

FCC ID: 2ATPO-RA-01SH

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)

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: $Pd = \frac{P_{out} * G}{4 * \pi * R^2}$

Where

Pd= Power density in mW/cm²

Pout=output power to antenna in mW

G= Numeric gain of the antenna relative to isotropic antenna

Pi=3.1416

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

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.

mW=10^(dBm/10)

11.2 Measurement Result

Operation Frequency: 903MHz~927MHz

Antenna Type: Spring Antenna

Antenna gain: 3.0dBi,

R=20cm

$mW=10^{(dBm/10)}$

Transmit power

Test Channel	Frequency	Peak Output Power	LIMIT	Verdict
	(MHz)	(dBm)	(dBm)	
DTS				
0	903	13.903	30	PASS
13	915	13.849	30	PASS
24	927	13.757	30	PASS

Maximum Permissible Exposure:

Channel Freq. (MHz)	modulation	conducted power	conducted power	Tune-up power (dBm)	Max tune-up power	Antenna Gain	Evaluation result	Power density Limits
		(dBm)	(mW)		(dBm)			
903	FSK	13.903	24.56	13±1	14	2.00	0.00997	0.60
915		13.849	24.26	13±1	14	2.00	0.00997	0.61
927		13.757	23.70	13±1	14	2.00	0.00997	0.62

Conclusion:

For the max result : $0.00997 \leq 0.60$ for 1g SAR, No SAR is required.



Signature:

Date: 2020-11-30

NAME AND TITLE (Please print or type): Alex Li/Manager

COMPANY (Please print or type): Shenzhen NTEK Testing Technology Co., Ltd./ 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street Bao'an District, Shenzhen P.R. China.