



SpeedCell Repeater

INSTALLATION GUIDE

Ver. 1.0

GS Teletech Inc.

SpeedCell Repeater

Installation Guide Ver. 1.0

Contents of Box

Contents	Picture	Quantity	Contents	Picture	Quantity
SpeedCell Repeater System PSU Unit 4.3"(W) x 16.9"(H) x 10.7"(D) , 15 lbs DFM Unit 2.8"(W) x 16.9"(H) x 10.7"(D), 9.9 lbs		1EA	Ground Cable 6.6ft (2m)		1EA
			Power Cord 5.9ft (1.8m)		1EA
			Ethernet Cable 6.6ft (2m)		1EA
Mounting Bracket 23.2"(W) x 18.5"(H) x 2.75"(D), 23.5 lbs		1EA	Lag Screw 1/2" x 2"		4EA
CD which contains - User Manual - Installation Guide		1EA	Ground Sems Screw M4 x 8mm		4EA
RF Cable Set Front RF Cable 2EA, Top RF Cable 4EA, Reference Cable 3EA		1EA	Mounting Sems Screw M6 x 10mm		8EA

This publication provides instruction for installing the SpeedCell repeaters.

The images for the User Interface in this publication may vary from the repeater's depending on its S/W Version.

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Revision History

Date	Version	Changes
03/2011	version 1.0	

Certification

UL/FCC: This equipment complies with UL and FCC

Warnings and Hazards

WARNING! ELECTRIC SHOCK

Opening the BDA (bi-directional amplifier) could result in electric shock and may cause severe injury.



WARNING! EXPOSURE TO RF

Working with the repeater while in operation, may expose the technician to RF electromagnetic fields that exceed FCC rules for human exposure. Visit the FCC website at <http://www.fcc.gov/oet/rfsafety> to learn more about the effects of exposure to RF electromagnetic fields.

WARNING! DAMAGE TO EQUIPMENT

Operating the BDA with antennas in very close proximity facing each other could lead to severe damage to the repeater.

RF EXPOSURE & ANTENNA PLACEMENT

Actual separation distance is determined upon gain of antenna used.

Please maintain a minimum safe distance of at least 8inch while operating near the donor and the server antennas. Also, the donor antenna needs to be mounted outdoors on a permanent structure.

WARRANTY

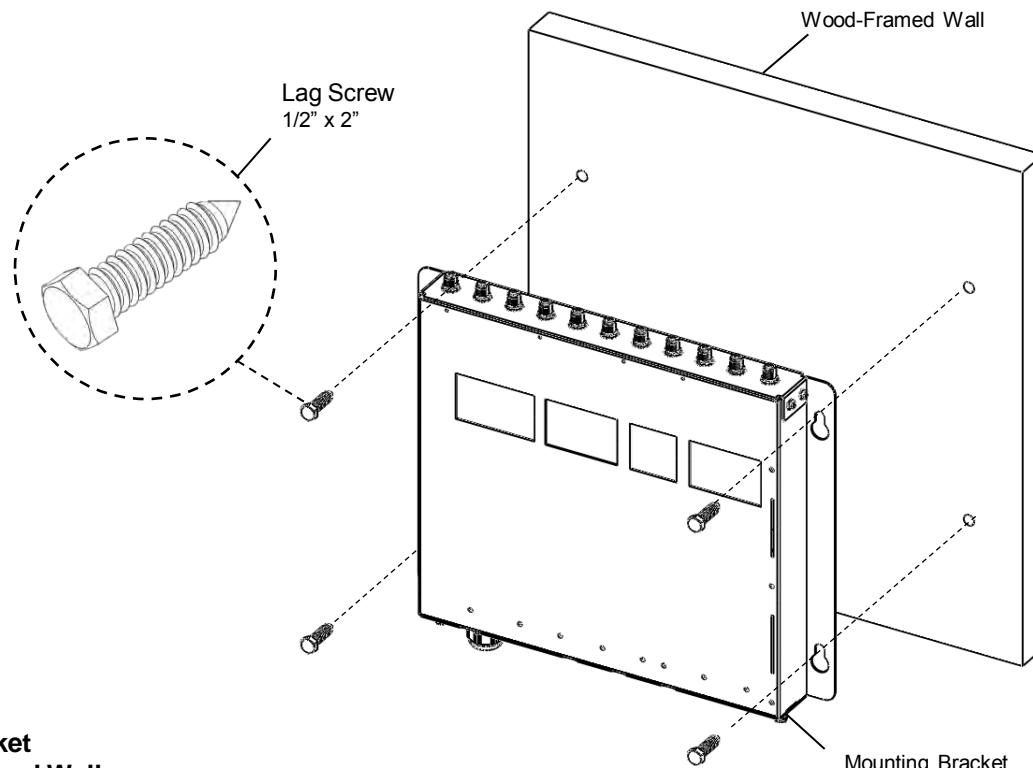
Opening or tampering the BDA will void all warranties.

- ⚠ CAUTION: REPEATER SHOULD BE INSTALLED AS CLOSE AS POSSIBLE TO POWER SOURCE.**
- ⚠ CAUTION: THIS REPEATER IS FOR INDOOR USE ONLY AND SHOULD BE LOCATED INSIDE OF BUILDING.**
- ⚠ CAUTION: RISK OF EXPLOSION IF BATTERY ON CONTROLLER BOARD IS REPLACED WITH AN INCORRECT TYPE.**
- ⚠ CAUTION: DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS**

Mounting Repeater

Wood-Framed Wall

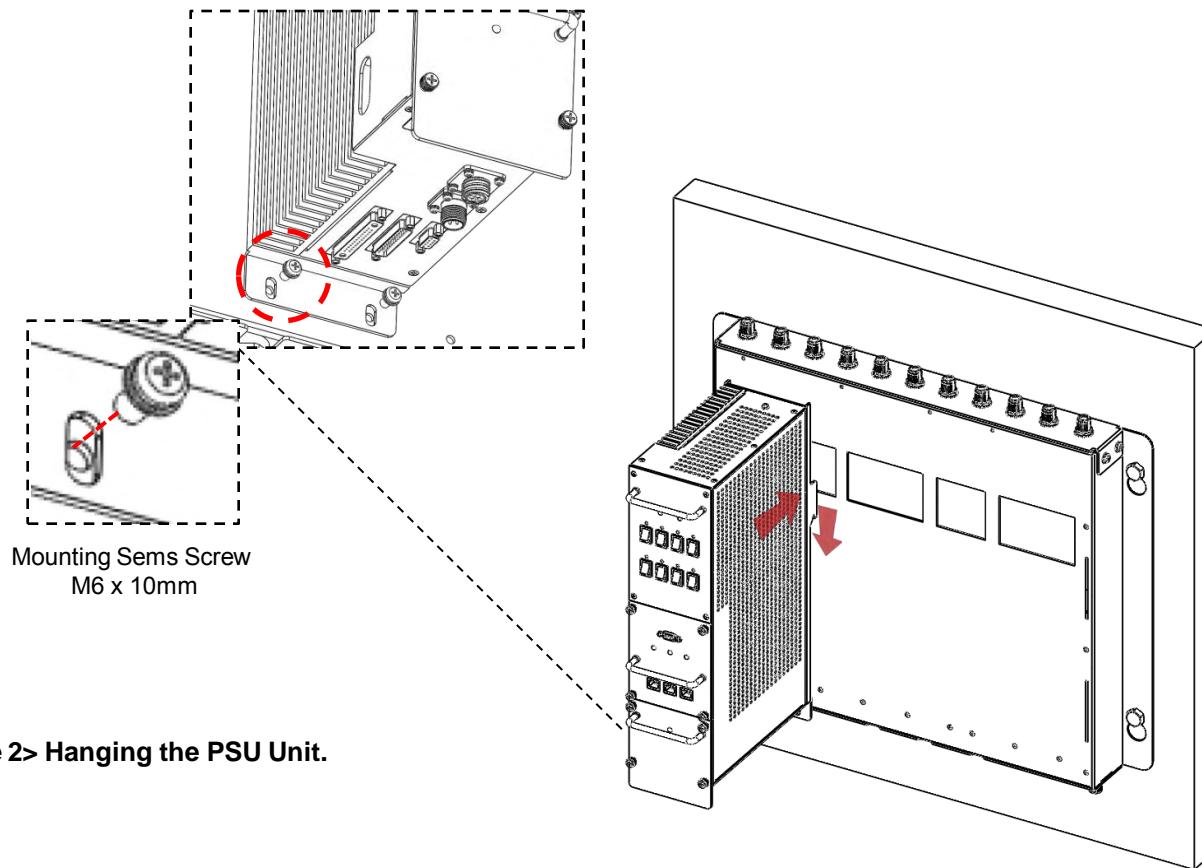
- It is recommended to first attach a sheet of plywood to the wall. The sheet of plywood should be anchored to the studs in the wall.
- Using a pencil, mark the location for each of the mounting bracket's four mounting holes on the plywood.
- Place the mounting bracket over the four lag screws heads.
- Thread a lag screw at the positions marked in step 2.



**<Picture 1> Mounting the Bracket
on a Wood-Framed Wall.**

Hang and Grounding

- Hang the PSU unit to the mounting bracket.
- Locate the two Mounting Sems Screws (M6 x 10mm) underneath the PSU unit. Tighten bolts until secure.



<Picture 2> Hanging the PSU Unit.

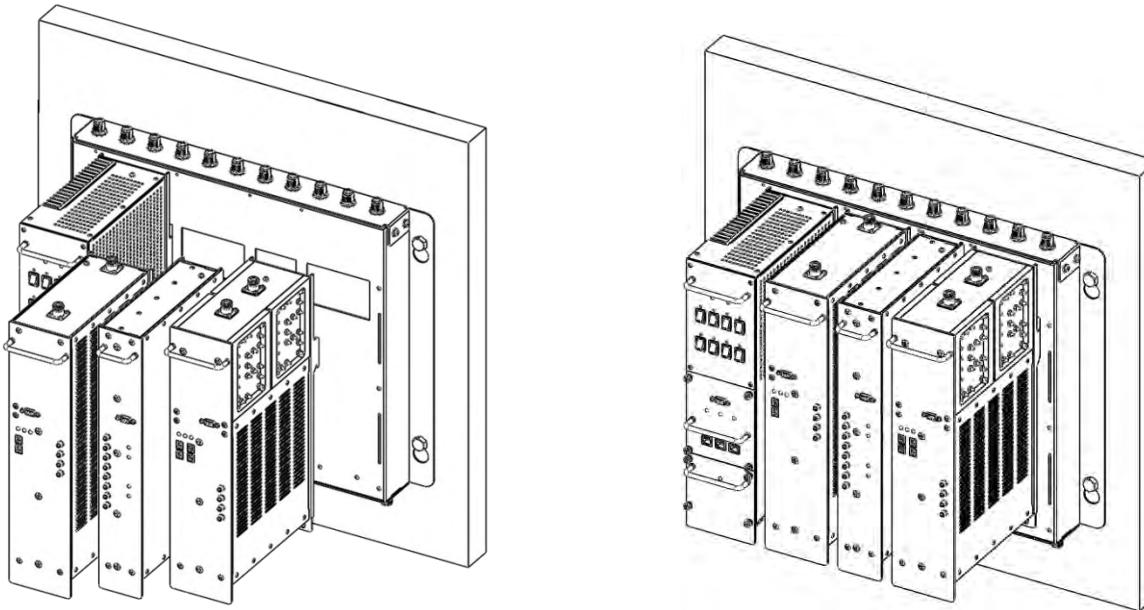
Hang and Grounding

- Hang the rest of the units in the following order: 1900 AMP, DFM, 800/900 AMP.
- Locate the two Mounting Sems Screws (M6 x10mm) underneath each unit. Tighten bolts until secure.

CAUTION



Units must be hung in the following order only: PSU -> 1900 AMP -> DFM -> 800/900 AMP.



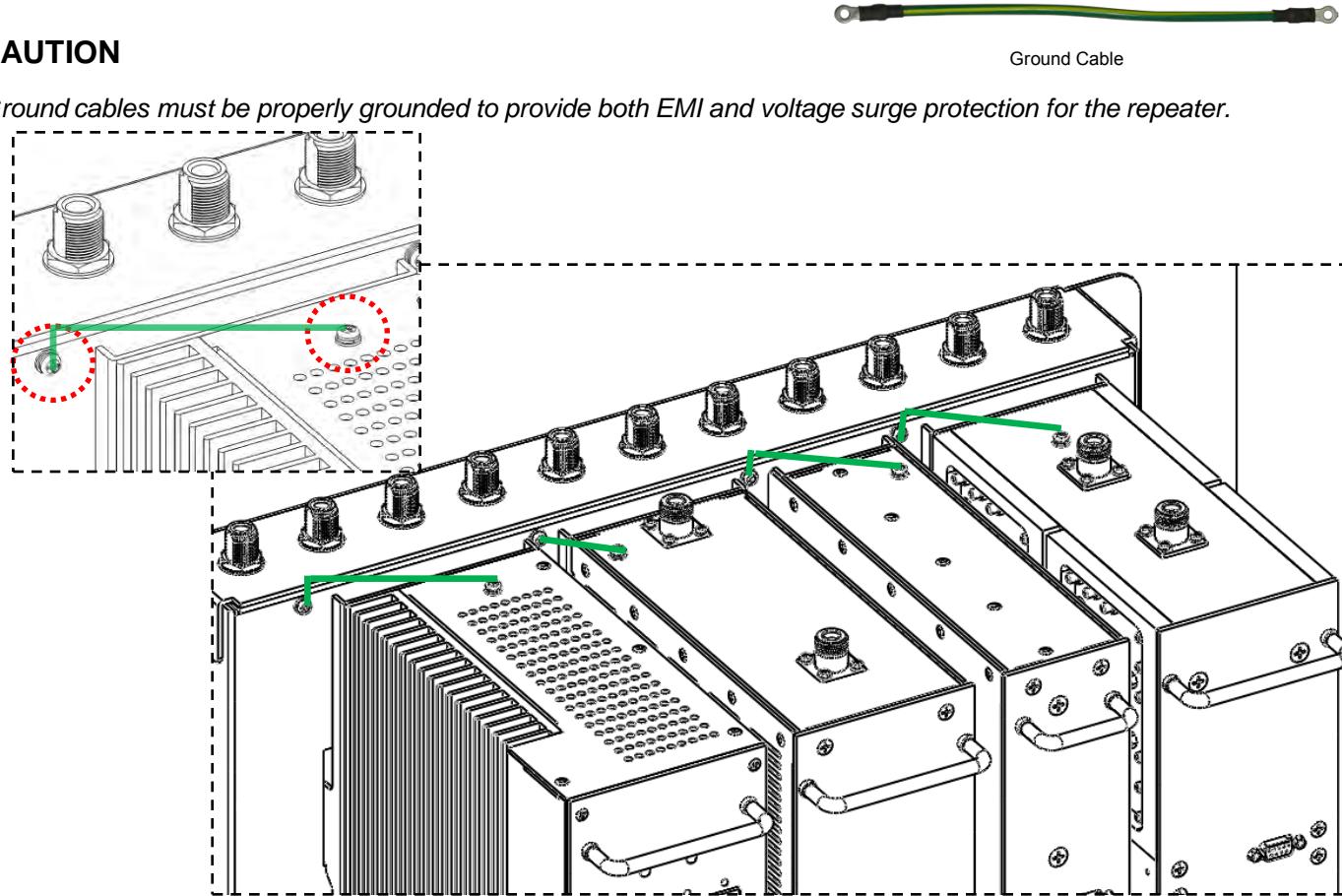
<Picture 3> Hanging the Rest of Units.

Hang and Grounding

- Connect ground cables of each unit to the bracket using Ground Sems Screws (M4 x 8mm) as displayed at the picture below.

CAUTION

 *Ground cables must be properly grounded to provide both EMI and voltage surge protection for the repeater.*



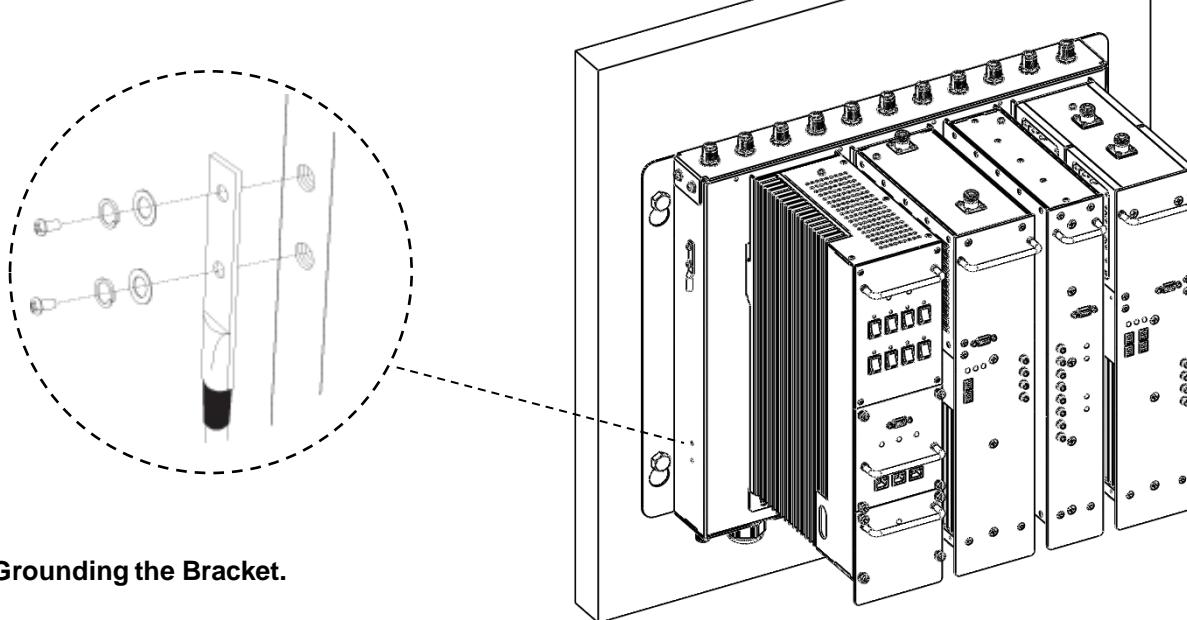
<Picture 3> Grounding of the PSU, 1900 AMP, DFM, 800/900 AMP Units.

Hang and Grounding

- Locate the ground lug on the underside (or side) of the bracket.
- Crimp the ground cable to the ground lug.
- Route the free end of the ground cable to an approved (per local code or practice) ground source.

CAUTION

 *Ground cable must be properly grounded to provide both EMI and voltage surge protection for the repeater.*



<Picture 4> Grounding the Bracket.

Position Antenna

- After installing 800/900MHz and 1900MHz antennas the installer should make line of site.
- Customer specifications should be followed for positioning the antennas properly.

Warning: In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna should not be less than 20cm during normal operation. The gain of the antenna is 12 dBi.



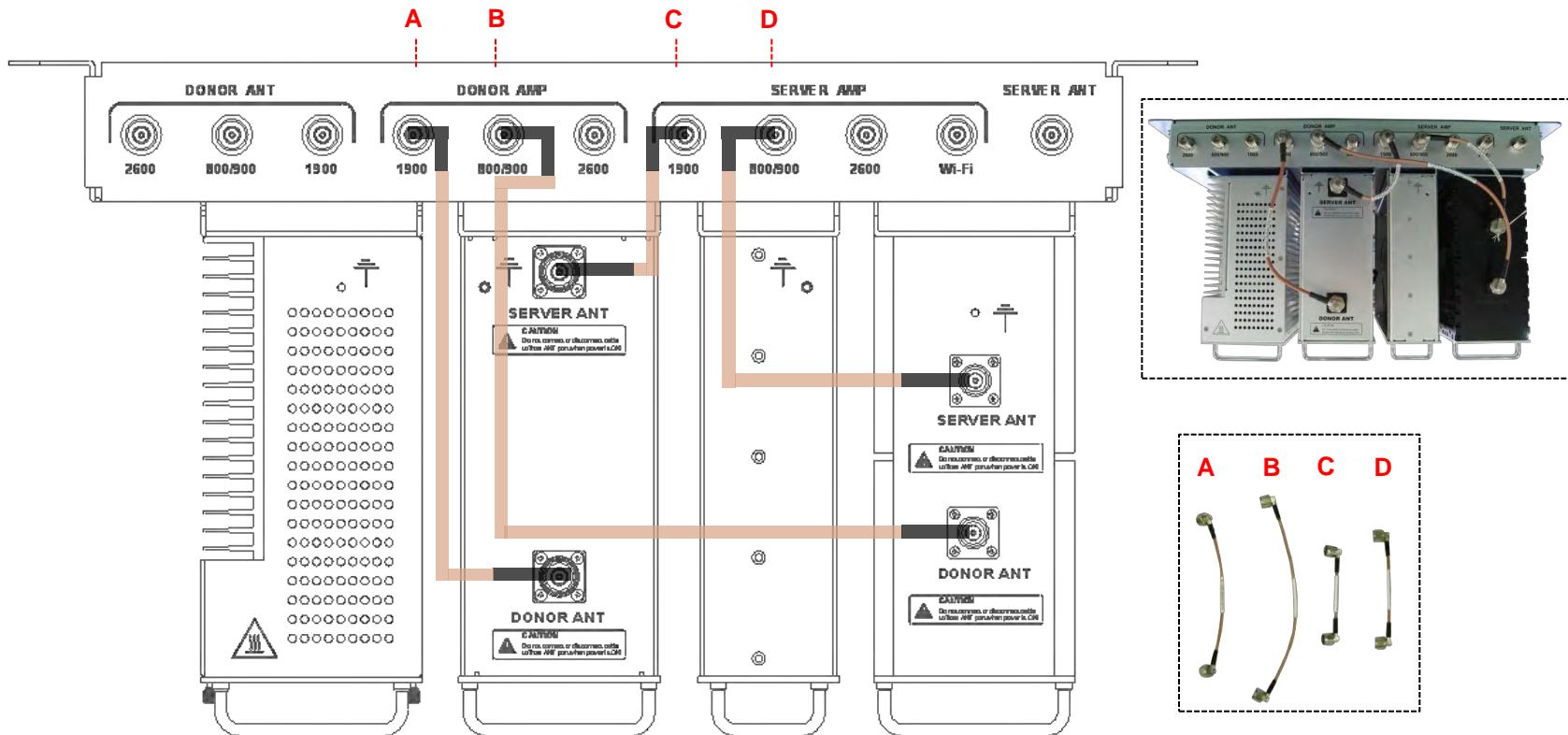
<Picture 5> An installer is directing Donor Antenna to nearby BTS to receive strong input signal.

RF Cable Connections: Top of The Repeater

- Connect the 800/900 and 1900 Donor Antennas to their corresponding ports.
- Plug in four N(M) to N(M) type RF cables as demonstrated in the picture below.

