830J NETWORK
INSTALLATION
AND PRESCRIPTION SETTINGS

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1. GENERAL

1.01 This section gives installation and prescription setting information for the 830J network. This network is used with an E6 repeater to build out the end section of H88 loaded 25-gauge metropolitan area trunk (MAT) cable adjacent to the repeater (near end) so the impedance of the cable closely matches the impedance of the E6 gain unit. A description of the 830J network is contained in Section 332-206-131.

1.02 When this section is reissued, the reason for reissue will be given in this paragraph.

2. INSTALLATION

2.01 In terminal applications, the 830J network is mounted in the E6 repeater chassis on the side facing the MAT cable (normally the B side of the repeater). An 832A "dummy" network is mounted on the office side (normally the A side of the repeater). Both networks are held in place by four screws which also make the required electrical connections.

2.02 When used as an intermediate repeater, the 830J network is mounted in the E6 repeater chassis on the side facing the MAT cable. An 830-type network which is appropriate for the facility on the other side of the repeater is also mounted in the repeater housing.

3. PRESCRIPTION SETTINGS

3.01 Table A lists the prescription settings for the 830J network when used with a facility composed entirely of 25-gauge MAT cable. The build-out capacitance (BOC), build-out resistance (BOR), and LATTICE values shown in Table A are set by the 16 screw switches on the face of the network.

3.02 The effect of office cabling should be considered in establishing the correct settings for the 830J network. The amount of resistance and capacitance of the office cabling should be determined and added to the facility end section values to obtain the total amount of end section resistance and capacitance. These values should then be used with Table A in determining the actual BOR, BOC, and LATTICE settings. The following procedure should be used in finding 830J network settings for ***end sections*** which consist of mixed gauges:

(a) Calculate or otherwise obtain the resistance of the 25-gauge MAT cable and the resistance of the other gauge cable. The sum of these is the total cable end section equivalent resistance and is used in Table A to establish BOR and LATTICE settings. (An alternate method is to subtract the sum of the resistance of the two facility types from 393 ohms, which is the resistance of 6000 feet of 25-gauge MAT cable. The resulting value is the amount of LATTICE and BOR resistance needed.) The LATTICE resistance is 196 ohms and the BOR has a maximum resistance of 196 ohms in 28-ohm increments.

(b) Calculate or otherwise obtain the capacitance of the 25-gauge MAT cable and the capacitance of the other gauge cable and add the two together. Subtract this value from 0.071 μF (the capacitance

TABLE A

830J PRESCRIPTION SETTINGS FOR MAT CABLE

END SECTION		BOC		BOR		LATTICE		TOTAL	1-KHZ
LENGTH (FEET)	RES. Ω	(μF)	SCREWS DOWN	Ω	SCREWS DOWN	X SCREWS	Y SCREWS	RES. Ω	LOSS * (DB)
LATTICE IN									
0	0	0.033	A — — D — F	196	— — — — — — —	↑ DOWN ↓	↑ UP ↓	417	3.25
200	13	0.031	— B C — — F	168	— — 3 & — — 3			389	3.15
400	26	0.030	A — C — — F	168	— — 3 & — — 3			389	3.15
600	39	0.029	— — C — — F	140	— 2 — & — 2 —			361	3.00
800	52	0.027	— B — — — F	140	— 2 — & — 2 —			361	3.00
1000	65	0.024	— — C D E —	140	— 2 — & — 2 —			361	3.00
1200	78	0.022	— B — D E —	112	— 2 3 & — 2 3			333	2.90
1400	92	0.019	— B C — E —	112	— 2 3 & — 2 3			333	2.90
1600	105	0.017	— — C — E —	84	1 — — & 1 — —			305	2.80
1800	118	0.015	— B — — E —	84	1 — — & 1 — —			305	2.80
2000	131	0.012	A — C D — —	56	1 — 3 & 1 — 3			277	2.65
2200	144	0.010	A B — D — —	56	1 — 3 & 1 — 3			277	2.65
2400	157	0.007	— — — D — —	28	1 2 — & 1 2 —			249	2.55
2600	170	0.005	A — C — — —	28	1 2 — & 1 2 —			249	2.55
2800	183	0.002	— B — — — —	0	1 2 3 & 1 2 3			196	2.40
3000	196	0.000	— — — — — —	0	1 2 3 & 1 2 3			196	2.40
LATTICE OUT									
3200	210	0.030	A — C — — F	168	— — 3 & — — 3	↑ UP ↓	↑ DOWN ↓	193	2.35
3400	223	0.028	A B — — — F	168	— — 3 & — — 3			193	2.35
3600	236	0.027	— B — — — F	140	— 2 — & — 2 —			165	2.20
3800	249	0.025	— — — — — F	140	— 2 — & — 2 —			165	2.20
4000	262	0.024	— — C D E —	140	— 2 — & — 2 —			165	2.20
4200	275	0.022	— B — D E —	112	— 2 3 & — 2 3			137	2.10
4400	288	0.019	— B C — E —	112	— 2 3 & — 2 3			137	2.10
4600	301	0.017	— — C — E —	84	1 — — & 1 — —			109	2.00
4800	314	0.015	— B — — E —	84	1 — — & 1 — —			109	2.00
5000	327	0.012	A — C D — —	56	1 — 3 & 1 — 3			81	1.90
5200	341	0.010	A B — D — —	56	1 — 3 & 1 — 3			81	1.90
5400	354	0.007	— — — D — —	28	1 2 — & 1 2 —			53	1.70
5600	367	0.005	A — C — — —	28	1 2 — & 1 2 —			53	1.70
5800	380	0.002	— B — — — —	0	1 2 3 & 1 2 3			25	1.60
6000	393	0.000	— — — — — —	0	1 2 3 & 1 2 3			25	1.60

* Source and detector impedance = 900 ohms

of 5800 feet MAT cable). This is the value of capacitance which must be added by the LATTICE and BOC. The LATTICE capacitance is 0.036 μF and the BOC is a maximum of 0.052 μF, adjustable in .001 μF steps.

(c) It is possible in some cases that the need for resistance as calculated in (a) will conflict with the need for capacitance as calculated in (b), eg, one of the calculations will indicate that the LATTICE be IN while the other indicates that the LATTICE be OUT. When this condition occurs, the requirement (or lack of a requirement) for ***capacitance*** as calculated in (b) dictates the setting of the LATTICE screws. The resistance value is then set as close as possible by the BOR.