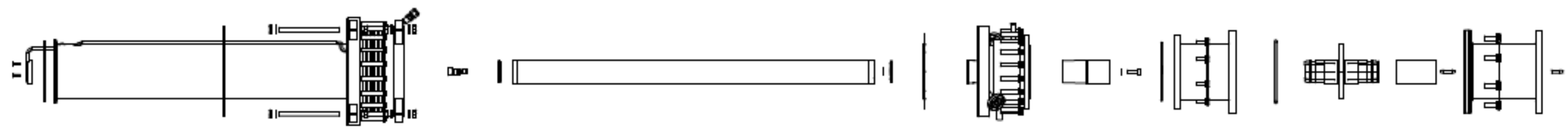
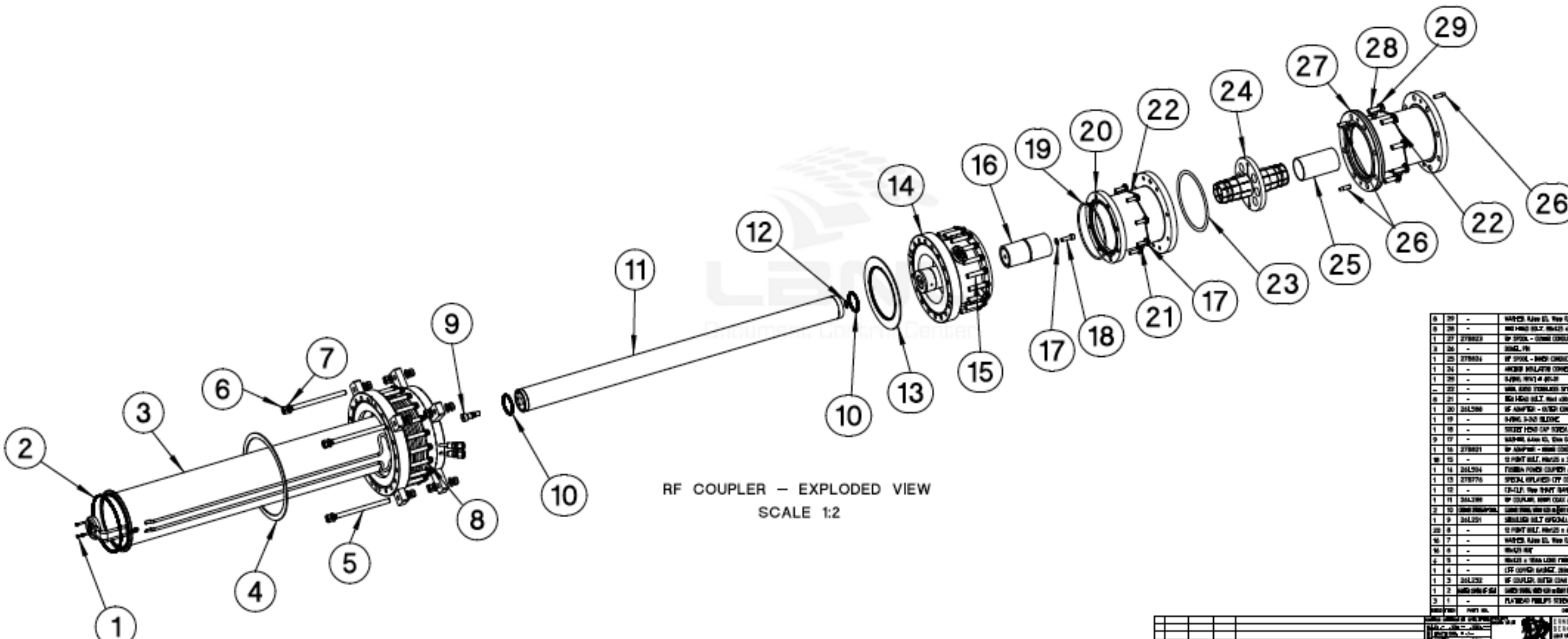
MICE Cavity Coupler Measurements

