

Kyocera Module 200 FCC ID: OVFKWC-M200 MPE Distance Calculations

The antenna gain was deduced from the conducted and radiated measurements. This was carried out for each antenna and for each frequency band.

MPE distance calculations were carried out for the following, worst case, configurations:

1. Comvergence antenna, 824.04MHz (FM Low)
2. Comvergence antenna, 836.49MHz (FM Mid)

The calculations are based on equation 3 of OET Bulletin 65.

$$R = \sqrt{(PG/4\pi S)}$$

1. $R = \sqrt{(501.2 \times 2.19/12.57)} = 9.3\text{cm}$
2. $R = \sqrt{(508.2 \times 1.88/12.57)} = 8.7\text{cm}$

Derivation of Antenna Gain

Antenna: Comvergence

Freq MHz	Conducted Output Power	Radiated Output Power	Gain (dBi)
824.04 (FM Low)	27.00	30.4	+3.4
836.49 (FM Mid)	27.06	29.8	+2.74
848.97 (FM Hi)	27.02	28.9	+1.88
824.70 (CDMA Low)	24.53	28.9	+4.37
836.49 (CDMA Mid)	24.57	29.5	+4.93
848.31 (CDMA Hi)	24.49	29.1	+4.61
1851.25 (PCS Low)	23.80	21.2	-2.6
1880.00 (PCS Mid)	23.85	21.9	-1.95
1908.75 (PCS Hi)	23.81	21.2	-2.61

Antenna: Bluetree

Freq MHz	Conducted Output Power	Radiated Output Power	Gain (dBi)
824.04 (FM Low)	27.00	21.2	-5.8
836.49 (FM Mid)	27.06	21.9	-5.16
848.97 (FM Hi)	27.02	22.7	-4.32
824.70 (CDMA Low)	24.53	20.8	-3.73
836.49 (CDMA Mid)	24.57	20.0	-4.57
848.31 (CDMA Hi)	24.49	20.2	-4.29
1851.25 (PCS Low)	23.80	21.8	-2.00
1880.00 (PCS Mid)	23.85	20.7	-3.15
1908.75 (PCS Hi)	23.81	21.1	-2.71

Antenna: IRD

Freq MHz	Conducted Output Power	Radiated Output Power	Gain (dBi)
824.04 (FM Low)	27.00	24.9	-2.10
836.49 (FM Mid)	27.06	24.3	-2.76
848.97 (FM Hi)	27.02	25.3	-1.72
824.70 (CDMA Low)	24.53	22.0	-2.53
836.49 (CDMA Mid)	24.57	19.9	-4.67
848.31 (CDMA Hi)	24.49	20.0	-4.49
1851.25 (PCS Low)	23.80	19.0	-4.8
1880.00 (PCS Mid)	23.85	17.3	-6.55
1908.75 (PCS Hi)	23.81	16.8	-7.01

Antenna: Orion

Freq MHz	Conducted Output Power	Radiated Output Power	Gain (dBi)
824.04 (FM Low)	27.00	23.2	-3.8
836.49 (FM Mid)	27.06	21.5	-5.56
848.97 (FM Hi)	27.02	21.1	-5.92
824.70 (CDMA Low)	24.53	22.1	-2.43
836.49 (CDMA Mid)	24.57	19.7	-4.87
848.31 (CDMA Hi)	24.49	18.7	-5.79
1851.25 (PCS Low)	23.80	18.2	-5.6
1880.00 (PCS Mid)	23.85	19.5	-4.35
1908.75 (PCS Hi)	23.81	20.8	-3.01

Antenna: Galtronics

Freq MHz	Conducted Output Power	Radiated Output Power	Gain (dBi)
824.04 (FM Low)	27.00	26.4	-0.6
836.49 (FM Mid)	27.06	25.3	-1.76
848.97 (FM Hi)	27.02	25.4	-1.62
824.70 (CDMA Low)	24.53	25.2	+0.67
836.49 (CDMA Mid)	24.57	24.4	-0.17
848.31 (CDMA Hi)	24.49	24.6	+0.11
1851.25 (PCS Low)	23.80	25.3	+1.5
1880.00 (PCS Mid)	23.85	25.3	+1.45
1908.75 (PCS Hi)	23.81	25.4	+1.59