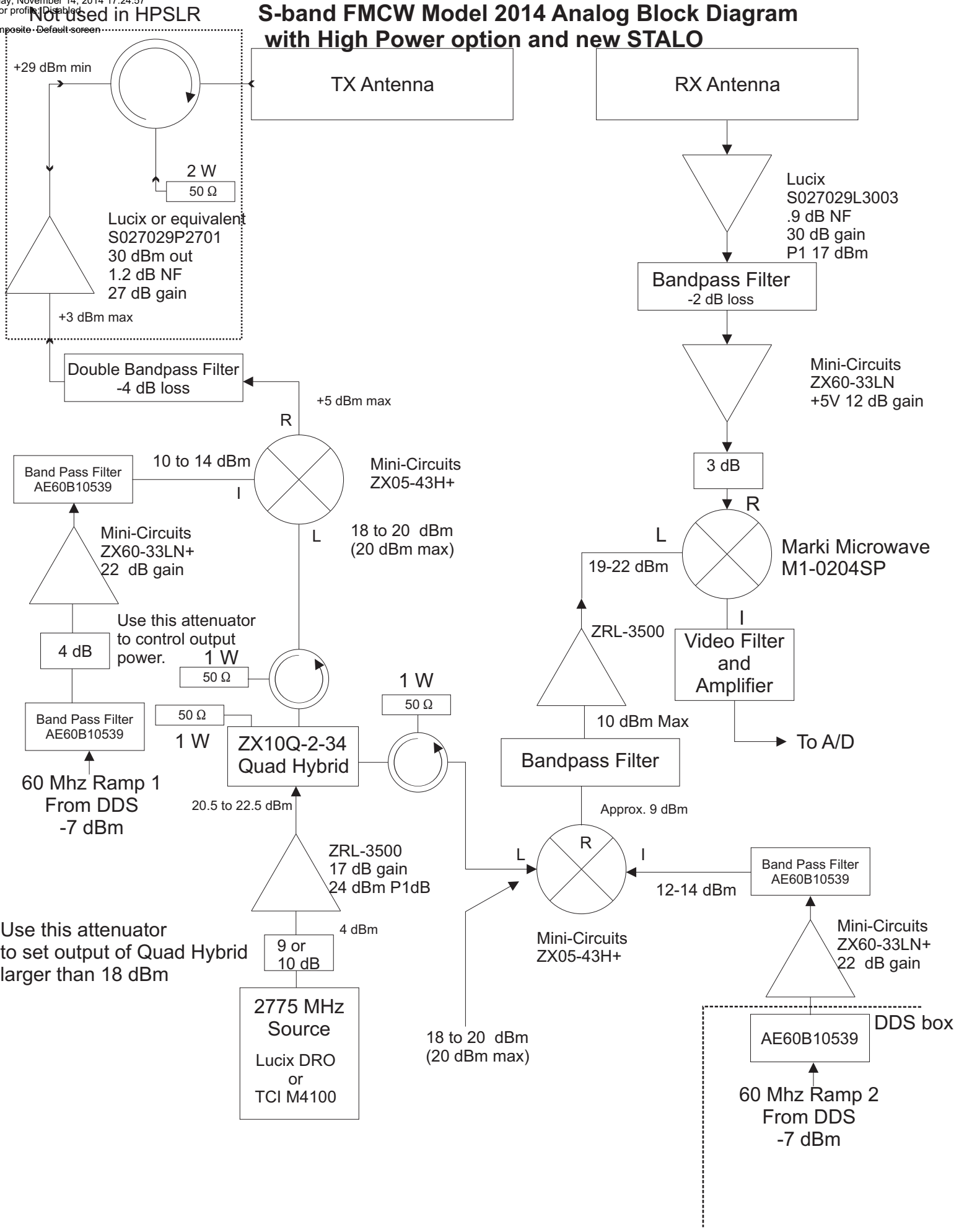
S-band FMCW Model 2014 Analog Block Diagram with High Power option and new STALO



