WIPAS2
WT Management Tool
Instruction Manual
(Point to Point)

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CONTENTS

1. Management Tool (Master)

1.1. Overview of the Management Tool

Management Tool (MT) is a Web server function integrated in the WT. It is for configuring and monitoring the device. Table 1 shows a functional overview of the MT.

Table 1 Functional overview of the MT (Master)

Item 1	Item 2	Contents
Main Monitor		Displays the transmission rates and radio links.
Monitoring	Event Log	Displays a log of events and a log of changes in the modulation scheme.
	Radio Performance	Displays statistical information on the radio link.
	Link Utilization	Displays the statistical information of the Ethernet frame counter.
	Traffic Counter	Displays the Ingress Rate, Egress Rate and Byte Counter.
	NE State Information	Displays the Radio Link, Network Configuration, Inventory Information, Date and Time, QoS and Traffic Control.
QoS and Traffic Control		Specify the Buffer Size, QoS Priority Class Configuration, COS Assignment for Management Communication, DL/UL Ratio, QoS Priority Mapping, Policing, and Shaping.
Installation	Antenna Alignment	Performs the Antenna Alignment mode.
	Packet Transmission Test	Performs the Packet Transmission Test.
Configuration	Radio	Makes configuration related to radio.
	Network	Makes configuration of IP addresses and SNMP.
	Boot Sector Selection and Initializations	Makes configuration of restart, bank switching, and initialization, and clears the log.
	Date and Time	Makes configuration of time (NTP and manual).
	Configuration Backup	Saves and writes to the configuration file.
	Software Downloading	Downloads the software.
	User Class Password	Makes configuration of passwords.
	Frequency Table	Makes configuration of frequencies.
Logout		Logs you out.

1.2. Logging In

[Operation]

① Connects the MT operation PC and the device over the LAN. Table 2 shows an recommended environment for the PC.

Table 2 Recommended environment for the MT operation PC

No.	Item	Specifications	Remarks
1	Web browser	Windows Internet Explorer Version 8 or higher	
2	Monitor size	1024*768	

② Input the IP address of the device as the URL in the Windows Internet Explorer. The factory default IP address is "192.168.1.100".

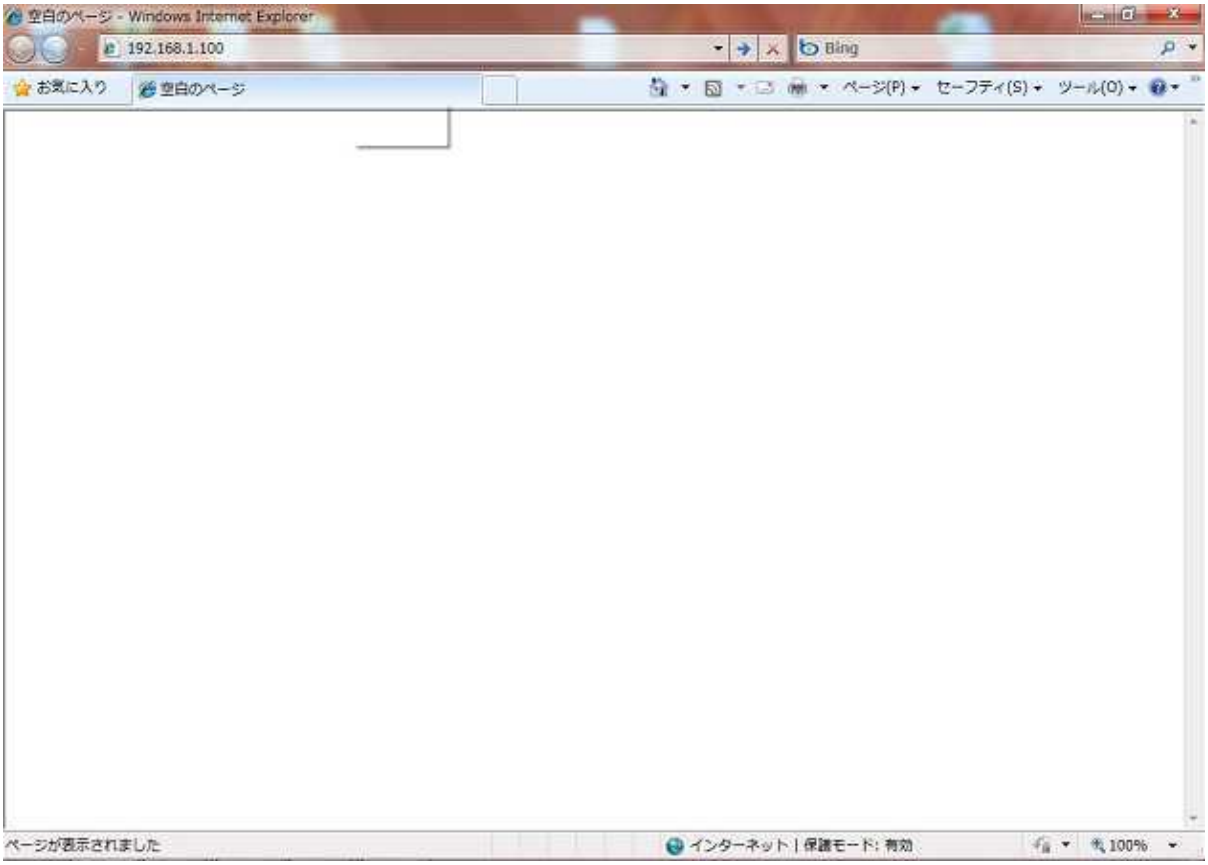


Figure 1 Inputting the IP address to the Internet Explorer

③ A Login window as shown in Figure 2 is displayed.

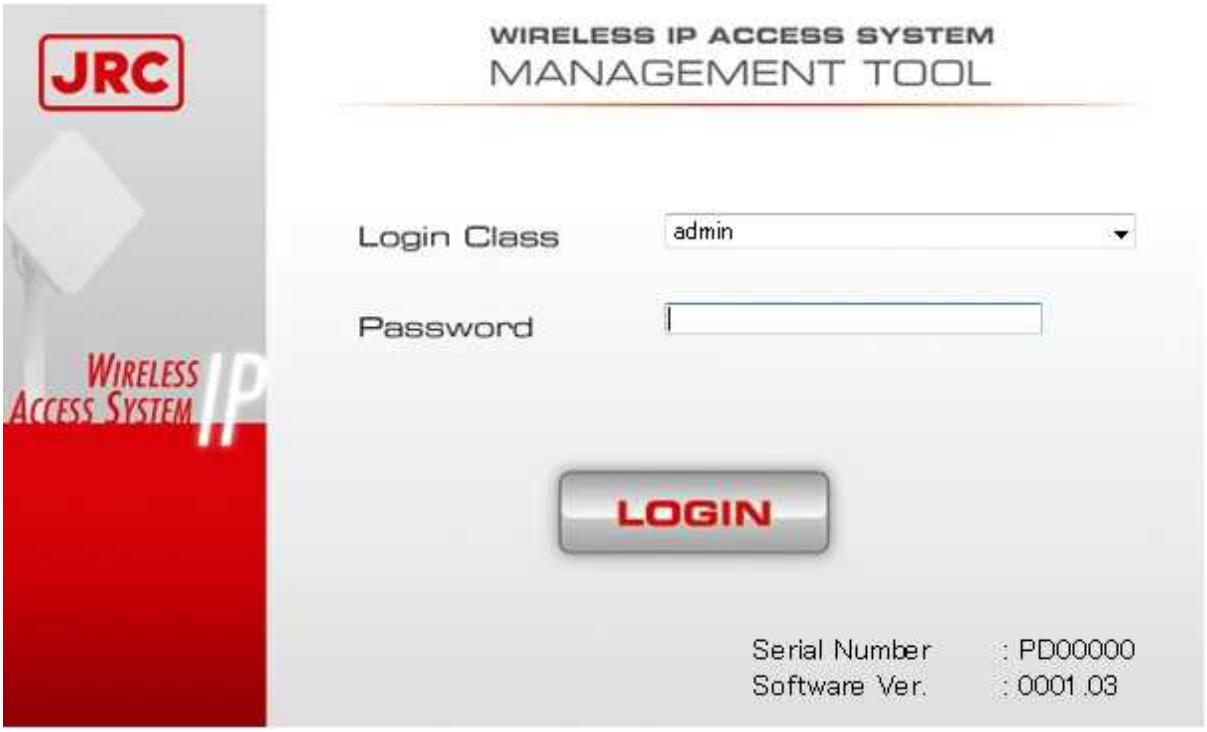


Figure 2 Login window

④ Select a **Login Class**. Selectable login classes are shown in Table 4.

⑤ Input the **Password**. The default password is shown in Table 3.

⑥ **LOGIN** button: Tries to connect to the device.

⑦ If you are successfully logged in, a window shown in Figure 4 is displayed.
If you failed to log in, a Login Failure window shown in Figure 3 is displayed. Clicking **Return to login** will take you back to the Login window shown in Figure 2.

Figure 3 Login Failure window

Table 3 Description of the Login window

No.	Item	Setting range	Description
1	Login Class	admin installation operator monitor	You can select a permission level by the Login Class. Table 4 lists a function of each Login Class.
2	Password	0 - 15 characters	Input the password. Default passwords are: Login Class Password admin admin1234 installation inst1234 operator ope1234 monitor moni1234
3	Login button		You can log in using the above **Login Class** and **Password**.

Table 4 Function of each Login Class

Monitor	Login Class (permission level High ... Low)			
	admin	installation	operator	monitor
Main Monitor	Yes	No	Yes	Yes
Monitoring	Yes	No	Yes	Yes
QoS and Traffic Control	Yes	No	Yes	No
Installation	Yes	Yes	No	No
Configuration	Yes	No	No	No
Logout	Yes	Yes	Yes	Yes

• If an upper or equivalent level user newly logs in while a user is logged in, the user previously logged in will be forced to log out.

• You can check a user who have logged in by selecting a Login Class drop-down list in the Login window.

1.3. Configuration of Main Window

After the login, a main window shown in Figure 4 is displayed. The main window includes a status display part, operation menu part, and operation window part.

(1) Status display part (Equipment status)

This part displays the status of the device. The status display part displays settings (Mode/Symbol Rate/Frequency/CH/Frame ID) in the upper row, and statuses (Status/Radio Link/Authentication/Manag. Com./Ethernet Link/Ethernet Link (Opposite NE) in the lower row.

Anomalies in the status are displayed after evaluating Normal or Failed by ORing each anomaly shown in Table 6.

Table 7 lists causes of anomalies of Manag. Com.

(2) Operation menu part

This part lets you select each function listed in Table 1.

(3) Operation window part

This part displays a window for each function selected in the operation menu part.

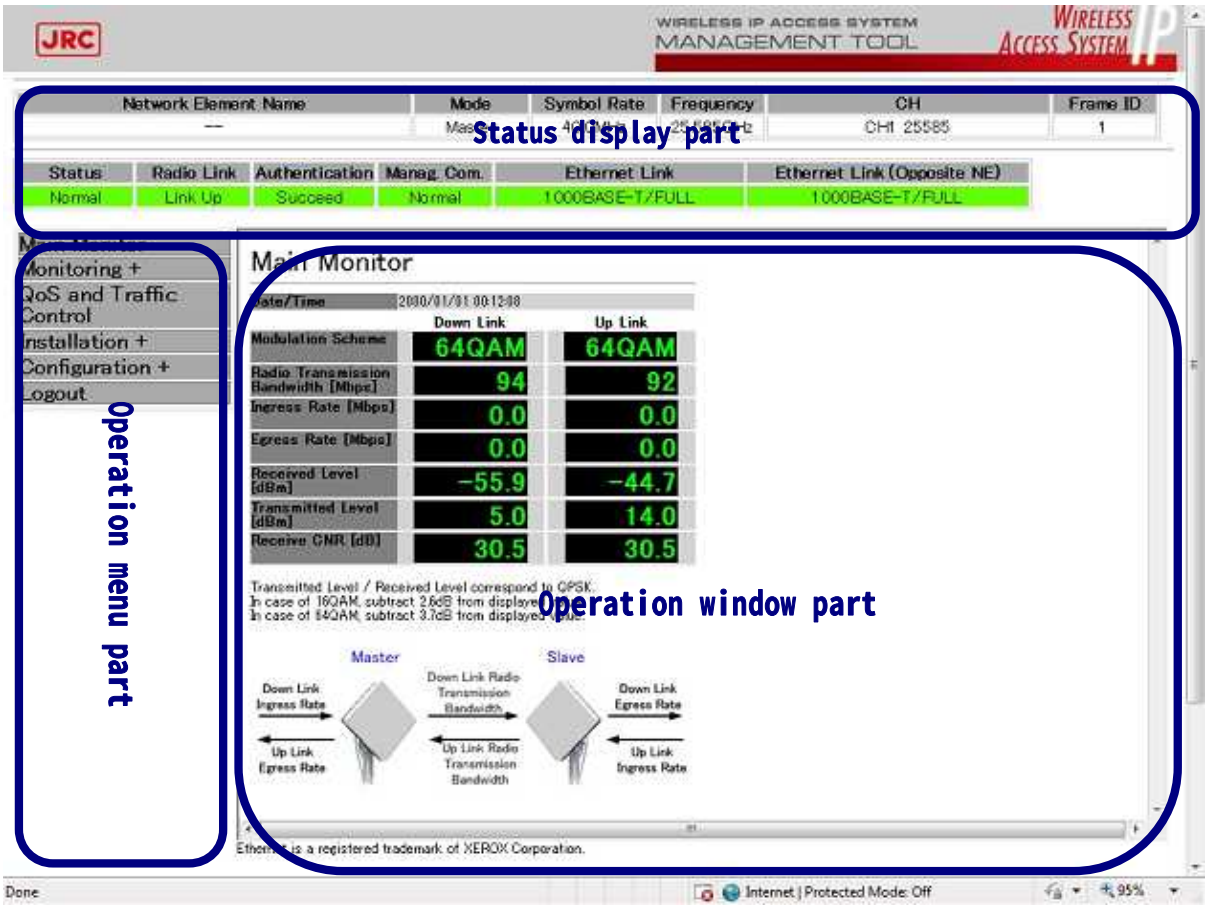


Figure 4 Window after the login

Table 5 Status display list

Status	Display
Network Element Name	Displays the Network Element Name.
Mode	MASTER/SLAVE
Symbol Rate	Displays the symbol rate name set in the NE data.
Frequency	During the carrier sense, "----" is displayed. When the carrier sense is completed and the frequency is determined, the radio frequency channel set in the configuration information is displayed.
CH	During the carrier sense, "-" is displayed. When the carrier sense is completed and the frequency is determined, the channel name set in the configuration information is displayed.
Frame ID	The frame ID set in the configuration information is displayed.
Status	Normal/Failure
Radio Link	Link Up/Link Down
Authentication	Succeed/Failure
Manag. Com.	Normal/Failure
Ethernet Link	Link Down 10BASE-T/HALF 10BASE-T/FULL 100BASE-TX/HALF 100BASE-T/FULL 1000BASE-T/HALF 1000BASE-T/FULL
Ethernet Link (Opposite NE)	Same as in the local station

Table 6 Causes of status anomalies

Item
RF Carrier Unlock
IF Carrier Unlock
TDD SW Failure
PA Failure
PLL Unlock
Device start is abnormal
SPI Failure

Table 7 Causes of anomalies in Manag. Com.

Item
Health check timeout
Modem Synchronization Un-synchronized

1.4. Reflecting the Setting Values (immediate reflection and reflection after restart)

Each window has two kinds of **Setup** buttons. One kind is "reflection after restart" which requires a restart to reflect the setting, and the other kind is "immediate reflection" which does not need a restart to reflect the setting values.

• Reflection after restart

The value is reflected to the Flash ROM at the time the **Setup** button is pressed. The pop-up message to notify that the value is reflected after restart and prompt you to restart is displayed. You can select from **OK** or **Cancel**. If you press **OK**, the device is restarted, and if you press **Cancel**, the device will go back to the previous window without restarting.

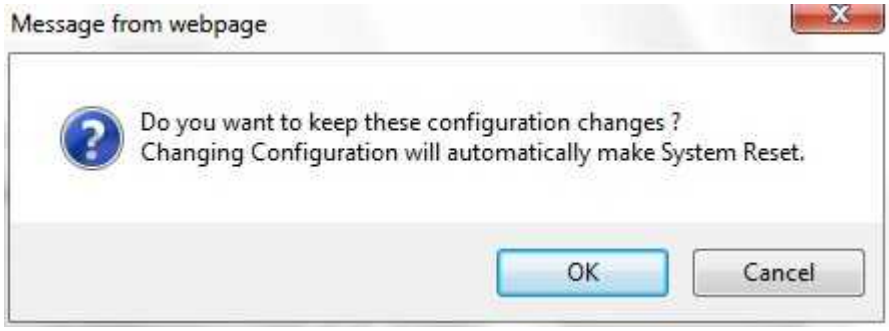


Figure 5 Reflection after restart message

• Immediate reflection

A pop-up message that notifies you that the values are immediately reflected will be displayed (Figure 6). If you click **OK**, the value is immediately reflected. If you click **Cancel**, the device will return to the previous window without reflecting the value.

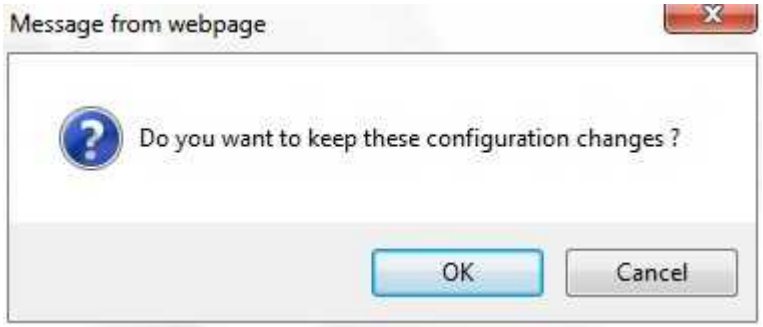


Figure 6 Immediate reflection message

• When the input value exceeds the setting range in the case of direct input, a message as shown in Figure 7 is displayed.

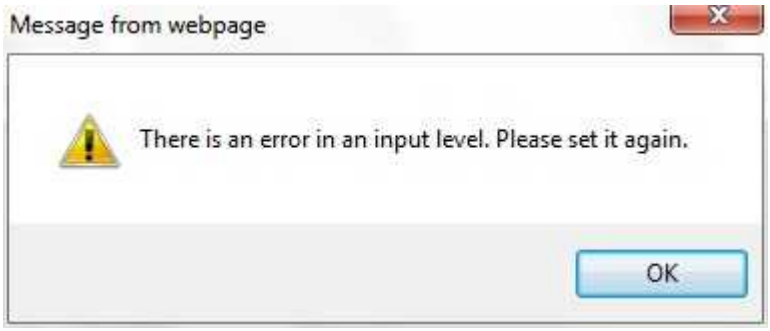


Figure 7 Input value error message

1.5. Main Monitor

When you select the **Main Monitor** from the operation menu part, a **Main Monitor** window is displayed.

The **Main Monitor** window displays the transmission rates and radio links.

A **Main Monitor** window is shown in Figure 8. The description of each item is shown in Table 8.

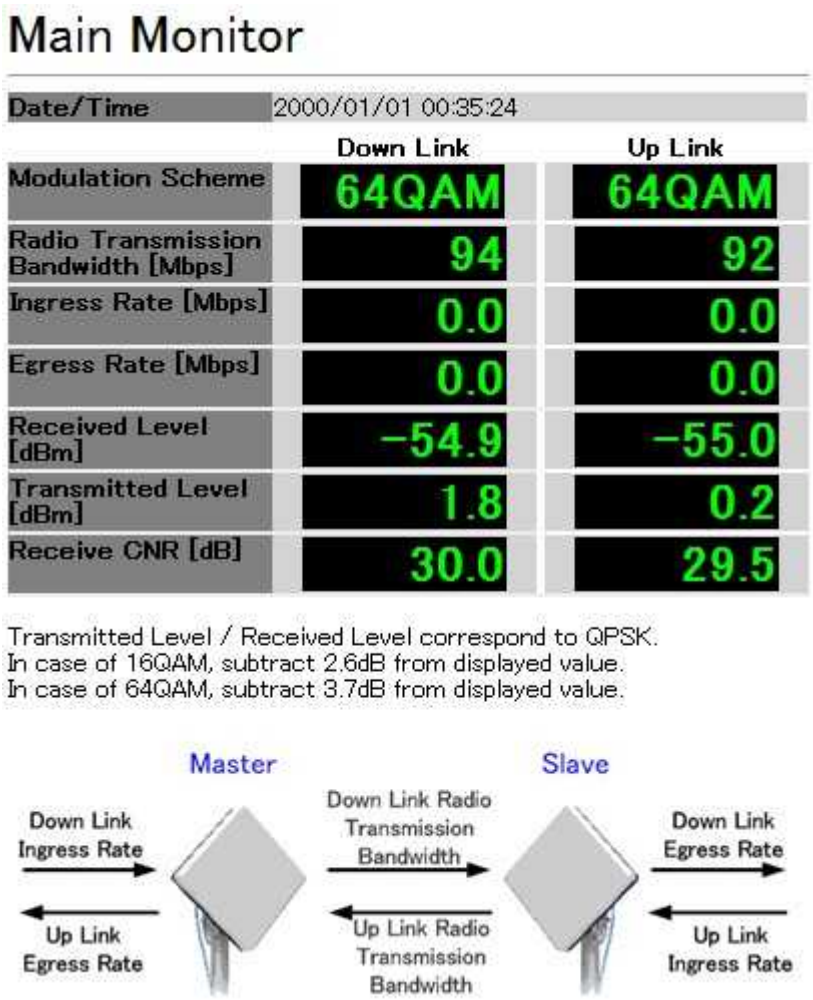


Figure 8 **Main Monitor** window

Table 8 Description of the **Main Monitor** window

No.	Item	Description
1	Date/Time	Displays the time in the device.
2	Modulation Scheme	Displays the current Modulation Scheme.
3	Radio Transmission Bandwidth	Displays the current radio transmission bandwidth.
4	Ingress Rate	Displays the current ingress rate of Ethernet packets.

5	Egress Rate	Displays the current egress rate of Ethernet packets.
6	Received Level	Displays the current receiving level. During Link Down, "-" is displayed.
7	Transmittied Level	Displays the current transmission level. During Link Down: "-" is displayed, but if the ATPC is set to Enable, it is transmitted at the highest transmission level; if the ATPC is set to Disable, it is transmitted at the set transmission level.
8	Receive CNR	Displays the current receiving CNR. During Link Down, "-" is displayed.

1.6. Monitoring

1.6.1. Event Log

When you click **Monitoring** from the operation menu part, a submenu is displayed.

When you select the **Event Log** in the submenu, an Event Log window is displayed.

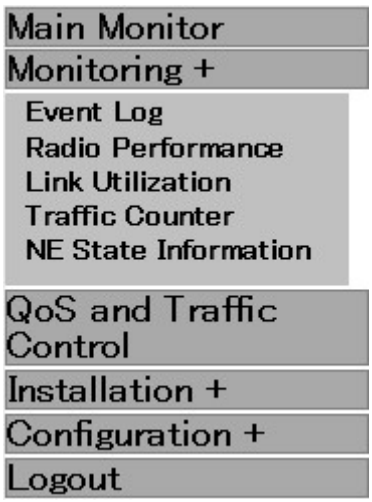


Figure 9 **Monitoring** submenu displayed

An Event Log window is shown in Figure 10.

The Event Log window displays a log of events and a log of changes in the modulation scheme.

Each item is described in Table 9.

The event logs are listed in Table 10. The log of modulation scheme is listed in Table 11.

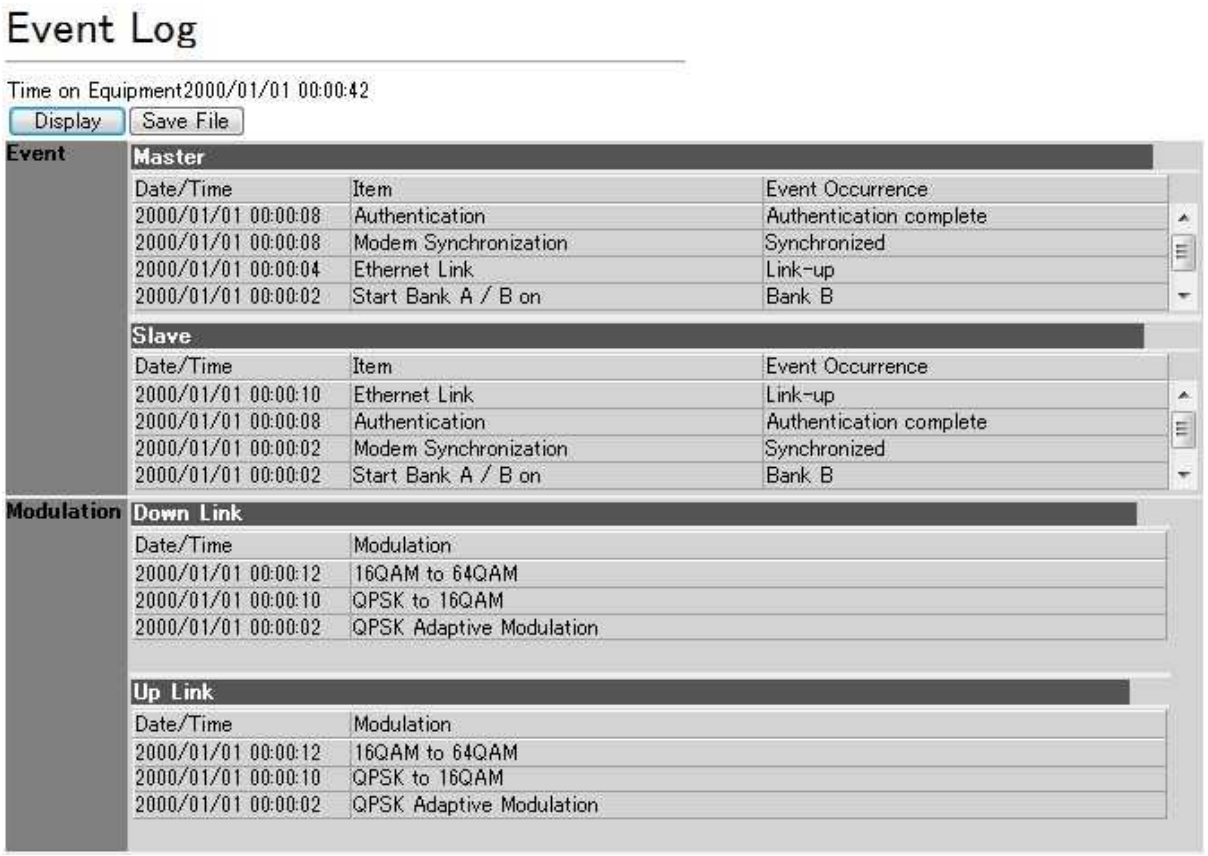


Figure 10 Event Log window

Table 9 Description of the Event Log window

No.	Item	Description
1	Display	When clicked, the Event Log window is refreshed.
2	Save File	When clicked, a dialog to specify the file destination and name is displayed to store the log in a file. The file format is CSV.
3	Event	Displays a log of events.
4	Modulation	Displays a log of changes in the modulation scheme.

