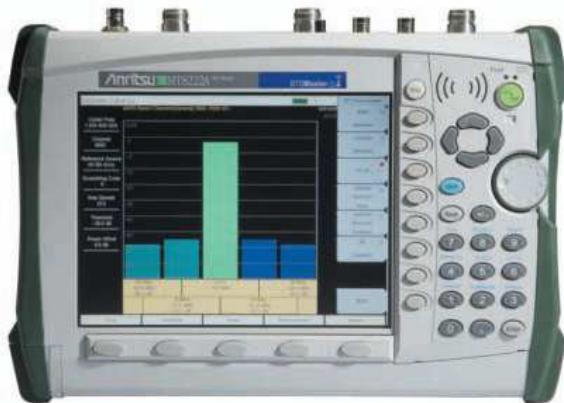


# Equipments preparation

- Notebook
- USB to RS232 cable
- Install the Tera Term
- Install the FTP server
- Spectrum analyzer, RF cable , attenuator(30dB)



Spectrum



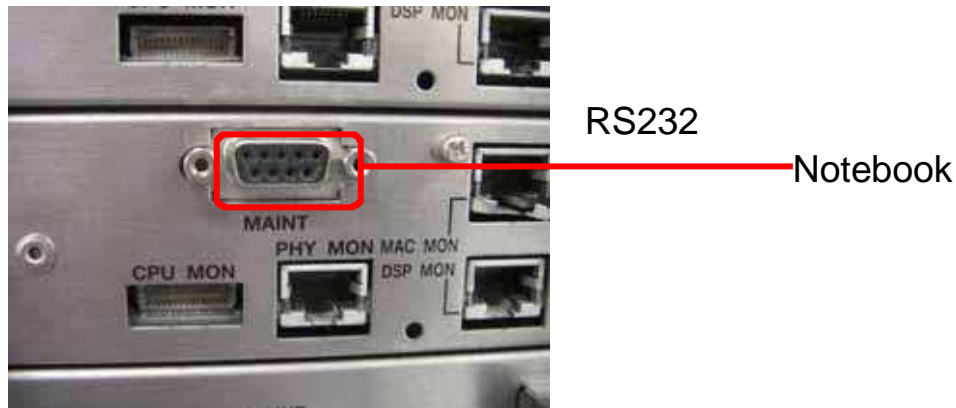
Attenuator



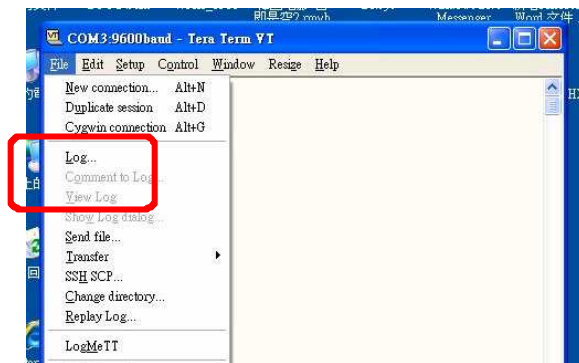
RF cable

# Step1 Collect alarm messages from INTFC

- Connect the console to 『MAINT』 port on the CHC by RS232 cable



- collect alarm messages of the CHC by 『cat /var/log/message』 command



- (1) Set the logging-collective function of TeraTerm.
- (2) Show the messages of the following directory

# Step1 Collect alarm messages from INTFC

(3)Specify the suspected part by the following messages

■ You will get the attachment at right . Inside you can find the log for Japanese



PDX0043-INTF.log

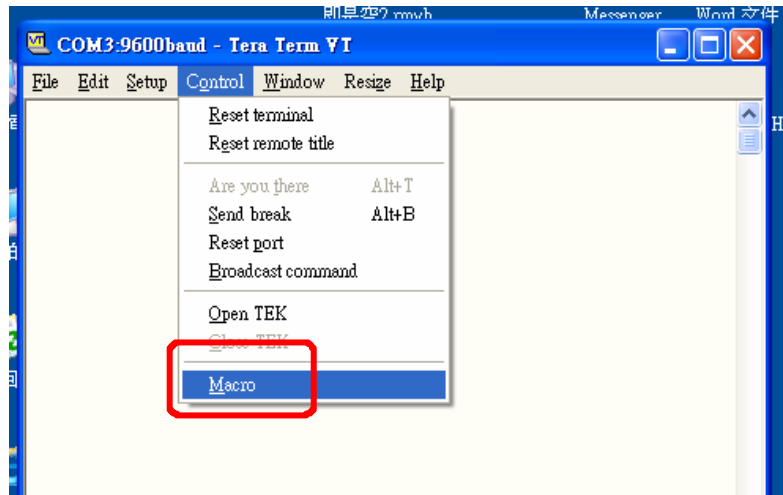
```
Jul 6 13:19:37 nec_wimax_bs mnt_app: 0x9000 "Alarm of wireless communication hardware occurred."  
MSID=000000000000  
INFO=odu_reg[0]:0x0,0x0,0x0,0x30b6,0x0,odu_reg[1]:0x0,0x0,0x0,0x30b6,0x0,idu_reg:0x200,0xa9,0x0
```

