

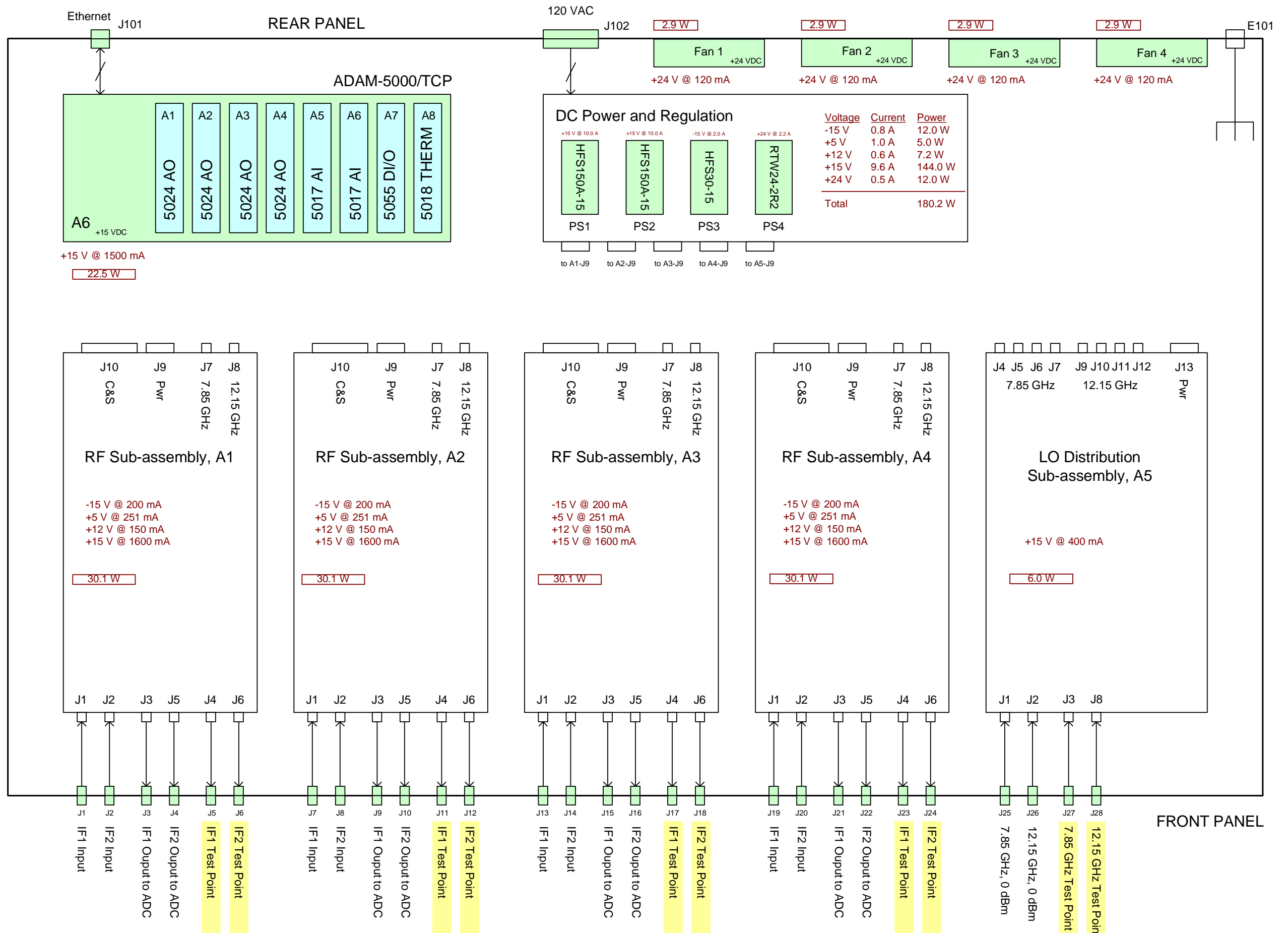
Notes:

