M1'S RESPONSE TO IMDA'S PUBLIC CONSULTATION ON THE REVIEW OF THE CODE OF PRACTICE FOR INFO-COMMUNICATION FACILITIES IN BUILDINGS ("COPIF")

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Introduction

1. M1 is Singapore's most vibrant and dynamic communications company, providing mobile and fixed services to over 2 million customers. With a continual focus on network quality, customer service, value and innovation, M1 links anyone and anything; anytime, anywhere.

M1's view on the Regulatory Environment

2. The provision of info-communication services in Singapore is regulated under the Telecommunications Act. The Info-communications Media Development Authority ("**IMDA**") is the regulatory authority and has powers to establish standards, codes and regulations to be observed by operators of info-communication systems and services and to regulate the conduct of licensees.

3. M1 supports the development of a proportionate and stable regulatory environment as it will catalyse a sustainable and growing info-communications industry where long term planning and decisions can be undertaken.

4. M1 welcomes the opportunity to submit our comments to IMDA on the proposed review of the COPIF. The COPIF is an essential set of regulations that ensures that building developers or owners provide adequate space and facilities (including access) for operators to deploy and operate their equipment and provide telecommunication services to the public.

5. With the increasing reliance on telecommunication services and the Government's push for Smart Nation, it is critical that the COPIF requirements address the technical and operational needs of operators, which would allow operators to provide services expediently and meet the service quality standards. We would like to emphasize that the COPIF must be binding and there should be a strong enforcement mechanism by the relevant authorities to ensure compliance by various stakeholders. The COPIF can then be implemented effectively to achieve its policy intent and desired outcomes.

PART II: IMDA'S PROPOSED KEY CHANGES TO COPIF 2013

Section 1 – Use and Scope of Mobile Deployment Space provided within a development to provide mobile coverage

Question: *Any procedural issues (e.g. physical access or implementation matters) arising from IMDA's proposed amendments to the COPIF on the scope and use of the MDS on building rooftops to provide coverage to External Areas.*

1. M1 welcomes IMDA's move to designate the use of rooftop space as the preferred Mobile Deployment Space ("**MDS**") location for providing mobile coverage to areas within and/or outside the building developments. This will cut down protracted negotiations with building owners and facilitate efficient deployment of mobile coverage to serve the public.

2. However, M1 would like to highlight the following points for IMDA's consideration in order to ensure that the proposed changes to the COPIF can be implemented effectively between the parties.

Access to rooftop MDS

3. While IMDA intends to designate rooftop space as MDS, it is important for IMDA to consider the associated technical and operational issues for the use of rooftop MDS.

4. As IMDA is aware, building owners may impose various restrictions or conditions (e.g. due to aesthetic reasons) on MNOs for installation of mobile equipment on the rooftop space. While we will work with the building owners on their restrictions or conditions, these should not be unreasonable and undermine MNOs' efforts to provide mobile coverage that meets IMDA's QoS requirements. In addition, access to the mobile equipment located at the rooftop space (for equipment installation or maintenance purposes) should not be obstructed or pose safety issues to MNOs.

5. Therefore, while building owners are required to provide rooftop space as MDS, IMDA should require building owners to ensure that the rooftop space allocated to MNOs is suitable and feasible for mobile coverage deployment. Building owners should also ensure that access to the mobile equipment located at the rooftop space is safe and not obstructed. This will allow MNOs to deploy and maintain the mobile equipment expediently.

Associated costs for use of rooftop space

6. Under the COPIF, a building owner shall not impose any charge or rent on the licensee (e.g. administrative charges, security escort charges, costs to reinstate access panels or openings) or impose any additional requirements on the licensee (e.g. requiring any insurance policy or additional insurance coverage to be taken) in connection with the grant of access to and use of the space and facilities provided by the building owner.

7. We wish to highlight that in reality, some building owners today impose access or security escort fees for access to space and facilities provided by the building owner, including rooftop space. We would request that IMDA create greater awareness on the regulatory requirements governing these charges to building owners. In exceptional cases where such charges have to be imposed, IMDA should clarify that they should only be on a cost-recovery basis. This will minimise ambiguities and disputes between MNOs and building owners and ensure that IMDA's policy objectives for COPIF are not negated.

Clarifications from IMDA

8. M1 would like to seek IMDA's clarification and/or confirmation on the following matters:

i. The mobile equipment in the MDS would include the ancillary equipment that are necessary to support the deployment of mobile coverage. These include, but not limited to, transmission, power and rectifier equipment;

ii. Building owners are not be allowed to impose rental charges for space used by other facilities (which are typically not located within the MDS) in connection with the deployment of mobile equipment. For example, cables connecting to mobile equipment, antennae/poles, safety railings, camouflage panels; and

iii. Whether the proposed changes to COPIF will apply to buildings such as power substations, ventilation buildings, airports, government buildings (e.g. military camps and police stations), recreational facilities and offshore islands and non-building infrastructure such as lamp posts and towers.

