



Via Electronic Submission

Regulatory Authority
Cumberland House
3rd Floor
1 Victoria Street
Hamilton HM 11
Bermuda

April 17, 2013

Attn: Philip Micallef, Chief Executive Officer

Re: Request from Quantum Communications Limited (“**Quantum**” or the “**company**”) for the allocation of radio spectrum required to provide a mobile cellular service in Bermuda.

Dear Mr. Micallef,

Quantum hereby submits this request for the allocation of radio spectrum required to provide a mobile cellular service in Bermuda (“**Quantum Spectrum Request**”). This Quantum Spectrum Request replaces the company’s previous spectrum requests dated May 3, 2012 and January 14, 2013 under the Telecommunications Act 1986, as amended, and subsequently identified as a “pending matter” following commencement of the Electronic Communications Act 2011 (“**ECA**”) in correspondence to your office dated February 5, 2013. We have structured this application to be fully responsive to the Regulatory Authority’s (“**RA**”) instructions in the guidelines published February 12, 2013, as further clarified by the RA’s instruction of April 3, 2013 (collectively, the “**Provisional Spectrum Proceeding Materials**”).

Pursuant to Section 30 of the RA’s Interim Administrative Rules Quantum claims confidential protection of all the information set forth in attached Appendices A, B and C hereof on the basis that all such information falls within the Section 30(2)(b) and (c) thereof, namely, that it is “Confidential Information” which includes:

- (b) **information, the commercial value of which would be, or could reasonably be expected to be, destroyed or diminished by disclosure; [and]**
- (c) **other information, the disclosure of which would have, or could reasonably be expected to have, an adverse effect on the commercial interests of any person to whom the information relates.”**

1. Background and Comments on the North Rock Communications Ltd. (“North Rock”) Spectrum Request

At the outset, Quantum respectfully draws the RA’s attention to the company’s related filing also submitted today that sets forth our comments (“**Quantum Comments**”) on North Rock’s spectrum allocation request made in furtherance of its desire to launch a new mobile cellular service in Bermuda (“**North Rock Spectrum Request**”). We reiterate in full our Quantum Comments as appropriate background to the company’s request for spectrum set out below.

North Rock’s application (redacted version) requests a large allocation of radio spectrum in the “Advanced Wireless Services (“**AWS**”) frequency bands (2x30 Mhz, comprised of a contiguous 20 MHz and 10MHz paired allocation in the high and low band). Quantum seeks spectrum in the same AWS bands. In addition, North Rock notes its interest in securing rights to 700 MHz spectrum “at some point in the near future,” and further states that “when lower frequency becomes available we would be happy to discuss returning some of the higher frequencies.”

In contrast, the Quantum Spectrum Request seeks the allocation of both AWS and 700 MHz spectrum. Specifically, the company requests (i) a smaller block of AWS spectrum (2x20 MHz, comprised of a contiguous 20 MHz paired allocation in the high and low band); and (ii) paired B&C blocks in the lower 700 MHz band (B 704-710, 734-740 and C 710-716, 740-746). Further, Quantum would seek to use both AWS and 700 MHz spectrum allocations on a long term basis to support its planned service suite.

As reflected in the Quantum Comments, the company enthusiastically supports the RA’s decision to assign provisional spectrum to qualified applicants because it will enable interested carriers to confidently obtain spectrum from Government and begin launching new network and services pending the RA’s completion of the ECA-mandated spectrum audit (“**RA Spectrum Audit**”). In other words, some of the hoped for benefits of ICOL reform will not be held up by the legacy of addressing arguably inefficient and overly broad past spectrum allocation practices. In connection with the RA’s provisional spectrum proceeding, we anticipate that the RA will evaluate fully the merits of all timely filed spectrum requests, including the North Rock Spectrum Request and the Quantum Spectrum Request.

Quantum supports the North Rock Spectrum Request save for the actual amount of AWS MHz spectrum North Rock requests (i.e, 2x30 MHz). Specifically, we believe the North Rock Spectrum requested amount is overly generous in terms of stating an amount of AWS spectrum North Rock technically needs to launch its mobile network. In support of its request North Rock correctly notes that its request is “less than either of the other two existing cellular operators in Bermuda.” It is understandable that an applicant may want an allocation of spectrum that is more than ample as a reserve against what may be actually needed, However, the company respectfully submits that if the RA were to endorse this approach it will only exacerbate the very problem the RA Spectrum Audit is meant to solve: minimizing unused, idle spectrum by increasing Industry access through a fair and properly sized apportionment of this limited natural resource.

In Quantum’s respectful opinion we believe North Rock’s proposal to launch mobile services can be fully accomplished in satisfaction of applicable technical requirements and service standards using far less bandwidth than actually requested by North Rock. Our analysis finds that there is sufficient bandwidth available in the AWS spectrum to actually achieve both Quantum and North Rock’s technical and service requirements, as well as others potentially, to deploy new mobile networks in Bermuda.

