GCF
Test Certify Connect

IoT End Product Certification Guide

April 2025

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www.globalcertificationforum.org

1. Introduction

The Global Certification Forum (GCF) Ltd. is the leading organisation that, in cooperation with its 300+ member companies, develops and maintains product certification requirements and programmes for the wireless industry. To account for the explosive growth of IoT connected products & solutions entering the market, the GCF has developed flexible certification solutions for IoT end products that integrate a GCF certified module or IoT chipset.

By integrating a GCF Certified module, or IoT chipset in their end products, the IoT product manufacturer can take advantage of the wireless capabilities of these certified modules or IoT chipsets that are already compliant to the 3GPP standards. This allows for a more efficient and streamlined certification process, where the test results of the underlying certified module and/or chipset can be leveraged as part of the end product certification, without having to redo that testing. This in turn allows for the Manufacturer to take advantage of cost savings and faster time to market for their products, while still ensuring the overall quality, and ensuring the target IoT application is operating correctly.

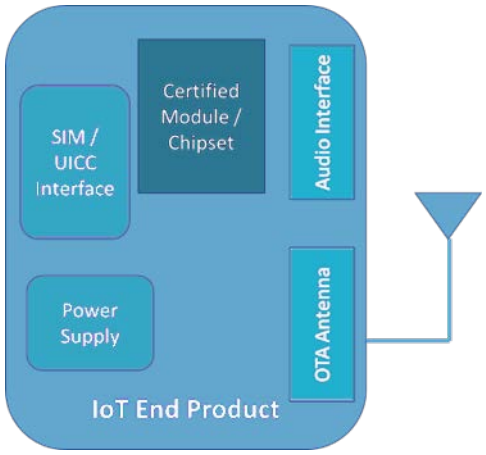

Figure 1: IoT End Product integrating a Certified Module / Chipset

2. GCF Membership

GCF requires that all manufacturers who would like to certify their products first become a GCF member. Membership benefits differ based on whether the manufacturer joins as a Full Manufacturer, Associate Manufacturer I (AMM I), or Associate Manufacturer II (AMM II). IoT End Product Manufacturers can apply for the AMM II membership which is designed specifically for those manufacturers that are integrating a certified module and/or chipset. Specific details and differences in membership benefits can be found at: https://www.globalcertificationforum.org/membership.html

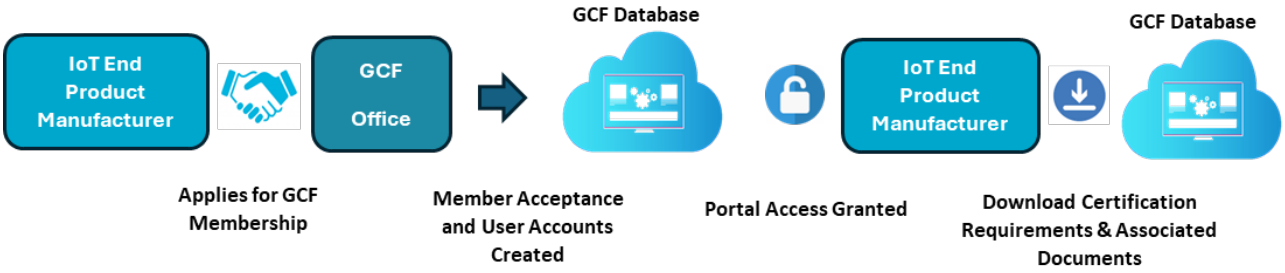

Figure 2: Membership Process

3. GCF Certification Process

The GCF Certification Process for IoT End Products, leverages the tried and tested certification process for wireless products (smart phones, modules, etc.) leveraging the use of GCF Assessment Capable Entities (ACEs), who are subject matter experts in GCF certification that can help the manufacturer in identifying the product features and corresponding test cases i.e. establish the test plan, as well as GCF Recognised Test Organisations (RTOs), the ISO 170125 accredited test labs that execute the testing. The overall process is outlined via the process below:

