LLRF module production for XFEL

2015 MSK collaboration workshop

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LLRF module production for XFEL
ISE, Warsaw, 11.6.2015
What deserves our attention
(a.k.a. what keeps me up at night)

> **REFM**
  - REFM-OPT production (1st dummy) + tests
  - REFM chassis mechanical design
  - Bridge the installation gap
  - Production strategy, quality control, installation

> **Support modules (TMCB/FRED)**
  - TMCB + backplane fully tested
  - FRED production and compatibility

> **DCM:**
  - Finalizing product (temp. controller)
  - Production strategy (ZE?)
  - Test procedure + setup + report

> **PSM**
  - System integration
  - Increase production rate

> **HOM and KLM**
  - Board development, production, testing
  - DS800
  - KLM-RTM
  - HOM-RTM

> **MO**
  - 1 channel generation
  - Redundancy controller and switch
  - Software

> **PZ16M**
  - Speed up development
  - Test PEM
  - Finalize test stand
The **RED list**

<table>
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<tr>
<th>RF station</th>
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<th>Delivered [ % ]</th>
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| uPM500W    | 10    | 100%          | 70%             | 14%           |
| uPM1kW     | 120   | 100%          | 26%             | 4%            |
| MCH        | 62    | 100%          | 19%             | 5%            |
| MCH-RTM    | 42    | 100%          | 2%              | 0%            |
| CPU        | 62    | 100%          | 44%             | 5%            |
| x2 timer   | 62    | 100%          | 100%            | 5%            |
| x2 timer-RTM | 60 | 100% | 92% | 4% |
| DAMC2      | 54    | 100%          | 100%            | 4%            |
| MPS-RTM    | 54    | 100%          | 100%            | 4%            |
| DS800      | 90    | 0%            | 0%              | 0%            |
| KLM-RTM    | 35    | 0%            | 0%              | 0%            |
| HOM-RTM    | 55    | 0%            | 0%              | 0%            |
| ICK7       | 60    | 100%          | 32%             | 3%            |
| uVM1.3     | 36    | 100%          | 14%             | 7%            |
| uVM3.9     | 4     | 100%          | 75%             | 0%            |
| uADC       | 350   | 100%          | 4%              | 4%            |
| uDWCl.3-FP | 80    | 100%          | 100%            | 17%           |
| uDWCl.3-BP | 270   | 100%          | 52%             | 0%            |
| uDWCl.3    | 10    | 0%            | 0%              | 0%            |
| uDWCl.3-BM | 5     | 60%           | 60%             | 33%           |
| UILOG      | 48    | 100%          | 13%             | 0%            |

**TOTAL** | **1996** | **81%** | **33%** | **3%** |

+ MO
+ cables
Injector Installation

> Rack installation for 1.3 GHz in July

- DCM13 (2x)
- REFM-OPT (1x)
- REFM-INJ (1x)
- PZ16M (1x)
- M/S switch (2x)

> Rack installation of 3.9 GHz in August/September

- DCM39 (1x)
- LOGM39 (2x)
- REFM39 (1x)
- VM39 (2x)
- DWC39 (6x)
Accelerated cryomodule production
Typical XTL LLRF rack

> 19” modules

- 1x DCM
- 1x REFM
- 1x LOGM (INJ, L1, L2 only)
- 1x PSM
- 1x PZ16M

> MTCA system

- 2x uPM
- CPU / MCH (MCH-RTM)
- 1x x2timer / timer-RTM
- 1x TCK7 / VM (CLK-FT)
- 1x DAMC02(radmon) / MPS-RTM
- 1x DS800 / HOM-RTM
- 1x DS800 / KLM-RTM
- 6x uADC / uDWC
- 1x uLOG (L3 only)
XTL installation

- **DCM**
  - 60x
  - All produced before end of year, need first modules now (6)
  - Daniel should be freed from DCM as soon as possible to support REFM
  - Problem of immediate module availability (until mass production starts)
  - Special case of DCM39 (2x) → dummy
  - Order 10 DCMs from ZM to release time pressure

- **DS800 / KLM-RTM / HOM-RTM**
  - → session tomorrow

- **uLOG / RFB / MCH-RTM**
  - → this session