



BERMUDA
**REGULATORY
AUTHORITY**

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**ECA Section 78
Transitional Spectrum Investigation:
Bermuda Digital Broadband Limited
("BDB")**

**Final Decision
and Order**

Final Decision and Order
Matter: SC-1222-2013
Date: 23 December 2014

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A. INTRODUCTION AND BACKGROUND

1 Scope of this Final Decision and Order

1. The Regulatory Authority (the “Authority” or “RA”) hereby issues its Final Decision and Order pursuant to Section 78 of the Electronic Communications Act 2011 (the “ECA”) concluding its investigation of the radio frequency spectrum provisionally licensed to Bermuda Digital Broadband Limited (“BDB”) in association with the grant of BDB’s Integrated Communications Operating Licence (“ICOL”) on 29 April 2013. This Final Decision and Order relates to the Authority’s investigation of BDB’s High Demand Spectrum (“HDS”) assignments only. It addresses the evidence obtained during the Authority’s investigation and is made subsequent to the comprehensive (non-confidential) Draft Final Decision and Order (the “Draft Decision”)¹ that was published by the Authority on its website on 15 October 2014.
2. The relevant sections of the ECA that give rise to this investigation are set out in the Act’s Transitional Provisions (Part 12). They constitute one of a series of measures that the RA was required to undertake in order to implement the new regulatory framework for electronic communications established by the ECA. Pursuant to ECA Section 73(2)(c)(i), the spectrum licences awarded to ICOL holders at the time of the initial grant were required to reflect each licence holder’s spectrum assignments as at the date of commencement of the ECA. This same provision of the ECA specifies that each transitional spectrum licence should have a duration of 18 months, corresponding to the time period anticipated for the RA’s transitional investigation of spectrum efficiency pursuant to ECA Section 78.
3. In combination, these transitional provisions of the ECA were meant to give the Authority sufficient time to examine the radio frequencies that had been made available to licensees on an essentially *ad hoc* basis under the Telecommunications Act 1986, in order to ensure that the spectrum assigned prior to the commencement of the ECA is not being used inefficiently. The transitional spectrum licences granted by the Authority to each of the relevant ICOL holders pursuant to ECA Section 73(2)(c) mirror the requirements of the ECA in relation to the conduct of this spectrum investigation. For example, Condition 7.4 of the transitional spectrum licences requires the licensee to cooperate fully with the Authority in the ECA Section 78 investigation and to provide a detailed assessment of its spectrum usage in a format prescribed by the Authority no later than six months following grant of the spectrum licence.
4. As discussed in Section A.4 below, the “efficient use of spectrum” – which encompasses both economic and technical efficiency – is one of several objectives of spectrum management enumerated in Part 7 of the ECA (Section 37(1)(b)), which concerns the use of radio spectrum generally.² “Efficient use” is a priority for spectrum policy makers

¹ In order to provide an overview of the preliminary results of its investigation to all interested stakeholders, the Authority published on its website a non-confidential version of the Draft Decision covering the Authority’s investigation of all relevant ICOL holders. In addition to BDB, these include: Bermuda Digital Communications Limited (“BDC”), Telecommunications (Bermuda & West Indies) Limited (“Digicel”) and Logic Communications (“Logic”) which are the subject of separate decisions by the Authority following the conclusion of its investigation. The spectrum assigned to World on Wireless Ltd. (“WOW”) in the 700 MHz band is being dealt in a separate proceeding to consider a proposal made by WOW to relinquish this spectrum. See: World on Wireless 700 MHz Spectrum Migration Proposal, Matter: SC-1501/2014, 31 January 2014.

² ECA Section 37 identifies a number of other objectives of spectrum management. However, it is clear the focus of ECA Section 78 is to ensure that no spectrum awarded prior to the ECA’s commencement is being utilised inefficiently. Furthermore, ECA Section 72 makes clear that the

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and regulators not only in Bermuda but around the world for reasons that are highlighted in the ECA at Section 35(1). That provision recognizes “the importance of radio spectrum as a scarce national resource and a public good of social, cultural and economic value.”

