PAYLOAD EQUIPMENT

PAYLOAD INTERFACE UNIT (PIU)
KU-BAND RECEIVER
X-BAND DOCON-L
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PAYLOAD INTERFACE UNIT (PIU)

PIU is the on-board equipment used for relaying telecommands received from on-board computer to the Ku-Band and X-Band equipment respecting to the equipment interface. PIU is also tasked for collecting telemetries from the Ku-Band and X-Band Payload equipment and sending them to on-board computer.

Technical Specifications
- Controlled and monitored Payload equipment
- Active Equipment
- Switch Matrices
- Antenna Deployment and Positioning Mechanism
- Redundancy: Internal Redundancy
- Satellite Platform Data Interface: MIL-STD-1553B
- Satellite Power Bus Interface: 100V DC
- Payload Equipment Interface: D-Sub Connectors
- Nominal Input Voltage: 100V ±3V
- Maximum Operational Voltage: 110V
- Low Voltage Turn-off: 85V ±3V

Environmental Specifications
- Temperature: Range -20°C to +60°C (Operating mode)
- Range -35°C to +70°C (Survival/Non-operating mode)
- Orbit: GEO

X-BAND DOCON-L

X-Band Communication Payload and DOCON-L which is one of its critical units are being developed by ASELSAN indigenously.

X-BAND DOCON-L performs frequency down-conversion, channel amplification and harmonic filtering functions on the X-Band signal.

Technical Specifications
- RF Input Frequency Range: 7900 - 8400 MHz
- RF Output Frequency Range: 7250 - 7750 MHz
- RF Gain (Linear Mode): 30-63 dB
- RF Input/Output Interface: SMA
- Power Voltage: 100V
- Power Consumption: 0.2 W (OFF) / 21 W (ON)
- Mass: < 3.12 kg
- Natural Frequency: > 150 Hz
- Design Lifetime: 15 years
- Reliability: < 275 FIT @ 35°C
- RF Input Power Level
  - Highest operational: -45 dBm
  - Over drive: -30 dBm
- RF Output Power Level
  - Output Saturation: +29 dBm

Environmental Specifications
- Temperature: Range -5°C to +60°C (Operating mode)
  - Range -35°C to +70°C (Survival/Non-operating mode)
  - -25°C (Cold start)
- Orbit: GEO

KU-BAND RECEIVER

Ku-Band receiver is tasked for amplification of the received uplink signal and downconversion to the downlink frequency band.

Technical Specifications
- RF Input Frequency Range: 17300 - 18350 MHz
- RF Output Frequency Range: 11700-12750 MHz
- Gain: 60 dB
- Noise Figure (Ambient): 1.9 dB maximum
- Noise Figure @ 65°C: 2.2 dB maximum
- RF Input Port: WR 62
- RF Output Port: SMA Coax
- Power/Telecommand/Telemetry Interface: D-Sub Connector
- Telecommands: Power On/Off
- Telemetries: Power On/Off Status
- Input Voltage: 100 V
- Power Consumption: 0.2 W (Off) / 12 W (On) / 14W (Power-up)
- Mass: < 1.8 kg
- Natural Frequency: > 150 Hz
- Design Lifetime: 15 years
- Reliability: < 300 FIT @ 35°C

Environmental Specifications
- Temperature: Range -5°C to +60°C (Operating mode)
- Range -35°C to +70°C (Survival/Non-operating mode)
- Orbit: GEO

Aselsan A.Ş. is a Turkish Armed Forces Foundation company.