

AEROSPACE STANDARD

SAE AS4074/3

REV. Α

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Superseding AS4074/3

Type E-1 Electrical Media Interface Characteristics

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1. SCOPE:

This slash sheet specifies the operational parameters and characteristics of a particular implementation of the SAE Linear, Token Passing Bus (LTPB) Interface Unit.

This slash sheet defines the following:

- a. The physical media interface: This slash sheet specifies the characteristics of the electrical interface to the physical bus media.
- b. The minimum and maximum timing requirements for operation of this implementation of the LTPB.
- c. The data coding used to encode and decode the data for transmission?
- d. The default values to be loaded into the timers of the LTPB interface at power-up prior to There are no referenced publications specified herein. intervention by the host processor.

2. REFERENCES:

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TYPE E-1 ELECTRICAL MEDIA INTERFACE CHARACTERISTICS

Parameter	Description	Units	Requirement
COMMON CHAR	ACTERISTICS		
-	Encoding Method and Symbol Set		Manchester II see Figure 1
R _d	Data Rate	Mbps	50 ± 0.01%
R.	Signaling Rate	MBaud	100 ± 0.01%
Т.	Nominal Bit Time	ns	20 30
T _{en}	Minimum Duration Between Transitions	ns	10
T _{sr}	Maximum Station Response Time	ns	500
Sito	System Minimum Intertransmission Gap	ns ns v	280
S.	Surge Voltage Level	v	±1000
S _o	Surge Voltage Duration	ms	10
TP T	Token Passing Timer Initializ. Value	us	10.20
BAT	Bus Activity Timer Initializ. Value	us	15*(PSA+1)
RAT	Ring Admit. Timer Initializ. Value	ms	100
тнт	Token Passing Timer Initializ. Value Bus Activity Timer Initializ. Value Ring Admit. Timer Initializ. Value Token Holding Timer Initializ. Value	us	50
TRT1	Token Rot. Timer 1 Initializ. Value	us	400
TRT2	Token Rot. Timer 2 Initializ. Value	us	300
TRT3	Token Rot. Timer 3 Initializ. Value	us	200
TRANSMITTER	CHARACTERISTICS		
Τ . ,	Transmitter Output Voltage Level (On)	V	±(7.5 ± 20%)
T _{wr}	Transmitter Peak Output Voltage Level (Off)	V	±0.05
T,	Transmitter Maximum Rise Time	ns	4 ± 50%
Τ,	Transmitter Maximum Fall Time	ns	4 ± 50%
T _{ous}	Transmitter Combined Over/Under-Shoot	%	5
T _{to}	Transmitter Nominal Bit Time	ns	20 ± 10%
T _{tm}	Transmitter Minimum Signaling Duration	ns	10 ± 5%
Τ,,	Transmitter Drive Impedance	0hms	50 ± 20%
T _{ets} .	Data Streaming Timer	ms	68 ± 1%
T _{sk}	Transmitter Redundant Media Skew Time	ns	150
P.	Transmitter Preamble Length	Bit Times	4

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TYPE E-1 ELECTRICAL MEDIA INTERFACE CHARACTERISTICS (CONTINUED)

Parameter	Description	Units	Requirement
RECEIVER CHA	ARACTERISTICS		
R _{vo}	Receiver Maximum Input Voltage	V	±12
R _{vm}	Receiver Minimum Input Voltage	V	±0.1
Ride	Receiver Intertransmission Dyn. Range	d8	26
R _{ous}	Receiver Combined Over/Under-Shoot	%	1650
R _r	Receiver Maximum Rise Time	ns	io
R,	Receiver Maximum Fall Time	ns	10
R _{to}	Receiver Nominal Bit Time	ns 💢	20 ± 10%
R _{tm}	Receiver Maximum Signaling Rate	ns	10 ± 10%
Riz	Receiver Input Impedance	Ohms	50 ± 20%
Ř _{cer}	Receiver Common Mode Rejection Ratio	WIII.	0.5
R _{ber}	Receiver Common Mode Rejection Ratio Receiver Maximum Bit Error Rate	-	10exp[-12]
R _n ,	Receiver Noise Voltage Input	mV	2.5
P _r	Receiver Minimum Valid Preamble Length	Bit Times	4
MEDIA CHARAC	TERISTICS		
Ar	Attenuation of Reflected Signals	dB	34
A _{min}	Minimum End-to-End Attenuation	dB	10
A _{max}	Maximum End-to-End Attenuation	dB	28
W1	Transmission Sys. Lower Bandpass Freq.	MHz	0.5
W2	Transmission Sys. Upper Bandpass Freq.	MHz	100
D _{op}	Group Propagation Delay Difference	ns	1
D, _	Jitter	ns	1