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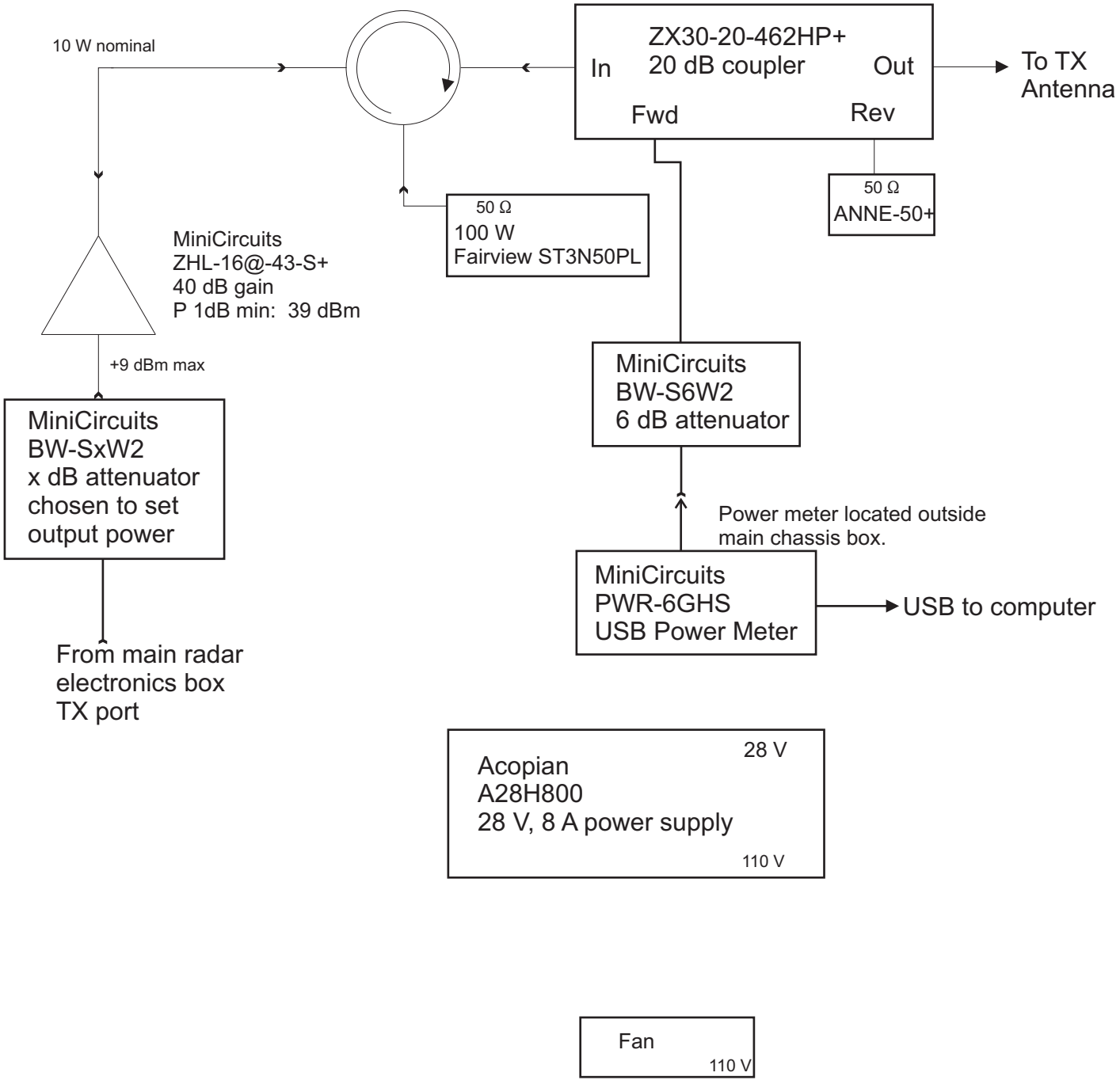
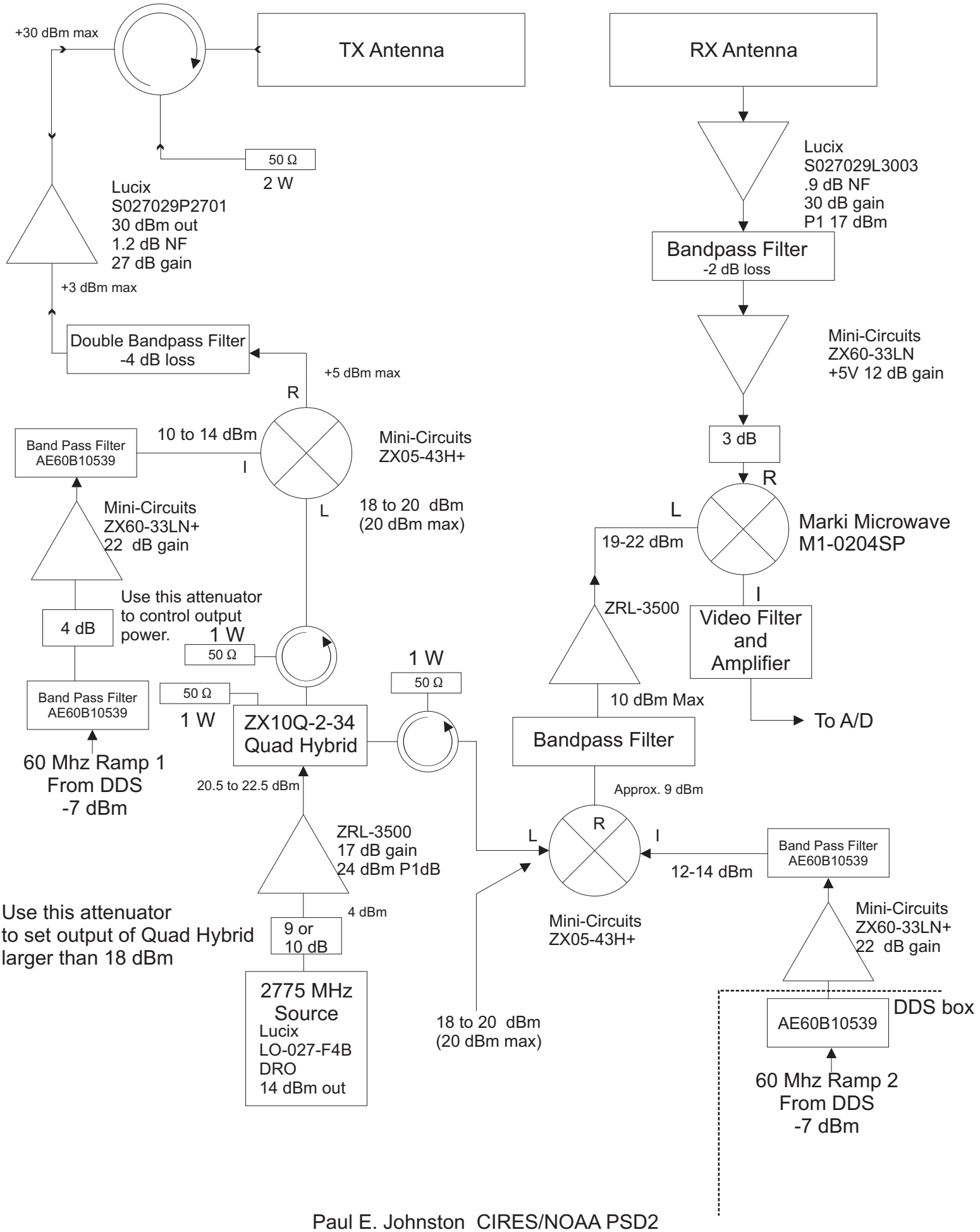
S-band FMCW High Power Amplifier Block Diagram