<<ex>>Because there is『0x200』on the 1st item of 『idu\_reg』,  
CHC card is specified as suspected equipment,

- When there is a mention in the first item 『odu\_reg[0]』 ,  
there is any defects in ODU of MAIN ( included optical cable defect )
- When there is a mention in the first item 『odu\_reg[1]』 ,  
there is any defects in ODU of MIMO ( included optical cable defect )
- When there is a mention in the first item 『idu\_reg』 ,  
there is any defects in CHC card ( included optical cable defect )

# Step2 Collect alarm messages from ODU

- Connect the console to 『MAINT』 port on the CHC by RS232 cable
- Run the macro file to save log from CHC card



get\_PHYODU\_Ver1.8.ttl

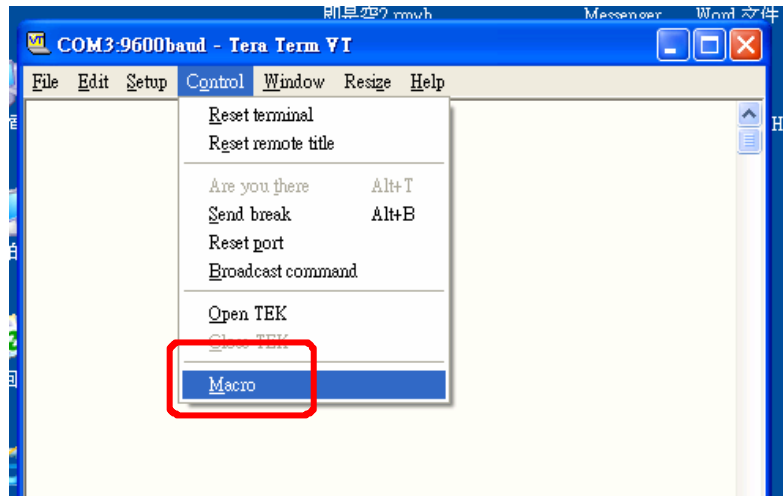
- You will get the attachment at right.  
Inside you can find the log for Japanese



KLX0002-S3-PHY-ODU.log

# Step3 Collect alarm messages from CHC

- Connect the console to 『MAINT』 port on the CHC by RS232 cable
- Running the macro file to save logs for CHC card



- You will get information as the attachment on your right hand side.  
In the attached file, you can find the log for Japanese.



# Step4 How to identify the problem for CHC

- Check the version of the CHC by 『romver』 command . Version is Ver 53.45.00

```
Welcome to NEC WIMAX BS !!

nec_wimax_bs login:

Welcome to NEC WIMAX BS !!

nec_wimax_bs login: root
password:
18:00:33][root@nec_wimax_bs:~]$
18:00:33][root@nec_wimax_bs:~]$
18:00:34][root@nec_wimax_bs:~]$
18:00:34][root@nec_wimax_bs:~]$ romver
lash ROM A : WIMAX rootfs Ver53.45.00
lash ROM B : WIMAX rootfs Ver53.45.00
urrent Side: a
18:00:39][root@nec_wimax_bs:~]$ █
```

Login by the following:  
nec\_wimax\_bs login:root  
Password:nothing(Enter)

- Check the IP of the CHC by 『cat /flash\_a/networkenv』 command

```
18:04:11][root@nec_wimax_bs:~]$ cat /flash_a/networkenv
{AC0
<port INTERFACE_0=eth0
<port IPADDR_0=10.77.35.11
<port NETMASK_0=255.255.255.0
<port BROADCAST_0=10.77.35.255
<port GATEWAY_0=10.77.35.100
<port NAMESERVER_0=
{AC1
<port INTERFACE_1=eth1
<port IPADDR_1=10.52.52.21
<port NETMASK_1=255.255.255.0
<port GATEWAY_1=
<port NAMESERVER_1=
18:04:23][root@nec_wimax_bs:~]$
```

