



Spectrum Workshop

Friedrichshafen

28 June 2014

International Amateur Radio Union – Region 1
Working for the future of Amateur Radio



Spectrum Workshop

Agenda

- 4 Metres - The IARU Region 1 Initiative – EI3IO
- 5 MHz - WRC-15 Agenda 1.4 Item progress – PB2T
- Galileo - Threats to the amateur service – G6JYB
- WRC-15 - Other agenda items of interest
1.10, 1.12, 1.18 and 9.1.8 – G3PSM
- Future WRC Agenda Items – G3PSM

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

4 Metres

The IARU Region 1 Initiative

David Court, EI3IO

Friedrichshafen - 28 June 2014

International Amateur Radio Union – Region 1
Working for the future of Amateur Radio



Spectrum Workshop

Background to the 2014 IARU R1 initiative to obtain regulatory recognition in Europe for a secondary frequency allocation to the amateur service at 70 MHz – 4 metres

Dave Court EI3IO, A92IO, G3SDL, OZ3SDL

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

- Historical amateur activity in band 30 – 120 MHz (10 to 2.5 metres)
 - Multiple of 28 MHz e.g. 56 & 112 MHz harmonically related
 - Pre war 5 metre (2.5 & also 1.25 i.e. 225 MHz in US) band
 - 5 metre band withdrawn in UK in 1949
 - Post War division from 144 MHz e.g. RR 182 in 1947 ITU RR 72 – 72.8 MHz in France and USSR.
 - First and only international recognition of 4m amateur use
 - In November 1956 UK NRA released 70.2 – 70.4 MHz

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

- Fast Forward 45 years to 1991
 - CEPT's ERO opens in Copenhagen
 - One of its initial tasks – development of ECA
 - European radio spectrum review - DSI process
 - Phase II addressed 29.7 – 960 MHz
 - Submission from UKSMG requested amateur allocation circa 70 MHz citing propagation studies
 - 1995 DSI Report included secondary amateur allocation 69.95 – 70.45 MHz (in draft ECA)

Friedrichshafen - 28 June 2014

International Amateur Radio Union – Region 1
Working for the future of Amateur Radio



Spectrum Workshop

DSI Report also included a recommendation:

- *“The DSI Management Team recommend in the context of the European Table of Allocations and in accordance with the foregoing , that a minimum of 100 kHz in the band 70 – 70.45 MHz be allocated to the amateur service on a secondary basis according to national considerations, if feasible, centred on 70.2 MHz”*
- In 1997 CEPT’s European Radiocommunications Committee concluded *“The ERC accepts this recommendation in principle pending a possible harmonised secondary allocation to the amateur service for F2-layer ionospheric propagation experiments”*

Friedrichshafen - 28 June 2014

International Amateur Radio Union – Region 1
Working for the future of Amateur Radio



Spectrum Workshop

- Fast forward 17 years to 2008
 - UK amateurs had 70.0 – 70.5 MHz (since 1987)
 - 9 other CEPT countries had a 4 metre allocation within this range. Band was actively being considered in 4 other countries
 - Ireland proposed to CEPT WGFM to include a secondary allocation to amateur service in ECA
 - Not successful (only 6 countries supported)
 - But importantly EU9 added to ECA

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

- EU9 - In a growing number of CEPT countries, parts of the band 70.0-70.5 MHz are also allocated to the Amateur service on a secondary basis.
- With 30 CEPT countries now having some form of access to the 4 metre band, IARU Region 1 has determined that 2014 is an appropriate time to revisit the ECA

