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BY HAND :

To: Director General
Posts and Telecommunications Department
Ministry of Communications and Information Technology
Nay Pyi Taw
The Republic of the Union of Myanmar

Cc: U Moe Kyaw Soe. Director
Human resources and Project Manager for the Spectrum
Management Project
Posts and Telecommunications Department

Our date	Our reference
February 29, 2016	TML/CA/REG/024
Your date	Your reference
Our contact	Daniel Susnjar
daniel.susnjar@telenor.com.mm	

Subject: Telenor's Response to the Spectrum Roadmap

Dear Sir,

Telenor Myanmar Limited (Telenor) welcomes the opportunity to comment on the Spectrum Roadmap.

Telenor is committed to building a digital future for the population in Myanmar. We believe that mobile Internet is a catalyst for economic growth and that it should be accessible to everyone. Our ambition is to have at least 80% active Internet users in our subscriber base already by 2017.

A prerequisite for realizing our vision of Internet for all is the availability of spectrum. Here the government plays a vital role in ensuring that the necessary spectrum resources are made available.

Telenor's view is that the Myanmar spectrum policy should rest on five pillars:

- Reduction of spectrum scarcity
- Promotion of effective and sustainable competition
- Reduction of investment risk
- A market based allocation method and level playing field principles
- Realistic revenue and price expectations

Best-practice spectrum management will also strengthen other industries that rely on wireless communications services. Benefits to society will increase significantly if modern spectrum management principles of objectivity, transparency, and non-discrimination are employed.

A key requirement to develop future, efficient broadband mobile services is to have the right combination of coverage and capacity bands to respond to data demands. By proposing to release the 1800 MHz and the 700 MHz over the next 2 years, MCIT/PTD ensure that 4G services can play a vital part in offering digital solutions for nearly all aspects of society; from changing the educational system to expanding the reach of health systems. The availability of these bands will make it possible for Myanmar to close the digital gap with other countries in the region more quickly.

The proposed Spectrum Roadmap will reduce spectrum scarcity and it will encourage future investments in the wireless industry in Myanmar. There is obviously a lot of work that has gone into the development of the Roadmap and we believe that it could serve as a benchmark document in the region.

Myanmar, like all other countries, needs to maximize the usage of important spectrum resources internationally harmonized for mobile (in particular IMT) to ensure efficiency and high-quality services. This is particularly important for spectrum below 1 GHz. Unused natural resources is equal to a lost stream of benefits and drives the need for putting spectrum resources into its most efficient use. By releasing the 700, E-GSM, 1800 and 2600 bands, PTD ensures that the total spectrum available for IMT in Myanmar will be 650 MHz. We believe this number is sufficient for the next 5 year period.

Telenor believes that best practice spectrum management is to award long-run usage rights to spectrum through open, transparent and non-discriminatory procedures. Such procedures can sometimes be time- and resource consuming to implement, but will benefit the management of spectrum over time.

Efficient spectrum distribution and management will be of critical importance for society in order to achieve the targets of excess of 90% population coverage within the next 3 years. Efficient rural coverage and in-building coverage in urban areas are most effectively achieved by the release of sub 1GHz spectrum. Operators population coverage and quality commitments has been challenging to achieve for a number of reasons, but the unequal distribution of sub 1Ghz spectrum clearly have a significant impact on ability to provide good data coverage in rural areas for the new entrants on their limited 900MHz holdings. It is clear that extensive rural coverage on 2100 MHz spectrum will require significant national resources in thousands of additional towers and equipment. Efficient competition is best achieved where the resources are made available in a transparent and predictable process.

Market liberalization will always be challenging for an incumbent operator who previously had access to all the nation's resources but the overall social benefits of introducing competition and re-allocating resources efficiently clearly benefits the overall economy and society at large.

