

**CONSUMER PROTECTION ASSOCIATION
HIMMATNAGAR
DIST. : SABARKANTHA
GUJARAT**



Comments

on

**Review of Terms and Conditions of PMRTS and CMRTS
Licenses**

Introduction :

Public Mobile Radio Trunking Service (PMRTS) and Critical Mobile Radio Trunking Service (CMRTS) play vital roles in the digital era, especially in ensuring effective communication for public safety, emergency response, and essential services. Here's why PMRTS and CMRTS are crucial in the digital age:

1. Mission-Critical Communication:

PMRTS and CMRTS provide reliable communication for emergency responders, law enforcement, firefighters, medical personnel, and other essential services. These networks ensure that critical information is transmitted without delays, facilitating rapid responses during emergencies.

2. Real-Time Coordination:

In emergency situations, real-time coordination is essential. PMRTS and CMRTS enable instant communication between various agencies, allowing them to collaborate, share information, and make decisions promptly.

3. Enhanced Situational Awareness:

Digital communication technologies used in PMRTS and CMRTS allow for the exchange of data, images, and video, enhancing situational awareness. This capability aids decision-makers in understanding the situation better and making informed choices.

4. Interoperability:

PMRTS and CMRTS networks are designed to be interoperable, allowing different agencies and services to communicate seamlessly. Interoperability ensures that information can be shared across various platforms and devices, enhancing overall response efficiency.

5. Security and Encryption:

Digital PMRTS and CMRTS networks offer advanced security features, including encryption, ensuring that sensitive information remains confidential and protected from unauthorized access.

6. Capacity and Scalability:

Digital technologies used in PMRTS and CMRTS networks provide higher capacity and scalability, accommodating a larger number of

users during emergencies. This scalability ensures that communication systems can handle increased loads during crises.

7. Disaster Response and Recovery:

During natural disasters, accidents, or terrorist attacks, PMRTS and CMRTS networks are instrumental in organizing disaster response efforts. They facilitate efficient communication among first responders, enabling them to assess damages, coordinate rescue efforts, and manage resources effectively.

8. Public Safety and National Security:

PMRTS and CMRTS are foundational components of public safety and national security infrastructure. They ensure that law enforcement, defense agencies, and emergency services are well-equipped to protect citizens and respond to various security threats.

9. Technological Advancements:

With advancements in digital technologies, PMRTS and CMRTS networks continue to evolve. Integration with IoT devices, AI-powered analytics, and real-time data processing enhance the capabilities of these systems, making them even more effective in crisis situations.

10. Remote and Rural Areas Connectivity:

PMRTS and CMRTS networks extend connectivity to remote and rural areas where communication infrastructure might be limited. This

ensures that emergency services are available even in locations far from urban centers.

PMRTS and CMRTS are indispensable in the digital era, providing the backbone for communication during emergencies, safeguarding public safety, and ensuring the swift response of essential services. Their reliability, interoperability, and advanced features make them invaluable tools in the face of various challenges and crises.

Reviewing the terms and conditions is crucial for several reasons, regardless of the context, whether it's for licenses, contracts, services, or any other legal agreements. It will ensure legal compliance, and foster clear communication between parties involved in any agreement or transaction.

ISSUES FOR CONSULTATION

Q1. Whether there is a need to review the terms and conditions of PMRTS License and PMRTS Authorization under Unified License? Kindly provide a detailed response with justifications.

Comments : **Yes.**

Regulatory policies and licenses are subject to change a per the advancement. It will provide legal protection, scope of service, compliance, data security and services, Termination and renewal, quality of service, Negotiation leverage and building trust etc..

These terms and conditions should be designed to ensure the efficient operation of PMRTS networks, protect consumers, and maintain the integrity of the telecommunications sector. While specific

requirements can differ, here are some common terms and conditions that might be included in PMRTS License and Authorization:

1. Eligibility Criteria:

Define the eligibility criteria for entities applying for PMRTS License or Authorization. This can include legal status, technical capabilities, financial stability, and adherence to regulatory standards.

2. Spectrum Allocation:

Specify the frequency bands allocated for PMRTS operations, including bandwidth, channel assignments, and any restrictions on spectrum usage.

3. License Fee and Renewal:

Outline the licensing fees, renewal fees, and the duration of the license. Specify the process for license renewal, including criteria for renewal eligibility.

4. Coverage Obligations:

Define the geographical coverage obligations, ensuring that PMRTS networks cover specific areas, including urban, rural, and underserved regions.

5. Quality of Service (QoS) Standards:

Establish QoS parameters, including voice clarity, network availability, call setup time, and other performance metrics. Penalties for failure to meet QoS standards may also be specified.

6. Interoperability Requirements:

Define standards for interoperability with other public safety and emergency communication systems to facilitate collaboration during emergencies.

7. Emergency Services Support:

Mandate support for emergency services, including providing access to emergency numbers and enabling location-based services for emergency callers.

8. Security Measures:

Specify security protocols and encryption standards to ensure the confidentiality and integrity of communications over PMRTS networks.

9. Consumer Protection:

Define consumer rights, including billing transparency, dispute resolution mechanisms, and safeguards against fraudulent activities.

10. Compliance and Reporting:

Outline requirements for regulatory compliance, including periodic reporting, audits, and inspections to ensure adherence to license conditions.

11. Technology Standards:

Specify the technology standards and equipment certifications that PMRTS providers must adhere to for compatibility and network integrity.

12. Safeguards for Public Safety:

Implement measures to ensure that PMRTS networks do not interfere with other critical communication systems, including public safety radio networks.

13. Disaster Recovery and Redundancy:

Define disaster recovery and network redundancy requirements to ensure continuous operation, even in the event of network failures or natural disasters.

14. License Transfer and Assignment:

Specify conditions under which the PMRTS License or Authorization can be transferred or assigned to another entity, ensuring regulatory oversight and approval.

It's important to note that these terms and conditions are generic and can vary significantly based on the regulatory framework and specific requirements.

Q2. In case it is decided to review the terms and conditions of PMRTS License and PMRTS Authorization under Unified License, in what manner should the following conditions be amended?

(a) Scope of the license

(b) Roll out obligation

(c) Technical conditions

(d) Network interconnection

(e) Security conditions

(f) Any other (please specify).

Kindly provide a detailed response with justifications

Comments : **Mentioned in the Comments.**

Security Conditions :

The security conditions for telecommunication licenses typically involve various aspects related to network security, data protection, and compliance with national security regulations.

