UM7000

Command Line Setting Method

Version 1.1

Hitachi Information & Telecommunication Engineering, Ltd.

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1. Application

This document applies to the parameter setting method by a command line using an UM7000 setting terminal.

Other than the setting method by the command line, a setting by a setting tool is available.

Refer to the UM7000 Setting Tool User's Guide for the setting method by the setting tool.

2. Overview

A setting terminal is used to set UM7000 parameters.

As an interface between UM7000 and a setting terminal, RS-232C or a control LAN (TELNET) is used.

3. Connecting Method

3.1. Connecting by RS-232C

If RS-232C is used for connecting UM7000 to a setting terminal, connect a RS-232C cable (D-sub 9pin female-female cross) to the D-sub 9pin male connector on the rear side of the device.

For the setting terminal, use a commercial Windows PC with a hyper terminal or installed terminal software.

Table 3-1 shows parameters on the setting terminal side.

Table 3-1 List of Parameters on the Setting Terminal Side

№	Item	Standard	Remarks
1	Communication method	RS-232C	
2	Data transfer speed	115200bps	
3	Synchronization establishment method	Start-stop synchronous communication	
4	Communication method	Full-duplex	
5	Data format	Start bit: 1 Data bit: 8 Parity bit: Odd numbers Stop bit: 1 Flow control: None	
6	Connector	D-SUB9 pin (male/inch screw)	
7	Connection cable	Cross cable	

3.2. Connecting by Ethernet (TELNET) for control

For the connection method by Ethernet for control, connect a LAN cable to a LAN connector on the rear the device to connect to the setting terminal. (Use crossing cables for direct connection or straight cables for connection via HUB)

For the setting terminal, use a commercial Windows PC with a hyper terminal or terminal software installed.

Table 3-2 shows the connection conditions on the setting terminal side.

Table 3-2 Connection Conditions on the Setting Terminal Side

№	Item	Standard	Remarks
1	Used port number	Standard TELNET port (23)	
2	Number of simultaneous connection sessions	1	

4. Overview of Commands

Table 4-1 shows parameters to be set by the setting terminal.

Table 4-1 UM7000 Setting Parameters

No	Contents	Command Name	Overview	Remarks
1	Console password setting	setpwd	Change console password	
2	Console mode setting	setsys	Change console mode (via RS-232C/Ethernet for control)	
3	Network setting	seteth	Set network interface for control	
4	SNMP agent setting	setsnmp	Set parameters related to SNMP agent	
5	SNMP private MIB setting	setmib	Set parameters related to SNMP MIB	
6	SNMP trap setting	settrap	Set parameters related to SNMP trap	
7	QAM unit setting	setqam	Set built-in QAM unit	
8	IP-QAM common setting	settsip	Set common parameters of IP-QAM modulation	
9	IP-QAM setting per port	setport	Set TS over IP receiving and UDP transmitting to 64-QAM modulator Set detailed parameters for 64-QAM modulation	
10	Network operation setting	setnw	Set network operation information	
11	NIT generation management number setting	setgen	Set NIT generation management number	
12	Operating log display	hlog	Display logs related to device operation	
13	Version display	hver	Display device version number	
14	Setting save	save	Save setting	Save setting value by command line. Saved setting value is applied at the time of next starting up device.
15	Setting value initialization	factorydefault	Restore setting value to factory default settings	
16	Restart	reboot	Restart system	Restart device by command line when changing setting.
17	Log-out	exit	Log out of console mode	
18	Help display	help	Display command list	

5. Setting Method

5.1. At the time of startup

When starting up the device, messages described in Figure 5-1 are displayed. The setting method is as follows.

```
Boot Loader : Version [Version Number]
+355584 byte complete
press any key    ◄------------------------------------------ (1)

Command Console [Version: [Version Number]]
enter password:*******    ◄------------------------------ (2)
```

* The [Version Number] part displays a version number

Figure 5-1 Console Window after Startup

```
UM7000>help    ◄------------------------------------------ (3)
Setup Login Password           setpwd
System configuration           setsys
Network configuration          seteth      ('0'-'2')
SNMP agent configuration       setsnmp
SNMP MIB configuration         setmib
SNMP TRAP configuration        settrap     ('0'-'7')
QAM-UNIT configuration         setqam      ('1'-'8')
TSoverIP configuration         settsip
TSoverIP port configuration    setport     ('1'-'16')
Network configuration          setnw       ('0'-'3')
NIT generation setting         setgen      ('0'-'3')
Display LOG                     hlog        ('clear')
Display Version info           hver
Save to backup ROM             save
Restore to factory default     factorydefault
System reboot                  reboot
Exit console                   exit
```

Figure 5-2 Console Window after Executing [help] Command

(1) Press any key on the keyboard. (This message is displayed only the case connected by RS-232C)

(2) Enter the already set password and press enter key.

