Schedule 2.3 - Lot 2

Standards

Version 5.0

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CHANGE HISTORY

Version No.	Date	Details of Changes included in Update	Author(s)	Document Number
4.0	21.10.15	Execution version	ESMCP	35938627.12
	22.10.18	Updated in anticipation of CAN	DLAP	92724902
4.1	04.12.18	Updates for CAN	Motorola / B&B	
4.2	21.12.18	Further Updates	DLAP	92729402
4.3	31.03.19	Conformance Updates	DLAP	93796723
5.0	09.05.19	CAN 500 Execution version	DLAP	96228408.1

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Annex 1 – 3GPP PSLTE Standards Compliance

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1 General

1.1 Throughout the term of this Agreement, the Parties shall monitor and notify each other of any new or emergent standards which could affect the Supplier's provision, or the Authority's receipt, of the Services. Any changes to the Standards, including the adoption of any such new or emergent standard, shall be agreed in accordance with the Change Control Procedure.

1.2 Where a new or emergent standard is to be developed or used by the Supplier, the Supplier shall be responsible for ensuring that the potential impact on the Supplier's provision, or the Authority's receipt, of the Services is explained to the Authority as part of the relevant Impact Assessment (in the applicable timeframe in accordance with Paragraph 8 of Schedule 8.2), prior to the implementation of the new or emergent standard.

1.3 Where Standards referenced conflict with each other or with Good Industry Practice, then the later Standard or best practice shall be adopted by the Supplier. Any such alteration to any Standard(s) shall be agreed in accordance with the Change Control Procedure.

2 Technology and Digital Services Practices

2.1 The Supplier shall (when designing, implementing and delivering the Services) adopt the applicable elements of HM Government's Technology Code of Practice as documented at https://www.gov.uk/service-manual/technology/code-of-practice.html

3 Open Standards and Standards Hub

3.1 The Supplier shall comply to the full extent within its control with UK Government's Open Standards Principles as documented at https://www.gov.uk/government/publications/open-standards-principles as they relate to the specification of standards for software interoperability, data and document formats in the IT Environment.

3.2 Without prejudice to the generality of Paragraph 1.2, the Supplier shall, when implementing or updating a technical component or part of the Software or Supplier Solution where there is a requirement under this Agreement or opportunity to use a new or emergent standard, with the prior written approval of the Authority such approval not be unreasonably withheld or delayed, submit a Suggested Challenge compliant with the UK Government's Open Standards Principles (using the process detailed on Standards Hub and documented at http://standards.data.gov.uk/). Each Suggested Challenge submitted by the Supplier shall detail, subject to the security and confidentiality provisions in this Agreement, an illustration of such requirement or opportunity within the IT Environment, Supplier Solution and Government's IT infrastructure and the suggested open standard.

3.3 The Supplier shall ensure that all documentation published on behalf of the Authority pursuant to this Agreement is provided in a non-proprietary format (such as PDF or OpenDocument Format (ISO 26300 or equivalent)) as well as any native file format documentation in accordance with the obligation under Paragraph 4.1 to comply with the UK Government's Open Standards Principles, unless the Authority otherwise agrees in writing.

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4 Technology Architecture and Design Standards

4.1 The Supplier shall use the following notations within its technical architecture and design documentation:

(b) notations consisting of logical functions and the interface points between those functions. Logical functions represent operations on information elements and associated state changes. Interface points carry information between the logical functions to affect the required system capabilities and features.

(b) BPMN 2.0 standard (to be applied for modelling business processes);

(b) UML 2.0 standard (to be applied for modelling Use Cases and design models);

(b) the other standards and documents referenced in Schedule 4.1; and

(b) others by agreement with the Authority.

5 Accessible Digital Standards

5.1 The Supplier shall comply with (or with equivalents to):

(b) the World Wide Web Consortium (W3C) Web Accessibility Initiative (WAI) Web Content Accessibility Guidelines (WCAG) 2.0 Conformance Level AA;

(b) ISO/IEC 13066-1: 2011 Information Technology – Interoperability with assistive technology (AT) – Part 1: Requirements and recommendations for interoperability; and

(b) the Government's published "Digital by Default Service Standard" as documented at: https://www.gov.uk/service-manual/digital-by-default.