# Step4 How to identify the problem for CHC

---

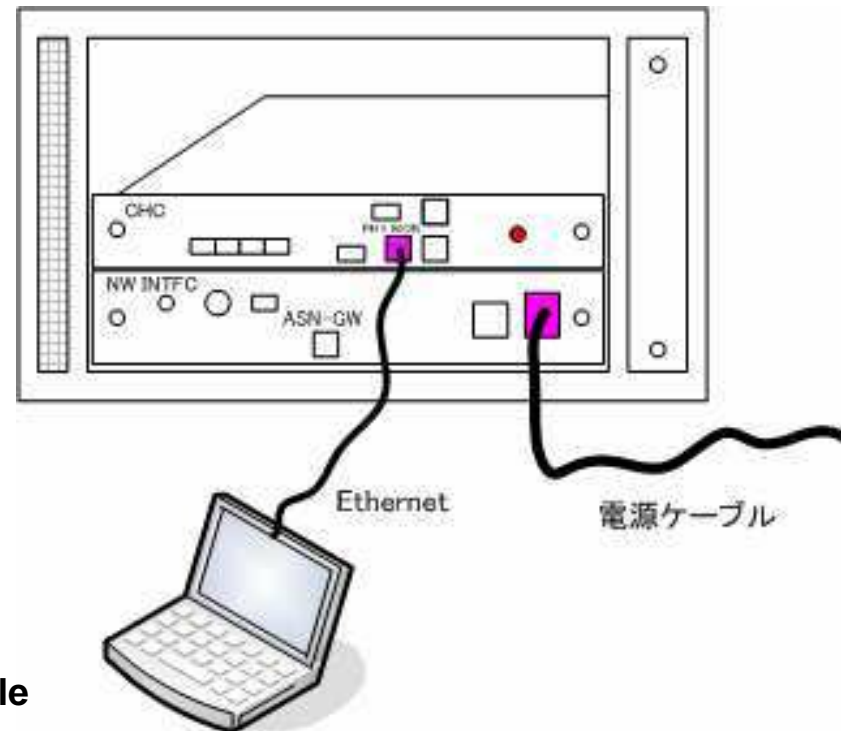
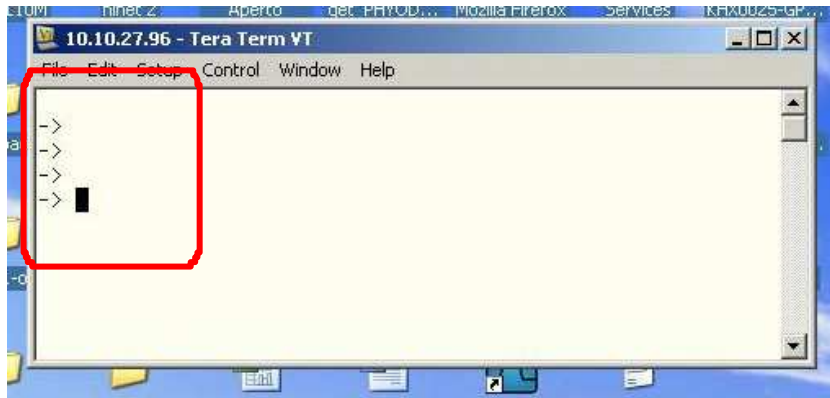
- Ping to other CHC card (if ping test finish ,The CHC card is normal)

```
0.77.35.11
08:05:57][root@nec_wimax_bs:~]$ ping 10.77.35.12
PING 10.77.35.12 (10.77.35.12): 56 data bytes
i4 bytes from 10.77.35.12: icmp_seq=0 ttl=64 time=1.1 ms
i4 bytes from 10.77.35.12: icmp_seq=1 ttl=64 time=0.5 ms
i4 bytes from 10.77.35.12: icmp_seq=2 ttl=64 time=0.5 ms
i4 bytes from 10.77.35.12: icmp_seq=3 ttl=64 time=0.5 ms
i4 bytes from 10.77.35.12: icmp_seq=4 ttl=64 time=0.5 ms
i4 bytes from 10.77.35.12: icmp_seq=5 ttl=64 time=0.5 ms
i4 bytes from 10.77.35.12: icmp_seq=6 ttl=64 time=0.5 ms
```