Ralph Pasquinelli
June 2, 2014



SCALE 1:2

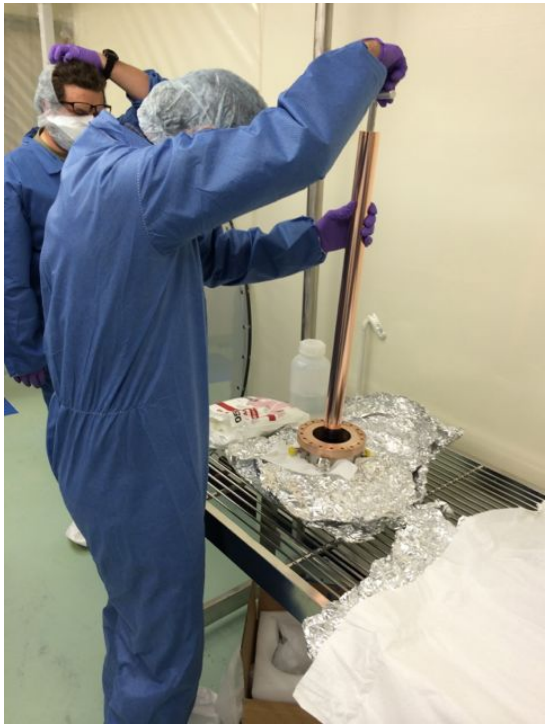


RF COUPLER – EXPLODED VIEW
SCALE 1:2

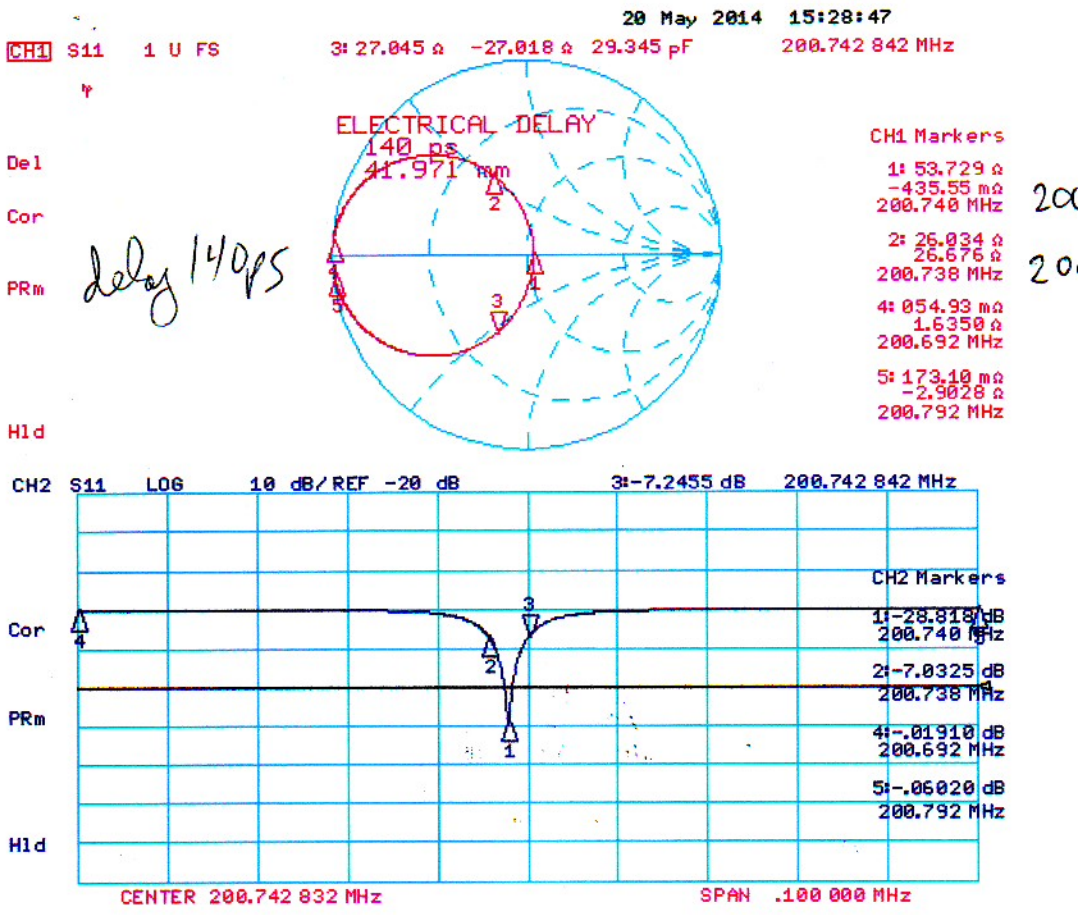
6	29	-	WASHER, [illegible] STAINLESS STEEL.
6	28	-	[illegible] HEAD BOLT, [illegible] STAINLESS STEEL, [illegible] HEAD
1	27	[illegible]	RF SPOOL – OUTER CONDUCTOR
3	26	-	DOWEL PIN
1	25	[illegible]	RF SPOOL – INNER CONDUCTOR
1	24	-	[illegible] INSULATOR CONNECTOR [illegible]
1	23	-	O-RING [illegible]
–	22	-	[illegible]
6	21	-	[illegible] HEAD BOLT, [illegible] STAINLESS STEEL, [illegible] HEAD
1	20	[illegible]	RF ADAPTER – OUTER CONDUCTOR
1	19	-	O-RING, [illegible] SILICONE
1	18	-	SOCKET HEAD CAP SCREW, [illegible] STAINLESS STEEL
9	17	-	WASHER, [illegible] STAINLESS STEEL.
1	16	[illegible]	RF ADAPTER – INNER CONDUCTOR
18	15	-	12 POINT BOLT, [illegible]
1	14	[illegible]	TOSHIBA POWER COUPLER / WINDOW ASSEMBLY WITH ADAPTER
1	13	[illegible]	SPECIAL [illegible] CF COPPER GASKET, [illegible] SEALING AND RF COUPLING
1	12	-	[illegible]
1	11	[illegible]	RF COUPLER, INNER COAX ASSEMBLY
2	10	[illegible]	[illegible]
1	9	[illegible]	[illegible] BOLT [illegible]
20	8	-	12 POINT BOLT, [illegible]
16	7	-	WASHER, [illegible] STAINLESS STEEL.
16	6	-	[illegible] NUT
4	5	-	[illegible] THREADED ROD
1	4	-	CF COPPER GASKET, [illegible] CF
1	3	[illegible]	RF COUPLER, OUTER COAX ASSEMBLY
1	2	[illegible]	[illegible]
3	1	-	FLATHEAD PHILLIPS SCREW, [illegible]
[illegible]	[illegible]	PART NO.	DESCRIPTION

