

GS2200M User Manual

GainSpan

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:

- (1) This device may not cause interference; and**
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.**

Cet appareil est conforme à Industrie Canada une licence standard RSS exonérés (s). Son fonctionnement est soumis aux deux conditions suivantes:

- 1. Cet appareil ne doit pas provoquer d'interférences**
- 2. Cet appareil doit accepter toute interférence reçue, y compris les interférences pouvant provoquer un fonctionnement indésirable de l'appareil.**

RF Exposure warning statements:

This equipment complies with FCC and IC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must be at least 20 cm from the user and must not be co-located or operating in conjunction with any other antenna or transmitter.

The information in this guide may change without notice. The manufacturer assumes no responsibility for any errors that may appear in this guide.

IC exposition aux radiations:

Cet équipement est conforme avec IC les limites d'exposition aux rayonnements définies pour un contrôlé environnement.

Cet émetteur ne doit pas être co-localisés ou fonctionner en conjonction avec une autre antenne ou émetteur.

Pour Quadcopter: Cet équipement doit être installé et utilisé à distance minimum de 20cm entre le radiateur ou votre corps.

The final end product must be labeled in a visible area with the following:

“Contains FCC ID: YOPGS2200M and IC:9154A-GS2200M” where YOPGS2200M is the approved FCC ID and 9154A-GS2200M is IC ID for the device being installed. The grantee's FCC ID and IC ID can be used only when all FCC and IC compliance requirements are met.

Labeling

GS2200MIE/MIZ will be labeled as below.



Serial-to-Wi-Fi Commands for Regulatory Certification

- **HW Version:** GS2200M
- **FW Version:** FW 5.2.3.12 or later version.
- **Commands for GS2000M**
 - Continuous TX Power for TX100 command or TX99 command
 - Step1: at+wrfcteststart