In forming our views on this issue Quantum has benefitted from the considered input and experience of its Canadian sister company, Eastlink (“**Eastlink**”). Eastlink has successfully launched a Canada-wide cellular business from the ground up. As such, we are fortunate to have access to Eastlink personnel with all of the relevant knowledge and practical firsthand experience to help analyze this market and its unique spectrum allocation issues as well as assist Quantum in the development of the technical and service requirements for launching a new wireless business in Bermuda.

Thus, the company respectfully requests the RA reject the North Rock Spectrum Request only in so far as the amount of AWS spectrum requested. We further respectfully request the RA grant both Quantum and North Rock only such allocation of AWS spectrum as each party technically requires to launch their respective planned mobile service offerings. Any spectrum allocation determined otherwise creates an undesirable risk of stranding and wasting valuable spectrum resources. Furthermore, it would unnecessarily restrain the launch of additional competitive mobile service offerings in Bermuda. In the company’s view, a fair and reasonable outcome given all of the competing interests would occur only if the RA allocates the available AWS spectrum amongst qualified applicants on the basis of the technical, financial and operational merits and needs of their respective applications.

2. Quantum Spectrum Request

Quantum hereby requests an allocation of currently available radio spectrum as more fully detailed below in order to launch a national 4G LTE mobile cellular service in Bermuda. More specifically, our specific request is limited to only that amount of AWS and 700 MHz spectrum that is technically required to launch and support our proposed 4G LTE services. The company’s proposed 4G network would utilize Long Term Evolution (LTE) technology, based on OFDMA (Orthogonal Frequency Division Multiple Access), which enables the network to achieve superior data rate speeds and capacities. As noted above, in undertaking this wireless project Quantum will benefit greatly from Eastlink’s recent roll out of its Canada-wide wireless network. The company will also be able to leverage existing close working relationships established between Eastlink and its major vendors of network equipment, back office systems and handset manufacturers. With this invaluable experience and knowledge base, once we have the requisite spectrum in hand, we believe Quantum will be very well positioned to launch a new network in Bermuda quickly, efficiently, and without many of the obstacles that typically plague greenfield projects such as these.

Quantum’s responds as follows to the specific questions raised in the Provisional Spectrum Proceeding Materials:

A. In response to the RA’s request for information on exactly what spectrum is required, Quantum submits:

Quantum is requesting a contiguous 20 MHz paired allocation in the high and low band AWS spectrum.

Additionally, Quantum is requesting spectrum in the 700 MHz band, specifically the paired B&C blocks in the lower 700 MHz band (B 704-710, 734-740 and C 710-716, 740-746).

B. In response to the RA’s request for reasons why this spectrum is needed, Quantum submits:

The evolution of the mobile industry has seen technology move from the simple voice calls of the original first generation analog networks to the full multimedia rich applications running on a variety of devices on modern digital networks.

In the consumer market, the growth of social networking, video on demand and real time streaming applications, coupled with the meteoric growth of the smartphone as a computing and communications platform, has driven the consumer market for high speed technologies.

An equally important market driver is the adoption of smartphone technologies for Enterprise mobility. As telecommunications technologies continue to develop, the business world deploys them across increasingly diverse applications, bringing improvements in communications, productivity, agility and decision making.

Quantum desires to deploy a 4G LTE network because it provides substantial performance improvements over previous mobile technologies, and offers the promise that connectivity and bandwidth will no longer be a barrier to realizing the benefits of innovative, bandwidth intensive applications, products and services. 4G LTE offers much higher bandwidth, lower latency, and improved spectrum efficiency. This allows more applications to be used on mobile platforms, faster sharing of large files and streaming media, and near immediate time sensitive data delivery.

In selecting 4G LTE, Quantum intends to deliver a next generation mobile network to the Bermuda marketplace that will meet the sophisticated needs of the Bermuda consumer and business user, and provide a platform that will meet the needs of the ever evolving bandwidth demands of emerging and future applications.

To the best of Quantum's knowledge, we do not believe the AWS spectrum has been allocated in Bermuda and hence should be available for immediate use. Quantum would like to launch the new service with the AWS spectrum allocation, and then overlay and transition to the 700 MHz band when it becomes available, presumably following completion of the RA Spectrum Audit, currently estimated to conclude in 18 months. The 700 Mhz band allows for more efficient RF propagation and greater structural penetration than the AWS band. Quantum further notes, that whilst it is not necessary to justify the investment required to launch and operate the company's proposed 4G LTE cellular service, we anticipate being able to use the AWS wireless infrastructure and spectrum to also deliver a high quality Broadband Internet access service.

C. In response to the RA's request for geographic coverage to be serviced by spectrum requested, Quantum submits:

Quantum will provide an island-wide cellular service supporting voice, data and video applications. We will bring a range of voice and data plans to suit the business and consumer segments of the market. By using handsets and mobile devices with frequencies consistent with roaming partners around the world, we can provide Quantum customers and visitors roaming on our network seamless services anywhere in or out of Bermuda.

