

TECO ELECTRIC, Inc.

Statement in Support of Experimental License Application

Pursuant to Section 5.3(e), (f), (h) and (j) and Section 5.54(a)(1) of the Federal Communications Commission ("FCC") rules, 47 C.F.R. §§ 5.3(e), (f), (h) and (j); 5.54(a)(1) (2019), TECO Electric, Inc., hereby respectfully requests an Experimental License ("XD") For a 2 year duration to operate in the 897.5-900.5 MHz and 936.5-939.5 MHz bands for the purpose of validating technical trails and demonstrating prototype broadband Long-Term Evolution ("LTE") equipment to support the needs of utility grid operations well as to support internal operational development programs. The proposed operation will not involve live-Grid operations by utility field crew, first responders or others to protect life, property, or safety. Field trial demonstration of prototype equipment will take place in Dade City, PASCO County, FL.

BACKGROUND:

TECO Energy, an electric and natural gas utility holding company based in Tampa, Florida, provides a comprehensive portfolio of energy-related products and services through its public utility operating company to over 800,000 residential, commercial, and industrial customers. in 4 counties. Tampa Electric is focusing on being a premier renewable energy provider with a target of supplying approximately 1,250 MW of solar energy. Tampa Electric currently operates portions of its Field Area Network (FAN) leveraging multiple aging systems including carrier LTE. These FAN backhaul networks provide critical communications in support of Tampa Electric grid operations which include fixed point-to-point services as well as fixed-point-to-multipoint services that support safe, reliable, and efficient delivery of essential electric utility services such as load management, telemetry for protective relays, and supervisory control and data acquisition ("SCADA") systems. Reliable, uninterrupted operations of these transport facilities are crucial to maintaining efficient, safe operations.

Supporting Tampa Electric in this proof of concept trial will be Motorola Solutions. Motorola Solutions is a leading manufacturer of mobile radio equipment for the Utility, Public safety, homeland security community, and is continually engaged in the design and development of new and innovative communications equipment. The experimental authority requested herein will allow Tampa Electric to demonstrate the functionality of prototype devices designed to support the needs of utility grid operations. Specifically, Tampa Electric and Motorola Solutions propose to assist demonstrations of prototype equipment in Dade City, FL for 900Mhz Private LTE

Tampa Electric respectfully requests that the FCC grant an Experimental

License, “XD” classification, for a period of 2 years.

Grant of an Experimental License will allow Tampa Electric to demonstrate prototype equipment and obtain additional feedback so that it may enhance the company’s efforts to design, develop and improve its equipment to meet the communications needs of the Electric Grid users.

II. OVERVIEW

Tampa Electric is exploring the use of 900 MHz LTE networks for various applications in support of its electric and gas utility operations. These applications include Advanced Meter Infrastructure (“AMI”) backhaul, SCADA, Distribution Automation (“DA”), and LMR to LTE Mission Critical Push-to-Talk (“MCPTT”) convergence.

Historically, the 900 MHz band has been configured in 20 blocks of 10 contiguous 12.5 kHz channels (125 kHz) that cover entire Metropolitan Trading Areas (“MTAs”), with each block separated by 10-channel allocations of site-specific Business/Industrial/Land Transportation (“B/ILT”) frequencies. Since the minimum channel size for an LTE carrier is currently 1.4 MHz, that 900 MHz band configuration prevented the deployment of these services.

On May 13, 2020 the Commission adopted the *Report and Order, Order of Proposed Modification, and Orders* in WT Docket No. 17-200, FCC 20-67 creating a 3 MHz X 3 MHz allocation to facilitate broadband deployment for business enterprise entities, including those classified as Critical Infrastructure Industry. Anterix, through its licensing company PDV Spectrum Holding Company (“PDV”), is the presumptive broadband licensee in counties in which Tampa Electric operates.

In order to evaluate the technical viability and capability of Anterix’s 3X3 MHz allocation in the 900 MHz band, as well as to evaluate potential interference to systems operating on adjacent bands, Tampa Electric seeks an experimental license to conduct testing as proposed in this application in PASCO County in Florida.

III. REQUEST FOR CONVENTIONAL EXPERIMENTAL RADIO LICENSE

A. Purpose of Test

Tampa Electric requests a conventional experimental radio license to test LTE equipment on spectrum in the 900 MHz band for the purpose of conducting technical ENodeB and User Equipment (UE) Private LTE research. In particular, this testing is intended to confirm whether a broadband service initially of 1.4 MHz and eventually of up to 3 MHz can be deployed on 900 MHz band spectrum using LTE-Band Class 8 equipment to provide the necessary data speeds, capacity, latency, and interference mitigation for various applications and use cases in support of electric and gas utility operations, including, but not limited to, AMI backhaul, SCADA, DA, LMR to LTE MCPTT convergence, and the co-existence of LMR to PLTE in the 900 MHz BC8 spectrum..

The testing will be conducted on 900 MHz channels currently licensed to PDV on an MTA basis and on interleaved B/ILT channels. The testing will comply with Section 5.84 of the Commission's Rules and will not cause interference to either co-channel or adjacent channel licensees authorized pursuant to the current 900 MHz band plan.

