



REVIEW OF RADIO FREQUENCY SPECTRUM PRICING

STATEMENT OF RESULTS AND FINAL DECISION

ECS 01/2016

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UTILITIES REGULATION & COMPETITION AUTHORITY

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1 Introduction

This Statement of Results and Final Decision is issued by the Utilities Regulation and Competition Authority ("URCA") pursuant to sections 8(1)(e), 29 and 93 of the Communications Act, 2009 (Comms Act). The publication of this document concludes URCA's public consultation on "*Review of Radio Frequency Spectrum Pricing*" (ECS 04/2014).

1.1 Background

On 10 April 2014, URCA following consultation with Government published the National Spectrum Plan (NSP) 2014-2017¹. Section 6.5 of the NSP states that the spectrum licence fees currently charged by URCA are a combination of historical charges and, in respect of recently opened bands, interim fees imposed by URCA in 2012. Furthermore, in the NSP, URCA signalled its intent to conduct a spectrum valuation exercise to align spectrum pricing with the economic benefits of using the spectrum and the administrative costs associated with spectrum management in The Bahamas². In ECS 04/2014 dated 11 April 2014 ("*Review of Radio Frequency Spectrum Pricing*"³) URCA invited users of the radio frequency spectrum and interested parties to make written submissions on three key proposals:

- i. a methodology for setting spectrum prices on a going forward basis;
- ii. a revised Spectrum Fee Schedule based on the proposed spectrum pricing methodology;
and
- iii. the Preliminary Determination on the recovery of spectrum management costs.

Subsequent to the publication of ECS 04/2014, URCA on 30 May 2014 published a supplemental document titled "*Benchmarks For Review of Radio Frequency Spectrum Pricing*" (ECS 11/2014)⁴. This document provided further evidential support for URCA's review of the radio spectrum fee policy and spectrum fee schedule for The Bahamas. The information is based on international best practice and benchmarks from the Caribbean and elsewhere.

In this Statement of Results and Final Decision, URCA addresses proposals (i) and (ii). URCA's Final Determination in respect of Proposal (iii) will be addressed in a subsequent document

¹ ECS 03/2014 available at <http://www.urcabahamas.bs/download/082810900.pdf>.

² See Section 6.2 of National Spectrum Plan 2014 -2017 (ECS 03/2014).

³ <http://www.urcabahamas.bs/download/082810900.pdf>.

⁴ <http://www.urcabahamas.bs/download/083599700.pdf>.

“Responses to Consultation and Final Determination: Recovery of Spectrum Management Costs” which will be published at a later date.

Objectives of the Consultation Document

The objectives underlying the issuance of the consultation document were to:

- obtain feedback on URCA’s proposed methodology for setting spectrum prices;
- publish for comments the amendments and revisions which URCA proposes to make to the existing spectrum fee schedule for standard spectrum bands;
- publish for comments the details of URCA’s proposed recommendations to Government in respect of the existing spectrum fee schedule for premium spectrum bands;
- give notice of and publish for comments the determination which URCA proposes to make in respect of fees and charges for the administration and allocation of radio spectrum, which URCA proposes to levy pursuant to section 92(1)(d) of the Comms Act;
- explain URCA’s reasoning for the proposed spectrum pricing methodology and revisions and amendments to the existing spectrum fee schedule; and
- invite comments from interested persons on URCA’s proposals.

1.2 Responses to Consultation Document

Initially, the closing date for responses was 30 May 2014. That deadline was subsequently extended to 30 June, 2014. URCA received responses to the consultation document from Bahamas Telecommunications Company Ltd. (BTC), Cable Bahamas Ltd. (CBL)⁵ and Digicel. URCA notes that Digicel did not answer any specific consultation question but rather limited its response to general comments. This document therefore:

- presents a summary of the comments made by the respondents and their specific answers to consultation questions;
- provides URCA’s responses to the comments made by the respondents; and

⁵Note that any reference to Cable Bahamas Limited ("CBL") includes its affiliates, Caribbean Crossings Ltd. and Systems Resource Group Limited

- contains URCA's final decision in respect of the spectrum pricing methodology and revised spectrum fee schedule.

URCA expresses its appreciation and thanks to all participants for their involvement in this regulatory proceeding. Their participation was most helpful in informing this Statement of Results and Final Decision. The text of each response can be found on URCA's website at www.urbahamas.bs.

This document concludes URCA's public consultative proceeding on "*Review of Radio Frequency Spectrum Pricing*"⁶. Persons may obtain copies of this document by downloading it from the URCA website at www.urbahamas.bs.

URCA expressly states that failure to respond to any issue raised by a respondent does not necessarily signify agreement in whole or in part with the comment, that it has not considered the comment or that it considers the comment unimportant or without merit.

1.3 Structure of the remainder of this document

The remainder of this document is structured as follows:

- Section 2 presents the legal and policy context to spectrum pricing;
- Section 3 summarises the comments made by the respondents;
- Section 4 provides URCA's comments on responses to the consultation questions; and
- Section 5 sets forth URCA's final decision and next steps.

⁶ <http://www.urbahamas.bs/download/082810900.pdf>.

2 Legal and Policy Context for Spectrum Pricing

2.1 Part V of the Communications Act, 2009

Pursuant to section 31(3) of the Comms Act, URCA is required to formulate a National Spectrum Plan⁷ which is approved by the Minister charged with responsibility for the electronic communications sector (ECS) and designates frequency bands as either “Premium” or “Standard” spectrum. The Comms Act provides that spectrum fees or the method of setting fees for premium spectrum bands are determined by the Minister⁸, while fees for standard spectrum bands are set by URCA⁹. In both cases, fees are to be set so as to ensure the optimal use of spectrum¹⁰. The Comms Act also stipulates that in performing its functions and duties, as they relate to radio spectrum management, the Minister and URCA must also ensure that spectrum is managed and used in a manner that:

- is open, objective, transparent and non-discriminatory; and
- Is economically efficient and facilitates the evolution of new technologies and electronics communications services¹¹.

URCA is, pursuant to section 93(4) of the Comms Act, responsible for the collection of all spectrum fees. However, those fees are paid into the Public Treasury and thus do not contribute towards URCA’s operational costs of administration and allocation of spectrum. Section 92(1)(d) of the Comms Act allows URCA to “... determine [i.e., in accordance with the procedures specified in sections 99 and 100 of the Communications Act] ... fees and charges for the administration and allocation of state assets”.

