



The Washington Metropolitan Area Transit Authority (WMATA) Comprehensive Radio Communications System (CRCS)

McLean, July, 2008 - Televate, LLC has been contracted to evaluate and remedy noise level and signal performance issues currently impeding operational quality on some of the underground segments of WMATA's Comprehensive Radio Communications System (CRCS). The goal of this project is to identify and eliminate interference and intermodulation on the underground Land Mobile Network (LMR) and secure operational acceptance for the underground portion of the CRCS. The program goal will result in meeting WMATA's radio performance requirement of 95% reliable performance of the total network working during 95% of the time based on Public Safety's rigorous standards.

The WMATA radio network is a Motorola Type II Smartnet 3.0 system, operating on 490 MHz spectrum. The underground portion of the CRCS is a distributed antenna system (DAS) supplied by a fiber network of 24 remote nodes with more than 200 hundred BDAs and 100 miles of radiating coaxial cable. The CRCS provides coverage to 50.5 out of the total 106.3 miles of tracks, serving the DC Metropolitan area and suburbs in Maryland and Virginia.

Televate conducted extensive tests and measurements including downlink and uplink signal levels, intermodulation (IM) interference, and hardware performance, to characterize existing system performance and to develop a remediation strategy to achieve WMATA's operational reliability objectives. A team of experienced Televate RF engineers was assigned to perform these measurements and subsequent analysis. Such measurements are typical in analyzing and mitigation the type of RF interference encountered in the CRCS, however, the work within a commercial train underground tunnel network created program planning and management challenges. Testing and mitigation has progressed successfully and the results of these tests enabled Televate to identify several sources of passive intermodulation, faulty devices and other issues which collectively contribute to the operational issues.

Televate has elaborated a list of recommendations to remedy the current situation, including the replacement of faulty hardware (amplifiers, connectors and cable), a channel prioritization scheme to reduce the risk of interference, the elimination or relocation of system attenuators and others that collectively will drive network acceptance. Additionally, Televate is supporting WMATA with a longer-term solution involving the implementation of a neutral host network to ensure high quality communications among all WMATA CRCS' users and affiliated agencies (Metropolitan Police Department, WMATA personnel and transit administration) within the Metrorail network.

Televate, LLC is a public safety communications engineering and IT consulting company. Televate is leading the advancement of first responder interoperability and improving emergency communications by providing advanced wireless and data solutions to public safety agencies throughout the United States.

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