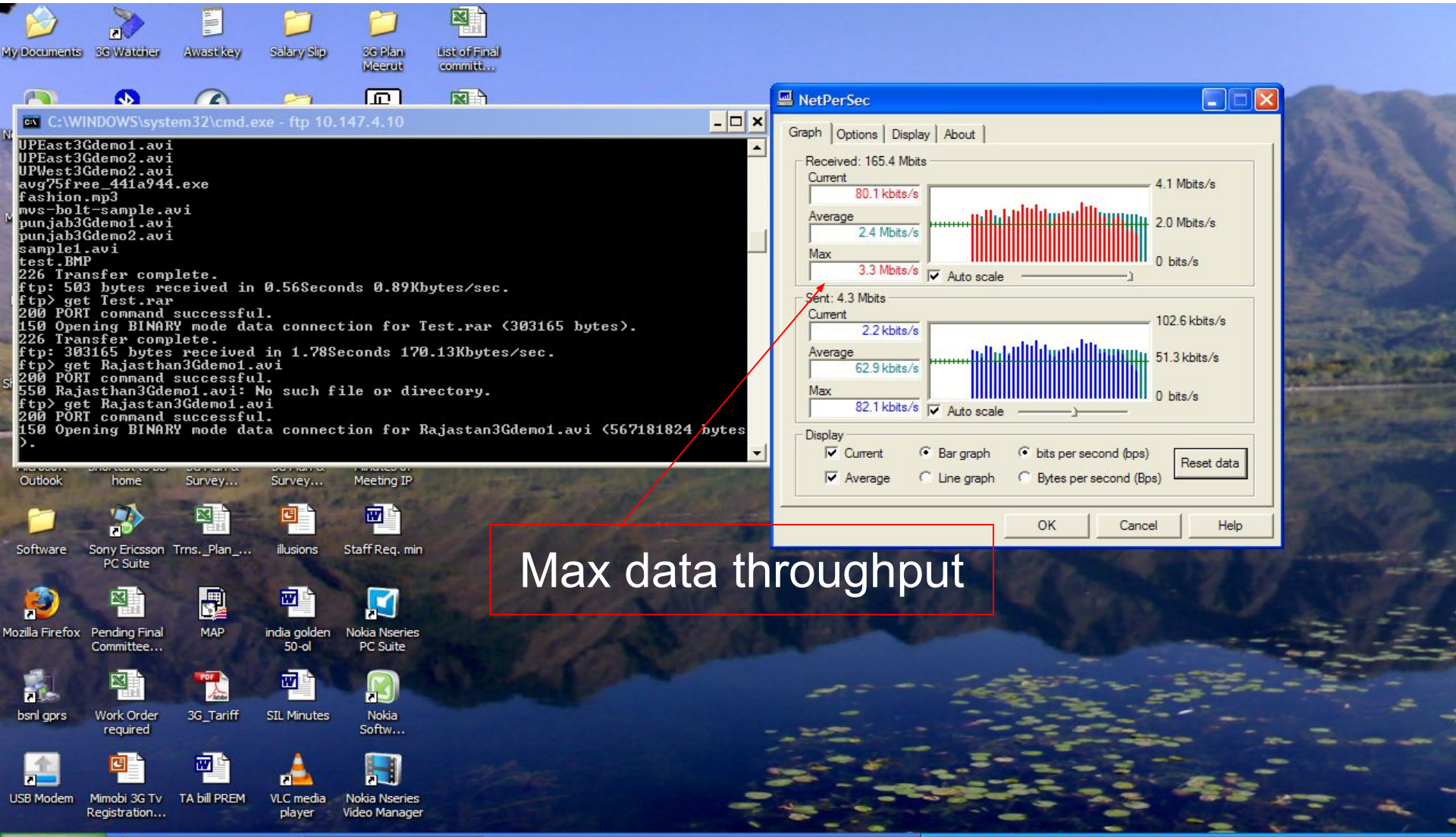
DATA Speed Check through NetPerSec Tool

NetperSec Tool can be downloaded free-of-cost from Internet.



List of HSPA Parameters - NodeB

Following are the main parameter for Node-B which effect the data throughput in HS

Node-B Parameters	Suggested Values
hsdpaCapability	HSDPA_CAPABLE (Set through script)
maxNumHsPdschCodes	15 (Licensed based)
queueSelectAlgorithm	1 (default 0)
hsPowerMargin	**2** (default 2)
cqiAdjustmentOn	On (default false)
maxHsRate	44 (For 3 E1's)
steeredHsAllocation	False (Licensed based)
supportOf16qam	true (Licensed based)
flexibleSchedulerOn	On (Licensed based)
maxedchrate	51000(valid for WRAN P5.0)

hsdpaCapability

This parameter is use to set the HSDPA capability of cell.

Possible values:
- HSDPA_CAPABLE -------- Support HSDPA
- HSDPA_NON_CAPABLE -------- HSDPA Not supported.

```
Struct eulOptimalNoiseFloorLock has 2 members:
 >>> 1.eulNoiseFloorLock = false
 >>> 2.eulOptimalNoiseFloorEstimate = -1040
eulSlidingWindowTime                1800
eulThermalLevelPrior                -1040
hsCodeResourceId                    0
hsdpaCapability                     1 (HSDPA_CAPABLE)
localCellId                         2
maxDlPowerCapability                430
maxEAgchPowerDl                     -183
maxNumHsPdschCodes                  5
maxNumHsdpaUsers                    16
```

maxNumHsPdschCodes

The maximum number of HS-PDSCH codes is dependent on license level and parameter maxNumHsPdschCodes; up to 15 codes may be allocated.

