

2021-01-09

FCC Certification of QPS 201 / LPS

This document summarizes the differences between

- **QPS 201 (HW 3.30)** - R&S Part Number: 1333.5000K02, marketed as R&S®QPS201
 - also referred to as 'P1' or QPSP1
 - Tested by Nemko in 2018
- **QPS 201 (HW 3.50)** - R&S Part Number: 1340.0030K02, marketed as R&S®QPS201
 - also referred to as 'P2' or QPSP2
 - Tested at Nemko (Ottawa) in May 2020
- **LPS** - R&S Part Number: 1340.8001.02, marketed as R&S®LPS
 - In term of RF emissions and RF hardware, the LPS is identical to the QPSP2 variant tested by Nemko in May 2020
 - Uses all the same RF and digital modules as the QPSP2
 - Only differences with QPSP2:
 - Fewer options/features available (software); marketed at lower price
 - two fewer antenna clusters per panel (30 instead of 32; the 2 top corner clusters are not installed)
 - reduces the manufacturing cost
 - the 2 top corner antenna clusters have little contribution to the overall body scanner performance
 - Braces at the top, between the 2 panels, for improved vibration behavior

QPS 201 (HW 3.30) compared to QPS 201 (HW 3.50) / LPS

What is the same:

- Same array geometry, positions of all Tx and Rx antennas
- Exactly the same frequency configuration
- Same critical RF hardware
 - Signal source identical
 - Antenna design identical
 - RF front ends (Tx and Rx) identical
 - LO/RF distribution hardware identical
- Same look & feel

What is different:

- QPSP2 and LPS have no IF Boards and no Central Boards
 - Functionality moved to
 - Antenna Cluster
 - Mainboard
 - CPU/GPUs
- New FPGA generation reduces scan processing time by 33%
- Reduced power consumption

QPS201 (HW 3.30) (variant tested by Nemko in 2018)

