



**MINISTRY OF TRANSPORT AND COMMUNICATIONS  
POSTS AND TELECOMMUNICATIONS DEPARTMENT**

**DRAFT CONSULTATION PAPER  
Introduction of Commercial Private/Professional  
Mobile Radio (PMR) Services in Myanmar  
November 2018**

**1. INTRODUCTION**

Globally and regionally private/professional mobile radio ('PMR') also known as public mobile radio and in North America as land mobile radio ('LMR') services play a critical role in a wide range of public and private sector activities. Public services that depend on PMR include emergency services, police, ambulance, firefighting and many other government service providers. Private sector users include utilities (electricity, water), commercial transport, private security, agriculture, taxis, mining and oil & gas, and recreational radio users. Such uses have significant economic value for a country but are very different that public cellular mobile services.<sup>1</sup>

For historical reasons, the PMR sector in Myanmar has been under-developed with cellular mobile services recently being used as a substitute service even though there are a number of organisations running their own private PMR networks. The Posts and Telecommunications Department ('PTD') of the Ministry of Transport and Communications wishes to engage with the industry and the public more generally as to whether:

- Companies should be licensed to commercial digital PMR solutions which offer businesses efficiencies and safety enhancements including location tracking, fleet routing, wider coverage and duress features; and
- Frequency spectrum should be made available for digital PMR solutions. PTD's decisions concerning spectrum allocation are guided by the high-level objective of promoting the public benefit.

This consultation paper therefore seeks industry and public input on a range of questions related to commercial PMR services including but not limited to the level of demand for such services, how frequency spectrum should be allocated for such services (ie how should service providers be licensed), in what frequency bands should allocations be made, what technology should be adopted (or should this be left to service providers) etc.

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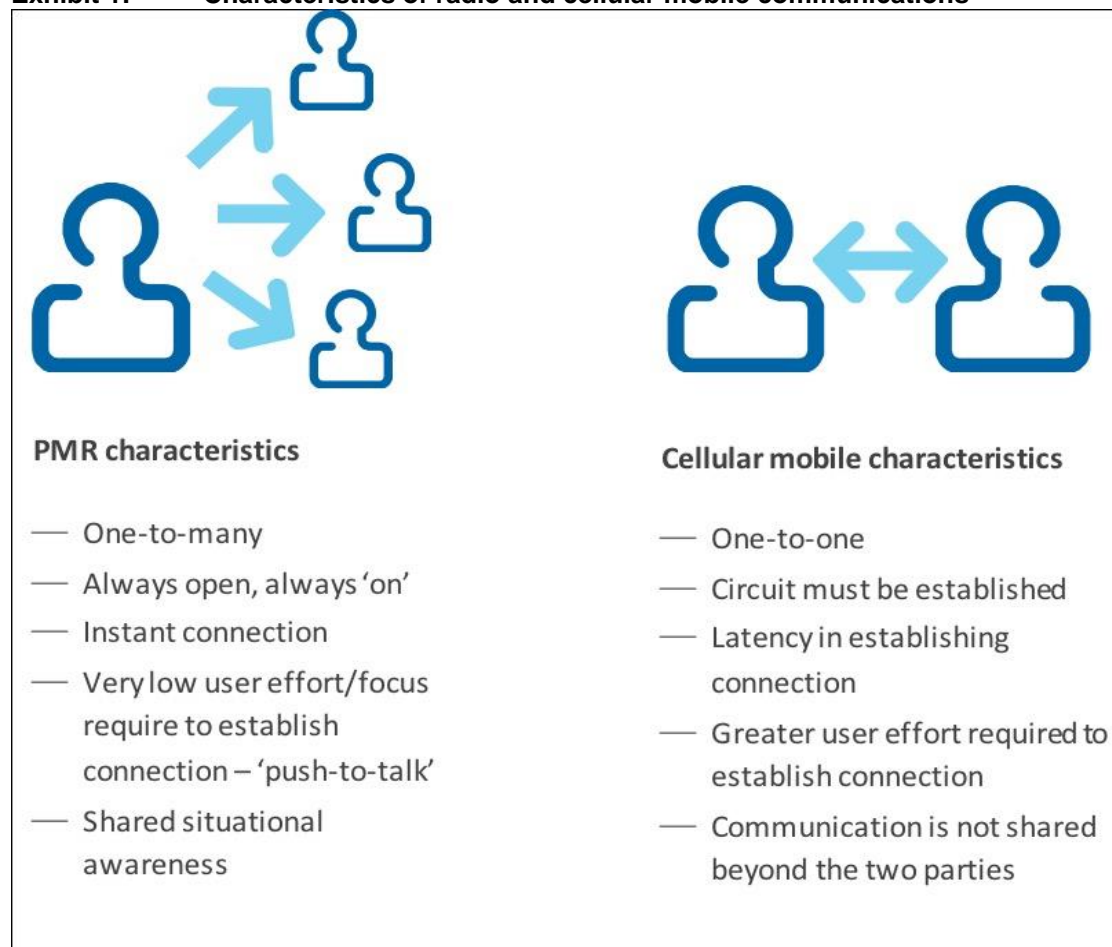
<sup>1</sup> For one example, see ARCIA, *Valuing mission critical radio services: A study of the economic value of land mobile radio spectrum in Australia*, November 2014. Available at [www.arcia.org.au/about-arcia/land-mobile-radio-industry.html](http://www.arcia.org.au/about-arcia/land-mobile-radio-industry.html)