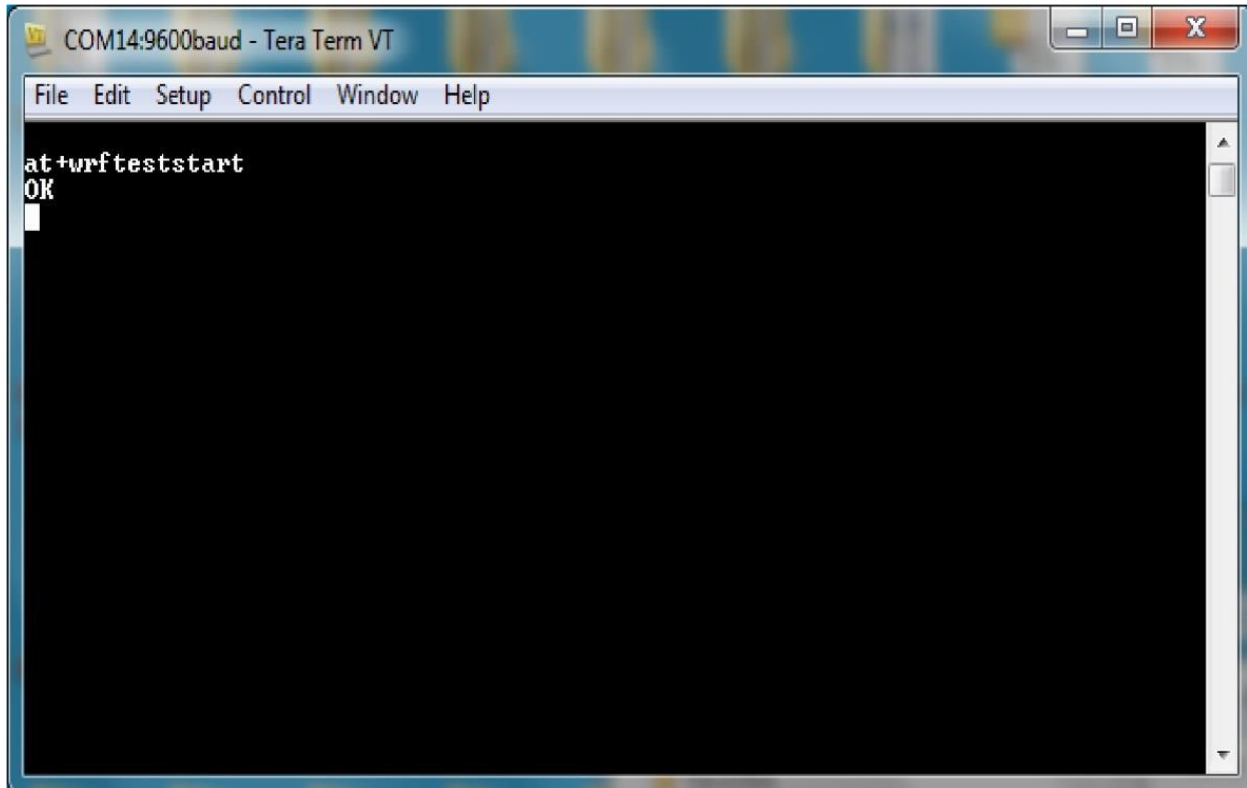


Figure.1

- Step2: Disable PVT
at+wparamset=6,1,0

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- Step3: Set transmitter output in TX100% or TX99% duty cycle, as required.

Adjust output power based on GCT (Gain Control Table) settings in the table below.

GCT setting of TX Power

| 11b-1Mbps | | | |
|-------------------------|------|------|------|
| Ambient Temperature(°C) | 2.7V | 3.3V | 3.6V |
| -40 | 7 | 12 | 11 |
| 25 | 10 | 16 | 16 |
| 70 | 11 | 16 | 17 |
| 11g 6Mbps | | | |
| Ambient Temperature(°C) | 2.7V | 3.3V | 3.6V |
| -40 | 17 | 21 | 21 |
| 25 | 19 | 24 | 24 |
| 70 | 23 | 26 | 27 |
| 11g MCS0 | | | |
| Ambient Temperature(°C) | 2.7V | 3.3V | 3.6V |
| -40 | 16 | 20 | 20 |
| 25 | 18 | 23 | 23 |
| 70 | 22 | 25 | 26 |

a) TX100% duty cycle

AT+WTX100TEST=<Channel>,<BandWidth>,<GCT setting of TxPower>,<Antenna>,<Cca>,<Agc>,<ContPreambleMode>,<Spreader>,<Scrambler>,<Preamble>,<PreambleType>,<TestPatternType>,<Phy TestTxRate>,<ModeSelect>

- 11b-1Mbps:
AT+WTX100TEST=1,0,16,0,0,0,0,1,1,0,0,1,0,1
- 11g-6Mbps:
AT+WTX100TEST=1,0,24,0,0,0,0,1,0,0,0,1,3,0
- 11n-MCS0:
AT+WTX100TEST=1,0,22,0,0,0,0,1,0,0,0,1,0,2

Note: Channel:1-13; TxPower: Change the GCT setting of TxPower based on the GCT table

Example on how to set TX100% power on Ch1, 25C, 3.3V.

```
at+wrfeteststart
at+wparamset=6,1,0
AT+WTX100TEST=1,0,16,0,0,0,0,1,1,0,0,1,0,1
AT+RESET
```

After AT+RESET the succession of commands needs to be repeated, including at+wparamset=6,1,0.