ERNEST ORLANDO LAWRENCE
BERKELEY NATIONAL LABORATORY
UNIVERSITY OF CALIFORNIA

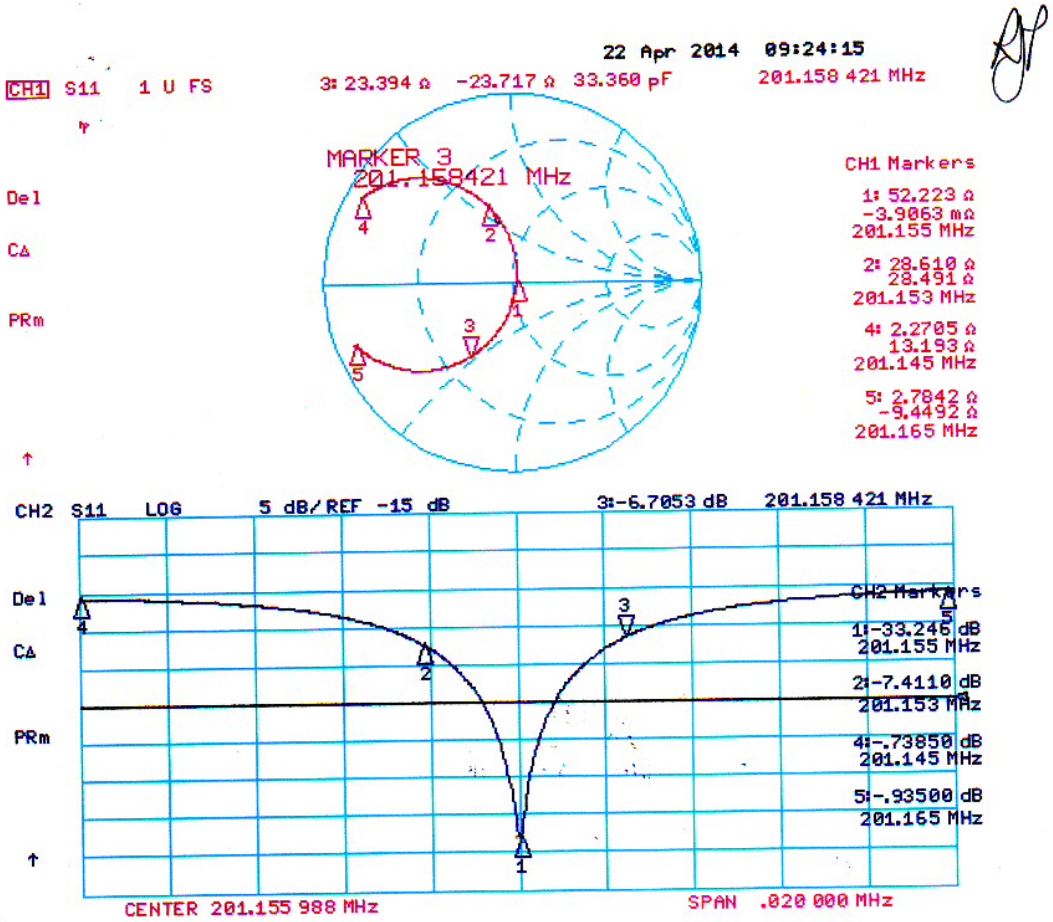
26L231 REV A



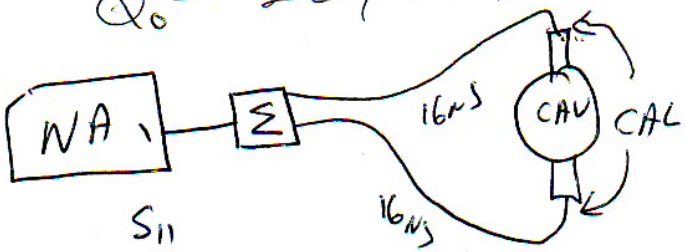
Lab 6 Beryllium



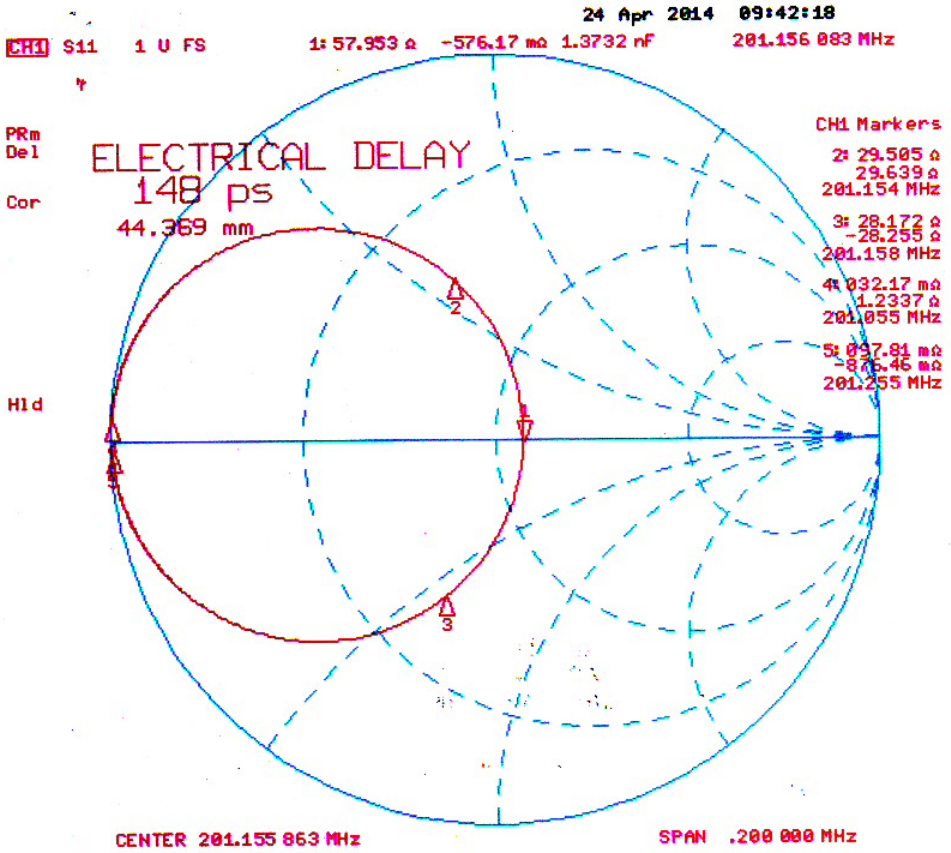
Qo =45,110, fo=200.740645 MHz



COPPER WINDOWS
