

The Chairman

Malaysian Communications and Multimedia Commission (MCMC)

MCMC Tower 1, Jalan Impact, Cyber 6

63000 Cyberjaya Selangor Darul Ehsan

**SUBMISSION OF PUBLIC CONSULTATION ON PROPOSED MALAYSIA'S
POSITIONS FOR WORLD RADIOCOMMUNICATION CONFERENCE 2019 (WRC-
19) AGENDA ITEMS**

As a leading global provider of information and communications technology (ICT) infrastructure and smart devices, Huawei Technologies (M) Sdn Bhd would like to respond on the proposed Malaysia's Positions for World Radiocommunication Conference 2019 (WRC-19) Agenda Items as announced to the public on 11 July 2019.

In response to the questions raised in the consultation paper, we would like to provide comments, where appropriate focusing on item AI 1.13 and AI 10 as per part of the public consultation document for MCMC consideration.

Should MCMC require further information or any clarification to our response, please do not hesitate to contact me at +60172125818, or email: jerry.wong@huawei.com .

On behalf of Huawei Technologies (M) Sdn Bhd

Jerry. Wong

Chief Technology Officer

Template for Response

No.	Agenda Item	Proposed Malaysia (MLA) Views and Positions								
Working Party 2: Broadband Applications in the Mobile Service										
5.	1.13	<p><u>Huawei general positions:</u></p> <ol style="list-style-type: none"> 1. Huawei supports identification of 24.25-27.5 GHz, 37-43.5 GHz and 66-71 GHz for IMT with highest priority; and also consideration of identification of 45.5-52.6 GHz. 2. Unwanted emission, regulatory limits should be balanced between 5G and EESS: <ul style="list-style-type: none"> • 26 GHz: no more stringent limits than -33.5 dBW/200 MHz for BS, and -29.7 dBW/200 MHz for UE. More stringent limits than these two values would be overly protective • 37 GHz: no additional limit is necessary 3. In-band emission 24.25-27.5 GHz and 42.5-43.5 GHz, regulatory limits are clearly not needed: <ul style="list-style-type: none"> • sharing studies show significant margins to protect incumbent services • regulatory limits would hamper efficiency of 5G services and applications • for flexible national regulations <p><u>Proposed Malaysia (MLA) Views and Positions:</u></p> <ol style="list-style-type: none"> 1. Huawei proposes Malaysia to support the PACP output by APG 19-5, as in APG 19-5/OUT-36 2. Furthermore, Huawei proposes MLA to support the following conditions: <ol style="list-style-type: none"> a. <u>24.25-27.5 GHz, supporting materials as in APG 19-5/INF-14</u> <table border="1" data-bbox="472 1572 1386 2011"> <thead> <tr> <th data-bbox="472 1572 558 1751">Option</th> <th data-bbox="558 1572 987 1751"></th> <th data-bbox="987 1572 1193 1751">Supported Option by PACP</th> <th data-bbox="1193 1572 1386 1751">Huawei proposes MLA to support</th> </tr> </thead> <tbody> <tr> <td data-bbox="472 1751 558 2011">A2a</td> <td data-bbox="558 1751 987 2011">Protection measures for the EESS (passive) in the 23.6-24 GHz frequency band</td> <td data-bbox="987 1751 1193 2011">1</td> <td data-bbox="1193 1751 1386 2011"> - Active band: 24.25-24.45 GHz - No stricter than -33.5 dBW in any </td> </tr> </tbody> </table>	Option		Supported Option by PACP	Huawei proposes MLA to support	A2a	Protection measures for the EESS (passive) in the 23.6-24 GHz frequency band	1	- Active band: 24.25-24.45 GHz - No stricter than -33.5 dBW in any
Option		Supported Option by PACP	Huawei proposes MLA to support							
A2a	Protection measures for the EESS (passive) in the 23.6-24 GHz frequency band	1	- Active band: 24.25-24.45 GHz - No stricter than -33.5 dBW in any							

				200 MHz of the EESS (passive) band for IMT base stations - No stricter than -29.7 dBW in any 200 MHz of the EESS (passive) band for IMT mobile stations
		A2b	Protection measures for the EESS (passive) in the 50.2-50.4 GHz and 52.6-54.25 GHz frequency bands	2
		A2c	Protection measures for earth stations in the SRS/EESS (25.5-27 GHz (space-to-Earth))	To be developed 5, no condition necessary
		A2d	Measures related to transmitting earth stations in the FSS (Earth-to-space) at known locations	To be developed 4, no condition necessary
		A2e	Protection measures for the ISS and FSS (Earth-to-space) receiving space stations	To be developed 9, no condition necessary
		A2f	Protection measures for the RAS (23.6-24 GHz)	To be developed 3, no condition necessary
		A2g	Protection measures for multiple services	To be developed 5, no condition necessary
		b. <u>37-43.5 GHz, supporting materials as in APG 19-5/INF-14</u>		

