

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Amendment of Part 101 of the Commission's	)	WT Docket No. 10-153
Rules to Facilitate the Use of Microwave for	)	
Wireless Backhaul and Other Uses and to Provide	)	
Additional Flexibility to Broadcast Auxiliary	)	
Service and Operational Fixed Microwave	)	
Licensees	)	
	)	
Request for Interpretation of Section 101.141(a)(3)	)	WT Docket No. 09-106
of the Commission's Rules Filed by Alcatel-	)	
Lucent, Inc., <i>et al.</i>	)	
	)	
Petition for Declaratory Ruling Filed by Wireless	)	WT Docket No. 07-121
Strategies, Inc.	)	
	)	
Request for Temporary Waiver of Section	)	
101.141(a)(3) of the Commission's Rules Filed by	)	
Fixed Wireless Communications Coalition	)	

**COMMENTS OF THE SATELLITE INDUSTRY ASSOCIATION**

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October 25, 2010

## SUMMARY

Critical satellite services operate in spectrum shared on a co-primary basis with fixed service networks, and those satellite services must be protected. For example, video programming for cable systems nationwide and audio channels for satellite radio are both distributed over spectrum shared with terrestrial fixed licensees, and mobile satellite networks that serve important public safety, homeland security, and commercial functions also use shared bands. In weighing the changes proposed here to the Part 101 rules, the Satellite Industry Association (“SIA”) urges the Commission to ensure that satellite spectrum rights are preserved.

First, SIA opposes any authorization of fixed auxiliary stations in frequencies shared with satellite services. No evidence has been presented to demonstrate that auxiliary stations would fulfill a specific need – to the contrary, most members of the fixed service industry are vocal opponents of the concept. SIA shares their concern that applicants would seek licenses using the maximum allowable power and the poorest performing antennas simply in order to create a large area within which auxiliary stations could then be deployed. Such an outcome would be contrary to Commission policies designed to facilitate shared use of spectrum.

The Commission must also take into account existing and future satellite services in considering whether to authorize new microwave operations in the 6875-7125 MHz and 12700-13200 MHz bands. These bands are used today by a variety of satellite systems and a portion of this spectrum is reserved internationally for satellite use, but the *Notice* unaccountably ignores both present and future satellite services in the bands. If the Commission goes ahead with its proposal to open this spectrum up for microwave services, it must do so under coordination procedures that protect incumbent satellite uses, and it should not permit auxiliary stations to be deployed in this band.

Fixed service licensees should be authorized to use adaptive modulation only pursuant to specifically defined terms and conditions so that Commission standards for efficient use of spectrum are not compromised. Given the concerns that have been raised within the fixed service community regarding this technique, it may be prudent for the Commission to introduce adaptive modulation initially in bands where there are no satellite operations.

Finally, the Commission must consider the effect on satellite services of any future changes to the Part 101 framework. The Commission should proceed cautiously, limiting the applicability of new rule changes to spectrum used solely by the fixed service. That will enable the Commission to evaluate the impact of added flexibility in an intraservice sharing environment in the first instance.

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**COMMENTS OF THE SATELLITE INDUSTRY ASSOCIATION**

The Satellite Industry Association (“SIA”) pursuant to Section 1.415 of the Commission’s Rules, 47 C.F.R. § 1.415, submits these comments in response to the Notice of Proposed Rulemaking and Notice of Inquiry in the above-captioned proceeding, FCC 10-146, released Aug. 5, 2010 (the “*Notice*”), which involves potential changes to the Part 101 rules governing Fixed Service (“FS”) operations. SIA urges the Commission to carefully consider the impact on satellite services of any rule changes for FS that apply to spectrum shared on a co-primary basis between FS and satellite licensees.

SIA is a U.S.-based trade association providing worldwide representation of the leading satellite operators, service providers, manufacturers, launch service providers, remote

sensing operators, and ground equipment suppliers. Since its creation fifteen years ago, SIA has become the unified voice of the U.S. satellite industry on policy, regulatory, and legislative issues affecting the satellite business.<sup>1</sup>

The stated goal of this proceeding is “to remove regulatory barriers to the use of spectrum for wireless backhaul and other point-to-point and point-to-multipoint communications.”<sup>2</sup> To that end, the *Notice* invites input on possible revisions to FS rules in order to “to increase the flexibility, capacity, and cost-effectiveness of the microwave bands located below 13 GHz, while protecting incumbent licensees in these bands.”<sup>3</sup>

SIA members have a strong interest in the Commission’s proposals and in ensuring that the Commission makes good on its commitment to protect incumbent licensees. Spectrum that is shared with the Fixed Service on a co-primary basis is essential to critical satellite operations. In considering changes to the Part 101 rules, the Commission must respect the co-primary status of satellite services in shared bands and take steps to safeguard the interests of current and prospective satellite licensees.