2.2 Sector Policy Framework

As stated in Section 2.2 of the consultation document, policy matters pertaining to the regulation of the ECS are addressed in the ECS Policy. In that document, the Government notes that the following policies and market developments are also relevant to the determination of the level and structure of spectrum fees:

⁷ECS 03/2014, published on 10 April 2014.

⁸ See section 30(2) when read in conjunction with section 93(1) of the Comms Act.

⁹ See section 30(2) when read in conjunction with section 93(2) of the Comms Act.

¹⁰ See section 93, Comms Act, 2009

¹¹Section 32, Comms Act, 2009

- i. Liberalisation of the mobile sector in 2014¹²;
- ii. Universal Service policy for a set of basic communications services which may include services delivered using radio frequencies (e.g., fixed voice and internet access services and multi-channel television)¹³; and
- iii. Policies to promote small and medium sized enterprises (SMEs), particularly in the Family Islands.¹⁴

The consultation document states that it is imperative that the spectrum fees established for cellular mobile spectrum provide incentives for efficient spectrum use and act as a disincentive to hoarding spectrum in the cellular mobile bands. Additionally, the Government policies relating to the provision of Universal Services and Small-to-Medium Sized Enterprises (SMEs) within the ECS point URCA towards the setting of relatively low fees in sparsely populated islands and cays, as compared to the fees set in the most populated islands of New Providence and Grand Bahama.

2.3 National Spectrum Plan

In deriving spectrum prices, Section 6.1 of the NSP sets out certain high level principles as well as objectives of the ECS policy and any other factors which URCA considers to be relevant when determining such prices.

Further, section 32(1) of the Comms Act provides that in performing its functions and duties and exercising its powers under Part V of that Act, URCA (and the Minister) must ensure that radio spectrum is managed and used in a manner that:

- i. is open, transparent and non-discriminatory;
- ii. is economically efficient and facilitates the evolution of new technologies and electronic communications services whilst taking into account in particular investment in existing equipment configured for specific radio spectrum and the cost of migration to other radio spectrum; and
- iii. meets the needs of Government departments and agencies referred to in section 34(1) of the Comms Act.

¹² See paragraph 50 of the Electronic Communications Sector Policy issued in April 2011 and section 114 of the Communications Act (as amended).

¹³ See paragraph 39 of the Electronic Communications Sector Policy issued in April 2011.

¹⁴ Through legislation, for example in the form of the Small and Medium Size Enterprises Development Bill 2013 and the Family Islands Development Encouragement Bill 2013.

Section 93 of the Comms Act authorises the Minister (in the case of Premium spectrum) and URCA (in respect of Standard spectrum) to impose charges for the allocation or use of spectrum which reflect the need to ensure efficient and optimal use of this scarce state resource. According to the NSP, URCA must also:

- i. maximize the net benefits to the Bahamian society and economy;
- ii. recover the administrative cost of managing spectrum; and
- iii. administer fees in a non-discriminatory manner¹⁵.

Pursuant to the electronic communications policy objectives as specified in section 4 of the Comms Act, URCA has reviewed the current Fee Schedule, taking account of the requirement to promote the optimal use of spectrum and further the interest of persons in The Bahamas through promoting affordable access to high quality communications services in all regions of The Bahamas.

Hence, in partial fulfilment of the three aforementioned NSP objectives, URCA issued a Consultation Document (that included a Preliminary Determination) on the “Review of Radio Frequency Spectrum Pricing” (ECS04/2014) on 11 April 2014.

¹⁵National Spectrum Plan (2014-2017) published 10th April 2014.

3 Summary of Comments by Respondents

In this Section URCA summarises the comments made by the respondents and presents URCA response to those comments.

3.1 General basis for fees

All three respondents advocated setting fees based on the recovery of administrative costs and argued that fees should be kept as low as possible so that investment and broadband development are encouraged. This is argued most strongly by CBL and Digicel. Digicel advocated maximising the amount of spectrum available for high demand services such as mobile broadband as a way of keeping the price of spectrum at cost recovery levels (and reducing operator investment risk and allowing competitive service provision).

CBL, BTC and Digicel noted that the basis for fees depended on whether spectrum is congested or not and that if there is congestion then opportunity cost fees may be justified. Digicel argued for spectrum release to avoid congestion in bands used by mobile services. CBL argued there is no congestion except in the FM radio band in New Providence and it is premature to decide that mobile bands will be congested in advance of market liberalisation. For instance CBL noted that demand for the 2500 MHz band would only arise in the longer term.

URCA's response to comments on the general basis of fees

In Section 2.3 of this document, URCA states that according to the NSP, URCA must:

- i. maximize the net benefits to the Bahamian society and economy;
- ii. recover the administrative cost of managing spectrum; and
- iii. administer fees in a non-discriminatory manner¹⁶.

URCA remains steadfast in its view that the setting of fees at the level of administrative costs would not maximize the net benefits to the Bahamian society. Instead, in URCA's view, the net benefit of radio spectrum is maximised when the price of spectrum approximate the economic value of this valuable and limited state asset plus the costs of managing radio spectrum.

Section 93 of the Comms Act authorises the Minister (in the case of Premium spectrum) and URCA (in respect of Standard spectrum) to impose charges for the allocation or use of spectrum

¹⁶National Spectrum Plan (2014-2017) published 10th April 2014.

which reflect the need to ensure efficient and optimal use of this scarce state resource. URCA believes that maximising the amount of spectrum available for high demand services diametrically opposes this statutory requirement to ensure efficient and optimal use.

Finally, in URCA's view, the objective to ensure optimal use of spectrum applies equally to congested and uncongested bands, especially given that the duration of the average spectrum licence is fifteen years. This implies to URCA that inefficient allocations and assignments can have long term adverse consequences for the ECS and for stakeholders. URCA notes, in particular, that it has received multiple requests for and enquiries in relation to the 2,500 MHz band during the past year, which demonstrates that there is significant demand for that band which would possibly exceed supply.