Table 10 List of event logs

Item	Event Occurrence	
RF Carrier Unlock	Occurred	
IF Carrier Unlock	Occurred	
TDD SW Failure	Occurred	
Ethernet Link	Link-up	Link-down
Management Communication Failure	Cleared	Occurred
Remote Downloading	Success	Failed
Power	Turn On	
Device restoration trigger	Executed	
PA Failure	Occurred	
PLL Unlock	Occurred	
Ethernet Link Speed is asymmetry between Master and Slave	Occurred	
Device start is abnormal	Occurred	
Modem Synchronization	Un-synchronized	Synchronized
Frame ID Error	Occurred	
Radio Link Quality Failure	Cleared	Occurred
SPI Failure	Occurred	
Authentication	Authentication Failure	Authentication complete
Get Time	Success (Recorded only once when succeeded)	Failed
Remote Downloading Start	Set Up Time Remote Download	Immediate Remote Download
Remote Downloading Failed to Master from FTP	Detected	
Remote Downloading Failed to Slave from FTP	Detected	
File Check Failed on Master	Detected	
File Check Failed on Slave	Detected	
Reset after Downloading	Executed	
Not received : Notice of update start receiving reply	Detected	
Not received : Notice of update complete	Detected	

Not received : Notice of update completion receiving reply	Detected	
Not received : Cancellation instructions receiving reply	Detected	
Start Bank A / B on	Bank A	Bank B
Software Check Failure	Bank A Failed	Bank B Failed
Change Login Password		
RF Transmission	Disable	Enable
Service State	Out of Service	In Service
Initialize	Execute Initial Equipment	
Select Bank A / B	Bank A	Bank B
Reset	Occurred	

Table 11 List of modulation scheme log

No.	Modulation scheme log	Description	
		During normal operation mode	During Antenna Alignment mode
1	64QAM Fixed	Modulation Fixed, 64QAM	
2	16QAM Fixed	Modulation Fixed, 16QAM	
3	QPSK Fixed	Modulation Fixed, QPSK	
4	QPSK Adaptive Modulation	Modulation Adaptive, QPSK	
5	QPSK to 16QAM	Modulation Adaptive, transition from QPSK to 16QAM	Changes from QPSK to 16QAM.
6	16QAM to 64QAM	Modulation Adaptive, transition from 16QAM to 64QAM	Changes from 16QAM to 64QAM.
7	64QAM to 16QAM	Modulation Adaptive, transition from 64QAM to 16QAM	Changes from 64QAM to 16QAM.
8	16QAM to QPSK	Modulation Adaptive, transition from 16QAM to QPSK	Changes from 16QAM to QPSK.
9	QPSK Antenna Alignment		Displayed when starting the Antenna Alignment mode. QPSK

1.6.2. Radio Performance

When you click **Monitoring** from the operation menu part, a submenu is displayed.

When you click **Radio Performance**, a Radio Performance window is displayed.

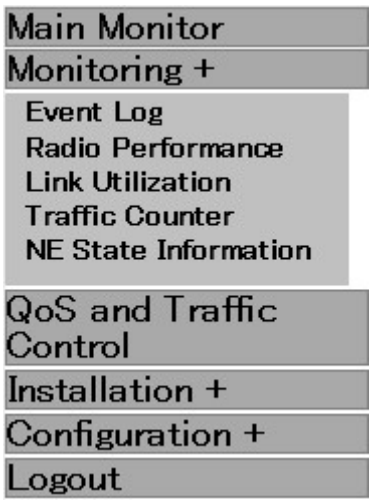
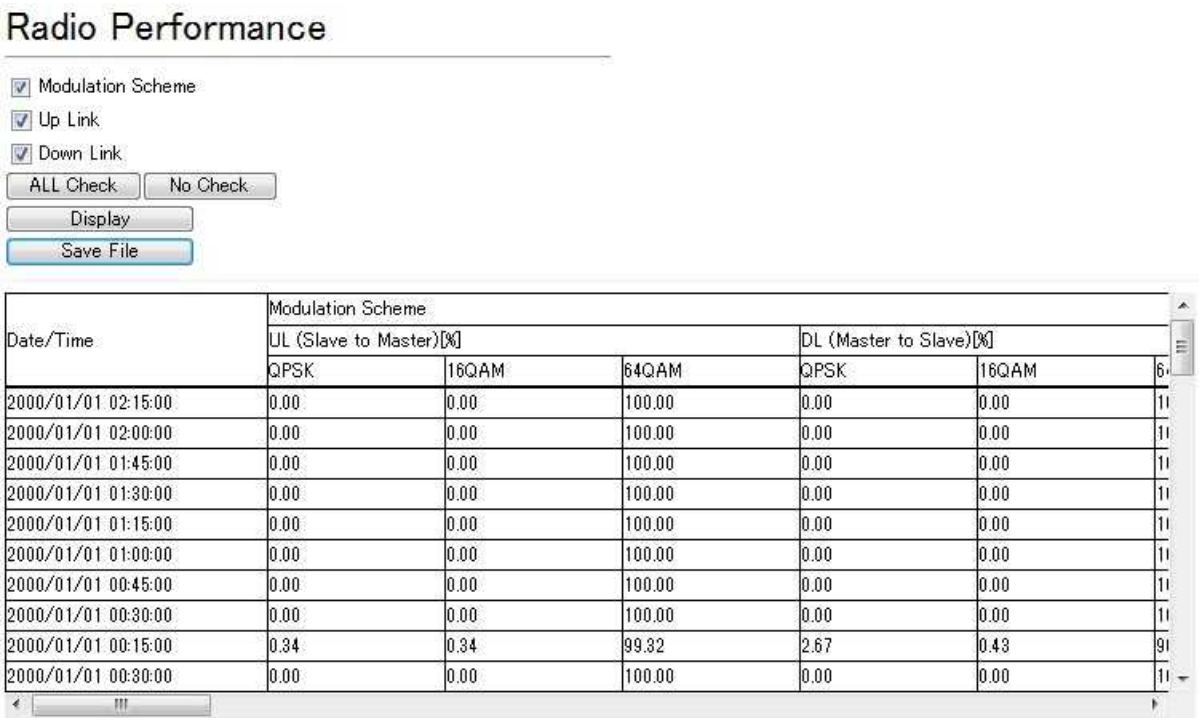


Figure 11 **Monitoring** submenu displayed

A Radio Performance window is shown in Figure 12.

The Radio Performance window displays statistical information on the radio link at an interval of 15 minutes.

The Radio Performance window is described in Table 12.



Date/Time	Modulation Scheme					
	UL (Slave to Master)[%]			DL (Master to Slave)[%]		
	QPSK	16QAM	64QAM	QPSK	16QAM	6
2000/01/01 02:15:00	0.00	0.00	100.00	0.00	0.00	1
2000/01/01 02:00:00	0.00	0.00	100.00	0.00	0.00	1
2000/01/01 01:45:00	0.00	0.00	100.00	0.00	0.00	1
2000/01/01 01:30:00	0.00	0.00	100.00	0.00	0.00	1
2000/01/01 01:15:00	0.00	0.00	100.00	0.00	0.00	1
2000/01/01 01:00:00	0.00	0.00	100.00	0.00	0.00	1
2000/01/01 00:45:00	0.00	0.00	100.00	0.00	0.00	1
2000/01/01 00:30:00	0.00	0.00	100.00	0.00	0.00	1
2000/01/01 00:15:00	0.34	0.34	99.32	2.67	0.43	9
2000/01/01 00:30:00	0.00	0.00	100.00	0.00	0.00	1

Figure 12 Radio Performance window

Table 12 Description of the Radio Performance window

No.	Item	Contents
1	Check box	Only the items with their check boxes selected are displayed. [Modulation Scheme] Down Link: QPSK/16QAM/64QAM: Each occupancy is displayed in %. Up Link: QPSK/16QAM/64QAM: Each occupancy is displayed in %. [Up Link/Down Link] Transmitted Level: MIN/MAX Received Level: MIN/MAX Receive CNR: MIN/MAX Received Blocks Discarded Rate: QPSK/16QAM/64QAM Number of Received Blocks: QPSK/16QAM/64QAM
2	ALL Check	Selects all the check boxes.
3	No Check	Clears all the check boxes.
4	Display	Refreshes the statistical information.
5	Save File	When clicked, a dialog to specify the destination and file name is displayed to store the contents in a file. The file format is CSV.

1.6.3. Link Utilization

When you click **Monitoring** from the operation menu part, a submenu is displayed.

When you click **Link Utilization** from the submenu, a Link Utilization window is displayed.

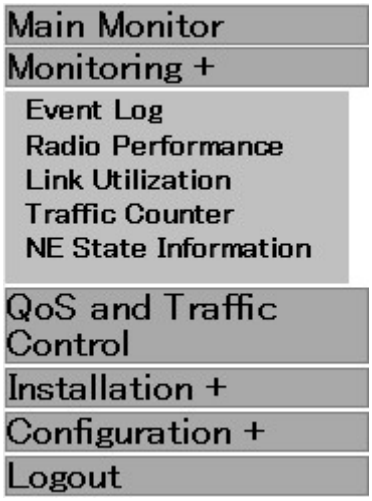
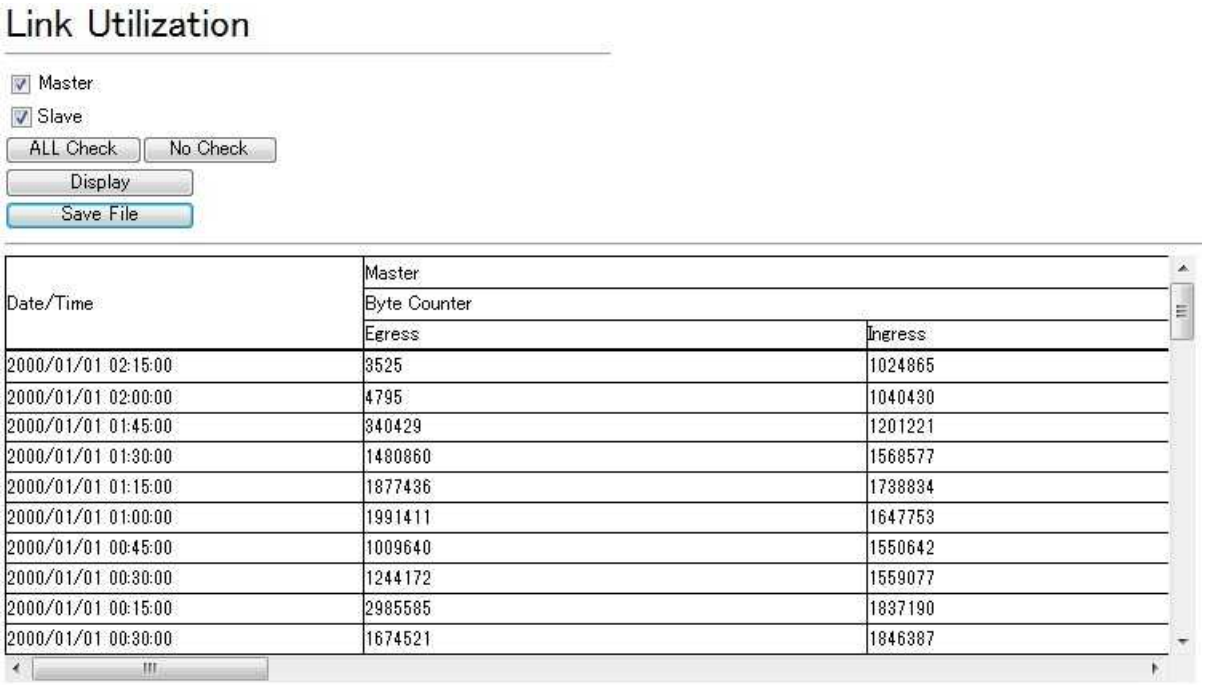


Figure 13 **Monitoring** submenu displayed

A Link Utilization window is shown in Figure14.

The Link Utilization window displays statistical information on the radio link at an interval of 15 minutes.

The Link Utilization window is described in Table 13.



Date/Time	Master	
	Byte Counter	
	Egress	Ingress
2000/01/01 02:15:00	3525	1024865
2000/01/01 02:00:00	4795	1040430
2000/01/01 01:45:00	340429	1201221
2000/01/01 01:30:00	1480860	1568577
2000/01/01 01:15:00	1877436	1738834
2000/01/01 01:00:00	1991411	1647753
2000/01/01 00:45:00	1009640	1550642
2000/01/01 00:30:00	1244172	1559077
2000/01/01 00:15:00	2985585	1837190
2000/01/01 00:30:00	1674521	1846387

Figure 14 Link Utilization window

Table 13 Description of the Link Utilization window

No.	Item	Contents
1	Check box	Only the items with their check boxes selected are displayed. [Counter window] [Master/Slave] - Byte Counter Egress: Total value of the eight classes is displayed. Ingress: Total value of the eight classes is displayed. - Ethernet Frame Counter Ingress: Total value of the eight classes is displayed. Egress: Total value of the eight classes is displayed. Buffer Overflow Counter: Total value of the eight classes is displayed.
2	ALL Check	Selects all the check boxes.
3	No Check	Clears all the check boxes.
4	Display	Refreshes the statistical information.
5	Save File	When clicked, a dialog to specify the destination and file name is displayed to store the contents in a file. The file format is CSV.

1.6.4. Traffic Counter

When you click **Monitoring** from the operation menu part, a submenu is displayed.

When you select **Traffic Counter**, a Traffic Counter window is displayed.

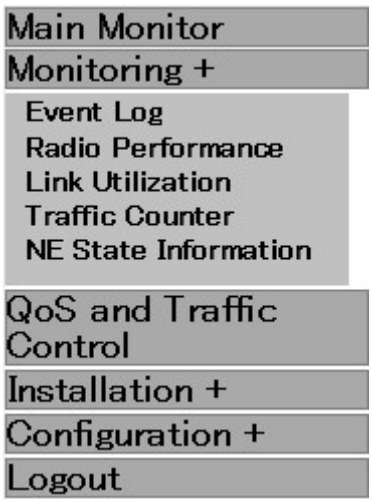


Figure 15 **Monitoring** submenu displayed

A Traffic Counter window is displayed in Figure 16.

The Traffic Counter window displays Ingress Rate, Egress Rate, Byte Counter, etc.

Unlike statistical information in the Radio Performance or Link Utilization window, the Traffic Counter window displays the information at the time **Get Counter** button is clicked.

Each item on the Traffic Counter window is described in Table 14.

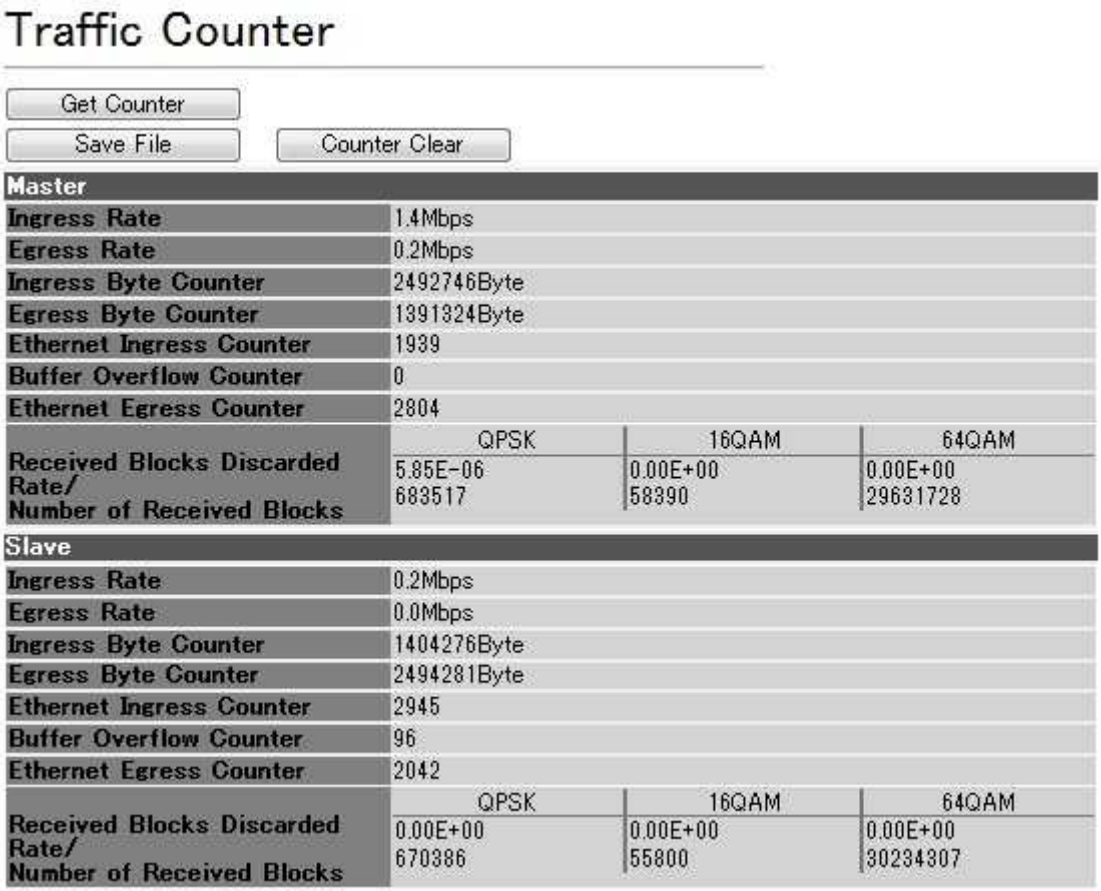


Figure 16 Traffic Counter

Table 14 Description of the Traffic Counter window

No.	Item	Description
1	Get counter	When clicked, the Traffic Counter window is refreshed.
2	Save File	When clicked, the contents currently displayed are saved into a CSV file.
3	Counter clear	Clears the counter.
4	Ingress Rate	Displays the ingress rate of Ethernet packets.
5	Egress Rate	Displays the egress rate of Ethernet packets.
6	Byte Counter	Displays the number of ingress/egress bytes of Ethernet packets.
7	Ethernet Ingress Counter	Displays the number of ingress Ethernet packets.
8	Buffer Overflow Counter	Displays the number of Ethernet packets that were discarded without being transmitted via radio.
9	Ethernet Egress Counter	Displays the number of egress Ethernet packets.
10	Received Blocks Discarded Rate	Displays the Received Blocks Discarded Rate via radio.
11	Number of Received Blocks	Displays the Number of Received Blocks via radio.

1.6.5. NE State Information

When you click **Monitoring** from the operation menu part, a submenu is displayed.

When you click **NE State Information** from the submenu, a NE Status Information window is displayed.

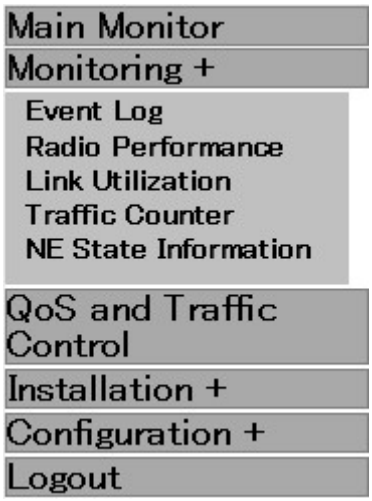


Figure 17 **Monitoring** submenu displayed

1.6.5.1. Radio Link and Inventory Information

Figure 18 shows the NE Status Information window including radio link and inventory information.

Each item is described in Table 15.

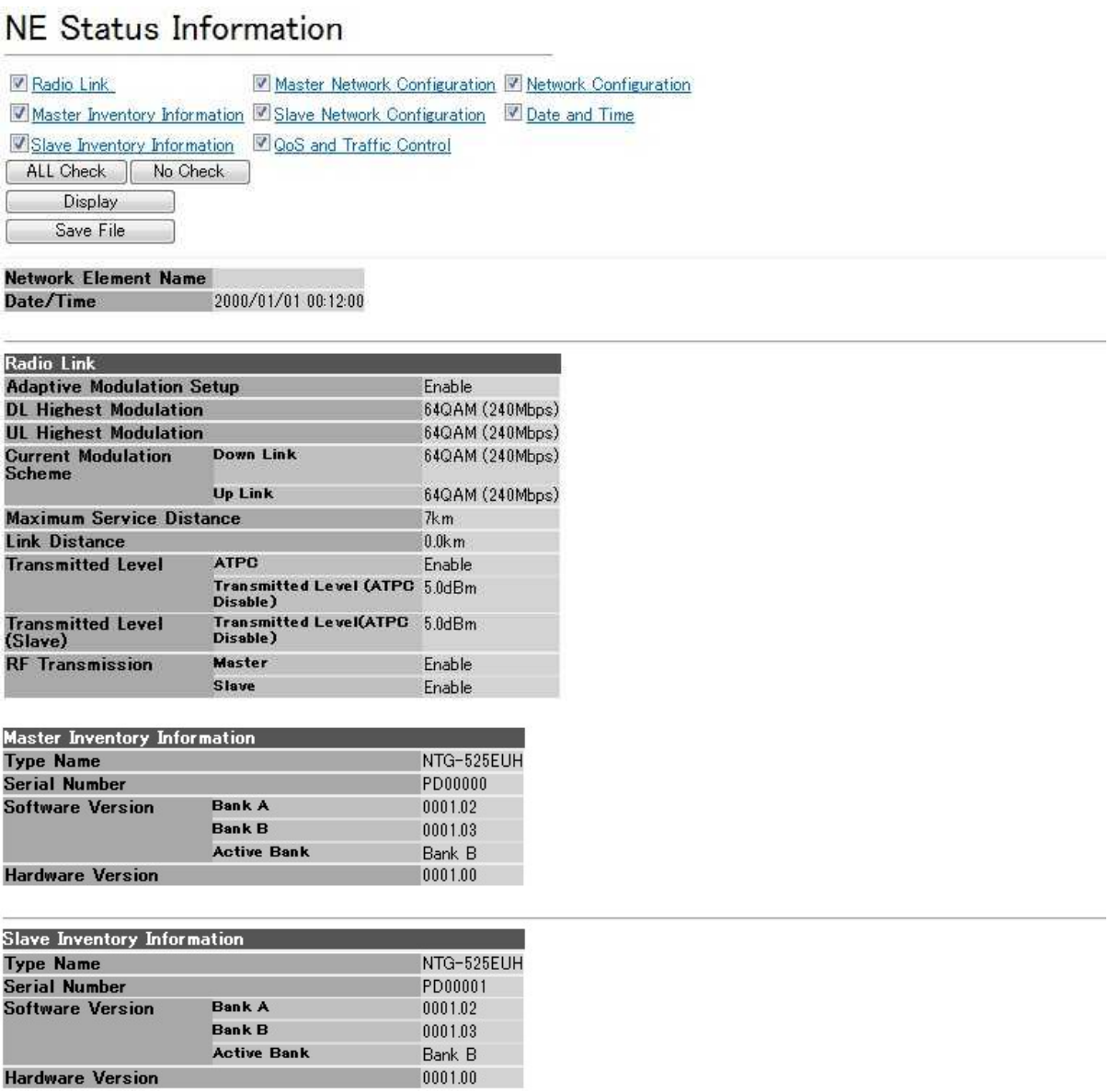


Figure 18 NE Status Information window

Table 15 Description of the NE Status Information window

No.	Item	Description
1	check box	The NE Status Information window is divided into eight types: Radio Link, Master Inventory Information, Slave Inventory Information, Master Network Configuration, Slave Network Configuration, QoS and Traffic Control, Network Configuration, Date and Time. Only the items with their check boxes selected are displayed.
2	ALL Check	Selects all the check boxes.
3	No Check	Clears all the check boxes.
4	Display	When clicked, the NE Status Information window is refreshed.
5	Save File	When clicked, a dialog to specify the destination and name of

		the file is displayed to store NE Status Information. Following information will be saved in addition to the displayed items. [Mode] [Symbol Rate] [Frequency] [CH] [Frame ID] [Status] [Radio Link] [Authentication] [Manag. Com.]
6	Network Element Name	Displays the network element name.
7	Date/Time	Displays the time of the device when the window is displayed.
8	Radio Link	[Adaptive Modulation Setup] [DL Highest Modulation] [UL Highest Modulation] [Current Modulation Scheme: Down Link] [Current Modulation Scheme: Up Link] [Maximum Service Distance] [Link Distance] [Transmitted Level] [RF Transmission]
9	Master inventory Information	[Type Name] [Serial Number] [Software Version: Bank A/Bank B/Active Bank] [Hardware Version]
10	Slave inventory Information	[Type Name] [Serial Number] [Software Version: Bank A/Bank B/Active Bank] [Hardware Version]

1.6.5.2. Master/Slave Network Configuration

A Master/Slave Network Configuration window is shown in Figure 19.

Each item is described in Table 16.

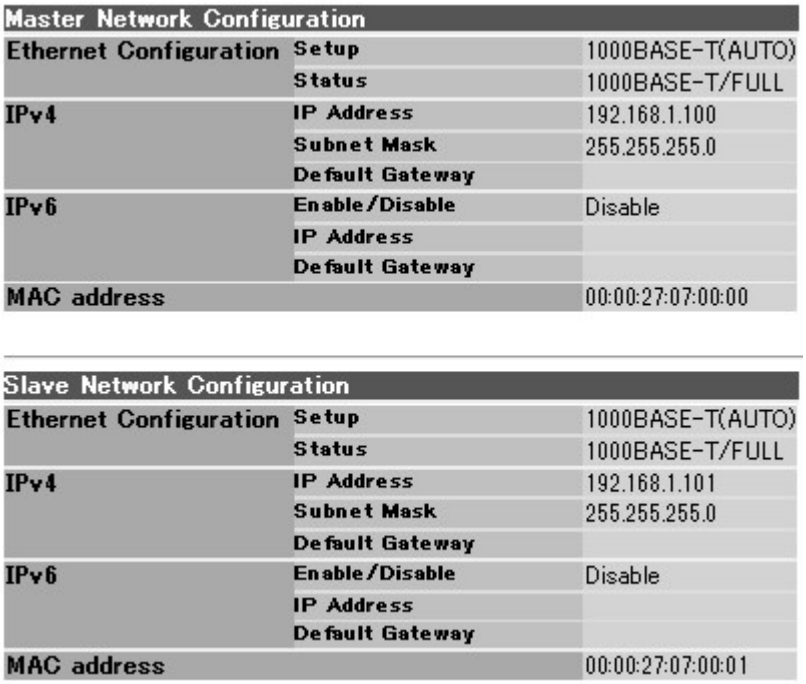


Figure 19 Master/Slave Network Configuration

Table 16 Items of the Master/Slave Network Configuration window

No.	Item	Description
1	Ethernet Configuration	[Setup] The setting value is displayed. [Status] Displays the Ethernet link status at the time it is displayed.
2	IPv4	[IP Address] [Subnet Mask] [Default Gateway]
3	IPv6	[Enable/Disable] [IP Address] [Default Gateway]
4	MAC address	The MAC address is displayed.