The particular technical and performance characteristics of PMR make it particularly well suited to its role in many organisations, include:

- one-to-many communications on open channels;
- immediate initiation of communications link – ‘push to talk’ to closed user groups;
- longer battery life;
- robustness and resilience; and
- PMR can operate independently – in many critical contexts PMR can operate effectively independent of any central network infrastructure.

In contrast, cellular mobile services, on the other hand, entails establishing a closed *one-to-one circuit* between caller and receiver (see [Exhibit 1](#) below).

**Exhibit 1: Characteristics of radio and cellular mobile communications**



Importantly, this paper is focused on private sector uses of PMR and the possible future licensing of commercial PMR services. Some of the key features and benefits of PMR are summarised in [Exhibit 2](#) over.

Importantly, the Government and PTD is already committed to ensuring that there is sufficient spectrum available to first responder and other emergency organisations that are highly dependent on mobile communications in general but, critically, on PMR in particular. PMR is ‘mission critical’ for these organisations and the country.

**Exhibit 2: Key Features and Benefits of PMR**

<b>PMR Feature</b>	<b>Comments</b>
<b>Group communications</b>	With the need to improve employee collaboration and significantly accelerate resolution time, a key benefit of PMR is the “one too many” group communication function and the ability to instantly connect people and teams
<b>Enhanced worker safety</b>	For scenarios where worker safety is critical, the always-on capabilities of PMR are invaluable, especially during emergencies. The ability to protect workers with safety features as a critical requirement when selecting communications systems for mobile workers.
<b>Battery Life and Management</b>	A major requirement for business-critical communication solutions is a strong all-shift/all day battery performance without significant design implications. The desired target is between 10 to 12 hours continuous operation. Many PMR radios have swappable or long life batteries for almost continual operation.
<b>Durability and reliability</b>	Based on their design and portable use cases, the risks of damaging a consumer cellular device are great, increasing the premium for durability. Annual failure rates of consumer mobile devices supporting target applications are approximately 20%, substantially higher than the 4-8% of rugged two-way radios. The consequences of consumer mobile device failure, especially for highly optimized mobile applications and workflows, include a significant disruption to workflows and lost productivity as well as a negative impact on customer service and employee safety.
<b>Audio quality</b>	The level of ambient noise – especially in environments like manufacturing plants – can render many mobile communications devices ineffective. The need to “hear clearly in noisy environments” as an important PMR system feature. Voice quality on PMR digital radios is further enhanced by sophisticated software algorithms and background noise suppression which ensures that clear voice is delivered in even the most extreme scenarios.
<b>Support specialised mobile workflows</b>	Safety capabilities of PMR radios can address lone worker and man-down situations for field workers and represent a critical lifeline for these individuals.
<b>Cost ownership</b>	Offer a significantly lower total cost of ownership when compared directly to smartphones and other cellular connected devices, which carry monthly service fees, are expensive when broken and may be used by the employee for private uses.
<b>Value adding features and functionality</b>	Modern digital PMR radios offer addition integrated features such as GPS and text messaging. In addition, other innovative workplace applications, such as location tracking and providing instant notifications when assets malfunction, are adding to the overall value proposition of PMR.
<b>Accessory ecosystem</b>	There are a variety of accessories for PMR – from mounting brackets to hands-free data collection solutions and carrying cases, which offer a broad accessory portfolio closely aligned with business use cases and target applications.

