# AIRBUS Input 812A

## Lessons Learned A350 implementation
## → Centralized Power Control adaptation

July 31st, 2018

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# Adaptation of Centralized Power Control Modes / behavior

## *History / Current as-is summary*:

**Centralized Power Control General State Transitions:**

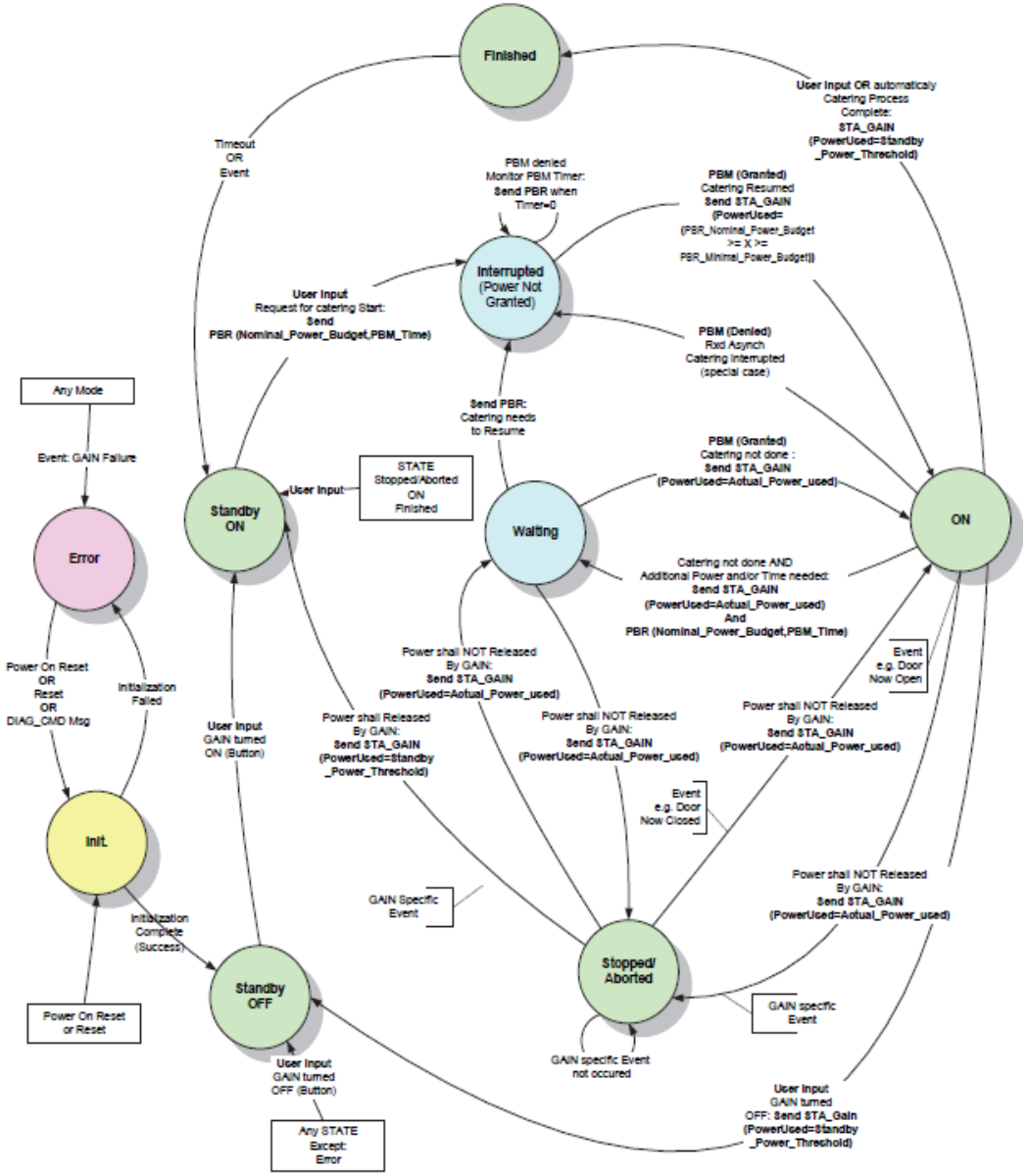
- ARINC812A Figure 8-7 shows all dependencies / State changes for the Centralized Power Control **MODE (CPC)**
- CPC Mode is applicable and equal independent of GAIN type PRIMARY OR SECONDARY.