5. Although ECA Section 37 identifies a number of spectrum management objectives, the focus of ECA Section 78 (a transitional provision set out in Part 12 of the ECA) is to ensure that appropriate measures are taken if the Authority concludes that spectrum awarded prior to the ECA’s commencement is not being utilised inefficiently. The limited purpose of Section 78 is confirmed by ECA Section 72, which provides that the transitional provisions of Part 12 “apply notwithstanding any contrary provisions” in the ECA or the Regulatory Authority Act 2011 (“RAA”).
6. In order to ensure the efficient use of spectrum that was assigned before the effective date of the ECA, Section 78 empowers the RA to decline to renew, or to modify, a spectrum licence if the RA concludes, following an investigation, that:
 - a) the licensee is “inefficiently utilizing” some or all of the radio frequencies provisionally assigned to it pursuant to ECA Section 73(c);
 - b) the licensee has failed to demonstrate a “reasonable need” for any frequencies that the RA has concluded are being used inefficiently; and
 - c) it is necessary for the licensee to vacate some or all of these frequencies in order to ensure the “efficient use” of spectrum.
7. If the Authority decides to reclaim any spectrum thus identified, the spectrum will become available for re-assignment to ICOL holders providing new or competing services that require its use.
8. The transitional spectrum licence issued by the Authority to BDB in association with its ICOL on 29 April 2013 was valid until 29 October 2014 in accordance with ECA Section 73(2)(c)(i). Upon the expiry of this licence, the Authority issued BDB with a Temporary Spectrum Licence (effective on 30 October 2014 and expiry on 12 November 2014) for Wireless Cable Services (001-WCS-01T).³ This Licence, which covered the assigned spectrum that the Authority preliminary found to be unused by BDB, and therefore potentially subject to recovery at the conclusion of its investigation, reassigned 97 MHz of the 2500 MHz spectrum to BDB (see Section B below) for a temporary period in compliance with the Minister’s Policy Statement dated 22 September 2014 (the “Statement”).⁴

2 Summary of the Authority’s Conclusions

transitional provisions of Part 12 “apply notwithstanding any contrary provisions” in the ECA or the Regulatory Authority Act (“RAA”) 2011.

³ The Authority did not grant BDB a Transitional Spectrum Licence because BDB did not deploy any equipment in the 2500 MHz band, and did not otherwise make any use of that spectrum. It did not, therefore, require any time to reorganize its network should it have been ordered to vacate and/or migrate services it may have offered in the 2500 MHz band.

⁴ Spectrum Policy Statement by Dr. the Hon. E. Grant Gibbons, JP, MP, Minister of Education and Economic Development, 22 September 2014 (the “Statement”);

http://www.gov.bm/portal/server.pt/disclaimer.html/skin/ggambo62...n_hi_userid=2/gateway/PTARGS_0_2_6079_330_1813_43/http%3B/ptpublisher.gov.bm%3B7087/publishedcontent/publish/min_telecom_and_e_commerce/telecommunications/dept_telcom_press_releases/spectrum_policy_statement_0.pdf

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9. The Authority has concluded that, as BDB has not deployed any equipment and has not otherwise made any use of the spectrum assigned to it in the 2500 MHz band at the time of ICOL conversion (29 April 2013), it has not been efficiently using any of this spectrum. The Authority considers that BDB has failed to demonstrate a reasonable need for this spectrum, and that reclamation is a necessary measure to ensure the efficient use of spectrum pursuant to ECA Section 78.

3 Overview of the Authority's Investigation

10. The Authority determined, from the outset, that it would be reasonable and proportionate⁵ to focus its ECA Section 78 investigation on the "high value" frequencies or HDS bands, where the potential for demand to exceed supply is strong and there is a clear need to ensure efficient spectrum assignments.⁶
11. Accordingly, on 7 October 2013, the Authority issued a Notice and Information Request ("Notice") requiring ICOL holders with associated Spectrum Licences for Wireless Cable Spectrum, Commercial Mobile Radio Service Spectrum, and/or Fixed Wireless Access Spectrum⁷ to submit:

*a report approved by the Licensee's Board of the Directors containing a detailed analysis of spectrum usage by the Licensee, in the format prescribed by the Authority, in relation to services that were provided using the Assigned Frequencies for the Authorized Uses as at the date of the commencement of Part 12 of the ECA.*⁸

12. These submissions are referred to as Spectrum Efficiency and Usage Self-Assessments ("SEUSAs").
13. BDB did not submit a SEUSA analysis in accordance with the RA's Notice. On 14 April 2014, after having considered the results of its own assessment, the Authority furnished BDB with a confidential SEUSA report containing its efficiency analysis and identifying the frequencies earmarked for recovery (attached as Annex A).⁹ Bermuda Digital Communications Ltd. ("BDC") submitted comments on the Authority's confidential SEUSA report, on behalf of BDB, on 9 May 2014.
14. On 8 July 2014, the Authority provided BDB with a confidential draft of the proposed final decision relating to BDB's spectrum holdings. On 1 October 2014, the Authority provided BDB with a public disclosure review version of the Draft Decision. On 6 October 2014, Appleby, counsel for BDB, submitted a response to the BDB public disclosure review version of the Draft Decision. Following similar exchanges with other ICOL holders, on 15 October, the Authority published on its website a document entitled "ECA Section 78 Transitional Spectrum Investigation - Draft Final Decision and Order" (the Draft Decision referred to above). This non-confidential draft of the final decision addressed the spectrum assignments of all relevant ICOL holders and summarised the overall findings of the RA's investigation. The Authority invited comments from interested parties

⁵ These principles are set out in Sections 2 and 16(d) of the ECA.

