



**National Centre for Radio Astrophysics**  
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*Technical Report*  
*on*  
***TELESET-ABCCOM Software Chain***

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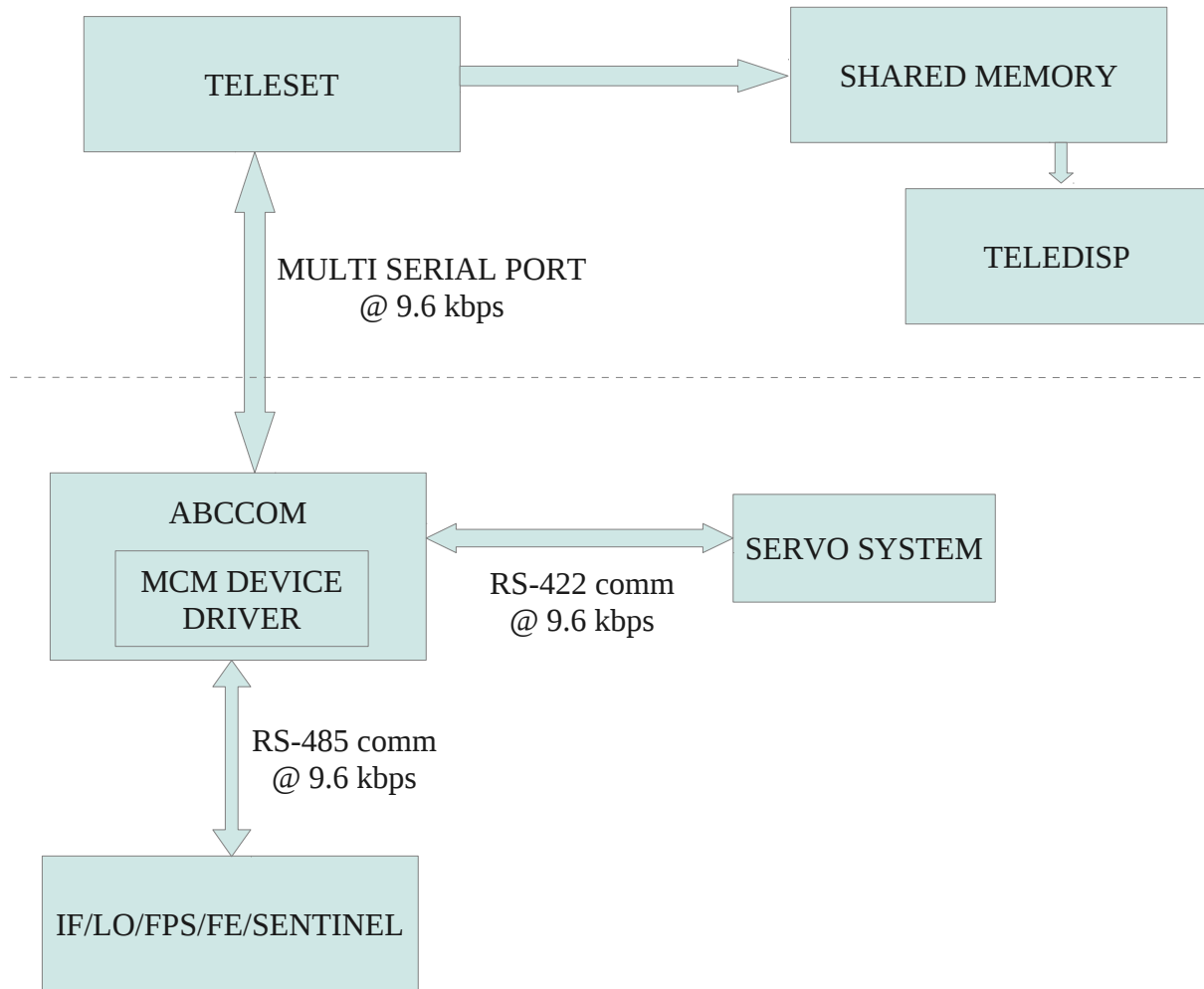
Author : Raju Uprade	Date of issue : 03 <sup>rd</sup> Aug 2012	Scope : Current status and future development
Verified by : Raju Uparade		
Approved by :	Status/ Version : 1	Internal Technical Report No.:

