GCF
Test Certify Connect

TCCA

GCF Certification for

MISSION CRITICAL BROADBAND

Are you ready?

1. Mission Critical Broadband ecosystem

1.1. Introduction

Certification of mission critical products and solutions is essential to ensure both compliance to industry standards, and interoperability with other 3GPP-compliant mission critical systems.

Public Safety Agencies and **Mission Critical Communication Operators (MCCOs)** around the world are currently in various phases of migrating their existing Public Land Mobile Radio networks from voice-oriented narrowband technologies, such as TETRA and P25, to mobile broadband technologies, based on 3GPP's 4G-LTE and 5G-NR standards. **Mission Critical Services** (MCS) are a key component of these standards with services such as Push-To-Talk (MCPTT), Video (MCVideo), and Data (MCData) defined and planned to be globally adopted.

1.2. Mission Critical Broadband Systems

A **Mission Critical Broadband system** includes an end user device with an integrated or downloaded MCS client, which communicates with a MCS server over an LTE or 5G cellular broadband network (see Figure 1). The device may also have the capability to communicate directly with other MCS devices in a standardised fashion (via Sidelink).

The MCS server may be connected to multiple other functions, including to other MCS servers as part of a larger public safety network, to servers that belong to other public safety agencies as part of an interoperable system, and to a dispatcher client in a control room. Mission Critical Broadband networks may also use the Interworking function (IWF) to connect to narrowband technologies like TETRA or P25 communication systems.

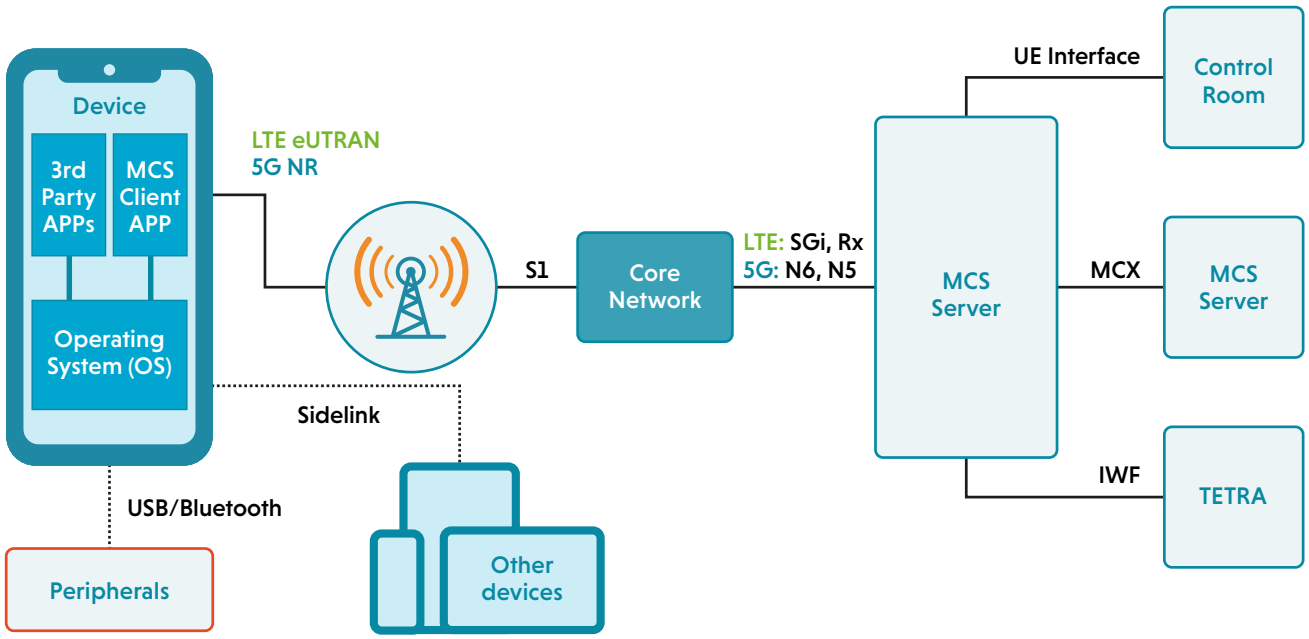

Figure 1: Components of a Mission Critical Broadband System

2. GCF Mission Critical Certification Programme

Ensuring mission critical devices and networks are interoperable is a key part of GCF's vision to enable the **high quality, reliable and secure wireless communications** demanded by users and industries across the globe.