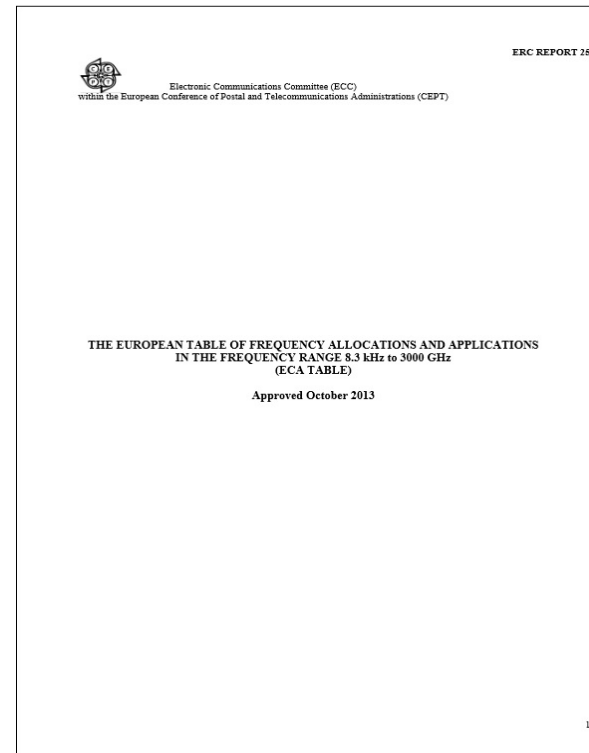
Friedrichshafen - 28 June 2014

International Amateur Radio Union – Region 1
Working for the future of Amateur Radio



Spectrum Workshop

- European Frequency Table for the 48 CEPT countries
- Not mandatory
- Contributes to the ECO Frequency Information System (EFIS)
- Used as a reference by CEPT and EU for Frequency Management purposes
- Updated regularly
- Downloadable



Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

- BUT why only European (CEPT) countries?
- Ideally Article 5 of ITU Radio Regulations should be amended
- Article 5 changes result from WRCs which occur every 3 years
- Fierce competition for WRC agenda items – 6 year cycle
- Even if 70 MHz on a WRC agenda, outcome is not certain
- More appropriate amateur bands for discussion at a WRC e.g. 50 MHz throughout Region 1 as one example
- It is felt that if Europe achieves regulatory recognition for 4m via ECA other countries in Region 1 will likely follow (Bahrain, UAE)

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

- TODAY in addition to 30 CEPT countries having 2-way access on 4m
- Over 60 DXCC entities in theory workable
- In addition to Europe, territories in Africa, Antarctica, Asia and North America have 2-way access
- Lower band limit now 69.9 MHz
- Cross-band working also occurs

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

2014 IARU R1 Initiative

- 10 supporting administrations required to change ECA
- Two pronged approach to achieve support for an IARU R1 and multinational proposal to CEPT WGFM



National Societies lobby their Regulator to support an ECA change



IARU R1 delegates to CEPT WGFM liaise directly with representatives from the 30, 70 MHz countries to co-sign proposed ECA change

Friedrichshafen - 28 June 2014

International Amateur Radio Union – Region 1
Working for the future of Amateur Radio



Spectrum Workshop

2014 IARU Region 1 Initiative – Comment

- Would seem reasonably easy to find 10 country support when 30 countries have a 4m band
- We must not be complacent
- Need sufficient time to obtain buy-in
- National Societies should realise growing interest
- National Societies need to discuss with frequency managers as well as licensing and enforcement contacts

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

82nd Meeting of WGFM – Trondheim, May 2014

- 21 Frequency Managers consulted on concept
- All agreed to consider an input from IARU Region 1 on 4m
- Draft document prepared and circulated to National Societies as well as IARU Region 1 EC and Committee 5
- Comments due **end June 2014**
- If necessary document will be revised and National Societies can initiate contacts with their regulator
- IARU Region 1 will discuss with contacted WGFM delegates