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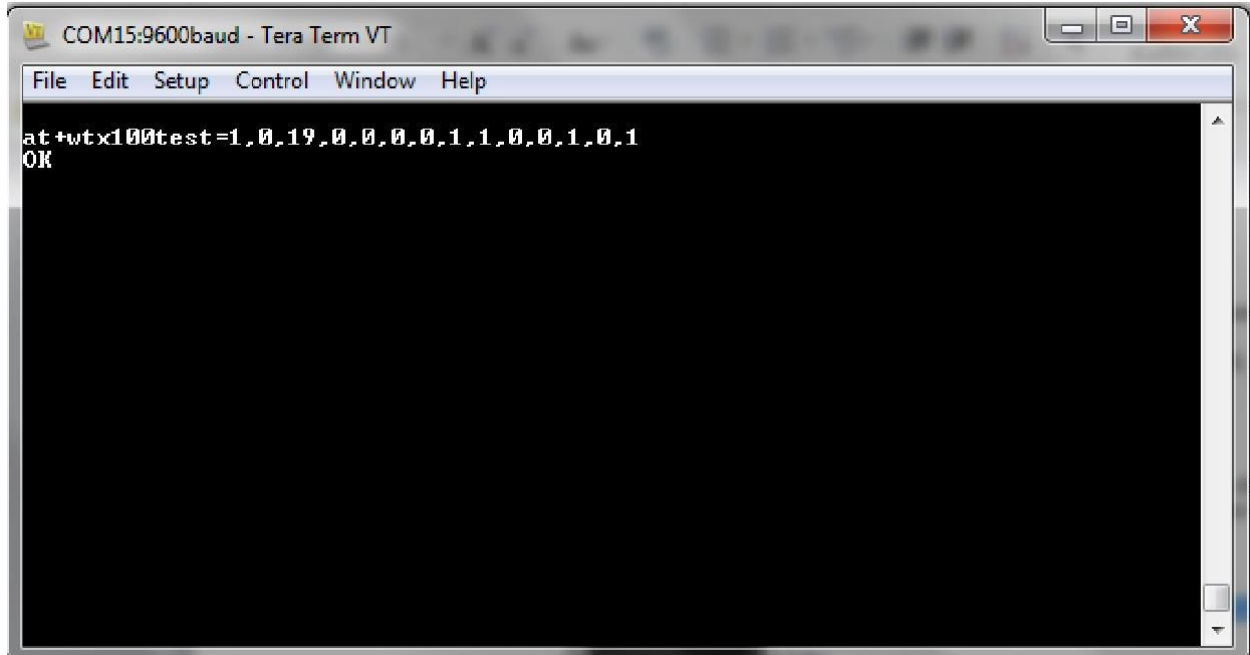


Figure.2

b) TX99% command:

AT+WTX99TEST=<Channel>,<BandWidth>,<NumFrames>,<FrameLen>,<TxRate>,<GCT setting of TxPower>,<DestAddr>,<Bssid>,<GuardInterval>,<GreenField>,<Antenna>,<Cca>,<Agc>,<ContPreambleMode>,<Spreader>,<Scrambler>,<Preamble>,<PreambleType>,<TestPatternType>,<PhyTestTxRate>,<ModeSelect>

- 11b-1Mbps:

AT+WTX99TEST=1,0,99,1000,0,15,00:11:22:33:44:55,00:50:c2:5e:10:99,0,0,0,0,1,0,1,1,1,0,3,0,1

- 11g-6Mbps:

AT+WTX99TEST=1,0,99,1000,0,23,00:11:22:33:44:55,00:50:c2:5e:10:99,0,0,0,0,0,0,0,0,0,3,3,0

- 11n-MCS0:

AT+WTX99TEST=1,0,99,1000,0,23,00:11:22:33:44:55,00:50:c2:5e:10:99,0,0,0,0,0,0,0,0,0,3,0,2

Note: Channel:1-13; TxPower: Change the GCT setting of TxPower based on the GCT table

- Step4: AT+RESET

Note: Run this command before the next command to change channel or data rate.

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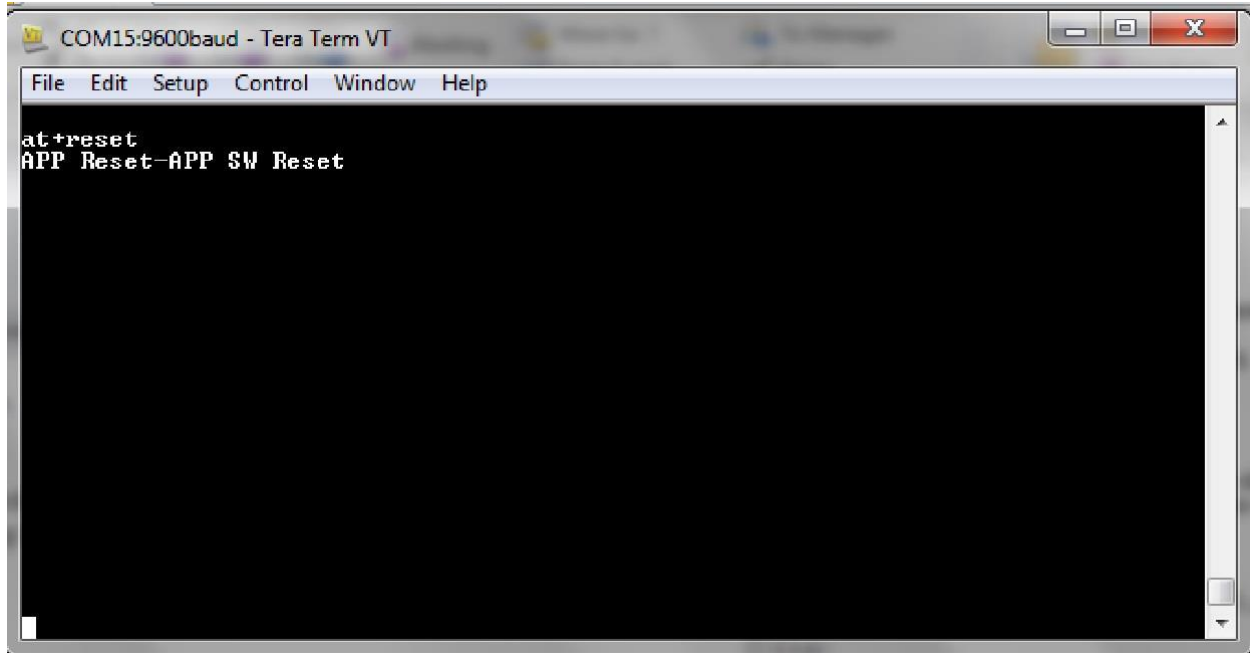