*Please note that while this Consultation Paper asks specific questions of stakeholders like Q1 and Q2 below, responders are also welcome to make additional comments or suggestions.*

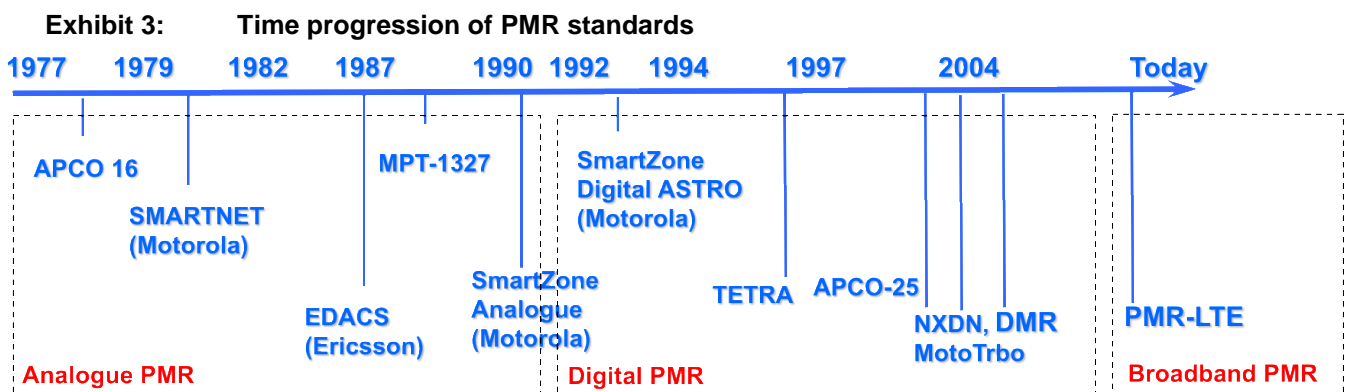
- Q1.** Do you support the provision of commercial PMR services in Myanmar by the PTD (i) licensing such services and (ii) making certain spectrum available for use for such purposes?
- Q2.** What are the key advantages of commercial PMR services in the Myanmar context? What is your view on the likely level of demand? Who are the key target market segments? Who are likely key customers?

## 2. PMR GLOBALLY AND IN ASEAN

### 2.1 Short History and technology options

Trunking private/professional mobile radio became popular in the early 1980s. Some of the popular trunking standards at the time included LTR and APCO-16 (US). In 1988, the MPT 1327 (UK) trunking standard was developed. Along with the increasingly complex needs of users, the analogue radio technologies were replaced by digital radio (which were more energy and spectrally efficient) and with added features including voice privacy etc. For example, the legacy APCO-16 standard was replaced by the APCO-25 whereas MPT-1327 was typically replaced by TETRA systems.

In the mid-2000s, emerging technologies and Mototrbo NXDN offered a cheaper solution for a system with finite size. In 2005, Digital Mobile Radio ('DMR') was defined as an open digital mobile radio standard by the European Telecommunications Standards Institute ('ETSI') and used globally. DRM III (trunked version) was published in 2012. See Exhibit 3 below.



In addition to narrowband PMR standards, in March 2016, mission-critical push-to-talk ('MCPTT') functionality was included in LTE standard Release 13 (referred to above as PMR-LTE).<sup>2</sup> LTE Release 14, which was released by the 3GPP in June 2017 included additional features including mission-critical data and mission-critical video.<sup>3</sup> As a consequence, PMR technology is moving into the wireless broadband era. This has resulted in a range of regulatory reviews (eg Australia<sup>4</sup>) and the planning and/or implementation of such public safety wireless broadband networks (eg US,<sup>5</sup> Qatar<sup>6</sup> etc).

As at early 2018, there are three key competing digital PMR standards, namely APCO25 (often referred to as P25), TETRA and DMR. Each of which has different features as summarised in Exhibit 4 over.

