



GSM On Board FCC Briefing Information

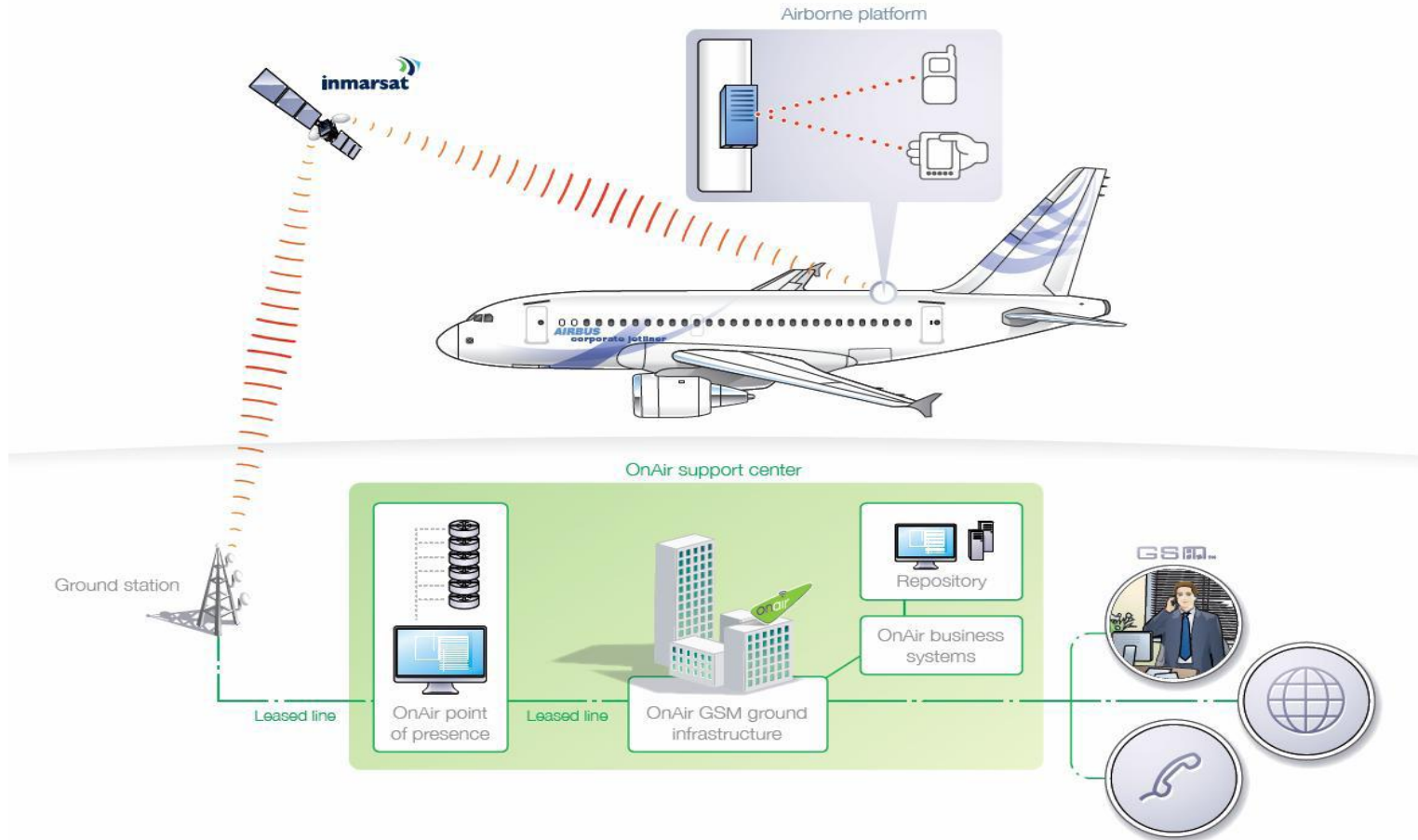
January 2014



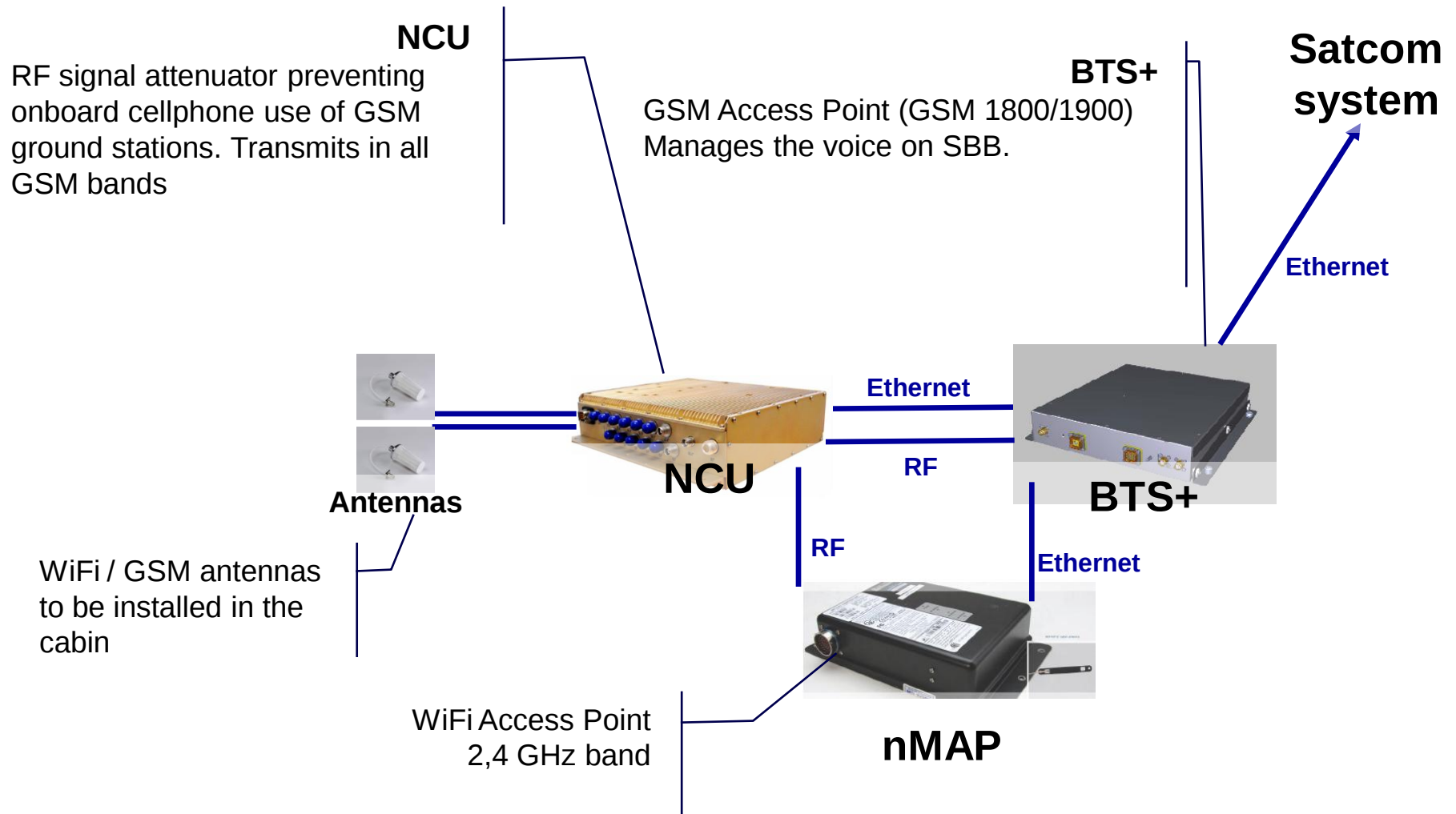
OnAir System : introduction

- Goal of the system
 - To enable use of GSM cellphone in the cabin to send / receive voice calls and SMS.
 - From user point of view, operation is comparable to being in a foreign country with roaming and billing through their own GSM operator.

System description (1/2)



System description (2/2)



System Overview (1/2)

The OnAir (GSMConneX) system provides local software control and backhauling functions to enable the use of GSM in aircraft cabins. Radio signals are controlled and transmitted through a Network Control Unit (NCU) with antennas. The entire airborne hardware is contained in two Line Replaceable Units (LRUs), consisting of:

- *AeroBTS+*, an integrated GSM Base Transceiver Station (BTS)
- *NCU*, a radio Network Control Unit

Optionally, Internet access through WLAN services is supported through a WLAN access point (nMap).

The AeroBTS+ is designed specifically for airborne applications and is the access point for GSM.