The summary of Telenor's position with regard to the proposals in the Spectrum Roadmap is as follows:

1. We support the release of the 1800 MHz band in Q4 2016
 - a. The temporary license granted to MPT in the past can't be valid after the release of the band. The full 2x75 MHz of 1800 spectrum must be available in the auction.
2. We support the release of the 700 MHz band in 2017. This band will provide improved coverage for mobile broadband services.
3. We support the release of 2x15 MHz in the 900 band, preferably at an even earlier stage than what is indicated in the roadmap.
 - a. We welcome the proposal of optimizing the 850/900 band and the opportunity to conduct technical trials in the E-GSM band; leading up to an auction. Telenor would like to commence with trials as soon as possible. The results from these trials can be used as a basis for an auction of the E-GSM band as soon as possible.

- b. While preparing an upcoming E-GSM auction, GSM/PTD should ensure that any new 850 base stations are installed with transmit filters to avoid interference into the E-GSM band
 - c. The consultation document clarifies that PTD and MPT have reached an agreement whereby MPT relinquishes 2x5 MHz of its total spectrum holding of 2x15 MHz in the 900 band to the 4th operator. MPT should now cease operations in this 2x5 MHz block and only use its 2x10 MHz spectrum holding. This will in essence leave 2x10MHz EGSM spectrum free for clean-up and ultimate auction where all operators can compete. Clearly a market based allocation method of such important spectrum would enable operators to much more efficiently provide rural coverage and in-building data in urban areas. Government will be provided with the financial benefits through the funds raised for such spectrum in addition to a much more equal competitive landscape.
4. The release of the 2600 MHz should come towards the end of the 5 year period. The band should be identified for IMT.
 5. The 450 MHz holds the potential of serving as a nationwide Internet of Things coverage band. The re-allocation of the 450MHz band combined with additional 450 spectrum will give significant advantages in relation to coverage of both deep rural areas and also the option of provision of efficient indoor broadband. As all operators have entered into population/coverage commitments, such wide reaching spectrum should be considered on a shared basis and not only be available for one party.
 6. The L-Band (1500 MHz) and the 2300 MHz band are both candidates for the next 5 year Spectrum Roadmap.
 7. Spectrum holdings between operators are not distributed equally today. MPT has a much larger spectrum portfolio than Ooredoo and Telenor. Over time, spectrum must be distributed in such a way that there are viable spectrum packages that can support the effective operation of all four mobile operators in Myanmar (including possible operations of 2G, 3G and 4G networks) and in such a way that the spectrum holdings allow operators to compete on a fair basis. PTD should ensure that the incumbent relinquish 2x5 MHz of its current 900 spectrum for allocation to the 4th operator and that the 450 MHz band is available on a shared basis. This will enable all operators to much more efficiently provide rural coverage and in-building data in urban areas.

Question 1 (Drivers of the Spectrum Roadmap)

Question 1 (a): Do you agree that these are the primary drivers for the roadmap?

Investments by the mobile industry in Myanmar will continue to have a huge impact on the lives of millions of people. Cellular networks deliver connectivity across the country and empower people through a growing range of services. The rapid growth of mobile data volumes is being driven by the increasing variety of services being used across smartphones, laptops, netbooks and tablets. Mobile data services enables access to the Internet and email, mobile video, business applications, banking, cloud applications and services, social networking etc.



Telenor agrees that new services and increasing data demand is a key driver for the Spectrum Roadmap.

Question 1 (b): Are there other drivers that should be considered?

IMT frequency bands should be available on a technology-neutral basis. Technological development and modern spectrum management techniques has removed the reasons that previously supported reserving spectrum for certain technologies.

Backward compatibility is important in mobile operations. Although new and more frequency-efficient technologies are taken into use, it is also important to ensure the availability of older technologies that enable the majority of devices in the market to connect to mobile services.

Question 2: What stakeholder benefits would you hope to see materialize from the creation of the independent regulator?

Telenor believes that the creation of an independent regulator will make it easier to reduce spectrum scarcity in the wireless sector. Harmonisation of spectrum usage with ITU and regional bodies are important and a Spectrum Roadmap will enable a well-functioning wireless sector.

Frequency coordination in border areas and spectrum monitoring are other important areas where an independent regulator can make significant impact.