<sup>2</sup> See [www.3gpp.org/release-13](http://www.3gpp.org/release-13)

<sup>3</sup> See [www.3gpp.org/release-14](http://www.3gpp.org/release-14)

<sup>4</sup> Refer to [www.pc.gov.au/inquiries/completed/public-safety-mobile-broadband#report](http://www.pc.gov.au/inquiries/completed/public-safety-mobile-broadband#report)

<sup>5</sup> See [www.firstnet.gov](http://www.firstnet.gov)

<sup>6</sup> See [www.nokia.com/en\\_int/blog/qatars-ministry-interior-implements-nation-wide-lte-public-safety](http://www.nokia.com/en_int/blog/qatars-ministry-interior-implements-nation-wide-lte-public-safety)

**Exhibit 4: General features of the key digital PMR Standards**

	<b>TETRA</b>	<b>P25</b>	<b>DMR</b>
Standardization body	ETSI	TIA	ETSI
Trunked system	yes	yes	yes
Conventional system	no	yes	yes
Direct Mode (DMO)	yes	yes	yes
Channel access	TDMA (4-slot)	FDMA, TDMA (2-slot)	TDMA (2-slot)
Frequency ranges	380-450/800MHz	150 - 800MHz	70 - 900MHz
Radio channel bandwidth	25kHz	12.5kHz	12.5kHz
Effective (equivalent) communication channel bandwidth	6.25kHz	12.5/6.25kHz	6.25kHz
Power efficiency	low	high	high
Physical footprint at sites	high	medium	low
Possible traffic density	high	low, medium	low, medium
Ease of migration from analog, equipment re-use	low	very high	very high
Simulcast capability	no	yes	yes
Price level of systems	high	very high	low, medium
Price level of radio units	low	high	low

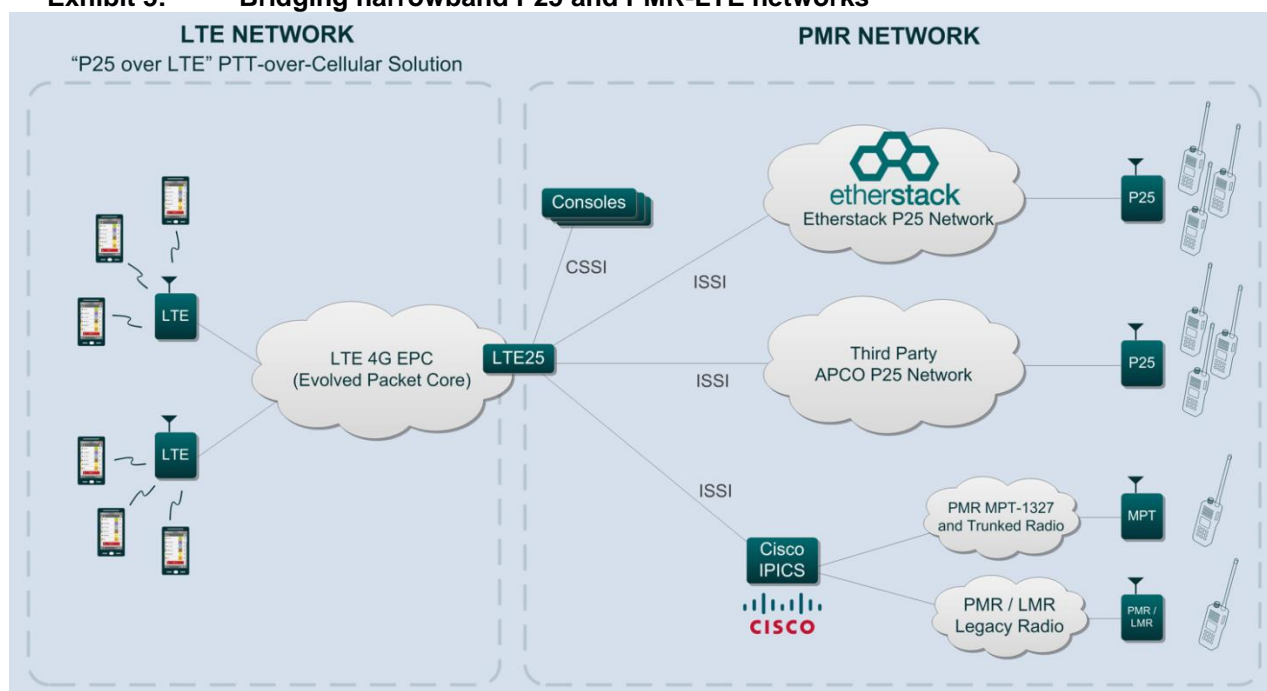
Source: DMR Association

It should be noted that an extensive transition period is expected and narrowband PMR solutions may continue in their current form for the foreseeable future – including being an overlay to PMR-LTE/public safety mobile broadband solutions in urban areas.

