

**COMMENTS OF SHURE INCORPORATED**

**Canada Gazette, Part I, November 2017 Notice Reference No. SMSE-019-17**

**Consultation on the Technical, Policy and Licensing Framework for Wireless Microphones**

**Submitted February 15, 2018**

## **INTRODUCTION AND BACKGROUND**

1. Shure Incorporated (“Shure”)<sup>1</sup> welcomes this opportunity to provide input to Innovation, Science and Economic Development Canada (“ISED”) in its review of the regulatory framework and proposed new frequency bands for the operation of wireless microphones<sup>2</sup> on a secondary basis. Shure appreciates ISED’s efforts to address wireless microphone needs given the recent significant regulatory changes jeopardizing wireless microphone operation, most recently, the dramatic reduction in 600 MHz band frequencies as a result of the repurposing of the 600 MHz band for wireless broadband which transitioned wireless microphones out of the 614-698 MHz band and moved existing TV stations from above 614 MHz to below 608 MHz.<sup>3</sup>

2. Shure has participated extensively in various policy and regulatory proceedings undertaken by policymakers in many countries, including particularly the Federal Communications Commission (“FCC”) in the United States, grappling with the existing and growing spectrum needs of wireless microphones in the face of competing demands for spectrum from other new users. With respect to U.S. regulation, Shure has provided ongoing input on U.S. spectrum policy and FCC regulation beginning with the digital TV transition in the U.S. starting more than two decades ago, the introduction of unlicensed white space devices (“WSDs”) in the TV band, the migration of wireless microphones out of the 700 MHz band, the examination of new supplemental frequency bands particularly for licensed professional wireless microphone users, the repurposing of 600 MHz TV broadcast spectrum for high power wireless mobile services, and the resulting repacking of TV stations currently being implemented in the United States.<sup>4</sup>

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<sup>1</sup> For nearly a century, Shure has been a respected manufacturer of high-quality, innovative audio products. Today, headquartered in Niles, Illinois, U.S.A., Shure is a global leader in professional wireless microphones, a majority of which operate in the UHF band.

<sup>2</sup> “Wireless microphones,” as used herein, includes a variety of audio devices authorized as secondary users of locally unoccupied television channels. In addition to microphones, this equipment includes in-ear monitors, wireless intercoms, wireless assist video devices (“WAVDs”) and wireless cueing (“IFB”) systems.

<sup>3</sup> Industry Canada Spectrum Management and Telecommunications, *Decision on Repurposing the 600 MHz Band*, SLPB-004-15 (rel. Aug. 14, 2015).

<sup>4</sup> Among other steps, those proceedings implemented rule changes that migrated wireless microphones out of the 700 MHz band to make way for high power wireless carrier use, implemented Part 15 rules for a new class of unlicensed wireless microphones, identified supplemental spectrum for wireless microphones use, and reformed and updated the Commission’s licensing rules to reflect the changing use and the current state of wireless microphone operations. See, e.g., *Revisions to Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band, et al.*, Report and Order and Further Notice of Proposed Rulemaking, 25 FCC Rcd 643 (2010); see also *Unlicensed Operation in the TV Broadcast Bands, Additional Spectrum for Unlicensed Devices below 900 MHz and in the 3 GHz Band*, Second Memorandum Opinion and Order, 25 FCC Rcd 18661 (2010); *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, Report and Order, 29 FCC Rcd 6567 (2014); *Amendment of Part 15 of the Commission’s Rules for Unlicensed Operations in the Television Bands, Repurposed 600 MHz Band, 600 MHz Guard Bands and Duplex Gap, and Channel 37, and Amendment of Part 74 of the Commission’s Rules for Low Power Auxiliary Stations in the Repurposed 600 MHz Band and 600 MHz Duplex Gap, Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, ET Docket No. 14-165, GN

3. Today, wireless microphones are critical production tools essential to activities in many sectors—broadcast, entertainment, religious, commercial, educational, and civic—and wireless microphone use continues to expand rapidly to meet increasing demand for more sophisticated productions and advanced audio services. While wireless microphones can be found in many ordinary daily uses, professional-grade use of wireless microphones has expanded significantly and is now a fundamental part of the production “infrastructure” of live and recorded performances, presentations, and programming. The productions and events that wireless microphones support represent significant economic value, as well as important cultural and civic activity.