CAUTION

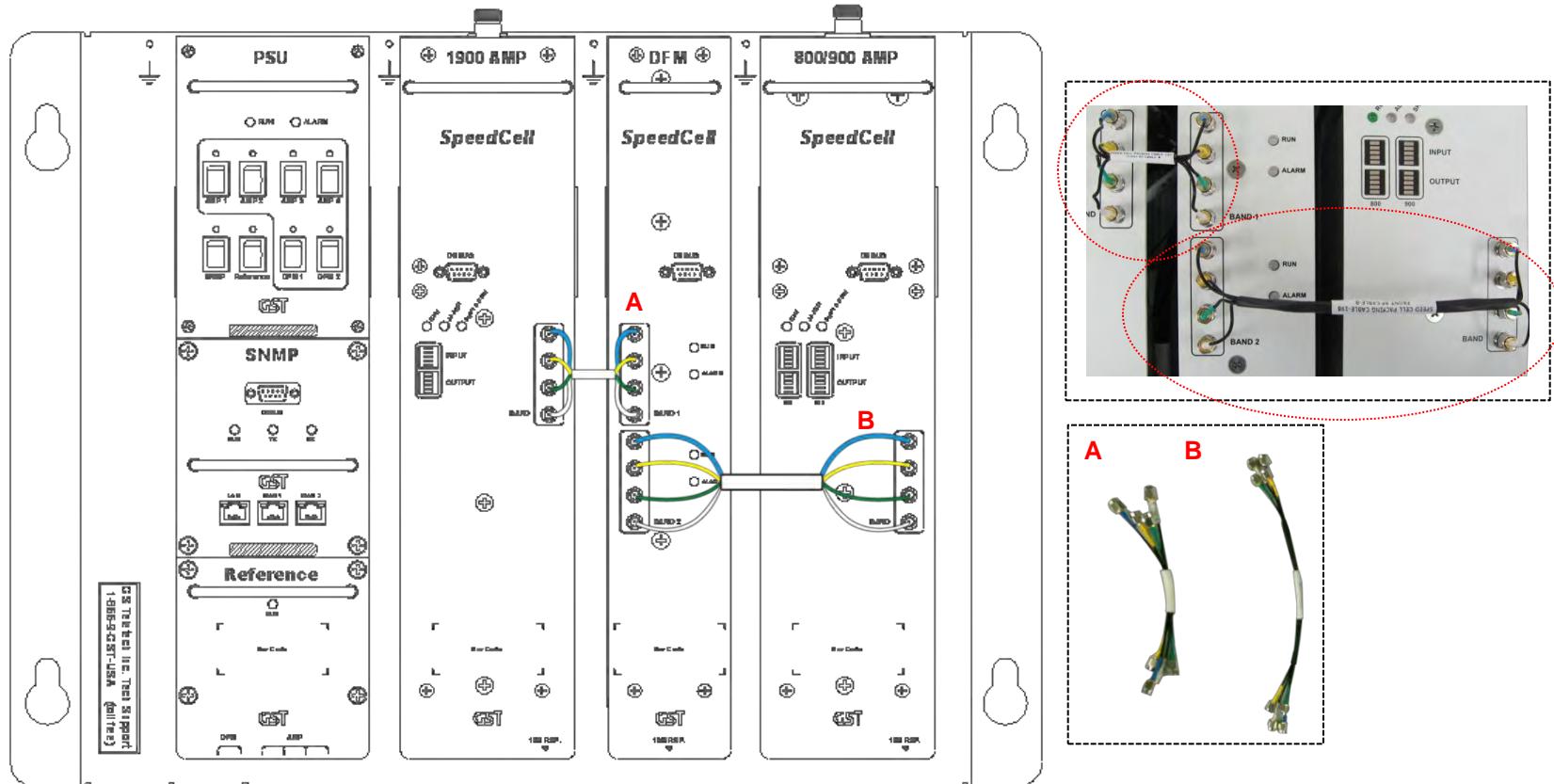
 Do not connect or disconnect cable from ANT port when power is ON.



<Picture 6> Top View of the Repeater.

RF Cable Connections: Front Side

- Take out two SMA (M) to SMA (M) type RF cables.
- Please, pay attention to cable's corresponding number and its color while connecting.
- Connect 1900 AMP and DFM via Band 1, and 800/900 AMP and DFM via Band 2.



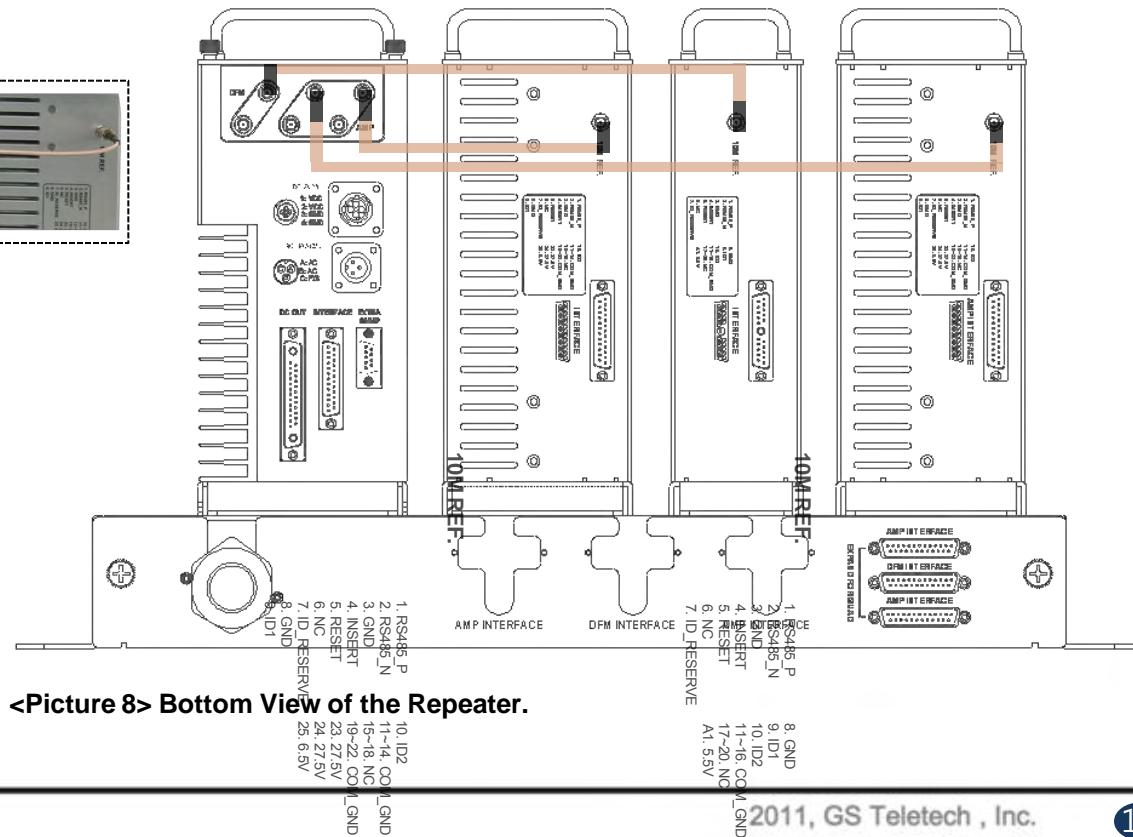
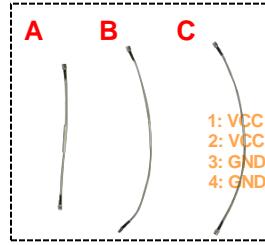
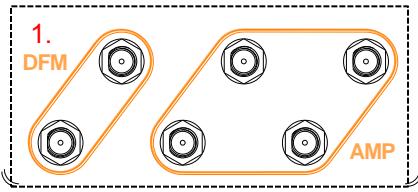
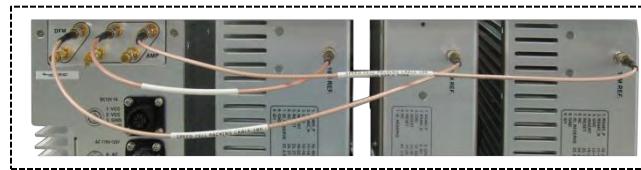
<Picture 7> Front View of the Repeater.

RF Cable Connections: Bottom of The Repeater

- Take out three SMA (M) to SMA (M) type RF cables.
- While connecting the PSU and the DFM units underneath, use referenced cable and pay attention to the labels. Plug them into their corresponding outlets.
- User may choose either of the two SMA ports on the bottom of the PSU to connect to the DFM.
- User may choose any two of the four SMA ports on the bottom of the PSU to connect to amplifiers.

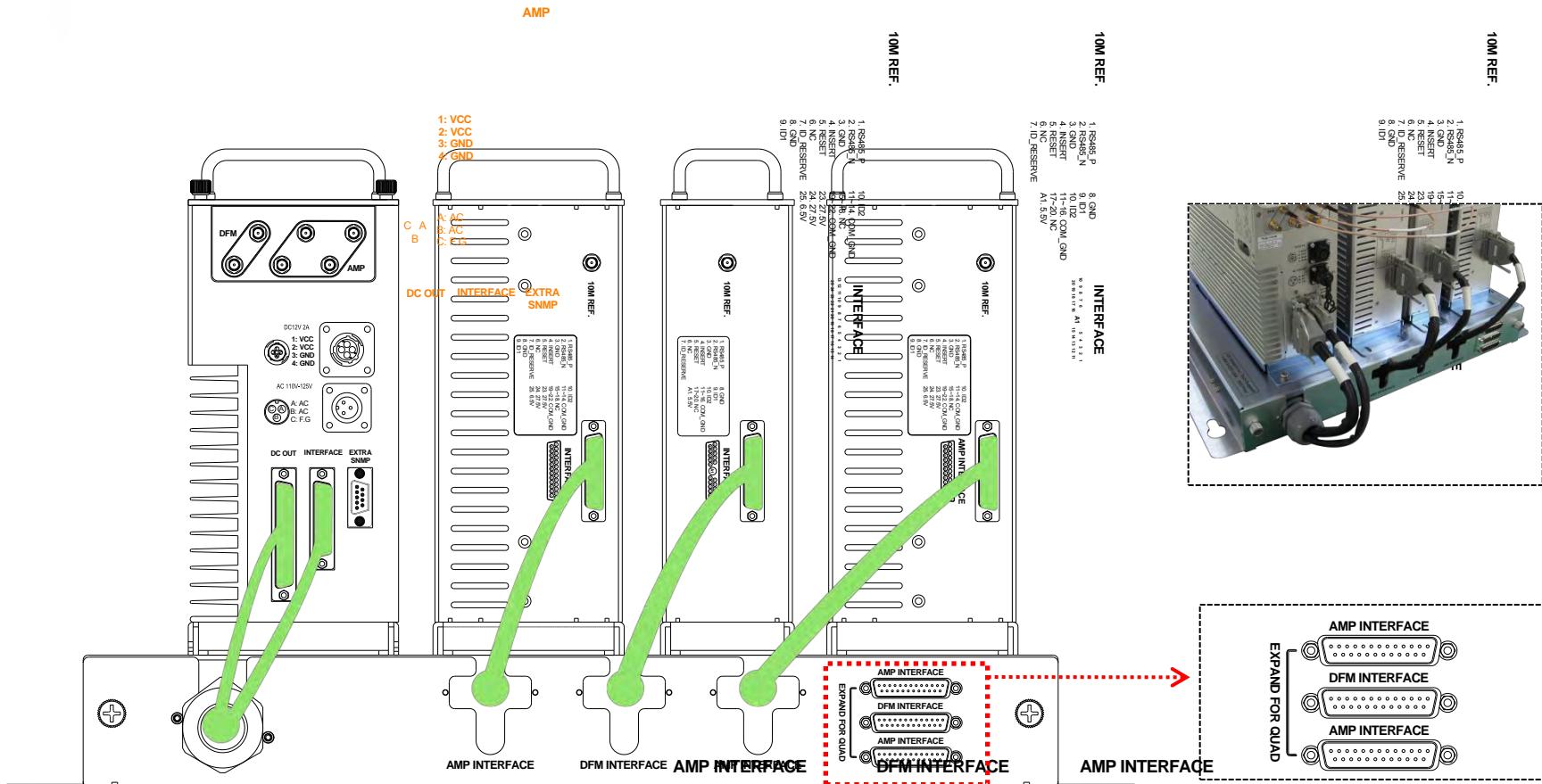
CAUTION

 Please, pay attention while connecting PSU and DFM, PSU and 800/900 AMP, 1900 AMP units. The repeater will not work if connection is inappropriate.



Power Cord Connections

- Plug in the cables to PSU, 1900AMP, DFM and 800/900 AMP as displayed at the picture below.



<Picture 9> Bottom View of the Repeater.

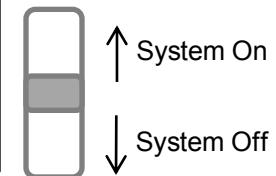
These ports are used for an added 2600 MHz amplifier while extension of the repeater.

Connecting Power Cable and LED Light Verification

- Connect Power Cable

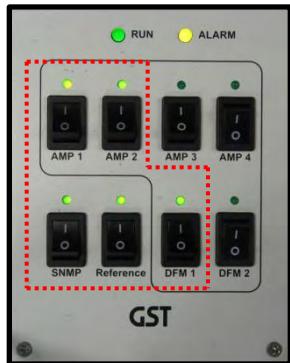


- Turn the switch “ON” on the left side of PSU.



<Picture 10> AC Power Port Connection.

<Picture 11> ON/OFF Switch of SpeedCell Repeater.



- Turn the switch “ON” on the front side of PSU as displayed at the picture 12.

<Picture 12> Verification of LED Lights.

LED Indicators

- The LED's on the repeater will light up and should change to green as displayed at the picture below.
Tx and Rx LEDs will be blinking.

RUN LED : Green light ON.

ALARM LED : Green light is normal status, Red light is alarm status.

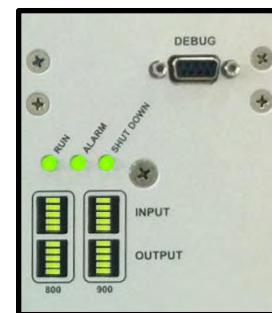
SHUT DOWN LED : Green light is normal status, Red light is shutdown status.



1900 AMP



DFM



800/900 AMP

Input Power Signal

- Please note the number of LED bars for input indicates signal strength level.

The tables below indicate the levels.

Number of LED bars on the front side of Repeater will show input signal level:

Less than ~ -86dBm	LED 1bar
-85dBm~-79dBm	LED 2 bars
-78dBm~-72dBm	LED 3 bars
-71dBm~-65dBm	LED 4 bars
More than -64dBm	LED 5 bars

<Table 1> LED Bars Indication.

Output Power Signal

- Please note the number of LED bars for output indicates signal strength level.

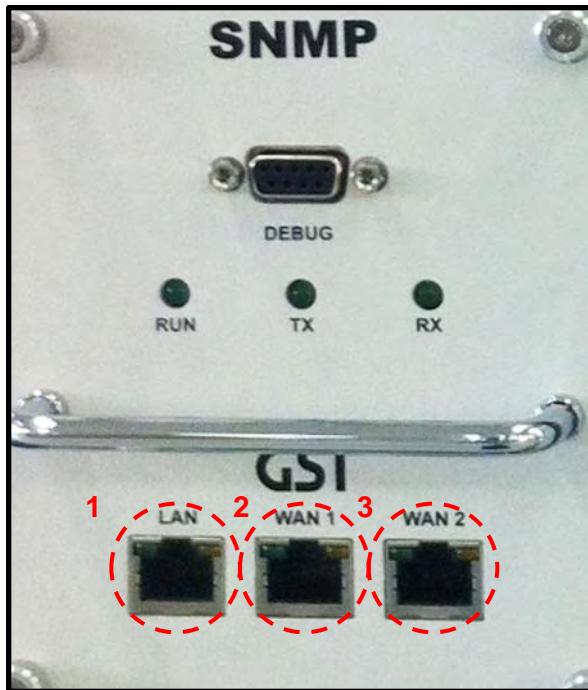
Number of LED bars on the front side of Repeater will show output signal level:

Less than ~ +5dBm	LED 1bar
+6dBm~+10dBm	LED 2 bars
+11dBm~+15dBm	LED 3 bars
+16dBm~+20dBm	LED 4 bars
More than +21dBm	LED 5 bars

<Table 2> LED Bars Indication.

Web UI

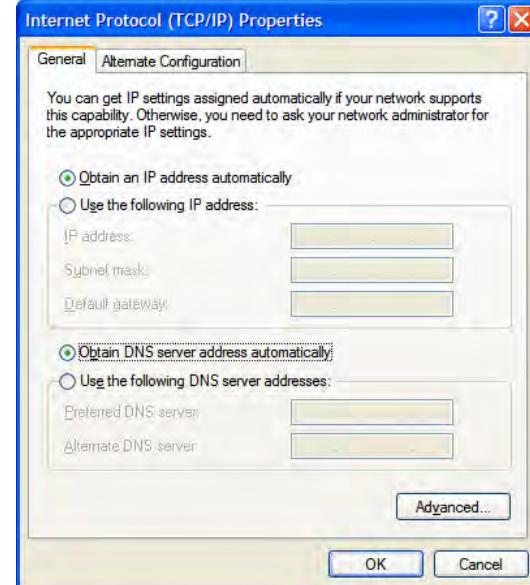
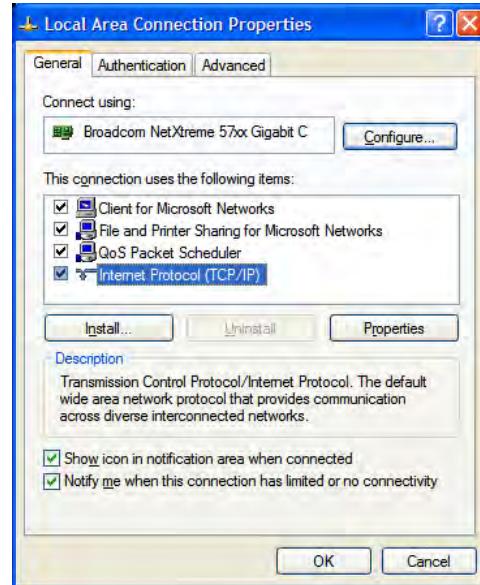
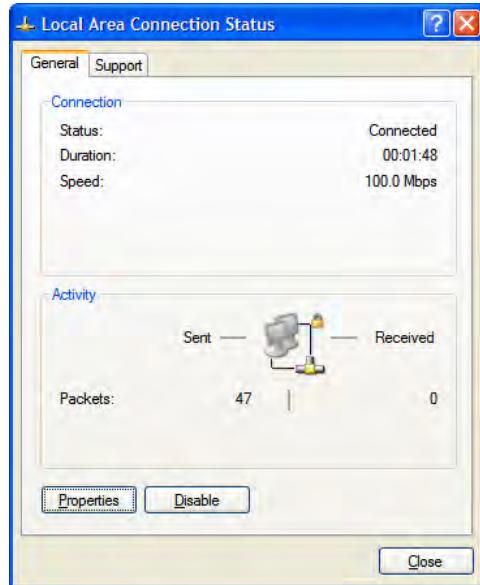
- LAN port is used for connection of laptop and repeater.
- WAN 1 port is used for connection of repeater and wireless modem for remote access.
- WAN 2 port is a redundancy port for remote access.



<Picture 12> Ethernet Port.

Configuring Laptop to Connect to Repeater

- Connect Ethernet crossover cable from the LAN port of the repeater to laptop.



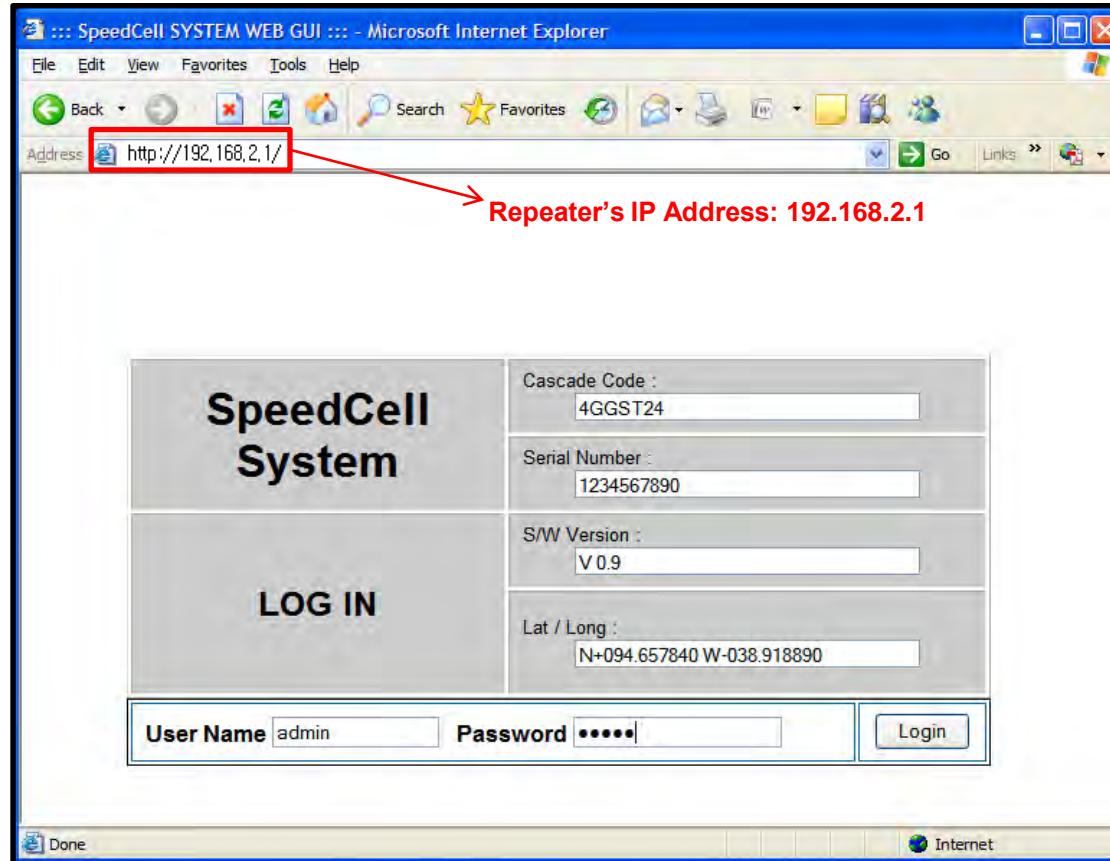
1. Go to Local area connection.

2. Click 'TCP/IP Properties'.

3. Choose 'Obtain DNS server address automatically'.

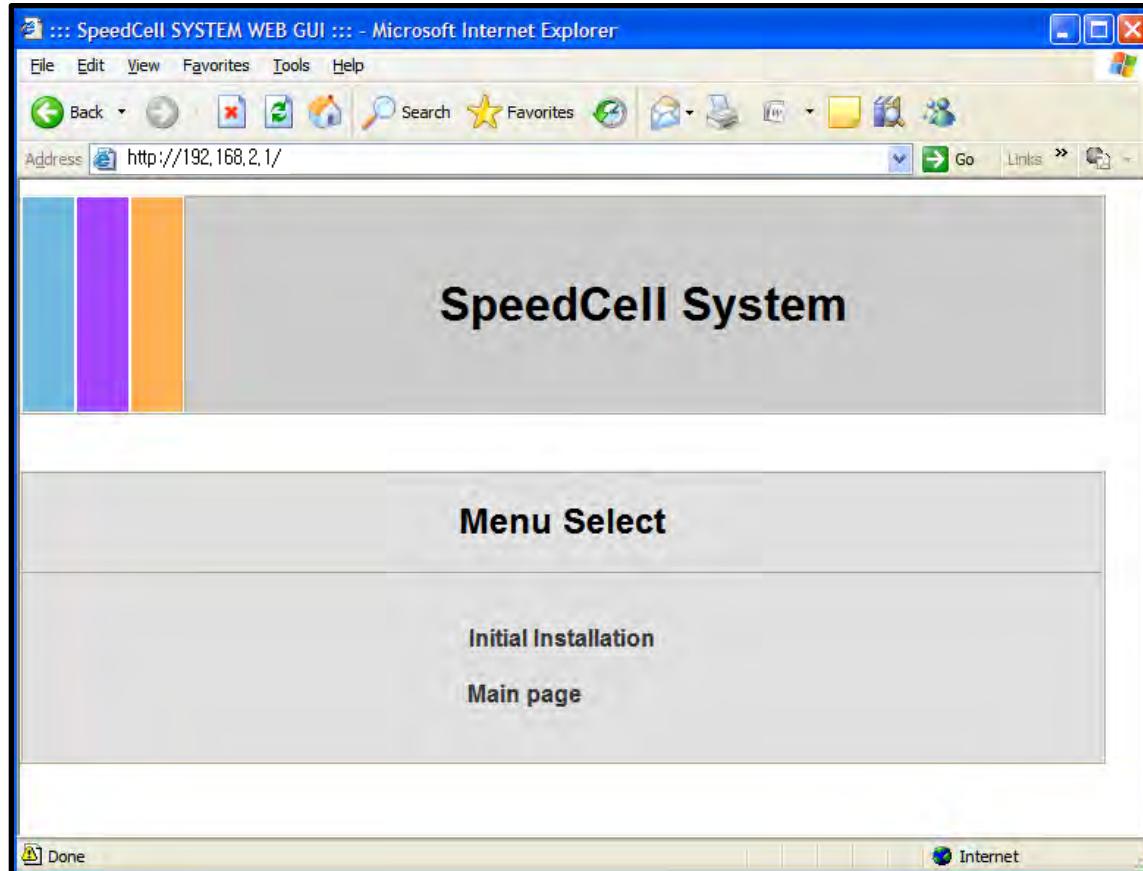
Login Screen

Enter IP address by 192.168.2.1, you will be redirected to Login. Default User Name is „admin”, and default Password is „admin”. You may need to change password as described in the User Management section. Engineering Number and Site Name will initially be blank, you can input Engineering Number and Site Name as described in the Communications Configuration section.