The PTD also notes that there are solutions which bridge LTE networks and existing narrowband networks with an integrated, push-to-talk solution. Traditional radio handsets communicate seamlessly with 4G devices, allowing for an interoperability in multi-vendor P25 / LTE networks. This is illustrated in [Exhibit 5](#) over.

- |                   |   |
|-------------------|---|
| <p><b>Q3.</b></p> | <p>Is there a preferred PMR technology (eg P25, TETRA, DMR) for use in Myanmar? If so, why should it be preferred? Alternatively, should a technologically neutral approach continue to be adopted? Should all licences for commercial PMR services in Myanmar be required to use trunking?</p> |
| <p><b>Q2.</b></p> | <p>Should the PTD support the deployment of narrowband digital PMR technologies with spectrum allocations at this time in Myanmar notwithstanding the growing availability of PMR-LTE?</p>  |

**Exhibit 5: Bridging narrowband P25 and PMR-LTE networks**



Source: Etherstack, 2017. Available [www.etherstack.com](http://www.etherstack.com)

## 2.2 Commercial PMR Services in ASEAN

Regionally, traditional PMR services has been deployed in the VHF, UHF and 800 MHz band across the region. DMR and P25 technologies are also deployed fit into those traditional spectrum bands. Several Asian country regulators have also allowed TETRA to coexist with non-TETRA technology in the UHF band, which opens more technology choices. In addition, selected regional markets have “narrowbanded” the VHF/UHF spectrum channels from 25 to 12.5 kHz in order to double the channels available for reallocation to new businesses or user groups.

In ASEAN, there are numerous examples of PMR Operators in ASEAN offering commercial trunking solutions (see [Exhibit 6](#) below). Examples of applicable ASEAN regulatory regimes applying to PMR include those applying in Malaysia<sup>7</sup> and Singapore.<sup>8</sup> Other countries like India are currently reviewing their approach to regulating these services<sup>9</sup>

**Exhibit 6: Examples of Commercial Trunked PMR Operators in ASEAN**

Country	Trunked PMR	Examples of Trunked PMR Operators
Cambodia	✓	Business SMR, Cambodia Telecom, Siem Reap SMR
Indonesia	✓	Nexcom Indonesia, Mobilkom, Cakra, Jatimas, Sigma and Daksina
Malaysia	✓	Electcoms Wireless , Hasyon Technologies Segi Maju Consortium, Sapura, Mal-Tel Communication Sdn Bhd
Singapore	✓	GRID Communications
Thailand	✓	CAT Telecom Public Company, DRC

<sup>7</sup> [www.mcmc.gov.my/skmmgovmy/files/attachments/Trunked\\_Radio\\_Going\\_Digital\\_2.pdf](http://www.mcmc.gov.my/skmmgovmy/files/attachments/Trunked_Radio_Going_Digital_2.pdf) and [www.skmm.gov.my/skmmgovmy/files/attachments/SRSP519Mv8.pdf](http://www.skmm.gov.my/skmmgovmy/files/attachments/SRSP519Mv8.pdf)

<sup>8</sup> [www.imda.gov.sg/-/media/imda/files/regulation-licensing-and-consultations/ict-standards/telecommunication-standards/radio-comms/imda\\_ts\\_lmr.pdf?la=en](http://www.imda.gov.sg/-/media/imda/files/regulation-licensing-and-consultations/ict-standards/telecommunication-standards/radio-comms/imda_ts_lmr.pdf?la=en)

<sup>9</sup> TRAI, Consultation Paper on ‘Method of allocation of spectrum for Public Mobile Radio Trunking Service (PMRTS), including auction, as a transparent mechanism’, 8 February 2018

**Q5.** Is there a global or ASEAN regulatory model in relation to commercial PMR which you would suggest should inform the PTD's approach to regulating PMR in Myanmar? If so, why?