- 1) Typical IF input, 8 - 12 GHz, -6 dBm +/- 6 dB
- 2) Typical LO input, 7.85 GHz, 12.15 GHz, both @ 0 dBm
- 3) Typical IF output, 10 MHz - 2.25 GHz, -13 dBm
- 4) Typical Test Point output, 10 MHz to 2.25 GHz, -14 dBm

These parts have been received as of 2011 Dec 5

Design History:

Original - D. Kubo 2011oct10
 Version 2 - Added DC power requirement
 Version 3 - Added A6-Ax #s, PS #s, updated notes

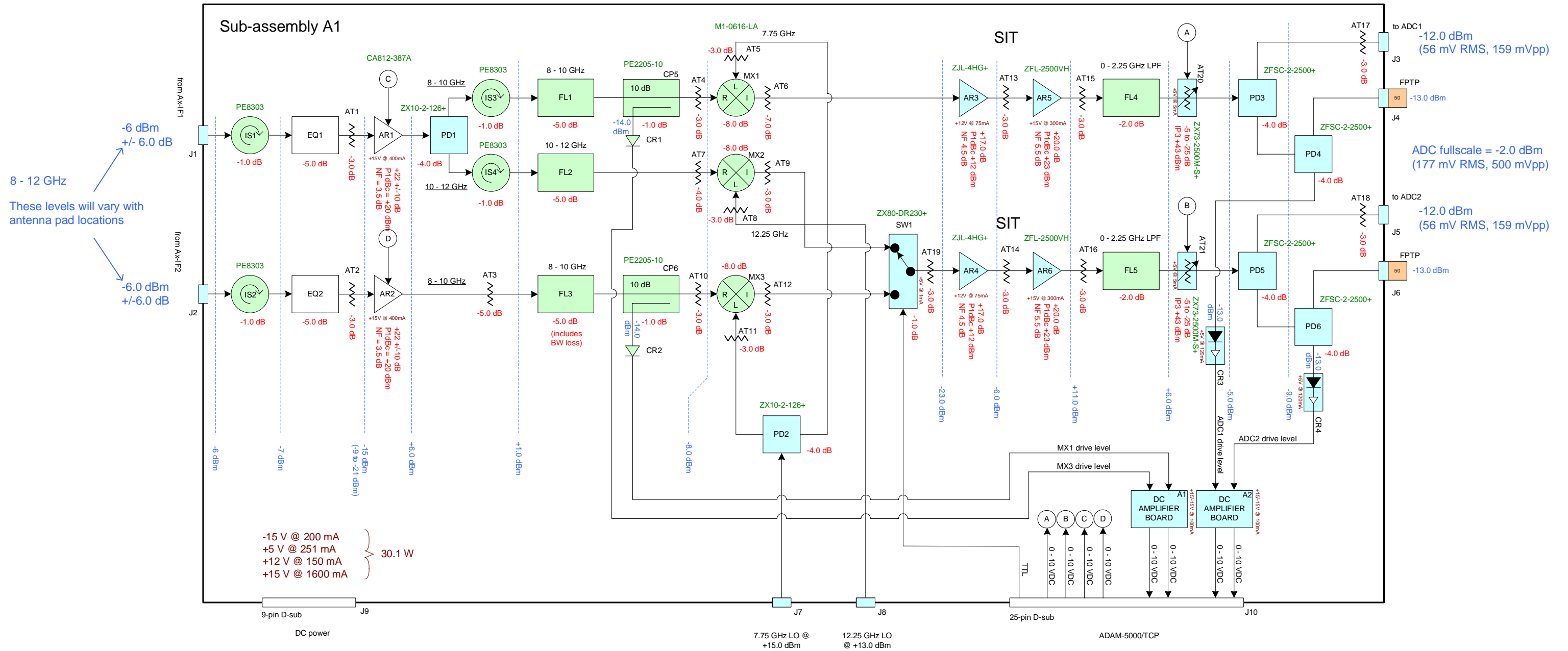


Downconverter Design Package, Chassis, V3

Assembly Number or Name	Requester	Reference Memo	BC										
Chassis Assembly	Derek Kubo												