3.2 Proposed fees

(i) Proposed fees are unjustified

CBL argued there was no good reason to change the structure or level of fees, except possibly in the case of the FM band in New Providence where there is congestion. CBL made the following general points:

- the fee proposals represent a significant restructuring of existing fees and the proposed fees changes in most bands are large and unjustified;
- the principle of cost recovery for fees in uncongested bands is not adhered to and is not reflected in the fees formula. Also the addition of a 21% charge for spectrum management fees conflicts with this principle;
- where fees are increased such increases should be phased-in over a multi-year transition period; and
- there is no regulatory impact analysis supporting the change in fees.

URCA's response to comments regarding proposed fees

Structure and level of fees for FM radio band

Both the structure and level of fees for FM radio were questioned by CBL. In respect of the fee structure for FM radio, CBL argued that there should be a flat rate fee structure. URCA considers that a fee that varies by bandwidth is, in principle, the correct approach because the licensee is paying a fee in accordance with the amount of the spectrum resource used. Finding benchmarks to support bandwidth related fees is more problematic because use of spectrum

for FM radio broadcasting is often treated as a special case for public policy and political reasons. However, transmitter power, coverage area and population density are mainly used in fees formulae for FM radio (e.g., in the UK). These variables reflect the extent of spectrum use and/or are an indicator of value that may be obtained from the licence.

In respect of the level of fees, URCA's proposals mean that:

- For an FM radio station in New Providence, the increase in fees is approximately \$1,200 per year.
- For an FM radio station on other islands, fees fall by \$160-\$330 per year.

CBL thought the increase in FM radio fees for New Providence was high. URCA notes that before 2010, under the legacy licensing regime, FM broadcasting licensees were required to pay the Government of The Bahamas a \$10,000 broadcasting licence fee plus a \$500 annual spectrum fee. URCA is of the view that those legacy fees more accurately reflected the opportunity costs of a spectrum licence in the FM Broadcasting band than the current interim fee charged per the URCA Fee Schedules of 2010-2015. Having regard to this valuation, in URCA's estimation, when the accumulative 5-year costs (\$12,500) is depreciated evenly over a period of five years, at \$2,500 per annum, the proposed increase in FM radio fees for New Providence is comparatively modest.

Timing of changes and impacts

CBL reiterated that any increases in spectrum fees should be phased in over a five year time period and cites Ofcom's spectrum pricing policy principles which indicate that Ofcom will consider phasing in fees increases if these are substantial in the context of the business of the affected users.

While URCA notes CBL's comments about phasing-in increases in spectrum fees, the final decision as to whether spectrum fee increases are immediate or effected through a glide path rests with the Minister. However, in most instances URCA is not itself of the view that CBL has established the increases as significant in the context of business of the affected users, particularly since URCA has delayed the introduction of these adjustments, and has not implemented the Spectrum Management Fee. In any event, URCA assures CBL that the Minister will be informed of CBL's suggestion.

Cost-reflective fees

CBL has argued that in principle, fees in bands that are not congested should be set at levels that simply recover URCA's spectrum management costs (i.e. \$325,000 p.a.) assuming any implied reduction in fees would not trigger a large increase in demand which in turn could result in congestion.

URCA is minded to consider recommending to the Minister reducing the second constant factor from 8500 to 6600 so that the amount of revenue raised by the fees in uncongested bands is closer to the actual cost of spectrum management. This adjustment would result in total fees raised of \$1.46m instead of \$1.56m. URCA reminds stakeholders that ultimately it is the Minister's prerogative to decide the method for determining premium spectrum fees.

(ii) Fees for Mobile bands

Views on the appropriateness of the proposed fees differ between the respondents. Starting with fees for bands used by mobile services:

- BTC considers the fees proposals for sub-1GHz spectrum for mobile and TV are too high;
- CBL considers that: "on balance the benchmarking Report provides a reasonable starting point for determining mobile fees or, in particular, the constant factor in the formula to set mobile spectrum fees (i.e., the \$13,000 per MHz figure noted for mobile services)"; and
- Digicel states that fees should not be set on the basis of opportunity cost but does not comment on the specific level of fees proposed.

URCA's response to comments regarding Fees for Mobile Bands

The proposed spectrum fees/MHz compared with current fees and the averages from the benchmarking are as follows¹⁷:

¹⁷ The 21% additional charge to cover spectrum management costs is not included because operators will receive an offsetting reduction in their operator licence fees.

Band group	Average from benchmarks	Proposed fees (excluding 21% for spectrum management costs)	Proposed fees including 21% fees	Current fees
Under 1 GHz	21,200	13,000	15,730	8,000
1-2.1 GHz	17,200	6,500	7,865	5,000
Above 2.1- 6 GHz	2,200	650	786	600

Note: The above analysis assumes that the population of The Bahamas is 371,960 persons.

The main issue raised by respondents for the mobile bands concerns the level of fees and in particular the substantial increase in fees below 1 GHz. None of the respondents challenged the structure of the fees which is unchanged.

In URCA's view, the proposed fees are reasonable having regard to the stated policy objectives of the Comms Act. This is because:

- The benchmarks used to derive values – whether from auctions or set by the regulator – include countries with reasonably similar demographic and economic characteristics to those of The Bahamas. Hence “similar” levels of congestion can be expected to occur on market liberalisation and similar spectrum values can be assumed; and
- URCA has been conservative in its approach in that the proposed fees are 30-66% below the average values implied by the benchmarks¹⁸.

In light of mobile liberalisation and the impending introduction of a second mobile service providers and a possible third provider, the case for raising fees is strong as there is likely to be congestion even though most premium spectrum bands are designed to accommodate only three mobile providers. Hence, administrative controls should be possible.

(iii) Fees for all other bands

In respect of fees for services other than mobile:

¹⁸ URCA updated the mobile benchmarking to include recent data points from Jamaica (700 MHz), Iceland (800 MHz, 1800 MHz) and Malta (proposed 800 MHz, 1800 MHz and 2500 MHz). These data points do not make a significant difference to the benchmark results; the proposed fees are now 25-63% lower than the benchmarks.

- BTC agrees with the formula approach to setting fees but considers that the fees for commercial TV are too high;
- CBL considers that a revision of fees to a bandwidth basis is not warranted and argues that the fees increases are not justified or appropriate because of the absence of congestion; and
- Digicel does not comment on these fees.

