External Control (Rev 1.0)

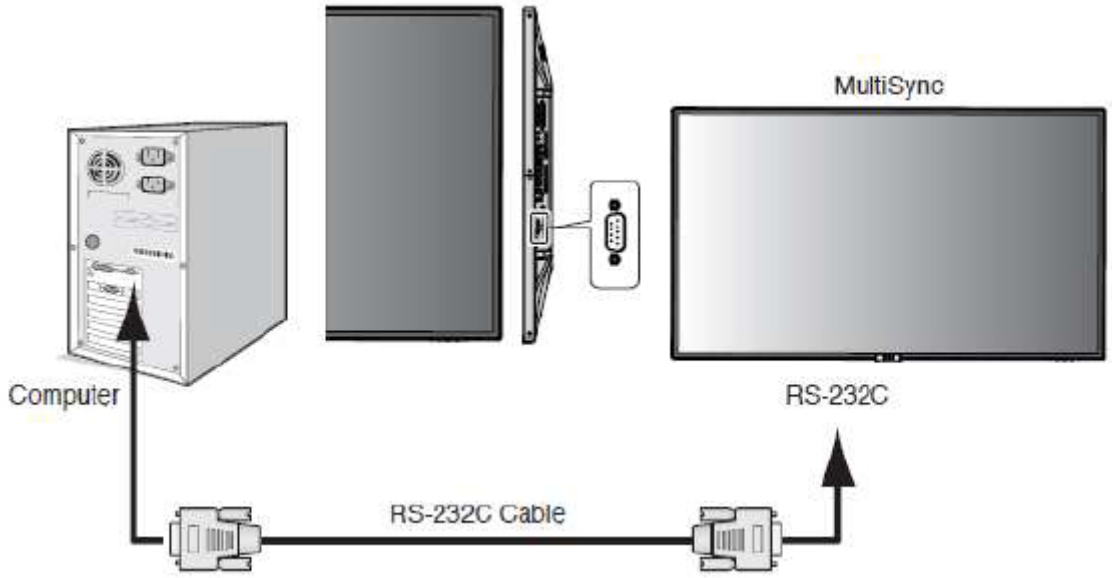
1. Application

This document defines the communications method for control of the NEC LCD monitor, when using an external controller.

2. Connectors and wiring

2.1. RS-232C Remote control

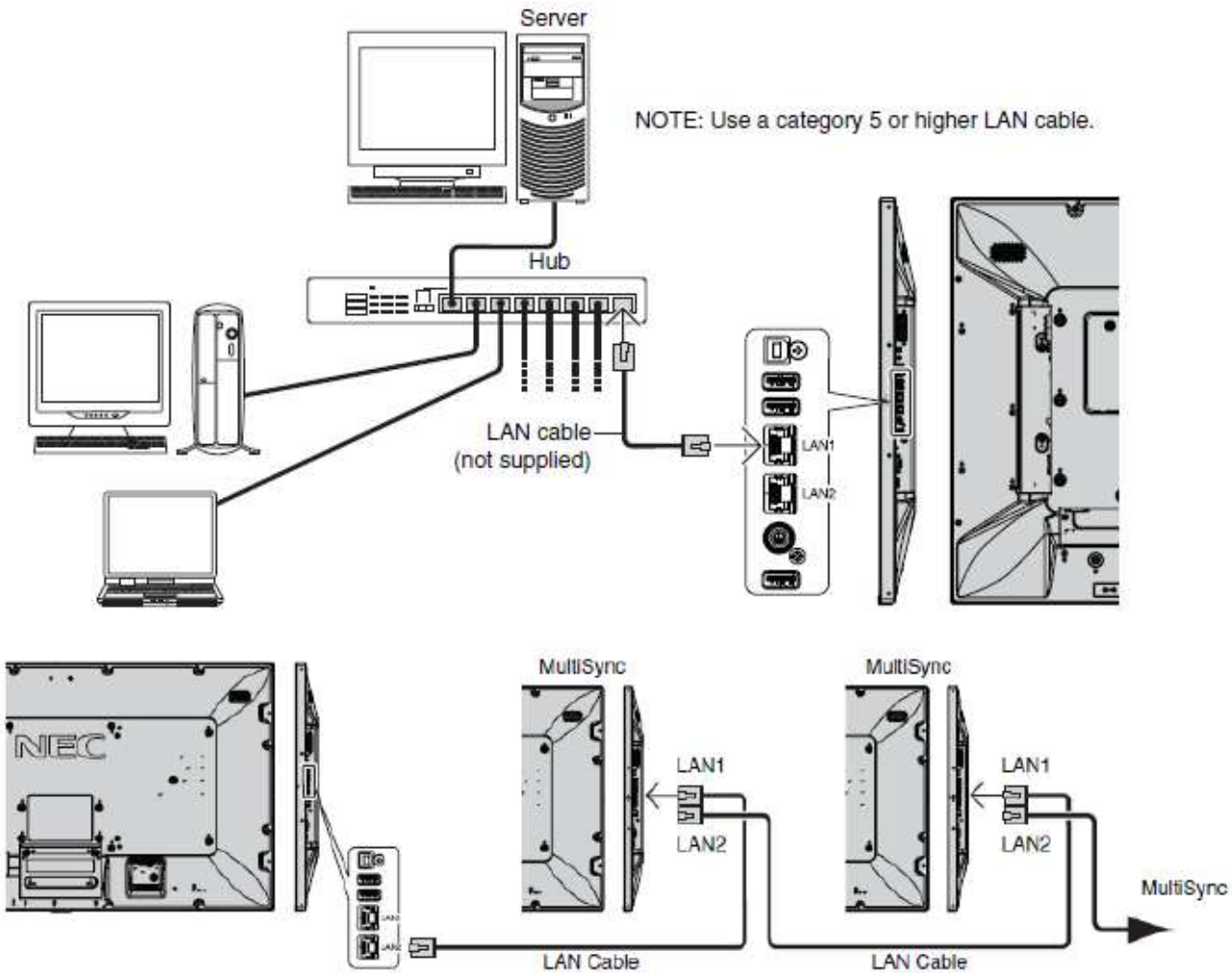
```
(1) Connector              9-pin D-Sub
(2) Cable                  Cross (reversed) cable or null modem cable
```



(Please refer “Controlling the LCD monitor via RS-232C Remote control” on User’s manual.)

2.2. LAN control

```
(1) Connector              RJ-45 10/100 BASE-T
(2) Cable                  Category 5 or higher LAN cable
```



(Please refer “Controlling the LCD monitor via LAN control” on User’s manual.)

3. Communication Parameter

3.1. RS-232C Remote control

```
(1) Communication system    Asynchronous
(2) Interface               RS-232C
(3) Baud rate               9600bps
(4) Data length             8bits
(5) Parity                  None
(6) Stop bit                1 bit
(7) Communication code      ASCII
```

3.1.1. Communication timing

The controller should wait for a packet interval before next command is sent.
The packet interval needs to be longer than 600msec for the LCD monitor.

3.2. LAN control

```
(1) Communication system    TCP/IP (Internet protocol suite)
(2) Interface               Ethernet (CSMA/CD)
(3) Communication layer     Transport layer (TCP)
                            * Using the payload of TCP segment.
(4) IP address              (Default) 192.168.0.10
                            * If you need to change,
                            Please refer “Network settings” on User’s manual.
(5) Port No.                7142 (Fixed)
```

【Note】

```
The monitor will disconnect the connection if no packet data is received for 15 minutes.
And the controller (PC) has to re-connect to control the monitor again, after 15 minutes or
more.
```

3.2.1. Communication timing

The controller should wait for a packet interval before next command is sent.
The packet interval needs to be longer than 600msec for the LCD monitor.

4. Communication Format

There are two types of external control commands: VCP and CTL.
The command consists of four parts: Header, Message, Check code, and Delimiter.
The contents of Message vary depending on the type of command.

```
| Header | Message | Check Code | Delimiter |
```

Follow the instructions below for more information on each.
Messages and other common components of the VCP command are described in this chapter.

■ Detailed description of message for VCP command

- 4.2. Message block format

■ Detailed description of message for CTL command

- 7. How to read the command details

4.1. Header block format (fixed length)

| **Header** | Message | Check Code | Delimiter |

4.1.1. Header format

```
+-----+--------------+-------------+--------+--------------+----------------+
| SOH | Reserved '0' | Destination | Source | Message Type | Message Length |
+-----+--------------+-------------+--------+--------------+----------------+
| 1st | 2nd          | 3rd         | 4th    | 5th          | 6th-7th        |
+-----+--------------+-------------+--------+--------------+----------------+
1st) SOH: Start of Header
    ASCII SOH (01h)

2nd) Reserved: Reserved for future extensions.
    On this monitor, it must be ASCII '0'(30h).

3rd) Destination: Destination equipment ID. (Receiver)
    Specify a commands receiver’s address.
    This value must match teh “MONITOR ID” or “GROUP ID” set in the OSD.
    On the reply, the monitor sets '0' (30h), always.

4th) Source: Source equipment ID. (Sender)
    Specify a sender address.
    The controller must be '0' (30h).
    On the reply, the monitor sets the own MONITOR ID in here.

5th) Message Type: (Case sensitive.)
    Refer to section 4.2 “Message block format” for more details.
    ASCII 'A' (41h): Command.
    ASCII 'B' (42h): Command reply.
    ASCII 'C' (43h): Get current parameter from a monitor.
    ASCII 'D' (44h): "Get parameter" reply.
    ASCII 'E' (45h): Set parameter.
    ASCII 'F' (46h): "Set parameter" reply.

6th -7th) Message Length:
    Specify the length of the message (that follows the header) from STX to ETX.
    This length includes STX and ETX.
    The byte data must be encoded to ASCII characters.
  Ex.)
    The byte data 3Ah must be encoded to ASCII characters '3' and 'A' (33h and 41h).
    The byte data 0Bh must be encoded to ASCII characters '0' and 'B' (30h and 42h).
```

“MONITOR ID”, “GROUP ID” to “Destination Address” conversion table is as follows,

Monitor ID	Destination Address	Monitor ID	Destination Address	Monitor ID	Destination ddress	Monitor ID	Destination Address
1	41h('A')	26	5Ah('Z')	51	73h	76	8ch
2	42h('B')	27	5Bh	52	74h	77	8Dh
3	43h('C')	28	5Ch	53	75h	78	8Eh
4	44h('D')	29	5Dh	54	76h	79	8Fh
5	45h('E')	30	5Eh	55	77h	80	90h
6	46h('F')	31	5Fh	56	78h	81	91h
7	47h('G')	32	60h	57	79h	82	92h
8	48h('H')	33	61h	58	7Ah	83	93h
9	49h('I')	34	62h	59	7Bh	84	94h
10	4Ah('J')	35	63h	60	7Ch	85	95h
11	4Bh('K')	36	64h	61	7Dh	86	96h
12	4Ch('L')	37	65h	62	7Eh	87	97h
13	4Dh('M')	38	66h	63	7Fh	88	98h
14	4Eh('N')	39	67h	64	80h	89	99h
15	4Fh('O')	40	68h	65	81h	90	9Ah
16	50h('P')	41	69h	66	82h	91	9Bh
17	51h('Q')	42	6Ah	67	83h	92	9Ch
18	52h('R')	43	6Bh	68	84h	93	9Dh
19	53h('S')	44	6Ch	69	85h	94	9Eh
20	54h('T')	45	6Dh	70	86h	95	9Fh
21	55h('U')	46	6Eh	71	87h	96	A0h
22	56h('V')	47	6Fh	72	88h	97	A1h
23	57h('W')	48	70h	73	89h	98	A2h
24	58h('X')	49	71h	74	8Ah	99	A3h
25	59h('Y')	50	72h	75	8Bh	100	A4h
ALL	2Ah('*')						

Group ID	Destination Address	Group ID	Destination Address	Group ID	Destination Address	Group ID	Destination Address
A	31h('1')	D	34h('4')	G	37h('7')	J	3Ah('joy
B	32h('2')	E	35h('5')	H	38h('8')		
C	33h('3')	F	36h('6')	I	39h('9')		

Ex.) If you want to control a monitor that has the "ID No." as '1', specify a destination address 'A'(41h).
If you want to control all of the monitors which are connected by a daisy chain, specify a destination address '∗'(2Ah).

4.2. Message block format

| Header | **Message** | Check Code | Delimiter |

“Message block format” is allied to the “Message Type” in the “Header”.

Refer to the section 4.1 “Header block format” for more detail.

4.2.1. Get current parameter

The controller sends this message when you want to get the status of the monitor. For the status that you want to get, specify the “OP code page” and “OP code”, refer to chapter 8.
“Message format” of the “Get current parameter” is as follows,

4.2.1.1. Get current parameter format

```
+-----+-----------------+-----------------+------------+------------+-----+
| STX | OP code page Hi | OP code page Lo | OP code Hi | OP code Lo | ETX |
+-----+-----------------+-----------------+------------+------------+-----+
```

Refer to section 5.1 “Get current parameter from a monitor.” for more details.

4.2.2. Get Parameter reply

The monitor will reply with the status of the requested item specified by the controller in the “Get parameter message”.
“Message format” of the “Get parameter reply” is as follows.

4.2.2.1.

			OP code																
STX	Result		Page		OP code		Type		Max value				Current Value				ETX		
	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	MSB			LSB	MSB			LSB			

Refer to section 5.2 “Get parameter reply” for more details.

4.2.3. Set parameter

The controller sends this message to change a setting of the monitor.
Message format of the “Set parameter” is as follows.

4.2.3.1. Set parameter format

STX	OP code page		OP code		Set Value				ETX
	Hi	Lo	Hi	Lo	MSB			LSB	

Refer to section 5.3 “Set parameter” for more details.

4.2.4. Set Parameter reply

The monitor replies with this message for a confirmation of the “Set parameter message”. Message format of the “Set parameter reply” is as follows,

4.2.4.1. Set parameter reply format

		OP code									Requested						
STX	Result	Page		OP code		Type		Max value			Setting Value						ETX
	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	MSB			LSB	MSB			LSB		

Refer to section 5.4 “Set parameter reply” for more details.

4.2.5. Command

“Command message” format depends on each command.
Usually, this “command message” is used for some non-slider controls and some special operations, such as “Save current settings”, “Get timing report”, “power control”, “Schedule”, etc.
Refer to section 5.5 “Commands message” for more details.

4.2.6. Command reply

The monitor replies to a query from the controller. “Command reply message” format depends on each command. Refer to section 5.5 “Commands message” for more details.

4.3. Check code

| Header | Message | **Check code** | Delimiter |

4.3.1. formatted and calculate.

Use the figure below to learn how check code is formatted and calculated.
First, place the check code format after ETX in the command.
Therefore, place the Check code at the position of 'D9' in the figure below.

```
+--------------------------------+-------------+---------------+
| Header                         | Message     |               |
|SOH |Resv.|Dest|Src |Type|Length|STX |Data|-|-|ETX |Check code|
+----+-----+----+----+----+------+----+----+-+-+----+----------+
| D0 | D1  | D2 | D3 | D4 |  D5  | D6 | D7 |-|-| D8 |    D9     |
+----++----+----+----+----+------+----+----+-+-+----+----------+
```

Next, as an example of calculating Check code, sum the values listed above each column from 'D1' to 'D16' in the figure below.
Therefore, we calculate the total value from '30' (30h) to '03' (03h) in the figure below.
As a result of the calculation, the check code of the command in the figure below is '77'(77h), so set it to Check code.