S-band FMCW Model 2013 Analog Block Diagram



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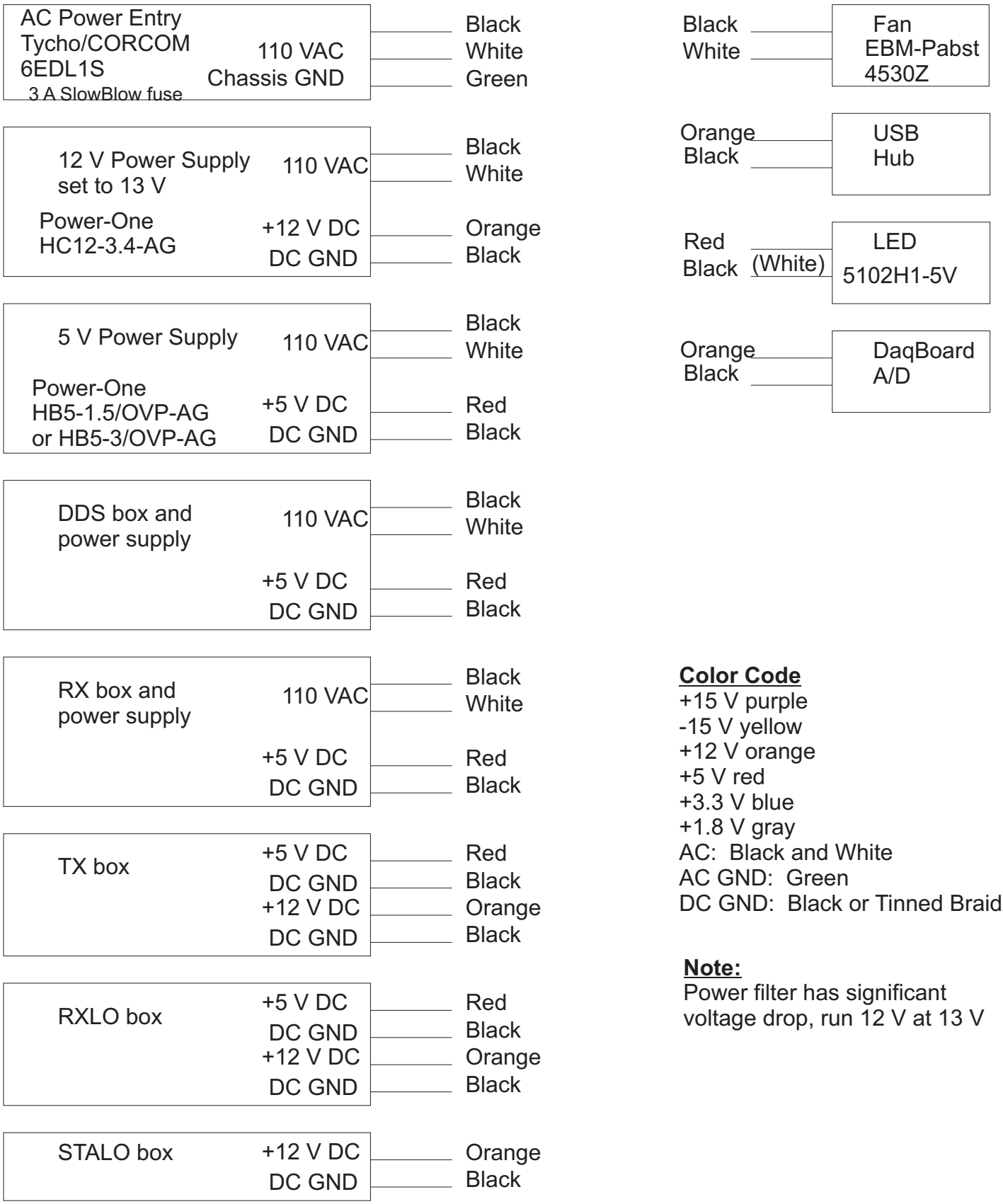
Chassis Wiring Diagram



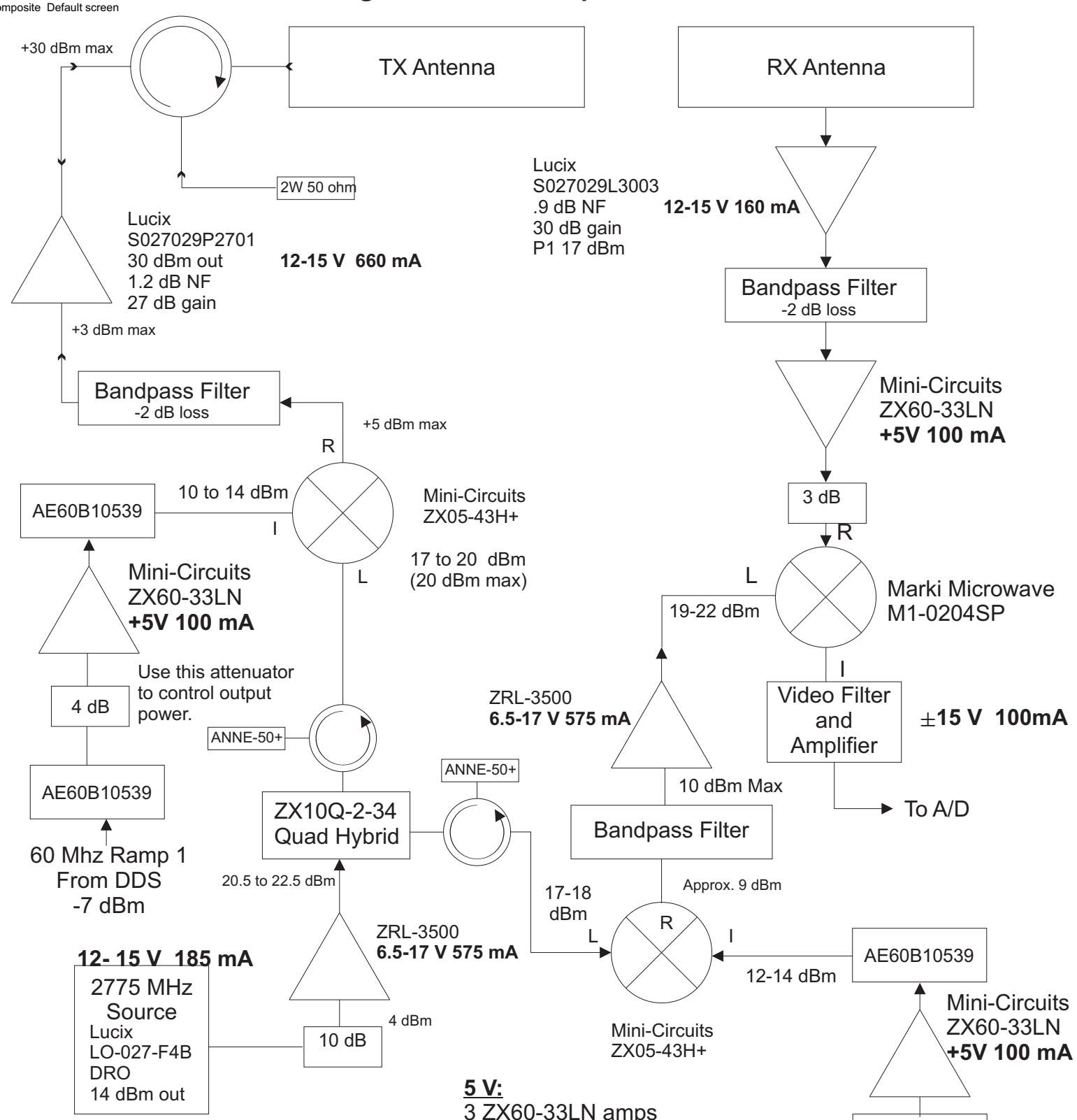
Color Code

+15 V purple
-15 V yellow
+12 V orange
+5 V red
+3.3 V blue
+1.8 V gray
AC: Black and White
AC GND: Green
DC GND: Black or Tinned Braid

Note:

Power filter has significant voltage drop, run 12 V at 13 V

Voltage and current requirements



12-15 V:

Lucix TX amp	660 mA
Lucix RX amp	160 mA
ZRL3500 STALO	575 mA
ZRL 3500 LO drive	575 mA
Lucix DRO	185 mA
USB Hub and A/D and DDS	700 mA
TOTAL:	2855 mA

