# APPENDIX D

# Statement of Project 25 User Needs Compliance Matrix

This compliance matrix for the P25 user needs is developed from the *Statement of Project 25 (P25) User Needs* document (P25 SPUN) dated August 2020, and contains four tables:

* Table D-1: List of User Needs for P25 Features, Functions, and Services
* Table D-2: List of User Needs for P25 Infrastructure
* Table D-3: List of User Needs for P25 Consoles
* Table D-4: List of User Needs for P25 Subscriber Equipment

Proposers must provide a completed P25 Compliance Matrix tables listing the P25 user needs using the following:

##### Complies and Compatible – meets the requirements and provides demonstrated compatibility with other vendors’ equipment.

##### Proprietary – meets the requirements but does not provide demonstrated compatibility with other vendors’ equipment.

##### Not Compliant – equipment currently does not meet this requirement. If future compliance is planned, Proposer may clarify and define the release level or date for planned compliance.)

##### Clarification – Text may be included to provide additional information on the user feature.

For more information on the descriptions of the features refer to the *Statement of Project 25 (P25) User Needs* document (P25 SPUN) dated August 2020.

Table D-1: List of User Needs for P25 Features, Functions, and Services

1.1 Voice Services

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| P25 Features, Functions, and Services | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Group Call |  |  |  |  |  |  |
| Individual Call |  |  |  |  |  |  |
| Announcement Group Call |  |  |  |  |  |  |
| Broadcast Call |  |  |  |  |  |  |
| Emergency Call |  |  |  |  |  |  |
| System-Wide Group Call (System Call) |  |  |  |  |  |  |
| Priority Call |  |  |  |  |  |  |
| Preemptive Priority Call |  |  |  |  |  |  |
| PSTN Interconnect Call |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 1.2. Supplementary Data Services | |  |  |  |  |  |
| P25 Features, Functions, and Services | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Transport of Talker ID |  |  |  |  |  |  |
| Emergency Alarm (Emergency Alert) |  |  |  |  |  |  |
| Emergency Alarm Cancel |  |  |  |  |  |  |
| Group Emergency Cancel |  |  |  |  |  |  |
| Call Alert |  |  |  |  |  |  |
| Short Message |  |  |  |  |  |  |
| Status Query |  |  |  |  |  |  |
| Status Update |  |  |  |  |  |  |
| Radio Unit Monitor |  |  |  |  |  |  |
| Radio Check |  |  |  |  |  |  |
| Radio Detach |  |  |  |  |  |  |
| Radio De-Authorization |  |  |  |  |  |  |
| Radio Inhibit |  |  |  |  |  |  |
| Radio Un-inhibit |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 1.3. Location Services |  |  |  |  |  |  |
| P25 Features, Functions, and Services | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Tier 1 Location Services |  |  |  |  |  |  |
| Tier 2 Location Services |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 1.4. Security Services |  |  |  |  |  |  |
| P25 Features, Functions, and Services | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Encrypted Call |  |  |  |  |  |  |
| Authentication |  |  |  |  |  |  |
| Over the Air Rekeying (OTAR) |  |  |  |  |  |  |
| Encryption Key Update |  |  |  |  |  |  |
| Link Layer Encryption |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 1.5. Other Services |  |  |  |  |  |  |
| P25 Features, Functions, and Services | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Over the Air Programming |  |  |  |  |  |  |
| Text Messaging |  |  |  |  |  |  |
| Interconnection with non-P25 Systems |  |  |  |  |  |  |
| Audible Signaling (Alert Tones) |  |  |  |  |  |  |
| Subaudible Signaling (squelch control, tone control, Continuous ToneCoded Squelch System [CTCSS]/Digital Carrier Squelch [DCS]) |  |  |  |  |  |  |
| Manual Roaming |  |  |  |  |  |  |
| Automatic Roaming |  |  |  |  |  |  |
| Individual Regrouping |  |  |  |  |  |  |
| Group Regrouping |  |  |  |  |  |  |