# Step5 How to test ODU if it's out of order or not

## Configuration



## Preparation Procedure

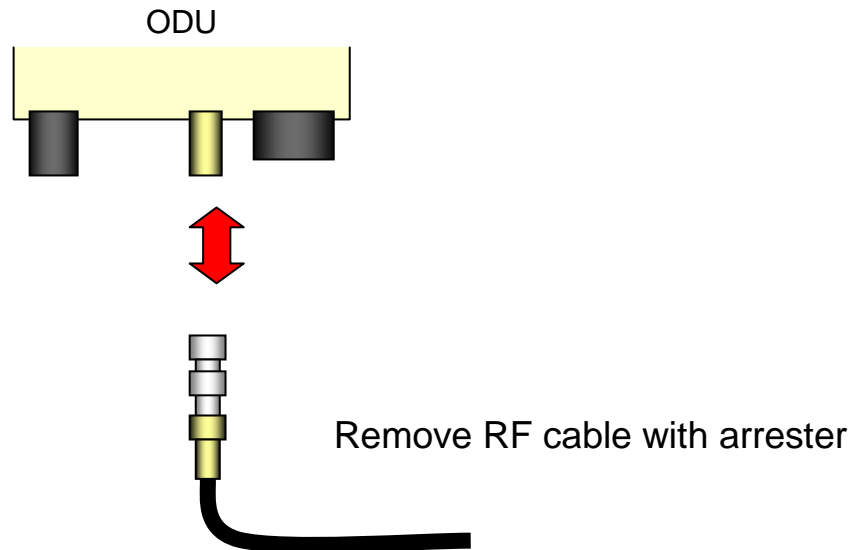
- 1) Connect CHC and ODU by Optical Cable
  - 2) Turn on the ODU
  - 3) Connect PHY MON port and PC via LAN cable (Straight cable)
  - 4) Confirm IP address on PC that is "10.10.27.137"
  - 5) Copy "BTSL1\_SA4.out" under "c:\users\tftpd" of PC.
  - 6) Copy the macro under "c:\Program Files\Teratem" of PC.
  - 7) Start Cerberus FTP server on PC 
  - 8) Turn on the CHC
  - 9) Enter "telnet 10.10.27.96" with Teraterm
  - 10) Confirm the connection with the PHY board by using "Enter command".
- \*If it is a normal start, "->" is displayed.



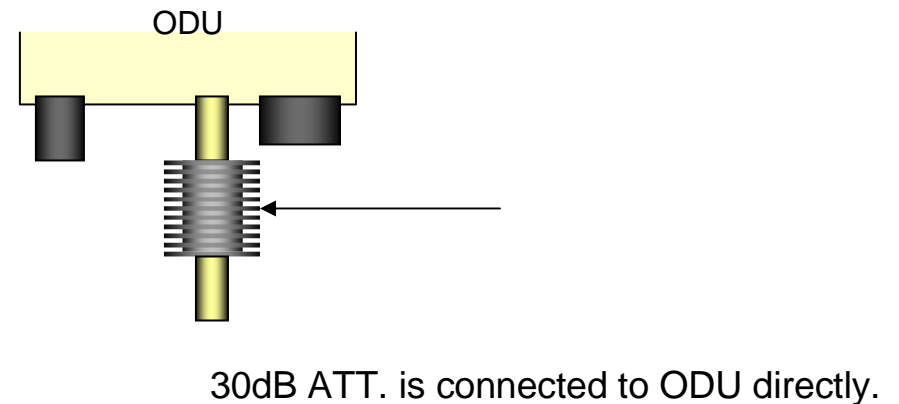
# Step5.1 How to test ODU if it's out of order or not

## 1. Measurement Procedure for ODU Preparation.

- Configuration for WiMAX signal measurement by MT8222A.  
Remove RF cable and arrester as below.