(3) Entering "help" shows contents to be set and a command name. (Refer to Figure 5-2)

5.2. Command list and setting contents

Tables 5-1 and 5-2 show lists of usable commands when connected by the setting terminal. Furthermore, Table 5-3 shows network operation setting items and Table 5-4 shows TS operation setting items. Note that all setting changes need to be saved by the save command. Without saving the setting, restarting the device discards the changed contents. (The setting is restored to the status before the change.)

Table 5-1 UM7000 Command List (1/2)

No	Item	Contents	Command	Parameter	Command Line	Setting Contents	Setting Value	Remarks
1	Console password setting	Change console password	setpwd		New password	Login password	Up to 15 alphanumeric characters [*1]	Applied by restarting device after saving setting
2	Console mode setting	Set console mode	setsys		Console mode	Console selection	0(RS-232C)/1(TELNET)	
3	Network setting	Set network interface	seteth	(0|1|2) 0: For IP input 1: For control 2: For QAM output	IP address	IP address	XXX.XXX.XXX.XXX (XXX:0-255)	
					Subnet mask	Subnet mask		
					Default gateway	Default gateway		
4	SNMP agent setting	Set parameters related to SNMP agent	setsnmp		Community Name	Community name	Up to 15 alphanumeric characters [*1]	
5	SNMP private MIB setting	Set parameters related to SNAP MIB	setmib		System.sysContact	Standard MIB sysContact	Up to 15 alphanumeric characters [*1]	
					System.sysName	Standard MIB sysName		
					System.sysLocation	Standard MIB sysLocation		
6	SNMP trap setting	Set SNMP trap sending and destination	settrap [*2]	(0-7) Trap sending number	Trap output	Trap enabled flag	0 (disabled)/1 (enabled)	
					Target IP address	Trap destination address	XXX.XXX.XXX.XXX (XXX:0-255)	
7	QAM unit setting	Set built-in QAM unit	setqam [*2]	(1-8) QAM number	IP address	Device IP address	XXX.XXX.XXX.XXX (XXX:0-255)	Applied at once when saving setting
					Input port CH1	UDP receive port (channel 1)	0-65535	
					Input port CH2	UDP receive port (channel 2)		
8	IP-QAM common setting	Set IP for MPEG-2 TS (QAM) modulation	Settsip		TSP packet size	Packet size setting	0(188byte)/1(204byte)	Applied by restarting device after saving setting
					TSP capsule num	TSP encapsulation number	1-7	
					IP mode	Multicast/unicast specification	0 (multicast)/1 (unicast)	

1 The characters shown right and one-byte spaces are usable: 0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwzyz!"#$%&'()+,-./:;<=>?@[\]^_`{|}~

*2 When no argument is specified, a setting list is displayed.

*3 RF output stops temporarily for the port with setting changes.

Table 5-2 UM7000 Command List (2/2)

No	Item	Contents	Command	Parameter	Command Line	Setting Contents	Setting Value	Remarks
9	IP-QAM setting per port [*1]	Set IP-QAM setting per port	setport [*2]	(1-16) IP-QAM port number	I/O mode	Operation setting	0 (disabled)/1 (enabled)	Applied at once when saving setting
					Receive IP address [*3]	Receive IP address	XXX.XXX.XXX.XXX (XXX:0-255)	
					Receive port [*6]	Receive port number	1024-65531	
					Output QAM unit	Destination QAM number	1-8	
					Output QAM channel	Destination QAM channel	1/2	
					NIT Replace	NIT replacement	0 (disabled)/1 (enabled)	
					SDTT Filter	SDTT filter		
10	Network operation setting [*4]	Set network operation to be used	setnw	(0-3) 0: Re-mux 1:BS-TM 2: Terrestrial-TM 3: Others		Start operation setting of specified network Refer to "Table 5-3 Network Operation Setting Items"		
11	NIT generation management number setting	NIT version number setting of network to be used	setgen	(0-3) 0: Re-mux 1:BS-TM 2: Terrestrial-TM 3: Others	NIT Generation number	NIT generation management number Refer to "Chapter 8"	0-31	
12	Operating log display	Display logs related to device operation	hlog	(clear) Delete logs held by device	-	Output operating information logs held by device		
13	Version display	Display version number of device	hver	-	-	Display FPGA of device and firmware version number		
14	Setting save	Save setting	save	-	-	Apply current setting and save backup to ROM		
15	Setting value initialization [*5]	Restore setting value to factory default settings	factorydefault	-	are you sure? (y/n):	Initialize setting value or not	y (execute)/n (disabled)	
16	Restart	Restart system	reboot	-	Are you sure? [type 'yes' to reboot]:	Restart or not	yes (execute)/other than yes (disabled)	
17	Log-out	Log out of console mode	exit	-	-	Log out of console mode		
18	Help display	Display command list	help	-	-	Display command line list shown in Figure 5-2		

