



HDR SUPPORT IN URSR 15.3 AND 15.4

HDR SUPPORT IN URSR 15.3



- Available on all 28nm SoC with 10 bit video pipeline included in URSR 15.3 release
- Existing 28nm SoC supports only **HDR Pass-Through**
 - No conversion between SDR to HDR, HDR to SDR,
 - No conversion between different versions of HDR.
- **Phase 1 (URSR 15.3) : HDR Pass-Through** includes:
 - **Support for HDMI 2.0a**
 - EDID Parser to determine DTV's HDR capabilities (DTV is representing HDMI Receiver)
 - Generation of Dynamic Range and Mastering (DRM) InfoFrame to signal HDR content to DTV
 - **Support for extraction of *transfer_characteristics* information encoded in the HEVC bitstream to indicate the EOTF of the video stream**
 - `transfer_characteristics = 16` indicates use of a HDR EOTF, more specifically, the PQ EOTF defined in SMPTE ST 2084
 - **Sample test application**
 - `.../nexus/examples/hdmi_output/eotf.c` is a example test application showing how to configure Nexus to pass-through HDR content to DTV. The test application does the following:
 - Determine the DTV's HDR capabilities
 - Determine if the HEVC video stream contains the HDR PQ EOTF through extraction and examining the ***transfer_characteristics*** field
 - If video stream contains HDR PQ EOTF content and the DTV is HDR capable:
 - Generation of HDMI DRM InfoFrame to signal the HDR content to DTV
 - Populate the DRM InfoFrame with the correct value for ***transfer_characteristics***

HDR SUPPORT IN URSR 15.4



- Available on all 28nm SoC with 10 bit video pipeline included in URSR 15.4 release
- Existing 28nm SoC supports only **HDR Pass-Through**
 - No conversion between SDR to HDR, HDR to SDR,
 - No conversion between different versions of HDR.
- **Phase 2 (URSR 15.4) : HDR Pass-Through** adds to Phase 1 (URSR 15.3) :
 - Support for extraction of additional HDR metadata/information from HEVC video stream
 - Extract HDR Mastering Display Color Volume SEI metadata from video stream
 - Extract HDR Content Light Level SEI metadata from video stream
 - Sample test application
 - Update [.../nexus/examples/hdmi_output/eotf.c](#) to support HDR Mastering Display Color Volume and Content Light Level messages. The test application does the following:
 - Determine the DTV's HDR capabilities
 - Determine if the HEVC video stream contains the HDR PQ EOTF through the extraction and examining the transfer_characteristics field
 - Determine if the HEVC video stream contains HDR Mastering Display Color Volume and/or HDR Content Light Level SEI messages
 - If video stream contains HDR PQ EOTF content and DTV is HDR capable
 - Generation of HDMI DRM InfoFrame to signal HDR content to DTV
 - Populate the DRM InfoFrame with the correct value for transfer_characteristics
 - If the video stream contains HDR Mastering Display Color Volume and/or HDR Content Light Level messages,
 - Populate the DRM InfoFrame with the values from the HDR Mastering Display Color Volume and/or HDR Content Light Level SEI messages.