Question 3: Do you agree that completing a frequency register is a high priority and beneficial to spectrum users?

Telenor agrees that completing a frequency register should have high priority.

A frequency register with licensed users can serve as a point of departure for frequency monitoring and enforcement of national regulations and spectrum rules.

Interference occurs when unwanted signals are received at signal strengths that desensitize the receiver of the radio equipment in question. A frequency register, spectrum monitoring and interference analysis are key components of modern spectrum management.

Telenor supports further competence building in the area of spectrum monitoring and interference analysis. A frequency register will be an important part of this work.

Question 4 (Policy)

Q4 (a): Do you agree that it would be beneficial for MCIT/PTD to articulate a Spectrum policy that establishes a framework providing objectives, procedures and standards and guidelines to manage the radio frequency spectrum?

Telenor agrees that a Spectrum policy will be beneficial.

For the mobile industry it is important that spectrum is distributed in such a way that there exist viable spectrum packages that can support the effective operation of four autonomous wireless networks;

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enabling operations of 2G, 3G and 4G networks. In practice, spectrum caps can be used in auctions in order to prevent a higher degree of concentration of frequencies than what is compatible with the government's market structure ambitions.

However, excessive use of spectrum caps can lead to inefficient use of frequencies and creates incentives for hoarding of spectrum under the protection of caps, and subsequent "windfall gains" at the expense of the government as spectrum is sold or transferred to the sustainable part of the industry in the secondary market. Telenor's view is that competition must be safeguarded, but that "spectrum caps" should be no stricter than necessary to protect a sustainable market structure.

Q4 (b): Do you agree that there needs to be clarification of spectrum policy concerning the roles of authorizing ministries when it comes to spectrum for broadcasting?

Question 5 (NTFA): Do you support the changes made by PTD in the recently published and updated NTFA?

Telenor believes that the NTFA is a major milestone in spectrum regulation. We support many of the changes, but refer to our separate response on the NTFA for specific frequency bands.

Question 6 (Equipment Standards): PTD invites comments concerning the establishment of a framework for equipment certification and approval for permitted equipment in Myanmar.

Telenor supports a transitory approach to a full certification and approval process. Although not a trivial issue, equipment certification must be considered as a lower priority than other issues in this consultation document. Monitoring and tracking illegal devices should be prioritized over equipment certification; given current capacity constraints.

Question 7 (Spectrum Plans): Spectrum Plans, developed in consultation with industry, are an important part for the development of the resource and ensure that all users' needs are considered and the resource is used efficiently.

Q7 (a): Fixed microwave bands are under intensive pressure, given their use by cellular service operators' backhaul.

Should detailed plans be created first in these bands?

Telenor agrees that Spectrum Plans for fixed microwave bands should be prioritized and created first to ensure better planning of microwave backhaul and less risk of interference. However, it is important to point out that the industry has through various actions and resources supported PTD in relation to addressing the matter of M/W capacity shortage. The Myanmar Government outlined in the Invitation to Tender in 2013 which bands should be made available to the mobile operators, but there has been little progress in relation to this matter recently. This issue is long outstanding and is having major negative impact on the ability to efficiently roll out the network.

Q8 (Band plans): Detailed channel plans constitute a fundamental requirement for the development of the spectrum. The lack of these band plans has resulted in ad-hoc assignments and the need to realign deployed systems. While the PTD is in the process of developing formalized band plans, no formalized band plans are currently available. These band plans



would have to be developed in consultation with the stakeholders. Microwave users have provisionally adopted ITU band plans.

What bands do you consider to be priority for band planning?

Telenor believes that cellular bands and fixed bands for backhaul should take priority. Specific minimum requirements must ensure technology neutrality in cellular bands.

Question 9 (Compliance): We invite comments from stakeholders concerning compliance issues that are impacting spectrum use today.

Question 10 (International Activities): In many countries, stakeholders play an important part in preparing for, and participating in international spectrum planning conferences.

Telenor believes that stakeholder should play a part in preparing for international spectrum planning conferences. One possible approach is to form a working group led by the new regulator that discusses and agrees on spectrum positions before important APT and ITU meetings and conferences.

