**Meeting Minutes**

Meeting: IWG-2 (Meeting 20)

Date/Time: Thursday, March 22, 2018 1:00-3:00 p.m. EST

Location: Conference call

Committee Members & Observers Present:

Acting Chair: Tricia Paoletta (Harris, Wiltshire & Grannis LLP)

For additional members and observers present, see attached Appendix A.

FCC Employees Present:

Michael Mullinix, Designated Federal Official (DFO) for WAC-19

Dante Ibarra, Larry Olson, and Allen Yang.

Meeting Summary:

1. Approval of Agenda:

Tricia Paoletta introduced the agenda in Document **IWG-2/068 (22.03.18)**.The agenda was approved.

1. FCC Reps, Opening Remarks and Introductions:

Michael Mullinix, DFO for WAC-19 confirmed his presence on the call and volunteered to take roll-call attendance of the participants on the call.

1. Approval of minutes from previous IWG-2 meeting:

The minutes of the previous meeting as contained in **IWG-2/066 (20.03.18)**

were discussed.

* A comment was made that relative to the minutes for the draft proposal on Agenda Item 1.13, the statement “members express that the proposal does not address the substantive concerns documented in the minutes of IWG-2 meetings (Doc 065)” should be added to the minutes. It was also suggested that the phrase “no further discussions had taken place” should be added to the minutes relative to the draft proposal for Agenda Item 9.1.1. There was agreement that the above characterization was a fair representation of what happened. It was agreed that the edit would be sent to Michael Mullinix.

Kathryn Martin (Access Partnership) agreed to take the minutes of the meeting.

1. Discussion of Draft IWG-2 Preliminary Proposal:
2. Agenda Item 1.13: Reza Arefi, Intel, introduced Document **IWG-2/061r2 (21.03.18)**, and informed IWG-2 that the changes are marked R1 and R2. He said that the most important change is the addition of text related to Resolution 752 and added that the benefit of harmonization of spectrum range is also explained. Mr. Scott Kotler, Lockheed Martin, requested that the second paragraph in the background information be reworked and made clearer. He also expressed uncertainty in what the next sentence, “national level due to relatively small separation levels” said regarding SRS. It was noted that a discussion on a more descriptive way of presenting the results is needed. Mr. Kotler also stated that there have not been modifications to address any of the substantive issues raised in the previous meeting. Mr. Mullinix suggested that all the proposed changes be sent in writing by March 30, and encouraged all members to first provide edits to the author and then to the IWG-2 listserv. He added that if there is consensus, the proposal will be presented to the WAC. If other members decide to address the views through an alternate proposal, that can also be proposed to the WAC. He underscored that the whole basis of the advisory committee is to advise the FCC and stressed that different proposals need to be made available in time to make sure that they are thoroughly analyzed by all the WAC’s members. In response to a question on how to express disagreement with a certain issue in such documents, Mr. Mullinix responded that authors may choose to prepare an alternative proposal with a cover note that expresses how their views differ from the original proposal. A question was posed to the author regarding the study which finds that sharing is possible but with several caveats. Mr. Arefi responded that the 1 km mentioned in the study is not the separation distance concluded by the study and that it was used as a nominal distance to produce results. He added that results could be produced for other distances as well since the acceptable separation distance depends on the protection criteria used. There was also a concern raised over the 47.2-51.4 GHz band which was not covered by the author (Intel). When asked if there was interest from the IMT proponents on the matter, the response was that it would be discussed separately with Jayne Stancavage from Intel when next available. Other issues that were raised included clarification on changes to Resolution 752 and EESS and RAS in the 40-40.5 GHz band. Upon being asked about the small separation distances in this band where EESS and SRS are in uplink, Mr. Arefi said he would double-check about uplink and downlink. It was also clarified that the levels considered for passive services are according to WRC Resolution 752. The chair rounded up the discussion by saying that any specific edits to this document are to be passed along to Mr. Arefi and Ms. Stancavage as soon as possible. Mr. Mullinix added that any edits to be made available to the IWG-2 listserv by the end of the month.
3. Agenda Item 1.14: Kathryn Martin, Access Partnership, presented Document **IWG-2/064r2 (09.03.18)** and introduced the changes that have been made in the current draft. A couple of notable changes included the addition of “mod” where a footnote could be modified and inclusion of language to the footnotes. The author’s desire is to capture terms for operations in the footnotes themselves. The intention is not to remove all the restrictions but to place them in the draft Resolutions. She also proposed other edits to Resolution 145 and referenced that Resolution 122 would be revised by the inclusion of an updated “recognizing” and in particular, the increase in the max EIRP density level to overcome rain fade. For now, the document contains “TBD” for the exact power level. For the 21.4-22 GHz band, the author is proposing the addition of a new footnote for this band to be used by HAPS in the FS allocation. This would be through Resolution XXX and draft language is currently being developed. Scott Kotler, Lockheed Martin, informed IWG-2 that he would want to work with Facebook offline to address the directional issue on the 21 GHz band. Phillippe Secher, SES questioned the intended timeline for this proposal, to which Kathryn Martin responded that her intention is to include the details in the next draft for April 10th and put forward a final draft for April 23rd. Michael Mullinix said there are still some aspects that need to be drawn out, including proposed Resolution ZZZ. He insisted that if this is going to the WAC, the proposal should be out for everyone to review by the end of the month. Kathryn Martin agreed to try to meet his end of the month deadline. Steve Baruch, New Wave Spectrum Partners, asked why the author was digressing from the approach to the 28 GHz proposal submitted to the US WP 5C process, looking at Ground-to-HAPS direction. He also questioned changes in Resolution 122 and Resolution 145, which he said were substantial. He noted that the secondary identifications could not simply be removed and informed that he will be providing some additional comments. Kathryn Martin expressed appreciation for his comments and offered to discuss the matters offline. She, however, did clarify that for the 28 GHz band, she was proposing to use that as a downlink. Reza Arefi also asked to discuss offline about text on agreement to coordinate with neighboring administrations.
4. Agenda Item 1.15: Michael Marcus, IEEE-SA, was expected to present **Document IWG-2/048r2 (21.02.18).** Michael Mullinix informed IWG-2 that Mr. Marcus was presently unavailable. Scott Kotler, Lockheed Martin, noted that he had not received a response on the substantive questions he had sent.
5. Issue 9.1.1: Brennan Price, Echostar, presented Document **IWG-2/062r1 (21.02.18)**. He informed the meeting that following discussions, the proposal remains substantively unchanged. The revision presented to IWG-2 adds a “reason clause”. Because the author had since become aware of an alternative proposal, the authors stated that they would be willing to have discussions on the matter. Don Jansky, Jansky-Barmat, expressed his support of the original proposal and said that he is willing to move forward with this proposal with others who are willing to support it.

