Successfully tested 3 antenna 2 sub–system at C01, C04 & C06 antenna

Date of Testing : 8th October 2014 – 11th October 2014- **Online_v2 Team members**

During October-2014 MTAC period, we have successfully tested three antenna two sub-systems at C01,C04 and C06 antenna. We have installed CISCO & HP make L2 Ethernet switch and two Rabbit MCM cards at C01,C04 & C06 for control and monitor of Broadband OF system and Sentinel system.

1. Broadband OF system testing:
The first level control and monitoring of Broadband OF system has been tested by interfacing Rabbit MCM with OF system hardware. The command for RF attenuation was send from all three paths,
1.1. Python environment - ONLINE-V2 - Rabbit MCM - OF hardware.
1.2. GUI environment - ONLINE-V2 - Rabbit MCM - OF hardware.
1.3. Terminal environment - ONLINE-V2 - Rabbit MCM - OF hardware.

The attenuation value was set by sending command to Rabbit MCM card in range of 0 to 31 dB, in step size of 1 dB. The RF power was going down by 2dB for entire range of attenuation values. This test was done in telemetry lab as well as C06 antenna shell. The changes in attenuation were reflecting in RF power at antenna base (OF Tx output port) and receiver room OF system (OF Rx Mon port) on spectrum analyzer.
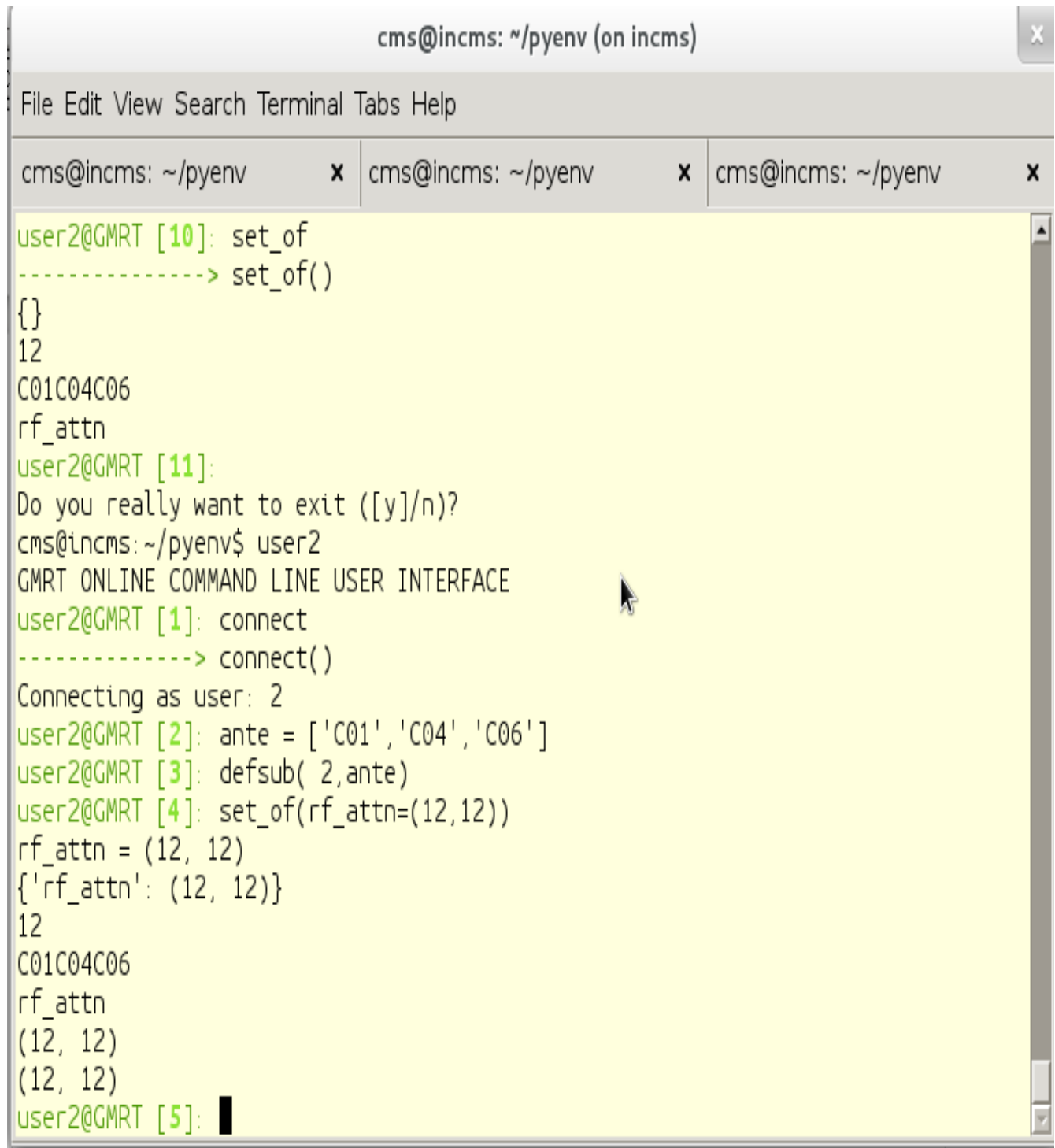
2. Sentinel System Testing:
The control port of Rabbit MCM for sentinel system was tested by connecting 32 bit LED test jig. The digital mask was send to Rabbit MCM by three paths mentioned above. The shell temperature was monitored by connecting temperature sensor to channel 1 of MCM monitoring port. The temperature reading was displayed on ONLINE-V2 shared memory.