Figure.3

- Single Tone CW for frequency measurement:
 - Step1: AT+WRFTESTSTART
 - Step2: AT+WCARWAVTEST=<Channel>,<BandWidth>,<TxPower>,<Antenna>,<CustomWavePeriod>

- EX: AT+WCARWAVTEST=**11**,0,**20**,0,2
- Note: GCT setting of TX Power : 0 to 27; Channel: 1 to 14
- RX mode:
 - Step1:
AT+WRFTESTSTART
 - Step2:
AT+WRXTEST=<Channel>,<BandWidth>,<RxFrameTypeFilter>,<RxAddrFilter>, <Antenna>
AT+WRXTEST=**1**,0,536870912,00:11:22:33:44:55,0
 - Step3:
AT+WRXSTOP

- **The Diagram of Setup**
 - **Test Setup**

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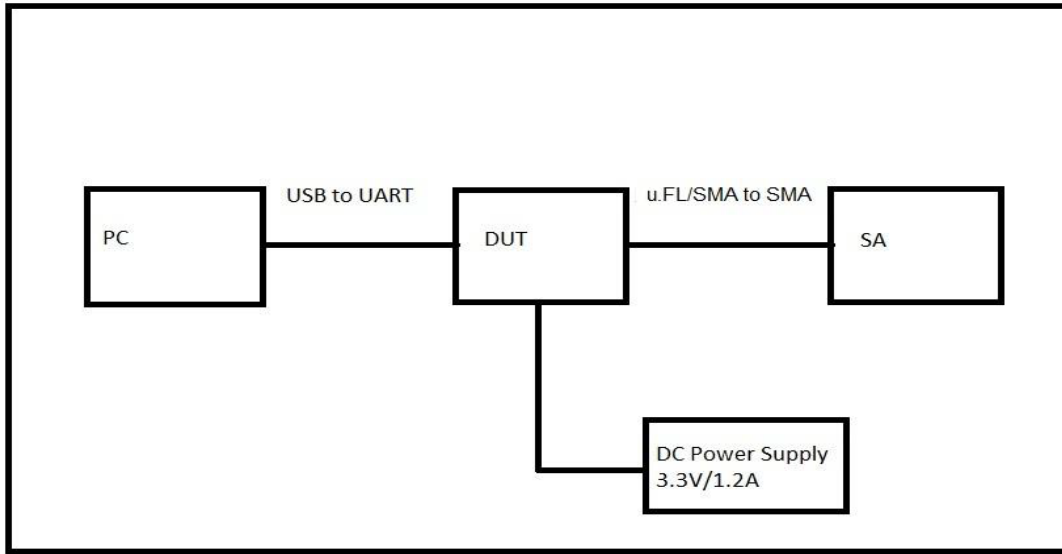