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<sup>1</sup> SIA Executive Members include: Artel, Inc.; The Boeing Company; CapRock Communications, Inc.; The DIRECTV Group; Hughes Network Systems, LLC; DBSD North America, Inc.; Echostar Satellite Services, LLC; Integral Systems, Inc.; Intelsat, Ltd.; Iridium Communications Inc.; LightSquared; Lockheed Martin Corporation; Loral Space & Communications, Inc.; Northrop Grumman Corporation; Rockwell Collins Government Systems; SES WORLD SKIES; and TerreStar Networks, Inc. SIA Associate Members include: Arqiva Satellite and Media; ATK Inc.; Cisco; Cobham SATCOM Land Systems; Comtech EF Data Corp.; DRS Technologies, Inc.; EMC, Inc.; Eutelsat, Inc.; GE Satellite; Globecom Systems, Inc.; Glowlink Communications Technology, Inc.; iDirect Government Technologies; Inmarsat, Inc.; Marshall Communications Corporation; Panasonic Avionics Corporation; Spacecom, Ltd.; Spacenet Inc.; Stratos Global Corporation; TeleCommunication Systems, Inc.; Telesat Canada; Trace Systems, Inc.; and ViaSat, Inc. Additional information about SIA can be found at <http://www.sia.org>.

<sup>2</sup> *Notice* at 2 (¶ 1).

<sup>3</sup> *Id.* at 3 (¶ 4).

## **I. THE COMMISSION MUST PROTECT CO-PRIMARY SATELLITE SERVICES IF IT LIBERALIZES PART 101 RULES IN SHARED SPECTRUM**

In the NPRM section of the *Notice*, the Commission proposes to allow additional latitude for Fixed Service operations in a variety of spectrum bands. As noted above, the Commission's stated goal is to enhance the FS operators' ability to use spectrum for wireless backhaul and other services.

These proposals cannot be considered in a vacuum. As the *Notice* recognizes, a number of services, including the Fixed Satellite Service ("FSS"), share spectrum with Part 101 operations.<sup>4</sup> The Commission must respect the co-primary status of satellite services by evaluating any proposed change to the FS rules against the rights of co-primary services to access the spectrum and be protected from harmful interference.

This process is critical because the satellite bands that are shared with FS are used extensively by a wide variety of networks. The conventional C-band,<sup>5</sup> for example, is heavily used to deliver broadcast and cable programming throughout the nation and beyond. Every cable headend in the country uses at least one C-band antenna to receive video programming, allowing the distribution of hundreds of video channels to over 60 million cable subscribers nationwide.<sup>6</sup> Interference into reception of satellite signals at a single headend would have a domino effect, impairing the ability of the cable operator to serve its entire customer base. In addition, SiriusXM uses the 7 GHz band for feeder links to distribute satellite radio programming to over 35 million subscribers nationwide. Other bands shared between FS and satellite licensees are used to support critical government and public safety mobile applications.

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<sup>4</sup> *Id.* at 6 (¶ 8).

<sup>5</sup> The "conventional C-band" refers to the 3700-4200 MHz and 5925-6425 MHz frequencies.

<sup>6</sup> See National Cable & Telecommunications Association, Industry Data, available at <http://www.ncta.com/statistics.aspx> (reporting 61.1 million basic video customers as of June 2010).

Existing coordination procedures in these bands reflect the delicate balance needed to ensure that new proposed operations do not impinge on the rights of co-primary satellite services.<sup>7</sup> As the Commission explains in the *Notice*, the “frequency coordination process consists of giving prior notice to nearby licensees and applicants of the proposed operations, making reasonable efforts to avoid interference and resolve conflicts, and certifying that the proposed operation has been coordinated.”<sup>8</sup> These detailed procedures have played an essential role in allowing interservice sharing between FS and satellite services to succeed.

