

## Request for Special Temporary Authority

Transportation Technology Center, Inc (TTCI), a wholly owned subsidiary of the Association of American Railroads is a world-class transportation research and testing organization, providing emerging technology solutions for the railway industry throughout North America and the world.

TTCI manages the Federal Railroad Administration's (FRA) Transportation Technology Center (TTC), located 21 miles northeast of Pueblo Colorado. TTC is operated under a care, custody, and control contract with the FRA. This 52-square mile, secure and remote site operates with a vast array of specialized laboratories, rolling stock, and track. TTC provides a unique test bed for isolated testing for all categories of freight and passenger rolling stock, vehicle and track components, train control systems, and safety devices.

The requested Special Temporary Authorization will be used to test for potential interference and de-sense issues between two different Positive Train Control (PTC) systems, both operating in the 220 MHz band in the same area. PTC is a system that enforces permanent speed restrictions, temporary speed restrictions, and positive train stops. This is done by the combination of onboard, wayside, and back office equipment which communicates by data radio at 220 MHz. In addition to testing for interference and de-sense between the two PTC systems, the STA will test the 220 MHz radios in a real world environment at TTC.

One of the two PTC systems was jointly created by PTC-220 LLC, a consortium of major railroads, and MeteorComm, a radio manufacturer. The other is an existing system under the name of ACSES.

The testing will consist of one or potentially two locomotives, travelling along an 8.5 mile length of track, and one base station, equipped with an ITC and an ACSES radio. The radios in both the locomotives and the base stations will conform to the specifications below. The requested frequencies will cover the bandwidth of the radios in order to test the radios over their entire operating range.

In addition to lab tests, the testing will involve using one MeteorComm radio on a PTC 220 channel, which consists of the five contiguous channels 151-155, for which TTCI already has a lease. This channel will be the only channel used with the MeteorComm radios. TTCI will test co-channel and adjacent channel de-sense, and signal blocking between the MeteorComm and GE radios. The testing will include frequency separation testing between the MCC radio and GE radio, by using the single PTC 220 channel for the MCC radio, and varying the channel for the GE radio. One base/mobile pair of each type of radio will be used.

| <b>Radio</b>                    | <b>GE</b>     | <b>MCC</b>                |
|---------------------------------|---------------|---------------------------|
| <b>Base</b>                     |               |                           |
| FCC ID                          | E5MDS-TD220   | BIB63030 and/or BIB 63010 |
| Model No.                       | TD220         | 63030 and/or 63010        |
| Base Station Structure / Height | Lattice Tower | Lattice Tower             |
| Base Radio Antenna Height       | 30 m          | 30 m                      |
| Base Radio Antenna Gain         | 5 dBd         | 5.0 dBd                   |
| Base Radio Transmit Power       | 30 watts PEP  | 75 watts PEP              |
|                                 |               |                           |
| <b>Mobile</b>                   |               |                           |
| FCC ID                          | E5MDS-TD220   | BIB 63020                 |
| Model No.                       | TD220         | 63020                     |
| Mobile Radio Antenna Height     | 5 m           | 5 m                       |
| Mobile Radio Antenna Gain       | 0 dBd         | 0 dBd                     |
| Mobile Radio Transmit Power     | 30 Watts PEP  | 51 Watts PEP              |

The frequencies we are requesting for these tests are:

ACSES                218.975  
I-ETMS (MCC)    220.7625