FIG. 1

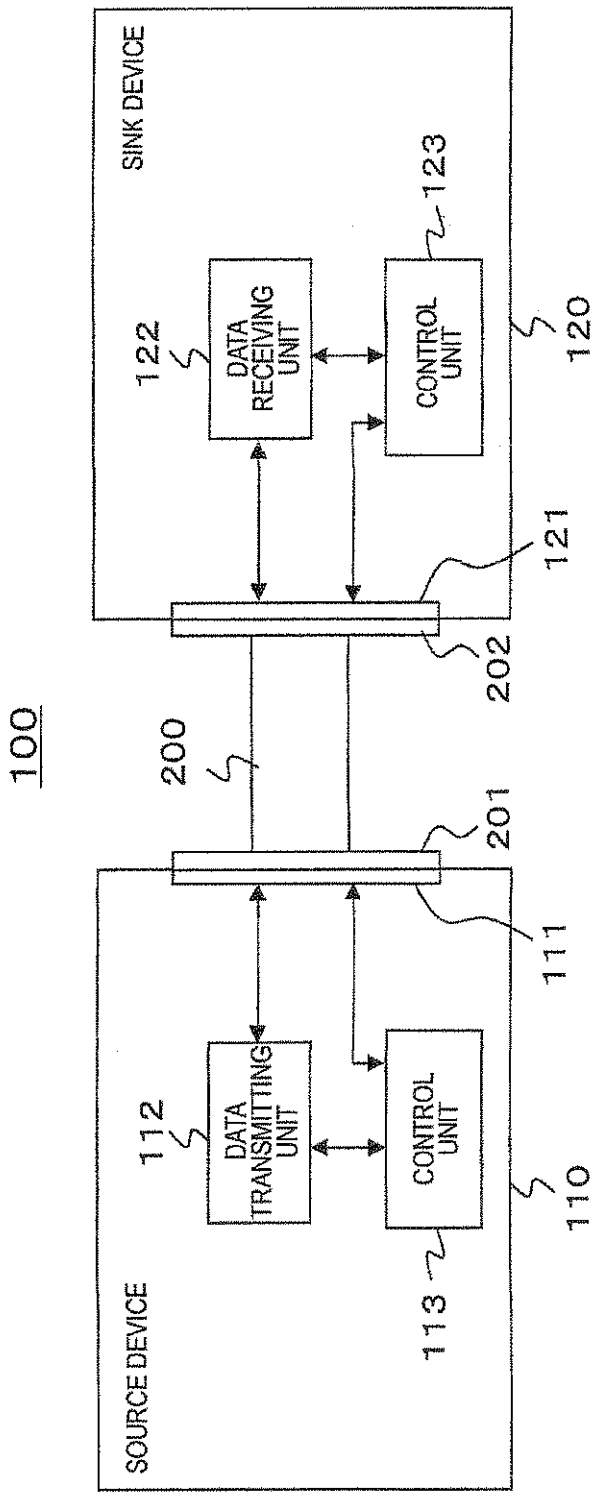

100
SINK DEVICE
DATA RECEIVING UNIT
CONTROL UNIT
122
123
120
121
202
200
201
111
SOURCE DEVICE
DATA TRANSMITTING UNIT
CONTROL UNIT
112
113
110

FIG. 2

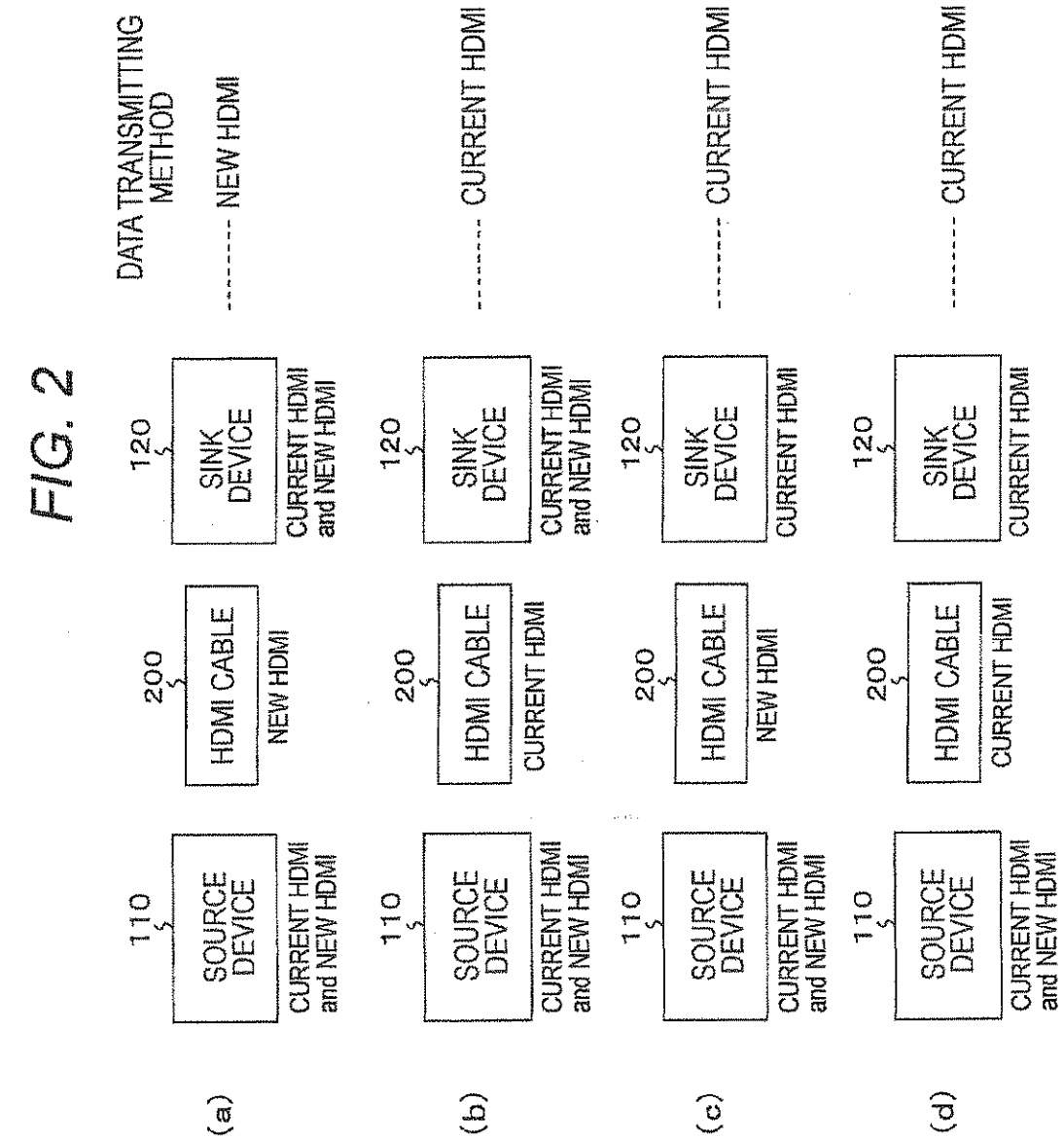

DATA TRANSMITTING METHOD
------ NEW HDMI
-------- CURRENT HDMI
(a)
110
SOURCE DEVICE
CURRENT HDMI and NEW HDMI
200
HDMI CABLE
NEW HDMI
120
SINK DEVICE
CURRENT HDMI and NEW HDMI
(b)
110
SOURCE DEVICE
CURRENT HDMI and NEW HDMI
200
HDMI CABLE
CURRENT HDMI
120
SINK DEVICE
CURRENT HDMI and NEW HDMI
(c)
110
SOURCE DEVICE
CURRENT HDMI and NEW HDMI
200
HDMI CABLE
NEW HDMI
120
SINK DEVICE
CURRENT HDMI
(d)
110
SOURCE DEVICE
CURRENT HDMI and NEW HDMI
200
HDMI CABLE
CURRENT HDMI
120
SINK DEVICE
CURRENT HDMI