		Option	Supported Option by PACP	Huawei proposes MLA to adopt	
		C2a	Protection measures for the EESS (passive) in the 36-37 GHz frequency band	To be developed	2, no condition necessary
		C2b	Protection measures for the FSS (space-to-Earth)	To be developed	6, no condition necessary
		C2c	Protection measures for the SRS (space-to-Earth)	To be developed	3, no condition necessary
		C2d	Measures for the SRS (Earth-to-space) and EESS (Earth-to-space)	To be developed	2, no condition necessary
		C2e	Protection measures for multiple services	To be developed	3, no condition necessary
		D2a	Protection measures for the FSS (space-to-Earth)	To be developed	6, no condition necessary
		D2b	Protection measures for the RAS	To be developed	3, no condition necessary
		D2c	Protection measures for multiple services	To be developed	3, no condition necessary
		E2a	Protection measures for the FSS (Earth-to-space)	To be developed	7, no condition necessary
		E2b	Protection measures for the RAS	To be developed	3, no condition necessary
		E2c	Protection measures for multiple services	To be developed	5, no condition necessary

		<p>E2d</p> <p>Measures related to transmitting earth stations in the FSS (Earth-to-space) at known locations</p>	<p>To be developed</p>	<p>3, no condition necessary</p>
<p>c. <u>66-71 GHz</u></p> <ul style="list-style-type: none"> • Huawei welcomes Malaysia’s support of identification on 66-71 GHz via Method J2 alternative 2. • The frequency band of 66-71 GHz is important for 5G NR to enable high data rate and low latency communications and applications. It is important to have an IMT identification as it would facilitate countries to adopt licensing schemes for IMT and thereby allowing deployments with high transmit (Tx) powers, better interference control, guaranteed QoS, etc, and also help to generate momentum and global economies of scale for IMT, including new emerging applications such as verticals. Quality of service (QoS) and therefore quality spectrum is essential for many low latency and critical applications in areas such as factories, hospitals, entertainment venues, etc., which is equally applicable to different technologies. It is essential that the band provides an opportunity for QoS over the next 10-20 years (which is the investment period for a smart factory for example). • CEPT, ATU, APT and ASMG all support identification of this band with Method J2 Alternative 2. • Furthermore, we support the identification of the frequency band 66-71 GHz through following Method and Conditions of the CPM to WRC-19: <ul style="list-style-type: none"> -5.J113 <i>The frequency band 66-71 GHz is identified for use by administrations wishing to implement the terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC 19)</i> -Method J2, Alternative 2 -Condition J2a Option 4 “No condition necessary” -Condition J2b “No condition necessary” -Condition J2c Option 3 “No condition necessary” • We note that the CPM text contains the following alternative footnote to comply with Method J2, Alternative 2, Condition J2a, Option 1: <ul style="list-style-type: none"> -5.J113b <i>The frequency band 66-71 GHz is identified for use by administrations wishing to implement the</i> 				

terrestrial component of International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. The use of the frequency band 66-71 GHz by the mobile service is also for the implementation of wireless access systems. [Resolution [C113-IMT 66/71 GHz] (WRC 19) applies.] (WRC 19)

- This text is used to enable IMT and WAS to have equal access to this band, but we think that a formulation along the lines of "this identification does not preclude the use of this frequency band by any application of the services to which they are allocated and does not establish priority in the Radio Regulation" is sufficient to ensure WAS can have equal access to this band, and the decision of which technology to be used is subject to domestic decision. Therefore, we see no need to add WAS related text in the footnote.

- We also note that some APT Members support Method J4. Given the fact that the sharing studies show a large margin towards the MSS (Earth-to-space) and ISS operating in this frequency band and that the separation distances between IMT and MSS (space-to-Earth) earth stations are limited (i.e. less than a km), there is no need to maintain the frequency band 66-71 GHz in RR No. 5.553. Therefore, Method J2 is suggested.

-CPM Report, Method J2: Identification of the frequency band 66-71 GHz for IMT in accordance with either of the two alternatives and removal of the frequency band from RR No. 5.553

-CPM Report, Method J4: Identification of the frequency band 66-71 GHz for IMT in accordance with either of the two alternatives and retention of the frequency band in RR No. 5.553

-RR FN. 5.553 In the bands 43.5-47 GHz and 66-71 GHz, stations in the land mobile service may be operated subject to not causing harmful interference to the space radiocommunication services to which these bands are allocated (see No. 5.43). (WRC-2000)