4. In this context, Shure urges ISED to adopt the following priorities in updating its wireless microphone regulations:

a) **Preserve Access to UHF Frequencies:** Wireless microphone users -- particularly professional users compelled to meet demand for extremely high quality audio -- operate principally in UHF frequencies. UHF spectrum has been the longstanding principal spectrum home for professional wireless microphones globally, due to its favorable propagation and other properties. Wireless microphone manufacturers have responded to the growing demand for wireless microphone operations and shrinking supply of UHF spectrum with technology advancements that achieve increased efficiencies and greater resiliency to operate in a shared spectrum environment, as well as by developing products and encouraging use of non-UHF spectrum where suitable for specific wireless microphone applications. Nonetheless, UHF spectrum will continue to be essential to professional wireless microphone users and Canadian regulations should address the need to preserve and protect the availability of UHF spectrum for wireless microphone operations to the greatest extent possible.

b) **Professional Wireless Microphone Operators Should Have Access to Licences:** Manufacturers -- and the millions of people experiencing the live performances or otherwise consuming the content made possible by wireless microphones -- require extremely reliable, high quality, interference free spectrum to achieve the real time, professional grade, low latency audio demanded by program and event producers and their audiences. Professional wireless microphone operators can satisfy these high expectations -- even operating on a secondary basis to TV broadcasting -- as long as they are afforded an opportunity to acquire licences which would enable them to reserve channels in the white spaces database when necessary and access any supplemental spectrum identified in the 900 MHz, 7 GHz and other bands for licensed

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Docket No. 12-268, Notice of Proposed Rulemaking, FCC 14-144 (rel. Sept. 30, 2014) (“2014 FCC Part 15 NPRM”); *Amendment of Part 15 of the Commission’s Rules for Unlicensed Operations in the Television Bands et al.*, ET Docket No. 14-165, GN Docket No. 12-268, Report and Order, FCC 15-99 (rel. Aug. 11, 2015) (“2015 FCC Part 15 Order”); *In the Matter of Promoting Spectrum Access for Wireless Microphone Operations, et al.*, GN Docket Nos. 14-166, 12-268, Notice of Proposed Rulemaking, FCC 14-145 (rel. Sep. 30, 2014) (“2014 FCC Wireless Microphones NPRM”); *In the Matter of Promoting Spectrum Access for Wireless Microphone Operations, et al.*, GN Docket Nos. 14-166, 12-268, Report and Order, FCC 15-100 (rel. Aug. 11, 2015) (“2015 FCC Wireless Microphones Order”).

wireless microphone uses. Eligibility criteria for licensing should identify where intended uses require “professional” quality wireless microphone operations.

c) **Canadian Spectrum Band Rules Should be Harmonized with U.S. Rules Where Possible:** As a global manufacturer, Shure is acutely aware of the costs and other barriers presented by disparate frequency band plans among different jurisdictions and, accordingly, Shure generally favors efforts to harmonize spectrum access rules to the greatest extent possible. In the case of the U.S. and Canada, this approach would allow manufacturers to take advantage of the scope and scale of the larger North American market. Accordingly, Shure recommends that Canadian frequency band plan regulations mirror the FCC frequency band plan. To do otherwise would confuse the market by creating the possibility of “Canada-only” equipment with little assurance that the manufacturing sector will respond with adequate investment in this unique design. If Canada adopts a unique band plan, Canadian operators would ultimately be disadvantaged if their purchasing options were a reduced set of wireless microphone offerings rather than a broad array of choices made available at competitive pricing in the context of a much larger market.