System Overview (2/2)

The Network Control Unit is designed specifically for airborne applications and prevents direct connection of onboard phones to ground GSM networks by emitting control signals in the cabin. Frequency band to be taken into account:

Used GSM 1800/1900 band :

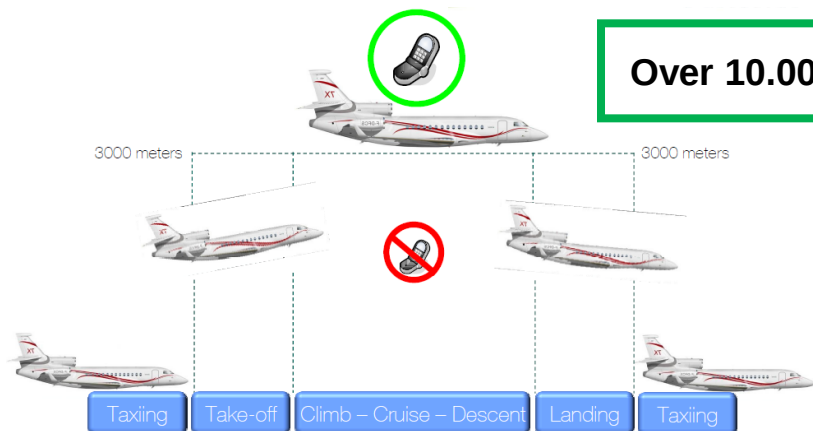
1805-1880 MHz

1930-1990 MHz

Other transmission bands :

Frequency Range [MHz]	Min. Transmit Power [dBm]	Max. Transmit Power [dBm]	Applicable Wireless System
420 – 430	16	28	CDMA 450
460 – 470 or 488,8 – 496	16 (12)	28 (22)	GSM 400, CDMA 450
810 – 826	21	31	PDC 800
869 - 894	18	33	CDMA 800, GSM 900
921 - 960	17	27	GSM 900
1805 - 1880	21	33	CDMA 1700, GSM 1800
1930 - 1990	20	33	CDMA, GSM, WCDMA 1900
2110 - 2170	22	32	UMTS WCDMA FDD
2620 - 2690	22	32	UMTS 2600, TDSCDMA

GSM use conditions



Over 10.000 feet

Authorized over 75 countries worldwide

Over oceans
Over Europe and Russia
Over Middle East countries
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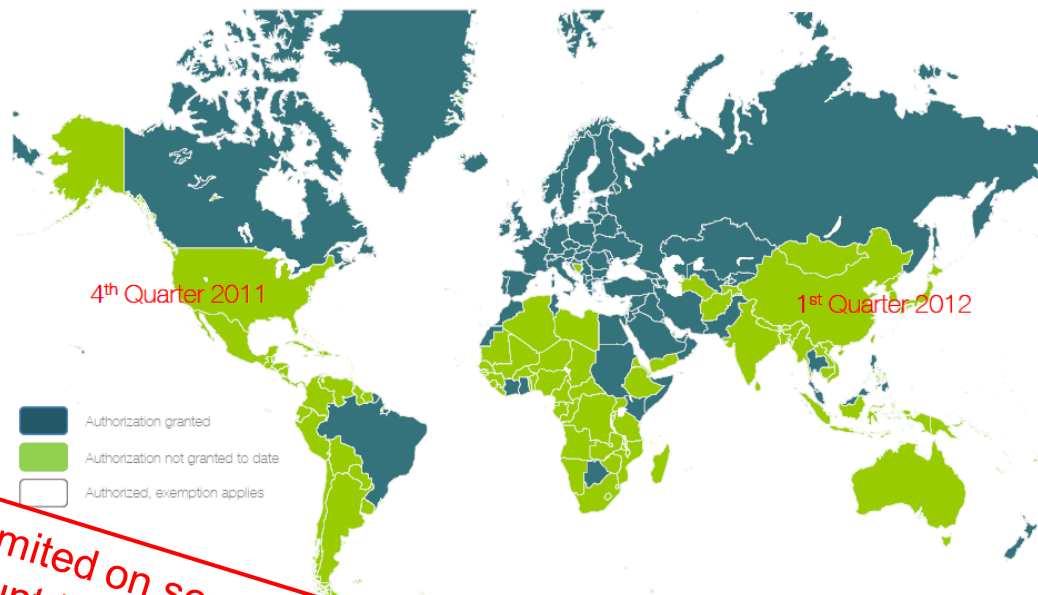
US : expected Q4 2011 but only for non US aircraft

China : expected Q1 2012

Australia : coming soon (1 to 4 months)

India : not expected soon

Africa : according to need of airliners



Limited on some important countries for our customers



Performance

- Number of simultaneous voice communications = Up to 8 or 12 (pending configuration)
- Use is only possible over 10.000 feet and may be forbidden when flying over some countries
- When arriving in a forbidden area, communication will be switched off without warning (cellphone switched off).
- When going back to an authorized area, user will have to switch on its cellphone.

Dassault Aviation Ground Test Requirements

- Perform ground testing (requires special system override of 10,000 foot limitation) to insure system operation before performing flight test in authorized country. Flight testing is for OnAir operational evaluation / certification, and to verify aircraft systems are not impacted by the OnAir installation (EMI – Electromagnetic Interference)
- Test location and date period as requested in STA File # 0966-EX-ST-2012.