It is equally key to TCCA's vision to promote standardised critical communications solutions and the benefits of open and competitive markets in efficiently developing and delivering these solutions.

The certification programme is focused on 3GPP Mission Critical Services:

- **Mission Critical Push-to-Talk – MCPTT Clients**
- **Mission Critical Video – MCVideo Clients**
- **Mission Critical Data – MCData Clients**

And is actively working to certify other elements being standardised in the Mission Critical Ecosystem (see Figure 2), such as:

- **MCS Servers** (backend servers that communicate with MCS clients or other MCS servers)
- **MCS IWF** (Interworking Function that allows communication of MCS over Broadband with TETRA, P.25, etc.)
- **Control Room interfaces** (standardised interfaces between Control Rooms and MCS servers)
- **MCS Dispatchers** (clients installed in a Control Room over Fixed IP access)
- **MCS IoT Telematics Blades** (translation entities comprised of MCX Client with associated business logic, that sits on the network edge and that provides message translation services between MCX systems and IoT Telematics systems)

2.1. Mission Critical Services Work Stream

The **Mission Critical Services Work Stream (MCS WS)**, managed by GCF in collaboration with TCCA, continues to evolve the Mission Critical ecosystem. The Work Stream consists of key industry players and subject matter experts from GCF and TCCA member companies. Together, they are developing the key requirements for testing mission critical services, as well as defining the policies and procedures for the certification programme.

As figure 2 reflects, GCF is continuously expanding its support for Mission Critical Services. For example, additional frequency bands can be added to GCF certification as needed by MCCOs, while Interoperability (IOP) and Field Trials testing is expected to become active soon. Additional capabilities such as MCS Server certification, Proximity Services/Sidelink and IoT telematics over MCData are already in scope and will be delivered in future phases of the programme.

In addition, TCCA maintains recommended best practices for the procurement of MCX products, including MCX broadband services and certification practice.

GCF and TCCA members can participate at the MCS-WS to contribute on the evolution of the certification requirement to ensure a seamless interoperability of MCS Services and provide input to the MCS WS roadmap.

2.2. MCS product types

There are two product types currently supported in GCF certification:

- **MCS software clients and platforms** (integrated or downloaded on a device that enables Mission Critical Services over cellular broadband)
- **MCS-oriented Devices** (LTE and/or 5G GCF certified devices used for mission critical services)

A client is a fully functional MCS application that is commercially available for purchase and operation by the MCCO. A client platform is also a fully functional MCS application, but it is available only to other product suppliers for integration into end products. As an example, a MCS Client SDK could be certified as a client platform, which a product supplier could then use to develop their own client for commercialisation.

MCCOs are expected to ensure that all the devices they procure supporting MCS services are certified as defined in the GCF certification criteria.

2.3. Scope of GCF certification

The Certification Criteria for Mission Critical Services are captured in a dedicated Permanent Reference Document, the GCF-MCS PRD, which all suppliers undertaking certification must review, and is available for download from both the MCS WS and GCF Member's' Portal.

GCF certification comprises four types of product testing:

- **Conformance testing** – conducted in an ISO 17025 accredited laboratory (Recognised Test Organisation or RTO) against test equipment that simulates the wireless service (Radio Access Network and various Application Servers). Its purpose is to ensure product compliance to the standard.

