

## 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: **2ACWIELSFS422**

### EUT Specification

<b>EUT</b>	<b>LED TV</b>
<b>Frequency band (Operating)</b>	<input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5825GHz <input type="checkbox"/> Others
<b>Device category</b>	<input type="checkbox"/> Portable (<20cm separation) <input checked="" type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others ____
<b>Exposure classification</b>	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm <sup>2</sup> ) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm <sup>2</sup> )
<b>Antenna diversity</b>	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
<b>Max. output power</b>	21.55dBm for 802.11b 21.91dBm for 802.11g 21.86dBm for 802.11n(H20) 20.69dBm for 802.11n(H40)
<b>Antenna gain (Max)</b>	2dBi
<b>Evaluation applied</b>	<input checked="" type="checkbox"/> MPE Evaluation <input type="checkbox"/> 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 <sup>2</sup> )	Average Time
<b>(A) Limits for Occupational/Control Exposures</b>				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
<b>(B) Limits for General Population/Uncontrol Exposures</b>				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

## Friis transmission formula: $P_d = \frac{P_{out} * G}{4 * \pi * R^2}$

Where

$P_d$  = Power density in  $mW/cm^2$ ,  $P_{out}$  = 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,  $1mW/cm^2$ . 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

Test Channel	Measurement Peak Output Power(dBm)			
	802.11b	802.11g	802.11n(H20)	802.11n(H40)
Lowest	19.34	20.04	19.84	19.40
Middle	20.10	20.78	20.49	20.15
Highest	21.55	21.91	21.86	20.69

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 ( $mW/cm^2$ )
802.11b	1	$19 \pm 1$	20	100.00	2	1.585	0.031532	1
	6	$20 \pm 1$	21	125.89	2	1.585	0.039697	1
	11	$21 \pm 1$	22	158.49	2	1.585	0.049976	1
802.11g	1	$20 \pm 1$	21	125.89	2	1.585	0.039697	1
	6	$20 \pm 1$	21	125.89	2	1.585	0.039697	1
	11	$22 \pm 1$	23	199.53	2	1.585	0.062916	1
802.11n (H20)	1	$20 \pm 1$	21	125.89	2	1.585	0.039697	1
	6	$20 \pm 1$	21	125.89	2	1.585	0.039697	1
	11	$22 \pm 1$	23	199.53	2	1.585	0.062916	1
802.11n (H40)	3	$20 \pm 1$	21	125.89	2	1.585	0.039697	1
	6	$20 \pm 1$	21	125.89	2	1.585	0.039697	1
	9	$21 \pm 1$	22	158.49	2	1.585	0.049976	1

Signature:



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Title: Manager

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