We are interested in your views on how Industry might contribute internationally to further the interests of spectrum planning and development in Myanmar.

Question 12 (Redeployment/Refarming): Do you agree that there is a need for a refarming policy that would provide guiding principles concerning spectrum recovery and redeployment.

Question 13 (850/900 realignment): While the release of 850 and 900 MHz and any associate band arrangements would be part of a separate consultation, we invite your preliminary views on options presented in figure 11.

Telenor has the following response to the proposed frequency bands:

The 450 MHz band

The 450 band is included in the current 3GPP specifications on LTE frequency bands. However, current mainstream devices do not include 450 as a spectrum option and it is currently unclear whether 450 becomes part of the overall LTE mainstream landscape or whether the band remains dedicated as a 4G data-only network.

The retention and use of 450MHz band by one operator is unreasonable, but a shared use or re-allocation combined with release of further bandwidth will give significant advantages in relation to coverage of both deep rural areas and also the option of provision of efficient indoor broadband. As all operators have entered into population/coverage commitments, such wide reaching spectrum should be considered on a shared basis and not only be available for one party.

The 700 MHz band

Telenor welcomes the inclusion of the 700 MHz band in the Spectrum Roadmap.

The 700 MHz band is particularly valuable for mobile services for the following 2 reasons:

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- Many countries across the world are using or planning to use this band for mobile services. This will give economies of scale for equipment manufacturing.
 - o The 700 MHz APT ecosystem is currently fairly small compared to some other frequency bands, but is growing fast. The 700 MHz band has been licensed in some countries in the Asia Pacific region and commercial networks have been launched in 4 APT countries. Several countries in the region are now either refarming the band for mobile or are in the process of assigning spectrum.
 - o A number of countries in Europe, Latin America and Africa have either auctioned the 700 MHz band (with the APT channel arrangement) or are in the planning process of doing so
- Radio transmissions in this band reach further and pass through walls and other obstructions more easily than transmission in higher frequency band. This means that the band is well suited to improve coverage in rural areas.

The 850 MHz band

While we note that the release of 850 and 900 MHz would be part of a separate consultation, we recommend that MCIT/PTD ensures that any new 850 MHz base station has transmit filters with a cutoff frequency that protects the EGSM band.

The interference problems created by having a co-existence of 900 and 850 MHz band plans are well known in the Asia Pacific region.

Long term a combined usage of EGSM (880 – 890 MHz uplink) and 850 MHz band in same geographic area is going to require a combination of i) transmit filters on all 850 MHz base stations, ii) receive filters on all EGSM base stations, iii) coordination and cooperation, including information about the geographical position of all transmitters.

An ideal solution to the interference problems between 850 and 900 MHz would be to ensure that the same operator has allocations on both sides of the 850-900 MHz split, as this operator then would be able to control and mitigate interference in the best possible way. This is the solution that was used in Australia to handle the same problem. However, in relation to Myanmar this will require that the current MEC operation is formalized.

The 900 MHz band

Telenor welcomes the proposal to make 3 blocks of 2x5 MHz spectrum in the 900 MHz band available for the mobile operators. The consultation document clarifies that PTD and MPT have reached an agreement whereby MPT relinquishes 2x5 MHz of its total spectrum holding of 2x15 MHz in the 900 band to the 4th operator. MPT should now cease operations in this 2x5 MHz block and only use its 2x10 MHz spectrum holding.

Furthermore, we welcome the proposal of having technical trials in the E-GSM band. By allowing temporarily testing and mapping of the interference challenges, both in terms of geography and in severity of degradation. MCIT/PTD will gain insight that can be used for future utilization of the E-GSM band.



Regardless, one needs to expect that EGSM has lower value than rest of 900 MHz band due to the additional cost of received filters in order to operate.

The 1800 MHz band

Telenor welcomes the proposal of making the 1800 MHz available for the mobile operators.

