

**Driver Precomp Proposal, Review**

00-227r1

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320

400

427

485

500

600

700

800

Millivolt drive

Nominal Voltage

**No Terminator tolera**

No driver imbalance, matched assertion and negation

Driver fall back 15%	272	<b>340</b>	<b>362.95</b>	<b>412.25</b>	<b>425</b>	<b>510</b>	<b>595</b>	<b>680</b>	376.4706 mV
Driver fall back 25%	240	300	<b>320.25</b>	<b>363.75</b>	<b>375</b>	<b>450</b>	<b>525</b>	<b>600</b>	426.6667 mV
Driver Fall back 33%	211.2	264	281.82	<b>320.1</b>	<b>330</b>	<b>396</b>	<b>462</b>	<b>528</b>	484.8485 mV
Driver Fall Back 40%	192	240	256.2	291	300	<b>360</b>	<b>420</b>	<b>480</b>	533.3333 mV

**First step min 650 mV**

**Worst case**

Min high drive, for 320 mV

**Cable roll off to 60% signal**

Trans FB 15% to assert (60%)	83.2	<b>104</b>	<b>111.02</b>	<b>126.1</b>	<b>130</b>	<b>156</b>	<b>182</b>	<b>208</b>	mV signal at the receiver minus cable loss
	70.72	88.4	94.367	107.185	110.5	132.6	<b>154.7</b>	<b>176.8</b>	15% cable loss, double counting?
Trans FB 25% roll off to 60%	96	120	<b>128.1</b>	<b>145.5</b>	<b>150</b>	<b>180</b>	<b>210</b>	<b>240</b>	mV signal at the receiver minus cable loss
Trans FB 33% roll off to 60%	107.52	134.4	<b>143.472</b>	<b>162.96</b>	<b>168</b>	<b>201.6</b>	<b>235.2</b>	<b>268.8</b>	mV signal at the receiver minus cable loss
Trans FB 40% roll off to 60%	115.2	<b>144</b>	<b>153.72</b>	<b>174.6</b>	<b>180</b>	<b>216</b>	<b>252</b>	<b>288</b>	mV signal at the receiver minus cable loss
	97.92	122.4	<b>130.662</b>	<b>148.41</b>	<b>153</b>	<b>183.6</b>	<b>214.2</b>	<b>244.8</b>	15% cable loss, double counting?

**20 mV @ receiver**

**60 mV noise/crosstalk**      **80**      **80**      **80**      **80**      **80**      **80**      **80**      **80 mV**

**80 mV @ receiver**

**60 mV noise/crosstalk**      **140**      **140**      **140**      **140**      **140**      **140**      **140**      **140 mV**      Signal required with Noise + Cross

**100 mV @ receiver**

**160**      **160**      **160**      **160**      **160**      **160**      **160**      **160 mV**      **Purple 20 mV receiver**  
**Red 80 mV receiver**  
**Blue 100 mV receiver**

