EASTERN CARIBBEAN TELECOMMUNICATIONS AUTHORITY (ECTEL)

FORTY-THIRD MEETING OF THE ECTEL COUNCIL OF MINISTERS

PAPER 43COM 6A-05/22

DETERMINATION PAPER – REVISION OF ECTEL REGIONAL SPECTRUM MANAGEMENT PLAN AND FREQUENCY ALLOCATION TABLE (FAT)

The Council of Ministers is invited to note the following Determination Paper – ECTEL's Response and Position on Public Consultation on the Revision of ECTEL Regional Spectrum Management Plan (October 2021).

MANAGING DIRECTOR (AG.)

Eastern Caribbean Telecommunications Authority

DETERMINATION PAPER

ECTEL's Response and Position on

PUBLIC CONSULTATION

on

The Revision of ECTEL Regional Spectrum Management Plan (October 2021)

1.0 INTRODUCTION

The Eastern Caribbean Telecommunication Authority (ECTEL) conducted a public consultation on the Revision of the ECTEL Regional Spectrum Management Plan and Frequency Allocation Table (FAT). The consultation began on 12th July 2021 with a first period for initial comments which was followed by a second period for comments on comment that ended on 27th August 2021.

ECTEL received comments from the following respondents: -

1. Digicel Dominica Ltd. – Commonwealth of Dominica;
2. National Telecommunications Regulatory Commission (NTRC) – Grenada;
3. Companies representing device manufacturers, chipset vendors and applications providers namely:
   - Broadcom, Inc.
   - Cisco Systems, Inc.,
   - Facebook, Inc.
   - Hewlett Packard Enterprise,
   - Intel Corporation
   - Microsoft Corporation
   - Qualcomm Technologies Inc.
4. St. Kitts Nevis, Anguilla Amateur Radio Society – St. Kitts and Nevis;
5. 5G Americas – United States of America;
6. Dynamic Spectrum Alliance Limited (DSA) – United States of America;
7. Cable and Wireless (Flow) - ECTEL Member States;
8. Seva Communications Inc. – Saint Lucia; and
9. NTRC St. Vincent and the Grenadines

Supplementary: The National Telecommunications Regulatory Commission (NTRC) – Commonwealth of Dominica submitted its contributions to the public consultation. However, NTRC Dominica requested that its contribution be considered for the internal deliberations of ECTEL and its consultant.

Note 1:
Some responders to the public consultation reported typographical and other formatting errors mainly due to editing of the consultation document through multiple iterations.

Note 2:
Comments were received from NTRC St. Vincent and the Grenadines which were posted on the ECTEL's website after the period. These comments were also considered.

This document presents ECTEL's determination on relevant issues that were raised in the public consultation. It addresses all the issues/ matters proposed in the consultation document that were either challenged or rejected (in whole or in part) by respondents and all other matters that were raised or suggested for consideration by respondents.

Any matter proposed in the initial consultation document that is not addressed in this determination will essentially remain unchanged in the final proposal.

The following sections of this document (**Sections 2 to 11**) present the submissions received from respondents, and outlines ECTEL's determination for each relevant matter.

2.0 PROPOSAL FOR THE REALLOCATION OF DIGITAL AUDIO BROADCAST SERVICE - ECTEL FOOTNOTE E.4

2.1 NTRC Grenada's Comments

(Ref: Initial Comments*: page 1, paragraph 3, bullet 1)*

Regarding the frequency band 174 MHz – 240 MHz to replace the frequency 235 MHz – 267 MHz for Digital Audio Broadcast applications, NTRC Grenada said that "… *a portion of the referenced frequency band (174 MHz to 216 MHz) is allocated to analog VHF television Broadcast (Channels 7 through 13). Within the said range there are current assignments with active On-Air TV Broadcasting on channels 7, 9, 10 & 11. Consequently, the Commission recommends that the above existing analog VHF television broadcast frequencies (174 MHz to 216 MHz) be protected on a primary basis to prevent any potential interference that may be caused by Digital Audio Broadcast applications.*"

2.2 Seva Communications Inc.'s Comments

(*Ref: Initial Comments: page 1, paragraph 2, last line*)

Seva Communications Inc. opined that the spectrum from 174 MHz – 240 MHz "*could be better used for Fixed Wireless Broadband use on a no-interference basis to TV broadcasting*".

2.3 Comments from NTRC St. Vincent and the Grenadines

(*Ref: Initial Comments: page 1, paragraph 2*)

NTRC St. Vincent and the Grenadines stated that *"(St. Vincent and the Grenadines) does have analog TV broadcasters using the band 174 -240 MHz, as such does ECTEL have a transition plan or a band plan in the event that we receive applicants for digital audio broadcasting in the band 174 -240 MHz in future as the band currently has the incumbent TV broadcasters?*"

2.4 ECTEL's Determination / Response

Upon review of the Comments from NTRC Grenada, NTRC St. Vincent and the Grenadines and SEVA Communications Inc., ECTEL will maintain the allocation for the frequency band 174 MHz to 216 MHz to the Broadcast service (primarily VHF television channels).

