# MPT RESPONSE
# TO

# MINISTRY OF TRANSPORT AND COMMUNICATIONS POSTS AND TELECOMMUNICATIONS DEPARTMENT CONSULTATION PAPER - SPECTRUM ROADMAP (2020) : FACILITATE THE SUSTAINABLE GROWTH OF INDUSTRY (DRAFT)

## Introduction

MPT is grateful for the opportunity to respond to the PTD's draft Spectrum Roadmap 2020 (SR2020) document, issued on 10th November. Unlike previous PTD spectrum consultations, this document does not contain specific questions so MPTs comments take a free-form structure.

## Overview

Before getting into the details of SR2020, MPT would like to note that it agrees with many of the key themes and points made by the PTD, including:

"larger contiguous blocks of IMT spectrum are needed with release of 5G NR"

"MNO need to have confidence to make long term investments in digital infrastructure in the knowledge that they have sufficient IMT spectrum"

"PTD … should allocate capacity spectrum in larger block sizes"

"larger block sizes are preferred to obtain the maximum benefit from the [5G] technology"

"release IMT spectrum in Myanmar at reasonable prices"

"spectrum allocations to be harmonized and timed regionally so that Myanmar consumers are able to acquire affordable smartphones and other devices"

## Priority - 4 suitable 5G mid-band lots in 2022

SR2020 outlines a 5-year forecast for new spectrum releases. During this period the biggest development will be the introduction of 5G services in Myanmar; therefore, the biggest issue to be addressed is identifying suitable 5G NR mid-band spectrum blocks for the MNOs to use. Globally the most popular 5G mid-band is 3.5GHz (n78). Unfortunately, in Myanmar C-Band satellite is already using part of the band from 3625MHz and above and thus, after allowing for the guard band, PTD is only able to release 120MHz in two 60MHz blocks in 2022.

As a result, MPT believes it is crucial the PTD identifies two additional spectrum blocks that can be released for 5G mid-band use. Internationally the second most popular mid-band is the 2600MHz band (n41) and MPT urges the PTD to focus here. The GSMA recommends 5G NR mid-band blocks be 80 to 100MHz contiguous but since 40MHz in the middle of the band has already been assigned to BWA licensees, the largest the 5G blocks can be is 75MHz. All four 5G NR mid-band lots should be released at the same time so the 2600MHz nationwide needs to be brought forward to 2022 to align with the 3.5GHz block release.

## How to best release remaining 2600MHz spectrum

In light of the priority need to reserve all remaining 2600MHz spectrum for nationwide release in 2022, as stated above, this means that, for the greater good of the industry and thus Myanmar people, the PTD should refrain from releasing any additional 2600MHz spectrum on a regional basis in 2021. Whilst MPT understands there is demand from various NFS(I) licensees for this to happen, it is not the right course of action.

The PTD does have a little leeway. As YTP did not take up its regional 20MHz in regions 2 (Yangon) and 3 (Mandalay) in 2016, the PTD is able to allocate these blocks in 2021 without impacting the 2022 5G mid-band plan.

## 700MHz Band and PPDR

By bringing forward the 2600MHz nationwide spectrum release to 2022, four blocks of 5G NR spectrum can be simultaneously assigned to the MNOs, coupled with the release of the 2300MHz band for 4G capacity purposes as PTD suggests, the PTD will be releasing 350MHz of IMT spectrum in 2022 which equates to almost 90% of the amount currently assigned. MPT therefore recommends postponing release of the 700MHz band from 2022 to 2023.

700MHz spectrum is useful for extending network coverage to new rural areas. However, to do this successfully, an operator needs competitively priced devices for subscribers in these areas to use. As they often have lower disposable incomes, Myanmar's MNOs will need access to entry-level smartphones supporting this band (Band 28 or n28) and this is currently a challenge. MPT estimates only approx. 20% of devices on its network currently support Band 28 and most of these will be in the major urban areas. MPT therefore suggests waiting until 2023 to release the 700MHz band; by this time there will be a more suitable device ecosystem.