Mission Critical Services - Broadband

Roadmap & Expected Activation in GCF Certification

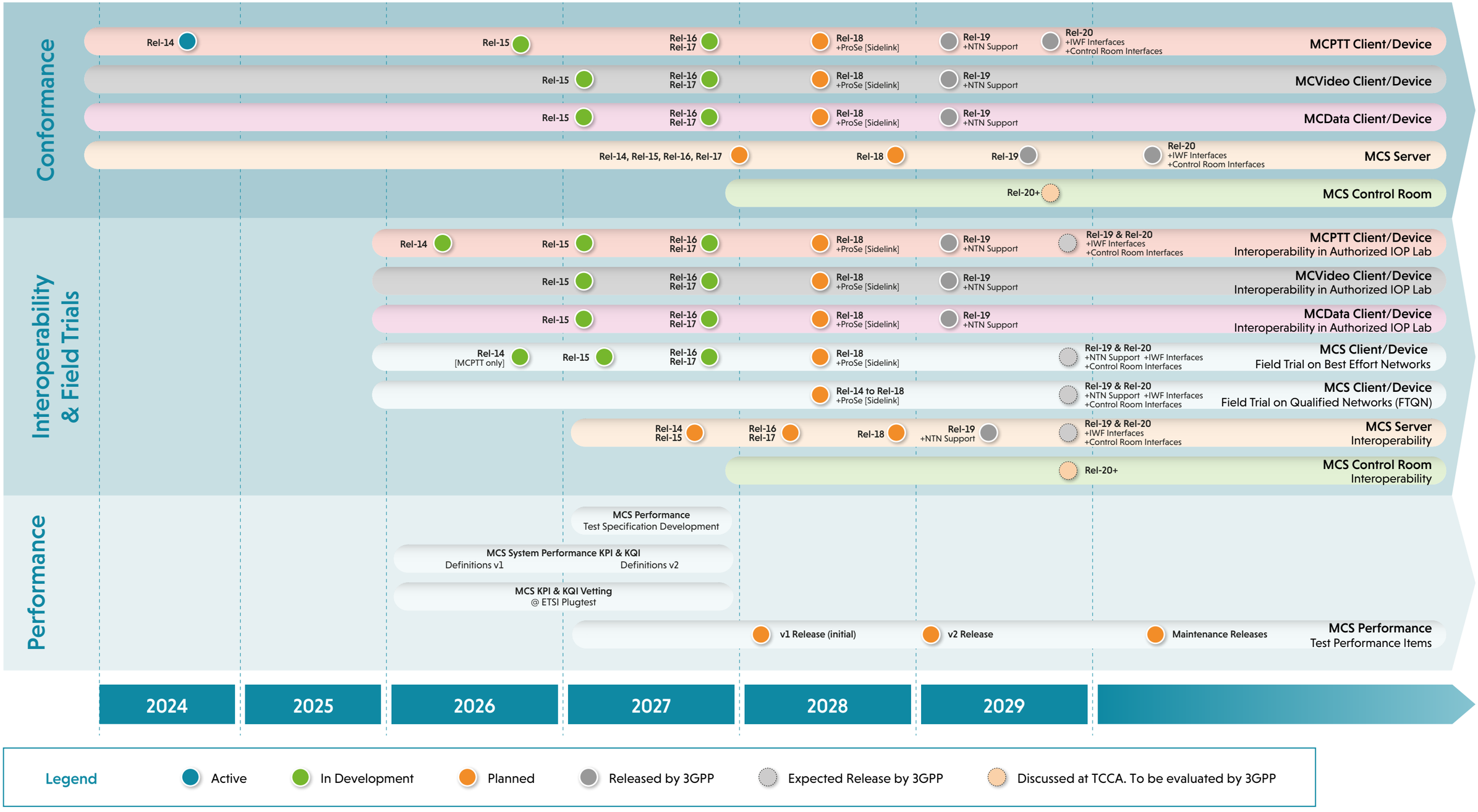

Figure 2: Roadmap & Expected Activation of Mission Critical Services in GCF Certification

- **Field Trials testing** – conducted in a live network where the service is available. Its purpose is to ensure the product under test interoperates with networks that have been commercially deployed across the world.
- **Interoperability testing** – conducted in a controlled lab environment against a live 4G/5G private network using real network elements and servers that are configured to offer the service. Its purpose is to ensure that the product under test interoperates correctly with other compliant products, systems and solutions.
- **Performance testing** – conducted in a lab, to check how well the service is performing on the product under test. Performance tests do not have a pass/fail criterion but typically report back metrics that allows the MCCO to evaluate a product against a benchmark or average set of metrics from other certified products.

