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**RF exposure requirements – ZTE MF612**

Dear Reviewer,

The maximum measured power output is

GSM 850:30.52dBm  
GSM 1900:27.67dBm  
UMTS 850: 25.75dBm  
UMTS 1900: 24.47dBm  
802.11b/g: 17.6dBm

the maximum antenna gain for integral antenna is

GSM 850:-1.6dBi  
GSM 1900:1.12dBi  
UMTS 850: -1.6dBi  
UMTS 1900: 1.12dBi  
802.11b/g: 5dBi

The maximum permissible exposure is defined in 47 CFR 1.1310 with 1 mW/cm<sup>2</sup>.

The Transmitter is using external antennas that operate at 20 cm or more from nearby persons.

The maximum permitted level is calculated using the general equation:

$$S = P' / 4\pi R^2$$

GSM 850:  $P' = 30.58\text{dBm} + (-1.6\text{dBi}) = 28.98\text{dBm} = 791\text{mW}$   
GSM1900:  $P' = 27.72\text{dBm} + 1.12\text{dBi} = 28.84\text{dBm} = 766\text{mW}$   
UMTS850:  $P' = 25.75\text{dBm} + (-1.6\text{dBi}) = 24.15\text{dBm} = 260\text{mW}$   
UMTS1900:  $P' = 24.47\text{dBm} + 1.12\text{dBi} = 25.59\text{dBm} = 362\text{mW}$   
802.11b/g:  $P' = 17.6\text{dBm} + 5\text{dBi} = 22.6\text{dBm} = 182\text{mW}$

$$R = 20\text{cm}$$

$$\pi = 3.1416$$

Solving for S, the power density at 20 cm is

GSM 850: **0.157mW/cm<sup>2</sup>**  
GSM1900: **0.152mW/cm<sup>2</sup>**  
UMTS850: **0.052mW/cm<sup>2</sup>**  
UMTS1900: **0.072mW/cm<sup>2</sup>**  
802.11b/g: **0.036mW/cm<sup>2</sup>**

For simultaneous transmission, maximum value is

$$\text{GSM850} + 802.11\text{b/g} = 0.157\text{mW/cm}^2 + 0.036\text{mW/cm}^2 = \mathbf{0.193\text{mW/cm}^2}$$

So the limit is kept.

Best Regard.

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Xue Zhen

Telecommunication Metrology Center of MIIT

No 52 Huayuanbei Road, Haidian District Beijing P.R.China 100083