# INDEX

- What was there
- What we did
- What needs to be done
- How we should proceed
- Result of testing

## *What was there*

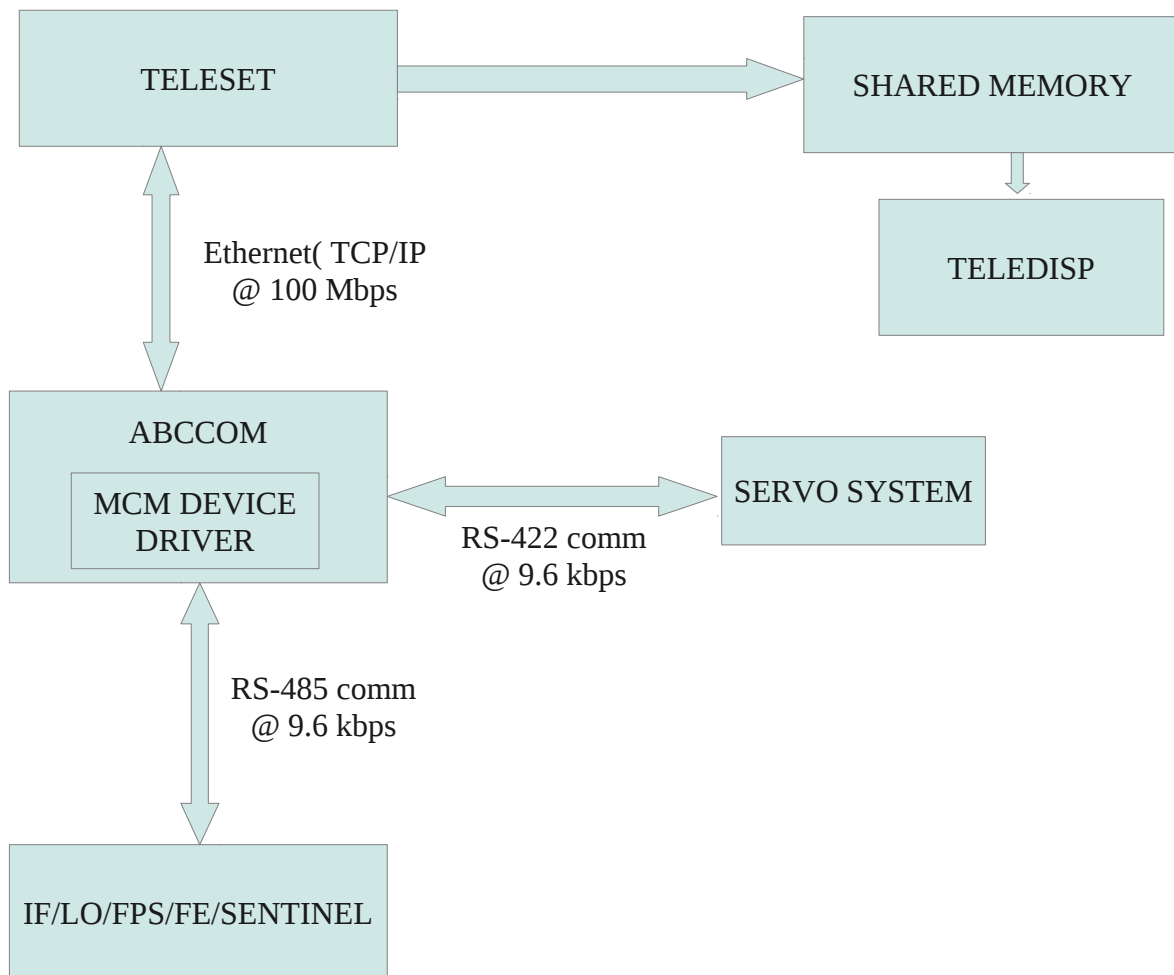
TELESET - ABCCOM was developed by Mr. Lorrent Pommier along with Mr. Pramesh Rao