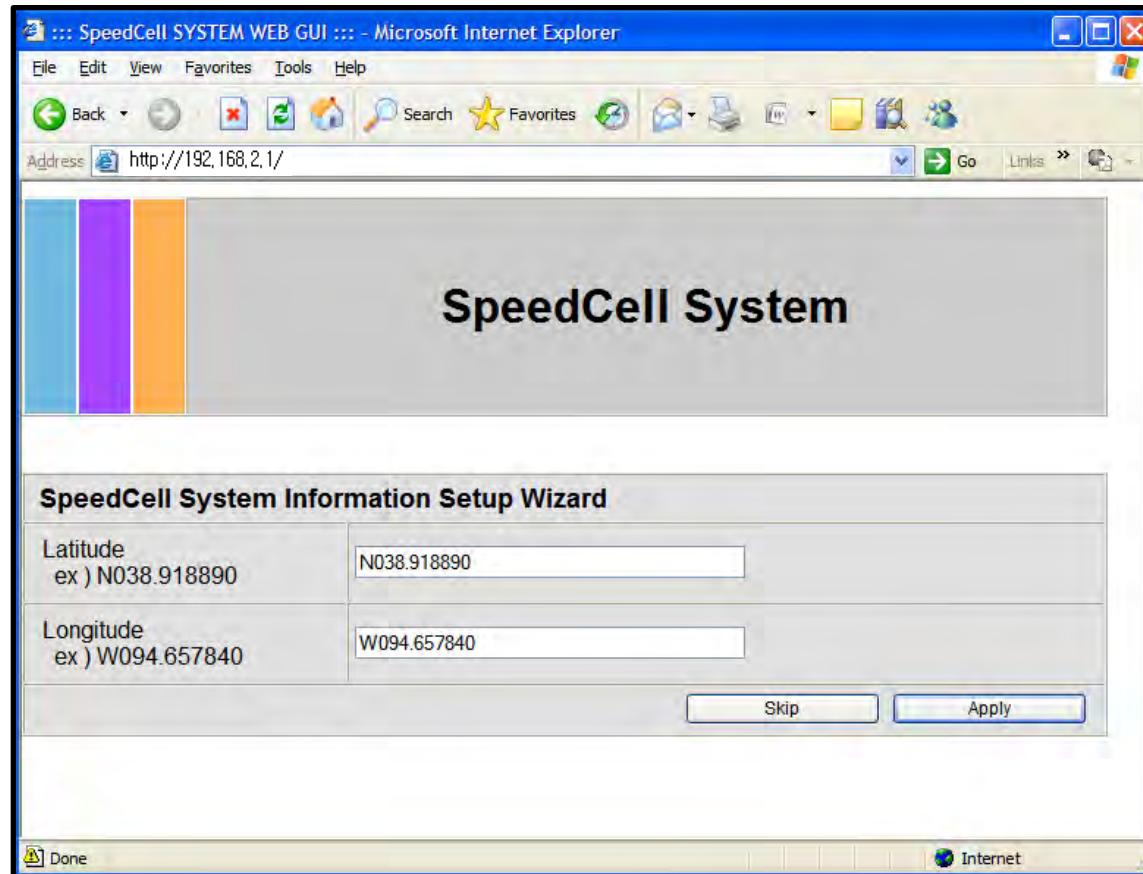
Menu Select

- After you log in, you can see „Menu Select’ page.
- To setup the Repeater, click „Initial Installation’.
- To go to menu list, click „Main page’.



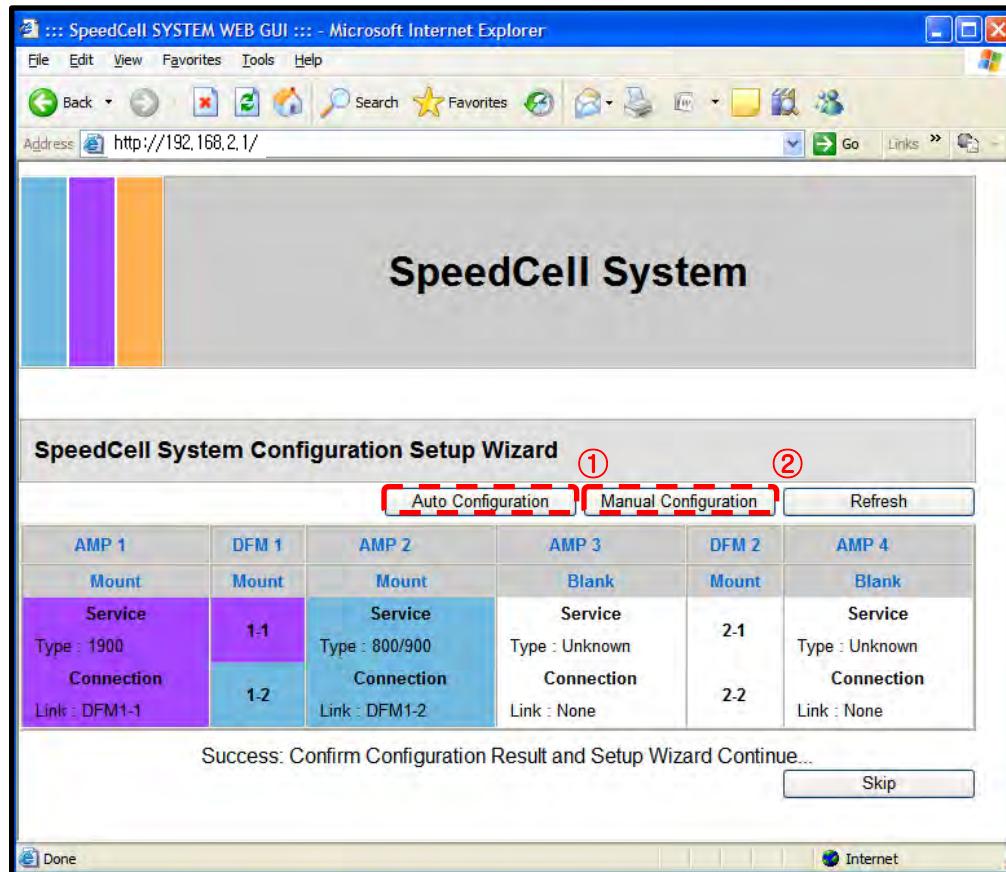
Setup Wizard

- After you clicking on „Initial Installation” the following screen will be displayed.
- After typing the Latitude or Longitude numbers, press „Apply” button.
- User may skip this window if it is unnecessary.



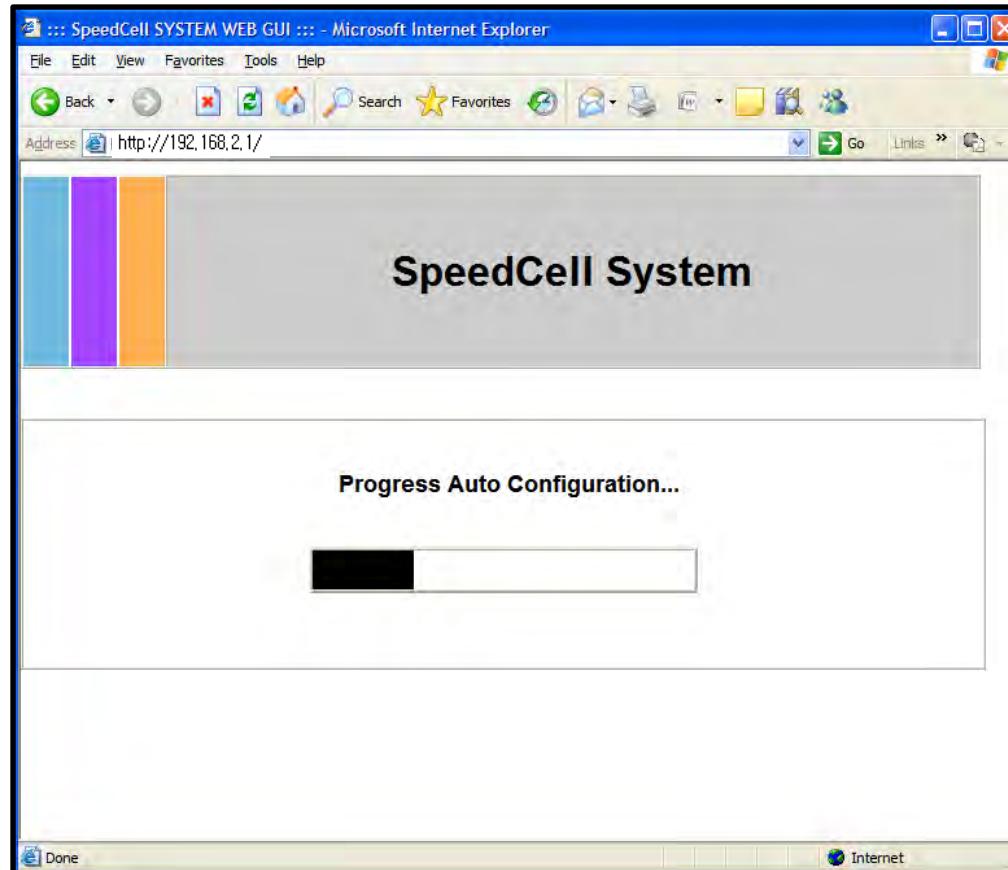
Setup Wizard

- ① Auto Configuration matches amplifier and DFM units automatically.
- ② Manual Configuration matches amplifier and DFM units manually.



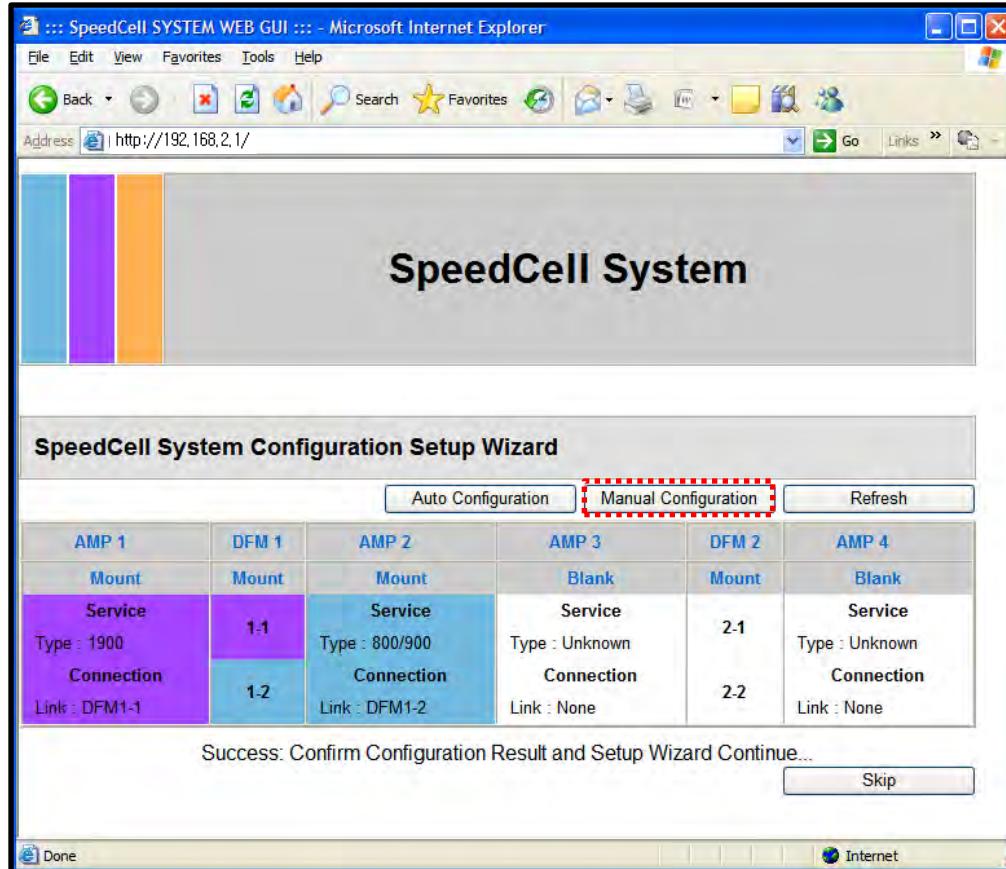
Setup Wizard

- After clicking Auto Configuration, the screen below will be displayed.
- It will take approximately one minute to finish the process.



Setup Wizard

- User may also setup repeater manually by clicking on „Manual Configuration” button.



Setup Wizard

- Information about connected amplifiers will be displayed automatically. Nevertheless user may change setting values if it is needed.

SpeedCell System

RF Configuration

Manual Service Configuration

AMP 1 - Mount		AMP 2 - Mount		AMP 3 . Unmount		AMP 4 - Unmount	
Service	Type	Service	Type	Service	Type	Service	Type
SpeedCell link Status	SLOT DFM 1	SpeedCell link Status	SLOT DFM 1	SpeedCell link Status	SLOT None	SpeedCell link Status	SLOT None
Block Block 1	Block Block 2						
<input type="button" value="Service Setting"/>		<input type="button" value="Service Setting"/>		<input type="button" value="Service Setting"/>		<input type="button" value="Service Setting"/>	

It means that amplifier is mounted and connected.

'SLOT' shows which DFM is connected to the amplifier. And 'Block' shows which block of DFM unit is connected to amplifier.

Setup Wizard

Manual Setup Wizard for 1900MHz Band (Choosing channels and bands)

- User may choose band according to the specific site circumstances. After checking necessary bands, click 'Apply' button.
- Also User may skip this setting if it is not needed.

User may type maximum 50 digits in Cascade Code.

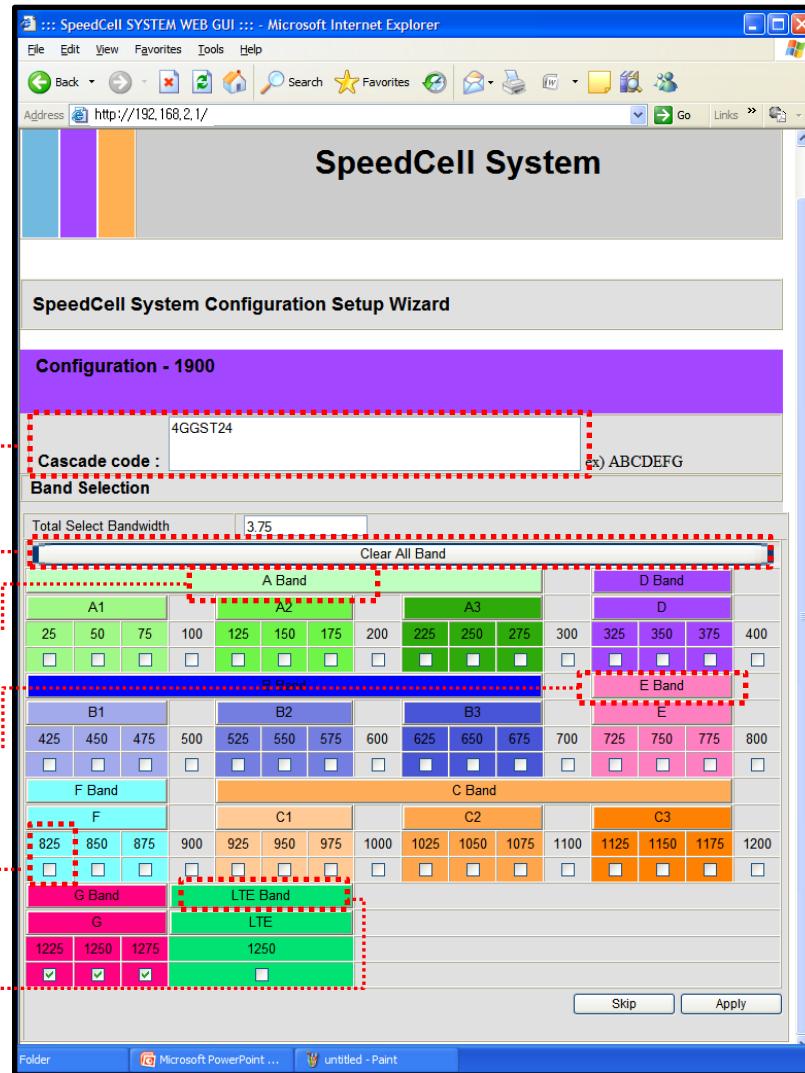
User may choose delete all bands.

User may choose 15MHz block of A band only.

User may choose 5MHz block of E band only.

User may choose channel within the selected band.

User may choose 5MHz block of G band to provide LTE service.



Setup Wizard

Manual Setup Wizard for 1900MHz Band (Choosing antenna)

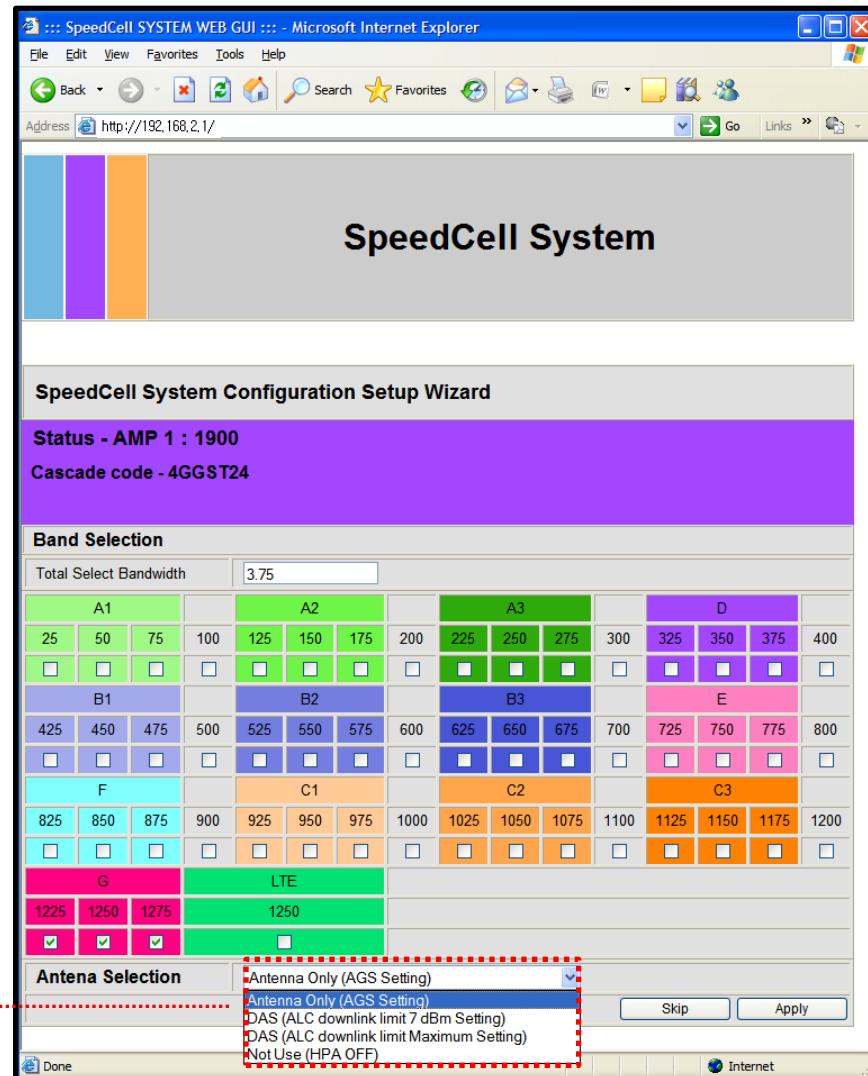
- After selecting an antenna type, click 'Apply' button.
- Also User may skip this setting if it is not needed.

Antenna Only (AGS Setting): Repeater sets up automatically (Auto Gain Setting, AGS)

DAS (ALC D/L limit 7dBm Setting): Repeater operates with Active DAS

DAS (ALC D/L limit Maximum Setting): Repeater operates with Passive DAS

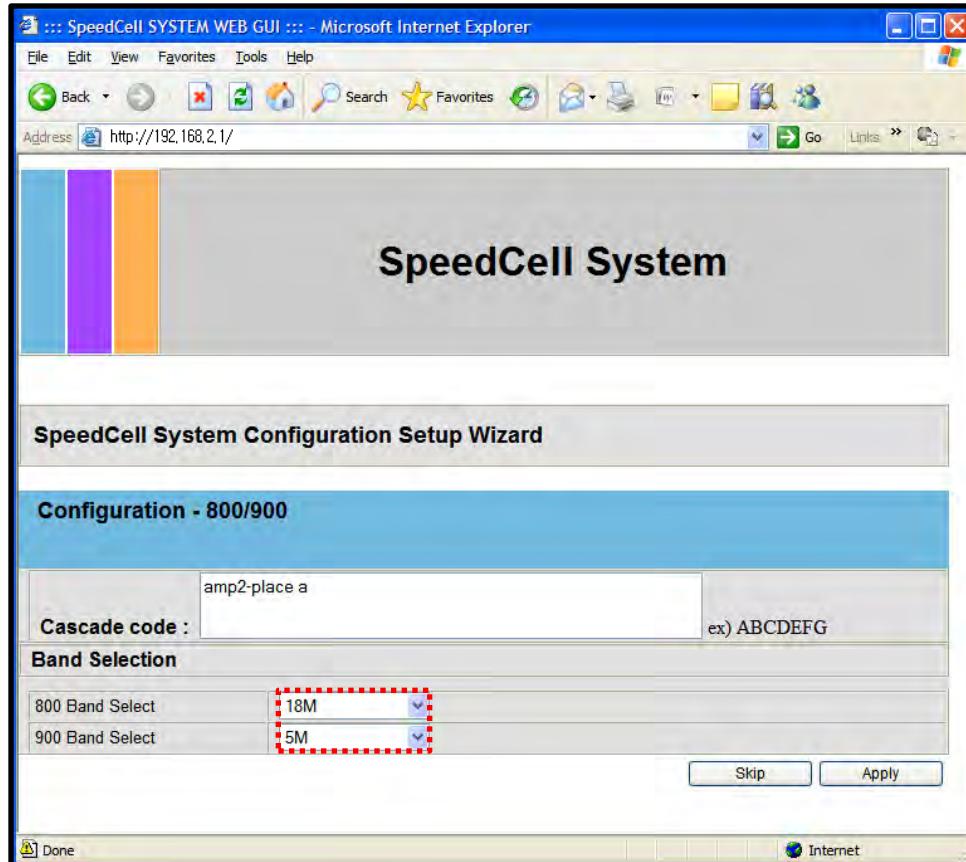
Not Use (HPA OFF): It disables this AMP unit



Setup Wizard

Manual Setup Wizard for 800/900MHz Band

- User may choose bandwidth in this menu. After selecting bandwidth, click 'Apply' button.
- Also User may skip this setting if it is not needed.