Table D-2: List of User Needs for P25 Infrastructure

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2.1. General System Needs |  |  |  |  |  |  |
| P25 Infrastructure | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Channel Width/Bandwidth Compliance |  |  |  |  |  |  |
| Efficient Use of RF Resources |  |  |  |  |  |  |
| FCC/NTIA Rules Satisfied |  |  |  |  |  |  |
| FDMA Phase 1 Backwards Compatibility Analog Conventional |  |  |  |  |  |  |
| TDMA Phase 2 Backwards Compatibility |  |  |  |  |  |  |
| Adaptive to all Public Safety Bands |  |  |  |  |  |  |
| Manufacturer Specific Features |  |  |  |  |  |  |
| Multiple System Configurations Capability |  |  |  |  |  |  |
| Orderly System Expansion |  |  |  |  |  |  |
| Co-Channel Operation |  |  |  |  |  |  |
| Out-of-Channel Emissions |  |  |  |  |  |  |
| Duplex Time Slot Operation |  |  |  |  |  |  |
| Dynamic Allocation of Channel Bandwidth for Data |  |  |  |  |  |  |
| Standard Signaling and Communications Interfaces |  |  |  |  |  |  |
| IP-Based Capabilities |  |  |  |  |  |  |
| Throughput Delay |  |  |  |  |  |  |
| Graceful Degradation (fallback/failover) |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 2.2. Mobility Control Elements | |  |  |  |  |  |
| P25 Infrastructure | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Call Processing Intelligence |  |  |  |  |  |  |
| Secure Trunking Control Channel (Link Layer Encryption) |  |  |  |  |  |  |
| Common Protocols and Coding Formats |  |  |  |  |  |  |
| ID Structures |  |  |  |  |  |  |
| Assignment of Unique IDs |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 2.3. Common Air Interface |  |  |  |  |  |  |
| Common Air Interface | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Features, Functions, and Services Support |  |  |  |  |  |  |
| Phase 1 (FDMA) Common Air Interface |  |  |  |  |  |  |
| Phase 2 (TDMA) Common Air Interface |  |  |  |  |  |  |
| Common Channel Operation |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 2.3.1. P25 Control Elements, Subscriber Management, and Call Processing Over the CAI | | | | | |  |
| Common Air Interface | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Maintained Site Location of Subscriber Units |  |  |  |  |  |  |
| Mobility Tracking |  |  |  |  |  |  |
| Registration and DeRegistration |  |  |  |  |  |  |
| Talkgroup Affiliation |  |  |  |  |  |  |
| Location Registration |  |  |  |  |  |  |
| Confirmed |  |  |  |  |  |  |
| Unconfirmed |  |  |  |  |  |  |
| Call Restriction |  |  |  |  |  |  |
| Conventional Repeater Hangtime |  |  |  |  |  |  |
| Operational Use of Conventional Talkgroups $0000 and $FFFFF |  |  |  |  |  |  |
| Surveillance Mode of Operations |  |  |  |  |  |  |
| Busy Channel Lockout (Conventional Polite Mode) |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 2.4. Inter-RF Subsystem Interface (ISSI) | |  |  |  |  |  |
| 2.4.1. General ISSI Needs |  |  |  |  |  |  |
| Inter-RF Subsystem Interface | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Features, Functions, and Services Support |  |  |  |  |  |  |
| P25 RFSS Connectivity |  |  |  |  |  |  |
| P25 RFSS and ISSI Function and Equipment Upgrade Capability1 |  |  |  |  |  |  |
| Roaming |  |  |  |  |  |  |
| Operational Modes |  |  |  |  |  |  |
| Network Configurations |  |  |  |  |  |  |
| Bearer Media for Interconnection |  |  |  |  |  |  |
| Encryption Key Management |  |  |  |  |  |  |
| Supported Services |  |  |  |  |  |  |
| Control Element |  |  |  |  |  |  |
| Traffic Element |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 2.4.2. Subscriber Roaming Management (Unique to ISSI) | | | |  |  |  |
| Inter-RF Subsystem Interface | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| ISSI Roaming Management |  |  |  |  |  |  |
| SU Identification |  |  |  |  |  |  |
| SU Validation |  |  |  |  |  |  |
| Resource Entitlement |  |  |  |  |  |  |
| Granting Requested Resources |  |  |  |  |  |  |
| Temporary Duplicate “Home Data File” |  |  |  |  |  |  |
| Encryption Key Management |  |  |  |  |  |  |
| Authorized Roamer Access in Emergency Mode |  |  |  |  |  |  |
| ISSI Support for Polling of RFSS Capabilities |  |  |  |  |  |  |
| In-Call Roaming |  |  |  |  |  |  |
| Adjacent Site Information |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 2.5. Fixed Station Interface |  |  |  |  |  |  |
| Fixed Station Interface | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Features, Functions, and Services Support |  |  |  |  |  |  |
| Transport of Clear Audio |  |  |  |  |  |  |
| Transport of E&M Control Signaling |  |  |  |  |  |  |
| Tone Remote Control (TRC) |  |  |  |  |  |  |
| Intercom Capability |  |  |  |  |  |  |
| Airlinks Supported (FM Operation) |  |  |  |  |  |  |
| Airlinks Supported (P25 Digital (CAI) Operation) |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 2.5.1. Conventional Digital Fixed Station Interface (CDFSI) | | | |  |  |  |
| Conventional Digital Fixed Station Interface | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| IP-Based Capabilities |  |  |  |  |  |  |
| Transport of Encrypted Audio |  |  |  |  |  |  |
| Transport of Caller-ID Information |  |  |  |  |  |  |
| Transport of Talk-group Information |  |  |  |  |  |  |
| Transport of NAC Code Information |  |  |  |  |  |  |
| Transport of CTCSS/DCS Information |  |  |  |  |  |  |
| Transport of Emergency Alarm |  |  |  |  |  |  |
| Transport of Emergency Indications |  |  |  |  |  |  |
| Transport of Received Voter Identification |  |  |  |  |  |  |
| Advanced Control of the Fixed Station – Frequency of Operation |  |  |  |  |  |  |
| Advanced Control of the Fixed Station – Repeating Voice |  |  |  |  |  |  |
| Advanced Control of the Fixed Station – Receiver Squelch |  |  |  |  |  |  |
| Intercom Audio |  |  |  |  |  |  |
| Ethernet 100 Base-T |  |  |  |  |  |  |
| Other CDFSI Physical and Data Link Connectivity |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 2.6. Non-P25 Interfaces |  |  |  |  |  |  |
| 2.6.1. Network Management Interface | |  |  |  |  |  |
| Network Management Interface | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Element Management |  |  |  |  |  |  |
| Single Point of Entry |  |  |  |  |  |  |
| Assign Limited Set of Database Fields |  |  |  |  |  |  |
| Multiple Databases |  |  |  |  |  |  |
| Vertical Partitioning |  |  |  |  |  |  |
| Airlinks Supported (FM Operation) |  |  |  |  |  |  |
| Airlinks Supported (P25 Digital (CAI) Operation) |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 2.6.2. Telephone Interconnect Interface | |  |  |  |  |  |
| Telephone Interconnect Interface | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Full Duplex Telephone Interconnect |  |  |  |  |  |  |
| Full Duplex Telephone Interconnect |  |  |  |  |  |  |
| System Operator Control of PSTN Access |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 2.6.3. Packet Data Host Network Interface | |  |  |  |  |  |
| Packet Data Host Network Interface | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Fixed Host Data Interface Protocols |  |  |  |  |  |  |
| Fixed Host to Mobile Data Terminal (MDT) Communication |  |  |  |  |  |  |
| Fixed Host to Fixed Host Communication |  |  |  |  |  |  |