For any telecommunications service, including PMRTS, the security conditions often include the following aspects.

Network Security:

Ensuring that the telecommunication network is secure from unauthorized access, hacking attempts, and other cybersecurity threats.

Data Protection:

Safeguarding customer data and ensuring compliance with data protection laws and regulations. This includes secure storage, transmission, and processing of customer information.

Lawful Interception:

Compliance with regulations related to lawful interception of communications for law enforcement and national security purposes.

Compliance with National Security Regulations:

Adherence to specific regulations and standards outlined by national security agencies to prevent misuse of telecommunication services for unlawful activities.

Emergency Services:

Providing support for emergency services and ensuring that the telecommunication services remain operational during emergencies or disasters.

Infrastructure Protection:

Protecting physical infrastructure, such as cell towers and data centers, from sabotage and other physical threats.

Resilience and Redundancy:

3. **Security:** Static IP addresses can be configured with enhanced security measures, reducing the risk of unauthorized access and cyberattacks.
4. **Quality of Service (QoS):** Static IP addresses allow for better control over Quality of Service, ensuring that critical applications receive priority bandwidth and resources.
5. **Hosting Services:** PMRTS providers with static IP addresses can host their own services, applications, and servers, enhancing their operational capabilities.
6. **Integration with Other Services:** Static IP addresses facilitate integration with other services and networks, enabling seamless communication between different platforms and technologies.

Cons:

1. **Security Vulnerabilities:** Static IP addresses can be susceptible to targeted attacks if not properly secured. Hackers may attempt to exploit known IP addresses.
2. **Cost:** Acquiring static IP addresses might involve additional costs compared to dynamic IP addresses, impacting the operational expenses of PMRTS providers.
3. **Complex Configuration:** Configuring and managing static IP addresses can be more complex and time-consuming than using dynamic IP addresses, especially for large-scale networks.

4. **Limited Address Availability:** There is a finite pool of available static IP addresses. If many PMRTS providers in a region require static IPs, there might be challenges in allocation.
5. **Regulatory Compliance:** Static IP addresses may require adherence to specific regulatory requirements and standards, adding complexity to compliance efforts.
6. **Potential Network Congestion:** In cases where there's a limited pool of static IP addresses, there might be network congestion, especially in densely populated areas.

The decision to permit PMRTS providers to have Internet connectivity with static IP addresses should be made considering these factors, weighing the advantages against the potential challenges. Additionally, robust security measures and monitoring protocols should be in place to mitigate the risks associated with static IP addresses, ensuring the integrity and security of the PMRTS networks.

Q4. Whether there is a need to review the extant provisions relating to service area for PMRTS Authorization under Unified License? If yes, whether it would be appropriate to grant PMRTS Authorization for three different categories with service area as (a) National Area; (b) Telecom circle/ Metro Area; and (c) Secondary Switching Area (SSA)? Kindly provide a detailed response with justification.

Localized Marketing and Support: Telecom companies can design marketing strategies and customer support services tailored to each category. Localized approaches are often more effective in addressing the unique needs and preferences of customers in different regions.

Compliance and Reporting: Regulatory compliance and reporting can be more specific and accurate when service areas are categorized. Authorities can monitor and assess compliance at different levels, allowing for a more detailed and nuanced understanding of the industry's adherence to regulations.

Disaster Recovery and Emergency Services: Categorization facilitates better planning for disaster recovery and emergency services. Different areas might have distinct vulnerabilities and risks, and tailoring emergency response plans according to categories can enhance preparedness and response efficiency.

While categorizing PMRTS service areas can be beneficial, the specific categorizations and their effectiveness would depend on the unique context and regulatory framework of the country or region in question. It's essential for regulatory authorities and telecommunication service providers to carefully analyze the local market conditions and regulatory requirements before implementing such categorizations to ensure their effectiveness and relevance.

The determination of the service area for Public Mobile Radio Trunking Service (PMRTS) authorization is a critical aspect of

regulatory policy. The service area is influenced by various factors, including population density, geographical considerations, existing telecommunications infrastructure, and the specific goals of the regulatory framework. Here are some considerations that TRAI may take into account when defining the service area for PMRTS authorization:

1. **Population Density:** PMRTS networks are often deployed in areas with high population density, such as urban centers, where there is a significant demand for mobile communication services.
2. **Geographical Coverage:** The service area should ensure comprehensive coverage of the intended area, including both urban and rural regions. This coverage might be defined in terms of specific geographic boundaries, such as cities, regions, or districts.
3. **Economic Viability:** TRAI may consider the economic viability of providing PMRTS in a particular area. The costs associated with deploying and maintaining the necessary infrastructure should be balanced with the potential revenue from subscribers.
4. **Existing Telecommunications Infrastructure:** The presence of existing telecommunications infrastructure, including cellular networks and other communication services, might influence the decision about where to authorize PMRTS. TRAI may choose

areas with limited existing coverage to improve overall communication accessibility.

5. **Special Use Cases:** PMRTS networks are often used for specific purposes, such as public safety, transportation, or industrial applications. The service area might be tailored to meet the specific needs of these use cases. For example, coverage could be extended along highways, in airports, or within industrial zones.
6. **Regulatory Policies:** The service area might also be influenced by broader regulatory policies and national development goals. TRAI may prioritize providing services to underserved or remote areas to bridge the digital divide and promote social and economic development.
7. **Spectrum Availability:** The availability of suitable radio spectrum in specific regions could impact the choice of service areas. TRAI need to ensure that there is enough spectrum available to support PMRTS operations without causing interference to other services.

Ultimately, the definition of the service area for PMRTS authorization requires a careful balance between providing comprehensive coverage, ensuring economic viability, meeting specific use-case requirements, and promoting equitable access to communication services for all citizens. TRAI may conduct thorough

assessments and consultations with stakeholders to make informed decisions regarding the optimal service area for PMRTS authorization.

Q5. Whether there is a need to review the extant provisions relating to the authorized area for use of a particular frequency spectrum to PMRTS providers? If yes, in what manner should these provisions be amended? Kindly provide a detailed response with justification.

Comments : **Yes.**

The provisions relating to the authorized area for the use of a particular frequency spectrum by Public Mobile Radio Trunking Service (PMRTS) providers are critical for effective spectrum management and ensuring interference-free communication services. Here are some key considerations and provisions that TRAI may include:

1. Geographical Licensing:

- Define the specific geographic boundaries within which the PMRTS provider is authorized to operate. This could be on a national, regional, or local level, depending on the TRAI's framework.

