Sony Corporation No. HDCM17-061-TN

Technical News

Issued：September 12, 2017

Subject: Software Release [AT Software: V3.20]

[Applicable Model]

Model / Destination	Serial Number	Number of Unit
HDCU1700 CED		
HDCU1700 SY3		
HDCU1700 SYL		
HDCU2000 CED		
HDCU2000 E2		
HDCU2000 E3		
HDCU2000 J2		
HDCU2000 UC5		
HDCU2080 CNB		
HDCU2500 CED		
HDCU2500 SY3		
HDCU2500 SYL		
HDCU2580 CNB		
HKCU2007 SY		
HKCU2040 SY		

[Description]

The software with additional functions and corrected errors for the HDCU2000 series is released. (V3.20)
Upgrade the software as necessary.

The HLG_Live is added to the selection of OETF for LIVE-HDR to the HDCU2000 series equipped with HKCU2040 (4K/HDR PROCESSOR BOARD option).
Follow the procedure below to upgrade the version of the CCU firmware and that of the PLD of each board.

Upgrade the version of the camera / control panel / BPU to be connected also according to the following information of the Technical News.

- HDCM17-067 (RCP-1500/1501/1530)
- HDCM17-066 (MSU-1000/1500)
- HDCM17-062 (HDC2000 Series)
- HDCM17-006 (HDCU1700/2000/2500/HKCU2040)
- HDCM17-064 (BPU4000)
- HDCM17-065 (BPU4500)

[Change Point]

<New function>

1. The selection of HLG_Live is added to the OETF during LIVE-HDR operation. (only for HDCU2000 / 2500 / 1700)
   The HLG_Live (HDR) output of 4K/59.94P, 50P and 1080/59.94P, 50P are added when HKCU2040 (4K/HDR PROCESSOR BOARD option) is installed to the HDCU2000 series.

2. The HDR output of 1080/59.94i, 50i is supported during LIVE-HDR operation.
   HDR output of 1080/59.94i, 50i from DRX board can be selected when the HKCU2040 is equipped.

3. Support for 2017 Edition Payload ID output
   “2017 Edition Payload ID output” which information of OETF/Colorimetry of HDR is added is supported.

4. The ajustable range of the 4K/HD detail is expanded during the 1080P (4K/HDR) transmission.

<Error correction>

The error that the H/V RATIO cannot be adjusted when the HD Detail is adjusted individually during the 1080P (4K/HDR) transmission is corrected.

[Preparation]

<Software file>

Version upgrade of the software and PLD is necessary.

File name	Upgrade target	Version
hdcu2000.rom	Software	V3.20
E_000_005_26_16	PLD (SDP-17)	V3.04
DPR_2K_PLD_v1150.jic	PLD (DPR-378 (2K))	V1.15
DPR_4K_PLD_v1150.jic	PLD (DPR-378 (2K))	V1.15

* Please contact to your local Sony's service office for obtaining the software file and the PLD files.

* PLD upgrade software tool

DLT_v35.exe	Software tool for PLD version upgrade
DLT30_install.pdf DLT_v35	Installation Guide (Japanese)
DLT30_install_E.pdf DLT_v35	Installation Guide (English)

Refer to HDCM12-041 for obtaining these files.

* Refer to HDCM17-006 for the DPR-378 board version upgrade procedure.

<Memory stick>

The software version upgrade is executed using a memory stick. Prepare either one of the following memory sticks.
The memory stick that has already been used for other applications can also be used if it has blank capacity of 2 MB or more.

- MSA-8AN (8MB)
- MSA-16AN (16MB)
- MSA-32AN (32MB)
- MSA-64AN (64MB)

Create the following directory in a memory stick, and copy hdcu2000.rom.
Enter the directory name with upper-case letters.
Because of the display on Microsoft Windows system, be careful that only the top character is displayed in upper case, and the remaining characters are displayed in lower case.
\MSSONY\PRO\CAMERA\HDCU2000 (Enter all in upper case)

<PLD upgrade tool>

- Personal computer
  OS: Windows 2000/XP, with USB port
  With the above version upgrade software tool installed
- PLD download tool (cable) Part. No J-7120-220-A
- Altera USB BLASTER

[Installation Procedure]

< Software >

1. Turn off the power of HDCU2000/2500/2080/2580/1700.
2. Insert the memory stick in which the version upgrade data is copied in the specified directory, into the memory stick connector of the AT-167 board.
3. Set the switch S401 (the switch located on the top) at the end of the AT-167 board to the “SD” position.
4. Set the switch S402 (the switch located on the bottom) at the end of the AT-167 board to the “ADV” position. While keeping their respective positions with hands, turn on the power of HDCU1000/HDCU1500/HDCU1080.
5. When the Memory Access LED has changed from the red to green light, release your hand from switch S402.
6. After the green LED of the MAIN-POWER of HDCU2000/HDCU2500/2080/2580/1700 keeps blinking for about 15 seconds, it turns on.
7. Return the switch S401 position from “SD” position to the original position.
8. Turn off the power once and turn it back on. The system will boot up with the new software.