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

Proposed Change to ECA

| <i>RR Region 1 Allocation and RR footnotes applicable to CEPT</i> | <i>European Common Allocation</i> | <i>ECC/ERC harmonisation measure</i> | <i>Applications</i> | <i>European footnotes</i> | <i>Standard</i> | <i>Notes</i> |
|---|-----------------------------------|--------------------------------------|---------------------|---------------------------|--|--|
| 68 - 70.45 MHz | | | | | | |
| FIXED | MOBILE | | Defence systems | EU1 | | |
| MOBILE except aeronautical mobile | Amateur | | Amateur Radio | | | Amateur within 69.9 – 70.45 MHz |
| 5.175 | EU2 EU4 EU9 | ECC/DEC/(06)06 T/R 25-08 | PMR/PAMR | | EN 300 086 EN 300 113 EN 300 219 EN 300 296 EN 300 341 EN 300 390 EN 300 471 EN 301 166 EN 302 561 | ML paired with 77.8-80.25 MHz |
| 70.45 - 74.8 MHz | | | | | | |
| FIXED | MOBILE except aeronautical mobile | | Defence systems | EU1 | | Harmonised military band 73.3-74.1 MHz |
| MOBILE except aeronautical mobile | Radio astronomy | | Amateur Radio | | | Amateur within 70.45 – 70.5 MHz |
| 5.149 | 5.149 EU2 | ECC/DEC/(06)06 | PMR/PAMR | | EN 300 086 | ML paired with 80.25-84.6 MHz |
| 5.175 | EU4 | T/R 25-08 | | | EN 300 113 | |
| 5.177 | EU9 | | | | EN 300 219 | |
| 5.178 | EU27 | | | | EN 300 296 | |
| 5.179 | | | | | EN 300 341 | |
| | | | | | EN 300 390 | |
| | | | | | EN 300 471 | |
| | | | | | EN 301 166 | |
| | | | | | EN 302 561 | |

Radio astronomy Continuum observations (inter-alia solar wind monitoring in 73-74.6 MHz)

Modification to footnote EU9 as follows:

- EU9 - CEPT countries may authorize all or parts of the band 69.9-70.5 MHz to the Amateur service on a secondary basis.

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

- IARU Region 1 will keep National Societies and C5 informed of progress
- In turn please keep IARU Region 1 informed of any news which may be of interest
- If IARU Region 1 is successful the ECA is likely to be amended in Summer 2015

Friedrichshafen - 28 June 2014

International Amateur Radio Union – Region 1
Working for the future of Amateur Radio



Spectrum Workshop

BUT

- We are asking for a regulatory mechanism which recognises a use of the radio spectrum which started in the 1950s on a national basis and is NOW gaining significant momentum throughout Europe.
- And we are also seeking to establish a regulatory framework to facilitate access to the band by countries requiring international agreement before proceeding.

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

Now for the not so good news

- Remember the ECA is not mandatory on CEPT member countries
- Countries do not have to implement a 4m allocation even if there is one in the ECA
- Furthermore IARU R1 and National societies are not urging ALL CEPT administrations to release all or parts of the band 69.9– 70.5 MHz to the amateur service on a secondary basis
- and secondary means the primary MOBILE service must be protected at all times

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

Thank you for listening. CU on 4m

<http://www.70MHz.org> is a good place for 4m news

73 Dave EI3IO

Email: EI3IO@connogue.com

Web site: <http://EI3IO.com>

Friedrichshafen - 28 June 2014

International Amateur Radio Union – Region 1
Working for the future of Amateur Radio



Spectrum Workshop

5 MHz

WRC-15 Agenda Item 1.4 progress

Hans Blondeel Timmerman, PB2T

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

WRC-15 Agenda Item 1.4

to consider a possible new allocation to the amateur service on a secondary basis within the band 5 250-5 450 kHz in accordance with Resolution 649 (WRC-12)

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

Resolution 649 (WRC-12)

invites WRC-15 to consider, based on the results of the ITU-R studies, the possibility of making an allocation of an appropriate amount of spectrum, not necessarily contiguous, to the amateur service on a secondary basis within the band 5 250 - 5 450 kHz

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

CPM Text

- Method A
 - A1: 5 275 – 5 450 kHz
 - A2: 5 350 – 5 450 kHz
 - A3: [xx] kHz in the range 5 275 kHz to 5 450 kHz.
 - A4: several specific channels in the range 5 275 kHz to 5 450 kHz
- Method B: No change

Friedrichshafen - 28 June 2014

International Amateur Radio Union – Region 1
Working for the future of Amateur Radio



Spectrum Workshop

Positions of RTO's

- ASMG no change
- ATU in support – but never know
- CEPT slowly moving in a better direction
- RCC no change
- APT there is an opening
- CITELE not clear

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

Proposed way ahead

- Amateurs have proven to be able to share with fixed and mobile services
- Sharing with military in peacetime
- Listen before transmit
- Monitoring results
- Meet with your administration