In assessing any proposed changes to Part 101 that affect shared spectrum, the Commission must carefully consider the potential impact on these vital co-primary satellite services and ensure that there is no shift in the relative burdens and benefits of the existing sharing framework.

**A. The Commission Should Not Allow the Deployment of Auxiliary Stations in Spectrum Shared by FSS and FS**

SIA and its members have previously registered their substantial concerns regarding the original request by Wireless Strategies, Inc. (“WSI”) for a declaratory ruling that deployment of multiple transmitting elements under a single license was consistent with existing rules. The satellite filings demonstrated that the WSI proposal was inherently inconsistent with the Commission’s regulatory framework for microwave operations and posed a serious threat to both intraservice and interservice sharing.<sup>9</sup> SIA was far from alone in objecting to the WSI

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<sup>7</sup> These requirements are set forth for FS operations in 47 C.F.R. § 101.103, and for satellite earth stations in 47 C.F.R. § 25.203.

<sup>8</sup> *Notice* at 5 (¶ 7) (footnote omitted).

<sup>9</sup> *See, e.g.*, Reply Comments of the Satellite Industry Association and the Global VSAT Forum, WT Docket No. 07-121 (filed Aug. 20, 2007); Satellite Industry Association *Ex Parte* Notice, WT Docket No. 07-121 (filed June 21, 2010).

request. Commenters opposing the petition included many representatives from the fixed wireless community, as well as the National Spectrum Managers Association and Comsearch.<sup>10</sup>

Given this broad opposition to WSI's requested declaratory ruling, SIA strongly supports the Commission's decision to deny it here.<sup>11</sup> The *Notice* finds that the WSI proposal:

is not consistent with the plain wording of our rules for two reasons. First, the rules require evaluation of proposed point-to-point fixed microwave stations on a site-by-site, path-by-path basis, and do not provide exceptions based on the aggregation of multiple sites and paths. Second, WSI's proposal is inconsistent with the antenna standards rule, Section 101.115 of the Commission's Rules, because it proposes the use of antennas that do not meet those standards. The rules provide that all fixed stations must use antennas that meet the applicable performance standard.<sup>12</sup>

The *Notice* instead seeks comment on potential changes to the Part 101 rules to accommodate what it refers to as "auxiliary stations."<sup>13</sup> The framework set forth by the Commission includes numerous measures not present in the WSI proposal that are intended to

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<sup>10</sup> See, e.g., Letter of the Fixed Wireless Communications Coalition regarding WSI Request for Declaratory Ruling (filed Mar. 26, 2007) at 1 (WSI proposal "could result in significant interference to existing, licensed point-to-point microwave systems"); Comments of David B. Popkin, WT Docket No. 07-121 (filed July 19, 2007) (microwave frequency coordinator opposition to WSI proposal); Opposition of Alcatel-Lucent, WT Docket No. 07-121 (filed July 19, 2007) ("Alcatel-Lucent Opposition") at 8 (WSI request would "fundamentally undermine the fixed point-to-point service"); Comments of Comsearch, WT Docket No. 07-121 (filed July 19, 2007) ("Comsearch Comments") at 2 (WSI's described operation would violate a number of FCC rules and policies); Comments of the National Spectrum Managers Association, WT Docket No. 07-121 (filed July 19, 2007) ("NSMA Comments") at 7 ("The introduction of WSI's proposed point-to-multipoint operation into the high capacity and clearly defined point-to-point bands will result in the loss of spectrum choices required by the nation's businesses, local governments, critical infrastructure, and public safety entities."); Comments of Verizon, WT Docket No. 07-121 (filed July 19, 2007) at 1 (the WSI proposal "would increase the risk of harmful interference to other fixed microwave facilities."). Other parties opposing the WSI proposal include the Society of Broadcast Engineers, Harris Stratex Networks, Inc., United States Cellular Corporation, and the American Petroleum Institute.

<sup>11</sup> *Notice* at 20-21 (¶¶ 48-49).

<sup>12</sup> *Id.* at 20 (¶ 49) (footnotes omitted).

<sup>13</sup> See *id.* at 21-24 (¶¶ 50-58).

address the objections of co-primary users – both microwave and satellite service licensees – regarding the potential for increased interference and heightened coordination burdens.

