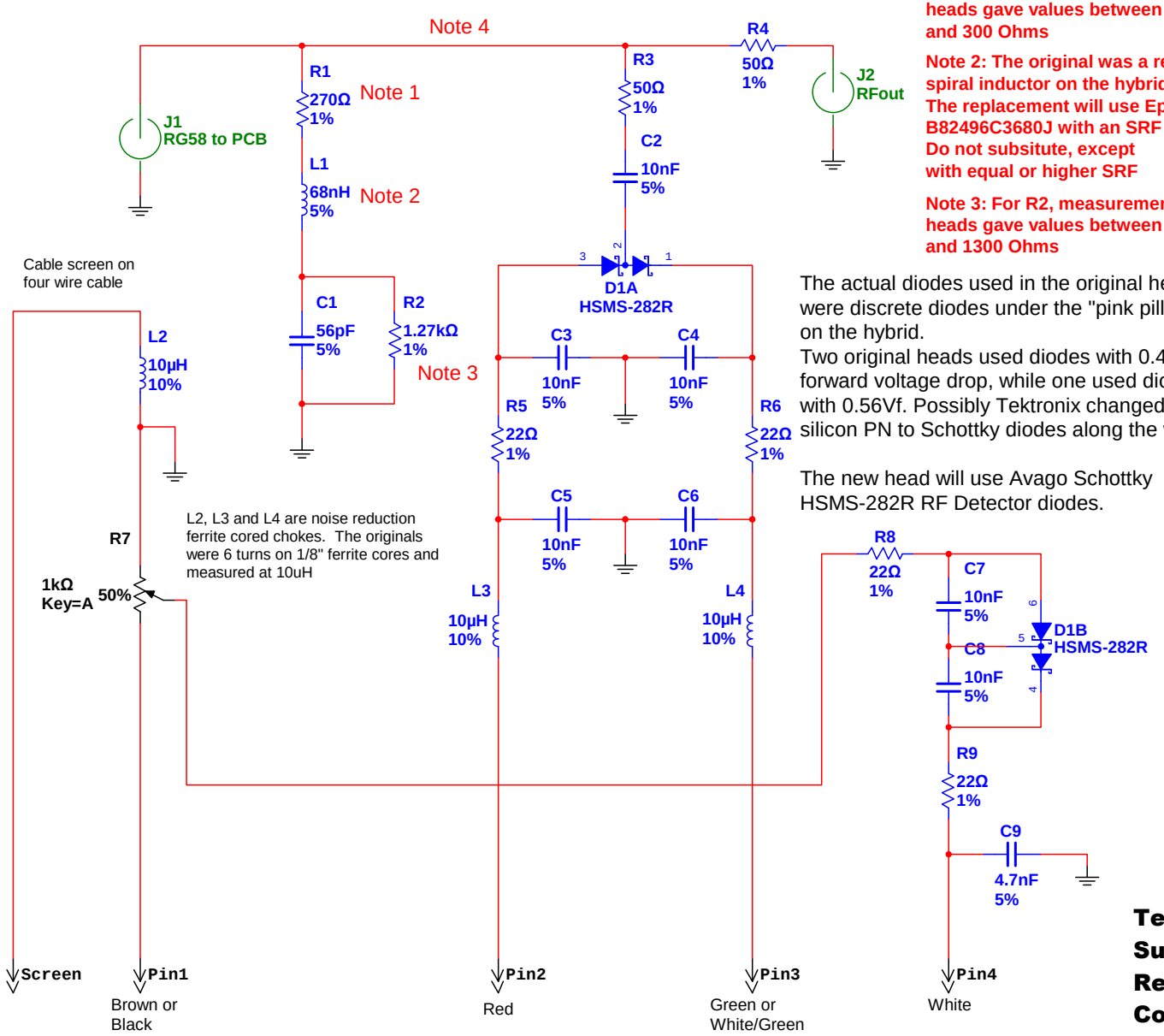

Note 1: For R1, measurements on 3 heads gave values between 240 and 300 Ohms

Note 2: The original was a rectangular spiral inductor on the hybrid of about 65nH. The replacement will use Epcos part number B82496C3680J with an SRF of 2700MHz Do not subsitute, except with equal or higher SRF

Note 3: For R2, measurements on 3 heads gave values between 1240 and 1300 Ohms

The actual diodes used in the original head were discrete diodes under the "pink pill" on the hybrid.
Two original heads used diodes with 0.41V forward voltage drop, while one used diodes with 0.56Vf. Possibly Tektronix changed from silicon PN to Schottky diodes along the way.

The new head will use Avago Schottky HSMS-282R RF Detector diodes.

Note 4: Connection between R1 and R3,R4 was microstrip line on the 40 mil thick alumina hybrid:
W=10 mils, P=45 mils (84 ohms)
90 degree bend W1=10 mils, W2=7.5 mils
W=7.5 mils, P=200 mils (91 ohms)
Step W1=5 mils, W2=70 mils
W=20 mils, P=70 mils (68 ohms)
90 degree bend W1=20 mils, W2=10 mils
W=10 mils, P=30 mils (84 ohms)

On 0.8mm FR4 1oz. copper the sections are (ignoring the bends):
W=20 mils, P=53 mils
W=16 mils, P=284 mils
W=34.5 mils, P=106 mils
W=20 mils, P=29 mils

ALL resistors are Thin Film parts with tolerance as specified or better. Actual values used for R3, R4 will be 49.9 ohms

ALL capacitors are C0G type

Tektronix 015-0282-00 Levelling Head
Substitute schematic
Revision 1.1 - 18th February 2009
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