<PLD>

Write the data to the PLD of each board according to section 1-13 in the Service Manual.

- Caution

*1 The PLD internal data on the SDP-17 board is written or rewritten via the CN3/AVP-15 board.

Rewrite the data with the e-Production tool with switch S1-8 on the AVP-15 board turned on. After it is rewritten, return switch S1-8 on the AVP-15 board to off.

[Confirmation/Adjustment]

<Confirming the software version>
Check the ROM version at the CHARACTER output or the MONITOR output.

```
_____________________________
|  *ROM Version*             |
|  CHU                       |
|  CCU   HDCU2000            |
|        3.20      17.08.28  |
|____________________________|
```

<Confirming the PLD version>
Check each of the PLD version name with the CHARACTER output or the MONITOR output.

Versions in this Technical News

Firmware		V3.20 (To be changed)
PLD	AT-167	V4.12
	AVP-15	V1.11
	SDP-17	V3.04 (To be changed)
	DTX-9	V2.41
	DRX-9	V3.05
	RC-105	V2.30
	DPR-378	V1.15/V1.15 (To be changed)

[How to Use the HDR Function]

1. Mount HKCU2040 on the CCU.
   Mount HKCU2040 to the CCU that outputs 4K or HDR.
   Also, upgrade the version of the camera and the control panel by referring to the [Description].

2. Set the camera to 4K/HDR MODE.
   With MAINTENANCE / CAM MODE in the camera menu, set to “4K/HDR MODE” to change the mode to transmit 4K/HDR from the camera.
   This makes it possible to select 1080P (4K/HDR) from CAMERA TRASMIT on the panel.
   However, if the camera is set to “4K/HDR MODE”, the main line picture or the down-converted SD picture will not be output from the camera. Therefore, if the main line picture or the down-converted SD picture is necessary, set CAM MODE back to NORMAL.

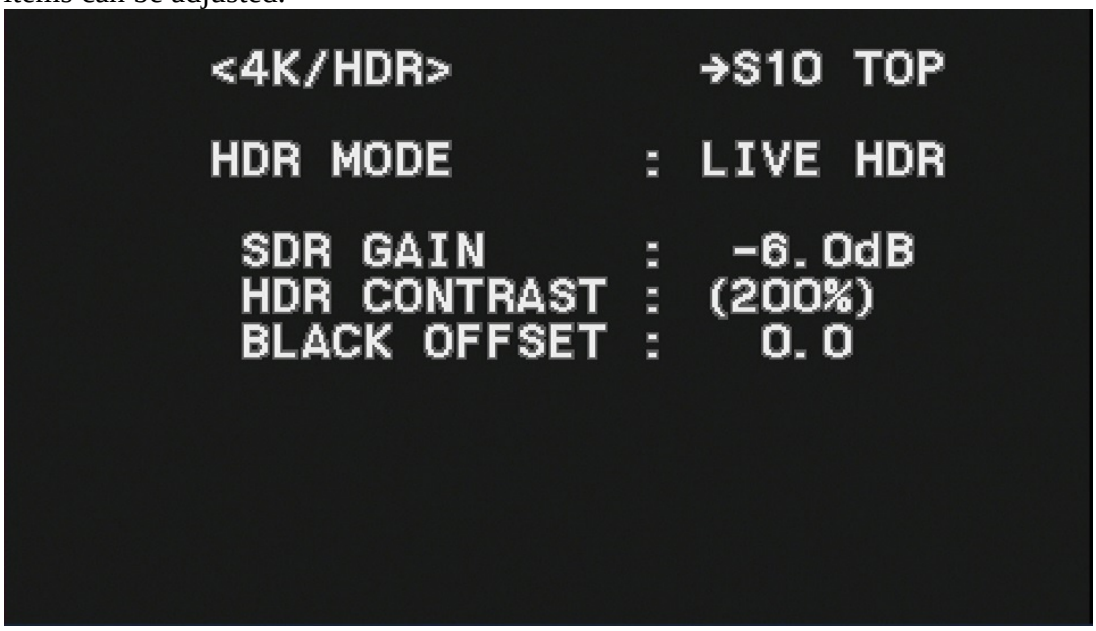
3. Set CAMERA TRASMIT on the panel to 1080P (4K/HDR).
   By setting CAMERA TRASMIT to 1080P (4K/HDR), the 4K output format can be selected from the slot where HKCU2040 is mounted.
   * In the case of 4K 1 output setting, 4K signal is output from slot 1 by HDCU2000, and from slot 2 by HDCU2500/1700.
   * In the case of 4K 2 output setting, 4K signal is output from slot 1 & 2 by HDCU2000, and from slot 2 & 3 by HDCU2500.