2. Spectrum Bands and Channels:

- Clearly specify the frequency bands and channels allocated to PMRTS providers within the authorized area. This includes defining the spectrum range (in hertz) and the frequency blocks or channels allocated.

3. Spectrum Sharing and Interference Management:

- Include provisions for spectrum sharing if multiple PMRTS providers are authorized in the same frequency band within the same geographical area.
- Implement interference management strategies to minimize the risk of interference with other licensed services and ensure quality communication services for PMRTS users.

4. Coverage Requirements:

- Define the minimum coverage requirements within the authorized area. PMRTS providers may be required to provide coverage to specific percentages of the population or specific geographic locations, such as urban areas, highways, or public safety zones.

5. Service Obligations:

- Specify any service obligations, such as providing emergency communication services, supporting public safety agencies, or ensuring communication availability in disaster-prone areas.

6. License Renewal and Revocation:

- Outline the conditions under which a license can be renewed or revoked, particularly concerning the PMRTS provider's adherence to coverage requirements and service obligations within the authorized area.

7. Technology Neutrality:

- Encourage technology neutrality, allowing PMRTS providers the flexibility to choose appropriate technologies to meet the specified coverage and service obligations within the authorized area.

8. Compliance and Monitoring:

- Establish mechanisms for compliance monitoring to ensure that PMRTS providers adhere to the authorized spectrum usage and coverage requirements. Implement penalties for non-compliance, if necessary.

9. Coordination with Other Services:

- Establish coordination mechanisms with other radio services (both within and outside the country) to prevent harmful interference and ensure efficient spectrum utilization.

10. Public Consultation:

- Conduct consultations with CAG and engage with stakeholders when determining the authorized area and related provisions. This promotes transparency and allows input from industry experts and the CAG.

11. Spectrum Trading and Transfer:

- Define rules and procedures for spectrum trading and transfer within the authorized area, allowing PMRTS providers to buy, sell, or lease spectrum rights based on their operational requirements.

These provisions need to strike a balance between encouraging efficient use of the spectrum, promoting competition, ensuring quality communication services, and protecting the interests of consumers and other stakeholders. The TRAI plays a crucial role in defining and enforcing these provisions to create a conducive environment for PMRTS providers and users alike.

Q6. Whether there is a need to review the mechanism of shifting the fixed station from one location to another location within

**the authorized area for use of a particular frequency spectrum?
If yes, what should be the terms and conditions for such permission? Kindly provide a detailed response with justification.**

Comments : No Comments.

Q7. Whether there is a need to permit PMRTS providers to shift a few frequency carriers out of a pool of frequency carriers, assigned to an existing Fixed Station, to a new Fixed Station located within the authorized area for use of the pool of frequency carriers? If yes, in what manner the challenges arising out of such partial shifting of frequency carriers may be mitigated? Kindly provide a detailed response with justification.

Comments : No Comments.

Q8. Whether there is a need to review the requirement of obtaining Wireless Operating License (WOL) by PMRTS providers? Kindly provide a detailed response with justification.

Comments : Yes.

The requirement for Public Mobile Radio Trunking Service (PMRTS) providers to obtain a Wireless Operating License (WOL) is typically established by the TRAI. This license is essential for PMRTS providers to legally operate their wireless communication services.

Here are some common aspects related to obtaining a WOL for PMRTS providers which should be included :

1. Application Process:

- PMRTS providers must submit an application to the regulatory authority, providing details about the scope of their services, the frequency bands they intend to use, the geographical area they plan to cover, and technical specifications of their equipment.

2. Compliance with Regulations:

- PMRTS providers need to demonstrate compliance with existing telecommunications regulations and technical standards. This includes ensuring that their services do not cause interference with other licensed services and adhere to established quality of service (QoS) standards.

3. Coverage Requirements:

- PMRTS providers may be required to meet specific coverage requirements, ensuring that their services reach a certain percentage of the population or specific geographic areas, such as urban centers or critical infrastructure locations.

4. Technical Standards and Equipment Certification:

- PMRTS providers must use equipment that complies with technical standards specified by the TRAI. Equipment

certification may be necessary to ensure compatibility and minimize interference with other radio services.

5. Service Obligations:

- PMRTS providers might have service obligations, such as providing emergency communication services, supporting public safety agencies, or ensuring communication availability in disaster-prone areas.

6. Compliance and Monitoring:

- TRAI should monitor the operations of PMRTS providers to ensure ongoing compliance with regulations. Non-compliance may result in penalties, license suspension, or revocation.

7. Public Safety and Security:

- PMRTS providers are expected to implement security measures to safeguard their networks against unauthorized access and protect user data. They might also be required to cooperate with law enforcement agencies for public safety and national security purposes.

Q9. Whether there is a need to review the provisions related to sale, lease and rent of the radio terminals of PMRTS? Kindly provide a detailed response with justification.

Comments :

The provisions related to the sale, lease, and rent of the radio terminals of Public Mobile Radio Trunking Service (PMRTS) should be carefully designed to ensure efficient utilization of radio spectrum, promote fair competition, and safeguard the interests of consumers. Here are some key provisions that can be considered:

1. Licensing and Spectrum Allocation:

- **Licensing Process:** Establish a transparent and competitive licensing process for radio terminals. This process should encourage fair participation from various vendors and ensure that licenses are granted based on technical capabilities and compliance with regulatory standards.
- **Spectrum Allocation:** Allocate spectrum bands for PMRTS radio terminals based on industry standards and spectrum availability. Spectrum should be allocated efficiently to avoid congestion and ensure optimal performance.

2. Sale, Lease, and Rent Provisions:

- **Sale:** Allow vendors to sell radio terminals to eligible entities, such as businesses, government agencies, and organizations.

Ensure that the sale process is regulated to prevent the unauthorized sale of radio terminals to unlicensed users.

- **Lease and Rent:** Permit leasing and renting of radio terminals, enabling organizations to use the equipment without a long-term commitment. Implement clear guidelines for leasing and renting agreements, including duration, usage restrictions, and compliance with regulatory requirements.

3. Technical Standards and Interoperability:

- **Technical Standards:** Define technical standards and specifications for PMRTS radio terminals to ensure compatibility and interoperability within the network. Compliance with these standards should be a prerequisite for sale, lease, or rent.
- **Interoperability:** Encourage vendors to develop radio terminals that are interoperable with other PMRTS equipment, allowing seamless communication between different users and networks.

