#### FCCID: 2AMOAHT-860

# RF Exposure evaluation

According to 447498 D01 General RF Exposure Guidance v06

- 4.3. General SAR test exclusion guidance
- 4.3.1. Standalone SAR test exclusion considerations
- a) For 100 MHz to 6 GHz and test separation distances  $\leq$  50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following: [(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)]  $\cdot$  [ $\sqrt{f(GHz)}$ ]  $\leq$  3.0 for 1-g SAR, and  $\leq$  7.5 for 10-g extremity SAR, <sup>30</sup> where
  - f(GHz) is the RF channel transmit frequency in GHz
  - •Power and distance are rounded to the nearest mW and mm before calculation31
  - •The result is rounded to one decimal place for comparison
  - •The values 3.0 and 7.5 are referred to as numeric thresholds in step b) below 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  $\leq$  5 mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.

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eirp = pt x gt = (EXd)^2/30 where:

pt = transmitter output power in watts,

gt = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m, --- 10^{(dBuV/m)/20}/10^6

d = measurement distance in meters (m)---3m

So pt = (EXd)^2/30 x gt
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<sup>&</sup>lt;sup>30</sup> This is equivalent to the formula written as: [(max. power of channel, including tune-up tolerance, mW)/(60/ $\sqrt{f(GHz)}$  mW)]·[20 mm/(min. test separation distance, mm)]  $\leq$  1.0 for 1-g SAR; also see Appendix A for approximate exclusion threshold numerical values at selected frequencies and distances.

## RF Exposure evaluation

Copied from the FCC test report:

### Radiated spurious emissions:

615.000 MHz, H	lorizontal							
Spurious	Read	Cable	Antenna	1-18GHz	Ture	Limit/	Margin(dB)	
Emission	value	Loss	Factor	Pre-amplifier	value	dBm		
Frequency		(dB)	(dB)	(dB)	(dBm)			
(MHz)	(dBm)							
Fundamental:	25.4	2.0	10.0	0	2.4	24	07.4	
615.0	-25.1	2.8	19.2	0	-3.1	24	-27.1	
1230.0	-21.1	4.5	24.2	30	-22.4	-13	-9.4	
3075.0	-28.5	7.6	30.3	30	-20.6	-13	-7.6	
615.000 MHz, Vertical								
Fundamental:	-25.8	2.8	19.2	0	-3.8	24	-27.8	
615.0	20.0		10.2	_	0.0		21.0	
1230.0	-28.2	4.5	24.2	30	-29.5	-13	-16.5	
3075.0	-27.1	7.6	30.3	30	-19.2	-13	-6.2	
654.500, Horizo	ntal							
Fundamental: 654.5	-25.1	2.9	19.3	0	-2.9	24	-26.9	
1306.0	-20.0	4.6	24.4	30	-21.0	-13	-8.0	
3261.0	-27.3	7.7	30.6	30	-19.0	-13	-6.0	
654.500, Vertica	ıl							
Fundamental:	-25.7	2.9	19.3	0	-3.5	24	-27.5	
654.5	-20.1	2.3	10.0	J	0.0	27	27.0	
1306.0	-28.1	4.6	24.4	30	-29.1	-13	-16.1	
3261.0	-25.6	7.7	30.6	30	-17.3	-13	-4.3	

659.750 MHz, Horizontal										
Fundamental: 659.8	-25.7	3.0	19.4	0	-3.3	24	-27.3			
1319.5	-21.4	4.7	24.6	30	-22.1	-13	-9.1			
3298.8	-30.8	7.8	30.8	30	-22.2	-13	-9.2			
659.750 MHz, Vertical										
Fundamental: 659.8	-26.3	3.0	19.4	0	-3.9	24	-27.9			
1319.5	-28.8	4.7	24.6	30	-29.5	-13	-16.5			
3298.8	-26.5	7.8	30.8	30	-17.9	-13	-4.9			

#### The Factual Level is ERP value.

tune-up tolerance= $\pm 1dB$ ,

min. test separation distance = 5 mm, since the min distance from the antenna to the outer = 3 mm

The max Field strength = -2.9 dBm in 654.500 MHz

Max. power of channel after included tune-up tolerance

Field strength = -1.9 dBm= 0.65 mW in 654.500 MHz (**ERP value**)

= -1.9 dBm + 2.15 dB = 0.25dBm= 1.06 mW in 654.500 MHz (**EIRP value**)

So ( 1.06 mW )/5.0mm)x  $\sqrt{0.654500}$  GHz = 0.172 <3

Then SAR evaluation is not required