1.6.5.3. QoS and Traffic Control

A QoS and Traffic Control window is shown in Figure 20.

Each item is described in Table 17.

QoS and Traffic Control

Buffer Size Configuration

Buffer Size	Master		Slave	
	Class 7	1000 KB	Class 7	1000 KB
	Class 6	1000 KB	Class 6	1000 KB
	Class 5	1000 KB	Class 5	1000 KB
	Class 4	1000 KB	Class 4	1000 KB
	Class 3	1000 KB	Class 3	1000 KB
	Class 2	1000 KB	Class 2	1000 KB
	Class 1	1000 KB	Class 1	1000 KB
	Class 0	1000 KB	Class 0	1000 KB
	Total	8000 KB	Total	8000 KB

COS assignment for Management Communication from Master to Slave

Master	7

COS assignment for Management Communication from Slave to Master

Slave	7

QoS Priority Class Configuration

Service State	Master	Slave
	Class 7	In Service	Class 7	In Service
	Class 6	In Service	Class 6	In Service
	Class 5	In Service	Class 5	In Service
	Class 4	In Service	Class 4	In Service
	Class 3	In Service	Class 3	In Service
	Class 2	In Service	Class 2	In Service
	Class 1	In Service	Class 1	In Service
	Class 0	In Service	Class 0	In Service

DL /UL Ratio

Dynamic TDD	Dynamic
DL Ratio	50%

QoS Priority Mapping

Master

COS [0-7] vs. Priority Class [0-7]("7" is the highest Priority) Table	7 7 6 0 5 0 4 0 3 0 2 0 1 0 0 0
TOS vs. COS [0-7] Table	IP Precedence
	7 0 6 0 5 0 4 0 3 0 2 0 1 0 0 0
TC [0-255] vs. COS [0-7] Table	DSCP
	63 0 62 0 61 0 60 0 59 0 58 0 57 0 56 0
	55 0 54 0 53 0 52 0 51 0 50 0 49 0 48 0
	47 0 46 0 45 0 44 0 43 0 42 0 41 0 40 0
	39 0 38 0 37 0 36 0 35 0 34 0 33 0 32 0
	31 0 30 0 29 0 28 0 27 0 26 0 25 0 24 0
	23 0 22 0 21 0 20 0 19 0 18 0 17 0 16 0
	15 0 14 0 13 0 12 0 11 0 10 0 9 0 8 0
	7 0 6 0 5 0 4 0 3 0 2 0 1 0 0 0
EtherType vs. COS [0-7] Table	COS assignment except following EtherTypes 0

Slave

COS [0-7] vs. Priority Class [0-7]("7"is the highest Priority) Table	7 7 6 0 5 0 4 0 3 0 2 0 1 0 0 0
TOS vs. COS [0-7] Table	IP Precedence 7 0 6 0 5 0 4 0 3 0 2 0 1 0 0 0
TC [0-255] vs. COS [0-7] Table	DSCP 63 0 62 0 61 0 60 0 59 0 58 0 57 0 56 0 55 0 54 0 53 0 52 0 51 0 50 0 49 0 48 0 47 0 46 0 45 0 44 0 43 0 42 0 41 0 40 0 39 0 38 0 37 0 36 0 35 0 34 0 33 0 32 0 31 0 30 0 29 0 28 0 27 0 26 0 25 0 24 0 23 0 22 0 21 0 20 0 19 0 18 0 17 0 16 0 15 0 14 0 13 0 12 0 11 0 10 0 9 0 8 0 7 0 6 0 5 0 4 0 3 0 2 0 1 0 0 0
EtherType vs. COS [0-7] Table	COS assignment except following EtherTypes 0

Traffic Control

Policing Rate

Master	QPSK	16QAM	64QAM	Slave	QPSK	16QAM	64QAM
Class 7	0Mbps	0Mbps	0Mbps	Class 7	0Mbps	0Mbps	0Mbps
Class 6	0Mbps	0Mbps	0Mbps	Class 6	0Mbps	0Mbps	0Mbps
Class 5	0Mbps	0Mbps	0Mbps	Class 5	0Mbps	0Mbps	0Mbps
Class 4	0Mbps	0Mbps	0Mbps	Class 4	0Mbps	0Mbps	0Mbps
Class 3	0Mbps	0Mbps	0Mbps	Class 3	0Mbps	0Mbps	0Mbps
Class 2	0Mbps	0Mbps	0Mbps	Class 2	0Mbps	0Mbps	0Mbps
Class 1	0Mbps	0Mbps	0Mbps	Class 1	0Mbps	0Mbps	0Mbps
Class 0	0Mbps	0Mbps	0Mbps	Class 0	0Mbps	0Mbps	0Mbps

Shaping Rate

Master	QPSK	16QAM	64QAM	Slave	QPSK	16QAM	64QAM
Class 7	0kbps	0kbps	0kbps	Class 7	0kbps	0kbps	0kbps
Class 6	0kbps	0kbps	0kbps	Class 6	0kbps	0kbps	0kbps
Class 5	0kbps	0kbps	0kbps	Class 5	0kbps	0kbps	0kbps
Class 4	0kbps	0kbps	0kbps	Class 4	0kbps	0kbps	0kbps
Class 3	0kbps	0kbps	0kbps	Class 3	0kbps	0kbps	0kbps
Class 2	0kbps	0kbps	0kbps	Class 2	0kbps	0kbps	0kbps
Class 1	0kbps	0kbps	0kbps	Class 1	0kbps	0kbps	0kbps
Class 0	0kbps	0kbps	0kbps	Class 0	0kbps	0kbps	0kbps

Figure 20 QoS and Traffic Control

Table 17 Description of the QoS and Traffic Control window

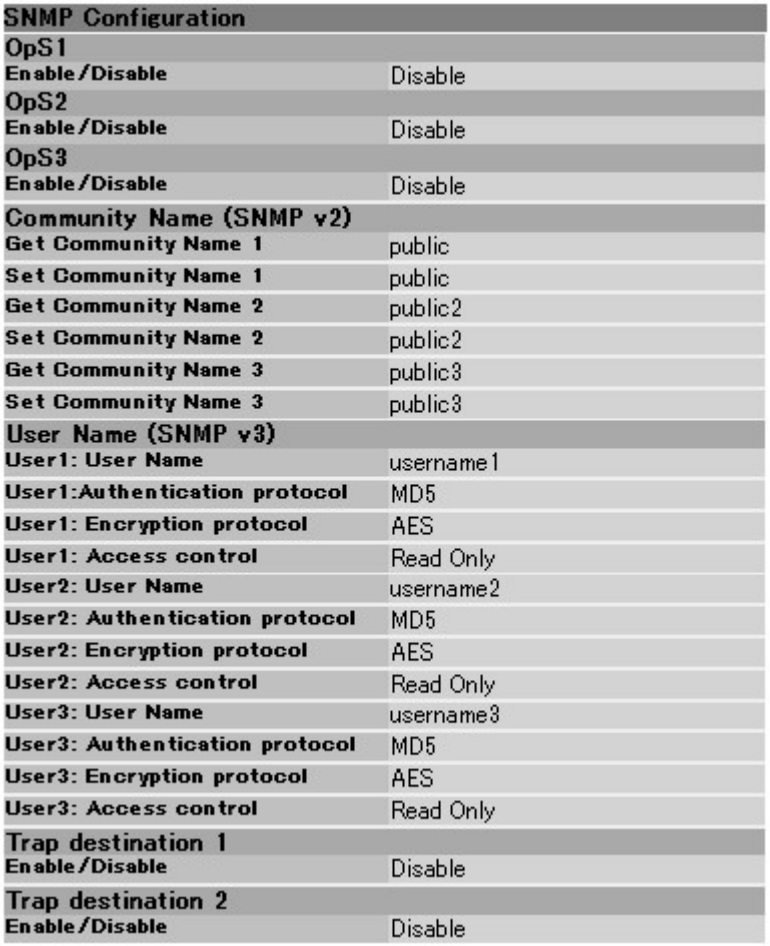
No.	Item	Description
1	Buffer Size Configuration	Displays a buffer size for each class of Master and Slave.
2	COS assignment for Management Communication	Displays a COS assignment value for communication between Master and Slave devices.
3	QoS Priority Class Configuration	Displays a service state for each class of Master and Slave.
4	DL/UL Ratio	Displays a dynamic TDD mode and setting value of the DL Ratio.
5	QoS Priority Mapping	Following values are displayed for the Master and Slave. Displays the setting value at the time it is displayed. **COS [0-7] vs. Priority Class ("7"is the highest Priority) Table** **TOS vs. COS [0-7] Table** **TC [0-255] vs. COS [0-7] Table** **EtherType vs. COS [0-7] Table** For **TOS vs. COS [0-7] Table**, IP Precedence or DSCP, either of which has been selected, is displayed.
6	Traffic control Policing Rate	Displays permitted policing rates of the Master and Slave. These are displayed for each class and each modulation scheme.
7	Traffic control Shaping Rate	Displays permitted policing rates of the Master and Slave. These are displayed for each class and each modulation scheme.

1.6.5.4. Network Configuration

A Network Configuration window is shown in Figure 21.

Each item is described in Table 18.

Network Configuration		
Management VLAN Configuration		
Master		
SNMP/MT VLAN TAG 1	Enable/Disable	Disable
	VID	0
	COS	0
SNMP/MT VLAN TAG 2	Enable/Disable	Disable
	VID	0
	COS	0
SNMP/MT VLAN TAG 3	Enable/Disable	Disable
	VID	0
	COS	0
Slave		
SNMP/MT VLAN TAG 1	Enable/Disable	Disable
	VID	0
	COS	0
SNMP/MT VLAN TAG 2	Enable/Disable	Disable
	VID	0
	COS	0
SNMP/MT VLAN TAG 3	Enable/Disable	Disable
	VID	0
	COS	0



SNMP Configuration	
OpS1	
Enable/Disable	Disable
OpS2	
Enable/Disable	Disable
OpS3	
Enable/Disable	Disable
Community Name (SNMP v2)	
Get Community Name 1	public
Set Community Name 1	public
Get Community Name 2	public2
Set Community Name 2	public2
Get Community Name 3	public3
Set Community Name 3	public3
User Name (SNMP v3)	
User1: User Name	username1
User1:Authentication protocol	MD5
User1: Encryption protocol	AES
User1: Access control	Read Only
User2: User Name	username2
User2: Authentication protocol	MD5
User2: Encryption protocol	AES
User2: Access control	Read Only
User3: User Name	username3
User3: Authentication protocol	MD5
User3: Encryption protocol	AES
User3: Access control	Read Only
Trap destination 1	
Enable/Disable	Disable
Trap destination 2	
Enable/Disable	Disable

Figure 21 Network Configuration window

Table 18 Description of the Network Configuration window

No.	Item	Description
1	Management VLAN Configuration	Displays the VLAN tag information for managing the Master and Slave.
2	SNMP Configuration	Displays information on OpS, community name, user name, and trap destination.

1.6.5.5. Date and Time

A Date and Time window is shown in Figure 22.

Each item is described in Table 19.

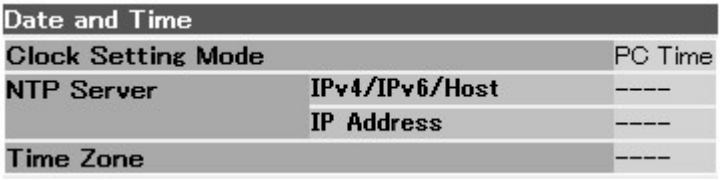


Figure 22 Date and Time window

Table 19 Description of the Date and Time window

No.	Item	Description
1	Date and Time	[Clock Setting Mode] Displays the specified item. [NTP Server, IP Address] When the connection is successful, a destination IP Address is displayed. When the connection failed, "-" is displayed. [DNS Server, IP Address] When the connection is successful, a destination IP Address is displayed. When the connection failed or when it is not set, "----" is displayed. [Time Zone] Displays the specified Time Zone.

1.7. QoS and Traffic Control

When you select **QoS and Traffic Control** in the operation menu part, a QoS and Traffic Control window is displayed.
In the QoS and Traffic Control window, items that are reflected after restart such as Buffer Size, VID/COS for Management Communication and items that are immediately reflected such as Service State, TDD Control, QoS Priority Mapping, Policing/Shaping can be specified.

1.7.1. Buffer Size and COS Assignment for Management Communication from Master to Slave

A window including **Buffer Size** and **COS assignment for Management Communication** is shown in Figure 23.

Settings for the **Buffer Size** and **COS assignment for Management Communication** are reflected after restart.

Each item is described in Table 22.

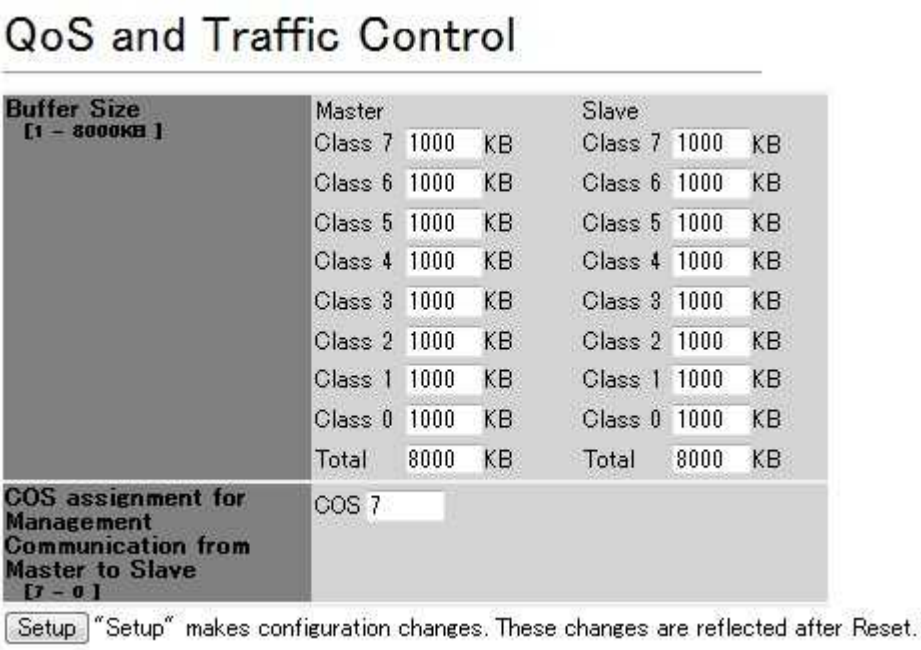


Figure 23 A window including the **Buffer Size** and **COS assignment for Management Communication**

Table 20 Description of a window including the **Buffer Size** and **COS assignment for Management Communication**

No	Item	Description
1	Buffer Size Configuration	Specify a buffer size for each class. You can specify a buffer size for classes from 0 to 7 for each of the Master and Slave. For each of the Master and Slave, the total buffer size should be within 1 - 8000 Kbytes. Total Displays the calculated total value of classes from 0 to 7. The Class 7 is the most prioritized, and Class 0 is the least prioritized class.
2	COS assignment for Management Communication from Master to Slave	Specify a COS value which is used for the communication from the Master to Slave. Initial = cos7. Note: If you set a low priority for the COS assignment for Management Communication, the device may not work properly when the user data traffic exceeds the radio bandwidth.

1.7.2. QoS Priority Class Configuration

A QoS Priority Class Configuration window is shown in Figure 24.

Each item is described in Table 21.

Figure 24 QoS Priority Class Configuration window

Table 21 Description of QoS Priority Class Configuration window

No	Item	Description
1	QoS Priority Class Configuration	Specify either **Out of Service** or **In Service** for each class of the Master and Slave.

1.7.3. TDD Control

A TDD Control window is shown in Figure 25.

Each item is described in Table 22.

Figure 25 TDD Control window

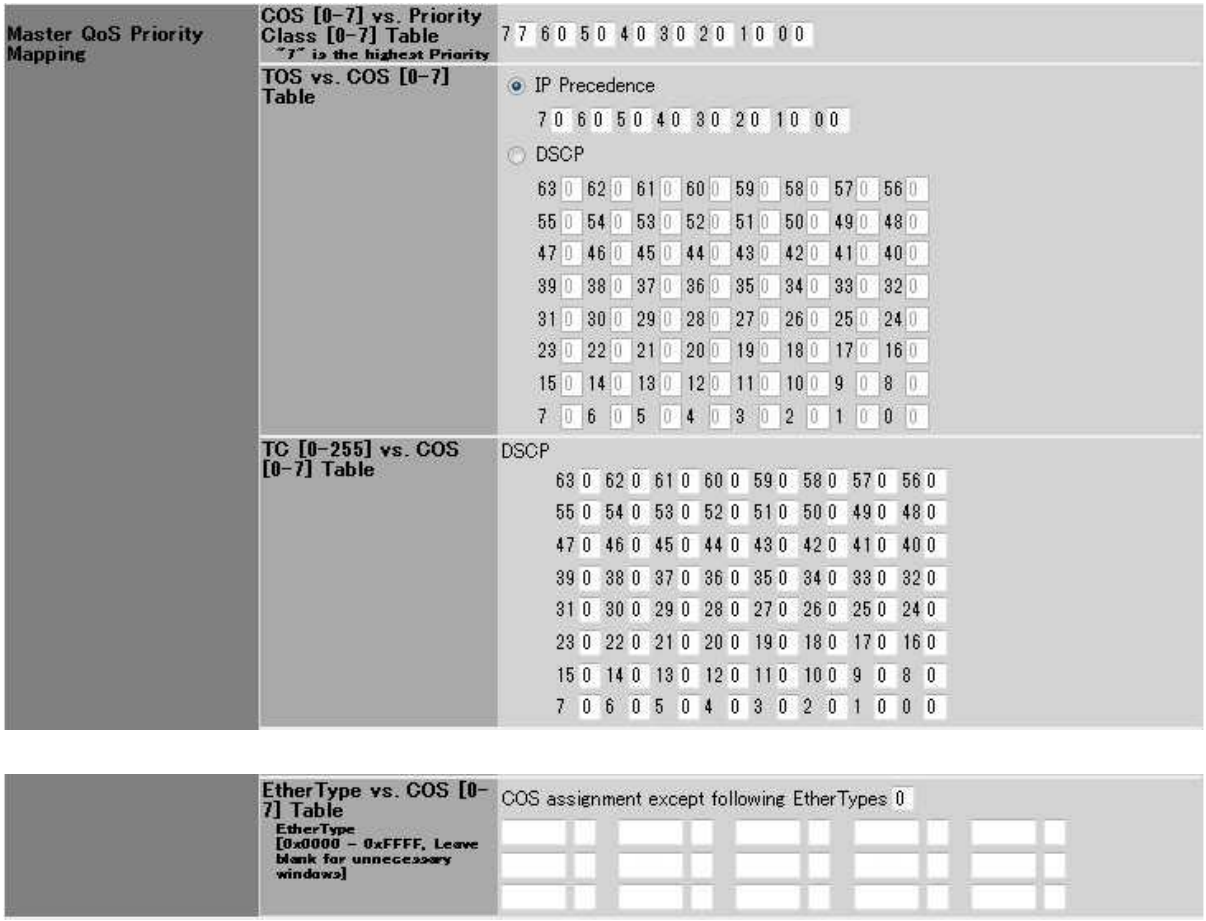
Table 22 Description of TDD Control window

No	Item	Setting range	Description
1	TDD Control	Fixed/Dynamic	Specify an operation method for TDD control. **Fixed**: Regardless of the uplink and downlink traffic, communication is always performed using a fixed percent of radio bandwidth. **Dynamic**: Communication is performed by atomically assigning the extra bandwidth generated by changes in the uplink and downlink traffic to the other communication bandwidth.
2	DL Ratio[Fixed] DL Arbitration Ratio[Dynamic]	1 - 99%	Specify a value corresponding to the percent of downlink bandwidth in total bandwidth in 1% - 99%. Note: Setting a value from 10% to 90% is recommended in order to perform communication between devices such as authentication and key updates.

1.7.4. QoS Priority Mapping

A QoS Priority Mapping window is shown in Figure 26.

Each item is described in Table 23.



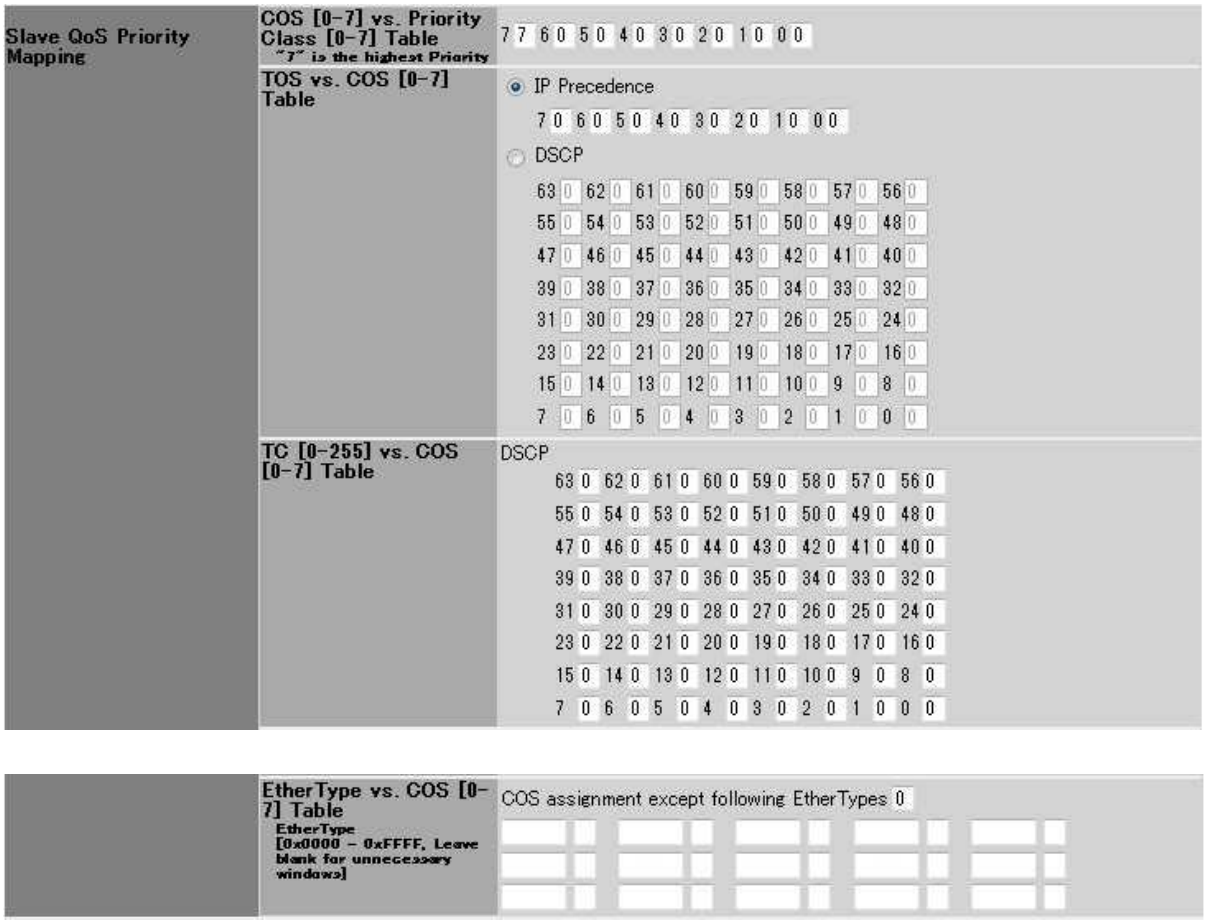


Figure 26 QoS Priority Mapping window

Table 23 Description of the QoS Priority Mapping window

No	Item	Setting range	Description
1	Master COS [0-7] vs. Priority Class [0-7] Table	0 - 7	The Class 7 is the most prioritized, and Class 0 is the least prioritized class.
2	Master TOS vs. COS [0-7] Table	[Selection of input format] IP Precedence/DSCP [COS value] 0 - 7	[Selection of input format] Select either the **IP Precedence** radio button or **DSCP** radio button. [Input format] Input a COS value to each TOS value. [Bit string for each mode] • IP Precedence Bit[7:5]: Priority Bit[4:0]: Reserved • DSCP Bit[7:2]: DSCP (63 types) Bit[1:0]: Reserved [Setting example] If COS=7 is assigned for IP Precedence = 1, COS value=7 is set to TOS: 0x20 - 0x3F. That is, the reserved part is filled with the same COS value.
3	Master TC [0-63] vs. COS [0-7] Table	[COS value] 0 - 7	Input a COS value for TC values from 0 to 63.
4	Master EtherType vs. COS [0-7] Table	[COS value] 0 - 7 [EtherTypes] 0x0000 - 0xFFFF	Input combinations of 15 types of EtherTypes and CoS values. Also input a CoS value in **COS assignment except following EtherTypes** for unspecified EtherTypes.
5	Slave COS [0-7] vs. Priority Class [0-7] Table	0 - 7	The Class 7 is the most prioritized, and Class 0 is the least prioritized class.
6	Slave TOS vs. COS [0-7] Table	[Selection of input format] IP Precedence/DSCP	[Selection of input format] Select either the **IP Precedence** radio button or **DSCP** radio button.

		[COS value] 0 - 7	[Input format] Input a COS value to each TOS value. [Bit string for each mode] • IP Precedence Bit[7:5]: Priority Bit[4:0]: Reserved • DSCP Bit[7:2]: DSCP (63 types) Bit[1:0]: Reserved [Setting example] If COS=7 is assigned for IP Precedence = 1, COS value=7 is set to TOS: 0x20 - 0x3F. That is, the reserved part is filled with the same COS value.
7	Slave TC [0-255] vs. COS [0-7] Table	0 - 7	Input a COS value for TC values from 0 to 63.
8	Slave EtherType vs. COS [0-7] Table	[COS value] 0 - 7 [EtherTypes] 0x0000 - 0xFFFF	Input combinations of 15 types of EtherTypes and CoS values. Also input a CoS value in **COS assignment except following EtherTypes** for unspecified EtherTypes.

1.7.5. Policing and Shaping

A Policing/Shaping window is shown in Figure 27.

Each item is described in Table 24.

