

**This submission is by Asiaspace Broadband Sdn Bhd
(Asiaspace) to the:-**

Public Inquiry

**(By Malaysian Communications and Multimedia
Commission)**

**Allocation of Spectrum Bands for Mobile
Broadband Service in Malaysia**



ASIASPACE

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2300MHz

Question 3(i)

MCMC would like to seek views on the proposed allocation plan for the 2300MHz band, in particular on: -

Award Mechanism

Presently, Asiaspace is using the 2300MHz spectrum for 4G LTE services. The 2300MHz spectrum does not support 5G services at the moment but maybe in the future.

Asiaspace launched its WiMAX services in 2008 by rolling out close to 200 base stations throughout the Klang Valley region by partnering with Huawei Technologies as its vendor. Within one (1) month after launch, Asiaspace encountered various problems with Huawei's network products and end user equipments. Huawei's product portfolio within the WiMAX 802.16e ecosystem was very limited and this had a significant impact for Asiaspace in maintaining its existing client base and further expanding its WiMAX services to new areas. As a result of this, **Asiaspace suffered huge investment losses of up to RM42 million. In fact, by the end of 2010, all the vendors withdrew their support for the WiMAX technology with the exception of Samsung and the Taiwanese end user device manufacturers.**

Since YTL Communications have been using Samsung as its technology partner, it was natural at that time for Asiaspace to partner with YTL Communications under a Third Party Authorisation (TPA) and that was how the then Minister instructed both Asiaspace and YTL Communications to share spectrum and infrastructure which was subsequently approved by MCMC in 2013.

1. Table 1 below details out the spectrum owners and what is being used after taking into account the last spectrum re-allocation by MCMC in 2017, which resulted in the biggest beneficiary being UMobile since it did not have any 900MHz and 1800MHz spectrum prior to 2017. In 2017, when the spectrum reallocation/refarming was done, it only affected the 900MHz and 1800MHz spectrum band.

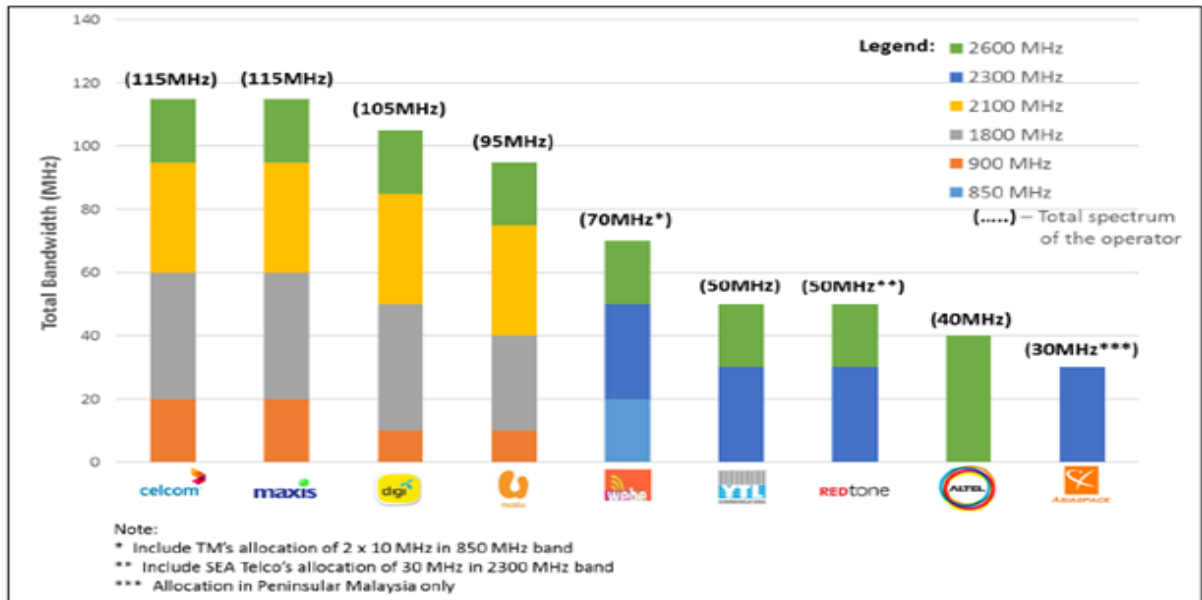
Table 1 – Spectrum Allocation in Malaysia, Year 2017.