FIG. 3

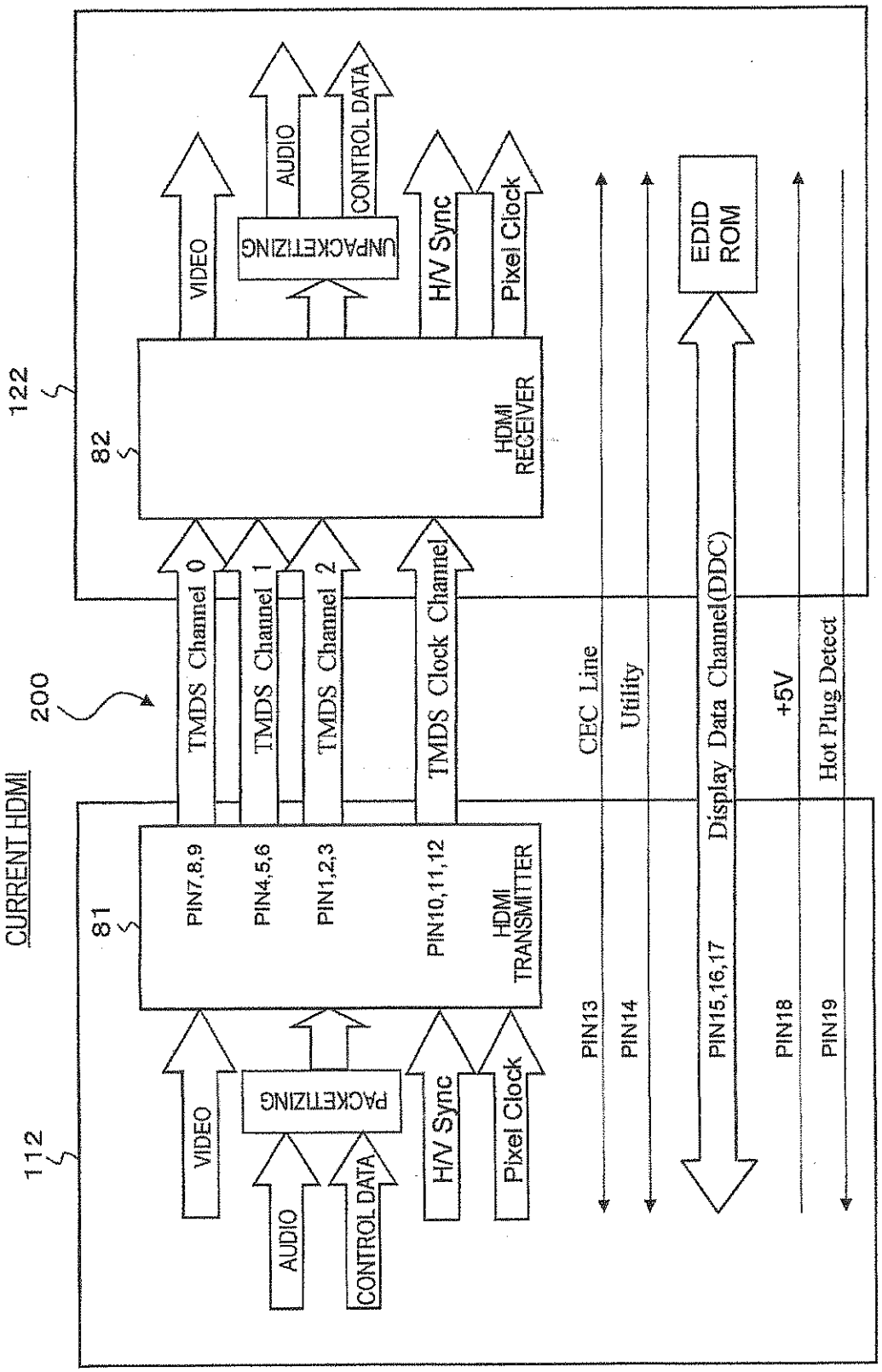

CURRENT HDMI
112
81
82
122
200
VIDEO
AUDIO
CONTROL DATA
H/V Sync
Pixel Clock
PACKETIZING
HDMI TRANSMITTER
HDMI RECEIVER
UNPACKETIZING
TMDS Channel 0
TMDS Channel 1
TMDS Channel 2
TMDS Clock Channel
PIN7,8,9
PIN4,5,6
PIN1,2,3
PIN10,11,12
CEC Line
Utility
Display Data Channel(DDC)
+5V
Hot Plug Detect
PIN13
PIN14
PIN15,16,17
PIN18
PIN19
EDID ROM