4. Quality of Service (QoS) and Security:

- **QoS Requirements:** Establish minimum quality of service requirements for PMRTS radio terminals, including parameters like voice clarity, coverage, and reliability. Vendors should meet these standards to ensure a satisfactory user experience.
- **Security Measures:** Implement security features in radio terminals to prevent unauthorized access, eavesdropping, and

other security threats. Encourage encryption and authentication mechanisms to protect communication channels.

5. Regulatory Compliance and Monitoring:

- **Compliance Checks:** Regularly audit vendors and users to ensure compliance with licensing regulations, technical standards, and security protocols. Strict penalties should be imposed for non-compliance.
- **Monitoring and Enforcement:** TRAI should monitor the sale, lease, and rent of PMRTS radio terminals. The authority should enforce regulations, resolve disputes, and oversee the fair functioning of the market.

6. Consumer Protection and Public Safety:

- **Consumer Awareness:** Educate consumers about their rights and responsibilities when purchasing, leasing, or renting radio terminals. Provide clear information about technical specifications, warranties, and after-sales services.
- **Emergency Communication:** Ensure that PMRTS radio terminals comply with emergency communication standards. Public safety agencies should have access to reliable and secure communication channels during emergencies.

By implementing these provisions, TRAI can create a conducive environment for the sale, lease, and rent of PMRTS radio terminals,

promoting a competitive market while safeguarding the integrity and efficiency of the communication network.

Q10. In case your response to the Q9 is in the affirmative, what kind of changes will be required in PMRTS licenses and Dealer Possession License (DPL) and guidelines? Kindly provide a detailed response with justification.

Comments : **Mentioned above.**

Q11. Whether there is a need to review the provisions related to import of the radio terminals of PMRTS? Kindly provide a detailed response with justification.

Comments :

Provisions related to the import of radio terminals for Public Mobile Radio Trunking Service (PMRTS) are crucial to ensure the quality, security, and compliance of the imported equipment with national regulations. Here are some key provisions that should be considered:

1. Certification and Compliance:

- **Certification Requirements:** Radio terminals imported for PMRTS should meet national technical standards and regulations. Importers should provide certifications from recognized testing laboratories confirming compliance with these standards.

- **Regulatory Approval:** Establish a regulatory body responsible for approving imported radio terminals. The approval process should include rigorous testing to ensure the equipment's functionality, security features, and adherence to technical specifications.

2. Import Licensing and Documentation:

- **Import Licenses:** Require importers to obtain licenses specifically for importing PMRTS radio terminals. Licenses should be granted only to entities that meet regulatory criteria, ensuring that only authorized and reputable businesses import the equipment.
- **Documentation:** Importers should submit detailed documentation, including technical specifications, certificates of compliance, and proof of purchase, to customs authorities for verification. Proper documentation helps in tracking the origin and authenticity of the imported equipment.

3. Customs Duties and Taxes:

- **Tariffs and Taxes:** Clearly define the applicable customs duties and taxes for imported radio terminals. Consider exemptions or reduced duties for equipment intended for public safety, emergency services, or other essential purposes to promote their affordable availability.

4. Security and Encryption:

- **Security Features:** Imported radio terminals should have robust security features, including encryption capabilities, to prevent unauthorized access and eavesdropping. TRAI should verify the effectiveness of these security measures.
- **Data Protection:** Ensure that imported radio terminals comply with data protection laws, especially when used in sensitive applications like law enforcement or emergency services.

5. After-Sales Support and Warranty:

- **Warranty Requirements:** Mandate a minimum warranty period for imported radio terminals. Importers should provide warranties that cover defects and malfunctions, ensuring customers receive reliable and functional equipment.
- **After-Sales Support:** Importers should establish service centers and provide after-sales support, including repairs, maintenance, and software updates, to ensure the longevity and optimal performance of the imported radio terminals.

6. User Training and Education:

- **Training Programs:** Encourage importers to conduct training programs for end-users. Proper training ensures that users understand the features and capabilities of the radio terminals, enabling them to utilize the equipment effectively.

- **User Manuals:** Require importers to provide user manuals in local languages, explaining the functionality, operation, and troubleshooting procedures of the radio terminals.

7. Surveillance and Enforcement:

- **Surveillance:** Implement surveillance mechanisms to monitor the market for illegal or non-compliant radio terminals. Regular inspections and audits can deter the import and sale of unauthorized equipment.
- **Enforcement:** Enforce strict penalties, including fines and legal actions, against importers involved in the illegal importation of radio terminals or non-compliance with regulations. Stringent enforcement ensures adherence to import provisions.

By incorporating these provisions, TRAI can ensure that imported radio terminals for PMRTS meet high-quality standards, adhere to security protocols, and provide reliable communication services for public safety and essential services.

Q12. Whether there is a need to review the provisions related to replacement of unserviceable network elements of PMRTS? Kindly provide a detailed response with justification.

Comments : **Yes.**

Provisions related to the replacement of unserviceable network elements of Public Mobile Radio Trunking Service (PMRTS) are essential to ensure the continuity and quality of communication

services. Following are some key provisions that TRAI may consider for implementation:

1. Service Level Agreements (SLAs):

Establish SLAs specifying the maximum allowable downtime for unserviceable network elements. Providers should be required to replace or repair unserviceable elements within a stipulated timeframe to maintain service continuity.

2. Maintenance and Replacement Plans:

PMRTS providers should submit detailed maintenance and replacement plans to the TRAI. These plans should outline how unserviceable network elements will be identified, replaced, or repaired promptly.

3. Backup and Redundancy:

Require PMRTS providers to implement backup and redundancy mechanisms. Redundant network elements can automatically take over in case of a failure, minimizing disruptions to service.

4. Reporting Requirements:

TRAI should Mandate reporting mechanisms for PMRTS providers to inform the TRAI promptly when network elements become unserviceable. This reporting should include details about the affected area, the type of element, and the expected resolution timeframe.

5. Replacement Timelines:

Define specific timelines within which unserviceable network elements must be replaced. Urgent replacements might have shorter timelines compared to non-critical elements, but all replacements should be done promptly.

6. Quality Assurance:

Implement quality assurance measures to ensure that replacements meet specified technical standards and do not negatively impact the overall network performance.

7. Customer Notifications:

Require PMRTS providers to notify affected customers about unserviceable network elements and the expected duration of service disruption. Timely and transparent communication with customers is crucial.

8. Penalties for Non-Compliance:

Establish penalties for PMRTS providers who fail to replace unserviceable network elements within the stipulated timeframe. Penalties should be sufficient to encourage compliance and deter negligence.