*Figure shows what was developed earlier*

- TELESET-ABCCOM is developed using C++ and C which is very tightly coupled code.
- All communications were @ 9.6 kbps.
- Whole software was developed on Fedora Core – 3 ( kernel version 2.6.9)

## *What we did*



*Figure shows what modification and development we did*

## *Work done on TELESET – ABCCOM software chain*

- Communication link between TELESET-ABCCOM changed from serial to Ethernet (TCP/IP @100Mbps).
- Whole software chain including MCM device driver ported to FC9, FC16 and Ubuntu 11.04.

- Alternate Server design and Bit extraction code written for TELESET.
- Modified Teleset and Abccom for Sentinel System (Temperature Monitoring).
- Testing of all software in Telemetry Lab, Servo Lab, FE Lab ,ABR Lab and at Antenna Base.
- Successfully tested whole software chain at C00,C04 And C12 during maintenance period.
- Had problem with LO Monitoring, modified the software,now can fully control and monitor all Antenna sub-systems.
- Software fine Tuning And Optimization:

DOMON time prior modification:

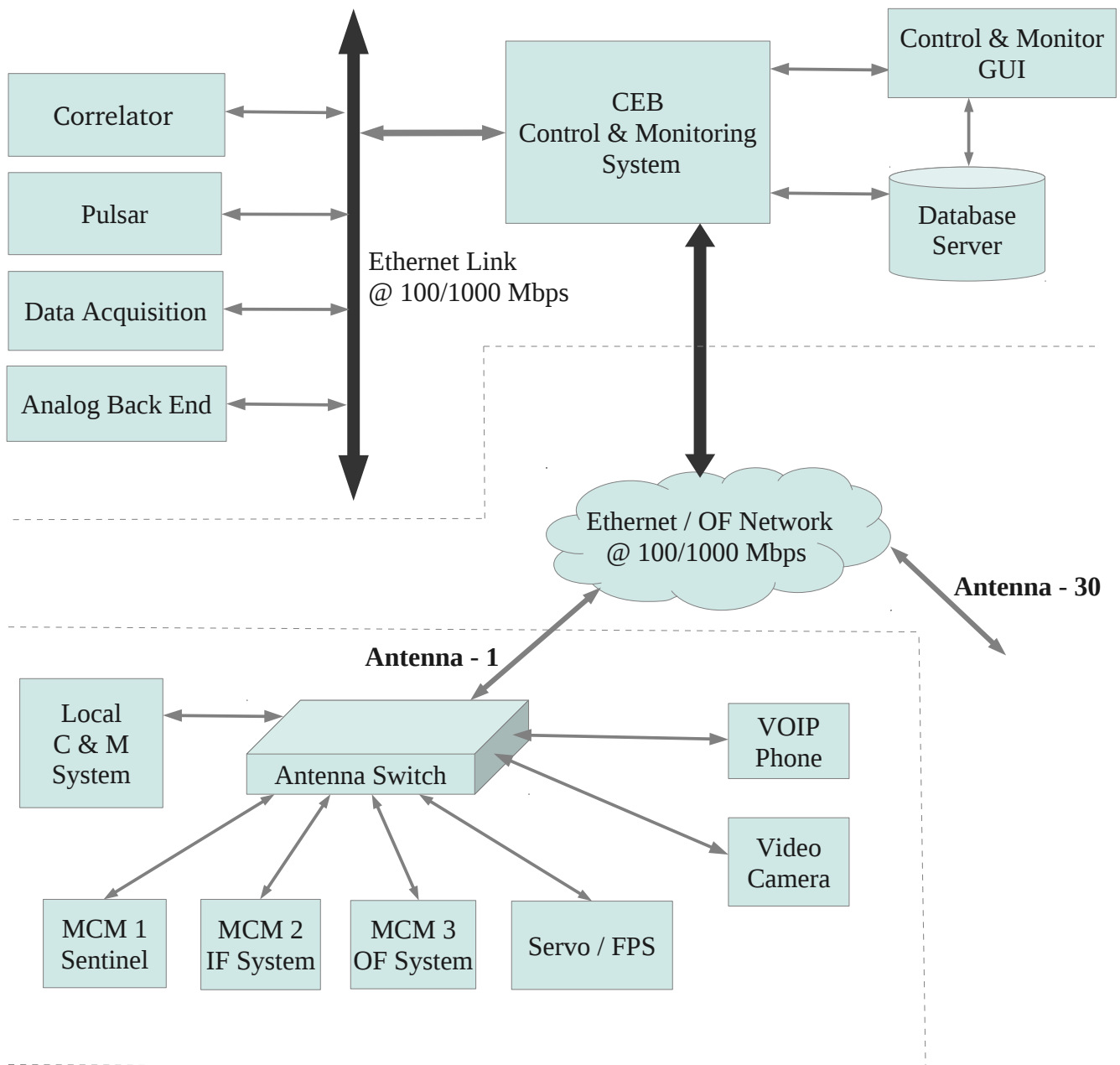
LO Domon ( Not working)	
IF Domon	30 sec
FE Domon	20 sec
FPS Domon	10 sec