Bands	850MHz	900MHz	1800MHz	2100MHz	2300MHz	2600MHz	Total
Technology	4G	2G/3G	2G/4G	3G	WiMAX	4G	
Maxis	-	2x10	2x20	2x15 (FDD) + 5 (TDD)	-	2x10 (FDD)	115
Celcom	-	2x10	2x20	2x15 (FDD) + 5 (TDD)	-	2x10 (FDD)	115
Digi	-	2x5	2x20	2x15 (FDD) + 5 (TDD)	-	2x10 (FDD)	105
UMobile	-	2x5	2x15	2x15 (FDD) + 5 (TDD)	-	2x10 (FDD)	95
TM	2x5	-	-	-	-	-	10
Webe	-	-	-	-	30	2x10 (TDD)	50
YTL	-	-	-	-	30	2x10 (TDD)	50
Asiaspace	-	-	-	-	30	-	30
Redtone	-	-	-	-	30	2x10 (FDD)	50
Altel	-	-	-	-	-	2x20 (FDD)	40
Total	2x5	2x30	2x75	2x60 (FDD) + 20 (TDD)	120	2x70 (FDD) + 2x20 (TDD)	660

Please note that Asiaspace was allocated the smallest spectrum band amongst all the mobile operators in Malaysia.

Digi and Maxis had followed overseas trends to deploy 4G LTE on the 1800MHz band. The motivation behind this strategy is clear. The coverage provided by the 1800MHz band is approximately 2 times larger if compared to deploying in the 2600MHz band. Additionally, there is opportunity to reuse assets including antenna cables of GSM1800 (from 2G networks) or WCDMA-HSPA2100 (from 3G networks) as well as to deploy multi-RAN with simultaneous 4G LTE and GSM capabilities. It is also easier to re-farm the 1800MHz band than the 900MHz band plus there are ample devices that support 4G LTE on the 1800MHz band.

Figure 1 – Diagram showing the spectrum holdings of each mobile operator in Malaysia as shown in MCMC’s Public Inquiry Document



Source: MCMC Public Inquiry Document

2. To date, 85.0% of global 4G LTE deployments are in the FDD mode, 10.6% in the TDD mode, whilst 5% is a convergence of both TDD and FDD. A comparison of both modes is provided in Table 2 below.

Table 2 – Comparison of FDD versus TDD spectrum for 4G LTE

Comparative Criteria	FDD- Frequency Division Duplex	TDD – Time Division Duplex
Technology	<ul style="list-style-type: none"> • Uses two different frequencies for uplink and downlink as well as a guard band to avoid interference. • Number of uplink/downlink ratio is fixed. 	<ul style="list-style-type: none"> • Uses a single frequency for uplink and downlink but the time for transmitting and receiving is different. • Number of uplink/downlink ratio is changeable.
Coverage	<ul style="list-style-type: none"> • Provides coverage over a larger geographical area as compared to TDD • For a similar coverage area, FDD 	<ul style="list-style-type: none"> • TDD can assign more capacity on the downlink • Allows the flexibility to assign more resources to meet

	provides double the data rate as compared to TDD.	asymmetric data usage
Cost	<ul style="list-style-type: none"> FDD is more expensive than TDD as there is a need for a diplexer to isolate transmission and reception 	<ul style="list-style-type: none"> TDD is cheaper than FDD as there is no need for a diplexer to isolate transmission and reception

The smaller allocation of the TDD mode globally has resulted in a smaller number i.e. 38.1% of 4G LTE devices that support 4G LTE TDD mode. **Generally, 4G LTE TDD mode is preferred by WiMAX operators (including Asiaspace) who wish to move into 4G LTE.**

- As intense competition continues to put pressure on the topline and cost savings has become increasingly important, there has been an increasing trend in the industry for network operators to enter into partnerships of mutual interest with other network operators. The partnership areas include domestic roaming, network sharing and spectrum pooling. **For example, Maxis and Redtone had agreed on an infrastructure and spectrum sharing agreement in 2012. Other examples of partnerships include the partnership between Celcom Axiata and Altel in July 2013 on infrastructure sharing and spectrum pooling of 2x10MHz in the 2600MHz band for 4G LTE deployment and the partnership between Celcom and Digi with Telekom Malaysia in December 2013 for the provision of backhaul services for 4G LTE respectively.**

The Chairman of MCMC at the Industry CEO Meeting held on the 15th September 2011 instructed all operators to share both spectrum and network infrastructure so that the spectrum and the infrastructure could be used optimally, thus saving costs on rollout.