### 3. OVERVIEW OF THE CURRENT LEGAL STATUS OF PMR SERVICES IN MYANMAR

Subject to Chapter III of the *Telecommunications Law*, the provision of Network Facilities Services, Network Services or Application Services, requires a Person to obtain a License unless exempted by the Law or by the Ministry. In accordance with Section 35 of the *Spectrum Rules 2016*, (extracted as Exhibit 7 below) dealing with Private Spectrum Network Licences the PTD may authorize Persons to transmit, receive, or transmit and receive Information and/or Content by means of terrestrial Radio Apparatus for the purpose of providing two-way communications services to themselves (e.g., between a company's base station and the associated vehicular or hand-held portable units). Private Spectrum Network Licensees, in accordance with Section 29(e)i. are not required to have an Operating Licence.

**Exhibit 7: Private Network Spectrum License: Extract from *Spectrum Rules, 2016***

- a) The Department may authorize Persons to transmit, receive, or transmit and receive Information and/or Content by means of terrestrial Radio Apparatus for the purpose of providing two-way communications services to themselves (e.g., between a company's base station and the associated vehicular or hand-held portable units).
- b) The Department shall authorize Persons to use frequencies for private network services only according to the National Table of Frequency Allocations.
- c) Licenses will generally be granted on a first-come, first-served basis. If necessary, an auction or tender process may be used.
- d) Application  
Licenses issued under this part shall be used solely for internal, private communications only within the members of a company and its Affiliates. Examples of such use include (but are not limited to): dispatch services, voice or data communication with company personnel or vehicles, machine-to-machine communications, including for the purposes of monitoring and control of company equipment. Licenses may be granted for single frequency systems (for communications between portable units with no associated base station) and two-frequency systems (for communications from a central base station to and from multiple portable units).
- e) License Conditions and Requirements
  - i. No Associated Operating License is required.
  - ii. Licenses granted under this part include both the right to use approved frequencies and to operate the End User and network Radio Apparatus that uses those frequencies.
  - iii. A license granted under this Section authorizes the Licensee to deploy an unlimited number of End User terminals; no individual authorization of such terminals is required.
  - iv. Network Facilities and End User Radio Apparatus does not require approval by the Department prior to the commencement of operations, but shall be subject to certification requirements, per Section **Error! Reference source not found.**
  - v. Licenses may be National Geographical coverage limits may be applied, as determined by the Department in view of the proposed service.
  - vi. Radio apparatus used as part of providing the authorized service shall comply with any technical standards or requirements identified by the Department or Ministry, in accordance with Section 35.

	vii.	Other technical conditions (e.g., power limits for Network Facilities and End User devices) may be specified from time to time in order to minimize interference to other services and Licensees.
f)	Obligations of Licensee	
		All holders of a Private Network Spectrum License shall:
	i.	only use the radio frequencies or radio frequency bands approved by the Department;
35	ii.	ensure that Network Facilities and End User Radio Apparatus operates in compliance with any technical specifications set by the Ministry and contained either in Section of these Rules or as indicated in the authorization or License itself;
	iii.	register all towers and antenna structures, but no prior approval for such facilities is required. It is noted that permits may be required from other local Government agencies for tower construction; and
	iv.	keep adequate records to allow any instances of interference to be resolved.
g)	Duration of the License.	
		The initial duration of the authorization will be fifteen (15) years, with renewals allowed per Section 14.
h)	Fees.	
		Fees associated with the Private Network Spectrum License are found in Annex C.

Given the above, while an individual company can deploy and operate its own PMR network, there is currently no mechanism under the *Licensing Rules, 2014* or the *Spectrum Rules, 2016* for a company to provide commercial PMR services (that is resale PMR services to third parties including businesses or consumers). The licensing of commercial PMR services in Myanmar would therefore require an amendment to the *Spectrum Rules* and/or *Licensing Rules* to either insert a new category of licence or amend Section 29 of the *Spectrum Rules*. The PTD's preliminary view on the proposed amendment to the *Spectrum Rules 2016* is set out below.