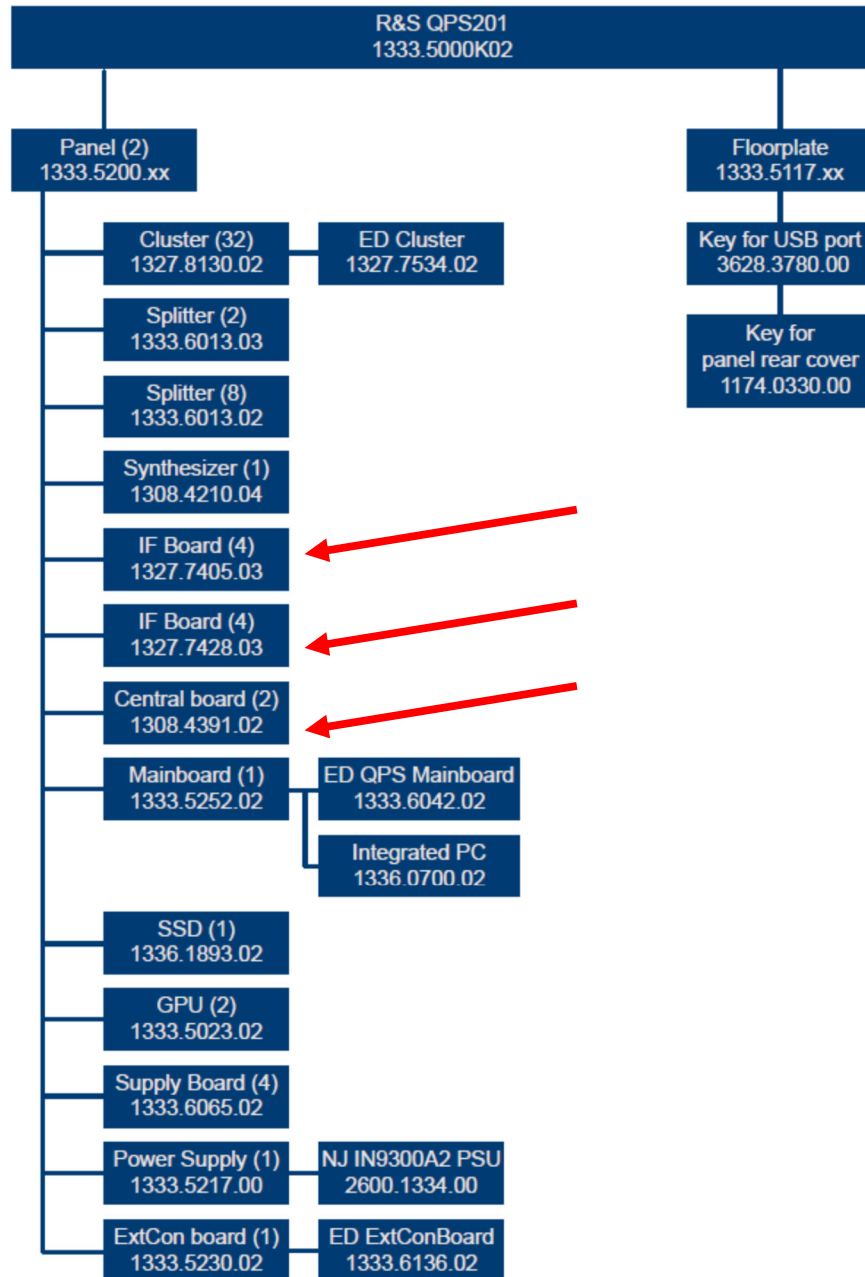


Figure 3-5: BOM structure for the R&S QPS201 system

QPS201 (HW 3.50) (variant tested by Nemko in 2020) and LPS

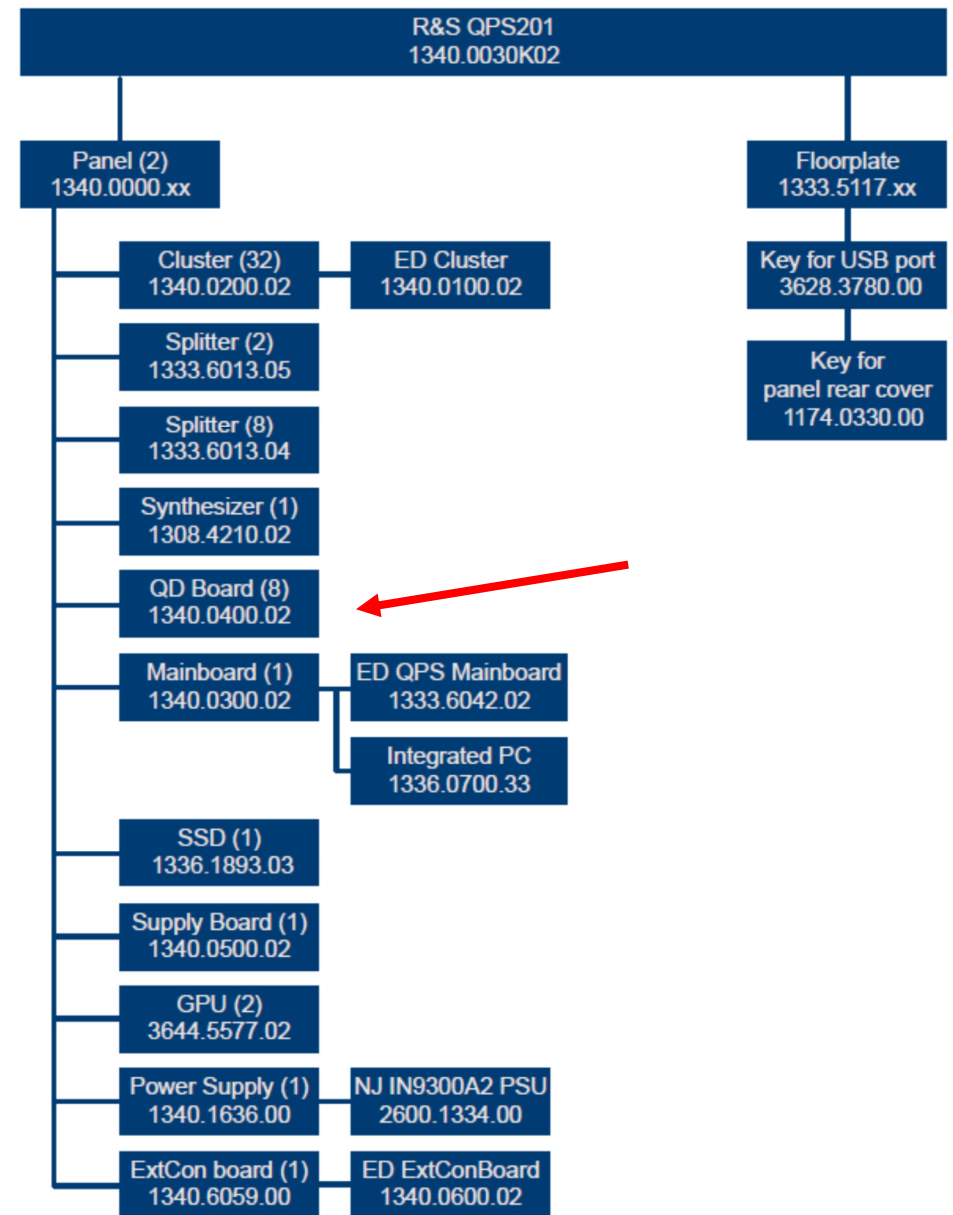
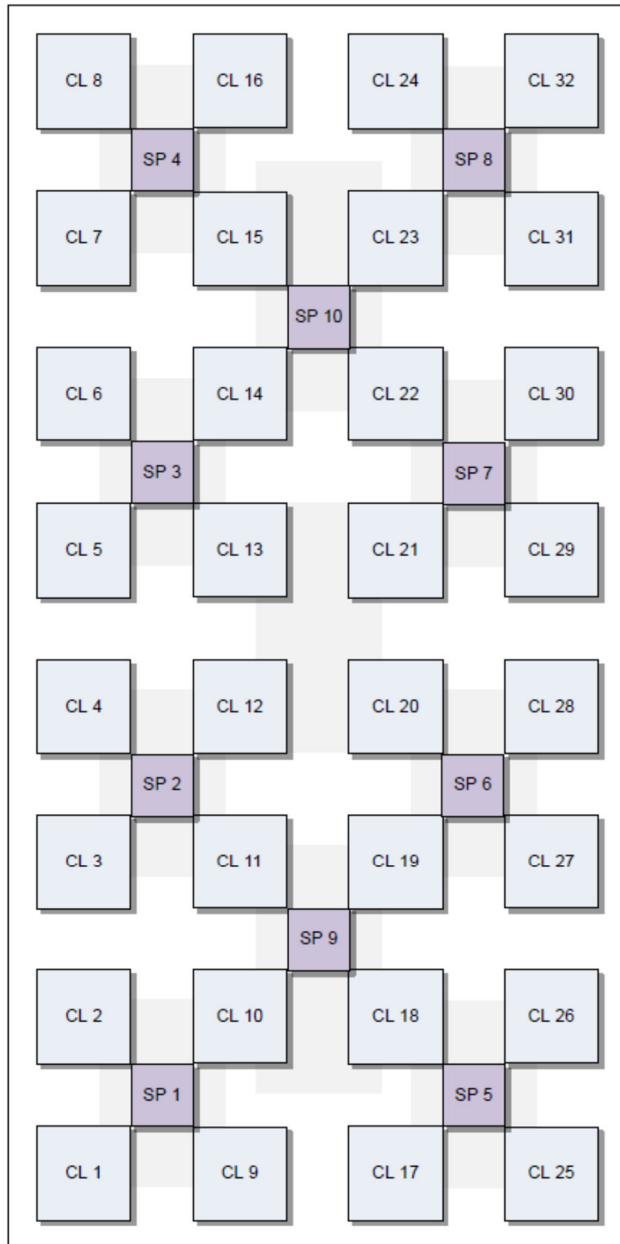


