



Dave Typinski
Typinski Radio Astronomy
PO Box 2423
High Springs, FL 32655
(386)344-3166 Phone
(386)454-1844 Fax

TRA Test Report No.: TRA TR 2015 12 13 01

Test Date: 13-Dec-2015

Test Requested by: Wes Greenman

Device(s) Under Test (DUT)

- 1 Coax cable, Belden 8214, main TFD array feed (EW wires), identified as "Red cable".
- 2 Coax cable, Belden 8214, main TFD array feed (NS wires), identified as "Blue cable".

Test Procedure

- A) Use a calibrated 2-port VNA to trim physical cable length to desired electrical length.
- B) Use a calibrated 2-port VNA to measure insertion loss of cable from 10 to 40 MHz in 10 kHz steps.

Test Equipment

Array Solutions VNA-2180 vector network analyzer, S/N 5249, warmup time 0.5 hours minimum.
VNA software version 542.
Note: tests performed in situ at LGM Observatory.

Test Results Data File Directory

Test No.	Date	Calibration File	Data File	Calibration Plane	Notes
1	13-Dec-2015	00 Cal 2015 12 13.acal	n/a	VNA Port A connector	Ports A & B Calibration
2	"	"	03 Red Long Feed S11.csv †	"	none
3	"	"	04 Red Long Feed S21_B.csv †	"	none
4	"	"	05 Blue Long Feed S11.csv †	"	none
5	"	"	06 Blue Long Feed S21_B.csv †	"	none

† Indicates data plotted on following page(s)

Test Results

1 Red cable:

Actual length of Cable: 222'. Measured 5.5λ at 20.210 MHz = calculated VoP: 82.9%

Insertion loss of **Red** cable:

<u>Freq. (MHz)</u>	<u>S21 (dB)</u>
14	-1.53
16	-1.63
18	-1.74
20	-1.85
22	-1.97
24	-2.10
26	-2.19
28	-2.27
30	-2.39
32	-2.52

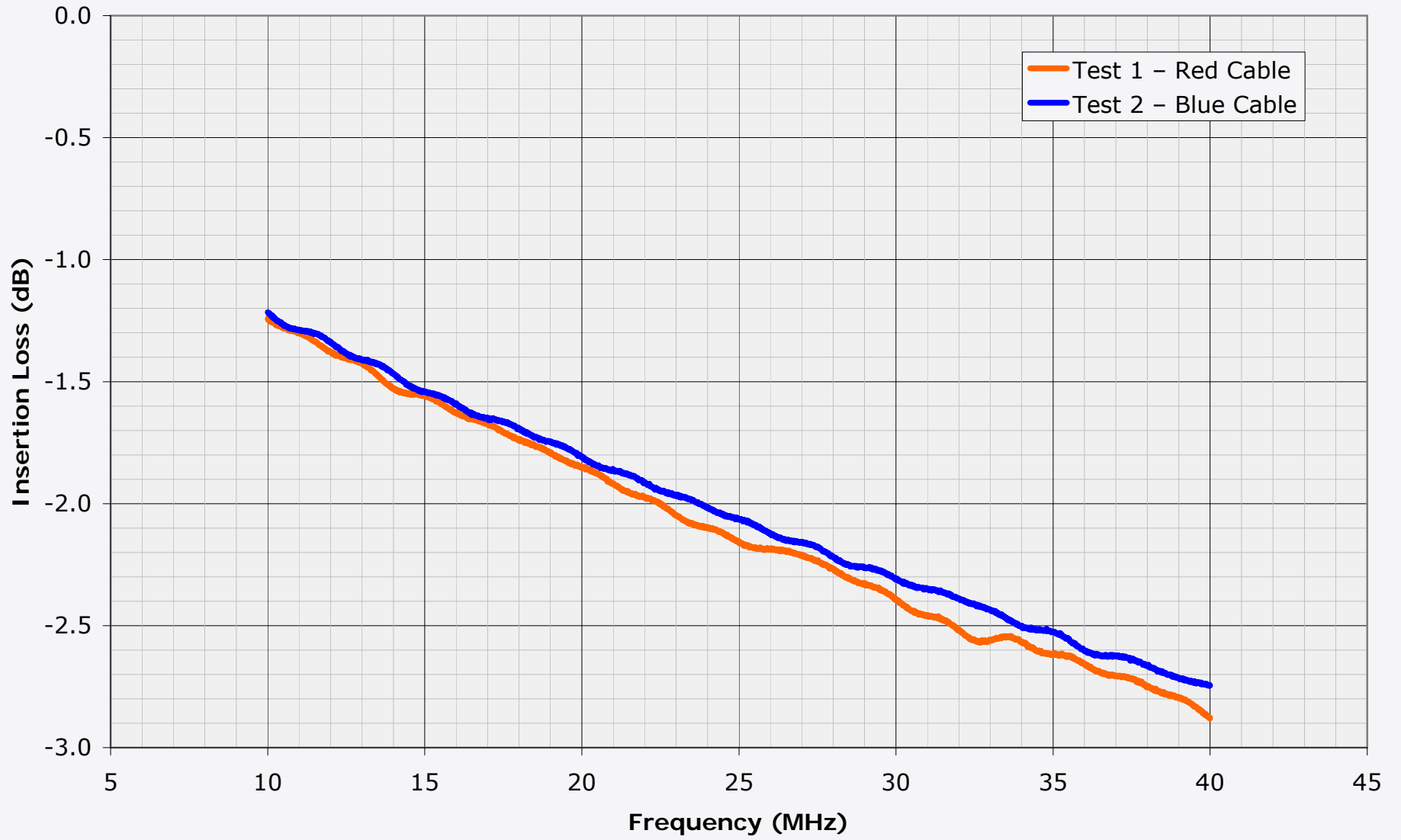
2 Blue cable:

Actual length of Cable: 223'. Measured 5.5λ at 20.205 MHz = calculated VoP: 83.3%

Insertion loss of **Blue** cable:

<u>Freq. (MHz)</u>	<u>S21 (dB)</u>
14	-1.47
16	-1.59
18	-1.69
20	-1.81
22	-1.91
24	-2.02
26	-2.12
28	-2.22
30	-2.31
32	-2.39

Cable Insertion Loss, Measured



S11 Phase at 5.5 Lambda Electrical Length