5 V:

3 ZX60-33LN amps
3x100ma = 300 mA
DDS Power Board 400 mA
TOTAL: 700 mA

Other supplies:
±15 V for video filter 100 mA
15 V for DDS crystal: 400 mA

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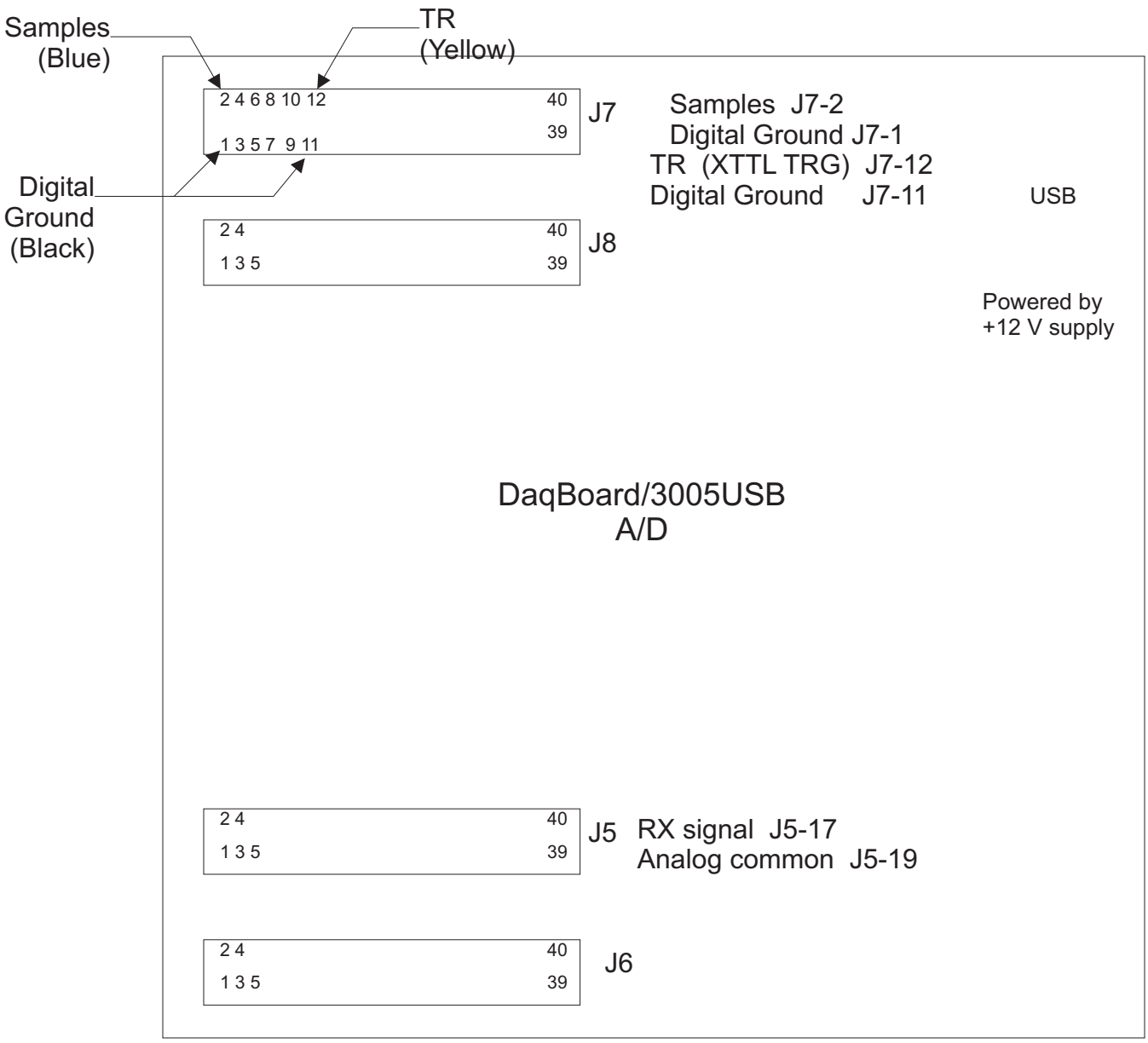
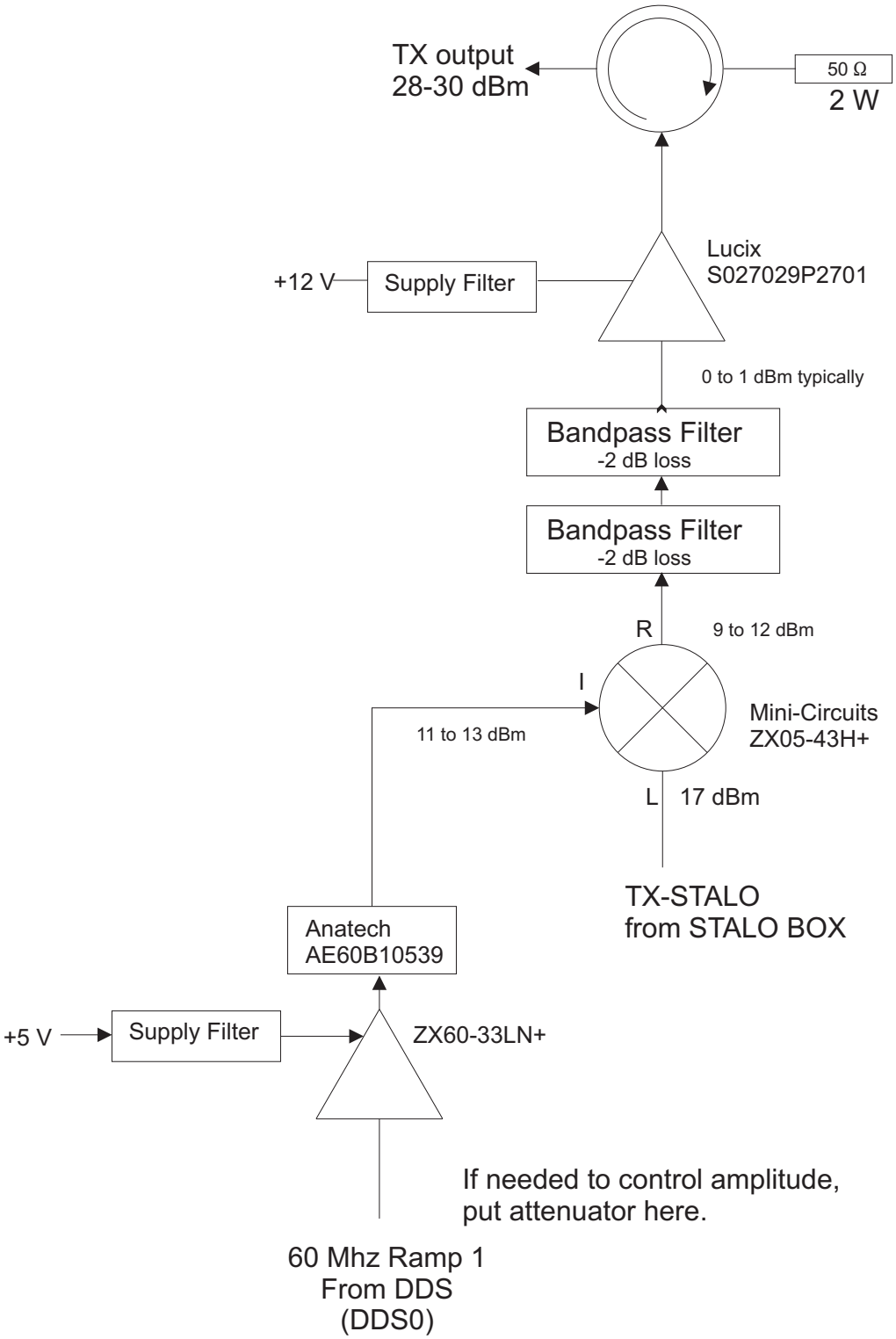
A/D board connections