Check code may be described as Block Check Code (BCC) in the command details described below.

```
+----------------------------+----------------------------------------+-------------+
| Header                     | Message                                |             |
|SOH|Resv.|Dest|Src |Type|Len |STX|Page  |OP code|    Set Value      |ETX|BCC |Del.|
+---+-----+----+----+----+----+---+---+--+---+---+---+---+---+---+---+---+----+----+
| 01| 30  | 41 | 30 | 45 | 30 | 41| 02|30| 30|31 |30 |30 |30 |36 |34 | 03| 77 | 0D |
+---+-----+----+----+----+----+---+---+--+---+---+---+---+---+---+---+---+----+----+
| D0| D1  | D2 | D3 | D4 | D5 | D6| D7|D8| D9|D10|D11|D12|D13|D14|D15|D16|D17 |D18 |
+---+-----+----+----+----+----+---+---+--+---+---+---+---+---+---+---+---+----+----+

Check code (BCC) D17 = D1 xor D2 xor D3 xor … xor D14 xor D15 xor D16
                     = 30h xor 41h xor 30h xor 45h xor 30h xor 41h xor 02h xor 30h xor
                       30h xor 31h xor 30h xor 30h xor 30h xor 36h xor 34h xor 03h
                     = 77h
```

4.4. Delimiter

| Header | Message | Check code | **Delimiter** |

Delimiter does not have the formats and calculations described so far.
Specify 'CR'(0Dh) in ASCII for the Command Delimiter.

5. Message type

5.1. Get current Parameter from a monitor

5.1.1. Get current parameter format

```
+-----+--------------+---------+-----+
| STX | OP code page | OP code | ETX |
+-----+-------+------+----+----+-----+
|     |  Hi   |  Lo  | Hi | Lo |     |
+-----+-------+------+----+----+-----+
```

Send this message when you want to get the status of a monitor.
For the status that you want to get, specify the “OP code page” the “OP code”, refer to chapter 8.

```
* STX: Start of Message
    ASCII STX (02h)

* OP code page: Operation code page.
    Specify the “OP code page” for the control which you want to get the status.
    Refer to chapter 8 for each item.
    OP code page data must be encoded to ASCII characters.
  Ex.)
    The byte data 02h must be encoded to ASCII characters '0' and '2' (30h and 32h).
    OP code page 02h -> OP code page (Hi) = ASCII '0' (30h)
                        OP code page (Lo) = ASCII '2' (32h)
    Refer to chapter 8.

* OP code: Operation code
    Refer to chapter 8 for each item.
    OP code data must be encoded to ASCII characters.
  Ex.)
    The byte data 3Ah must be encoded to ASCII characters '3' and 'A' (33h and 41h).
    OP code 3Ah -> OP code (Hi) = ASCII '3' (33h)
                   OP code (Lo) = ASCII 'A' (41h)
    Refer to chapter 8.

* ETX: End of Message
    ASCII ETX (03h)
```

5.2. "Get parameter" reply

5.2.1. Get parameter reply format

```
+---+-------+--------+---------+-------+-------------+----------------+---+
|   |       |OP Code |         |       |             |                |   |
|STX| Result| Page   | OP code | Type  |  Max value  | Current Value  |ETX|
+---+---+---+----+---+----+----+---+---+----+-+-+----+-----+-+-+------+---+
|   |Hi | Lo|  Hi|Lo | Hi | Lo | Hi|Lo | MSB| | |LSB |  MSB| | |  LSB |   |
+---+---+---+----+---+----+----+---+---+----+-+-+----+-----+-+-+------+---+
```

The monitor replies with a current value and the status of the requested item (operation code).

```
* STX: Start of Message
    ASCII STX (02h)
* Result:Result code.
    These bytes indicate a result of the requested commands as follows,
    00h: No Error.
    01h: Unsupported operation with this monitor or unsupported operation under current
condition.
    This result code from the monitor is encoded to ASCII characters.
  Ex.)
    The byte data 01h is encoded to ASCII character '0' and '1' (30h and 31h).
* OP code page: Operation code page.
    These bytes indicate a replying item's OP code page.
    This returned value from the monitor is encoded to ASCII characters.
  Ex.)
    The byte data 02h is encoded to ASCII character '0' and '2' (30h and 32h).
    Refer to the chapter 8.
* OP code: Operation code
    These bytes indicate a replying item's OP code.
    This returned value from the monitor is encoded to ASCII characters.
    Refer to the chapter 8.
  Ex.)
    The byte data 1Ah is encoded to ASCII character '1' and 'A' (31h and 41h).
* Type: Operation type code
    00h: Set parameter
    01h: Momentary
    Like the Auto Setup function which automatically changes the parameter.
    This returned value from the monitor is encoded to ASCII characters.
  Ex.)
    The byte data 01h is encoded to ASCII character '0' and '1' (30h and 31h).
* Max. value: Maximum value which monitor can accept. (16bits)
    This returned value from the monitor is encoded to ASCII characters.
  Ex.)
    '0','1','2' and '3' means 0123h (291)
* Current Value: (16bits)
    This returned value from the monitor is encoded to ASCII characters.
  Ex.)
    '0','1','2' and '3' means 0123h (291)
* ETX: End of Message
    ASCII ETX (03h)
```

5.3. Set parameter

5.3.1. Set parameter format

```
+-----+--------------+---------+---------------+-----+
| STX | OP code page | OP code |   Set Value   | ETX |
+-----+-------+------+----+----+-----+-+-+-----+-----+
|     |  Hi   |  Lo  | Hi | Lo | MSB | | | LSB |     |
+-----+-------+------+----+----+-----+-+-+-----+-----+
```

Send this message to change monitor's adjustment and so on.
The controller requests a monitor to change value.

```
* STX: Start of Message
    ASCII STX (02h)
* OP code page: Operation code page
    This OP code page data must be encoded to ASCII characters.
    Ex.) The byte data 02h must be encoded to ASCII '0' and '2' (30h and 32h).
    Refer to the chapter 8.
* OP code: Operation code
    This OP code data must be encoded to ASCII characters.
    Ex.) OP code 1Ah -> OP code (Hi) = ASCII '1' (31h)
                        OP code (Lo) = ASCII 'A' (41h)
    Refer to the chapter 8.
* Set value: (16bit)
    This data must be encoded to ASCII characters.
    Ex.) 0123h -> 1st(MSB) = ASCII '0' (30h)
                  2nd  = ASCII '1' (31h)
                  3rd  = ASCII '2' (32h)
                  4th(LSB)  = ASCII '3' (33h)
* ETX: End of Message
    ASCII ETX (03h)
```

5.4. "Set parameter" reply

5.4.1. Set parameter reply format

```
+---+-------+--------+---------+-------+-------------+----------------+---+
|   |       |OP code |         |       |             | Requested      |   |
|STX| Result| Page   | OP code | Type  |  Max value  | Setting Value  |ETX|
+---+---+---+----+---+----+----+---+---+----+-+-+----+-----+-+-+------+---+
|   |Hi | Lo|  Hi|Lo | Hi | Lo | Hi|Lo | MSB| | |LSB |  MSB| | |  LSB |   |
+---+---+---+----+---+----+----+---+---+----+-+-+----+-----+-+-+------+---+
```

The Monitor echoes back the parameter and status of the requested operation code.

```
* STX: Start of Message
    ASCII STX (02h)
* Result code
    ASCII '0''0' (30h, 30h): No Error.
    ASCII '0''1' (30h, 31h): Unsupported operation with this monitor or unsupported
operation under current condition.
* OP code page: Echoes back the Operation code page for confirmation.
    Reply data from the monitor is encoded to ASCII characters.
  Ex.)
    OP code page 02h -> OP code page = ASCII '0' and '2' (30h and 32h)
    Refer to chapter 8.
* OP code: Echoes back the Operation code for confirmation.
    Reply data from the monitor is encoded to ASCII characters.
  Ex.)
    OP code 1Ah -> OP code (Hi) = ASCII '1' (31h)
                   OP code (Lo) = ASCII 'A' (41h)
    Refer to chapter 8.
* Type: Operation type code
    ASCII '0''0' (30h, 30h): Set parameter
    ASCII '0''1' (30h, 31h): Momentary
    Like Auto Setup function, that automatically changes the parameter.
* Max. value: Maximum value that monitor can accept. (16bits)
    Reply data from the monitor is encoded to ASCII characters.
  Ex.) '0''1''2''3' means 0123h (291)
* Requested setting Value: Echoes back the parameter for confirmation. (16bits)
    Reply data from the monitor is encoded to ASCII characters.
  Ex.) '0''1''2''3' means 0123h (291)
* ETX: End of Message
    ASCII ETX (03h)
```

5.5. Commands

"Command message format" depends on each command.

5.5.1. Save Current Settings

The controller requests for the monitor to store the adjusted value.

5.5.1.1. format

```
+-----+--------------+-----+
| STX | Command code | ETX |
+-----+-------+------+-----+
|     |  '0'  | 'C'  |     |
+-----+-------+------+-----+
```

Send "OC"(30h, 43h) as Save current settings command.
Complete "Save Current setting" command packet as follows;

```
ASCII : 01h-30h-41h-30h-41h-30h-34h-02h-30h-43h-03h-CHK-0Dh
        SOH-'0'-'A'-'0'-'A'-'0'-'4'-STX-'0'-'C'-ETX-CHK-CR
The monitor replies the packet for confirmation as follows;
        SOH-'0'-'0'-'A'-'B'-'0'-'6'-STX-'0'-'0'-'0'-'C'-ETX-CHK- CR
```

5.5.2. Get Timing Report and Timing reply

The controller requests the monitor to report the displayed image timing.

5.5.2.1. NEC Command

```
+-----+--------------+-----+
| STX | Command code | ETX |
+-----+-------+------+-----+
|     |  '0'  | '7'  |     |
+-----+-------+------+-----+
```

Send "07"(30h, 37h) as Get Timing Report command.
Complete "Get Timing Report" command packet as follows;

```
ASCII : 01h-30h-41h-30h-41h-30h-34h-02h-30h-37h-03h-CHK-0Dh
        SOH-'0'-'A'-'0'-'A'-'0'-'4'-STX-'0'-'7'-ETX-CHK-CR
```

The monitor replies status as the following format;

```
NEC Command
+-----+---------+---------+---------------+---------------+-----+
| STX | Command |   SS    |    H Freq.    |    V Freq.    | ETX |
+-----+---------+----+----+-----+-+-+-----+-----+-+-+-----+-----+
|     | '4' 'E' | Hi | Lo | MSB | | | LSB | MSB | | | LSB |     |
+-----+---------+----+----+-----+-+-+-----+-----+-+-+-----+-----+

* SS: Timing status byte
Bit 7 = 1 : Sync Frequency is out of range.
Bit 6 = 1 : Unstable count
Bit 5-2     Reserved (Don't care)
Bit 1       1:Positive Horizontal sync polarity.
            0:Negative Horizontal sync polarity.
Bit 0       1:Positive Vertical sync polarity.
0:Negative Vertical sync polarity.

* H Freq: Horizontal Frequency in unit 0.01kHz
* V Freq: Vertical Frequency in unit 0.01Hz
Ex.) When H Freq is '1''2''A''9' (31h, 32h, 41h, 39h), it means 47.77kHz.
```

5.5.3. NULL Message

5.5.3.1. format

```
+-----+--------------+-----+
| STX | Command code | ETX |
+-----+-------+------+-----+
|     |  'B'  | 'E'  |     |
+-----+-------+------+-----+
```

The NULL message returned from the monitor is used in the following cases;

```
* A timeout error has occurred. (The default timeout is 10sec.)
* The monitor receives an unsupported message type.
* The monitor detects a packet BCC (Block Check Code) error.
* To tell the controller that the monitor does not have any answer to give to the host (not
ready or not expected)
* Following operations need a certain time for to execute, so the monitor will return this
message when another message is received during execution.
    - Power ON, Power OFF, Auto Setup, Input, PIP Input, Auto Setup and Factory reset.
* Complete "NULL Message" command packet as follows;
    01h-30h-30h-41h-42h-30h-34h-02h-42h-45h-03h-CHK-0Dh
    SOH-'0'-'0'-'A'-'B'-'0'-'4'-STX-'B'-'E'-ETX-CHK-CR
```

6. Typical procedure example

The following is a sample of procedures to control the monitor, these are examples of "Get parameter", "Set parameter" and "Save current settings".

6.1. How to change the “Brightness” setting.

6.1.1. Step 1. The controller requests the Monitor to reply with the current brightness setting and capability to support this operation. (Get parameter)

6.1.1.1. NEC Command

```
+-----------------------------+-------------------+------------+------------+
| Header                      | Message           | Check code | Delimiter |
+-----------------------------+-------------------+------------+------------+
| SOH-'0'-Monitor ID-'0C'-'06' | STX-'00'-'10'-ETX |    BCC     |    CR     |
+-----------------------------+-------------------+------------+------------+
```

Message

```
'00'(30h, 30h) : Operation code page number is 0.
'10'(31h, 30h) : Operation code is 10h (in the OP code page 0).
```

6.1.2. Step 2. The monitor replies with current Brightness setting and capability to support this operation.

6.1.2.1. NEC Command

```
+---------------------+-----------------------------------------------+---------+
|    Header           |    Message                                    |         |
+---------------------+-----------------------------------------------+----+----+
|SOH-'00'- ID -'D'-'12'|STX-'00'-'00'-'10'-'00'-'00'-'64'-'00'-'32'-ETX| BCC| CR |
+---------------------+-----------------------------------------------+----+----+
```

Message

```
'00'(30h, 30h) : Result code.  No error.
'00'(30h, 30h) : Operation code page number is 0.
'10'(31h, 30h) : Operation code is 10h (in the page 0).
'00'(30h, 30h) : This operation is "Set parameter" type.
'00'-'64'(30h, 30h, 36h, 34h)
               : Brightness max value is 100(0064h).
'00'-'32'(30h, 30h, 33h, 32h)
               : Current Brightness setting is 50(0032h) .
```

6.1.3. Step 3. The controller request the monitor to change the Brightness setting

6.1.3.1. NEC Command

```
+---------------------------+---------------------------+------------+-----------+
|       Header              |     Message               | Check code | Delimiter |
+---------------------------+---------------------------+------------+-----------+
|SOH-'0'-Monitor ID-'0E'-'0A'| STX-'00'-'10'-'00'-'50'-ETX|    BCC     |    CR     |
+---------------------------+---------------------------+------------+-----------+
```

Message

```
'00'(30h, 30h) : Operation code page number is 0.
'10'(31h, 30h) : Operation code is 10h (in the page 0).
'00'-'50'(30h, 30h, 35h, 30h)
               : Set Brightness setting 80(0050h).
```

6.1.4. Step 4. The monitor replies with a message for confirmation.

6.1.4.1. NEC Command

```
+----------------------+-------------------------------------------------+-------+
|      Header          |     Message                                     |       |
+----------------------+-------------------------------------------------+----+--+
|SOH-'00'- ID -'F'-'12'|STX-'00'-'00'-'10'—'00'-'00'-'64'-'00'-'50'-ETX|BCC |CR|
+----------------------+-------------------------------------------------+----+--+
```

Message

```
'00'(30h, 30h) : Result code.  No error.
'00'(30h, 30h) : Operation code page number is 0.
'10'(31h, 30h) : Operation code is 10h (in the page 0).
'00'(30h, 30h) : This operation is "Set parameter" type.
'00'-'64'(30h, 30h, 36h, 34h)
               : Brightness max value is 100(0064h).
'00'-'32'(30h, 30h, 35h, 30h)
               : Current Brightness setting is 80(0050h) .
```

Repeat Step 1 and Step 2, if you need to check the Brightness setting. (Recommended)

6.1.5. Step 5. Request the monitor to store the Brightness setting. (Save Current Settings Command)

6.1.5.1. NEC Command

Header	Message	Check code	Delimiter
SOH-'0'-Monitor ID-'0A'-'04'	STX-'0C'-ETX	BCC	CR

Message

```
'0C'(30h, 43h) : Command code is 0Ch as "Save current settings".
```

6.2. How to read the measurement value of the built-in temperature sensors.

If the display has a built-in temperature sensor, The controller uses these sensors through externyl control.
You can monitor the internal temperature.
The temperature read procedure is shown below as an example of how to use it.