*1 RF output of the port with the changed setting stops temporarily (except for changing SDTT filter setting only).

*2 When no argument is specified, a setting list is displayed.

*3 The setting is required when selecting "multicast" for the IP Mode setting.

*4 Regardless of the section changed or not, the version of all NITs in the same network is upgraded.

*5 Do not perform setting value initialization after starting the service operation.

 *6 For either of unicast and multicast, when registering a certain receiving IP address and port number setting, do not perform other receiving setting such as the port number + 2 in the same receiving IP address (the port number of the receiving port number + 2 is already reserved and not to be used.).

Table 5-3 Network Operation Setting Items

No	Contents	Command Line	Setting Contents	Setting Value	Remarks
1	Displaying list of network operation settings	list	Display the list of already set TSs		
2	Adding TS operation	addts (transport_stream_id*1)	Create TS operation information *2		Addition is impossible when the ID is already registered
3	Deleting TS operation	delts (transport_stream_id*1)	Delete TS operation information		Deletion is impossible when the ID is not registered
4	Setting TS operation	setts (transport_stream_id*1)	Set the registered TS operation information Refer to "Table 5-4 TS Operation Setting Items"		Setting is impossible when ID is not registered
5	Setting NIT operation mode	Setmode	Perform deletion setting of descriptor for illegal usage protection function(Japanese specification, used in Japan only) Perform deletion setting of linkage descriptor	0 (disabled)/1 (enabled)	
6	Exiting network operation setting	Exit	Exit relevant network operation setting and return to normal prompt		

*1 transport_stream_id: 1 to 65535 is settable as decimal notation. By setting with prefix "0x", hexadecimal notation (0x1 to 0xFFFF) is also settable.

*2 Up to 128TSs can be specified.

<u>Table 5-4 TS Operation Setting Items</u>

No	Contents	Command Line	Setting Contents	Setting Value	Remarks
1	Displaying list of TS operation settings	list	Display list of relevant TS settings		
2	Setting output frequency	setfreq	Set frequency described in cable delivery descriptor	93 to 767 (MHz) or 0	When specifying 0, frequency does not change
3	Specifying service ID deletion	addsvc (service_id*[1])	Specify service ID to be deleted from service list descriptor *[2]		
4	Releasing service ID deletion setting	delsvc (service_id*[1])	Release service ID deletion setting		
5	Exiting TS operation setting	exit	Exit relevant TS operation setting and return to network operation setting		

*1 service_ id: One to 65535 is settable. Hexadecimal notation (0x1 to 0xFFFF) is settable by specifying "0x".

*2 Up to 32 services can be specified.

6. Setting Example

Figure 6-1 shows a command setting example.

```
UM7000>seteth        ◄ - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -   (1)
-IP address                 :192.168.10.10  ◄ - - - - - - - - - - - - - - - - -   (2)
-Subnet mask                :255.255.255.0
-Default gateway            :192.168.10.1

UM7000>save
writing backup ROM...
complete
                     ◄ - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
UM7000>                                                                           (3)
```

<u>Figure 6-1 Command Setting Example</u>

(1) By keyboard, enter "seteth" and press enter key.

(2) The current network setting is displayed.

　　To change the setting, delete it by backspace key, enter the value and press enter key.

(3) Enter "save" and save the setting to the backup ROM of the device.