Section 2 – Requirements of Space and Facilities to be provided to MNOs

Question: *The proposal to allow MNOs to determine the location of the MDS, in consultation with building developers or owners*

9. M1 welcomes the change in allowing MNOs to determine the MDS location as MNOs would be in a better position to decide so as to provide optimal mobile coverage. However, we are deeply concerned with IMDA's position that the size of existing MDS will remain unchanged despite the entry of a new MNO.

10. Firstly, we want to clarify that the cessation of 2G networks does not free up existing space, as the same mobile equipment is used to provide mobile services in the various frequency bands. Hence, while 2G services have ceased, the same equipment is used for the provision of 3G and 4G services. Moreover, there are already space constraints in the existing MDS. With the entry of a 4th MNO, it would be untenable to require existing MNOs to share existing space for the 4th MNO on a blanket basis. This could lead to protracted negotiations with building owners, high relocation costs and potential service disruptions.

11. Secondly, we would request IMDA to also take into consideration the MDS requirements for 5G services. The deployment of 5G services will require additional mobile equipment. As we

expect 5G services to operate in the higher frequency bands, additional base stations and amplifiers would be required to provide better signal propagation and coverage. In addition, mobile equipment for 5G services would likely be co-located with the existing 3G/4G equipment to minimise duplication of resources, as power and transmission equipment can potentially be shared.

12. Thirdly, the current MDS requirements cannot be applied to rooftop space, as there are floor loading requirements that need to be considered. To comply with floor loading requirements, we would need to install plinth as part of the mobile equipment setup. Such setup would typically occupy up to 6 x 3 square meters in floor space.

13. With the extension of MDS to include rooftop space for mobile coverage, the entry of a 4th MNO and 5G developments, the current MDS requirements will not be adequate. It is critical that IMDA and MNOs work closely together to review the MDS requirements and ensure that a reasonable amount of space is set aside for mobile equipment deployment. Otherwise, there could be protracted negotiations between various stakeholders on MDS, which may then disrupt existing operations and overall undermine IMDA's policy objectives of COPIF.

14. Therefore, M1 would propose the following for MDS requirements for each MNO:

a. Where mobile equipment are to be installed within the building premise, a MDS of 12 m^2 is required; and

b. Where mobile equipment are to be installed on building rooftop, a MDS of 6x3 m^2 is required due to floor loading requirements.

It should be noted that the above proposed MDS requirements do not take into account other installations such as cabling, antennae and camouflage panels, and building owners should not impose rental charges for such installations.

Section 3 – Use of and Access to Space and Facilities by Licensees

Question: *Whether a set of guidelines should be included where MNOs use the rooftops, to ensure that MNOs deploy their equipment efficiently, taking into consideration the building developer's or owner's future needs and requirements.*

Question: *The proposal to continue relying on the Rules of Usage, laid down in COPIF paragraph 16.4, as a guide to resolving disputes over how house rules are to be applied when Licensees use COPIF Space and Facilities; whether these Rules should be expanded and/or new rules added and what these additional rules should encompass.*

15. We concur that it will be useful to include a set of guidelines where MNOs use the rooftop, taking into consideration the building owners' future needs and requirements. While not every building owner would have the same house rules, IMDA expects these to minimally include requirements on the Rules of Usage currently laid out in the COPIF. IMDA will also rely on the Rules of Usage as a guide to resolve disputes between MNOs and building owners pertaining to application of the house rules.

16. M1 is agreeable to IMDA's proposal to rely on Rules of Usage as a guide for use of rooftop space and to facilitate resolution of disputes between MNOs and building owners. However, given the increasing importance of mobile services, we believe that the Rules of Usage can be expanded to cover requirements for building owners to provide MNOs with access to their mobile equipment. For example, general obligations for building owners to provide access to MNOs during / after office hours, building owners to ensure that the use of rooftop space for other purposes would not obstruct access to mobile equipment or pose safety issues to MNOs, and building owners should not impose unreasonable conditions or restrictions governing the access to mobile equipment.

