IUCAF Activity Report between 2009 and 2012

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Chairman of IUCAF

IUCAF

- IUCAF (The Scientific Committee on Frequency Allocations for Radio Astronomy and Space Science)
- Established in 1960, sponsored by URSI, IAU and COSPAR, under ICSU
- Sector member of ITU (International Telecommunication Union) → regular participation to ITU meetings
- to ensure the protection of radio frequencies allocated to astronomy and passive space sciences and minimize interference to these scientific observations and measurements

Membership and Finance

- 13 members
  - URSI: 5 members
    Comm J -- Ananthakrishnan (India), Tzioumis (Aus),
    van Driel (Fr)
    2 members from Comms F and G
  - IAU: 5 members
    Ohishi (J; chair), Liszt (US; vice chair),
    Tapping (Can → steps down),,,
  - COSPAR: Murata (J)
  - At large: two former chairs
- Finance
  - Incomes in Euro: URSI (2k), IAU (5k), COSPAR (1k)
  - Current balance: ~22 k Euros
  - Expenditures: travel support

Meetings

- ITU meetings: 11 (WPs, SGs, CPM, WRC)
- SFCG (Space Frequency Coordination Group) meetings: 2 (every year)
- IUCAF Summer School on Spectrum Management, June 2010 in Tokyo
- IAU GA in 2009, Rio de Janeiro
- URSI GA in 2011, Istanbul
- (IAU GA in 2012, Beijing)

IUCAF Summer School

- May 31 – June 4, 2010
- 44 participants from 13 countries, including regulators and 10 young (<35 yrs old) people
- Program
  - Procedure and structure of ITU and regional regulatory bodies
  - Radio receivers, spectrometers, propagation models
  - Actual RFI cases
  - Radio Quiet Zones
  - http://www.iucaf.org/SSS2010/presentations/SS2010_presentations.htm

Summer School 2013 is planned in Chile

Protecting Radio Astronomy and Passive Space Services (WRC-12) (1)

- Identification of bands between 275 and 3000 GHz – successful upgrade of FN5.565
  → ALMA & Earth observations from space

Upgraded FN 5.565

5.565 The following frequency bands in the range 275-1 000 GHz are identified for use by administrations for passive service applications:

– radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;

– Earth exploration-satellite service (passive) and space research service (passive): 275-286 GHz, 296-306 GHz, 313-356 GHz, 361-365 GHz, 369-392 GHz, 397-399 GHz, 409-411 GHz, 416-434 GHz, 439-467 GHz, 477-502 GHz, 523-527 GHz, 538-581 GHz, 611-630 GHz, 634-654 GHz, 657-692 GHz, 713-718 GHz, 729-733 GHz, 750-754 GHz, 771-776 GHz, 823-846 GHz, 850-854 GHz, 857-862 GHz, 866-882 GHz, 905-928 GHz, 951-956 GHz, 968-973 GHz and 985-990 GHz.

The use of the range 275-1 000 GHz by the passive services does not preclude use of this range by active services. Administrations wishing to make frequencies in the 275-1 000 GHz range available for active service applications are urged to take all practicable steps to protect these passive services from harmful interference until the date when the Table of Frequency Allocations is established in the above-mentioned 275-1 000 GHz frequency range.

All frequencies in the range 1 000-3 000 GHz may be used by both active and passive services. (WRC 12)

Protecting Radio Astronomy and Passive Space Services (WRC-12) (2)

- Allocations just above the 15.35-15.4 GHz RAS band -- no allocation to the Mobile Satellite Service, but an allocation (15.4-15.7 GHz, worldwide) to the Radio Location Service;

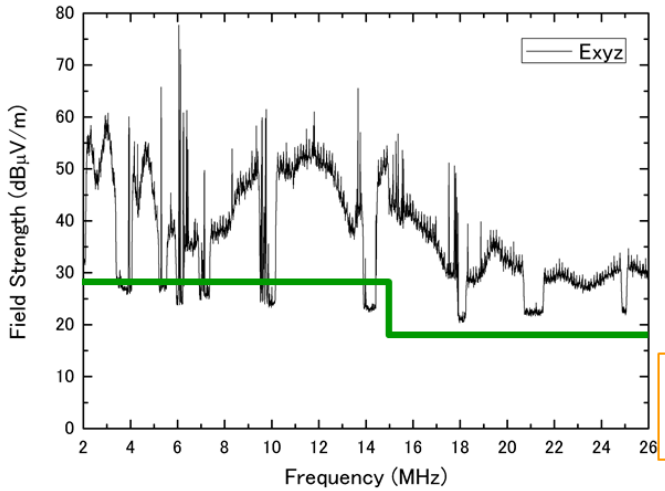
  different views on data loss of RAS observations (2% vs 0%)
  → put forward to a BR report to WRC-15)

