

V4 TELEPHONE REPEATERS
ENGINEERING
MESSAGE CIRCUITS

1. GENERAL

1.001 This addendum supplements Section 852-307-101, Issue 2.

1.002 This addendum is issued to make changes and additions to Table U.

2. CHANGES TO SECTION

2.001 Page 44, Table U: Use updated Table U supplied with this addendum.

Note: For clarity, changes within the table are indicated by shading, and note additions are indicated by change arrows.

NOTICE

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TABLE U
 EQUALIZER ASSIGNMENTS FOR NONLOADED CABLE
 (EQUALIZERS AT BOTH ENDS OF FACILITIES)
 (Notes 1 and 2)

COLUMN	1		2			3			4			5		
	EQUALIZER LOSS + REFLECTION LOSS IN dB		359F EQUALIZER EACH END (NOTES 4 and 5)			359B EQUALIZER 359F EQUALIZER OPPOSITE ENDS (NOTES 4, 5 and 6)			359B EQUALIZER EACH END (NOTES 5, 7 and 8)			359B EQUALIZER EACH END (NOTES 5, 7 and 8)		
			DISTANCE IN		LOSS IN dB	DISTANCE IN		LOSS IN dB	DISTANCE IN		LOSS IN dB	DISTANCE IN		LOSS IN dB
	359B	359F	FEET	MILES		FEET	MILES		FEET	MILES		FEET	MILES	
All 19-Gauge Low-Capacitance	0.5 + 1.8 RFL Loss	0.5 + 0 RFL Loss	8 KF	1.5	1.6	10.1 KF	1.9	2.1	20.1 KF	3.3	4.3	31.1 KF	5.9	6.6
			10 KF	1.9	2.1	20 KF	3.3	4.3	31 KF	5.9	6.6	45 KF	8.5	9.0
All 19-Gauge High-Capacitance	0.5 + 1.8 RFL Loss	0.5 + 0.1 RFL Loss	7 KF	1.3	1.6	0.1 KF	1.5	1.9	16.1 KF	3.0	3.8	25.1 KF	4.7	6.0
			8 KF	1.5	1.9	16 KF	3.0	3.8	25 KF	4.7	6.0	36 KF	5.8	8.6
All 22-Gauge	0.5 + 1.8 RFL Loss	0.5 + 0 RFL Loss	4 KF	0.8	1.4	8.1 KF	1.5	2.7	14.1 KF	2.7	4.8	20.1 KF	3.8	6.9
			8 KF	1.5	2.7	14 KF	2.7	4.8	20 KF	3.8	6.9	28 KF	5.3	9.6
All 24-Gauge	0.5 + 2.5 RFL Loss	0.5 + 0 RFL Loss	3 KF	0.6	1.4	7.6 KF	1.4	3.2	12.1 KF	2.3	5.3	17.1 KF	3.2	7.4
			7.5 KF	1.4	3.2	12 KF	2.3	5.3	17 KF	3.2	7.4	22 KF	4.2	9.7
All 26-Gauge	0.5 + 3.4 RFL Loss	0.5 + 0 RFL Loss	2 KF	0.4	1.1	7.1 KF	1.3	3.7	10.1 KF	1.9	5.4	14.1 KF	2.7	7.7
			7 KF	1.3	3.7	10 KF	1.9	5.4	14 KF	2.7	7.7	19 KF	3.6	10.2
Mixed-Gauge Nonloaded (Note 3)	0.5 2.7 RFL Loss	0.5 0 RFL Loss			1.0 3.3			3.4 5.3			5.4 8.0			8.1 10.5
Equalized Deviation			0.5-dB Short to 1.0-dB Long 1 kHz to 3 kHz			0.5-dB Short to 1.0-dB Long 1 kHz to 3 kHz			1.0-dB Long at 3 kHz			1.0- to 3.0-dB Long at 3 kHz		

Notes:

1. In computing the length of a facility, include the length of all bridged taps. Gauge of bridged taps is immaterial.
2. When 359B or 359F equalizers are used at both ends of a facility, coil and reflection loss should be considered for each end. See Sections 332-116-102 and 332-116-106.
3. To find the loss for mixed gauge cable, add the 1-kHz attenuation of all facilities present. Make no adjustment for reflection loss, but include the attenuation for bridge taps as if they were in tandem with the other facilities.
4. The ranges of lengths in columns 2 and 3 have been chosen so as to hold the loss of the repeater section within a narrow range (0.5-dB short to 1.0-dB long relative to the 1-kHz loss) between 1 and 3 kHz, at average temperature.
5. The upper lengths in column 4 have been chosen to limit the loss at 3 kHz to about 1.0 dB more than at 1 kHz.
6. The range of lengths in column 5 confines the 3 kHz roll-off to the range 1.0 to 3.0 dB.
7. The upper limits of the ranges in columns 4 and 5 would be somewhat less if it were not for the characteristics of the equalizer transformers, whose loss is less at 3 kHz than in midrange.
- 8. If the 359B equalizer is used at or near a subscriber's premises, it is necessary to use amplifiers in the T and R sockets at that end in order to avoid poor sidetone balance.←
- 9. Wherever 359F equalizers are specified, 359C equalizers could be used instead to provide continuity of the voice path, but they could not derive a simplex tap or provide the same degree of low-frequency equalization. If 359C equalizers are used, simulation is recommended for predicting performance.←