FIG.4

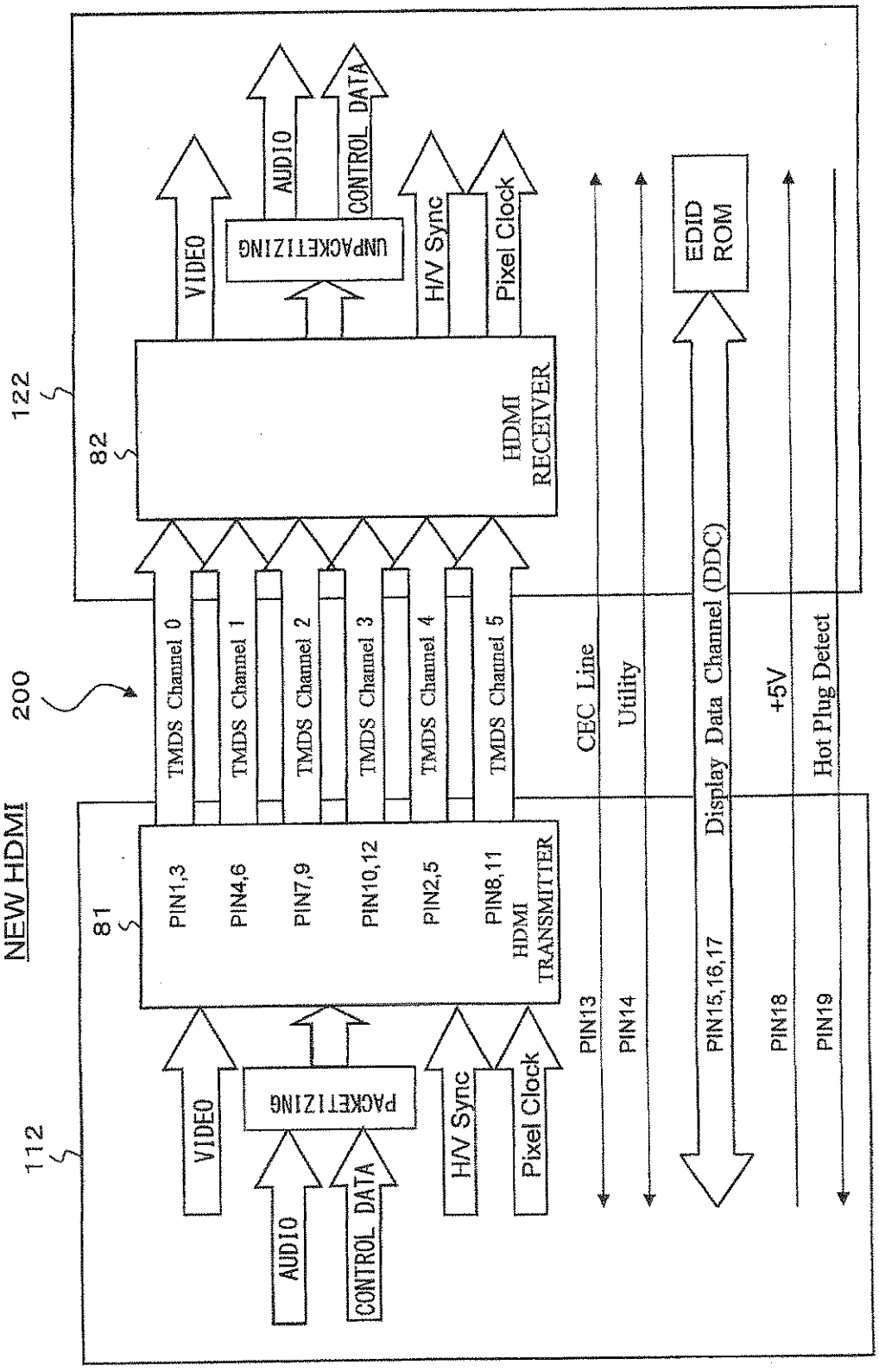

NEW HDMI
112
122
81
82
200
VIDEO
AUDIO
CONTROL_DATA
PACKETIZING
H/V Sync
Pixel Clock
UNPACKETIZING
HDMI TRANSMITTER
HDMI RECEIVER
PIN1,3
PIN4,6
PIN7,9
PIN10,12
PIN2,5
PIN8,11
TMDS Channel 0
TMDS Channel 1
TMDS Channel 2
TMDS Channel 3
TMDS Channel 4
TMDS Channel 5
CEC Line
Utility
Display Data Channel (DDC)
+5V
Hot Plug Detect
EDID ROM
PIN13
PIN14
PIN15,16,17
PIN18
PIN19

FIG. 5

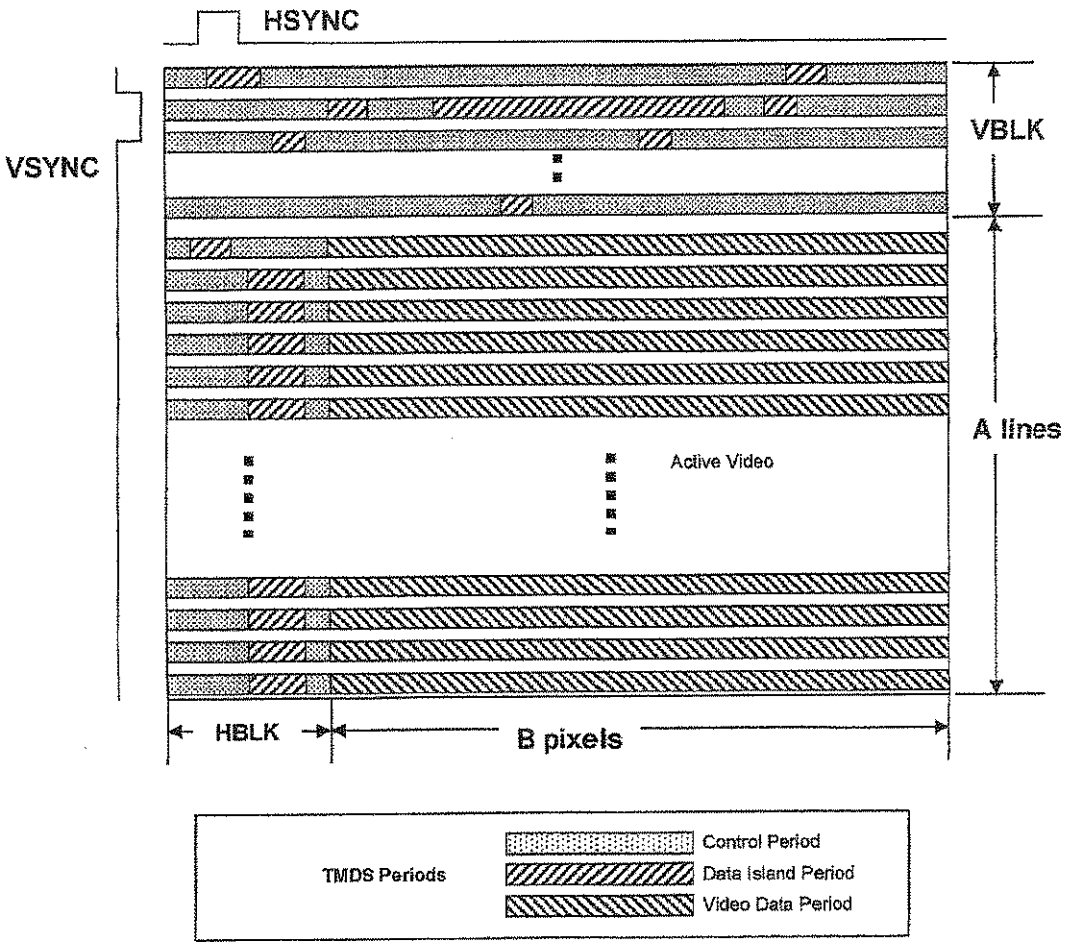
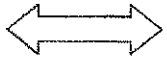

HSYNC
VSYNC
VBLK
A lines
Active Video
HBLK
B pixels
TMDS Periods
Control Period
Data Island Period
Video Data Period

FIG. 6

(a) CURRENT HDMI PIN ASSIGNMENT (Type-A)

PIN	Signal Assignment
1	TMDS Data#2+
2	TMDS Data#2 Shield
3	TMDS Data#2-
4	TMDS Data#1+
5	TMDS Data#1 Shield
6	TMDS Data#1-
7	TMDS Data#0+
8	TMDS Data#0 Shield
9	TMDS Data#0-
10	TMDS Clock+
11	TMDS Clock Shield
12	TMDS Clock-
13	CEC
14	Utility/HEAC+
15	SCL
16	SDA
17	DDC/CEC Ground /HEAC Shield
18	+5V Power
19	Hot Plug Detect/HEAC-



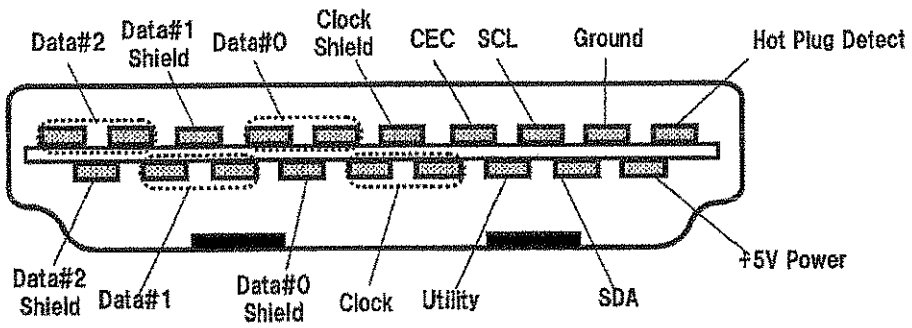
(b) NEW HDMI PIN ASSIGNMENT

PIN	Signal Assignment
1	TMDS Data#0+
2	TMDS Data#4 +
3	TMDS Data#0—
4	TMDS Data#1+
5	TMDS Data#4—
6	TMDS Data#1—
7	TMDS Data#2+
8	TMDS Data#5+
9	TMDS Data#2—
10	TMDS Data#3+
11	TMDS Data#5—
12	TMDS Data#3—
13	CEC
14	Utility/HEAC+
15	SCL
16	SDA
17	DDC/CEC Ground /HEAC Shield
18	+5V Power
19	Hot Plug Detect/HEAC-