6.1. TS over IP setting per port

Set the same value for the receiving port number of the device and the destination port number of the transmitter side.
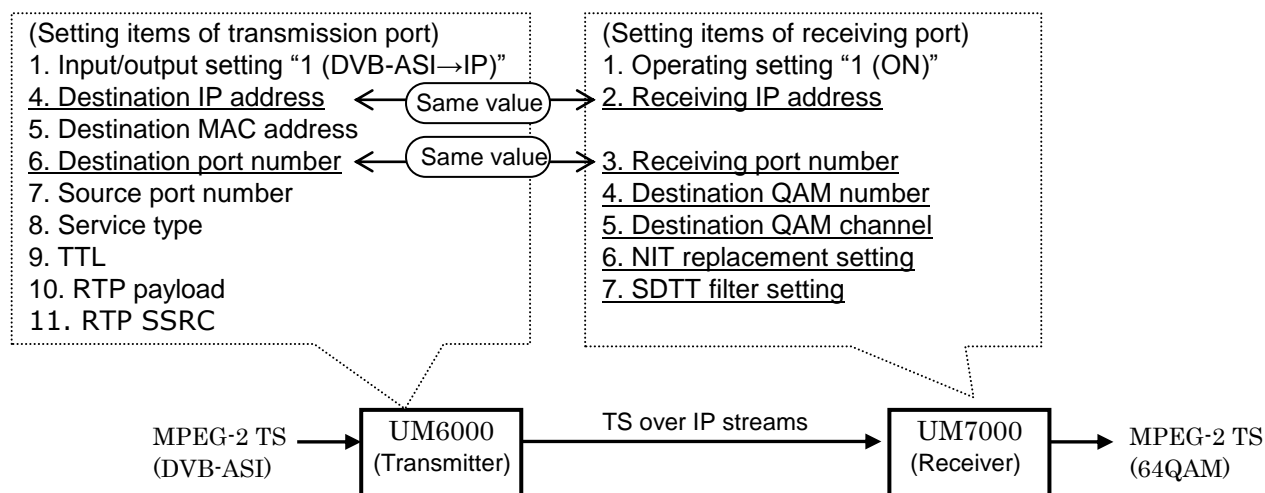
(Setting items of transmission port)
1. Input/output setting "1 (DVB-ASI→IP)"
4. Destination IP address   ← Same value →   2. Receiving IP address
5. Destination MAC address
6. Destination port number   ← Same value →   3. Receiving port number
7. Source port number
8. Service type
9. TTL
10. RTP payload
11. RTP SSRC

(Setting items of receiving port)
1. Operating setting "1 (ON)"
2. Receiving IP address

3. Receiving port number
4. Destination QAM number
5. Destination QAM channel
6. NIT replacement setting
7. SDTT filter setting

MPEG-2 TS
(DVB-ASI) → UM6000
(Transmitter) — TS over IP streams → UM7000
(Receiver) → MPEG-2 TS
(64QAM)