Item	Part Number	Description	Manufacturer	Circuit Ref.	Quantity/Assy	Qty of Assy's/Dwr	Qty of Drawers	Total Quantity*	Quantity of Spares	Order Quantity	Est. Unit Cost	Est. Total Cost	Date Ordered	PO#
1	14-19225A	EMI chassis, 8.75 x 19 x 22", with handles	Par-metal	-	1	1	2	2	0	2	\$170.00	\$340.00	25-Oct-11	RC
2	ADAM-5000/TCP	ADAM-5000 base, Ethernet communication, 8-slot	Advantech	A6	1	1	2	2	1	3	\$450.00	\$1,350.00	25-Oct-11	RC
3	ADAM-5024	ADAM analog output module, 4 channels	Advantech	A6-A1-->4	4	1	2	8	2	10	\$285.00	\$2,850.00	25-Oct-11	RC
4	ADAM-5017P	ADAM analog input module, 8 channels	Advantech	A6-A5-->6	2	1	2	4	1	5	\$250.00	\$1,250.00	25-Oct-11	RC
5	ADAM-5055S	ADAM digital I/O module, 16 channels	Advantech	A6-A7	1	1	2	2	1	3	\$120.00	\$360.00	25-Oct-11	RC
6	ADAM-5018P	ADAM thermcouple input module, 7 channels	Advantech	A6-A8	1	1	2	2	1	3	\$220.00	\$660.00	25-Oct-11	RC
7	689-4318	EMI line filter, switch, fuse	Qualtek / Allied	J102	1	1	2	2	1	3	\$22.00	\$66.00	2-Nov-11	DK
8	ECF504-SC5E	Panel feed-through, CAT5E, RJ-45, shielded	L-com	J101	1	1	2	2	1	3	\$11.00	\$33.00	STOCK	-
9		CAT5E cable, RJ-45, 2 feet, straight to right angle	Video Products	-	1	1	2	2	1	3	\$3.00	\$9.00	STOCK	-
10	965-0346	Fan, 92mm, 24VDC	Globe Motors / Allied	FN1-4	4	1	2	8	2	10	\$20.00	\$200.00	2-Nov-11	DK
11	592-2122	Mesh guard, 92mm	Orion / Allied	-	4	1	2	8	2	10	\$4.00	\$40.00	2-Nov-11	DK
12	A6-2	Thermocouple, washer ID 3/16", type J	Nanmac	-	7	1	2	14	2	16	\$16.00	\$256.00		
13	RTW24-2R2	Power supply, +24V @ 2.2A	TDK/Lambda / Newark	PS1, PS2	1	1	2	2	1	3	\$110.00	\$330.00	3-Nov-11	DK
14	HFS150A-15	Power supply, +15V @ 10A	Daitron	PS3	2	1	2	4	1	5	\$300.00	\$1,500.00	4-Nov-11	DK
15	HFS30-15	Power supply, +15V @ 2A	Daitron	PS4	1	1	2	2	1	3	\$195.00	\$585.00	4-Nov-11	DK
16	SF-SF50+	Panel feed-through, SMA connector, f/f	Minicircuits	J1-->28	28	1	2	56	10	66	\$4.95	\$326.70	17-Nov-11	RC
17		Semi-rigid coax, 0.086, tin plated, SMA(m), SMA(m)	RF Coax	W										
18														
19														
20														
21														
22														
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24														
25														
26														
27														
28														
29														
30														
31														
												\$10,155.70		

* Quantity for 8 Downconverter sub-assemblies, supports 8 antennas, dual polarization



All power levels in dBm are shown for "sky" condition.

