3.162	0.0315304	1
	CH40	16±1	17	50.1187	5	3.162	0.0315304	1
	CH48	15±1	16	50.1187	5	3.162	0.0250455	1
	CH149	13±1	14	25.1189	5	3.162	0.0158026	1
	CH157	13±1	14	25.1189	5	3.162	0.0158026	1
	CH165	13±1	14	25.1189	5	3.162	0.0158026	1
802.11ac (VHT40)	CH38	15±1	16	39.8107	5	3.162	0.0250455	1
	CH46	15±1	16	39.8107	5	3.162	0.0250455	1
	CH151	12±1	13	19.9526	5	3.162	0.0125525	1
	CH159	13±1	14	25.1189	5	3.162	0.0158026	1
802.11ac (VHT80)	CH42	14±1	15	31.6228	5	3.162	0.0198943	1
	CH155	11±1	12	15.8489	5	3.162	0.0099708	1

Antenna 2:

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	12±1	17	50.1187	5	3.162	0.0315304	1
	CH40	12±1	16	39.8107	5	3.162	0.0250455	1
	CH48	14±1	15	31.6228	5	3.162	0.0198943	1
	CH149	15±1	16	39.8107	5	3.162	0.0250455	1
	CH157	15±1	16	39.8107	5	3.162	0.0250455	1
	CH165	16±1	17	50.1187	5	3.162	0.0315304	1
802.11n (VHT20)	CH36	11±1	12	15.8489	5	3.162	0.0099708	1
	CH40	11±1	12	15.8489	5	3.162	0.0099708	1
	CH48	13±1	14	25.1189	5	3.162	0.0158026	1
	CH149	13±1	14	25.1189	5	3.162	0.0158026	1
	CH157	14±1	15	31.6228	5	3.162	0.0198943	1
	CH165	14±1	15	31.6228	5	3.162	0.0198943	1
802.11n (VHT40)	CH38	10±1	11	12.5893	5	3.162	0.0079201	1
	CH46	12±1	13	19.9526	5	3.162	0.0125525	1
	CH151	13±1	14	25.1189	5	3.162	0.0158026	1
	CH159	13±1	14	25.1189	5	3.162	0.0158026	1
802.11ac (VHT20)	CH36	11±1	12	15.8489	5	3.162	0.0099708	1
	CH40	10±1	11	12.5893	5	3.162	0.0079201	1
	CH48	13±1	14	25.1189	5	3.162	0.0158026	1
	CH149	13±1	14	25.1189	5	3.162	0.0158026	1
	CH157	14±1	15	31.6228	5	3.162	0.0198943	1
	CH165	14±1	15	31.6228	5	3.162	0.0198943	1
802.11ac (VHT40)	CH38	10±1	11	12.5893	5	3.162	0.0079201	1
	CH46	12±1	13	19.9526	5	3.162	0.0125525	1
	CH151	13±1	14	25.1189	5	3.162	0.0158026	1
	CH159	13±1	14	25.1189	5	3.162	0.0158026	1
802.11ac (VHT80)	CH42	10±1	11	12.5893	5	3.162	0.0079201	1
	CH155	12±1	13	19.9526	5	3.162	0.0125525	1

MPE Result:

Operation Mode	Channel Number	Channel Frequency (MHz)	Power density at 20cm (mW/ cm^2)			Power density Limits (mW/ cm^2)	Verdict
			Ant1	Ant2	Sum		
802.11a	CH36	5180	0.0396944	0.0315304		1	PASS
	CH40	5200	0.0396944	0.0250455		1	PASS
	CH48	5240	0.0396944	0.0198943		1	PASS
	CH149	5745	0.0198943	0.0250455		1	PASS
	CH157	5785	0.0198943	0.0250455		1	PASS
	CH165	5825	0.0250455	0.0315304		1	PASS
802.11n (VHT20)	CH36	5180	0.0315304	0.0099708	0.0415012	1	Pass
	CH40	5200	0.0315304	0.0099708	0.0415012	1	Pass
	CH48	5240	0.0250455	0.0158026	0.0408481	1	Pass
	CH149	5745	0.0158026	0.0158026	0.0316052	1	Pass
	CH157	5785	0.0158026	0.0198943	0.0356969	1	Pass
	CH165	5825	0.0158026	0.0198943	0.0356969	1	Pass
802.11n (VHT40)	CH38	5190	0.0250455	0.0079201	0.0329656	1	Pass
	CH46	5230	0.0250455	0.0125525	0.037598	1	Pass
	CH151	5755	0.0125525	0.0158026	0.0283551	1	Pass
	CH159	5795	0.0158026	0.0158026	0.0316052	1	Pass
802.11ac (VHT20)	CH36	5180	0.0315304	0.0099708	0.0415012	1	Pass
	CH40	5200	0.0315304	0.0079201	0.0394505	1	Pass
	CH48	5240	0.0250455	0.0158026	0.0408481	1	Pass
	CH149	5745	0.0158026	0.0158026	0.0316052	1	Pass
	CH157	5785	0.0158026	0.0198943	0.0356969	1	Pass
	CH165	5825	0.0158026	0.0198943	0.0356969	1	Pass
802.11ac (VHT40)	CH38	5190	0.0250455	0.0079201	0.0329656	1	Pass
	CH46	5230	0.0250455	0.0125525	0.037598	1	Pass
	CH151	5755	0.0125525	0.0158026	0.0283551	1	Pass
	CH159	5795	0.0158026	0.0158026	0.0316052	1	Pass
802.11ac (VHT80)	CH42	5210	0.0198943	0.0079201	0.0278144	1	Pass
	CH155	5775	0.0099708	0.0125525	0.0225233	1	Pass

Signature:

Print: Lisa Wang
Title: Manager
Date: 2018-04-20