## **SPECIFIC RESPONSES:**

### **5. Transition of Wireless Microphones from the Frequency Band 614-698 MHz**

In connection with ISED’s plan to adopt measures to clear wireless microphones from the 600 MHz mobile spectrum, it states that “. . . importation, distribution, lease . . . of wireless microphones able to operate in the frequency bands 617-652 MHz and 663-652 MHz will no longer be permitted as of November 2, 2018.” Shure urges ISED to modify this plan so that the prohibition of “importation, distribution, [and] lease” of wireless microphones is aligned with the termination date of licensed wireless microphone operations in the 614-698 MHz band which occurs at the 600 MHz mobile service deployment with a three-month minimum notification relocation period.<sup>5</sup> While manufacturing and sale of 600 MHz band wireless microphones may cease in November 2018 without material impact, there are many rental houses or “for hire” service and equipment providers in the U.S. and Canada that have significant inventories of 600 MHz band equipment that they should be permitted to continue to supply to professional productions up until the time that wireless microphone operations are prohibited in the repurposed 600 MHz band. Many of these companies provide equipment by lease on a cross border basis and the proposed restriction would unnecessarily inhibit their operation without any countervailing benefit.

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<sup>5</sup> ISED Canada Spectrum Management and Telecommunications, *Consultation on the Technical, Policy and Licensing Framework for Wireless Microphones*, SMSE-019-17 (rel. Nov. 2017) at para. 18(b) (“2017 ISED Consultation on Wireless Microphones”).

**6. Operation of wireless microphones in the guard band (614-617 MHz) and duplex gap (652-663 MHz) of the mobile service band plan (Section 8.1.2)**

**Q1.** ISED is seeking comments on its proposal to allow wireless microphones to use the 3 MHz guard band (614-617 MHz) and the 11 MHz duplex gap (652-663 MHz) subject to appropriate conditions to mitigate adjacent channel interference to mobile services.

A. Should technical rules be harmonized with those of the FCC to allow low power wireless microphones in the guard band (614-617 MHz) and duplex gap (653-663 MHz) with a maximum transmit e.i.r.p. of 20 mW?

B. Should a 1 MHz frequency separation be adopted for wireless microphones around the mobile service downlink spectrum (617-653 MHz) to protect mobile service operations?

In providing comments, respondents are requested to include supporting arguments and rationale.

Shure strongly supports regulations that would permit wireless microphone operations in the 3 MHz guard band (614-617 MHz) and the 11 MHz duplex gap (653-663 MHz). As noted above, in the past several years, wireless microphone operations have been subject to dramatic reductions in available UHF spectrum all while demand for wireless microphone support in a wide range of productions has greatly increased. The persistent shortage of spectrum for wireless microphone operations raises the real possibility that some events simply will not be able to be supported in the future unless regulatory policies protect wireless microphone access to sufficient UHF spectrum including the relatively modest amounts made available in the guard band and duplex gap.

Given the scarcity of UHF spectrum in particular, licensed and unlicensed wireless microphones should be allowed to operate in the guard bands and the duplex gap. Shure recommends that ISED adopt spectrum band use regulations similar to those adopted in the United States, but with minor modifications to access and priority of use. Specifically:

- The lower guard band (614-617 MHz) should be made available for wireless microphones use by licence-exempt users and those that have voluntarily obtained a licence.
- Wireless microphones should be permitted to operate on a licensed or licence-exempt basis in the duplex gap at 653-663 MHz. Given ISED's recommendations regarding WSD operations, WSDs should not be permitted to operate in the duplex gap.<sup>6</sup>

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<sup>6</sup> ISED has proposed to limit WSD operation above 608 MHz. See ISED Canada Spectrum Management and Telecommunications, *Consultation on the Technical, Policy and Licensing Framework for White Space Devices*, SMSE-018-17 (rel. Nov. 2017) at para. 30.