Even with the additional prophylactic measures set forth in the *Notice*, SIA continues to question whether adopting rules to accommodate auxiliary stations is in the public interest. As a threshold matter, the existing record is devoid of evidence indicating that the proposal meets a documented need. WSI seems to be pushing a technology in search of an application – there is simply no concrete data before the Commission describing how and why the multiple transmitters envisioned by WSI would actually be deployed and used.

The *Notice* recognizes this deficiency and invites comment on demand for the type of services that could be offered using auxiliary stations, as well as the specifics of contemplated operation.<sup>14</sup> SIA will be interested to see whether information responsive to this request will be filed – certainly WSI has had multiple opportunities to support its claim that its proposal meets an identifiable need but has failed to do so to date. Tellingly, most members of the fixed wireless community – the putative “beneficiaries” of WSI’s proposal – have lined up firmly against the proposal.

SIA also remains concerned that adoption of proposals for auxiliary stations could create perverse incentives for microwave applicants that would conflict with key Commission policies. Specifically, if Commission rules allow deployment of multiple auxiliaries within the “keyhole” pattern of a main link’s signal,<sup>15</sup> the size of the keyhole becomes an important issue for FS systems planning to use auxiliaries. Such stations will benefit from designing the main link to make the area as large as possible by maximizing the main station’s transmitted power and using antennas with the widest permissible beam widths.

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<sup>14</sup> *Id.* at 23 (¶ 54).

<sup>15</sup> *See id.* at 21 (¶ 51).

These concerns are not simply theoretical – they are borne out by evidence from WSI’s own behavior. In its opposition to the initial WSI declaratory ruling request, Alcatel-Lucent explained that in WSI license applications:

WSI proposed the maximum power allowed by the FCC’s rules even when the equipment proposed to be used cannot operate for its intended point-to-point use at the indicated power levels. By proposing maximum transmitter power output, combined with the lowest allowable antenna main beam gain and minimum sidelobe suppression characteristics, and by seeking the same transmit frequencies in both directions, WSI is maximizing its Radiation Power Envelope (“RPE”), thereby precluding later applicants from utilizing the same spectrum within the exaggerated RPE.<sup>16</sup>

The Commission’s proposal to exempt auxiliary stations from antenna beamwidth standards and other technical requirements<sup>17</sup> will only exacerbate this problem. As the *Notice* observes, “[e]liminating the beamwidth requirement will enable licensees to use smaller, less expensive antennas” for auxiliary stations, lowering their deployment costs.<sup>18</sup> But an FS applicant contemplating use of auxiliaries will have an even greater interest in “supersizing” its main beam pattern if it plans to use the cheapest, poorest performing antennas for those auxiliary stations.

As the *Notice* observes, current Commission rules are designed to achieve the opposite effect. Fixed Service applicants are required “to avoid interference in excess of permissible levels to other users” and to make “every reasonable effort” to “avoid blocking the

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<sup>16</sup> Alcatel-Lucent Opposition at 7. *See also* Comsearch Comments at 6 (“in the links it has licensed so far, WSI has used parameters that create as much interference as possible under the maximum limits set forth in the rules, presumably in order to carve out a protected service area for its underlying point to multipoint operation”).

<sup>17</sup> *See Notice* at 22 (¶ 52).

<sup>18</sup> *Id.*

growth of prior coordinated systems.”<sup>19</sup> SIA fears, however, that it will be difficult to enforce these imprecise requirements in order to effectively counteract the strong incentives FS applicants will have to apply for the highest possible power and use the poorest performing equipment, and WSI’s own past behavior reinforces this concern.<sup>20</sup>

As a number of fixed wireless and spectrum manager commenters have indicated, such a development would make it much more difficult for multiple FS links to co-exist in the same area.<sup>21</sup> In FS bands that are shared with satellite services, it would similarly decrease the opportunities for spectrum sharing and unfairly burden co-primary satellite services that must then coordinate with these overpowered main links.

Because of these concerns, SIA continues to oppose any authorization of auxiliary stations in bands shared on a co-primary basis with FSS.<sup>22</sup> Coordination between FS and FSS operations today relies on the fact that each service is a point-to-point operation. The proposal for auxiliary stations moves away from this approach, by allowing operation anywhere within the area of the main station’s beam.<sup>23</sup> As a result, the auxiliary station proposal conflicts with the foundation on which current co-frequency sharing among FS and FSS licensees is based.