Further, the initial proposal made by ECTEL for allocating Digital Audio Broadcast (DAB) services in the frequency band 174 MHz to 240 MHz is withdrawn.

3.0 Frequency Bands Identified for Broadband Wireless Access Applications- ECTEL Footnote E.10

3.1 Comments from Seva Communications Inc.

(Ref: Initial Comments: page 1, paragraph 3)

Seva Communications Inc. essentially indicated that it is opposed to the proposal stating that "*There is no major advantage of TDD over FDD, and there is existing equipment readily available in each of the frequency bands for FDD Systems but not for TDD systems.*"

"*FDD also has a large number of advantages over TDD systems:*

a) For most applications there is a greater need for more downstream data than upstream data. FDD allows for asymmetric split of the frequency band thereby making more efficient use of the spectrum.

b) Entertainment is a huge favourite for subscribers which can be done using multicasting services. FDD systems allow for multicasting that is not available with TDD systems.

c) *FDD Systems easily allow for higher power for downstream than upstream. This allows for higher modulation data rates thereby allowing more efficient use of available spectrum.*

d) *With TDD systems power levels are normally almost equal thereby reducing the ability of using higher downstream data rate than upstream data rate."*

3.2 Comments from NTRC St. Vincent and the Grenadines

(*Ref: Initial Comments: page 2, paragraph 2*)

NTRC St. Vincent and the Grenadines stated that it had some concerns about the 3,400 MHz to 3,500 MHz band, as ITU Region 2 had an allocation for Fixed Satellite Service (space to earth) and that there are some operators that receive satellite transmission in the C band that may be potentially impacted from IMT systems operating in the same band.

3.3 ECTEL's Determination / Response

The main advantages of Frequency Division Duplex (FDD) systems over Time Division Duplex (TDD) systems are:

- greater coverage than TDD systems;
- FDD systems require fewer base stations/Points of Presence than TDD systems; and
- there is implied lower capital expenditure (CAPEX) and operating expenditure (OPEX) since less base stations/Points of Presence are needed in FDD deployments as these costs are associated with the number of base stations/Points of Presence required to meet network coverage and capacity requirements.

The main advantage of TDD systems over FDD systems is that it is suitable to be deployed when paired spectrum is limited or not available. TDD is suitable to be deployed when paired spectrum is not available that is it allows for economical use of the spectrum. Further, TDD systems are ideal for the modern-day asymmetric transmission demands on networks.

In recent times, the greater availability of equipment in the FDD ecosystem appears to be balanced by the increased availability and deployment of TDD networks and user equipment ecosystems.

Through research, ECTEL holds a contrary view to the opinions presented by one of the respondents regarding TDD technology and

asymmetric transmissions. Research shows that TDD is more suitable for asymmetric transmission demands, the increase in demands of asymmetric transmissions is in fact, one of the main reasons why the industry prefers the TDD technology. The coexistence between IMT-2000 Time Division Duplex (TDD) and Frequency Division Duplex (FDD) terrestrial radio interface technologies can generate harmful interferences "Down Link to Up Link" in both systems. In considering adopting band plans for either FDD or TDD systems, the necessary consultation for a regional coordinated spectrum allocation with relevant neighbouring countries will have to be undertaken by the concerned spectrum management agencies.

Coexistence between IMT-2000 and Fixed Satellite Service

Since Fixed Satellite Service (FSS) stations (space to Earth) operating on the ground level receives a very low power signal from the communication satellite and the IMT2020 (5G) Base Stations transmits with relatively high power (up to 72 dBm/MHz), it will be very challenging to share the same band or adjacent bands between FSS and IMT2020 (5G) networks. Therefore, it will be necessary that ECTEL conducts further research into FSS ground stations in its Member States and impact that the deployment of IMT2020 networks operating in the same or adjacent frequency bands will have on these stations. Therefore, ECTEL will pursue further consultation on this matter before proceeding.