Terminate Samples and TR with 470 ohms and 1Nn5711 diode at the BNC connector.

TX Box



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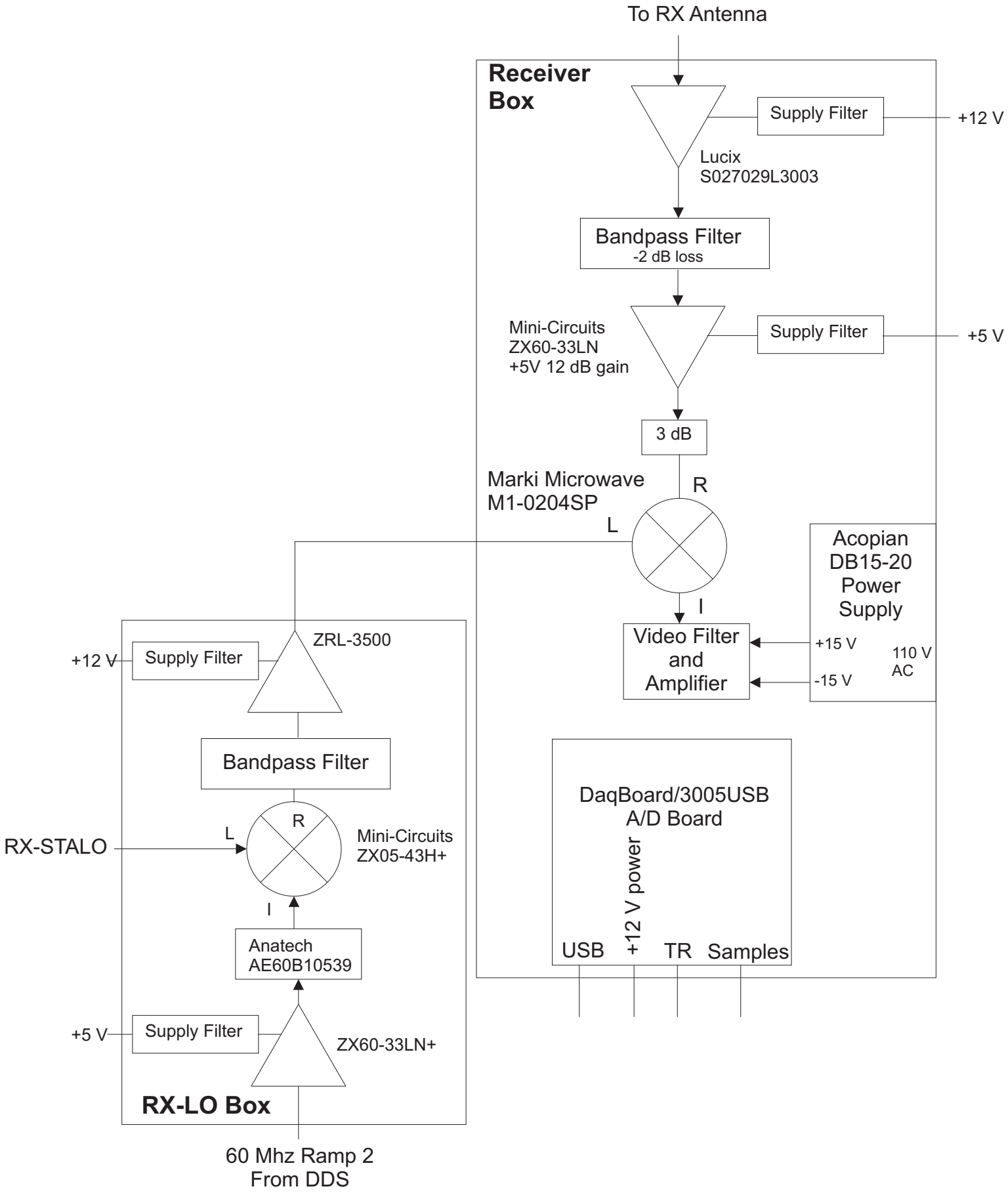
Schematic Diagram Receiver



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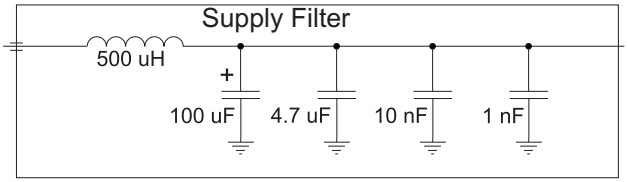
Supply Filter Schematic Diagram
Out-of-Date, June 2011



Supply Filter Parts List

Mount (lug-type terminal strip) is Keystone part 823
Mouser 534-823TS, it is also Cinch 55B, or ABBATRON/HH Smith 871