Figure 6-2 When Connecting to UM6000

6.2. Network/TS operation setting

Figure 6-3 shows a setting example and an output NIT section.
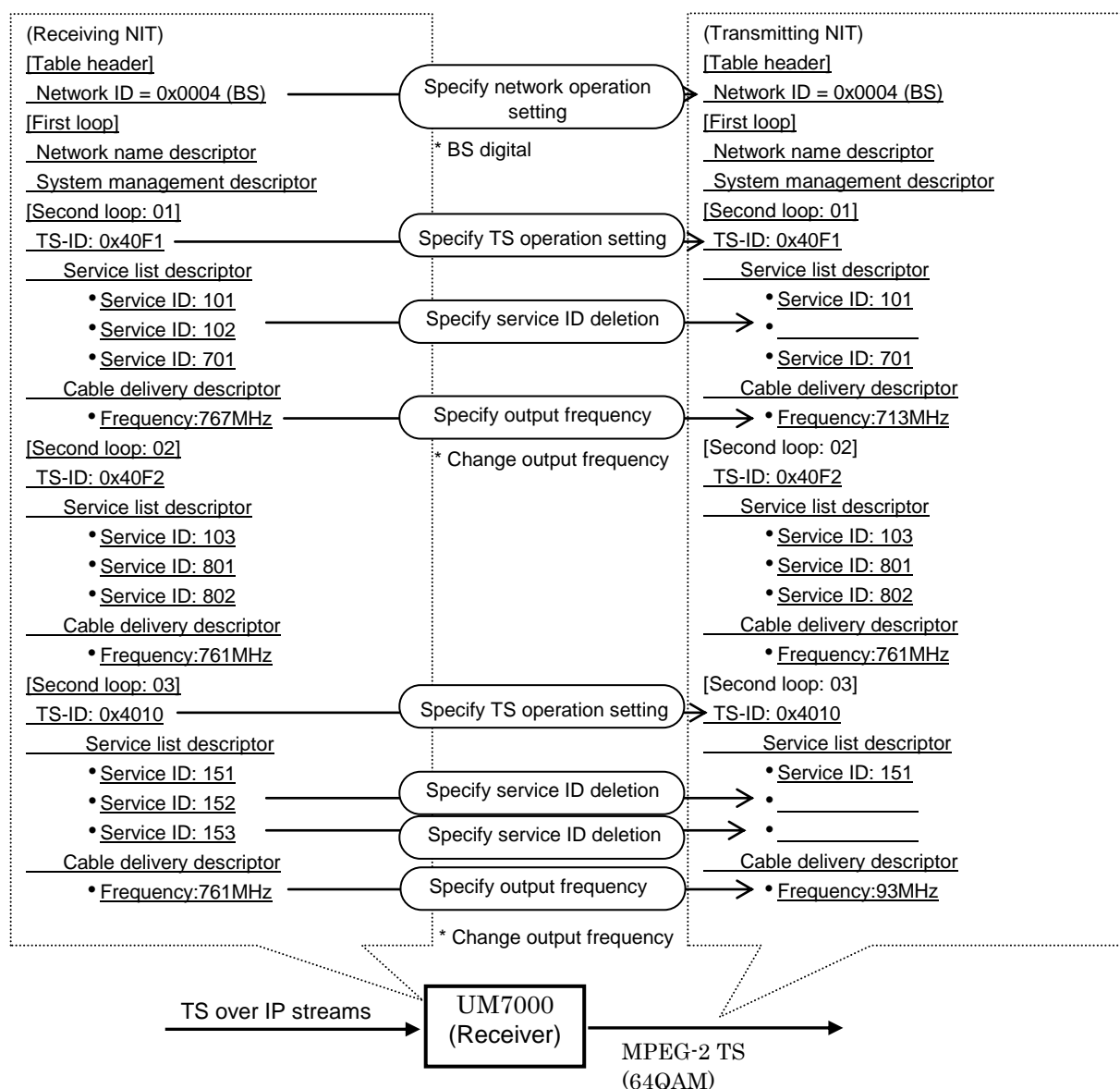

Figure 6-3 UM7000 NIT Replacement

7. Example of Network Operation Settings

Figure 7-1 shows an example of the network operation settings.

```
UM7000>setnw 0      ◄ - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -  (1)
REMUX>addts 0x4   ◄ - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -  (2)
REMUX>setts 0x4   ◄ - - - - - - - - - - - - - - - - - - - - - - - - - - -  (3)
REMUX@0x0004>setfreq 93           ⎫
REMUX@0x0004>addsvc 100           ⎬ ◄ - - - - - - - - - - - - - - - - - -  (4)
REMUX@0x0004>addsvc 101           ⎭
REMUX@0x0004>list                 ⎫
-OUTPUT FREQ      =93[MHz]         ⎪
-DEL SERVICE_ID =                 ⎬ ◄ - - - - - - - - - - - - - - - -  (5)
--[ 0] 0x0064(100)                ⎪
--[ 1] 0x0065(101)                ⎭

REMUX@0x0004>exit   ◄ - - - - - - - - - - - - - - - - - - - - - - - - - -  (6)
REMUX>list
-[   0] TSID=0x0004, FREQ= 93MHz  ⎬ ◄ - - - - - - - - - - - - - - - -  (7)

REMUX>exit        ◄ - - - - - - - - - - - - - - - - - - - - - - - - - - - - -  (8)
UM7000>save       ◄ - - - - - - - - - - - - - - - - - - - - - - - - - - - - -  (9)
writing backup ROM...
complete

UM7000>
```

Figure 7-1 Example of Network Operation Settings

(1) Enter "setnw" + network type.

The prompt changes to "network name" and the target network operation setting starts.

(2) Entering "addts" + TS-ID creates a TS operation setting.

(3) Enter "setts" + TS-ID and perform an operating setting of TS created in (2).

The prompt changes to "network name@TS-ID" and the target TS operation setting starts.