None of the three responses raised issues with the non-bandwidth related fees.

URCA's response to comments regarding fees for all other bands

CBL has reiterated that there is no case for changing the current fees and that any changes need to be justified. URCA strongly disagrees with CBL that there is no justification for changing the current fees. The current fees do not incentivise efficient spectrum use and are counter to the policy objectives and express provisions of the Comms Act which require spectrum fee structure to be transparent, objective and fair, and to reflect the need to ensure optimal use of the spectrum. URCA considers these objectives to be best achieved by relating fees paid to spectrum occupancy and the location of use. Furthermore, by putting the fees on a common basis linked to the bandwidth used provides an incentive for efficient use and provides a fees structure that is future proof.

Unlike the current fees, the proposals mean that the fees structure does not need to be changed if:

- new bands are opened up;
- new applications are introduced in a band; or
- demand conditions change unexpectedly in the future.

Respondents focused certain comments on the fact that fees increase for some users; however, there are substantial reductions for others. Overall the sum paid by licensees for access to spectrum that is not in the FM radio band or a mobile band falls by:

- approximately \$340,000 when the proposals are compared with the current fee schedule, assuming it is fully applied; and
- approximately \$110,000 when the proposal is compared with actual payments under the current schedule.

The following table illustrates the differences between the proposed fees and the 2013 fees (\$'000).

	Proposed (excluding 21%)	2013 Schedule	2013 fee paid
Mobile	1,092	792	567
Broadcast radio	54	25	26
Other	402	743	512
Total	1,548	1,560	1,105

Both CBL and BTC drew attention to the very large increase in fees for commercial TV stations. URCA considers that, in absolute terms, the proposed costs of spectrum will be low relative to the costs of running a commercial TV station which are likely to be in the vicinity of several million dollars.

(iii) Additional principles

CBL proposes three additional principles to guide fees setting, as follows:

- i. When considering changing spectrum fees, URCA shall take into account the impacts on licensed operators' business plans and investments of any such changes and shall only change such fees when there is clear evidence that the net benefit from such a change is positive and proportionate to the associated adjustment and other costs.
- ii. If URCA is satisfied that its proposed change meets the above net benefit threshold test, URCA should take into account the adjustment and monetary impact of any such change, and shall implement appropriate transitional arrangements to mitigate those impacts when found to be significant.
- iii. In cases where spectrum is licensed and used for the purpose of achieving specific public policy objectives – such as the provision of public or designated universal services, the provision of services to remote and sparsely populated areas or other objectives – the associated spectrum fees should be waived or alternatively set at a minimum level.

URCA's response to proposed additional principles

While the first and second principles (which are related) are consistent with good regulatory practice and with the Comms Act, URCA thinks it is important to make clear that quantification of net benefits and user impacts is not always practical. Therefore, URCA will adopt an

alternative principle that addresses the first two points and is based on section 32(1) (b) of the Comms Act, namely:

“promoting efficient spectrum use whilst taking account of impacts on investments in radio equipment and the services provided to consumers”.

In respect of the third principle proposed by CBL, there are good economic arguments for not promoting public policy objectives through discounts to spectrum fees because this can lead to inefficient use of spectrum by those organisations delivering the public policy objectives. It is generally more efficient to promote the public policy objective through a specific intervention linked more closely to the desired output (e.g., subsidies for specific types of broadcasting content). It is for these reasons that Ofcom’s Administrative Incentive Pricing (AIP) principle 5: role of AIP in securing wider social value is as follows:

“Uses of spectrum that deliver wider social value do not, as a general rule, justify AIP fee concessions, because direct subsidies and/or regulatory tools other than AIP are normally more likely to be efficient and effective¹⁹.”

¹⁹ <http://stakeholders.ofcom.org.uk/binaries/consultations/srsp/statement/srsp-statement.pdf>

4 Summary of Answers to Consultation Questions and URCA's Response

4.1 Table 1: Summary of responses

Question	BTC answer	CBL answer	URCA response
Question 1: What are your views on the fee levels for the current premium spectrum bands?	Fees are reasonable. They should be cost based.	Current fees appropriate. Fees should not be set based on views of future demand. Any revision or valuation of fees should await the licensing of new mobile operators. This is particularly the case for 2500MHz where demand is likely to be low.	Disagrees with CBL – See <i>URCA's response to comments regarding Fees for Mobile Bands</i> in Section 3.2 above.
Question 2: Do you agree with URCA's proposal that spectrum fees should be adjusted to reflect the propagation characteristics and the available supply of the frequency bands?	Fees should reflect propagation characteristics and available supply. BTC stressed the importance of covering all islands and how this may be inhibited by high fees.	Fees should be set to foster competition and recognise the absence of spectrum supply constraints at present.	URCA considers that the inclusion of an Island factor addresses issues concerning the smaller islands. URCA disagrees with CBL and refers to Section 3.2 above.

Question	BTC answer	CBL answer	URCA response
<p>Question 3: What are your views on the current fees charged on a non-bandwidth related basis? Should the fees for broadcast radio be charged on a bandwidth-related basis?</p>	<p>These fees are adequate. Fees for broadcast radio should be bandwidth related.</p>	<p>URCA has failed to identify shortcomings with the current fees and restructuring to achieve consistency without reference to the initial rationale for the fees is misguided. The current fees should continue to apply</p>	<p>URCA disagrees with CBL. The shortcomings of the current fees schedule are identified and discussed in Section 3.5 of the Consultation Document where URCA expressly states that there is no clear rationale for the current fees. Moreover, URCA is satisfied that its proposed revisions to the fee schedule are consistent with the principles of the Comms Act, the NSP approved by Government, and best practice regulation.</p>
<p>Question 4: What are your views on the current fees charged on a bandwidth related basis?</p>	<p>Fees should be consistent with the costs of administering spectrum. There is reference to other licence fees and that high fees will inhibit broadband development.</p>	<p>There is no benefit from setting broadcast fees on a bandwidth basis. This is not standard international practice where a fee is charged per licence.</p>	<p>CBL is correct that the standard practice is for flat rate fees although this is not best practice (i.e., is not correct in principle). It remains URCA's view that a bandwidth charge provides the right incentives for efficient spectrum use (as with mobile) – URCA notes the proposed 600MHz band auction in the USA will provide broadcasters with a bandwidth related payment.</p>