6 Telecommunication Standards

6.1 For all aspects of the Supplier Solution that provide or support voice and data communication services the Supplier shall use open global standards and specifications.

6.2 The Supplier Solution shall use the standards and specifications developed by the following Standards Development Organisations (SDO*):*

(b) The Third Generation Partnership Program (3GPP). Annex 1 to this Schedule 2.3 (Standards) sets out the compliancy of the Supplier Application to 3GPP PSLTE specifications. For these purposes 3GPP Release 14 shall be the baseline. The Supplier shall ensure that compliance of the applicable feature or function within the relevant release of the Supplier Application to 3GPP PSLTE releases subsequent to 3GPP Release 14 shall be achieved no later than eighteen (18) months from the completion of the standardisation of the applicable 3GPP PSLTE release. This shall be subject to the following assumptions / dependencies being satisfied:

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(i) The applicable 3GPP technical specifications are sufficient to support the requirements as set out in Schedule 2.1 (Services Description) and, where applicable, the Kodiak Specification; and

(ii) All technical dependencies for compliance are supported by the MS Supplier Solution;

(b) Other standards supported in the solution include:

(i) Open Mobile Alliance (OMA);

(ii) European Telecommunications Standards Institute (ETSI);

(iii) Internet Engineering Task Force (IETF);

(iv) International Telecommunication Union (ITU); and

(v) Institute for Electrical and Electronics Engineers (IEEE); and

(b) others by agreement with the Authority.

6.3 During the Term, the Supplier's Control Room Interface shall be made 3GPP compliant provided that the required functionality is subject to 3GPP PSLTE standards and, therefore, can be achieved within the existing 3GPP specifications.

6.4 The Supplier shall ensure that the audio and video compression and transmission of voice and data services are provided using open global standards, which shall include but are not limited to those codecs produced by the Moving Picture Experts Group (MPEG) and 3GPP (e.g. AMR Speech Codec) and:

[…. ✂….]

(b) others by agreement with the Authority.

7 Telecommunications Equipment Standards

7.1 The Supplier shall ensure that all radio equipment and telecommunications terminal equipment provided as part of the Supplier Solution complies with the R&TTE (Radio equipment and telecommunications terminal equipment) Directive (1999/5/EC), or any subsequent replacement.

7.2 The Supplier shall follow the International Commission on Non-Ionizing Radiation Protection guidelines relating to the limitation of RF exposure.

7.3 The Supplier shall provide information on the IP ratings (as defined in EN 60529 or any equivalent) of all electrical enclosures. The IP ratings shall be appropriate to the environment and use of the equipment and shall be agreed with the Authority. Any subsequent changes to the Supplier Solution that affect the IP ratings shall first be agreed in writing with the Authority in accordance with the Change Control Procedure.

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8 Installation Standards

8.1 For all aspects of the Supplier Solution, the Supplier shall reference relevant industry and HM Government standards and best practice guidelines in regards to the installation of equipment and services.

9 Electrical Safety Standards

9.1 The Supplier shall ensure that all Electrical Standards and approved codes of practice are adopted. It is the responsibility of the Supplier to select and apply all applicable Standards based on the Supplier Equipment and Services being provided including without limitation the Electrical Standards referenced at www.hse.gov.uk/electricity/standards.htm.

9.2 For all aspects of the Services, the Supplier shall comply with relevant industry and HM Government standards and best practice guidelines in regards to electrical safety.

9.3 The Supplier shall perform electrical safety checks in relation to all equipment and Goods used or supplied in the performance of the Service under this Agreement in accordance with applicable health and safety regulations and Good Industry Practice.

10 Service Management Software and Standards

10.1 Subject to Paragraphs 1 to 3 (inclusive), the Supplier shall reference relevant industry and HM Government standards and best practice guidelines in the management of the Services, including the following and/or their equivalents:

(b) ITIL v3 2011;

(b) ISO/IEC 20000-1 2011 “ITSM Specification for Service Management”;

(b) ISO/IEC 20000-2 2012 “ITSM Code of Practice for Service Management”;

(b) ISO 10007 “Quality management systems – Guidelines for configuration management”; and

(b) ISO/IEC 25010:2011 “Systems and software Quality Requirements and Evaluation (SQuaRE) -- System and software quality models”;

(b) BS25999-1:2006 “Code of Practice for Business Continuity Management” and, ISO/IEC 27031:2011, ISO 22301 and ISO/IEC 24762:2008 in the provision of “IT Service Continuity Strategy” or “Disaster Recovery” plans.