Friedrichshafen - 28 June 2014

International Amateur Radio Union – Region 1
Working for the future of Amateur Radio



Spectrum Workshop

Galileo/23cms

**Threats to the amateur service –
Murray Niman, G6JYB**

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



23cm Allocation Summary

- We are Secondary...
 - Amateur Service: 1240 – 1300 MHz
 - Amateur Satellite Service: 1260 – 1270 MHz (E>S)
- Radar has ultimate Primary priority
- Galileo is therefore unfortunately a weak signal

1 240-1 300

EARTH EXPLORATION-SATELLITE (active)

RADIOLOCATION

RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space)

5.328B 5.329 5.329A

SPACE RESEARCH (active)

Amateur

5.282 5.330 5.331 5.332 5.335 5.335A

International Amateur Radio Union – Region 1
Working for the future of Amateur Radio

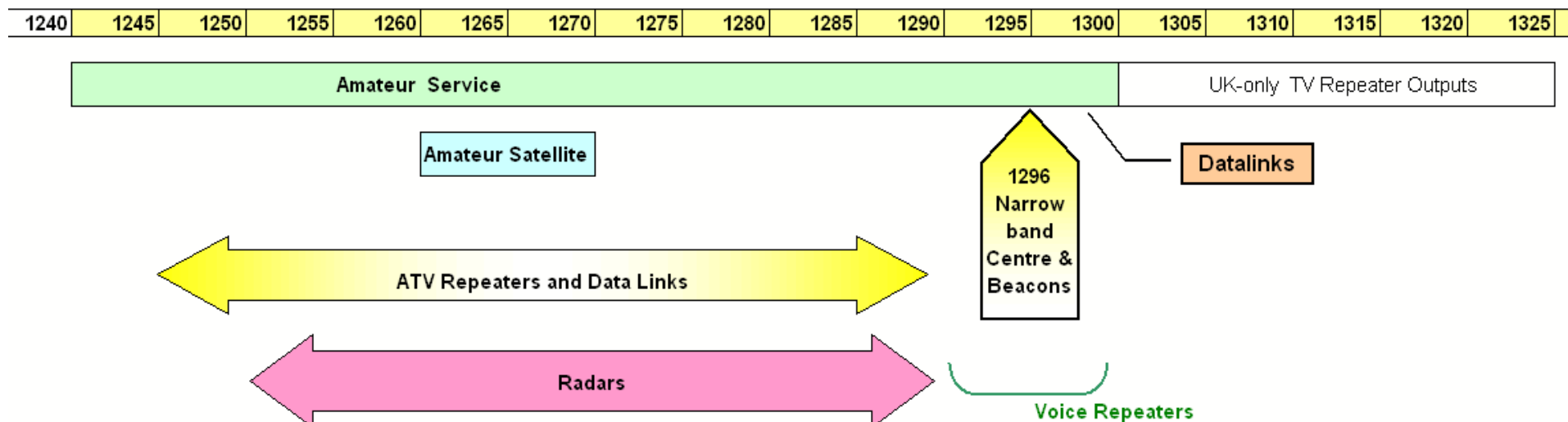


GNSS Services in 23cm

- GNSS = Global Navigation Satellite System
- Galileo, despite delays, gradually in service
- **Galileo-E6** commercial service overlaps 23cm
 $1278.75 \pm 20.46 = 1258-1299$ MHz
(often referred to as 1260-1300 MHz)
- Other similar services also overlap 23cms:-
 - Japan-QZSS (similar to Galileo E6)
 - Russia-Glonass $\sim 1246-1248 \pm$
 - China-Compass $\sim 1268.52 \pm$