Subsequently in 2012, Asiaspace and YTL Communications was instructed by the then Minister, Dato' Seri Dr. Rais Yatim to share spectrum (through Third Party Authorization) and network for a nationwide roll-out of Broadband Wireless Access Services (WiMAX and LTE). Considering the daunting challenges relating to the costs of rollout, MCMC's directive for infrastructure and spectrum sharing was taken up by Asiaspace and YTL with the execution of the Heads of Agreement dated 28th March 2013 and among the factors Asiaspace considered in collaborating with YTL are as follows:-

- The superior and extensive YTL's network footprint that has more than 4000 base stations throughout the country;
- Strong and well provisioned core network with adequate capacity;
- IMS system that allows easy integration and applications;
- Converged data and voice services;
- Strong management and support team;

- (f) Strong line-up of devices.

Spectrum and infrastructure sharing with YTLC will provide substantial efficiencies and cost reduction providing both Asiaspace and YTLC with benefits that includes providing Asiaspace with capacity on a wholesale model. Asiaspace will continue to have the option to rollout niche services. **Most importantly, Asiaspace will have access to the YTLC's YES network to provide services in any part of the YES network.** Besides the above, the spectrum allocated may also be rolled out in new green field sites.

Under the collaboration model between Asiaspace and YTLC, Asiaspace's spectrum was overlaid on existing YES network to provide high capacity data services. This arrangement required minimum upgrade on YTLC's existing equipment. Key advantages of this overlay approach was that, it was not disruptive and allowed the existing network to be upgraded through additional spectrum from Asiaspace.

4. Based on Figure 1 above, Celcom has 115MHz of spectrum and Digi has 105MHz of spectrum. Should the merger go through, then the merged entity would have a total of 220MHz and based on MCMC's plan of not reassigning the frequencies in the 2600MHz spectrum band, combined with Altel's 40MHz spectrum, the merged entity would have 260MHz. As for Maxis, it has 115MHz on its own and when combined with Redtone's 20MHz, Maxis will have a total of 135MHz. All the other operators have less than 100MHz with **Asiaspace having the least of 30MHz in the 2300MHz spectrum band**. This practice of allocating all the available frequencies in the hands of select few operators is grossly unfair and will create a very unhealthy spectrum monopoly which would eventually affect the competitive landscape in service offerings to customers.
5. The conduct of encouraging a few players to monopolise telecommunication services via issuance of additional spectrum could be in breach of Section 133 of the Communications and Multimedia Act 1998.
6. Based on the above explanation, Asiaspace's **views and comments** on the award mechanism for the 2300MHz spectrum band are as follows:-
 - (a) Asiaspace suggests MCMC to retain the existing spectrum allocation to all mobile operators in the 2300MHz band due to the already unfair spectrum allocation as stated above in Item 4 that favours the incumbent rather than leveling the playing field for operators who have yet to get a return on its large investments.
 - (b) Asiaspace suggests to MCMC to only convert from AA to a fair and reasonable SA regime **due to the heavy investment costs that both Asiaspace and YTLC have incurred over the last 6 years. On a further note, the weak indoor penetration characteristics of 2300MHz will result in higher Capex and Opex due to the extensive number of sites required to cover the same coverage radius as compared to the 900MHz, 1800MHz and 2100MHz.**

