

Addendum SPAT Profile v1.2 – TimeIntervalConfidence

The definition chosen in v1.2 is not backwards compatible with SAE J2735. It was decided to adopt an approach which calculates the standard deviation from the percentages as given in SAE J2735. The definition and method is as follows:

- First construct the standard deviation of the likelyTime as a percentage of the likelyTime: standard deviation likelyTime divided by the likelyTime. For example, 2 seconds divided by 10 seconds = 20%.
- Next, define the probability of the likelyTime: 100% - standard deviation of the likelyTime as percentage of the likelyTime. For example, 100% - 20% = 80%.
- Round to the nearest value in the table given by SAE J2735 (see below). For example, 81% is closest to the calculated 80%, which provides the value 8.

-- Value	Probability
-- 0	21%
-- 1	36%
-- 2	47%
-- 3	56%
-- 4	62%
-- 5	68%
-- 6	73%
-- 7	77%
-- 8	81%
-- 9	85%
-- 10	88%
-- 11	91%
-- 12	94%
-- 13	96%
-- 14	98%
-- 15	100%

- Reversely, a value of 10 provides a probability value of 88%. This means that the standard deviation of the likelyTime is 12%. In other words, the standard deviation of a likelyTime of 30 seconds is 3,6 seconds.
- Assuming normal distribution the following applies:
 - The likelyTime is within 26,4 and 33,6 seconds with 68,27% probability.
 - The likelyTime is within 22,8 and 37,2 seconds with 95,44% probability.
 - The likelyTime is within 19,2 and 40,8 seconds with 99,73% probability.