7505E交换机光模块阈值读取

mib SNMP 许鹏鹏 2021-12-25 发表

组网及说明

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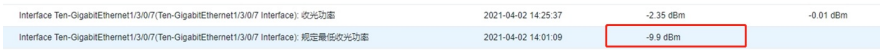
问题描述

客户现场反馈使用MIB节点读取的光模块信息和命令行读取的信息不一致， 收发光最大值和最小值和命令行结果不符

```
Ten-GigabitEthernet1/3/0/7 transceiver diagnostic information:
  Current diagnostic parameters:
    Temp.( Voltage(V)  Bias(mA)  RX power(dBm)  TX power(dBm)
    44          3.33         5.47       -2.35          -2.19
  Alarm thresholds:
           Temp.( Voltage(V)  Bias(mA)  RX power(dBm)  TX power(dBm)
    High  73          3.80        9.35       1.00           -1.00
    Low   -3          2.81        1.00       -11.90         -10.30
```

网管读取信息如下：



过程分析

经过确认，现场读取的节点是 hh3cTransceiverMaxTXPower ，该节点读出来的是光模块自身的收发光能力， Alarm thresholds的光模块节点是以下几个：

hh3cTransceiverPwrOutHiAlarm (1.3.6.1.4.1.25506.2.70.1.1.1.30)	read-only	Yes	As per MIB
hh3cTransceiverPwrOutLoAlarm (1.3.6.1.4.1.25506.2.70.1.1.1.31)	read-only	Yes	As per MIB
hh3cTransceiverRcvPwrHiWarn (1.3.6.1.4.1.25506.2.70.1.1.1.36)	read-only	Yes	As per MIB
hh3cTransceiverRcvPwrLoWarn (1.3.6.1.4.1.25506.2.70.1.1.1.37)	read-only	Yes	As per MIB

通过对应节点读出来值，需要通过下述计算方式进行计算：
通过命令行读取信息如下：

```
Ten-GigabitEthernet3/0/5 transceiver diagnostic information:
  Current diagnostic parameters:
    Temp.(°C) Voltage(V)   Bias(mA)   RX power(dBm)   TX power(dBm)
    40          3.37         7.89       -3.39           -2.75
  Alarm thresholds:
          Temp.(°C) Voltage(V)   Bias(mA)   RX power(dBm)   TX power(dBm)
    High  73          3.80         13.20      1.00            0.00
    Low   -3          2.81         1.00       -9.50           -10.30
```

通过mib节点读取该端口信息如下：
1: ifDescr.161 (DisplayString) Ten-GigabitEthernet3/0/5
[54.65.6E.2D.47.69.67.61.62.69.74.45.74.68.65.72.6E.65.74.33.2F.30.2F.35 (hex)]

7: hh3cTransceiverPwrOutHiAlarm.161 (Integer32) 10000
7: hh3cTransceiverPwrOutLoAlarm.161 (Integer32) 933

读取出来的数值单位是 0.1uw

Name: hh3cTransceiverPwrOutHiAlarm
Type: OBJECT-TYPE
OID: 1.3.6.1.4.1.25506.2.70.1.1.1.30
Full path:
iso(1).org(3).dod(6).internet(1).private(4).enterprises(1).hh3c(25506).hh3cCommon(2).hh3cTransceiver(70).hh3cTransceiverInfoAdm(1).hh3cTransceiverInfoTable(1).hh3cTransceiverInfoEntry(1).hh3cTransceiverPwrOutHiAlarm(30)
Module: HH3C-TRANSCEIVER-INFO-MIB

Parent: hh3cTransceiverInfoEntry
Prev sibling: hh3cTransceiverBiasLoWarn
Next sibling: hh3cTransceiverPwrOutLoAlarm

Numerical syntax: Integer (32 bit)
Base syntax: Integer32
Composed syntax: Integer32
Status: current
Max access: read-only

Description: Transceiver transmit power high alarm threshold in tenths of microwatts.
As an example: 10000 is 1 milliwatt.

下面就是光模块发送的上下告警的数据的转换方法：

转化的方法可以到网上查询，比如可以到下面的网址进行在线转换：
http://www.elecfans.com/tools/dbm.htm

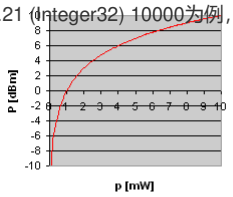
上限告警阈值：0 dBm

dBw和dBm的换算：0 dBw = 10log1 W = 10log1000 mw = 30 dBm

以hh3cTransceiverPwrOutHiAlarm.21 (Integer32) 10000为例，对应节点读出的值10000 的单位为0.1uw，此时需要进行转换计算；

转换成mw：10000/10000=1 mw

转换成dBm:10*lg1 = 10*0 = 0dBm



$$P = 10 \cdot \log_{10}\left(\frac{p}{p_0}\right) \qquad p_0 = \begin{cases} 1W\ [dBW] \\ 1mW\ [dBm] \end{cases}$$

Power : P = -30 dBW Convert

P = 0 dBm Convert

p = 0.0009999999999999993 W Convert

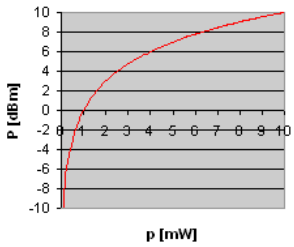
输入相应值，点击“convert”进行转换记算

0 dBm = 0.0009999999999999993W= 0.0009999W

因为读出来的数据的单位是：10000 is 1 milliwatt.

因此显示为10000

下限告警阈值：-10.30



$$P = 10 \cdot \log_{10}\left(\frac{p}{p_0}\right) \qquad p_0 = \begin{cases} 1W\ [dBW] \\ 1mW\ [dBm] \end{cases}$$

Power : P = -40.3 dBW Convert

P = -10.3 dBm Convert

p = 0.00009332543007969922 W Convert

输入相应值，点击“convert”进行转换记算

-10.3dBm = 0.00009332543007969922W = 0.0000933W

因为读出来的数据的单位是：10000 is 1 milliwatt.

因此显示为933