Setup Wizard

Manual Setup Wizard for 800/900MHz Band (Choosing antenna)

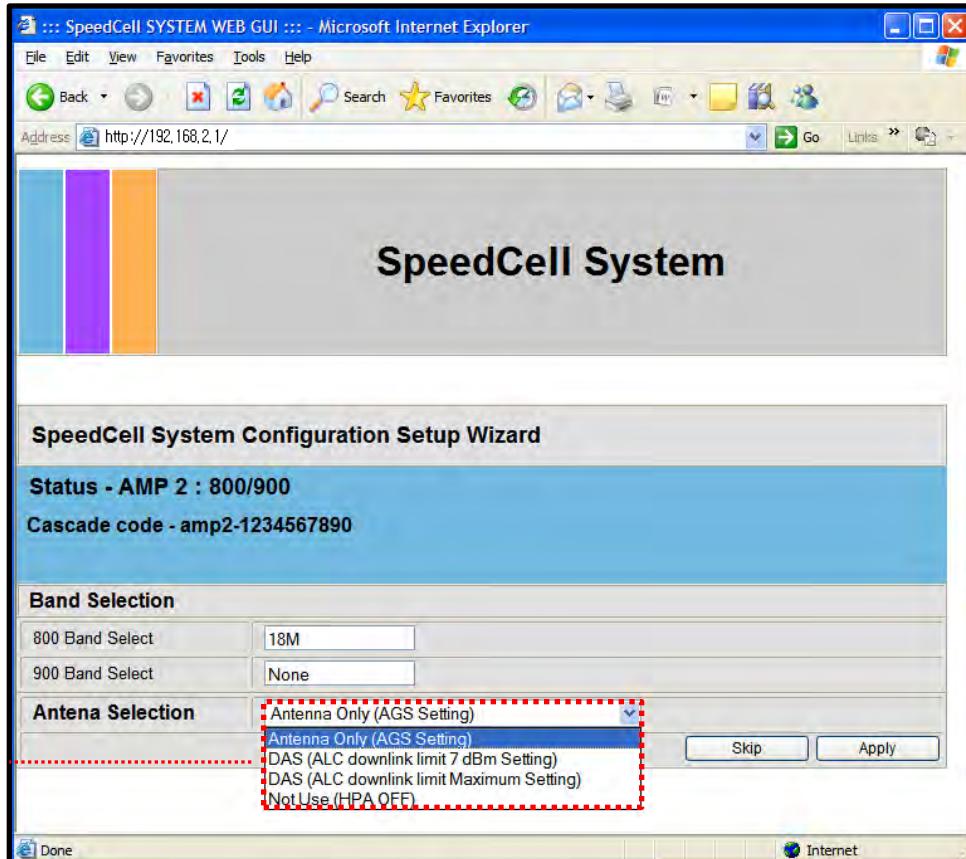
- After selecting an antenna type, click „Apply“ button.
- Also User may skip this setting if it is not needed.

Antenna Only (AGS Setting): Repeater sets up automatically (Auto Gain Setting, AGS)

DAS (ALC D/L limit 7dBm Setting): Repeater operates with Active DAS

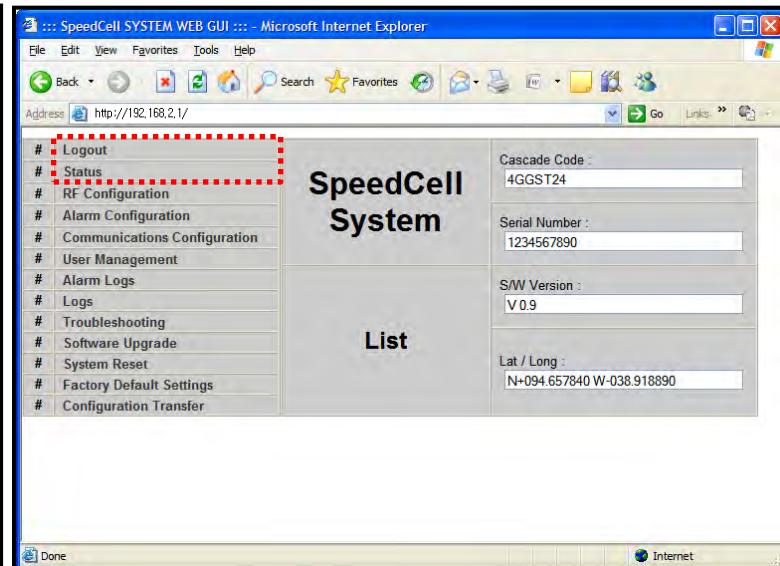
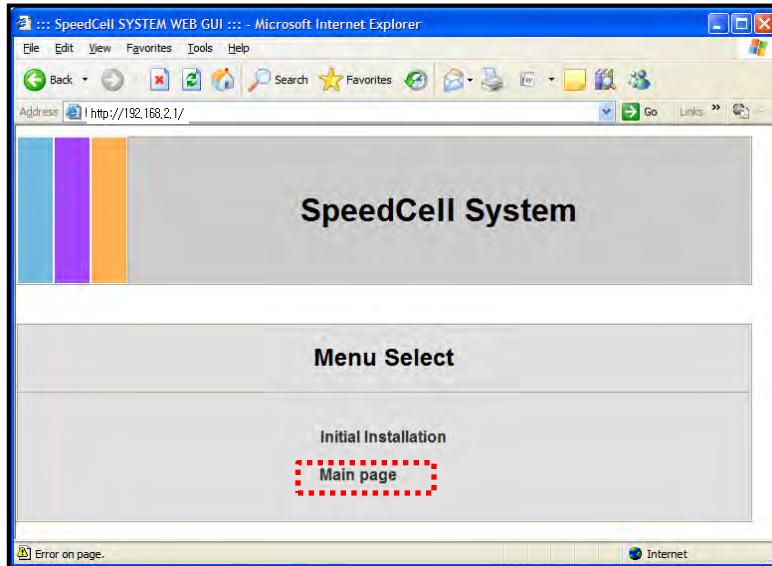
DAS (ALC D/L limit Maximum Setting): Repeater operates with Passive DAS

Not Use (HPA OFF): It disables this AMP unit



List Menu

- After clicking on „Main Page”, the „List Menu” will be displayed.
- User may check the Repeater status by clicking on „Status”.



Status Menu

- User may check status of amplifiers by clicking on any of them.

SpeedCell SYSTEM WEB GUI :: - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://192.168.2.1/

Logout
Status
RF Configuration
Alarm Configuration
Communications Configuration
User Management
Alarm Logs
Logs
Troubleshooting
Software Upgrade
System Reset
Factory Default Settings
Configuration Transfer

SpeedCell System

Cascade Code : 4GGST24
Serial Number : 1234567890
S/W Version : V 0.9
Lat / Long : N+094.657840 W-038.918890

Status

SpeedCell Formation

PSU	AMP 1	DFM 1	AMP 2	AMP 3	DFM 2	AMP 4
Mount	Mount	Mount	Mount	Blank	Unmount	Blank
Status	Service	DFM	Service	Service	DFM	Service
Voltage	Type : 1900	1-1	Type : 800/900	Type : Unknown	2-1	Type : Unknown
Current	Connection	Alarm	Connection	Connection	Alarm	Connection
Temperature	Link : DFM1-1	DFM	Link : DFM1-2	Link : None	2-2	Link : None
	Alarm	1-2	Alarm	Alarm	Alarm	Alarm
	Shutdown		Shutdown	Shutdown		Shutdown

Done Internet

Status Menu

Status of 1900 AMP

- Default D/L and U/L are set at minimum gain.
- Values will vary depending on specific site circumstances.
- In case that screen resolution is 1024 x 768, you may need to use scroll bar to view all.

SpeedCell SYSTEM WEB GUI :: - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://192.168.2.1/

Logout
Status
RF Configuration
Alarm Configuration
Communications Configuration
User Management
Alarm Logs
Logs
Troubleshooting
Software Upgrade
System Reset
Factory Default Settings
Configuration Transfer

SpeedCell System

Cascade Code : 4GGST24
Serial Number : 1234567890
S/W Version : V0.9
Lat / Long : N+094.657840 W-038.918890

Status

Status - 1900
Cascade code - 4GGST24

[return Formation](#) [Summary Page](#)

AMP - 1 : S/N 0123456789abcde

Status			
Input Power	Output Power		
Downlink			
DL Output Power	28.5 dBm	DL Low RF Power	4.0 dB
DL Gain	90.0 dB	DL Attenuation	0.0 dB
DL RSSI	-60.5 dBm	DL Low RSSI(-8dB)	-93.0 dBm
DL ALC Limit	30.0 dBm	DL Current ALC Limit	30.0 dBm
DL AMP Control	ON		
Uplink			
UL Output Power	-30.0 dBm	UL Attenuation	0.0 dB
UL Gain	90.0 dB	UL Current ALC Limit	30.0 dBm
UL ALC Limit	25.0 dBm		
UL AMP Control	OFF		

[Done](#) [Internet](#)

Status Menu

Status of 1900 AMP (continue of the page)

- Values will vary depending on specific site circumstances.
- In case that screen resolution is 1024 x 768, you may need to use scroll bar to view all.

SpeedCell SYSTEM WEB GUI :: - Microsoft Internet Explorer

File Edit View Favorites Tools Help

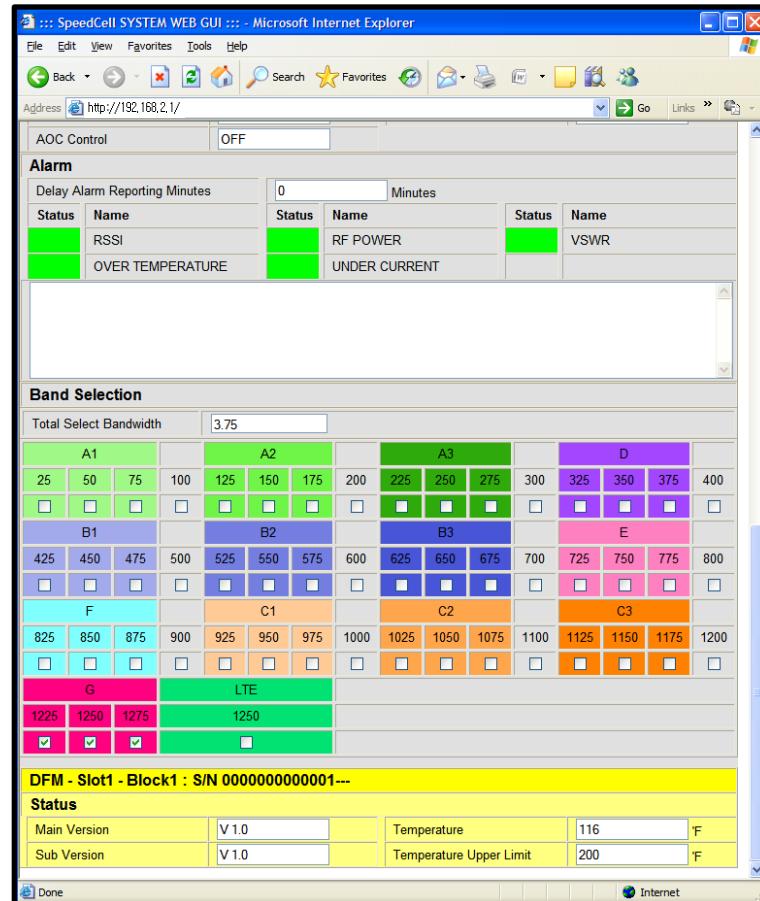
Address http://192.168.2.1/ Go Links

UL ALC Limit	30.0	dBm	UL Current ALC Limit	30.0	dBm
UL AMP Control	OFF				
Common					
Version	V 1.1		Temperature	95	°F
Service Type	1900		Temperature Upper Limit	200	°F
Maximum Power	30	dBm	Gain Balance value	0	dB
Shutdown Control	OFF		Gain Balance Control	OFF	
AOC Control	OFF				
Alarm					
Delay Alarm Reporting Minutes		0	Minutes		
Status	Name	Status	Name	Status	Name
	RSSI		RF POWER		VSWR
	OVER TEMPERATURE		UNDER CURRENT		
Band Selection					
Total Select Bandwidth		3.75			
A1		A2		A3	
25	50	75	100	125	150
					
B1		B2		B3	
425	450	475	500	525	550
					
F		C1		C2	
825	850	875	900	925	950
					
G		LTE			
<input type="button" value="Done"/> <input type="button" value="Internet"/>					

Status Menu

Status of 1900 AMP (continue of the page)

- Values will vary depending on specific site circumstances.
- In case that screen resolution is 1024 x 768, you may need to use scroll bar to view all.



The screenshot displays the SpeedCell SYSTEM WEB GUI interface. At the top, it shows the title "SpeedCell SYSTEM WEB GUI :: Microsoft Internet Explorer" and the address "http://192.168.2.1/".

AOC Control: Shows "OFF" in a text input field.

Alarm: Displays a table of alarms with columns for Status, Name, and additional columns for Delay Alarm Reporting Minutes (0 Minutes) and Status/Name.

Alarm		Delay Alarm Reporting Minutes		Status		Name	
Status	Name	0 Minutes		Status	Name	Status	Name
Green	RSSI	Green	RF POWER	Green	VSWR		
Green	OVER TEMPERATURE	Green	UNDER CURRENT				

Band Selection: A grid showing Total Select Bandwidth (3.75) and various frequency bands (A1, A2, A3, D, E, F, C1, C2, C3, G, LTE) across different frequency ranges (e.g., 25, 50, 75, 100, 125, 150, 175, 200, 225, 250, 275, 300, 325, 350, 375).

DFM - Slot1 - Block1 : S/N 0000000000001---

Status: A table showing Main Version (V 1.0), Sub Version (V 1.0), Temperature (116 °F), and Temperature Upper Limit (200 °F).

Main Version	V 1.0	Temperature	116 °F
Sub Version	V 1.0	Temperature Upper Limit	200 °F

Status Menu

Status of 800/900 AMP

- Default D/L and U/L are set at minimum gain.
- Values will vary depending on specific site circumstances.
- In case that screen resolution is 1024 x 768, you may need to use scroll bar to view all.

SpeedCell SYSTEM WEB GUI :: - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://192.168.2.1/

# Logout	SpeedCell System	
# Status		
# RF Configuration		
# Alarm Configuration		
# Communications Configuration		
# User Management		
# Alarm Logs		
# Logs		
# Troubleshooting		
# Software Upgrade		
# System Reset		
# Factory Default Settings		
# Configuration Transfer		

Status		
Cascade Code : amp2-1234567890		
Serial Number : 1234567890		
S/W Version : V0.9		
Lat / Long : N+094.657840 W-038.918890		

Status - 800/900
Cascade code - amp2-1234567890

[return Formation](#) [Summary Page](#)

AMP - 2 : S/N 0123456789abcde

Status					
Input Power 800		Output Power 800			
Input Power 900		Output Power 900			
Downlink					
DL Output Power 800	Below 0.0	dBm	DL Output Power 900	Below 0.0	dBm
DL Low RF Power 800	2.0		DL Low RF Power 900	0.0	dBm
DL Gain 800	75.0	dB	DL Attenuation 800	12.0	dB
DL Gain 900	75.0	dB	DL Attenuation 900	12.0	dB
DL RSSI 800	-100.0	dBm	DL Low RSSI(-8dB)	-93.0	dBm
DL RSSI 900	-100.0	dBm			
DL ALC Limit 800	27.0	dBm	DL Current ALC Limit 800	27.0	dBm
DL ALC Limit 900	5.0	dBm	DL Current ALC Limit 900	27.0	dBm
DL AMP Control	OFF				
Uplink					
UL Output Power 800	-30.0	dBm	UL Output Power 900	-30.0	dBm
UL Gain 800	87.0	dB	UL Attenuation 800	0.0	dB

[Done](#) [Internet](#)

Status Menu

Status of 800/900 AMP (continue of the page)

- Values will vary depending on specific site circumstances.
- In case that screen resolution is 1024 x 768, you may need to use scroll bar to view all.

SpeedCell SYSTEM WEB GUI - Microsoft Internet Explorer

UL ALC Limit 800	5.0	dBm	DL Current ALC Limit 800	5.0	dBm
DL ALC Limit 900	5.0	dBm	DL Current ALC Limit 900	5.0	dBm
DL AMP Control					
UL Output Power 800	-30.0	dBm	UL Output Power 900	-30.0	dBm
UL Gain 800	87.0	dB	UL Attenuation 800	0.0	dB
UL Gain 900	87.0	dB	UL Attenuation 900	0.0	dB
UL ALC Limit 800	27.0	dBm	UL Current ALC Limit 800	5.0	dBm
UL ALC Limit 900	27.0	dBm	UL Current ALC Limit 900	5.0	dBm
UL AMP Control					
Uplink					
Version	V 1.1		Temperature	100 °F	
Service Type	800/900		Temperature Upper Limit	185 °F	
Maximum Power	30 dBm		Gain Balance value	0 dB	
Shutdown Control	OFF		Gain Balance Control	OFF	
AOC Control	OFF		Common		
Alarm					
Delay Alarm Reporting Minutes		0 Minutes			
Status	Name	Status	Name	Status	Name
GREEN	RSSI	GREEN	RF POWER	GREEN	VSWR
GREEN	OVER TEMPERATURE	GREEN	UNDER CURRENT		
Band Selection					
800 Band Select	18M				
900 Band Select	None				
DFM - Slot1 - Block2 : S/N 000000000001---					
Status					
Main Version	V 1.0		Temperature	116 °F	
Sub Version	V 1.0		Temperature Upper Limit	200 °F	

Done Internet

RF Configuration Menu

- Click the RF Configuration link.
- Click AMP 1 or AMP 2 in order to go to the next window and change RF values.

SpeedCell SYSTEM WEB GUI :: - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Mail Print Links Go Address http://192.168.2.1/

SpeedCell System

RF Configuration

Cascade Code : 4GGST24

Serial Number : 1234567890

S/W Version : V0.9

Lat / Long : N-094.657840 W-038.918890

SpeedCell Formation

Auto Configuration Service Configuration Reload Formation

PSU	AMP 1	DFM 1	AMP 2	AMP 3	DFM 2	AMP 4
Mount	Mount	Mount	Mount	Blank	Unmount	Blank
Status	Service	DFM	Service	Service	DFM	Service
Voltage	Type : 1900	1-1	Type : 800/900	Type : Unknown	2-1	Type : Unknown
Current	Connection	Alarm	Connection	Connection	Alarm	Connection
Temperature	Link : DFM1-1	DFM	Link : DFM1-2	Link : None	2-2	Link : None
	Alarm	1-2	Alarm	Alarm	Alarm	Alarm
	Shutdown	Alarm	Shutdown	Shutdown	Alarm	Shutdown

Internet

RF Configuration Menu FAQ's

• What is Auto Limit Control (ALC)?

ALC is used for custom installations.

If the repeater is having difficulties with isolation check, or if you want to “power down” the repeater ALC should be manually set. Attenuation may also be added for reducing power levels. ALC also provides optional U/L and D/L settings.

- ALC controls the output power.
- If you want to use the ALC function, Gain Balance Control should be turned off.
- ALC will reduce max gain by the set value even if the input signal decreases.
- ALC should be used if the repeater is connected to a DAS system.

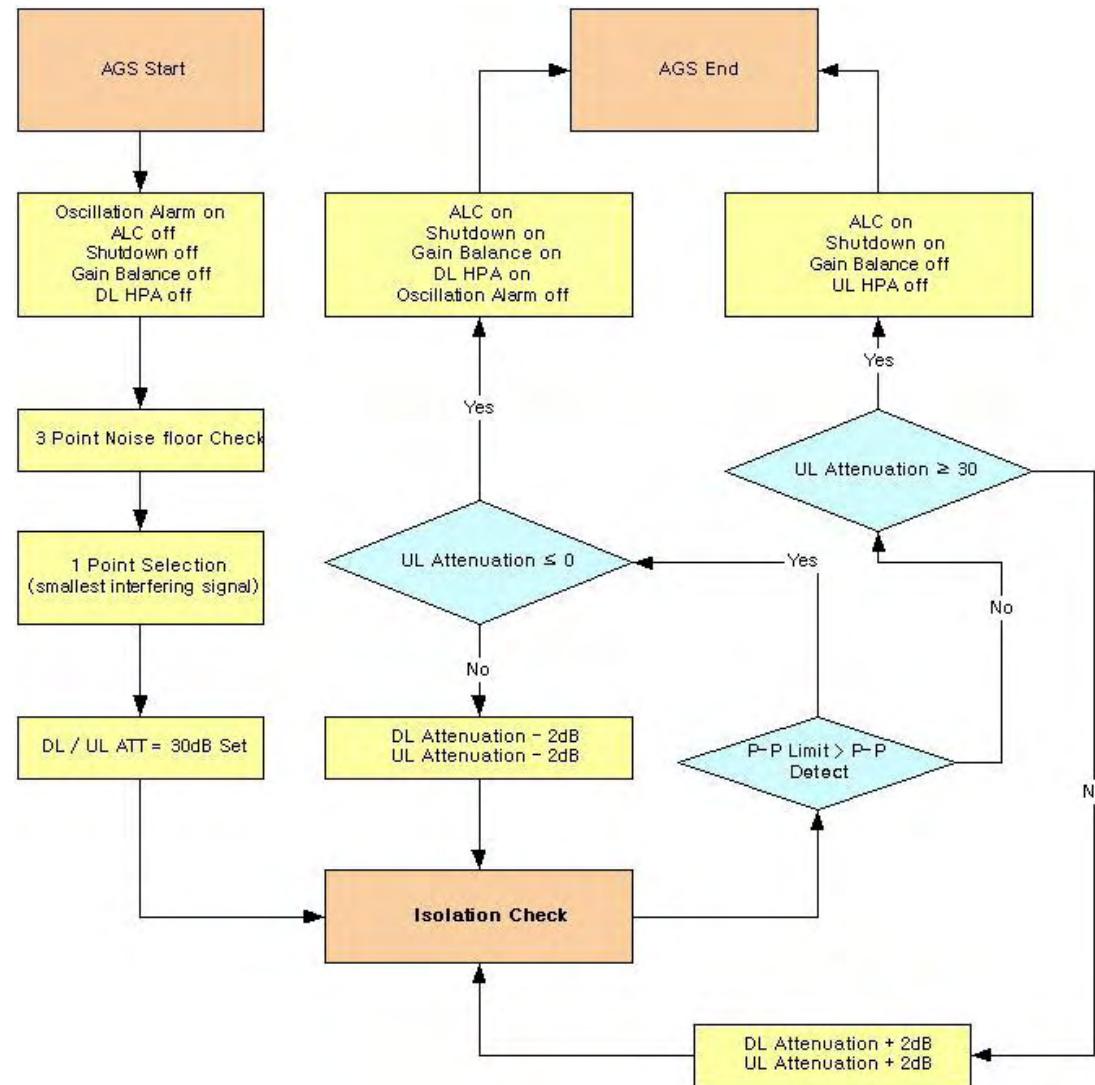
• What does the Shutdown ON/OFF control?

- An internal wave-detection is checking the noise level. If the repeater cannot secure isolation it will go through a process of turning itself off, and turning back on while doing isolation checking.
 - If it is impossible for the repeater to secure isolation after 30 minutes, the repeater will shut down and stay shutdown.
- The items that may automatically require the repeater to shut down are:
- > VSWR Alarm, Over Power Alarm, Over Input Alarm, and Temperature Alarm.

• What is Gain Balance Control?

- Gain Balance Control will always keep the UL and DL ATT the same while using AGC.
- GBC should always be left on to prevent damage to BTS while using AGC.
- This is used for BTS to cell phone power control.

Auto Gain Setting (AGS) Flow Chart



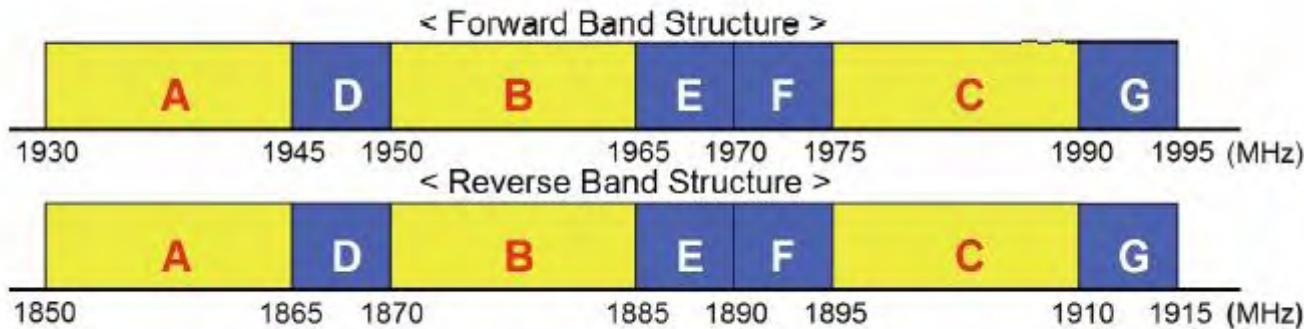
RF Configuration Menu

1900MHz Band Selection

Band Selection Algorithm

ITEM	BANDWIDTH	NOTE
Band Select	3 non-contiguous band is selectable	1.25 ~ 20MHz is selectable in each band

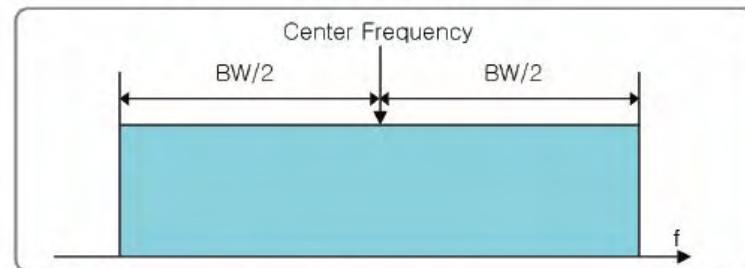
Band Structure



RF Configuration Menu

800/900MHz Band Selection

Band Select Status



<System Filter Setting>

	Center Frequency	Bandwidth
iDEN800	860MHz	18MHz
	859.9MHz	17.8MHz
	859.8MHz	17.6MHz
	865.5MHz	7MHz
	865.4MHz	6.8MHz
	865.3MHz	6.6MHz
iDEN900	937.5MHz	5MHz
	937.4MHz	4.8MHz
	937.3MHz	4.6MHz

<Primary Center & Bandwidth>

RF Configuration Menu

- Click the RF Configuration link.
Click AMP 1 or AMP 2 in order to go to the next window and change RF values.