10.2 For the purposes of management of the Services and delivery performance the Supplier shall make use of Software that complies with Good Industry Practice including availability, change, incident, knowledge, problem, release & deployment, request fulfilment, service asset and configuration, service catalogue, service level and service portfolio management. If such Software has been assessed under the ITIL Software Scheme as being compliant to “Bronze Level”, then this shall be deemed compliant with Good Industry Practice.

11 Environmental Standards

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11.1 The Supplier warrants that it has obtained ISO 14001 (or equivalent) certification for its environmental management (or will obtain this (or equivalent) before the Milestone Date for Milestone M32 (Prime Exit of Gate 5 (Mobilisation Complete)) and provide a documented strategy and assessment plan to achieve certification no later than 3 months after the Effective Date) and shall comply with and maintain certification requirements throughout the Term. The Supplier shall follow a sound environmental management policy, ensuring that any Goods and the Services are procured, produced, packaged, delivered, and are capable of being used and ultimately disposed of in ways appropriate to such standard.

11.2 The Supplier shall comply with relevant obligations under the Waste Electrical and Electronic Equipment Regulations 2006 in compliance with Directive 2002/96/EC and subsequent replacements (including those in compliance with Directive 2012/19/EU).

11.3 The Supplier shall (when designing, procuring, implementing and delivering the Services) comply with Article 6 and Annex III of the Energy Efficiency Directive 2012/27/EU and subsequent replacements.

11.4 The Supplier shall comply with the EU Code of Conduct on Data Centres' Energy Efficiency. The Supplier shall ensure that any data centre used in delivering the Services are registered as a Participant under such Code of Conduct.

11.5 The Supplier shall comply with the Authority and HM Government's objectives to reduce waste and meet the aims of the Greening Government: IT Strategy contained in the document "Greening Government: ICT Strategy issue (March 2011)" at https://www.gov.uk/government/publications/greening-government-ict-strategy.

12 Environmental Standards for Equipment

12.1 The Supplier shall ensure compliance of all equipment to all relevant industry and HM Government standards and Good Industry Practice as regards to environmental regulations and standards.

12.2 The Supplier shall comply with The Batteries and Accumulators and Waste Batteries and Accumulators Directive (2006/66/EC) or any subsequent replacement.

12.3 The Supplier shall comply with the Eco-design for Energy-related Products Regulations 2010 (SI 2010 No. 2617) or any subsequent replacement, to improve the environmental performance of products throughout the Term.

12.4 The Supplier shall ensure compliance to The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) Directive (2011/65/EU) or subsequent replacements.

13 Hardware Safety Standards

13.1 The Supplier shall comply with those BS or other standards relevant to the provision of the Services, including (but not limited to) the following or their equivalents:

(b) any new hardware required for the delivery of the Services (including printers), shall conform to BS EN 60950-1:2006+A12:2011 or subsequent replacements. In

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considering where to site any such hardware, the Supplier shall consider the future working user environment and shall position the hardware sympathetically, wherever possible;

(b) any new audio, video and similar electronic apparatus required for the delivery of the Services, shall conform to the following standard: BS EN 60065:2002+A12:2011 or any subsequent replacements;

(b) any new laser printers or scanners using lasers, required for the delivery of the Services, shall conform to either of the following safety Standards: BS EN 60825-1:2007 or any subsequent replacements; and

(b) any new apparatus for connection to any telecommunication network, and required for the delivery of the Services, shall conform to the following safety Standard: BS EN 41003:2009 or any subsequent replacements.