- (c) MCMC should take into consideration on which operator have fully utilized its 2300 MHz spectrum and only consider reassignment **for those existing operators who has not invested in rolling out network or has not fully utilized its spectrum.**
- (d) Asiaspace's spectrum on the 2300MHz is technology agnostic, which means both WiMAX and 4G LTE could be rolled out using the 2300MHz band. It is a faster and cheaper deployment since the 4G LTE TDD mode spectrum allows for more downlink capacity and is less costly which is similar to the 2300MHz TDD mode spectrum that was used to allow for more downlink capacity and quicker speeds which is better for dense population.
- (e) Asiaspace would like to suggest to MCMC to allow Asiaspace to offer Broadband Wireless Access (BWA) services in East Malaysia besides the current spectrum which allows Asiaspace to offer BWA services in West Malaysia. This would allow Asiaspace to extend the collaboration with YTL Communications under the current collaboration under Third Party Authorisation in East Malaysia and eventually bring uniformity in spectrum allocation and utilization throughout Malaysia where the need for broadband connectivity in East Malaysia is currently lacking. **This approach is also consistent with Clause 3.2.2.3 of MCMC's Public Inquiry which states that the current allocation based on regional distinctions (Peninsular/Sabah & Sarawak) will be removed and the new assignments will be on a nationwide basis.**

Asiaspace wishes to state that the conditions imposed by MCMC on the 5 years Detailed Business Plan in 2013 was achieved much in advance by both Asiaspace and YTL Communications.

The above request is also in line with a letter from MCMC dated 24th May 2007 addressed to Asiaspace which allows the expansion of broadband wireless access service to Sabah and Sarawak.

- (f) **As a result of having to utilize the 2300MHz TDD mode to offer LTE services, Asiaspace is already facing issues with device compatibility and might still be limited to some extent to broadband or a much slower take up of mobile services. And should MCMC go ahead with the spectrum re-assignment as intended in this Public Inquiry, then Asiaspace will be at a far more disadvantageous position should the existing 30MHz allocated to Asiaspace be reassigned to other operators.**

Question 3 (ii)

MCMC would like to seek views on the proposed allocation plan for the 2300MHz band, in particular on: -

Timeline for Assignment

1. For the purposes of this Public Inquiry, Asiaspace Broadband Sdn. Bhd. (ABSB) will assume that the mobile telecommunications landscape's advent is from the start of 2G services.
2. In 1995, 2G systems which uses the 900MHz and 1800MHz spectrum, was awarded to selected companies in Malaysia for the provisioning of mobile telecommunication services. The 900MHz spectrum was allocated to Celcom and Binariang (now known as Maxis) while the 1800MHz was allocated to Sapura (ADAM), Mutiara Telecommunications Sdn. Bhd. (now known as Digi) and MRCB Telecommunications (Emartel).
3. The period from 1995 till 2002 saw several major mergers and acquisitions, which eventually reduced the number of mobile service providers to Maxis, Digi, Celcom, TM Touch and Time Dotcom (TimeCell).
4. In the 3G era, in the first and the second rounds, the 2100MHz spectrum was given out in 2002 and again in 2005 respectively. In the 1st round through a beauty contest mechanism, the spectrum was given to Celcom (at that time Celcom was under Telekom Malaysia) and Maxis, whilst in the 2nd round, it was awarded to Time Dotcom and MiTV Corp (now known as UMobile). Prior to 2008, Digi was left with only 1800MHz and after 2008 Digi acquired the 3G spectrum from Time Dotcom via a share swap deal.
5. In 2007, the government of Malaysia had grown impatient **with the lack of interest amongst incumbent mobile service providers to invest in mobile broadband connectivity** and decided to allocate the 2300MHz spectrum license to new companies through a beauty contest process, namely: -
 - (1) Asiaspace Broadband Sdn Bhd;
 - (2) Bizsurf (M) Sdn. Bhd. (now known as YTL Communications);
 - (3) MIB Comm Sdn. Bhd. (later renamed as P1 and subsequently acquired by Telekom Malaysia in 2016 and renamed as Webe);
 - (4) Redtone-CNX Broadband Sdn. Bhd.
6. In 2007, Asiaspace was allocated the 2300-2330MHz and was allowed to offer WiMAX services in Peninsular Malaysia, YTL Communications was allocated the 2330MHz-2360MHz band to offer WiMAX services throughout Malaysia, P1 was allocated the 2360MHz-2390MHz to offer WiMAX services throughout Malaysia and Redtone was

allocated the 2300MHz-2330MHz band to offer WiMAX services limited to East Malaysia.