Pre-agreed access arrangements

Question: *The proposed requirement for Licensees and building owners/managers to secure pre-agreed emergency access for service restoration during emergencies, particularly where the Licensee is using the space and facilities for Springboarding;*

Question: *The recommendation for managed buildings to have pre-agreed emergency access to be provided with two (2) hours' notice and for unmanned buildings to have pre-agreed emergency access provided soonest possible upon notification; and*

Question: *Any specific details that should be included in such pre-agreed emergency access requirements*

17. To facilitate timely access to equipment located in the space and facilities provided by building owners (especially for emergency access), IMDA has suggested that it is necessary to have pre-agreed access arrangements between building owners and operators.

18. M1 would like to clarify that the challenges in gaining access to equipment are not primarily due to the lack of pre-agreed access arrangements. Most building owners already have established procedures governing access to their premises, which operators would adhere to. The challenges in gaining access are largely due to the following:

i. While telecommunication services have become an essential service, telecommunication operators are often not accorded the same priority as other essential utility providers. For example, in the handling of access requests; and

ii. Some building owners do not have sufficient resources to manage the access requests from operators, hence resulting in delays. For example, for access to HDB rooftop, the unavailability of security escorts could result in access being denied or delayed. This is despite having to pay for the security escorts for access to the rooftop space.

Notice period for emergency access

19. M1 is of the view that when emergency access is required, building owners should provide access as soon as practicable. Generally, manned buildings would have 24/7 support. Ability to gain access to the affected buildings quickly would enable operators to restore services expeditiously and minimise service disruption to end users. While a longer notice period will be required for unmanned buildings, we propose that IMDA specify a notice period (for example, 1 hour) which all parties can work towards, for providing access for service restoration works.

Access to other infrastructure

20. M1 would like to highlight that apart from the traditional mobile equipment deployment in buildings, MNOs may also deploy mobile equipment on non-building infrastructure (for example, lamp posts). Therefore, we propose that the access requirements under the COPIF be extended to non-building infrastructure as well. Such deployment is expected to increase over time due to small cell deployment to increase network capacity (i.e. in areas of high human traffic) and the emergence of Internet of Things. The ability to have timely access to non-building infrastructure for equipment installation and maintenance will be equally important for MNOs to ensure continuity of mobile services and connectivity.

21. In all, timely access to mobile equipment sites is key for operators to fulfil IMDA's stringent QoS standards and service resiliency requirements.

Section 4 – Requirements to Enhance Network and Service Resilience

Question: *Whether the current requirement of 2 sets of lead-in pipes (i.e. one set in vital services buildings and essential facilities, with an additional set at a different location) is sufficient for resilience purposes.*

Question: *Whether an additional MDF room, telecom riser and set of cable distribution system should be provided as mandatory requirements or included as recommendations under the COPIF guidelines.*

22. M1 is of the view that the additional set of space and facilities at a different location in vital services buildings and essential facilities would be necessary. This will enable operators to provide redundancy capabilities to their networks and improve service resiliency. However, the use of such additional facilities should not be chargeable. We would also propose to include data centres as a vital services building, given the important role they play in the info-communication sector.

Section 5 – Provision of Cables for Telecommunication (Non-Broadband Coaxial Cable) Systems in all Developments

Residential Developments

Question: *Whether the current requirement of one 2-core optical fibre is sufficient to meet future home communication needs and if one more 2-core optical fibre termination point should be provided;*

Question: *Whether the current requirements of:*

- *2 RJ45 outlets for each living/dining room in a residential property; and*
- *1 RJ45 outlet for each bedroom in a residential property are sufficient. If not, where else should such RJ45 outlets be located; and*

Question: *Whether any other requirements ought to also be included for in- building cabling for residential developments.*

23. IMDA is of the view that an additional 2-core optical fibre cable and more RJ45 outlets should be provided within the residential premise in order to meet the future needs of homes. While such requirements may benefit the homes, it is important to ensure that there will be sufficient fibre capacity connecting to the homes. As IMDA is aware, even with the current one Fibre Termination Point provided within the homes, some users were unable to use the 2nd core fibre as there were capacity constraints from the fibre service provider, resulting in delays in the provision of fibre broadband services.