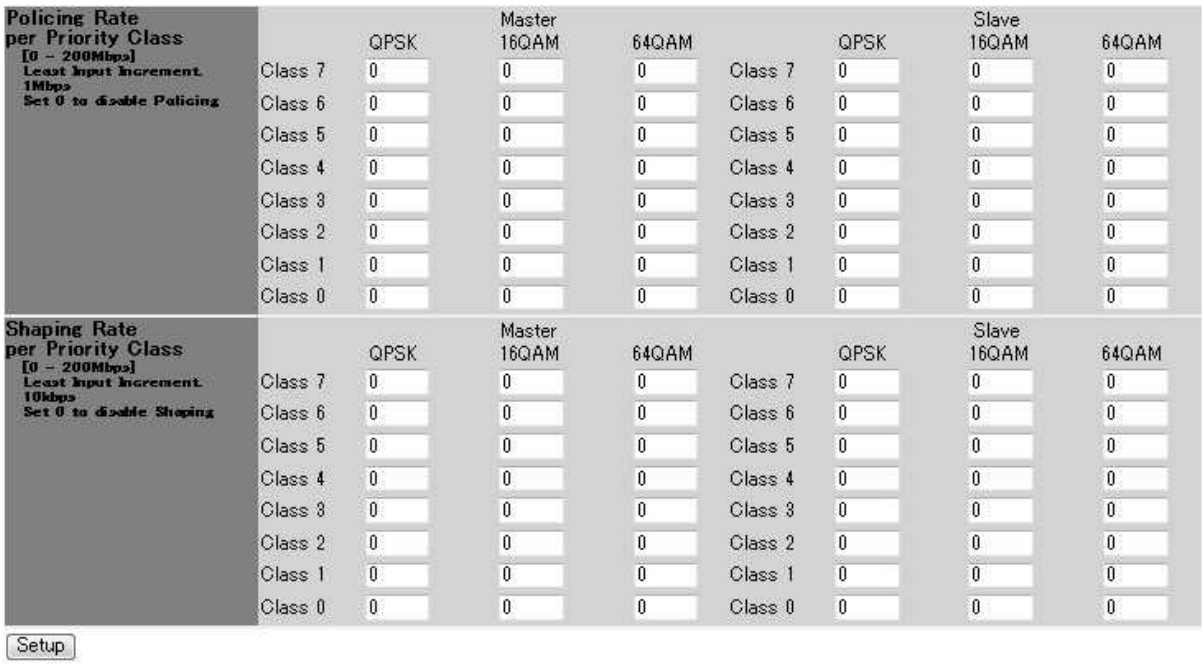


Figure 27 Policing/Shaping window

Table 24 Description of Policing/Shaping setting

No	Item	Setting range	Description
1	Policing Rate per Priority Class	0 - 200Mbps	Input a permitted policing rate for each modulation scheme/each class of the Master and Slave. If 0 is set or left blank, policing will be disabled. These are set in the unit of 1 Mbps.
2	Shaping Rate per Priority Class	0 - 200Mbps	Input a permitted shaping rate for each modulation scheme/each class of the Master and Slave. If 0 is set or left blank, shaping will be disabled. These are set in the unit of 10 kbps.

1.8. Installation

1.8.1. Antenna Alignment

When you select **Installation** in the operation menu part, a submenu is displayed.

When you select **Antenna Alignment** from the submenu, an Antenna Alignment window is displayed.

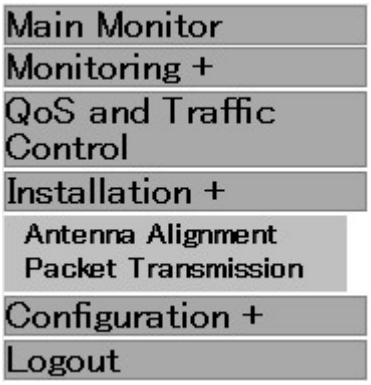
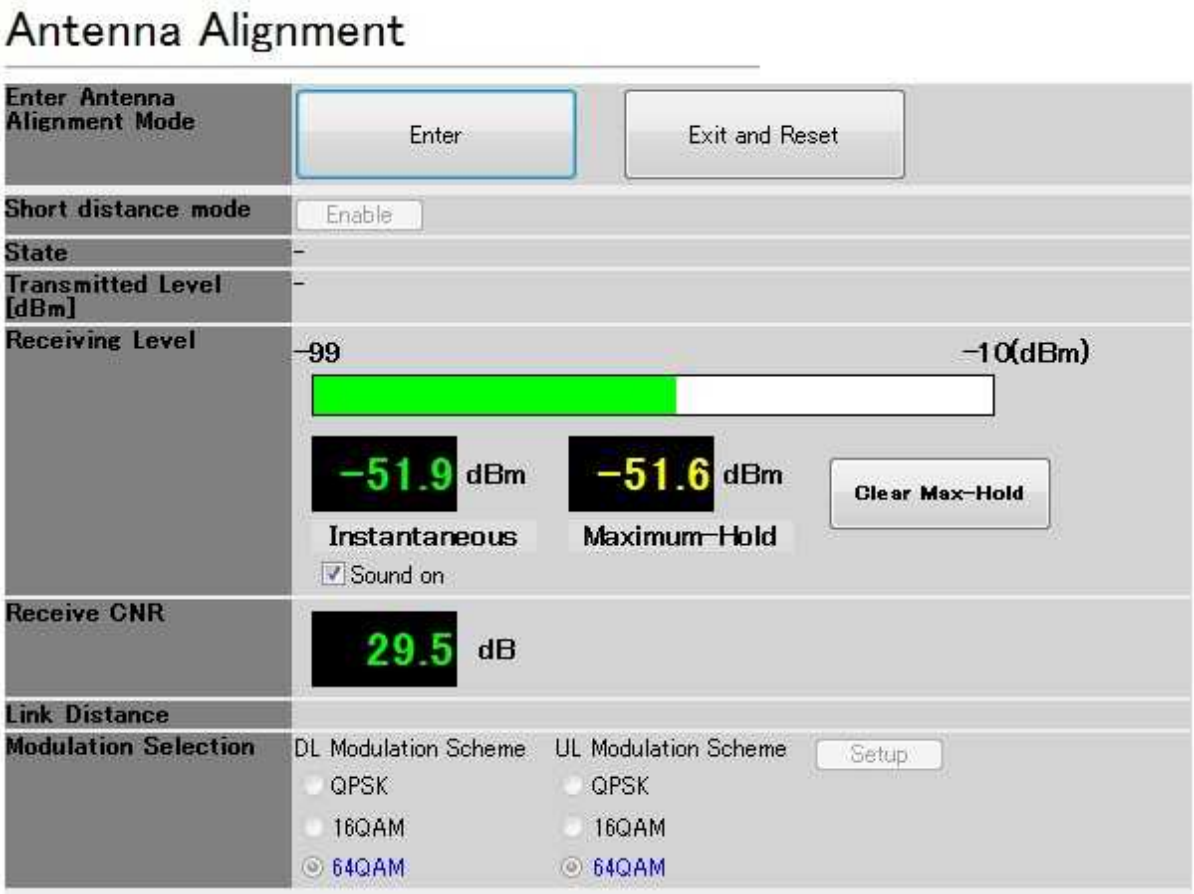


Figure 28 **Installation** submenu displayed

An Antenna Alignment window is shown in Figure 29.

Each item is described in Table 25. Also, the displayed status is described in Table 26.



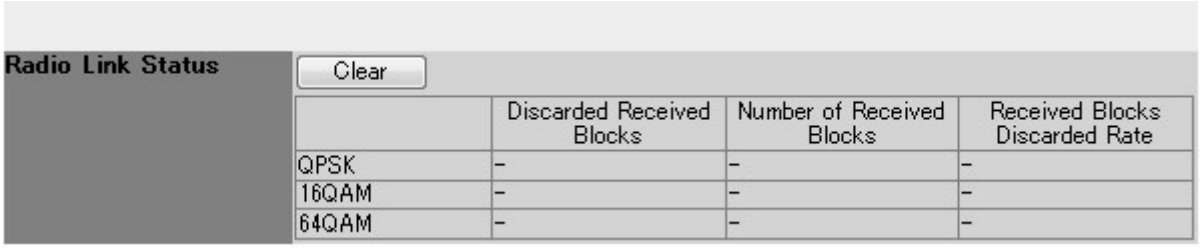


Figure 29 Antenna Alignment window

Table 25 Description of the Antenna Alignment window

	Item	Description
1	Enter Antenna Alignment Mode	Clicking the **Enter** button switches the device into the Antenna Alignment mode. Clicking the **Exit and Reset** button will restart the device, exiting from the Antenna Alignment mode. Notes: . To switch the device from the Antenna Alignment mode back to the normal mode, a restart is required. . Transition between pages is disabled during the Antenna Alignment mode.
2	Short distance mode	When the button is clicked while it is marked as **Enable**, the **Transmitted Level** is decreased by 20 dB. When the button is clicked while it is marked as **Disable**, the **Transmitted Level** is returned to the original value.
3	State	Displays the current status. Table 26 lists the displayed contents.
4	Transmitted Level	Displays the transmission level.
5	Receiving Level	Displays the current receiving level with a bar and values. The maximum value is shown by figures. Clicking the **Clear Max-Hold** button will clear the maximum value. When the Sound on check box is selected, a sound corresponding to the current value is emitted. The sound function is supported only in Windows XP.
6	Receive CNR	Displays the receiving CNR.
7	Link Distance	Displays the distance between the Master and the Slave.
8	Modulation Selection	Selects uplink and downlink modulation schemes. Clicking the **Setup** button will switch the device into the selected modulation scheme.

9	Radio Link Status	Displays the **Discarded Received Blocks** and **Number of Received Blocks** and **Received Blocks Discarded Rate.** Clicking the **Clear** button will clear the counters.

Table 26 Displayed status

No.	Displayed status	Description
1	Over Receiving Level. Enable Short distance mode of opposite NE.	Displayed when the Received Level is over input (-30 dBm or more).
2	Frame ID Error	Displayed when the device has received a radio wave with a Frame ID different from the Frame ID set for the Master. It occurs when the Master receives a radio wave of other opposite sets.

1.8.2. Packet Transmission Test

The Packet transmission test function measures the number of transmitted test packets and the number of received packets.

When you select **Installation** in the operation menu part, a submenu is displayed.

When you select **Packet Transmission Test** from the submenu, a Packet Transmission Test window is displayed.

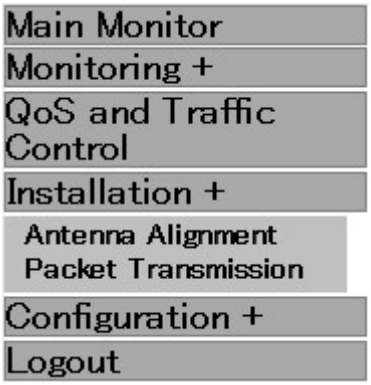


Figure 30 **Installation** submenu displayed

A Packet Transmission Test window is shown in Figure 31.

Each item is described in Table 27.

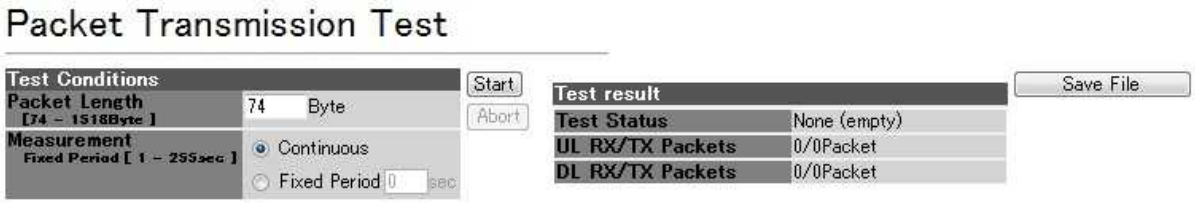


Figure 31 Packet Transmission Test window

Table 27 Description of the Packet Transmission Test window

No.	Item	Setting range	Description
1	Packet Length	74 - 1518	Specify the length of the test packet.
2	Measurement	Continuous/Fixed Period Fixed Period 1 - 255 seconds	Select either **Continuous** or **Fixed Period**. When you select **Fixed Period**, input the measurement time.
3	Start / Abort		**Start** button starts a test. **Abort** button stops the test.
4	Test result		Displays the **Test Status**, **UL RX/TX Packets**, and **DL RX/TX Packets**. **UL RX/TX Packets** is displayed as a fraction of the uplink [number of received packets/number of transmitted packets]; the **DL RX/TX Packets** is displayed as a fraction of the downlink [number of received packets/number of transmitted packets]. Note: As the priority of the test packets is lower than the packets for communication between the devices, the test packets can be lost.
5	Save File		When clicked, a dialog to specify the destination and name is displayed to store the test results. Notes: (1) When the test is performed continuously, it is recorded as Fixed Period "0". (2) When the packet transmission test is performed by specifying the measurement time, the measurement time will not be saved in the network element, which is not the device on which the **Start** button is pressed. (3) The Test Status will not be saved.

1.9. Configuration

1.9.1. Radio

When you select **Configuration** in the operation menu part, a submenu is displayed.

When you select **Radio** from the submenu, a Radio Configuration window is displayed.

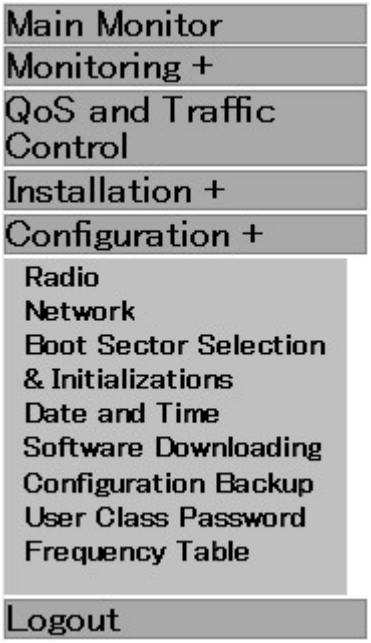


Figure 32 **Configuration** submenu displayed

A Radio Configuration window is shown in Figure 33 and Figure 34.

Each item is described in Table 28.

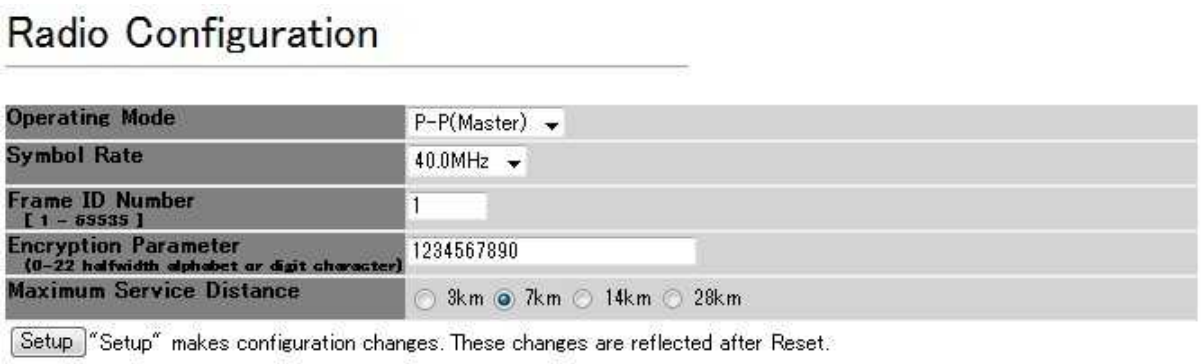


Figure 33 Radio Configuration window (reflection after restart)

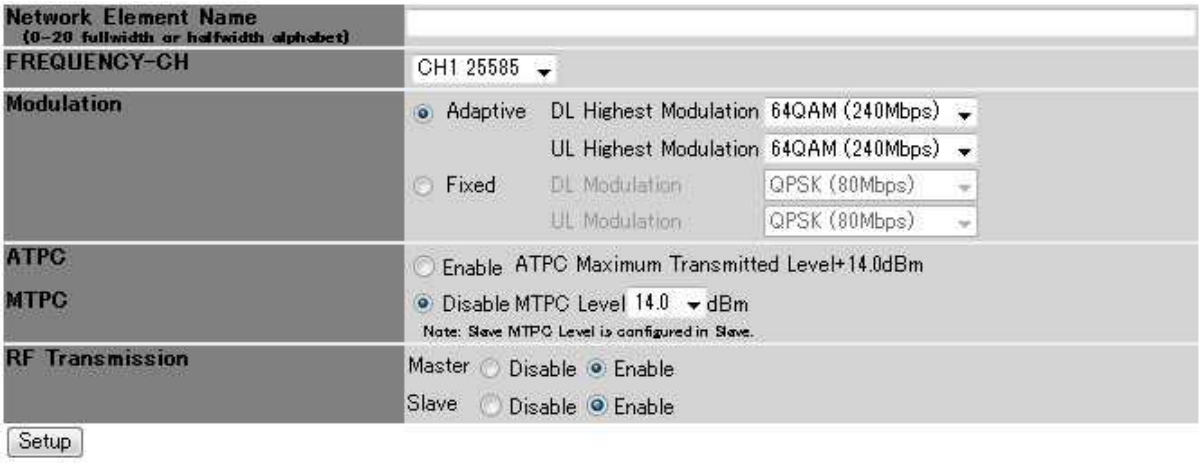


Figure 34 Radio Configuration window (immediate reflection)

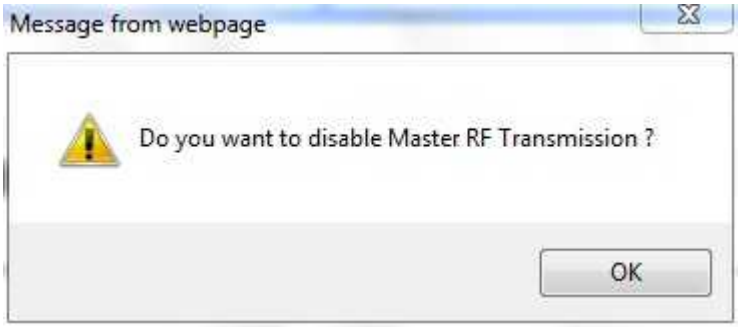


Figure 35 Confirmation dialog to disable RF transmission

Table 28 Description of Radio Configuration window

No.	Item	Setting range	Contents
Reflection after restart			
1	Operating Mode	*Master/Slave*	Select **Master** or **Slave**.
2	Symbol Rate	20.0MHz/40.0MHz	Select a symbol rate.
3	Frame ID Number	1 - 65535	Input a Frame ID. Input the same Frame ID value for local NE and opposite NE.
4	Encryption Parameter	0 - 22 characters	Input an encryption parameter. Input the same encryption parameter value for local and opposite NE.
5	Maximum Service Distance	3/7/14/28 km	Select a maximum service distance to the opposite NE. Select a value longer than the actual distance.
6	Setup		Restarts the device and reflect the setting values.

Immediate reflection			
7	Network Element Name	0 - 20 double-byte characters	Input the network element name.
8	FREQUENCY-CH	For the supported frequencies, refer to the "Frequency channel" section.	Select a frequency from the drop-down list.
9	Modulation	Adaptive/Fixed	Select the **Adaptive** or **Fixed** modulation scheme.
		Highest Modulation 64QAM/16QAM/QPSK	When you select the **Adaptive** modulation scheme, select the **Highest Modulation** as well.
		Modulation Scheme 64QAM/16QAM/QPSK	When you select the **Fixed** modulation scheme, select a modulation scheme as well.
10	ATPC	Enable/Disable	Select **Enable**/**Disable** of the ATPC. When **Enable** is selected, ATPC is enabled in both the Master and Slave. When **Disable** is selected, ATPC is disabled in both the Master and Slave. When ATPC is enabled, the Transmitted Level is controlled in the range of 6 - +14 dBm so that the received level becomes -50 dBm. When ATPC is disabled, the Master transmits using the Transmitted Level set in the Master's MT, and the Slave transmits using the Transmitted Level set in the Slave's MT.
8	MTPC	-6 - +14 dBm	Specify the Transmitted level of the Master when the ATPC is disabled. The Transmitted level of the Slave when ATPC is disabled is set in the Slave's MT.

11	RF Transmission	RF Transmission Disable/RF Transmission Enable	Specify RF Transmission Disable and RF Transmission Enable for the Master and Slave. When you perform RF Transmission Disable of the Master/Slave, a confirmation dialog in Figure 35 will appear. Click **OK**.
12	Setup		Performs immediate reflection.

1.9.2. Network

When you select **Configuration** in the operation menu part, a submenu is displayed.

When you select Network Configuration from the submenu, a Network Configuration window is displayed.

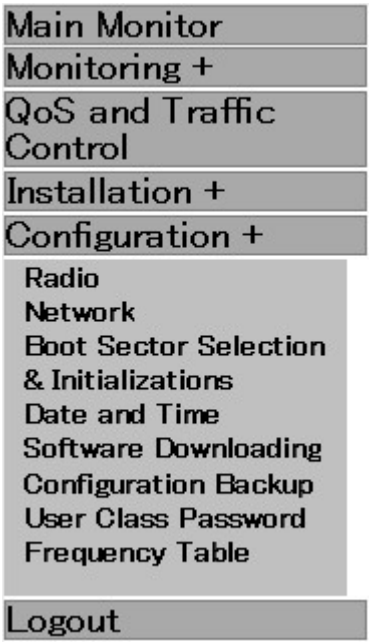
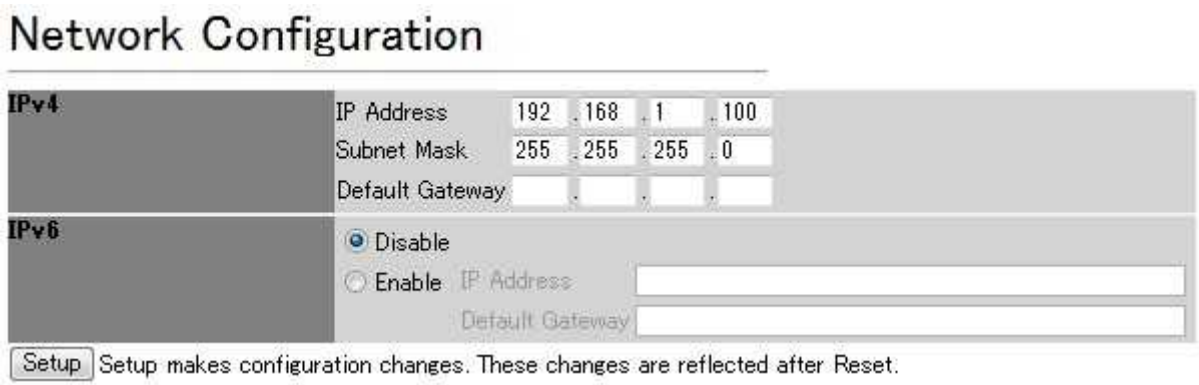


Figure 36 **Configuration** submenu displayed

A Network Configuration window is shown in Figure 37.

Each item is described in Table 29.



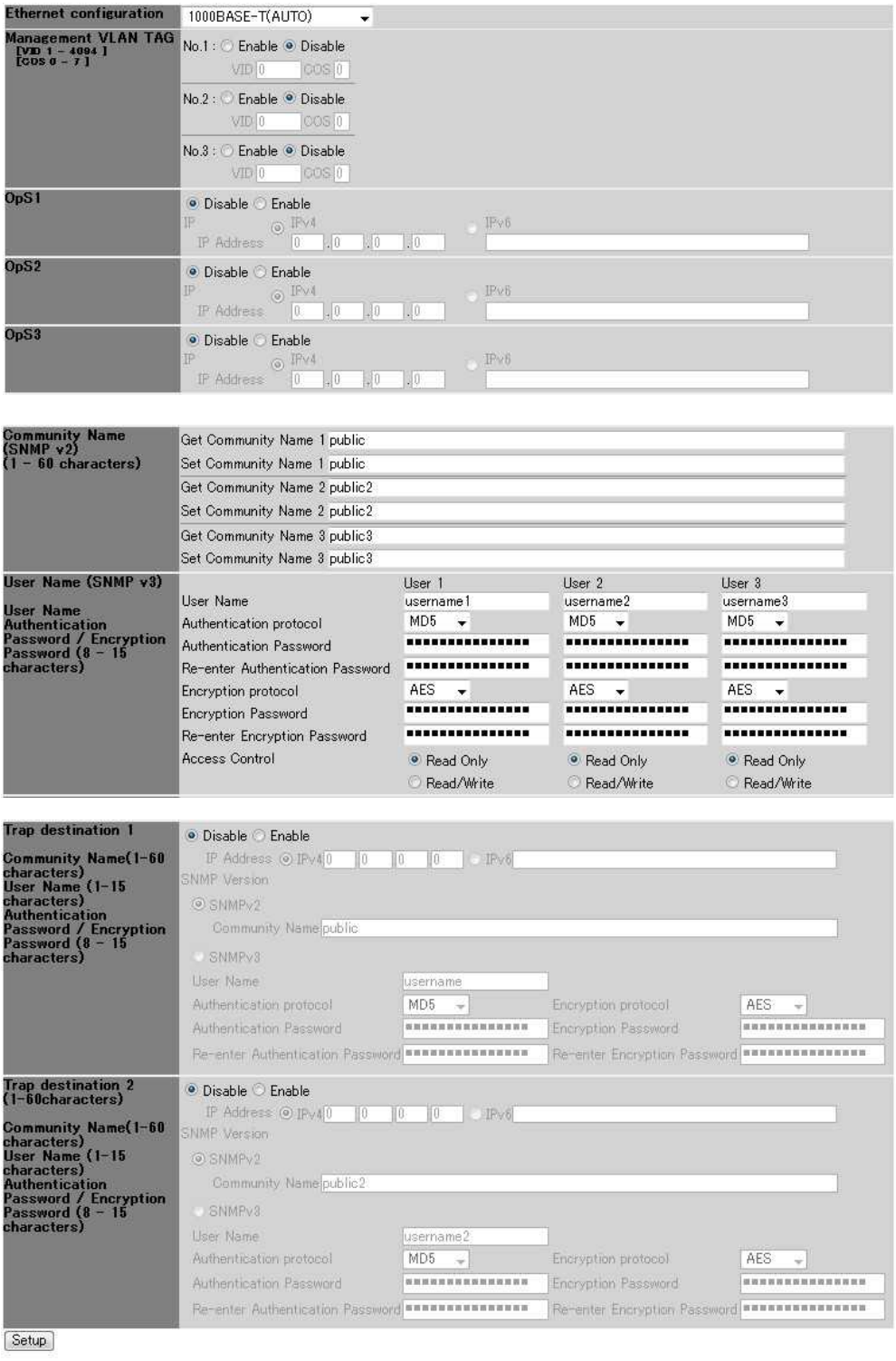


Figure 37 Network Configuration window

Table 29 Description of the Network Configuration window

No.	Item	Setting range	Description
Reflection after restart			
1	IPv4	0 - 255 See 1.9.2.1(1).	Specify an IPv4 address.
2	IPv6	Enable/Disable See 1.9.2.1(2).	Select **Enable** to use IPv6. When enabled, specify an **IP Address** and **Default Gateway**.
3	Setup		Restarts the device and reflect the setting values.
Immediate reflection			
4	Ethernet Configuration	1000BASE-T(AUTO) 1000BASE-T(Fixed) 100BASE-TX FULL(Fixed) 100BASE-TX FULL(AUTO) 100BASE-TX HALF(Fixed)	Select an Ethernet setting.
5	Management VLAN TAG	Enable/Disable	You can register three types of VLAN tags for the MT. Specify Enable/Disable for each type of VLAN tag. You can disable all the VLAN tag settings. About SNMP Trap destination: A total of four ARPs with VLAN tags and without management VLAN tags are transmitted, and a trap is transmitted to a destination where there was an ARP response.
		VID range 1 - 4094 COS value range 0 - 7	When Enable is selected, input a VID and COS value as well.
6	OpS1/2/3	Enable/Disable	You can set three types of OpS. Select Enable/Disable for each type of OpS.