The OF system group was involved in setting up OF system and successful completion of testing.

Snapshot :

Python Environment user 2 :


```
                         cms@incms: ~/pyenv (on incms)              [x]

 File Edit View Search Terminal Tabs Help

 cms@incms: ~/pyenv      [x]  cms@incms: ~/pyenv   [x]  cms@incms: ~/pyenv    [x]
 user2@GMRT [10]: set_of
 --------------> set_of()
 {}
 12
 C01C04C06
 rf_attn
 user2@GMRT [11]:
 Do you really want to exit ([y]/n)?
 cms@incms:~/pyenv$ user2
 GMRT ONLINE COMMAND LINE USER INTERFACE
 user2@GMRT [1]: connect
 --------------> connect()
 Connecting as user: 2
 user2@GMRT [2]: ante = ['C01','C04','C06']
 user2@GMRT [3]: defsub( 2,ante)
 user2@GMRT [4]: set_of(rf_attn=(12,12))
 rf_attn = (12, 12)
 {'rf_attn': (12, 12)}
 12
 C01C04C06
 rf_attn
 (12, 12)
 (12, 12)
 user2@GMRT [5]: █
```

Output of Online_V2 screen :

teleset@tellab2:~/Online_v2/Online	teleset@tellab2:~/Online_v2/Online	teleset@tellab2:~/QML_Intg_08

```
PYTHON SYSTEM name fiber_optics
 param_number 1
 ##### Element in Command Queue fiber_optics
 INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C04
PYTHON SYSTEM name fiber_optics
 param_number 1
 ##### Element in Command Queue fiber_optics
 INSERTING in Command Queue fiber_optics
PYTHON ANTENNA name C06
PYTHON SYSTEM name fiber_optics
 param_number 1
 ##### Element in Command Queue fiber_optics
 INSERTING in Command Queue fiber_optics
we wrote on the socket 1 11-Oct-2014 17:14:11 fiber_optics set
rf_attn 12 12
 Size of Struct is ####### 1638
we wrote on the socket 1 11-Oct-2014 17:14:11 fiber_optics set
rf_attn 12 12
 Size of Struct is ####### 1638
we wrote on the socket 1 11-Oct-2014 17:14:11 fiber_optics set
rf_attn 12 12
 Size of Struct is ####### 1638
Size of Response Struct => 4698
 MCM => 1
 1
 11-Oct-2014 17:14:11
 fiber_optics
 Size of Response Struct => 4698
 MCM => 1
 1
 11-Oct-2014 17:14:11
 fiber_optics
 No summery !!                          1390 1131 40 1924 984 1488 1150 33 1921 979 1152 1457 26 1898 979 838 827 825 829 829 823 824
 822 825 828 826 832 No summery !!                   829 1932 1501 1150 977 844 823 828 821 824 827 822 821 829 826 826 826 82
9 829 831 825 828 831 828 819 822 830 823 821 829 829 828 827 828 830 824 828 826 823 820 824 827 826 828 829 818 825 820 823 828 828 827 8
20 826 819 830 821 828 824 826 828 828 825 824  System validated : Fiber Optics
 Command validated : Fiber optics Controlling
 RF Attenuation : 12 12
 Writing to ONLINE from FIBER THREAD SUCCESSFUL
828 827 827 832 824 828 824 825 832 828 830 828 831 824 829 828 824 828 826 823 822 830 822 825 824 827 825 828 826 827 830 830 827 822 818
 825 825  System validated : Fiber Optics
 Command validated : Fiber optics Controlling
 RF Attenuation : 12 12
 Writing to ONLINE from FIBER THREAD SUCCESSFUL
Size of Response Struct => 4698
 MCM => 1
 1
 11-Oct-2014 17:14:11
```

Python Environment user 3 : Procedure from User3

File Edit View Search Terminal Tabs Help

cms@incms: ~/pyenv   ✕ cms@incms: ~/pyenv   ✕ cms@incms: ~/pyenv   ✕

```
user3@GMRT [3]: con
%config   config    connect   connect1  continue  conv.py
user3@GMRT [3]: conn
connect   connect1
user3@GMRT [3]: connect
--------------> connect()
Connecting as user: 3
user3@GMRT [4]: gridpntg
--------------> gridpntg()
0    C00
1    C02
2    C01
sub_band_sel = (1060, 1170)
12
C00C02C01
band_sel
slr_attn
channel
sub_band_sel
(1060, 1170)
rf
cal_ns
(1060, 1170)
user3@GMRT [5]: █
```