6.2.1. Step 1. Select a temperature sensor which you want to read.

6.2.1.1. NEC Command

Header	Message		
SOH-'0'-Monitor ID-'0E'-'0A'	STX-'02'-'78'-'00'-'01'-ETX	BCC	CR

Message

```
'02'(30h, 32h) : Operation code page number is 2.
'78'(37h, 38h) : Operation code is 78h (in the page 2).
'00'-'01'(30h, 30h, 30h, 31h)
               : Select the temperature sensor #1 (01h).
```

6.2.2. Step 2. The monitor replies for confirmation.

6.2.2.1. NEC Command

Header	Message			
SOH-'00'- ID -'F'-'12'	STX-'00'-'02'-'78'-'00'-'00'-'03'-'00'-'01'-ETX	BCC	CR

Message

```
'00'(30h, 30h) : Result code.  No error.
'02'(30h, 32h) : Operation code page number is 2.
'78'(37h, 38h) : Operation code is 78h (in the page 2).
'00'(30h, 30h) : This operation is "Set parameter" type.
'00'-'03'(30h, 30h, 30h, 33h)
               : Number of temperature sensors are 3 (0003h).
'00'-'01'(30h, 30h, 30h, 31h)
               : temperature sensor is #1.
```

6.2.3. Step 3. The controller requests the monitor to send the temperature from the selected sensor.

6.2.3.1. NEC Command

Header	Message	Check code	Delimiter
SOH-'0'-Monitor ID-'0C'-'06'	STX-'02'-'79'-ETX	BCC	CR

Message

```
'02'(30h, 32h) : Operation code page number is 2.
'79'(37h, 39h) : Operation code is 79h (in the OP code page 2).
```

6.2.4. Step 4. The monitor replies a temperature of selected sensor.

6.2.4.1. NEC Command

Header	Message		
SOH-'00'- ID -'D'-'12'	STX-'00'-'02'-'79'-'00'-'FF'-'FF'-'00'-'32'-ETX	BCC	CR

Message

```
'00'(30h, 30h) : Result code.  No error.
'02'(30h, 32h) : Operation code page number is 2.
'79'(37h, 39h) : Operation code is 79h (in the page 2).
'00'(30h, 30h) : This operation is "Set parameter" type.
'FF'-'FF'(46h, 46h, 46h, 46h)
               : Maximum value.
'00'-'32'(30h, 30h, 33h, 32h)
               : The temperature is 25 degrees Celsius.

Readout value is 2's complement.
```

Temperature [[Celsius]	Readout value	
	Binary	Hexadecimal
+125.0	0000 0000 1111 1010	00FAh
+ 25.0	0000 0000 0011 0010	0032h
+ 0.5	0000 0000 0000 0001	0001h
0	0000 0000 0000 0000	0000h
- 0.5	1111 1111 1111 1111	FFFFh
- 25.0	1111 1111 1100 1110	FFCEh
- 55.0	1111 1111 1001 0010	FF92h

7. CTL comannds

System Command

CTL-0C. Save Current Settings

【 Function 】

```
This command is used in order to store the adjusted value.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'4'-STX "Data  " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 34H 02H (D01~02) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~02              Message
                        "0C"(30H 43H) : Save Current Settings
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'6'-STX "Data  " 03H BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 36H 02H (D01~04) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "000C"(30H 30H 30H 43H) : Save Current Settings
```

【 Note 】

CTL-07. Get Timing Report and Timing reply

【 Function 】

```
This command is used in order to report the displayed image timing.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'4'-STX "Data  " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 34H 02H (D01~02) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~02              Message
                        "07"(30H 37H) : Get Timing Report command.
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'E'-STX "Data                        " 03H BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 45H 02H (D01~02 D03~04 D05~08 D09~12) 03H BCC 0DH

Data               Contents
-----------------------------------------------------------------------
D01~02              Message
                        "4E"(34H 45H) : Command
D03~04              SS
                        Bit 7 = 1: Sync Frequency is out of range. (or Nosignal.)
                        Bit 6 = 1: Unstable count
                        Bit 5-2    Reserved (Don't care)
                        Bit 1      1:Positive Horizontal sync polarity.
                                   0:Negative Horizontal sync polarity.
                        Bit 0      1:Positive Vertical sync polarity.
                                   0:Negative Vertical sync polarity.
D05~08              H Freq: Horizontal Frequency in unit 0.01kHz
D09~12              V Freq: Vertical Frequency in unit 0.01Hz
                        Ex.) When H Freq is '1''2''A''9' (31h, 32h, 41h, 39h), it means
47.77kHz.
```

【 Note 】

Power control procedure

CTL-01D6. Power status read

【 Function 】

```
This command is used in order to read a current power status.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'6'-STX "Data  " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 36H 02H (D01~04) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "01D6"(30H,31H,44H,36H) : Get power status command
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'1'-'2'-STX "Data                                      " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 31H 32H 02H (D01~02 D03~04 D05~06 D07~08 D09~12 D13~16) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~02              Reserved data
                        "02"(30H,32H)
D03~04              Result code
                        "00"(30H,30H) : No Error
                        "01"(30H,31H) : Unsupported
D05~06              Display power mode code
                        "D6"(44H,36H) :
D07~08              Parameter type
                        "00"(30H,30H): Set parameter
D09~12              Max
                        "0004"(30H,30H,30H,34H) : Power mode is 4 types.
D13~16              Current power mode
                        "0001"(30H,30H,30H,31H) : ON
                        "0002"(30H,30H,30H,32H) : Stand-by (power save)
                        "0003"(30H,30H,30H,33H) : Reserved
                        "0004"(30H,30H,30H,34H) : OFF (same as IR power off)
```

【 Note 】

CTL-C203-D6. Power control

【 Function 】

```
This command is used in order to control monitor power.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'C'-STX "Data           " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 43H 02H (D01~06) (D07~10) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~06              Message
                        "C203D6"(43H 32H 30H 33H 44H 36H) : power control command
D07~10              Power mode
                        "0001"(30H 30H 30H 31H) : ON
                        "0002"(30H 30H 30H 32H) : Do not set
                        "0003"(30H 30H 30H 33H) : Do not set
                        "0004"(30H 30H 30H 34H) : OFF (same as IR power off)
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'E'-STX "Data                    " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 45H 02H (D01~02) (D03~08) (D09~12) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~02              Result code
                        "00"(30H 30H) : No Error
D03~08              Message
                        "C203D6"(43H 32H 30H 33H 44H 36H) : power control reply command
D09~12              Power mode
                        "0001"(30H 30H 30H 31H) : ON
                        "0002"(30H 30H 30H 32H) : Do not set
                        "0003"(30H 30H 30H 33H) : Do not set
                        "0004"(30H 30H 30H 34H) : OFF (same as IR power off)
```

【 Note 】

Date & Time read and write

CTL-C211. Date & Time Read

【 Function 】

```
This command is used in order to read the setting of Date & Time.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'6'-STX "Data  " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 36H 02H (D01~04) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "C211"(43H 32H 31H 31H) : Date & time read request command
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'1'-'4'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 31H 34H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14)
(D15~16) (D17~18) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "C311"(43H 33H 31H 31H) : Date & time read reply command
D05~06              Year (offset 2000)
                        "00"(30H 30H) : 2000 ～
                        "63"(36H 33H) : 2099(63H=99)
D07~08              Month
                        "01"(30H 31H) : 1 ～
                        "0C"(30H 43H) : 12
D09~10              Day
                        "01"(30H 31H) : 1 ～
                        "1F"(30H 46H) : 31
D11~12              weekdays
                        "00"(30H 30H) : Sunday
                        "01"(30H 31H) : Monday
                        "02"(30H 32H) : Tuesday
                        "03"(30H 33H) : Wednesday
                        "04"(30H 34H) : Thursday
                        "05"(30H 35H) : Friday
                        "06"(30H 36H) : Saturday
D13~14              Hours
                        "00"(30H 30H) : 0 ～
                        "17"(31H 37H) : 23
D15~16              Minutes
                        "00"(30H 30H) : 0 ～
                        "3B"(33H 42H) : 59
D17~18              Reserved
                        "00"(30H 30H)
```

【 Note 】

CTL-C212. Date & Time Write

【 Function 】

```
This command is used in order to write the setting of the Date & Time.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'1'-'4'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 31H 34H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14)
(D15~16) (D17~18) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "C212"(43H 32H 31H 32H) : Date & time read write command
D05~06              Year (offset 2000)
                        "00"(30H 30H) : 2000 ~
                        "63"(36H 33H) : 2099(63H=99)
D07~08              Month
                        "01"(30H 31H) : 1 ~
                        "0C"(30H 43H) : 12
D09~10              Day
                        "01"(30H 31H) : 1 ~
                        "1F"(30H 46H) : 31
D11~12              weekdays
                        "00"(30H 30H) : Sunday
                        "01"(30H 31H) : Monday
                        "02"(30H 32H) : Tuesday
                        "03"(30H 33H) : Wednesday
                        "04"(30H 34H) : Thursday
                        "05"(30H 35H) : Friday
                        "06"(30H 36H) : Saturday
D13~14              Hours
                        "00"(30H 30H) : 0 ~
                        "17"(31H 37H) : 23
D15~16              Minutes
                        "00"(30H 30H) : 0 ~
                        "3B"(33H 42H) : 59
D17~18              Reserved
                        "00"(30H 30H)
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'1'-'6'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 31H 36H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14)
(D15~16) (D17~18) (D19~20) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "C312"(43H 33H 31H 32H) : Date & Time write reply command
D05~06              Result code
                        "00"(30H 30H)[00H] : No Error
                        "01"(30H 31H)[01H] : Error
D07~08              Year (offset 2000)
                        "00"(30H 30H) : 2000 ~
                        "63"(36H 33H) : 2099(63H=99)
D09~10              Month
                        "01"(30H 31H) : 1 ~
                        "0C"(30H 43H) : 12
```

```
D11~12              Day
                        "01"(30H 31H) : 1 ～
                        "1F"(30H 46H) : 31
D13~14              weekdays
                        "00"(30H 30H) : Sunday
                        "01"(30H 31H) : Monday
                        "02"(30H 32H) : Tuesday
                        "03"(30H 33H) : Wednesday
                        "04"(30H 34H) : Thursday
                        "05"(30H 35H) : Friday
                        "06"(30H 36H) : Saturday
D15~16              Hours
                        "00"(30H 30H) : 0 ～
                        "17"(31H 37H) : 23
D17~18              Minutes
                        "00"(30H 30H) : 0 ～
                        "3B"(33H 42H) : 59
D19~20              Reserved
                        "00"(30H 30H)
```

【 Note 】

Schedule read and write

CTL-C23D. Schedule Read

【 Function 】

```
This command is used in order to read the setting of the Schedule.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data           " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 36H 02H (D01~04) (D05~06) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "C23D"(43H 32H 33H 44H) : Schedule read request command
D05~06              Program No.
                        "00"(30H 30H) : Program No.1 ～
                        "09"(30H 39H) : Program No.10
                        The data must be ASCII characters strings.
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'2'-'4'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 32H 34H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14)
(D15~16) (D17~18) (D19~20) (D21~22) (D23~24) (D25~26) (D27~28) (D29~30) (D31~32) (D33~34)
03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "C33D"(43H 33H 33H 44H) : Schedule read reply command
D05~06              Program No.
                        "00"(30H 30H) : Program No.1 ～
                        "09"(30H 39H) : Program No.10
D07~08              Schedule event
                        "01"(30H 31H) : Power ON
                        "02"(30H 32H) : Power OFF
                        "03"(30H 33H) : Reserved
D09~10              Time (hour)
                        "00"(30H 30H) : 0 ～
                        "17"(31H 37H) : 23
                        "18"(31H 38H) : None
D11~12              Debug
                        "00"(30H 30H) : 0 ～
                        "3B"(33H 42H) : 59
                        "3C"(33H 43H) : None
D13~14              Input terminal
                        "00"(30H 30H) : No mean (works on last memory)
                        "0D"(30H 44H) : OPTION
                        "0F"(30H 46H) : DisplayPort1
                        "11"(31H 31H) : HDMI1
                        "12"(31H 32H) : HDMI2
                        "87"(38H 37H) : MP
                        "88"(38H 38H) : COMPUTE MODULE
D15~16              Week setting(※1)
                        bit 0 : Monday
                        bit 1 : Tuesday
                        bit 2 : Wednesday
```

```
                        bit 3 : Thursday
                        bit 4 : Friday
                        bit 5 : Saturday
                        bit 6 : Sunday
D17~18              Schedule type(※2)
                        bit 1 : 0=once/1=Every week
                        bit 2 : 0=Disable/1=Enable
                        bit 6 : 0=once/1=Date
D19~20              Picture mode
                        In this monitor, always ignroe this setting.
D21~22              Year
                        "00"(30H 30H) : 2015 ～
                        "63"(36H 33H) : 2099 or
                        "64"(36H 34H) : None
D23~24              Month
                        "01"(30H 31H) : JAN ～
                        "0C"(30H 43H) : DEC or
                        "0D"(30H 44H) : None
D25~26              Day
                        "01"(30H 31H) : 1 ～
                        "1F"(31H 46H) : 31 or
                        "20"(32H 30H) : None
D27~28              Order
                        In this monitor, always ignroe this setting.
D29~30              Extension1
                        "00"(30H 30H)      : (On this monitor, it is always ‘00’)
D31~32              Extension2
                        "00"(30H 30H)      : (On this monitor, it is always ‘00’)
D33~34              Extension3
                        "00"(30H 30H)      : (On this monitor, it is always ‘00’)
```

