



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 Lights window projector
Model Name	:	SL30
FCC ID	:	OXGSL30
Operating frequency	:	2402-2480MHz
Numbers of Channel	:	79 Channels
Type of Modulation	:	GFSK, Π/4-DQPSK, 8DPSK
Antenna installation	:	Internal PCB Antenna
Antenna Gain	:	0dBi
Power supply	:	For Adapter: Model: MR-1204000US Input: AC 100-240V, 50/60Hz, 1.3A Output: DC 12V,4.0A
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 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: $P_d = \frac{P_{out} * G}{4 * \pi * R^2}$

Where

P_d = Power density in mW/cm²

P_{out} =output power to antenna in Mw

G= gain of antenna in linear scale

π =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

Modulation	Maximum Peak Output Power (dBm)		
	GFSK	$\pi/4$ -DQPSK	8DPSK
Low Channel	1.96	1.42	1.42
Middle Channel	1.81	1.30	1.36
High Channel	1.35	0.75	0.87

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 ²)	Power density Limits (mW/cm ²)
GFSK	2402	1±1	2	1.585	0	1	0.000315	1
	2441	1±1	2	1.585	0	1	0.000315	1
	2480	1±1	2	1.585	0	1	0.000315	1
$\pi/4$ -DQPSK	2402	1±1	2	1.585	0	1	0.000315	1
	2441	1±1	2	1.585	0	1	0.000315	1
	2480	0±1	1	1.259	0	1	0.000250	1
8DPSK	2402	1±1	2	1.585	0	1	0.000315	1
	2441	1±1	2	1.585	0	1	0.000315	1
	2480	0±1	1	1.259	0	1	0.000250	1

Signature

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