DOMON time after modification:

LO Domon (Working)	15 sec
IF Domon	20 sec
FE Domon	10 sec
FPS Domon	5 sec
SEN Domon	5 sec

- Successfully tested Teleset and Abccom at C12 Antenna after software fine tuning & optimization.
- Mr. Madhav Mishal build combined RS- 485 & RS-422 converter card which is driven by taping power from USB port, successfully tested the circuit in C00, C04 and C12 antennas.
- We have tested the USB to Serial port interface card in C00, C04 and C12 by sending commands to servo system and getting the required acknowledgment.
- Teleset and Abccom software tested successfully in Lab with rabbit program on serial communication.

## *What need to be done*



*Figure shows final full fledge TELESET-ABCCOM software chain*

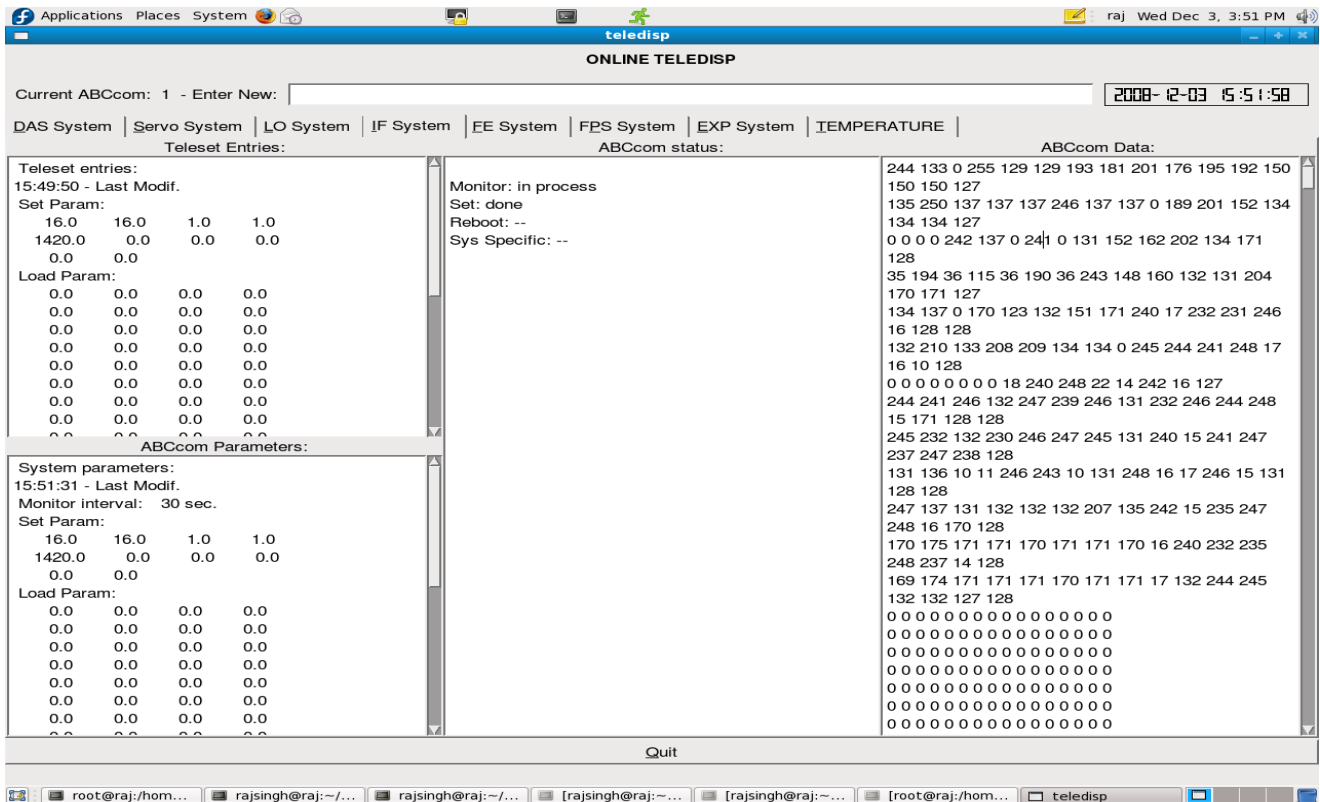
*There are certain things which we need to do for final system like :*

- Ethernet communication between ABCCOM and MCM/SERVO.
- Final design and development of GUI ( Control and Monitor ).
- Interaction with other system like Data acquisition, Correlator, Pulsar, Baseband and MCM analog receiver system.
- Development of Multi-user and Multi-Subarray features in Teleset.
- Some error is there in MJD calculation of ABCCOM program which needs to be sorted out.
- Designing Astronomical display.
- Through testing with performance tuning and software optimization.