Figure 3-3: BOM structure for the R&S QPS201 system

QPS201 (HW 3.30) (variant tested by Nemko in 2018)

Panel Front Side

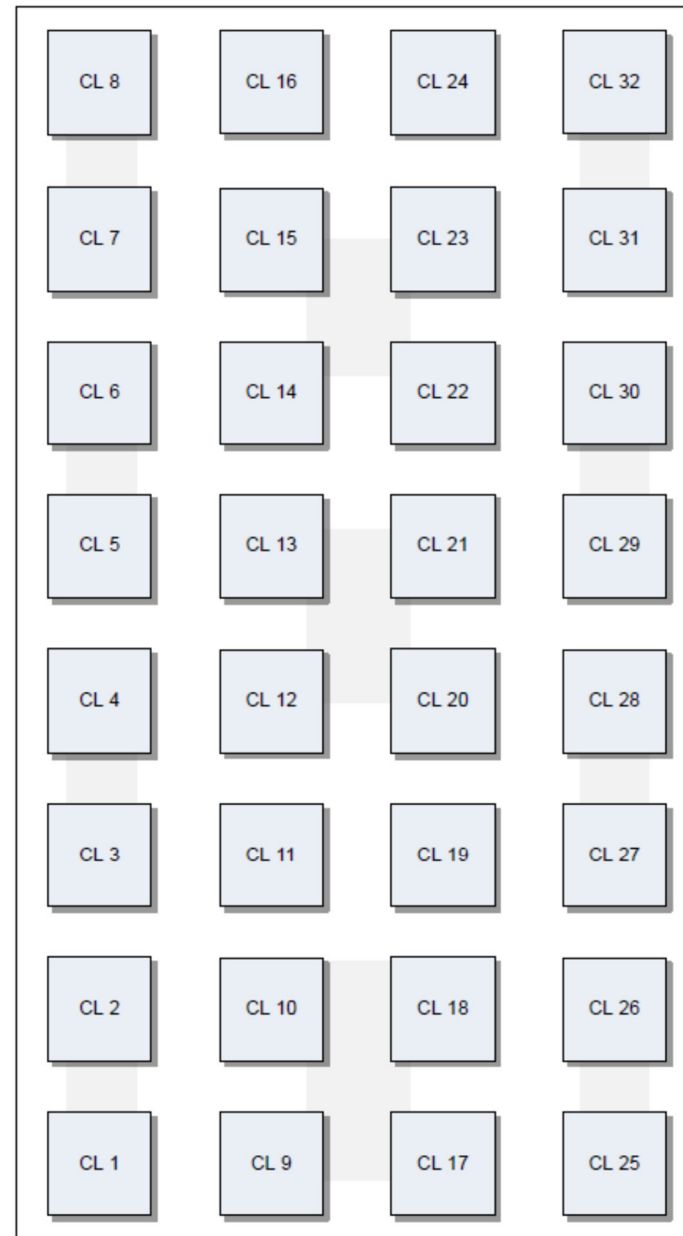


CL = "Cluster"
SP = "Splitter"

Figure 3-11: Hardware components on the front side of the panel (facing inwards)

QPS201 (HW 3.50) (variant tested by Nemko in 2020) and LPS

Panel Front Side



Note :
Antenna Clusters
CL8 and CL32 are
not present on the
LPS variant
(replaced by blank
plates)
This is not
apparent from the
outside as the
antenna clusters
are covered with a
radome (white
plastic sheet).

Figure 3-7: Hardware components on the front side of the panel (facing inwards)