⁶ See paragraph ("par.") 22 of ECA Section 78 Transitional Spectrum Investigation, Spectrum Efficiency and Self-Usage Assessments, Notice and Information Request, SC-1222/2013; dated 7 October 2013.

⁷ Excluded from the scope of this investigation were the spectrum assignments associated with Other Mobile Radio Service Spectrum Licences and Point-to-Point Microwave Spectrum Licences.

⁸ ECA Section 78 Transitional Spectrum Investigation, Spectrum Efficiency and Self-Usage Assessments, Notice and Information Request, SC-1222/2013, dated 7 October 2013.

⁹ ECA Section 78 Transitional Spectrum Investigation - BDB Confidential Draft SEUSA Analysis; Notice Matter: SC-1222/2013, dated 14 April 2014.

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concerning the Draft Decision. Neither BDB nor any other party acting on its behalf submitted any comments to date specifically concerning the tentative conclusions set out in the Draft Decision that relate to the spectrum assigned to BDB.

4 Spectrum characteristics and “efficient use”

15. Radio spectrum is a scarce national resource that is required for the provision of wireless electronic communications services, including wireless cable services.
16. As noted above, ECA Section 37 imposes a set of objectives for the management of spectrum. Among other things, spectrum must be managed in a manner that is both technically and economically efficient (Section 37(1)(b) ECA). These two aspects of efficiency are symbiotic insofar as the technically efficient use of spectrum is critical to ensuring the economically efficient use of this scarce resource. If a licensee is using spectrum that is in high demand in a technically inefficient way, there is a substantial opportunity cost if actual or potential competitors are thus denied the ability to use this valuable resource to serve their own customers. This can impact the competitors’ cost of providing service (by necessitating a more expensive network configuration than that used by a licensee that is inefficiently spreading its service across more frequencies, but using fewer base stations, than are reasonably required to provide the service). It also can impair the quality of service that competitors are able to offer consumers (slower speeds, dropped calls, etc.). The costs and quality of service issues associated with the inability to access spectrum can therefore have a harmful impact on competition and, ultimately, on consumers.
17. Ensuring the technical and economic efficiency of spectrum is a priority of spectrum authorities and governments around the world.¹⁰ The efficiency requirement of ECA Section 78, viewed from a technical perspective, has a well understood meaning in terms of spectrum management, and there are generally accepted ways of measuring the efficiency of spectrum utilisation.
18. Any stand-alone calculation of spectrum efficiency involves a ratio in which the amount of traffic (voice or data) that is being carried by a network is the key factor determining the value of the numerator, whereas the denominator reflects the amount of spectrum assigned for the particular use. There is a *prima facie* case for concluding that, for the purpose of ECA Section 78, scarce, high-demand spectrum that is not being used *at all* by an operator to which it is assigned is “inefficient”. In such cases, no traffic is being carried over the assigned spectrum, which means that the numerator of the spectrum efficiency ratio would be zero. The efficiency measure for spectrum that is unused would therefore also be zero. In addition to being technically inefficient, spectrum that is unused means that it is unavailable to other operators to use. There is thus a high opportunity cost to unused spectrum making it both economically and technically inefficient.
19. The efficiency measurement is not quite as simple in situations where a licensee is using the spectrum in question but has elected to spread the operation of its network over many more frequencies than a reasonably efficient operator would need in order to

¹⁰ For example, in the EU, the Framework and Authorisation Directives (Directives 2002/21/EC and 2002/20/EC respectively) require that spectrum is used “effectively” and “efficiently” and in pursuit of consumer benefits such as economies of scale and the interoperability of services. These Directives also establish specific principles aimed at ensuring that spectrum is used in a manner that is pro-competitive and prevents the hoarding of valuable spectrum by a single (or limited number of) network operator(s) under so-called “use it or lose it” principles (see: Articles (“Arts.”) 9 and 5(6) of Framework and Authorisation Directives, respectively and Recital (15) and Article (“Art.”) 5 of the EU Radio Spectrum Policy Programme Decision (Decision 243/2012/EU)).

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deliver the same services of the same quality to the same number of people. Where no fees are imposed for the use of spectrum (as has historically been the case in Bermuda), an operator has no incentive to utilise spectrum efficiently. The operator may, without financial penalty, spread its traffic over an unusually wide range of frequencies in order to save money on equipment costs (because fewer base stations are required). It may also do this as a way of keeping valuable spectrum out of the hands of its competitors (so-called “spectrum hoarding”).