- WSDs should not be permitted to operate in either the lower guard band or the duplex gap consistent with ISED's recommendations.<sup>7</sup>

A. As a global manufacturer, Shure is acutely aware of the costs and other barriers presented by disparate frequency band plans among different jurisdictions and, accordingly, Shure generally favors efforts to harmonize spectrum access rules as much as possible. In the FCC proceedings developing the rules for licensed and unlicensed wireless microphone operation in the 600 MHz band following the incentive auction and repacking,<sup>8</sup> Shure proposed a number of alternative spectrum arrangements and technical rules aimed at maximizing interference free spectrum use for wireless microphones while providing needed protections against interference for mobile services and radio astronomy facilities and medical telemetry (in channel 37).<sup>9</sup> In the FCC's initial orders<sup>10</sup> and 2017 Order on Reconsideration, the FCC adopted many but not all of Shure's proposals.<sup>11</sup> For example, while Shure proposed that the FCC permit increased power of up to 50 mW for wireless microphones in the duplex gap, the FCC ultimately decided to implement a 20 mW limit.<sup>12</sup> In the interest of harmonizing equipment requirements across borders, Shure does not object to ISED's proposal to adopt a 20 mW power limit for wireless microphones operating in the guard band and duplex gap.<sup>13</sup>

B. Similarly, with respect to a 1 MHz frequency separation between wireless microphone operations and the mobile service downlink (at 617-653 MHz), Shure advises that both manufacturers and users in Canada would benefit if Canadian regulations with respect to the frequency band plan were harmonized with the FCC's U.S. regulations. In its 2015 order, the FCC identified a 1 MHz buffer between wireless microphones and the mobile downlink

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<sup>7</sup> *Id.*

<sup>8</sup> 2014 FCC Wireless Microphones NPRM; 2014 FCC Part 15 NPRM.

<sup>9</sup> Among other actions, Shure urged retention of two reserve channels, changes to the geolocation database, use of a 100 kHz guard band, an increase of the power limit in the duplex gap to 50 mW, and changes to rules applicable to VHF frequencies, etc. See, e.g., Comments of Shure Incorporated, *Amendment of Part 15 of the Commission's Rules for Unlicensed Operations in the Television Bands et al.*, ET Docket No. 14-165, GN Docket No. 12-268 (filed Feb. 4, 2015); Petition for Reconsideration, *Amendment of Part 15 of the Commission's Rules for Unlicensed Operations in the Television Bands et al.*, ET Docket No. 14-165, GN Docket No. 12-268 (filed Dec. 23, 2015); Comments and Response of Shure Incorporated, *In the Matter of Promoting Spectrum Access for Wireless Microphones Operations et al.*, ET Docket No. 14-166, GN Docket No. 12-268 (filed Feb. 29, 2016); Consolidated Reply of Shure Incorporated, *In the Matter of Promoting Spectrum Access for Wireless Microphones Operations et al.*, ET Docket No. 14-166, GN Docket No. 12-268 (filed Mar. 10, 2016).

<sup>10</sup> 2015 FCC Wireless Microphones Order; 2015 FCC Part 15 Order.

<sup>11</sup> *Id.*, see also *In the Matter of Promoting Spectrum Access for Wireless Microphones Operations et al.*, ET Docket No. 14-166 *et al.*, Order on Reconsideration and Further Notice of Proposed Rulemaking, FCC 17-95 (rel. Jul. 14, 2017) ("2017 FCC Wireless Microphones Order & FNPRM").

<sup>12</sup> 47 C.F.R. § 15.236. See also 2015 FCC Part 15 Order at para. 111.

<sup>13</sup> See 47 C.F.R. § 15.236(d)(2) and 47 C.F.R. § 74.861(e)(iii).

transmissions.<sup>14</sup> While Shure believes it is possible to protect mobile operations with a smaller buffer and urged the FCC to adopt a smaller buffer,<sup>15</sup> as a practical matter, wireless microphone manufacturers will be strongly incented to take advantage of the scale and scope of the combined North American market by designing wireless microphone equipment to the U.S. band plan including the 1 MHz frequency separation.

