



# 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)

## EUT Specification

Product Name	:	Show Home App Bridge (Voice)
Model Name	:	SL100
FCC ID	:	OXGSL100
Operating frequency	:	2412-2462MHz For Wi-Fi 2402-2480MHz For BLE 4.0
Numbers of Channel	:	802.11b/g/n(HT20): 11 Channels BLE4.0: 40 Channels
Type of Modulation	:	802.11b: DSSS(DBPSK/DQPSK/CCK) 802.11g/n: OFDM(BPSK/QPSK/16QAM/64QAM) BLE: GFSK
Antenna installation	:	Internal PCB Antenna
Antenna Gain	:	1dBi For Wi-Fi 0dBi For BLE4.0
Power supply	:	For Adapter: Model: A061-0501000UB Input: AC 100-240V, 50/60Hz, 0.3A Output: DC 5V, 1000mA
Device category	:	Mobile (>20cm separation)



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:  $P_d = (P_{out} * G) / (4 * \pi * R^2)$**

Where

$P_d$ = Power density in mW/cm<sup>2</sup>

$P_{out}$ =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<sup>2</sup>. 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	Output Power (dBm)		
	802.11b	802.11g	802.11n(HT20)
Lowest	12.32	11.05	10.18
Middle	11.45	10.86	9.35
Highest	12.68	10.54	9.48
BLE	6.89	8.33	8.61

Operating Mode	Test Frequency	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 <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
802.11b	2412	12±1	13	19.953	1	1.258	0.004997	1
	2437	11±1	12	15.849	1	1.258	0.003969	1
	2462	12±1	13	19.953	1	1.258	0.004997	1
802.11g	2412	11±1	12	15.849	1	1.258	0.003969	1
	2437	10±1	11	12.589	1	1.258	0.003153	1
	2462	10±1	11	12.589	1	1.258	0.003153	1
802.11n(H T20)	2412	10±1	11	12.589	1	1.258	0.003153	1
	2437	9±1	10	10.000	1	1.258	0.002505	1
	2462	9±1	10	10.000	1	1.258	0.002505	1
BLE	2402	6±1	7	5.012	0	1.000	0.000997	1
	2440	8±1	9	7.943	0	1.000	0.001580	1
	2480	8±1	9	7.943	0	1.000	0.001580	1

MPE Result:

The Max Power density at 20cm=0.004997+0.001580=0.006577 <1 mW/cm<sup>2</sup>

Signature

Date: 2019-04-22