

## RF Exposure Report

### Following FCC KDB 447498 D01 General SAR test exclusion guidelines

The corresponding SAR exclusion threshold condition, listed below:

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation Distances  $\leq 50$  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  $\leq 7.5$  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 The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion(447498 D01 General RF Exposure Guidance v06)

2) At 100 MHz to 6 GHz and for test separation distances  $> 50$  mm, the SAR test exclusion threshold is determined according to the following

- $[\text{Power allowed at numeric threshold for 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)]$  mW, at 100 MHz to 1500 MHz
- $[\text{Power allowed at numeric threshold for 50 mm in step 1}) + (\text{test separation distance} - 50 \text{ mm}) \cdot 10]$  mW at  $> 1500$  MHz and  $\leq 6$  GHz

3) At frequencies below 100 MHz, the following may be considered for SAR test exclusion,

- The power threshold at the corresponding test separation distance at 100 MHz in step 2) is multiplied by  $[1 + \log(100/f(\text{MHz}))]$  for *test separation distances*  $> 50$  mm and  $< 200$  mm
- The power threshold determined by the equation in a) for 50 mm and 100 MHz is multiplied by  $\frac{1}{2}$  for *test separation distances*  $\leq 50$  mm
- SAR measurement procedures are not established below 100 MHz When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any test results to be acceptable.

**SAR Test Exclusion Thresholds**

**Maximum Measured Transmitter Power:**

**Exclusion calculation considering conducted power**

**Antenna 1:**

Frequency (GHz)	Max.Power (dBm)	Tune-up value	Max.Power Including Tune-up Tolarence (dBm)	Max.Power Including Tune-up Tolarence (mW)	Minimum test separation distance (mm)	SAR Test Exclusion Calculation Values	1-g Extremity SAR Test exclusion Threshold
2.405	8.63	1	9.63	9.18	20.93	0.679963763	3
2.4425	8.42	1	9.42	8.75	20.93	0.653146924	3
2.4775	8.02	1	9.02	7.98	20.93	0.599922665	3

**Exclusion calculation considering radiated E I R P**

Frequency (GHz)	Max.Power (dBm)	Tune-up value	Antenna gain (dBi)	Max.Power Including Tune-up Tolarence & antenna gain (dBm)	Max.Power Including Tune-up Tolarence & antenna gain (mW)	Minimum test separation distance (mm)	SAR Test Exclusion Calculation Values	1-g Extremity SAR Test exclusion Threshold
2.405	8.63	1	0.5	10.13	10.30	20.93	0.762922305	3
2.4425	8.42	1	0.5	9.92	9.82	20.93	0.733017463	3
2.4775	8.02	1	0.5	9.52	8.95	20.93	0.672845596	3

**Antenna 2:**

Frequency (GHz)	Max.Power (dBm)	Tune-up value	Max.Power Including Tune-up Tolarence (dBm)	Max.Power Including Tune-up Tolarence (mW)	Minimum test separation distance (mm)	SAR Test Exclusion Calculation Values	1-g Extremity SAR Test exclusion Threshold
2.405	8.57	1	9.57	9.06	20.93	0.671075348	3
2.4425	8.33	1	9.33	8.57	20.93	0.639710759	3
2.4775	8.14	1	9.14	8.20	20.93	0.616461886	3

**Exclusion calculation considering radiated E I R P**

Frequency (GHz)	Max.Power (dBm)	Tune-up value	Antenna gain (dBi)	Max.Power Including Tune-up Tolarence & antenna gain (dBm)	Max.Power Including Tune-up Tolarence & antenna gain (mW)	Minimum test separation distance (mm)	SAR Test Exclusion Calculation Values	1-g Extremity SAR Test exclusion Threshold
2.405	8.57	1	0.5	10.07	10.16	20.93	0.752552487	3
2.4425	8.33	1	0.5	9.83	9.62	20.93	0.718088390	3
2.4775	8.14	1	0.5	9.64	9.20	20.93	0.691640165	3

From above table calculation the EUT is exempted from routine SAR evaluation

Note:

1. SAR exclusion threshold is calculated using condition1 formulas.
2. Conducted power is taken from the RF test report ULR-TC56882230000017F
3. Antenna gain values are taken from Antenna data sheet.

**IC limit**

As per RSS102 Section 2.5.1

SAR evaluation is required if the separation distance between the user and/or bystander and the antenna and/or radiating element of the device is less than or equal to 20 cm, except when the device operates at or below the applicable output power level (adjusted for tune-up tolerance) for the specified separation distance defined in Below Table.

Table 1: SAR evaluation — Exemption limits for routine evaluation based on frequency and separation distance <sup>4,5</sup>					
Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

  

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of 30 mm	At separation distance of 35 mm	At separation distance of 40 mm	At separation distance of 45 mm	At separation distance of ≥50 mm
≤300	223 mW	254 mW	284 mW	315 mW	345 mW
450	141 mW	159 mW	177 mW	195 mW	213 mW
835	80 mW	92 mW	105 mW	117 mW	130 mW
1900	99 mW	153 mW	225 mW	316 mW	431 mW
2450	83 mW	123 mW	173 mW	235 mW	309 mW
3500	86 mW	124 mW	170 mW	225 mW	290 mW
5800	56 mW	71 mW	85 mW	97 mW	106 mW

**Note:** Max. e.i.r.p. is 10.13mW which is less than exemption limits 30mW for 20mm distance.

**\*\*\*\*END OF TEST REPORT\*\*\*\***