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<sup>19</sup> *Id.* at 24 (¶ 57), *citing* 47 C.F.R. § 101.103(d)(1).

<sup>20</sup> *See, e.g.*, Comsearch Comments at 7 (notwithstanding the requirements of Section 101.113 that licensees use the minimum amount of power necessary, “WSI has licensed every one of its transmitters at the 85 dBm maximum limit”).

<sup>21</sup> *See, e.g.*, Alcatel-Lucent Opposition at 10 (WSI’s applications for maximum permissible power and lowest allowable sidelobe suppression will allow WSI to fill up a geographic area with multiple links, to the exclusion of spectrum sharing); NSMA Comments at 8 (approval of the WSI proposal would “result in significant negative impact on the existing and future users of the point-to-point microwave bands”).

<sup>22</sup> SIA opposes permitting auxiliaries in any bands shared between FS and satellite services, including the spectrum used by the Local Multipoint Distribution Service and the 38.6-40.0 GHz band. *See Notice* at 23 (¶ 55) (seeking comment on whether the operations contemplated by WSI could be accommodated in these and other bands above 13 GHz).

<sup>23</sup> *See* Alcatel-Lucent Opposition at 8 (“WSI’s Request, if adopted, effectively constitutes an end run around the site-based licensing scheme of Part 101 point-to-point microwave to achieve

If the Commission is intent on experimenting with auxiliary stations in the FS, over the objections of spectrum managers, frequency coordinators, and the bulk of the FS community, SIA urges the Commission to experiment only in FS bands that are not shared with satellite services on a co-primary basis. The Commission can then, at least, determine whether the intraservice coordination is practicable under its rules before inflicting interservice coordination burdens on co-primary satellite services. As discussed above, the satellite services provided in many shared bands, especially the C-band, serve millions of end users and support many critical government and public safety applications. Such services should not be placed at risk by the Commission's experiment.

**B. The Commission Must Take into Account Satellite Use of the 6875-7125 MHz and 12700-13200 MHz Bands Proposed for New Microwave Services**

The *Notice* proposes to make additional spectrum available for Part 101 microwave services in the 6875-7125 MHz and 12700-13200 MHz bands.<sup>24</sup> In addressing incumbent operations in the band, the Commission observes that these frequencies are currently in use by the Broadcast Auxiliary Service and the Cable TV Relay Service.<sup>25</sup> However, the *Notice* inexplicably fails to recognize the co-primary allocations for FSS in this spectrum.

These bands are used today by a wide variety of satellite networks. The tens of millions of SiriusXM satellite radio subscribers receive programming distributed using feeder links in the 6875-7125 MHz band.<sup>26</sup> GlobalStar uses the same band to provide feeder links for its Big LEO Mobile Satellite Service ("MSS") system, which serves many government and

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geographic area licensing without an auction.").

<sup>24</sup> *Notice* at 8-11 (¶¶ 14-20).

<sup>25</sup> *Id.* at 7 (¶ 12).

<sup>26</sup> *See, e.g.*, Call Signs E040204 and E080168 (feeder link earth stations for SiriusXM located in Ellenwood, GA).

public safety users.<sup>27</sup> Use of this spectrum has also been authorized for receipt of telemetry signals in the U.S. from the United Kingdom-licensed ICO Global MSS system.<sup>28</sup>

In the 12700-13200 MHz band, LightSquared has been authorized to use the 12750-13250 MHz frequencies as feeder link spectrum for its second-generation MSS satellite, which is due to be launched next month.<sup>29</sup> TerreStar Networks uses the 12750-13000 MHz band for forward feeder links and Telemetry, Tracking and Control operations from its U.S. gateway in North Las Vegas, Nevada.<sup>30</sup> TerreStar-1 is an operational satellite providing wholesale MSS to Global System for Mobile Communications network operators who offer their end users the TerreStar GENUStm smartphone, an integrated multi-band device providing both terrestrial mobile and MSS access and connectivity in a single five ounce form factor. In addition, numerous FSS spacecraft have been authorized to use the 12700-12750 MHz spectrum, including GE-23, NSS-5, Intelsat 11, Intelsat 25, Intelsat 707 and Telstar 12.<sup>31</sup>

In addition, the Commission should bear in mind that the 6875-7125 MHz and 12700-13200 MHz bands overlap substantially with satellite uplink spectrum that has been specially reserved by the International Telecommunication Union (“ITU”) for FSS. Appendix 30B of the ITU Radio Regulations creates an international allotment plan (the “Plan”) that grants every country (including many developing nations) assured rights to use the 6725-7025 MHz and 12750-13250 MHz bands in designated orbital locations to provide FSS.<sup>32</sup>

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<sup>27</sup> See, e.g., Call Sign E000342 (Globalstar feeder link earth station in Clifton, TX).