QPS201 (HW 3.50) (variant tested by Nemko in 2020) and LPS

Panel Rear Side

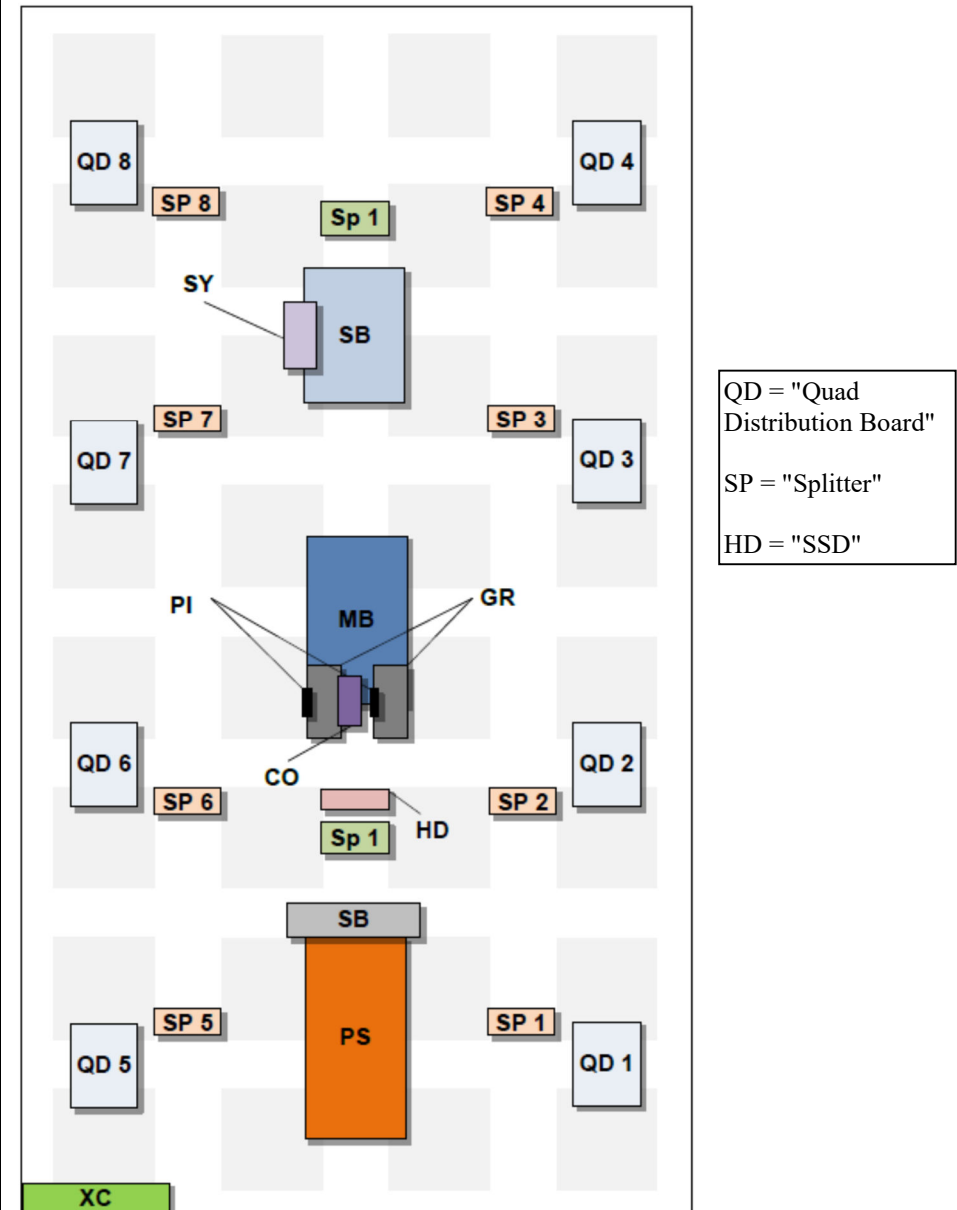


Figure 3-8: Hardware components on the rear side of the panel (facing outwards)

QPS201 (HW 3.30) (variant tested by Nemko in 2018)

