C Band status and wireless needs at Airbus
28 Oct 2015
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- Wireless needs
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1 C Band at Airbus

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C-Band channels for AIRBUS Telemetry

- Worldwide: share with AS/AMRS/MLS/FSS
- Europe + Africa only (Region1)
  Share with RLAN & FSS
C Band status

**Status** (end of sept 2015):

- 1187 tests done in C Band since january 2014
- 5100H
- 14 different aircrafts (all Airbus programs)

Operational Reliability: 98.5%
Same OR as previous S-Band Telemetry
Remaining topic: very few losses on “long haul aircraft” compatible with aircraft operations

- No transmission losses on aircraft like A320 but very few losses on bigger aircraft A350, A380,… during some landing and take off. We want to solve it.

- Modelling antenna on A/C in progress

- Objective: Tune the best location and polarisation for antenna

We confirm that the location of antenna is more sensitive than for S Band
C Band status

• To increase the coverage we bought 2 small mobile antennas.
• Frequency Band: 5090-5250 MHz
• Range: 150km at 20000ft
• Gain: 24 dB
• 2 axis

HYPTRA antenna
Message to potential future C Band users

Don’t be shy, Use C Band, it works
Message to ICTS

Thank you again and again for the job done!!!

Protect the C-Band !!

Think about the next step!
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1 WIRELESS needs

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Passengers Wellness as a priority
Not too hot and not too cold...
Not too windy...

Aircraft Air System Cartography
Wireless today at Airbus: Luigi story

Luigi?
Wireless today

Luigi?
Wireless instrumentation : a technical trade off
Wireless instrumentation: a technical trade off

- Data reliability
- Synchronization
- Data Latency
- Measurement accuracy

- Size
- Energy
- Autonomy
- Data rate
- Range

Measurement accuracy
Technical choices

Multi-Function Acquisition & Transceiver Unit

Generalities:
- Use of 868 MHz ISM band
- Synchronized TDMA protocol;
- Star topology
- Advanced energy management;
- Optional external batteries;

Network capacity: up to 225 emitters / 2 simultaneous network
- up to 450 kits: 850 simultaneous measurement

Receiving station « Gateway to wired FTI »

Performance:
- Antenna duality
- Protocol support communication retries

Coexistence:
- Advanced RF filtering
Wireless tomorrow

Aircraft manufacturer industry needs wireless system for instrumentation / test.

Wireless from everywhere in the aircraft
• Aircraft manufacturer industry needs wireless system for instrumentation / test.

• WHY:
  • Remove the cables (400km on A380!!! for flight test installation)
    • Cables design process too long
    • Aircraft modifications needed to route the cables
    • Expensive to manufacture (connectors, …)
    • Too long to install
    • Cables become a blocker for our test business
  • Reduce the time to troubleshoot an aircraft
  • Reduce the cost
WIRELESS

• Aircraft manufacturer industry needs wireless system for instrumentation / test.

• HOW :
  • Today we face 2 difficulties :

• Energy but
  • Batteries are improving their technology/capacity every year
  • Combination of energy harvesting and ultra low consumption sensors

• Frequency
  • Today we ask local derogation for a band to perform wireless instrumentation
  • We use for test already overloaded network 2.4 GHz / 5GHz
  • WAIC will be for “Aircraft Normal Installation” not for test installation
• Aircraft manufacturer industry needs wireless system for instrumentation / test.

Wireless Instrumentation has specific needs:

* Data Synchronisation / time stamping
* Real time constraints (Latency time)
* Transmission from everywhere in the aircraft
* …
Aircraft manufacturer industry needs wireless system for instrumentation / test.

The question is:
Do we ask for a “Band for Wireless Aeronautical Test”?

Of course it’s for the future but WRC 15 is now!!!

Is the test community interested to launch a working group on this topic?