#### **INSERT NEW RULE**

### **29A Commercial Private/Professional Mobile Radio (PMR) Spectrum License**

- i) *The Department may authorize Persons to transmit, receive, or transmit and receive Information and/or Content by means of terrestrial digital trunked Radio Apparatus for the purpose of providing digital two-way private/professional mobile radio (PMR) communications services to End Users (e.g., between a licensee's base stations and the associated vehicular or hand-held portable units).*
- j) *The Department shall authorize Persons to use frequencies for commercial private/professional mobile radio (PMR) network services only according to the National Table of Frequency Allocations.*
- k) *Licenses will be granted in accordance with auction or tender process determined by the Department unless the Department decides to adopt a first-come, first-served basis.*
- l) *Application*  
*Licenses issued under this part shall be used solely for provision of services to firms for private communications only within a firm and/or a closed-user group of the firm. Examples of such use include (but are not limited to): dispatch services, voice or data communication with company personnel or vehicles, point to multi-point communications, push-to-talk, machine-to-machine communications, including for the purposes of monitoring and control of company equipment. Licenses to be granted are for multiple channel frequency systems (for communications from a digital trunked central base station/s to and from multiple portable units).*



m) *License Conditions and Requirements*

- i. *An Associated Operating License is required.*
- ii. *Licenses granted under this part include both the right to use approved frequencies and to operate the End User and network Radio Apparatus that uses those frequencies.*
- iii. *A license granted under this Section authorizes the Licensee to deploy an unlimited number of End User terminals; no individual authorization of such terminals is required.*
- iv. *Network Facilities and End User Radio Apparatus does not require approval by the Department prior to the commencement of operations, but shall be subject to certification requirements, per Section **Error! Reference source not found.***
- v. *Licenses may have National Geographical coverage limits applied, as determined by the Department in view of the proposed service.*
- vi. *Radio apparatus used as part of providing the authorized service shall comply with any technical standards or requirements identified by the Department or Ministry, in accordance with Section 35.*
- vii. *Other technical conditions (e.g., power limits for Network Facilities and End User devices) may be specified from time to time in order to minimize interference to other services and Licensees.*

n) *Obligations of Licensee*

*All holders of a Commercial Private/Professional Mobile Radio (PMR) Spectrum License shall:*

- i. *only use the radio frequencies or radio frequency bands approved by the Department;*
- ii. *ensure that Network Facilities and End User Radio Apparatus operates in compliance with any technical specifications set by the Ministry and contained either in Section 35 of these Rules or as indicated in the authorization or License itself;*
- iii. *register all towers and antenna structures, but no prior approval for such facilities is required. It is noted that permits may be required from other local Government agencies for tower construction; and*
- iv. *keep adequate records to allow any instances of interference to be resolved.*

o) *Duration of the License.*

*The initial duration of the authorization will be fifteen (15) years, with renewals allowed per Section 14.*

p) *Fees.*

*Fees associated with the Commercial Private/Professional Mobile Radio (PMR) Spectrum License shall be determined by the Department.*

**Q6.** Do you have any comments on the current regulatory status of commercial PMR services in Myanmar?

**Q7.** If you support the introduction of commercial PMR services in Myanmar - what is your preferred mechanism in terms of amendments to the *Licensing Rules* and *Spectrum Rules* to achieve this? Do you have any comments on the possible proposed new Rule 29A of the *Spectrum Rules*?

#### **4. OPTIONS FOR COMMERCIAL PMR LICENSING IN MYANMAR**

There are a number of options available to the PTD for the licensing of commercial PMR services in Myanmar.<sup>10</sup> Such options vary depending on whether:

- national or regional<sup>11</sup> licences are issued – either in terms of operating licences or spectrum licences;
- whether such licences are granted on a first-come, first served basis with no limits on the number of licensees (similar to the current approach for private PMR) or licensing only a smaller number of licensees at least initially (say for 2 to 3 years).

If the option of a smaller number of licensees was preferred the PTD needs to determine how should such licensees be selected. They could be selected via a “beauty contest”, a price-based selection process or a hybrid approach. Hybrid selection processes includes those where price is one of the selection criteria or there is a pre-qualification stage of the process.

The latter approach would permit the PTD the assess the demand for such services in Myanmar given the late commencement of such commercial PMR services. It is also considerably more spectrally efficient for the PTD to licence a smaller number of commercial PMR licensees who offer high grade digital trunked solutions rather than multiple single site (perhaps using non-trunked or legacy analogue equipment) which is only for a company’s internal communications purposes. In addition to spectrum allocation benefits, there are benefits in terms of imports and affordability (shared infrastructure means more affordable service offerings).

