

Compliance with 47 CFR 2.1091 and 1.1310

The device (Model SEL-3031) is seeking a C2PC authorization under Part 15.247 in the 902-928 MHz band to add three additional antennas. The device is professionally installed for either building wall mount or rack mount configurations. Antennas sold with the device are designed for mast mounting. The device will be sold into utility, industrial, and commercial installations for data transport between fixed location devices. The device will only be used with a separation distance of 23 centimeters or greater between the antenna and the body of the user or nearby persons and can therefore be considered a mobile transmitter per 47 CFR 2.1091(b).

The maximum gain antenna is an 14.1 dBi Yagi. The maximum peak conducted output power feeding the 14.1 dBi Yagi is 173.8 mW. The 11.1 dBi Yagi, 10 dBi Panel, and 9.1 dBi Dipole will be driven by a maximum peak conducted output power of 340.5 mW. The 8.5 dBi Yagi and 2.1 dBi Dipole will be driven by a maximum peak conducted output power of 608.8 mW. The minimum loss for the coaxial cable used between the RF output of the device and the antenna is 0.5 dB. This is for a 10-foot length of Times Microwave LMR400. The minimum separation distance between the antenna and users or nearby persons is 23 cm. Professional installation will insure that the minimum separation distance is maintained as well as the correct combination of antenna, and maximum conducted output power.

The MPE estimates are as follows:

Table 1 in 47 CFR 1.1310 defines the maximum permissible exposure (MPE) for the general population as $(f_{\text{MHz}}/1500) \text{ mW/cm}^2$. The exposure level at a 23 cm distance from the EUT's transmitting antenna is calculated using the general equation:

$$S = (PG)/4\pi R^2$$

Where: S = power density (mW/cm^2)

P = power input to the antenna (mW)

G = numeric power gain relative to an isotropic radiator

R = distance to the center of the radiation of the antenna (20 cm = limit for MPE estimates)

PG = EIRP

Solving for S, the maximum power density 23 cm from the transmitting antenna is summarized in the following table:

MPE Estimate

FCC ID: R34SEL-3031

Antenna Type	Antenna Manufacturer	Antenna Part No.	Transmit Frequency (MHz)	Max Peak Conducted Output Power (mW)	Antenna Gain (dBi)	Minimum Antenna Cable Loss (dB)	Power Density @ 23 cm (mW/cm^2)	General Population Exposure Limit from 1.1310 (mW/cm^2)
Yagi	Maxrad/PCTel	BMOY8905	915	340.5	11.1	0.5	0.588	0.61
Yagi	Maxrad/PCTel	BMOY8903	915	608.8	8.5	0.5	0.578	0.61
Dipole	Maxrad/PCTel	MFB9150	915	608.8	2.1	0.5	0.132	0.61
Dipole*	Maxrad/PCTel	MFB9157	915	340.5	9.1	0.5	0.371	0.61
Panel*	Maxrad/PCTel	MP8068PT	915	340.5	10	0.5	0.457	0.61
Yagi*	Maxrad/PCTel	BYD890M	915	173.8	14.1	0.5	0.599	0.61

* New antennas submitted for C2PC authorization

The power density does not exceed 0.599 mW/cm^2 at 23 cm; therefore, the exposure condition is compliant with FCC rules.