- Asiaspace launched its WiMAX services in 2008 by rolling out close to 200 base stations throughout the Klang Valley region by partnering with Huawei Technologies as its vendor. Within one (1) month after launch, Asiaspace encountered various problems with Huawei's network products and end user equipments. Huawei's product portfolio within the WiMAX 802.16e ecosystem was very limited and this had a significant impact for Asiaspace in maintaining its existing client base and further expanding its WiMAX services to new areas. As a result of this, **Asiaspace suffered huge investment losses of up to RM42 million. In fact, by the end of 2010, all the vendors withdrew their support for the WiMAX technology with the exception of Samsung and the Taiwanese end user device manufacturers.**

Since YTL Communications have been using Samsung as its technology partner, it was natural at that time for Asiaspace to partner with YTL Communications under a Third Party Authorisation (TPA) and that was how the then Minister instructed both Asiaspace and YTL Communications to share spectrum and infrastructure which was subsequently approved by MCMC in 2013.

- In 2014, as a result of the last round of frequency allocation in the 2600MHz band, the industry saw the entrance of new players such as Telekom Malaysia and Altel into the mobile network operator landscape. Nine (9) network operators were allocated a share of the 4G LTE spectrum in the 2600MHz band except for Asiaspace. Of the 9 operators, 4 were existing mobile network operators, 3 were existing WiMAX network operators, 1 was an existing fixed network operator and 1 was a new entrant to the market, namely Altel. **For both the existing mobile and WiMAX network operators, the 4G LTE spectrum represented the future migration path for 3G and WiMAX respectively.** In terms of band allocations, the majority of recipients were allocated 2x10MHz slots of FDD mode 4G LTE spectrum. The 2 WiMAX operators were allocated 2x10MHz slots of TDD mode 4G LTE spectrum while Telekom Malaysia was the only network operator that was allocated a 2x5MHz slot in the 850MHz band for 4G LTE.
- Table 3 – Spectrum Assignment in the 900MHz spectrum band**

No	Spectrum Assignment Holder	Spectrum Assignment No.	Frequency Band	Validity Period
1	Digi Telecommunications Sdn Bhd	SA/01/2016	885MHz to 890MHz paired with 930MHz to 935MHz	1 July 2017 to 30 June 2032
2	Maxis Broadband Sdn Bhd	SA/03/2016	905MHz to 915MHz paired with 950MHz to 960MHz	1 July 2017 to 30 June 2032
3	Celcom Axiata Berhad	SA/05/2016	890MHz to 900MHz paired with 935MHz to 945MHz	1 July 2017 to 30 June 2032

4	UMobile Sdn Bhd	SA/01/2017	900MHz to 905MHz paired with 945MHz to 950MHz	1 July 2017 to 30 June 2032
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Source: MCMC Website

10. **Table 4** – Spectrum Assignment in the 1800MHz spectrum band

No	Spectrum Assignment Holder	Spectrum Assignment No.	Frequency Band	Validity Period
1	Digi Telecommunications Sdn Bhd	SA/02/2016	1765MHz to 1785MHz paired with 1860MHz to 1880MHz	1 July 2017 to 30 June 2032
2	Maxis Broadband Sdn Bhd	SA/04/2016	1710MHz to 1730MHz paired with 1805MHz to 1825MHz	1 July 2017 to 30 June 2032
3	Celcom Axiata Berhad	SA/06/2016	1745MHz to 1765MHz paired with 1840MHz to 1860MHz	1 July 2017 to 30 June 2032
4	UMobile Sdn Bhd	SA/02/2017	1730MHz to 1745MHz paired with 1825MHz to 1840MHz	1 July 2017 to 30 June 2032

Source: MCMC Website

11. Based on the above explanation, **Asiaspace is totally against and opposes the timeline for reassignment of the 2300MHz** for the following reasons:-