SP310249

FIG. 7

(a) CURRENT HDMI PIN LAYOUT



(b) NEW HDMI PIN LAYOUT

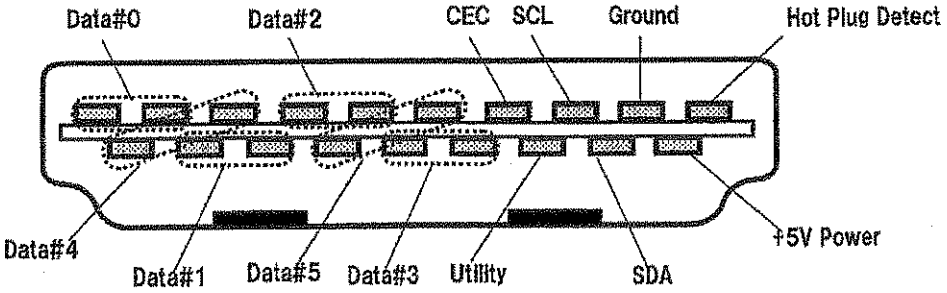


FIG. 8

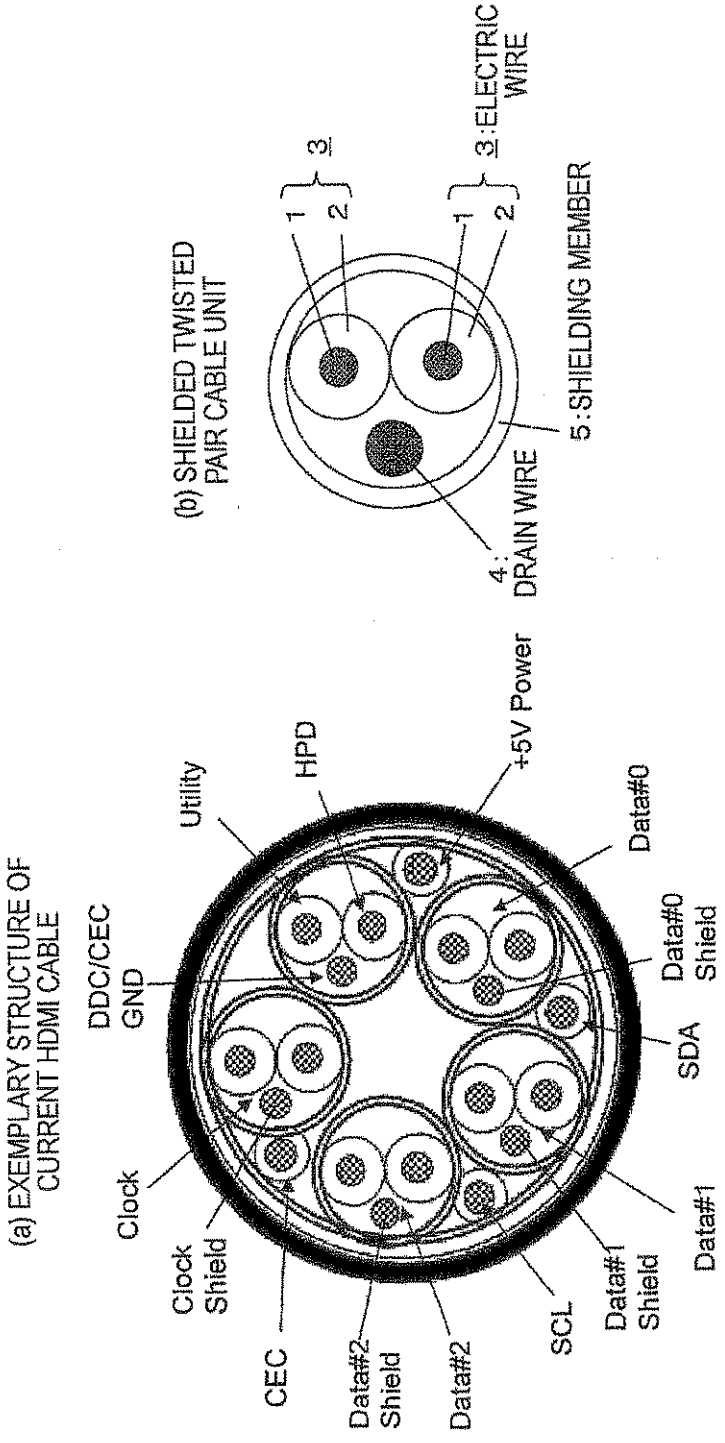

(a) EXEMPLARY STRUCTURE OF CURRENT HDMI CABLE
Clock
Clock Shield
CEC
Data#2 Shield
Data#2
SCL
Data#1 Shield
Data#1
SDA
Data#0 Shield
Data#0
+5V Power
Utility
HPD
DDC/CEC GND
(b) SHIELDED TWISTED PAIR CABLE UNIT
3
1
2
3:ELECTRIC WIRE
4: DRAIN WIRE
5:SHIELDING MEMBER

FIG. 9

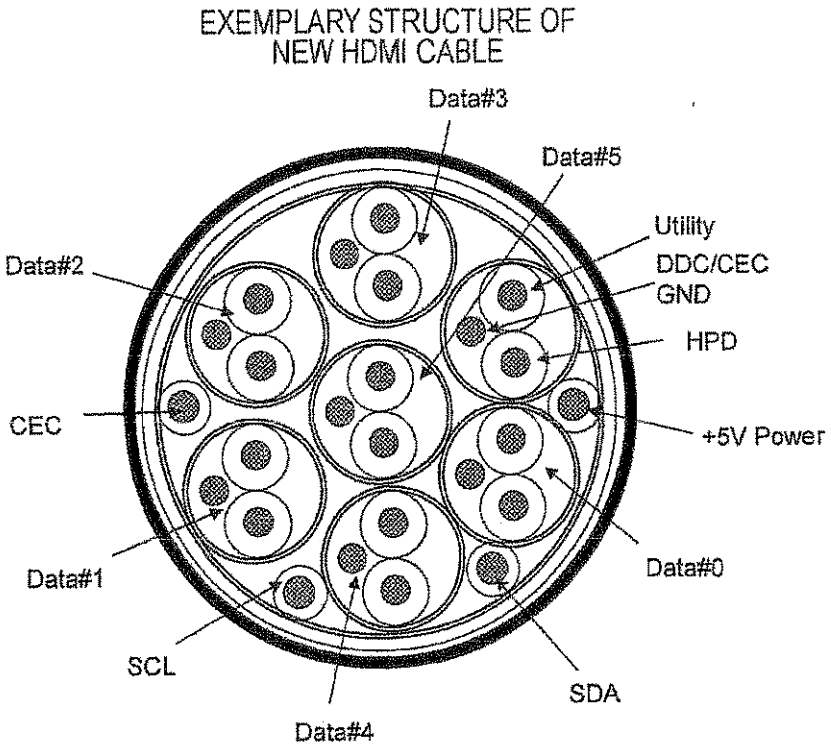

EXEMPLARY STRUCTURE OF
NEW HDMI CABLE
Data#3
Data#5
Utility
DDC/CEC
GND
HPD
+5V Power
Data#0
SDA
Data#4
SCL
Data#1
CEC
Data#2