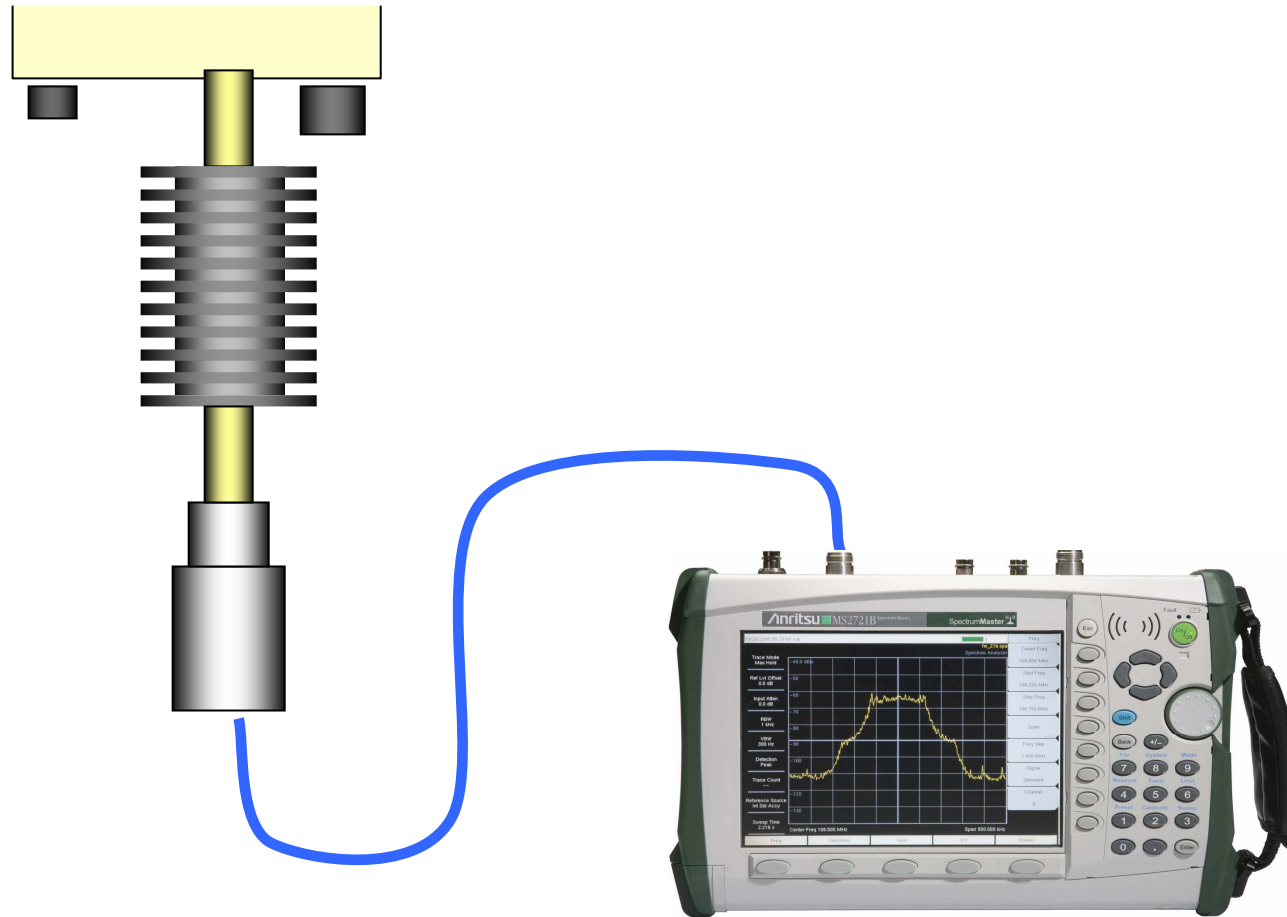


## ■ Connects Attenuators



# Step5.1 How to test ODU if it's out of order or not

- ODU and MT8222A connect via RF cable (1.5m)

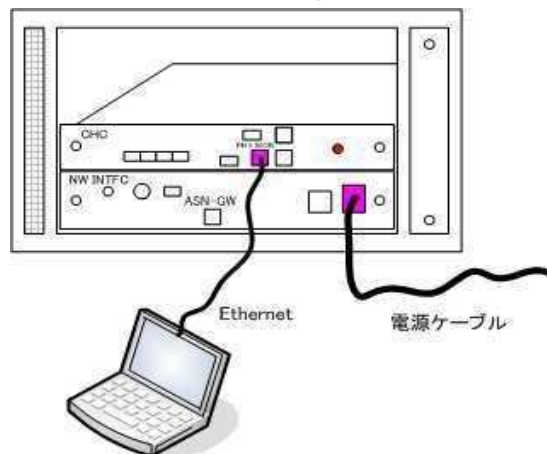


# Step5.1 How to test ODU if it's out of order or not

## ■ Measurement for ODU and setting

- 1) Measure the CH Power / Frequency / OBW.
- 2) Push the "Freq" key.
- 3) Push the "Center Freq" key and change freq. (ex 2600)
- 4) Push the "Amplitude" key.
- 5) Push the "Power Offset" key and change offset to 30dB.
- 6) Push the "Setup" key.
- 7) Push the "BW" and select Bandwidth to 10MHz.
- 8) Push the "Span" key and select span to 10MHz.
- 9) You can measure CH Power / Frequency / OBW
- 10) Push the "Shift+7" key.
- 11) Push the "Save" key.
- 12) Push the "Save Screen as JPEG" key