Design History:

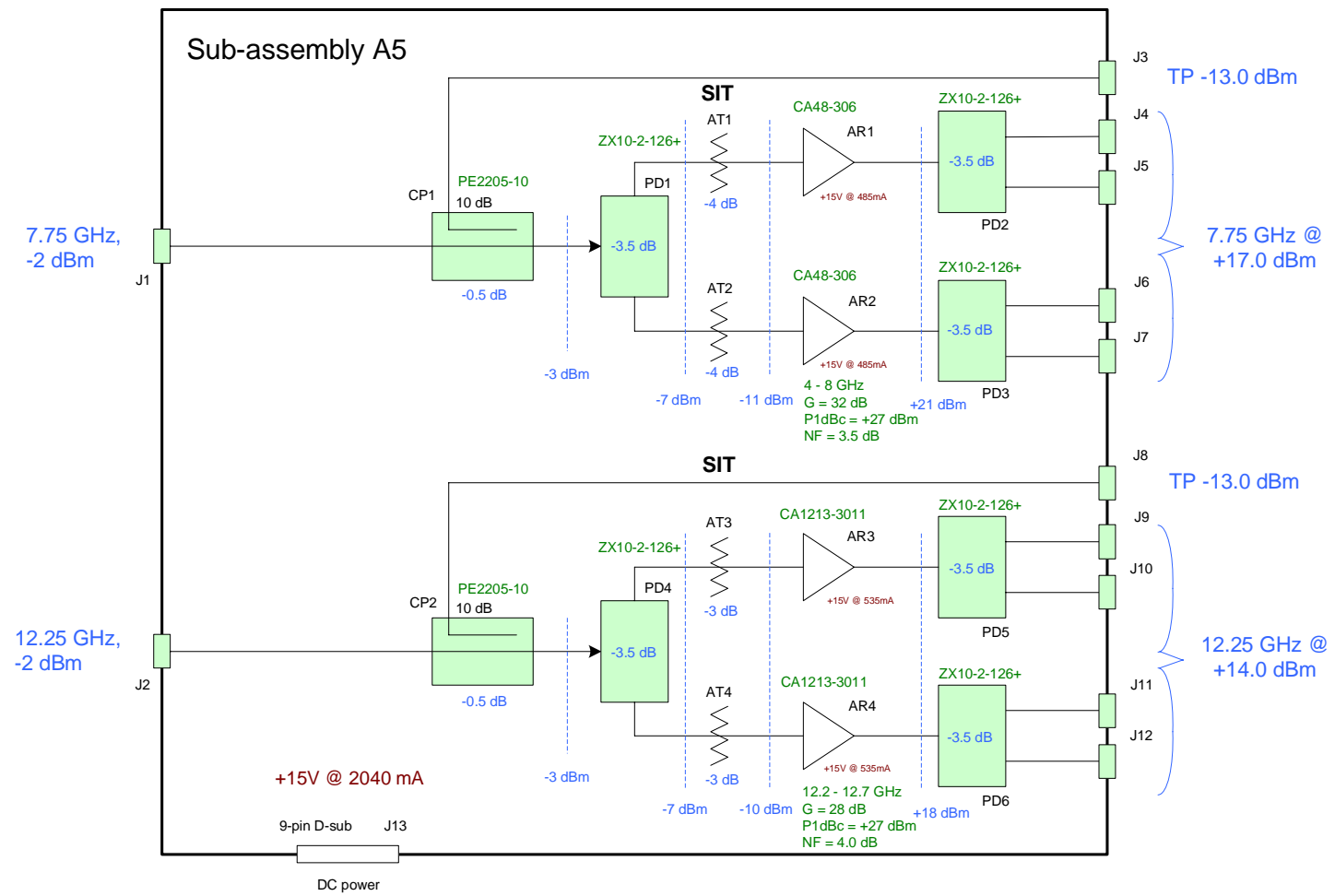
- Original - "Aug10_8-12dCV.pdf", J. Test, 2011Aug10
- Version 1 - Added 2 more switches in 8 to 12 GHz paths, 2011sep2
- Version 2 - Removed 2 high freq switches
- Version 3 - Minimization, R. Chilson, 2011sep7
- Version 4 - Addition of VGA for AR1, AR2, 2011sep26
- Version 5 - Incorporation of E. Tong's suggestions, 2011oct10
- Version 6 - Lowered input power level, changed AR3, AR4
- Version 7 - Added DC power consumptions, 2011oct31
- Version 8 - Rearranged baseband component order, 2011dec5