Inductor is 500uH, JW Miller 5256-RC
Digi-Key M8274-ND

100 uF cap is Nichicon UHE1H101MPD
Digi-Key 493-1605-ND

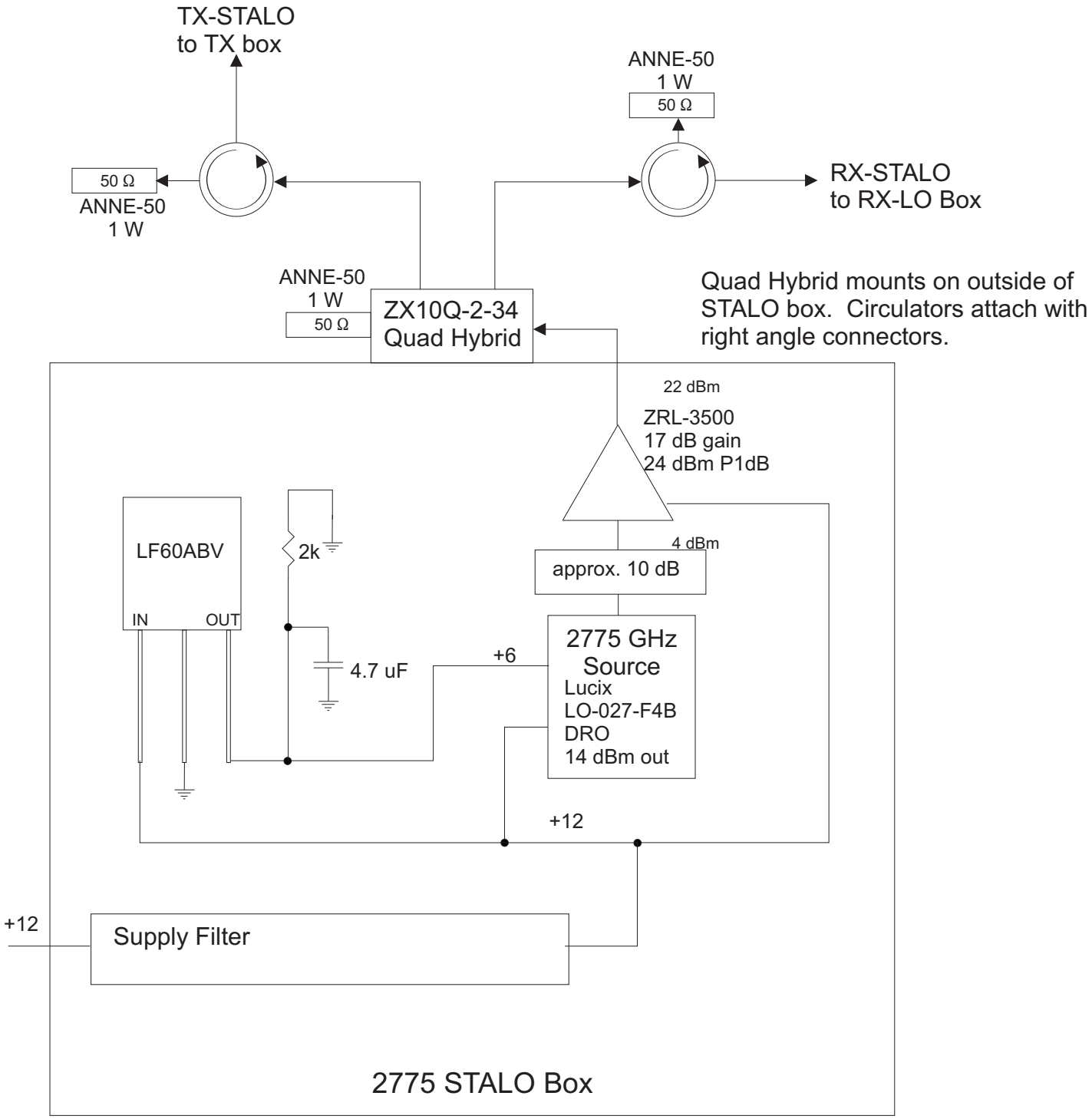
4.7 uF cap is EPCOS B32522C475J
Digi-Key 495-1131-ND

10 nF cap is Murata RPE5C1H103J2K1C03B
Digi-Key 490-3673-ND

1 nF cap is Murata RPE5C1H102J2P1A03B
Digi-Key 490-3674-ND

Supply filter used in 2009/2010 radars (CFF, STD, NER, and PFD).

2775 STALO Box
CH1 thru CHXIV



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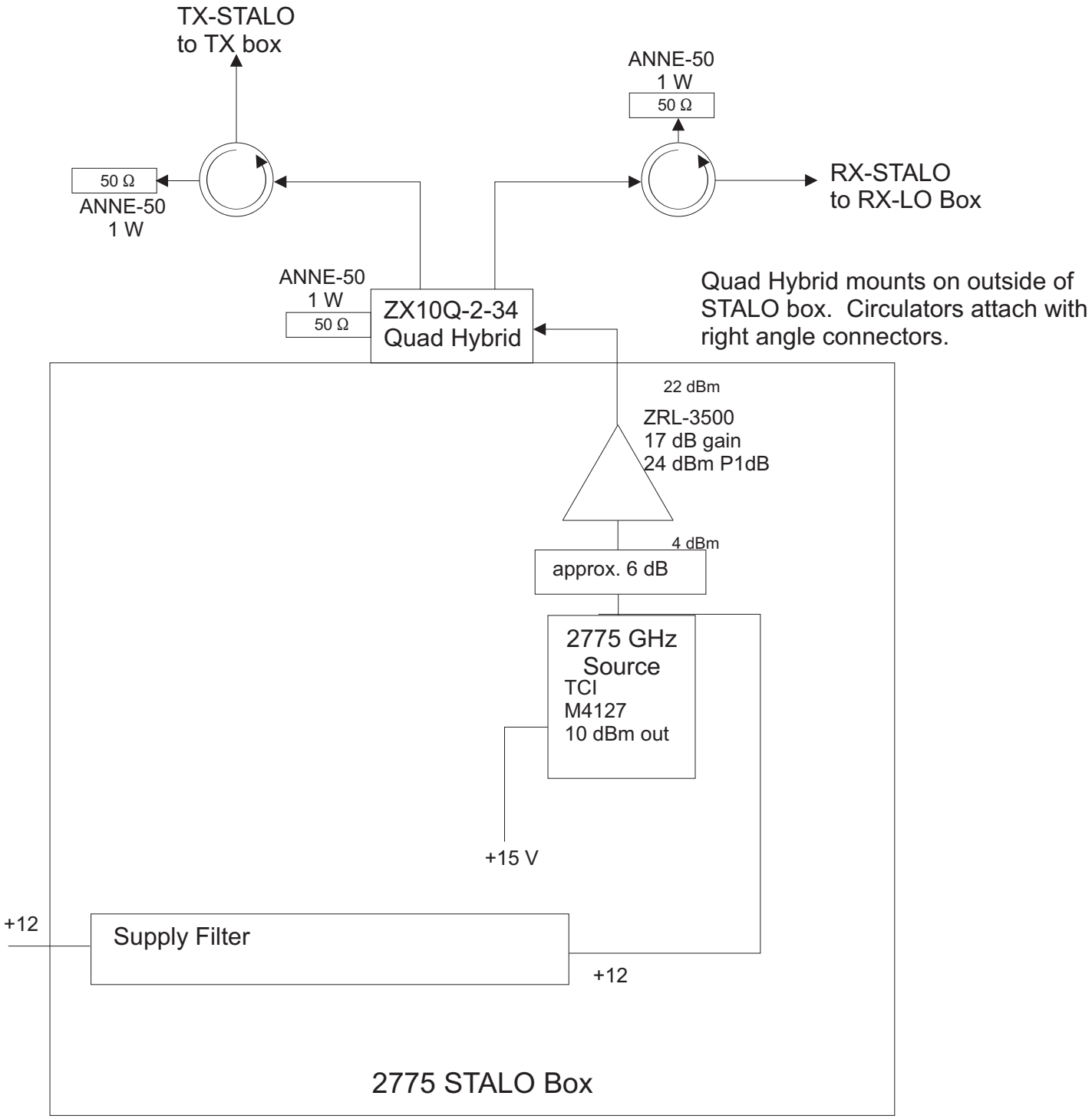
2775 STALO Box
starting CHXV



