MIL-STD-1553A vs. MIL-STD-1553B Differences

	MIL-STD-1553A	MIL-STD-1553B
Protocol		
Mode Code Subaddress(es)	0 only	0 and 31
Response for Message with Error in Data Word	Status Word with Message error bit set	No Response
Mode Codes	Only (optional) mode code defined is "Dynamic bus allocation", with Word count field = 00000	15 mode codes are defined
Data Words for Mode Code	Only Mode Codes with no Data Words	Mode Codes with and without data words
RT Response Time	2 to 5 µS dead time (= 4 to 7 µS mid-parity to mid-sync)	4 to 12 µS mid-parity to mid-sync
BC Response Timeout	Not Defined	14 µS minimum
RT Status Word Bits	Only Message Error and Terminal Flag bits are defined	8 Status word bits are defined
Broadcast	Not Defined	Defined for RT Address 31
Transmission Bit Rate Tolerance	±0.001% short-term, ±0.01% long-term	±0.01% short-term, ±0.1% long-term
Transmitter Fail-safe Timeout	660 µS	Preclude transmission greater than 800 µS
Electrical		
Transmit Signal Voltage	Direct-Coupled *and* Transformer-Coupled: 6 to 20 V_{p-p} on bus	Direct Coupled: 6 to 9 V_{p-p} on bus Transformer Coupled: 18 to 27 V_{p-p} on stub
Transmit Rise/Fall Time	Direct-Coupled *and* Transformer-Coupled: 100 nS minimum, measured on stub	Direct Coupled: 100 to 300 nS, measured on stub Transformer Coupled: 100 to 300 nS, on stub
Output Symmetry (dynamic offset) – 2.5 µS after parity mid-bit crossing	Unspecified	Direct-Coupled: ±90 mV peak max. Transformer-Coupled: ±250 mV peak max.
Cable Impedance (Z_0)	70 ohms ±10%	70 to 85 ohms
Bus Isolation resistors	0.75 * Z_0 ±5%	Direct-Coupled: 55 ohms ±2% Transformer-Coupled: 0.75 * Z_0 ±2%
Maximum Bus Length	300 feet	No maximum
Coupling Transformer Turns Ratio	Unspecified	1.4:1.0
Receiver Voltage Range	1.0 to 20.0 V_{p-p} on stub	Direct-Coupled: 1.2 to 20 V_{p-p} on bus

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		Transformer-Coupled: 0.86 to 14 V_{p-p} on stub
Stub Voltage Range	Direct-Coupled *and* Transformer-Coupled: 1.0 to 20 V_{p-p} on direct or transformer-coupled stub.	Direct-Coupled: 1.4 to 20.0 V_{p-p} on bus Transformer-Coupled: 1.0 to 14.0 V_{p-p} on stub
Input Impedance	Direct-Coupled *and* Transformer-Coupled: Minimum 2K ohms on stub over 100 kHz to 1 MHz	Direct-Coupled: Minimum 2 K ohms over 75 kHz to 1 MHz Transformer-Coupled: Minimum 1 K ohms over 75 kHz to 1 MHz