(4) Set the target TS output frequency and the deletion service by the "setfreq" and "addsvc" commands.

(5) The current TS setting can be confirmed by the "list" command.

(6) Enter "exit" to exit the TS operation setting.

The prompt changes to a network name and the mode becomes a network setting mode.

(7) The current network setting can be confirmed by the "list" command.

(8) Enter "exit" to exit the network operation setting.

(9) After applying the current setting in the transmitting TS by the "save" command, it is saved to the backup ROM.

8. NIT Generation Management Number

The NIT generation management number is a value added to the received NIT version when giving the version of NIT which UM7000 transmits. The initial value is a value specified in the setgen command. Every time applying the network operation setting (save command), "1" is added.

When operating the same network using multiple UM7000s¸the NTT version needs to give the same value in the network. Setting the same NIT generation management number among devices enables to synchronize the output NIT version.

9. Initial Value

9.1. Console password setting

Table 9-1 List of Console Password Setting Items

№	Item	Initial Value	Remarks
1	Password	pwd1234	

9.2. Console mode setting

Table 9-2 List of Console Mode Setting Items

№	Item	Initial Value	Remarks
1	Console selection	0 (RS-232C)	

9.3. Network setting

Table 9-3 List of Network Setting Items

	Item	Initial Value	Remarks
1	TS transition (reception) Ethernet IP address	192.168.1.1	
2	TS transition (reception) Ethernet subnet mask	255.255.255.0	
3	TS transition (reception) Ethernet default gateway	192.168.1.254	
4	Control Ethernet IP address	192.168.2.1	
5	Control Ethernet subnet mask	255.255.255.0	
6	Control Ethernet default gateway	192.168.2.254	
7	QAM output Ethernet IP address	192.168.3.1	
8	QAM output Ethernet subnet mask	255.255.255.0	
9	QAM output Ethernet default gateway	192.168.3.254	

9.4. SNMP agent setting

Table 9-4 List of SNMP agent setting items

№	Item	Initial Value	Remarks
1	Community name	private	

9.5. SNMP private MIB setting

Table 9-5 List of SNMP Private MIB Settings

№	Item	Initial Value	Remarks
1	sysContact	Hitachi-JTE	
2	sysName	UM7000	
3	sysLocation	Yokohama	

9.6. SNMP trap setting

Table 9-6 List of SNMP Trap Setting Items

№	Item	Initial Value	Remarks
1	Trap enabled flag	0 (Disabled)	
2	Trap destination address	0.0.0.0	

9.7. QAM unit setting

Table 9-7 List of QAM Unit Setting Items

№	Item	Initial Value	Remarks
1	Device IP address	192.168.1.11 (QAM#1) - 192.168.1.18 (QAM#8)	
2	UDP receiving port (channel 1)	50001 (QAM#1) - 50008 (QAM#8)	
3	UDP receiving port (channel 2)	50011 (QAM#1) - 50018 (QAM#8)	

9.8. TS over IP common setting

Table 9-8 List of TS over IP common setting items

№	Item	Initial Value	Remarks
1	Packet size setting	0 (188byte)	
2	TSP encapsulation number	7	
3	Multicast/unicast specification	0 (multicast)	

9.9. TS over IP setting per port

Table 9-9 List of TS over IP Setting Items per Port

№	Item	Initial Value	Remarks
1	Operating setting	0 (OFF)	
2	Receiving IP address	224.1.1.1 (Port1) - 224.1.1.16 (Port16)	
3	Receiving port number	10001 (Port1) - 10016 (Port16)	
4	Destination QAM number	1 (Port1,Port2) - 8 (Port15,Port16)	
5	Destination QAM channel	Odd number Port: 1 Even number Port: 2	
6	NIT rewriting setting	0 (OFF)	
7	SDTT filter setting	0 (OFF)	

9.10. Network operation setting (common to each network)

Table 9-10 List of Network Setting Items

№	Item	Initial Value	Remarks
1	TS operation information	Not registered	
2	NIT operation mode	Descriptor for illegal usage protection function deletion : 0 (Disabled) Linkage descriptor deletion : 0 (Disabled)	

9.11. NIT generation management number setting (common to each network)

Table 9-11 List of NIT Generation Management Number Setting Items

№	Item	Initial Value	Remarks
1	NIT generation management number setting	0	

UM7000 Command Line Setting Method

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