

Workshop on RSA (Recognised Spectrum Access) for receive-only earth stations

22 July 2010

Agenda

- Introduction
- Brief overview of RSA and previous applications
- Receive-only satellite earth stations
- Key proposals
- Impact on other Services
- Next steps
- General discussions (Q&As)

RSA overview and previous applications

- RSA is a spectrum instrument that was introduced by the Communications Act 2003 to complement WT Act licences.
- The grant has two consequences;
 - it formalises recognition of the spectrum use, in this case limited to equipment at a specific location and places a duty on Ofcom to take account of that use in a similar way to a licensed application.
 - a grant of RSA may be traded by the holder and converted into a WT Act licence in accordance with regulations made by Ofcom
- RSA is voluntary
 - It's perfectly lawful to operate receive-only earth stations without RSA.
- Radio astronomy was the first application of RSA and six grants of RSA were made to STFC in 2008
- Crown RSAs (issued to MOD and DH) recognise use of spectrum by Crown bodies

Receive-only satellite earth stations

- Do not cause interference to other users
- As such, are licence exempt
- Currently have no formal recognition in the Ofcom assignment process
- Share spectrum with other services
- Can be involved in safety of life services

RSA proposals – Frequency bands

- Our proposals include 3 frequency bands ;
 - (1) 1690-1710 MHz (MetSat) – Co-allocated with Fixed
 - (2) 3600-4200 MHz (FSS) - Co-allocated with Fixed (including BWA)
 - (3) 7750-7850 MHz (MetSat) - Co-allocated with Fixed & Mobile services
- Selection of the bands ;
 - Ofcom managed spectrum
 - Requests from industry stakeholders who are seeking regulatory recognition of their use of receive only spectrum services.
 - Coordination with deployment of other licensed services in the band is necessary to minimise the possibility of interference.
 - For MetSat, there are a number of other bands allocated globally, but our proposals only includes the bands where UK interest has been identified.

RSA proposals – Trading & conversion, Publication of information and term of the grant

- Term of grant
 - We propose that RSA should be granted for a rolling term with no fixed end-date but subject to a 5-year period of notice of revocation or variation.
 - This will give sufficient security and stability to the receive-only earth station operators.
- Tradability and conversion
 - We propose to allow trading and conversion of RSA for receive-only earth stations under the procedure for trading as set out in the Wireless Telegraphy (Recognised Spectrum Access and Licence) (Spectrum Trading) Regulations 2009.
 - This would provide both the mechanism and an added incentive to make the best possible use of the spectrum.
- Publication of information

We propose to publish information about grants of RSA in the WT Register (the WTR) and to publish information about trades in the Transfer Notification Register (the TNR) in order to support spectrum trading.

RSA proposal – Technical parameters

As a minimum, the following parameters will be captured in a grant of RSA;

1. Location
2. Frequency band
3. Bandwidth
4. Coordination zone
5. Acceptable interference level (SQB) based on typical I/N
6. Degree of local mitigation accepted / provided by the applicant

Proposed Grant of RSA – What it Offers:

A geographic area around the earth station within which sharing services will be coordinated;

and

Regulatory assurance that predicted interference levels do not exceed the agreed Spectrum Quality Benchmark (SQB)

Process of coordination and granting RSA

- Receipt of RSA application
- Assessment of current Spectrum Quality Benchmark
- If necessary, detailed coordination with existing services
- Offer of Grant of RSA
- Entry of receive-only earth stations into Ofcom assignment data base
- Grant of RSA and issue of schedule

RSA proposal – Fees structure

- AIP based fees
 - Motivates operators to use spectrum efficiently
- Derivation of the fee structure based on current PES fees
 - PES fees are related to fixed link fees and include both transmit and receive aspect of earth station spectrum
- Mitigation factors
 - Local shielding can have a major impact on susceptibility to interference

RSA proposal – Fees structure

Current PES Fees are related to fixed link fees and are based on:

Power at the antenna flange (P); Bandwidth (BW) and Band Factor (BF)

The appropriate fee for a PES is calculated by application of the algorithm

$$AS = \sum_{bands} \left[28 \times BF_{band} \times \sqrt{\sum_{paths_{band}} (P_{path} \times BW_{path})} \right]$$

Proposed Fees



BW (MHz):		2	10
No mitigation:		£500*	£626
10dB mitigation:		£500*	£500*
20dB mitigation:		£500*	£500*
1.7 GHz Fees			
BW (MHz):		36	600
No mitigation:		£611	£10,178
10dB mitigation:		£500*	£5,458
20dB mitigation:		£500*	£2,645
		4 GHz Fees	
BW (MHz):	30	45	100
No mitigation:	£1,391	£2,087	£4,638
10dB mitigation:	£980	£1,471	£3,268
20dB mitigation:	£686	£1,028	£2,285
7 GHz Fees			

Impact on other Services

- 7GHz Fixed Links
- 4 GHz Fixed Links
- 4 GHz BWA (3605 – 3689 MHz & 3925 – 4009 MHz)

7 GHz Receive-Only Possible Sites

Three known sites:

- Two in Scotland
- One in Devon

In zones around the Scottish sites there are some 408 fixed links, none of which are predicted to cause interference to either possible MetSat site.

In the zone around the site in Devon, there are some 150 fixed links, one of which is predicted to cause interference levels close to the proposed SQB

4 GHz Receive-Only Possible Sites

Eight known sites:

- 3 are related to the SADIS system, located in North Somerset, Lincolnshire and Devon.
- The five others are located in Dorset, Berkshire (2) Cumbria and Hertfordshire
- None of the existing 4 GHz fixed links are predicted to cause interference to any of the possible ROES stations
- Only one possible ROES site is predicted to receive interference from current BWA deployments and clearances
- **To put this into perspective, there are currently some 100 licensed earth stations in the band at over 28 locations.**

Next steps

- Closing date for responses - 16 September 2010
- Publication of the statement - November 2010
- Statutory Notice (consultation on draft regulations) - November 2010
- Regulations enter force - early 2011

Questions ???