A map of Bermuda indicating where Quantum plans on placing wireless equipment is included in **Appendix A (confidentiality requested)**. Leveraging Eastlink's experience in wireless network design, Quantum engaged its wireless engineering group to undertake a survey of Bermuda and recommend a network design that would provide exceptional coverage of the entire Island. The resulting analysis indicates a network footprint comprised of 13 locations, with a

mix of tower and rooftop deployments. With this equipment density, we are confident of achieving complete Island-wide and marine inshore coverage.

D. In response to the RA's request for number of proposed customers, Quantum submits:

Quantum's confidential five year forecast of number of customers and market penetration is set forth in the attached **Appendix B (confidentiality requested)**. The company's forecast reflects an aggressive yet realistic customer acquisition strategy that will leverage our strong brand and relationships built over a century of doing business in Bermuda via our sister company LinkBermuda, coupled with the proven entrepreneurial support of our Canadian sister company, Eastlink.

E. In response to the RA's request for an accompanying Business Plan, Quantum submits:

Leveraging the experience of Eastlink, Quantum intends to provision a greenfield build of a 4G LTE network to provide Bermuda consumer and business markets with a high performance, next generation cellular service that can meet the demanding needs of today's mobile user, with the ability to meet their future needs as the data requirements of the mobile market evolves with ever more bandwidth intensive applications and services.

Recognizing that the future of wireless infrastructure will be driven by the growth of wireless data requirements, in Canada Eastlink implemented a robust wireless network that is optimized for high speed data and Internet services. Quantum intends to do likewise in Bermuda, and will be able to utilize Eastlink's firsthand experience with network optimization and planning to increase Quantum's speed to market and performance. Once the RA Spectrum Audit completes, our plan is to use the requested allocation of 700 MHz spectrum to transition the mobile cellular services to this spectrum. In such event we would look to maintain our continued use of the AWS-based network for delivery of high speed data and Internet services.

Quantum is able to take full advantage of the international roaming agreements negotiated by Eastlink, thereby ensuring seamless inbound and outbound roaming services worldwide. This will yield benefits to our Bermuda-based subscribers as well as visitors to Bermuda, who will have access to top quality mobile voice and data services at very attractive roaming rates.

The Company's confidential five year forecasted Income Statement is set forth in attached **Appendix C (confidentiality requested)**. The estimated timescale for rollout of the new network is dependent on a number of factors, including the appropriate spectrum allocations. Antenna lease agreements need to be negotiated and executed, the hardware sourced and configured, installed and tested.

Quantum estimates that the 4G LTE network could be installed, tested and ready for service within 150 days of confirmation of allocation of spectrum, assuming reasonable cooperation is forthcoming from third parties for securing on tower access as well as obtaining any associated governmental approvals.

Conclusion

In summary, Quantum is prepared to invest in the next generation of technology to bring world-class mobile voice and data services to Bermuda. As fully set out above, Quantum is

requesting less than the spectrum requested by North Rock and considerably less spectrum than that which is already allocated to existing Mobile Networks operating in Bermuda. The company's request for AWS and 700 MHz spectrum is properly sized to address our actual technical needs while leaving room within the AWS and 700 MHz space for allocation to other carriers, e.g., North Rock. Thus, we believe the Quantum Spectrum Request is imminently supportable as a fair and reasonable request for a grant of this Government-owned spectrum. As the RA is well aware, in some instances the over-allocation of spectrum has certainly resulted in idle, unused spectrum that could be effectively deployed today by other qualified, licensed carriers. We also believe that there is ample spectrum available for grant in this Provisional Spectrum Proceeding to satisfy the needs of multiple applicants. Indeed, more specifically we fully believe the grant of Quantum's Spectrum Request will not constrain the RA's grant of spectrum requested by North Rock, such that both parties shall be able to pursue their respective business plans.

With the grant of the requested spectrum, Quantum will have an immediate opportunity to use the AWS band to provide Bermuda more competitive choices in the market place ahead of any post-RA Spectrum Audit reallocation of existing frequency bands. We do anticipate that if the company is granted the requested spectrum on a provisional basis and makes the significant capital investment needed for this greenfield project and successfully delivers a quality, competitive cellular service offering, that the RA on reasonable and non-discriminatory terms will grant longer term spectrum rights to Quantum to enable it to continue operating without disrupting service or stranding our capital investments.

We applaud the RA's proactive approach to stimulate the introduction of more competitive wireless-based services in Bermuda in parallel with the 18 month RA Spectrum Audit mandated by the ECA. We trust the RA's ultimate decision on spectrum awards will be justified on the basis of each applicant's intended use, the associated benefits to the overall economy and public at large, as well as the financial, technical and operational strength of each applicant. Quantum looks forward to being measured on a level playing field with all other qualified applicants and being assigned appropriate blocks of spectrum to launch a quality suite of services in a timely manner.

Respectfully submitted,



Lin Gentemann
Chief Legal Officer