Antenna Feedline Cable Comparison

WB2LUA

Feedline Type	Loss in Db/100 ft 150 MHz	Loss in DB/100 ft 450 MHz	Power Loss at 150 MHz in %	Power Loss at 450 MHz in %
RG-58	6.2	10.6	76.1	91.3
RG-8X	4.7	8.6	66.2	86.2
LMR-240	3.0	5.2	50.1	70.0
RG-8U	2.8	5.2	47.4	69.8
Belden 9913	1.5	2.8	29.1	47.4
LMR-400	1.5	2.7	29.1	46.2

Prices per 100 feet with PL259 connectors

CABLE XPERTS, CXP08XC100, 100 FT RG8X W PL259ST INSTALLED, $54.95

CABLE XPERTS, CXP008C100, 100 FT RG-8U FOAM W PL259 INSTALLED, $119.95

CABLE XPERTS, CXP1318FC100, 100 Foot 9913FLEX W PL259 CONNS, $129.95

CABLE XPERTS, 400UFC100, 100 FT LMR400U W PL259 CONNECTORS- Flexible Stranded Center Conductor, $199.95

Reference

Power Gain/Loss (db) = 10 log (Pout/Pin)

3 db = 0.707 voltage radio and 0.5 power ratio

6 db = 0.5 voltage radio and 0.25 power ratio

Example:

3 db = 10 log (0.5/1), which is 50% power
log of 0.5 = 0.3 x 10 = 3

6 db = 10 log (0.25/1), which is 25% power
log of 0.25 = 0.6 x 10 = 6

Change Cable?

If one were to change from 100 feet of RG-8X to Belden 9913, there would be an increase of power by 37.1% at 150 MHz and 38.7% at 450 MHz.

Calculations

Power Gain/Loss (db) = 10 log (Pout/Pin)

Power Gain (db) = (antilog of (Power Gain (db) / 10))

Power Loss (db) =1 / (antilog of (Power Loss (db) / 10))

Example 1: how much power will be transmitted with a 6 db loss

1 / (antilog of 6/10)

1 / (antilog of 0.6)

1/ 3.99 = 0.25 x 100 = 25% of power transmitted

100 - power transmitted = power loss

Example 2: how much power will be transmitted with a 6 db gain

antilog of 6/10

antilog of 0.6

3.99 = 3.99 x 100 = 399% round to 400% of power transmitted