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Dear Ronan,

Re: Further information following the hearing on BT/EE on 14 August 2015

Further to the hearing which we attend on 14 August 2015, we provide below further information in relation to some issues raised and questions asked at that hearing. Our response is divided into three main parts:

1. BT's ability to limit and degrade the supply of service to competitors.
2. How UKBN's and other competitors' businesses are likely to be affected by BT's acquisition of EE.
3. A discussion of spectrum sharing arrangements, including MVNOs and Multi Operator Core Networks ("MOCN").

1. BT's ability to limit and degrade the supply of service to competitors.

A broad non-discrimination and Equivalence of Input requirement which is essentially under BT's control does not respond to complaints that the quality of service offered is poor, timelines are lengthy, costs are high, services are available only when and where the incumbent requires (for example, FTTC-based services), non-BT needed services are not rolled out, and so on.

UKBN's subsidiary, Keycom plc, relies to a large extent on Openreach products and services to provide backhaul for its campus installations. Keycom therefore has first-hand experience of Openreach's poor and deteriorating levels of service.

In Annex 1 we provide a copy of Keycom's submission of 31 July 2015 to Ofcom's current review of the market for business connectivity services ("BCMR"). This submission provides answers to Ofcom's questions which relate to Openreach quality of service issues

and details Keycom's experience of unreasonable delays in its dealings with BT in relation to the supply of Ethernet services. Keycom's experience is far from satisfactory, with Openreach's continued problems causing consistent and damaging delays in service initiation, harming a broad segment of individual, campus and corporate users. This has a knock on effect as to economic harm to the economy and the industry.

[✂].

We note that market research was conducted for Ofcom for the BCMR. This research illustrates the importance of availability and delivery to customers. It found that Keycom's experience of delays is a widespread problem:

".. a little over a third (36%) of Ethernet leased line users surveyed who had experienced a new line installation or a switch of provider experiencing some level of delay on at least one occasion (multiple occurrences, i.e. an installation and a switch, were not explored but could have been experienced). This translates to over a fifth (23%) of the overall sample had experienced a delay in an installation or switching their Ethernet leased line."

Unfortunately the market research does not specifically address issues faced by market entrants and does not survey performance or delivery and installation against such factors in competitive markets. Reference is also made to studies from 2014, which measure end users' views and attitudes rather than measuring or benchmarking competitive provision.

Installation delays are one example of BT's enduring competitive advantage. You will be aware of a great number of complaints and their effects, either provided as anecdotes or as studies. In both cases BT's performance is unacceptable to users, harms the economy and has real competition effects. Given its extensive installed base, BT's lacklustre performance on new connections affects new entrants and new services more than it affects BT's existing base of customers. This is one aspect of how BT benefits from a huge installed base of customers. Its continued control over capital expenditure also allows it to determine the pace of upgrade of its infrastructure out of step with customer demand, and unaffected either by regulation or its competition law undertakings.

History has shown that BT has a tendency to operate behind the curve of consumer demand, fending off regulatory pressure using a technique for managing regulation known in the industry as "walking backwards slowly"¹. The approach has persisted for a

¹ http://www.theregister.co.uk/2005/02/08/bt_ofcom_review/

See also John Pluthero's reply to Q103 in evidence to the Trade & Industry Committee in March 2005: <http://www.publications.parliament.uk/pa/cm200405/cmselect/cmtrdind/407/5030803.htm>

considerable period. BT was widely criticised for being slow to introduce broadband over ADSL in the early 2000s. Widespread consumer discontent resulted in campaigns, petitions and community broadband schemes.² Also, during the period 1999-2004 BT obstructed efforts to increase competition in the provision of broadband services through local loop unbundling (“LLU”). High prices and unwieldy operational processes made the LLU product unusable in practice³. BT maintained that there was insufficient demand for the product from other operators⁴. This led to the appointment of a Telecommunications Adjudicator⁵ and later to the creation of Openreach and BT’s 2005 undertakings under threat of a referral to the Competition Commission⁶.

There is no provision in the Undertakings or in telecommunication regulation that requires BT to upgrade its network to meet customer demand, as would apply by operation of competitive markets (or the operation of an independent wholesale provider). Indeed, BT only upgraded its network by extending fibre to its street cabinets when faced with losing business to competition from Virgin Media. Virgin Media launched its 50 Mbit/s service in 2008⁷. BT followed with the launch of its “Infinity” up to 40 Mbit/s product in 2010⁸. BT then limited commercial deployment of fibre to the cabinet to areas where it faced competition from Virgin Media. BT required subsidy from the Government in order to do the same in areas where it faced no competition⁹.