**Tolerance driver**

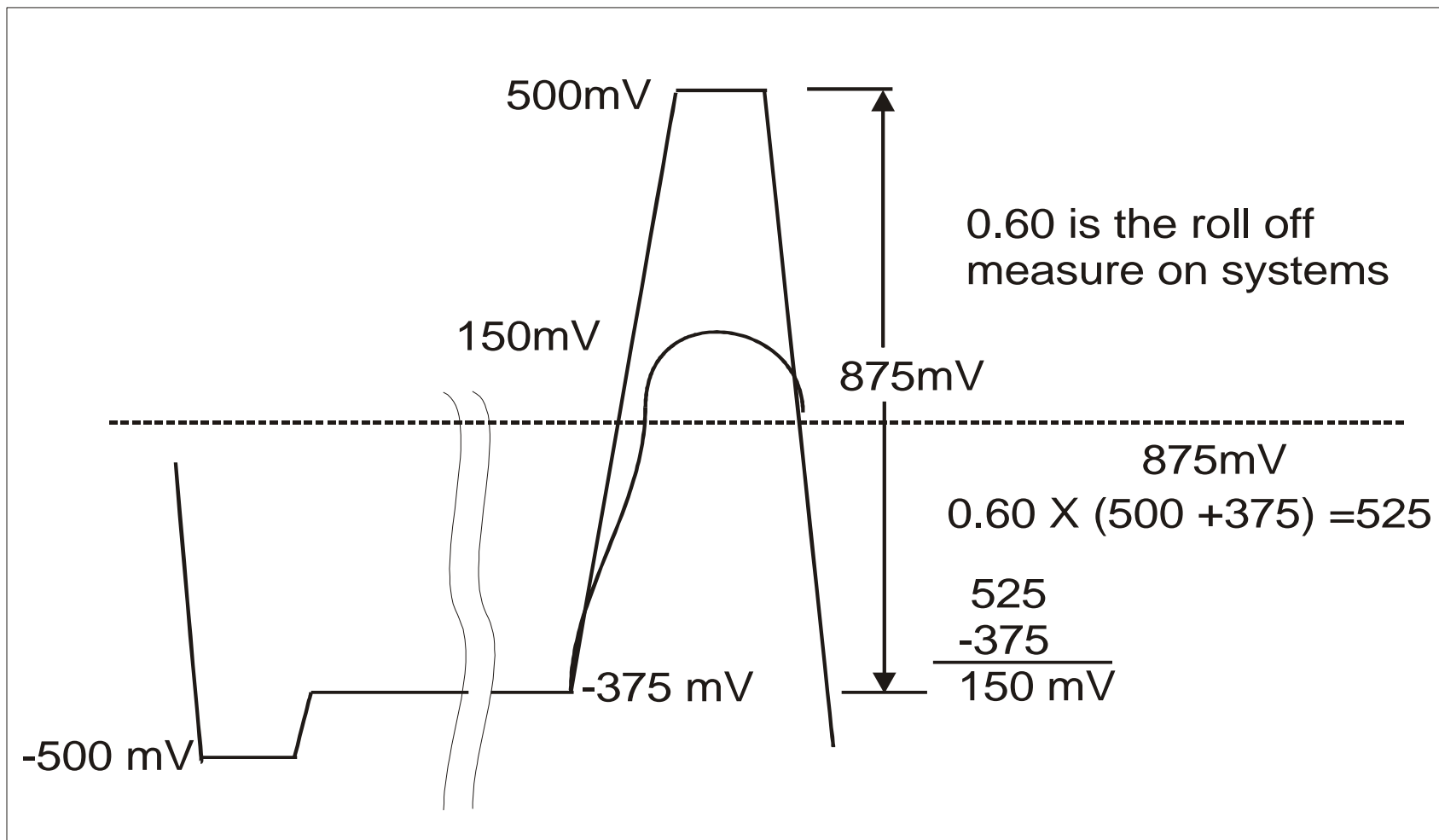
Cable roll off to 60% signal

Trans FB min to assert (60%)	53.68	<b>59.6</b>	<b>61.598</b>	<b>65.89</b>	<b>67</b>	<b>74.4</b>	<b>81.8</b>	<b>89.2</b>	mV signal at the receiver minus cable loss
	45.628	50.66	52.3583	56.0065	56.95	63.24	69.53	75.82	15% cable loss, double counting?
Trans fb 25% roll off to 60%	66.48	75.6	<b>78.678</b>	<b>85.29</b>	<b>87</b>	<b>98.4</b>	<b>109.8</b>	<b>121.2</b>	
Trans fb 33% roll off to 60%	78	90	<b>94.05</b>	<b>102.75</b>	<b>105</b>	<b>120</b>	<b>135</b>	<b>150</b>	
Trans fb 40% roll off to 60%	<b>85.68</b>	<b>99.6</b>	<b>104.298</b>	<b>114.39</b>	<b>117</b>	<b>134.4</b>	<b>151.8</b>	<b>169.2</b>	mV signal at the receiver minus cable loss
	72.828	84.66	88.6533	97.2315	99.45	<b>114.24</b>	<b>129.03</b>	<b>143.82</b>	15% cable loss, double counting?

**Drive tolerance calculation**

$$((0.69 \cdot V) + 50 + V_{fb}) \cdot 0.6 - V_{fb}$$

Signal at the receiver



SPI-3										
Nominal Voltage	320	400	427	485	500	600	700	800	Millivolt drive	
Driver fall back 0%	320	400	427	485	500	600	700	800	<b>320</b>	First step min 320 mV
Driver Fall Back 40%	192	240	256.2	291	300	360	420	480	<b>533.3333</b> Min high dr mV	
Trans min to assert (85%)	224	280	298.9	339.5	350	420	490	560	mV signal at the receiver minus cable loss	
	<b>190.4</b>	<b>238</b>	<b>254.065</b>	<b>288.575</b>	<b>297.5</b>	<b>357</b>	<b>416.5</b>	<b>476</b>	15% cable loss	
Trans fb max 85%	243.2	304	324.52	368.6	380	456	532	608	mV signal at the receiver minus cable loss	
	<b>206.72</b>	<b>258.4</b>	<b>275.842</b>	<b>313.31</b>	<b>323</b>	<b>387.6</b>	<b>452.2</b>	<b>516.8</b>	15% cable loss	
80 mV @ receiver										
60 mV noise	140	140	140	140	140	140	140	140	mV	
100 mV @ receiver	160	160	160	160	160	160	160	160	mV	
<b>Tolorance driver</b>										
Driver fall back 0%	320	400	427	485	500	600	700	800	320	First step 320 mV ma
Driver Fall Back 40%	192	240	256.2	291	300	360	420	480	<b>533.3333</b> Min high dr mV	
Cable roll off to 85% signal										
Trans FB min to assert (85%)	182.18	217.1	228.8855	254.2025	260.75	304.4	348.05	391.7	mV signal at the receiver minus cable loss	
	<b>154.853</b>	<b>184.535</b>	<b>194.5527</b>	<b>216.0721</b>	<b>221.6375</b>	<b>258.74</b>	<b>295.8425</b>	<b>332.945</b>	15% cable loss	
Trans fb max 85%	201.38	241.1	254.5055	283.3025	290.75	340.4	390.05	439.7	mV signal at the receiver minus cable loss	
	<b>171.173</b>	<b>204.935</b>	<b>216.3297</b>	<b>240.8071</b>	<b>247.1375</b>	<b>289.34</b>	<b>331.5425</b>	<b>373.745</b>	15% cable loss	

nce factor in

**/ with cable loss**

stalk



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rginal