**→ Flight ATTENDENT might only recognize different GAIN Type in case of CPC Functionality disabled; Secondary GAIN will change STATE to Standby ON**

**Power Interrupts Resume Function / State dependencies:**

- ARINC812A Figure 8-8 shows all dependencies / state transitions concerning PIRT (Power Interrupt Resume Time)

Figure 8-7:



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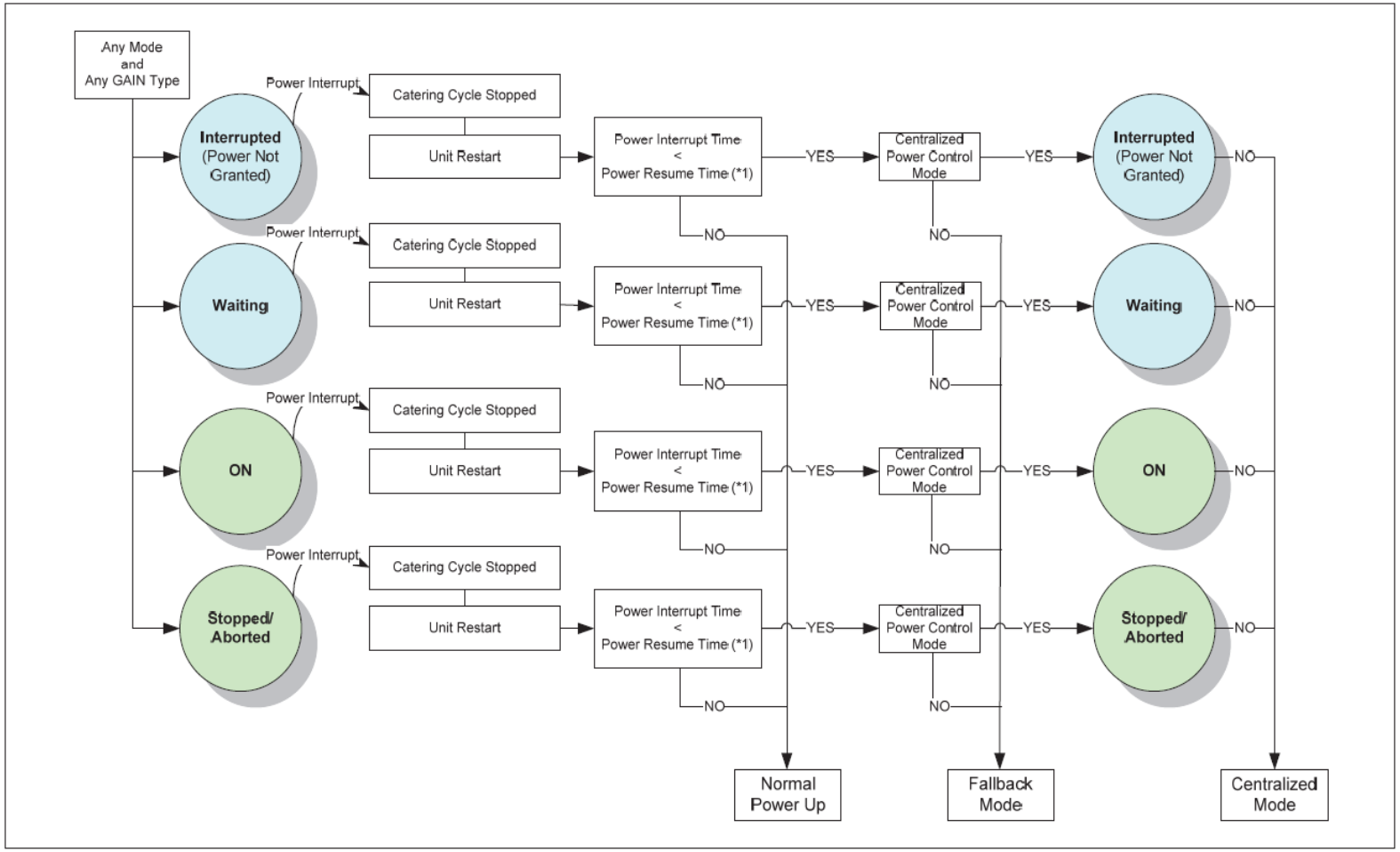
# Adaptation of Centralized Power Control Modes / behavior – con´t