FIG. 10

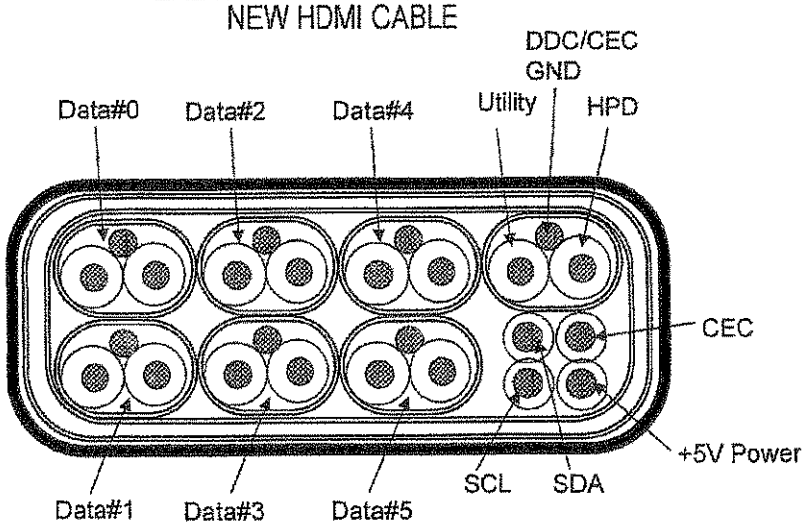

EXEMPLARY STRUCTURE OF
NEW HDMI CABLE
DDC/CEC
GND
Utility
HPD
Data#0
Data#2
Data#4
CEC
+5V Power
SCL
SDA
Data#1
Data#3
Data#5

FIG. 11

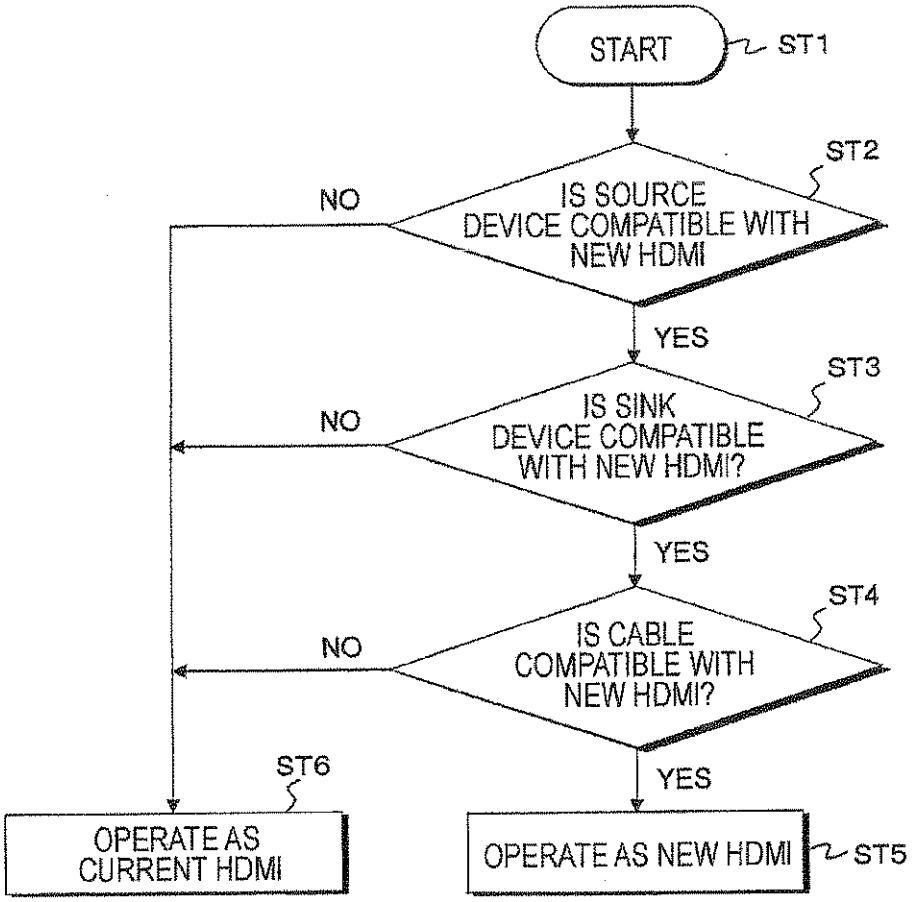

START
ST1
ST2
IS SOURCE DEVICE COMPATIBLE WITH NEW HDMI
NO
YES
ST3
IS SINK DEVICE COMPATIBLE WITH NEW HDMI?
NO
YES
ST4
IS CABLE COMPATIBLE WITH NEW HDMI?
NO
YES
ST6
OPERATE AS CURRENT HDMI
OPERATE AS NEW HDMI
ST5