- (a) In 1995, the then Ministry of Energy, Telecommunications and Post allocated the 900MHz and 1800MHz to Celcom, Maxis and Digi **for a period of 22 years** before deciding to reform this spectrum band in 2017. **What this means is, these mobile operators had 22 years to get a return on their investments on these two (2) bands.** This is not to mention, from 1995 to 2017, these operators were the only 3 mobile operators providing cellular services.
- (b) When Celcom and Maxis in 2017 under reforming were asked to divest 2x5MHz of FDD, MCMC rewarded them with an additional 2x10MHz of 2600MHz, which means for giving up 10MHz, these operators were in turn awarded with 20MHz.
- (c) As for the 1800MHz spectrum, the Government decided to further extend the tenure to another 15 years from 2017 till 2032 (Please refer to Table 4).
- (d) **As for Asiaspace, the 2300MHz was only awarded in 2013, which is only 6 years ago. Asiaspace together with YTL have spent billions in dollars in**

investment and in Apparatus Assignment Fees (Please see Table 6 & Table 7), and we have yet to recoup our investment in an already very competitive market.

- (e) There are serious limitations to the TDD based spectrum allocation in the 2300MHz as elaborated in Section: Question 3 (i) Item 2 and Item 5 (d) & (e).
- (f) **Asiaspace and YTLC have jointly planned to rollout 5G based services in the future when the ecosystem is ready.**

Question 4

MCMC would like to seek views on the optimum spectrum block per operator for assignment of the 2300MHz band.

1. On the 30th March 2007, Asiaspace was one of the four (4) companies awarded with the 2300MHz spectrum band by MCMC. Asiaspace launched its WiMAX services with support from Huawei Technologies as its technology partner in selected areas of Klang Valley in May 2008. Within one (1) month after launch, Asiaspace encountered many problems with its WiMAX services due to poor interoperability issues. Initially, just like other companies that were awarded the 2300MHz WiMAX spectrum, Asiaspace also encountered several problems relating to immaturity of the WiMAX technology and during the year 2010, many of the international vendors (except for Samsung) were not supporting the WiMAX technology. There were not enough end user devices in the market for Asiaspace to actively promote and market WiMAX services.
2. **Asiaspace brought up all the issues it faced with the rollout of WiMAX services with MCMC and subsequent to a meeting on the 15th September 2011, the then Chairman of MCMC instructed all operators to share both spectrum and network infrastructure so that the spectrum and the infrastructure could be used optimally, saving costs on rollout of broadband services.**
3. Subsequent to the 15th September 2011 meeting, the then minister Dato' Seri Dr. Rais Yatim instructed Asiaspace and YTL to work together to jointly rollout broadband wireless solutions in Malaysia under a commercial arrangement through collaboration. **It is to be noted that the letter from MCMC dated 20th December 2012 makes it clear that the 2300MHz awarded to Asiaspace is technology agnostic and that it is to be used for Broadband Wireless Access (BWA).**
4. **Asiaspace and YTL were informed that it was the policy of MCMC that will not interfere with the terms of the commercial arrangement between the operators.**
5. **After negotiations with YTL for almost 6 months, Asiaspace and YTL signed the Heads of Agreement for collaboration dated 28th March 2013. The collaboration agreement was approved by MCMC under Third Party Authorisation pursuant to Section 167 of the Communications and Multimedia Act 1998 (CMA 1998) and under Regulation 25 of the Communications and Multimedia (Spectrum) Regulations 2000, which allowed Asiaspace to share the 2300MHz spectrum with YTL and Asiaspace will subsequently utilize the capacity and bandwidth from YTL's network facilities for the operation of Asiaspace's niche business as and when it is required to do so.**
6. Upon execution of the Heads of Agreement for collaboration, Asiaspace submitted its five (5) years Detailed Business Plan (DBP) to MCMC and MCMC through its letter dated 25th April 2013 approved the 2300MHz DBP and Asiaspace was allowed to apply

for Apparatus Assignment (AA). As at end of June 2018 (the DBP is based on a 5 years achievement target), **Asiaspace and YTLC have jointly rolled out in excess of the targets spelled out in the DBP as stipulated in Table 3 below.**

Table 5 – Rollout of Asiaspace-YTLC network (exceeding the targets)

Year	From	To	DBP		Year to Year Actual Achievement	
			AA(Sites)	Transmitter	AA(Sites)	Transmitter
1	31-Jul-13	31-Jul-14	283	849	39	85
2	31-Jul-14	30-Jun-15	564	1685	257	441
3	31-Jul-15	30-Jun-16	845	2521	1442	3746
4	31-Jul-16	30-Jun-17	1131	3356	4036	10,460
5	31-Jul-17	30-Jun-18	1407	4167	4354	11,088