Block Diagram

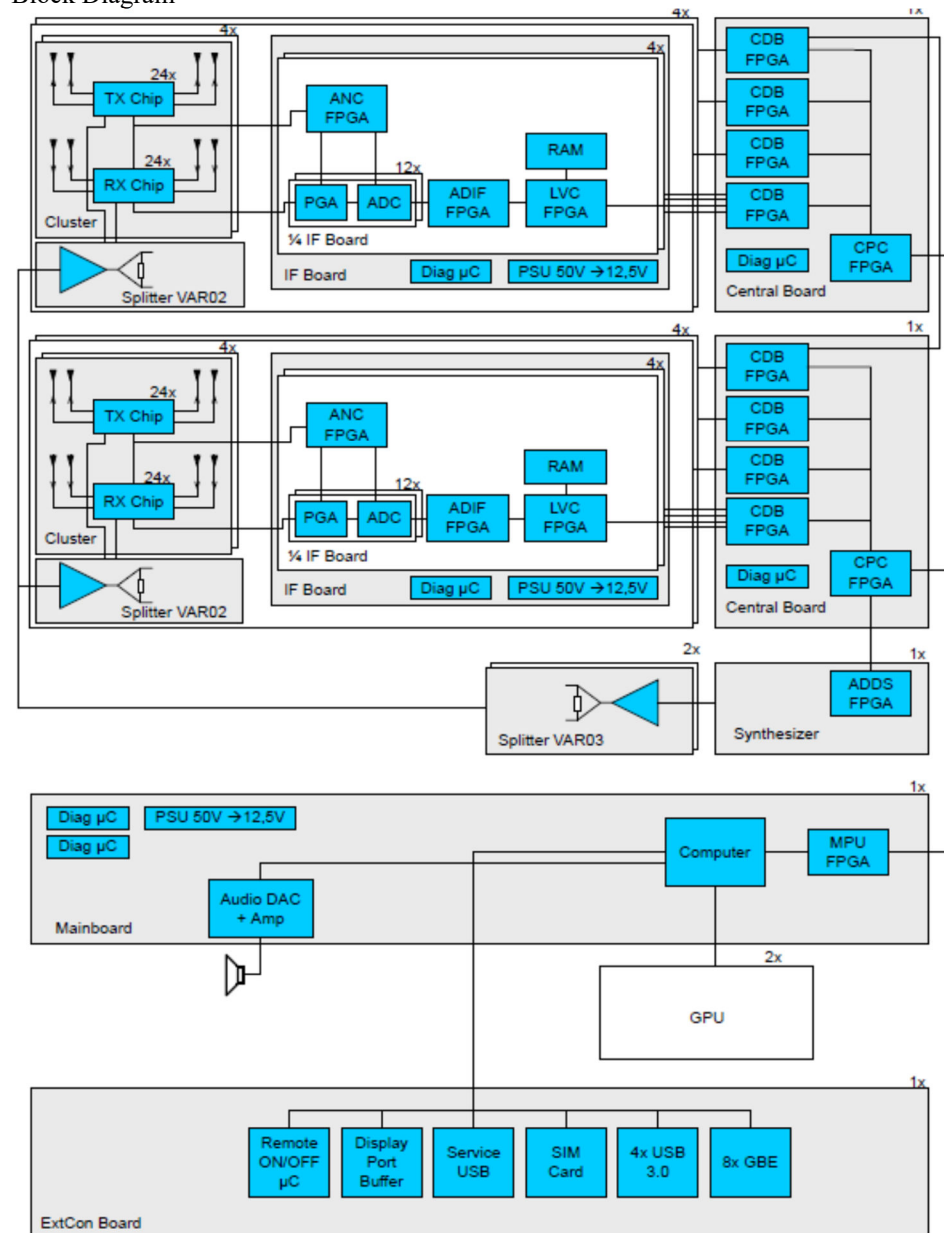


Figure 3-13: Block diagram of an R&S QPS panel

QPS201 (HW 3.50) (variant