FIG. 12

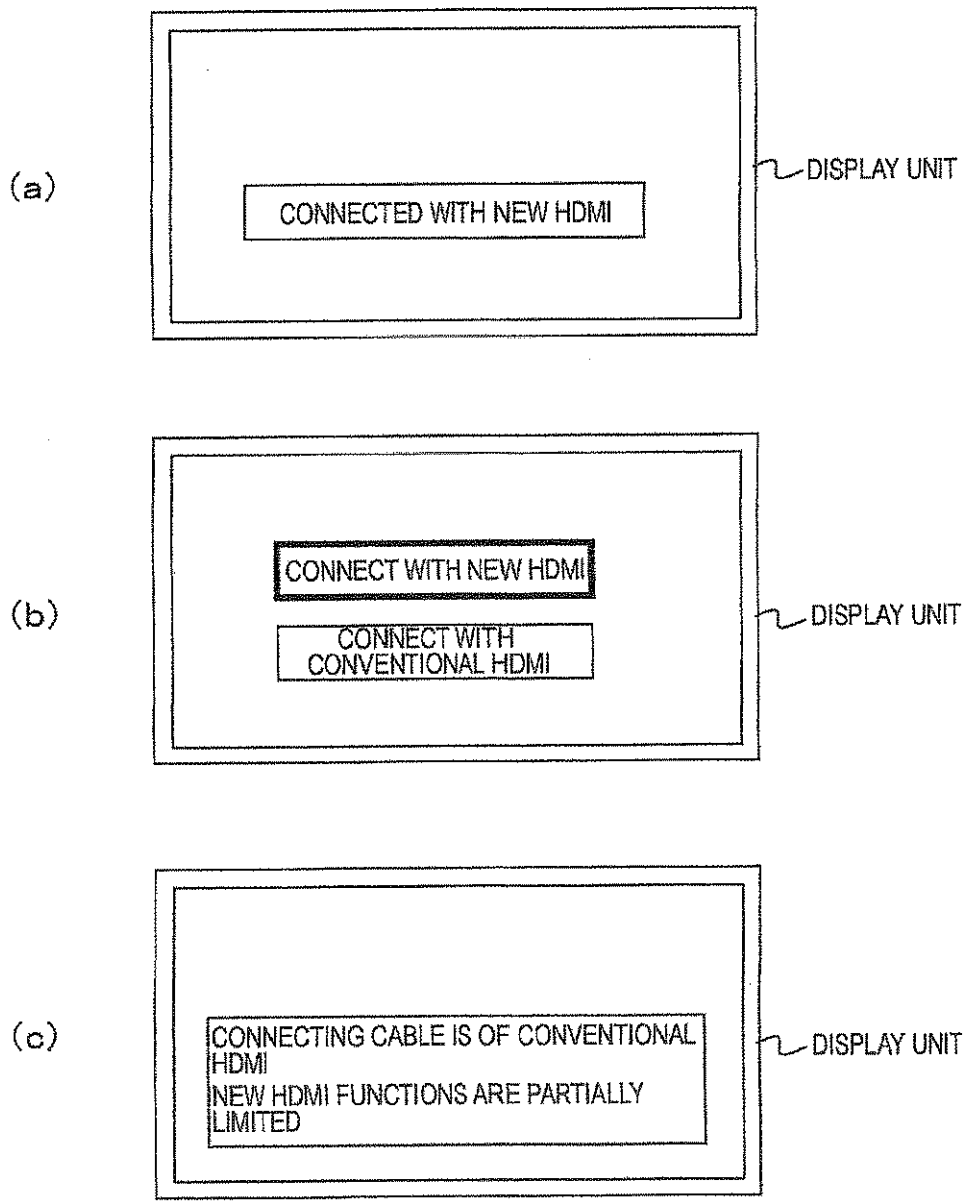

(a)
CONNECTED WITH NEW HDMI
DISPLAY UNIT
(b)
CONNECT WITH NEW HDMI
CONNECT WITH CONVENTIONAL HDMI
DISPLAY UNIT
(c)
CONNECTING CABLE IS OF CONVENTIONAL HDMI
NEW HDMI FUNCTIONS ARE PARTIALLY LIMITED
DISPLAY UNIT

FIG. 13

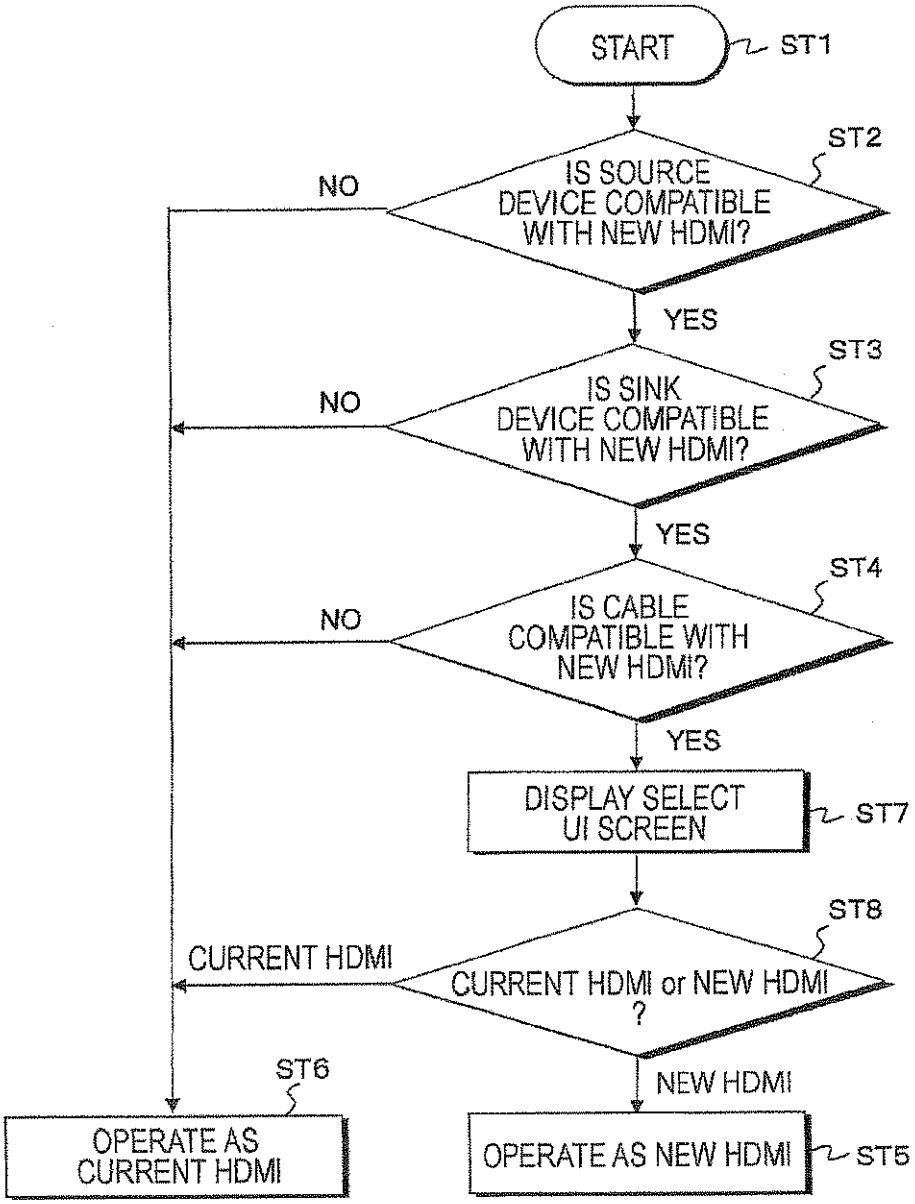

START
ST1
ST2
IS SOURCE DEVICE COMPATIBLE WITH NEW HDMI?
NO
YES
ST3
IS SINK DEVICE COMPATIBLE WITH NEW HDMI?
NO
YES
ST4
IS CABLE COMPATIBLE WITH NEW HDMI?
NO
YES
DISPLAY SELECT UI SCREEN
ST7
ST8
CURRENT HDMI or NEW HDMI ?
CURRENT HDMI
NEW HDMI
ST6
OPERATE AS CURRENT HDMI
OPERATE AS NEW HDMI
ST5

FIG. 14

EXEMPLARY EDID

Byte #	7	6	5	4	3	2	1	0
	Rsvd (0)	Rsvd (0)	Rsvd (0)	Rsvd (0)	Rsvd (0)	New Rx Sink	New Cable	Rsvd (0)