Julie Zoller, Omnispace, presented Document **IWG-2/069 (21.03.18),** along with some general background information. ITU-R studies shows that in the 1.9 -2.1 GHz study, the protection criteria are predicted to be exceeded. There is no coordination procedure to address this issue and it can most effectively be mitigated through a terrestrial uplink operation. Footnote No. **5.383** mandates that the use of the band must not cause harmful interference to the mobile service. The proposal in **IWG-2/069** is to modify Resolution 212. A *resolve* to limit the power to the antenna has been added and obsolete text has been deleted. Comments were made that these bands have been available for over 25 years. In that time, both satellite and terrestrial systems have been implemented and a lot of resources have been expended on this implementation. In the cases of concern here, there have been many bilateral discussions where implementation of mitigation techniques have taken place. Further comments were made by Charlie Rush, SGE, who said that in the bands under discussion, there are a number of entities with assets. The rules pertaining to those bands are contained in RR-CSR.24. This regulation indicates the power limits for transmission and the bands that are subject to this discussion. A reference is made to a study about the sharing between ground and terrestrial component of IMT in the same place at the same time. Overall, Charlie Rush concluded that there are several problems with this proposal. Brennan Price also agreed that the proposal in **IWG-2/069** is a significant departure from the approach taken in the U.S., but with good reason. He said that this document is an effort to resolve issues with fairly significant restrictions on terrestrial operations. He iterated that the authors of **IWG**-2/062r1 have proposed a “no change” approach because a regulatory change is inherently unfair to those who have made decisions to invest in this band. Michael Mullinix said that IWG-2 could send both documents forward to WAC and offered to provide the format for sending two different Views on the alternate draft proposals.

Other matters:

Michael Mullinix informed the participants that WAC has been re-chartered and that the new charter comes into force in April. Everyone who has already been cleared still needs to go through another vetting process. IWG-2 participants were requested to send their information to the WAC Director by March 30th.

Kathryn Martin also requested the observers to send a note about their presence on the call.

1. Update on Current Status:

The FCC informed that discussions on a proposal on Issue 9.1.5 were still underway.