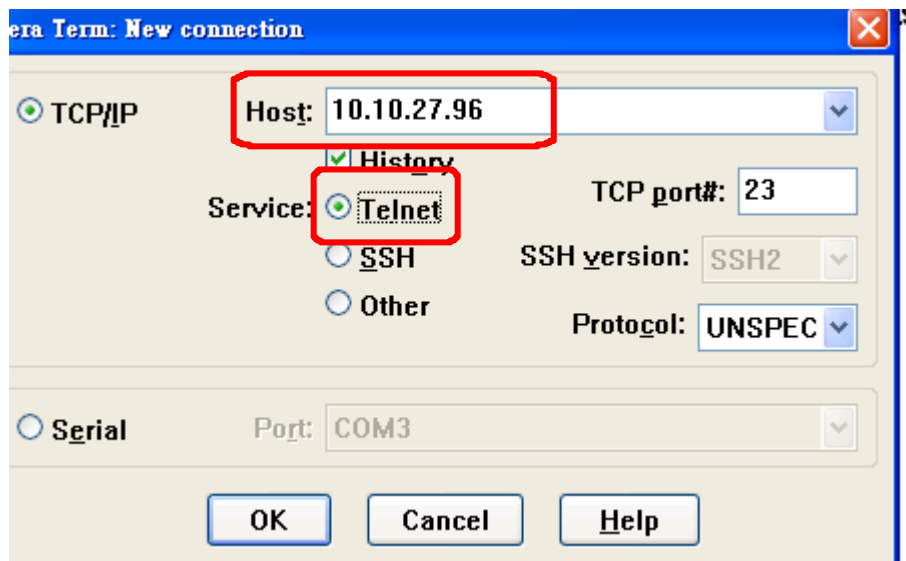
## ■ You need running the macro file at right when test the ODU



Macro for ODU.ttl

# Step5.1 How to test ODU if it's out of order or not

- Connect PC and PHY Monitor port of CHC with LAN cable
- Connect PC and MAINT port of INTFC with RS232 cable
- Set IP address which is “10.10.27.137” on the PC
- Run the Tera Term of PC and host IP need set (10.10.27.96)



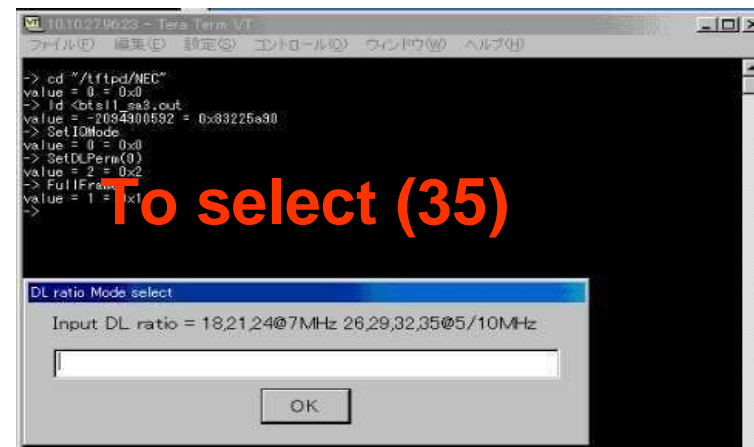
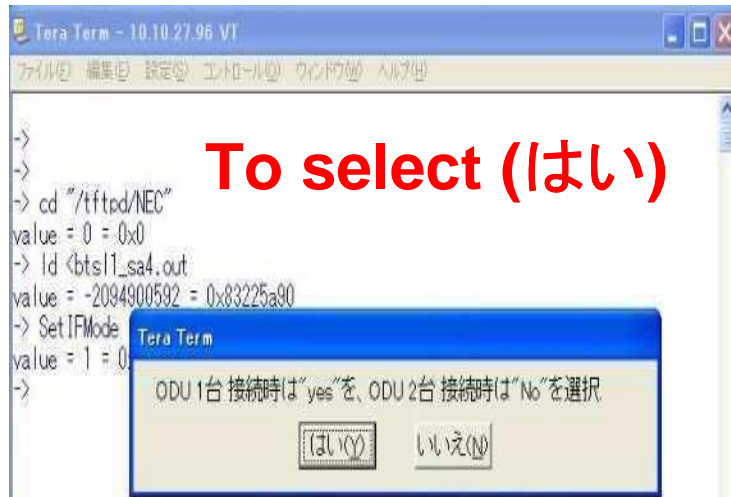
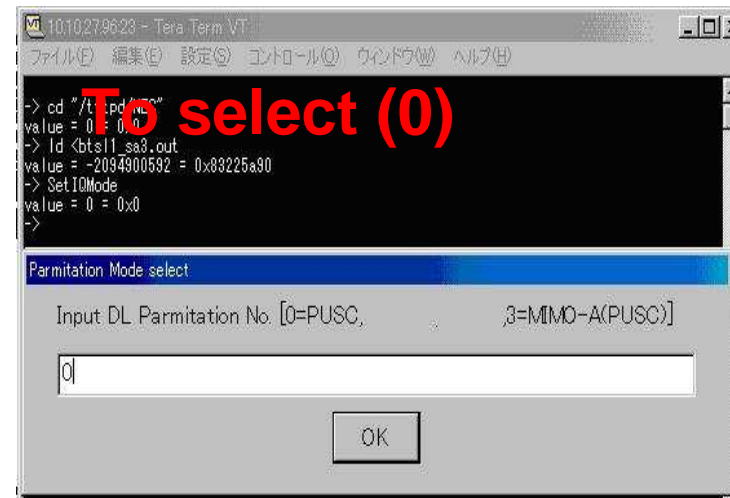
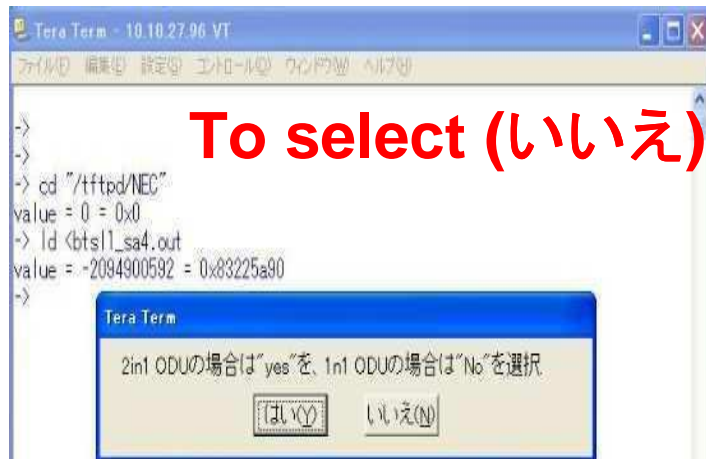
- running the macro file