【 Note 】

```
(※1)Bit Pattern
  30H 31H("01") : Monday
  30H 32H("02") : Tuesday
  30H 33H("03") : Monday, Tuesday
  30H 34H("04") : Wednesday
  30H 35H("05") : Monday, Wednesday
  30H 36H("06") : Tuesday, Wednesday
  30H 37H("07") : Monday, Tuesday, Wednesday
  30H 38H("08") : Thursday
  30H 39H("09") : Monday, Thursday
  30H 41H("0A") : Tuesday, Thursday
  30H 42H("0B") : Monday, Tuesday, Thursday
  30H 43H("0C") : Wednesday, Thursday
  30H 44H("0D") : Monday, Wednesday, Thursday
  30H 45H("0E") : Tuesday, Wednesday, Thursday
  30H 46H("0F") : Monday, Tuesday, Wednesday, Thursday
  31H 30H("10") : Friday
  31H 31H("11") : Monday, Friday
  31H 32H("12") : Tuesday, Friday
  31H 33H("13") : Monday, Tuesday, Friday
  31H 34H("14") : Wednesday, Friday
  31H 35H("15") : Monday, Wednesday, Friday
  31H 36H("16") : Tuesday, Wednesday, Friday
  31H 37H("17") : Monday, Tuesday, Wednesday, Friday
  31H 38H("18") : Thursday, Friday
  31H 39H("19") : Monday, Thursday, Friday
  31H 41H("1A") : Tuesday, Thursday, Friday
  31H 42H("1B") : Monday, Tuesday, Thursday, Friday
  31H 43H("1C") : Wednesday, Thursday, Friday
  31H 44H("1D") : Monday, Wednesday, Thursday, Friday
  31H 45H("1E") : Tuesday, Wednesday, Thursday, Friday
  31H 46H("1F") : Monday, Tuesday, Wednesday, Thursday, Friday
  32H 30H("20") : Saturday
  32H 31H("21") : Monday, Saturday
  32H 32H("22") : Tuesday, Saturday
  32H 33H("23") : Monday, Tuesday, Saturday
  32H 34H("24") : Wednesday, Saturday
  32H 35H("25") : Monday, Wednesday, Saturday
```

```
32H 36H("26") : Tuesday, Wednesday, Saturday
32H 37H("27") : Monday, Tuesday, Wednesday, Saturday
32H 38H("28") : Thursday, Saturday
32H 39H("29") : Monday, Thursday, Saturday
32H 41H("2A") : Tuesday, Thursday, Saturday
32H 42H("2B") : Monday, Tuesday, Thursday, Saturday
32H 43H("2C") : Wednesday, Thursday, Saturday
32H 44H("2D") : Monday, Wednesday, Thursday, Saturday
32H 45H("2E") : Tuesday, Wednesday, Thursday, Saturday
32H 46H("2F") : Monday, Tuesday, Wednesday, Thursday, Saturday
33H 30H("30") : Friday, Saturday
33H 31H("31") : Monday, Friday, Saturday
33H 32H("32") : Tuesday, Friday, Saturday
33H 33H("33") : Monday, Tuesday, Friday, Saturday
33H 34H("34") : Wednesday, Friday, Saturday
33H 35H("35") : Monday, Wednesday, Friday, Saturday
33H 36H("36") : Tuesday, Wednesday, Friday, Saturday
33H 37H("37") : Monday, Tuesday, Wednesday, Friday, Saturday
33H 38H("38") : Thursday, Friday, Saturday
33H 39H("39") : Monday, Thursday, Friday, Saturday
33H 41H("3A") : Tuesday, Thursday, Friday, Saturday
33H 42H("3B") : Monday, Tuesday, Thursday, Friday, Saturday
33H 43H("3C") : Wednesday, Thursday, Friday, Saturday
33H 44H("3D") : Monday, Wednesday, Thursday, Friday, Saturday
33H 45H("3E") : Tuesday, Wednesday, Thursday, Friday, Saturday
33H 46H("3F") : Monday, Tuesday, Wednesday, Thursday, Friday, Saturday
34H 30H("40") : Sunday
34H 31H("41") : Monday, Sunday
34H 32H("42") : Tuesday, Sunday
34H 33H("43") : Monday, Tuesday, Sunday
34H 34H("44") : Wednesday, Sunday
34H 35H("45") : Monday, Wednesday, Sunday
34H 36H("46") : Tuesday, Wednesday, Sunday
34H 37H("47") : Monday, Tuesday, Wednesday, Sunday
34H 38H("48") : Thursday, Sunday
34H 39H("49") : Monday, Thursday, Sunday
34H 41H("4A") : Tuesday, Thursday, Sunday
34H 42H("4B") : Monday, Tuesday, Thursday, Sunday
34H 43H("4C") : Wednesday, Thursday, Sunday
34H 44H("4D") : Monday, Wednesday, Thursday, Sunday
34H 45H("4E") : Tuesday, Wednesday, Thursday, Sunday
34H 46H("4F") : Monday, Tuesday, Wednesday, Thursday, Sunday
35H 30H("50") : Friday, Sunday
35H 31H("51") : Monday, Friday, Sunday
35H 32H("52") : Tuesday, Friday, Sunday
35H 33H("53") : Monday, Tuesday, Friday, Sunday
35H 34H("54") : Wednesday, Friday, Sunday
35H 35H("55") : Monday, Wednesday, Friday, Sunday
35H 36H("56") : Tuesday, Wednesday, Friday, Sunday
35H 37H("57") : Monday, Tuesday, Wednesday, Friday, Sunday
35H 38H("58") : Thursday, Friday, Sunday
35H 39H("59") : Monday, Thursday, Friday, Sunday
35H 41H("5A") : Tuesday, Thursday, Friday, Sunday
35H 42H("5B") : Monday, Tuesday, Thursday, Friday, Sunday
35H 43H("5C") : Wednesday, Thursday, Friday, Sunday
35H 44H("5D") : Monday, Wednesday, Thursday, Friday, Sunday
35H 45H("5E") : Tuesday, Wednesday, Thursday, Friday, Sunday
35H 4FH("5F") : Monday, Tuesday, Wednesday, Thursday, Friday, Sunday
36H 30H("60") : Saturday, Sunday
36H 31H("61") : Monday, Saturday, Sunday
36H 32H("62") : Tuesday, Saturday, Sunday
36H 33H("63") : Monday, Tuesday, Saturday, Sunday
36H 34H("64") : Wednesday, Saturday, Sunday
36H 35H("65") : Monday, Wednesday, Saturday, Sunday
36H 36H("66") : Tuesday, Wednesday, Saturday, Sunday
36H 37H("67") : Monday, Tuesday, Wednesday, Saturday, Sunday
36H 38H("68") : Thursday, Saturday, Sunday
36H 39H("69") : Monday, Thursday, Saturday, Sunday
36H 41H("6A") : Tuesday, Thursday, Saturday, Sunday
36H 42H("6B") : Monday, Tuesday, Thursday, Saturday, Sunday
36H 43H("6C") : Wednesday, Thursday, Saturday, Sunday
36H 44H("6D") : Monday, Wednesday, Thursday, Saturday, Sunday
36H 45H("6E") : Tuesday, Wednesday, Thursday, Saturday, Sunday
```

```
  36H 46H("6F") : Monday, Tuesday, Wednesday, Thursday, Saturday, Sunday
  37H 30H("70") : Friday, Saturday, Sunday
  37H 31H("71") : Monday, Friday, Saturday, Sunday
  37H 32H("72") : Tuesday, Friday, Saturday, Sunday
  37H 33H("73") : Monday, Tuesday, Friday, Saturday, Sunday
  37H 34H("74") : Wednesday, Friday, Saturday, Sunday
  37H 35H("75") : Monday, Wednesday, Friday, Saturday, Sunday
  37H 36H("76") : Tuesday, Wednesday, Friday, Saturday, Sunday
  37H 37H("77") : Monday, Tuesday, Wednesday, Friday, Saturday, Sunday
  37H 38H("78") : Thursday, Friday, Saturday, Sunday
  37H 39H("79") : Monday, Thursday, Friday, Saturday, Sunday
  37H 41H("7A") : Tuesday, Thursday, Friday, Saturday, Sunday
  37H 42H("7B") : Monday, Tuesday, Thursday, Friday, Saturday, Sunday
  37H 43H("7C") : Wednesday, Thursday, Friday, Saturday, Sunday
  37H 44H("7D") : Monday, Wednesday, Thursday, Friday, Saturday, Sunday
  37H 45H("7E") : Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday
  37H 46H("7F") : Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday
(※2)Bit Pattern
  30H 31H("01") : Everyday、Disable
  30H 32H("02") : Every week、Disable
  30H 35H("05") : Everyday、Enable
  30H 36H("06") : Every week、Enable
  30H 38H("08") : Weekday、Disable
  30H 43H("0C") : Weekday、Enable
  31H 30H("10") : Weekend、Disable
  31H 34H("14") : Weekend、Enable
  32H 30H("20") : Holiday、Disable
  32H 34H("24") : Holiday、Enable
  34H 30H("40") : Date、Disable
  34H 34H("44") : Date、Enable
```

CTL-C23E. Schedule Write

【 Function 】

```
This command is used in order to write the setting of the Schedule.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'2'-'4'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 32H 34H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14)
(D15~16) (D17~18) (D19~20) (D21~22) (D23~24) (D25~26) (D27~28) (D29~30) (D31~32) (D33~34)
03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "C23E"(43H 32H 33H 45H) : Schedule write request command
D05~06              Program No.
                        "00"(30H 30H) : Program No.1 ~
                        "09"(30H 39H) : Program No.10
D07~08              Schedule event
                        "01"(30H 31H) : Power ON
                        "02"(30H 32H) : Power OFF
                        "03"(30H 33H) : Reserved
D09~10              Time (hour)
                        "00"(30H 30H) : 0 ~
                        "17"(31H 37H) : 23
                        "18"(31H 38H) : None
D11~12              Debug
                        "00"(30H 30H) : 0 ~
                        "3B"(33H 42H) : 59
                        "3C"(33H 43H) : None
D13~14              Input terminal
                        "00"(30H 30H) : No mean (works on last memory)
                        "0D"(30H 44H) : OPTION
                        "0F"(30H 46H) : DisplayPort1
                        "11"(31H 31H) : HDMI1
                        "12"(31H 32H) : HDMI2
                        "87"(38H 37H) : MP
                        "88"(38H 38H) : COMPUTE MODULE
D15~16              Week setting(※1)
                        bit 0 : Monday
                        bit 1 : Tuesday
                        bit 2 : Wednesday
                        bit 3 : Thursday
                        bit 4 : Friday
                        bit 5 : Saturday
                        bit 6 : Sunday
D17~18              Schedule type(※2)
                        bit 0 : 0=once/1=Everyday
                        bit 1 : 0=once/1=Every week
                        bit 2 : 0=Disable/1=Enable
                        bit 3 : 0=once/1=Weekday
                        bit 4 : 0=once/1=Weekend
                        bit 5 : 0=once/1=Holiday
                        bit 6 : 0=once/1=Date
D19~20              Picture mode
                        In this monitor, always ignroe this setting.
D21~22              Year
                        "00"(30H 30H) : 2015 ~
                        "63"(36H 33H) : 2099 or
                        "64"(36H 34H) : None
                        If TYPE = date, this parameter is needed.
D23~24              Month
                        "00"(30H 30H) : None
```

```
                        "01"(30H 31H) : JAN ～
                        "0C"(30H 43H) : DEC or
                        "0D"(30H 44H) : None
                        If TYPE = date, this parameter is needed.
D25~26              Day
                        "00"(30H 30H) : None
                        "01"(30H 31H) : 1 ～
                        "1F"(31H 46H) : 31 or
                        "20"(32H 30H) :                              If TYPE = date, this
parameter is needed.
D27~28              Order
                        "00"(30H 30H) : Not scheduled to run
                        "01"(30H 31H) : 1 ～
                        "1E"(31H 45H) : 30
D29~30              Extension1
                        "00"(30H 30H)      : (On this monitor, it is always ‘00’)
D31~32              Extension2
                        "00"(30H 30H)      : (On this monitor, it is always ‘00’)
D33~34              Extension3
                        "00"(30H 30H)      : (On this monitor, it is always ‘00’)
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'2'-'6'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 32H 36H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14)
(D15~16) (D17~18) (D19~20) (D21~22) (D23~24) (D25~26) (D27~28) (D29~30) (D31~32) (D33~34)
(D35~36) 03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "C33E"(43H 33H 33H 45H) : Schedule write reply command
D05~06              Result code
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
D07~08              Program No.
                        "00"(30H 30H) : Program No.1 ～
                        "09"(30H 39H) : Program No.10
D09~10              Schedule Type
                        "01"(30H 31H) : Power ON
                        "02"(30H 32H) : Power OFF
                        "03"(30H 33H) : Reserved
D11~12              Time (hour)
                        "00"(30H 30H) : 0 ～
                        "17"(31H 37H) : 23
                        "18"(31H 38H) : None
D13~14              Time (minute)
                        "00"(30H 30H) : 0 ～
                        "3B"(33H 42H) : 59
                        "3C"(33H 43H) : None
D15~16              Input terminal
                        "00"(30H 30H) : No mean (works on last memory)
                        "01"(30H 31H) : VGA(RGB)
                        "02"(30H 32H) : RGB/HV
                        "03"(30H 33H) : DVI
                        "04"(30H 34H) : Not support
                        "05"(30H 35H) : VIDEO
                        "06"(30H 36H) : Video2
                        "07"(30H 37H) : S-Video
                        "08"(30H 38H) : Not support
                        "0A"(30H 41H) : TV
                        "0B"(30H 42H) : Not support
                        "0C"(30H 43H) : VGA(YPbPr)
                        "0D"(30H 44H) : OPTION
                        "0E"(30H 45H) : DVD/HD2
                        "0F"(30H 46H) : DisplayPort1
                        "10"(31H 30H) : DisplayPort2
                        "11"(31H 31H) : HDMI1
                        "12"(31H 32H) : HDMI2
                        "80"(38H 30H) : Display Port3
```

```
                        "82"(38H 32H) : HDMI3
                        "83"(38H 33H) : HDMI4
                        "84"(38H 34H) : PRESET1
                        "85"(38H 34H) : PRESET2
                        "86"(38H 34H) : PRESET3
                        "87"(38H 37H) : MP
                        "88"(38H 38H) : COMPUTE MODULE
D17~18              Week setting(※1)
                        bit 0 : Monday
                        bit 1 : Tuesday
                        bit 2 : Wednesday
                        bit 3 : Thursday
                        bit 4 : Friday
                        bit 5 : Saturday
                        bit 6 : Sunday
D19~20              Schedule type(※2)
                        bit 0 : 0=once/1=Everyday
                        bit 1 : 0=once/1=Every week
                        bit 2 : 0=Disable/1=Enable
                        bit 3 : 0=once/1=Weekday
                        bit 4 : 0=once/1=Weekend
                        bit 5 : 0=once/1=Holiday
                        bit 6 : 0=once/1=Date
D21~22              Picture mode
                        "00"(30H 30H) : No mean (works on last memory)
                        "01"(30H 31H) : sRGB
                        "02"(30H 32H) : Not support
                        "03"(30H 33H) : HIGHBRIGHT
                        "04"(30H 34H) : STANDARD
                        "05"(30H 35H) : CINEMA
                        "06"(30H 36H) : ISF-Day
                        "07"(30H 37H) : ISF-Night
                        "08"(30H 38H) : CUSTOM1
                        "09"(30H 39H) : CUSTOM2
                        "0A"(30H 41H) : Not support
                        "0B"(30H 42H) : Ambient-1
                        "0C"(30H 43H) : Ambient-2
                        "0D"(30H 44H) : SVE-1
                        "0E"(30H 45H) : SVE-2
                        "0F"(30H 46H) : SVE-3
                        "10"(31H 30H) : SVE-4
                        "11"(31H 31H) : SVE-5
D23~24              Year
                        "00"(30H 30H) : 2000 ～
                        "63"(36H 33H) : 2099 or
                        "64"(36H 34H)                                   Month
                        "00"(30H 30H) : None
                        "01"(30H 31H) : JAN ～
                        "0C"(30H 43H) : DEC or
                        "0D"(30H 44H) : None
D27~28              Day
                        "00"(30H 30H) : None
                        "01"(30H 31H) : 1 ～
                        "1F"(31H 46H) : 31 or
                        "20"(32H 30H) : None
D29~30              Order
                        "00"(30H 30H) : Not scheduled to run
                        "01"(30H 31H) : 1 ～
                        "1E"(31H 45H) : 30
D31~32              Extension1
                        "00"(30H 30H)      : (On this monitor, it is always ‘00’)
D33~34              Extension2
                        "00"(30H 30H)      : (On this monitor, it is always ‘00’)
D35~36              Extension3
                        "00"(30H 30H)      : (On this monitor, it is always ‘00’)
```