B. BDB’S SPECTRUM ASSIGNMENTS IN THE 2500 MHZ BAND

1 BDB’s inefficient use of the 2500 MHz Band

20. [REDACTED]

2 BDB’s failure to demonstrate a “reasonable need” for the spectrum identified for recovery within the 2500 MHz band

21. [REDACTED]

3 Necessity to recover all of BDB’s 2500 MHz spectrum to ensure its efficient use

22. [REDACTED]

C. COMPATIBILITY OF ECA SECTION 78 INVESTIGATION RESULTS WITH THE MINISTER’S SPECTRUM POLICY STATEMENT

23. Section 35 of the ECA requires the Minister responsible for telecommunication to make general policies and, as necessary, regulations for the electronic communications sector with respect to the management and allocation of spectrum and procedure to be followed by the Authority when assigning spectrum.

24. On 22 September 2014, the Minister for Education and Economic Development published a Policy Statement that sets out the spectrum management policies to be implemented by the Authority with respect to spectrum allocations, spectrum assignments, and spectrum related fees.¹¹ The effective date of the policies contained in the Statement is 22 September 2014.

25. The Statement addresses a number of fundamental spectrum management issues, including those set out below.

- a) The definition of the HDS bands.¹² These frequencies are those whose propagation characteristics make them particularly valuable for mobile voice and broadband services and, as a result, the potential for which is likely to exceed supply. For these frequencies, the policy set out in the Statement is designed to ensure efficient use in keeping with the ECA’s objectives, and in consideration of the importance of radio spectrum as a scarce national resource and a public good.

¹¹ Spectrum Policy Statement by Dr. the Hon. E. Grant Gibbons, JP, MP, Minister of Education and Economic Development, 22 September 2014 (the “Statement”); http://www.gov.bm/portal/server.pt/disclaimer.html/skin/ggambo62...n_hi_userid=2/gateway/PTARGS_0_2_6079_330_1813_43/http%3B/ptpublisher.gov.bm%3B7087/publishedcontent/publish/min_telecom_and_e_commerce/telecommunications/dept_telcom_press_releases/spectrum_policy_statement_0.pdf

¹² Statement, Section 3.1.

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- b) The establishment of a spectrum cap on all HDS assignments such that no firm, or affiliates (as defined in the ECA or the RAA) can be permitted to hold more than 50 percent of any HDS band, subject to the limited exceptions described by the Minister.¹³
 - c) The establishment, for the HDS frequencies, of a Bermuda frequency allocation table (“FAT”) and a Bermuda band plan (“BBP”) based on the frequency allocations and band plans adopted by the FCC.¹⁴
 - d) The establishment of a hybrid first-come-first-served (“FCFS”)-Comparative Selection assignment process for all HDS frequencies.¹⁵
 - e) The establishment of an administered incentive pricing (“AIP”) scheme with the goal of incentivising efficient use of spectrum for all HDS bands.¹⁶
26. The Statement establishes a spectrum cap on all HDS assignments such that no firm, or affiliate (as defined in the ECA or RAA) is permitted to hold more than 50 percent of any HDS band, subject to the limited exceptions described by the Minister.¹⁷ The Minister considered that the establishment of a 50 percent cap in this manner is sufficient to permit at least two licensees to operate network in each band, and that the cap is consistent with the spectrum management objectives set out under Section 37 ECA.¹⁸
27. The Temporary Spectrum Licence assigned 50% of the commercially available 2500 MHz spectrum to BDB, and was therefore compatible with the policy set by the Minister.

D. FINAL DECISION AND ORDERING CLAUSES

1. Based on the results of the investigation undertaken pursuant to ECA Section 78, the Authority concludes that BDB has not made efficient use of the 97 MHz of spectrum assigned to it in the 2500 MHz band and, further, that BDB has not demonstrated a reasonable need for this spectrum.
2. The Authority has determined, in conformity with ECA Section 78, that in order to ensure the efficient use of this spectrum, it is necessary to reclaim this spectrum so that it can be made available for use by other licensees.
3. BDB's Temporary Spectrum Licence for Wireless Cable Services, which expired on 12 November 2014, will not be renewed, extended or re-issued.

ORDERING CLAUSES

4. Pursuant to ECA Section 78, the Temporary Spectrum Licence for Wireless Cable Services (001-WCS-01T) issued to BDB (effective on 30 October 2014 with expiry date of 12 November 2014) shall not be renewed, extended or re-issued.

¹³ *Ibid*, Section 3.3.1.3.

¹⁴ *Ibid*, Section 3.2.

¹⁵ *Ibid*, Section 3.3.

¹⁶ *Ibid*, Section 3.4.

¹⁷ *Ibid*, Section 3.3.1.3.

¹⁸ *Ibid*, par. 143.

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Annex A

BDB's Confidential Draft SEUSA Analysis (14 April 2014)