9. Audit and Monitoring:

TRAI should Conduct regular audits and monitoring of PMRTS providers' network infrastructure to ensure compliance with replacement provisions. Non-compliance should be addressed promptly.

10. Customer Compensation:

TRAI should Consider provisions for compensating customers if unserviceable network elements lead to prolonged service disruptions. Compensation could be in the form of service credits or other appropriate measures.

11. Public Safety Considerations:

Give special attention to network elements serving critical services, such as public safety agencies. Unscheduled downtime in such cases could have significant public safety implications, necessitating rapid response and replacement.

12. Escalation Procedures:

TRAI should Establish clear escalation procedures for unresolved issues. If network elements remain unserviceable beyond a certain period, there should be mechanisms for escalating the matter within the regulatory authority for resolution.

These provisions should be detailed in the licensing agreements and regulations governing PMRTS providers. Regular review and updates to these provisions are essential to keep pace with technological advancements and changing customer expectations.

Q13. Whether there is need to review the recommendation No 4.5 (mentioned below) of the TRAI's Recommendations on 'Method of allocation of spectrum for Public Mobile Radio Trunking Service (PMRTS) including auction, as a transparent mechanism' dated 20.07.2018, which are under consideration of DoT?

"4.5 The Authority recommends that-

(a) Carrier size for assignment to PMRTS licensee (both for analog or digital) shall be 6.25 KHz and multiples thereof.

(b) Carriers (frequency pairs) of 25 KHz already assigned to the service providers should be allowed to be retained by the service providers.

(c) Additional assignment of carriers for the existing analogue system shall continue @ carrier size of 25 KHz (counted as 4 carriers of 6.25 KHz each).

(d) Assignment in new cities/ service areas shall be made for digital systems only.

(e) Initially for each city, twelve carriers (frequency pairs) of carrier size 6.25 KHz in metro licensed service area and eight carriers (frequency pairs) in non-metro license service area shall be assigned for PMRTS (Digital system) depending on the availability."

Kindly provide a detailed response with justification.

Comments :

No Comments.

Q14. Whether there is a need to mandate PMRTS providers to migrate to spectrally efficient digital technologies in a time-bound manner? If yes, what should be the time frame for mandatory migration to spectrally efficient digital technologies? Kindly provide a detailed response with justification.

Comments : **Yes.**

The need to mandate PMRTS (Public Mobile Radio Trunking Service) providers to migrate to spectrally efficient digital technologies in a time-bound manner can be justified for several reasons:

Spectral Efficiency: Digital technologies are generally more spectrally efficient than analog technologies. They allow for more efficient use of the available radio spectrum, accommodating more users and data traffic within the same bandwidth. This is crucial in optimizing the use of limited and valuable radio spectrum resources.

Improved Quality of Service: Digital technologies often provide better voice quality and allow for additional features such as encryption and data transmission. This can lead to an improved overall quality of service for PMRTS users.

Interoperability: Digital technologies can facilitate interoperability between different communication systems and devices. This is important for emergency services and public safety agencies where seamless communication between various departments and organizations is critical.

Enhanced Security: Digital systems often come with advanced security features, such as encryption, which can enhance the security and privacy of communications. This is especially important for government and security-related applications.

Global Trends: Many countries worldwide are moving towards digitalization of their communication systems. Mandating PMRTS providers to adopt digital technologies ensures alignment with global technology standards and interoperability with systems in other countries.

Spectrum Optimization: Efficient utilization of spectrum is essential for accommodating the growing demand for wireless services. By migrating to digital technologies, PMRTS providers can free up valuable spectrum that can be repurposed for other services, such as broadband communications.

Future-Proofing: Digital technologies are more adaptable to future advancements and upgrades. Migrating to digital systems ensures that PMRTS networks are better equipped to handle future technological developments and changes in user requirements.

Regulatory Control: Mandating migration to digital technologies allows regulatory authorities to have better control and oversight over the technologies used in the communication networks. This can facilitate more effective regulation and monitoring of the services.

However, the implementation of such a mandate requires careful planning, sufficient transition time, and support mechanisms for PMRTS providers to make the switch. Additionally, it's important for TRAI to work closely with industry stakeholders to address any challenges that may arise during the migration process.

Q15. In case your response to Q14 is negative, what measures should be taken to nudge and encourage PMRTS providers to migrate to spectrally efficient digital technologies? Kindly provide a detailed response with justification.

Comments :

Encouraging Public Mobile Radio Trunking Service (PMRTS) providers to migrate to spectrally efficient digital technologies is essential for maximizing spectrum utilization and improving overall communication services. Here are several measures that TRAI can take to nudge and encourage PMRTS providers to transition to digital technologies:

1. Spectrum Auctions and Licensing Conditions:

Allocate spectrum specifically for digital technologies and make it available through auctions or licensing processes. Establish conditions in licenses that encourage the use of digital technologies for efficient spectrum utilization.

2. Incentives for Digital Migration:

Offer financial incentives or reduced licensing fees to PMRTS providers who migrate from analog to digital technologies. Subsidies or tax incentives can act as strong motivators.

3. Technical Assistance and Training:

Provide technical assistance, training, and capacity-building programs to PMRTS providers to help them transition to digital technologies. Support in the form of workshops, seminars, and technical consultations can be valuable.

4. Collaborative Research and Development:

Encourage collaboration between industry stakeholders, research institutions, and technology providers to facilitate research and development of advanced digital PMRTS solutions. Funding for joint projects can promote innovation.

5. Standardization and Certification:

Establish industry standards for digital PMRTS technologies. Certification processes can ensure that equipment meets specified standards, promoting interoperability and the widespread adoption of digital solutions.

6. Public Awareness Campaigns:

Launch public awareness campaigns to inform PMRTS providers about the benefits of digital technologies, including improved efficiency, enhanced features, and reduced operational costs. Case studies and success stories can be particularly persuasive.

7. Collaboration with Equipment Manufacturers:

Work closely with equipment manufacturers to encourage the production of affordable and innovative digital PMRTS devices. Lower equipment costs can facilitate migration for PMRTS providers, especially smaller operators.

8. Spectrum Efficiency Metrics:

Introduce spectrum efficiency metrics as part of the licensing requirements. PMRTS providers could be required to meet certain efficiency standards, encouraging the adoption of digital technologies that utilize spectrum more effectively.

9. Transition Roadmaps:

Develop clear and feasible transition roadmaps outlining the steps and timelines for migrating from analog to digital technologies. Provide technical guidelines and best practices to assist PMRTS providers during the migration process.