Table D-3: List of User Needs for P25 Consoles

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 3.1. General Console Needs |  |  |  |  |  |  |
| P25 Consoles | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Console Patching |  |  |  |  |  |  |
| Dynamic Regrouping |  |  |  |  |  |  |
| Dispatcher Interrupt of Calls |  |  |  |  |  |  |
| Dispatcher Audio Takeover |  |  |  |  |  |  |
| Dispatcher Busy Call Takeover |  |  |  |  |  |  |
| Call Termination by a Dispatcher |  |  |  |  |  |  |
| Discreet Listening |  |  |  |  |  |  |
| Radio Unit Monitoring (Remote Unit Monitoring) |  |  |  |  |  |  |
| Dual-Tone Multifrequency (DTMF) Overdial |  |  |  |  |  |  |
| Transport of CTCSS/DCS Information |  |  |  |  |  |  |
| Transport of Emergency Alarm |  |  |  |  |  |  |
| Transport of Emergency Indications |  |  |  |  |  |  |
| Transport of Received Voter Identification |  |  |  |  |  |  |
| Advanced Control of the Fixed Station – Frequency of Operation |  |  |  |  |  |  |
| Advanced Control of the Fixed Station – Repeating Voice |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 3.2. Console Subsystem Interface | |  |  |  |  |  |
| Console Subsystem Interface | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Features, Functions, and Services Support |  |  |  |  |  |  |
| Packet Data |  |  |  |  |  |  |
| Console Rekeying |  |  |  |  |  |  |
| Telephone Patching |  |  |  |  |  |  |
| Conventional/Trunking Patching |  |  |  |  |  |  |
| Time Synchronization |  |  |  |  |  |  |
| Voter Control and Status |  |  |  |  |  |  |
| Conventional Channel Status and Control |  |  |  |  |  |  |
| Received NAC Code |  |  |  |  |  |  |
| Transmit NAC Code |  |  |  |  |  |  |
| Mode of Received Call |  |  |  |  |  |  |
| Conventional, Trunked, and Mixed Modes |  |  |  |  |  |  |
| Detection and Reporting of Failure Conditions |  |  |  |  |  |  |
| GPS/Automatic Vehicle Locator (AVL) |  |  |  |  |  |  |
| Transport Layer |  |  |  |  |  |  |
| Digital DTMF |  |  |  |  |  |  |