Macro for ODU.ttl

# Step5.1 How to test ODU if it's out of order or not

## ■ Run the following macro



# Step5.1 How to test ODU if it's out of order or not

## ■ Run the following the macro

```
10.10.27.96:23 - Tera Term V1.7.1
ファイル(F) 編集(E) 設定(S) コントロール(C) ウィンドウ(W) ヘルプ(H)

-> cd "/tftpd/NEC"
value = 0 = 0x0
-> Id <bts11_sa3.out
value = -2094900592 = 0x83225a90
-> SetIQMode
value = 0 = 0x0
-> SetDLPerm(0)
value = 2 = 0x2
-> FullFrame
value = 1 = 0x1
->
```

**To select (12)**

UL ratio Mode select  
Input UL ratio = 15,12,9@7MHz 21,18,15,12@5/10MHz  
12  
OK

```
10.10.27.96:23 - Tera Term V1.7.1
ファイル(F) 編集(E) 設定(S) コントロール(C) ウィンドウ(W) ヘルプ(H)

99:pause 1

-> FPGA SUCCESS - /tfts0/boot0/interface_fpga.rbf.gz to FPGA IF (1.6 secs) (21189/8 bytes)
Tatsu BSP = 01.01.0023
CPLD Rev 1.0.0.1 Dated 4/12/2007 @ 17:18:27
VxWorks = VxWorks5.5.1
Creation data = Oct 29 2007, 11:01:26

->
->
->
->
-> cd "/tftpd/NEC"
value = 0 = 0x0
-> Id <bts11_sa4.out
value = -2084570352 = 0x83225a90
-> SetIQMode
```

**To select (はい)**

Tera Term  
DL/UL比=35:12 Bandwidth=10MHzで良いですか?  
はい(Y) いいえ(N)

```
10.10.27.96:23 - Tera Term V1.7.1
ファイル(F) 編集(E) 設定(S) コントロール(C) ウィンドウ(W) ヘルプ(H)

-> cd "/tftpd/NEC"
value = 0 = 0x0
-> Id <bts11_sa3.out
value = -2094900592 = 0x83225a90
-> SetIQMode
value = 0 = 0x0
-> SetDLPerm(0)
value = 2 = 0x2
-> FullFrame
value = 1 = 0x1
->
```