		IP setting IPv4/IPv6	When **Enable** is selected, input the IP setting as well. [IP setting] Select **IPv4** or **IPv6**. Input the IP Address in the selected format.
7	Community Name (SNMPv2)	Up to 60 single-byte characters	Register a SNMPv2 Get/Set community name. You can register up to three types of community names.
8	User Name (SNMPv3)	User Name 1 - 15 single-byte characters	Register a SNMPv3 user name. You can register up to three users.
		Authentication protocol: NONE/MD5/SHA Password: 8 - 15 single-byte characters	Select an authentication protocol. When you select **MD5/SHA**, input a password as well.
		Encryption protocol: NONE/DES/AES Password: 8 - 15 single-byte characters	Select an encryption protocol. When you select **DES/AES**, input a password as well.
		Access Control Read Only Read/Write	Select an access control.
9	Trap destination 1/2	Disable/Enable	You can specify up to two kinds of trap destinations. Select Enable/Disable for each type of trap destination. If Enable is selected, when communication to the trap destination becomes available, a trap is transmitted for each upcoming event. VLAN tag of the trap: For each destination without a VLAN tag and with the management VLAN tag, a trap is transmitted to a destination where there was an ARP response.

		IP Address IPv4/IPv6	When **Enable** is selected, input the IP setting as well. Select **IPv4** or **IPv6**. Input the IP Address in the selected format.
		SNMP Version SNMPv2/SNMPv3	Select a SNMP Version.
		Community Name Up to 60 single-byte characters	When **SNMPv2** is selected, input a **Community Name** as well.
		User Name, Authentication protocol, Authentication Password, Encryption protocol, Encryption Password	When **SNMPv3** is selected, input **User Name**, **Authentication protocol**, **Authentication Password**, **Encryption protocol**, **Encryption Password** as well. See section 8 for the setting range for each item.
10	Setup		Performs immediate reflection.

1.9.2.1. Input Range for IP Addresses

IP addresses that can be input are limited as follows.

(1) IPv4

IP Address

- Values of 0 and 255 cannot be specified for the most significant bit and the least significant bit.
- The range from 127.0.0.0 to 127.255.255.255 cannot be specified.
- Addresses higher than 223.255.255.254 cannot be specified.

Subnet Mask

- An address 0.0.0.0 cannot be specified.
- An address with dropped bits (0 bit) cannot be specified.

Default Gateway

- The bit area of the subnet mask must match the subnet mask of the IP Address.

(2) IPv6

IP Address

- An address 0:0:0:0:0:0:0:0 cannot be specified.

- An address 0:0:0:0:0:0:0:1 cannot be specified.
- Addresses higher than feff:ffff:ffff:ffff:ffff:ffff:ffff:ffff cannot be specified.

Default Gateway

- The address cannot be specified if the most significant 64bits are different from that of the IP Address.

1.9.3. Boot Sector Selection and Initializations

When you select **Configuration** in the operation menu part, a submenu is displayed.

When you select **Boot Sector Selection & Initializations** from the submenu, a Boot Sector Selection & Initializations window is displayed.

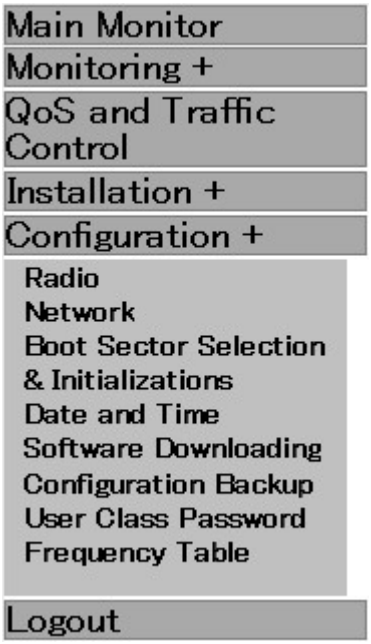


Figure 38 **Configuration** submenu displayed

A Boot Sector Selection & Initializations window is shown in Figure 39.

Each item is described in Table 30Figure 40.

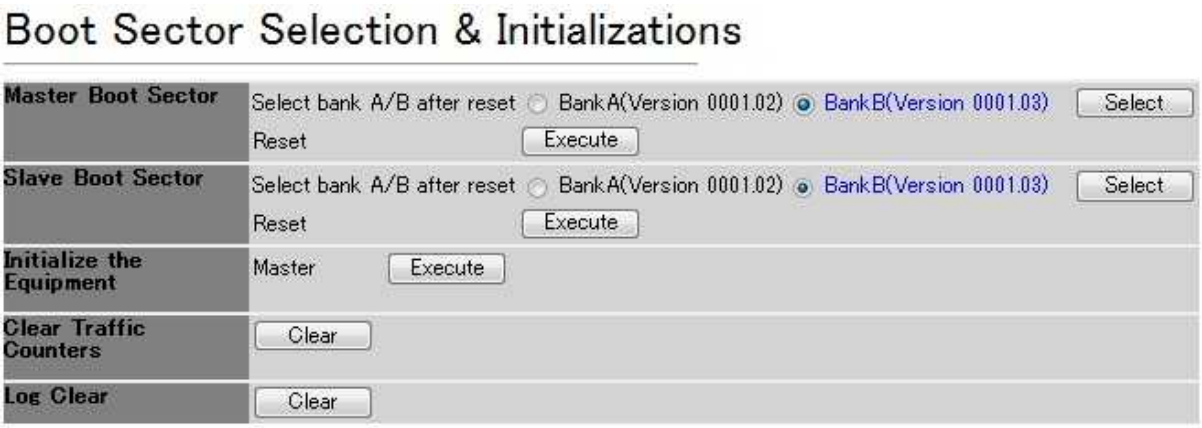


Figure 39 Boot Sector Selection & Initializations window

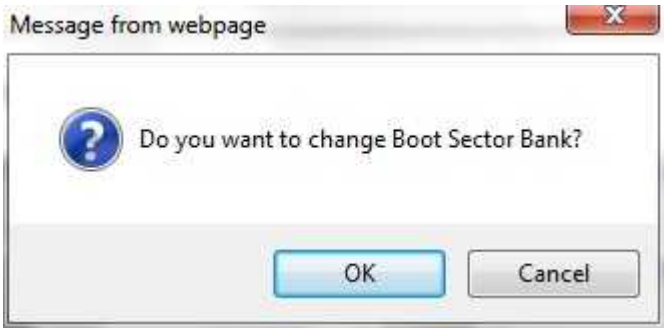


Figure 40 A confirmation dialog to change the boot sector bank

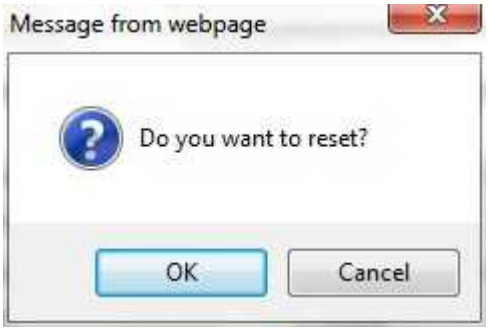


Figure 41 A confirmation dialog to restart

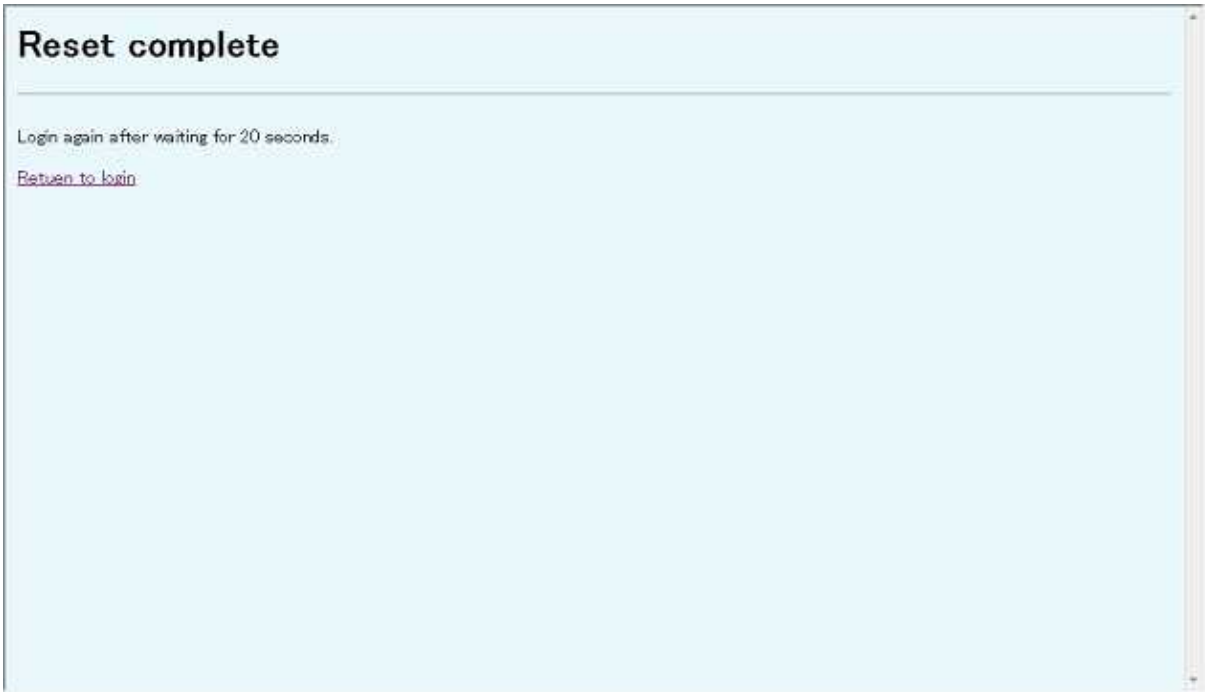


Figure 42 Reset complete window

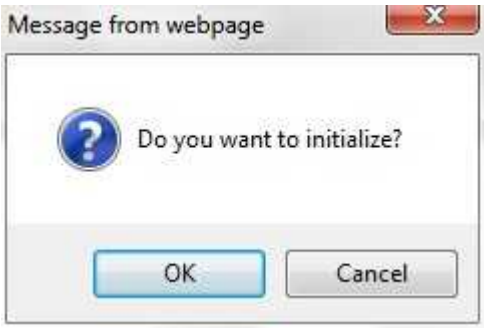


Figure 43 A confirmation dialog to initialize

Table 30 Description of the Boot Sector Selection & Initializations window

No.	Item	Setting range	Description
1	Master Boot Sector	[Select bank A/B after reset] Bank A/Bank B	Specify the start bank. The currently stored version is displayed next to the button.
		[Select]	Performs the bank change. When the **Select** button is clicked, a confirmation dialog in Figure 40 appears. **OK** changes the bank, and **Cancel** closes the dialog without setting.
		[Reset]	Restarts the device. When the **Execute** button is clicked, a confirmation dialog in Figure 41 appears. OK restarts the device, and **Cancel** closes the dialog without restarting. After the restart is finished, a Reset complete window shown in Figure 42 is displayed. When **Return to login** is clicked, it will go back to the Login window shown in Figure 2.
2	Slave Boot Sector		Performs the same operation as Master Boot Sector Selection & Initializations.
3	Initialize the Equipment	[Execute]	When the **Execute** button is clicked, a confirmation dialog shown in Figure 43 appears. **OK** initializes the device, and **Cancel** closes the dialog without initialization.

			Note: Do not turn off the device during initialization.
4	Clear Traffic Counters	[Clear]	When the **Clear** button is clicked, a confirmation dialog to clear the statistical information appears. **OK** clears the statistical information, and **Cancel** closes the dialog without clearing. Note: Do not turn off the device while clearing the statistical information.
5	Log Clear	[Clear]	When the **Clear** button is clicked, a confirmation dialog to clear the log information appears. **OK** clears the log information, and **Cancel** closes the dialog without clearing. Note: Do not turn off the device while clearing the log information.

1.9.4. Date and Time

When you select **Configuration** in the operation menu part, a submenu is displayed.

When you select **Date and Time** from the submenu, a Date and Time window is displayed.

Figure 44 **Configuration** submenu displayed

A Date and Time window is shown in Figure 45.

Each item is described in Table 31.

In the case of NTP setting, the time of the Master is refreshed in three patterns: at the time of starting, setting, and polling. In the case of manual setting (PC Time), it is only refreshed at the time of setting. The time of the Slave is refreshed at the time of various settings, at the time of polling acquisition in the case of NTP setting, and once a day.

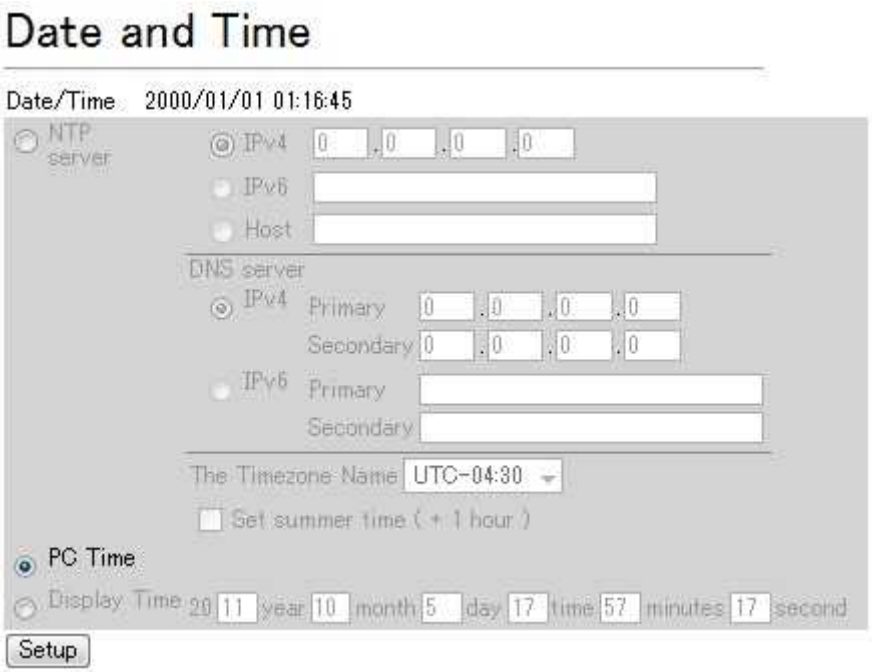


Figure 45 Date and Time window

Table 31 Description of the Date and Time window

No.	Item	Setting range	Description
1	Date/Time		Displays the time of the device.
2	Date and Time selection	NTP Server	When **NTP server** is selected, the device checks the time in the NTP server and set it in the device. When **NTP server** is selected, make settings in Table 32 as well.
		PC Time	When **PC Time** is selected, the time in the PC is set to the device.
		Display Time	When **Display Time** is selected, the time input to the window is set to the device.
3	Setup		Immediately reflects the settings in the Date and Time window.

Table 32 Settings of the NTP Server

No.	Item	Setting range	Description
1	NTP server	IPv4/IPv6/Host	Configure the NTP Server. When IPv4 is selected, specify an IPv4 address for the NTP server. When IPv6 is selected, specify an IPv6 address for the NTP server. When Host is selected, specify a host name of the NTP server.
2	DNS server	IPv4/IPv6	When Host is selected in the NTP server setting, specify a DNS server. When IPv4 is selected, specify an IPv4 address for the DNS server. When IPv6 is selected, specify an IPv6 address for the DNS server. You can specify two kinds of DNS servers: **Primary** and **Secondary**.
	Time Zone setting	See Table 33.	Since the time that can be acquired from the NTP served is Universal Standard Time, the time specified to this item is added to it and set to the device as the device time.
	Summer time		When the **Set summer time check box** is selected, the device time is set by adding an hour to the Time Zone setting.

Table 33 List of time zone settings

UTC-12:00 Baker Island, Howland Island
UTC-11:00 Samoa
UTC-10:00 Hawaii, Western Aleutian Islands
UTC-09:00 Alaska
UTC-09:30 Marquesas Islands
UTC-08:00 United States Pacific Time
UTC-07:00 United States Mountain Time

UTC-06:00 United States Central Time
UTC-05:00 United States Eastern Time
UTC-04:30 Venezuela
UTC-04:00 Canada Atlantic Time, Brazil (Amazon time)
UTC-03:30 Canada (Newfoundland)
UTC-03:00 Brazil (Brazil time), Argentina, Greenland
UTC-02:00 Brazil (Fernando de Noronha Island)
UTC-01:00 Azores islands, Cape Verde
UTC United Kingdom, Ireland, Portugal, Western Africa
UTC+01:00 Central European Time, West Africa Time
UTC+02:00 Eastern European Time, Central Africa Time, South Africa
UTC+03:00 Russia (Kaliningrad), East Africa Time
UTC+03:30 Iran
UTC+04:00 Russia (Moscow), Azerbaijan, United Arab Emirates
UTC+04:30 Afghanistan
UTC+05:00 Pakistan
UTC+05:30 India
UTC+05:45 Nepal
UTC+06:00 Russia (Yekaterinburg), Kazakhstan, Bangladesh
UTC+06:30 Myanmar, Cocos Islands
UTC+07:00 Russia (Omsk), Mongolia, Thailand, Vietnam, Jakarta
UTC+08:00 China, Mongolia, Australia (Western Australia)
UTC+08:45 Australia (Eucla)
UTC+09:00 Japan, Russia (Irkutsk), South Korea
UTC+09:30 Australia (Northern Territory, South Australia)
UTC+10:00 Russia (Yakutsk), Guam, Australian Eastern Time
UTC+10:30 Russia (Vladivostok), Australia (Lord Howe Island)
UTC+11:00 Russia (Magadan), Solomon Islands, New Caledonia
UTC+11:30 Norfolk Island
UTC+12:00 New Zealand, Fiji, Kiribati (Gilbert Islands)
UTC+12:45 New Zealand (Chatham Islands)
UTC+13:00 Tonga, Kiribati (Phoenix Islands)
UTC+14:00 Kiribati (Line Islands)

1.9.5. Software Downloading

When you select **Configuration** in the operation menu part, a submenu is displayed.

When you select **Software Downloading** from the submenu, a Software Downloading window is displayed.

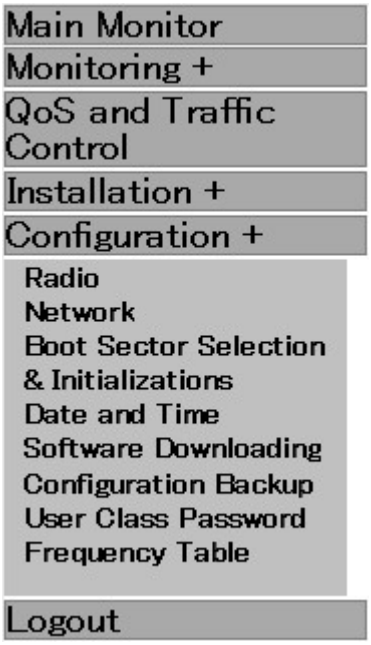


Figure 46 **Configuration** submenu displayed

A Software Downloading window is shown in Figure 47.

Each item is described in Table 34.

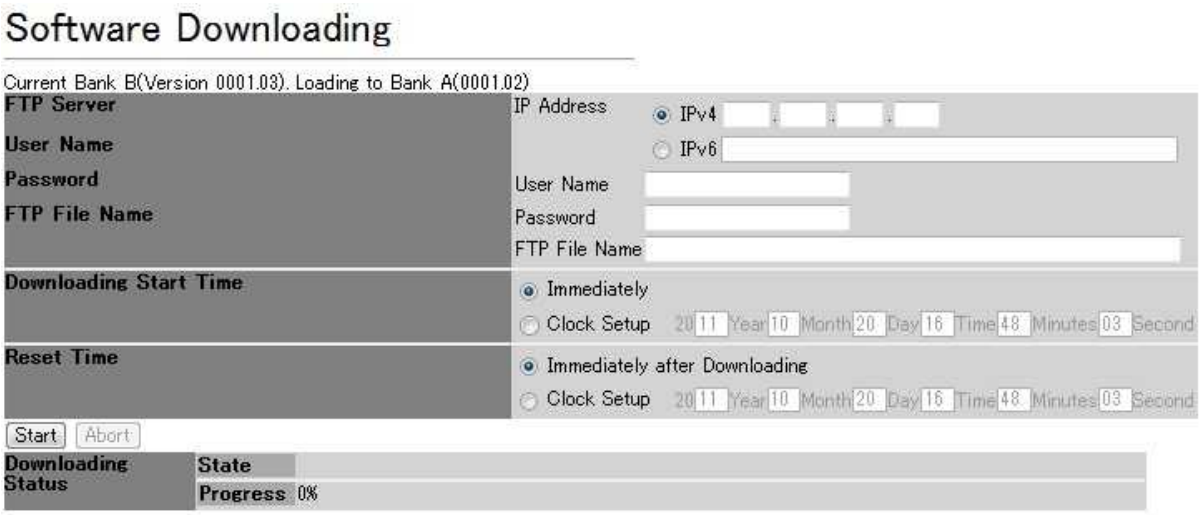


Figure 47 Software Downloading

Table 34 Description of the Software Downloading window

No.	Item	Setting range	Description
1	Software Downloading FTP Server	IP Address IPv4/IPv6	Specify an IP Address of the FTP server in IPv4 or IPv6.
		User Name	Specify a user name to log in to the FTP server.
		Password	Specify a password to log in to the FTP server.
		File Name	Specify a destination path of the software to be downloaded to the device.
2	Down Loading Start Time	Immediately/Clock Setup	Specify a time to start downloading.
3	Reset Time	Immediately after Downloading/Clock Setup	Specify a time to restart.
4	Start		When the **Start** button is clicked, the download starts according to the above conditions.
5	Abort		Cancels the scheduled contents displayed in the State field. When the **Downloading Start Time** is set to **Clock Setup**, and if the **Abort** button is pressed before the set time, downloading is canceled. If the Downloading Start Time is set to **Immediately**, downloading cannot be canceled after it has been started. When the **Reset Time** is set to **Clock Setup**, and if the **Abort** button is pressed before the set time, restarting is canceled. If the **Reset Time** is set to **Immediately**, restarting cannot be canceled after it has been started.

6	Downloading Status	State	Displays the progress of software downloading or updating, or scheduled download. Downloading on Master: Indicates that the Master is during a software download process. Updating on Master: Indicates that the Master is during a software update process. Downloading on Slave: Indicates that the Slave is during a software download process. Updating on Slave: Indicates that the Slave is during a software update process. Displayed scheduled contents are: • Downloading Start Time • Reset Time • FTP server address • Bank to be loaded
		Progress	Displays the download progress in percent.

1.9.5.1. Operation Procedure

(1) Configuring a FTP server

If you use the Software Downloading function, you need a server from which update files are downloaded.

Please configure the FTP server setting as follows:

FTP mode : PASV mode
FTP access port number : 21 ports fixed
User Name : (1 - 15 in single-byte characters)
Password : (8 - 15 in single-byte characters)
[Available characters]
A-Z, a-z, 0-9, ! # $ % ' ( ) * + , - . / : ; = ?
@ [ ] ^ _ ` { | } ~

(2) Immediate update of software

Step 1 Log in to the MT as admin, and select **Configuration** in the operation menu part, and select **Software Downloading** from the submenu to display the window.

Step 2 Specify the FTP server information from which the software is downloaded in the Software Downloading **FTP Server** section.
File name of the downloaded software:
WT_dwldxxxx.xx.mot (xxxx.xx is a version number.)
Select the **Immediately** radio button in the **Downloading Start Time** section.

Step 3 Select the **Immediately after Downloading** radio button in the **Reset Time** section.

Step 4 Click the **Start** button.

(3) Scheduled update of the software

Step 1 Log in to the MT as admin and select **Main Monitor** in the operation menu part to display the window.

Step 2 Check that the time in the **Date/Time** item is correct.
If it is not correct, refer to Section 1.9.4 and adjust the date and time.

Step 3 Select **Configuration** in the operation menu part, and select **Software Downloading** from the submenu to display the window.

Step 4 Specify the FTP server information from which the software is downloaded in the Software Downloading **FTP Server** section.

File name of the downloaded software:

WT_dwldxxxx.xx.mot (xxxx.xx is a version number.)

Set the **File Name** as the following according to the save location in the server.

<If the file is at the root of the home directory>
WT_dwldxxxx.xx.mot (Only the file name.)

<If the file is in a subdirectory under the home directory>
Software¥Master¥WT_dwldxxxx.xx.mot
(1)~~~~~~ (2)~~~~ (3)~~~~~~~~~~~~~~

* Folder name ((1), (2))+File Name ((3))
* Input ¥ or / as separating characters except for the top level folder name.
* If the file is in a hierarchy not in the home directory of the server, input a relative path from the home directory.

Specify the time to start downloading in the **Downloading Start Time** section.

Step 5 Select either the **Immediately after Downloading** or **Clock Setup** radio button in the **Reset Time** section.

If **Clock Setup** is selected, specify a time after the time set in the **Downloading Start Time** section.

Step 6 Click the **Start** button.

During the update process, the contents of the **State** section are updated as the process proceeds.

When the reservation process is started, in an idle time when the device is not downloading, updating, nor restarting, the following scheduled contents are displayed in the **State** section.

⚠	If you perform schedule setting, set the correct date and time in the device in advance. If the device time is wrong, the process will not be performed at the specified time.
⚠	If the restart process is set with the **Clock Setup**, and when the specified time has passed when the downloading is finished, downloading process will be processed as **Immediately**.

(4) Canceling the software update

If you want to abort the update midway, click the **Abort** button in the Software Downloading window.

When the **Abort** button is clicked, the scheduled contents and restart process for the update process is canceled. The process being performed while downloading and updating will be continued. Therefore if you want to perform the update again, continue the work after the **State** section turns to idle state.

In addition, if you perform the following operations, the software update process is aborted and the **State** section turns to idle state.

- After clicking the **Start** button in the Software Downloading window and before the download is started, if you click the **Start** button in the Antenna Alignment window on the LMT, the Software Downloading process is canceled.
- After the performing the software download and while waiting for the device to restart, if you click the **Start** button in the Antenna Alignment window, the restart process is canceled.

⚠	Do not turn off or restart the device during a software update process. The device may be broken.
⚠	The **Abort** button is designed to cancel the scheduled contents and restart process for the update process. It is not possible to stop the download or update process.

1.9.6. Configuration Backup

When you select **Configuration** in the operation menu part, a submenu is displayed.

When you select **Configuration Backup** from the submenu, a Configuration Backup window is displayed.