BALANCED DRIVE
$Q_0 = 25,144$



Lab 6 Copper before final adjust



Lab 6 Copper

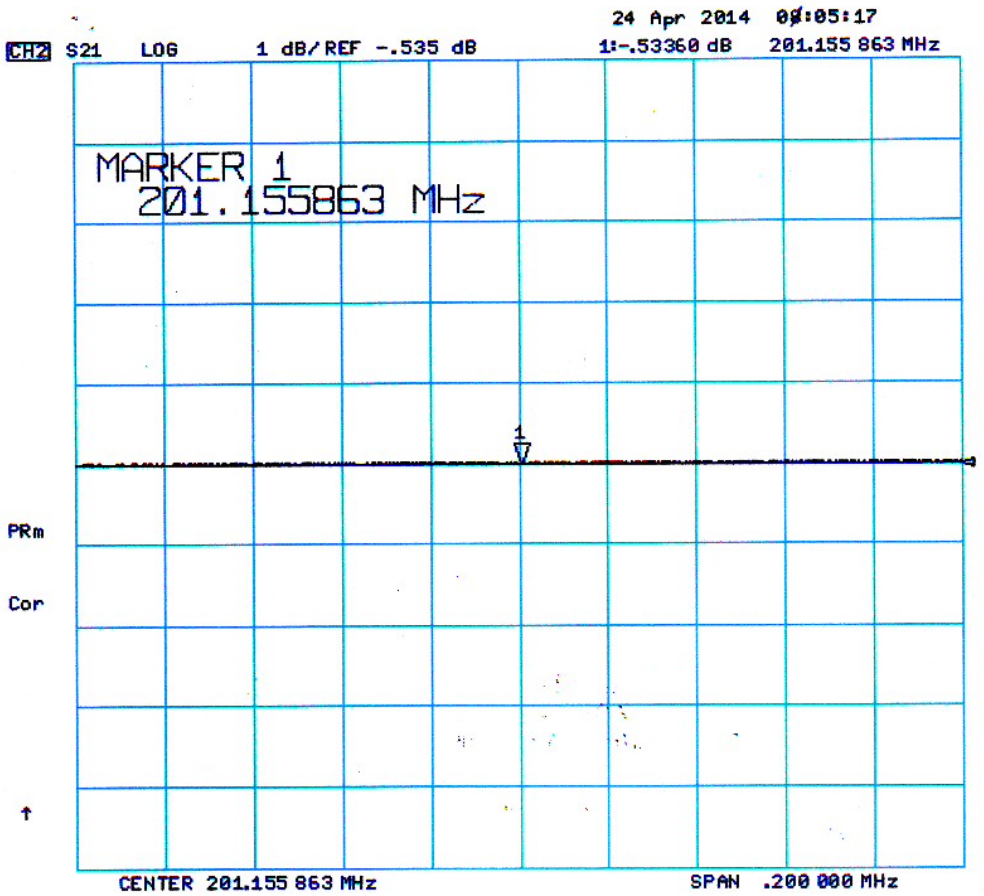
Q_0 WITH TOP HAT & VACUUM TUBE BOTTOM

CAL WITH SINGLE SPLITTER

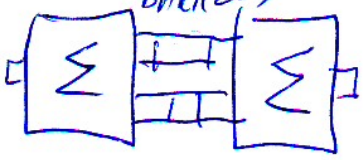
$$Q_0 = \frac{201.1560\,\text{MHz}}{4.228\,\text{KHz}} = 47{,}577$$

