TRANZEO
EMC LABS INC

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TR-6000
2.4 GHz Wireless Network Adapter
EMC Test Report

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MFE Evaluation

FCC 1.1310 states the criteria listed in the table below shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in Sec. 1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of Sec. 2.1093 of this chapter. Further information on evaluating compliance with these limits can be found in the FCC's OST/OET Bulletin Number 65, ``Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation.''

Frequency Range (MHZ)	Electric Field Strength (V/m)	Magnetic Field Strength (A/M)	Power Density (mW/cm^2)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

9.1   Fries Formula

Fries transmission formula: $Pd = (P_{out}*G)/(4*\pi*r^2)$ Where

Pd = power density in mW/cm^2
P_{out} = output power to antenna in mW.
G = gain of antenna in the direction of interest relative to an isotropic radiator.
R = the distance between the observation point and the center of the radiator in cm.

Pd is the limit of MPE, 1mW/cm^2. If we know the maximum gain of the antenna and the total power input to the antenna we can calculate the distance r where the MPE limit is reached.

9.2   EUT Operating Condition

The maximum antenna gain is 24 dBi as stated by the manufacturer.

9.3   RF exposure evaluation distance calculation

EUT with 24 dBi antenna

Chan	Freq (MHz)	Output Power to Antenna (dBm)	Antenna Gain (dBi)	r (cm)
1	2412	22.94	24	62
6	2437	22.40	24	62
11	2462	22.94	24	62

As shown above, the minimum distance where the MPE limit is reached is 62 cm for the EUT.