7. It is crucial to note that the actual achievements under the collaboration when looking at 4354 sites achieved as opposed to a target of 1407 sites and 11,088 transmitters achieved as opposed to a target of 4167 transmitters, it will show achievements of 310% for sites and 254% for transmitters. This means the collaboration under TPA as directed by the then Minister in 2012 was the right way to move forward.
8. When the first five (5) years target expired on the 30th June 2018, MCMC by its letter dated 20th February 2019 commended Asiaspace for its good performance in complying with the DBP.
9. Asiaspace first started applying for AA in 2014. From the year 2014 till 2018, Asiaspace has paid a total of **RM8,205,626.00** as administration and license fee for AA.
10. From the 1st January 2019 till the 31st July 2019, Asiaspace has paid a total of **RM 4,792,189.00** for new AA application fees.

Table 6 – AA administration and license fees paid for the years 2014 – 2018

AA Administration and License Fees Paid				
No	Year	No. of AA's	Admin Fee Paid (RM)	License Fee Paid (RM)
1	2014	281	16,860.00	272,496.00
2	2015	262	15,720.00	306,891.00
3	2016	3722	223,320.00	6,473,456.00

4	2017	259	15,540.00	518,233.00
5	2018	473	28,380.00	634,550.00
Total		4997	299,820.00	8,205,626.00

11. Asiaspace was also required to renew the AA's applied for every year. This is usually done before the end of the calendar year and the amount is based on the total number of AA's that is active for the year. **From 2014 till 2018, Asiaspace has paid a total of RM15,979,410 as AA renewal fees to MCMC.**

Table 7 – AA Renewal Fees paid for the years 2014 – 2018

No	Year	No. of AA's	Renewal License Fee (RM)
1	2014	87	100,300.00
2	2015	422	466,280.00
3	2016	1291	3,525,380.00
		312	973,160.00
4	2017	1655	5,003,145.00
		227	219,925.00
5	2018	1602	4,996,360.00
		235	694,860.00
Total		5831	15,979,410.00

For the years 2014 till 2018, the total AA administration/license fees and AA renewal fees paid by Asiaspace is RM24,185,036.00.

12. Since 2013, the network rollout under **Third Party Authorisation which encompasses more than 4000 base station sites**, has cost both Asiaspace and YTLC a total Capex of RM1.0 billion whilst the yearly Opex is estimated to be around RM200 million. It is to be noted that these costs is only for the portion of the 2300MHz that Asiaspace was allocated.
13. Since 2018, Asiaspace and YTLC has been slowly migrating most of the sites rolled out under the collaboration towards LTE.

Table 8 – WiMAX vs. LTE

Technology	No of sites						Breakdown for Y2019	
	Y2014	Y2015	Y2016	Y2017	Y2018	Y2019	Y2019 (Commercial)	Y2019 (1Bestrainet)
WiMAX	39	257	323	347	390	2043	457	1586
LTE	0	0	1119	3689	3964	4002	2107	1895
Total	39	257	1442	4036	4354	6045	2564	3481

Based on Table 9 above, it is to be noted that Asiaspace together with YTLC have been rolling out more LTE sites as compared to WiMAX sites. This strategy of concentrating more on the LTE sites are in line with our long term strategy of offering bandwidth

rich services especially in the commercial areas since WiMAX has limitations in terms of bandwidth and speed for end user subscribers.

From 2019 onwards, it is only natural for Asiaspace and YTLC to slowly migrate the existing WiMAX sites towards LTE.