14 Project and Programme Management

14.1 Subject to Paragraphs 1 to 3 (inclusive), the Supplier shall implement HM Government standards and best practice guidelines in the management of projects and programmes, specifically:

(b) PRINCE2™, any subsequent replacements and/or equivalents as agreed by the Authority such as AGILE to support the delivery of projects;

(b) Managing Successful Programmes (MSP®) framework guidelines, or any subsequent replacements, shall be used to support the delivery of programmes.

(b) Suppliers shall be accredited to ISO 9001:2008 Quality Management standard, or equivalent.

14.2 The Authority acknowledges the benefits of collaborative working. Suppliers shall be cognisant and have expertise in the principles of collaborative business relationships standard BS 11000 (or equivalent) in the supply of the Services.

14.2.1 The Authority recognises the benefits of BS 11000 and managing relationships through a relationship management plan of which the Supplier will need to demonstrate knowledge of the same standards.

15 Financial Reporting

15.1 The Supplier, and all its Sub-contractors, shall ensure adherence to all International Financial Reporting Standards (IFRS).

16 Compatibility with GS1

16.1 The Supplier, and all its Sub-contractors, shall ensure that the Services, including without limitation the supply and procurement of any Goods are categorised and compatible with GS1 and the Supplier shall at the request of the Authority provide comprehensive product information relating to each category of Goods which shall be placed by the Supplier into a GS1 certified data pool. Once product information relating to the Services including without

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limitation the supply of Goods is placed by the Supplier into a GS1 certified data pool, the Supplier shall, during the Term, keep such information updated with any changes to the product data relating to the Services including without limitation the supply of Goods.

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ANNEX 1 – 3GPP PSLTE STANDARDS COMPLIANCE

1. Introduction

1.1 Pursuant to Paragraph 6.2(a) of this Schedule 2.3 (Standards) this Annex 1 sets out the roadmap for compliance of features within the Supplier Application to applicable 3GPP PSLTE standards.

1.2 **Interpretation**

1.2.1 For the purposes of Table 1 below the following expressions shall have the following meanings:

Fully Compliant: means that the feature, delivered by the Supplier Application in accordance with the applicable Kodiak Specification, is fully compliant to the applicable 3GPP standards

Full Compliance in Roadmap: means that the feature, delivered by the Supplier Application in accordance with the applicable Kodiak Specification beyond Release 10.0 and subject to the Supplier Application Roadmap, is intended to be compliant to the applicable 3GPP standards but that, as at the CAN Effective Date, there is no committed release of the Supplier Application identified to achieve this.

Full Compliance in R10.1 means that the feature will achieve full compliance with applicable 3GPP standards in Release 10.1, as an exception to the Supplier Application Roadmap process described above.

Partially Compliant: means that the feature, delivered by the Supplier Application in accordance with the applicable Kodiak Specification, is (within the indicated Supplier Application release, i.e. 9.0 UNI Features, 9.1 UNI Features or 10.0 UNI Features) compliant to certain parts of specifications at stage-1 and stage-3 of the applicable 3GPP standards

Not defined in 3GPP: means that there is, as at the CAN Effective Date, no relevant specifications in 3GPP standards to describe the feature or functionality.

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Not fully defined in 3GPP: means that, as at the CAN Effective Date, 3GPP has done some work (e.g. Stage-1) in relation to the applicable feature or functionality. However all related specifications are not complete or developed.

1.2.2 References in the column entitled “Full Compliance Target” are to the target release of the Supplier Application in which features that are Partially Compliant in r9.0 of the Supplier Application shall become Fully Compliant subject to the provisions of Paragraph 6.2(a) of this Schedule 2.3 (Standards).

1.2.3 References in the column entitled “3GPP MC Standards Reference Interface” are to all potential interfaces within scope of the applicable standard. The Supplier’s implementation of the features to which that standard applies shall be in accordance with the defined scope of that feature set out in the applicable Kodiak Specification.

1.2.4 The Kodiak Specifications define the scope of any feature referred to in Table 1. The compliance information provided in this Annex 1 is intended to be supporting information to describe 3GPP standards compliance for those features delivered in accordance with the applicable Kodiak Specification.

1.2.5 Interworking with external IMS is not in scope for the purposes of any compliancy requirements under this Agreement.