Question	BTC answer	CBL answer	URCA response
<p>Question 5: Do you agree with URCA’s proposal that the methodology for changing Spectrum Fees in URCA’s Fee Schedule should be revised to ensure a more consistent fee/MHz for each band?</p>	<p>BTC agrees with a consistent fee/MHz so long as these are set at a level that promotes optimal use and market/economic growth.</p>	<p>CBL argues that no evidence was provided that substantiates non-optimal use or congestion. CBL suggests that even if such evidence is provided, URCA would need to demonstrate improvement to justify changing fees taking account of any stranded assets.</p> <p>CBL further states that the main omission is transitional issues and the lack of a multi-year transition or phase-in process.</p>	<p>URCA agrees with CBL that transitional issues need to be addressed and refers to Section 3.2(i) above (“Timing of changes and impacts”).</p> <p>Optimal use arguments rely on the logic of incentives. URCA reiterates that it is not generally possible to quantify impacts.</p> <p>Finally, no users (including CBL) have indicated a problem of stranded assets as a result of the fee changes proposed.</p>

Question	BTC answer	CBL answer	URCA response
<p>Question 6: Do you agree with the five issues identified in the above paragraph? Are there any additional issues which should be considered by URCA?</p>	<p>BTC accepts the five principles. They note the restricted allocation of 2.5 GHz spectrum is appropriate. It applauds the promotion of spectrum use in less populated islands.</p>		<p>URCA welcomes BTC's agreement with URCA on the main issues, which would need to be addressed in a new Spectrum Fee Schedule.</p>

Question	BTC answer	CBL answer	URCA response
<p>Question 7: What are your views on the principles for setting spectrum fees?</p>	<p>BTC endorses the principles described in Section 4.1 of the Consultation Document.</p>	<p>CBL advocates that the principles are appropriate but general in nature. They add that the implementation does not take account of the impact on users, their investments and the costs of adjusting to new fee levels. They advocate the addition of the three principles set out in Section 3.2(iii).</p>	<p>In its response at Section 3.2(iii) above, URCA suggests an alternative principle that addresses the first two principles proposed by CBL which is based on section 32(1)(b) of the Comms Act, namely:</p> <ul style="list-style-type: none"> ● Promoting efficient spectrum use whilst taking account of impacts on investments in radio equipment and the services provided to consumers. <p>In respect of the third principle proposed by CBL, URCA reiterates that it is generally more efficient to promote the public policy objective through a specific intervention linked more closely to the desired outputs (See Section 3.2(iii) above).</p>

Question	BTC answer	CBL answer	URCA response
Question 8: Do you agree that in all cases spectrum fees should be set to ensure the optimal use of spectrum?	BTC agrees.	CBL agrees, but notes that congestion is only identified in the FM radio band.	URCA refers to its response at Section 3.2(ii) above on mobile bands.

Question	BTC answer	CBL answer	URCA response
<p>Question 9: Do you agree that universal service and SME policies should be considered in setting spectrum fees?</p>	<p>BTC agrees</p>	<p>CBL agrees and suggests a further, seventh principle:</p> <p>In cases where spectrum is licensed and used for the purpose of achieving specific public policy objectives – such as the provision of public or designated universal services, the provision of services to remote and sparsely populated areas or other objectives – the associated spectrum fees should be waived or alternatively set at a minimum level.</p>	<p>See URCA’s response to proposed additional principles in Section 3.2 above.</p>

Question	BTC answer	CBL answer	URCA response
<p>Question 10: Do you agree with the use of a formula-based approach to setting spectrum fees for services which require exclusive spectrum use? If not, please explain your reasoning and suggest an alternative approach.</p>	<p>BTC agrees and provided a comparative analysis of the price per MHz per population for the 700MHz Band.</p>	<p>CBL does not oppose but thinks URCA’s approach omits reference to demand and congestion factors. CBL thinks the approach should be limited to bands wherein demand equals or exceeds available spectrum.</p>	<p>URCA thanks BTC for its comparative analysis which shows that the price per MHz per population in The Bahamas is less than the price per MHz per population in the most recent years in all of the countries in the analysis.</p>
<p>Question 11: Do you agree that for a flat rate fee per station is appropriate in cases where users share a common pool of frequencies? If not, please explain your reasoning and suggest an alternative approach.</p>	<p>BTC agrees, provided that URCA establishes a reasonable flat rate.</p>	<p>No comment</p>	<p>URCA welcomes BTC’s support for URCA’s proposal.</p>

Question	BTC answer	CBL answer	URCA response
<p>Consultation Question 12: Do you agree with the general principle that fees for congested bands should reflect opportunity cost of spectrum access and that fees for bands that are non-congested should be broadly in line with the costs of spectrum management?</p>	<p>BTC agrees provided that fees do not inhibit growth.</p>	<p>CBL is not opposed, but reiterates the need to apply changes only where congestion is proven. In CBL's view, this only includes the FM band today.</p>	<p>URCA places emphasis on its statement in Section 4.3 of the Consultation Document, which states that costs of spectrum management should be used to set a floor on fee levels as that would ensure the benefits from spectrum use exceed the costs of making the spectrum available.</p>
<p>Consultation Question 13: Do you agree that spectrum fees for amateur, aeronautical, ship and experimental radio stations be kept at the current levels?</p>	<p>BTC agrees</p>	<p>CBL agrees</p>	<p>URCA welcomes the positive response of both companies to URCA's proposal.</p>

Question	BTC answer	CBL answer	URCA response
<p>Consultation Question 14: Do you agree with the proposed fee structure and fee levels for satellite services?</p>	<p>BTC advocates regulation of satellite communications.</p>	<p>CBL agrees</p>	<p>URCA agrees with BTC. In URCA's view, the regulation of satellite services should be consistent with and conform to international standards. Having regard to that position, currently, URCA regulates earth-to-space satellite communications under the provision of a Class Spectrum Licence requiring registration. URCA is also involved with the regulation of space-to-earth satellite communications on an international level.</p>

