

RF EXPOSURE EVALUATION

EUT Specification

EUT	LINKABLE SOLAR POWER SECURITY WALL PACK
Model Number	ES00947G
Series Model	ES00945G, SMSC0144C30AB004A, ES00946G, SMSC0144C30AZ004A, SMSC0144C30AS004A
Model Difference	Their electrical circuit design, layout, components used and internal wiring are identical, only the model name and colours are different. We select "ES00947G" as the representative model for compliance test.
FCC ID	2APP3-4PK
Antenna gain (Max)	-0.58dBi
OperFrequency	2420-2470MHz
Input Rating ation	DC 3.7V
Max. output power	2420MHz: 85.42 dBμV/m(-9.88dBm) 2450MHz: 85.28 dBμV/m(-10.02dBm) 2470MHz: 88.12 dBμV/m(-7.18dBm)

Test Requirement:

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)

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

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

Where

P_d = Power density in mW/cm²

P_{out} =output power to antenna in mW

G= Numeric gain of the antenna relative to isotropic antenna

$P_i=3.1416$

R= distance between observation point and center of the radiator in cm=20cm

P_d the limit of MPE, $1\text{mW}/\text{cm}^2$. 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.

11.2 Measurement Result

Antenna gain: -0.58dBi

Mode	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain (Numeric)	Evaluation result (mW/cm^2)	Power density Limits (mW/cm^2)
GFCK	2420	-9.88	-10 ± 1	-9	0.875	0.000022	1
	2450	-10.02	-10 ± 1	-9	0.875	0.000022	1
	2477	-7.18	-7 ± 1	-6	0.875	0.000044	1

Signature:



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