Other Issues

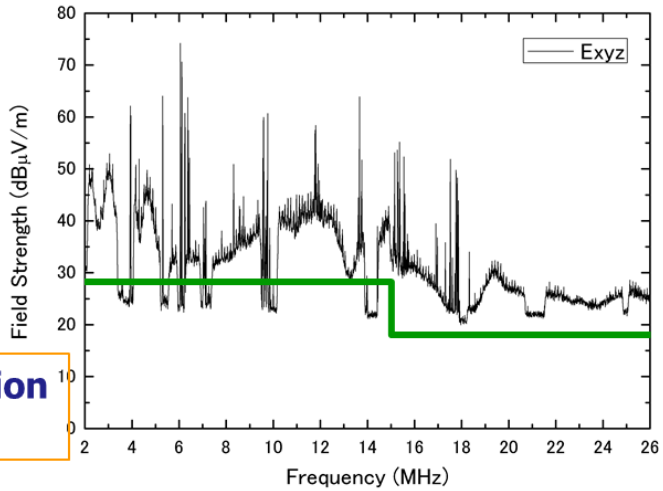
- PLT (Power Line Telecommunication) up to a few 100 MHz
  serious interference has been known;
  measured results are incorporated in Report ITU-R SM.2158; Protection requirements in Rec ITU-R SM.1879
  → internal battle still going on in CENELEC, CISPR, some countries including Japan

Examples of PLT Disturbance

5m

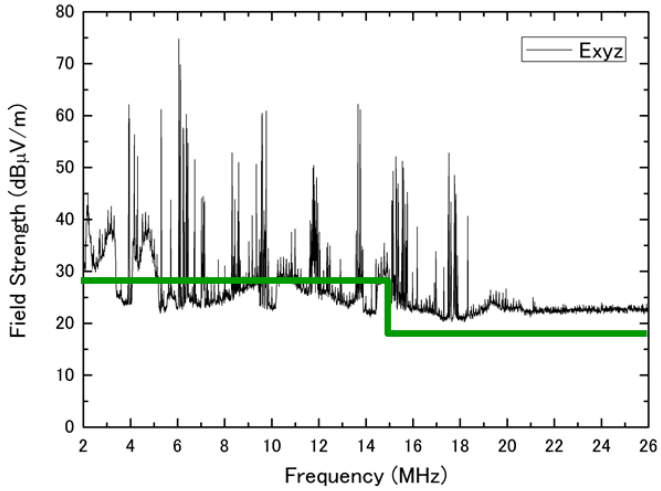


10m

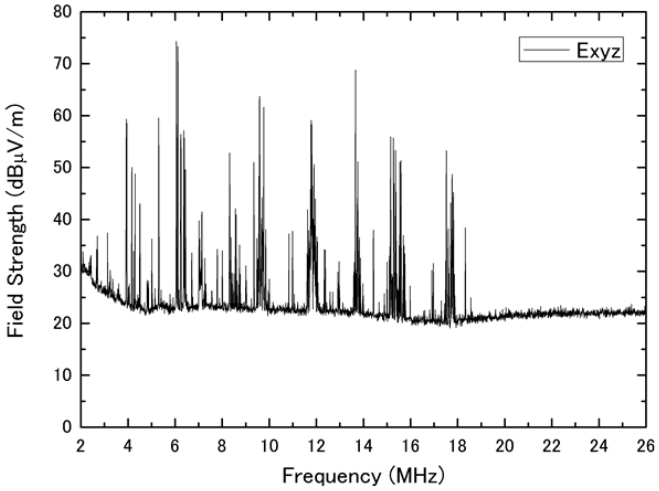


Regulation Limits

30m



Ambient @ 10m



Relevant Agenda Items to WRC 15

- 77-81 GHz car radar (UWB radar):
  -6dBm/device of transmission power is found very problematic to RA (separation distance of a few 10s of km), and discussion is going on
  → WRC15 AI1.6
- Identification of new frequency allocation(s) to IMT (AI.1.1 – JTG4-5-6-7)

Summary

- IUCAF has been activity tackling against RFI issues, however, we need more active and younger members for the RAS sustainability (if passive services need to be protected).
- Successful upgrade of FN5.565
- Not so many issues toward WRC-15, but the protection against the UWB car radars would be tough.