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| Agenda Item/  Issue | Topic | Res. # | PV | Proposal |
| 1.1 | Amateur 50-54 MHz, R1 | 658 | WAC Approved 18.04.17 | **IWG-2/060r2** agreed to be sent to WAC for consideration |
| 1.11 | Railways | 236 | WAC Approved 24.10.16 | WAC Approved 18.04.17 |
| 1.12 | ITS | 237 | WAC Approved 24.10.16 | WAC Approved 18.04.17 |
| 1.13 | IMT | 238 | WAC Approved 24.10.16 | **IWG-2/061r2** for consideration (37-43.5 GHz) |
| 1.14 | HAPS | 160 | WAC Approved 24.10.16 | **IWG-2/064r2 (21.02.18)** for consideration |
| 1.15 | 275-450 GHz | 767 | WAC Approved 24.10.16 | **IWG-2/048r2** for consideration |
| 1.16 | WAS/RLAN 5 GHz | 239 |  |  |
| 9.1.1 | IMT ~2 GHz | 212 | WAC Approved 30.10.17 | **IWG-2/062r1 and IWG-2/069** for consideration |
| 9.1.2 | 1 452-1 492 MHz, R1 and R3 | 761 | WAC Approved 24.10.16 | WAC Approved  30.10.17 |
| 9.1.5 | Rec. ITU-R M.1638-1 & M.1849-1 (5 GHz) | 764 | WAC Approved 24.10.16 | WAC Approved 30.10.17 |
| 9.1.8 | MTC | 958 | N/A (Proposal) | WAC Approved 18.04.17 |
| 10 | Future AI | 810 |  |  |

1. Next meetings:

* [IWG-2](https://www.fcc.gov/document/wrc-advisory-committee-meetings-iwg-2-0)

Date: Tuesday, April 10, 2018

Time: 1:00 p.m. – 3:00 p.m. EST

Teleconference Only: 888-858-2144 or 646-746-3008

Participant Code: 8672480

* [WAC](https://www.fcc.gov/document/wrc-advisory-committee-schedules-5th-meeting-april-23-2018)

Date: Monday, April 23, 2018

Time: 11 am-12 pm EST

Location: Federal Communications Commission, Room TW-C305

Documents Distributed:

IWG-2/048r2 AI 1.15 draft proposal (Revision 2)

IWG-2/060r2 AI 1.1 draft proposal (Revision 2)

IWG-2/061r2 AI 1.13 draft proposal (Revision 2)

IWG-2/062r1 Issue 9.1.1 draft proposal (Revision 1)

IWG-2/064r3 AI 1.14 draft proposal (Revision 3)

IWG-2/067 Meeting 19 minutes

IWG-2/068 Meeting 20 agenda

IWG-2/069 Issue 9.1.1 draft proposal

Public Participation Statement:

Meeting IWG-2/20 (22.03.2018) was open to the public ([DA 18-33](https://www.fcc.gov/document/wrc-advisory-committee-meetings-iwg-2)) and had 12 members, 10 observers, 1 IWG-2 official and 4 FCC employees in attendance.

Author:

Kathryn Martin, Access Partnership, prepared these minutes.

**Appendix A: Additional Attendees at March 22, 2018** **meeting of IWG-2**

**Members**

| **Organization** | **Member Name** |
| --- | --- |
| Access Partnership | Kathryn Martin |
| Comcast Corporation | Bruce Kostreski |
| EchoStar Corporation | Brennan Price |
| Facebook | Michael Tseytlin |
| Intel Corporation | Reza Arefi |
| Intelsat | Alex Gerdenitsch |
| Jansky-Barmat Telecommunications Inc. | Donald M. Jansky |
| Lockheed Martin | Scott Kotler |
| Microsoft Corporation | Michael Daum |
| National Cable & Telecommunications Association | Andy Scott |
| New Wave Spectrum Partners LLC | Stephen Baruch |
| Strategic Spectrum Solutions | Giadira V. Leon |

**Observers**

1. Colin Alberts, Freedom Technologies, Inc.
2. Ed Ehrlich, InterDigital Communications, Inc.
3. James Higgins, ASRC Federal Technical Services for NASA
4. Madi M. Lottenbach, Wiley Rein LLP
5. Bruce Lamb, NTIA
6. Tom Schaffnit, DoT
7. Brian Patten, NTIA
8. Amy Sanders, NTIA
9. Brandy Jo Sykes, Apple
10. Lalji Ghedia, SSL