Question	BTC answer	CBL answer	URCA response
<p>Consultation Question 15: Do you agree that spectrum fees for broadcast radio and broadcast TV be set on a bandwidth-related basis? Do you agree that fees for public service broadcasters be set at current levels?</p>	<p>BTC agrees that fees should be determined on a bandwidth related basis. In BTC's view, the public service broadcasting fees should be kept at current levels because of public education and information aspects of the service.</p>	<p>CBL feels that bandwidth based pricing in broadcast radio is unwarranted and unnecessary. However, CBL acknowledges that there may be justification to increase fees in FM radio in New Providence but requested additional evidence for the scale of fee increase. CBL believes that fees for TV band will not simply recover spectrum management costs. In CBL's view, the fee/MHz for FM radio and TV broadcasting should be different.</p>	<p>URCA has taken CBL's response regarding the scale of the fee increase in the TV bands into account and regarding bandwidth based pricing refers to URCA's response at Section 3.2(iii) above.</p>

Question	BTC answer	CBL answer	URCA response
<p>Consultation Question 16: What are your views on the proposed factors (i.e., C, BW, TF, IF, BW, FBF) in the formula for the bandwidth-related fees? Do you agree with the proposed values? If not, please explain your reasoning and suggest an alternative approach?</p>	<p>BTC agrees and clarifies that bandwidth related fees will be a precedent for the sector. BTC feels that the proposed increases for sub-1GHz bands have the potential to be onerous, especially for commercial TV. BTC suggests that lower fees should be considered.</p>	<p>CBL expressed concerns about the formula. In CBL’s view, the formula does not reflect all differences across bands. CBL adds that though benchmarking is a reasonable basis for setting cellular fees, as it provides a reasonable starting point for setting fees, the \$13,000/MHz figure may be inappropriate. CBL notes that the 2500MHz band is not congested and so auction results are not relevant. Further, CBL asserts that the basis for the second constant (\$8,500/MHz) is opaque and that it appears to be derived from the revenue target and, as such, it is arbitrary. CBL suggests that there should be different</p>	<p>URCA agrees that the formula does not capture all possible value drivers across bands, but considers that the inclusion of every driver would be impractical, unduly complicate the formula and hinder the user’s ability to determine or forecast the cost of spectrum. URCA reminds CBL that the basis for the constant factors is discussed at Section 5.6 (page22) of the Consultation Document. URCA affirms its view that bandwidth is a key measure of the extent of spectrum access, and the quantum of spectrum consumed by users, and this is fundamental to any objective basis for setting fees for spectrum licensees.</p>

Question	BTC answer	CBL answer	URCA response
<p>Question 17: Do you agree with the proposed approach for the recovery of spectrum management fees and the determination which URCA proposes to make? If not, please explain your reasoning and suggest an alternative approach?</p>	<p>In BTC's opinion, the addition of the spectrum management fees imposes an undue burden on the sector.</p>	<p>CBL suggests that there is double counting of cost recovery in the fees. The fees in uncongested bands should be set to recover costs of \$325,000. The latter should be deducted from the total fee collected under current arrangements. In CBL's view, any new fee should be offset against existing fees paid by licensees.</p>	<p>URCA notes the concerns raised by BTC and CBL and refers to URCA's Final Determination on <i>Recovery of Spectrum Management Costs (Responses to Consultation and Final Determination)</i> which will be published on a later date.</p> <p>With regard to spectrum fees URCA agrees with the respondents that station fees are appropriate but is of the view that a more transparent mechanism must be established for setting bandwidth related fees.</p>

5 URCA's Final Decision and Implementation

In this Section, URCA sets out its Final Decisions regarding the Fee Structure and the Revised Fee Schedule, having regarded to:

- the statutory framework of the Comms Act;
- the ECS Policy;
- the approved National Spectrum Plan;
- the responses received to the consultation document (including URCA's benchmarking study); and
- URCA's comments on these responses.

URCA's Final Decisions are as follows:

5.1 URCA's Methodology for Setting Bandwidth Related Fees

URCA affirms its proposals for setting spectrum fees as per Section 5 of the Consultation Document. As explained in the consultation paper, URCA distinguished between fees for applications that share a common pool of frequencies – referred to as station licence fees – and fees for applications that deny access to spectrum – referred to as bandwidth related fees - and developed a fees formula for calculating the bandwidth related fees.

URCA reminds readers that the fees for premium spectrum will take effect as URCA's recommendation to the Minister only, and any changes or revisions to those fees will be based on a decision by the Minister who may decide not to adopt URCA's recommendations and to either retain the current fees or revise those fees other than as recommended by URCA.

URCA's final decision is that the fee formula for the calculation of bandwidth-related fees is:

$$Fee = C * BW * TF * IF * FBF$$

- The constant factor (*C*), has been set to recover a similar level of revenues as would be implied by the current (2015) Fee Schedule, although the implementation of a more consistent, bandwidth-related fee structure inevitably means fees may increase for some users and decrease others. The second consideration is the appropriate level for the premium fees for bands used by mobile services. URCA undertook international benchmarking of these fees and finds that (as at present) mobile bands will require a higher constant factor than for other frequency bands. The following values for *C* are implemented:

- $C = \$4,250/\text{MHz}$ for all point to point services
 - $C = \$8,500/\text{MHz}$ for all point to multipoint services except mobile services
 - $C = \$13,000/\text{MHz}$ for mobile services
- The bandwidth factor (BW) is based on the amount of bandwidth (in MHz) for which a licensee is granted exclusive access.
 - The time factor (TF) is based on the duration of assignment within a year. In most cases TF would be 1 if the licence is valid for the entire year. Fees for temporary licences would be pro-rated accordingly.
 - In relation to coverage, apart from cellular mobile services which are assigned nationally, all other spectrum assignments for “standard spectrum” will be made on a per island basis. The reasons for fees to vary broadly with the island population are as follows:
 - For a particular band, the value of spectrum to users will be higher on an island with larger population, all things being equal; and
 - Universal service and SME objectives will be promoted if lower values are applied to sparsely populated islands.
 - As indicated in the Consultation Document, instead of a coverage factor by area, URCA will include an Island Factor (IF) in the calculation of all bandwidth related fees, where IF would be lower for islands with small populations. The following values for IF will be implemented:
 - $IF = 1$ for National and New Providence
 - $IF = 0.2$ for Grand Bahama
 - $IF = 0.1$ for any other island.