SpeedCell SYSTEM WEB GUI :: - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://192.168.2.1/ Go Links

Logout
Status
RF Configuration
Alarm Configuration
Communications Configuration
User Management
Alarm Logs
Logs
Troubleshooting
Software Upgrade
System Reset
Factory Default Settings
Configuration Transfer

SpeedCell System

Cascade Code : 4GGST24

Serial Number : 1234567890

S/W Version : V 0.9

Lat / Long : N+094.657840 W-038.918890

RF Configuration

SpeedCell Formation Auto Configuration Service Configuration Reload Formation

PSU	AMP 1	DFM 1	AMP 2	AMP 3	DFM 2	AMP 4
Mount	Mount	Mount	Mount	Blank	Unmount	Blank
Status	Service Type : 1900	DFM 1-1 Alarm	Service Type : 800/900	Service Type : Unknown	DFM 2-1 Alarm	Service Type : Unknown
Voltage	Connection Link : DFM1-1	DFM 1-2 Alarm	Connection Link : DFM1-2	Connection Link : None	DFM 2-2 Alarm	Connection Link : None
Current	Alarm	Shutdown	Alarm	Alarm	DFM	Alarm
Temperature	Shutdown		Shutdown	Shutdown	2-2 Alarm	Shutdown

RF Configuration Menu

1900 AMP

- User may change various RF values of the repeater on this page.
- Changes will not take effect until you click "Apply" button.
- This menu is where the installer will choose references for specific implementation.
- In case that screen resolution is 1024 x 768, you may need to use scroll bar to view all.

SpeedCell SYSTEM WEB GUI :: - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://192.168.2.1/

#	Logout
#	Status
#	RF Configuration
#	Alarm Configuration
#	Communications Configuration
#	User Management
#	Alarm Logs
#	Logs
#	Troubleshooting
#	Software Upgrade
#	System Reset
#	Factory Default Settings
#	Configuration Transfer

SpeedCell System

Cascade Code : 4GGST24

Serial Number : 1234567890

S/W Version : V0.9

Lat / Long : N-094.657840 W-038.918890

RF Configuration

Configuration - 1900

return Formation

AMP Configuration

Auto Gain Setting Apply

AMP - 1

Configuration

Downlink			
DL Attenuation	30.0 dB	DL ALC Limit	30.0 dBm
DL AMP Control	ON	DL Low RSSI(-8dB)	-93.0 dBm
DL Low Rf Power	4.0 dBm		
Uplink			
UL Attenuation	30.0 dB	UL ALC Limit	25.0 dBm
UL AMP Control	OFF		

Common

Cascade code : 4GGST24			
Delay Alarm Reporting Minutes	0		
AMP Temperature UpperLimit	200 °F	DFM Temperature UpperLimit	200 °F
Shutdown Control	OFF	Gain Balance value	0.0 dB
Gain Balance Control	ON	AOC Control	ON

Band Selection

Done Internet

RF Configuration Menu

1900 AMP (continue of the page)

- User may change various RF values of the repeater on this page.
- Changes will not take effect until you click “Apply” button.
- This menu is where the installer will choose references for specific implementation.
- In case that screen resolution is 1024 x 768, you may need to use scroll bar to view all.

SpeedCell SYSTEM WEB GUI :: - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://192.168.2.1/ Go Links

Downlink			
DL Attenuation	0.0 dB	DL ALC Limit	30.0 dBm
DL AMP Control	OFF	DL Low RSSI	-93.0 dBm
DL Low Rf Power	4.0 dBm		
Uplink			
UL Attenuation	0.0 dB	UL ALC Limit	30.0 dBm
UL AMP Control	OFF		
Common			
Cascade code :	4GGST24		
Delay Alarm Reporting Minutes	0	DFM Temperature UpperLimit	200 °F
AMP Temperature UpperLimit	200 °F	Gain Balance value	0.0 dB
Shutdown Control	OFF	AOC Control	OFF
Gain Balance Control	OFF		
Band Selection			
Total Select Bandwidth	3.75		
Clear All Band			
A Band			
25	50	75	100
125	150	175	200
225	250	275	300
325	350	375	400
B Band			
425	450	475	500
525	550	575	600
625	650	675	700
725	750	775	800
C Band			
825	850	875	900
925	950	975	1000
1025	1050	1075	1100
1125	1150	1175	1200
D Band			
E Band			
F Band			
G Band			
LTE Band			
LTE			
1225	1250	1275	1250
✓	✓	✓	✓

RF Configuration Menu

800/900 AMP

- User may change various RF values of the repeater on this page.
- Changes will not take effect until you click “Apply” button.
- This menu is where the installer will choose references for specific implementation.
- In case that screen resolution is 1024 x 768, you may need to use scroll bar to view all.

SpeedCell System

RF Configuration

Configuration - 800/900

AMP Configuration

AMP - 2 Configuration

Downlink					
DL Attenuation 800	12.0	dB	DL ALC Limit 800	27.0	dBm
DL Attenuation 900	12.0	dB	DL ALC Limit 900	5.0	dBm
DL AMP Control	OFF		DL Low RSSI(-8dB)	-93.0	dBm
DL Low Rf Power	2.0	dBm			

Uplink					
UL Attenuation 800	0.0	dB	UL ALC Limit 800	27.0	dBm
UL Attenuation 900	0.0	dB	UL ALC Limit 900	27.0	dBm
UL AMP Control	OFF				

Common					
Cascade code :	amp2-1234567890				
Delay Alarm Reporting Minutes	0				
AMP Temperature UpperLimit	185	'F	DFM Temperature UpperLimit	200	'F
Shutdown Control	OFF		Gain Balance value	0.0	dB

return Formation

Auto Gain Setting **Apply**

RF Configuration Menu

800/900 AMP (continue of the page)

- User may change various RF values of the repeater on this page.
- Changes will not take effect until you click “Apply” button.
- This menu is where the installer will choose references for specific implementation.
- In case that screen resolution is 1024 x 768, you may need to use scroll bar to view all.

SpeedCell SYSTEM WEB GUI - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://192.168.2.1/

RF Configuration

S/W Version : V0.9

Lat / Long : N+094.657840 W-038.918890

Configuration - 800/900

AMP Configuration

AMP - 2

Configuration

Downlink					
DL Attenuation 800	12.0	dB	DL ALC Limit 800	27.0	dBm
DL Attenuation 900	12.0	dB	DL ALC Limit 900	5.0	dBm
DL AMP Control	OFF		DL Low RSSI(-8dB)	-93.0	dBm
DL Low Rf Power	2.0	dBm			

Uplink					
UL Attenuation 800	0.0	dB	UL ALC Limit 800	27.0	dBm
UL Attenuation 900	0.0	dB	UL ALC Limit 900	27.0	dBm
UL AMP Control	OFF				

Common

Cascade code : amp2-1234567890

Delay Alarm Reporting Minutes	0				
AMP Temperature UpperLimit	185	°F	DFM Temperature UpperLimit	200	°F
Shutdown Control	OFF		Gain Balance value	0.0	dB
Gain Balance Control	OFF		AOC Control	OFF	

Band Selection

800 Band Select	7M
900 Band Select	5M

Done Internet

Alarm Configuration Menu

- Click „1900” link to check alarm configuration of 1900AMP.
- In case that Report Alarms is OFF, all alarms will be disabled. In case that Report Alarm is ON, you can enable and disable individual alarms.

SpeedCell System

Alarm Configuration

Alarm Configuration - 1900

Index	Alarm	Status	Activity	SNMP Mapping
1	ALM_AMP_LINKFAIL	Enable	<input type="checkbox"/>	RF Power
2	ALM_DFM_LINKFAIL	Enable	<input type="checkbox"/>	RF Power
3	ALM_PSU_OVER_TEMP	Enable	<input type="checkbox"/>	Over Temperature
4	ALM_PSU_VOLTAGE	Enable	<input type="checkbox"/>	Under Current
5	ALM_PSU_CURRENT	Enable	<input type="checkbox"/>	Under Current
6	ALM_1900_DFM_UNIT	Enable	<input type="checkbox"/>	RF Power
7	ALM_1900_DFM_SERVICE_ID	Enable	<input type="checkbox"/>	RF Power
8	ALM_1900_DFM_DL_LOW_INPUT	Enable	<input type="checkbox"/>	RSSI
9	ALM_1900_DFM_OVER_TEMP	Enable	<input type="checkbox"/>	Over Temperature
10	ALM_1900_AMP_DL_LOW_OUTPUT	Enable	<input type="checkbox"/>	RF Power
11	ALM_1900_AMP_DL_OVER_OUTPUT	Enable	<input type="checkbox"/>	RF Power
12	ALM_1900_AMP_UL_OVER_OUTPUT	Enable	<input type="checkbox"/>	RF Power
13	ALM_1900_AMP_OSCILLATION	Enable	<input type="checkbox"/>	RF Power
14	ALM_1900_AMP_UNIT	Enable	<input type="checkbox"/>	RF Power
15	ALM_1900_AMP_DL_VSWR	Enable	<input type="checkbox"/>	VSWR
16	ALM_1900_AMP_OVER_TEMP	Enable	<input type="checkbox"/>	Over Temperature

Alarm Configuration Menu

- Click „800/900“ link to check alarm configuration of 1900AMP.
- In case that Report Alarms is OFF, all alarms will be disabled. In case that Report Alarm is ON, you can enable and disable individual alarms.

SpeedCell System

Alarm Configuration

Alarm Configuration - 800/900

Index	Alarm	Status	Activity	SNMP Mapping
1	ALM_AMP_LINKFAIL	Enable	<input checked="" type="checkbox"/>	RF Power
2	ALM_DFM_LINKFAIL	Enable	<input checked="" type="checkbox"/>	RF Power
3	ALM_PSU_OVER_TEMP	Enable	<input checked="" type="checkbox"/>	Over Temperature
4	ALM_PSU_VOLTAGE	Enable	<input checked="" type="checkbox"/>	Under Current
5	ALM_PSU_CURRENT	Enable	<input checked="" type="checkbox"/>	Under Current
6	ALM_800/900_DFM_UNIT	Enable	<input checked="" type="checkbox"/>	RF Power
7	ALM_800/900_DFM_SERVICE_ID	Enable	<input checked="" type="checkbox"/>	RF Power
8	ALM_800/900_DFM_DL_LOW_INPUT	Enable	<input checked="" type="checkbox"/>	RSSI
9	ALM_800/900_DFM_OVER_TEMP	Enable	<input checked="" type="checkbox"/>	Over Temperature
10	ALM_800/900_AMP_DL_LOW_OUTPUT	Enable	<input checked="" type="checkbox"/>	RF Power
11	ALM_800/900_AMP_DL_OVER_OUTPUT	Enable	<input checked="" type="checkbox"/>	RF Power
12	ALM_800/900_AMP_UL_OVER_OUTPUT	Enable	<input checked="" type="checkbox"/>	RF Power
13	ALM_800/900_AMP_OSCILLATION	Enable	<input checked="" type="checkbox"/>	RF Power
14	ALM_800/900_AMP_UNIT	Enable	<input checked="" type="checkbox"/>	RF Power
15	ALM_800/900_AMP_DL_VSWR	Enable	<input checked="" type="checkbox"/>	VSWR
16	ALM_800/900_AMP_OVER_TEMP	Enable	<input checked="" type="checkbox"/>	Over Temperature

Communication Configuration Menu

- Click on the „Communications Configuration‘ link.
- On this page you can change various values related to IP network. Because Web UI is based on IP network, incorrect configuration may make it impossible to connect to Web UI. In that case, you can troubleshoot as described in the Command Line Interface (CLI) section.
- In case that screen resolution is 1024 x 768, you may need to use scroll bar to view all.

SpeedCell System

Communications Configuration

Network

SNMP Information

SNMP COMMUNITY	public	<input type="checkbox"/>
Heartbeat Server IP Address	10 . 10 . 10 . 46	<input type="checkbox"/>
Heartbeat Port No	162 ports	<input type="checkbox"/>
Heartbeat Interval(0-120)	30 Minutes	<input type="checkbox"/>
Alarm Server IP Address	10 . 10 . 10 . 46	<input type="checkbox"/>
Alarm Port No	161 ports	<input type="checkbox"/>

Warning : If IP address is changed, connection will be lost.

Wireless Network Information

DHCP Client	Disable	<input type="checkbox"/>
IP Address	10 . 10 . 10 . 29	<input type="checkbox"/>
Subnet Mask	255 . 255 . 255 . 0	<input type="checkbox"/>
Gateway	0 . 0 . 0 . 0	<input type="checkbox"/>

Local Network Information

DHCP Server	Enable	<input type="checkbox"/>
Static IP Address	192 . 168 . 1 . 1	<input type="checkbox"/>

<http://192.168.1.1/command.cgi?page=communications>

Communication Configuration Menu

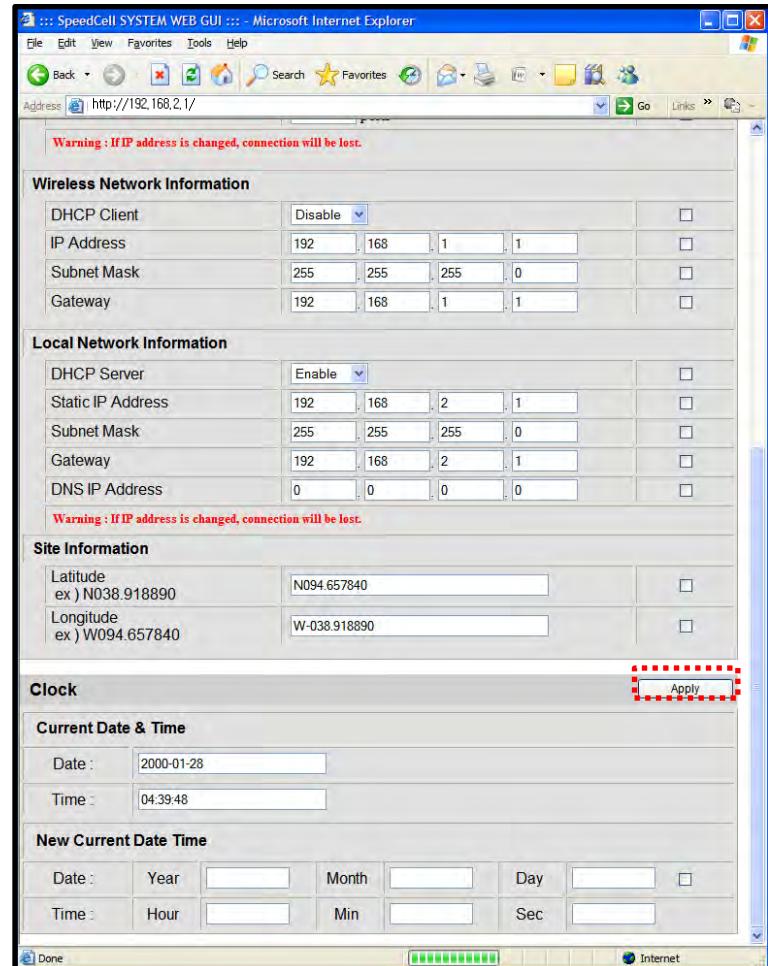
- On this page you can change various values related to IP network.
- Changes will not take effect until you click "Apply" button.
- In case that screen resolution is 1024 x 768, you may need to use scroll bar to view all.

In the line <Obtain IP address automatically> "Static" means connection using a fixed IP.

"DHCP" means connection using DHCP, where If "DHCP Client" is "ON", then the repeater will run as a DHCP client.

If "DHCP Client" is "OFF", then the repeater will get a Static IP.

"DHCP" means connection using DHCP, where If "DHCP Server" is "ON", then the repeater will run as a DHCP server.



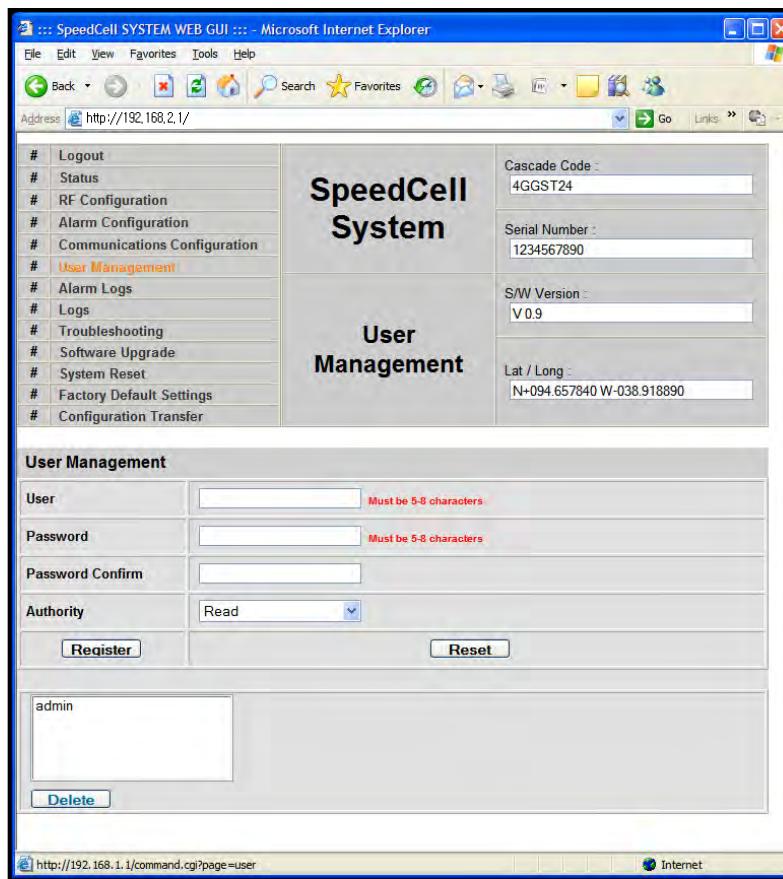
The screenshot shows a Microsoft Internet Explorer window titled "SpeedCell SYSTEM WEB GUI :: - Microsoft Internet Explorer". The address bar shows "http://192.168.2.1/". The main content area contains several configuration sections:

- Wireless Network Information:** Includes fields for DHCP Client (Disable), IP Address (192.168.1.1), Subnet Mask (255.255.255.0), and Gateway (192.168.1.1).
- Local Network Information:** Includes fields for DHCP Server (Enable), Static IP Address (192.168.2.1), Subnet Mask (255.255.255.0), Gateway (192.168.2.1), and DNS IP Address (0.0.0.0).
- Site Information:** Includes fields for Latitude (N094.657840) and Longitude (W038.918890).
- Clock:** Contains "Current Date & Time" fields for Date (2000-01-28) and Time (04:39:48). It also includes "New Current Date Time" fields for Date (Year, Month, Day) and Time (Hour, Min, Sec).

A red dashed box highlights the "Apply" button located in the Clock section.

User Management Menu

- Click on the „User Management“ link.
- On this page you can create and delete users, change passwords, and assign authorities to individual users.
- Read will only allow the user to view information on the menu pages, but cannot make any changes.
- Read/Write Authority means that the user can view and change various values.
- Super User is very similar to an Administrator account...



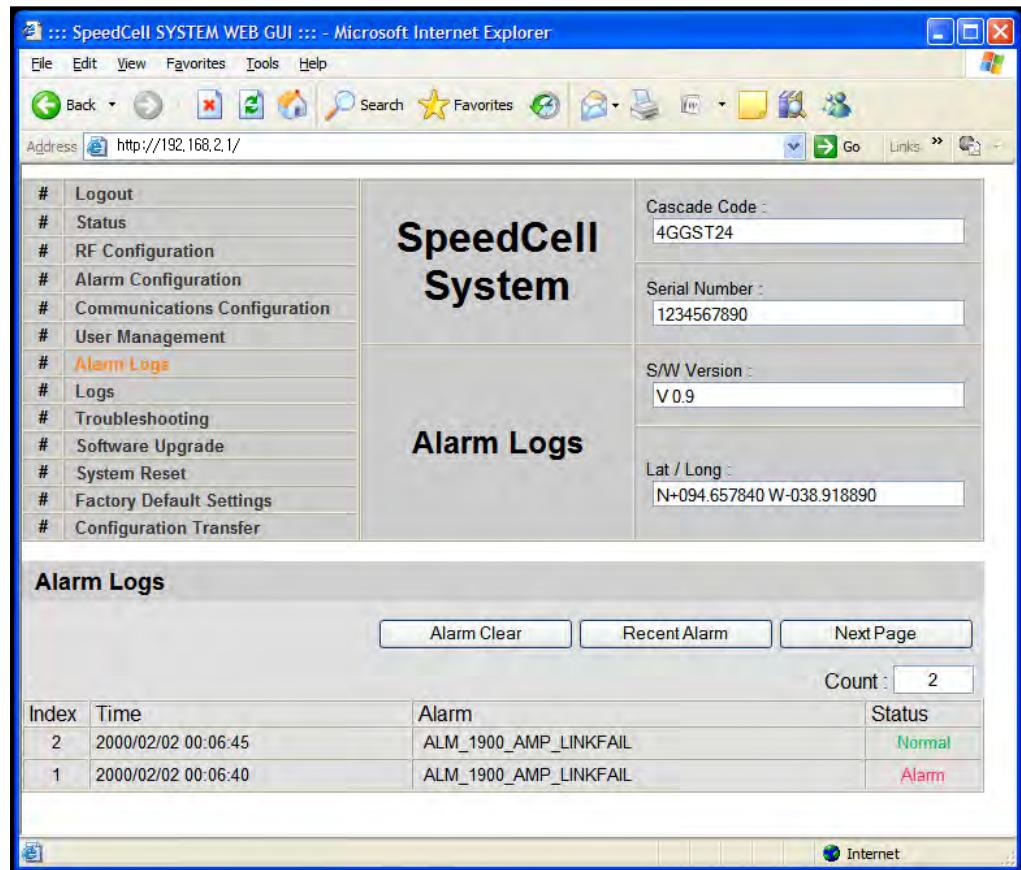
The screenshot shows a Microsoft Internet Explorer window displaying the SpeedCell SYSTEM WEB GUI. The address bar shows the URL <http://192.168.2.1/>. The left sidebar contains a navigation menu with items like Logout, Status, RF Configuration, Alarm Configuration, Communications Configuration, User Management (which is highlighted in orange), Alarm Logs, Logs, Troubleshooting, Software Upgrade, System Reset, Factory Default Settings, and Configuration Transfer. The main content area has two sections: 'SpeedCell System' and 'User Management'. The 'SpeedCell System' section displays system information: Cascade Code (4GGST24), Serial Number (1234567890), S/W Version (V0.9), and Lat / Long (N+094.657840 W-038.918890). The 'User Management' section contains a form for creating a new user. It has fields for User (admin), Password, Password Confirm, and Authority (set to Read). Below the form is a table showing the current user 'admin'. A 'Delete' button is present in the table row. At the bottom of the page, the URL <http://192.168.1.1/command.cgi?page=user> is shown in the status bar.

CAUTION

 DO NOT DELETE ‘admin’.

