**transfer\_characteristics** indicates the opto-electronic transfer characteristic of the source picture as specified in Table E‑4 as a function of a linear optical intensity input Lc with a nominal real-valued range of 0 to 1. For interpretation of entries in Table E‑4 that are expressed in terms of multiple curve segments parameterized by the variable *α* over a region bounded by the variable *β* or by the variables *β* and *γ*, the values of *α* and *β* are defined to be the positive constants necessary for the curve segments that meet at the value *β* to have continuity of value and continuity of slope at the value *β*, and the value of *γ*, when applicable, is defined to be the positive constant necessary for the associated curve segments to meet at the value *γ*. For example, for transfer\_characteristics equal to 1, 6, 14, 15, or 18, *α* has the value *α* = 1.099 296 826 809 442... and *β* has the value 0.018 053 968 510 807....

When the transfer\_characteristics syntax element is not present, the value of transfer\_characteristics is inferred to be equal to 2 (the transfer characteristics are unspecified or are determined by the application). Values of transfer\_characteristics that are identified as reserved in Table E‑4 are reserved for future use by ITU-T | ISO/IEC and shall not be present in bitstreams conforming to this version of this Specification. Decoders shall interpret reserved values of transfer\_characteristics as equivalent to the value 2.

Table E‑4 – Transfer characteristics

| Value | Transfer Characteristic | Informative Remark |
| --- | --- | --- |
| 0 | Reserved | For future use by ITU‑T | ISO/IEC |
| 1 | V = *α* \* Lc0.45 − ( *α* − 1 ) for 1 >= Lc >= *β*  V = 4.500 \* Lc for *β* > Lc >= 0 | Rec. ITU‑R BT.709-5  Rec. ITU‑R BT.1361 conventional colour gamut system  (functionally the same as the values 6, 14, and 15) |
| 2 | Unspecified | Image characteristics are unknown or are determined by the application. |
| 3 | Reserved | For future use by ITU‑T | ISO/IEC |
| 4 | Assumed display gamma 2.2 | Rec. ITU‑R BT.470‑6 System M (historical)  United States National Television System Committee 1953 Recommendation for transmission standards for colour television  United States Federal Communications Commission Title 47 Code of Federal Regulations (2003) 73.682 (a) (20)  Rec. ITU‑R BT.1700 (2007 revision) 625 PAL and 625 SECAM |
| 5 | Assumed display gamma 2.8 | Rec. ITU‑R BT.470-6 System B, G (historical) |
| 6 | V = *α* \* Lc0.45 − ( *α* − 1 ) for 1 >= Lc >= *β*  V = 4.500 \* Lc for *β* > Lc >= 0 | Rec. ITU‑R BT.601‑6 525 or 625  Rec. ITU‑R BT.1358 525 or 625  Rec. ITU‑R BT.1700 NTSC  Society of Motion Picture and Television Engineers 170M (2004)  (functionally the same as the values 1, 14, and 15) |
| 7 | V = *α* \* Lc0.45 − ( *α* − 1 ) for 1 >= Lc >= *β*  V = 4.0 \* Lc for *β* > Lc >= 0 | Society of Motion Picture and Television Engineers 240M (1999) |
| 8 | V = Lc for all values of Lc | Linear transfer characteristics |
| 9 | V = 1.0 + Log10( Lc ) ÷ 2 for 1 >= Lc >= 0.01  V = 0.0 for 0.01 > Lc >= 0 | Logarithmic transfer characteristic (100:1 range) |
| 10 | V = 1.0 + Log10( Lc ) ÷ 2.5 for 1 >= Lc >= Sqrt( 10 ) ÷ 1000  V = 0.0 for Sqrt( 10 ) ÷ 1000 > Lc >= 0 | Logarithmic transfer characteristic (100 \* Sqrt( 10 ) : 1 range) |
| 11 | V = *α* \* Lc0.45 − ( *α* − 1 ) for Lc >= *β*  V = 4.500 \* Lc for *β* > Lc > −*β*  V = −*α* \* ( −Lc )0.45 + ( *α* − 1 ) for −*β* >= Lc | IEC 61966-2-4 |
| 12 | V = *α* \* Lc0.45 − ( *α* − 1 ) for 1.33 > Lc >= *β*  V = 4.500 \* Lc for *β* > Lc >= −*γ*  V = −( *α* \* ( −4 \* Lc )0.45 − ( *α* − 1 ) ) ÷ 4 for −*γ* > Lc >= −0.25 | Rec. ITU‑R BT.1361 extended colour gamut system |
| 13 | V = *α* \* Lc( 1 ÷ 2.4 ) − ( *α* − 1 ) for 1 >= Lc >= *β*  V = 12.92 \* Lc for *β* > Lc >= 0 | IEC 61966-2-1 (sRGB or sYCC) |
| 14 | V =*α* \* Lc0.45 − ( *α* − 1 ) for 1 >= Lc >= *β*  V = 4.500 \* Lc for *β* > Lc >= 0 | Rec. ITU-R BT.2020 (functionally the same as the values 1, 6, and 15) |
| 15 | V =*α*\* Lc0.45 − ( *α* − 1 ) for 1 >= Lc >= *β*  V = 4.500 \* Lc for *β* > Lc >= 0 | Rec. ITU-R BT.2020 (functionally the same as the values 1, 6, and 14) |
| 16 | V = ( ( c1 + c2 \* Lcn ) ÷ ( 1 + c3 \* Lcn ) )m for all values of Lc  c1 = c3 − c2 + 1 = 3424 ÷ 4096 = 0.8359375  c2 = 32 \* 2413 ÷ 4096 = 18.8515625  c3 = 32 \* 2392 ÷ 4096 = 18.6875  m = 128 \* 2523 ÷ 4096 = 78.84375  n = 0.25 \* 2610 ÷ 4096 = 0.1593017578125  for which Lc equal to 1 for peak white is ordinarily intended to correspond to a display luminance level of 10 000 candelas per square metre | Society of Motion Picture and Television Engineers ST 2084 for 10, 12, 14, and 16-bit systems. |
| 17 | V = ( 48 \* Lc ÷ 52.37 )( 1 ÷ 2.6 ) for all values of Lc  for which Lc equal to 1 for peak white is ordinarily intended to correspond to a display luminance level of 48 candelas per square metre | Society of Motion Picture and Television Engineers ST 428-1 |
| 18 | V = 0.5 \* (*α* \* Lc0.45 − ( *α* − 1 ) ) for Lc >= *β*  V = 4.500 \* 0.5 \* Lc for *β* > Lc >= 0 | EIDRTV as an extension of Rec. ITU-R BT.2020 |
| 19..255 | Reserved | For future use by ITU‑T | ISO/IEC |