SR2020 suggests 2x10MHz in the 700MHz Band be reserved for PPDR use. PTDs position has changed since the 850MHz Band Consultation in 2019; in it the PTD was advocating PPDR be supported in the 850MHz Band. MPT believes that in the medium term the 700MHz Band will be needed by all 4 MNOs to expand network coverage into new rural areas and therefore all 2x45MHz available spectrum should be reserved for this. PTD should kindly provide the reason for such change of direction or rather go back to its prior recommendation and plan for PPDR use in the 850MHz Band instead. MPT notes that Thailand, Singapore and Malaysia are all either trialling or adopting PPDR in the 850MHz Band.

## mmWave Spectrum

High-band mmWave spectrum (above 24GHz) is now being assigned in many countries world-wide for 5G use; however, many B2B industry-vertical use cases are still being researched and tested. Therefore, in the short term, 5G FWA (Fixed Wireless Access) is the most common implementation.

The SR2020 suggests the PTD allocate blocks of mmWave spectrum on a regional basis in 2021. In light of the national importance surrounding remaining 2600MHz spectrum, as noted earlier, MPT supports the allocation of a limited number of regional 200-400MHz mmWave spectrum blocks to NFS(I) licensees in 2021. However, because spectrum is a scarce national resource, applicants must be able to persuade the PTD that their proposed business case will be viable and on a big enough scale that the spectrum will be fully utilised. Myanmar's experience to date, with the regional 2600MHz licensees, has not been very successful in this regard.

The SR2020 also suggests allocating blocks of mmWave spectrum on a national basis in 2022. As stated earlier, MPT believes 2022 should see Myanmar focus on the release of four 5G NR mid-band blocks. MPT therefore believes it is better to postpone national mmWave allocations to 2023. Doing so will allow more time for the global industry to identify winning use cases for key industry verticals so Myanmar can learn from other leading market experiences and for the device ecosystem to mature. MPT recommends that the PTD reserve 4 blocks of mmWave spectrum for national release in 2023; each block size might be larger than 400MHz because the GSMA recommends blocks up to 1GHz and regulators in a number of markets have released blocks of 800MHz.

PTD proposes allocating mmWave spectrum in the 28GHz band (n257). This is a common band internationally and will allow up to 3,000MHz to be released. MPT supports this band.

## License Exempt Bands

The SR2020 suggests expanding Myanmar's licence exempt allocation in the 5GHz band from 150MHz to 380MHz. In principle MPT has no objections to this development except for the following two issues; (1) Fair competition : As the PTD is aware, several ISPs holding NFS(I) licenses offer retail broadband data services to the public leveraging licence exempt spectrum. This has created an unlevel playing field because these services do not incur spectrum fees to the PTD or USF contributions. (2) Interference risk mitigation : Also, from a user experience perspective, QoS is variable because the service is provided over a shared spectrum; they can therefore be unreliable. In addition, these ISP's services can interfere with other consumers already using 5GHz Wi-Fi in the vicinity, thereby degrading broadband user experience generally.

In the 5725-5875MHz bands PTD currently requires compliance with requirements in the United States' Code of Federate Regulations (CFR) which require frequency hopping (a way of reducing interference) and transmission requirements. MPT suggests that compliance with the transmit requirements in the CFR be required for other unlicensed 5GHz bands in Myanmar in future, as applicable. The PTD could also investigate the practicality of requiring frequency hopping techniques in additional unlicensed 5GHz spectrum to help to mitigate interference.

MPT urges the PTD to rectify this industry imbalance before any additional spectrum in the 5GHz band is allocated to licence exempt use. MPT is willing to work with the PTD and other industry players to resolve this matter in a timely manner.

Finally, MPT believes in the medium term there is merit in having part of the 6GHz Band allocated for licence exempt use. However, globally spectrum assignment and best practice is still evolving and hence it is currently too early for Myanmar to make a decision. MPT suggests the PTD to monitor developments across the region in the coming couple of years in order to make a decision at the appropriate time that aligns with neighbouring countries.

## Other considerations

In addition to commenting on specific parts of the SR2020, MPT would like to take this opportunity to provide some general comments and suggestions to the PTD, as follows:

Allocation basis

Future IMT spectrum releases should be made on an administrative (beauty contest) basis, i.e. fixed fee amount, rather than auction. Myanmar has a successful history of doing this and MPT strongly recommends it continues in future. Deploying additional 4G LTE infrastructure and building new 5G networks will be very capital intensive for all MNOs in the coming years and MPT firmly believes not burdening the industry with high spectrum auction fees is the right decision for all key stakeholders – subscribers, Government and operators.

