

Errata for

TIA-968-B

Telecommunications

Telephone Terminal Equipment

Technical Requirements for Connection of
Terminal Equipment to the Telephone Network

12 March 2010

Formulated under the cognizance of TIA Technical Regulatory
Requirements Subcommittee TR-41.9

With the approval of TIA Engineering Committee TR-41
User Premises Telecommunications Requirements

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Errata for TIA-968-B

Rationale:

During the balloting process for TIA-968-B, a comment was received concerning the wording associated with the equation in subclause 5.3.4.1.3 being run together and difficult to read. The comment provided a more legible version of the equation (no technical changes). Unfortunately, this corrected version was inserted into the document in place of the equation in subclause 5.3.4.1.2 instead of the one in subclause 5.3.4.1.3.

In this errata, the incorrectly replaced equation in subclause 5.3.4.1.2 is restored to its original version, and the equation with run-together text in subclause 5.3.4.1.3 is replaced with a more legible version of that equation.

Replace:

Replace page 123 in TIA-968-B with the attached page 123 showing the correct equation in subclause 5.3.4.1.2.

Replace page 125 in TIA-968-B with the attached page 125 showing a more legible version of the equation in subclause 5.3.4.1.3.

Note:

Table 38 on the intervening page 124 in TIA-968-B is correct – No changes to table 38 are necessary. If you insert the errata pages into your copy of TIA-968-B, ensure that table 38 is not forgotten or lost.

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5.3.4 SHDSL, ESHDSL:

5.3.4.1 SHDSL, ESHDSL signal power limitations:

5.3.4.1.1 Total power for SHDSL and extended SHDSL (ESDSL) shall not exceed +14 dBm into 135 ohms.

5.3.4.1.2 The power spectral density (PSD) of the signal transmitted by SHDSL shall not exceed the following PSD mask ($SHDSL_M(f)$):

The in-band PSD for $0 < f < 1.5$ MHz shall be measured with a 10 kHz resolution bandwidth (RBW).

NOTE – Large PSD variations over narrow frequency intervals (for example near the junction of the main lobe with the noise floor) might require a smaller resolution bandwidth (RBW) to be used. A good rule of thumb is to choose RBW such that there is no more than 1 dB change in the signal PSD across the RBW.

$$SHDSL_M(f) = \left\{ \begin{array}{ll} \frac{K_{SHDSL}}{135} \times \frac{1}{f_{sym}} \times \frac{\left[\sin\left(\frac{\pi f}{f_{sym}}\right) \right]^2}{\left(\frac{\pi f}{f_{sym}}\right)^2} \times \frac{1}{1 + \left(\frac{f}{f_{3dB}}\right)^{12}} \times 10^{\frac{MaskedOffsetdB(f)}{10}}, & f < f_{int} \\ 0.5683 \times 10^{-4} \times f^{-1.5}, & f_{int} \leq f \leq 1.1 \text{ MHz} \end{array} \right\}$$

where $MaskedOffsetdB(f)$ is defined as:

$$MaskedOffsetdB(f) = \begin{cases} 1 + 0.4 \times \frac{f_{3dB} - f}{f_{3dB}}, & f < f_{3dB} \\ 1, & f \geq f_{3dB} \end{cases}$$

f_{int} is the frequency where the two functions governing $SHDSL_M(f)$ intersect in the range 0 to f_{sym} . K_{SHDSL} , f_{sym} , f_{3dB} , and the line bit rate LBR are defined in table 38.

At frequencies above 1.1 MHz, the conformance criteria of T1.417-2003 clause 6.1 shall apply with $P_T(f) = -110$ dBm/Hz and $P_M(f) = -90$ dBm/Hz.

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5.3.4.1.3 The power spectral density (PSD) of the signal transmitted by extended SHDSL (ESHDSL) shall meet the following requirements:

For symmetric PSDs using 16-TCPAM payload data rates greater than or equal to 2320 Kbit/s, and for symmetric PSDs using 32-TCPAM payload data rates greater than or equal to 768 Kbit/s, the measured transmit PSD of each STU-R shall not exceed the PSD masks specified in this subclause ($PSDMASK_{SHDSL}(f)$).

The in-band PSD for $0 < f < 2.0$ MHz shall be measured with a 10 kHz resolution bandwidth.

NOTE – Large PSD variations over narrow frequency intervals (for example near the junction of the main lobe with the noise floor) might require a smaller resolution bandwidth (RBW) to be used. A good rule of thumb is to choose RBW such that there is no more than 1 dB change in the signal PSD across the RBW.

For all values of framed data rate available in the STU-R, the following set of PSD masks ($PSDMASK_{SHDSL}(f)$) shall be selectable:

$$PSDMASK_{SHDSL}(f) = \begin{cases} \frac{K_{SHDSL}}{135} \times \frac{1}{f_{sym}} \times \frac{\left[\sin\left(\frac{\pi f}{Nf_{sym}}\right) \right]^2}{\left(\frac{\pi f}{Nf_{sym}}\right)^2} \times \frac{1}{1 + \left(\frac{f}{f_{3dB}}\right)^{2 \times Order}} \times 10^{\frac{MaskedOffsetdB(f)}{10}}, & f < f_{int} \\ -90 \text{ dBm/Hz peak, with max power in the } [f, f + 1 \text{ MHz}] \text{ window of} \\ [10 \log_{10}(0.5683 \times 10^{-4} \times f^{-1.5}) + 90] \text{ dBm,} & f_{int} \leq f \leq 3.184 \text{ MHz} \\ -90 \text{ dBm/Hz peak, with max power in the } [f, f + 1 \text{ MHz}] \text{ window of} \\ -50 \text{ dBm,} & 3.184 \text{ MHz} \leq f \leq 12 \text{ MHz} \end{cases}$$

where $MaskedOffsetdB(f)$ is defined as:

$$MaskedOffsetdB(f) = \begin{cases} 1 + 0.4 \times \frac{f_{3dB} - f}{f_{3dB}}, & f < f_{3dB} \\ 1 \text{ dB,} & f \geq f_{3dB} \end{cases}$$

f_{int} is the frequency where the two functions governing $PSDMASK_{SHDSL}(f)$ intersect in the range 0 to f_{sym} . K_{SHDSL} , $Order$, N , f_{sym} , and f_{3dB} are defined in tables 39 and 40. R is the payload bit rate. The variables f , f_{sym} , f_{int} , and f_{3dB} in the equations are in units of Hz.

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