

International Satellite communication
workshop: "The ITU - challenges in the 21st
century: Preventing harmful interference to
satellite systems"
10th June 2013, Geneva



Satellite Interference

Causes

Our recent experience

Mitigations

Bharat Dudhia MIET
Spectrum Policy Manager
Ofcom (UK)

Types and causes of interference

- Types

 - Unintentional

 - Deliberate

- Main causes of interference

 - Faulty equipment

 - Illegal use (mainly in passive bands)

 - Poor installations (i.e. antenna mis-pointing/wrong frequency etc)

 - Excessive transmit power

 - Transmission during wrong time slot (for TDMA systems)

Our recent experience in managing satellite interference cases in the UK

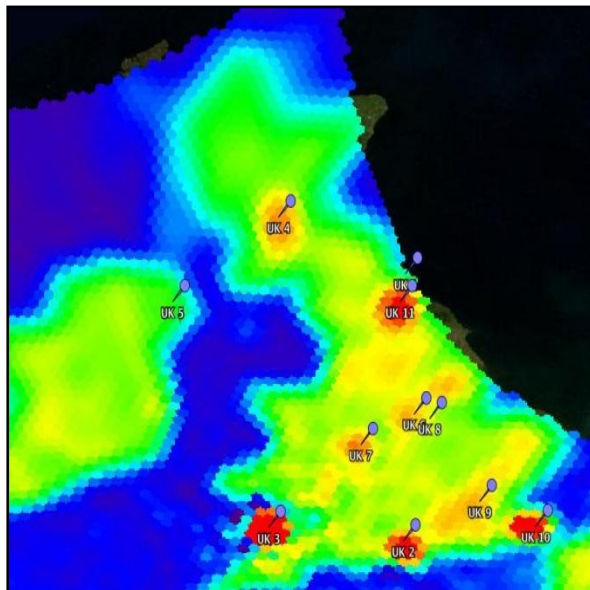
- Interference to the SMOS Earth Exploration Satellite over the UK and other countries
- Interference rendered measurement data collected over large area unusable
- Interference details (i.e. locations) provided by ESA greatly helped in tracking down the interferences sources. However tracking down interference sources for other types of satellite systems may not be easy
- Main causes – illegal use and faulty equipment
- Interference could put large investment in satellite missions at risk



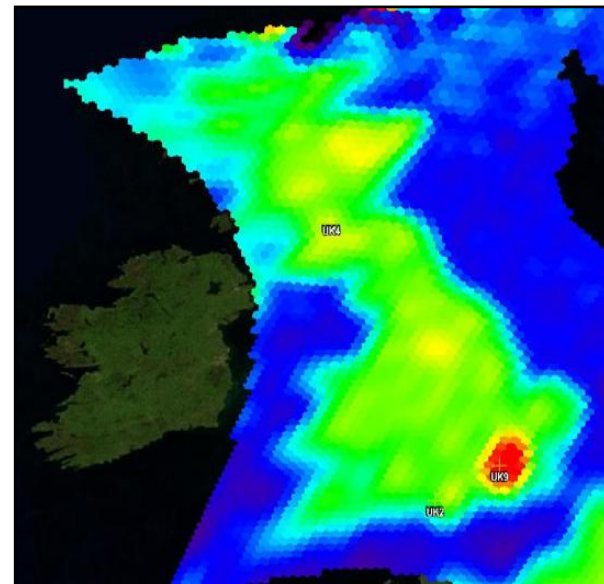
Interference to the SMOS Earth Exploration Satellite over the UK



Before



After



A stylized, halftone-style illustration of a hand holding a smartphone is positioned in the top left corner of the slide.

Mitigations

- Better coordination (between user and satellite operators)
- Better guidance and training on installation and maintenance of equipment
- Technology
 - Carrier ID can aid early resolution of interference.
 - (a) UK is discussing Carrier ID issue with its stakeholders
 - (b) CEPT workshop on Carrier ID (17th July 2013, London)
 - Closed loop system (i.e. listen before talk)
 - Self monitoring/network control to automatically cease transmission in case of interference (e.g. ECC Decision (13)01 on ESOMPs)
 - Use of baseband filtering to reduce leakage into adjacent channel/band