Figure.4

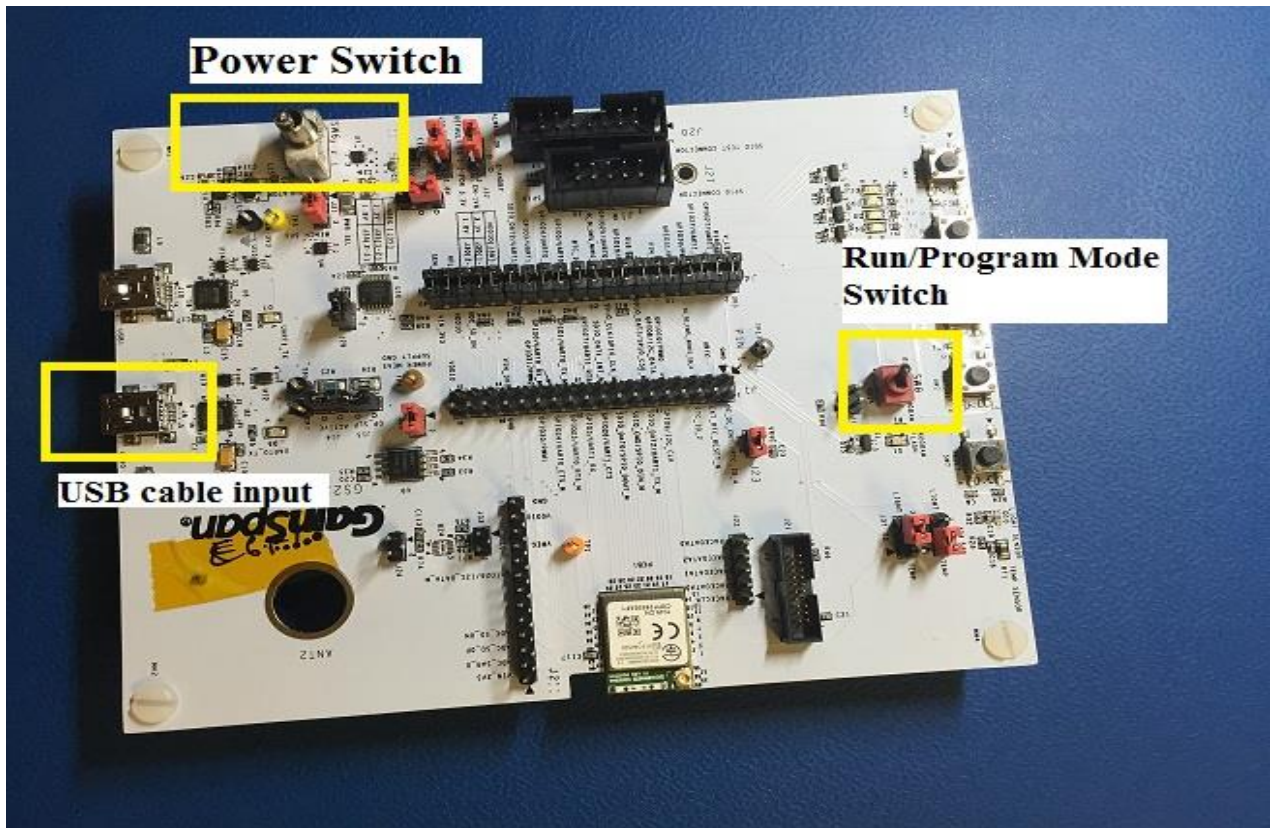


Figure.5

- **Test Equipment**

DUT: GS2200M

Spectrum Analyzer: HP - 8563E

PC/Laptop:

| | |
|-----------|--|
| OS | Windows XP/ Windows 7 |
| Processor | Intel i5 CPU @2.4GHz |
| Ram | > 512k Bytes |
| Port | Serial Com Port/ USB to Serial Com Port |
| Terminal | Tera Term/ Hyper Terminal with rate 9600 Bps |