BT has resisted requests to offer dark fibre as a product over many years. BT has also been slow to offer sufficient features and variants on Ethernet and Wavelength products. For example, on Ethernet BT was slow to respond to Mobile Network Operator (“MNO”) calls for “Synchronous Ethernet” for backhaul for radio networks¹⁰. Also, BT’s Ethernet products are not fit for purpose for connecting smaller housing developments and estates¹¹, which limits alternative infrastructure development.

In its submission to the CMA Ofcom acknowledges (at paragraph 1.37) that BT, as a vertically integrated operator, has an incentive to favour its own downstream business. Ofcom suggests that the Statement of Requirements (“SoR”) process is an effective

² An example of this was the website <http://www.broadband4britain.co.uk/>

³ <http://www.theguardian.com/technology/2000/feb/24/columnists.guardiancolumnists>

⁴ <http://www.broadcastnow.co.uk/bonfield-hits-back-at-adsl-critics/1183028.article>

⁵ <http://media.ofcom.org.uk/news/2004/ofcom-sets-out-long-term-approach-to-further-development-of-broadband/>

⁶ <http://media.ofcom.org.uk/news/2005/ofcom-accepts-undertakings-from-board-of-bt-group-plc-on-operational-separation/>

⁷ <http://about.virginmedia.com/press-release/284/virgin-media-launches-the-uks-fastest-broadband>

⁸ https://www.btplc.com/Sharesandperformance/Annualreportandreview/pdf/2010_review-of-year-lines-of-business.pdf

⁹ http://ec.europa.eu/competition/state_aid/cases/243212/243212_1387832_172_1.pdf

¹⁰ http://stakeholders.ofcom.org.uk/binaries/consultations/business-connectivity-market-review/responses/Combined_response.pdf

¹¹ See for examples the submissions of GTC to Ofcom’s BCMR

solution to this problem. In theory an effective SoR process could spur BT to meet demand and invest accordingly. In practice the process is unwieldy and unworkable and notorious in the industry. BT's Undertakings permit Openreach to accept or reject Statements of Requirements on the basis of, among other things:

- a) fit with the assets, skills and resources of Openreach;
- b) commercial attractiveness to Openreach; and
- c) opportunity cost to Openreach.

The following comment was submitted by Sky to an earlier Ofcom consultation:

7.13... Sky has previously flagged to Ofcom the inadequacy of the current SoR process and requested that Ofcom review the process due to BT's failure in responding to its customers' requests. TalkTalk's NTE5 SoR request is yet another example of this and we encourage Ofcom to require BT to deal with TalkTalk's request fully and promptly, as well as improving its SoR process as a whole.¹²

This issue is also raised by Sky in its response on the BT/EE merger – see the whole of section 3.6 and Annex 2 for specific examples, including the 'TalkTalk' SoR issue. The problem has been known for some time but remains unresolved.¹³

One form of discrimination is recognised to relate to the handling of requests for new forms of network access. While Ofcom accepts the problem created by a vertically integrated CP is in handling and in being able to discriminate in favour of its own products and services it fails to appreciate that its 'fair reasonable and non-discriminatory' access regime does nothing to address handling failures and delays or to force innovation and capital expenditure, or to meet demand.

Ofcom also suggests that the requirement to offer Openreach assets on an Equivalence of Inputs basis means that BT must make the roofs of some of its local exchanges available to MNOs for the siting of their radio equipment. However, this does not reflect the reality of the situation which is that most or all of BT's roof-top estate has been leased to Arqiva and access can only be gained via a commercial agreement with Arqiva.

These shortcomings of the regime in addressing foreclosure of competitive entry mean that BT's acquisition of EE is demonstrably unaffected by existing undertakings or regulation.