Top Level Band Structure

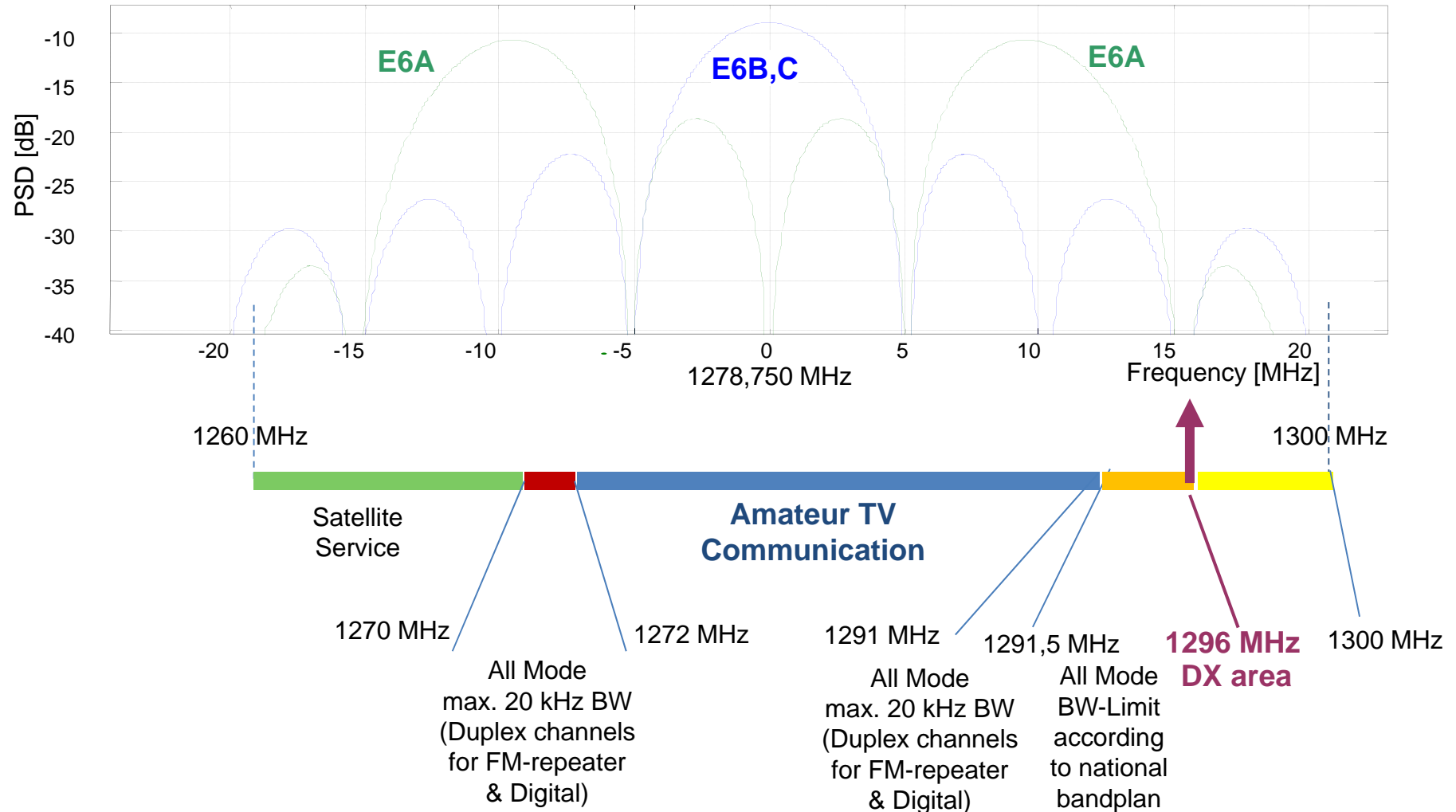


- Narrowband long-distance stations/beacons at 1296 MHz are globally harmonised
- Most other usage affected by or coordinated with radars
- Radar users often more worried about repeater Rx freqs/area, than repeater Tx
- IARU-R1 Galileo/Radar/ATV planning: [CT08_C5_19 A New Vision for 23 cm](#)

International Amateur Radio Union – Region 1
Working for the future of Amateur Radio



Spectrum: E6 vs Amateurs



**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Recent Events

- **Early-2014:** Galileo Control Center (GCC) in Oberpfaffenhofen nr Munich affected by ATV from DB0QI
- Munich ATV **DB0QI** repeater closed. It had outputs at 1278 MHz (analogue) and 1291 MHz (digital)
- TV Repeater **DB0ITV** 23cm output now also closed
- **BNetzA** has also reported issue to **CEPT-FM22** and **WGFM**
- Also: Austria - License restrictions. Glonass also creating some restrictions
- **19-Feb-2014:** Short meeting between EU and IARU-PRC (G6JYB) leads to invitation to attend Galileo group