tested by Nemko in 2020) and LPS

Block Diagram

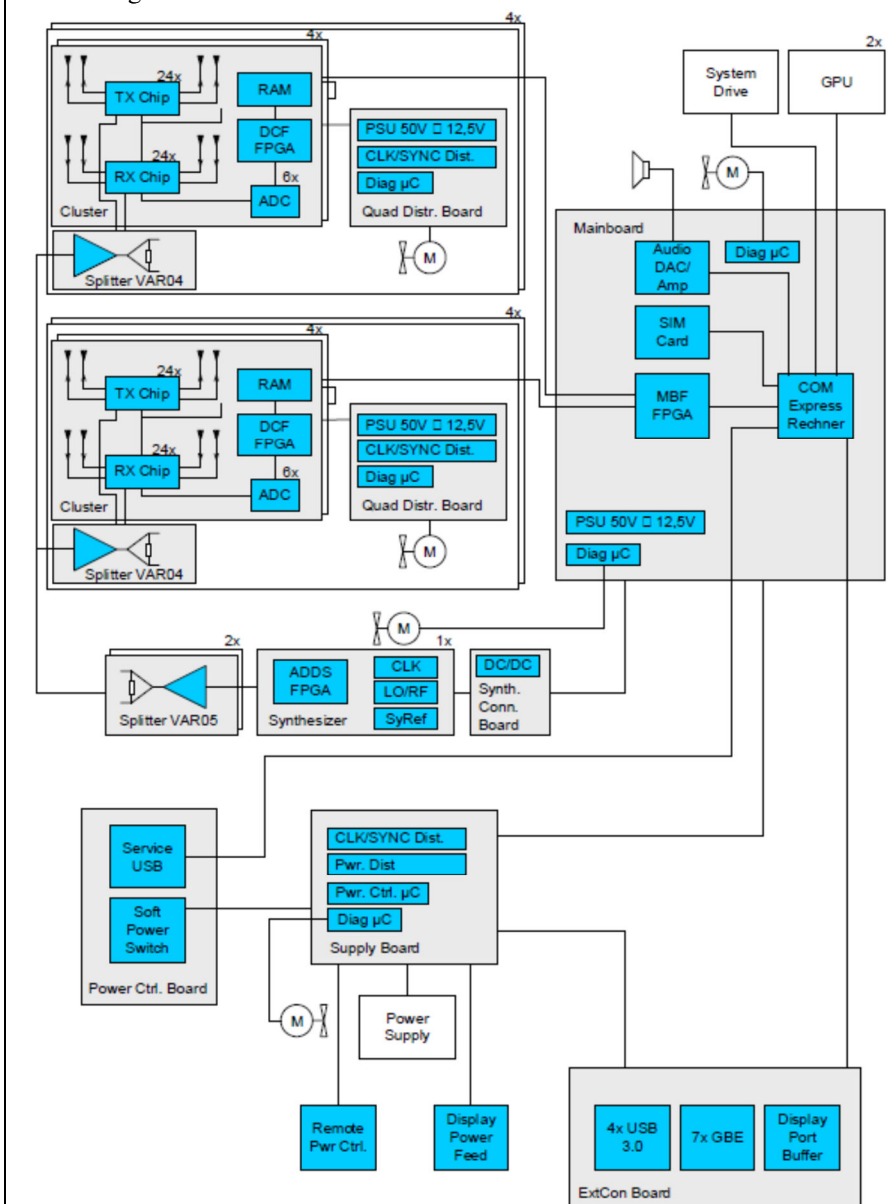
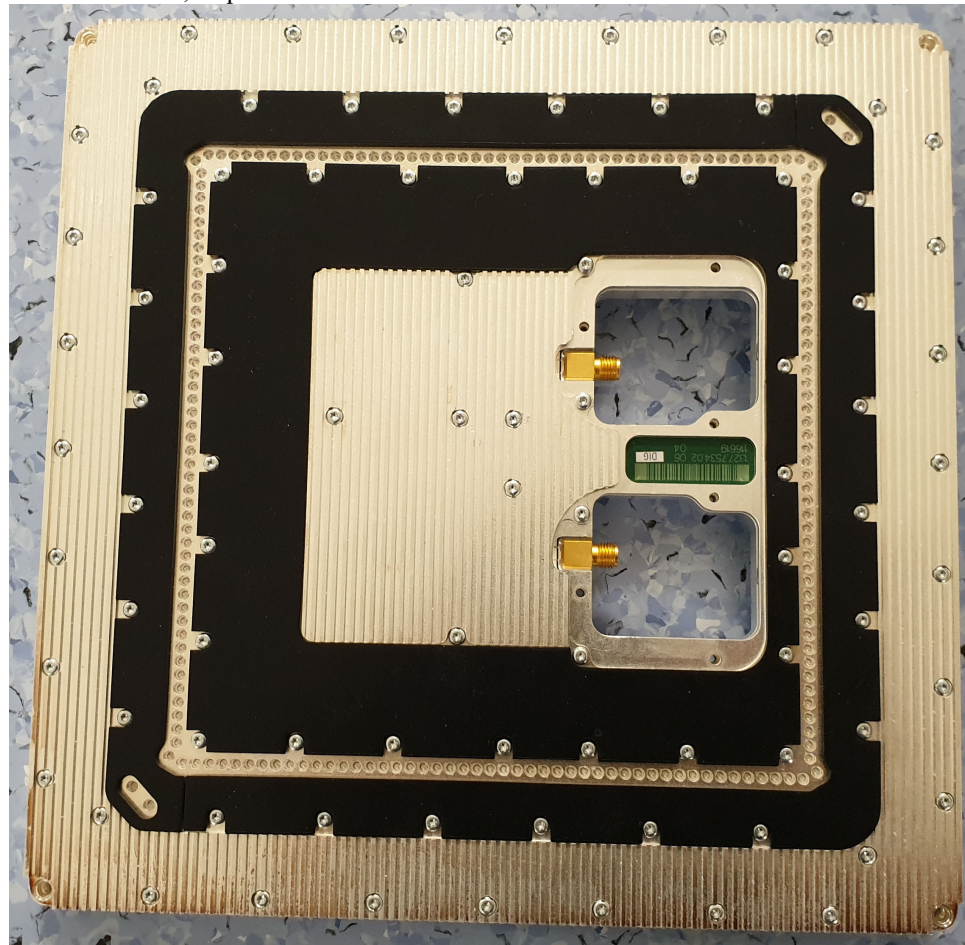