. Qo =47,577, fo=201.1560 MHz

9



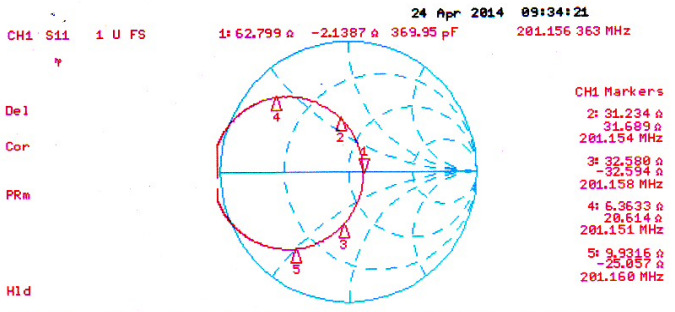
Type N BARRELS

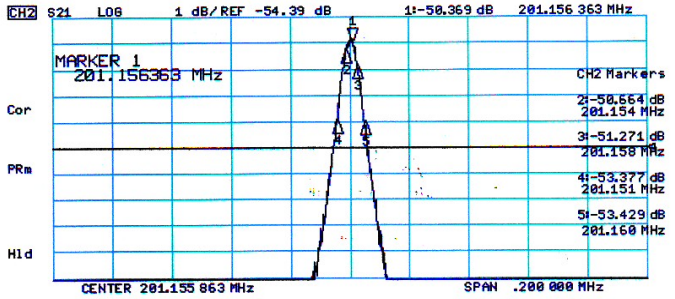


MERRIMAC

PDN-20-805/67505

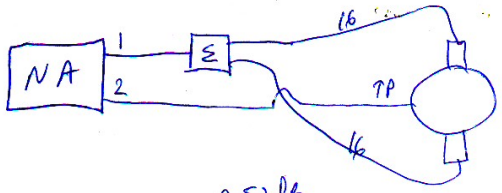
Lab 6 Copper

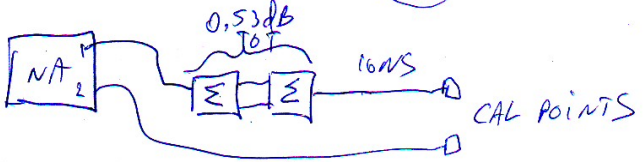




