



Device Certification Process for UScellular

October 2021



IoT Certification Matrix for Devices

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<div> <div>OEM Onboarding</div> <div>Technical Requirement Review</div> <div>USCC Lab Testing</div> <div>Issue Resolution and Re-Test</div> <div>TA</div> </div>			
Certification Type	New Integrated Device Path (Module-based or module-less)	Variant Device Path	FastTrack Device Path
Feature Scope/Requirements	<ul style="list-style-type: none"> New device and/or new module New device and existing certified module Both device and module are FCC certified Both device and module are GCF certified <ul style="list-style-type: none"> LTE OTA testing (TIS,TRP) GSMA TS.35 connection efficiency results (only if using Band 13 for devices) USCellular will share information via a Smartsheet 	<ul style="list-style-type: none"> Parent device or module already certified on UScellular Same module/chipset version as parent Same module firmware version (or LTE modem chipset & firmware) as parent <ul style="list-style-type: none"> Same device-level software Same antenna design (only pertains to internal antennas – hardware should not impact antenna performance) 	<ul style="list-style-type: none"> Device must have a customer sales opportunity first before beginning this track <ul style="list-style-type: none"> LTE Data only (No Voice) <ul style="list-style-type: none"> Roaming allowed CAT M allowed NB IoT not allowed FCC/GCF Certified
SIM/APN Scope	<ul style="list-style-type: none"> Tri Punch (2FF, 3FF, 4FF) and MFF2 	<ul style="list-style-type: none"> Same as Parent device 	<ul style="list-style-type: none"> Tri Punch (2FF, 3FF, 4FF) and MFF2
V&V Test Plan Used by OEM	<ul style="list-style-type: none"> Integrated Device Validation & Verification (V&V) Test plan 	<ul style="list-style-type: none"> UScellular M2M Regression V&V Test Plan for Devices 	FastTrack V&V (Performed by UScellular only)
OEM Deliverables	<ul style="list-style-type: none"> Review the UScellular requirements document (TDR) at Smartsheet location USCC provides Perform the UScellular V&V test and sign off on testing Device samples from OEM (2), USB drivers, power supply, SW tools, documentation uploaded to Smartsheets <ul style="list-style-type: none"> Note: UScellular will keep 1 device for if any future troubleshooting is needed after device is certified 	<ul style="list-style-type: none"> Declaration of Similarity (template provided by USCC) for parent/variant relationship OTA results <i>(if different than Parent)</i> Device Regression V&V test plan 	<p>None</p>

IoT Certification – Special Circumstance Guidelines

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Federal Communications Commission (FCC) certification – **Required by UScellular**

- The module (or LTE modem) being utilized for the device must be FCC certified first
- The device can use the module (or LTE modem) FCC certification if
 - The device form factor corresponds with the FCC certified device module guidelines
 - FCC part 15 documentation for utilization of the module certification for the device is confirmed by the OEM

GCF testing certification

UScellular likes to see both the device and the module pass through GCF testing.

There are 2 main reasons we like GCF testing:

- Devices with internal antennas may be impacted on the overall RF OTA sensitivity. GCF testing will reveal any issues.*
- If the device is connecting the SIM tray using electrical connection with the module, then UICC electrical connections related tests in GCF will help to show any inconsistencies

If the device has not been through GCF testing, then the following information below will be need to be provided by the OEM for UScellular to review. These are listed in order of priority, with path 2 being used only if path 1 cannot be met by the OEM. Path 1 information will need to be received prior to starting certification process:

- Path 1 Preferred (If the device has internal antennas)
 - OEM submits to UScellular documentation pertaining to OTA radiated performance tests done either by themselves, another lab, or another tier 1 carrier where they have tested the same bands that UScellular uses.
- Path 2 (If the device has internal antennas and only if Path 1 cannot be met)
 - If Path 1 cannot be completed, then depending on the device, and if the module (LTE modem) used with the device is already certified with UScellular, then UScellular can look at performing basic OTA performance testing.

NOTE: UScellular performing this testing will increase the certification timeline up to 4 weeks.

*If the antennas are external, then the module GCF testing will suffice. If the antennas are internal to the device, then the priority testing info provided should be followed.



Network Bands
LTE Network: 2,4,5,12
LTE M Network: 2,5,12
5G bands: n71, n2, n66, N261



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IoT Device Certification – Next steps



Work with UScellular to provide the following information:

1. Make/Model number of the device(s) to be certified
2. Name, email and phone number(s) of the contacts that will need to have Smartsheet access
 - Smartsheet will contain
 - UScellular Technical Data Requirements for OEM to review
 - Over the Air (OTA) radiated performance documentation for minimum UScellular standards
 - A copy of the Validation and Verification (V&V) test plan to be completed by the OEM
3. Provide the FCC ID certification number that is being utilized for the device
 - If the device is utilizing the module FCC ID certification, then provide this FCC ID and any FCC part 15 documentation for utilization of the module certification
4. Provide the GCF certification testing number
 - If GCF testing was not performed, then provide
 - Over the Air (OTA) radiated test performance results from either a 3rd party lab or prior certifications completed with another tier 1 carrier, OTA performance results from your testing completed, or OTA test results from the module OEM (testing device and module at same time)
 - If OTA test performance results cannot be provided, then let your UScellular IoT client executive know
5. Complete the V&V test plan, utilizing the appropriate technology tab for testing that is contained in the document
 - Once V&V is completed, supply this to the UScellular to review
6. When V&V test plan is approved, then supply 2 clean (in the box) devices to UScellular lab to further test
 - OEM to provide contact name, email, phone number should issues arise while UScellular is testing.
 - NOTE: UScellular will keep 1 device for future troubleshooting
7. Once UScellular testing is completed, and any issues resolved, UScellular will issue a TA certification for the device