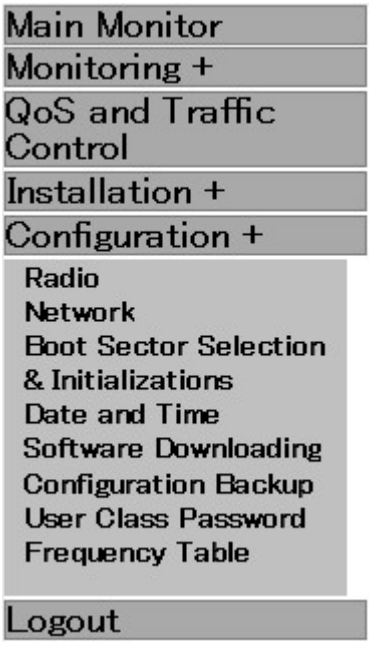


Figure 48 **Configuration** submenu displayed

A Configuration Backup window is shown in Figure 49.

Each item is described in Table 35.

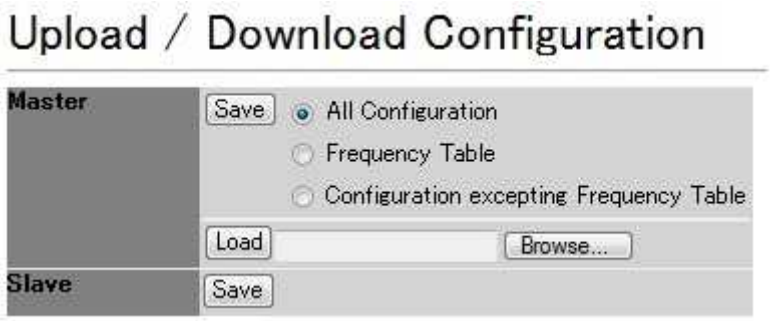


Figure 49 Configuration Backup window

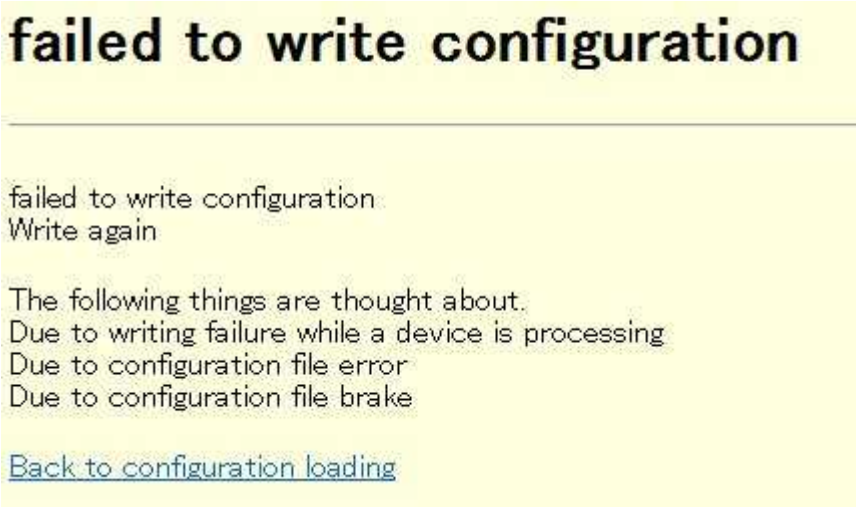


Figure 50 Failed to write configuration window

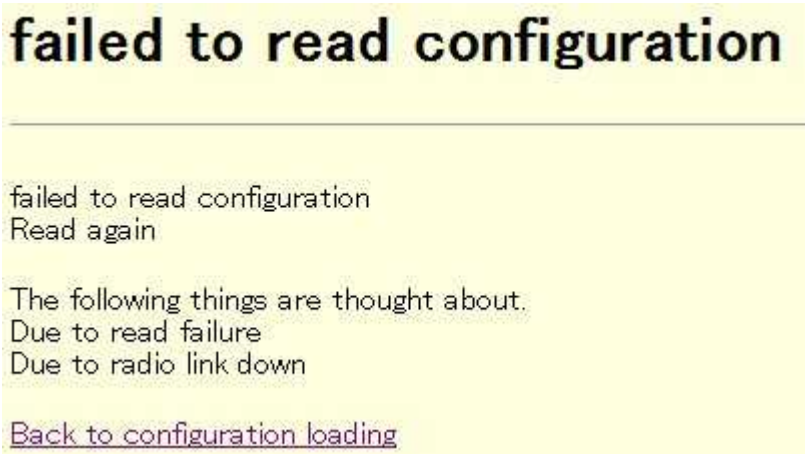


Figure 51 Setting save error window

(An example when tried to save the configuration of the Slave in the Master when no radio connection is established)

Table 35 Description of the Configuration Backup window

No.	Item	Setting range	Contents
1	Master Save	In the Master field, specify configuration information to be saved. All Setting : Entire configuration information Frequency Info: Only frequency information Setting Info : Configuration	Saves the specified configuration information. When the **Save** button is clicked, a dialog to specify a save destination and name is displayed.

		information except for frequency information	
2	Master Load		When the **Browse** button is clicked, a dialog for selecting a file is displayed. When the **Load** button is clicked, a popup window confirming the writing and reset is displayed. **YES** performs the writing and reset. **NO** closes the popup window without writing.
3	Slave Save	When saving the configuration information in the Slave, specify, in the Master field, the configuration information to be saved. All Setting : Entire configuration information Frequency Info: Only frequency information Setting Info : Configuration information except for frequency information	Saves the specified configuration information. When the **Save** button is clicked, a dialog to specify a save destination and name is displayed.
4	Error		When the writing failed, a window shown in Figure 50 is displayed. When the saving failed, a window shown in Figure 51 is displayed. In both cases, you can go back to the Configuration Backup window by clicking **Back to configuration loading**.

1.9.7. User Class Password

When you select **Configuration** in the operation menu part, a submenu is displayed.

When you select **User Class Password** from the submenu, a User Class Password window is displayed.

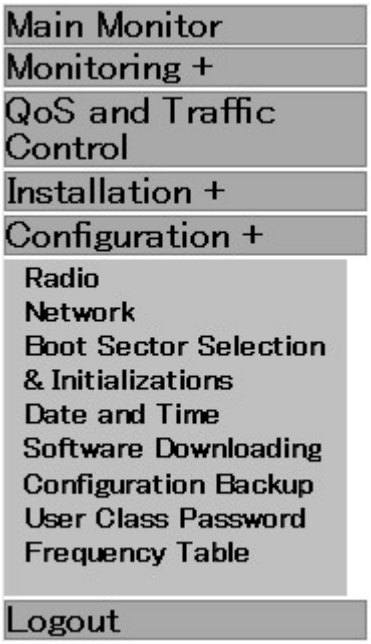


Figure 52 **Configuration** submenu displayed

A User Class Password window is shown in Figure 53.

Each item is described in Table 36.

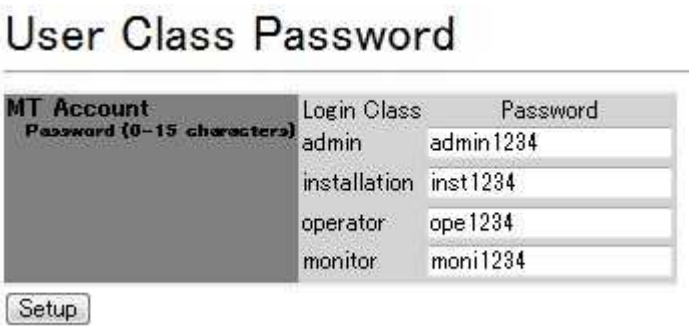


Figure 53 User Class Password window

Table 36 Description of the User Class Password window

No.	Item	Setting range	Description
1	MT account	Password 0 - 15 characters No password in the case of 0 character.	Specify passwords for the four types of accounts. Each account is described in Table 4.
2	Setup		When the **Setup** button is clicked, the setting is immediately reflected.

1.9.8. Frequency Table

When you select **Configuration** in the operation menu part, a submenu is displayed.

When you select **Frequency Table** from the submenu, a Frequency Table window is displayed.

Figure 54 **Configuration** submenu displayed

A Frequency Table window is shown in Figure 55. Each item is described in Table 37.

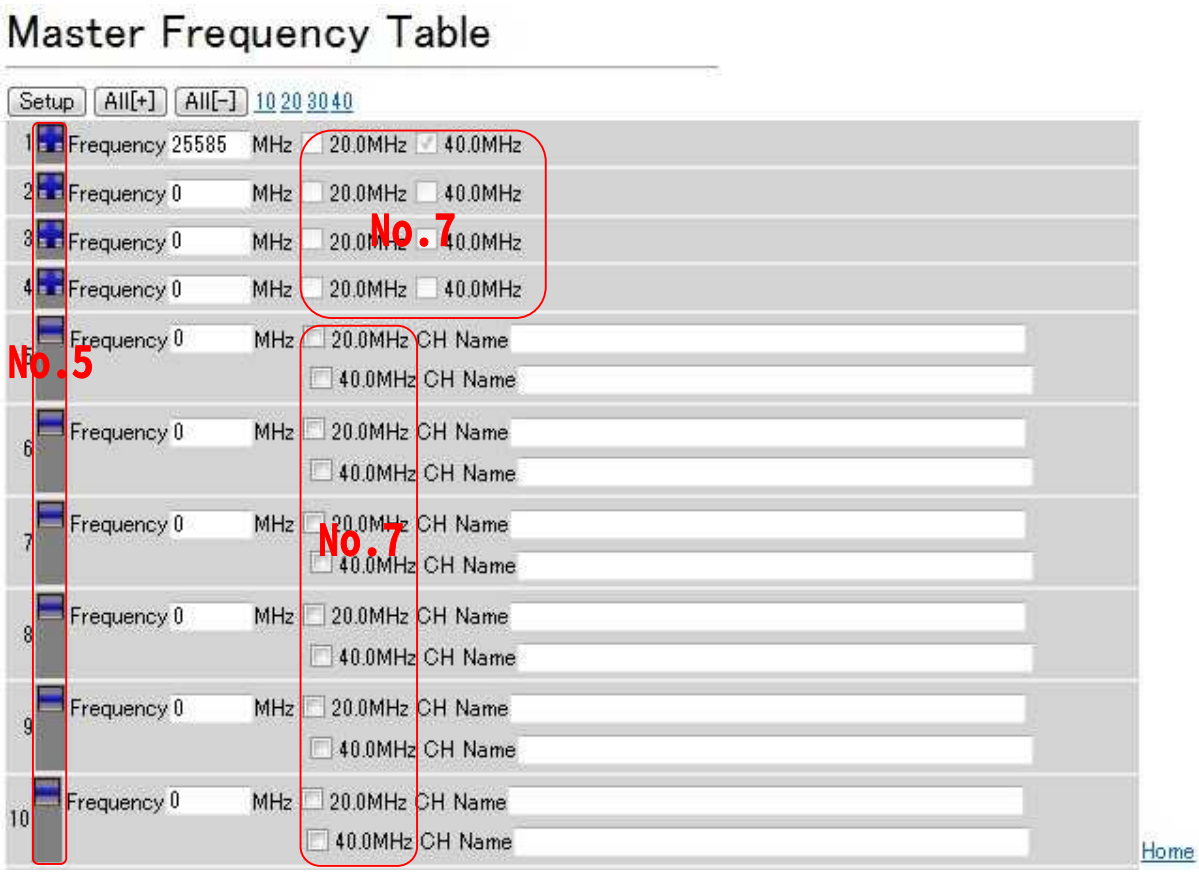


Figure 55 Frequency Table window

Table 37 Description of the Frequency Table

No.	Item	Setting range	Description
1	Setup		Sets all the items specified in this page to the Flash ROM. The setting will be reflected after the restart.
2	All[＋]		Sets all the following frequency setting items to [+] so that the list of frequencies can be viewed.
3	All[－]		Sets all the following frequency setting items to [-] so that the list of CH names can be viewed.
4	10 20 30 40		Move to the specified number.
5	Select display method	[+] [-]	In the case of [+], the CH Name is omitted and the enable/disable status of the frequency and each symbol rate is displayed. In this case, the enable/disable status of the symbol rate cannot be changed. In the case of [-], the enable/disable status of the symbol rate aligns vertically, and each CH Name can be configured.
6	Frequency _____MHz	See the "Frequency channel" section.	Displays and configures frequencies.
7	Symbol Rate	See the "Frequency channel" section.	Displays and configures the enable/disable status of the symbol rate. If the display method is [+], the enable/disable status of the symbol rate cannot be changed.
8	Home		When clicked, it will move to the top.

1.10. Logout

After clicking **Logout** in the operation menu part, select **OK**. A Logout complete window as shown in Figure 56 appears.

Clicking **Return to login** will display a Login window shown in Figure 2.

Figure 56 Logout complete window

2. Management Tool (Slave)

2.1. Overview of the Management Tool (Slave)

The Management Tool (MT) is a Web server function integrated in the device. It is for configuring and monitoring the device. Table 38 shows a functional overview of the MT.

Table 38 Functional overview of the MT (Slave)

Item 1	Item 2	Contents
Main Monitor		Displays the transmission rates and radio links.
Monitoring	Event Log	Displays a log of events.
	NE State Information	Displays the Radio Link, QoS and Traffic Control, Inventory information, and Network Configuration.
QoS and Traffic Control		Performs COS assignment for Management Communication.
Installation	Antenna Alignment	Performs the Antenna Alignment mode.
	Packet Transmission Test	Performs the Packet Transmission Test.
Configuration	Radio	Makes configuration related to radio.
	Network	Makes configuration of IP addresses.
	Reset and Initializations	Makes configuration of restart and initialization, and clears the log.
	Configuration Backup	Saves and writes to the configuration file.
	User Class Password	Makes configuration of passwords.
	Frequency Table	Makes configuration of frequencies.
Logout		Logs you out.

2.2. Logging In

[Operation]

① Connects the MT operation PC and the device over the LAN. Table 39 shows an recommended environment for the PC.

Table 39 Recommended environment for the MT operation PC

No.	Item	Specifications	Remarks
1	Web browser	Windows Internet Explorer Version 8 or higher	
2	Monitor size	1024*768	

② Input the IP address of the device as the URL in the Windows Internet Explorer. The factory default IP address is "192.168.1.100".

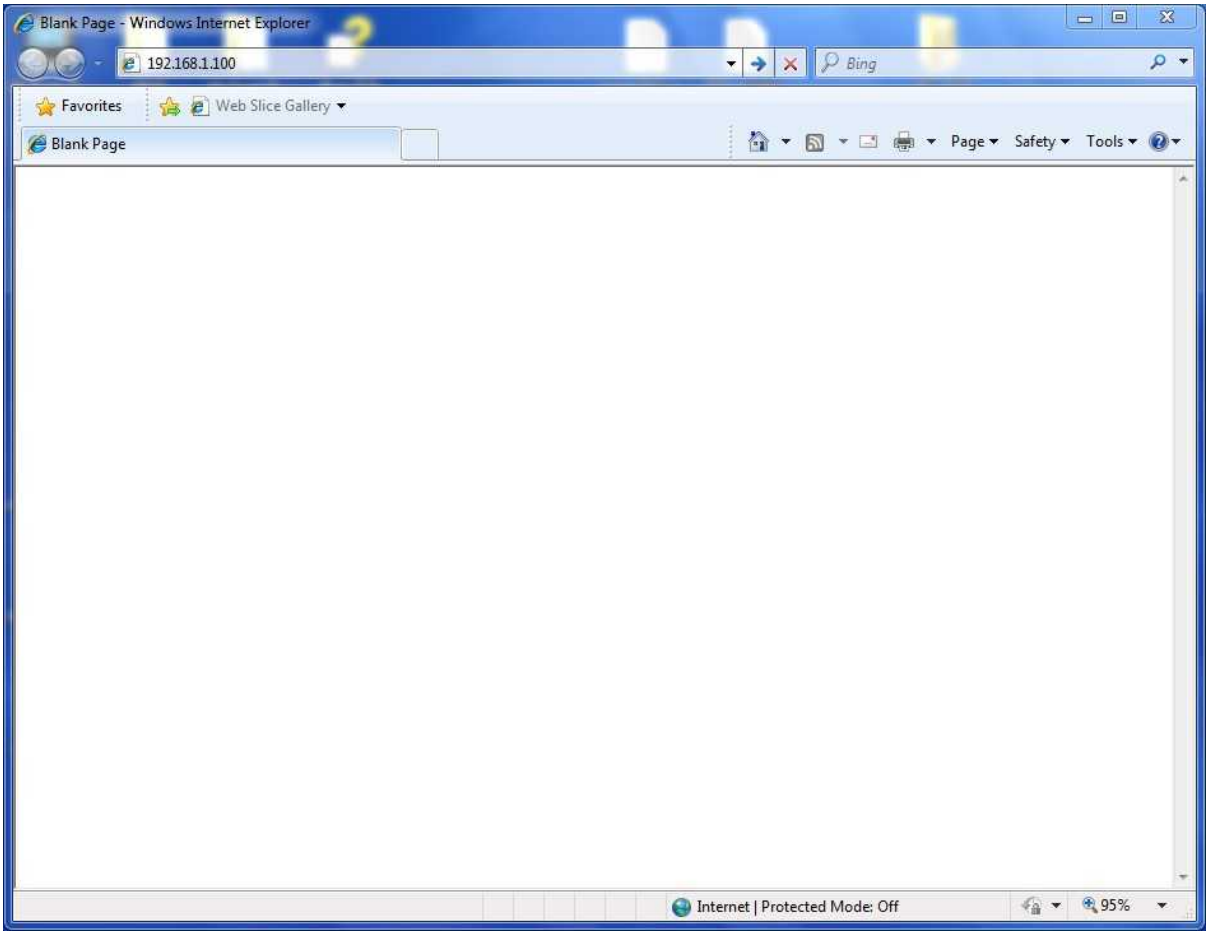


Figure 57 Inputting the IP address to the Internet Explorer

③ A Login window as shown in Figure 59 is displayed.

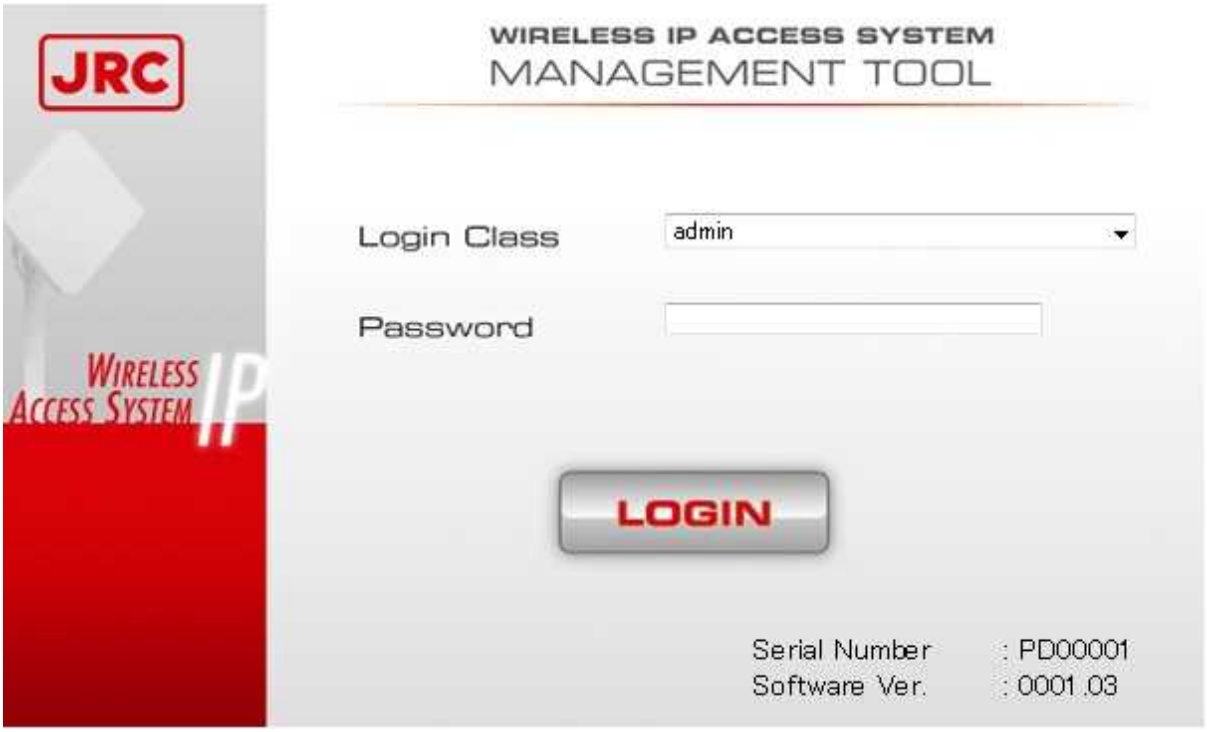


Figure 58 Login window

④ Select a **Login Class**. Selectable login classes are shown in Table 41.

⑤ Input the **Password**. The default password is shown in Table 40.

⑥ **LOGIN** button: Tries to connect to the device.

⑦ If you are successfully logged in, a window shown in Figure 61 is displayed.
If you failed to log in, a Login Failure window shown in Figure 60 is displayed. Clicking **Return to login** will take you back to the Login window shown in Figure 59.

Figure 59 Login Failure window

Table 40 Description of the Login window

No.	Item	Setting range	Description
1	Login Class	admin installation operator monitor	You can select a permission level by the Login Class. Table 4 lists a function of each Login Class.
2	Password	0 - 15 characters	Input the password. Default passwords are: Login Class Password admin admin1234 installation inst1234 operator ope1234 monitor moni1234
3	Login button		You can log in using the above **Login Class** and **Password**.

Table 41 Function of each Login Class

Monitor	Login Class (permission level High ... Low)			
	admin	installation	operator	monitor
Main Monitor	Yes	No	Yes	Yes
Monitoring	Yes	No	Yes	Yes
QoS and Traffic Control	Yes	No	Yes	No
Installation	Yes	Yes	No	No
Configuration	Yes	No	No	No
Logout	Yes	Yes	Yes	Yes

• If an upper or equivalent level user newly logs in while a user is logged in, the user previously logged in will be forced to log out.

• You can check a user who have logged in by selecting a Login Class drop-down list in the Login window.

2.3. Configuration of Main Window

After the login, a main window shown in Figure 61 is displayed. The main window includes a status display part, operation menu part, and operation window part.

(1) Status display part (Equipment status)

This part displays the status of the device. The status display part displays settings (Mode/Symbol Rate/Frequency/CH/Frame ID) in the upper row, and statuses (Status/Radio Link/Authentication/Manag. Com./Ethernet Link/Ethernet Link (Opposite NE) in the lower row.

Anomalies in the status are displayed by evaluating Normal or Failed by ORing each anomaly shown in Table 43.

(2) Operation menu part

This part lets you select each function listed in Table 38.

(3) Operation window part

This part displays a window for each function selected in the operation menu part.

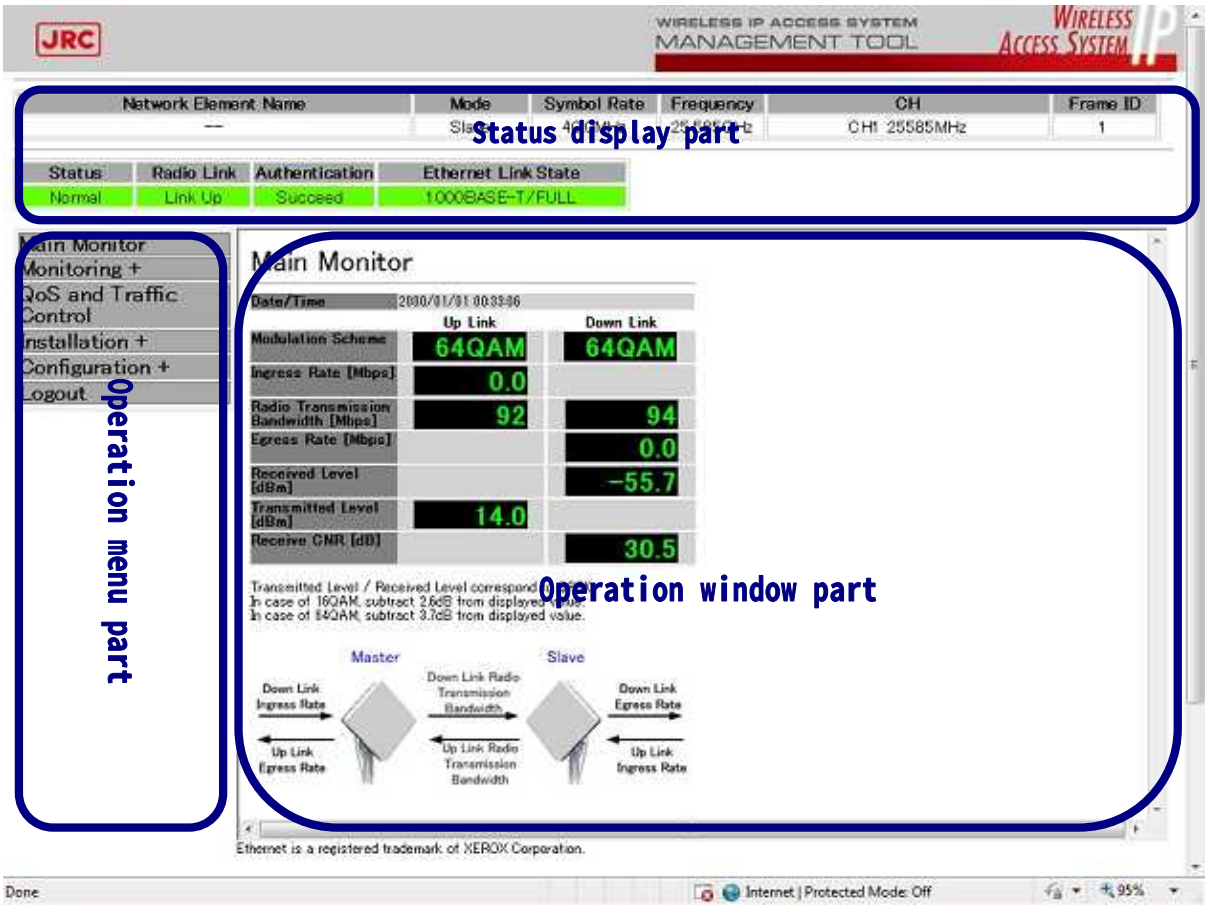


Figure 60 Window after the login

Table 42 Status display list

Status	Display
Network Element Name	Displays the Network Element Name.
Mode	MASTER/SLAVE
Symbol Rate	Displays the symbol rate name set in the NE data.
Frequency	During the carrier sense, "----" is displayed. When the carrier sense is completed and the frequency is determined, the radio frequency channel set in the configuration information is displayed.
CH	During the carrier sense, "-" is displayed. When the carrier sense is completed and the frequency is determined, the channel name set in the configuration information is displayed.
Frame ID	The frame ID set in the configuration information is displayed.
Status	Normal/Failure
Radio Link	Link Up/Link Down
Authentication	Succeed/Failure
Ethernet Link	Link Down 10BASE-T/HALF 10BASE-T/FULL 100BASE-TX/HALF 100BASE-T/FULL 1000BASE-T/HALF 1000BASE-T/FULL

Table 43 Causes of Status anomalies

Item
RF Carrier Unlock
IF Carrier Unlock
TDD SW Failure
PA Failure
PLL Unlock
Device start is abnormal
SPI Failure

2.4. Reflecting the Setting Values (immediate reflection and reflection after restart)

Each window has two kinds of **Setup** buttons. One kind is "reflection after restart" which requires a restart to reflect the setting, and the other kind is "immediate reflection" which does not need a restart to reflect the setting values.