Table D-: List of User Needs for P25 Subscriber Equipment

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 4.1. Features, Functions, and Services Support | | |  |  |  |  |
| P25 Subscriber Equipment | Trunking Phase 2 | P25 Standard | Complies and Compatible | Proprietary | Not Compliant | Clarification |
| Voice Services |  |  |  |  |  |  |
| Supplementary Data Services |  |  |  |  |  |  |
| Security Services |  |  |  |  |  |  |
| Location Services |  |  |  |  |  |  |
| Other Services |  |  |  |  |  |  |
| Setup and Monitoring Functions |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 4.2. Mobile/Portable Subscriber Unit General Requirements | | | |  |  |  |
| P25 Subscriber Equipment | Trunking Phase 2 | P25 Standard | P25 Standard | P25 Standard | P25 Standard | P25 Standard |
| Analog Compliance |  |  |  |  |  |  |
| Analog Support |  |  |  |  |  |  |
| Electronic Serial Numbers (ESN) |  |  |  |  |  |  |
| Military Specifications Methods |  |  |  |  |  |  |
| Support Conventional and Trunked Modes |  |  |  |  |  |  |
| Phase 2 Subscriber Equipment in a Trunked Phase 1 System |  |  |  |  |  |  |
| Channel Width |  |  |  |  |  |  |
| Efficient Use of RF Resources |  |  |  |  |  |  |
| Channel Scan |  |  |  |  |  |  |
| Connection to an External Audio and Push-to-Talk System |  |  |  |  |  |  |
| Data Port for MDT, Portable Computer, or Other Peripheral Device |  |  |  |  |  |  |
| Data Port to Peripherals |  |  |  |  |  |  |
| Minimum Keypad Configuration |  |  |  |  |  |  |
| Digitally Store Functional Characteristics |  |  |  |  |  |  |
| Duplex Individual Calls |  |  |  |  |  |  |
| DTMF Signaling |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 4.3. Vehicular Repeater (VR) Capability | |  |  |  |  |  |
| P25 Subscriber Equipment | Trunking Phase 2 | P25 Standard | P25 Standard | P25 Standard | P25 Standard | P25 Standard |
| Full Duplex |  |  |  |  |  |  |
| Direct Mode |  |  |  |  |  |  |
| Unit to Unit Directed and Repeated |  |  |  |  |  |  |
| In-Band Operation |  |  |  |  |  |  |
| Manual or Auto Channel Selection |  |  |  |  |  |  |
| Extended Range |  |  |  |  |  |  |
| In-Vehicle or Stand-Alone |  |  |  |  |  |  |
| Operational Control |  |  |  |  |  |  |
| One-to-One Operation |  |  |  |  |  |  |
| More Than One Operation |  |  |  |  |  |  |
| Any Emergency In One-To-One Operation |  |  |  |  |  |  |
| Vehicle Repeater Activation |  |  |  |  |  |  |
| Single Control Capability |  |  |  |  |  |  |
| Ease of Operation |  |  |  |  |  |  |
| Full Control or Covert Installation |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| 4.4. Mobile Data Peripheral Interface | |  |  |  |  |  |
| Mobile Data Peripheral Interface | Trunking Phase 2 | P25 Standard | P25 Standard | P25 Standard | P25 Standard | P25 Standard |
| Mobile Data Interface Protocols |  |  |  |  |  |  |
| MDT to MDT Communication |  |  |  |  |  |  |
| MDT to Fixed Host Communication |  |  |  |  |  |  |
| Minimum Data Speed |  |  |  |  |  |  |