URCA maintains the view that setting the same IF value for a national and New Providence licence provides an incentive for licensees to roll out services beyond New Providence.
 - Table 5-1 shows the five frequency ranges, corresponding to the main frequency bands currently or expected to be in use in The Bahamas, and the FBF values reflect the approximate relative transmission range achievable in each frequency range.

Table 5-1: frequency band factor (*FBF*) values for standard spectrum fee formula

Frequency	<i>FBF</i>	Principal services using the band
Up to 960 MHz	1	Broadcasting (TV and radio), land mobile, aeronautical, maritime, trunked radio, paging, cellular mobile, studio to transmitter links
960-2200 MHz	0.5	Aeronautical, fixed links, cellular mobile
2.2 – 6.7 GHz	0.05	BWA, C band satellite links, fixed links, cellular mobile (in future at 2.5 GHz)
6.7-30 GHz	0.01	Fixed links (medium range), Ku and Ka satellite bands
Above 30 GHz	0.005	Fixed links (short range)

In summary, URCA's final decision is that the following formula for calculation of bandwidth-related fees will be implemented in The Bahamas:

$Fee = C * BW * TF * IF * FBF$, where:

$C = \$8,500/\text{MHz}$ for point to multipoint services except mobile services and
 $\$13,000/\text{MHz}$ for mobile services

BW = bandwidth assigned in MHz

TF = duration of licence, expressed as proportion of one year

$IF = 1$ for National or New Providence, 0.2 for Grand Bahama, 0.1 for any other island

$FBF = 1$ for frequencies up to 960 MHz; 0.5 for 960-2200 MHz; 0.05 for 2.2-6.7 GHz;
0.01 for 6.7-30 GHz; 0.005 for frequencies above 30 GHz.

5.2 Revised Fees

Non- Bandwidth related fees

Station fees – amateur, aeronautical, ship, experimental radio

For amateur, aeronautical and ship station licences, international comparisons suggest there is little reason to change the current fee levels given the nature of spectrum use. Also, for experimental radio stations, the current fees are low and there is little reason to change the current fee given the desire to promote experimental radio use and the availability of spectrum in many bands to accommodate such services. Hence, URCA's final decision is that a flat fee be charged and that fees be kept at current levels.

Station fees – satellite services

URCA affirms that given the very low demand for satellite use in The Bahamas there is little reason to change the current fees. URCA considers that satellite services share bands with other fixed services (point to point and point to multi-point). In URCA's view, there are very few satellite assignments in The Bahamas and the introduction of a bandwidth-related fee structure for satellite services is likely to increase administrative costs. URCA's final decision therefore is that:

- a flat fee is charged for satellite services regardless of the number of channels carried by the satellite service.

- a distinction is made between satellite services for which terminals have dish sizes below 3 metres and those for which terminals have dish sizes at or above 3 metres such that the latter are charged a higher fee.²⁰
- the fee levels for satellite services are \$500 (dish size below 3 metres) and \$4,500 (dish size at or above 3 metres).

Broadcast radio

URCA remains of the view that broadcast radio is a point to multi-point application similar to land mobile and use of spectrum by a licensee denies its use to others. URCA's final decision therefore is that spectrum fees for broadcast radio should be set in a similar way as other point to multi-point services, i.e. on a bandwidth-related basis.

Broadcast TV

URCA affirms that because broadcast TV, like broadcast radio, is a point to multi-point application the fees should be charged in the same way as other similar point to multi-point services. URCA's final decision therefore is that spectrum fees for broadcast TV services be set on a bandwidth-related basis for commercial broadcasters. However, the TV broadcasting bands are substantially under-utilised. In URCA's view the socio-economic objectives of the ECS Policy could be furthered by promoting investment and innovation in electronic communications networks and services, and encouraging sustainable competition in the TV Broadcasting Bands. Therefore, URCA proposes to implement a temporary band factor of 0.1 instead of a band factor of 1 for spectrum identified by URCA as TV Broadcasting Bands. Also, due to responsibility to provide service that is of public benefit as opposed to service for purely commercial benefit, a concession is proposed for public service broadcasters with fees set at current levels of \$3,000 (for 6 MHz).

Table 5-1 summarises the revised fees for station licences.

Table 5-1: Revised station licence fees (non-bandwidth related)

Service	Current fee (\$)	Revised fee (\$)
Aeronautical fixed ground station	300	300
Ship Radio Telephone Station fitted with GMDSS equipment	150	150
VSAT systems	500	500

²⁰ Most VSAT systems have terminals with dish sizes of less than 3 metres.

Service	Current fee (\$)	Revised fee (\$)
Earth stations with dishes larger than 3.8 meters	4,500	4,500
Amateur radio station	25	25
Experimental radio station	100	100
Broadcast radio (AM and FM)	500	Bandwidth-related fee
Broadcast TV station	3,000	Bandwidth-related fee (\$3,000 for public service broadcaster)

Bandwidth related fees

In the case of bandwidth related fees, URCA's final decision is that the applicable fee is the fee formula in Table 5-1 at Section 5.1 above. URCA's final decision is also that a minimum fee of \$100 is appropriate for spectrum licences where the fee determined using the fee formula amounts to less than \$100. Table 5-2 below presents the revised fees for bandwidth related fees based on the application of the above formula in Section 5.1.