4. Set the CCU to LIVE-HDR MODE.
   With SYSTEM OPERATION / 4K/HDR in the CCU menu, change HDR MODE to LIVE HDR.
   This makes it possible to change the setting of OETF for each slot.
   In addition, HDR-related adjustment items (SDR GAIN and BLACK OFFSET) become effective.

[Explanation of the HDR Function]

HKCU2040 LIVE-HDR is supported.

1. By setting HDR MODE to LIVE HDR in CCU MENU S10<4K/HDR>, HDR-related adjustment items can be adjusted.

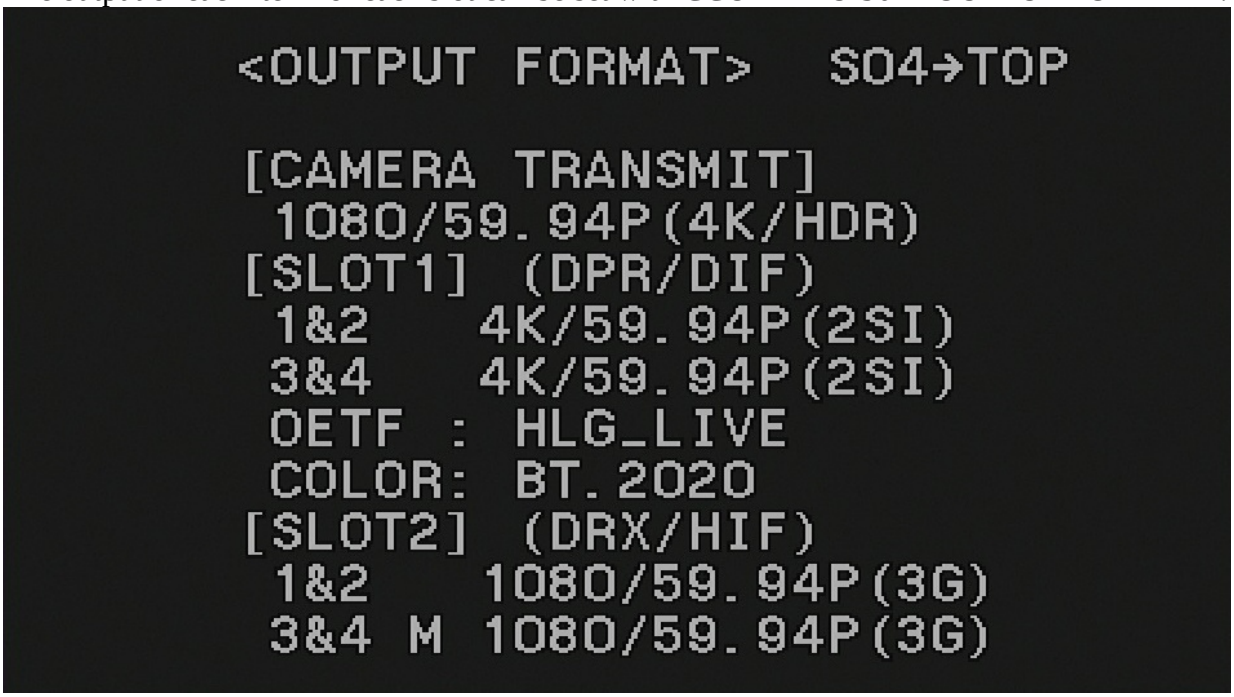


HDR MODE: Sets the HDR mode.

OFF:	Outputs normal SDR video.
LIVE HDR:	Expands the imaging dynamic range on the camera side, and outputs the adjusted HDR video.

SDR GAIN: Sets the gain for the SDR output (valid only for LIVE HDR).
HDR CONTRAST: Displays the contrast of the HDR output secured by setting SDR GAIN (valid only for LIVE HDR).
BLACK OFFSET: Black offset for the HDR output (valid only for LIVE HDR).

2. The output of each item for each slot can be set with CCU MENU S04 <OUTPUT FORMAT>.



OETF: Sets OETF of the output signal (valid only when HDR MODE is LIVE HDR).
COLOR: Sets the color gamut of the output signal (valid only when HDR MODE is LIVE HDR).