For BSNL it is 5 codes.

maxNumHsPdschCodes	Max. Speed(Mbps)
5	3.6
10	7.2
15	14.4

```
localCellId                         1
maxDlPowerCapability                430
maxEAgchPowerDl                     -183
maxNumHsPdschCodes                  5
maxNumHsdpaUsers                    16
maxUserEHichERgchPowerDl            -183
minDlPowerCapability                190
minSpreadingFactor                  4
```

hsPowerMargin

$$P_{HS} = P_{max} - P_{non\text{-}HS} - hsPowerMargin\ [dB],$$

HS Power Margin

the power available for the HS

total transmitted carrier power of all codes not used for HS

the maximum downlink transmission power for the cell signaled from the RNC.

It is possible to use the entire remaining carrier power for the HS-PDSCH and HS-SCCH, but if a more conservative power allocation is desired, this can be configured with the parameter hsPowerMargin, which acts as a back off from the maximum downlink transmission power of the cell.

It is relative to the maximum available power of the cell.

Value Range = 0 to 200

New value =2 (earlier it was set to 0)

Value 2= 2*.1=.2dB

```
dbccDeviceRef[1]
 >>> dbccDeviceRef = ManagedElement=1,Equipment=1,S
dpclDeviceRef                          ManagedElement
frequencyPlane                         1
hsPowerMargin                          2
hsScchMaxCodePower                     -20
hsScchMinCodePower                     -150
operationalState                       1 (ENABLED)
```

maxHsRate

maxHsRate is the maximum HSDPA bit rate possible over Iub i.e it determines the max possible HSDPA bit rate of HS flow over the Transport N/w. The value of maxHsRate is related to the capacity of the AAL2 paths allocated to AAL2 connection of Class C in one Node B. it is defined per Iub interface. Default value is 15 that will support 1.5Mbps.
In BSNL channelization code is 5, i.e. we can get maximum speed of 3.6 Mbps.For achieving this speed we need to tune the value of maxHsRate. We change it to 44 means it can support speed up to 4.4 Mbps.

Old Value

MO	ManagedElement=1,NodeBFunction=1,Iub=1,IubDataStreams=1
IubDataStreamsId	1
hsDataFrameDelayThreshold	60
maxEDchRate	17000
maxHsRate	15
noOfCommonStreams	12
noOfDedicatedStreams	0

maxHSRate=15
Max. speed~ 1.5 Mbps

New Value

MO	ManagedElement=1,NodeBFunction=1,Iub=1,IubDataStreams=1
IubDataStreamsId	1
hsDataFrameDelayThreshold	60
maxEDchRate	51000
maxHsRate	44
noOfCommonStreams	12
noOfDedicatedStreams	8

maxHSRate=44
Max. speed~ 3.5 Mbps

HSPA Parameters - NodeB

supportOf16qam

Symbol rate for QPSK and 16QAM are 2bits and 4bits respectively ie we can achieve higher rate with 16QUAM with the same resource and good radio condition. The available modulation type impacts the maximum achievable bit rate in the cell.

supportOf16qam=False

WCDMA Rel. 99/GSM Data Line Chart [MS1-DC1]

IE	Value
Session App. Mean Throughput D...	
RLC DL Throughput [1]	1403.14
RLC DL Throughput [2]	
RLC DL Throughput [3]	
RLC DL Throughput [4]	

HSDPA Analysis [MS1]

IE	Value
HS Session	Active
HS Serving Cell	29
HS Serving Cell Name	UBDA011
CQI (Min)	11
CQI (Median)	15
CQI (Max)	19
CQI Feedback Cycle	8
CQI Repetition Factor	1
H-RNTI	60
DSCH BLER Residual	0.00
DSCH No Of Residual Error Blocks	0
DSCH BLER 1st	27.84
DSCH No Of 1st Error Blocks	130
DSCH ACK Rate	81
DSCH DTX Rate	0
HARQ Processes No Of	6
DSCH NACK Rate	19
DSCH Retransmissions	207
DSCH Retransmission Rate	44
DSCH Throughput	1285.17
16QAM Modulation Rate	0
QPSK Modulation Rate	100
Physical Requested Throughput	1676
Physical Served Throughput	2057
Physical Scheduled Throughput	2057
SCCH Channelisation Codes No Of	
SCCH Channelisation Codes	
SCCH Decode Success Rate	100

RLC Throughput

Modulation consist of 100% QPSK and 0% 16QAM

supportOf16qam=True

WCDMA Rel. 99/GSM Data Line Chart [MS1-DC1

IE	Value
Session App. Mean Throughput D...	
RLC DL Throughput [1]	3065.66
RLC DL Throughput [2]	
RLC DL Throughput [3]	
RLC DL Throughput [4]	

HSDPA Analysis [MS1]

IE	Value
HS Session	Active
HS Serving Cell	45
HS Serving Cell Name	UBDA013
CQI (Min)	19
CQI (Median)	23
CQI (Max)	26
CQI Feedback Cycle	
CQI Repetition Factor	
H-RNTI	51
DSCH BLER Residual	0.00
DSCH No Of Residual Error Blocks	0
DSCH BLER 1st	15.06
DSCH No Of 1st Error Blocks	83
DSCH ACK Rate	88
DSCH DTX Rate	0
HARQ Processes No Of	6
DSCH NACK Rate	12
DSCH Retransmissions	85
DSCH Retransmission Rate	15
DSCH Throughput	3099.33
16QAM Modulation Rate	99
QPSK Modulation Rate	1
Physical Requested Throughput	3408
Physical Served Throughput	3517
Physical Scheduled Throughput	3517
SCCH Channelisation Codes No Of	
SCCH Channelisation Codes	
SCCH Decode Success Rate	100

RLC Throughput

Modulation consist of both QPSK and 16QAM