The 1800 MHz band can be used for both 2G and 4G services, it is by far the largest ecosystem for 4G in the world and it is included in almost any 4G device. 44.3 % of all the global LTE networks are using 1800 MHz and this band is the mainstream choice for LTE in most regions.

The 2100 MHz band

The 2100 MHz is expected to be used for 3G in Myanmar for a long time. Over time, it will likely be re-farmed for 4G. The band should be fully assigned.

The 2300 MHz band

The 2300 MHz band has growing support worldwide. It's one of the key LTE bands in China, it's being used in India and it's now also considered in European markets. We believe that the 2300 MHz band could be a candidate band in the next 5 year plan. It could then be considered to be used in a TDD mode (with significant more downlink spectrum than uplink spectrum) or it could be used as a Supplementary Downlink only.

For TDD systems, we believe it is important that the regulator decide on synchronization of networks on a set of default parameters based on international best practice.

- The ratio of downlink versus uplink traffic should be decided by the regulator
- A defined spectrum block emission mask should be defined
- A synchronization procedure for networks, e.g. GPS synchronization
- An identical frame structure among operators who must use the mandated configuration or equivalent frame structure and be compliant with the other parameters in the Inter-Operator Synchronization Procedure.

The 2600 MHz band

The assignment of the 2600 MHz band can come towards the end of the 5 year period.

Question 14

Question 14 (a): Please comment whether the targeted bands are the priority bands for release.

Telenor agrees that the targeted bands for release in the next 5 year period should be:

- The 700 MHz band
- The 900 MHz band
- The 1800 MHz band

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- The 2600 MHz band

Telenor believes that reduction of spectrum scarcity is the simplest and most effective way a government can contribute to a well-functioning wireless sector. Our main recommendation is that all relevant IMT (International Mobile Telecommunications) bands should be made available to the wireless sector in Myanmar. We believe that this Spectrum Roadmap, together with current assignments, will ensure this.

Telenor Group considers the seven most important frequency bands for the Myanmar market to be 700 MHz, 850 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz and 2600 MHz.

The Spectrum Roadmap will ensure that 6 out of these 7 bands are made available for the wireless sector during the next 5 year period and that spectrum will be available to meet the high data demand in Myanmar and the transition to 4G.

The 2300 MHz could be re-farmed and made available during the next 5 year Spectrum Roadmap, together with other relevant frequency bands e.g. the 1427-15185 MHz band identified at WRC15. Telenor Myanmar also supports the inclusion of the 3 GHz bands as future priority bands.

Telenor assumes that several of the frequency bands mentioned in Table 2 on page 54 are not relevant for future assignments in Myanmar as some of these bands are either used in Japan only or they are in conflict with the 1800 or 2100 bands.

Question 14 (b): Please comment on the sequence of the release of the selected bands.

1. Telenor supports the release of the 1800 MHz band in Q4 2016
2. Telenor supports the release of the 700 MHz band in 2017
3. Telenor supports the release of the remaining 900 MHz spectrum and the proposal to develop a plan for spectrum to be used temporarily for testing and mapping of the interference problems between 850 and 900, both in terms of geography and severity of degradation
4. The 1800MHz band should be prioritized for auction in light of the Government's objective to ensure nationwide coverage with affordable services. The 2600 MHz auction should come at a later stage and towards the end of the 5 year period as 2600 MHz is a capacity band and has propagation characteristics that makes it ill-suited for national coverage requirements, referring to the Invitation to Tender stating that there are no plans for the assignment of 2600 MHz in the short term.

Telenor supports the action to develop a policy and consultation to optimize the 850 and 900 MHz bands, but that action should be preponed and executed as soon as possible. Co-existence of 900 and 850 MHz band plans has been implemented in several countries in the Asia Pacific region. This coexistence comes with a sacrifice in the bandwidth available for mobile due to a proportion of the spectrum being used as guard bands. A mixed band plan for 900 and 850 makes interference coordination between operators more complex.

Long term a combined usage of EGSM (880 – 890 MHz uplink) and 850 MHz band in the same geographic area is going to require a combination of i) transmit filters on all 850 MHz base stations, ii) receive filters on all EGSM base stations, iii) coordination and cooperation, including information about the geographical position of all transmitters.