【 Note 】

Selfdiagnosis

CTL-B1. Self-diagnosis status read

【 Function 】

```
This command is used in order to read the Self-diagnosis status.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'4'-STX "Data  " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 34H 02H (D01~02) 03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~02              Message
                        "B1"(42H 31H) : Self-diagnosis command
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'N'-'N'-STX "Data           " 03H BCC 0DH
[HEX]01H 30H 30H ID 42H LEN LEN 02H (D01~02) (D03~XX) 03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~02              Message
                        "A1"(41H 31H) : Application Test Report reply command
D03~XX              Result of self-tests(XX Max=34)
                        "00"(30H 30H) : Normal
                        "70"(37H 30H) : Main-power +3.3V abnormality
                        "71"(37H 31H) : Main-power +5V abnormality
                        "72"(37H 32H) : Panel-power/FAN-power +12V abnormality
                        "78"(37H 38H) : Audio-power/Converter-power +24V abnormality
                        "80"(38H 30H) : Cooling fan-1 abnormality
                        "81"(38H 31H) : Cooling fan-2 abnormality
                        "82"(38H 32H) : Cooling fan-3 abnormality
                        "A0"(41H 30H) : Temperature abnormality shutdown
                        "A1"(41H 31H) : Temperature abnormality half brightness
                        "A2"(41H 32H) : SENSOR reached at the temperature that the user had
specified.
                        "B0"(42H 30H) : NO SIGNAL
                        "D0"(44H 30H) : Error log buffer reduction
                        "E0"(45H 30H) : EEPROM error
                        "E5"(45H 35H) : HDMI_SW error
                        "E7"(45H 37H) : DP block abnormal
```

【 Note 】

Serial No. & Model Name Read

CTL-C216. Serial No. Read

【 Function 】

```
This command is used in order to read a serial number.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'6'-STX "Data  " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 36H 02H (D01~04) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "C216"(43H 32H 31H 36H) : Serial No. command
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'- N - N -STX "Data           " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H LEN LEN 02H (D01~04) (D05~06) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "C316"(43H 33H 31H 36H) : Serial No. reply command
D05~XX              Serial Number(XX Max=30)
                        * The byte data 20h is encoded as ASCII characters '2' and '0' (32h
and 30h).
                          Ex.) For example when receiveing Serial Number data 33h 31h 33h
32h 33h 33h 33h 34h
                               Step1: Serial Number data is encoded as character string.
                                      Example:
                                      33h 31h 33h 32h 33h 33h 33h 34h
                                   -> '3','1','3','2','3','3','3','4'
                               Step2: Decode pairs of ASCII characters to hexadecimal
values.
                                      Example:
                                      '3','1','3','2','3','3','3','4'
                                   ->   31h  ,  32h  ,  33h  ,  34h
                               Step3: Byte data represents the ASCII string data.
                                      Example:
                                      31h 32h 33h 34h
                                   -> "1234"
                               Result: Serial Number is "1234".
                               Note: No null termination character is sent.
```

【 Note 】

CTL-C217. Model Name Read

【 Function 】

```
This command is used in order to read the Model Name.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'6'-STX "Data  " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 36H 02H (D01~04) 03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "C217"(43H 32H 31H 37H) : Model Name command
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'- N - N -STX "Data           " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H LEN LEN 02H (D01~04) (D05~XX) 03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "C317"(43H 33H 31H 37H) : Model Name reply Command
D05~XX              Model name(XX Max=36)
                        * The byte data 20h is encoded as ASCII characters '2' and '0' (32h
and 30h).
                          Ex.) Fot example when receiving Model Name data 35h 30h 33h 34h
33h 30h 33h 33h
                               Step1: Model Name data is encoded character string.
                                      Example:
                                      35h 30h 33h 34h 33h 30h 33h 33h
                                   -> '5','0','3','4','3','0','3','3'
                               Step2: Decode pairs of ASCII characters to hexadecimal
values.
                                      Example:
                                      '5','0','3','4','3','0','3','3'
                                   ->   50h  ,  34h  ,  30h  ,  33h
                               Step3: Byte data represents the ASCII string data.
                                      Example:
                                      50h 34h 30h 33h
                                   -> "P403"
                               Result: Model Name is "P403".
                               Note: No null termination character is sent.
```

【 Note 】

Security Lock

CTL-C21D. Security Lock Control

【 Function 】

```
This command sets the condition of security lock function to "LOCK" or "UNLOCK".

If security pass codes 1st to 4th are matched with monitor resisted pass codes, then this
command is executed, and reply no error status and a new condition.
If codes aren't matched with them then setting isn't changed, and reply error status and a
current condition.
If the monitor receives this command while waiting for Pass codes inputs, then it only
checks Pass cords (and releases image muting if Pass codes are OK) and doesn't apply "EN"
parameter.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'1'-'0'-STX "Data                                          " ETX BCC
0DH
[HEX]01H 30H ID 30H 41H 31H 30H 02H (D01~04) (D05~06) (D07~08) (D09~12) (D13~14) 03H BCC
0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "C21D"(43H 32H 31H 44H) : Security Lock Control command
D05~06              Enable /Disable
                        "00"(30H 30H) : Disable
                        "01"(30H 31H) : START-UP LOCK (Enable)
                        "02"(30H 32H) : CONTROL LOCK
                        "03"(30H 33H) : BOTH LOCK
D07~08              Security Pass code 1
                        "00"(30H 30H) : 0 ～
                        "09"(30H 39H) : 9
D09~10              Security Pass code 2
                        "00"(30H 30H) : 0 ～
                        "09"(30H 39H) : 9
D11~12              Security Pass code 3
                        "00"(30H 30H) : 0 ～
                        "09"(30H 39H) : 9
D13~14              Security Pass code 4
                        "00"(30H 30H) : 0 ～
                        "09"(30H 39H) : 9
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data                    " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "C31D"(43H 33H 31H 44H) : Security Lock Control reply command
D05~06              Result code
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
D07~08              Enable /Disable (Current condition)
                        "00"(30H 30H) : Disable
                        "01"(30H 31H) : START-UP LOCK (Enable)
```

```
                        "02"(30H 32H) : CONTROL LOCK
                        "03"(30H 33H) : BOTH LOCK
```

【 Note 】

CTL-C205. GAMMA Table Write

【 Function 】

```
Gamma table data write to work RAM when this command received.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'- N - N -STX "Data                              " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H LEN LEN 02H (D01~04) (D05~06) (D07~08) (D09~XX) 03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "C205"(43H 32H 30H 35H) : GAMMA Table Write command
D05~06              Start address to read(H)
D07~08              Start address to read(L)
D09~XX              Gamma data(HL) (XX Max=40)
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'- N - N -STX "Data                              " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H LEN LEN 02H (D01~04) (D05~06) (D07~08) (D09~XX) 03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "C305"(43H 33H 30H 35H) : GAMMA Table Read reply command
D05~06              Start address to read(H)
D07~08              Start address to read(L)
D09~XX              Gamma data(HL) (XX Max=40)
```

【 Note 】

MAC Address Read Request & Reply

CTL-C220. MAC Address Read Request

【 Function 】

```
This command is used in order to read the MAC Address.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data           " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 31H 30H 02H (D01~04) (D05~06) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "C220"(43H 32H 32H 40H) : MAC Address Read Request command
                        "00"(30H 30H) : RX64M
                        "01"(30H 31H) : Garnet
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'- N - N -STX "Data                    " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H LEN LEN 02H (D01~04) (D05~06) (D07~XX) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "C320"(43H 33H 32H 30H) : MAC Address Read Request reply command
D05~06              Select port  "00"(30H 30H)
                        "00"(30H 30H) : RX64M
                        "01"(30H 31H) : Garnet
D07~XX              MAC Address(XX Max=12)
```

【 Note 】

Daylight Saving Command

CTL-CA01-00. Daylight Saving Read Request

【 Function 】

```
This command is used in order to read Daylight Saving Setting.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data           " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CA01"(43H 41H 30H 31H) : Daylight Saving Command
D05~06              Index
                        "00"(30H 30H) : Read
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'2'-'0'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 32H 30H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14)
(D15~16) (D17~18) (D19~20) (D21~22) (D23~24) (D25~26) (D27~28) (D29~30) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CB01"(43H 42H 30H 31H) : Daylight Saving reply command
D05~06              Index
                        "00"(30H 30H) : Read
D07~08              Result code
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
D09~10              BEGIN MONTH
                        "01"(30H 31H) : JANUARY ~
                        "12"(31H 32H) : DECEMBER
D11~12              BEGIN DAY1
                        "01"(30H 31H) : FIRST
                        "02"(30H 32H) : SECOND
                        "03"(30H 33H) : THIRD
                        "04"(30H 34H) : FOUR
                        "05"(30H 35H) : LAST
D13~14              BEGIN DAY2 (Day of the week)
                        "01"(30H 31H) : SUNDAY
                        "02"(30H 32H) : MONDAY
                        "03"(30H 33H) : TUESDAY
                        "04"(30H 34H) : WEDNESDAY
                        "05"(30H 35H) : THURSDAY
                        "06"(30H 36H) : FRIDAY
                        "07"(30H 37H) : SATURDAY
D15~16              BEGIN TIME1 (Hour)
                        "00"(30H 30H) ~
                        "23"(32H 33H)
D17~18              BEGIN TIME2 (Minute)
                        "00"(30H 30H) ~
                        "59"(35H 39H)
D19~20              END MONTH
                        "01"(30H 31H) : JANUARY ~
```

```
                        "12"(31H 32H) : DECEMBER
D21~22              END DAY1
                        "01"(30H 31H) : FIRST
                        "02"(30H 32H) : SECOND
                        "03"(30H 33H) : THIRD
                        "04"(30H 34H) : FOUR
                        "05"(30H 35H) : LAST
D23~24              END DAY2 (Day of the week)
                        "01"(30H 31H) : SUNDAY
                        "02"(30H 32H) : MONDAY
                        "03"(30H 33H) : TUESDAY
                        "04"(30H 34H) : WEDNESDAY
                        "05"(30H 35H) : THURSDAY
                        "06"(30H 36H) : FRIDAY
                        "07"(30H 37H) : SATURDAY
D25~26              END TIME1 (Hour)
                        "00"(30H 30H) ～
                        "23"(32H 33H)
D27~28              END TIME2 (Minute)
                        "00"(30H 30H) ～
                        "59"(35H 39H)
D29~30              TIME DIFFERENCE
                        "00"(30H 30H) : +01:00
                        "01"(30H 31H) : +00:30
                        "02"(30H 32H) : -00:30
                        "03"(30H 33H) : -01:00
```

【 Note 】

CTL-CA01-01. Daylight Saving Write Request

【 Function 】

```
This command is used in order to write Daylight Saving Setting.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'1'-'E'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 31H 45H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14)
(D15~16) (D17~18) (D19~20) (D21~22) (D23~24) (D25~26) (D27~28) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CA01"(43H 41H 30H 31H) : Daylight Saving Setting Command
D05~06              Index
                        "01"(30H 31H) : Write
D07~08              BEGIN MONTH
                        "01"(30H 31H) : JANUARY ~
                        "12"(31H 32H) : DECEMBER
D09~10              BEGIN DAY1
                        "01"(30H 31H) : FIRST
                        "02"(30H 32H) : SECOND
                        "03"(30H 33H) : THIRD
                        "04"(30H 34H) : FOUR
                        "05"(30H 35H) : LAST
D11~12              BEGIN DAY2 (Day of the week)
                        "01"(30H 31H) : SUNDAY
                        "02"(30H 32H) : MONDAY
                        "03"(30H 33H) : TUESDAY
                        "04"(30H 34H) : WEDNESDAY
                        "05"(30H 35H) : THURSDAY
                        "06"(30H 36H) : FRIDAY
                        "07"(30H 37H) : SATURDAY
D13~14              BEGIN TIME1 (Hour)
                        "00"(30H 30H) ~
                        "23"(32H 33H)
D15~16              BEGIN TIME2 (Minute)
                        "00"(30H 30H) ~
                        "59"(35H 39H)
D17~18              END MONTH
                        "01"(30H 31H) : JANUARY ~
                        "12"(31H 32H) : DECEMBER
D19~20              END DAY1
                        "01"(30H 31H) : FIRST
                        "02"(30H 32H) : SECOND
                        "03"(30H 33H) : THIRD
                        "04"(30H 34H) : FOUR
                        "05"(30H 35H) : LAST
D21~22              END DAY2 (Day of the week)
                        "01"(30H 31H) : SUNDAY
                        "02"(30H 32H) : MONDAY
                        "03"(30H 33H) : TUESDAY
                        "04"(30H 34H) : WEDNESDAY
                        "05"(30H 35H) : THURSDAY
                        "06"(30H 36H) : FRIDAY
                        "07"(30H 37H) : SATURDAY
D23~24              END TIME1 (Hour)
                        "00"(30H 30H) ~
                        "23"(32H 33H)
D25~26              END TIME2 (Minute)
                        "00"(30H 30H) ~
                        "59"(35H 39H)
D27~28              TIME DIFFERENCE
```

```
                        "00"(30H 30H) : +01:00
                        "01"(30H 31H) : +00:30
                        "02"(30H 32H) : -00:30
                        "03"(30H 33H) : -01:00
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data                    " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "CB01"(43H 42H 30H 31H) : Daylight Saving Setting reply command
D05~06              Index
                        "01"(30H 31H) : Write
D07~08              Result code
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
```

【 Note 】

CTL-CA01-02. Daylight Saving ON/OFF Read

【 Function 】

```
This command is used in order to read Daylight Saving ON/OFF Setting.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data           " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CA01"(43H 41H 30H 31H) : Daylight Saving Command
D05~06              Index
                        "02"(30H 32H) : ON/OFF Read
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'C'-STX "Data                              " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 43H 02H (D01~04) (D05~06) (D07~08) (D09~10) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CB01"(43H 42H 30H 31H) : Daylight Saving reply command
D05~06              Index
                        "02"(30H 32H) : ON/OFF Read
D07~08              Result code
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
D09~10              Daylight Saving Value
                        "00"(30H 30H) : OFF
                        "01"(30H 31H) : ON
```

【 Note 】

CTL-CA01-03. Daylight Saving ON/OFF Write

【 Function 】

```
This command is used in order to write Daylight Saving ON/OFF Setting.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'A'-STX "Data                    " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CA01"(43H 41H 30H 31H) : Daylight Saving Setting Command
D05~06              Index
                        "03"(30H 33H) : ON/OFF Write
D07~08              Daylight Saving Value
                        "00"(30H 30H) : OFF
                        "01"(30H 31H) : ON
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data                    " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CB01"(43H 42H 30H 31H) : Daylight Saving Setting reply command
D05~06              Index
                        "03"(30H 33H) : ON/OFF Write
D07~08              Result code
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
```

【 Note 】

Firmware Version Command

CTL-CA02. Firmware Version Read Request

【 Function 】

```
This command is used in order to read Firmware Version.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data           " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CA02"(43H 41H 30H 32H) : Firmware Version Read Command
D05~06              Firmware Type
                        "00"(30H 30H) : F/W Revision
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'1'-'2'-STX "Data                              " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 31H 32H 02H (D01~04) (D05~06) (D07~08) (D09~16) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CB02"(43H 42H 30H 31H) : Firmware Version Read reply command
D05~06              Result code
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
D07~08              Firmware Type
                        "00"(30H 30H) : Firmware revision
D09~16              Firmware Version String
                        D09      : R
                        D10      : Major Version
                                        "0"(30H) ~ "9"(39H)
                        D11      : Period
                                        2EH (fixed)
                        D12      : Minor (Basic) Version1
                                        "0"(30H) ~ "9"(39H)
                        D13      : Minor (Basic) Version2
                                        "0"(30H) ~ "9"(39H)
                        D14      : Minor (Basic) Version3
                                        "0"(30H) ~ "9"(39H)
                        D15      : Branch Version1
                                        "A"(41H) ~ "Z"(5AH)
                        D16      : Branch Version2
                                        "A"(41H) ~ "Z"(5AH)
```