¹² Sky response to Ofcom fixed access market review 2013/2014

¹³ See [https://assets.digital.cabinet-](https://assets.digital.cabinet-office.gov.uk/media/55d48ac840f0b609ff000005/BT_EE_Ph_II_Sky_Issues_Statement_Response.pdf)

[office.gov.uk/media/55d48ac840f0b609ff000005/BT_EE_Ph_II_Sky_Issues_Statement_Response.pdf](https://assets.digital.cabinet-office.gov.uk/media/55d48ac840f0b609ff000005/BT_EE_Ph_II_Sky_Issues_Statement_Response.pdf)

By way of further example, see another dispute between Opal and BT on an SoR – this dispute was determined by Ofcom in 2010 – see page 121 of the following:

http://stakeholders.ofcom.org.uk/binaries/consultations/draft_deter_bt_opal_charge2/statement/APCC_determination.pdf

An unsatisfactory situation in regard to the competitive process and the supply of critical services will only get worse, consistent with BT's obvious incentives.

We also discussed the limited availability of high speed fibre in business parks and the charges imposed on customers by BT to extend its fibre network into customer premises (known as "Excess Construction Charges"¹⁴ ("ECCs")). These form a part of a range of products for access that limit the economic opportunity for alternative network infrastructure development.¹⁵ With respect to ECCs, the customer (wholesale or retail) pays for both the cost of the network extension and recurring charges for the service, but BT retains ownership of the customer-funded network. As discussed, if these types of products were paid for by the customer we see no rationale for BT being allowed to retain ownership, and if owned by an alternative infrastructure operator such assets could be more efficiently utilised to meet customer requirements.

2. How the proposed merger would affect UKBN's and other competitors' businesses.

Retail Mobile and Broadband Markets

We have described the rise of the data-centric economy and the increasing demand on the part of nomadic users for hybrid products using a variety of different access technologies, such as Wi-Fi, cellular radio networks, fibre and so on. In order to meet this demand, we see the need for layered networks where coverage is provided by lower frequencies and additional capacity by higher frequency spectrum bands. We also see continuing network bottlenecks and a need for shared access by third parties to ensure competition thrives and consumer demand is met. We invite the CMA to share this forward looking data-centric view of the market, and what that means.

The proposed merger brings together the UK's major fixed and mobile operators, and as such creates a very clear incentive for BT to leverage its market power in the provision of fixed services into the retail mobile market. BT can leverage this market power at both the retail and wholesale levels of the market, and can with its significantly enhanced position in the mobile market also act to even further solidify its position in the fixed (eg, broadband) market.

Ofcom suggests in its submission that other providers of public Wi-Fi hotspots will constrain

¹⁴ See

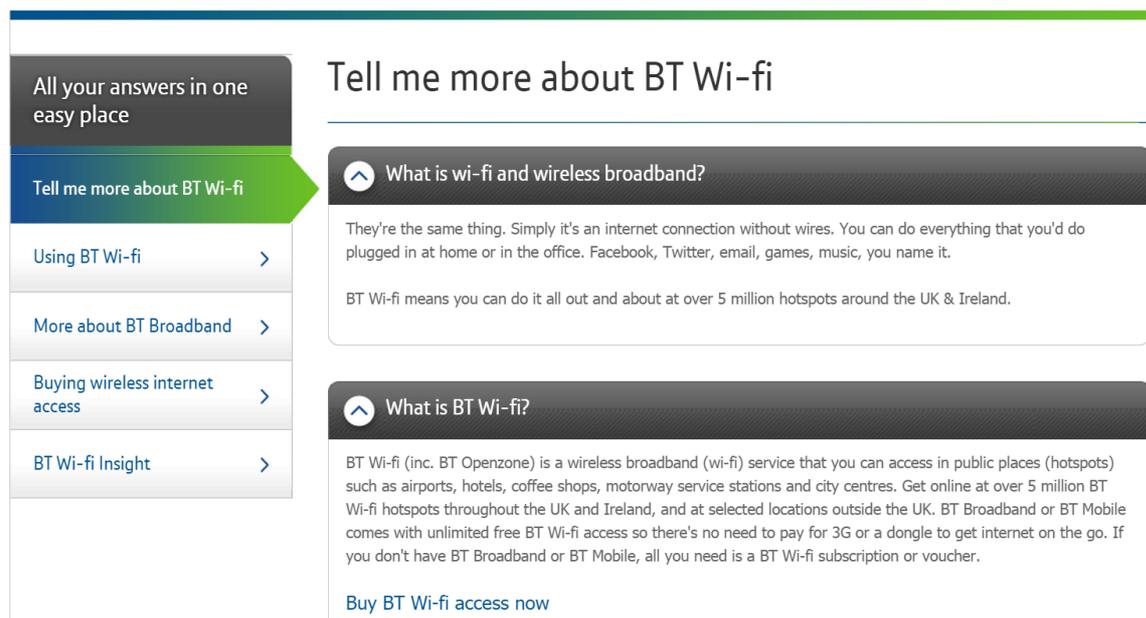
<https://www.openreach.co.uk/orpg/home/products/serviceproducts/excessconstructioncharges/excessconstructioncharges.do>