<sup>28</sup> See, e.g., Call Sign E990065 (Brewster, WA earth station authorized to receive telemetry signals from ICO’s medium Earth orbit satellite network).

<sup>29</sup> See Call Sign S2358 (license for SkyTerra 1 satellite).

<sup>30</sup> See Call Signs S2633 (license for TerraStar-1 satellite) and E070098 (license for gateway earth stations).

<sup>31</sup> See Call Signs S2610 (GE-23); S2801 (Ku-band payload of NSS-5); S2237 (Intelsat 11); S2804 (Intelsat 25); S2398 (Intelsat 707) & S2462 (Telstar 12).

<sup>32</sup> See ITU Radio Regulations, Edition of 2008, Appendix 30B.

Appendix 30B also contains procedures to allow for modification of a country's allotment or the introduction of a new system not part of the original Plan. The last World Radiocommunication Conference – WRC-07 – performed an overhaul of Appendix 30B, simplifying the procedures and modernizing the technical parameters to make the Plan more useable by all administrations. The United States was instrumental in this work to improve Appendix 30B, and led the efforts within the Americas to develop an extensive series of changes to the existing Appendix.<sup>33</sup> Given the improvements in Appendix 30B, it is likely that use of this band within the Americas for satellite services will increase in the future.<sup>34</sup> Thus, before expanding terrestrial use of these bands in a manner that may reduce the availability of this spectrum for satellite services, the Commission must carefully consider the international implications of its actions.

At a minimum, any expansion of terrestrial services in the 6875-7125 MHz and 12700-13200 MHz bands must respect the co-primary status of satellite operations in those bands. If it decides to proceed with allowing Part 101 microwave services in this spectrum, the Commission must make clear that incumbent and new satellite operations are protected consistent with their co-primary status, and that new FS applicants are required to coordinate with earlier-licensed satellite users. The coordination procedures described above that are set

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<sup>33</sup> See, e.g., Public Notice, The FCC's Advisory Committee for the 2007 World Radiocommunication Conference Approves Recommendations on WRC-07 Issues, DA 05-2481, IB Dkt No. 04-286, 20 FCC Rcd 14729 (2005) (outlining the United States proposals to WRC-07, including proposals on agenda item 1.10 that dealt with Appendix 30B). These proposals were initially submitted to CITEL, part of the Organization of American States dealing with telecommunication matters, in order to develop common proposals from the Americas on this topic to WRC-07.

<sup>34</sup> Given the heightened interest in making use of the Appendix 30B frequency bands, CITEL, at its most recent PCC.II meeting (Fortaleza, Brazil, 31 August – 4 September 2010), held a workshop on "Management and Application of Appendix 30B of the ITU Radio Regulations." CITEL invited experts from the ITU to educate the membership on how one can implement satellites using this spectrum in practice.

forth in Section 101.103 of the Commission's rules should apply to new requests for FS operations in these bands. In addition, as discussed above, the Commission should not allow the use of auxiliary stations in these bands.

**C. The Commission Must Clearly Define the Terms Under Which Use of Adaptive Modulation Will Be Permitted**

SIA has no objection in principle to the Commission's proposal to allow microwave licensees to employ adaptive modulation to maintain service continuity when there is an unusual degree of signal fading.<sup>35</sup> SIA is concerned, however, about the potential impact that such a rule change may have in practice on the ability to coordinate co-primary FS and FSS operations in shared bands.