10. Regulatory Flexibility:

Offer regulatory flexibility for PMRTS providers transitioning to digital technologies. Streamlined regulatory procedures and reduced bureaucratic hurdles can expedite the migration process.

11. Market Competition:

Foster healthy market competition by ensuring that new digital technology providers have a fair opportunity to enter the market. Competition often drives innovation and the adoption of efficient technologies.

12. Performance-Based Regulations:

Implement performance-based regulations that reward PMRTS providers for delivering high-quality services, encouraging the use of digital technologies that enhance service quality.

13. Regular Monitoring and Feedback:

Establish mechanisms for continuous monitoring of spectrum usage and performance. Provide feedback to PMRTS providers regarding their spectrum efficiency, encouraging them to optimize their networks further.

14. International Collaboration:

Collaborate with international regulatory bodies to stay updated on global best practices and encourage the adoption of efficient digital technologies in line with international standards.

1. Dedicated Network Slices:

Isolated Slices: PMRTS and CMRTS can have dedicated network slices isolated from other consumer services. These slices ensure that mission-critical services have guaranteed resources, low latency, and high reliability.

2. Low Latency Communication:

Ultra-Reliable Low Latency Communication (URLLC): 5G networks, especially with URLLC features, can provide low latency communication essential for mission-critical applications.

3. High Reliability:

Reliability and Redundancy: Redundancy features within network slicing can ensure high reliability. Failover mechanisms and backup paths can be implemented for critical communication services.

4. Quality of Service (QoS) Control:

Customized QoS: Network slicing allows operators to customize QoS parameters, ensuring that PMRTS and CMRTS receive the necessary priority and bandwidth to maintain reliable communication.

5. Service Differentiation:

Service-Level Agreements (SLAs): SLAs can be established for mission-critical services, guaranteeing specific levels of performance, uptime, and response times.

6. Edge Computing:

Edge Computing Integration: Integrating network slicing with edge computing can reduce latency further, making real-time mission-critical applications more responsive.

7. Security Measures:

Enhanced Security: Implement advanced security protocols within network slices to protect mission-critical data and communication from potential cyber threats.

8. Resource Allocation:

Dynamic Resource Allocation: Network slicing allows dynamic allocation of resources based on demand. During emergencies or high-demand situations, resources can be automatically allocated to mission-critical services.

9. Interoperability:

Interoperability Standards: Ensure that network slicing implementations adhere to interoperability standards, allowing seamless communication between different mission-critical systems.

10. Firmware and Software Updates:

Managed Updates: Implement managed firmware and software updates to maintain the security and functionality of devices used in mission-critical communication.

While network slicing in 4G/5G networks offers significant advantages for mission-critical communication services, it's essential to design, implement, and manage these solutions carefully. Thorough testing, adherence to standards, and continuous monitoring are crucial to ensure the reliability, security, and effectiveness of PMRTS and CMRTS delivered using network slicing technology.

Ensuring the quality-of-service (QoS) for cellular networks is not adversely impacted in Public Mobile Radio Trunking Service (PMRTS) and Critical Mobile Radio Trunking Service (CMRTS) is crucial for maintaining reliable communication, especially in mission-critical scenarios. Here are several safeguards that can be implemented to preserve QoS in PMRTS and CMRTS without compromising the overall cellular network performance:

1. Dedicated Network Slices:

Isolation: Allocate dedicated network slices for PMRTS and CMRTS, ensuring they operate independently from regular cellular traffic. Isolation guarantees that the mission-critical services do not contend for resources with other services.

2. Quality of Service (QoS) Parameters:

Customized QoS: Define specific QoS parameters tailored to the requirements of PMRTS and CMRTS. Prioritize low latency, high reliability, and sufficient bandwidth to maintain real-time communication.

3. Bandwidth Reservation:

Guaranteed Bandwidth: Reserve a portion of the network bandwidth exclusively for PMRTS and CMRTS. Guaranteeing bandwidth ensures uninterrupted communication for mission-critical applications.

4. Service Level Agreements (SLAs):

SLAs: Establish SLAs with clear performance metrics for PMRTS and CMRTS providers. SLAs should outline parameters such as latency, jitter, and packet loss, ensuring adherence to the agreed-upon service quality.

5. Traffic Engineering:

Dynamic Traffic Management: Implement dynamic traffic engineering mechanisms to adapt to changing network conditions. Optimize routing and resource allocation in real-time based on the demand and criticality of communication.

6. Network Redundancy:

Redundant Paths: Create redundant network paths for PMRTS and CMRTS traffic. Redundancy ensures that if one path fails, communication can seamlessly switch to an alternate path, maintaining QoS.

7. Load Balancing:

Efficient Load Balancing: Implement load balancing algorithms to distribute traffic evenly across network elements. Load balancing prevents congestion and ensures optimal utilization of resources.

8. Network Monitoring:

Continuous Monitoring: Implement robust network monitoring tools to continuously assess the performance of PMRTS and CMRTS. Proactive monitoring allows for early detection of issues and timely resolution.

9. Security Measures:

Enhanced Security Protocols: Implement stringent security measures to protect PMRTS and CMRTS communication. Secure communication channels prevent unauthorized access and ensure data integrity.

10. Firmware and Software Updates:

Managed Updates: Regularly update firmware and software for devices used in PMRTS and CMRTS. Managed updates are essential to address security vulnerabilities and maintain optimal performance.

11. Capacity Planning:

Scalability: Plan network capacity to accommodate future growth in PMRTS and CMRTS usage. Scalable infrastructure ensures that the network can handle increased demand without compromising QoS.

12. Collaboration and Coordination:

Stakeholder Collaboration: Foster collaboration between cellular network operators, PMRTS, and CMRTS providers. Effective coordination ensures seamless integration and mutual understanding of QoS requirements.

13. Regulatory Compliance:

Compliance: Ensure that PMRTS and CMRTS providers comply with regulatory standards and guidelines related to QoS. Regulatory oversight guarantees adherence to predefined service quality standards.

By implementing these safeguards and continuously monitoring the network's performance, cellular operators can provide high-quality, reliable communication services for both regular cellular traffic and mission-critical applications like PMRTS and CMRTS. Coordination, proactive planning, and adherence to standards are key to preserving QoS in all scenarios.

Q17. Whether there is a need to review the terms and conditions of PMRTS Authorization under Unified License (VNO)? Kindly provide a detailed response with justification.

