



Excellence in Compliance Testing

FCC Part 15.247 Transmitter Certification

Test Report

FCC ID: U90-RFET

FCC Rule Part: 15.247

ACS Report Number: 07-0157-15C-RFET

Manufacturer: Wireless Control Network Solutions, LLC.; dba Synapse
Brand Name: RF Engine
Model: RFET

RF Exposure

General Information:

Applicant: Wireless Control Network Solutions, LLC.; dba Synapse
 ACS Project: 07-0157
 FCC ID: U90-RFET
 Device Category: Mobile
 Exposure Conditions: Uncontrolled/General Population

Technical Information:

Antenna Type: Dipole/Integrated F
 Antenna Gain Maximum : 5dBi (Dipole)
 Max Transmitter Output Power: 17.19dBm
 Max System EIRP: 22.19 dBm / 166mW
 Operating Configuration: Mobile

MPE Calculation

The Power Density (mW/cm²) is calculated as follows:

$$S = \frac{PG}{4\pi R^2}$$

Where:

- S = power density (in appropriate units, e.g. mW/cm2)
- P = power input to the antenna (in appropriate units, e.g., mW)
- G = power gain of the antenna in the direction of interest relative to an isotropic radiator
- R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

Calculations were performed at the frequencies with the highest output power as determined during testing.

Maximum Permissible Exposure (MPE) General Population/Uncontrolled Exposure								
Transmit Frequency (MHz)	Radio Power (dBm)	Power Density Limit (mW/Cm2)	Radio Power (mW)	Antenna Gain (dBi)	Antenna Gain (mW eq.)	Distance (cm)	Power Density (mW/cm^2)	Antenna
2440	17.19	1.00	52.36	5	3.162	20	0.033	Dipole
2440	17.19	1.00	52.36	0	1.000	20	0.010	Integrated F

Installation Guidelines

End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance. Those instructions and conditions are specified in the product manual.