Accordingly, Shure recommends that Canadian frequency band plan regulations mirror the FCC band plan. To do otherwise would confuse the market by creating the possibility of “Canada-only” equipment with little assurance that the manufacturing sector will respond with adequate investment in this unique design. If Canada adopts a unique band plan, Canadian consumers would ultimately be disadvantaged if their only purchasing options were a reduced set of wireless microphone offerings rather than a broad array of choices made available at competitive pricing in the context of a much larger market.

**7. New spectrum under consideration for wireless microphones within the 941-960 MHz, 6930-6955 MHz, and 7100-7125 MHz frequency bands (Section 8.1.3)**

**Q2.** ISED is seeking comments on its proposal to introduce the use of wireless microphones, on a secondary basis, into the frequency bands 941.5-952 MHz, 953-960 MHz, 6930-6955 MHz and 7100-7125 MHz with appropriate conditions to prevent interference to fixed services.

In providing comments, respondents are requested to include supporting arguments and rationale.

Shure supports rules that would permit additional frequencies for wireless microphone operation in the 900 band (941.5-952 MHz, 953-960 MHz). 900 MHz frequencies have been important spectrum for wireless microphones used for specific broadcasting purposes. In the United States, wireless microphone users holding licences under Part 74 of the FCC’s rules have successfully operated on 944-952 MHz in coordination with the Society of Broadcast Engineers (“SBE”).<sup>16</sup> In 2015, the FCC sought to identify supplemental spectrum for wireless microphone operations and adopted rules allowing more intensive use of the 944-952 MHz range and expanded the available frequencies to encompass most of the 941-960 MHz band subject to coordination.<sup>17</sup> (To protect Multiple Address Systems, the FCC did not permit wireless microphone operation on 1.7 MHz within that range -- 952-952.85 MHz, 956.25-956.45 MHz, and 959.85-960 MHz).<sup>18</sup>

<sup>14</sup> 47 C.F.R. § 15.236(c)(4)-(5), (g). *See also* 2015 FCC Part 15 Order at paras. 140-144.

<sup>15</sup> *See, e.g.,* Reply Comments of Shure Incorporated, *Amendment of Part 15 of the Commission’s Rules for Unlicensed Operations in the Television Bands et al.*, ET Docket No. 14-165, GN Docket No. 12-268 (filed Feb. 25, 2015) at pp. 12-13.

<sup>16</sup> 47 C.F.R. § 74.831.

<sup>17</sup> 2015 FCC Wireless Microphones Order.

<sup>18</sup> *Id.* at para. 95.

Shure agrees with ISED that broadcasting entities are accustomed to using these frequencies and are experienced with coordination and wireless microphone operation. While these additional frequencies are not substitutes for the loss of 600 MHz (and 700 MHz) frequencies that wireless microphones have experienced, they will serve as important supplemental spectrum to support expanding wireless microphone use.

Licence holders should have ready access to these frequencies subject to coordination and compliance with technical rules. As discussed below, licences should be made available to professional users, i.e., users that can demonstrate a need for high quality audio and whose audiences expect professional quality audio.

**8. Consideration of the use of wireless microphones within the 960-1164 MHz frequency range (Section 8.1.4)**

ISED identified the 960-1164 MHz band as a potential supplemental band for secondary wireless microphone use. Based on additional spectrum being made available to wireless microphones and the challenge of implementing a sharing scheme between wireless microphones and aeronautical systems, ISED determined that there is no immediate need to make the 960-1164 MHz band available to wireless microphones but would continue to monitor international trends and developments regarding this and other bands. Shure agrees with this approach and is currently participating in the technical studies of this band in the EU, and therefore stands ready to contribute to ISED's analysis when it decides to examine wireless microphone use in this band.

