IEEE-GRSS

Frequency Allocations in Remote Sensing Technical Committee (FARS-TC)

Minutes of 2019 Annual Meeting

Date: August 29, 2019

Location: Yokohama, Japan

Participants: Paolo de Matthaeis, Roger Oliva, Yan Soldo, Bill Blackwell, Shannon Brown, Kaushal Buch, Adriano Camps, Roger Carter, Giovanni De Amici, Xiaolong Dong, Bill Emery, Dara Entekhabi, Al Gasiewski, Brian Hornbuckle, Joel Johnson, David Kunkee, Yann Kerr, Ed Kim, Steen Kristensen, David Le Vine, Hao Liu, Hui Lu, Eric Loria, Sid Misra, Priscilla Mohammed, Ryo Natsuaki, Sharmila Padmanabhan, Hyuk Park, Jinzheng Peng, Jeffrey Piepmeier, Joan Ruiz De Azua, Rashmi Shah, Jiancheng Shi, GuoTian Shu, Karen St Germain, Jia Su, Mingliang Tao, Ji Wu

Discussion

The annual meeting begins at 18:00. Chair Paolo de Matthaeis shows some slides (see separate "FARS Meeting 2019 Presentation" file) to introduce the FARS Technical Committee (FATS-TC) to newcomers and discuss the activities undertaken by the committee since last year meeting. Paolo has been re-elected Chair in the recent elections, while Roger Oliva and Yan Soldo have been confirmed Co-chairs. Tobias Bollian (DLR), who was also a candidate in the elections, will join the FARS-TC leadership team in a new internal role of Secretary.

Paolo then starts listing and commenting on the various activities:

1. planning RFI 2019 Workshop in Toulouse on September 23-26, 2019
2. status of FARS online tools, available at http://www.grss-ieee.org/fars-tools/
3. creation of FARS-TC Chapter in China
4. ITU-R and Space Frequency Coordination Group (SFCG) meetings
5. other small meetings attended by FARS-TC representatives

Paolo summarizes the work done at the meetings of the ITU-R Working Parties 7C and 3J and at SFCG-38 in August 2018 and SFCG-39 in July 2019 with regards to the investigation of the cause of RFI observed over ocean at 18 GHz. Other contributions to the SFCG include participation in the CSSMA-SFCG Workshop, reporting on the status of the IEEE GRSS RFI database and preparation of a manual to help involvement of individuals in spectrum management processes.

Then, Paolo starts a discussion on the update on the Agenda Item 1.13 of the upcoming World Radiocommunication Conference (WRC). Among all the bands considered for 5G, technically referred to as IMT-2020 (International Mobile Telecommunications for 2020 and beyond), the 24.25 –27.5 GHz frequency range is the most critical in terms of ongoing negotiations due to its proximity to the passive remote sensing band at 23.6 –24.0 GHz and the US proposal of a weak out-of-band emission limit of -20 dBW/200 MHz.

While the US Federal Telecommunication Commission (FCC) has already auctioned the 24.25-27.5 GHz band for 5G in March despite opposition from NASA, NOAA and US Department of Defense netting approximately $2.4 billion, most other countries support much stricter limits and the World Meteorological Organization (WMO) recommends -55 dBW/200 MHz.

Al Gasiewski notes that harmonics may be an even bigger problem with 5G than Out-of-Band Emissions (OOBE). He suggests that measurements could be taken in places where 5G is being tested to see if harmonics are present.

Al also asks what would happen if the ITU agrees on emission limits stricter that those implied by the US in its 24 GHZ spectrum auction, and Paolo responds that it is not clear, but the US situation might be grandfathered in, meaning that the US would be allowed to operate with less stringent emission limits. Paolo points out that telecommunication companies have the technology to design better filters, but there is unwillingness from US companies to spend more money in that direction. Al also wonders what would happen if different power emission limits are set for US and the rest of the world. Would US companies end up losing the international market by building sloppier filters for the domestic market? Giovanni De Amici also thinks that it is important to push lower limits at the ITU level, and that would push US manufacturers to comply with the international standards.

Jeff Piepmeier and Karen St. Germaine stress the fact that the scientific community has to move faster, increase awareness of the problem and of its consequences and do a better job at pointing out the risk. Jeff says that the impact has to be quantified, for example, by crudely saying how many people are going to die due to compromised weather forecasts.

Karen notes that a dollar quantification of the impact of losing NOAA services due to RFI has been done in the past, but, for a catastrophic event, it is difficult to quantify the improvement that remote sensing can provide. Jeff says that FARS should look at the impact of losing specific remote sensing bands.

Manuel Martin-Neira says that maybe it is too late to perform a study on the impact of OOBE at 24 GHz before WRC-19, but on the other hand that could be useful for the scientific community. David K. adds that in the past, even studies made after ITU decisions have made manufacturers to change practices, and in that sense a study would never be too late.

Ed Kim proposes to broaden the involvement to other IEEE societies or the IEEE president, and find other ways to participate in ITU decisions. Shannon Brown says that it may be worth to include other organizations, such as the American Meteorological Society (AMS). David K. points out that there are panel discussions at AMS, so that may be a good

audience to target. David K. also says that at a recent meeting at the European Centre for Medium-Range Weather Forecasts (ECMWF) in September 2018 there was a discussion and a document about the impact of losing the 24 GHz band.

David K. proposes to start a draft roadmap, and it is agreed that leadership for that has to be outside the US Federal Government. David K. thinks that it is better to first get involved with EMCWF and similar agencies that are closer to the stakeholders. Ed would like to see a list of such stakeholder, such as meteorologists, insurance companies, etc., and then reach out to them.

Al suggests that in addition to this, an editorial article could also be published on the New York Times.

Given the number of proposal and the interest in this discussion, it is agreed that a smaller group will meet again before the end of IGARSS to prepare a better plan.

The last item of discussion is brought up by Roger Oliva and it is a potential initiative of FARS-TC regarding Standards for RFI. The work would be done together with the GRSS Standards for Earth Observations (GSEO) Technical Committee. Some possibilities for the topics, still open for discussion include standards or recommendations for

- EMC analysis on antenna/receivers installation,
- RFI reporting,
- RFI information to be made available in missions data products,
- guidelines for missions to include RFI location activities as part of their operations.

A joint meeting between the FARS and GSEO technical committees will be held on Tuesday, August 30, to better discuss these options.

The meeting is adjourned shortly after 20:00.