Table.1

The setting of Hyper Terminal

Step 1: Go to Device Manager to check the number of Com Port

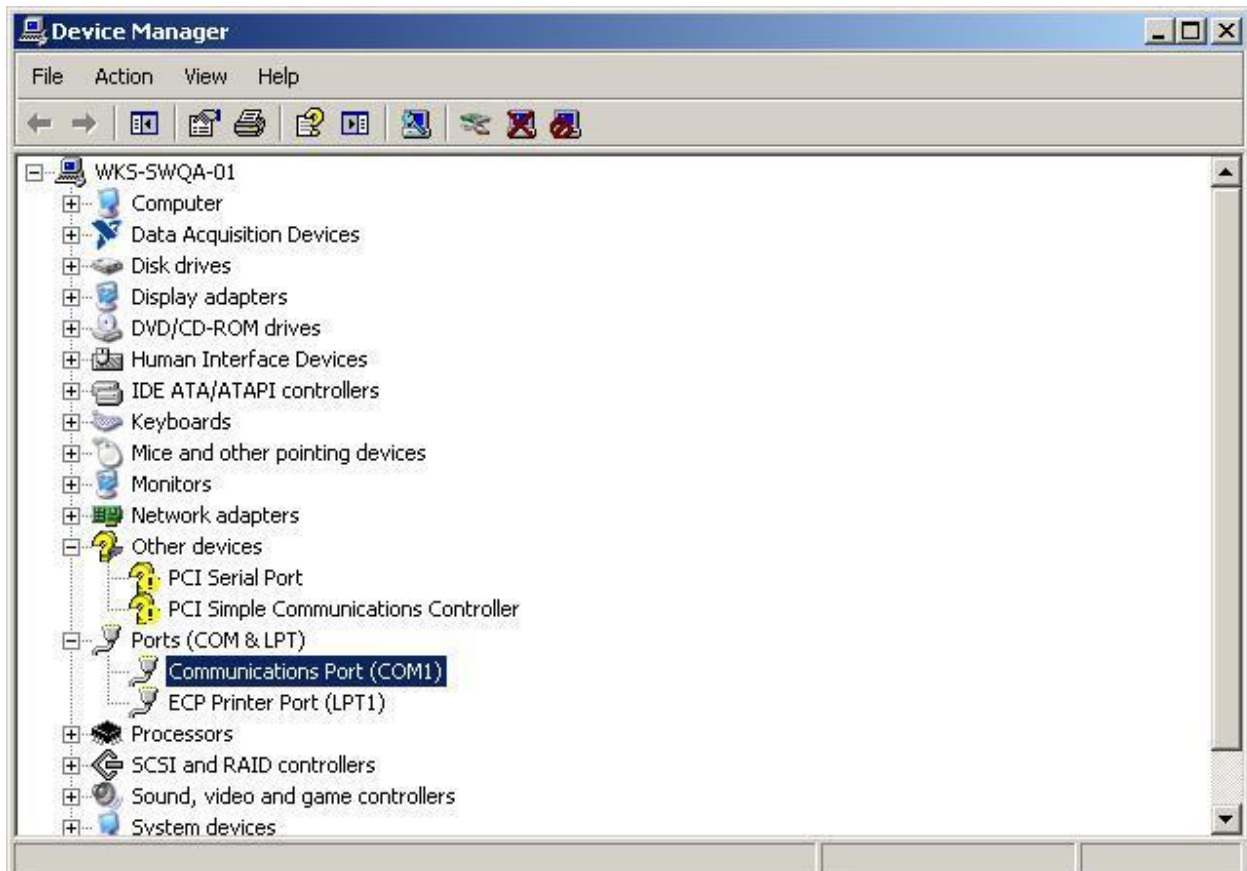


Figure.6