Alarm Logs

- Click on the Alarm Logs link.
- You can see a history of reported and reset Alarms.
When an alarm is reported, the name and time of the alarm is displayed along with it's current status.
Red color means that the alarm is reported, and green color means that the alarm has returned to normal status.
- After an Alarm condition lasts for the “Delay Alarm Reporting Minutes” set in RF Configuration page, the Alarm will be reported.



The screenshot shows a Microsoft Internet Explorer window displaying the SpeedCell SYSTEM WEB GUI. The title bar reads "SpeedCell SYSTEM WEB GUI :: - Microsoft Internet Explorer". The address bar shows the URL "http://192.168.2.1/". The main content area is divided into several sections:

- Left Sidebar:** A vertical list of navigation links starting with "# Logout" and ending with "# Configuration Transfer". The link "# Alarm Logs" is highlighted in orange.
- System Information:** A group of input fields labeled "Cascade Code : 4GGST24", "Serial Number : 1234567890", "S/W Version : V 0.9", and "Lat / Long : N+094.657840 W-038.918890".
- Alarm Logs Section:** A large section titled "SpeedCell System" containing the heading "Alarm Logs". Below this are buttons for "Alarm Clear", "Recent Alarm", and "Next Page". A "Count : 2" button is also present. A table displays two rows of alarm logs:

Index	Time	Alarm	Status
2	2000/02/02 00:06:45	ALM_1900_AMP_LINKFAIL	Normal
1	2000/02/02 00:06:40	ALM_1900_AMP_LINKFAIL	Alarm

Logs

- Click on the Logs link.
- You can see Logs regarding Web UI operation.
- Logs will maintain a history of up to 30 operations.
- In case that screen resolution is 1024 x 768, you may need to use scroll bar to view all.

SpeedCell System

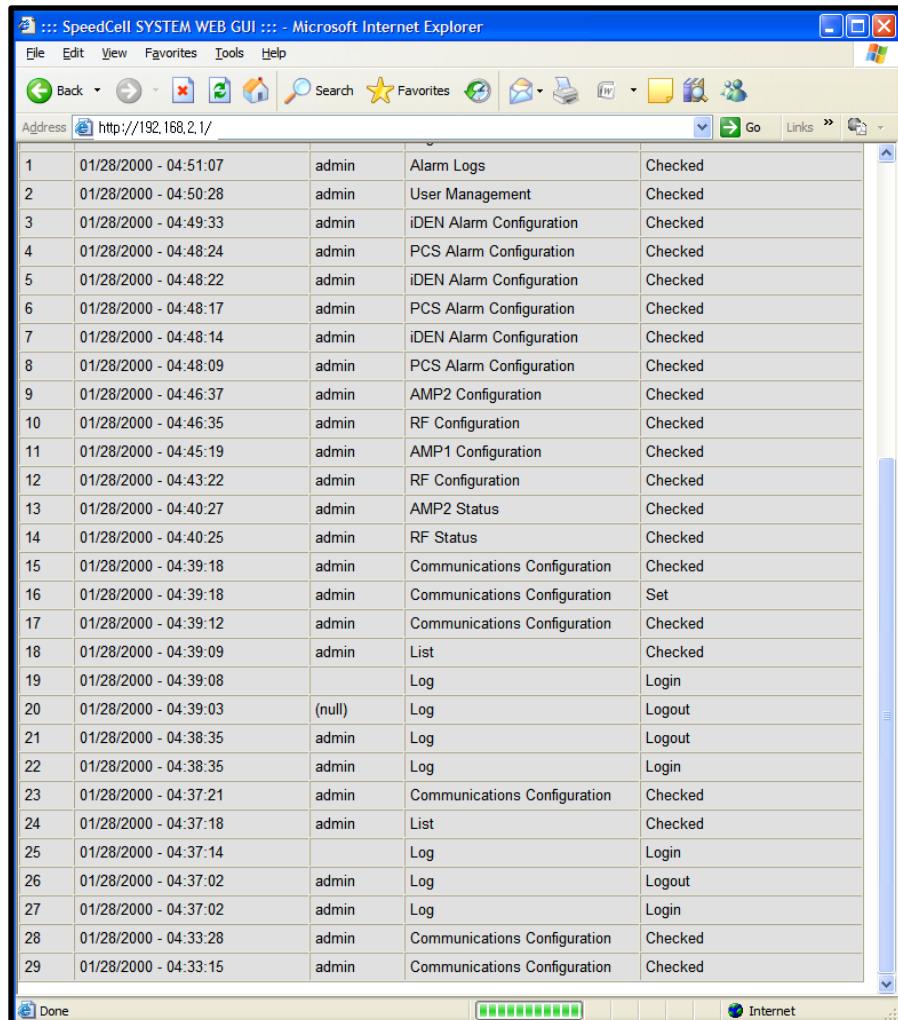
Logs

Index	Time	Session	Category	Event
0	02/02/2000 - 00:13:56	admin	Logs	Checked
1	02/02/2000 - 00:13:36	admin	Alarm Logs	Checked
2	02/02/2000 - 00:13:09	admin	User Management	Checked
3	02/02/2000 - 00:12:43	admin	Communications Configuration	Checked
4	02/02/2000 - 00:12:20	admin	iDEN Alarm Configuration	Checked
5	02/02/2000 - 00:12:17	admin	PCS Alarm Configuration	Checked
6	02/02/2000 - 00:11:51	admin	PCS Alarm Configuration	Checked
7	02/02/2000 - 00:11:03	admin	AMP2 Configuration	Checked
8	02/02/2000 - 00:11:02	admin	RF Configuration	Checked
9	02/02/2000 - 00:10:35	admin	AMP1 Configuration	Checked
10	02/02/2000 - 00:07:29	admin	RF Configuration	Checked
11	02/02/2000 - 00:06:58	admin	AMP2 Status	Checked
12	02/02/2000 - 00:06:57	admin	RF Status	Checked
13	02/02/2000 - 00:06:12	admin	AMP1 Status	Checked

Logs

Continue of Logs page.

- In case that screen resolution is 1024 x 768, you may need to use scroll bar to view all.

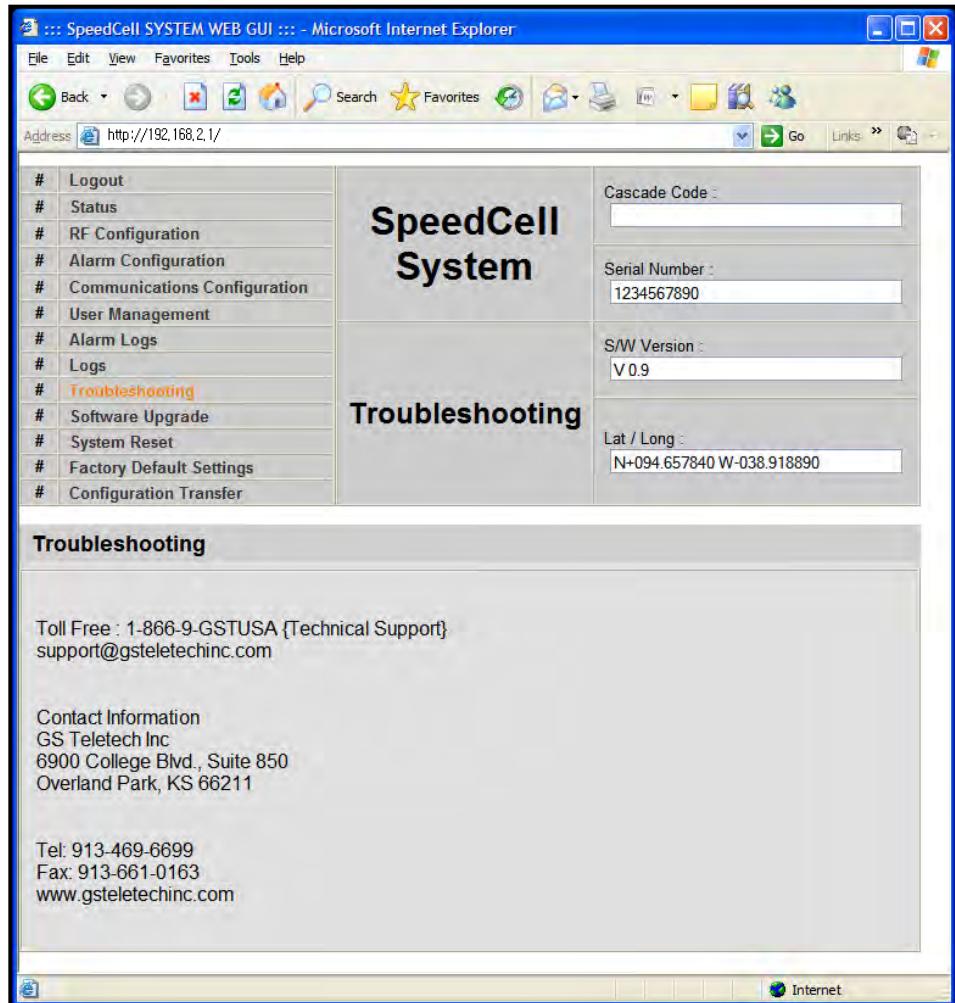


The screenshot shows a Microsoft Internet Explorer window displaying a log history table titled "SpeedCell SYSTEM WEB GUI". The address bar shows the URL <http://192.168.2.1/>. The table has columns for Log ID, Date, User, Category, and Status. The status column contains mostly "Checked" entries, except for row 19 which is "Login". The log entries show various system activities such as alarm logs, user management, configuration changes, and logins/logouts.

1	01/28/2000 - 04:51:07	admin	Alarm Logs	Checked
2	01/28/2000 - 04:50:28	admin	User Management	Checked
3	01/28/2000 - 04:49:33	admin	iDEN Alarm Configuration	Checked
4	01/28/2000 - 04:48:24	admin	PCS Alarm Configuration	Checked
5	01/28/2000 - 04:48:22	admin	iDEN Alarm Configuration	Checked
6	01/28/2000 - 04:48:17	admin	PCS Alarm Configuration	Checked
7	01/28/2000 - 04:48:14	admin	iDEN Alarm Configuration	Checked
8	01/28/2000 - 04:48:09	admin	PCS Alarm Configuration	Checked
9	01/28/2000 - 04:46:37	admin	AMP2 Configuration	Checked
10	01/28/2000 - 04:46:35	admin	RF Configuration	Checked
11	01/28/2000 - 04:45:19	admin	AMP1 Configuration	Checked
12	01/28/2000 - 04:43:22	admin	RF Configuration	Checked
13	01/28/2000 - 04:40:27	admin	AMP2 Status	Checked
14	01/28/2000 - 04:40:25	admin	RF Status	Checked
15	01/28/2000 - 04:39:18	admin	Communications Configuration	Checked
16	01/28/2000 - 04:39:18	admin	Communications Configuration	Set
17	01/28/2000 - 04:39:12	admin	Communications Configuration	Checked
18	01/28/2000 - 04:39:09	admin	List	Checked
19	01/28/2000 - 04:39:08		Log	Login
20	01/28/2000 - 04:39:03	(null)	Log	Logout
21	01/28/2000 - 04:38:35	admin	Log	Logout
22	01/28/2000 - 04:38:35	admin	Log	Login
23	01/28/2000 - 04:37:21	admin	Communications Configuration	Checked
24	01/28/2000 - 04:37:18	admin	List	Checked
25	01/28/2000 - 04:37:14		Log	Login
26	01/28/2000 - 04:37:02	admin	Log	Logout
27	01/28/2000 - 04:37:02	admin	Log	Login
28	01/28/2000 - 04:33:28	admin	Communications Configuration	Checked
29	01/28/2000 - 04:33:15	admin	Communications Configuration	Checked

Troubleshooting

- Click on the Troubleshooting link.
- You can refer to this page for GST's technical support.



The screenshot shows a Microsoft Internet Explorer window displaying the SpeedCell SYSTEM WEB GUI. The address bar shows <http://192.168.2.1/>. The left sidebar menu includes links such as Logout, Status, RF Configuration, Alarm Configuration, Communications Configuration, User Management, Alarm Logs, Logs, Troubleshooting (which is highlighted in orange), Software Upgrade, System Reset, Factory Default Settings, and Configuration Transfer. The main content area features the "SpeedCell System" logo and a "Troubleshooting" section. The troubleshooting section contains contact information: Toll Free : 1-866-9-GSTUSA (Technical Support) and support@gsteletechinc.com. It also lists Contact Information: GS Teletech Inc, 6900 College Blvd., Suite 850, Overland Park, KS 66211. Below this, it provides Tel: 913-469-6699, Fax: 913-661-0163, and the website www.gsteletechinc.com.

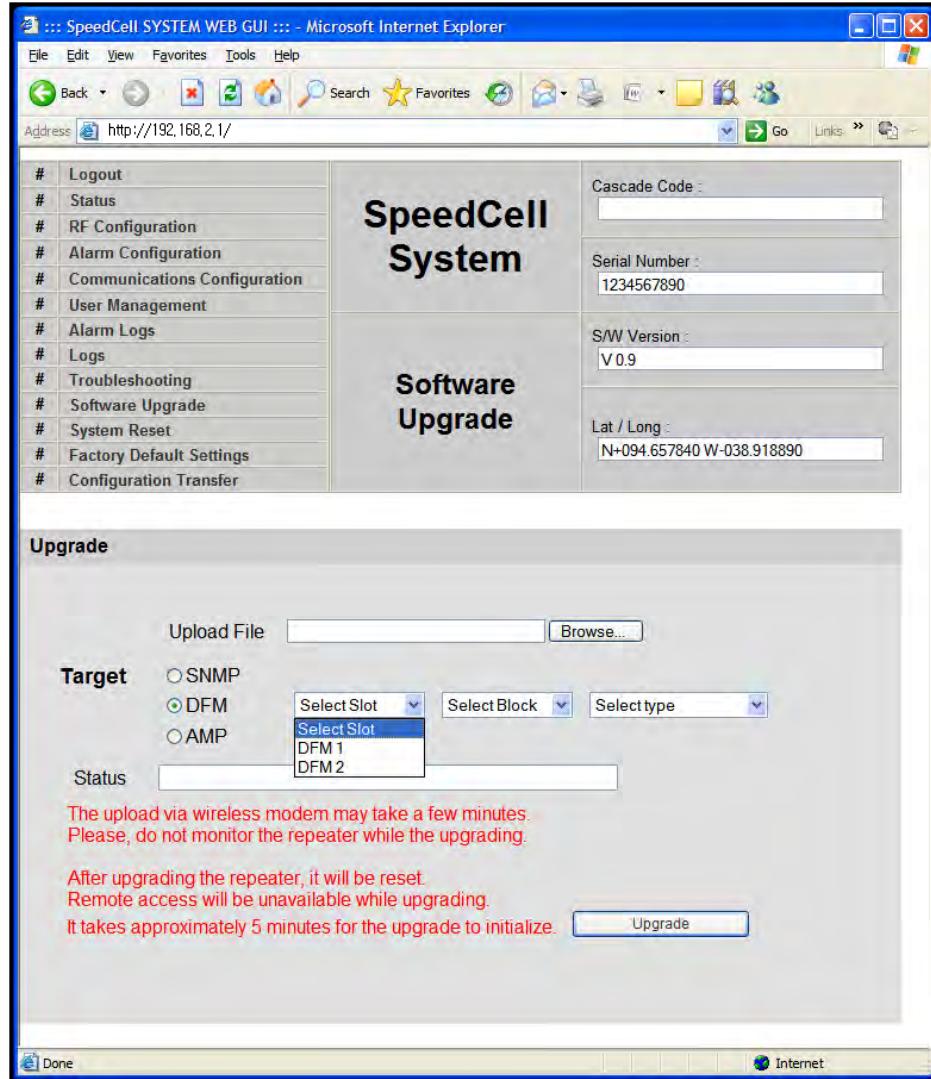
Software Upgrade

- Click on the Remote Software Upgrade link.
- In case that software upgrade is needed, you should use this page.
- Click Browse button to select the file to upgrade from the laptop.
- Choose the file to upgrade provided by GST. After you choose the file, you should click "upload" to send the file from your laptop to the Repeater.
- Provided files are three, need to download each of them.
 - The files are,
 - ① SC_SNMP.MCU
 - ② SC_AMP.AMP
 - ③ SC_DFM.SDR
SC_DFM.SDS

CAUTION



Be careful not to unplug the crossover Ethernet cable during software upgrade.



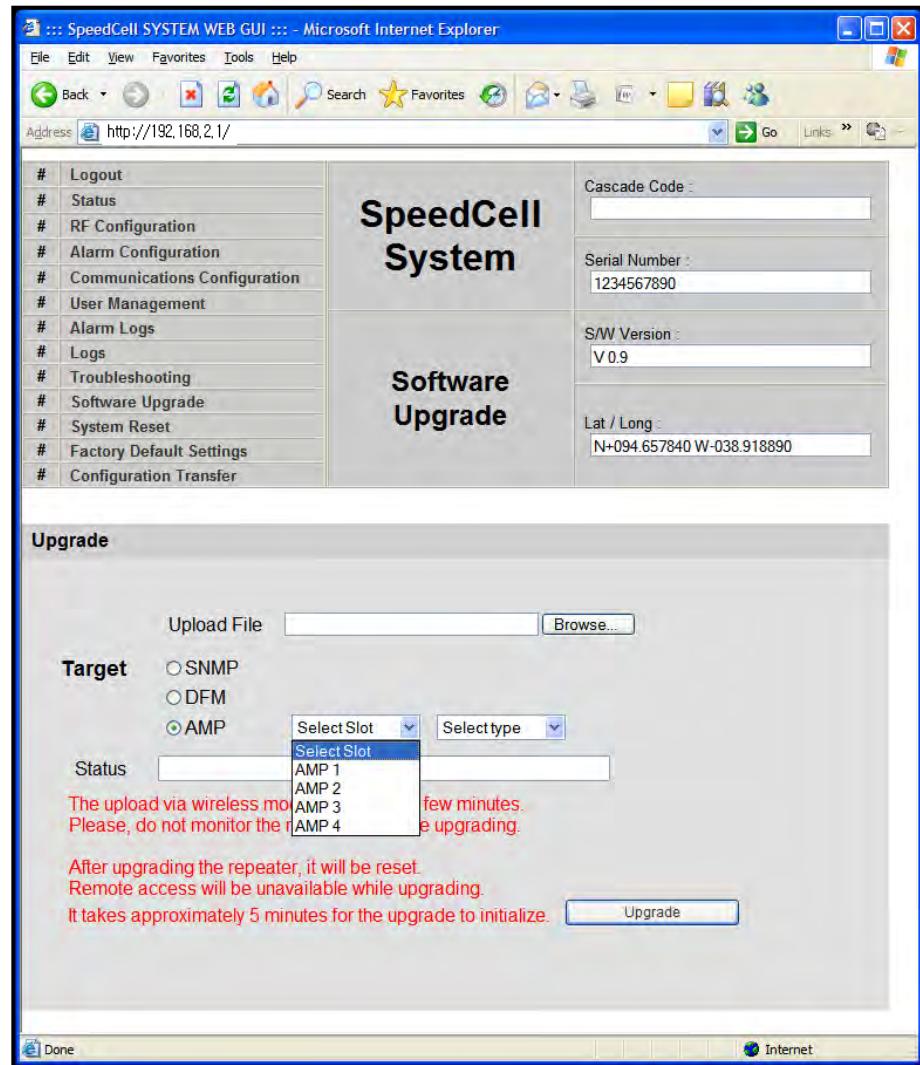
The screenshot shows a Microsoft Internet Explorer window titled "SpeedCell SYSTEM WEB GUI :: - Microsoft Internet Explorer". The address bar shows "http://192.168.2.1/". The left sidebar has a menu with items like Logout, Status, RF Configuration, Alarm Configuration, Communications Configuration, User Management, Alarm Logs, Logs, Troubleshooting, Software Upgrade, System Reset, Factory Default Settings, and Configuration Transfer. The main content area is titled "SpeedCell System" and "Software Upgrade". It displays system information: Cascade Code (empty), Serial Number (1234567890), S/W Version (V0.9), and Lat / Long (N+094.657840 W-038.918890). Below this is an "Upgrade" section with fields for "Upload File" (Browse...), "Target" (SNMP, DFM, AMP), "Select Slot" (dropdown menu showing "Select Slot", "DFM 1", "DFM 2"), "Select Block" (dropdown menu), "Select type" (dropdown menu), and a "Status" field. A note at the bottom says: "The upload via wireless modem may take a few minutes. Please, do not monitor the repeater while the upgrading." Another note below it says: "After upgrading the repeater, it will be reset. Remote access will be unavailable while upgrading. It takes approximately 5 minutes for the upgrade to initialize." There is a blue "Upgrade" button at the bottom right.

Software Upgrade

- After uploading is finished, verify that the File Name and the File Size is correct, then click „Upgrade System’ button.

The lights on the repeater will be blinking and change color during upgrade which will take about two minutes for the upgrade to initialize.

The lights will go back to normal when upgrade is done.



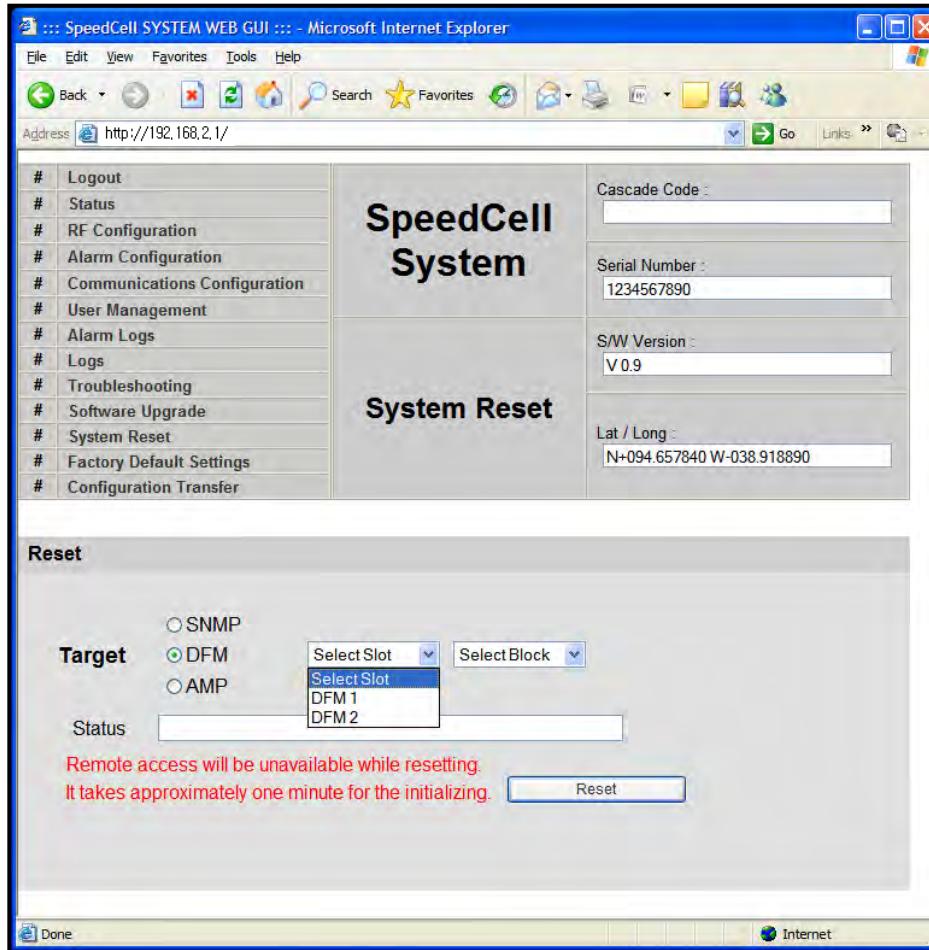
The screenshot shows a Microsoft Internet Explorer window displaying the SpeedCell SYSTEM WEB GUI. The address bar shows `http://192.168.2.1/`. The main content area has a sidebar on the left with a navigation menu:

- # Logout
- # Status
- # RF Configuration
- # Alarm Configuration
- # Communications Configuration
- # User Management
- # Alarm Logs
- # Logs
- # Troubleshooting
- # Software Upgrade
- # System Reset
- # Factory Default Settings
- # Configuration Transfer

The central area is titled "SpeedCell System" and "Software Upgrade". On the right side, there are input fields for "Cascade Code", "Serial Number" (set to 1234567890), "S/W Version" (set to V0.9), and "Lat / Long" (set to N+094.657840 W-038.918890). Below this is a section titled "Upgrade" with fields for "Upload File" (with a "Browse..." button) and "Target" (radio buttons for SNMP, DFM, and AMP, with AMP selected). A dropdown menu "Select Slot" is open, showing options: Select Slot, AMP 1, AMP 2, AMP 3, and AMP 4. A status message in red text says: "The upload via wireless mode may take few minutes. Please, do not monitor the repeater while upgrading." At the bottom, a note says: "After upgrading the repeater, it will be reset. Remote access will be unavailable while upgrading. It takes approximately 5 minutes for the upgrade to initialize." A blue "Upgrade" button is located at the bottom right.