Table 1

9.0 UNI Features					
Feature Name	**Sub-Feature**	**Standards Compliance in 9.0**	**Full Compliance Target**	**3GPP MC Standards Reference Interface (Rel 14)**	**Comments**
Provisioning & Activation					
Login Procedures	OIDC Authentication with IDMS	Fully Compliant	9.0	CSC-1	
	SIP Registration/SIP Core Authentication	Fully Compliant	9.0	Gm i/f, MCPTT-1	

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	MCPTT Service Authorization during Registration	Fully Compliant	9.0	MCPTT-1	
	Pre-established Session setup	Fully Compliant	9.0	MCPTT-1, MCPTT-4, MCPTT-7	
Calling Features					
MCPTT Calling	1-1 half duplex call with Automatic commencement	Fully Compliant	9.0	MCPTT-1, MCPTT-4, MCPTT-7	
	Group half duplex call with automatic commencement	Fully Compliant	9.0	MCPTT-1, MCPTT-4, MCPTT-7	
Broadcast Calling	one-way, high-priority call	Partially Compliant(75%)	9.1	MCPTT-1, MCPTT-4, MCPTT-7	Some part of SIP contents not compliant in 9.0
	System-Wide	Partially Compliant (75%)	9.1	MCPTT-1, MCPTT-4, MCPTT-7	Some part of SIP contents not compliant in 9.0
	Corporate-Wide	Partially Compliant (75%)	9.1	MCPTT-1, MCPTT-4, MCPTT-7	Some part of SIP contents not compliant in 9.0
Emergency Calling and Alert	Emergency Life Cycle	Fully Compliant	9.0	MCPTT-1, MCPTT-4, MCPTT-7	
	Emergency Call Option - Manual	Fully Compliant	9.0	MCPTT-1, MCPTT-4, MCPTT-7	
	Emergency Call option - Automatic	Fully Compliant	9.0	MCPTT-1, MCPTT-4, MCPTT-7	Hot-Mic feature. Standards define the procedures to setup Emergency call. Manual and Automatic Modes are options provided by UE implementation
	Emergency Originator User Experience	Fully Compliant	9.0	MCPTT-1, MCPTT-4, MCPTT-7	
	Emergency Recipient - Talkgroup Steering	Not Defined in 3GPP	NA	NA	As per standard, the Emergency Calls can be received from the groups only if the user is affiliated (i.e. in the Scan list)
	Emergency Cancellation	Fully Compliant	9.0	MCPTT-1, MCPTT-4, MCPTT-7	
	Authorized User Recipient of Emergency Call	Not defined in 3GPP	NA	NA	

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	Authorized User or Dispatcher Remote Emergency	Not fully defined in 3GPP	NA	NA	Remote initiation is defined, but not remote initiation of Emergency call
Audio Codec Support	AMR WB	Fully Compliant	9.0	MCPTT-4	
	OPUS	Not defined in 3GPP	NA	NA	
Call Rejoin	Call Rejoin	Fully Compliant	9.0	MCPTT-1, MCPTT-4, MCPTT-7	
Call Alerts	Instant Personal Alert	Partially Compliant (75%)	9.1	MCPTT-1	Defined by 3GPP as Call back request feature
	Missed Call Alerts	Not defined in 3GPP	NA	NA	
Call Interaction	Call Priority over Cellular & Data	Not defined in 3GPP	NA	NA	
Monitoring Features					
User Monitoring Features	User Check.	Not defined in 3GPP	NA	NA	User check can retrieve device Location, Battery Level, Signal Strength. 3GPP doesn't define equivalent procedures/requirements
	Ambient Listening	Fully Compliant	9.0	MCPTT-1, MCPTT-4, MCPTT-7	
	Discreet Listening	Not Fully defined in 3GPP	NA	NA	Feature specified only at Stage-1. Update compliance plan with new target release/dates once 3GPP definition is complete
	Enable or Disable Device	Not Fully defined in 3GPP	NA	NA	Feature specified only at Stage-1. Update compliance plan with new target release/dates once 3GPP definition is complete
	Remote Emergency Call	Not defined in 3GPP	NA	NA	Remote initiation is defined, but not specifically defined for Emergency
Talkgroup Scanning	Priority Scanning	Not Fully defined in 3GPP	NA	NA	Feature specified only at Stage-1. Update compliance plan with new target release/dates once 3GPP definition is complete.
Priorirty and Pre-emption Features					