Figure 3-9: Block diagram of an R&S QPS panel

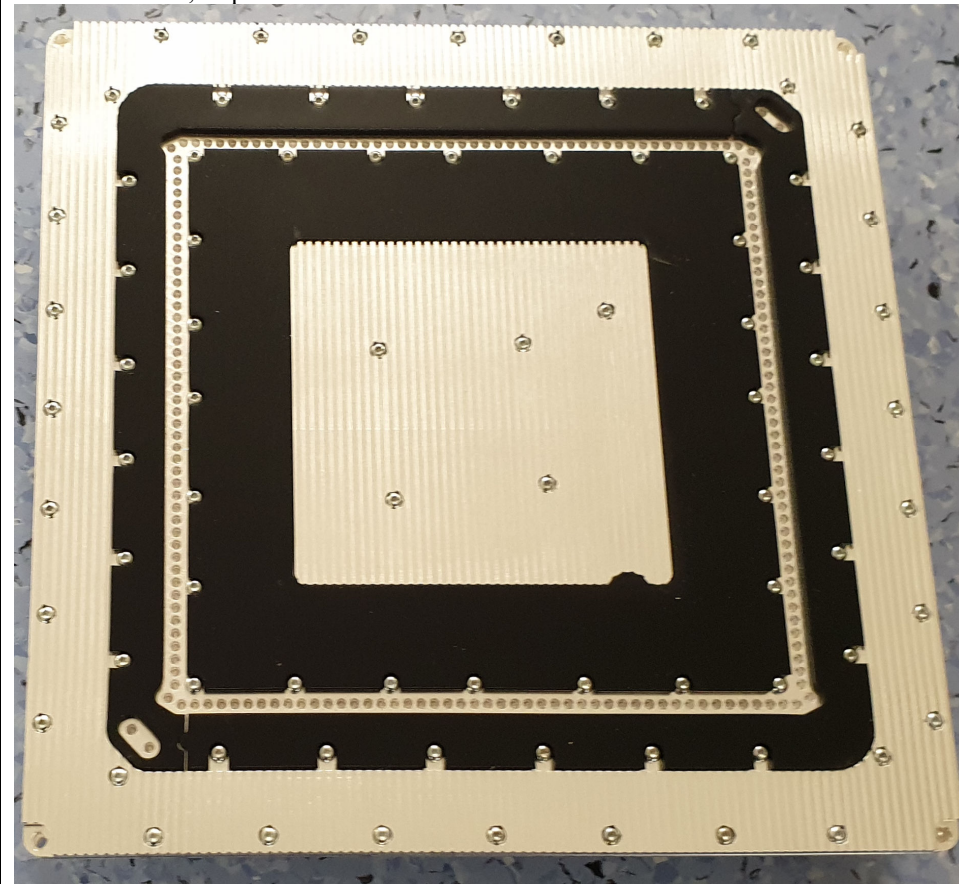
QPS201 (HW 3.30) (variant tested by Nemko in 2018)