The *Notice* indicates that the proposal to allow adaptive modulation, which was put forward in a petition filed by the Fixed Wireless Communications Commission ("FWCC") and others, has been opposed by some members of the FS community.<sup>36</sup> In particular, Verizon argued that interpreting the rules to permit FS licensees to use an average data rate to show compliance with minimum payload capacity rules would encourage deployment of inefficient systems.<sup>37</sup> X-Dot, Inc. agreed with Verizon "that the FWCC Request has the potential to cause spectrum inefficiency and limit spectrum availability for future users."<sup>38</sup>

The *Notice* concludes that these concerns are legitimate. The Commission states that the FWCC's proposal "is too vague and open-ended," and "would give licensees too much latitude to deploy inefficient systems that would be inconsistent with good engineering

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<sup>35</sup> See *Notice* at 13-17 (¶¶ 28-40).

<sup>36</sup> *Id.* at 14-15 (¶ 32).

<sup>37</sup> See *id.*, citing Comments of Verizon and Verizon Wireless, WT Docket No. 09-106 (filed July 27, 2009).

<sup>38</sup> *Notice* at 15 (¶ 32), citing Reply Comments of X-Dot, Inc., WT Docket No. 09-106 (filed Aug. 11, 2009).

practices.”<sup>39</sup> This in turn could adversely affect spectrum sharing with other FS users and with co-primary FSS users in the same band. The Commission accordingly denies the FWCC’s petition and proposes instead “to adopt a more carefully tailored approach” to permitting FS use of adaptive modulation.

SIA agrees that the conditions in which adaptive modulation may be used by FS licensees must be explicitly defined. An exception that allows for lower modulation and data rates in fade conditions must be carefully limited so as not to swallow the Commission rules designed to ensure efficient system design and spectrum use. Otherwise, the Commission will be creating incentives for FS licensees to deploy inferior equipment and technology, impairing future access to the spectrum by other FS applicants and FSS operations alike.

Based on concerns that have been raised within the FS industry about the impact of adaptive modulation on spectrum sharing, the Commission may want to consider allowing FS systems to employ adaptive modulation initially only in FS bands that are not shared with other co-primary services such as FSS. The Commission believes that its “approach will allow licensees to take advantage of the benefits of adaptive modulation without unduly undercutting the efficiency purpose that led to initial adoption of the minimum efficiency requirement.”<sup>40</sup> Introducing the ability to employ adaptive modulation in bands not shared with satellite services will allow the Commission to test that assumption by evaluating the impact of the new rule changes without unduly burdening other co-primary services in the same band.

If the Commission ultimately does decide to allow adaptive modulation in bands shared with FSS, then the Commission should adopt safeguards to protect co-primary satellite operations. At the very least, the Commission must: (1) require FS applicants proposing to use

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<sup>39</sup> *Notice* at 16 (¶ 38).

<sup>40</sup> *Id.* at 16 (¶ 39).

adaptive modulation to expressly set forth their intent to do so in coordination notices;

(2) indicate clearly on each FS license whether adaptive modulation is authorized or not; and

(3) periodically monitor FS deployments to evaluate whether allowing adaptive modulation is leading to inefficient system design and/or undue coordination burdens.

## **II. A MEASURED, INCREMENTAL APPROACH IS REQUIRED FOR ANY FUTURE INCREASES IN PART 101 LICENSEES' FLEXIBILITY**

The *Notice* also includes a general inquiry into other types of flexibility that could be introduced to enhance provision of wireless backhaul services by Part 101 licensees. Specific suggestions include possible changes in efficiency standards in rural areas and re-examination of Part 101 antenna standards.<sup>41</sup>

Once again, the co-primary status of satellite services in many FS bands must be respected. In exploring whether further steps should be taken to loosen Part 101 requirements, the Commission must ensure that co-primary satellite services in spectrum shared with Part 101 licensees are not unduly burdened. For example, SIA is concerned that lower efficiency standards for FS systems will tend to make sharing and coordination with co-primary satellite services more difficult.

As has been suggested above, one way to protect satellite services is to introduce any additional flexibility for microwave operations initially in spectrum that is exclusively allocated for terrestrial services. That will permit assessment of the effects of such changes in an intraservice sharing environment. If that evaluation is favorable, then the Commission can consider whether to expand applicability of the enhanced flexibility to spectrum shared with satellite operations.

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<sup>41</sup> *Id.* at 24-26 (¶¶ 59-68).

### III. CONCLUSION

For the reasons discussed herein, SIA requests that the Commission take steps to protect co-primary satellite services in the context of any revisions of the Part 101 rules affecting spectrum that is shared with satellite operations.

Respectfully submitted,

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