【 Note 】

```
The version information section is an ASCII character string.
```

Input Name

CTL-CA04-00. Input Name Read Request

【 Function 】

```
This command is used in order to read Input Name.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data           " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CA04"(43H 41H 30H 34H) : Input Name Command
D05~06              Index
                        "00"(30H 30H) : Input Name Read
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'- N - N -STX "Data                    " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H LEN LEN 02H (D01~04) (D05~06) (D07~XX) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CB04"(43H 42H 30H 34H) : Input Name reply command
D05~06              Index
                        "00"(30H 30H) : Input Name Read
D07~XX              Input Name
                        XX = Max 34
                        Max length of actual Input Name 14 characters
                        Ex.)The byte data 20h is encoded as ASCII characters '2' and '0'
(32h and 30h).
                            For example when receiving Data(n) of 35h 36h 34h 37h 34h 31h
                            Step1: Input Name data is encoded as character code.
                                   Example:
                                   35h 36h 34h 37h 34h 31h -> '5'-'6'-'4'-'7'-'4'-'1'
                            Step2: Decode pairs of ASCII characters to hexadecimal values.
                                   Example:
                                   '5'-'6'-'4'-'7'-'4'-'1' -> 56h 47h 41h
                            Step3: Byte data represents the ASCII string data.
                                   Example:
                                   56h 47h 41h -> “VGA”
                            Result: Input Name is “VGA”.
                            Note: No null termination character is sent.
```

【 Note 】

CTL-CA04-01. Input Name Write Request

【 Function 】

```
This command is used in order to write Input Name.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'- N - N -STX "Data                    " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H LEN LEN 02H (D01~04) (D05~06) (D07~XX) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CA04"(43H 41H 30H 34H) : Input Name command
D05~06              Index
                        "01"(30H 31H) : Input Name Write
D07~XX              Input Name
                        XX = Max 34
                        Max length of actual Input Name 14 characters
                        Ex.)The byte data 20h is encoded as ASCII characters '2' and '0'
(32h and 30h).
                            In the case of Input Name "VGA"
                            Step1: Input Name data is handled as character code.
                                   Example:
                                   "VGA" -> 56h 47h 41h (ASCII)
                            Step2: The hexadecimal value of each original character is
encoded as two ASCII
                                   characters representing the value.
                                   Example:
                                   56h 47h 41h -> '5'-'6'-'4'-'7'-'4'-'1'
                            Result: The following data is assigned to Data(n).
                                   35h 36h 34h 37h 34h 31h
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data                    " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CB04"(43H 42H 30H 34H) : Input Name reply command
D05~06              Index
                        "01"(30H 31H) : Input Name Write
D07~08              Result code
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
```

【 Note 】

CTL-CA04-02. Input Name Reset Request

【 Function 】

```
This command is used in order to reset Input Name.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data           " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CA04"(43H 41H 30H 34H) : Input Name command
D05~06              Index
                        "02"(30H 32H) : Input Name Reset
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data                    " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CB04"(43H 42H 30H 34H) : Input Name reply command
D05~06              Index
                        "02"(30H 32H) : Input Name Reset
D07~08              Result code
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
```

【 Note 】

CTL-CA04-03. Input Name of Designated Terminal Read Request

【 Function 】

```
This command is used in order to read Input Name of Designated Terminal.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'A'-STX "Data                    " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "CA04"(43H 41H 30H 34H) : Input Name command
D05~06              Index
                        "03"(30H 33H) : Designated Terminal Read
D07~08              Input Terminal
                        "00"(30H 30H) : No mean
                        "01"(30H 31H) : VGA(RGB)
                        "03"(30H 33H) : DVI
                        "05"(30H 35H) : VIDEO
                        "09"(30H 39H) : Tuner
                        "0C"(30H 43H) : VGA(YPbPr)
                        "0D"(30H 44H) : OPTION
                        "0F"(30H 46H) : DisplayPort1
                        "10"(31H 30H) : DisplayPort2
                        "11"(31H 31H) : HDMI1
                        "12"(31H 32H) : HDMI2
                        "82"(38H 32H) : HDMI3
                        "87"(38H 37H) : MP(Media player)
                        "88"(38H 38H) : COMPUTE MODULE
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'- N - N -STX "Data                                        " ETX BCC
0DH
[HEX]01H 30H 30H ID 42H LEN LEN 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~XX) 03H BCC
0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "CB04"(43H 42H 30H 34H) : Input Name reply command
D05~06              Index
                        "03"(30H 33H) : Designated Terminal Read
D07~08              Result code
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
D09~10              Input Terminal
                        "00"(30H 30H) : No mean
                        "01"(30H 31H) : VGA(RGB)
                        "03"(30H 33H) : DVI
                        "05"(30H 35H) : VIDEO
                        "09"(30H 39H) : Tuner
                        "0C"(30H 43H) : VGA(YPbPr)
                        "0D"(30H 44H) : OPTION
                        "0F"(30H 46H) : DisplayPort1
                        "10"(31H 30H) : DisplayPort2
                        "11"(31H 31H) : HDMI1
                        "12"(31H 32H) : HDMI2
                        "82"(38H 32H) : HDMI3
                        "87"(38H 37H) : MP(Media player)
```

```
                        "88"(38H 38H) : COMPUTE MODULE
D11~XX              Input Name
                        XX = Max 39
                        Max length of actual Input Name 14 characters
```

【 Note 】

CTL-CA04-04. Input Name of Designated Terminal Write Request

【 Function 】

```
This command is used in order to write Input Name of Designated Terminal.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'- N - N -STX "Data                              " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H LEN LEN 02H (D01~04) (D05~06) (D07~08) (D09~XX) 03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "CA04"(43H 41H 30H 34H) : Input Name command
D05~06              Index
                        "04"(30H 34H) : Designated Terminal Write
D07~08              Input Terminal
                        "00"(30H 30H) : No mean
                        "01"(30H 31H) : VGA(RGB)
                        "03"(30H 33H) : DVI
                        "05"(30H 35H) : VIDEO
                        "09"(30H 39H) : Tuner
                        "0C"(30H 43H) : VGA(YPbPr)
                        "0D"(30H 44H) : OPTION
                        "0F"(30H 46H) : DisplayPort1
                        "10"(31H 30H) : DisplayPort2
                        "11"(31H 31H) : HDMI1
                        "12"(31H 32H) : HDMI2
                        "82"(38H 32H) : HDMI3
                        "87"(38H 37H) : MP(Media player)
                        "88"(38H 38H) : COMPUTE MODULE
D09~XX              Input Name
                        XX = Max 37
                        Max length of actual Input Name 14 characters
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data                     " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "CB04"(43H 42H 30H 34H) : Input Name reply command
D05~06              Index
                        "04"(30H 34H) : Designated Terminal Write
D07~08              Result code
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
```

【 Note 】

CTL-CA04-05. Input Name of Designated Terminal Reset Request

【 Function 】

```
This command is used in order to reset Input Name of Designated Terminal.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'A'-STX "Data                    " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "CA04"(43H 41H 30H 34H) : Input Name command
D05~06              Index
                        "05"(30H 35H) : Designated Terminal Reset
D07~08              Input Terminal
                        "00"(30H 30H) : ALL Terminal
                        "01"(30H 31H) : VGA(RGB)
                        "03"(30H 33H) : DVI
                        "05"(30H 35H) : VIDEO
                        "09"(30H 39H) : Tuner
                        "0C"(30H 43H) : VGA(YPbPr)
                        "0D"(30H 44H) : OPTION
                        "0F"(30H 46H) : DisplayPort1
                        "10"(31H 30H) : DisplayPort2
                        "11"(31H 31H) : HDMI1
                        "12"(31H 32H) : HDMI2
                        "82"(38H 32H) : HDMI3
                        "87"(38H 37H) : MP(Media player)
                        "88"(38H 38H) : COMPUTE MODULE
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data                    " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "CB04"(43H 42H 30H 34H) : Input Name reply
D05~06              Index
                        "05"(30H 35H) : Designated Terminal Reset
D07~08              Result code
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
```

【 Note 】

Proof of Play

CTL-CA15-00. Set Proof of Play Operation Mode

【 Function 】

```
This command is used in order to set operation mode of "Proof of Play".
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'A'-STX "Data                    " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CA15"(43H 41H 31H 35H) : Proof of Play command
D05~06              Index
                        "00"(30H 30H) : Set Proof of Play Operation mode command
D07~08              Mode of Proof of Play.
                        "00"(30H 30H) : Stop
                        "01"(30H 31H) : Start
                        "02"(30H 32H) : Clear Log data
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data                    " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CB15"(43H 42H 31H 35H) : Proof of Play reply command
D05~06              Index
                        "00"(30H 30H) : Set Proof of Play Operation Mode command
D07~08              Status
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
                        "02"(30H 32H) : Already Start/Stop/Clear
```

【 Note 】

CTL-CA15-01. Get Proof of Play Current

【 Function 】

```
This command is used in order to get current log data of "Proof of Play".

Note：Proof Of Play information cannot be read from the display when it is in either DC Off
or PMS states.
      The display must be fully powered on to read Proof Of Play information.
      Also the display does not continue to create any new logs while it is in DC Off or
PMS states.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data           " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CA15"(43H 41H 31H 35H) : Proof of Play command
D05~06              Index
                        "01"(30H 31H) : Get Current log of Proof of Play command
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'3'-'4'-STX "Data                                                "
ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 33H 34H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~50)
03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CB15"(43H 42H 31H 35H) : Proof of Play reply command
D05~06              Index
                        "01"(30H 31H) : Get Current log of Proof of Play command
D07~08              Status
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
D09~10              Current log data Number (High byte)
D11~12              Current log data Number (Low byte)
                        "0001"(30H 30H 30H 31H) : 1 ～
                        "FFFF"(46H 46H 46H 46H) : 65535
D13~50              Data of Proof of Play
```

【 Note 】

```
Log Data of Proof of Play : D13~50
D13~14: Check INPUT PITURE
  Same as VCP-00-60. Input Source Select reply parameter.
  Refer to VCP-00-60. Input Source Select
D15~22 : Check Input Signal
  "00000000"(30H 30H 30H 30H 30H 30H 30H 30H):No signal
  "FFFFFFFF"(46H 46H 46H 46H 46H 46H 46H 46H):Invalid signal
  "********"(**H **H **H **H **H **H **H **H):Input signal
  Ex ) 1920 x 1080
       "07800438" : 1920(0768H) x 1080(0438H)
D23~24 : Check INPUT AUDIO
  Same as VCP-02-2E. Select Sound Input reply parameter.
  Refer to VCP-02-2E. Select Sound Input
```

```
D25~26 : Check with or without  Audio
  "00"(30H 30H) : Audio in
  "01"(30H 31H) : No Audio in
  "02"(30H 32H) : N/A
D27~28 : Check status (Picture)
  "00"(30H 30H) : Normal Picture
  "01"(30H 31H) : No Picture
D29~30 : Check status (Audio)
  "00"(30H 30H) : Normal Audio
  "01"(30H 31H) : No Audio
D31~34 : Year
  "****"(**H **H **H **H) : 0～65535(0000h～FFFFH)
  Ex ) 2014
       "07DE" : 2014(07DEH)
D35~36 : month
  "01"(30H 31H) : January
  "02"(30H 32H) : February
   |
  "0B"(30H 42H) : November
  "0C"(30H 43H) : December
D37~38 : day
  "**"(**H **H) : 1～31(01H～1FH)
D39~40 : hour
  "**"(**H **H) : 0～23(00H～17H)
D41~42 : min
  "**"(**H **H) : 0～59(00H～3BH)
D43~44 : sec
  "**"(**H **H) : 0～59(00H～3BH)
D45~46 : Extention parameter
  "00"(30H 30H) : Normal Proof of Play event
  "01"(30H 31H) : Proof of Play event is “last power on time” *1)
  "02"(30H 32H) : Power On
  "03"(30H 33H) : Power Off
  "04"(30H 34H) – "0F"(30H 46H) : Reserved
  "10"(31H 30H) : MEDIA PLAYER is stop
  "11"(31H 31H) : MEDIA PLAYER is start
  "12"(31H 32H) : MEDIA PLAYER is pause
  "13"(31H 33H) : MEDIA PLAYER error occur
  "14"(31H 34H) – "1F"(31H 46H) : Reserved
  "20"(32H 30H) : Contents Copy from USB
  "21"(32H 31H) : Contents Copy form network folder
  "22"(32H 32H) – "2F"(32H 46H) : Reserved
  "30"(33H 30H) : Contents Copy Success
  "31"(33H 31H) : Contents Copy Error (No media)
  "32"(33H 32H) : Contents Copy Error (Connect error)
  "33"(33H 33H) : Contents Copy Error (Out of disk space)
  "34"(33H 34H) : Contents Copy Error (Read/Write error)
  "35"(32H 35H) – 3Fh(33H 46H) : Reserved
  "40"(34H 30H) : Human detected (Human sensor Status) *2)
  "41"(34H 31H) : Human detect cleared (Human Sensor Status) *2)
  "42"(34H 32H) – "4F"(34H 46H) : Reserved
  *1: Save the time in EEPROM every 15 minutes a period of Power ON.
      Moreover after Power ON, the first log is "Data16=01h".
  *2: Save the Human Sensor status every 30 seconds.
D47~50 : Reserve(future use : always "0000")
```

CTL-CA15-02. Get Proof of Play Status

【 Function 】

```
This command is used in order to get status of "Proof of Play".
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data           " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CA15"(43H 41H 31H 35H) : Proof of Play command
D05~06              Index
                        "02"(30H 32H) : Get Proof of Play Status command
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'1'-'4'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 31H 34H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14)
(D15~16) (D17~18) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CB15"(43H 42H 31H 35H) : Proof of Play reply command
D05~06              Index
                        "02"(30H 32H) : Get Proof of Play Status command
D07~08              ST1: Error status
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Memory full (some date has been lost)
                        "02"(30H 32H) : other error (other error has priority ver 01h
error)
D09~10              ST2: Total Number-High byte (How many log data items are currently
used.)
D11~12              ST3: Total Number-Low byte (How many log data items are currently
used.)
                        "0001"(30H 30H 30H 31H) : 1 ～
                        "FFFF"(46H 46H 46H 46H) : 65535
D13~14              ST4: Maximum Number-High byte (Maximum possible number of log data
items)
D15~16              ST5: Maximum Number-Low byte (Maximum possible number of log data
items)
                        "0001"(30H 30H 30H 31H) : 1 ～
                        "FFFF"(46H 46H 46H 46H) : 65535
D17~18              ST6: Current Proof of Play status.
                        "00"(30H 30H) : Stop
                        "01"(30H 31H) : Start
```

【 Note 】

CTL-CA15-03. Get Proof of Play Number to Number

【 Function 】

```
This command is used in order to get Number to Number Log Data of "Proof of Play ".
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'1'-'0'-STX "Data                    " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 31H 30H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14)
03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "CA15"(43H 41H 31H 35H) : Proof of Play command
D05~06              Index
                        "03"(30H 33H) : Get Proof of Play Number to Number log command
D07~08              Block Number of Start (High byte):BNS(H)
D09~10              Block Number of Start (Low byte) :BNS(L)
D11~12              Block Number of Stop (High byte) :BNE(H)
D13~14              Block Number of Stop (Low byte)  :BNE(L)
                        Max of Total Number of “Proof of Play Log Data” is 100.
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'3'-'4'-STX "Data                                                "
ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 33H 34H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~50)
03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "CB15"(43H 42H 31H 35H) : Proof of Play reply command
D05~06              Index
                        "03"(30H 33H) : Get Proof of Play Number to Number log command
D07~08              Status
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
D09~10              log number being returned (High byte)
D11~12              log number being returned (Low byte)
D13~50              Log Data of Proof of Play of STOP
                       Refer to CTL-CA15-01. Get Proof of Play Current
```

【 Note 】

```
A reply returns 19 data in order from specified Number to specified Number.
  Ex) Number to Number：1 to 6

  +----+                          +---------+
  | PC |                          | Monitor |
  +----+                          +---------+
     | Request Number to Number (1 - 6) | [SOH—STX-BNS-BNE-ETX-BCC-CR]
     | ================================> |
     |                                  |
     | Reply Log Data 19byte (Number 1) | SOH—STX-#1-"Data"-ETX-BCC-CR]
     | <================================ |
     |                                  |
     | Reply Log Data 19byte (Number 2) | SOH—STX-#2-"Data"-ETX-BCC-CR]
     | <================================ |
```

```
      |                                    |
      | Reply Log Data 19byte (Number 3) | SOH—STX-#3-"Data"-ETX-BCC-CR]
      | <================================ |
      |                                    |
      | Reply Log Data 19byte (Number 4) | SOH—STX-#4-"Data"-ETX-BCC-CR]
      | <================================ |
      |                                    |
      | Reply Log Data 19byte (Number 5) | SOH—STX-#5-"Data"-ETX-BCC-CR]
      | <================================ |
      |                                    |
      | Reply Log Data 19byte (Number 6) | SOH—STX-#6-"Data"-ETX-BCC-CR]
      | <================================ |
```

Even if Mode of Proof of Play is Start, memory function is not performed on DC OFF/PMS.
But this time, Log data can get by “Get Proof of Play Number to Number”.