B. Technical Parameters of Test

The testing will involve wireless connectivity to fixed locations and mobility within the listed radii of each transmitter site. Details on the Motorola transmitting equipment are provided in the technical sections of this application. It should be noted that this equipment is experimental only to the extent that it has not yet been certified for use on adopted Part 27 spectrum. Tampa Electric plans to deploy two directional antennas at each site, the details of which also are provided in the technical section of this application.

As with standard field area network systems, the testing of the fixed wireless LTE equipment will be automated to transmit/receive intermittent information between the transmitters and the end-point locations. While most of the monitored testing would take place during normal business hours (8:00 AM – 5:00 PM local time), Tampa Electric anticipates that data transmissions will occur throughout the 24-hour day. Consistent with the requirements of Section 5.107 of the Commission's Rules, system management and monitoring will be handled remotely from Tampa Electric offices at Tampa. Tampa Electric requests a 24-month term for the experimental license for a valid equipment evaluation and product development trial and to make adjustments to the testing as needed.

1. Frequencies Desired

Tampa Electric requests authorization to operate in the bands 879.5- 900.5MHz paired with downlink allocation at 936.5-939.5MHz. This allocation has recently been reallocated to Part 22 broadband services; particularly envisioned to support 1.4 and 3MHz LTE for Private Broadband use-cases associated with the utilities, transportation, and other business industries. In addition, Tampa Electric will also develop, demonstrate and test NB IoT solutions as well variants of LTE specific to the requested bandwidth and use-cases.

2. Effective Radiated Power

All power levels will comply with the limits set forth in the FCC's rules, including those relating to human exposure to radiation.

Up to 15 portable/mobile units will be deployed and configured to operate at a peak power level of 2W TPO / 10W effective radiated power ("ERP") at each location. The base station will be configured to operate at a peak power level of 29 Watt TPO / 400W ERP. Tampa Electric will reduce the actual power to the minimum power needed for successful operation, based on set-up and testing at the demonstration

site. Tampa Electric will also coordinate with other equipment suppliers demonstrating equipment as required and reduce power accordingly.

FX: 936.5-939.5 MHz band: 29W TPO / 400W ERP; 1 unit per location

MO: 897.5-900.5 MHz band: 2W TPO / 10 W ERP; 25 units per location

3. Modulation and Emissions

Tampa Electric proposes to operate using OFDM modulation. The primary emission designators are 3M00W7W, 1M40W7W, and 200KW7W. Other emission modes may be utilized, but in no event will the emissions extend beyond the frequency bands requested.

4. Antenna Information

The antenna for the temporary fixed base station will be located at a height no greater than 50 meters above ground level (AGL). The portable/mobile unit antennas in and around the demonstration site will be located as required for a successful demonstration and will be operated at a height ranging from 1.5m AGL and not to exceed 9 meters AGL. No antennas will be mounted in a fashion that will require approval under FAA and FCC rules and regulations. Antennas utilized will be omnidirectional; however, some testing may be undertaken utilizing directional panel antennas comprised of cross-polarization design utilizing +/-45 degree elements reference to the horizon, exhibiting a total 3dB horizontal beamwidth of no more than 120 degrees and a vertical beamwidth not to exceed 12 degrees. The effective gain of this panel shall not exceed 13dBi and conducted power output will be reduced as to not to exceed the requested total ERP in this application and narrative statement.

5. Equipment to be used

Tampa Electric expects to conduct its demonstration with one 900Mhz base unit (EnB) and up to 25 mobile/portable units per location. Tampa Electric will limit the power, area of operation, and transmitting times to the minimum necessary to provide an effective demonstration and assessment of equipment under development. All equipment utilized will be prototype in nature.

6. Protection Against Causing Interference:

Tampa Electric will be sharing data collected and allowing observations and participation in experiments conducted and demonstrations undertaken. Tampa Electric also understands that it must accept interference from any other users of these bands and that it is its responsibility to coordinate its operations with other authorized users during the conference and that any failure to coordinate effectively may result in the immediate suspension of its authority until such time, as determined by the primary licensee within the allocation, concurs that interference is not taking place, that the operations may continue.

Tampa Electric also conducted a search of the Commission's Universal Licensing System ("ULS") database and verified that the proposed demonstration in the requested locations should not interfere with any primary operations in that spectrum. In summary, the proposed operations consistent with the commitments and statements presented above should not result in interference with any licensed operations. Should interference occur, Tampa Electric will take immediate steps to resolve the interference, including if necessary arranging for the discontinuance of operation.

7. FCC Restrictions on Operations:

Tampa Electric recognizes that the operation of any equipment under experimental authority must not cause harmful interference to authorized facilities. In the unlikely event interference occurs, Tampa Electric will take immediate steps to resolve the interference, including discontinuance of operation if necessary. Entities will be advised in accordance with Section 2.803 of the Commission's rules, 47 C.F.R. § 2.803 (2019), that any unapproved devices which have not been authorized as required by the FCC are not being offered for sale or lease, or sold or leased, until authorization is obtained.

8. Public Interest Statement:

Tampa Electric submits that issuance of an Experimental License as requested is in the public interest, convenience, and necessity. Grant of an Experimental License will help Tampa Electric to test, validate, and develop innovative solutions and equipment that will accommodate the communications needs of the private broadband community.

9. Contact Information

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