¹⁵ See further the submission of GTC and Frontier Economics to Ofcom's BCMR. stakeholders.ofcom.org.uk/binaries/.../bcmr.../GTC_Economic_Annex.p...

BT's ability to foreclose retail mobile competition through denying access to its public Wi-Fi network post-merger. Ofcom puts the total number of public Wi-Fi hotspots at 41,798 in June 2014. This estimate overlooks BT's network of approximately 5 million hot-spots. Details of this can be found in BT's online advertising:

<http://www.btwifi.com/help/common-questions/index.jsp>

The following is a screen shot from the BT Wi-Fi website.



The screenshot shows the BT Wi-Fi website interface. On the left is a navigation menu with the following items:

- All your answers in one easy place
- Tell me more about BT Wi-fi (highlighted with a green arrow)
- Using BT Wi-fi >
- More about BT Broadband >
- Buying wireless internet access >
- BT Wi-fi Insight >

The main content area is titled "Tell me more about BT Wi-fi" and contains two FAQ sections:

What is wi-fi and wireless broadband?
They're the same thing. Simply it's an internet connection without wires. You can do everything that you'd do plugged in at home or in the office. Facebook, Twitter, email, games, music, you name it.
BT Wi-fi means you can do it all out and about at over 5 million hotspots around the UK & Ireland.

What is BT Wi-fi?
BT Wi-fi (inc. BT Openzone) is a wireless broadband (wi-fi) service that you can access in public places (hotspots) such as airports, hotels, coffee shops, motorway service stations and city centres. Get online at over 5 million BT Wi-fi hotspots throughout the UK and Ireland, and at selected locations outside the UK. BT Broadband or BT Mobile comes with unlimited free BT Wi-fi access so there's no need to pay for 3G or a dongle to get internet on the go. If you don't have BT Broadband or BT Mobile, all you need is a BT Wi-fi subscription or voucher.
[Buy BT Wi-fi access now](#)

Ofcom also expresses the view that the advent of LTE will mean Wi-Fi offload will become less important. Although increased LTE spectrum capacity will mean that more demand for data can be met by the cellular networks, the overall increase in demand will mean that Wi-Fi access will remain a crucial element of the seamless connectivity experience. Usage of HKT's data networks in Hong Kong shows this to be the case.

There are other areas where BT's position as incumbent gives it an advantage. Through not having access to BT's OSS/BSS platform known as EMP (Equivalence Management Platform), UKBN is already impeded in its ability to compete and the addition of EE to BT's offering the will make competition harder. It is easier to switch between ISPs who resell BT than it is to switch from one of those ISPs to UKBN. Neither the existing Undertakings nor the regulation of BT address these issues.

We believe underlying consumer demand is growing despite being held back by current capacity constraints in spectrum and backhaul. BT/EE will have a choice either to roll out combined products more swiftly or to continue to choke back demand and profitably raise price. Continuing access issues and capacity limitations affecting other suppliers may well

limit their ability to respond to BT/EE's actions.

Spectrum

Ofcom has suggested that capacity shortages in spectrum are unlikely to arise due, in part, to the fact that new spectrum will be available to meet rising demand in the course of time. We do not share Ofcom's optimism, especially given the continual growth in demand for capacity and the proposed market consolidation. Ofcom's approach places a premium on deep pockets and does not preclude the opportunity for BT/EE itself to bid successfully for any new spectrum which comes to the market.

Ofcom's approach does not appear to be based on an analysis of future demand for wireless data capacity. Ofcom also puts store in the deployment of small cell technology. However, account should be taken of the fact that this does not come without considerable cost and therefore will only be undertaken where it is felt a commercial case can be made.

Spectrum which does become available for release will take time to be awarded and then networks will have to be built to utilise the new spectrum. This will result in a delay in the ability of existing market players to expand their capacity and a delay in time to market for any potential new entrants.