4.0. Proposal to permit International Mobile Telecommunications applications in the Frequency Band 614 MHz to 698 MHz - ECTEL Footnote E.15

4.1 Comments from Seva Communications Inc.

(Ref: Initial Comments: page 2, paragraph 2, Lines 3)

Seva Communications Inc. opposed the proposal to allow IMT applications in the frequency band 614 MHz to 698 MHz stating, "*We contend that the use of that band should be combined with other spectrum in the 470 – 698 MHz spectrum to be allocated for Fixed Broadband service shared with Broadcast Television service. Indeed, we advocate that all unused spectrum in the UHF band (470 – 860 MHz) be allowed to be shared with existing services for multi-channel Fixed Broadband Service.*"

4.2 ECTEL's Determination / Response

Seva Communications Inc. expressed its opposition to the proposal, stating that it would be more beneficial if the UHF frequency band

including the frequency band under consideration (614 MHz to 698 MHz) be shared for Fixed Broadband service (FBS). ECTEL does not think that this proposal meets sound spectrum management practices, as, if we were to accede to this request, the Fixed Broadband service (FBS) can only be allocated as a secondary service and will have the following limitations and risks:

1. The Broadcast service is the primary allocated service in most of the UHF band and the availability of frequency bands for FBS in UHF band is very limited. Consequently, the capacity and data speed delivered to FBS subscribers would be very limited when compared to current subscriber expectations;
2. There is a high potential for FBS systems to interfere with existing or future television transmitters, as well as receive interference from television transmitters. In such an interference scenario no protection can be given to FBS since it would be a secondary service thus negatively impacting quality of service (QoS) for potential subscribers;
3. The UHF low propagation attenuation will limit the possibility of reusing the spectrum, in this way the FBS capacity will be supplementally limited;
4. Utilisation of a low frequency band to cover a relatively small area with dense population is not ideal for delivering broadband services;
5. Due the UHF's band, very good propagation over sea, FBS will potentially create interferences and could be interfered with by neighbouring countries TV transmitters or IMT networks; and
6. Obtaining agreement of other administrations under ITU Radio Regulation 9.21, will be necessary.

ECTEL will proceed with the identification of the frequency band 614 MHz to 698 MHz or portions of the band for IMT applications and will include a footnote to specify that the new services must comply with the spectrum policy and technical framework.

Further, consideration will be given to the adoption of a suitable band plan in this band; and the necessary cross-border coordination exercises will be undertaken with neighbouring countries.

5.0 Making spectrum in the 5925 MHz-7125 band available for license-exempt use

5.1 Comments from Companies representing device manufacturers, chipset vendors and applications providers namely: Broadcom, Inc., Cisco Systems, Inc., Facebook, Inc., Hewlett Packard Enterprise, Intel Corporation, Microsoft Corporation and Qualcomm Technologies Inc

(Ref: Initial Comments dated 6th August 2021)

The comments from the companies representing device manufacturers, chipset vendors and application providers requested that ECTEL and the NTRCs develop the frameworks to ensure that spectrum is made available for new technologies and services." Specifically, they requested that the ECTEL Member States consider making spectrum in the 5925 MHz to 7125 MHz (or "6 GHz") band available for license-exempt use.

5.2 Comments from the Dynamic Spectrum Alliance (DSA)

(*Ref: Initial Comments: page 1, para. 2*)

DSA requested that ECTEL Member States consider making the 6 GHz band available for license-exempt WLAN use with the following conditions:

1. dedicating the entire 1200 MHz (5925-7125 MHz) of the 6 GHz band for license-exempt use, taking advantage of the full potential of this band; and
2. authorising the three (3) categories of license-exempt devices: (i) Very Low Power (VLP) devices, (ii) Low Power Indoor (LPI) devices, and (iii) Standard Power (SP) devices that can operate both outdoors and indoors.

5.3 ECTEL's Determination / Response

ECTEL is aware that agenda Item 1.2 of the 2023 World Radiocommunication Conference (WRC-23) involves the discussions on making spectrum in the 5925 -7125 MHz band available for license-exempt use.

The main concerns on opening the entire band or part of the 5925 MHz-7125 MHz band for license-exempt use, are related to the level of the

interferences, which will be generated by the multitude of devices using this band. Establishing spectrum policy and technical framework will be necessary for mitigating the interference with primary allocated services. ECTEL will await the discussions and decision of WRC-23, prior to taking any firm decision on this matter.

6.0 Concerns expressed with regards to the 420-450 MHz band

6.1 Comments from St. Kitts -Nevis Anguilla Amateur Radio Society

(Ref: Initial *Comments: page 1, Conclusion)*

The St. Kitts-Nevis Anguilla Amateur Radio Society (Society) expressed concerns that the 70cm Band (SSB) for region 2 differs from its previous range of 420 MHz to 450 MHz. The Society indicated that for more than three decades, Caribbean Amateur radio operators have used repeaters and repeater link radios in the 440 MHz to 450 MHz frequency range.

Further, the Society expressed that there are no guidance note(s) for this portion of the 70cm Band, 420-450 MHz in the draft ECTEL Regional Spectrum Management Plan.