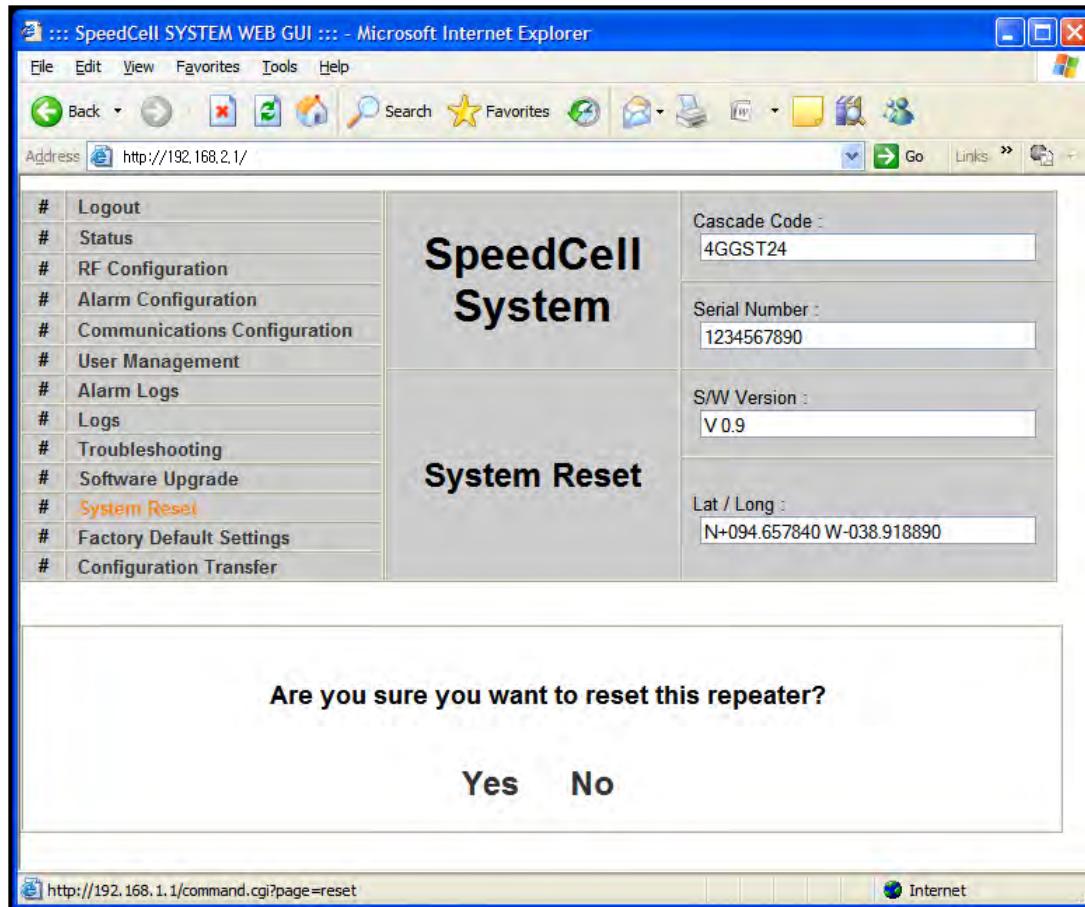
System Reset

- Click 'No' to return to the 'List' menu.
- Click 'Yes' to reset the repeater via a soft-boot. This will not change any of the current settings



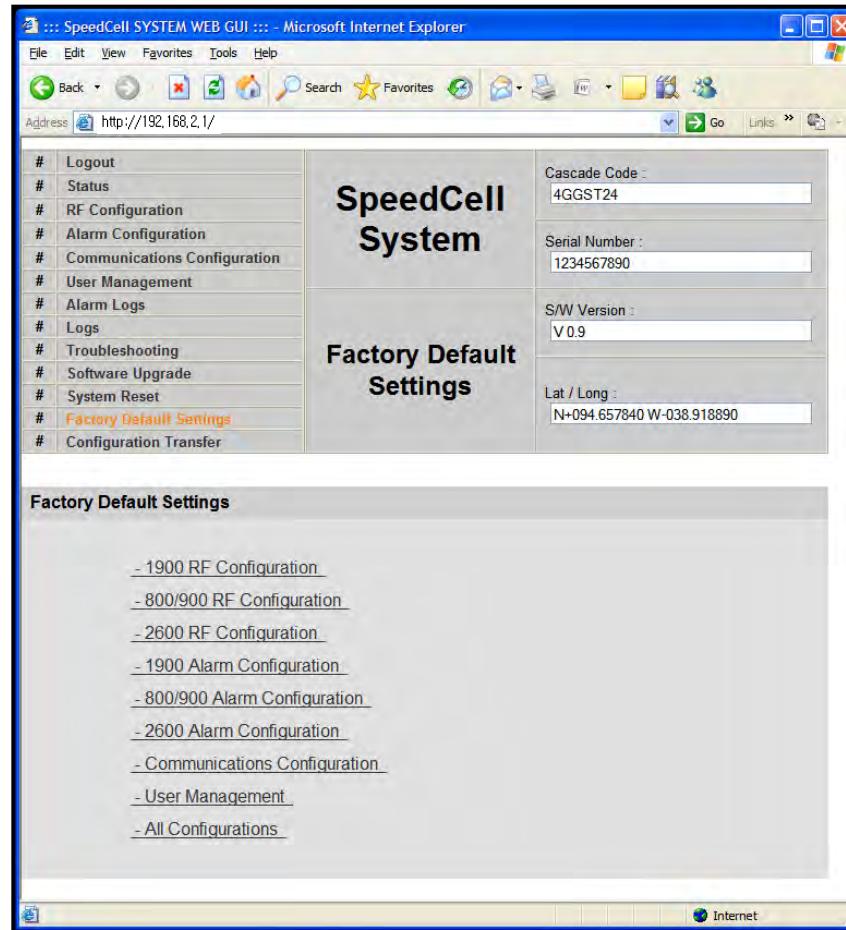
System Reset

- Click 'No' to return to the 'List' menu.
- Click 'Yes' to reset the repeater via a soft-boot. This will not change any of the current settings.



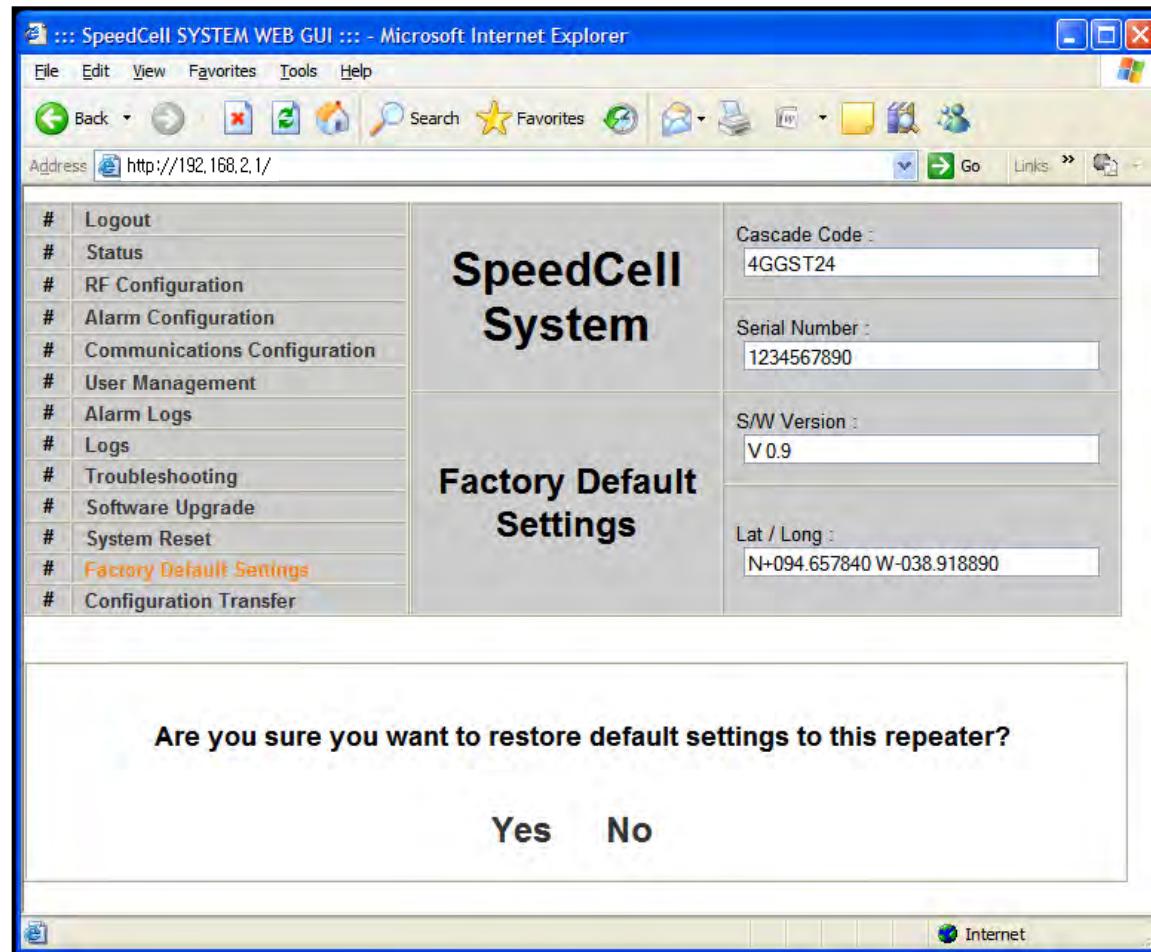
Factory Default Settings

- Choose type of configuration to be restored to factory default settings.



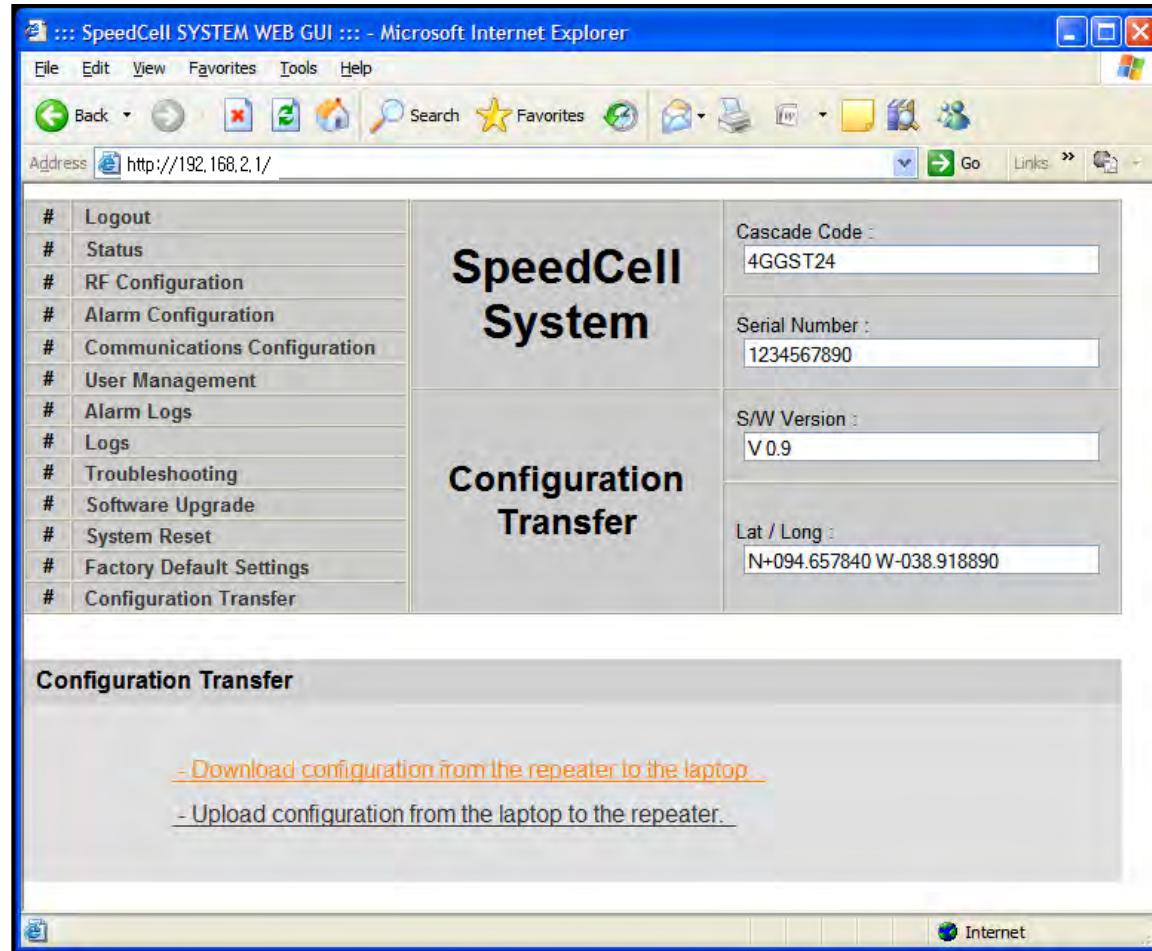
Factory Default Settings

- This function will allow you to roll back to factory default settings.



Configuration Transfer

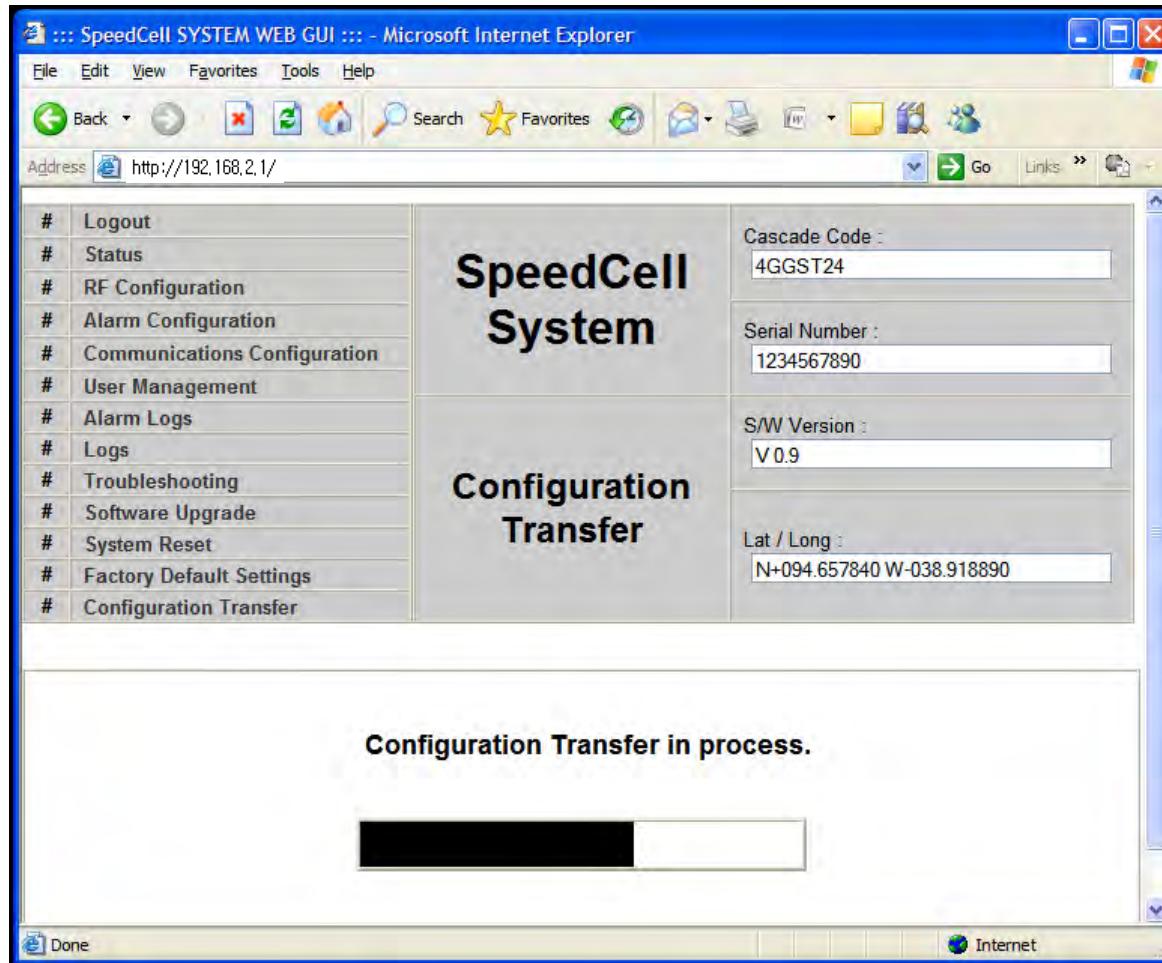
- Configuration Transfer function is for downloading and uploading set values of the repeater.



The screenshot shows a Microsoft Internet Explorer window displaying the SpeedCell SYSTEM WEB GUI. The address bar shows <http://192.168.2.1/>. The left sidebar menu includes options like Logout, Status, RF Configuration, Alarm Configuration, Communications Configuration, User Management, Alarm Logs, Logs, Troubleshooting, Software Upgrade, System Reset, Factory Default Settings, and Configuration Transfer. The main content area features a large "SpeedCell System" logo and a "Configuration Transfer" section. It displays system information: Cascade Code (4GGST24), Serial Number (1234567890), S/W Version (V0.9), and Lat / Long (N+094.657840 W-038.918890). Below this, a "Configuration Transfer" section contains links for "Download configuration from the repeater to the laptop" and "Upload configuration from the laptop to the repeater".

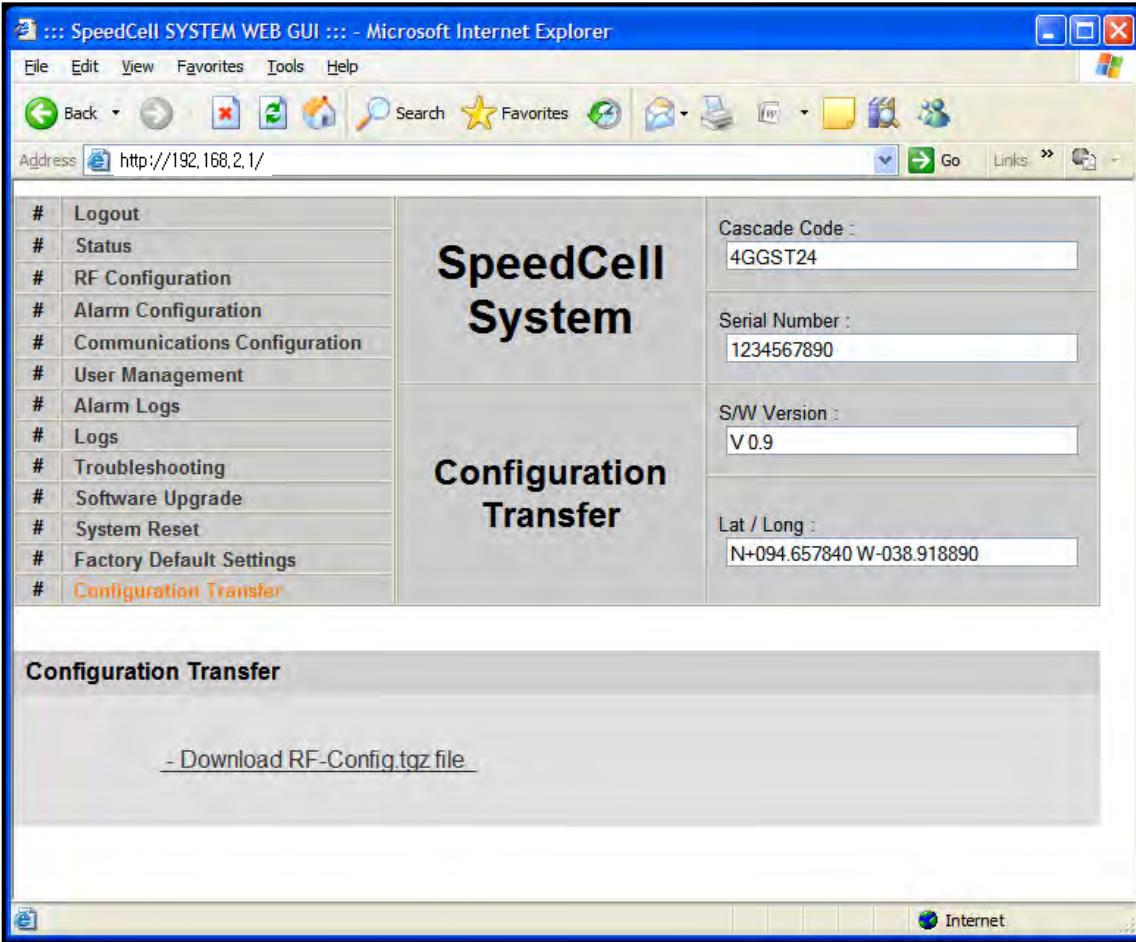
Configuration Transfer: Download

- Configuration Transfer Download Display.



Configuration Transfer

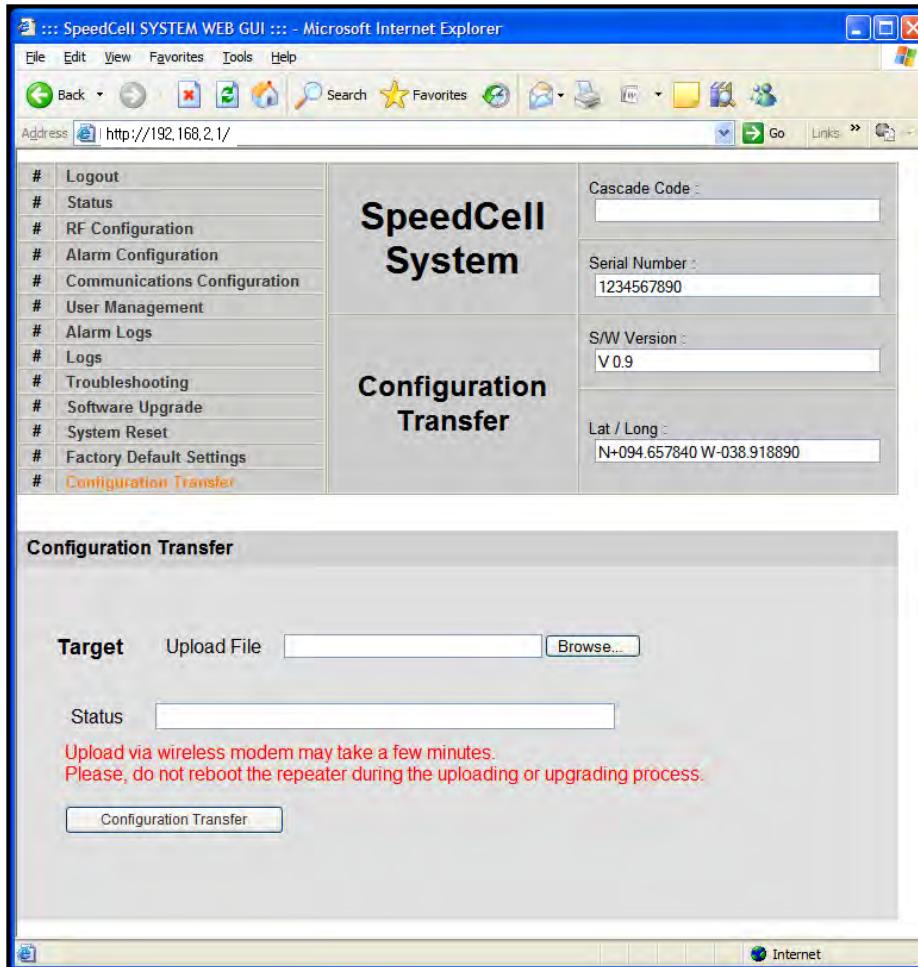
- Downloading process of set values.