We note that Qualcomm is proposing to sell 20 MHz of spectrum capacity between 1452 and 1492 MHz to Vodafone and H3G respectively. The CMA should note that the European Commission has mandated that this spectrum must be used for "Supplemental Down Link" ("SDL")¹⁶. This means that this particular spectrum is suitable to be used for mobile network operators with paired spectrum used with FDD, rather than TDD, who require additional capacity to enable their customers to download data. The European Commission's mandate therefore made this spectrum unattractive for a TDD operator such as UKB, [X].

It is important to note, therefore, that whilst this proposed trade would balance the overall spectrum holdings of the national MNOs to some extent, the Qualcomm spectrum is not a substitute for 2.6 GHz spectrum (because of the usage restrictions placed on it by the European Commission) and therefore does not resolve the competitive problems caused by the concentration of 2.6 GHz spectrum in the hands of the combined entity. In fact, from the point of view of a new entrant not operating a legacy voice network, it exacerbates the competitive issues.

¹⁶ European Commission Implementing Decision (EU) 2015/750 of 8 May 2015 on the harmonisation of the 1452-1492 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Union; http://eurlex.europa.eu/legal-content/EN/TXT/?qid=1431416821549&uri=OJ:JOL_2015_119_R_0006

We believe that in the short to medium term there are real concerns over the availability of and potential concentration of spectrum capacity in the market. Demand is not currently being met and there is a real danger that demand will continue to out-pace supply.

With increased concentration of players in the industry, it is unclear whether those remaining players would be sufficiently incentivised by competitive pressure to expand capacity in their network.

In the short to medium term we believe a capacity shortage will arise and there will be a substantial lessening of competition and, given rising demand, over the longer term, future spectrum will at best provide additional capacity too late in the day.

In order to compete successfully, a wireless network operator needs sufficient levels of both network *coverage* (for which access to thin coverage layer/low frequency spectrum is needed) and network *capacity* (for which access to higher frequency spectrum is ideally needed). A competitive market can only be sustained through establishment and protection of a wholesale market through a viable and effective additional player providing further competitive constraint. BT's market power in the mobile market (assuming the EE acquisition is approved) can only be offset, and BT's ability to raise price only constrained, if multiple competitors have enough capacity in the future (where data requirements will be multiple of what they are today) to price below BT price levels and absorb a substantial percentage BT's mobile customers. Only in this environment will BT's market power be constrained (and assuming that other critical safeguards are fully employed). Spectrum divestiture is thus a necessity, not an option.

EE already has more spectrum capacity than its competitors. Adding BT's spectrum increases the merged firm's higher capacity spectrum holdings by the addition of 30MHz of 2.6GHz FDD spectrum and 15 MHz of 2.6GHz TDD spectrum. The merged firm's extensive spectrum portfolio and dominance of the higher frequency spectrum bands means that it will have the ability to support a higher number of users than its competitors. It also means that it will have the ability to raise prices as others will not have the capacity to absorb a substantial percentage of BT's customer base...the one thing that constrains BT.

In their submission Ofcom discuss the extent to which BT/EE could benefit from carrier aggregation. They state that carrier aggregation enables "higher peak speeds". As we explained at the hearing on 14 August, carrier aggregation is not only about achieving a higher peak speed; importantly, it provides additional capacity, economies of scale (two carriers gives more than double capacity) and utilising different frequencies in the same service proposition. To suggest, as Ofcom does, that consumers would not notice a benefit because congestion in the network means they'll never achieve the peak speed appears to be a surprising acceptance of capacity constraint in the network.

Backhaul

UKBN is building high capacity wireless and fibre access networks, and largely relies on third party network providers to backhaul its traffic from its hub sites to its core network. Competition in the market for the supply of backhaul to masts and towers is currently limited to a few providers. It is different from the market for leased lines since the customers want different products and there are fewer suppliers, with geographic differences in the level of competition. Ofcom notes that this market is already largely supplied by BT; BT's vertical integration of EE creates obvious incentives which if left unchecked will limit further the levels of competition in this market.