CTL-CA0B-02. Auto Power Save Time Read Request

【 Function 】

```
This command is used in order to read Auto Power Save Time.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data           " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CA0B"(43H 41H 30H 42H) : Power Save Mode command
D05~06              Index
                        "02"(30H 32H) : Auto Power Save Read
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data                    " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CB0B"(43H 42H 30H 42H) : Power Save Mode reply command
D05~06              Index
                        "02"(30H 32H) : Auto Power Save Time Read
D07~08              AUTO POWER SAVE TIME (sec.)
                        "01"(30H 31H) : 1(5sec) -
                        "78"(37H 38H) : 120(600sec)
```

【 Note 】

CTL-CA0B-03. Auto Power Save Time Write Request

【 Function 】

```
This command is used in order to write Auto Power Save Time.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'A'-STX "Data                    " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "CA0B"(43H 41H 30H 42H) : Power Save Mode command
D05~06              Index
                        "03"(30H 33H) : Auto Power Save Time Write
D07~08              AUTO POWER SAVE TIME (sec.)
                        "01"(30H 31H) : 1(5sec) -
                        "78"(37H 38H) : 120(600sec)
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data                    " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH

Data               Contents
-------------------------------------------------------------------------
D01~04              Message
                        "CB0B"(43H 42H 30H 42H) : Power Save Mode reply command
D05~06              Index
                        "03"(30H 33H) : Auto Power Save Time Write
D07~08              Result code
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
```

【 Note 】

Init Gamma Table

CTL-C208. Init Gamma Table

【 Function 】

```
Initialize Gamma data from work RAM when this command received.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'6'-STX "Data  " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 36H 02H (D01~04) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "C208"(43H 32H 30H 38H) : Init Gamma Table command
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'8'-STX "Data           " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 38H 02H (D01~02) (D03~06) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~02              Reserved
                        "00"(30H 30H)
D03~06              Message
                        "C308"(43H 33H 30H 38H) : Init Gamma Table reply command
```

【 Note 】

Reset Gamma Table

CTL-C209. Reset Gamma Table

【 Function 】

```
Reset Gamma data to work RAM when this command received.
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'6'-STX "Data  " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 36H 02H (D01~04) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "C209"(43H 32H 30H 39H) : Reset Gamma Table command
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'8'-STX "Data           " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 38H 02H (D01~02) (D03~06) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~02              Reserved
                        "00"(30H 30H)
D03~06              Message
                        "C309"(43H 33H 30H 39H) : Reset Gamma Table reply command
```

【 Note 】

Lock Settings

CTL-CA32. Lock Settings Read Request

【 Function 】

```
Lock Settings Read Request
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'6'-STX "Data   " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 36H 02H (D01~04)  03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CA32"(43H 41H 33H 32H) : Lock Settings Read Request command
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'1'-'4'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 31H 34H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14)
(D15~16) (D17~18) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CB32"(43H 42H 33H 32H) : Lock Settings Read Request reply command
D05~06              Select
                        "00"(30H 30H) : Key
                        "01"(30H 31H) : IR
                        "02"(30H 32H) : Key&IR
D07~08              Mode
                        "00"(30H 30H) : UNLOCK
                        "01"(30H 31H) : CUSTOM LOCK
                        "02"(30H 32H) : ALL LOCK
D09~10              Power
                        "00"(30H 30H) : UNLOCK
                        "01"(30H 31H) : LOCK
D11~12              Volume
                        "00"(30H 30H) : UNLOCK
                        "01"(30H 31H) : LOCK
D13~14              Min Vol
                        "00"(30H 30H) ~ "64"(36H 34H) : Min Vol 0~00
D15~16              Max Vol
                        "00"(30H 30H) ~ "64"(36H 34H) : Max Vol 0~00
D17~18              Input
                        "00"(30H 30H) : UNLOCK
                        "01"(30H 31H) : LOCK
```

【 Note 】

CTL-CA33. Lock Settings Write Request

【 Function 】

```
Lock Settings Write Request
```

【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'1'-'4'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 31H 34H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14)
(D15~16) (D17~18) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CA33"(43H 41H 33H 33H) : Lock Settings Write Request command
D05~06              Select
                        "00"(30H 30H) : Key
                        "01"(30H 31H) : IR
                        "02"(30H 32H) : Key&IR
D07~08              Mode
                        "00"(30H 30H) : UNLOCK
                        "01"(30H 31H) : CUSTOM LOCK
                        "02"(30H 32H) : ALL LOCK
D09~10              Power
                        "00"(30H 30H) : UNLOCK
                        "01"(30H 31H) : LOCK
D11~12              Volume
                        "00"(30H 30H) : UNLOCK
                        "01"(30H 31H) : LOCK
D13~14              Min Vol
                        "00"(30H 30H) ~ "64"(36H 34H) : Min Vol 0~00
D15~16              Max Vol
                        "00"(30H 30H) ~ "64"(36H 34H) : Max Vol 0~00
D17~18              Input
                        "00"(30H 30H) : UNLOCK
                        "01"(30H 31H) : LOCK
```

【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'8'-STX "Data           " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH

Data               Contents
--------------------------------------------------------------------------
D01~04              Message
                        "CB33"(43H 42H 33H 33H) : Lock Settings Write Request reply command
D05~06              Result code
                        "00"(30H 30H) : No Error
                        "01"(30H 31H) : Error
```

【 Note 】

```
D09~D18 are no meaning if Mode(D07~D08) is not CUSTOM LOCK(0x01)
D13~D16 are no meaning if Volume(D11~D12) is not LOCK(0x01)
```

8. OSD menu and contrast table for each command

A table of settings that exist in the OSD menu of the monitor versus each command.
Some commands that do not exist in the OSD menu are listed in the "Other" section of the comparison table.

【VCP command format】 format: VCP - "OP code page" - "OP code"

```
Ex.) VCP-00-60
     OP code page: 00
     OP code: 60
```

<table>
<tr><th colspan="4">OSD</th><th>Command</th><th>Parameter</th></tr>
<tr><td rowspan="13">INPUT</td><td rowspan="6">INPUT SELECT</td><td colspan="2">DisplayPort</td><td rowspan="6">VCP-00-60</td><td rowspan="6">000DH : OPTION
000FH : Display Port1
0011H : HDMI1
0012H : HDMI2
0087H : MP
0088H : COMPUTE</td></tr>
<tr><td colspan="2">HDMI1</td></tr>
<tr><td colspan="2">HDMI2</td></tr>
<tr><td colspan="2">Media Player</td></tr>
<tr><td colspan="2">COMPUTE MODULE</td></tr>
<tr><td colspan="2">OPTION</td></tr>
<tr><td rowspan="6">INPUT SETTINGS</td><td colspan="2">INPUT NAME</td><td>CTL-CA04 01/02</td><td>---</td></tr>
<tr><td colspan="2">NAME RESET</td><td>CTL-CA04 03</td><td>---</td></tr>
<tr><td rowspan="4">AUTO INPUT CHANGE</td><td>AUTO INPUT CHANGE</td><td>VCP-02-40</td><td>0000H : FIRST DETECT
0001H : LAST DETECT
0002H : NONE
0004H : CUSTOM DETECT</td></tr>
<tr><td>PRIORITY: 1</td><td>VCP-10-2E</td><td rowspan="3">0000H : ---
000DH : OPTION
000FH : Display Port1
0011H : HDMI1
0012H : HDMI2
0087H : MP
0088H : COMPUTE MODULE</td></tr>
<tr><td>PRIORITY: 2</td><td>VCP-10-2F</td></tr>
<tr><td>PRIORITY: 3</td><td>VCP-10-30</td></tr>
<tr><td>ADVANCED</td><td colspan="4">* Please refer to "INPUT ADVANCED".</td></tr>
<tr><td>INPUT ADVANCED</td><td>INPUT SIGNAL</td><td>DisplayPort</td><td>BIT RATE</td><td>VCP-11-19</td><td>0000H : No mean
0001H : RBR</td></tr>
</table>

	SETTINGS				0002H : HBR 0003H : HBR2 0004H : HBR3
		HDMI		VCP-11-68	0000H : No Operate 0001H : Mode1(1.4) 0002H : Mode2(2.0)
		OVER SCAN		VCP-02-E3	0000H : No Operate 0001H : Under Scan 0002H : Over Scan 0003H : Auto 0004H : OverScan 90% 0005H : OverScan 85% 0006H : OverScan 80% 0007H : OverScan 75% 0008H : OverScan 70% 0009H : OverScan 65% 000AH : OverScan 60%
		VIDEO RANGE		VCP-10-40	0000H : No Mean 0001H : EXPANDED SIGNAL 0002H : RAW SIGNAL 0003H : AUTO 0004H : CUSTOM
		CEC	CEC	VCP-11-76	0000H : No Mean 0001H : OFF 0002H : MODE1(ON) 0003H : MODE2
			AUTO TURN OFF	VCP-11-77	0000H : No Mean 0001H : NO 0002H : YES
			AUDIO RECEIVER	VCP-11-78	0000H : No Mean 0001H : DISABLE 0002H : ENABLE
			SEARCH DEVICE	VCP-11-79	0000H : No Mean 0001H : NO 0002H : YES

		SIGNAL FORMAT	VCP-11-A3	0001H : AUTO 0002H : RGB 0003H : YCbCr(BT.601) 0004H : YCbCr(BT.709) 0005H : YCbCr(BT.2020)
		SIDE BORDER COLOR	VCP-02-DF	0000H - 0064H (black) - (White)
		RESET	VCP-02-CB	0001H : All(=Factory Reset) 0013H : INPUT
PICTURE	PICTURE MODE		VCP-02-1A	0003H : HIGHBRIGHT 0008H : CUSTOM1 001CH : RETAIL 001DH : CONFERENCING 001EH : TRANSPORTATION 001FH : NATIVE
	BACK LIGHT		VCP-00-10	0000H - FFFFH
	CARBON FOOT DISPLAY		N/A	---
	BACKLIGHT DIMMING		VCP-11-4E	0001H : OFF 0002H : LOW
	VIDEO BLACK LEVEL		VCP-00-92	0000H - 0064H (dark) - (bright)
	GAMMA		VCP-02-68	0001H : NATIVE 0004H : 2.2 0005H : DICOM 0006H : PROGRAMABLE1 0007H : S GAMMA 0008H : 2.4 000DH : PROGRAMMABLE2

				000EH : PROGRAMMABLE3
COLOR	COLOR		VCP-02-1F VCP-00-8A	VCP-02-1F 0000H - 0064H (peel) - (deep) VCP-00-8A 0000H - 0064H (peel) - (deep)
	COLOR TEMP	COLOR TEMP	VCP-00-0C VCP-00-54 CUSTOM: VCP-00-14	VCP-00-0C 0 – (max value: 0001h-FFFFh) 0: Get -> 2600K - 3000K Set -> 3000K > 0: Shall be used as multiplier of the color temperature increment (OPC-00-0B) result added to base value 3000K. VCP-00-54 0000H - 004AH (2600K) - (10000K) step : 100K
		R GAIN	VCP-00-16	0000H - FFFFH
		G GAIN	VCP-00-18	
		B GAIN	VCP-00-1A	
	COLOR CONTROL	R	VCP-00-9B	0000H - 00C8H (Magenta) - (Yellow)
		Y	VCP-00-9C	0000H - 00C8H (Red) - (Green)
		G	VCP-00-9D	0000H - 00C8H (Yellow) - (Cyan)
		C	VCP-00-9E	0000H - 00C8H (Green) - (Blue)

			B	VCP-00-9F	0000H - 00C8H (Cyan) - (Magenta)
			M	VCP-00-A0	0000H - 00C8H (Blue) - (Red)
	CONTRAST			VCP-00-12	0000H - FFFFH
	ADVANCED	* Please refer to "PICTURE-ADVANCED".			
PICTURE ADVANCED	HDR MODE			VCP-11-E5	0000H : No Mean 0001H : OFF 0002H : ON 0003H : AUTO 0004H : Low 0005H : Mid 0006H : High
	SHARPNESS			VCP-00-87 VCP-00-8C	VCP-00-87 0000H - 000AH (dull) - (sharp) VCP-00-8C 0000H - 000AH (dull) - (sharp)
	ASPECT	Aspect Settings		VCP-02-70	0000H : No Mean 0001H : NORMAL 0002H : FULL 0003H : WIDE 0004H : ZOOM 000BH : AUTO
		ZOOM	ZOOM	VCP-02-6F VCP-11-2C	VCP-02-6F 0000H : No Operate 0001H - 00C9H (100%) - (300%) VCP-11-2C 005AH - 012CH (0.90) - (3.00) Other : No mean
			HZOOM	VCP-02-6C VCP-11-2D	VCP-02-6C 0000H : No Operate 0001H - 00C9H (100%) - (300%) VCP-11-2D

					005AH - 012CH (0.90) - (3.00) Other : No mean
			VZOOM	VCP-02-6D VCP-11-2E	VCP-02-6D 0000H : No Operate 0001H - 00C9H (100%) - (300%) VCP-11-2E 005AH - 012CH (0.90) - (3.00) Other : No mean
			H POS	VCP-02-CC	0000H - 00C8H (Left) - (Right)
			V POS	VCP-02-CD	
	ADAPTIVE CONTRAST			VCP-02-8D	0000H : No Mean 0001H : OFF 0002H : LOW 0003H : MIDDLE 0004H : HIGH
	AUTO DIMMING	AUTO BRIGHTNESS		VCP-02-2D	0000H : OFF 0001H : MODE1
		AMBIENT LIGHT SENSING	MODE	VCP-10-C8	0001H : OFF 0002H : MODE1
			IN BRIGHT	N/A	---
			ILLUMINANCE	VCP-11-F6	0000H - 0064H (dark) - (bright)
			BACKLIGHT	VCP-10-34	0000H - 0064H (dark) - (bright)
			IN DARK	N/A	---
			ILLUMINANCE	VCP-11-F5	0000H - 0064H (dark) - (bright)
			BACKLIGHT	VCP-10-33	0000H - 0064H (dark) - (bright)
			STATUS	N/A	---
			ILLUMINANCE	VCP-02-B4	0000H - FFFFH
			BACKLIGHT	VCP-11-	0000H - FFFFH