• Reflection after restart

The value is reflected to the Flash ROM at the time the **Setup** button is pressed. The pop-up message to notify that the value is reflected after the restart and prompt you to restart is displayed. You can select from **OK** or **Cancel**. If you press **OK**, the device is restarted, and if you press **Cancel**, the device will go back to the previous window without restarting.

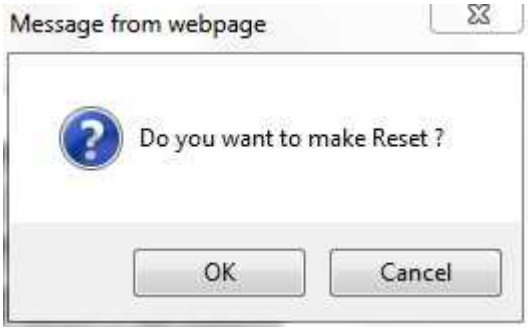


Figure 61 Reflection after restart message

• Immediate reflection

A pop-up message that notifies you that the values are immediately reflected will be displayed (Figure 62). If you click **OK**, the value is immediately reflected. If you click **Cancel**, the device will return to the previous window without reflecting the value.

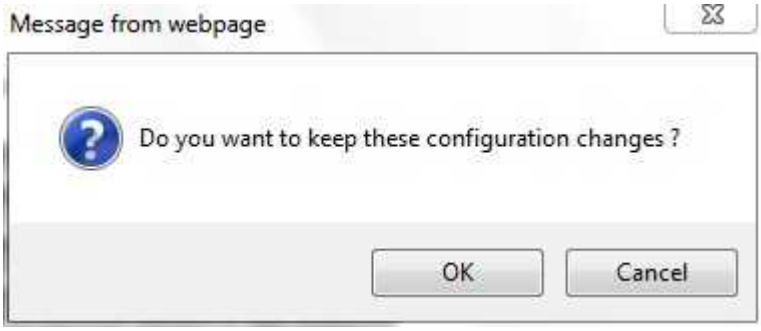


Figure 62 Immediate reflection message

• When the input value exceeds the setting range in the case of direct input, a message as shown in Figure 63 is displayed.

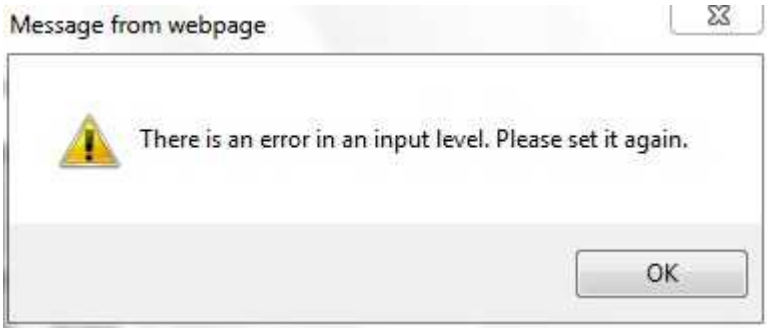


Figure 63 Input value error message

2.5. Main Monitor

When you select the **Main Monitor** from the operation menu part, a **Main Monitor** window is displayed.

A **Main Monitor** window displays the transmission rates and radio links.

A **Main Monitor** window is shown in Figure 64. The description of each item is shown in Table 44.

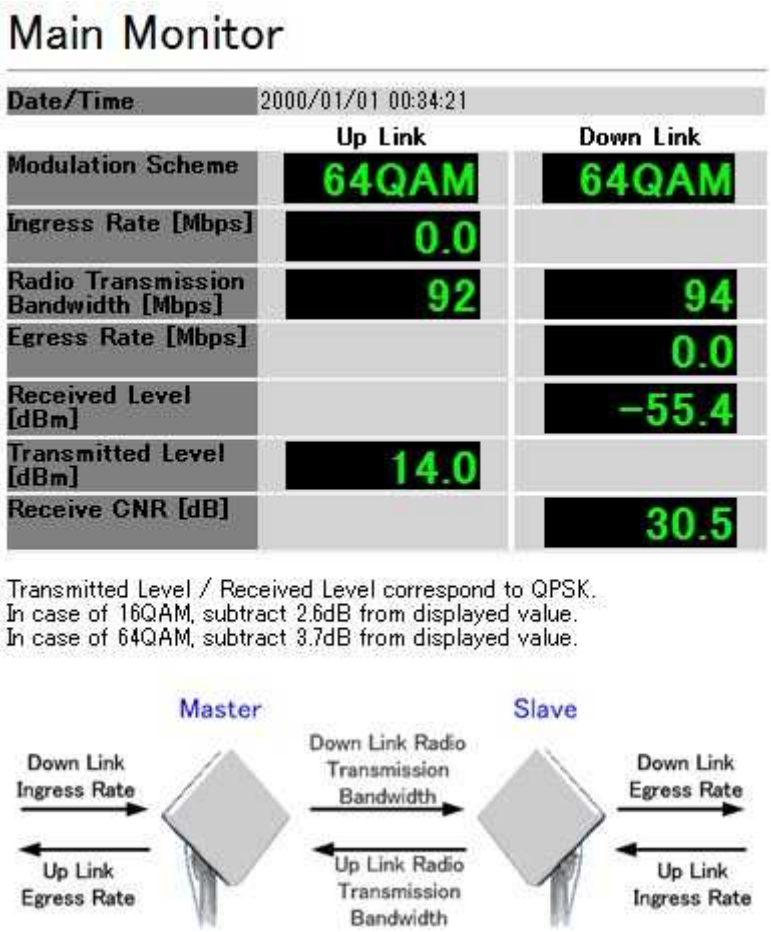


Figure 64 **Main Monitor** window

Table 44 Description of the **Main Monitor** window

No.	Item	Description
1	Date/Time	Displays the time in the device.
2	Modulation Scheme	Displays the current Modulation Scheme.
3	Radio Transmission Bandwidth	Displays the current radio transmission bandwidth.
4	Ingress Rate	Displays the current ingress rate of Ethernet packets. Only the uplink ingress rate is displayed.
5	Egress Rate	Displays the current egress rate of Ethernet packets. Only the downlink egress rate is displayed.
6	Received Level	Displays the current receiving level. Only the downlink is displayed. During Link Down, "-" is displayed.
7	Transmittied Level	Displays the current transmission level. Only the uplink is displayed. During Link Down, "-" is displayed.
8	Receive CNR	Displays the current receiving CNR. Only the downlink is displayed. During Link Down, "-" is displayed.

2.6. Monitoring

2.6.1. Event Log

When you click **Monitoring** from the operation menu part, a submenu is displayed.

When you select the **Event Log** in the submenu, an Event Log window is displayed.

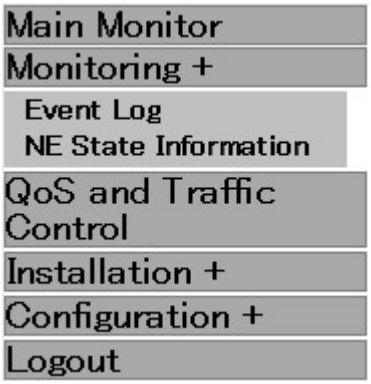


Figure 65 **Monitoring** submenu displayed

An Event Log window is shown in Figure 66.

The Event Log window displays a log of events and a log of changes in the modulation scheme.

Each item is described in Table 45.

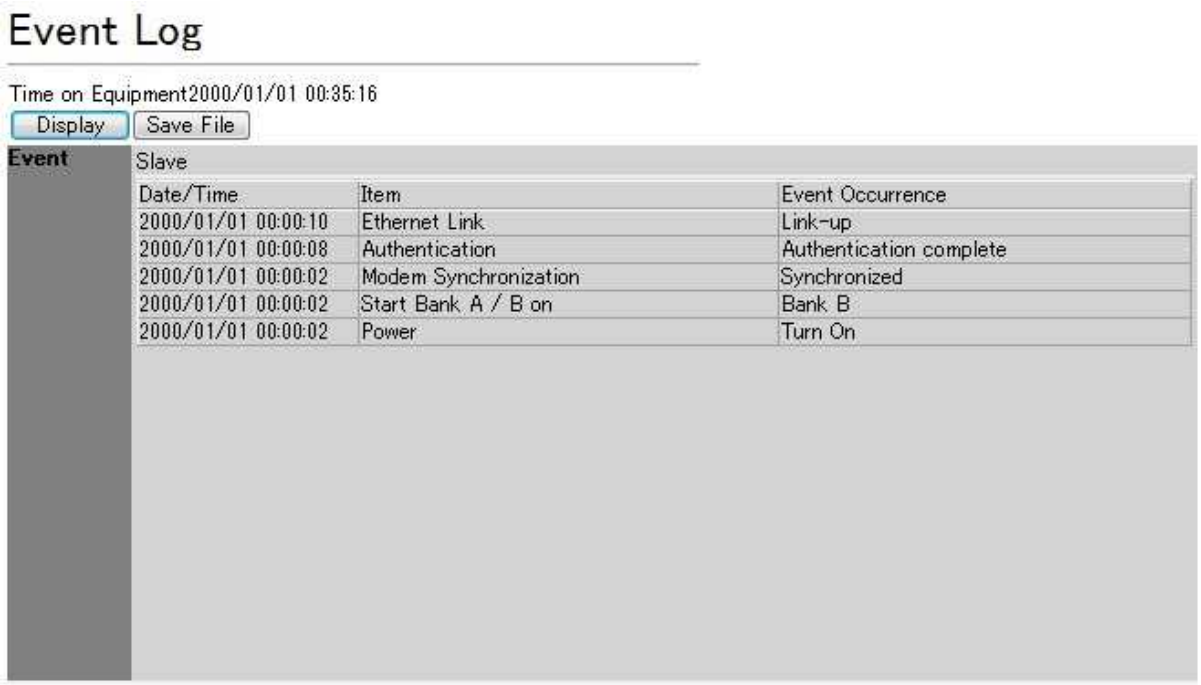


Figure 66 Event Log window

Table 45 Description of the Event Log window

No.	Item	Description
1	Display	When clicked, the Event Log window is refreshed.
2	Save File	When clicked, a dialog to specify the file destination and name is displayed to store the log in a file. The file format is CSV.
3	Event	Displays a log of events.

2.6.2. NE State Information

When you click **Monitoring** from the operation menu part, a submenu is displayed.

When you select **NE State Information** from the submenu, an NE Status Information window is displayed.

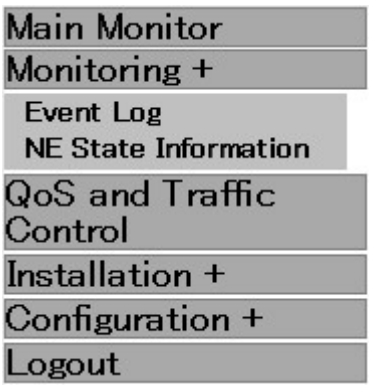


Figure 67 **Monitoring** submenu displayed

2.6.2.1. Radio Link and Inventory Information

Figure 68 shows the NE Status Information window including radio link and inventory information.

Each item is described in Table 46.

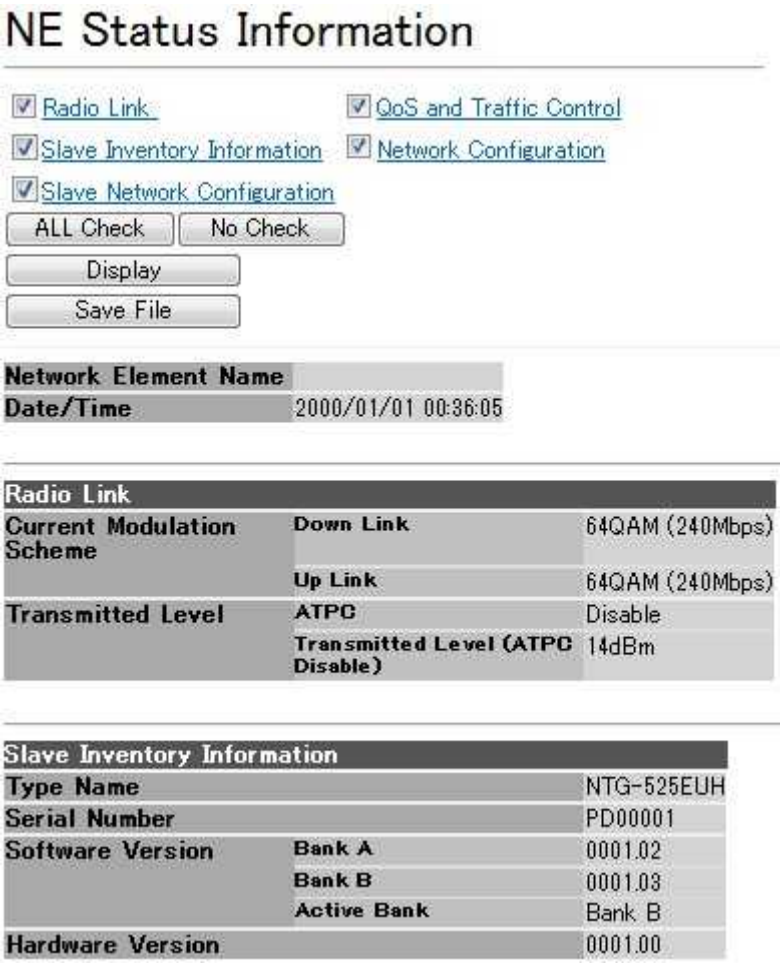


Figure 68 NE Status Information window

Table 46 Description of the NE Status Information window

No.	Item	Description
1	check box	The NE Status Information window is divided into five types: Radio Link, QoS and Traffic Control, Slave Inventory Information, Network Configuration, Slave Network Configuration. Only the items with their check boxes selected are displayed.
2	ALL Check	Selects all the check boxes.
3	No Check	Clears all the check boxes.
4	Display	When clicked, NE State Information is refreshed.
5	Save File	When clicked, a dialog to specify the destination and name of the file is displayed to store NE Status Information. In the **Radio Link**, following information will be saved in addition to the displayed items. [Mode] [Symbol Rate] [Frequency] [CH] [Frame ID] [Status] [Radio Link] [Authentication]
6	Network Element Name	Displays the network element name.
7	Date/Time	Displays the time of the device when the window is displayed.
8	Radio Link	[Current Modulation Scheme: Down Link] [Current Modulation Scheme: Up Link] [Transmitted Level]
9	Slave inventory Information	[Type Name] [Serial Number] [Software Version: Bank A/Bank B/Active Bank] [Hardware Version]

2.6.2.2. Slave Network Configuration

A Slave Network Configuration window is shown in Figure 69.

Each item is described in Table 47.

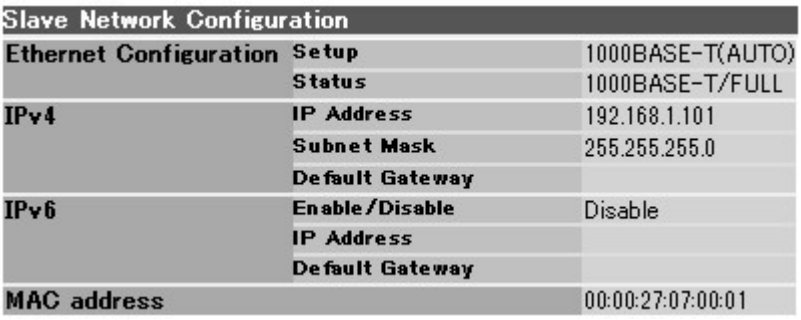


Figure 69 Slave Network Configuration

Table 47 Items of Slave Network Configuration window

No.	Item	Description
1	Ethernet Configuration	[Setup] Displays the setting value at the time it is displayed. [Status] Displays the Ethernet link status at the time it is displayed.
2	IPv4	[IP Address] [Subnet Mask] [Default Gateway] Displays the setting value at the time it is displayed.
3	IPv6	[Enable/Disable] [IP Address] [Default Gateway] Displays the setting value at the time it is displayed.
4	MAC address	Displays the MAC address at the time it is displayed.

2.6.2.3. QoS and Traffic Control

A QoS and Traffic Control window is shown in Figure 70.

Each item is described in Table 48.

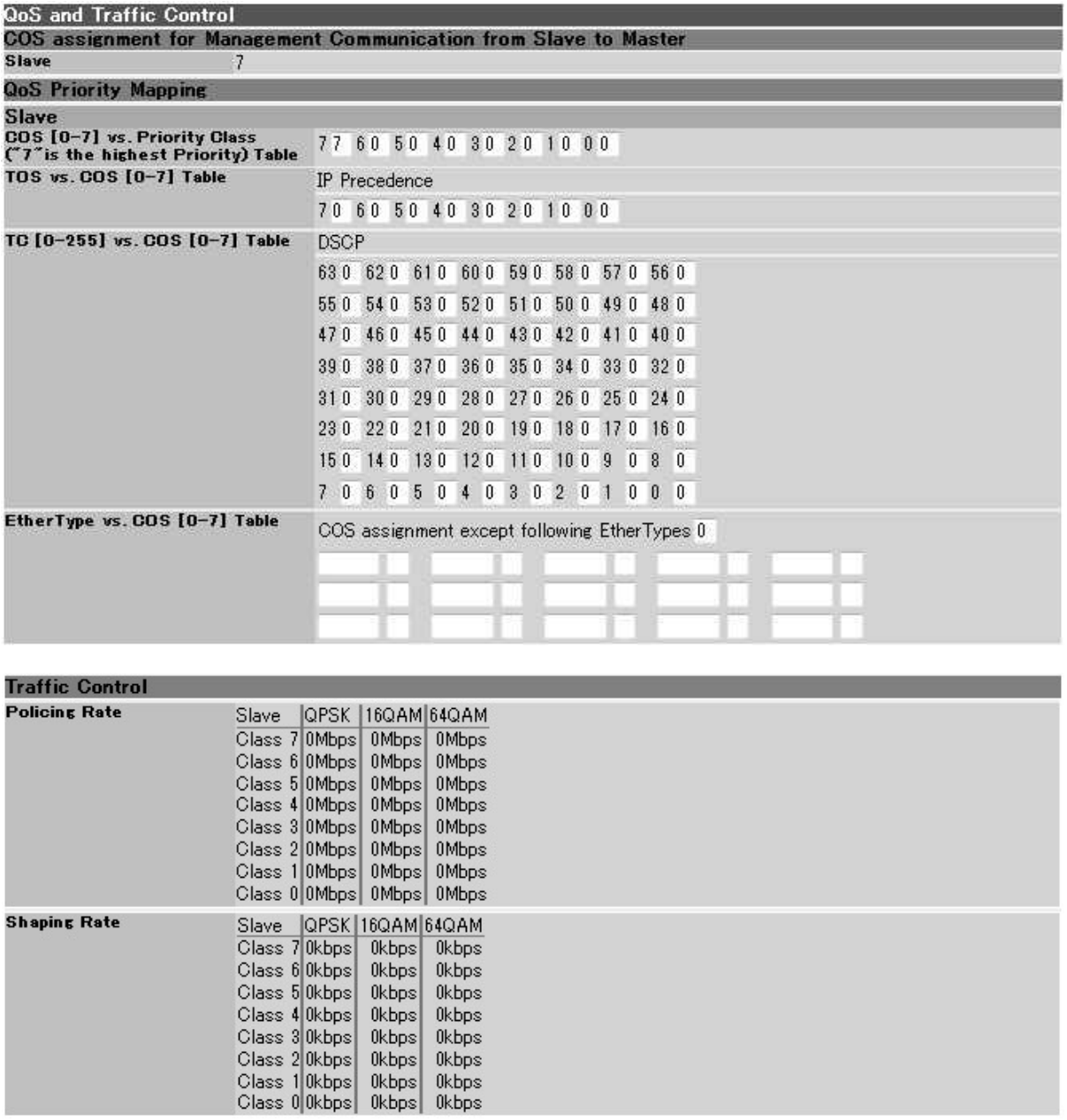


Figure 70 QoS and Traffic Control

Table 48 Description of the QoS and Traffic Control window

No.	Item	Description
1	COS assignment for Management Communication	Displays a COS assignment value for communication between Master and Slave devices.
2	QoS Priority Mapping	Following values are displayed for the Slave. Displays the setting value at the time it is displayed. **COS [0-7] vs. Priority Class ("7"is the highest Priority) Table** **TOS vs. COS [0-7] Table** **TC [0-255] vs. COS [0-7] Table** **EtherType vs. COS [0-7] Table** For **TOS vs. COS [0-7] Table**, IP Precedence or DSCP, either of which has been selected, is displayed.
3	Policing Rate	Displays permitted policing rates of the Master and Slave. These are displayed for each class and each modulation scheme.
4	Shaping Rate	Displays permitted policing rates of the Master and Slave. These are displayed for each class and each modulation scheme.

2.6.2.4. Network Configuration

A Network Configuration window is shown in Figure 71.

Each item is described in Table 49.

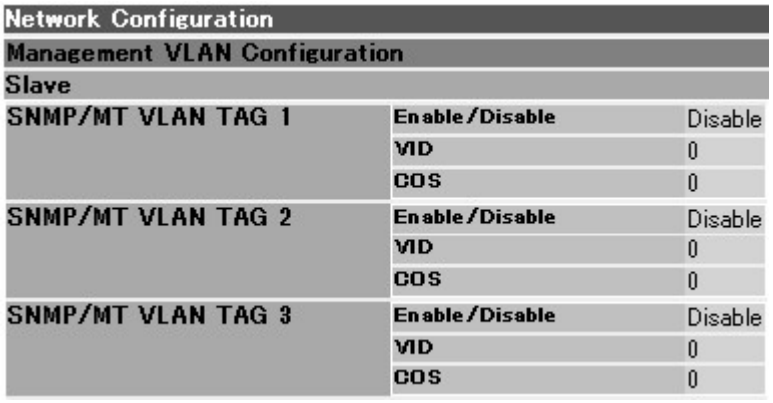


Figure 71 Network Configuration window

Table 49 Description of the Network Configuration window

No.	Item	Description
1	Management VLAN Configuration	Displays the VLAN tag information for managing the Master and Slave.

2.7. QoS and Traffic Control

When you select QoS and Traffic Control in the operation menu part, a QoS and Traffic Control window is displayed.
In the QoS and Traffic Control window, you can set VID/COS for Management Communication.

2.7.1. COS Assignment for Management Communication from Slave to Master

A window for assigning COS for Management Communication is shown in Figure 72.
The settings in this window are reflected after a restart.
Each item is described in Table 50.

Figure 72 A window for assigning COS for Management Communication

Table 50 Description of a window for assigning COS for Management Communication

No	Item	Description
1	COS assignment for Management Communication from Slave to Master	Specify a COS value used during communication from the Slave to the Master. Note: If you set a low priority for the COS assignment for Management Communication, the device may not work properly when the user data traffic exceeds the radio bandwidth.

2.8. Installation

2.8.1. Antenna Alignment

When you select **Installation** in the operation menu part, a submenu is displayed.

When you select **Antenna Alignment** from the submenu, an Antenna Alignment window is displayed.

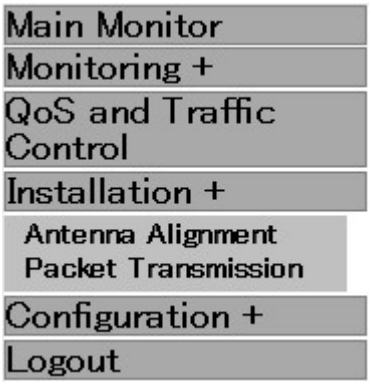


Figure 73 **Installation** submenu displayed

An Antenna Alignment window is shown in Figure 74.

Each item is described in Table 51. Also, the displayed status is described in Table 52.