FIG. 15

EXEMPLARY NEW HDMI CABLE

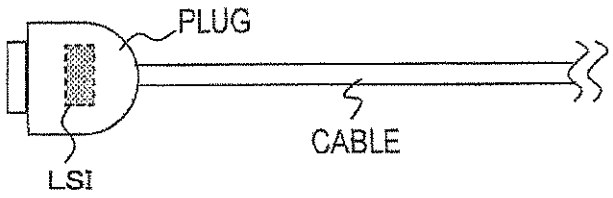


FIG. 16

EXAMPLE OF EDID DATA REWRITE CIRCUIT IN LSI IN CABLE

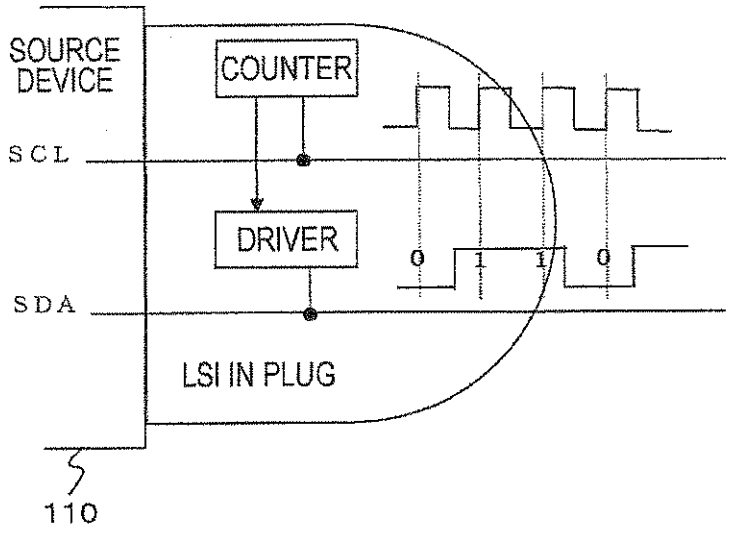


FIG. 17

EXAMPLE OF CABLE INFORMATION NOTIFICATION CIRCUIT USING RF TAG CHIP

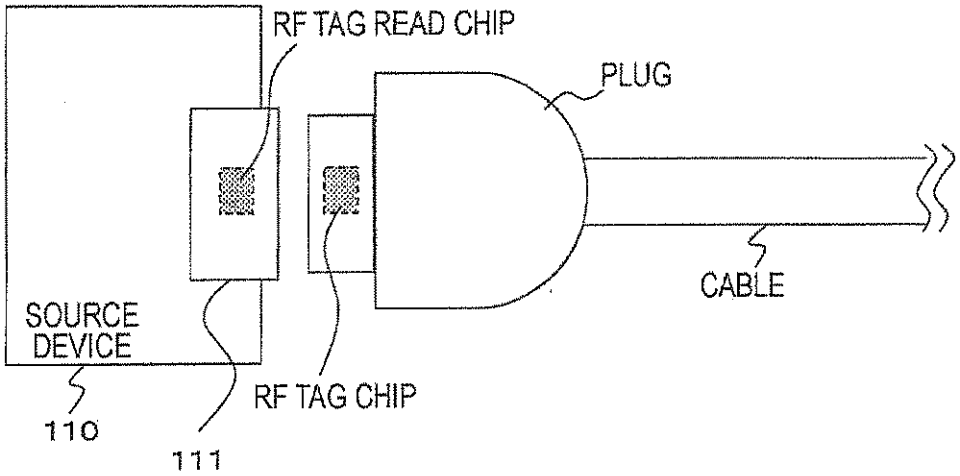


FIG. 18

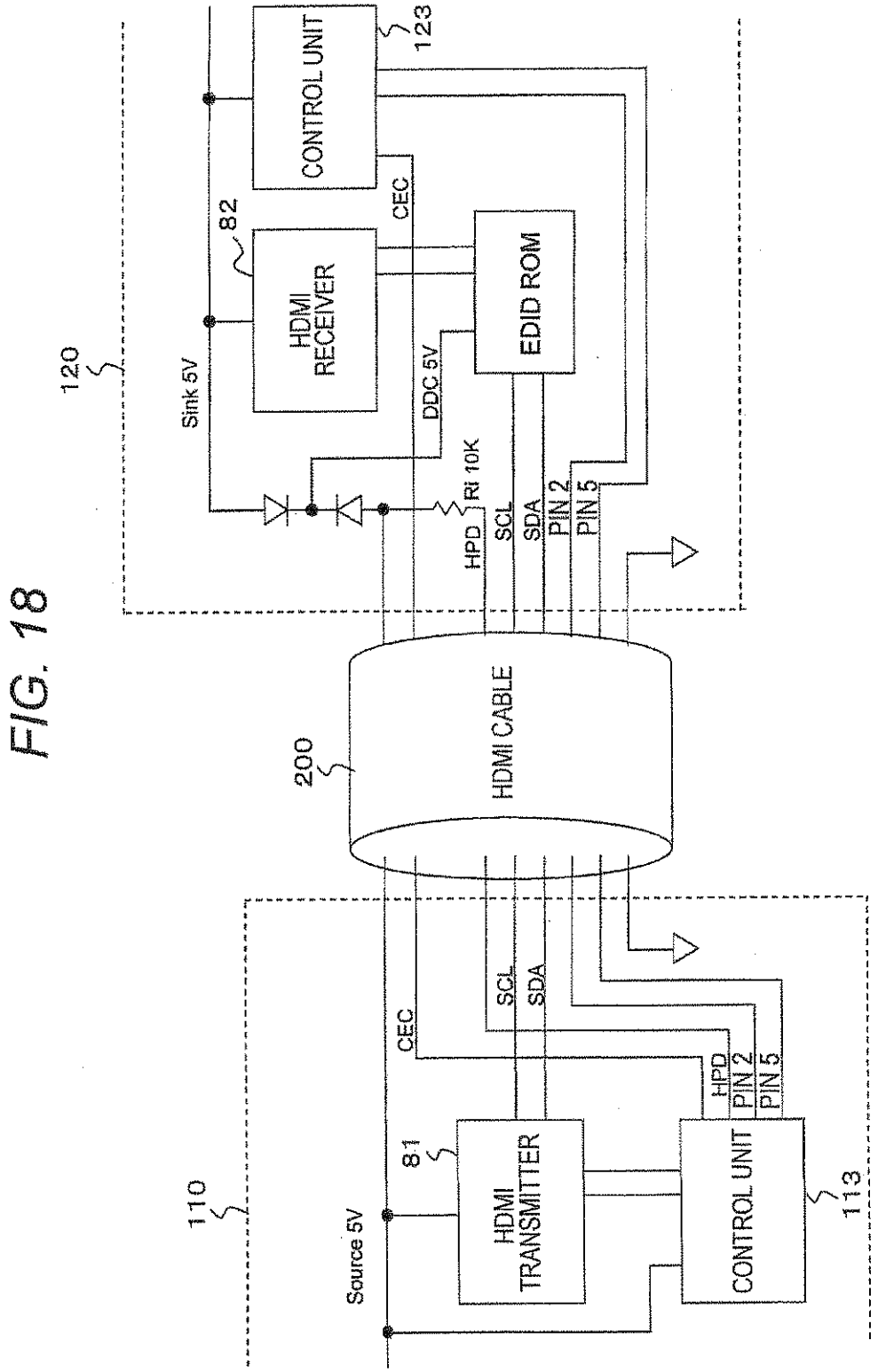

120
CONTROL UNIT
123
82
HDMI RECEIVER
EDID ROM
CEC
Sink 5V
DDC 5V
Ri 10K
HPD
SCL
SDA
PIN 2
PIN 5
200
HDMI CABLE
110
81
HDMI TRANSMITTER
CONTROL UNIT
113
Source 5V
CEC
SCL
SDA
HPD
PIN 2
PIN 5