				FC	
		HUMAN SENSSING	Human Sensing Mode	VCP-10-75	0001H : DISABLE 0002H : AUTO OFF 0004H : CUSTOM
			BACKLIGHT	VCP-10-DD VCP-10-C6	VCP-10-DD 0001H : Off 0002H : On VCP-10-C6 0000H - 0064H
			VOLUME	VCP-10-DE VCP-10-C7	VCP-10-DE 0001H : Off 0002H : On VCP-10-C7 0000H - 0064H
			INPUT SELECT	VCP-10-DF VCP-10-D0	VCP-10-DF 0001H : Off 0002H : On VCP-10-D0 000DH : OPTION 000FH : Display Port1 0011H : HDMI1 0012H : HDMI2 0087H : MP 0088H : COMPUTE MODULE
			WATING TIME	VCP-10-78	0000H - 0258H
	TILE MATRIX	H MONITORS		VCP-02-D0	0000H : No Mean 0001H - 000AH : Number of H-Division
		V MONITORS		VCP-02-D1	0000H : No Mean 0001H - 000AH : Number of V-Division
		POSITION		VCP-02-D2	0000H : No Mean 0001H - 0064H (Upper Left) - (Lower Right)
		TILE COMP		VCP-02-	0000H : No Mean

			D5	0001H : DISABLE 0002H : ENABLE
		CONFIRM SETTINGS	VCP-02-D3	0000H : No Mean 0001H : Disable(off) 0002H : Enable(on) 0003H : Disable(off)
	RESET		VCP-02-CB	0001H : All(=Factory Reset) 0002H : Picture
AUDIO	AUDIO MODE		VCP-11-D8	0001H : RETAIL 0002H : CONFERENCING 0003H : HIGHBRIGHT 0004H : TRANSPORTATION 0005H : CUSTOM1 0007H : NATIVE
	VOLUME		VCP-00-62	0000H - 0064H (whisper) - (loud)
	BALANCE	BALANCE	VCP-00-94	0001H : MONAURAL 0002H : STEREO
		BALANCE ADJUST	VCP-00-93	0000H - 0032H (Left) - (Right)
		SURROUND	VCP-02-34	0001H : Off 0002H : Low 0003H : High
	AQUALIZER	TREBLE	VCP-00-8F	0000H - 000AH (de-emphasized) - (emphasized)
		BASS	VCP-00-91	0000H - 000AH (de-emphasized) - (emphasized)
	ADVANCED	* Please refer to "AUDIO-ADVANCED"		
AUDIO ADVANCED	LINE OUT		VCP-10-81	0001H : FIXED 0002H : VARIABLE
	AUDIO DELAY	AUDIO DELAY	VCP-10-CA	0001H : OFF 0002H : ON
		DELAY TIME	VCP-10-CB	0000H - 0064H

	RESET			VCP-02-CB	0001H : All(=Factory Reset) 0004H : Audio
SCHEDULE	SCHEDULE INFORMATION	SETTINGS		CTL-C23D/3E	---
		POWER		CTL-C23D/3E	---
		TIME		CTL-C23D/3E	---
		INPUT		CTL-C23D/3E	---
		DATE	YEAR	CTL-C23D/3E	---
			MONTH	CTL-C23D/3E	---
			DAY	CTL-C23D/3E	---
			EVERY WEEK	CTL-C23D/3E	---
	OFF TIMER			VCP-02-2B	0000H - 0018H (OFF) - (24 hour)
	RESET			VCP-02-CB	0001H : All(=Factory Reset) 0005H : SCHEDULE
SLOT	ACTIVE SLOT			VCP-11-D9	0001H : OPTION 0002H : COMPUTE MODULE
	OPTION	POWER CONTROL	POWER SUPPLY	VCP-11-DA	0000H : No Mean 0001H : ON 0002H : OFF
			POWER BUTTON	VCP-11-DB	0000H : No Mean 0001H : Execute
			FORCE SHUTDOWN	VCP-10-C3	0000H : No Operate 0001H : Execute
			RESET	VCP-11-DC	0000H : No Mean 0001H : Execute
			Connection Status	N/A	---

			Power Status	N/A	---
			Module	N/A	---
			Type	N/A	---
			Interface Version	N/A	---
			Form Factor Size	N/A	---
			Max Power	N/A	---
		POWER SETTING	AUTO POWER UP	VCP-11-DD	0000H : No Mean 0001H : DISABLE 0002H : ENABLE
			AUTO SHUTDOWN	VCP-11-DE	0000H : No Mean 0001H : DISABLE 0002H : ENABLE
			POWER SUPPLY OFF DELAY	VCP-11-DF	0000H : OFF 001EH - 0258H (30sec) - (600sec)
			AUTO DISPLAY OFF	VCP-10-C1	0000H : No Operate 0001H : DISABLE 0002H : ENABLE
			OFF WARNING	VCP-10-C0	0000H : No Operate 0001H : DISABLE 0002H : ENABLE/td>
	COMPUTE MODULE	POWER CONTROL	POWER SUPPLY	VCP-11-7C	0000H : No Mean 0001H : OFF 0002H : ON
			POWER BUTTON	VCP-11-E0	0000H : No Mean 0001H : EXECUTE
			RESET	VCP-11-E1	0000H : No Mean 0001H : EXECUTE
			Connection Status	N/A	---
			Power Status	N/A	---
			Module	N/A	---
			Type	N/A	---
		POWER SETTING	AUTO POWER UP	VCP-11-7D	0000H : No Mean 0001H : DISABLE

					0002H : ENABLE
			AUTO SHUTDOWN	VCP-11-B7	0000H : No Mean 0001H : DISABLE 0002H : ENABLE
			POWER SUPPLY OFF DELAY	VCP-11-82	0000H : OFF 001EH - 0258H (30sec) - (600sec)
			AUTO DISPLAY OFF	VCP-11-E2	0000H : No Mean 0001H : DISABLE 0002H : ENABLE
			OFF WARNING	VCP-11-E3	0000H : No Mean 0001H : DISABLE 0002H : ENABLE
		ADVANCED	SHUTDOWN SIGNAL	VCP-11-81	0000H : No Mean 0001H : DISABLE 0002H : ENABLE
			IR SIGNAL	VCP-11-7F	0000H : No Mean 0001H : DISABLE 0002H : ENABLE
			MONITOR CONTROL	VCP-11-80	0000H : No Mean 0001H : DISABLE 0002H : ENABLE
			WDT	VCP-11-9B	VCP-11-9B 0000H : No Mean 0001H : DISABLE 0002H : ENABLE
			START UP TIME	VCP-11-9C	0001H - 001EH (10) - (300)
			PERIOD TIME	VCP-11-9D	0001H - 001EH (10) - (300)
	SLOT POWER			VCP-10-41	0001H : OFF 0002H : ON 0003H : AUTO
	RESET			VCP-02-CB	0001H : All(=Factory Reset) 000FH : SLOT
NETWORK	NETWORK INFORMATION	IP SETTINGS		N/A	---
		IP ADDRESS		N/A	---
		SUBNET MASK		N/A	---

		DEFAULT GATEWAY		N/A	---
		DNS		N/A	---
		DNS PRIMARY		N/A	---
		DNS SECONDARY		CTL-C220	
		MAC ADDRESS		N/A	---
		EXECUTE		N/A	---
	NETWORK SECURITY	DISPLAY		VCP-11-CF	0001H : DISABLE 0002H : ENABLE
		COMPUTE MODULE		VCP-11-D1	0001H : DISABLE 0002H : ENABLE
		APPLY		N/A	---
	PING	IP ADDRESS		N/A	---
		EXECUTE		N/A	---
	RESET			N/A	---
PROTECT	POWER SAVE SETTINGS	POWER SAVE		CTL-CA0B	---
		TIME SETTING		CTL-CA0B	---
		MODE		VCP-11-EE	0001H : LOW POWER 0002H : NOMAL
		USB	USB POWER	VCP-11-75	0001H : ON 0002H : AUTO
		POWER SAVE MESSAGE		VCP-11-7B	0001H : OFF 0002H : ON
		QUICK START		VCP-11-EA	0001H : DISABLE 0002H : ENABLE
	THERMAL MANAGEMENT	FAN CONTROL		VCP-02-7D	0001H : AUTO 0002H : Forced ON
		FAN SPEED		VCP-10-3F	0001H : HIGH 0002H : LOW
		DISPLAY		N/A	---
		FAN STATUS		VCP-02-7A/VCP-02-7B	VCP-02-7A 0001H : Fan 1 0002H : Fan 2 VCP-02-7B 0000H : OFF

					0001H : ON 0002H : ERROR
		INTERNAL TEMPERTURE	STATUS	N/A	---
			TEMP	VCP-02-78/VCP-02-79	VCP-02-78 0001H : Sensor 1 0002H : Sensor 2 VCP-02-79 TEMP 0000H - FFFFH
		SLOT		N/A	---
		FAN STATUS		VCP-02-7A/VCP-02-7B	VCP-02-7A 0001H : Fan 1 0002H : Fan 2 VCP-02-7B 0000H : OFF 0001H : ON 0002H :ERROR
		INTERNAL TEMPERTURE	STATUS	N/A	---
			TEMPERATURE	VCP-02-78/VCP-02-79	VCP-02-78 0001H : Sensor 1 0002H : Sensor 2 VCP-02-79 TEMP 0000H - FFFFH
		SYSTEM FAN REQUIREMENT	OPTION	N/A	---
			COMPUTE MODULE	N/A	---
	SQREEN SAVER	MOTION		VCP-02-DD	0000H - 005AH (0sec(off)) - (900sec)
		INTERVAL		VCP-02-DD	0000H - 005AH (0sec(off)) - (900sec)
		ZOOM		VCP-02-DF	0000H - 0064H (balck) - (white)
	POWER ON DELAY	DELAY TIME		VCP-02-D8	0000H : OFF 0001H - 0032H

					(1sec) - (50sec)
		LINK TO ID		VCP-10-BC	0001H : OFF 0002H : ON
		ID No.		N/A	---
		POWER ON TIME		N/A	---
	SECURIRY SETTINGS	PASSWORD		CTL-C21D	
		SECURE MODE	START-UP LOCK	CTL-C21D	---
			CONTROL LOCK		
		CHANGE PASSWORD		N/A	---
		CURRENT PASSWORD		N/A	---
		NEW PASSWORD		N/A	---
		CONFIRM PASSWORD		N/A	---
	LOCK SETTINGS	SELECT		CTL-CA32/33	
		MODE		CTL-CA32/33	---
		POWER		CTL-CA32/33	---
		VOLUME		CTL-CA32/33	---
		MIN VOL		CTL-CA32/33	---
		MAX VOL		CTL-CA32/33	---
		INPUT		CTL-CA32/33	---
	ALERT MAIL			N/A	---
	RESET			VCP-02-CB	0001H : All(=Factory Reset) 0011H : PROTECT

SYSTEM	MONITOR INFORMATION	MODEL		CTL-C217	---
		SERIAL		CTL-C216	---
		CARBON SAVING		VCP-10-10 VCP-10-11	VCP-10-10(g) 0 - 999 (0000H - 03E7H) VCP-10-11(kg) 0 - 65535 (0000H - FFFFH)
		CARBON USAGE		VCP-10-26 VCP-10-27	VCP-10-26(g) 0 - 999 (0000H - 03E7H) VCP-10-27(kg) 0 - 65535 (0000H - FFFFH)
		FIRMWARE	REVISION	CTL-CA02	---
		MAC ADDRESS		CTL-C220	---
	DATE & TIME	YEAR		CTL-C211/CTL-C212 CTL-C228/CTL-C229	---
		MONTH			
		DAY			
		TiME			
		CURRENT DATE TIME		N/A	---
	SUMMER TIME	SUMMER TIME		CTL-CA01/02	---
		START	MONTH		
			DAY		
			TIME		
		END	MONTH		
			DAY		
			TIME		
		TiME DIFFERENCE			
	EXTERNAL CONTROL	MONITOR ID	ID No.	VCP-02-3E	0001H - 0064H

		GROUP ID	VCP-10-7F	0000H - 03FFH bit 0 : A bit 1 : B bit 2 : C bit 3 : D bit 4 : E bit 5 : F bit 6 : G bit 7 : H bit 8 : I bit 9 : J
		CONTROL EXTERNAL	VCP-10-3E	0001H : RS-232C 0002H : LAN
	LANGUAGE		VCP-00-68	0001H : English 0002H : German 0003H : French 0004H : Spanish 0005H : Japanese 0006H : Italian 0007H : Swedish 0009H : Russian 000EH : Chinese
	OSD	OSD TIME	VCP-00-FC	0000H : Ignored 0001H : Ignored 0002H - 0030H (10sec) - (240sec)
		OSD POTION	VCP-02-38/VCP-02-39	VCP-02-38 0000H - FFFFH (Left) - (Right) VCP-02-39 0000H - FFFFH (Up) - (Down)
		OSD SIZE	VCP-11-E6	0001H : NORMAL 0002H : EXPAND
		INFORMATION OSD	VCP-02-3D	0000H : OFF 0001H : ON
		COMMMUNICATION INFO	VCP-11-17	0001H : OFF 0002H : ON
		OSD ROTAION	VCP-02-41	0000H : NORMAL 0001H : Rotated(90°)
		KEY GUIDE	VCP-11-	0001H : OFF

			7A	0002H : ON
	CLONE SETTING	ALL INPUT	N/A	---
		INPUT	N/A	---
		PICTURE	N/A	---
		AUDIO	N/A	---
		SCHEDULE	N/A	---
		SLOT	N/A	---
		NETWORK	N/A	---
		PROTECT	N/A	---
		SYSTEM	N/A	---
		HTTP	N/A	---
		COPY START(USB READ)	N/A	---
		COPY START(USB WRITE)	N/A	---
	POWER INDICATOR		VCP-02-BE	0001H : ON 0002H : OFF
	MUTE SETTING		VCP-11-E9	0001H : AUDIO 0002H : VIDEO 0003H : AUDIO&VIDEO
	UPDATE FIRMWARE	EXECUTE	N/A	---
	RESET		N/A	---
	ALL RESET	RESET	VCP-02-CB	0001H : All(=Factory Reset) 0002H : PICUTRE 0004H : AUDIO 0005H : SCHEDULE 000FH : SLOT 0010H : NETWORK 0011H : PROTECT 0013H : INPUT
OTHERS	MUTE		VCP-00-8D	0001H : ON 0002H : OFF
	PICTURE MUTE		VCP-10-B6	0001H : ON 0002H : OFF
	SOUND		VCP-02-	0001H : MAIN

		34	0002H : SUB 0003H : MAIN + SUB
	INPUT SIGNAL INFORMATION	VCP-02- EA	0001H : DISPLAY OFF 0002H : DISPLAY ON
	TV-CHANNEL UP / DOWN	VCP-00- 8B	0001H : UP 0002H : DOWN