**9. Authorization of wireless microphones on a secondary basis in the guard band (614-617 MHz) and duplex gap (652-663 MHz) (Section 8.2.2)**

**Q3.** ISED is seeking comments on its proposal to allow wireless microphones to access the broadcasting bands (54-72 MHz, 76-88 MHz, 174-216 MHz, 470-608 MHz), the duplex gap (652-663 MHz) and the guard band (614-617 MHz) on a licence-exempt basis, and the voluntary licensing of eligible users' wireless microphones.

A. ISED is seeking comments on the eligibility criteria to determine who should be permitted to voluntarily licence their systems (see paragraph 62).

B. Should ISED consider a licence-exempt approach for wireless microphones within the broadcasting or 600 MHz bands (614-617 MHz and 652-663 MHz)?

In providing comments, respondents are requested to include supporting arguments and rationale.

Shure strongly supports ISED's proposal to permit wireless microphones access to the broadcasting bands (54-72 MHz, 76-88 MHz, 174-216 MHz, and 470-608 MHz), the duplex gap (652-663 MHz), and the guard band (614-617 MHz) on a licence-exempt basis, and the voluntary



licensing of eligible users' wireless microphones. As outlined above, wireless microphone use is expanding while available UHF frequencies are being reduced by repurposing to broadband mobile operations. Accordingly, measures that allow wireless microphone users access to additional spectrum are necessary and fully justified.

ISED's proposal to permit licence-exempt and licensed wireless microphone use across the entire 470-663 MHz band, including the duplex gap and guard band, would facilitate more efficient, flexible, and convenient wireless microphone use of these bands and avoid imposing artificial and unnecessary distinctions between spectrum bands that are available for licence-exempt and those that are available for licensed operations. Shure agrees that while many wireless microphone users take advantage of the convenience of operating under licence-exempt status, licensing provides an important means to coordinate with other users and to exercise priority status for professional operators in high profile productions.<sup>19</sup> Under the proposed approach, wireless microphone users will be able to make the most effective product selections and spectrum choices in support of their productions. For manufacturers, commonality between SKUs utilized by unlicensed and licensed users enables economies of scale in production, resulting in cost benefits and a wider range of equipment offerings for both classes.

A. Shure strongly believes that licence eligibility criteria should be granted to users who can demonstrate a need for high quality audio in a professional context and that the definition of "professional" remain flexible to address the multitude of industries that rely on wireless microphones today. This approach will help ensure continuity of operations for users whose audiences demand low latency, interference free, highly reliable, professional grade audio that warrants the protections of licensing. Under current FCC rules, licence eligibility includes broadcasters, and other program producers, as well as large venue operators/owners and professional sound companies employing significant numbers of wireless microphones in productions. Although users eligible under these categories are certainly professional users in need of the reliability and certainty of interference protection afforded licensees, there are other professional users utilizing smaller numbers of wireless microphones that have similar requirements for high quality audio. The FCC is currently reviewing its licence eligibility requirements to incorporate these users, which Shure strongly supports.<sup>20</sup> These professional productions need the protections afforded licensees and operators supporting these productions deserve the opportunity to seek licensed status.

Another reason to adopt the more general "professional" criteria in lieu of a list of specific entities and venues eligible for licensing is that the methods of and entities producing content and distributing content are undergoing rapid and unpredictable changes and will likely continue to do so. Conventional notions of broadcasting, cable TV, motion picture production and even production venues no longer describe the universe of productions and content creators whose

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<sup>19</sup> 2017 ISED Consultation on Wireless Microphones at paras. 59-60.

<sup>20</sup> 2017 FCC Wireless Microphones Order & FNPRM; Comments of Shure Incorporated, *In the Matter of Promoting Spectrum Access for Wireless Microphones Operations et al.*, ET Docket No. 14-166 *et al.*, (filed Oct 2, 2017)

audiences rely on and expect professional audio. Nor do these old categories adequately capture the economic value or cultural or civic significance of productions relying on professional wireless microphone operation in other sectors.

