Optical info interpretatie

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ONU Optical Module Info
-------------------------------------------------
Temperature (℃)                                  = 48
Temperature alarm upper threshold (℃)            = 80
Temperature alarm lower threshold (℃)            = -10
Temperature Warning upper threshold (℃)          = --
Temperature Warning lower threshold (℃)          = --
Bias Current (mA)                                = 9
Bias current alarm upper threshold (mA)          = 90
Bias current alarm lower threshold (mA)          = 0
Bias current Warning upper threshold (mA)        = --
Bias current Warning lower threshold (mA)        = --
Tx Optical Power (dBm)                           = 2.21
Tx optical power alarm upper threshold (dBm)     = 5
Tx optical power alarm lower threshold (dBm)     = 0
Tx optical power Warning upper threshold (dBm)   = --
Tx optical power Warning lower threshold (dBm)   = --
Rx Optical Power (dBm)                           = -11.0
Rx optical power alarm upper threshold (dBm)     = -7
Rx optical power alarm lower threshold (dBm)     = -29
Rx optical power Warning upper threshold (dBm)   = --
Rx optical power Warning lower threshold (dBm)   = --
Voltage (V)                                      = 3.22
Supply voltage alarm upper threshold (V)         = 3.6
Supply voltage alarm lower threshold (V)         = 3
Supply voltage Warning upper threshold (V)       = --
Supply voltage Warning lower threshold (V)       = --
OLT Rx ONU Optical Power (dBm)                   = -16.72
CATV Rx Power  (dBm)                             = --
Upper Threshold of CATV Rx Power Alarm (dBm)     = --
Lower Threshold of CATV Rx Power Alarm (dBm)     = --
Tx WaveLength (nm)                               = --
Rx WaveLength (nm)                               = --
```

This image displays **ONU Optical Module Info**, which is diagnostic and operational data from an **Optical Network Unit (ONU)** — a device used in fiber-optic networks (like GPON or EPON) to connect end-users to the service provider's network.

The information shown helps technicians monitor the health, performance, and status of the optical transceiver module inside the ONU. Let's break it down section by section:

◆ **Temperature**

- **Temperature (°C)** = 48 → Current operating temperature of the module.

- **Temperature alarm upper threshold (°C)** = 80 → If temp exceeds 80°C, an *alarm* is triggered.

- **Temperature alarm lower threshold (°C)** = -10 → If temp drops below -10°C, an *alarm* is triggered.

- **Warning thresholds** are not set (--), meaning only alarms are configured.

☑ *Interpretation*: The module is running at 48°C — within safe limits (well below 80°C). No alarm.

- ◆ **Bias Current (mA)**

- **Bias Current (mA)** = 9 → Current supplied to the laser diode to keep it ready for transmission.

- **Alarm upper threshold** = 90 mA → If bias current exceeds 90 mA, laser may be degrading or failing.

- **Alarm lower threshold** = 0 mA → If near zero, laser isn't being driven — likely failure.

- Warning thresholds not set.

✅ *Interpretation*: 9 mA is normal for most SFP/ONU modules. Healthy operation.

- ◆ **Tx Optical Power (dBm) — Transmit Power**

- **Tx Optical Power (dBm)** = 2.21 → Power level of the signal being sent *out* from the ONU.

- **Alarm upper threshold** = 5 dBm → Too high = risk of damaging receiver.

- **Alarm lower threshold** = 0 dBm → Too low = signal too weak to reach OLT.

- Warning thresholds not set.

✅ *Interpretation*: 2.21 dBm is a good, healthy transmit power for many PON systems (typically -1 to +5 dBm acceptable).
No alarm.

- ◆ **Rx Optical Power (dBm) — Receive Power**

- **Rx Optical Power (dBm)** = -11.0 → Power level of the signal received *from the OLT*.

- **Alarm upper threshold** = -7 dBm → Too strong = can overload receiver.

- **Alarm lower threshold** = -29 dBm → Too weak = signal lost or degraded.

- Warning thresholds not set.

✅ *Interpretation*: -11.0 dBm is excellent — well within typical GPON range (-8 to -28 dBm). Strong, stable signal.

- ◆ **Voltage (V)**

- **Voltage (V)** = 3.22 → Supply voltage to the optical module.

- **Alarm upper threshold** = 3.6 V → Overvoltage protection.

- **Alarm lower threshold** = 3.0 V → Undervoltage warning.

✅ *Interpretation*: 3.22V is within normal range (typically 3.1–3.4V for 3.3V devices). Healthy.

- ◆ **OLT Rx ONU Optical Power (dBm)**

- **OLT Rx ONU Optical Power (dBm)** = -16.72 → This is the power *as seen by the OLT* when receiving from this ONU.

" ⚠ Note: This value is often calculated or estimated by the OLT based on link loss. It's useful for troubleshooting upstream path loss. "

✅ *Interpretation*: -16.72 dBm is acceptable for GPON (typically -8 to -28 dBm). Indicates moderate attenuation but still within spec.

- ◆ **CATV Rx Power (dBm)**

- All fields are [--] → Not applicable or not configured.

"This would apply if the ONU supports RF video (CATV) over the same fiber — usually not present in basic internet-only ONUs. "

◆ Wavelengths (nm)

- Both Tx and Rx wavelengths are `--` → Not reported or not available.

  "In GPON, standard wavelengths are: "

  - Tx (ONU → OLT): 1310 nm

  - Rx (OLT → ONU): 1490 nm

  - CATV (if present): 1550 nm

Some modules don't report these values directly.

✅ Summary / Health Check

PARAMETER	VALUE	STATUS	NOTES
Temperature	48°C	✅ Normal	Well below alarm threshold
Bias Current	9 mA	✅ Normal	Within safe range
Tx Power	2.21 dBm	✅ Normal	Good transmit level
Rx Power	-11.0 dBm	✅ Excellent	Strong receive signal
Voltage	3.22 V	✅ Normal	Stable supply
OLT Rx Power	-16.72 dBm	✅ Acceptable	Moderate attenuation
CATV / Wavelengths	--	N/A	Not configured or supported

🛠 Use Case

This data is typically viewed via:

- CLI commands on the ONU or OLT

- Web interface (if available)

- Network management system (NMS)

It's used for:

- Troubleshooting poor signal or dropouts

- Monitoring aging components (e.g., rising bias current or falling Tx/Rx power)

- Preventive maintenance before failures occur

💡 **Pro Tip**

If you see:

- **Tx Power dropping over time** → Laser aging

- **Bias Current rising** → Laser efficiency decreasing

- **Rx Power too low** → Dirty connectors, broken fiber, splitter issues

- **High temperature** → Poor ventilation or failing cooling

Always compare with manufacturer specs and your network's SLA thresholds.