TRP Inc

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Federal Communications Commission
7435 Oakland Mills Road
Columbia, MD 21043

Reference: Siemens Transportation Systems application for certification of a spread spectrum transmitter under FCC ID:QSCCARBORNE and FCC ID:QSC WAYSIDE

Gentlemen:

The equipment described in the attachments to this application is intended to be used by the transmitter system to be used by the New York Transit Authority for controlling subway cars on a segment of the public transportation system in that city. The system consists of individual transceivers configured for either use in a subway car (carborne unit) or for use at fixed sites above ground such as subway stations and/or underground in both bored and "cut and cover" tunnel arrangements (wayside unit). Underground tunnels may be of either a single tube or dual tube type that are separated by some distance that is variable from a meter up to several meters.

The system consists of a carborne unit mounted in the front of an individual car, or multiple cars mechanically linked, with the antenna directed in the forward direction and a transceiver mounted in the rear of an individual car, or multiple cars, with the antenna directed in the rearward direction. In this manner as a car approaches and passes a given wayside transceiver, it is able to maintain communications with the wayside unit. Carborne and wayside transceiver use identical RF boards that were designed based on the IEEE 802.11b standard. Carborne units have single RF boards mounted in the transceiver chassis while wayside units have a redundant spare RF board mounted in the transceiver chassis that is only used when the primary board fails.

Carborne units use a variety of single antennae as specified in the test report. Wayside units also use a variety of antennae that can be configured as a single antennae mounted on a mast ,dual antennae mounted on a mast in a back to back arrangement that permits an antenna to be pivoted in the azimuth direction over a +/- 45 degree, and in a quad or four antennae array with two antennae mounted in a back to back arrangement with a variable separation distance to the adjacent two antennae that are also mounted in a back to back arrangement. Again, pivoting of one of each back-to-back antennae pair is permitted up to +/- 45 degrees. This angulation is required to permit adjustment of the antenna pattern within the subway tunnels to account for bends and curves in the tracks. Further descriptions of these arrays and photos of the actual antennae as tested are available in the test report sections.

Prior to testing, FCC Laboratory personnel were consulted as to appropriate test configurations. The results of those discussions are attached as a separate exhibit in the application filings for the carborne and wayside units. In brief, those discussions concluded that representative worst case testing would be done for the various antenna configurations using the actual design layout to cover the subway segment under consideration. That discussion further stipulated that conducted power measurements would be made at the input to the individual antennas and must be no greater that +30 dBm. EIRP levels would be measured using a substitution technique.

These requirements were followed and all levels are reported in terms of EIRP with any conducted measurements reported as measured at the input to the antenna for a given configuration whether it pertains to the carborne or wayside units.

If there are any questions regarding the material submitted in support of the applications for the referenced FCC ID's, please contact the undersigned at the address above.

Sincerely,

Phillip Inglis
Consultant