Step2: Set up Com port in Hyper Terminal

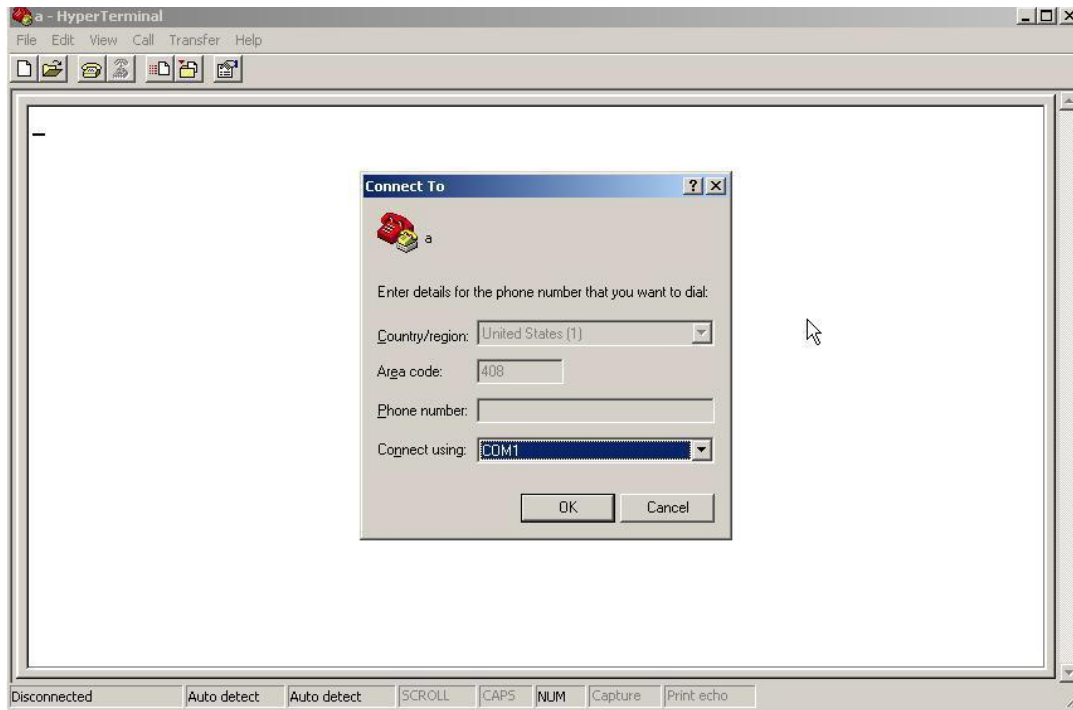


Figure.7

Step3: Set up the rate 9600Bps

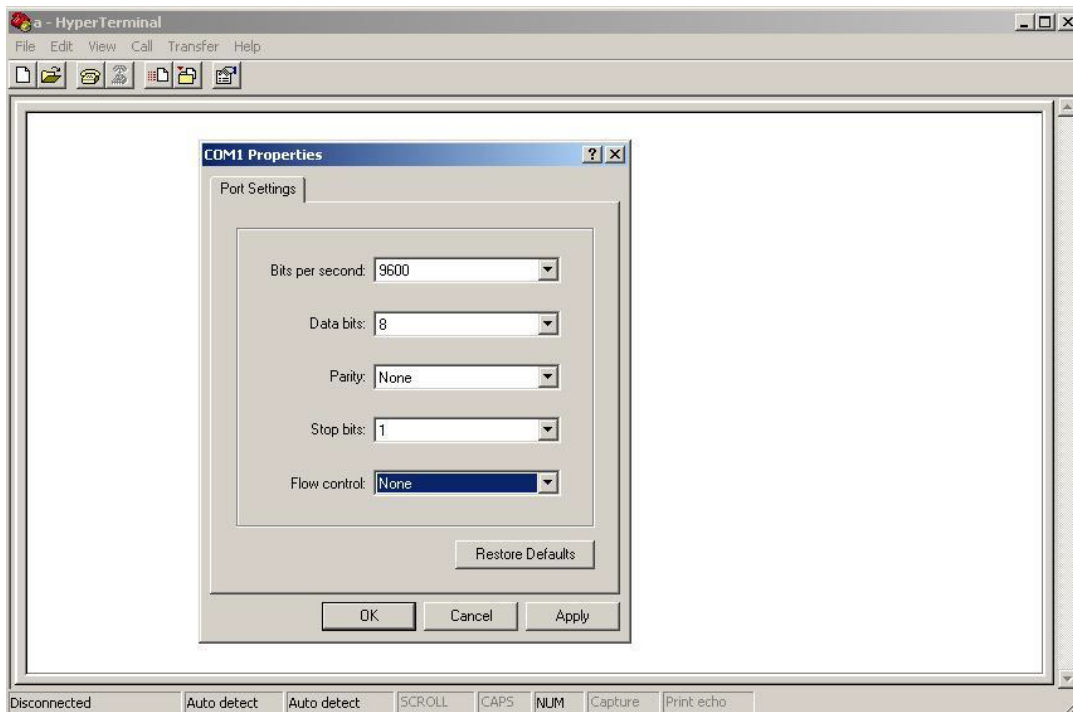


Figure.8