FCCID: 2AKM5U-8891

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 ≤ 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)] · [√f(GHz)] ≤ 3.0 for 1-g SAR, and ≤ 7.5 for 10-g extremity SAR, [30] 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 ≤ 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 4.1 f) is applied to determine SAR test exclusion.

[30] This is equivalent to the formula written as: [(max. power of channel, including tune-up tolerance, mW)/(60/√f(GHz) mW)]·[20 mm/(min. test separation distance, mm)] ≤ 1.0 for 1-g SAR; also see Appendix A for approximate exclusion threshold numerical values at selected frequencies and distances.

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

RF Exposure evaluation

Copied from the FCC test report:

Carrier Frequency (MHz)	**Reading Value conducted output power dBm (mW)**	**Cable loss (dB)**	**True Value conducted output power dBm (mW)**	**Limit in** 74.861 e) 1)
614.200	9.2dBm(i.e.8.32 mW)	0.6	9.8dBm(i.e.9.54 mW)	24 dBm (i.e. 250 mW)
664.248	8.9dBm(i.e.7.76 mW)	0.7	9.6dBm(i.e.9.12 mW)	
697.800	8.9dBm(i.e.7.76 mW)	0.7	9.6dBm(i.e 9.12 mW)	

tune-up tolerance=±1dB,
min. test separation distance = 5 mm, since the min distance from the antenna to the outer = 3.0 mm
Field strength = 9.8 dBm=0.954 mW in 614.200MHz
Field strength = 9.6 dBm=0.912 mW in 664.248MHz
Field strength = 9.6 dBm=0.912 mW in 697.800MHz

Max. power of channel after included tune-up tolerance
Field strength = 10.8 dBm=12.02 mW in 614.200MHz
Field strength = 10.6 dBm=11.48 mW in 664.248MHz
Field strength = 10.6 dBm=11.48 mW in 697.800MHz

So (12.02 mW)/5.0mm)x √0.614200 GHz = 1.884 <3
So (11.48 mW)/5.0mm)x √0.664248 GHz = 1.872 <3
So (11.48 mW)/5.0mm)x √0.697800 GHz = 1.918 <3

Then SAR evaluation is not required