



Certification Exhibit

FCC ID: U9O-SM520

FCC Rule Part: 47 CFR Part 2.1091

TÜV SÜD Project Number: 72173307

Manufacturer: Synapse Wireless Inc.
Model: SM520

RF Exposure

TÜV SÜD America
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General Information:

Applicant: Synapse Wireless Inc.
 Device Category: Mobile
 Environment: General Population/Uncontrolled Exposure

Technical Information:

Mode of Operation: IEEE 802.15.4 SNAP
 Frequency Range: 2405 MHz - 2480 MHz
 Number of Channels: 16
 Channel Separation: 5 MHz
 Data Rate: 250 kbps
 Modulations: O-QPSK
 Antenna Types/Gain: PCB Trace Antenna, -1.1 dBi
 Pulse W1027 Dipole Antenna, 3.2 dBi
 Pulse W1030 Dipole Antenna, 2.0 dBi
 Pulse W1038 Dipole Antenna, 4.7 dBi
 Pulse W5010 Dipole Antenna, 1.5 dBi
 Linx ANT-2.4-CW-RH-RPS Monopole Antenna, -0.9 dBi
 LCOM HG2405RD-RSP Colinear Dipole Antenna, 5 dBi
 Pulse RO2408NF Colinear Dipole Antenna, 8 dBi
 Input Power: 3.6 VDC

Power and EIRP

Antenna Type: Colinear Dipole Antenna
 Antenna Gain: 8 dBi
 Maximum Transmitter Conducted Power: 19.18 dBm, 82.7942 mW
 Maximum System EIRP: 27.18 dBm, 522.3962 mW
 Exposure Conditions: 20 centimeters or greater

Note: The highest antenna gain marketed with the product is used as representative of the worst-case condition.

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)

Table 1: MPE Calculation

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)
2400	19.18	1.00	82.79	8	6.310	20	0.104

Conclusion

The EUT meets the RF Exposure Requirements.