



LIGO Laboratory / LIGO Scientific Collaboration

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Test Procedure for Installed Cables

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1 Introduction

The following Test Procedure describes the test of proper operation of the Installed Cables.

2 Test Equipment

- Voltmeter
- Oscilloscope
- Function Generator Tektronix AFG3101 or AFG3102
- Universal Counter HP 53132A
- RF Power Meter HP E4418A or Agilent N1914A
- Applicable Documents—E1100591-v1

3 Tests

The Test is of the basic flow of signals from the In RF Patch Panel to the Out RF Patch Panel.

The RF patch panels generally each have 6 type N feed-through adapters across.

- 1) **Measure the power loss at the maximum frequency.** Using the function generator apply an 80 MHz, 13 dBm signal to one of the inputs on the In RF Patch Panel. Using the RF Power Meter measure the power being fed in and then with a minimum of delay measure the RF power available at the Out RF Patch Panel. The maximum loss allowed is 3 dB so the minimum RF power available at the Out RF Patch Panel is 10 dBm. Repeat for all six cables. Repeat for all In RF Patch Panels.

From Panel No. 1

To Panel No. 10

Signal	RF (dBm) In	RF (dBm) Out	Loss (dB)
1			
2			
3			
4			
5			
6			

From Panel No. 2

To Panel No. 11

Signal	RF (dBm) In	RF (dBm) Out	Loss (dB)
1			
2			
3			
4			
5			
6			

From Panel No. 3

To Panel No. 13

Signal	RF (dBm) In	RF (dBm) Out	Loss (dB)
1			
2			
3			
4			
5			
6			

From Panel No. 4

To Panel No. 14

Signal	RF (dBm) In	RF (dBm) Out	Loss (dB)
1			
2			
3			
4			
5			
6			

From Panel No. 5

To Panel No. 15

Signal	RF (dBm) In	RF (dBm) Out	Loss (dB)
1			
2			
3			
4			
5			
6			

From Panel No. 6

To Panel No. 16

Signal	RF (dBm) In	RF (dBm) Out	Loss (dB)
1			
2			
3			
4			
5			
6			

From Panel No. 7

To Panel No. 17

Signal	RF (dBm) In	RF (dBm) Out	Loss (dB)
1			
2			
3			
4			
5			
6			

From Panel No. 8

To Panel No. 18

Signal	RF (dBm) In	RF (dBm) Out	Loss (dB)
1			
2			
3			
4			
5			
6			

From Panel No. 9

To Panels No. 20 & 21

Signal	RF (dBm) In	RF (dBm)	Loss (dB)
1			
2			
3			
4			

From Panel No. 12

To Panel No. 19

Signal	RF (dBm) In	RF (dBm) Out	Loss (dB)
1			
2			

From Panel No. 22

To Panel No. 24

Signal	RF (dBm) In	RF (dBm) Out	Loss (dB)
1			
2			
3			
4			
5			
6			

From Panel No. 23

To Panel No. 25

Signal	RF (dBm) In	RF (dBm) Out	Loss (dB)
1			
2			
3			
4			
5			
6			

From Panel No. 26

To Panel No. 28

Signal	RF (dBm) In	RF (dBm) Out	Loss (dB)
1			
2			
3			
4			
5			
6			

From Panel No. 27

To Panel No. 29

Signal	RF (dBm) In	RF (dBm) Out	Loss (dB)
1			
2			
3			
4			
5			
6			

The Test is of the proper flow and level of signals from one RF patch panel (In) to another RF patch panel (Out) at another location. The RF patch panels generally each have 6 type N feed-through adapters across.

- 2) **Measure the frequency of the signal.** Using a frequency counter measure the frequency of the signal being fed into the RF patch panel (In).
- 3) **Measure the power of the signal.** Using the RF power Meter measure the power of the signal being fed into the RF patch panel (In) and with a minimum of delay measure the RF power available at the RF patch panel (Out) at the other location. The RF power being fed into the panel should be 12 dBm +- 2 dBm and the RF power available at the other location should be 10 dBm minimum.
- 4) **Measure the frequency of the signal at the RF patch panel (Out) at the other location.** The frequency should be within 100 Hz of the frequency measured in step (2). If not, re-measure the frequency of the signal being fed into the RF patch panel, and confirm that they are within 100 Hz.
- 5) **Repeat for all the RF signals.**

From Panel No. 1

To Panel No. 10

Signal	Freq (MHz) In	RF (dBm) In	RF (dBm) Out	Freq (MHz) Out
1				
2				
3				
4				
5				
6				

From Panel No. 2

To Panel No. 11

Signal	Freq (MHz) In	RF (dBm) In	RF (dBm) Out	Freq (MHz) Out
1				
2				
3				
4				
5				
6				

From Panel No. 3

To Panel No. 13

Signal	Freq (MHz) In	RF (dBm) In	RF (dBm) Out	Freq (MHz) Out
1				
2				
3				
4				
5				
6				

From Panel No. 4

To Panel No. 14

Signal	Freq (MHz) In	RF (dBm) Out	RF (dBm) Out	Freq (MHz) Out
1				
2				
3				
4				
5				
6				

From Panel No. 5

To Panel No.15

Signal	Freq (MHz) In	RF (dBm) In	RF (dBm) Out	Freq (MHz) Out
1				
2				
3				
4				
5				
6				

From Panel No. 6

To Panel No. 16

Signal	Freq (MHz) In	RF (dBm) In	RF (dBm) Out	Freq (MHz) Out
1				
2				
3				
4				
5				
6				

From Panel No. 7

To Panel No. 17

Signal	Freq (MHz) In	RF (dBm) In	RF (dBm) Out	Freq (MHz) Out
1				
2				
3				
4				
5				
6				

From Panel No. 8

To Panel No. 18

Signal	Freq (MHz) In	RF (dBm) In	RF (dBm) Out	Freq (MHz) Out
1				
2				
3				
4				
5				
6				

From Panel No. 9

To Panels No. 20 & 21

Signal	Freq (MHz) In	RF (dBm) In	RF (dBm) Out	Freq (MHz) Out
1				
2				
3				
4				

From Panel No. 12

To Panel No. 19

Signal	Freq (MHz) In	RF (dBm) In	RF (dBm) Out	Freq (MHz) Out
1				
2				

From Panel No. 22

To Panel No. 24

Signal	Freq (MHz) In	RF (dBm) In	RF (dBm) Out	Freq (MHz) Out
1				
2				
3				
4				
5				
6				

From Panel No. 23

To Panel No. 25

Signal	Freq (MHz) In	RF (dBm) In	RF (dBm) Out	Freq (MHz) Out
1				
2				
3				
4				
5				
6				

From Panel No. 26

To Panel No. 28

Signal	Freq (MHz) In	RF (dBm) In	RF (dBm) Out	Freq (MHz) Out
1				
2				
3				
4				
5				
6				

From Panel No. 27

To Panel No. 29

Signal	Freq (MHz) In	RF (dBm) In	RF (dBm) Out	Freq (MHz) Out
1				
2				
3				
4				
5				
6				