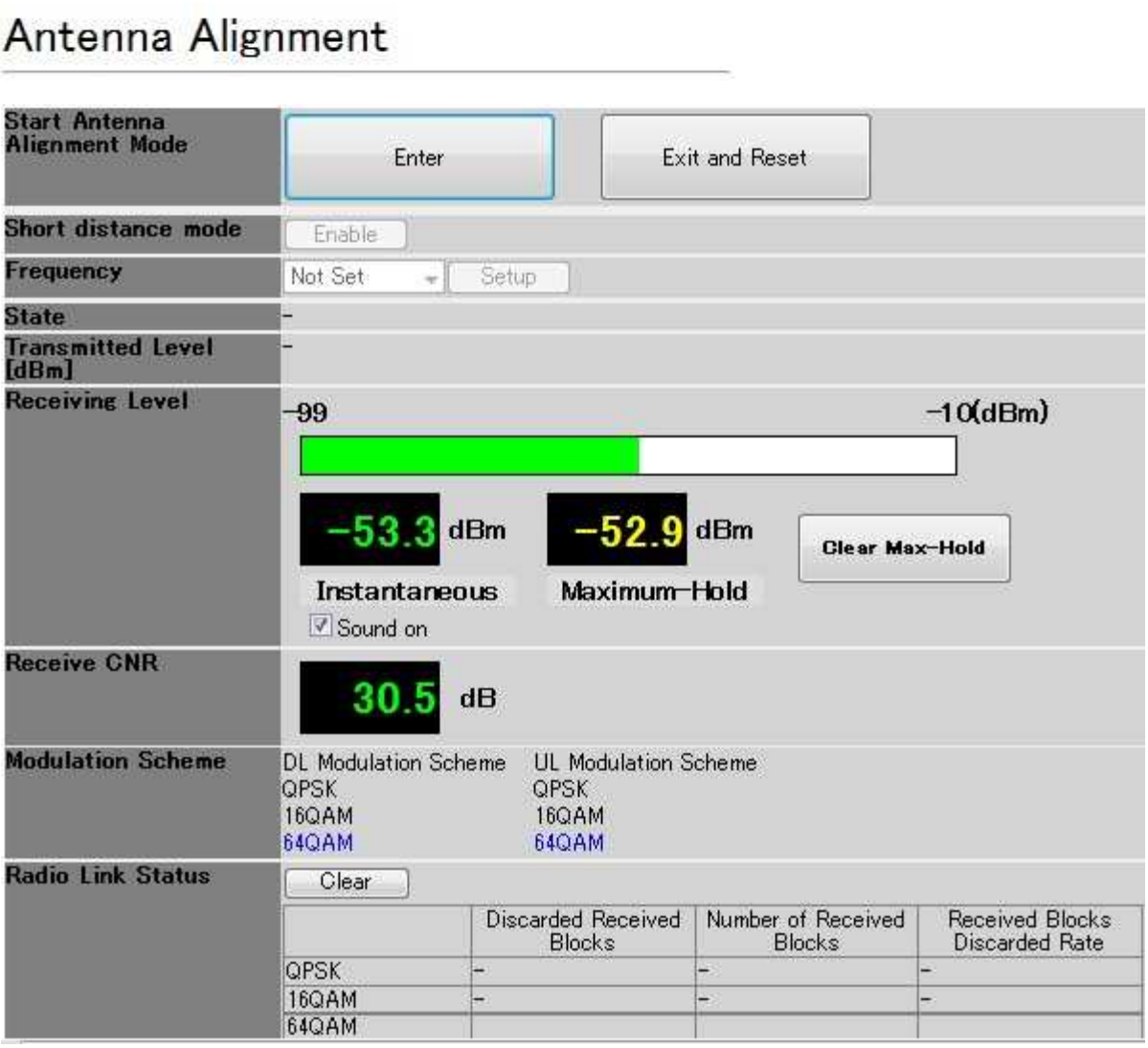


Figure 74 Antenna Alignment window

Table 51 Description of the Antenna Alignment window

No.	Item	Description
1	Enter Antenna Alignment Mode	Clicking the **Enter** button switches the device into the Antenna Alignment mode. Clicking the **Exit and Reset** button will restart the device, exiting from the Antenna Alignment mode. Notes: . To switch the device from the Antenna Alignment mode back to the normal mode, a restart is required. . Transition between pages is disabled during the Antenna Alignment mode.
2	Short distance mode	When the button is clicked while it is set to **Enable**, the **Transmitted Level** is decreased by 20 dB. When the button is clicked while it is set to **Disable**, the **Transmitted Level** is returned to the original value.
3	Frequency	Specify the frequency. Specify according to the Frequency in the master NE. "Not Set" is shown immediately after starting the Antenna Alignment mode, and it is operating with a frequency displayed in the status display part.
4	State	Displays the current status. Table 26 lists the displayed contents.
5	Transmitted Level	Displays the transmission level.
6	Receiving Level	Displays the current receiving level with a bar and values. The maximum value is shown by figures. Clicking the **Clear Max-Hold** button will clear the maximum value. When the Sound on check box is selected, a sound corresponding to the current value is emitted. The sound function is supported only in Windows XP.
7	Receive CNR	Displays the receiving CNR.
9	Modulation Selection	Displays the modulation scheme selected in the Master NE.
10	Radio Link Status	Displays the **Discarded Received Blocks** and **Number of Received Blocks**. Clicking the **Clear** button will clear the counters.

Table 52 Displayed status

No.	Displayed status	Description
1	Over Receiving Level. Enable Short distance mode of opposite NE.	Displayed when the Received Level is over input (-30 dBm or more).
2	Frame ID Error	Displayed when the device has received a radio wave with a Frame ID different from the Frame ID set to for Slave.

2.8.2. Packet Transmission Test

Packet transmission test function measures the number of transmitted test packets and the number of received packets.

When you select **Installation** in the operation menu part, a submenu is displayed.

When you select **Packet Transmission Test** from the submenu, a Packet Transmission Test window is displayed.

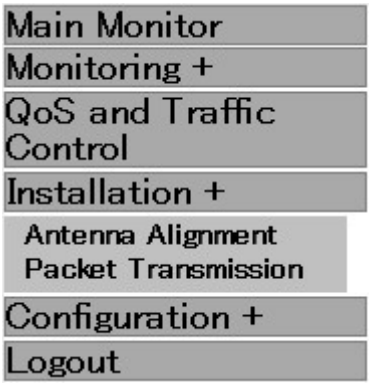


Figure 75 **Installation** submenu displayed

A Packet Transmission Test window is shown in Figure 76.

Each item is described in Table 53.

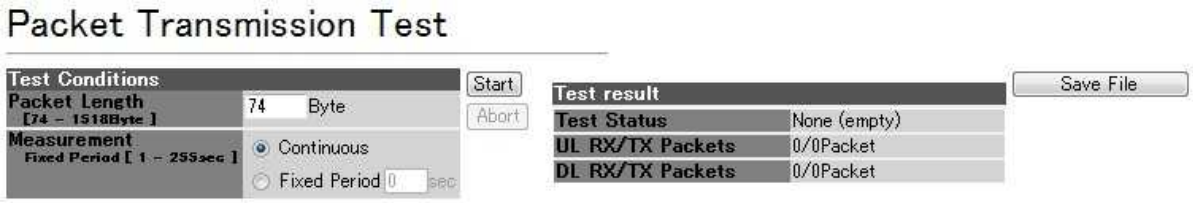


Figure 76 Packet Transmission Test window

Table 53 Description of the Packet Transmission Test window

No.	Item	Setting range	Description
1	Packet Length	74 - 1518	Specify the length of the test packet.
2	Measurement	Continuous/Fixed Period Fixed Period 1 - 255 seconds	Select either **Continuous** or **Fixed Period**. When you select **Fixed Period**, input the measurement time.
3	Start / Abort		**Start** button starts a test. **Abort** button stops the test.
4	Test result		Displays the **Test Status**, **UL RX/TX Packets**, and **DL RX/TX Packets**. **UL RX/TX Packets** is displayed as a fraction of the uplink [number of received packets/number of transmitted packets]; the **DL RX/TX Packets** is displayed as a fraction of the downlink [number of received packets/number of transmitted packets]. Note: As the priority of the test packets is lower than the packets for communication between the devices, the test packets can be lost.
5	Save File		When clicked, a dialog to specify the destination and name is displayed to store the test results. Notes: (1) When the test is performed continuously, it is recorded as Fixed Period "0". (2) When the packet transmission test is performed by specifying the measurement time, the measurement time will not be saved in the network element, which is not the device on which the **Start** button is pressed. (3) The Test Status will not be saved.

2.9. Configuration

2.9.1. Radio

When you select **Configuration** in the operation menu part, a submenu is displayed.

When you select **Radio** from the submenu, a Radio Configuration window is displayed.

Figure 77 **Configuration** submenu displayed

Radio Configuration windows are shown in Figure 78 and Figure 79.

Each item is described in Table 54.

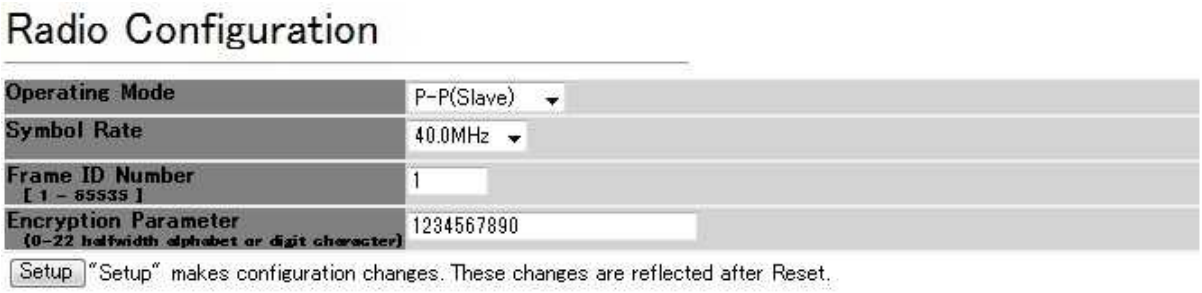


Figure 78 Radio Configuration window (reflection after restart)

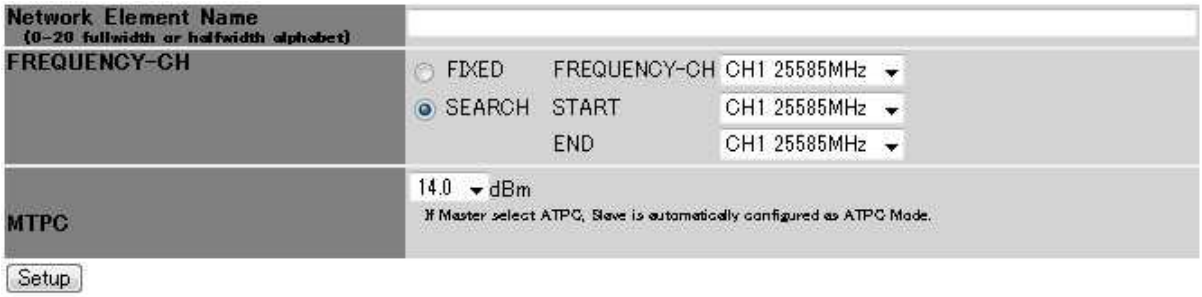


Figure 79 Radio Configuration window (immediate reflection)

Table 54 Description of the Radio Configuration window

No.	Item	Setting range	Contents
Reflection after restart			
1	Operating Mode	Master/Slave	Select **Master** or **Slave**.
2	Symbol Rate	20.0MHz/40.0MHz	Select a symbol rate.
3	Frame ID Number	1 - 65535	Input a Frame ID. Input the same Frame ID value for local NE and opposite NE.
4	Encryption Parameter	0 - 22 characters	Input an encryption parameter. Input the same encryption parameter value for local and opposite NEs.
5	Setup		Restarts the device and reflect the setting values.
Immediate reflection			
6	Network Element Name	0 - 20 characters in double-byte characters	Input the network element name.
7	FREQUENCY-CH	FIXED/SEARCH	Select either to set a fixed frequency or search the frequency.
		START/END START CH/END CH For the corresponding frequencies, refer to the "Frequency channel" section.	If SEARCH is selected, specify START CH and END CH as well. The default value is the minimum (START CH) and the maximum (END CH) channel among the valid frequency channels for the related symbol rate. If the symbol rate is changed, or the mode is changed, it will be returned to the default value.
8	MTPC	-6 - +14 dBm	Specify the Transmitted Level in the case

			ATPC is disabled. Enable or Disable of the ATPC is selected in the Master. When Enable is selected, ATPC is enabled in both the Master and Slave. When Disable is selected, ATPC is disabled in both the Master and Slave.
9	Setup		Performs immediate reflection.

2.9.2. Network

When you select **Configuration** in the operation menu part, a submenu is displayed.

When you select **Network Configuration** from the submenu, a Network Configuration window is displayed.

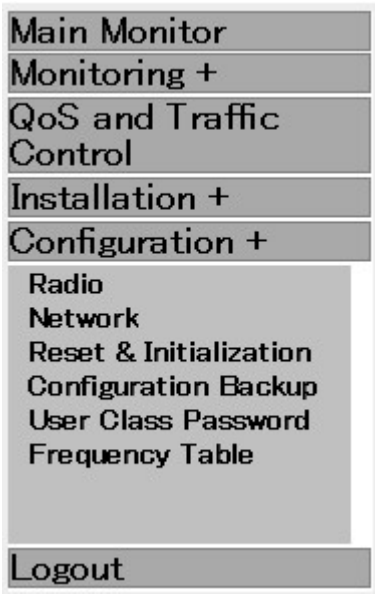


Figure 80 **Configuration** submenu displayed

A Network Configuration window is shown in Figure 81.

Each item is described in Table 55.

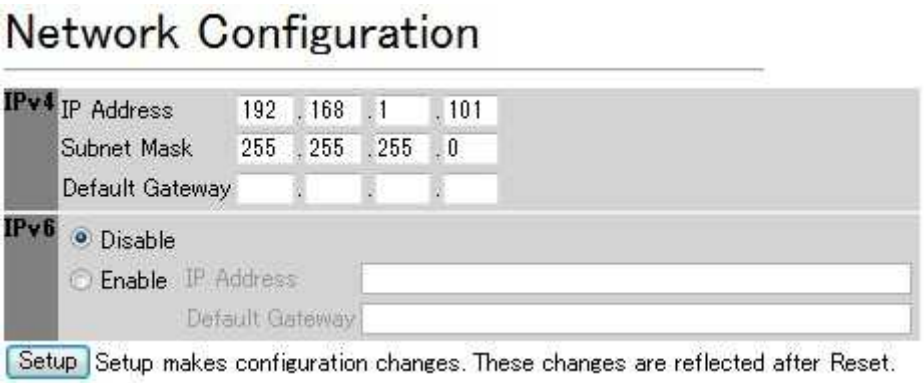


Figure 81 Network Configuration window

Table 55 Description of the Network Configuration

No.	Item	Setting range	Description
Reflection after restart			
1	IPv4	0 - 255 See 0.	Specify an IPv4 address.
2	IPv6	Enable/Disable	Select Enable to use IPv6. When enabled, specify an IP Address and Default Gateway.
		See 2.9.2.1(2).	
3	Setup		Restarts the device and reflect the setting values.
Immediate reflection			
4	Ethernet Configuration	1000BASE-T(AUTO) 1000BASE-T(Fixed) 00BASE-TX FULL(Fixed) 100BASE-TX FULL(AUTO) 100BASE-TX HALF(Fixed)	Select an Ethernet setting.
5	Management VLAN TAG	Enable/Disable	You can register three types of VLAN tags for the MT. Specify Enable/Disable for each type of VLAN tag. You can disable all the VLAN tag settings.
		VID range1 - 4094 COS value range 0 - 7	When Enable is selected, input a VID and COS value as well.
10	Setup		Performs immediate reflection.

2.9.2.1. Input Range for IP Addresses

IP Addresses that can be input are limited as follows.

(1) IPv4

IP Address

- Values of 0 and 255 cannot be specified for the most significant bit and the least significant bit.
- The range from 127.0.0.0 to 127.255.255.255 cannot be specified.
- Addresses higher than 223.255.255.254 cannot be specified.

Subnet Mask

- An address 0.0.0.0 cannot be specified.
- An address with dropped bits (0 bit) cannot be specified.

Default Gateway

- The bit area of the subnet mask must match the subnet mask of the IP Address.

(2) IPv6

IP Address

- An address 0:0:0:0:0:0:0:0 cannot be specified.
- An address 0:0:0:0:0:0:0:1 cannot be specified.
- Addresses higher than feff:ffff:ffff:ffff:ffff:ffff:ffff:ffff cannot be specified.

Default Gateway

- The address cannot be specified if the most significant 64 bits are different from that of the IP Address.

2.9.3. Reset and Initialization

When you select **Configuration** in the operation menu part, a submenu is displayed.

When you select **Reset & Initializations** from the submenu, a Reset & Initializations window is displayed.

Figure 82 **Configuration** submenu displayed

A Reset & Initializations window is shown in Figure 83.

Each item is described in Table 56.

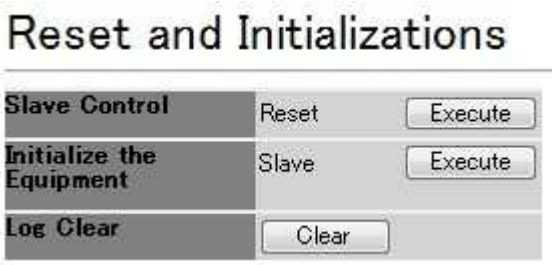


Figure 83 Reset & Initializations

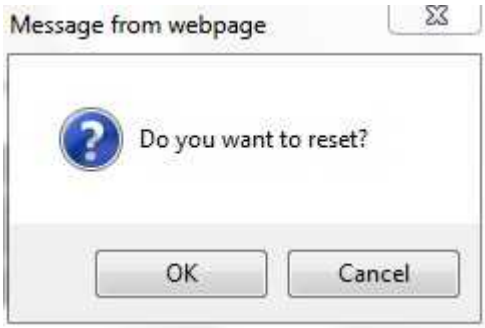


Figure 84 Restart confirmation dialog

Figure 85 Reset Complete window

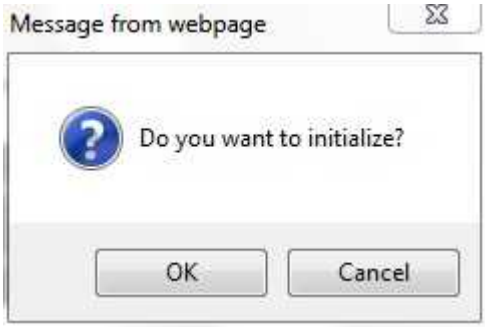


Figure 86 Initialization confirmation dialog

Table 56 Description of the Reset & Initializations window

No.	Item	Setting range	Description
1	Slave Control	[Reset]	Restarts the device. When the **Execute** button is clicked, a confirmation dialog in Figure 41 appears. OK restarts the device, and **Cancel** closes the dialog without restarting. After the restart is finished, the Reset complete window shown in Figure 42 is displayed. When **Return to login** is clicked, it will go back to the Login window shown in Figure 2.
3	Initialize the Equipment	[Execute]	When the **Execute** button is clicked, a confirmation dialog shown in Figure 43 appears. **OK** initializes the device, and **Cancel** closes the dialog without initialization. Note: Do not turn off the device during initialization.
4	Log Clear	[Clear]	When the **Clear** button is clicked, a confirmation dialog to clear the log information appears. **OK** clears the log information, and **Cancel** closes the dialog without clearing. Note: Do not turn off the device while clearing the log information.

2.9.4. Configuration Backup

When you select **Configuration** in the operation menu part, a submenu is displayed.

When you select **Configuration Backup** from the submenu, a Configuration Backup window is displayed.

Figure 87 **Configuration** submenu displayed

A Configuration Backup window is shown in Figure 88.

Each item is described in Table 57.

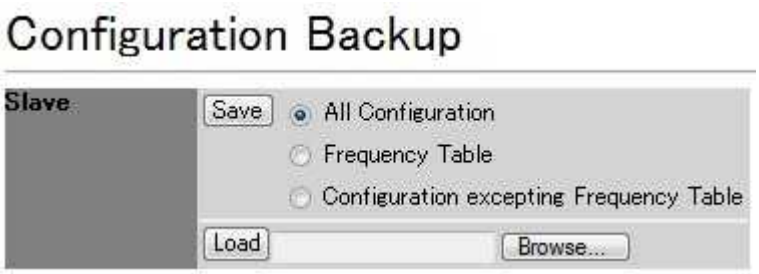


Figure 88 Configuration Backup window

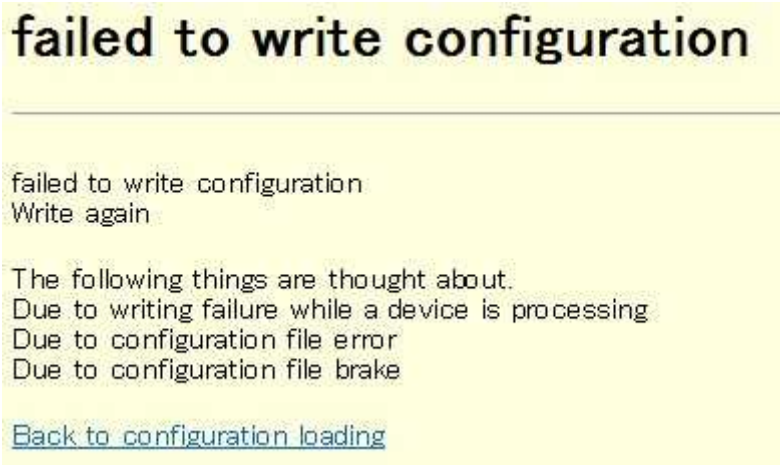


Figure 89 Failed to write configuration window

Table 57 Description of the Configuration Backup window

No.	Item	Setting range	Contents
1	Save	Specify the range of configuration information to be saved. All Setting: Entire configuration information Frequency Info: Only frequency information Setting Info : Configuration information except for frequency information	Saves the specified configuration information. When the **Save** button is clicked, a dialog to specify a save destination and name is displayed.
2	Load		When the **Browse** button is clicked, a dialog for selecting a file is displayed. When the **Load** button is clicked, a popup window confirming the writing and reset is displayed. **YES** performs the writing and reset. **NO** closes the popup window without writing.
3	Error		When the writing failed, a window shown in Figure 89 is displayed. When you click **Back to configuration loading**, it will return to the Configuration Backup window.

2.9.5. User Class Password

When you select **Configuration** in the operation menu part, a submenu is displayed.

When you select **User Class Password** from the submenu, a User Class Password window is displayed.

Figure 90 **Configuration** submenu displayed

A User Class Password window is shown in Figure 91.

Each item is described in Table 58.

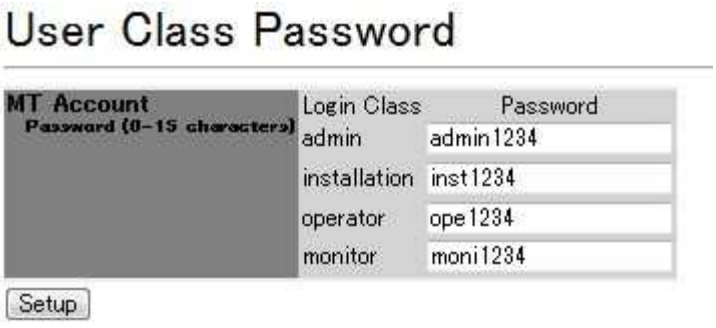


Figure 91 User Class Password window

Table 58 Description of the User Class Password

No.	Item	Setting range	Description
1	MT account	Password 0 - 15 characters No password in the case of 0 character.	Specify passwords for the four types of accounts. Each account is described in Table 41.
2	Setup		When the **Setup** button is clicked, the setting is immediately reflected.

2.9.6. Frequency Table

When you select **Configuration** in the operation menu part, a submenu is displayed.

When you select **Frequency Table** from the submenu, a Frequency Table window is displayed.

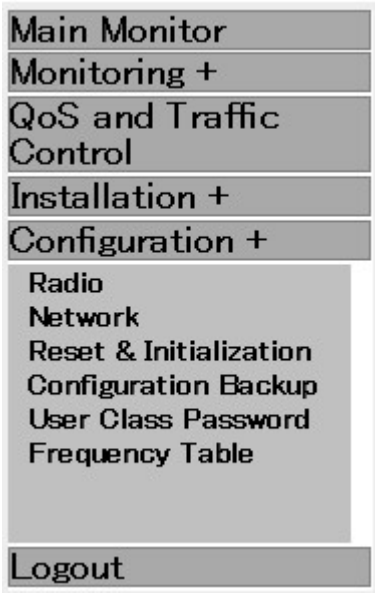


Figure 92 **Configuration** submenu displayed

A Frequency Table window is shown in Figure 55. Each item is described in Table 37.

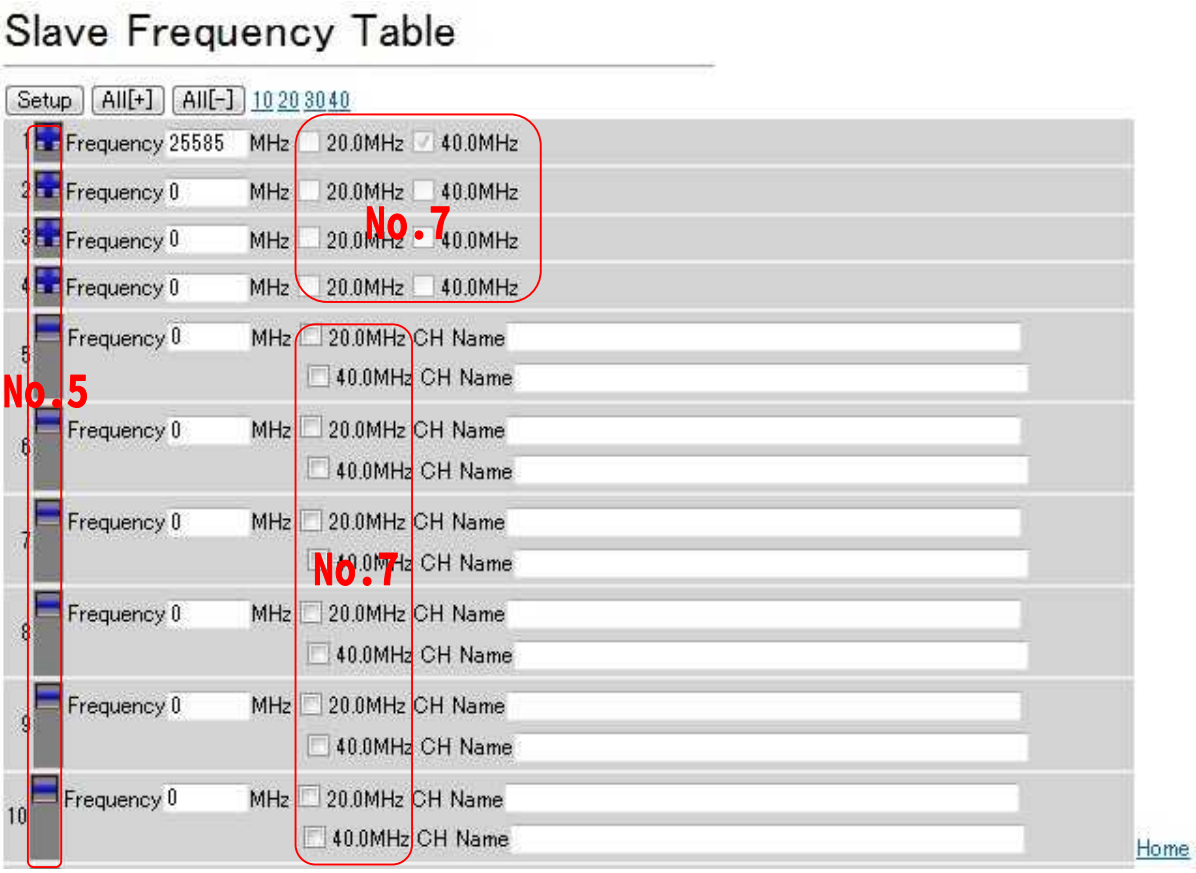


Figure 93 Frequency Table window

Table 59 Description of the Frequency Table

No.	Item	Setting range	Description
1	Setup		Sets all the items specified in this page to the Flash ROM. The setting will be reflected after a restart.
2	All[＋]		Sets all the following frequency setting items to [+] so that the list of frequencies can be viewed.
3	All[－]		Sets all the following frequency setting items to [-] so that the list of CH names can be viewed.
4	10 20 30 40		Move to the specified number.
5	Display method selection	[+] [-]	In the case of [+], the CH Name is omitted and the enable/disable status of the frequency and each symbol rate is displayed. In this case, the enable/disable status of the symbol rate cannot be changed. In the case of [-], the enable/disable status of the symbol rate aligns vertically, and each CH Name can be configured.
6	Frequency _____MHz	See the "Frequency channel" section.	Displays and configures frequencies.
7	Symbol Rate	See the "Frequency channel" section.	Displays and configures the enable/disable status of the symbol rate. If the display method is [+], the enable/disable status of the symbol rate cannot be changed.
8	Home		When clicked, it will move to the top.

2.10. Logout

After clicking **Logout** in the operation menu part, select **OK**. A Logout complete window as shown in Figure 94 appears.

Clicking **Return to login** will display the Login window shown in Figure 58.

Figure 94 Logout complete window

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Instruction Manual
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JRC Japan Radio Co., Ltd.

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