Non-residential Developments

Question: *Whether building developers or owners of new non-residential developments should be required to pre-install additional infrastructure to facilitate the provision of telecommunication services to the units, and reasons for or against doing so.*

Question: *Where internal telecommunication wiring should be pre-installed:*

- *whether fibre should be the prescribed option and if so, what requisite number of cores of optical fibre would be appropriate;*
- *where these should be terminated given that for non-residential developments, the use and the size of the units within the developments may change from time to time; and*
- *what operational issues need to be addressed, including how to manage and monitor the use of the additional facilities/infrastructure (e.g., how to ensure that Licensees remove their cables/connections to the units promptly and what processes should be put in place).*

Question: *Where internal telecommunication wiring need not be pre-installed:*

- *whether the current cable distribution systems would be sufficient, or should there be additional obligations imposed on building developers or owners of non-residential developments to install other facilities e.g. air blown tubes to facilitate the installation of fibres by Licensees;*

- *if other facilities such as air blown tubes were to be pre-installed, where these should be terminated given that, for non-residential developments, the use and the size of the units within the developments may change from time to time; and*
- *what operational issues need to be addressed, including how to manage and monitor the use of any other facilities/infrastructure that may be required by additional obligations imposed on building developers or owners (e.g., how to ensure that Licensees remove their cables/connections from the air blown tubes, if air blown tubes are adopted, and what processes should be put in place).*

24. M1 supports IMDA's suggestion of having pre-installed air blown tubes as this will shorten the service provisioning time. Given that building owners have oversight of and control the access to their premises, they would be in a better position to manage and monitor the use of pre-installed facilities (including housekeeping rules) by the operators and building tenants.

Section 6 – Developments consisting of 1 or more Road or Mass Rapid Transit System ("MRT") Tunnels

Question: *Whether an increase of the MDS beyond the current provision of 40m^2 for Road and MRT Tunnels is required, to be future-ready, and if so, how much more space in excess of the current 40m^2 MDS for Road and MRT Tunnels is required.*

25. M1 is of the view that the size of the MDS needs to be increased so as to be future-ready. We assess that a rectangular size of 80m^2 will be required to cater for 4 MNOs and 5G requirements[1]. In addition, each MNO will require a 32A Triple Pole and Neutral, 3 Phase incoming power ("TPN").

Question: *The requirement for suitable specifications for the niches and the distances between the niches and the MDS in Road and MRT Tunnels to be provided.*

26. Based on current usage requirements, M1 propose a niche size of at least 2 x (3m x 2m x 1m). The interval between the niches and the MDS should be 100m to cater for future 5G requirements where signal losses are expected to be higher. For power, 20A TPN is required as the power amplifier typically requires less power.

Question: *The proposal to include requirements for specifications on the leaky cable to be aligned with the height of the MRT train window along MRT Tunnels, and any other considerations which would enhance coverage in the Tunnels.*

27. To enhance coverage in the tunnels, M1 propose to include the following requirements:

a. For road tunnels: 2 pairs of Leaky Coaxial Cable (4 x LCX) to be evenly spaced on the centre of the road tunnel.

[1] This is computed based on the parameters of 18 square meters for each MNO and 8 square meters for common equipment.

b. For MRT tunnels: 2 pairs of Leaky Coaxial Cable (4 x LCX) to be evenly spaced at the height of the MRT train window along the MRT tunnels.

c. For both road and MRT tunnel, fibres would have to be installed from the MDS throughout the entire tunnels.

Question: *Any other considerations (e.g. additional power requirements) or suitable specifications to be included for Space and Facilities in Road and MRT Tunnels.*

28. In addition to the above specifications, M1 propose that the following be included to ensure consistency in practice across all Road and MRT Tunnels:

a. As per the current practice, 3 Phase 32A TPN power is to be provided;

b. Ventilation buildings are to have rooftop MDS as well as MDS for tunnel mobile coverage;

c. For ventilation buildings in Road Tunnels with low human traffic or are located in the basement, the in-building infrastructure should be provided by the building owner, while the equipment will be provided by the MNOs;

d. To cater for emergency power supply, the MDS at MRT should be classified as CAT B degree 3, similar to the Communications Room. This will allow mobile equipment to be connected to the Uninterrupted Power Supply ("UPS");

e. For the tunnel system to be ready for testing for the Facility for Commercial Info-Communication Service, the MDF room, manholes and lead-in pipes for transmission must be ready as well, so as to prevent any delay to mobile coverage during the transmission phase;

f. The distance within the tunnel between the MDS, which houses the base station, and the nearest niche, where antennas will be installed, should not exceed 250m. If the distance exceeds 250m, signal loss will be high as the passive transmission equipment is sited at the front of the station/tunnel;

g. MDF and TER rooms should be sited adjacently. This is currently the case for existing stations with the exception of interchange stations. This will also eliminate the need to run long transmission lines to link the TER room to the MDF room, thereby allowing resources to be deployed more efficient; and

h. Access cost to tunnels and platform areas, especially for after office hours access, are to be kept consistent and reasonable.

29. With the increasing reliance on mobile services by commuters, timely access to MRT stations and tunnels for service works will become even more critical. In this regard, IMDA should

work with the relevant stakeholders to review the existing practices and facilitate better access to these premises by operators.