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Quality of Service (QoS), Priority and Preemption (QPP).	Dynamic QoS using Rx	Fully Compliant	9.0	MCPTT-1, MCPTT-5(Rx)	
Supervisory Override	Talker Priority (also called as Audio Cut-In feature)	Fully Compliant	9.0	MCPTT-4, MCPTT-7	
Administration					
Talk Group Zoning	Zone Configuration	Not defined in 3GPP	NA	NA	Procedurally compliant
	User Permissions to manage Contacts and talkgroups	Partially Compliant (75%)	10.0	CSC-2, CSC-4	In 9.0 - OMA XDM standard.
Contact and Talkgroup Management	User-Managed Contacts	Partially Compliant(75%)	10.0	CSC-4	In 9.0 - OMA XDM standard. Permission/authorization management is implementation dependent as it is not defined in 3GPP Standard
	User-Managed Talkgroups	Partially Compliant (75%)	10.0	CSC-2	In 9.0 - OMA XDM standard. Permission/authorization management is implementation dependent as it is not defined in 3GPP Standard
	Contact and Talkgroup Sizes	Partially Compliant (75%)	10.0	CSC-2, CSC-4	
Corporate-Level Configuration	Contacts Management	Partially Compliant (75%)	10.0	CSC-4	In 9.0 - OMA XDM standard.
	Restore Contacts and Groups	Partially Compliant (75%)	10.0	CSC-2, CSC-4	In 9.0 - OMA XDM standard.
	Talk Group Management	Partially Compliant (75%)	10.0	CSC-2	In 9.0 - OMA XDM standard.(CSC-2 is based on OMA-XDM)
	User and Device configuration	Partially Compliant (50%)	10.0	CSC-4	
	Display Name of Contacts and Groups	Partially Compliant (75%)	10.0	CSC-2, CSC-4	In 9.0 - OMA XDM standard.

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Subscriber States	Subscriber States	Partially Compliant (50%)	10.0	CSC-4	
Location Service					
Location Service	Procedures and xml schema for location reporting	Partially Compliant (75%)	10.0	MCPTT-1	In 9.0. One time and Periodic Report configurations are supported. Time and Distance based Triggers are planned in 10.0
	Location Tracking	Not fully defined in 3GPP	NA	NA	Subscription to Location information is defined in Stage 2 but not defined in Stage 3
Area-Based Talkgroups		Not defined in 3GPP	NA	NA	Location based Temporary Groups
Presence Service					
Presence Service	Self-Presence	Not defined in 3GPP	NA	NA	
	Contact Presence	Not defined in 3GPP	NA	NA	
	Presence Notification Options	Not defined in 3GPP	NA	NA	
	Decoupled Presence for Calling and Alert Origination	Not defined in 3GPP	NA	NA	
	Temporarily Unreachable SMS Configuration	Not defined in 3GPP	NA	NA	
	Presence Throttling	Not defined in 3GPP	NA	NA	
MCData Services					
Integrated Secure Messaging	Secure Text Messaging	Partially Compliant (75%)	9.1	MCDATA-SDS1	In 9.0 SIP content/payloads not fully Compliant
	Secure Image Messaging	Partially Compliant (50%)	9.1	MCData-FD-1 ,MCData-FD-2, MCData-FD4	In 9.0 Stage-1 Compliance only
	Secure Video Messaging	Partially Compliant (50%)	9.1	MCData-FD-1 ,MCData-FD-2, MCData-FD4	In 9.0 Stage-1 Compliance only
	Secure Voice Messaging	Partially Compliant (50%)	9.1	MCData-FD-1 ,MCData-FD-2, MCData-FD4	In 9.0 Stage-1 Compliance only
	Document Messaging	Partially Compliant (50%)	9.1	MCData-FD-1 ,MCData-FD-2, MCData-FD4	In In 9.0 SIP content/payloads not fully Compliant