6.2 ECTEL's Determination / Response

ECTEL acknowledges that further engagement may be needed with the Amateur Radio Societies in the ECTEL Member States to clarify this matter. However, in the frequency band 430 MHz to 440 MHz in the ECTEL Member States and ITU Region 2, the Amateur Radio Service is allocated on a secondary basis. It is noted that the Amateur Radio Service is allocated on a primary basis in Region 1, in the frequency range 430 MHz to 440 MHz, and it may be that some of the Amateur Radio operators in St. Kitts and Nevis, may have set up the repeaters several decades prior to the enactment and enforced Telecommunications Act and Regulations and established ECTEL Regional Spectrum Management Plan. However, it must be noted that neither Region 1 nor Region 2 is the entire 420 MHz to 450 MHz band allocated to the Amateur Radio Service. Further discussions with the Amateur Radio Societies of ECTEL Member States are therefore warranted.

7.0 Identification of the frequency band 450-470 MHz for IMT

7.1 Cable and Wireless (FLOW)'s Comments

(Ref: Initial Comments: page 4, para 10)

Cable and Wireless (FLOW) suggests that ECTEL investigates the frequency of use and the actual capacity of the band 450 MHz to 470 MHz, which is allocated for fixed point to point links for television outside broadcast service in the ECTEL Member States and determine whether this frequency band may be identified for IMT applications, (mobile broadband services), in accordance with footnote 5.286AA.

7.2 ECTEL's Determination/Response

ECTEL acknowledges that the frequency band 450 MHz to 470 MHz is largely identified for FIXED and MOBILE services, other services like MOBILE -SATELLITE (Earth-to-space) or METEOROLOGICAL-SATELLITE (space-to-Earth) are also permitted by some administrations. In the ECTEL Member States, the frequency band 450 MHz to 470 MHz is allowed for Fixed temporary, point-to-point links by licensed television operators for the purposes of carrying content to their studios from the outside.

Further ECTEL recognises that the frequency band 450 MHz to 470 MHz is a very limited band for IMT applications and may not be useful to mobile service operators.

8.0 Re-farming the 1800 MHz and the 2100 MHz bands be reformed into FCC AWS 1 band plan

8.1 NTRC Grenada's Comments

(Ref: Initial Comments: Page 3, para 5)

NTRC Grenada proposed the re-farming of the 1800 MHz and 2100 MHz into FCC AWS-1 band plan.

8.2 ECTEL's Determination / Response

ECTEL is considering the proposal by NTRC Grenada to re-farm the 1800 MHz and 2100 MHz band into FCC AWS-1 band plan. However, ECTEL and the NTRC will need to engage all stakeholders including frequency authorisation holders for spectrum in the above-mentioned bands in Grenada.

9.0 Need to change E.11 wording

9.1 Comments from NTRC St. Vincent and the Grenadines

(*Ref: Initial Comments: Page 3; Para. 7*)
NTRC St. Vincent and the Grenadines sought clarification on footnote E.11 which contained an error.

9.2 ECTEL's Determination / Response

ECTEL proposes the following text to correct the error in footnote E.11 "*The following frequency bands: 2.4-2.4835 GHz, 5.150-5.350 GHz and 5 725-5 825 MHz (indoor use only) are designated for use by licence-exempt wireless local area networks and devices for non-commercial purposes operating on low power output levels with appropriately specified technical parameters and based upon not interfering with, or claiming protection from, licensed services.*"

10.0 Missing DAB reference from Chapter 7.0 BROADCASTING SERVICES

10.1 Comment from NTRC St. Vincent and the Grenadines

(*Ref: Initial Comments: page 3, para. 5*)

NTRC St. Vincent and the Grenadines indicated that the broadcast standards and frequency bands outlined in the Regional Spectrum Plan do not address the digital audio broadcast which was outlined as a change in the notes to the document. NTRC St. Vincent and the Grenadines also sought clarification as to whether the frequency band 174 MHz to 216 MHz can be used by analog television services and digital audio broadcasting services and if so, are both services to be considered primary allocations.

10.2 ECTEL's Determination / Response

ECTEL has withdrawn the proposal to include Digital Audio Broadcast in the frequency band 174 MHz to 216 MHz, therefore this frequency band is allocated to broadcast service (television).

11.0 Proposal for regular review and update of the Frequency Band Plan

11.1 Comments from NTRC St. Vincent and the Grenadines

(*Ref: Initial Comments: page 4, para. 9*)

NTRC St. Vincent and the Grenadines suggested the revision of the ECTEL Regional Spectrum Management Plan within one (1) year after WRC.

11.2 ECTEL's Determination / Response

ECTEL acknowledges and accepts the suggestion by NTRC St. Vincent and the Grenadines. ECTEL considers the review of the Regional Spectrum Management Plan after each WRC to be a beneficial undertaking for the ECTEL Member States. However, the update of the plan should be performed only after an internal review concludes that it is necessary.

ECTEL wishes to thank all stakeholders for providing input on the public consultation of the ECTEL Regional Spectrum Management Plan.

-The End -