Comments : **Mentioned in the comments.**

Q18. In case it is decided to review the terms and conditions of PMRTS authorization under Unified License (VNO), in what manner should the following existing provisions be amended?

- (a) Service area**
- (b) Scope of the license**
- (c) Network interconnection**
- (d) Any other (Please Specify).**

Kindly provide a detailed response with justification.

Comments : **Mentioned in the comments.**

Q19. Whether there is any other issue relevant for review of terms and conditions of the PMRTS License, PMRTS Authorization under Unified License, and PMRTS authorization under Unified License (VNO)? Kindly provide a detailed response with justifications.

Comments : **No Comments.**

Q20. Whether there is a need to review the terms and conditions of CMRTS license? Kindly provide a detailed response with justifications.

Comments : **Mentioned in the Comments.**

Q21. What should be the eligibility conditions for obtaining CMRTS license? Further, what should be the application processing fee

for CMRTS license? Kindly provide a detailed response with justification.

Comments :

CMRTS licenses are granted to entities that provide critical communication services for public safety, emergency response, and other essential services. Here are some general eligibility conditions that might apply when obtaining a CMRTS license:

- 1. Legal Entity:** The applicant organization must be a legally registered entity eligible to operate telecommunication services.
- 2. Technical and Financial Capability:** The applicant should demonstrate the technical and financial capability to establish and maintain a reliable and secure critical communication network, often including substantial financial resources and technical expertise.
- 3. Operational Experience:** Depending on the regulatory requirements, the applicant should need to demonstrate a certain level of operational experience in providing critical communication services or similar services.
- 4. Compliance:** The applicant must agree to comply with all relevant regulations, including technical standards, security protocols, and licensing conditions set forth by the regulatory authority.
- 5. Network Reliability:** The applicant should provide evidence of the reliability, redundancy, and security features of the proposed

critical communication network to ensure continuous operation, especially during emergencies.

6. Security Measures: The applicant must have robust security measures in place to protect the network from unauthorized access, interception, and cyber threats.

7. Interoperability: CMRTS networks often need to be interoperable with other public safety and emergency response networks. The applicant should need to demonstrate the ability to achieve interoperability with existing systems.

8. Public Safety Focus: The CMRTS service should primarily focus on serving public safety entities, emergency responders, government agencies, and other critical services.

9. Compliance with Spectrum Regulations: The applicant must comply with regulations related to spectrum allocation and usage for critical communication services.

10. Regulatory Approval: The applicant must obtain approval from the regulatory authority responsible for telecommunications. This approval often involves a detailed evaluation of the applicant's technical, financial, and operational capabilities.

Q22. In case it is decided to review the terms and conditions of CMRTS license, in what manner should the following terms and conditions be amended?

(a) Service area

(b) Period of validity

(c) Scope of the license

(d) Technical conditions

(e) Channel assignment and loading

(f) Operating conditions

(g) Conditions relating to suspension, revocation or termination of license.

(h) Any other (please specify).

Kindly provide a detailed response with justifications.

Comments :

(a) Service area :

The service area for Critical Mobile Radio Trunking Service (CMRTS) is typically defined based on the specific requirements of public safety, emergency response, and other essential services within a country. The service area for CMRTS is often designed to cover critical infrastructure, government facilities, public safety agencies, and areas prone to emergencies where reliable and secure communication is essential. Here are some considerations when determining the service area for CMRTS:

1. Population Centers: The service area should cover densely populated areas, cities, and towns where emergency response

requirements are higher due to the concentration of people and critical infrastructure.

2. Transportation Routes: CMRTS coverage should include major highways, railways, airports, and other transportation routes to ensure communication for emergency responders and transportation authorities.

3. Critical Infrastructure: Ensure coverage for critical infrastructure such as power plants, water treatment facilities, hospitals, and government offices to support essential services during emergencies.

4. Disaster-Prone Areas: Include areas prone to natural disasters such as floodplains, earthquake zones, and coastal regions where communication is vital during and after disasters.

5. Government Facilities: Cover government facilities, law enforcement agencies, fire stations, and emergency medical service centers to enable seamless communication among public safety agencies.

6. Public Events Venues: Provide coverage for areas where large public events are held, such as stadiums, convention centers, and entertainment venues, to support event management and security operations.

7. Border Areas: In countries with border security concerns, ensure coverage in border regions to support border patrol and security operations.

8. Rural and Remote Areas: Consider extending coverage to rural and remote areas where emergency response times might be longer, but communication is equally critical for coordinating responses.

9. Interoperability with Adjacent Regions: Ensure interoperability with CMRTS networks in adjacent regions or countries, especially if there are mutual aid agreements or cross-border emergency response collaborations.

10. National Security Sites: Include coverage for national security sites, military installations, and sensitive government facilities to support national security operations.

The determination of the CMRTS service area should be based on a thorough assessment of the country's unique geographical, demographic, and security factors. Collaboration with public safety agencies, emergency responders, and relevant government authorities is crucial in defining the specific areas that require CMRTS coverage to ensure effective and coordinated emergency communication services.

Q23. Whether there is a need to mandate CMRTS licensees to migrate to spectrally efficient digital technologies in a time-bound manner? If yes, what should be the time frame for mandatory migration to spectrally efficient digital technologies? Kindly provide a detailed response with justification.

Data Transmission: Digital systems can transmit data alongside voice, allowing for sharing of critical information, images, and location data. These features enhance situational awareness and decision-making.

5. Security and Encryption:

Secure Communication: Digital technologies often come with robust encryption features, ensuring secure communication. In emergency situations, secure communication channels are essential to prevent unauthorized access.

6. Spectral Efficiency Regulations:

Compliance: Regulatory authorities in many countries are moving toward spectrally efficient technologies as part of spectrum management strategies. Mandating migration ensures compliance with regulatory directives.

7. Legacy System Replacement:

Obsolete Systems: Many legacy analog systems are becoming obsolete and difficult to maintain. Migrating to digital technologies allows for the replacement of aging infrastructure with modern, efficient systems.

8. Resource Optimization:

Infrastructure Optimization: Digital technologies often require less infrastructure (such as base stations) to cover the same area, optimizing resources and reducing operational costs.

9. Future-Proofing:

Technological Advancements: Digital technologies continue to evolve. Migrating to digital ensures that public safety agencies benefit from ongoing advancements, keeping their communication systems up-to-date and future-proof.

10. Emergency Response Effectiveness:

Faster Response: Digital communication systems enable faster and more accurate information exchange, allowing emergency responders to coordinate and respond more effectively to crises.

