

TYPE ON/K CARRIER — REPEATERED HIGH-FREQUENCY LINE

GENERAL INFORMATION

DETERMINATION OF SLOPE ON CARRIER LINE

ON/K cable has a loss that increases with frequency which is termed slope. In ON/K carrier systems, the signal is predistorted with an equalizer in the transmitting amplifier. The carrier signals are transmitted on the line with a slope approximately opposite that of the cable slope. At the receiving point, the signals are received at equal level. The receiving amplifier has a SLOPE ADJ control to meet the slope requirement.

To obtain consistent results, the computation using the method of least squares will be used to determine the slope of the carriers. Standard forms E4558-4 and E4558-5 are available for slope computations, if desired.

The purpose of this test is to measure the individual carriers and compute the slope. This section is reissued to give the latest requirement applicable to the ON/K carrier system.

APPARATUS:

- 1 — 31B Transmission Measuring Set
- 1 — ED-92717-30 G8 Adapter

STEP	PROCEDURE
1	Connect the ED-92717-30 G8 adapter to J8 and connect the 31B TMS to the adapter.
2	Measure and record level of each carrier on the attached chart 1 for ON1/K or chart 2 for ON2/K. Enter levels in column c if positive, and in column d if negative.
3	Multiply the readings of column c or d by column a or b, as indicated, and record on column e or f.
4	Total columns c, d, e, and f.
5	Determine the difference between columns c and d and retain the sign of the larger for difference g.
6	Determine the difference between columns e and f and retain the sign of the larger for difference h.
7	Enter in Block 2, in the space provided, the value and sign of h as determined in Step 6. Divide by the constant K. This determines the slope of the carriers.
<p>Requirements: (1) ± 3.0 db for slope.</p> <p>(2) Each of the plotted individual carrier level should be within approximately ± 3.0 db of the computed slope line.</p>	
<p>Note: For the initial line-up, adjust the SLOPE ADJ control to give a slope of the carriers as close to 0 as possible. For maintenance, if this requirement is not met, adjust the SLOPE ADJ control on the receiving amplifier unit and repeat Steps 2 through 7.</p>	

CHART 1
ON1/K
SLOPE COMPUTATION

BLOCK 1					PRODUCTS		Date _____ System _____ Tester _____ Location _____ <hr style="width: 50%; margin: 0 auto;"/> <p style="text-align: center; margin: 0;">BLOCK 2</p> $\text{Slope} = S = \frac{h}{K} = \frac{\quad}{4.8} =$
CARR. NO.	MULTIPLY BY		OUTPUT DBM		A × D OR B × C + (e)	A × C OR B × D - (f)	
	- (a)	+ (b)	+ (c)	- (d)			
(kc) 1 (132)	-6						
2 (124)	-4						
3 (112)	-1						
4 (84)		+1					
5 (92)		+4					
6 (104)		+6					
Totals							
Difference					(g)	(h)	

CHART 2
ON2/K
SLOPE COMPUTATION

BLOCK 1					PRODUCTS		Date _____ System _____ Tester _____ Location _____
CARR. NO.	MULTIPLY BY		OUTPUT DBM		A × D OR B × C + (e)	A × C OR B × D - (f)	
	- (a)	+ (b)	+ (c)	- (d)			
(kc) 1 (128)	-7						
2 (120)	-5						
3 (112)	-3						
4 (104)	-1						
5 (96)		+1					
6 (88)		+3					
7 (80)		+5					
8 (72)		+7					
Totals							BLOCK 2 Slope = S = $\frac{h}{K} = \frac{\quad}{7.65} =$
					(g)	(h)	
Difference							