International Amateur Radio Union – Region 1
Working for the future of Amateur Radio



Galileo Meeting

- **19-Jun-2014:** Amateur use of E6 band presented to EU 'Compatibility Signals and Interoperability Working Group'
- Attendees: IARU-R1/DARC
- Presented overview of band plan and usage, including wideband-TV, narrowband/beacons and satellites
- Presentation well-received but Amateur signals (esp wideband ATV) seen as their greatest concern
- Key points made by Galileo – need QoS, no-interference
'Sharing with Galileo is not the same as sharing with radar'
- Willing to cooperate on further testing (led by JRC-Ispra) and avoid CEPT action for now

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Potential Outcomes

- Expect ongoing liaison during the year, but outcome is likely to be challenging/difficult
- Foresee the need to lower Tx duty cycles and/or move frequencies of repeater outputs from 1260-1300 range
- Would require cooperation from regulators and Radar users to relocate to lower frequencies
- Limited space below 1260 may force move to DATV-only
- *see RSGB 1240-1250 bandplan as an example*
- IARU-R1 Priority has to be 1296 MHz narrowband
- Some options in CT08_C5_19, but more need to be considered – inc Rx only, >1300MHz allocation change

International Amateur Radio Union – Region 1
Working for the future of Amateur Radio



Summary

- Munich TV repeater incidents and other issues are a warning sign that serious changes to 23cm may occur
- This was predicted – but we have been lucky due to delays
- Also fortunate, for now, to have prevented worse action
- It is clear that we will need to move away from 1278 usage
- Will need good knowledge/co-operation with other Primary users such as radar
- Need to look at all options in order to co-exist and achieve a fair and harmonised solution (inc ECA/ITU changes ?)
- All MS will need accurate data for 23cm repeaters/beacons

International Amateur Radio Union – Region 1
Working for the future of Amateur Radio



Spectrum Workshop

Agenda Item 1.10

to consider spectrum requirements and possible additional spectrum allocations for the mobile-satellite service in the Earth-to-space and space-to-Earth directions, including the satellite component for broadband applications, including International Mobile Telecommunications (IMT), within the frequency range from 22 GHz to 26 GHz, in accordance with Resolution **234 (WRC-12)**;

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

Agenda Item 1.12

to consider an extension of the current worldwide allocation to the Earth exploration-satellite (active) service in the frequency band 9 300-9 900 MHz by up to 600 MHz within the frequency bands 8 700-9 300 MHz and/or 9 900-10 500 MHz, in accordance with Resolution **651 (WRC-12)**;

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

Agenda Item 1.18

to consider a primary allocation to the radiolocation service for automotive applications in the 77.5-78.0 GHz frequency band in accordance with Resolution **654 (WRC-12)**;

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

Agenda Item 9.1.8

Regulatory aspects for nano- and picosatellites

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

Agenda Item 10

to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, in accordance with Article 7 of the Convention.

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

Possible future agenda items

- Harmonisation of 160M – align with Regions 2 and 3. Remove country footnotes and reference to 10 Watts.
- An entry into the Radio Regulations for 50-52 MHz in Region 1.
- An entry into the Radio Regulations for a segment around 3.4 GHz (9cm) in Region 1.

IARU Spectrum Requirements document (2011) refers

Friedrichshafen - 28 June 2014

**International Amateur Radio Union – Region 1
Working for the future of Amateur Radio**



Spectrum Workshop

These proposals are unique to Region 1 only

- Needs a CEPT member administration to propose at least one of these and for 9 other administrations to agree and co-sign to become a Common European proposal. No more than 6 administrations against.
- This is then fed into the WRC-15 COM 6 who decides the draft agenda for the next 2 WRCs
- For WRC-12 there were over 200 proposals of which only 18 made the final agenda!

Friedrichshafen - 28 June 2014

International Amateur Radio Union – Region 1
Working for the future of Amateur Radio