For these reasons, licence eligibility should turn simply on a demonstration that a licence is needed to serve productions where professional grade wireless microphone support is necessary. Applicants can describe the nature of the performance, audience, audience expectation of high quality audio to serve important entertainment, business, or informational objectives. Licensees should continue to be obligated to follow responsible spectrum management practices, avoid interference, and operate in a spectrally efficient manner.

B. Shure similarly supports rules that would allow licence-exempt wireless microphone operations in the guard band and duplex gap as described in the response to Q1 above. Licence-exempt operations are very popular and entirely appropriate for certain productions or locations even though the devices are not protected from interference from white space devices or other microphones. The Canadian rules should permit wireless microphone operators to enjoy the convenience, lower cost, and simplicity of licence-exempt operation as appropriate for the proposed use. As contemplated, licence-exempt microphones would not operate at powers higher than WSDs or otherwise have priority over WSDs so users of both technologies are highly incented to share the available frequencies without interference.

**10. 2.6 Authorization of wireless microphones on a secondary basis in the frequency bands 941.5-952 MHz, 953-960 MHz, 6930-6955 MHz and 7100-7125 MHz (Section 8.2.3)**

**Q4.** ISED is seeking comments on its proposal to licence the operations of wireless microphones on a secondary basis in the frequency bands 941.5-952 MHz and 953-960 MHz, 6930-6955 MHz and 7100-7125 MHz, based on its eligibility criteria.

A. ISED is also seeking comments on the eligibility criteria (see paragraph 62).

In providing comments, respondents are requested to include supporting arguments and rationale.

Shure agrees with ISED that opening the 941.5-952 MHz and 953-960 MHz, 6930-6955 MHz and 7100-7125 MHz frequency bands to secondary wireless microphone operations on a licensed basis would help facilitate coordination between wireless microphone users and incumbent licensees. As discussed above in response to Q2, these frequencies will serve as important supplemental spectrum that will help respond to increasing audience demand for extremely reliable, high quality, interference free, professional grade audio. Professional wireless microphone operators can satisfy these high expectations and should be able to acquire licences which would enable them to access any supplemental spectrum identified in the 900 MHz, 7

GHz and other bands for licensed wireless microphone uses (and, in the TV band, to reserve channels in the white spaces database).

Eligibility criteria for licensing should identify where intended uses require “professional” quality wireless microphone operations. Shure strongly believes that licence eligibility should be granted to users who can demonstrate a need for high quality audio in a professional context, and that the definition of “professional” should remain flexible to address the multitude of industries that rely on wireless microphones today. This approach will help ensure continuity of operations for users whose audiences demand low latency, interference free, highly reliable, professional grade audio that warrants the protections of licensing.

As discussed above in response to Q3 B, Shure recommends that ISED adopt the more general “professional” criteria in lieu of a list of specific entities and venues eligible for licensing. Canadian licence eligibility criteria should not limit licences to traditional categories of content providers or distributors (*e.g.*, TV broadcaster or Cable TV providers) because the methods of and entities producing content and distributing content are undergoing rapid and unpredictable changes and will likely continue to do so. Conventional notions of broadcasting, cable TV, motion picture production, and even production venues no longer describe the universe of productions and content creators whose audiences rely on and expect professional audio. Nor do these categories adequately capture the economic value or cultural or civic significance of productions relying on professional wireless microphone operation in other sectors.

For these reasons, licence eligibility should turn simply on a demonstration that a licence is needed to serve productions where professional grade wireless microphone support is necessary. Applicants can describe the nature of the performance, audience, audience expectation of high quality audio to serve important entertainment, business, or informational objectives. Licensees should continue to be obligated to follow responsible spectrum management practices, avoid interference, and operate in a spectrally efficient manner.

Respectfully submitted,

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