

## **EXPERIMENTAL RADIO SERVICE - PART 5**

## **EXHIBIT I**

### **Equipment:**

Non-type accepted transceiver, developed and manufactured by XL MICROWAVE equipment model number 2200.

### **Frequencies:**

As authorized in part 101.147, as listed in PART 101 FIXED MICROWAVE SERVICES.

### **Power:**

The powers listed are for the maximum antenna diameter of a given frequency band, with a normal input power of 0 dBm.

### **Emissions:**

In accordance with Section 2.201

## EXPERIMENTAL RADIO SERVICES - PART 5

## EXHIBIT II

The proposed facilities will be temporary in nature, and will not have a significant environmental impact.

### PROGRAM OF RESEARCH

This equipment will be utilized to verify antenna gains, obstruction losses, and free space losses.

The proposal will serve the public by allowing cellular sites connected by microwave radio to be commissioned in a timely fashion so that the public safety agencies that USCC serves will have the best possible coverage.

### Equipment:

The non-type accepted equipment developed by XL MICROWAVE. The model 2200 test set will in no way effect the capacity or grade of service to any existing authorized station.

### Frequencies:

2112-2130 MHZ  
2162-2180 MHZ  
5925-6425 MHZ  
6525-6875 MHZ  
10550-10680 MHZ  
10700-11700 MHZ  
17700-19700 MHZ

### Power:

0 dBm nominal at the input to the antenna system.

### Antennas:

Frequency usage will be coordinated with the incumbent microwave licensees in accordance with Sec. 24.237.

Not to exceed the antenna height limits in accordance with Sec. 24.232.

The antennas utilized will be of commercial accepted parabolic center feed type. All antennas utilized will conform to standards as set forth in Sec. 101.115, with polarization either vertical or horizontal.

? w/ pt 24 freq

## **EXPERIMENTAL RADIO SERVICE - PART 5**

## **EXHIBIT II**

### **Transmission Locations:**

Only within USCC territory of operations, and the territory of its operating subsidiaries.

# **μStar, model 2200, μwave Antenna Path-Alignment Test Set**

The μStar, model 2200, is a high performance, affordable test set, designed to quickly and accurately optimize the transmission path between two microwave antenna sites...all in a matter of minutes! This optimization process is done *without the need of the individual antenna site's Radio*...the μStar directly drives the site's antenna. The battery-powered μStar is an indispensable tool for antenna site installation and maintenance personnel and comes with a weather-resistant soft-shoulder carrying bag.

By deploying a technician with a μStar to each antenna site, each site's antenna position can be adjusted for minimum path loss. Path loss is displayed on the μStar's front panel meter, and/or on an external read-out (pocket DVM). The μStar provides the ability, *during alignment*, for each technician to talk to the other, using the included headset, over the antenna link. Four tuneable operating frequency bands (duplex) are available, allowing the technician to choose the appropriate frequency to match the antenna band.

## **Preliminary Specifications**

EXHIBIT III

### **GENERAL SPECIFICATIONS:**

|                                                                                                                  |                                                                              |
|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| Transmission:                                                                                                    | Duplex.                                                                      |
| Transmitter Output Power:                                                                                        | 0 dBm, nominal.                                                              |
| Transmitter Stability:                                                                                           | 0.005%.                                                                      |
| Tuneable Operating Frequency Bands (xmit/rec or rec/xmit)(for other operating frequency Bands, contact factory): |                                                                              |
| Band 1 range:                                                                                                    | 1.8 to 2.5 GHz, resolution 1.0 MHz (WR-430);                                 |
| Band 2 range:                                                                                                    | 6.2 to 6.6 GHz, resolution 1.0 MHz (WR-137);                                 |
| Band 3 range:                                                                                                    | 11.0 to 12.0 GHz, resolution 1.0 MHz (WR-90);                                |
| Band 4 range:                                                                                                    | 18.1 to 19.7 GHz, resolution 1.0 MHz (WR-42).                                |
| Modulation:                                                                                                      | FM.                                                                          |
| Deviation:                                                                                                       | 25-50 kHz.                                                                   |
| Transmit/Receive Offset:                                                                                         | 40 MHz.                                                                      |
| Modulation Choice:                                                                                               | 1 kHz tone or voice.                                                         |
| Modulation Input/Output:                                                                                         | Headset w/3.5 mm dia. Plug (Mic & Earpiece).                                 |
| Receiver Sensitivity:                                                                                            | -100 dBm.                                                                    |
| Receiver Bandwidth:                                                                                              | ±100 kHz, nominal.                                                           |
| Receiver Overload point:                                                                                         | -30 dBm.                                                                     |
| Receiver Readout:                                                                                                | LCD direct path loss in dB (equivalent to signal input level in dBm).        |
| Readout Resolution:                                                                                              | 0.1 dB.                                                                      |
| External Readout:                                                                                                | External readout of path loss with DVM (0-2 VDC), BNC connector, rear panel. |
| Speaker Output:                                                                                                  | 350 mW max., variable.                                                       |
| Earpiece Output:                                                                                                 | 250 mW max., variable.                                                       |
| Speaker/Earpiece Control:                                                                                        | Variable (pot).                                                              |
| Warranty:                                                                                                        | One (1) year.                                                                |

### **ENVIRONMENTAL:**

Designed to meet MIL-T-28800D Type III, Class 5 or 6, Style E and EN 61010-1, Specifically:

|                        |                                                            |
|------------------------|------------------------------------------------------------|
| Operating Temperature: | 0°C to 50°C.                                               |
| Storage Temperature:   | -40°C to 71°C.                                             |
| Relative Humidity:     | 95% ±5% 10°C to 30°C; 75% ±5% to 40°C; 45% ±5% above 40°C. |
| Vibration Limits:      | 2 g.                                                       |
| Burn In:               | Failure-free burn in of no less than 100 hours at 40°C.    |
| Pollution Degree:      | 1 (no pollution)(EN 61010-1/3.7).                          |
| Transient Overvoltage: | Installation Category II (EN 61010-1/J).                   |

### **MECHANICAL:**

|                         |                                                                               |
|-------------------------|-------------------------------------------------------------------------------|
| Power:                  | Self Contained 12 V, 2.3 Ah, rechargeable sealed Lead-Acid Camcorder Battery. |
| Weight:                 | Less than 10 lbs per unit.                                                    |
| Dimensions (HxWxD):     | 89 mm x 213 mm x 333 mm (3.5 in. x 8.375 in. x 13.1 in.).                     |
| Connectors (RF In/Out): | SMA female sparkplug, field replaceable.                                      |

### **SUPPLEMENTAL SPECIFICATIONS:**

|                      |                                                                                              |
|----------------------|----------------------------------------------------------------------------------------------|
| Montreal Protocol:   | Nil Return.                                                                                  |
| ISO 9000:            | XL Microwave's Quality System is registered to the Quality Assurance Standards of ISO 9001.  |
| CE (European Union): | EN 55011 Class B (emissions), EN 50082-1 (immunity), and EN 61010-1 (Low Voltage Directive). |

### **ACCESSORIES FURNISHED (with each of the set's two (2) units):**

- One (1) Headset;
- One (1) Soft-Shoulder, weather-resistant, carrying bag with strap;
- One (1) Operation Manual;
- One (1) AC MAINS powered Battery Charger (90-264 VAC; IEC-320 Input connector);
- One (1) Coax cable assembly, SMA male to 'N' male, 3 meters.

# **XL MICROWAVE**

**CE**  
**ISO 9001**  
CERTIFIED