DICOM Correction Proposal Form

Correction Number                                        CP-142 (Final Text)

Log Summary: Incorrect value range for IS, SL and SS

Type of Modification                                     Correction
Name of Standard                                         PS 3.5-1998

Rationale for Correction
The valid ranges stated for integer string, signed long and signed short are missing the most negative number, \(-2^{31}\) and \(-2^{15}\), respectively. This causes problems when dealing with these value representations, since 80000000H and 8000H are undefined by DICOM, yet are valid 2’s compliment signed integers. This proposal would change the valid ranges for signed longs and signed shorts to encompass the above stated missing values and correctly match the definition of 2’s compliment integers.

Sections of documents affected
Table 6.2-1

Correction Wording:

### Table 6.2-1

<table>
<thead>
<tr>
<th>VR Name</th>
<th>Definition</th>
<th>Character Repertoire</th>
<th>Length of Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS IS</td>
<td>A string of characters representing an integer in base-10 (decimal, shall contain only the characters 0 – 9, with an optional leading “+” or “-“. It may be padded with leading and/or trailing spaces. Embedded spaces are not allowed. The integer, (n), represented shall be in the range: (-(2^{31}-1) \leq n \leq (2^{31}-1))</td>
<td>“0”-“9”, “+”, “-” of the Default Character Repertorie</td>
<td>12 bytes maximum</td>
</tr>
<tr>
<td>SL SL</td>
<td>Signed binary integer 32 bits long in 2’s complement form. Represents an integer, (n), in the range: (-(2^{31}-1) \leq n \leq (2^{31}-1))</td>
<td>not applicable</td>
<td>4 bytes fixed</td>
</tr>
<tr>
<td>SS SS</td>
<td>Signed binary integer 16 bits long in 2’s complement form. Represents an integer, (n), in the range: (-(2^{15}-1) \leq n \leq (2^{15}-1))</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
\[-(2^{15}-1) \leq n \leq (2^{15}-1)\]