

The Emcore Ku/Ka-Band Transmitters and Receivers are simple and easy to use products that transport RF and microwave signals over the 0.05 – 22 or 0.05 – 40 GHz frequency ranges. No external user controls are required for simple “plug and play” operation. As long as the proper RF and optical set up procedures are followed, the links will perform in accordance with the supplied test data sheets.

Please reference the supplied test data sheets and product data sheet while using following steps for proper system set up and operation. Stresses in excess of the absolute maximum ratings can cause permanent damage to the device.

Equipment You Will Need:

1. SC/APC SM fiber optic patch cord(s)
2. Variable optical attenuator (optional)
3. Optical connector cleaner
4. Optical power meter
5. RF signal source, VNA, spectrum analyzer or other means of generating and measuring the appropriate RF input signal.
6. Composite RF power meter
7. 2.9 mm “K” type RF test cable*

Instructions:

1. Carefully unpack transmitter and receiver modules
2. Insert the modules into the Optiva chassis
3. Remove protective cap from transmitter RF input.
4. Establish the appropriate reference signal for the RF input. Measure the RF input signal level on a composite RF signal power meter.
5. Connect RF input cable to transmitter RF input connector. 2.9 mm K-type connectors should be used for the transmitter RF input*, *however, SMA connectors may also be used if care is exercised during the mating/demating process.*
6. Do not exceed +25 dBm total RF input power.
7. The transmitter RF input power can be monitored via the front-panel RF test point. It provides an RF level that is –10dB from the actual TX RF input.
8. Remove protective cap from receiver RF output.
9. Connect the RF output cable to receiver RF output connector. Type 2.9 mm “K” connectors should be used for the receiver RF output; *however, SMA connectors may also be used if care is exercised during the mating/demating process.*
10. The receiver RF output power can be monitored via the front-panel RF test point. It provides an RF level that is –10dB from the actual RX RF output.
11. Remove protective caps from the transmitter optical output and the receiver optical input.
12. SC/APC fiber optic patch cords must be used. Properly clean fiber optic patch cord connectors prior to connection to transmitter or receiver. Do not attempt to clean transmitter or receiver fiber bulkhead connector interfaces.
13. Connect the transmitter fiber optic output to the fiber optic patch cord. SC/APC fiber optic connectors must be used.

*SMA connectors can also be used if care is exercised during the mating/demating process. Some system signal degradation above 18 GHz is possible when SMA connectors are used in lieu of RX 2.9 mm K connectors



14. Measure the optical power at the end of the fiber optic patch cord that will connect to the receiver optical input connector prior to connecting to the receiver. Note the measured power level in dBm.
15. Clean and connect the SC/APC connector.
16. The transmitter and receiver module can be connected “back to back” with a single patch cord. The optical input threshold of the receiver is higher than the optical output of the transmitter. Alternatively, a variable optical attenuator can be placed between the transmitter and receiver module as a means to simulate optical link loss.
17. Confirm that the RF link is established as measured at the RF output of the Optiva K-band receiver.
18. The link gain of the system will be controlled and constant for any optical link over which the units are used. The receiver for this configuration provides an optical AGC that maintains a constant optical input power to the receiver photodiode. Therefore, the minimum link gain will match the test data supplied with each unit.
19. RF signal loading: Additional RF carriers can be added as long as the composite RF input power, as measured on an RF power meter, does not exceed the rated maximum TX RF input power.
20. Monitoring: The Emcore-supplied “Emcore View” SNMP GUI will recognize and report the location, module type and serial number of the installed K-band modules. No additional RF monitoring or control is provided or required.
21. Module Reset: The units may be removed and reseated into the Optiva chassis at any time without causing any harm to the modules.