- Q8.** Do you consider that licenses for commercial PMR services should be granted on a national or regional basis? If you prefer a regional basis, how should the regions be defined? If nationwide how should border areas be addressed?
- Q9.** Do you consider that licenses for commercial PMR service should be granted on a first-come, first served basis with no limits on the number of licensees (similar to the current approach for private PMR) or do you prefer licensing only a smaller number of licenses for commercial PMR services at least initially (say for 2 to 3 years)? What smaller number of licenses for commercial PMR services should be granted if that option is preferred?
- Q10.** Do you consider that the Licensing Rules and the Spectrum Rules should be amended to allow for commercial PMR services to offered? What licences should a commercial PMR provider be required to obtain?
- Q11.** If the option of a smaller number of licensees was preferred how do you consider that the licensees be selected. Should they be selected could be selected via a “beauty contest”, a purely price-based selection process or a hybrid approach? If you support a beauty contest what selection criteria should be used by the PTD (eg business plan, coverage, QoS, tariffs, etc)?

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<sup>10</sup> Alternatively, commercial PMR providers could be exempt in amendments were made to the *Spectrum Rules, 2016*.

<sup>11</sup> This could be similar to the 2.6 GHz spectrum licences or just for urban areas like Greater Yangon, Mandalay and Nay Pyi Taw.

## 5. POSSIBLE SPECTRUM ALLOCATIONS FOR COMMERCIAL PMR SERVICES

Possible spectrum allocations for commercial PMR in Myanmar consistent with global and regional band allocations (and hence with equipment availability) include:

- (i) VHF Band II (eg 148-170 MHz);
- (ii) UHF 350 MHz (eg 350-380 MHz);
- (iii) UHF 406 MHz (eg 406 – 430 MHz)
- (iv) UHF 440 MHz (eg 440 – 450 MHz)

**Q12.** What is your preferred spectrum band to be allocated for the use of commercial PMR services in Myanmar?

**Q13.** What is your view on the optimal radio channel bandwidth allocations for commercial PMR services?

**Q14.** How much spectrum should be allocated to each licensee for commercial PMR services? How many channels and of what bandwidth?

**Q15.** What should be the licence fees applicable in relation to PMR spectrum?

## 6. CONCLUSION

In conclusion, commercial PMR networks for mission critical and business communications are purpose-built to provide services within a given coverage area under defined quality criteria.<sup>12</sup> They are arguably necessary for a range of private sector users including utilities (electricity, water etc), commercial transport, private security, agriculture, taxis, mining and oil & gas, and recreational radio users and have significant economic value for Myanmar. Such services also have significant occupational health and safety benefits for employees and more broadly for the general public.

PMR networks are typically designed for high availability (ie 99.99 percent) utilising power back-up and redundancy measures. Integrity and confidentiality of communication is of significant importance, especially for data applications like SCADA<sup>13</sup>. Such commercial PMR networks have been widely deployed globally and regionally.

The PTD wishes to put in place an optimal set of arrangements for commercial PMR services which support economic growth in Myanmar as well as providing a range of other public benefits including to health, safety and security.

## 7. DRAFT OPERATING AND SPECTRUM LICENCES FOR COMMERCIAL PMR SERVICES

Depending on the option preferred by the PTD, operating and spectrum licences will need to be drafted.

<sup>12</sup> Special emphasis regarding their functionality is on group communication and fast call set-up with Push-to-Talk service. Emergency alerts are calls of highest priority and instantaneous access to the communication network. Furthermore, some useful and required applications exploit direct access to internal databases of the PMR network.

<sup>13</sup> Supervisory control and data acquisition ('SCADA') is a system of software and hardware elements that allows industrial organizations to: Control industrial processes locally or at remote locations. Monitor, gather, and process real-time data.

**Q16.** Do you have any comments on what form the draft Operating and Spectrum Licences for commercial PMR services should take, if a decision is made to offer commercial PMR services in Myanmar?

## **8. REQUEST FOR COMMENTS**

Consistent with the Law, and the *Licensing Rules* and *Spectrum Rules*, the Ministry is pleased to provide key stakeholders with an opportunity to comment on any aspect of this Commercial PMR Services Consultation Paper. The PTD would appreciate receiving detailed written responses to the 16 specific questions contained in this Consultation Paper.

Comments must be received in writing via email to [ptdspectrum@ptd.gov.mm](mailto:ptdspectrum@ptd.gov.mm) by **5pm on 19 November 2018.**

**- END -**