

## SIGNALING EQUIPMENT

### EQUIPMENT LOSSES AT 1000 CYCLES

#### 1. GENERAL

1.01 This section is reissued to add information for single-frequency signaling units, to clarify information on signaling converters, and to make minor corrections. Since this reissue covers a general revision, arrows ordinarily used to indicate changes have been omitted.

	CIRCUIT LAYOUT CODE	LOSS IN TRMT	DB RCV	NOTE
<b>20-cycle Signaling Equipments</b>				
20-dc terminal or intermediate without 600-ohm termination	10	0.1	0.1	
20-dc associated with repeater or coil	10	0	0	1, 2
20-dc full period signaling circuit	10A	0.5	0.5	3
Dc-20 terminal	10B	0.1	0.1	
20-dc terminal, 4-wire, No. 4 switching system	10C	0	0	2
20-dc terminal or intermediate with 600-ohm termination	10D	0.1	0.1	
20-dc Code 10D with blocking capacitors	10D1	0.1	0.1	
20-dc terminal for "old" No. 3 or 11 switchboard	10E	0.1	0.1	
Dc-20 full period at No. 4 switching system	10F	0	0	4
20-20 intermediate, 527A panel or equivalent	11	0	0	1, 2
20-20 intermediate for use between 2 toll lines	11A	0.1	0.1	
<b>135-cycle Signaling Equipments</b>				
135-dc terminal or intermediate	20	0.1	0.1	5
135-dc associated with repeater or coil	20	0	0	1, 2
135-dc terminal, 4-wire, No. 4 switching system	20A	0.0	0.7	
135-dc terminal for "old" No. 3 or 11 switchboard	20B	0.1	0.1	
135-20 528A panel, used with 4-wire terminating circuit	21	0.1	0.2	
135-20 528A panel, associated with repeater or coil	21	0	0	1, 2
135-20 Type A composite ringer	21A	0.2	0.2	
135-20 Type B composite ringer	21B	0.7	0.7	6
135-20 511D, 511F, or equivalent without filter	21D	0.2	0.2	7
135-20 511D, 511F, or equivalent with filter	21F	0.7	0.7	8
135-135 528B panel, used with 4-wire terminating circuit	22	0.1	0.2	
135-135 528B panel, associated with repeater or coil	22	0	0	1, 2
<b>1000-cycle, 1-tube, 513A Panel or Equivalent Terminal Signaling Equipments</b>				
1000-dc 4-wire, without directional selection	30A1	0.0	0.1	9
1000-dc 2-wire, with directional selection for "old" No. 3 or 11 switchboard	30A2	0.5	0.5	
1000-dc 2-wire, without directional selection for "old" No. 3 or 11 switchboard	30A3	0.1	0.1	
1000-20 4-wire, without directional selection	31A1	0.1	0.2	9
1000-20 2-wire, with directional selection	31A2	0.6	0.6	
1000-20 2-wire, without directional selection	31A3	0.2	0.2	

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	<b>CIRCUIT LAYOUT CODE</b>	<b>LOSS IN TRMT</b>	<b>DB RCV</b>	<b>NOTE</b>
<b>1000-cycle, 2-tube, 2-wire, SD-61385 or Equivalent Signaling Equipments</b>				
1000-dc terminal, with directional selection, for "new" No. 3 or 11 switchboard	30B	0.2	0.2	
1000-dc terminal, with directional selection, for "old" No. 3 or 11 switchboard	30B2	0.2	0.2	
1000-20 terminal, with directional selection	31B	0.3	0.3	
1000-20 terminal, without directional selection	31B1	0.2	0.2	
1000-20 intermediate, with directional selection	31C	0.4	0.4	10
1000-135 intermediate, with directional selection	32	0.4	0.4	10
<b>1000-cycle, 2- or 3-tube, with Directional Selection, SD-55392 and SD-55393 or Equivalent Signaling Equipments</b>				
1000-dc terminal, 2-wire, 2-tube	30D	0.2	0.2	
1000-dc intermediate, 2-wire, 2-tube	30D1	0.2	0.2	
1000-dc terminal, 2-wire, 3-tube	30E	0.2	0.2	
1000-dc intermediate, 2-wire, 3-tube	30E1	0.2	0.2	
1000-dc terminal, 4-wire, 2-tube	30F	0.0	0.1	
1000-dc intermediate, 4-wire, 2-tube	30F1	0.0	0.1	
1000-dc terminal, 4-wire, 3-tube	30L	0.0	0.1	
1000-dc intermediate, 4-wire, 3-tube	30L1	0.0	0.1	
<b>1000-cycle, 2-wire, Ringer-Oscillator Signaling Equipments</b>				
1000-dc terminal	30K	0.2	0.2	
1000-20 terminal	31K	0.3	0.3	
1000-20 intermediate	31K1	0.3	0.3	
<b>1000-cycle, Terminal, 4-wire, No. 4 Switching System Signaling Equipments</b>				
1000-dc 2-tube	30G	0	0.1	
1000-dc 3-tube	30H	0	0.1	
1000-dc 2-tube	30J	0	0.1	
<b>1-way Signaling Arrangements (Full Period)</b>				
Dc to 20 cycles	10Z	0	0	
Dc to 135 cycles	20Z	0	0	
Dc to 1000 cycles	30Z	0	0	
<b>Single-Frequency Signaling (Electron Tube Type)</b>				
Any 1600-cycle unit (SD-55954-02)	V-	0.7	0	11
Any 2400/2600-cycle unit, one or two frequencies (SD-56292-01)	X-	0.1	0	11
Any 2400/2600-cycle unit, one or two frequencies (SD-56202-02)	Y-	0.1	0	11
Any 1600-cycle unit (SD-56202-01)	W-	0.1	0	11
<b>Single-Frequency Signaling (Transistor Type)</b>				
Any E1A 2600-cycle unit (SD-96499-01)	A	15.7	—	15, 17
Any E1B 2600-cycle unit (SD-98085-01)	B	0.1	0	15
Any E2B 2400/2600-cycle unit (SD-98090-01)	B	0.1	0	15
Any E3B 2400/2600-cycle unit (SD-98124-01/02)	B	0.1	0	15
Any E1C 2600-cycle unit (SD-98086-01/02)	C	15.7	—	15, 17
Any E1D 2600-cycle unit (SD-98087-01/02)	D	15.7	—	15, 17
Any E1E 2000/2600-cycle unit (SD-98088-01/02)	E	15.7	—	15, 17
Any E1F 2000/2600-cycle unit (SD-98089-01/02)	F	15.7	—	15, 17