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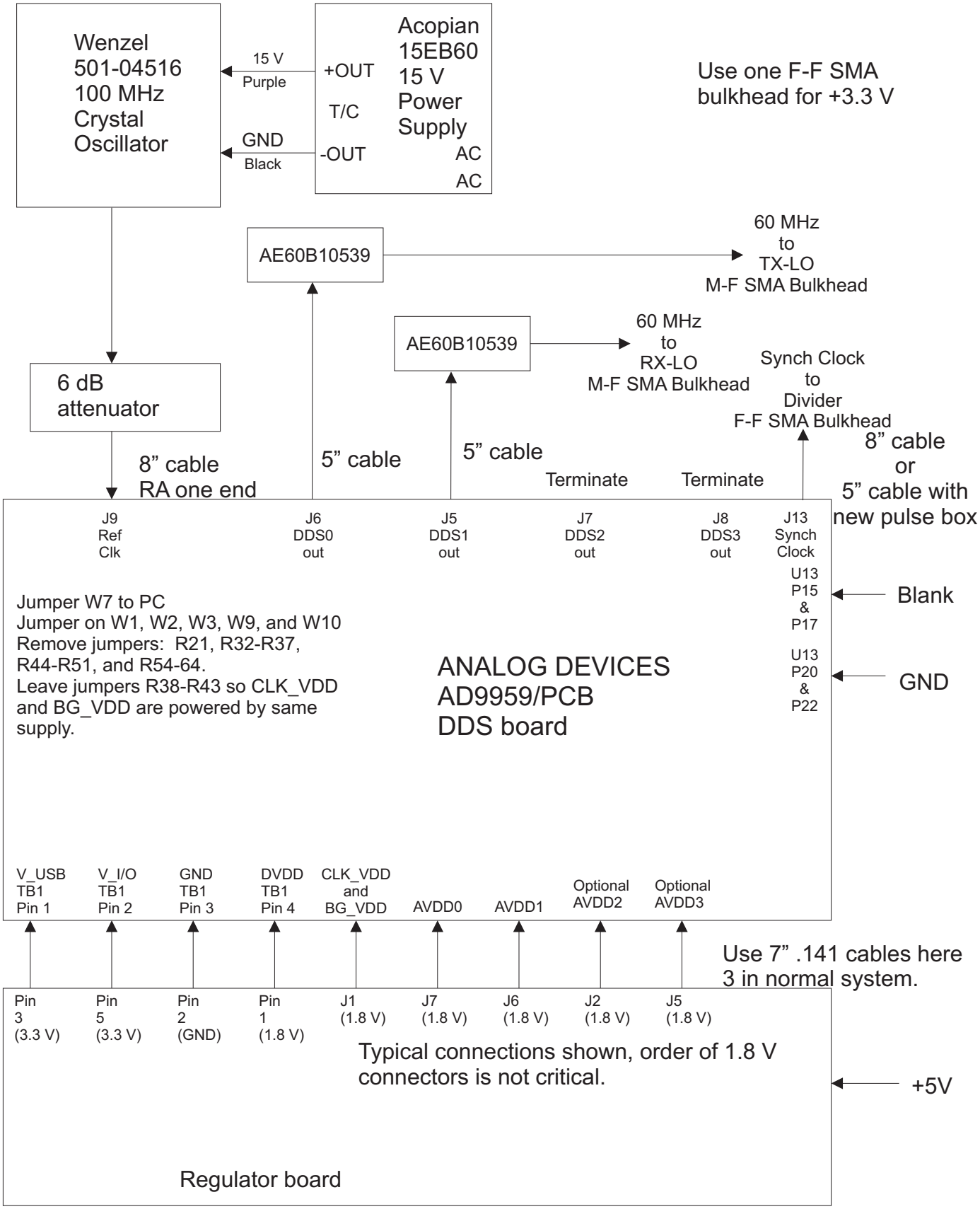
DDS Box