Online_V2 output Screen :

teleset@tellab2:~/Online_v2/Online ✕ teleset@tellab2:~/Online_v2/Online ✕ teleset@tellab2:~/QML_Intg_08 ✕

############ SERVER WANTING FOR CLIENT CONNECTION ####
PYTHON ANTENNA name C00
PYTHON SYSTEM name front_end
 param_number 6
 ##### Element in Command Queue front_end
 INSERTING in Command Queue front_end
PYTHON ANTENNA name C02
PYTHON SYSTEM name front_end
 param_number 6
 ##### Element in Command Queue front_end
 INSERTING in Command Queue front_end
PYTHON ANTENNA name C01
PYTHON SYSTEM name front_end
 param_number 6
 ##### Element in Command Queue front_end
 INSERTING in Command Queue front_end
we wrote on the socket 1 11-Oct-2014 17:17:17 front_end set
band_sel 325 325
slr_attn 0 0
channel UNSWAP UNSWAP
sub_band_sel 1060 1170
rf ON ON
cal_ns LOW LOW
 Size of Struct is ####### 1638
we wrote on the socket 1 11-Oct-2014 17:17:17 front_end set
band_sel 325 325
slr_attn 0 0
channel UNSWAP UNSWAP
sub_band_sel 1060 1170
rf ON ON
cal_ns LOW LOW
 Size of Struct is ####### 1638
we wrote on the socket 1 11-Oct-2014 17:17:17 front_end set
band_sel 325 325
slr_attn 0 0
channel UNSWAP UNSWAP
sub_band_sel 1060 1170
rf ON ON
cal_ns LOW LOW
 Size of Struct is ####### 1638
Size of Response Struct => 4698
 MCM => 1
 1
 11-Oct-2014 17:17:17
 front_end
 No summery !!   826 822 828 826 825 827 826 824 832 822 824 827 829 832 822 826 832 826 824 820 832 828 826 8
30 824 824 829 826 829 827 823 826 826 822 826 824 826 822 828 830 823 825 828 823 827 821 828 826 825 824 825 823 825 827 822 824 824 832
826 822 820 827 827 822 System validated : Front End
 Command validated : Front End Controlling

TOP Output :

With around 15 antenna sub-system connected to Online_v2, TOP output shows that Online_V2 program uses only 0.3% of CPU and 0.9% of Memory.

```
                          teleset@tellab2:~/Online_v2/Online                              ☒

  File  Edit  View  Search  Terminal  Help
 [teleset@tellab2 Online]$ top

 top - 17:29:25 up 6 days, 23:58,  7 users,  load average: 0.54, 0.41, 0.41
 Tasks: 162 total,   3 running, 159 sleeping,   0 stopped,   0 zombie
 Cpu(s): 17.5%us,  1.5%sy,  0.0%ni, 79.6%id,  0.3%wa,  0.7%hi,  0.3%si,  0.0%st
 Mem:   2055344k total,  1716420k used,   338924k free,   255580k buffers
 Swap:  4128764k total,    59016k used,  4069748k free,   814952k cached

   PID USER      PR  NI  VIRT  RES  SHR S %CPU %MEM    TIME+  COMMAND
 19775 teleset   20   0  323m 196m  21m R 33.9  9.8 445:40.32 chrome
   930 root      20   0  3216  812  760 R  2.0  0.0 205:57.53 lldpad
  1504 teleset   20   0  492m  59m  20m S  0.3  3.0  47:25.63 gnome-shell
  1662 teleset   20   0  142m  18m 9.9m S  0.3  0.9  47:46.99 gnome-terminal
 15557 teleset   20   0 99.7m  32m  23m S  0.3  1.6  17:00.11 client
 16991 teleset   20   0  197m  52m  20m S  0.3  2.6  23:0 .94 chrome
 21507 teleset   20   0 31956  17m 1284 S  0.3  0.9   0:01.88 online_v2
 21594 teleset   20   0  2908 1096  836 R  0.3  0.1   0:00.42 top
     1 root      20   0  5480 2368 1748 S  0.0  0.1   0:01.53 systemd
     2 root      20   0     0    0    0 S  0.0  0.0   0:00.00 kthreadd
     3 root      20   0     0    0    0 S  0.0  0.0   0:01.22 ksoftirqd/0
     5 root       0 -20     0    0    0 S  0.0  0.0   0:00.00 kworker/0:0H
     7 root       0 -20     0    0    0 S  0.0  0.0   0:00.00 kworker/u:0H
     8 root      RT   0     0    0    0 S  0.0  0.0   0:01.17 migration/0
     9 root      RT   0     0    0    0 S  0.0  0.0   0:00.64 watchdog/0
```

=> We also tested the stability and robustness of Online_v2 and Python environment by giving commands from user2 and user3 at a interval of 0.1 and 0.5 seconds. Both programs were able to executed commands without any problem.