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<b>Single-Frequency Signaling (Transistor Type)</b>				
Any E1L 2600-cycle unit (SD-98137-01/02)	L	—	—	16, 17
Any E1S 2600-cycle unit (SD-98138-01/02)	S	—	—	16, 17
Any E1L-A 2600-cycle unit (SD-98142-01/02)	LA	0	0	
Any E1S-A 2600-cycle unit (SD-98140-01/02)	SA	0	0	
<b>Composite, Simplex, or Loop DC Signaling</b>				
Any type	—	0	0	12
<b>Signal Converters</b>				
Loop converter, loop to E/M (SD-95060-01)	LP1	0	0	14
Loop converter, E/M to loop (SD-95061-01)	LP2	0	0	
Loop converter, E/M to loop (SD-96398-01)	LP3	0	0	
Ringdown converter, E/M to dc (SD-64698-01)	D0A	0	0	13
Ringdown converter, E/M to 20 cycles (SD-64697-01)	D1A	0.1	0.1	
Ringdown converter, E/M to dc (SD-56159-01)	D0B	0	0	13
Ringdown converter, E/M to 20 cycles (SD-56163-01)	D1B	0.1	0.1	
Automatic converter, automatic to dc (SD-56131-01)	AR0	0	0	13
Automatic converter, automatic to 20 cycles (SD-56199-01)	AR1	0.1	0.1	
<b>Pulse or Signal Link Circuits</b>				
Any type	—	0	0	11, 13
<b>DX Signaling (Signal Lead Extension Circuits)</b>				
For extending trunk circuit E/M leads (SD-95487-01)	DX1, EMX1	0	0	
For extending signal circuit E/M leads (SD-95488-01)	DX2, EMX2	0	0	

**Notes:**

1. Signaling circuits and ringers permanently cabled to repeaters and having their losses compensated for by repeater gain adjustment do not have a circuit-layout code (see Section E14.001.1).
2. The loss of signaling circuits or ringers covered by Note 1 or of those directly associated with line equipment for V-type repeaters or arranged for mid-coil ringing is included in the loss or gain of the associated repeater, line equipment, or coil. No loss is therefore assigned but the circuit layout code is used except as covered by Note 1. See also Bell System Practices Sections 304-204-102 and 304-204-103.
3. The loss given is for circuits equipped with a 108A or 108B repeating coil properly matched to facility impedances. For 120E or 120F coils, use 0.6 db, and for 120ES or 120FS coils use 0.9 db, when similarly matched; for other coils, use the loss of the coil plus 0.1 db. The loss specified does not include the loss of the high-pass filter (SD-63387-01), when used.
4. The loss of the 10F ringer is included in the loss of the 4-wire terminating circuit of which it forms a part (120PHZ or 120PHY, SD-55273-01).
5. When associated with a 4-wire terminating circuit (SD-62662-02), the loss is 0 db in the transmitting direction.
6. If other than a 46A or 76A repeating coil is installed, use the loss of the coil employed.
7. When associated with a 4-wire terminating circuit, the loss is 0.1 db in the transmitting direction.
8. When associated with a 4-wire terminating circuit, the loss is 0.6 db in the transmitting direction.

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### Notes:

9. The 30A1 and 31A1 ringers are normally associated with 4-wire terminating circuits per SD-61393-02. The losses given do not include any loss in the terminating circuit.
10. When the 31C or 32 ringer is used with a 4-wire terminating circuit, the loss is 0.3 db in each direction.
11. See Section E14.001.5 for a complete list of codes.
12. Losses caused by composite sets or by simplexing or loop signaling equipment connected to telephone circuits are manually charged against the set or equipment. See the pertinent sections of the 304 series of the Bell System Practices.
13. Since these equipments are not in the transmission path, there is no loss.
14. When option ZA (1-mf capacitor A) or ZL (building-out capacitor) is furnished, the loss is 0.1 db. When both are furnished the losses are 0.2 db.
15. Transmit loss shown is the nominal value. Where this value is shown as 15.7 db, the actual value may range from 15.0 to 16.3 db in older units, and from 15.5 to 16.1 db in new units. Where this value is shown as 0.1 db, the actual value will range from near 0 to 0.2-db loss among units.
16. No transmit loss is shown since it is adjustable. The loss will be determined by the design requirements of the specific circuit and will be shown on the circuit layout record.
17. No receive loss is shown since the receiving voice amplifier in the unit is adjustable. The loss will be determined by the design requirements of the specific circuit and will be shown on the circuit layout record.