#1 TEST POINT ON PORT 31 SIDE

CALIBRATED WITH BACK TO BACK SPLITTERS
There is an extra 0.26dB in CAL



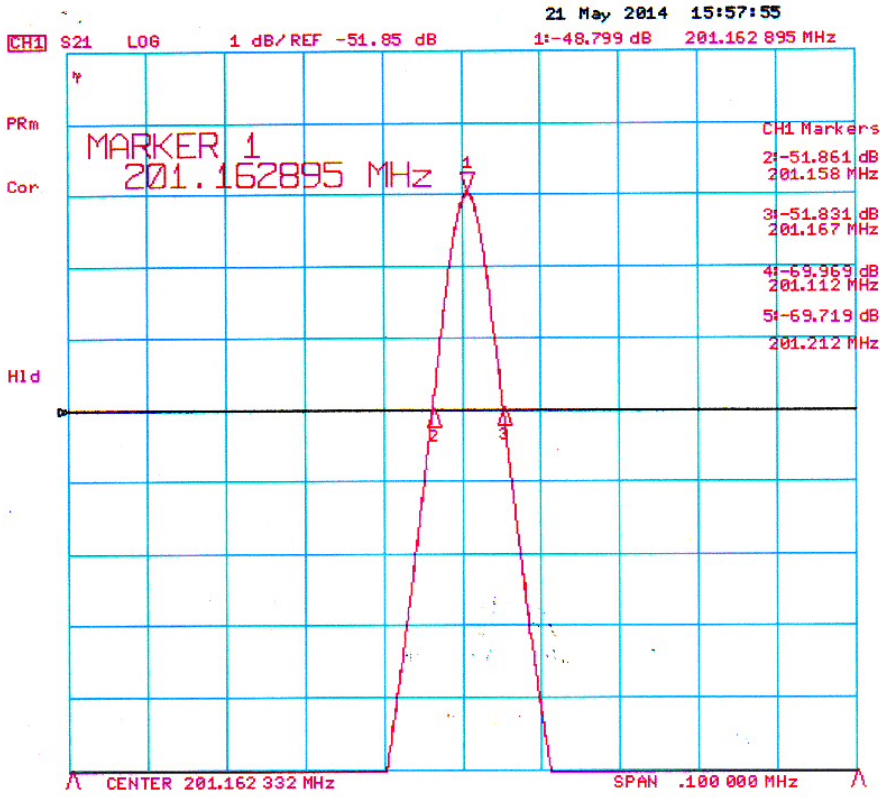


$Q_L = 22{,}350$

NOTE: 0.26dB ~~and~~ CAL ERROR ON S_{11}
CAUSES VALUES OUTSIDE SMITH CHART

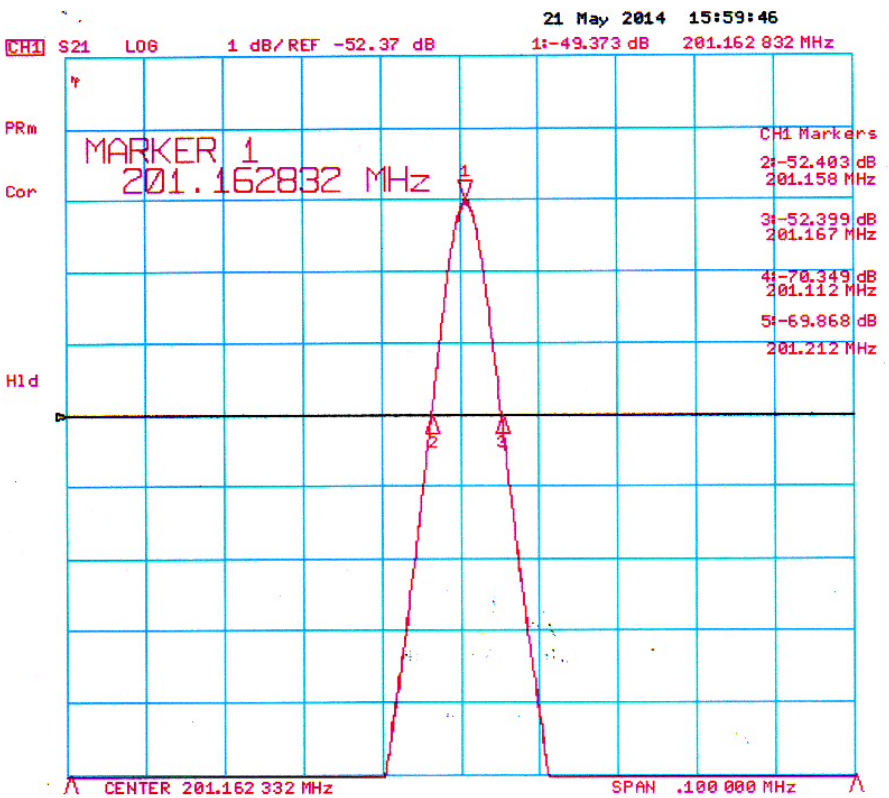
