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Resource

North American Mobile Network Certification for Sierra Wireless Modules

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August 2016

The following overview provides developers and project managers with information on certifying their Sierra Wireless-based mobile network products in North America. GSM, UMTS, and LTE devices require regulatory, industry, and carrier certifications, while CDMA devices require just regulatory and carrier certification.

REGULATORY

Federal Communications Commission (FCC) certification is required to operate RF equipment in the US. All of Sierra Wireless' North American modules have FCC certification (Part 22, 24, 27, 90; depending on band support), and integrators can re-use Sierra Wireless' certification if the end device meets the FCC grant requirements. Sierra Wireless FCC grants can be found by searching "N7N" as the "Grantee Code" on the FCC OET website. If the end device needs to operate outside the parameters of the grant, a self-file with the FCC must be attained, which can cost between $3K-$5K. Integrators that use an FCC certified module may still need to complete FCC Part 15 (Unintentional radiated emissions) testing and provide documentation to the FCC.

Industry Canada (IC) certification is required to operate RF equipment in Canada. All of Sierra Wireless' North American modules have IC certification, and the re-use policy is similar to the FCC.

INDUSTRY

PTCRB – The CTIA organization is the administrator of the PTCRB certification process, and uses third party accredited laboratories for the actual testing procedure. Full PTCRB certification is necessary for 3GPP (GSM, UMTS, or LTE) devices, and all of Sierra Wireless' North American modules are PTCRB-approved. However, once the modules are integrated into a device, that device must also pass a set of PTCRB tests. These additional tests are for Over-the-Air (OTA) RF Performance, Radiated Spurious Emissions (RSE), and UICC (SIM) Electrical

Testing. More information on the testing criteria is available in PTCRB's PPMD document, which can be obtained after registering for a PTCRB account. The cost and timeframe of PTCRB certification is highly dependent on the complexity of the device.

CARRIER

GSM/UMTS-based:

AT&T – Requires paperwork and Total Radiated Power (TRP) and Total Isotropic Sensitivity (TIS) RF testing to ensure the device complies with their network specifications. Since all North American GSM/UMTS Sierra Wireless modules are AT&T approved, the cost is covered by AT&T and the process takes about 4 weeks.

T-Mobile – Doesn't require any extra certification, once FCC and PTCRB are completed the device can be deployed on T-Mobile's network.

CDMA-based:

Verizon – Requires devices to go through Verizon's Open Development Initiative (ODI), with OTA/RSE testing done at an accredited third party certification lab. Verizon also requires certain features from the device, such as CDMA data retry and Firmware Over-the-Air (FOTA) upgrades. Verizon will then assess the results of the tests and provide a stamp of approval. The device's IMEI/MEID can then be uploaded to Verizon's device management database (DMD), which will enable them for activation.

Sprint – Requires RF testing provided by a third-party accredited lab. Starting April 1, 2016 all of Sprint's certifications will be validated and tested by DVT & C. DVT&C will handle all CDMA and LTE OEM M2M certifications for Sprint.

FINAL REMARKS:

Richardson RFPD has a broad line of high-efficiency products, M2M antennae and cable assemblies that can help expedite the certification process. Most certification labs will perform a round of pre-certification OTA/RSE tests (scanning for critical points) so that the device passes on the first round of actual testing. Mobile Virtual Network Operators (MVNO) can have their own device certifications apart from the larger Mobile Network Operators (MNO), which provide an abbreviated and streamlined M2M certification process.

ABOUT RICHARDSON RFPD

Richardson RFPD, an Arrow Electronics company, is a global leader in the RF and wireless communications, power conversion and renewable energy markets. It brings relationships with many of the industry's top radio frequency and power component suppliers. Whether it's designing components or engineering complete solutions, Richardson RFPD's worldwide design centers and technical sales team provide comprehensive support for customers' go-to-market strategy, from prototype to production. More information is available online at www.richardsonrfpd.com.

Richardson RFPD has a broad line of high-efficiency products, M2M antennae and cable assemblies, that can help expedite the certification process.

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