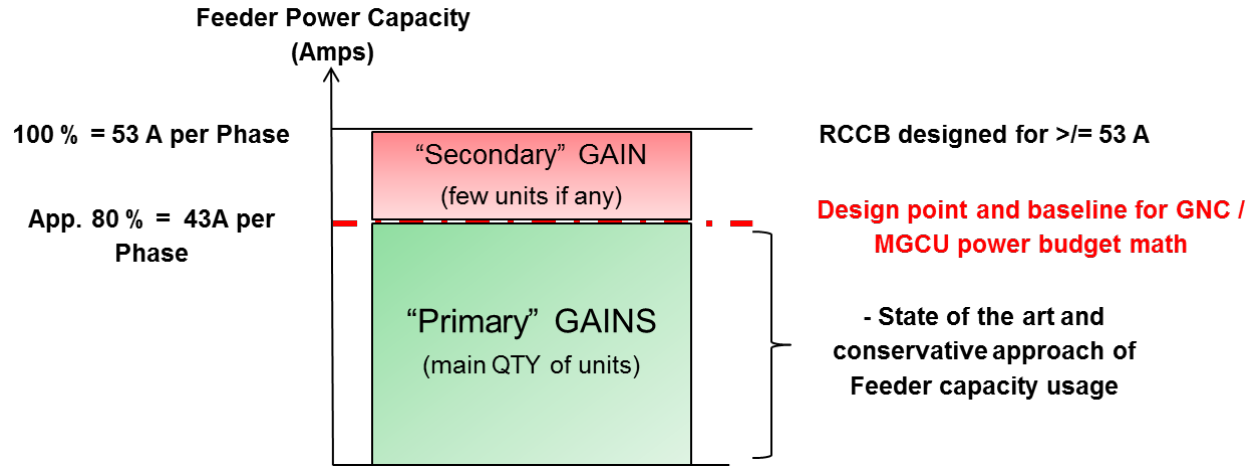
## *Proposal / issue explanation:*

- GAIN behaviour is not completely defined in case of MODE Change Event (CPC to FBC [Fallback Power Control])
  - 1 out of 2 cases are covered:
    - „MGCU loss; BUS OK“ is defined
    - „MGCU Loss“ due to „Disturbances“ not defined.
- Proposal is shown on page 5.



# Power Management Principle & Case to be covered through ARINC812A

## *Principle:*




6.1.4 Power Interrupt Resume Function

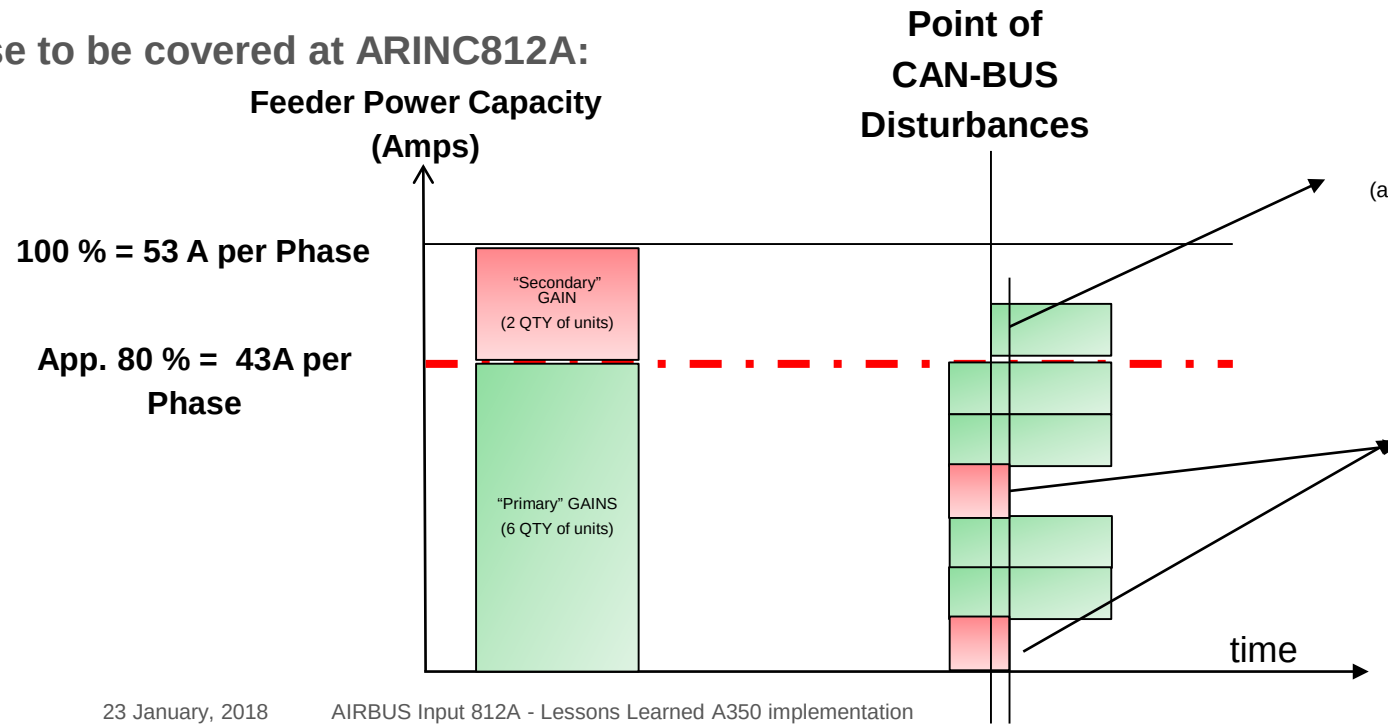
The "Resume Catering" function is defined as the capability of a GAIN resuming a "Catering Cycle" state (as defined in Section 8.4), which is put in power control following power interrupts of durations that are shorter than the times listed in Table 6-11.

