

# Procedure to Calibrate OLED TVs to Meet UHD Alliance Grayscale Tracking Requirements

- Set up a test pattern generator to output 10% area (or smaller) greyscale patterns with a black background
- Set HDR signaling as follows:
  - \* ST.2084 EOTF
  - \* 540 nits max mastering display luminance
  - \* 0 nits min mastering display luminance
  - \* P3 mastering display primaries
  - \* D65 white point
- Set up a spectro-radiometer or profiled tri-stimulus colorimeter to take measurements from the screen, using a frustum or contact meter to avoid ambient light measurements
- With a 10-bit legal range 668 white patch on screen (563.4nits), use the TV 'OLED Light' adjustment to achieve a luminance of 540 nits.
- Select an adjustment point from one of the 20 TV Greyscale adjustment points, and display a corresponding pattern (a table of the adjustment points and target luminance points is shown below)
- Make adjustments to the RGB balance to achieve an accurate D65 chromaticity of ( $x = 0.3127$ ,  $y = 0.3290$ )
- Adjust R, G and B controls together to adjust the output luminance to the target luminance for the selected point
- Repeat the process with the remaining 19 adjustment points

D65 White Point (x,y): 0.3127, 0.3290

Adjustment Point	10-bit Code Value (Legal Range)	Target Luminance (Y)
1	127	0.14
2	254	3.17
3	320	9.09
4	386	22.58
5	419	34.37
6	451	50.79
7	467	61.44
8	482	73.24
9	498	88.11
10	513	104.56
11	529	125.23
12	544	148.03
13	560	176.66
14	575	208.20
15	591	247.73
16	606	291.26
17	622	345.77
18	637	405.75
19	653	480.85
20	668	540 (Set TV to max of 540)