Lab 6 Copper

test point 1



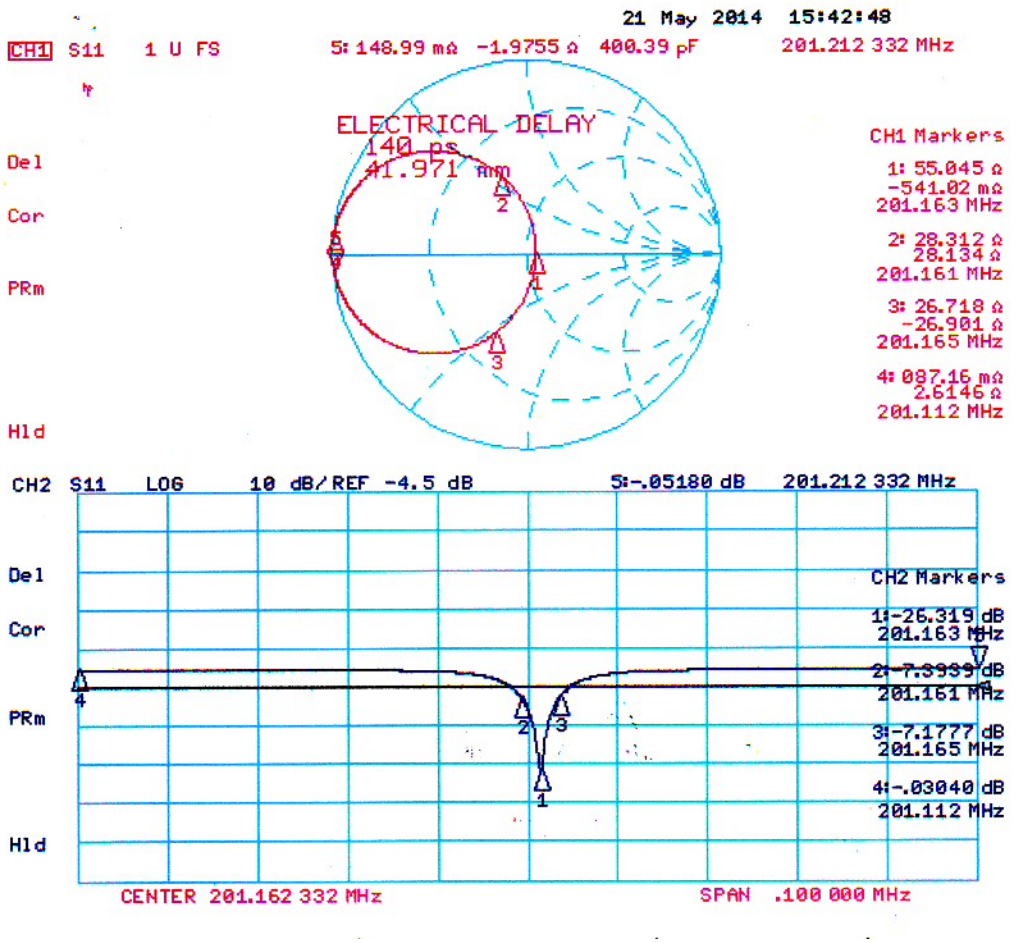
coupling= -49 dB

test point 2



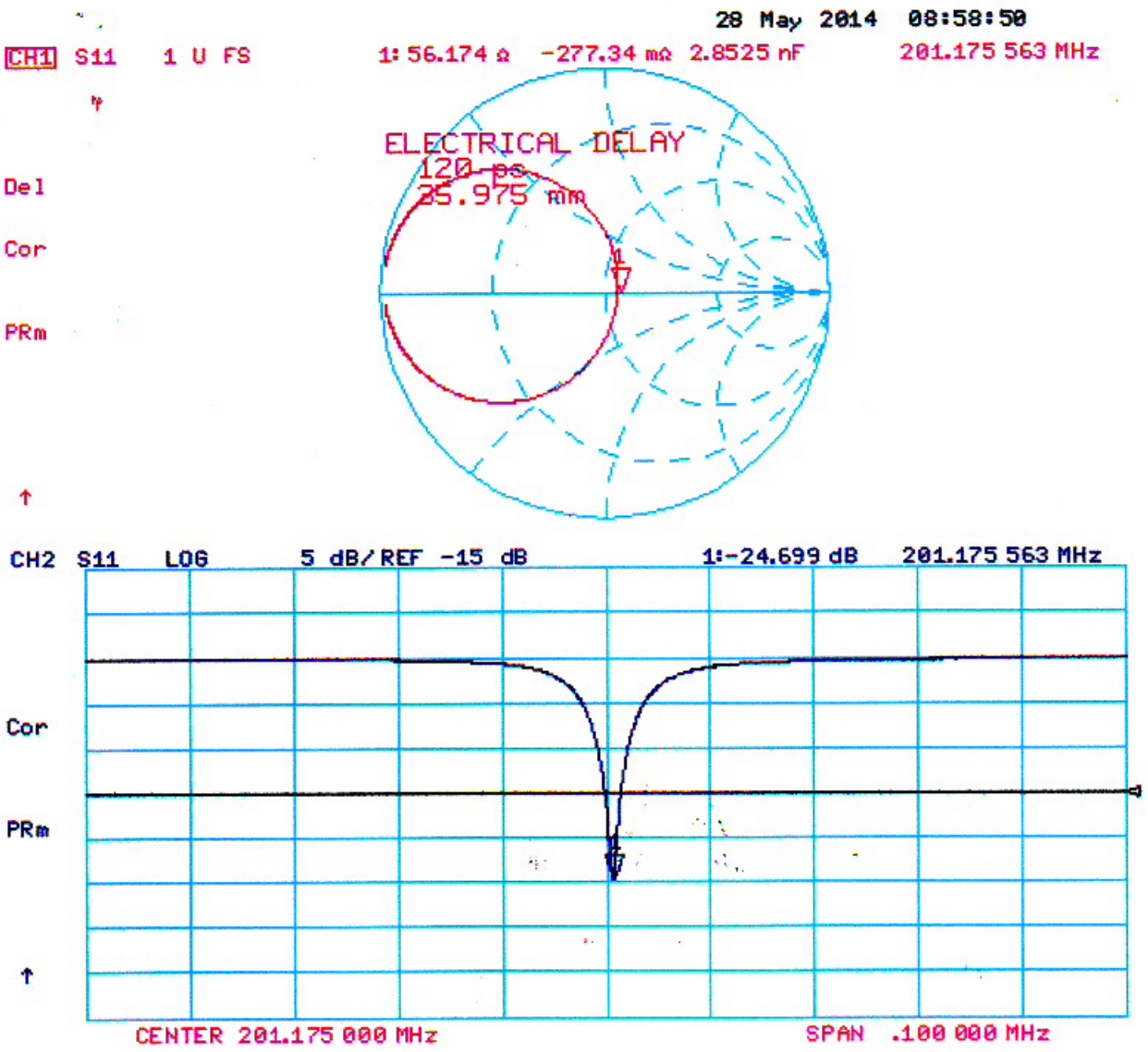
coupling= -49.6 dB

MTA Copper

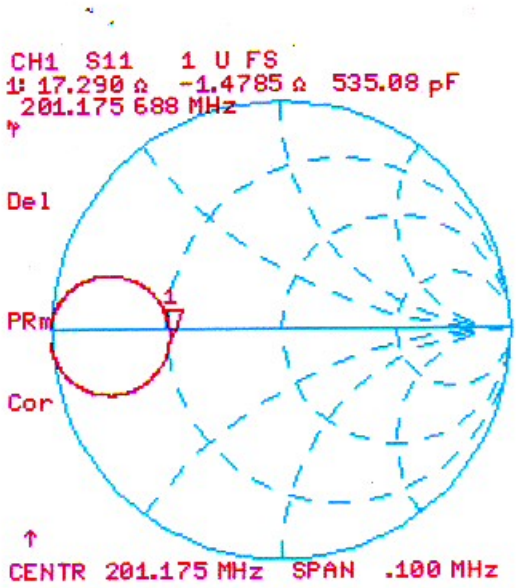


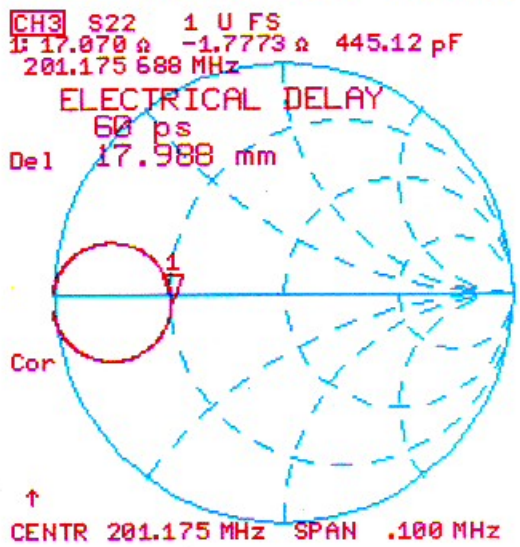
Qo =50,290, fo=201.163 MHz