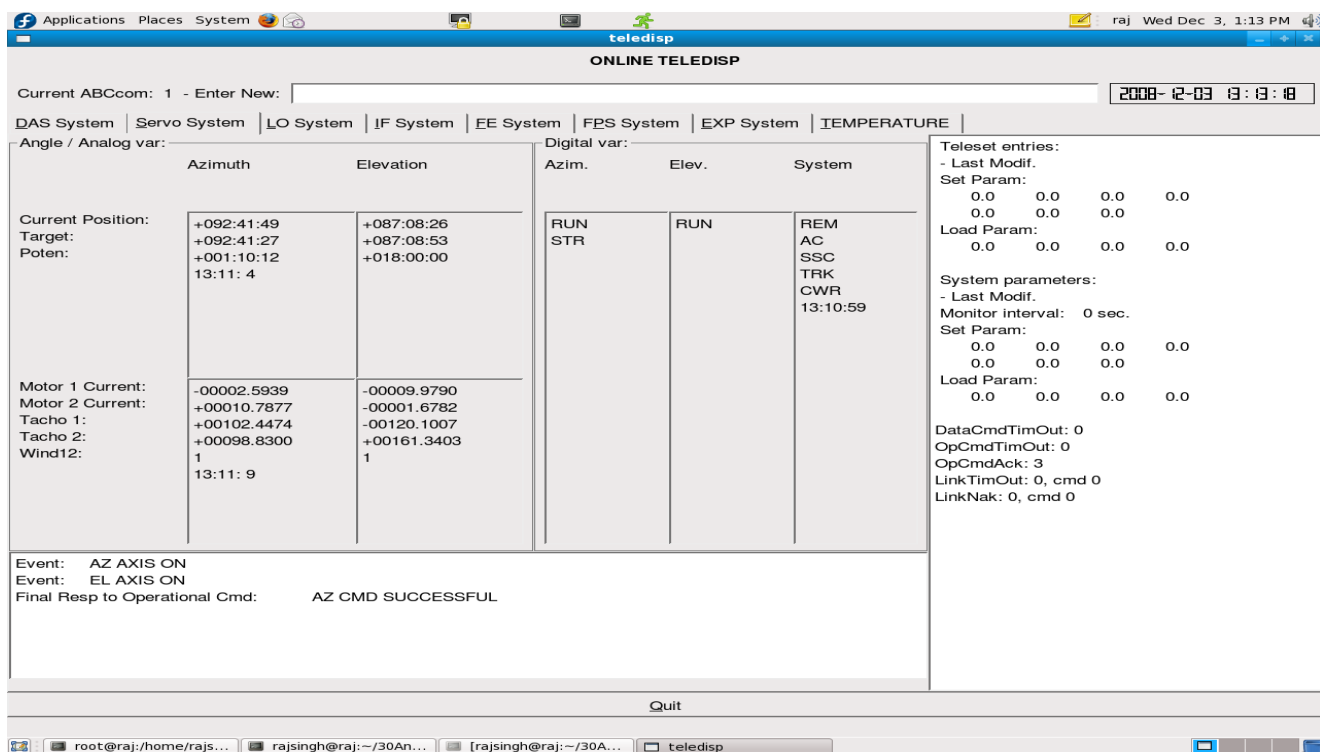
### *How we should proceed*

- *All requirement has to be gathered from all users like astronomers, engineers operators etc.*
- *All requirement specifications has to be properly documented.*
- *After finalizing system requirement document, overall system architecture has to be drawn.*
- *Proper distribution of functionality between different architectural blocks.*
- *Communication protocol between different architectural blocks.*
- *Through testing with performance tuning and software optimization.*

*Teledisp showing the IF system monitoring data*



*Teledisp showing the Servo system monitoring parameters*





## Teledisp showing the FPS monitoring parameters

Applications Places System raj Mon Nov 24, 3:19 PM

**teledisp**  
**ONLINE TELEDISP**

Current ABCcom: 1 - Enter New:  2008-11-24 15:19:47

DAS System | Servo System | LO System | IF System | EE System | **FPS System** | EXP System | TEMPERATURE |

Teleset Entries: ABCcom status: ABCcom Data:

Teleset entries: - Last Modif. Set Param: 0.0 Load Param: 0.0 0.0 0.0 0.0	15:19:38 Init: done MvIndx: in process Direct Cmd: done	17024 0.000000 Exec. Ok Feed Calibrated & Idle Run to Preset
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ABCcom Parameters:

System parameters:  
- Last Modif.  
Monitor interval: 0 sec.  
Set Param:  
0.0  
Load Param:  
0.0 0.0 0.0 0.0  
TimeOut Mcm 14: 0

Quit

[root@raj:/home/raj...] [rajsingh@raj:~/30An...] [rajsingh@raj:~/30An...] [teledisp]

## Teledisp showing the FE system monitoring parameters

Applications Places System raj Fri Dec 5, 12:51 PM

**teledisp (on telab2.gmrt.ncra.tifr.res.in)**  
**ONLINE TELEDISP**

Current ABCcom: 1 - Enter New:  2008-12-05 12:51:08

DAS System | Servo System | LO System | IF System | EE System | **FPS System** | EXP System | TEMPERATURE |

Teleset Entries: ABCcom status: ABCcom Data:

Teleset entries: 12:49:15 - Last Modif. Set Param: 0.0 0.0 0.0 1060.0 1060.0 0.0 0.0 0.0 0.0 Load Param:	12:51:03 Monitor: done Set: done Reboot: -- Sys Specific: done  MCM5 ON NG OFF Voltage 0: 3.0 Voltage 1: -1.9 Voltage 2: 2.9 Voltage 3: -1.9	CB ch2 freq CB ch1 freq 1st FE box freq 2nd FE box freq
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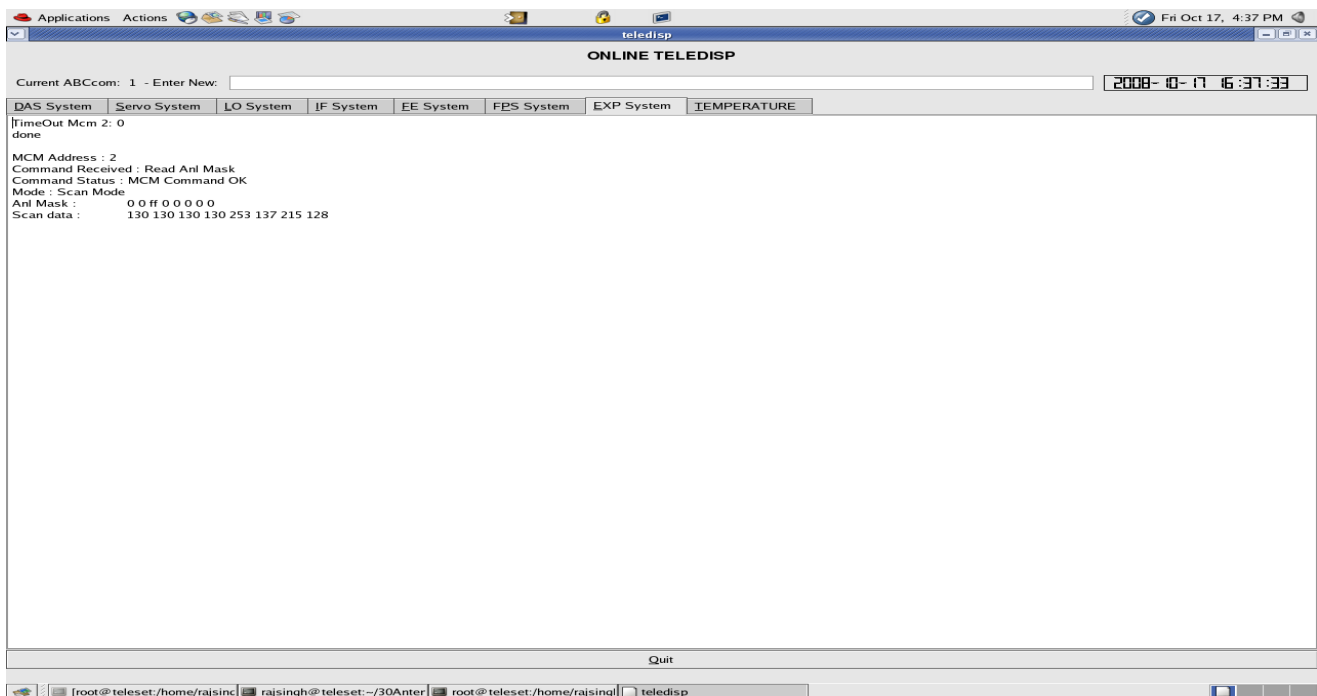
ABCcom Parameters:

System parameters:  
12:49:41 - Last Modif.  
Monitor interval: 20 sec.  
Set Param:  
0.0 0.0 0.0 1060.0  
1060.0 0.0 0.0 0.0  
0.0  
Load Param:  
TimeOut Mcm 5: 0  
TimeOut Mcm 2: 0

Quit

[root@ante...] [root@antec...] [rajsingh@a...] [rajsingh@an...] [rajsingh@a...] [raj@telab2:...] [raj@telab2:...] [teledisp (on ...)]

### Teledisp display in Expert command mode



*Teledisp showing Temperature*