Telenor's view on steps to ensure best possible utilization of the combination of the two bands towards a longer term solution would be:

- Ensure that all 850 MHz base stations have transmit filters with cutoff frequency that protects the EGSM band.
- Allow parts of the EGSM band to be used temporarily for testing and mapping of the problem, both in terms of geography and severity of degradation. Such testing should commence as early as possible.
- This would allow government insight that can be used to produce a plan for future utilization, and concretely when an auction of the EGSM band for longer-term usage rights could be meaningful. A worst-case consideration of the timing of the same could be the lifetime of the 850 MHz network, as when a complete replacement cycle is carried out all base stations would have filters.
- Regardless, one needs to expect that EGSM has lower value than rest of 900 MHz band due to the additional cost of received filters in order to operate.
- The cost of adding 850 base station transmit filters and 900 base station receive filters will be extremely small compared to the gain of making the E-GSM band available for mobile communication.

Q14 (c): Please comment on the overall timing of release.

Telenor agrees that the release of the frequency bands 700 MHz, 450 MHz, 1800 MHz, E-GSM, and 2600 MHz should be the overall goal in the next 5 year period.

Question 15 (Spectrum Demand): Is the amount of spectrum proposed for release over the next 5 years adequate? If not, please provide detailed rationale supporting the need for more commercial spectrum in Myanmar.

Before WRC15, the total spectrum allocated for IMT in the Asia Pacific region was 1177 MHz. The addition of 91 MHz in the L-band takes this number up to 1268 MHz. Some countries in the region have attached themselves to footnotes in the 470-698 MHz, 3.3-3.4 GHz and 4.8-4.99 GHz. We believe that there is no need for Myanmar to consider the latter 3 bands, but the L-band now has a global identification and we believe that this band should be a candidate band in the next 5 year period. A global ecosystem for the L-band needs to be developed and we believe that this will take time.

The present amount of spectrum and the amount of spectrum proposed for release over the next 5 years adds up to a total amount of 650 MHz (see table below):

Frequency band (MHz)	Duplex (MHz)	Total (MHz)
700	2x45	90
800	2x10	20
900	2x35	70
1800	2x75	150

2100	2x60	120
2600	2x70	150
2600 TDD		50
All bands in total		650

A total amount of IMT spectrum of 650 MHz allows for the possibility of all 4 mobile operators of having at least a 2x10 MHz LTE carrier in low-frequency bands and a 2x20 MHz LTE carrier in high-frequency bands while at the same time operating 3G or 2G systems.

Telenor believes that 650 MHz in a scenario with 4 mobile operators is sufficient to meet the data demands in Myanmar over the next 5 years.

Question 16 (Fixed bands): (Note: The MCIT/PTD Action Plan (above) includes the creation of an industry-led committee for the inter-user coordination of Fixed spectrum.)

Q16 (a): Do you support the idea of establishing an industry-led committee for the inter-user coordination of Fixed spectrum?

Note: According to the same Action Plan, all new policies, standards would be developed in consultation with industry:

Telenor supports the idea of establishing an industry-led committee for the inter-user coordination of fixed spectrum. Fixed spectrum bands are used by a lot of different users and the participation in this committee should be restricted to licensed users. The independent regulator must provide support to the committee to drive decisions and oversee activities.

The demand for microwave backhaul will continue to increase. Introduction of LTE systems in Myanmar will lead to even greater challenges for the mobile operator as they cope with more network capacity, latency reduction, and enhanced user experience. Over time, as traffic builds up in LTE networks, Myanmar mobile operators might consider small-cells deployments. Such cells will require integrated and scalable backhaul solutions.

Q16 (b): Do you agree that there is a need to establish utilization policies, in consultation with industry, to ensure all users are accommodated and establishing minimum technical standards for systems in these bands?

Telenor supports the idea of establishing utilization policies to ensure all users are accommodated with establishment of minimal technical standards for systems through/after proper consultation with industry.