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	Location Message	Partially Compliant (75%)	9.1	MCDATA-SDS1	In 9.0 SIP content/payloads not fully Compliant
Broadcast messaging	one-way secure text message	Partially Compliant (75%)	9.1	MCDATA-SDS1	In 9.0 SIP content/payloads not fully Compliant
PTT Voice Message Fall back	PTT Voice Message Fall back	Not defined in 3GPP	NA	NA	Uses MCdata Voice messaging framework
Additional Features					
Non-LTE Transports	Wi-Fi support	Not defined in 3GPP	NA	NA	
APIs					
APIs	PTT Mobile APIs	Not defined in 3GPP	NA	NA	
	PTT Web APIs	Not defined in 3GPP	NA	NA	

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9.1 UNI Features					
Feature Name	**Sub-Feature**	**Expected Standard Compliance in Target Release**	**Full Compliance Target**	**3GPP MC Standards Reference Interfaces**	**Comments**
Provisioning & Activation					
Device Sharing	Kodiak IDM	Fully Complaint	9.1	CSC-4, MCPTT-1	Same device can be multiple users, but one user at a time. Concurrent logins are part of 10.0
	External IDM	Fully Complaint	9.1	CSC-4, MCPTT-1	
Calling Features					
Emergency Calling	Set max traffic item time for half duplex emergency	Fully Complaint	9.1	MCPTT-4, MCPTT-7	Any PTT user, including user in emergency, holding PTT floor, PTT floor will be revoked after this configured time
	Set max call duration time for half duplex emergency	Fully Complaint	9.0	MCPTT-1, MCPTT-4, MCPTT-7	
	Emergency Alert	Fully Complaint	9.1	MCPTT-1	Operational Status enhancement for Emergency.
Ambient Listening	Max call duration for ambient	Not defined in 3GPP	NA	NA	This is implemented using the MCX Service level configuration
Discreet Listening	Max call duration for discreet	Not defined in 3GPP	NA	NA	This is implemented using the MCX Service level configuration
Administration					
User restrictions	Preventing end users from changing Talking Party Alias	Fully Compliant	9.1	CSC-4	
MCData Services					

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Operational Status messaging	Transmit the chosen status code between UEs	Fully Complaint	9.1	MCData-SDS-1	The values and strings for Operational Status codes would be specific to each Emergency Service
	Download status message definitions to UE	Not defined in 3GPP	NA	NA	
MCVideo Services					
Streaming Video	One-to-one	Fully Complaint	9.1	MCVideo-1, MCVideo-4, MCVideo-7	
	Group	Fully Complaint	9.1	MCVideo-1, MCVideo-4, MCVideo-7	
	Leave and Rejoin	Fully Complaint	9.1	MCVideo-1, MCVideo-4, MCVideo-7	
	One to one Video Pull	Fully Complaint	9.1	MCVideo-1, MCVideo-4, MCVideo-7	send a request to a mobile user to send video
	Video-Codecs: H.264	Fully Complaint	9.1	MCVideo-7	
Additional Features					
Service restrictions	Restriction of PSCS service operation to 4G	Fully Complaint	9.1	NA	3GPP MC standards applicable to LTE/4G network

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10.0 UNI Features					
Feature Name	**Sub-Feature**	**Expected Standard Compliance in Target Release**	**Full Compliance Target**	**3GPP MC Standards Reference Interfaces**	**Comments**
Provisioning, Activation and User profiles					
User Role profile	User role profiles	Fully Compliant	10.0	CSC-4, MCPTT-1	
Group Type Profile	Communication group profiles	Fully Compliant	10.0	CSC-2, CSC-4	
	Relationships between subscribers, groups and profiles	Fully Compliant	10.0	CSC-2, CSC-4	
Concurrent Logins	Concurrent login to multiple devices	Fully Compliant	10.0	CSC-1, CSC-2, CSC-4, MCPTT-1	
Userless mode	MC Services while no user logged in to a device	Fully Compliant	10.0	CSC-1, CSC-4, MCPTT-1	
Calling Features					
Hook signalling	Automatic Commencement Mode for Half-duplex call	Fully Compliant	10.0	MCPTT-1, MCPTT-4, MCPTT-7, CSC-4	
	Manual Commencement mode for Half-duplex Call	Fully Compliant	10.0	MCPTT-1, MCPTT-4, MCPTT-7, CSC-4	Private calls only
	Manual Commencement mode for full duplex	Fully Compliant	10.0	MCPTT-1, MCPTT-4, MCPTT-7, CSC-4	Supported only for Private telephony
Full Duplex	Secure full duplex VOIP Private call	Fully Compliant	10.0	MCPTT-1, MCPTT-4	Private calls without floor control
Emergency Enhancements	Last Emergency User can override	Not Defined in 3GPP	NA		As per stage-1, 3GPP mentions that the overriding participant must be having priority over the transmitting participant. There is no explicit definition of override behaviour when multiple Emergency users are in the call