Antenna Cluster, Top View



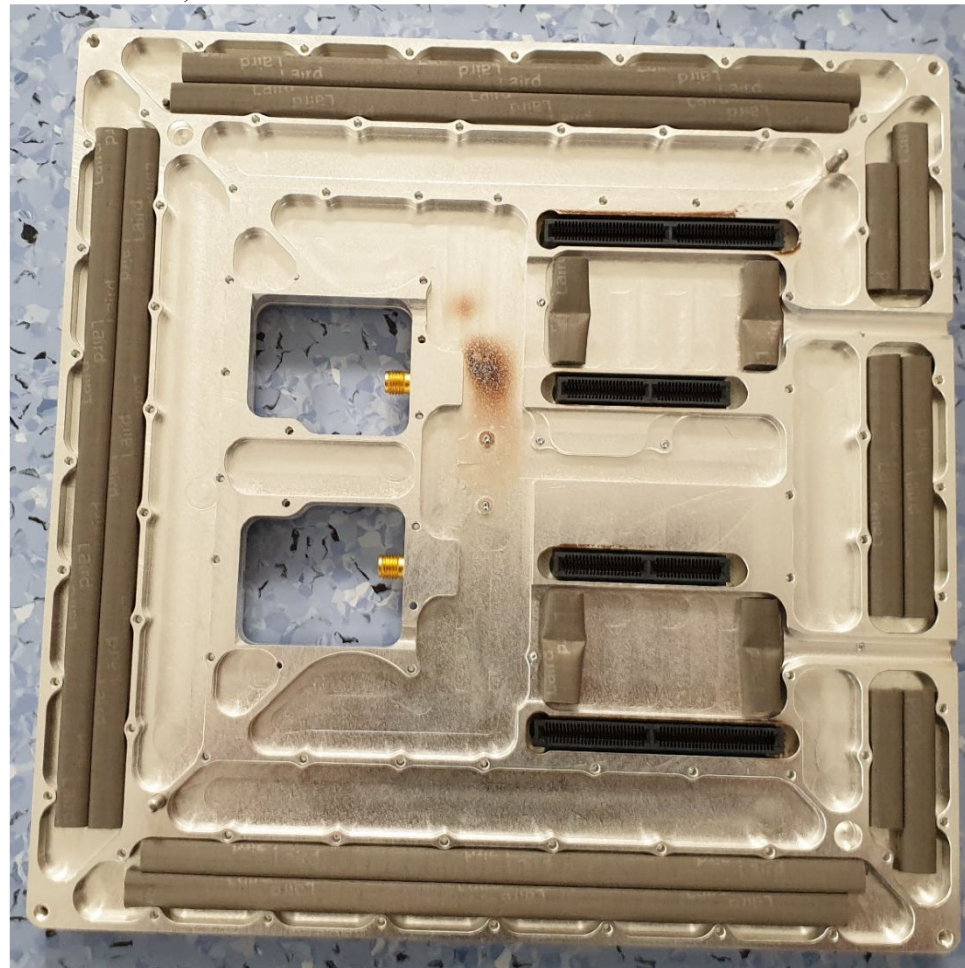
QPS201 (HW 3.50) (variant tested by Nemko in 2020) and LPS

Antenna Cluster, Top View



QPS201 (HW 3.30) (variant tested by Nemko in 2018)

Antenna Cluster, Bottom View



QPS201 (HW 3.50) (variant tested by Nemko in 2020) and LPS

Antenna Cluster, Bottom View