The screenshot shows a Microsoft Internet Explorer window displaying the SpeedCell SYSTEM WEB GUI. The address bar shows <http://192.168.2.1/>. The left sidebar menu includes options like Logout, Status, RF Configuration, Alarm Configuration, Communications Configuration, User Management, Alarm Logs, Logs, Troubleshooting, Software Upgrade, System Reset, Factory Default Settings, and Configuration Transfer. The main content area features a large "SpeedCell System" logo and a "Configuration Transfer" section. It displays system information: Cascade Code (4GGST24), Serial Number (1234567890), S/W Version (V0.9), and Lat / Long (N+094.657840 W-038.918890). Below this, a "Configuration Transfer" section contains a link to download the RF-Config.tgz file.

Configuration Transfer: Upload

- Uploading process of set values.
- Verify correct file is selected and click „Configuration Transfer”.

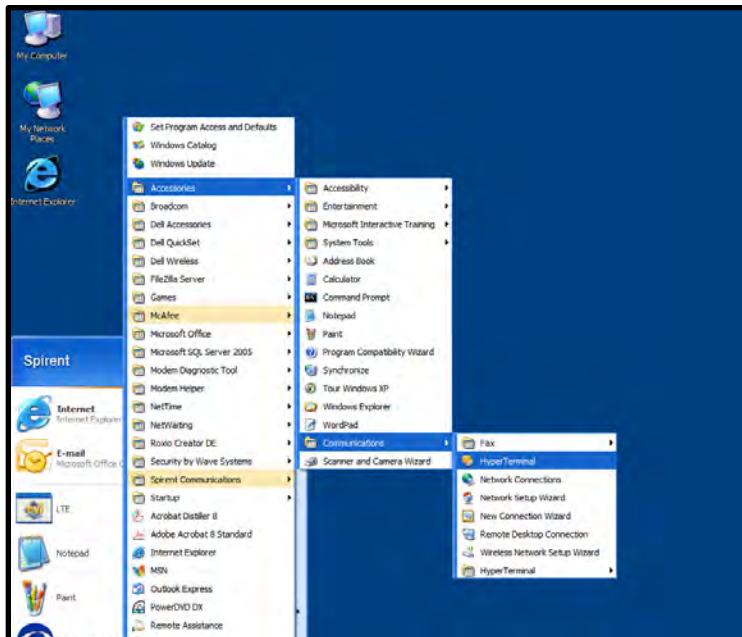


Command Line Interface (CLI)

- In case that you cannot reach Web UI, you should use CLI.
You should connect the equipment's CLI port to your laptop's serial port using RS-232 cable.
In case that your laptop does not have a serial port, you may need to use USB to Serial conversion cable.
- To open HyperTerminal, click "Start", then "Accessories", then "Communications", then "HyperTerminal".

CAUTION

 *RS-232 cable or USB to Serial conversion cable is not provided with the equipment.
After connection, you can access CLI using HyperTerminal.*



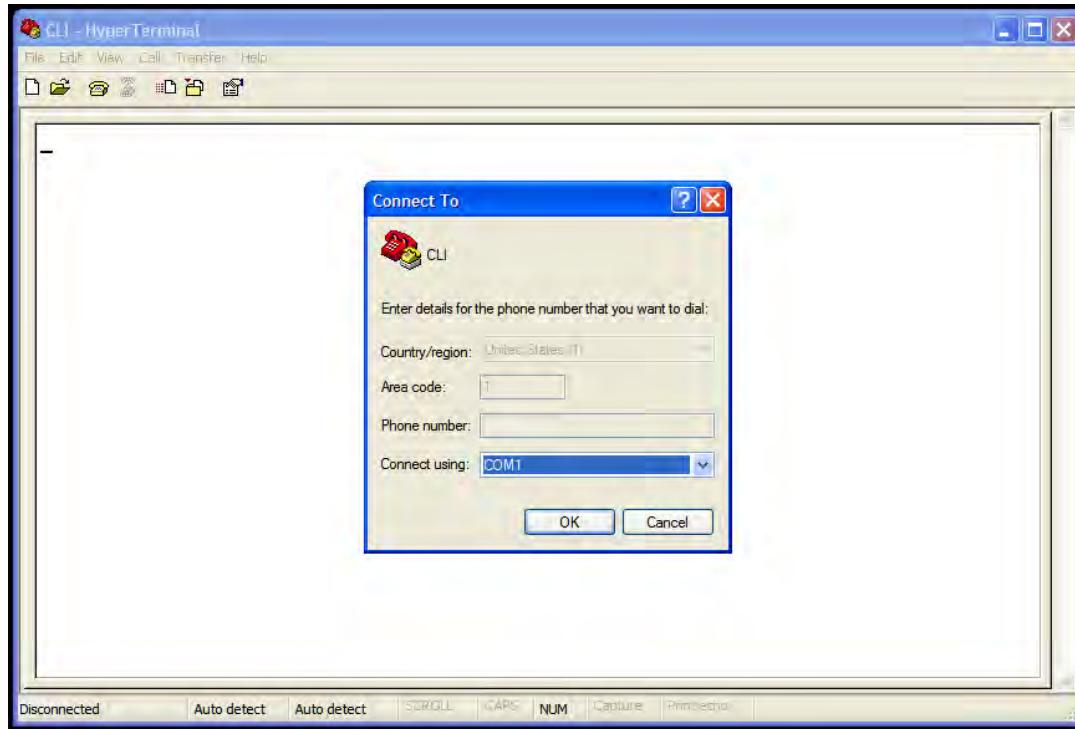
CLI

- To verify and/or change port number, open “Control Panel”, then “System”, then “Hardware Tab”, then “Device Manager”. Double click “Ports”, then double click “Serial Cable” then click “Port Settings” tab, click “Advanced”, in the COM Port drop down menu, select “COM 1”, click “OK”.
- After verification of port number, open HyperTerminal.
- Enter CLI.
- Click “OK”.



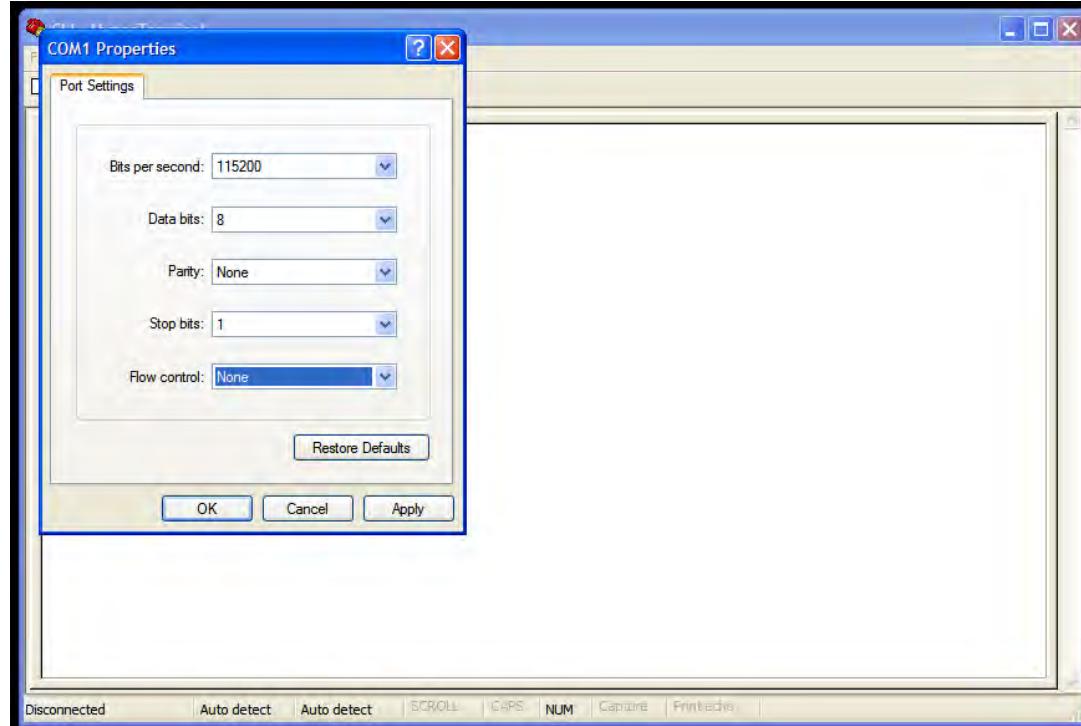
CLI

- In the “Connect using” drop-down menu, select “COM1”.
- Click “OK”.



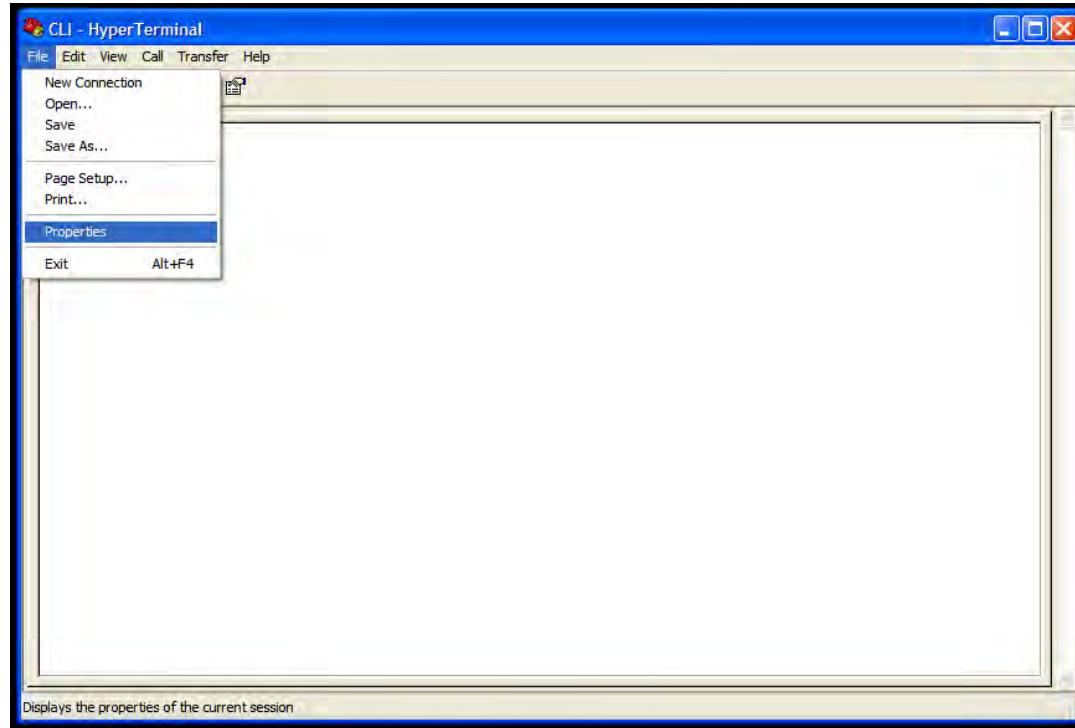
CLI

- “Bit per second” drop down menu, select “115200”.
- “Flow control” drop down menu, select “None”.
- Click “Apply”.
- Click “OK”.



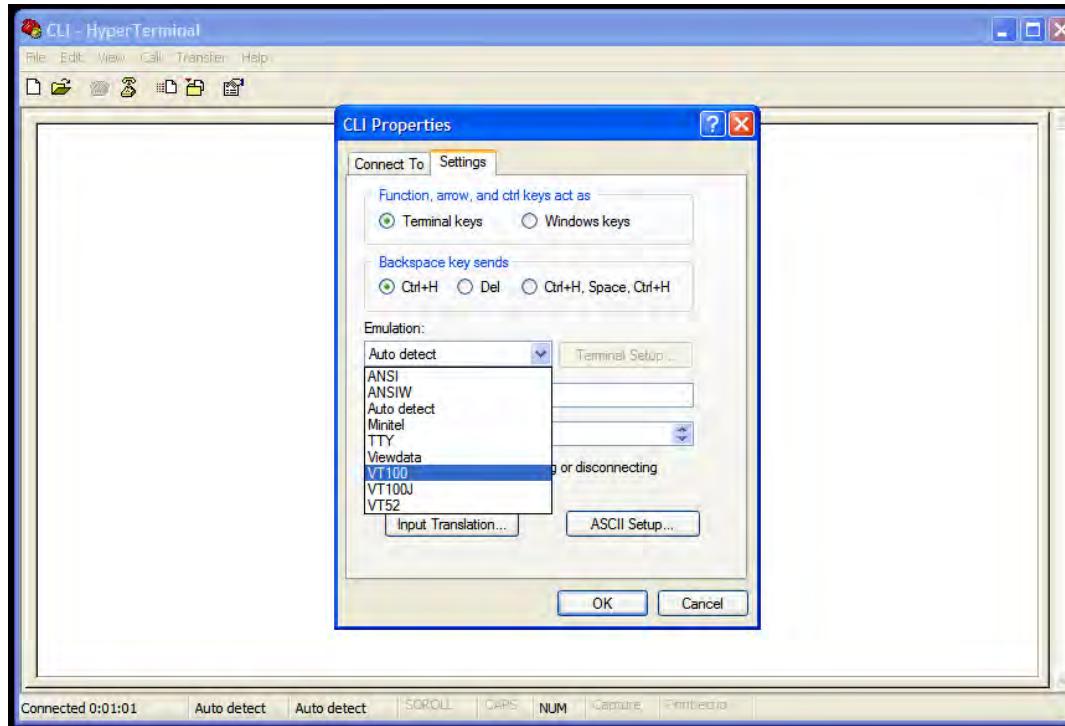
CLI

- Click “File”, choose “Properties”



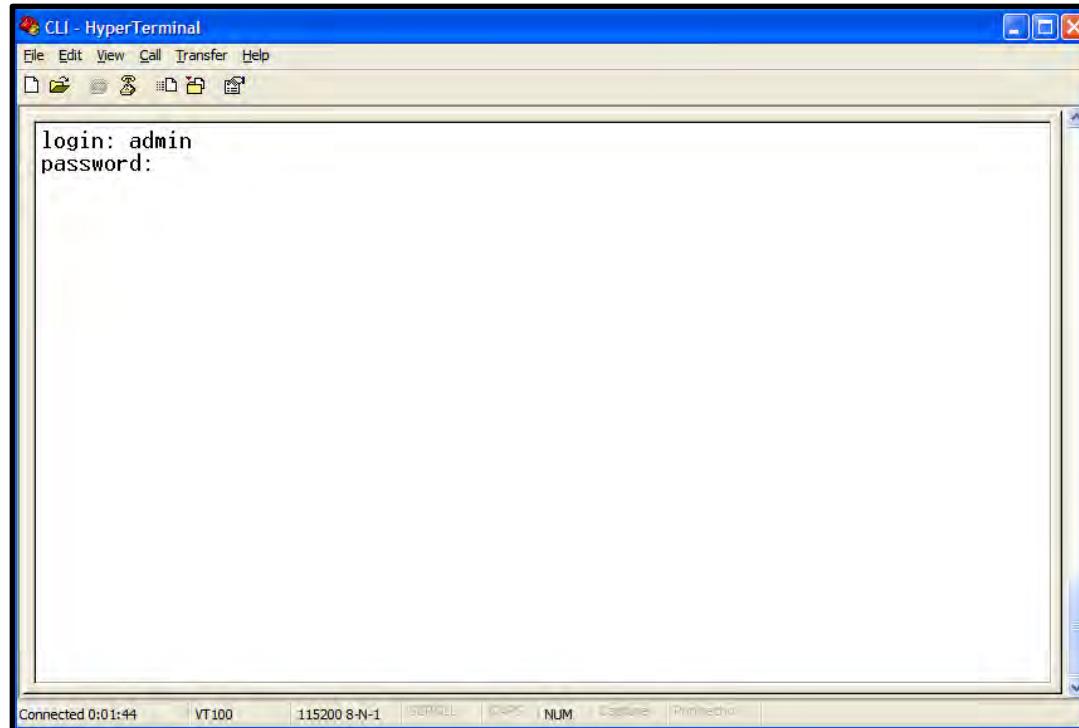
CLI

- On „Settings“ tab.
- „Emulation“ drop down menu, select „VT100“.
- Click „OK“.



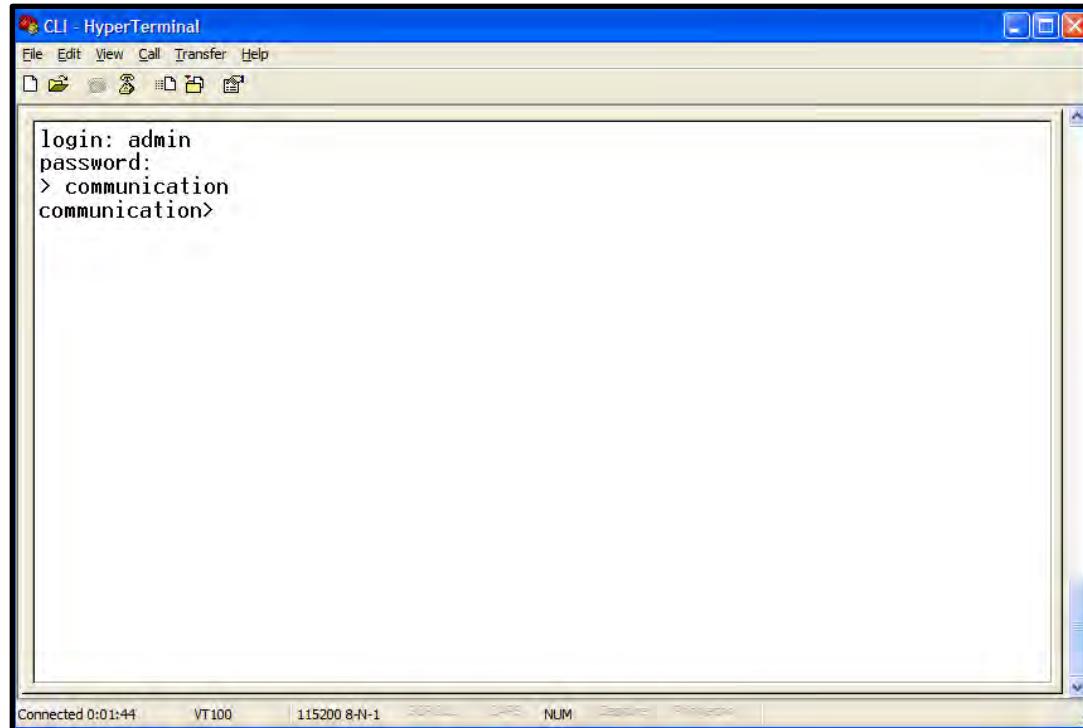
CLI

- In case that you cannot see login prompt, just press enter key several times.
Login is „admin” and Password is „admin”.



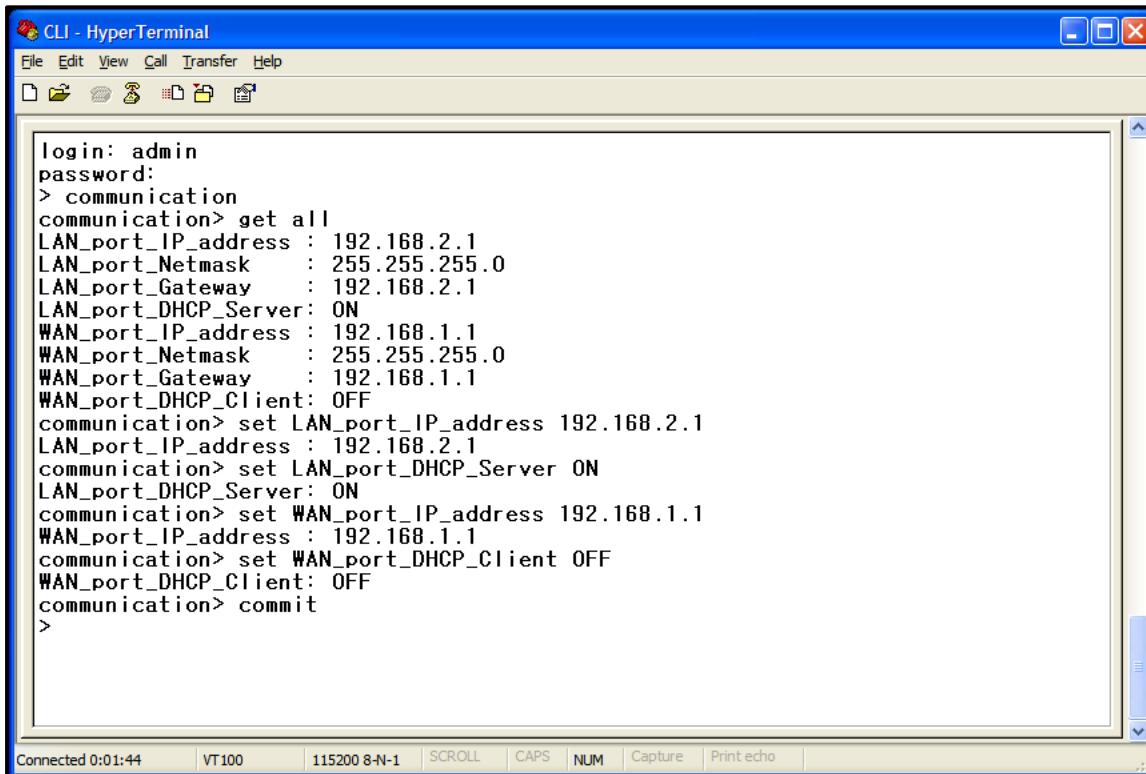
CLI

- In order to verify IP network configuration, you should type „communication”.
- Press enter-key.



CLI

- In order to see values, you should type “get all”, and then press the enter-key.
- Enter the following text:
“set LAN_port_IP_address 192.168.2.1”, then press the enter-key.
“set LAN_port_DHCP_Server ON”, then press the enter-key.
“set WAN_port_IP_address 192.168.1.1”, then press the enter-key.
“set WAN_port_DHCP_Client OFF”, then press the enter-key.
“commit”, then press the enter-key.



The screenshot shows a Windows HyperTerminal window titled "CLI - HyperTerminal". The window has a menu bar with File, Edit, View, Call, Transfer, Help, and a toolbar with icons for copy, paste, cut, etc. The main terminal area displays the following CLI session:

```
login: admin
password:
> communication
communication> get all
LAN_port_IP_address : 192.168.2.1
LAN_port_Netmask   : 255.255.255.0
LAN_port_Gateway   : 192.168.2.1
LAN_port_DHCP_Server: ON
WAN_port_IP_address: 192.168.1.1
WAN_port_Netmask   : 255.255.255.0
WAN_port_Gateway   : 192.168.1.1
WAN_port_DHCP_Client: OFF
communication> set LAN_port_IP_address 192.168.2.1
LAN_port_IP_address : 192.168.2.1
communication> set LAN_port_DHCP_Server ON
LAN_port_DHCP_Server: ON
communication> set WAN_port_IP_address 192.168.1.1
WAN_port_IP_address : 192.168.1.1
communication> set WAN_port_DHCP_Client OFF
WAN_port_DHCP_Client: OFF
communication> commit
>
```

The status bar at the bottom shows "Connected 0:01:44" and various terminal settings like VT100, 115200 8-N-1, SCROLL, CAPS, NUM, Capture, Print echo.

GST Technical Support

Phone:

Toll Free: 1-866-9 GST USA
Phone: 913-469-6699



Write:

GS Teletech Inc.
6900 College Boulevard, Suite 850,
Overland Park, KS 66211, USA



Product Information and Technical Assistance:

www.gsteletechinc.com
support@gsteletechinc.com



Specifications and features of this installation guide are subject to change without notice or obligation.



Warning: Exposure to Radio Frequency Radiation The radiated output power of this device is far below the FCC radio frequency exposure limits. Nevertheless, the device should be used in such a manner that the potential for human contact during normal operation is minimized. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna should not be less than 20cm during normal operation. The gain of the antenna is 12 dBi. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.