MPT would also point out that Myanmar's evolution from 2G to 3G to 4G and soon to 5G has been faster than almost all markets globally; Myanmar's MNOs have therefore had the least time to earn a payback on their investment for each new generation of network. This further supports the case for spectrum auctions to be avoided in Myanmar.

MPT also asks the PTD to consider a pay-as-you-use (PAYU) model for future 5G IMT spectrum assignments. Such an innovative approach would better align fees for spectrum use with spectrum utilisation revenues to operators.

Period to pay spectrum licence fees

PTD should consider allowing spectrum fees to be paid over a number of years, up to 10. Regulators in some markets have adopted this structure as they recognise the enormous burden being undertaken by MNOs to deploy 5G network infrastructure in the coming decade. In a low ARPU market like Myanmar, this concession could have a significant impact on operator viability and medium-term industry health.

Fair competition and level playing field

MPT urges the PTD to always consider the concepts of fair competition and the level playing field in its deliberations over the spectrum roadmap and future spectrum releases. MoTC and the PTD have crafted a vibrant and competitive mobile telecoms landscape over the last 6 years and Myanmar people have benefitted hugely as a result. With such important spectrum decisions to be made in the next 2-3 years, it is important that these benefits are not lost. So, as an example, when Myanmar comes to release spectrum in the 700MHz band for coverage benefits, each of the four MNOs should receive at least 2x10MHz FDD.

No 5G rollout or coverage obligations

Even in some advanced markets, such as Japan, Singapore, Korea, Thailand, Germany, Italy etc, the regulatory authorities are making cautious consideration for the rollout/coverage obligations to 5G spectrum awards. MPT therefore requests the PTD not to attach any rollout or coverage obligations to the release of the four 5G NR mid-band blocks in 2022. Market forces should be sufficient for Myanmar to achieve the optimal amount of 5G network availability across the country in future.

MPT would welcome the opportunity to discuss and support the PTD with any of these points in future.

## Summary

MPT welcomes the opportunity to outline its preferred IMT spectrum release schedule over the next 3 years; especially given the important release of 5G NR spectrum blocks during this period. In summary, MPT recommends the following spectrum release schedule:

| 2021 | 2022 | 2023 |
|---|---|---|
| mmWave (regional) | 3.5GHz | 700MHz |
| | 2600MHz (national) | mmWave (national) |
| | 2300MHz | 1500MHz |

MPT believes this schedule offers a good balance of annual spectrum release whilst creating a strong foundation for 5G NR mid-band services in Myanmar in the years ahead. Also, on a practical note, it is likely the impacts of the Covid pandemic will last well into 2021 and therefore assuming a smaller amount of activity in 2021 minimises the risk of plan slippage.

If Myanmar adopts MPTs revised spectrum plan, the amount of IMT spectrum released, excluding mmWave spectrum, will increase by almost 90% in 2022 and by a further 24% in 2023 (see Table 1 below). If one includes 28GHz mmWave spectrum, by the end of 2023 Myanmar could have assigned almost 4GHz of spectrum – representing a ten-fold increase on the amount currently assigned.

Table 1. Spectrum forecast table (excluding mmWave)

| Band | 2020/21 | 2022 | 2023 |
|---|---|---|---|
| 450 MHz | 7.5 | 7.5 | 7.5 |
| 700 MHz | 0 | 0 | 90 |
| 850 MHz | 12.5 | 12.5 | 12.5 |
| 900 MHz | 64.4 | 64.4 | 64.4 |
| 1500 MHz | 0 | 0 | 90 |
| 1800 MHz | 150 | 150 | 150 |
| 2100 MHz | 120 | 120 | 120 |
| 2300 MHz | 0 | 100 | 100 |
| 2600 MHz | 40 | 190 | 190 |
| 3.5 GHz | 0 | 120 | 120 |
| TOTAL | 394.4 | 764.4 | 944.4 |
| *% increase* | | *94%* | *24%* |

*note: assumes 20MHz for Gov use in 2300MHz band released in 2022*

With regards licence exempt spectrum, MPT requests the PTD to resolve the current unlevel playing field caused by ISPs using shared spectrum to provide retail broadband data services before allocating any addition licence exempt spectrum in the 5GHz or 6GHz Bands.

Finally, MPT recommends the PTD reverse its PPDR thinking and plan spectrum in the 850MHz Band for wideband PPDR use.