14. Based on the above explanation, Asiaspace is of the view that the optimum spectrum allocated per operator for assignment of the 2300MHz spectrum band is shown in Section 14 (a) below and the reasons are explained in Section 14 (b) to (d):-
 - (a) Optimum spectrum block per operator should be 2x20MHz (40MHz in total) in order for the operator to be able to take advantage of at least 2 Carriers for Carrier Aggregation in order to deliver high capacity and high throughput services.
 - (b) Asiaspace and YTLC have invested heavily in the rolling out 4G LTE services (as shown in Table 6, Table 7 and Item 12 above) and should the spectrum be reduced and reallocated to other mobile operators, there would be considerable amount of Capex spent to readjust and recalibrate the network, which would also render past investments amounting to approximately RM2.2 billion as non recoverable.**
 - (c) The National Fiberization and Connectivity Plan (NFCP) mandates an average speed of 30Mbps in 98% of populated areas by 2023 and to double the speed and half the price by 2019. Asiaspace and YTLC has been working towards this objective by migrating most of sites from WiMAX to LTE (as shown in Table 9 above). Should the current 30MHz awarded to Asiaspace be reduced, then Asiaspace and YTLC will be at a major disadvantaged position to achieve the NFCP targets. A reduction in the spectrum block will directly reduce the capacity and intended bandwidth Asiaspace can offer to its existing subscribers, hence causing disruption in the Quality of Service (QoS) and causing other related issues to surface.**
 - (d) The preferred 2x20MHz in the 2300MHz band in the conversion to Spectrum Assignment (SA) would position Asiaspace to compete better with the incumbent mobile operators such as Celcom, Maxis, Digi & UMobile without limiting the bandwidth that Asiaspace could create to offer bandwidth rich services with the advent of 5G in the future.
 - (e) It is Asiaspace suggestion that in the event the 2300MHz to 2330MHz spectrum on which the Apparatus Assignment (AA) is converted to Spectrum Assignment (SA) than under Section 162 of the Communications and Multimedia Act 1998, Asiaspace collaboration with YTL Communication should be allowed to continue, considering the substantial and large investments made by thee two operators under the collaboration.**

Spectrum Price

Question 7(ii)

MCMC would like to seek views on the appropriate range (per MHz) for SA fees (price component and annual fee component) and the rationale for the proposed fees, for the following spectrum bands:-

2300MHz;

- (a) Asiaspace believes that the appropriate range (per MHz) for SA fees (price component and annual fee component) are closely linked to economic and market conditions, technical factors such as, which technology is currently being deployed in the 2300MHz spectrum band and the quality of those technology and services.
- (b) MCMC will have to ascertain the current utilization rate of the awarded spectrum to the mobile operators before deciding on the SA fees. If the mobile operator has a high utilization rate, then the SA fees should be as minimum as possible for the operator to continue with its roll-out plans.
- (c) MCMC should look at countries like South Korea and Japan which adopts a pricing mechanism where the spectrum is allocated to mobile operators without the Price Component. However, the mobile operators with huge investments are required to meet coverage and quality targets. Through this, the mobile operators can allocate their Capex in achieving the targets of NFCP.
- (d) The rise in spectrum fee is a threat to mobile broadband growth – especially 5G. The rising cost of spectrum is unsustainable and poses a major threat to the future development of mobile services. Both the cost of spectrum and the amount that operators require to meet user demand are rising, while at the same time, operator revenues per MHz of spectrum used is falling. **China recently awarded spectrum to the operators at no cost, so that these operators can use the spectrum acquisition fees on the roll-out of broadband services.**
- (e) A reduction in unit spectrum prices is vital in order to avoid total spectrum costs spiralling - especially as extremely wide millimetre frequency bands look set to play a key role in 5G. High spectrum costs also make it difficult to extend services more widely, especially in rural areas where the cost of delivering services is 25% higher than in cities. MCMC should respond by avoiding measures that artificially increase the cost of spectrum, and planning spectrum awards in a manner that enables a fall in spectrum prices in line with the increase in spectrum supply.

Conclusion

Based on all the cogent and persuasive reasons herein before stated, **Asiaspace should be allowed to continue to operate in the 2300MHz – 2330MHz spectrum band, either with the existing 30MHz under Apparatus Assignment (AA) or convert to 2x20MHz TDD under Spectrum Assignment (SA) and pursuant to Section 162 of the Communications and Multimedia Act 1998 to allow the continuance of the collaboration between Asiaspace and YTL Communications.**

Asiaspace should also be allowed to offer Broadband Wireless Access (BWA) services using the 2300MHz to 2330MHz in Sabah and Sarawak based on the letter from MCMC dated 24th May 2007.