

Portable device

According to §15.247(e)(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

According to KDB447498 D01 General RF Exposure Guidance V06

The 1-g SAR and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where:

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Modulation	Channel Freq. (GHz)	Conducted power (dBm)	Conducted power (mW)	Tune-up power (dBm)	Max tune-up power (dBm)	Max tune-up power (mW)	Distance (mm)	Result calculation	SAR Exclusion threshold	SAR test exclusion
GFSK	2.402	-5.9	0.26	*-6.5±1	-5.5	0.28	<5	0.08736	3.00	YES
	2.441	-7.35	0.18	*-6.5±1	-5.5	0.28	<5	0.08807	3.00	YES
	2.480	-7.36	0.18	*-6.5±1	-5.5	0.28	<5	0.08877	3.00	YES
$\pi/4$ -DQPSK	2.402	-3.77	0.42	*-4.5±1	-3.5	0.45	<5	0.13846	3.00	YES
	2.441	-5.15	0.31	*-4.5±1	-3.5	0.45	<5	0.13958	3.00	YES
	2.480	-5.27	0.30	*-4.5±1	-3.5	0.45	<5	0.14069	3.00	YES
8-DQPSK	2.402	-3.53	0.44	*-4±1	-3	0.50	<5	0.15535	3.00	YES
	2.441	-4.96	0.32	*-4±1	-3	0.50	<5	0.15661	3.00	YES
	2.480	-4.94	0.32	*-4±1	-3	0.50	<5	0.15785	3.00	YES
BLE	2.402	-5.99	0.25	*-6.5±1	-5.5	0.28	<5	0.08736	3.00	YES
	2.440	-7.34	0.18	*-6.5±1	-5.5	0.28	<5	0.08805	3.00	YES
	2.480	-7.27	0.19	*-6.5±1	-5.5	0.28	<5	0.08877	3.00	YES

FM

Transmit power:

Frequency (MHz)	Max EIRP power (dBuV/m)	EIRP power (dBm)
88.5-102.9	43.35	-51.91

$\text{EIRP} = \text{E} - 104.8 + 20\log(D)$

$\text{EIRP} = \text{conducted power} + \text{antenna gain}$

antenna gain: 0dBi;

Modulation	max power Channel Freq. (GHz)	Conducted power (dBm)	Conducted power (mW)	Tune-up power (dBm)	Max tune-up power (dBm)	Max tune-up power (mW)	Distance (mm)	Result calculation	SAR Exclusion threshold	SAR test exclusion
FM	0.0885	-51.91	0.000006	*-52±1	-51	0.000008	<5	0.0000005	3.00	YES

Conclusion:

For the max result : $0.15785 \leq 3.0$ for 1g SAR, SAR is not required.

SIMULTANEOUS TRANSMISSIONS

When a number of sources at different frequencies, and/or broadband sources, contribute to the total exposure, it becomes necessary to weigh each contribution relative to the MPE. To comply with the MPE, the fraction of the MPE in terms of E^2 , H^2 (or power density) incurred within each frequency interval should be determined and the sum of all such fractions should not exceed unity. In order to ensure compliance with the MPE for a controlled environment, the sum of the ratios of the power density to the corresponding MPE should not exceed unity. That is

$$\sum_{i=1}^n \frac{S_i}{MPE_i} \leq 1$$

Maximum Multiple sources

Band	Max Conducted	Antenna	Max tune-up power	Separation distance (mm)	Evaluation result	SAR Exclusion threshold	Evaluation result	Power density Limits
	(dBm)	Gain (dBi)	(dBm)					
BT+FM	-3.53	1.2	-3	5	0.15785	3	0.052616833	1
	-51.91	0	-51	5	0.0000005	3		



Signature:

Date: 2023-08-02

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 518126 P.R. China