FIG. 19

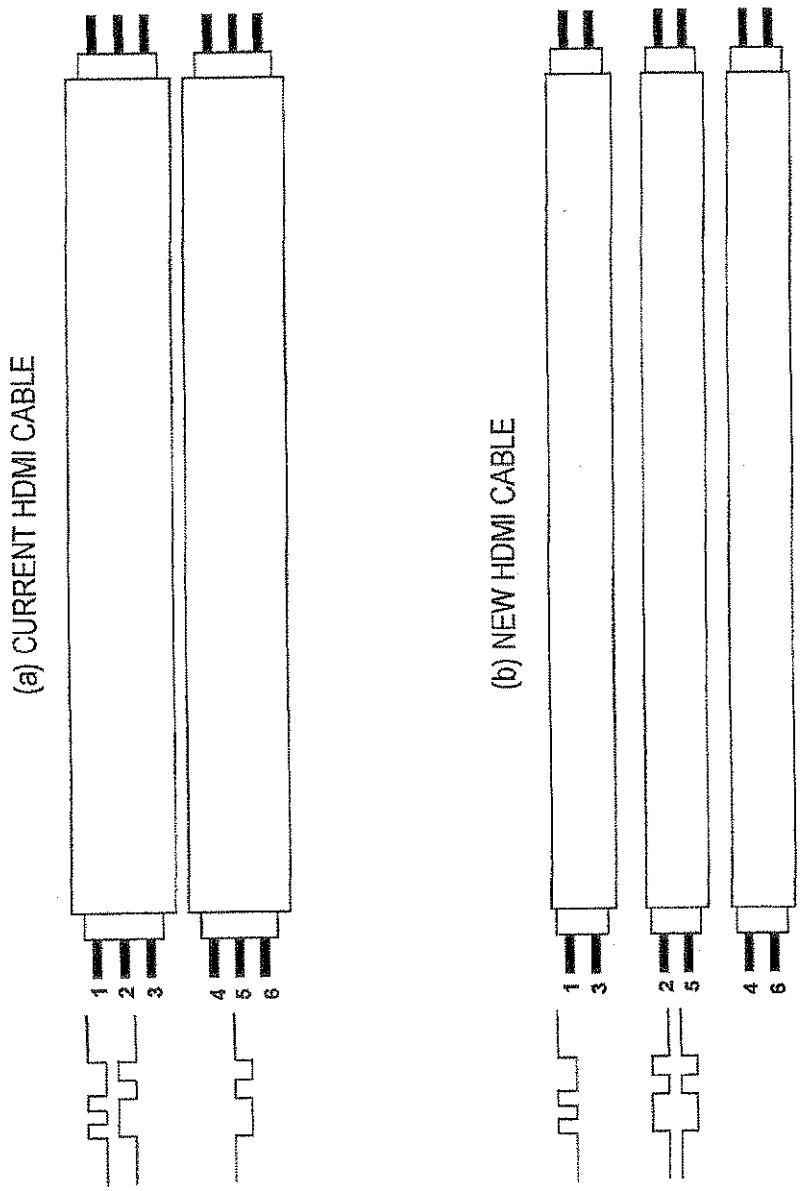
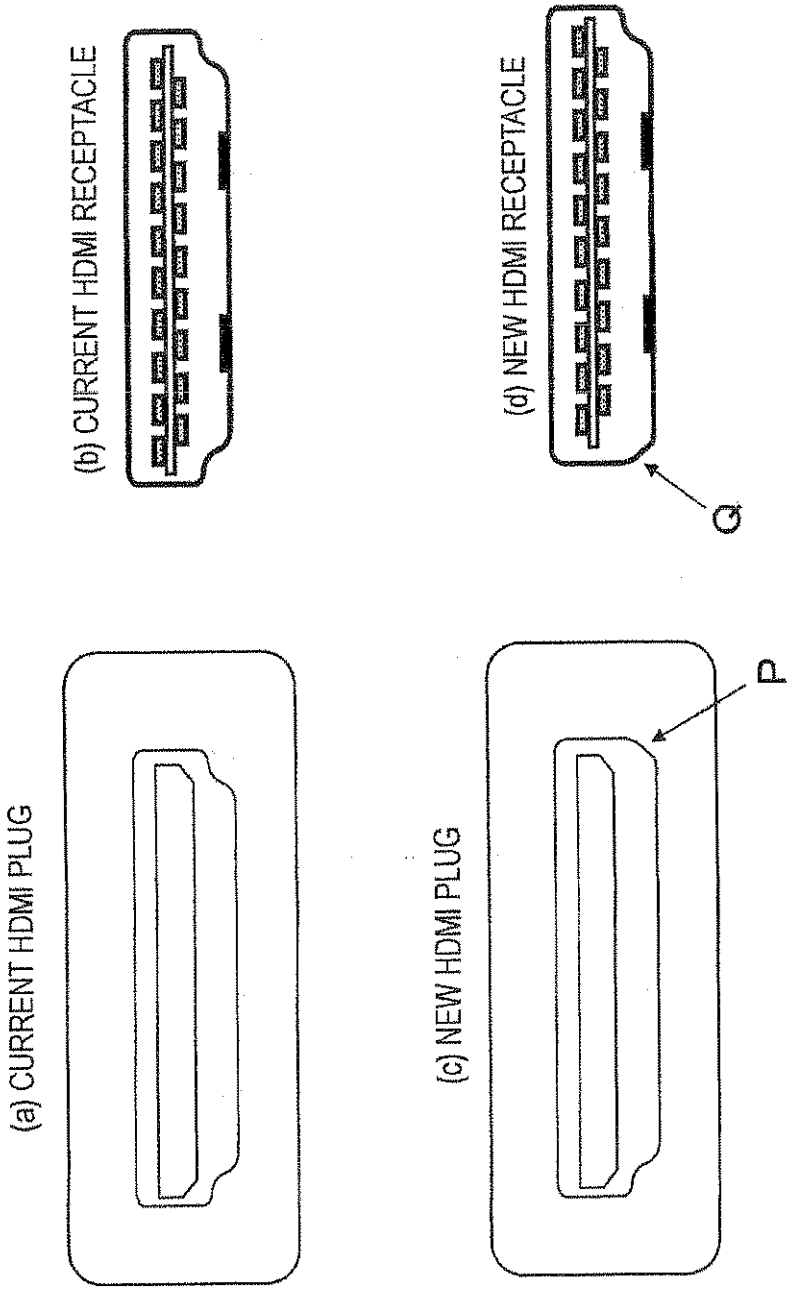


FIG. 20


(a) CURRENT HDMI PLUG
(b) CURRENT HDMI RECEPTACLE
(c) NEW HDMI PLUG
P
(d) NEW HDMI RECEPTACLE
Q

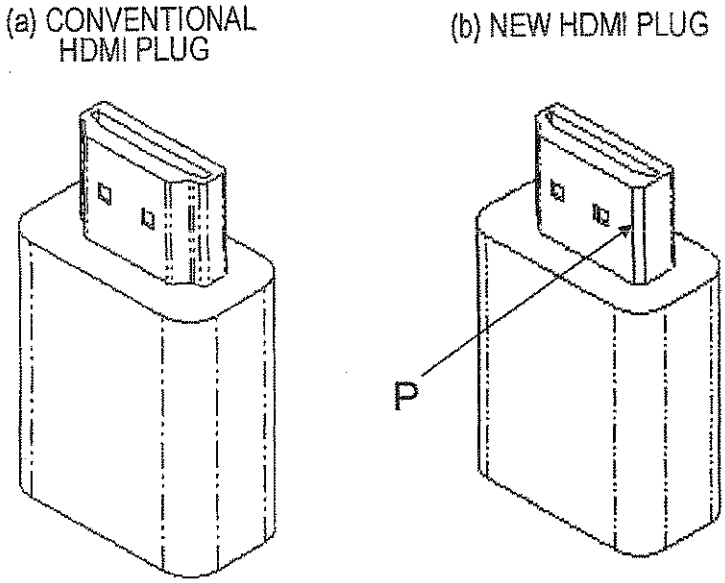



FIG. 21