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	Dispatcher can override	Not Defined in 3GPP	NA		
Regroup	Regroup MCPTT users	Not Defined in 3GPP	NA		Currently, as of R15, this feature definition is not available in 3GPP. Fully complaint in 18 Months after 3GPP feature definition is available in R16 (or later)
Monitoring Features					
Affiliation	Real-time group attachment monitoring	Fully Compliant	10.0	MCPTT-1	
	Large talk group support	Fully Compliant	10.0	MCPTT-1	3,000 members affiliation support
Simultaneous Sessions	Simultaneous audio sessions	Fully Compliant	10.0	MCPTT-1, MCPTT-4, MCPTT-7, CSC-4	
REGA	REGA Auto select channel	Fully Compliant	10.0	MCPTT-1	
Security and Encryption					
Signalling and Application layer	Protect the signalling plane using the non-3GPP access mechanism	Fully Compliant	10.0	Gm i/f, MCPTT-1, MCVideo-1, MCData-sds-1, MCData-fd-1	In Release 9.0 MC Systems Controlling Plane (Signalling) Security provided using non-3GPP IMS access Security mechanism over Gm i/f as per 3GPP standard that utilizes TLS V1.2
	Authentication and authorisation of users	Fully Compliant	10.0	Gm i/f, MCPTT-1, MCVideo-1, MCData-sds-1, MCData-fd-1, CSC-1,	In 9.0, SIP Digest based Authentication and Authorization supported. IMS AKA based authentication will be supported when migrated to full IMS ISIM based architecture.
	Protect the signalling plane using 3GPP access mechanism.	Full Compliance in Roadmap	NA	Gm i/f, MCPTT-1, MCVideo-1, MCData-sds-1, MCData-fd-1	When IMS is supported Control Plane is migrated to 3GPP access based security mechanism that utilizes IPSec for Gm i/f.

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End-to-End Encryption User Plane	End to End security of user media within the MCPTT Service with SRTP and MIKEY-SAKKE.	Full Compliance in R10.1	10.1	MCPTT-7	R10.0 will transmit/receive encrypted media using SRTP. SRTP packet format and size will be as per 3GPP TS 33.180. Keying material will be coded as per RFC 4568 (SDES) instead of MIKEY-SAKKE. End to End Security with MIKEY-SAKKE as per 3GPP TS33.180 is committed in R10.1.
	Secure RTCP (e.g. floor control, transmission) within the MCPTT Service	Full Compliance in R10.1	10.1	MCPTT-4	
	Key distribution Protection for MCPTT	Fully Compliant	10.0	CSC-8	
	End to End security of user media within the MCVideo Service with SRTP and MIKEY-SAKKE	Full Compliance in Roadmap	NA	MCVIDEO-7	End-to-End Security without MIKEY-SAKKE is supported in 10.0
	Secure RTCP (i.e transmission Control) within the MCVideo service	Full Compliance in Roadmap	NA	MCVIDEO-4	
	Key distribution and Protection for MCVideo service	Full Compliance in Roadmap	NA	CSC-8	
	Secure the data signalling within the MCData Service	Full Compliance in Roadmap	NA	MCData-sds-1, MCData-fd-1	
	End to End security of user media within the MCData Service	Full Compliance in Roadmap	NA	MCData-FD-2, MCData-FD4	
	Key distribution and Protection for MCData service	Full Compliance in Roadmap	NA	CSC-8	
Location Service					

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Location Enhancements	Time and Distance based location updates	Fully Compliant	10.0	MCPTT-1	

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