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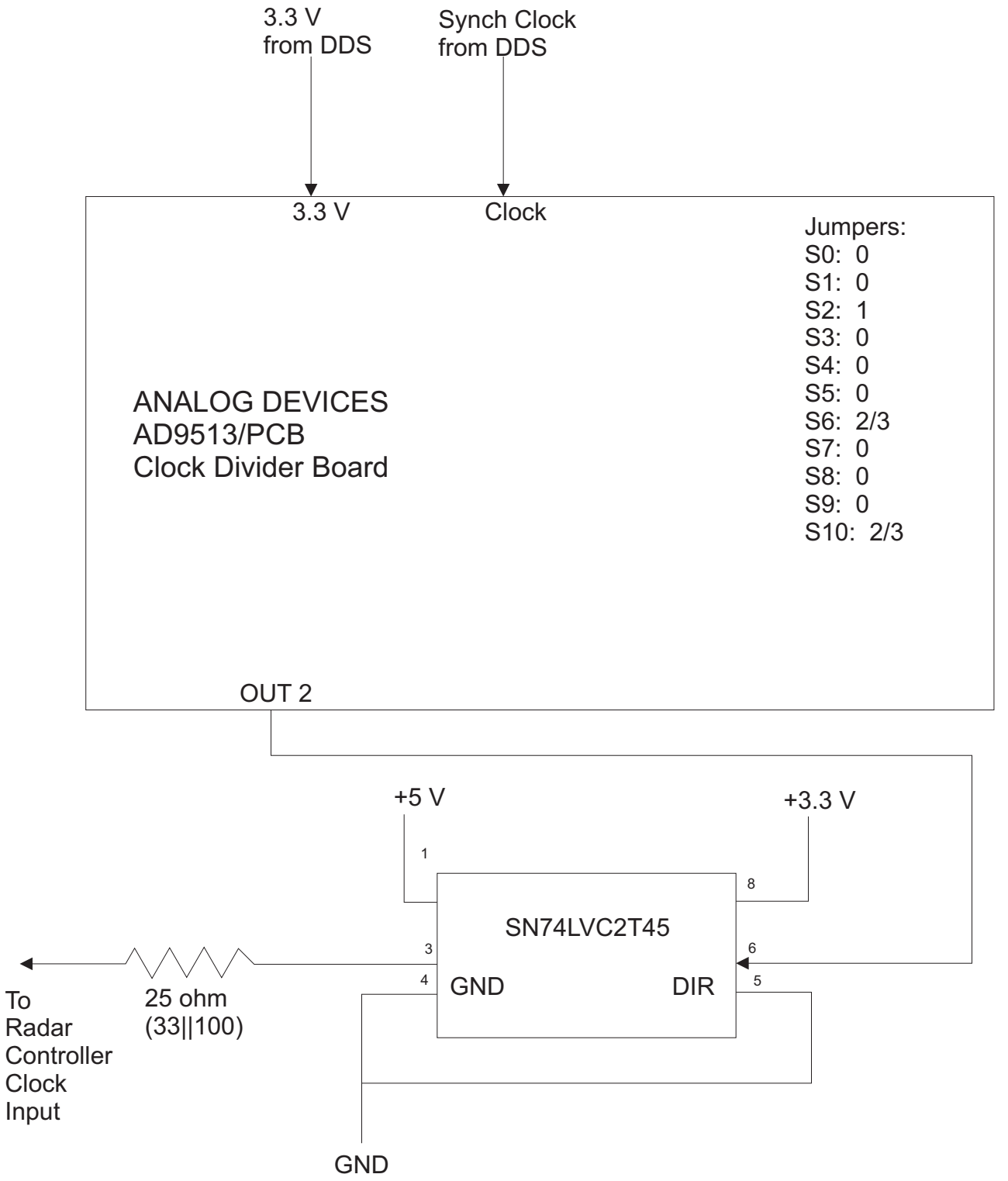
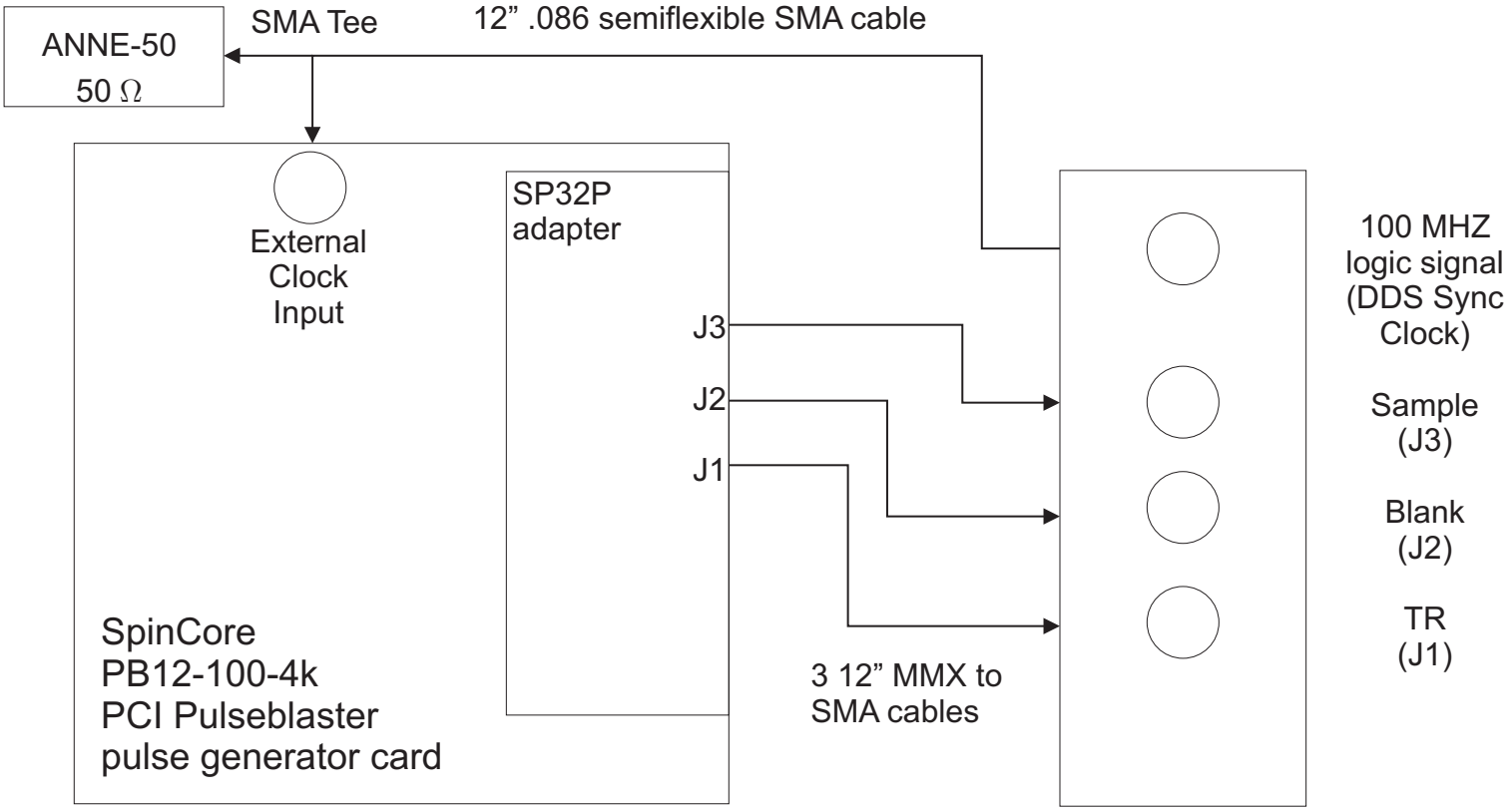
Clock Divider Box

This box not used with new radar controller



New Radar Controller



Notes

Sp32 adapter needs to be mounted with pin 1 to pin 1. The connector is smaller than the header, and it is possible to be off a pin.

Cable lengths are important, since phase of pulses and DDS clock can have a race condition if the cables are the incorrect length.

To use the external clock, the internal oscillator must be removed.

100 MHZ cable from radar to computer is 30” 0.141 hardline

Logic cables to Radar are SMA to BNC LMR-195 cables, 60” long.

Cable from Synch clock DDS output to case is 5”.

Cable from DDS case to Chassis output is 16”, with right angle connector on one end.