Working Party 6: General Issues

31	10	<ul style="list-style-type: none">• Huawei suggests Malaysia to support 5925-7125 MHz for new agenda in WRC-23, to facilitate the spectrum to be considered/available in a timely manner to support the next wave of 5G development:<ul style="list-style-type: none">- 5G is expected to provide faster enhanced mobile broadband applications, facilitate extra low latency and high reliability applications, and connect all elements of society.- 80-100 MHz of contiguous spectrum per operator in C-band of middle-range frequency is needed to support the initial 5G deployment.- Additional spectrum in middle-range frequency is expected to be required in the next wave of 5G development (i.e. in another 5~10 years) to provide 5G access anytime and anywhere.- The spectrum of 5925 - 7125 MHz is within the middle-frequency range, which is critical to provide a good balance between coverage and capacity.- We are aware that incumbent services are using this range. Hence, we propose to set up a new WRC-23 Agenda Item to study the sharing and compatibility between IMT and incumbent services and to consider IMT identification based on the results of ITU-R studies.• This frequency range of 5925-7125 MHz, or portions thereof, to be used for mobile service while sharing with incumbents is global trend; and to study at WRC/ITU track is the best way to protect the incumbent services of concerned countries and stakeholders, while seeking for IMT international harmonization.<ul style="list-style-type: none">- China, Russia and Slovenia have identified this frequency range as possible future IMT band and proposed to Regional Group to setup a WRC-23 agenda item to study 5925-7125 MHz, or portions thereof, for IMT. ASMG also support portions of 6-24 GHz for IMT as new WRC-23 agenda item.- Along with such trend, to encourage study of the possibility of IMT identification within WRC/ITU track taking into account of the incumbent services is the best way to protect the incumbent services of the concerned countries; while study at national level may not address the concerns outside this country.
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		<ul style="list-style-type: none">- Seeking IMT identification at ITU-R level before usage is still preferred to international harmonization for both admins and industry.• This proposal of 5925-7125 MHz was submitted to APG 19-5 as in APG 19-5/INP-70.• APT Members examined the proposed new items for inclusion in the agenda of WRC-23 and agreed to consider identification for IMT in the 7025-7125 MHz frequency range, or parts thereof, as in APG 19-5/OUT-48. Huawei suggest that Malaysia to support this PACP.• Meantime, the frequency 5925-6725 MHz and 6725-7025 MHz were also considered and supported by a number of countries for which consensus is yet to be reached at later stage.• We recommend Malaysia to consider and support new WRC-23 agenda item to study 5925-7125 MHz for IMT identifications, while the final decisions on which bands to be identified and in which conditions are to be met, to be made later at WRC-23 according to the results of ITU-R studies.• Please refer to “ATTACHMENT to AI 10” in the following page for Huawei’s view on WRC-19 AI10 IMT Identification study in 6GHz.
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ATTACHMENT to AI 10

Huawei Technologies Co., Ltd.

VIEWS FOR WRC-23 AGENDA ITEM FOR STUDY IMT IDENTIFICATION BETWEEN 5 925 AND 7 125 MHZ, OR PORTION THEREOF, FOR THE FUTURE DEVELOPMENT OF IMT

Agenda Item 10:

to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, taking into account Article 7 of Convention;

1. Introduction

APT has allocated spectrum for the IMT technologies below 5GHz. The lower frequency bands are more efficient for coverage of larger areas and also for the provision of indoor coverage from outdoor base stations. It is clear that the existing mobile bands, in first instance the C-band and 26 GHz, will be in high demand for efficient deployment of 5G networks. The millimeter wave frequency range is suitable to provide ultra-high capacity communication at hot spot in urban and dense populated area. It is also anticipated by the mobile industry that additional spectrum will soon be required for 5G in the mid-range frequency range, particularly between about 5000 MHz and 24 GHz.

Some regional organisations have started the discussion of different proposals for additional spectrum for IMT at WRC-23 between 5000 MHz and 24 GHz. Not all of the discussed bands have potential to be harmonised globally, which is certainly a priority, but some candidate bands have a good chance for at least regional harmonisation. One of such considered options is the band 5925/6425-7125 MHz.

We note that the 5925-7125 MHz band has primary allocation to Mobile Service in all three ITU-R Regions. In APT region, it is also primarily used by FS and FSS. The usage of this band by the FS varies from one APT country to another and there are countries where the band is almost free from FS. Initial studies show that co-existence is possible between IMT and FS through coordination, namely physical or frequency separation, which can be achieved at a national level.

Co-existence with FSS (Earth-to-space) could be potentially ensured by developing the appropriate technical conditions for 5G networks deployments

The particular focus of the proponents of this contribution on 6 GHz (mid-band spectrum) in the 5G context is justified by the following key considerations:

- need for spectrum for 5G with good balance between coverage and capacity
- need for several sufficiently large contiguous blocks of spectrum in mid frequency range in any given country (situation does vary from country to country), and
- need for reliable indoor 5G coverage from outdoor base stations with greater data rates than could be provided using the low frequency bands (some initial consideration on how outdoor-to-indoor signal penetration becomes more difficult with increasing frequency (above 20 GHz)

5G/IMT-2020 mid-band spectrum in Region 3 is the C-band (3.3-3.6/3.6-3.7/3.7-3.8/3.8-4.2 GHz), and 4.8-4.99GHz, with large variations of availability in different APT countries in these ranges. It is to be noted that large contiguous spectrum blocks, which are key for the success of 5G, are not always possible. The 6GHz band is envisioned as a great complement for the C-band in Region 3.

2. View

Huawei is of the view to propose a new WRC-23 agenda item to study IMT identification in 5925 – 7125 MHz or portion of this frequency range for future IMT development.

Attachment 1



Attachment 1 for
Annex.docx