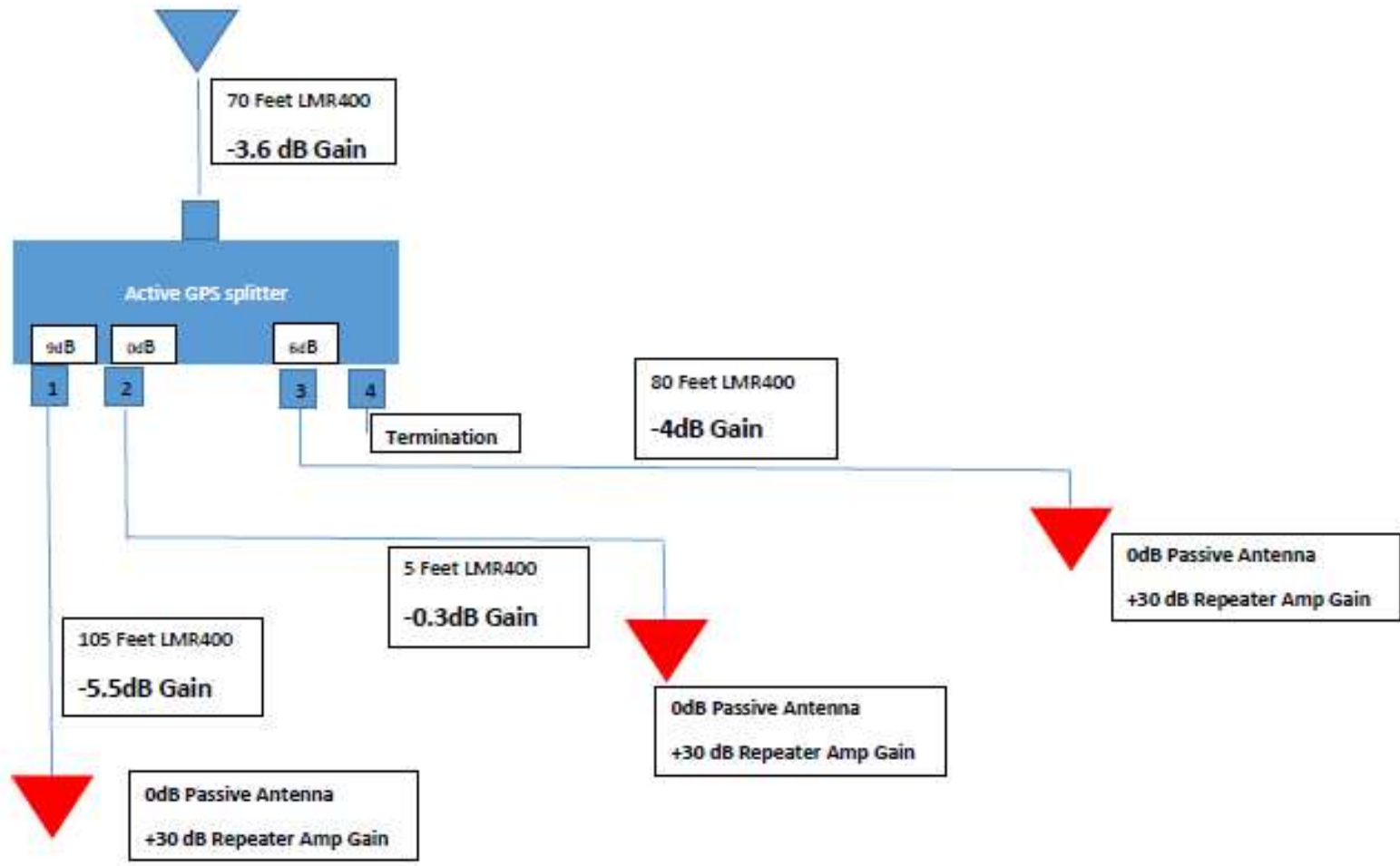


# Topeka Diesel Shop GPS Repeater Link Budget

July 2014



5 Feet Cable Link Budget Calculation					
Receive Ant Gain	Ant Cable Insertion Loss	Repeater Amp + Splitter Gain	Repeater Ant Gain Best Case	Range in Feet	Repeated Signal Power @ Range In dBm
26	-5.8	34	0	100	-141.89
GPS Carrier Frequency MHz			Total System Gain	Range in Miles	Total Signal Power @ Range in Watts
1575			54.2	0.02	6.5E-18
Avg Receive Power L1 dBm North America				Range in Meters	Radiated Power dBm
-130				31.17	-75.8
Free Space loss with Isotropic Antennas				Range in Kilometers	Transmitted Power (W)
-66.09				0.03	13.2E-12
					Effective Radiated Power (W)
					26.3E-12
					Effective Radiated Power (dBW)
					-105.8

80 Feet Cable Link Budget Calculation					
Receive Ant Gain	Ant Cable Insertion Loss	Repeater Amp + Splitter Gain	Repeater Ant Gain Best Case	Range in Feet	Repeated Signal Power @ Range In dBm
26	-7.6	36	0	100	-141.69
GPS Carrier Frequency MHz	Total System Gain		Range in Miles	Total Signal Power @ Range in Watts	
1575	54.4		0.02	6.8E-18	
Avg Receive Power L1 dBm North America			Range in Meters	Radiated Power dBm	
-130			31.17	-75.6	
Free Space loss with Isotropic Antennas			Range in Kilometers	Transmitted Power (W)	
-66.09			0.03	13.8E-12	
				Effective Radiated Power (W)	
				27.5E-12	
				Effective Radiated Power (dBW)	
				-105.6	

105 Feet Cable Link Budget Calculation					
Receive Ant Gain	Ant Cable Insertion Loss	Repeater Amp + Splitter Gain	Repeater Ant Gain Best Case	Range in Feet	Repeated Signal Power @ Range In dBm
26	-10.4	39	0	100	-141.49
GPS Carrier Frequency MHz			Total System Gain	Range in Miles	Total Signal Power @ Range in Watts
1575			54.6	0.02	7.1E-18
Avg Receive Power L1 dBm North America				Range in Meters	Radiated Power dBm
-130				31.17	-75.4
Free Space loss with Isotropic Antennas				Range in Kilometers	Transmitted Power (W)
-66.09				0.03	14.5E-12
					Effective Radiated Power (W)
					28.8E-12
					Effective Radiated Power (dBW)
					-105.4