Fixed link spectrum can be assigned in five different ways:

- 1) As blocks of spectrum
- 2) On a per link basis
- 3) As shared licenses
- 4) As lightly licensed spectrum

5) As unlicensed spectrum

There are pros and cons associated with each method. A combination of the five categories above could be most effective, taking current congestion and propagation characteristics into consideration. Policies and standards should be developed for fixed links.

Such policies should also consider opportunities to license blocks of spectrum in certain bands. This will enable operators to roll-out services more efficiently and assist in reaching coverage targets. These blocks of spectrum could be sold in an auction to establish proper spectrum rights in the band.

Q 16 (c): Do you support the need to release a policy and band plan providing for more spectrum in higher bands for short and very short hops?

Telenor also feels the necessity to release policy and band plan for higher bands for short and very short hops. Telenor would like to add – the usage, utilization and technology should be on flexible modality for short and very short hops.

The millimeter wave bands, such as the 60 GHz band and the 70/80 GHz band are particularly suited for small cells, since there is little congestion in these bands and since the bands are compatible with short cell ranges. The bandwidths can be very high. Line of Sight is required.

Telenor would welcome a policy and band plan for short hops.

Q16 (d): Do you agree, given limited propagation and possibilities for spectrum with nearby systems in the upper bands, that a simplified licensing approach for these bands would be appropriate?

Telenor agrees to have a simplified licensing approach for the upper bands due to limited propagation and possibilities with nearby systems in the upper bands.

In the bands above 70 GHz a light licensing scheme would be appropriate. Such a simplified licensing approach could e.g. be to register fixed links on a first-come, first-served basis (a license to operate is not required, but the operators simply notify frequencies and position into a common register).

Question 17 (Land Mobile):

Question 18 (License Exempt):

Q18 (a): Do you agree with the MCIT/PTD's action items as proposed for a license-exempt framework?

Telenor supports the proposed action items and believes that it will be beneficial to have a framework for license-exempt.

Telenor supports PTD's recommendation of not mixing licensed and unlicensed systems in the same frequency bands. A cautious approach must be taken if considering the APT proposal of harmonizing the 862-960 MHz for SRD's. Commercial licensed services must take priority in this band.



Q18 (b): What other action(s) would you propose for consideration as part of a license-exempt framework initiative?

In addition to the unlicensed bands mentioned in paragraph 12.3 we believe it would be important to introduce the other 5 GHz bands mentioned in Table 10. 5 GHz bands are frequently used by Wi-Fi systems and there is ongoing 3GPP standardization work for unlicensed LTE in these bands.

Question 19 (Broadcasting)

Q19 (a): Do you agree with the above proposed action items?

Telenor agrees with the proposed action items in this section. In particular, we welcome the actions of

- Clarify the spectrum utilization plan by showing the frequency bands that are allotted to broadcast and the spectrum that is being allotted for future mobile use; and
- Clarify for stakeholders the policy and procedures for the reallocation of channels to Mobile

Since Digital TV will stop at 686 MHz, we assume that the full APT 700 MHz channel plan with 2x45 MHz FDD will be available for IMT in Myanmar.

Q19 (b): What other broadcast initiative(s) should be considered by the MCIT/PTD?

Question 20 (Satellite)

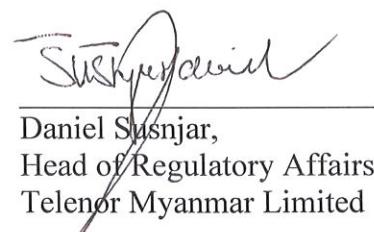
Telenor agrees that MCIT/PTD should, in consultation with stakeholders, develop a policy and licensing guideline for the provision of satellite services in Myanmar.

Initial draft policy should be prepared with proper consultation as there is no transparent/ defined process available.

Telenor would welcome further discussion with PTD related to our comments and we trust that they will be addressed in The Spectrum Roadmap.

Should you require any clarification, please do not hesitate to contact us.

Best Regards,



Daniel Sushnjar,
Head of Regulatory Affairs
Telenor Myanmar Limited