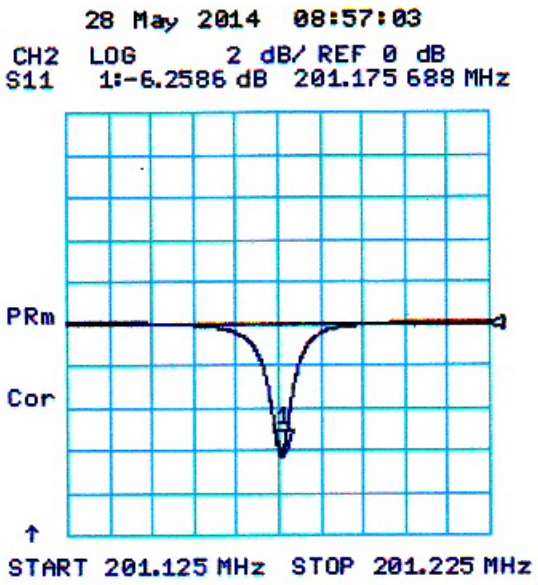
MTA Copper Fourth Tweak

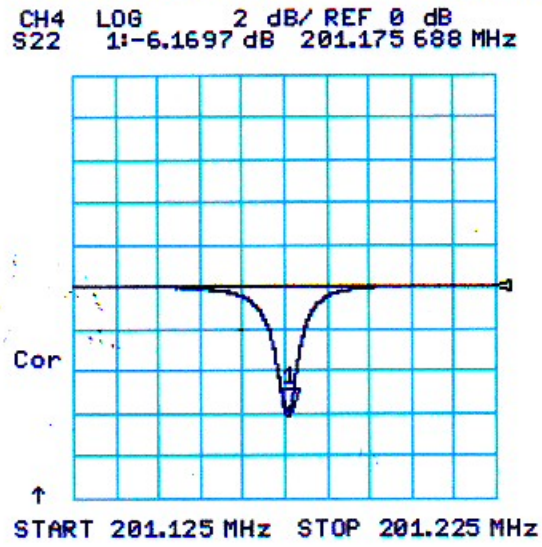


MTA Copper Fourth Tweak

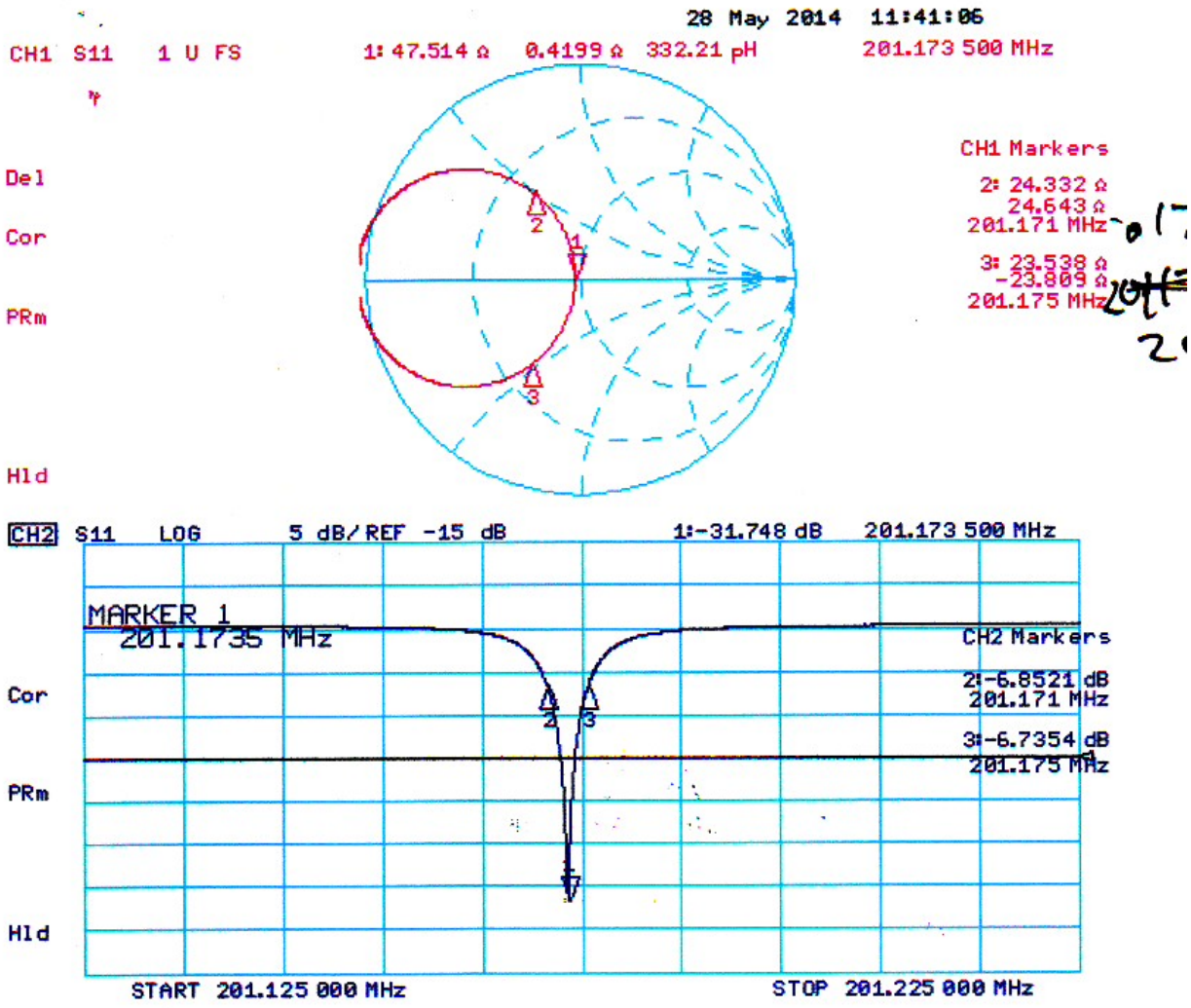








MTA Copper New Vacuum Gasket



Qo =50,290, fo=201.173 MHz

MTA Copper New Vacuum Gasket