However, while there are clear benefits, it's essential to consider the financial implications and the capacity of public safety agencies to transition smoothly. Therefore, any mandate for migration should be accompanied by appropriate support, including funding, training, and technical assistance, to ensure a successful transition without compromising emergency communication capabilities.

Q24. In case your response to Q23 is in the negative, what provisions should be made to nudge and encourage CMRTS licensees to spectrally efficient digital technologies? Kindly provide a detailed response with justification.

Comments : **No Comments.**

Q25. Whether there is any other issue relevant for review of terms and conditions of the CMRTS License? Kindly provide a detailed response with justifications.

Comments : **No Comments.**

26. Is there a need to review the license fee prescribed for PMRTS/CMRTS? Please justify your answer. If yes, please suggest detailed methodology for arriving at the license fees for PMRTS/CMRTS with justification.

Comments : **No Comments.**

Q27. Whether there is a need to review the allocation of spectrum for PMRTS? If yes, what changes should be made in the allocation of spectrum for PMRTS in the National Frequency Allocation Plan? Kindly provide a detailed response with justifications.

Comments : **No Comments.**

Q28. What should be the method of assignment of spectrum for PMRTS?

(a) Auction; or

(b) Administrative

In the case of auction, what should be the methodology for auction of spectrum? Kindly provide a detailed justification.

Comments :

By Auction

As per the Report of the CAG of India on Management of Spectrum assigned on the administrative basis to Government Department/Agencies, In the absence of a fair and transparent policy on allotment and assignment of spectrum on administrative basis, there had been adhocism in assignment of spectrum and nonavailability of spectrum on time. (Report No. 2 of 2022, Page – 15)

Audit found that post the Hon'ble SC judgement of February 2012 regarding allotment of spectrum for access services, there had been an adhoc arrangement regarding allotment/assignment of spectrum administratively for both captive uses as well as for other commercial services. Assignment of spectrum to captive users is being done as an interim measure for periods of three/ six months on each occasion as shown in following table :

Details of interim measures for spectrum allotment

Date of issue of Office Memorandum	Period of interim measure	Services applicable
01-10-2013	6 months from the date of issue	Captive usage, satellite networks of broadcasting and captive VSATs, commercial satellite usage (DSNG/ Commercial VSATs, Teleport/ DTH/ NLD/ ILD) and Community Radio Stations (CRS) with the condition that it is provisional allotment and subject to final decision on allotment and pricing of spectrum.
09-01-2014	Upto 31-03-2014	Public Mobile Radio Trunking Services (PMRTS) with the condition that it is provisional allotment and subject to final decision on allotment and pricing of spectrum.
Date of issue of Office Memorandum	Period of interim measure	Services applicable
10-09-2014	Upto 31-12-2014	Captive usage, satellite networks of broadcasting and captive VSATs, commercial satellite usage (DSNG/ Commercial VSATs, Teleport/ DTH/ NLD/ ILD), CRS and PMRTS.
27-07-2017	3 months from the date of issue	Captive and non-commercial use of the wireless users providing security, safety and/ or essential services with the condition that it is provisional allotment and subject to final decision on allotment and pricing of spectrum.
02-04-2019	3 months from the date of issue	Broadcasting (including community radio), H/V/UHF/SHF fixed mobile networks (including CMRTS but excluding PMRTS) radars, experimentations, demonstrations, and satellite-based applications with the condition that it is provisional allotment and subject to final decision on allotment and pricing of spectrum.
29-07-2019		
05-01-2021	6 months from the date of issue	

Table shows that there had been a practice of issuing provisional measures for allotment for the past nine years, causing uncertainties among users as well as spectrum manager. As evident above, assignment to PMRTS and several commercial services were withheld after December 2014. Spectrum to ISPs was also denied as seen in Audit. Further, WPC did not furnish the details of applications received for assignment of spectrum and their status viz. rejected or pending and reasons for rejection, pendency for captive users/ other commercial service providers (except TSPs). Audit was unable to comment on this aspect.

Recommendation by CAG: DoT may devise a policy on allotment and assignment of spectrum for Captive Users/ other commercial usage in alignment with statements made in NDCP 2018 and end adhocism in allotment of spectrum to Government Departments/ Agencies.

Q29. In case it is decided to auction the frequency spectrum allocated to PMRTS, -

(a) What should be the eligibility conditions for participating in auction?

(b) Whether the entire available spectrum in the frequency bands identified for PMRTS in National Frequency Allocation Plan (NFAP) should be put to auction?

(c) What should be the block size of spectrum, and minimum bid quantity in terms of number of blocks?

(d) What should be the spectrum cap for each authorized area for use of spectrum?

(e) What should be the roll-out obligations associated with the assignment of spectrum? What should be the penalties upon non-conforming the roll-out obligations?

(f) What should be the period of assignment of spectrum?

(g) What should be the minimum period beyond which the spectrum acquired through auction may be permitted to be surrendered?

(h) What should be the process and associated terms and conditions for permitting surrender of spectrum through auction?

Kindly provide a detailed response with justification in respect of each of the above.

Comments : No Comments.

Q30. In case auction methodology is to be followed for assignment of spectrum: (a) Whether the value of frequencies assigned to the PMRTS providers be derived by relating it to the value or auction determined prices of other IMT/5G bands by using technical efficiency factor? If yes, with which spectrum band, should these frequencies be related and what efficiency factor or formula should be used? Please justify your suggestions.

(b) Given the city wise allocation and the potential difference in financial/market parameters of PMRTS with respect to access services, should the valuation of frequency spectrum for these services derived on the basis of IMT/5G prices be adjusted in order to account for the said distinctions? Please explain the adjustment methodology in detail.

(c) Apart from the above approaches, which other valuation approaches can be adopted for valuation of spectrum assigned to PMRTS providers? Kindly support your suggestions with detailed methodologies, assumptions, and other relevant factors.

(d) Is it appropriate to take the reserve price as 70% of the valuation of spectrum? If not, what should be the ratio adopted between the reserve price for the auction and valuation of spectrum and why?

(e) What should be the payment terms and conditions relating to upfront payment, moratorium period, number of instalments to recover deferred payments, rate of discount etc.?

Please support your answer with detailed justification.

Comments : No Comments.

Q31. Whether there are any other issues/ suggestions relevant to the subject? If yes, the same may kindly be furnished with proper justification.

Comments :

No.

Thanks.

Yours faithfully,

(Dr. Kashyapnath)

President

Member Organization : TRAI