Satellite Operators' RFI Initiative

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Satellite Operators' RFI Initiative Summary

- Major Satellite operators such as Intelsat, SES, Eutelsat, JSAT, Telesat, Inmarsat and Hispasat are working together on The Satellite Operators' RFI Initiative

- Today we'll share with you some specific initiatives we're targeting and we like to solicit your support and involvement

Satellite Operators' RFI Initiative
The Initiatives

The initiatives can be summarized under the following topics:

- Support of standardized training/certification for up-linkers and installers
- The Endorsement of 'carrier ID' technology
- Data sharing between the Satellite Operators;
  - RFI Incident Database for satellite operators
  - A "Satellite Provider RFI Alert Network"

(Recognize WBU-ISOG, SUIRG, GVF)

Satellite Operators' RFI Initiative
Training & Certification

- At the inception of satellite communications, the majority of earth stations were operated by PTTs or major companies who sponsored standardized training, often in-house (e.g. BT, Intelsat, FCC certification etc.)

- Today, significant changes in the satellite communications environment creates greater opportunity for RFI
    - Greater number of uplinks (industry growth, cheaper equipment)
    - Increased uplink power for small terminals
    - Two degree spacing of satellites
    - De-regulation: many new operators who might not have access to a training infrastructure
    - More complex networks – which contribute to installation/operation challenges
    - Less experienced end users

- Operator error, including poor maintenance, remains one of the most significant causes of RFI (per SUIRG and industry records)

Satellite Operators' RFI Initiative
Training & Certification

- The adoption and promotion of operator provided standard satellite access procedures has been fostered through bodies such as the Satellite Users' Interference Reduction Group (SUIRG) and the International Satellite Operations Group's (WBU-ISOG)

  - If you are an operator and don't have a copy of the Universal Access Procedures, please obtain (and use) from the following source: http://www.suirg.org/uap.shtml
  - These should supplement any provided by individual operators

Satellite Operators' RFI Initiative
Training & Certification

- Despite the availability of excellent material (e.g. GVF, Beaconseek/Slingpath), the adoption of training is inconsistent:
  - At least one major systems provider has no internal certification/training program for its installers
  - Incentivizing users to undergo training is a key tool in improving users skills

- Operator discussions have targeted three major classes of operator/RFI source:
  - VSAT networks
    - Incorrect installation (peak & pol.), complex network faults, equipment maintenance
  - Fixed earth stations
    - Operator error, equipment maintenance, not following access procedures, dynamic use of uplinks (OU feeds)
  - Mobile SNGs
    - Operator error, incorrect access/not following access procedures, not contacting satellite operator prior to radiating

Satellite Operators' RFI Initiative
Training & Certification

- In particular, GVF provides specific training for the installation and operation of VSAT networks, which, as members of GVF, is endorsed by SES and Intelsat:
  - http://www.gvf.org
- A list of GVF certified installers can be found at:
  - http://www.gvf.org/training/index.cfm?item=installers

- Training specific to mobile SNGs can be found at Beaconseek/Slingpath:
  - http://www.slingpath.com

- In addition to these training packages which are also relevant to Fixed earth stations, there are other reputable sources such as:
  - Skjei Telecom: http://www.skjeitelecom.com

- WBU-ISOG & SUIRG provide criteria for recommended training packages: http://suirg.org/pdf/GeneralTrainingPrinciples.pdf

Satellite Operators' RFI Initiative
Training & Certification

- Satellite Operator discussions are focused on:
  - Identifying and publicly backing approved training programs
  - Determining appropriate incentives for encouraging customers to undergo training

- Satellite operators are receiving growing industry pressure to seek sanctions against repeat offenders
  - Name and shame
  - Escalation to regulatory bodies
  - Denial of access

- Satellite Operators are ensuring that their operations and teleport staff receive formal, certified training.

Satellite Operators' RFI Initiative
Carrier ID Technology

- Variously referred to as 'Carrier ID', 'ATIS'
  - Concepts developed through WBU-ISOG and SUIRG
  - Capability demonstrated at WBU-ISOG in 2006
  - Further details at: http://www.suirg.org/press/BroadcastEngineering_Feb08.pdf

- Two basic forms of the capability
  - Transmission of uplink GPS location and other ID info.
  - Transmission of ID info. only (requires database cross-check)

- Information can be embedded in:
  - Modem header information
  - Via uplink HPA
  - Incorporated into encoding standards

- Adoption by vendors/manufacturers is key to the success of this approach

Satellite Operators' RFI Initiative
Carrier ID Technology

- While WBU-ISOG/SUIRG continue to promote this technology, industry has been slow to adopt

- Recent discussions amongst satellite operators seeks to refocus this effort by:
  - Agreeing standard forms of technology usage
  - Agreeing focus of future activities (global/regional, equipment)
  - Agreeing timeline for seeking/incentivising vendors' adoption
  - Ensuring approach is financially supportable

- A top-level timeline for adoption needs to be developed and agreed

Satellite Operators' RFI Initiative
Data Sharing Initiatives

- The exchange of operational data (Data Sharing) and experiences by Satellite Operators:
  - RFI Incident Data Base
    - Case studies
    - Plots of interference types
  - Satellite Provider RFI Alert Network
    - To solicit input and collaboration between satellite providers on interference events
  - Elements needed for RFI Geolocation
    - Ephemerides date
    - Satellite configuration
    - Reference Emitters (known uplink sources) with Lat./Long.

Satellite Operators' RFI Initiative
Goals

1. All uplink facilities to use approved Access Procedures
2. All uplink facility operations staff to undergo formal, certified training
3. Equipment manufacturer adoption of 'Carrier ID' technology
4. Improve, formalise, automate data sharing between satellite operators
    - Develop a RFI Event Database
    - Develop a Satellite Operators RFI Alert Network

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