Conformance testing is currently mandatory for certification of GCF MCPTT client, while Interoperability and Field Trial testing are currently being developed. Interoperability testing is targeted to become active in H1 2026 with IOP Recognised Test Organisations (laboratories) accredited for this purpose. GCF is also working with MCCO to enable Field Trial testing in controlled scenarios of live environments, to be executed by Field Trial Recognised Test Organisations (FT-RTOs) accredited for this purpose.

Performance testing is being developed by an expert group and are expected to be incorporated into GCF Mission Critical Certification Programme by MCCOs.

3. How to certify your product

Certification of Mission Critical Clients and Devices is the responsibility of the company placing the product on the market, typically the device manufacturer or mission critical services vendor.

GCF device manufacturer and MCS vendor members can:

- **Certify their 3GPP MCPTT clients (standalone or integrated on a certified device)**, following one of the following certification routes:
  - Route 1: Native Integration of an MCS Client on an End Product (UE/Device)
  - Route 2: Integration of a GCF Certified MCS Client Platform into an end product
  - Route 3: Integration of an MCS Client on a GCF Certified device platform
  - Route 4: MCX only Client Certification
- **Certify their LTE and 5G capable mission critical oriented devices to the available GCF Certification Criteria**, to ensure a seamless connection with the targeted networks in the required frequency bands.

In all cases, the certification process follows the steps described in high level in Figure 3.

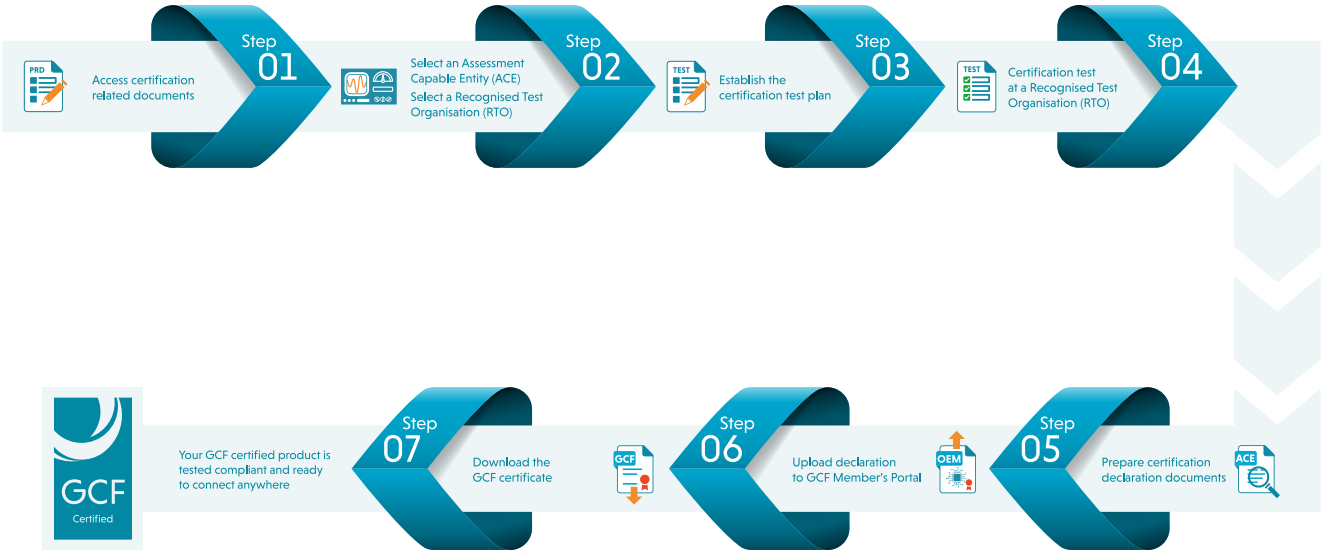

Figure 3: GCF Product certification process

It is important to note that the MCS Product Vendors will have to:

- Be a GCF member to be able to access Certification Criteria, apply and obtain GCF Certification for their products.
- Procure the services of the following GCF Certification Ecosystem actors in order to complete their certification:
  - **Third Party Assessment Capable Entity (TP-ACE):** These are subject matter experts in GCF Certification from member companies, who facilitate the Manufacturer through the certification process.
  - **Third Party Recognised Test Organisation (RTO):** These are test laboratories who are accredited to perform certification testing in a specific technology area, such as MCS. A list of RTOs and their areas of testing are available on the GCF Member's Portal:

A list of ACEs and RTOs is available on the GCF member portal at https://www.globalcertificationforum.org/third-party-assessment-capable-entities.html and https://www.globalcertificationforum.org/rto.html

It is important to note that GCF has RTOs for Conformance testing, Interoperability testing and Field Trials testing, and hence the services of different RTOs may be required to undertake a certification.

4. How to become a GCF member

Any company wishing to join the GCF to be involved in MCS Certification can do so by applying to become a member:
https://www.globalcertificationforum.org/membership/become-a-member.html

An overview of the various membership categories and their associated privileges is available at:
https://www.globalcertificationforum.org/membership/membership-overview.html

More information is available at:

GCF Mission Critical Certification Programme:
https://www.globalcertificationforum.org/services/mission-critical.html

GCF Mission Critical Work Stream (MCS WS):
https://mcsws.globalcertificationforum.org

GCF or TCCA member companies wishing to join the Mission Critical Services Work Stream (MCS WS) can register at:
https://mcsws.globalcertificationforum.org/registration.html

"GCF was established back in 1999 with the mission to eliminate interoperability issues between devices and networks based on compliance with the 3GPP standard. Based on this success the joint certification programme between GCF and TCCA for mission critical broadband devices and services will take this to the next level when mobile industry evolves through 5G to 6G." – Lars Nielsen, GCF Director General.

"The cornerstone of critical communications is trust. The joint work of GCF and TCCA in MCX certification gives end users, operators and service providers a path to uncompromising quality, compliance and interoperability – ensuring trusted devices and services are introduced into their networks to keep society safer." – Kevin Graham, TCCA CEO.

About Global Certification Forum

Since 1999, the Global Certification Forum (GCF) has been leading the global ecosystem facilitating interoperable devices, networks, and services, enabling reliable and secure wireless communications. GCF's solutions cover Mission Critical Services, 5G NR, LTE, Cellular IoT (NB-IoT and eMTC), eSIM and legacy technologies. GCF has over 300 members, including, device manufacturers, Mission Critical Communication Operators, major and smaller commercial operators and communication service providers MCS Service providers, and the test industry, working together with key industry partners on certification programmes demanded by the market.

About TCCA

TCCA is committed to advancing global critical communications for a safer, more connected world by helping to empower critical communication users with secure, trusted, and standardised technologies. On behalf of its members, TCCA supports all standard mobile critical communications services and complementary applications. TCCA members are drawn from end users, operators and industry across the globe. TCCA believes in and promotes the principle of open and competitive markets worldwide through the use of open standards and harmonised spectrum. TCCA drives the development of common global mobile standards for critical broadband and maintains and enhances the TETRA Professional Mobile Radio (PMR) standard. TCCA is the 3GPP Market Representation Partner for critical communications and our members actively contribute in 3GPP working groups and supports the ETSI MCX Plugtests™.

GCF
Test Certify Connect

e: gcf@globalcertificationforum.org
w: www.globalcertificationforum.org
LinkedIn: Global Certification Forum (GCF)
Global Certification Forum Ltd
Suite 1, 7th Floor, 50 Broadway,
London SW1H 0BL
United Kingdom

TCCA

e: admin@tcca.info
w: www.tcca.info
LinkedIn: TCCA-Critical Communications
TCCA
Unit 14, Baker's Yard, Christon Road, Gosforth,
Newcastle Upon Tyne NE3 1XD
United Kingdom