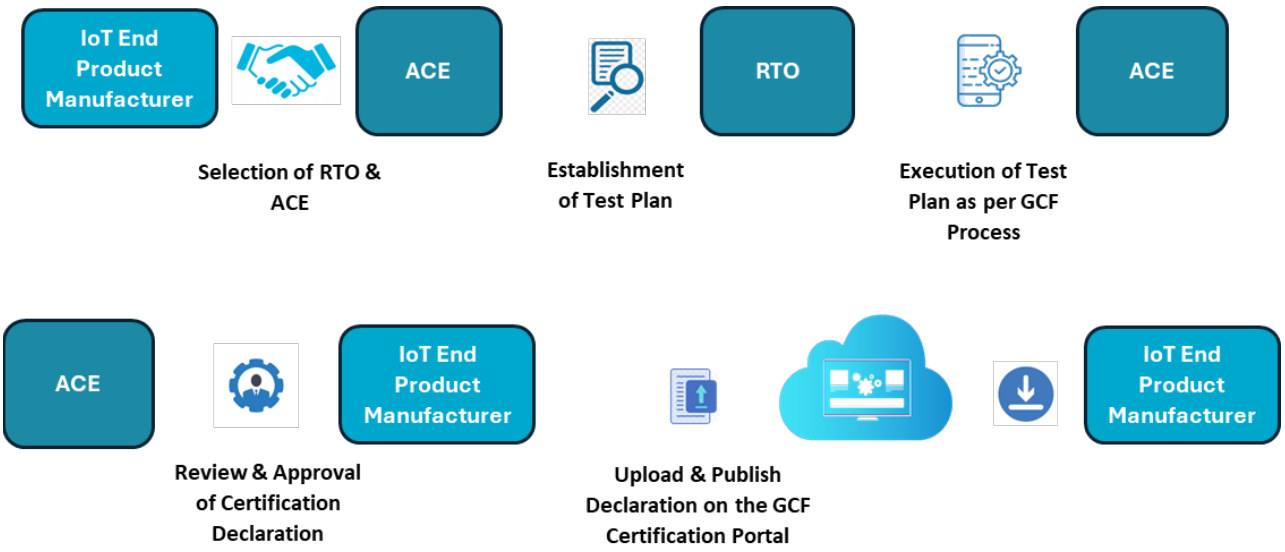

Figure 3: GCF Certification Process

The list of ACEs and RTOs available for GCF Manufacturer Members are available at
https://www.globalcertificationforum.org/services/rto.html
https://www.globalcertificationforum.org/services/ace/tpace.html

4. GCF Certification Scope for IoT End Products

The test plan for certification established by the ACE depends on the features and capabilities being used from the certified module and/or chipset, as well as those capabilities of the IoT end product. The Manufacturer first has to declare the feature set being submitted for certification via the PIX/PIXIT documentation from 3GPP. This allows the ACE to then map corresponding test cases that are applicable in the GCF Certification Criteria for those features being declared.

Depending on whether the IoT end product is integrating a LTE or 5G NR module, specific documents in the GCF Certification Criteria are applicable to determine the areas of test required. Typically, the main areas of testing include, if applicable, the audio interface, over the air antenna, power supply, SIM interface, radiated emissions, user interface, application enabler, and field trials testing. Additional testing areas are specified if the product is integrating a 5G FR2 Capable or Certified Module.

For IoT end products integrating a certified chipset, dedicated confidence tests are identified that would need to be executed depending on whether the wireless functionality being used is LTE-M, NB-IoT and/or Rel-12 2G EGPRS Fallback.

All of these requirements are captured in the GCF Certification Criteria (GCF-CC) that can be downloaded from the GCF member's portal.

5. GCF IoT End Product Certification Guide (GCF IoTEP PRD)

For newly joined GCF members wishing to undertake certification of their IoT end products that are integrating a certified module or IoT chipset, a dedicated Permanent Reference Document (PRD), the GCF IoT End Product Certification Guide (IoTEP), is available that will provide the step-by-step details on how to undertake certification. Along with this guide, and the help of GCF ACEs and GCF RTOs the IoT end product manufacturer has a complete end to end certification solution available to them to ensure their product meets the compliance requirements of wireless industry standards, and can give them the confidence that their products will meet the stringent requirements of industry stakeholders who are looking to purchase and deploy these products for various IoT verticals.

For more information on GCF IoT End Product Certification, please contact gcf@globalcertificationforum.org .

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Get in touch

Since 1999 the Global Certification Forum (GCF), the industry recognised resource for trusted certification of connected devices in the consumer, professional and IoT spaces, has been delivering quality certification solutions that facilitate interoperable devices, networks, and services, enabling reliable and secure wireless communications globally.

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