We have outlined how backhaul circuits can operate as a bottleneck in the provision of data capacity to end users. Increasing backhaul capacity can increase throughput to customers, and will be a key requirement in the data-centric world and for the UK economy. Access to backhaul is therefore vital in order to meet growing demands for data consumption. The ability to increase capacity rapidly to meet demand is essential in order to meet customer expectations and provide a high quality user experience. Access to backhaul means the right backhaul, at the right time and at the right price.

BT/EE will be able control its own fibre backhaul roll-out and thus the capacity available to any particular base station. BT's incentive would be to significantly enhance its own fibre and wireless backhaul arrangements to support greater capacity for its own services in comparison to a competitor's services. The same set of incentives would lead BT not to invest in or delay backhaul for others, to delay backhaul delivery, to provide insufficient backhaul, to provide poor quality backhaul, etc. This would obviously provide BT/EE with an unfair advantage in the market for retail mobile services by enabling the merged firm's customers to experience higher data speeds. Other MNOs wishing to coordinate their network roll-out with the deployment of BT infrastructure would also be forced to share their roll-out plans (and indirectly their marketing plans) with a direct competitor.

In addition, the merged firm will be able to make investment decisions with the benefit of having EE's traffic as a captive guaranteed customer. This reduces the risk and therefore cost to the merged firm of any network investment. There is no indication that such cost savings will be shared.

Ofcom expressed the view (see paragraph 5.41 of its submission) that the ubiquity of BT's network does not give it an advantage over other potential suppliers of backhaul because "a CP need only be present in all the Access Serving Nodes (ASNs) (not all local exchanges) and use Openreach inputs in order to be able to provide a national service, because Openreach's leased line access products can reach almost all points in the UK from the ASNs". This appears to overlook the fact that purchasers of backhaul would like to purchase products which are upstream of or which differ technically from Openreach "inputs". We refer to our previous submissions about supply-side substitutability.

3. Approaches to spectrum sharing

It is clear that the proposed merger would reduce the number of MNOs from five (including BT as a recent new entrant¹⁷) to four (or perhaps three if approval is given to the merger acquisition of O2 by H3G). This will reduce options available for MVNOs and increase the bargaining power of the remaining MNOs, who will therefore be able to dictate terms of supply and limit downstream competition. Coordination risks will increase and incentives to compete will decrease as the market shrinks. This is a particular danger in the UK where MVNOs/resellers and other smaller players make up more than an insignificant part of the market.

The fewer MVNO suppliers there are, the greater the risk of harm to MVNOs in the form of less favourable conditions of supply, for example in terms of price, service features, amount of capacity made available and quality of service.

MNOs have the ability to prioritise their own traffic over that of their MVNO customers, thus degrading the service experience of the MVNOs' customers. This issue will increasingly become a problem as consumers demand and expect access to data. Network prioritisation has more potential to degrade the provision of data than it does the provision of voice - it could mean that a customer gets no usable access to data at all. A consumer is less likely to accept a poor quality data service than a poor quality voice service and MVNOs may therefore find it increasingly hard to compete. A smaller number of MVNO suppliers therefore has the potential to increase consumer harm.

Recent EU Commission merger approval decisions recognise the importance of maintaining an effective competitive constraint from a fourth operator. Remedies have been imposed to ensure that effective competition is maintained by creating capacity usage agreements in favour of a new player.

In Hong Kong the Communications Authority identified a mobile capacity sharing agreement, or "MOCN" agreement, as being important to the development of effective competition. Unlike the remedies adopted in other countries, MOCN arrangements share spectrum and therefore allow the operators to benefit from a more immediate and efficient, as well as less expensive use of the available spectrum. The mechanism also ensures innovation and competition operates between the players sharing the spectrum. We described how such a mechanism may be appropriate in the circumstances here in the UK

¹⁷ Ofcom suggested in its response that BT was not planning national mobile coverage with its 2.6 GHz spectrum and could not, therefore, have been regarded as a national wholesaler. However, this reflects the "old world order" of nationwide voice coverage and overlooks the importance of the availability and use of this spectrum on a non-national basis to provide additional data capacity in areas of high demand.

and attach a summary of the decision. In addition the regulator required that MVNO arrangements be continued on no less favourable terms.

Annex 2 to this letter contains a summary of the Hong Kong Communications Authority's decision regarding the acquisition of CSL by HKT.

We hope that these further comments have been helpful. Please contact us if we can be of any further assistance or if any further clarification is required.

Yours sincerely

Nicholas James
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