**To select (10)**

Bandwidth Mode select  
Input Bandwidth = 5,7,10 [MHz]  
10  
OK

```
10.10.27.96:23 - Tera Term V1.7.1
ファイル(F) 編集(E) 設定(S) コントロール(C) ウィンドウ(W) ヘルプ(H)

121:wait 'value ='

-> FPGA SUCCESS - /tfts0/boot0/interface_fpga.rbf.gz to FPGA IF (1.6 secs) (21189/8 bytes)
Tatsu BSP = 01.01.0023
CPLD Rev 1.0.0.1 Dated 4/12/2007 @ 17:18:27
VxWorks = VxWorks5.5.1
Creation data = Oct 29 2007, 11:01:26

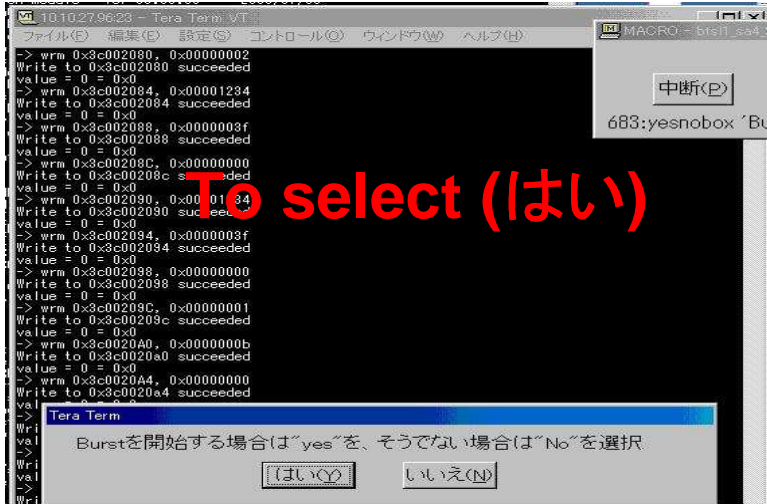
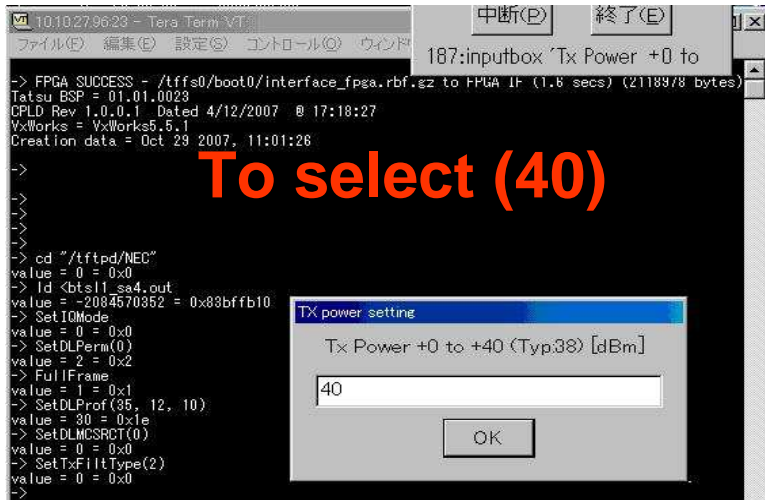
->
->
->
-> cd "/tftpd/NEC"
value = 0 = 0x0
-> Id <bts11_sa4.out
value = -2084570352 = 0x83225a90
-> SetIQMode
value = 0 = 0x0
-> SetDLPerm(0)
value = 2 = 0x2
-> FullFrame
value = 1 = 0x1
-> SetDLProf(35, 12, 10)
value = 30 = 0x1e
->
```

**To select (0)**

DL MCS Mode select  
DL MCS Input 0=QPSK,1=16QAM,2=64QAM  
0  
OK

# Step5.1 How to test ODU if it's out of order or not

## ■ Run the following the macro





# Step5.1 How to test ODU if it's out of order or not

■ If ODU is normal, you will see the picture as below:

The screenshot displays the Anritsu Mobile WiMAX Summary screen. The interface includes a top status bar with the Anritsu logo, date/time (09/14/2009 04:11:13 pm), and signal strength indicators. The main area is divided into a left column for configuration parameters and a right column for measurement results. The measurement results are highlighted in yellow. A right-hand menu contains various control buttons.

Parameter	Value
Center Freq	2.600 GHz
Channel	--
Channel Power (RSSI)	37.1 dBm
Downlink Burst Power	38.4 dBm
Preamble Power	42.5 dBm
Occupied BW	9.100 341 MHz
Uplink Burst Power	--
RCE (rms)	-32.9 dB
RCE (pk)	-26.6 dB
EVM (rms)	2.25 %
EVM (pk)	4.69 %
Carrier Frequency	2.599 999 879 GHz
Freq Error	-121 Hz
CINR	32.9 dB
Base Station ID	0x1122 3344 5566
Sector ID	0

Configuration parameters on the left include: Reference Source (Int Std Accy), Power Offset (30.5 dB), Auto Range (On), BW (10 MHz), CP Ratio (G) (1/8), Frame Length (5 ms), Max Hold (N/A), and Demod (Auto).

Buttons on the right include: Save, Setup, Measurement, Limit Line, On, Event -->, Save Screen as JPEG, Directory Management -->, and Back.

Bottom navigation tabs: Freq, Amplitude, Setup, Measurements, Marker.