Table 5-2 Revised bandwidth-related fees

Service and bandwidth assumed	Revised fee (National/New Providence)	Revised fee (Grand Bahama)	Revised fee (any other island)
AM radio – 30 kHz (national)	255	NA	NA
FM radio – 200 kHz	1,700	340	170
Land mobile – 25 kHz (below 470 MHz)	212.5	100*	100*
Private paging – 25 kHz	212.5	100*	100*
Private trunking – 250kHz	2,125	425	212.5
Public paging – 25 kHz	212.5	100*	100*
Public trunking – 250 kHz	2,125	425	212.5
STL – 100 kHz	425	100*	100*
TV – 6 MHz (commercial)	5,100	1,020	510
TV – 6 MHz (Public Service)	3,000	600	300
Point to multi-point			
At 2.5 GHz – 6 MHz	2,550	510	255
At 3.5 GHz – 2 MHz (first)	850	170	100*
At 3.5 GHz – 2 MHz (others)	850	170	100*
Point to point links 2.2-6.7 GHz with bandwidth of:			
2x 50 kHz	100*	100*	100*
2x3.5 MHz	2,975	595	297.5
2x14 MHz	11,900	2,380	1,190
2x30 MHz	25,500	5,100	2,550
Point to point links 11 GHz with bandwidth of:			
2x 50 kHz	100*	100*	100*
2x3.5 MHz	595	119	100*
2x14 MHz	2,380	476	238
2x30 MHz	5,100	1,020	510
Mobile services (national)			
Mobile 700 – 1 MHz	13,000	NA	NA
Mobile 850 – 1 MHz	13,000	NA	NA

Service and bandwidth assumed	Revised fee (National/New Providence)	Revised fee (Grand Bahama)	Revised fee (any other island)
Mobile 1900 – 1 MHz	6,500	NA	NA
Mobile 1.7/2.1 GHz – 1 MHz	6,500	NA	NA
Mobile 2.3 GHz – 1 MHz	6,500	NA	NA

Notes: $IF=1$ (New Providence); $IF = 0.1$ (any other island). $C=8500$ for all services; $C=13,000$ for mobile. $TF = 1$ for all. * Minimum fee of \$100 applied.

The Minister is empowered under section 30(1) of the Comms Act to decide premium spectrum fees (i.e. mobile service fees) and the method of setting fees for premium spectrum bands. Hence, the listed mobile service fees are subject to ministerial decision and may be revised or amended by the Minister.

The Revised Fee Schedule will come into effect on January 1, 2016 and will repeal and replace the 2015 Fee Schedule (i.e., ECS 01/2015).

ANNEX A– REVISED FEE SCHEDULE

Table A-1: Station fees

Service	Description	Spectrum fee (per annum)
Aeronautical	Fixed Ground Station	\$300
Amateur	Radio Station	\$25
Experimental	Radio Station	\$100
Maritime	Ship Radio Station equipped with GMDSS	\$150
Satellite	Satellite terminals with dish size ≥ 3 metres	\$4,500
	Satellite terminals with dish size < 3 metres	\$500
Broadcast TV	Public Service TV station	\$3,000

Notes: For aeronautical, amateur, experimental, maritime and broadcast TV services, fees are charged per station. For satellite services where terminals have dish sizes of 3 metres or more, fees are charged per station. For satellite services where terminals have dish sizes smaller than 3 metres (i.e. VSAT), fees are charged per system.

Table A-2: Schedule for bandwidth-related fees (annual fee in \$/MHz)

	Service	Cellular mobile	All other services		
	Island Factor	National	National/Ne w Providence	Grand Bahama	Any other island
Frequency band factor	Up to 960 MHz	13,000	8,500	1,700	850
	960 - 2200 MHz	6,500	4,250	850	425
	2.2 – 6.7 GHz	650	425	85	42.5
	6.7 – 30 GHz	130	85	17	8.5
	Above 30 GHz	65	42.5	8.5	4.25

Notes: The values in this table are calculated using the bandwidth-related fee formula $Fee = C * FBF * CF * TF * BW$, based on Time Factor (TF) of 1 and Bandwidth (BW) of 1 MHz. There is a minimum fee of \$100.

How to derive the annual fee payable using Table A-2:

- i. Look up the corresponding fee/MHz value for their service (cellular mobile or other services) based on the relevant Frequency Band Factor (row) and Island Factor (column) for their assigned spectrum.
- ii. Multiply this value by the Bandwidth assigned in MHz (e.g. if 2x25 kHz is assigned then the Bandwidth is 0.05MHz) and the Time Factor (if licence period is 1 calendar year, then $TF = 1$; if licence period is less than 1 calendar year, the TF will be scaled pro-rata to licence duration, rounded up to the nearest month, i.e. if the licence period is 10 weeks, the fee will be calculated on the basis of 3 months, i.e. $TF = 0.25$).

Table 5-2B: Proposed bandwidth-related fees

Service and bandwidth assumed	Revised fee (National/New Providence)	Revised fee (Grand Bahama)	Revised fee (any other island)
AM radio – 30 kHz (national)	255	NA	NA
FM radio – 200 kHz	1,700	340	170
Land mobile – 25 kHz (below 470 MHz)	212.50	100*	100*
Private paging – 25 kHz	212.5	100*	100*
Private trunking – 250kHz	2,125	425	212.50
Public paging – 25 kHz	212.50	100*	100*
Public trunking – 250 kHz	2,125	425	212.50
STL – 100 kHz	425	100*	100*
TV – 6 MHz (commercial)	5,100	1,020	510
Point to multi-point			
At 2.5 GHz – 6 MHz	2,550	510	255
At 3.5 GHz – 2 MHz (first)	850	170	100*
At 3.5 GHz – 2 MHz (others)	850	170	100*
Point to point links 2.2-6.7 GHz with bandwidth of:			
2x 50 kHz	100*	100*	100*
2x3.5 MHz	1,487.50	297.50	148.75
2x14 MHz	5950	1190	595
2x30 MHz	12,750	255	1275
Point to point links 11 GHz with bandwidth of:			
2x 50 kHz	100*	100*	100*
2x3.5 MHz	297.50	100*	100*
2x14 MHz	1190	238	119
2x30 MHz	2550	510	255
Mobile services (national)			

Service and bandwidth assumed	Revised fee (National/New Providence)	Revised fee (Grand Bahama)	Revised fee (any other island)
Mobile 700 – 1 MHz	13,000	NA	NA
Mobile 850 – 1 MHz	13,000	NA	NA
Mobile 1900 – 1 MHz	6,500	NA	NA
Mobile 1.7/2.1 GHz – 1 MHz	6,500	NA	NA
Mobile 2.3 GHz – 1 MHz	6,500	NA	NA

Notes: $IF=1$ (New Providence); $IF = 0.1$ (any other island). $C=8500$ for all services; $C=13,000$ for mobile. $TF = 1$ for all. * Minimum fee of \$100 applied. If the service and bandwidth required is not listed in Table 5 -2B refer to Table A-2