Table 6-11 – Power Interrupt Resume Time

| GAIN Size (ARINC 810 Definition) | Power Interrupt GAIN Resume Time Limit(s) |
|---|---|
| 1 | 5 |
| 2 | 120 |
| 3 | 5 |
| 4 | 30 |
| 5 | 5 |

For power interrupts less than the Power Interrupt Resumption Time limit shown in Table 6-11, the GAIN should resume the catering cycle state that it was in when the power interrupt occurred.

## Case to be covered at ARINC812A:




Overload is minimum 6.6 sec.

(absence of STA_GAIN_message 3.6 sec + Secondary GAIN State transfer 3 sec.s)

Catering Cycle of two already running units will be aborted / cancelled



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# Adaptation of Centralized Power Control Modes / behavior

## (Primary GAINS are concerned only)

By removal of PIRT

6.1.4 Power Interrupt Resume Function

The „Resume Catering“ function is a capability of a primary GAIN resuming a „Catering Cycle“. This functionality is purely related to the GAIN and shall be implemented without violating the system behavior.

The primary GAINS are allowed to resume without sending a PBR regardless of the interrupt time as long as they have remaining Power Budget time.

Commentary:

PIN programming data shall be rechecked independent of the

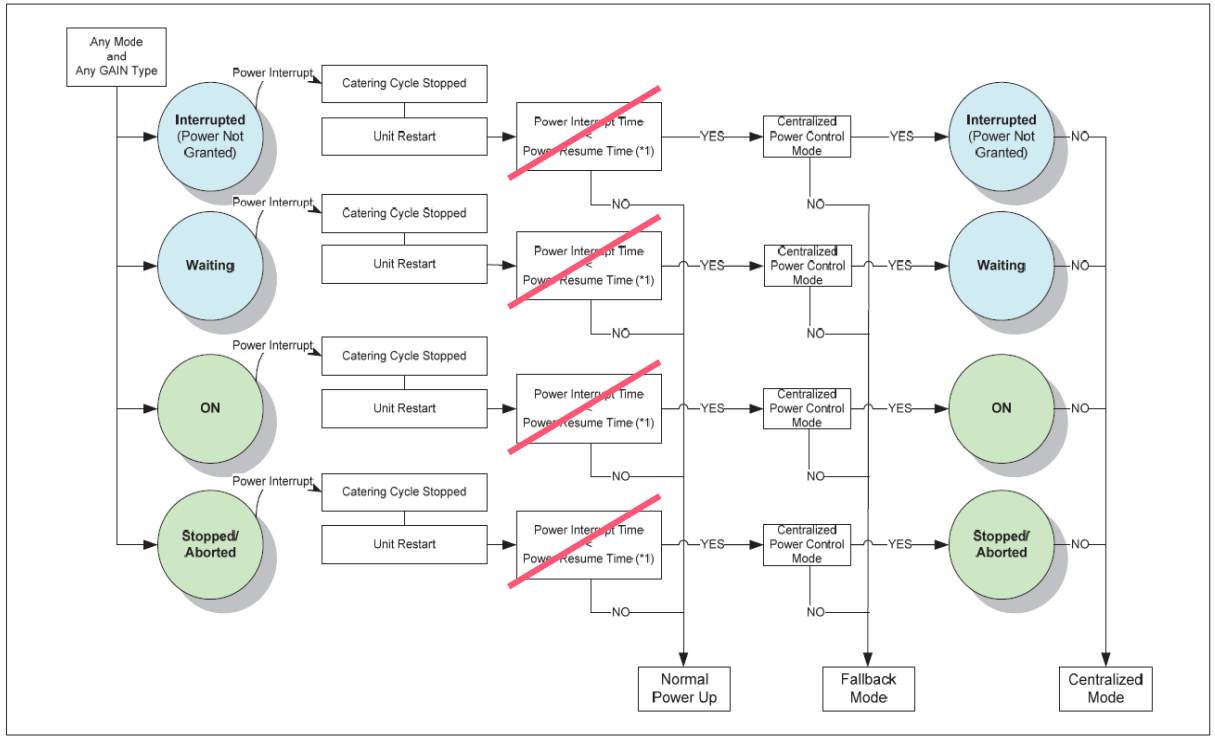
PIRT in case of power interrupts >5 sec.

MGCU has to assure the system behavior.

**Details of the MGCU functionality needs to be validated**

**e.g. tolerance of Power Budget Time.**

**Upward and downwards compatibility.**



Thank you

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