These parts are on order as of 2011 Dec 5

These parts are on order as of 2011 Dec 12

Item	Part Number	Description	Manufacturer	Circuit Ref.	Quantity/Assy	Qty of Assy's/Dwr	Qty of Drawers	Total Quantity*	Quantity of Spares	Order Quantity	Est. Unit Cost	Est. Total Cost	Date Ordered	PO#
	RF Sub-Assembly	Derek Kubo												
1	PE8303	Isolator, SMA female, 7 - 12.4 GHz, 20 dB iso, 1.25:1, 0.6 dB loss	Pasternack	IS1 - IS4	4	4	2	32	4	36	\$196.83	\$7,085.88	9-Dec-11	RC
2		Slope equalizer, custom, 8 - 12 GHz, 6 dB slope	Aeroflex	EQ1, EQ2	2	4	2	16	2	18	\$500.00	\$9,000.00		
3	CA812-387A	Amplifier, variable gain, 8 - 12 GHz, +10 to +30 dB gain, +20 dBm P1dBc, NF = 3.5 dB	Ciao	AR1, AR2	2	4	2	16	2	18	\$850.00	\$15,300.00		
4	ZX10-2-126-S+	Power divider, 2-way, 7.4 - 12.6 GHz	Minicircuits	PD1, PD2	2	4	2	16	16	32	\$39.95	\$1,278.40	18-Nov-11	RC
5	11ED10-9125/U2250-O/O	Bandpass filter, 8.00 - 10.25 GHz	K&L	FL1, FL3	2	4	2	16	2	18	\$450.00	\$8,100.00	9-Dec-11	DK
6	13ED10-10875/U2250-O/O	Bandpass filter, 9.75 - 12.00 GHz	K&L	FL2	1	4	2	10	2	12	\$515.00	\$6,180.00	9-Dec-11	DK
7	PE2205-10	Directional coupler, 10 dB, 7.0 - 12.4 GHz	Pasternack	CP5, CP6	2	4	2	16	7	23	\$345.00	\$7,935.00	9-Dec-11	RC
8	M1-0616LA	Mixer, LO/RF 6.0 to 16 GHz, IF DC - 4.0 GHz	Marki Microwave	MX1 - MX3	3	4	2	24	3	27	\$187.00	\$5,049.00	16-Dec-11	DK
9	ACSP-2544NZC3-RC	Power detector, zero bias Schottky, 0.01 - 18 GHz	Pasternack	CR1, CR2	2	4	2	16	3	19	\$235.00	\$4,465.00	9-Dec-11	RC
10	ZX47-50LN+	Power detector, active, 10 - 8000 MHz, -50 to +15 dBm, 0.5 to 2.0V output	Minicircuits	CR3, CR4	2	4	2	16	2	18	\$89.95	\$1,619.10	18-Nov-11	RC
11	ZX80-DR230-S+	SPDT switch, DC - 3 GHz, 50 dB isolation 2 GHz, TTL control	Minicircuits	SW1	1	4	2	8	1	9	\$59.95	\$539.55	18-Nov-11	RC
12	ZFL-2500VHX	Amplifier, 20 dB gain, 10 - 2500 MHz, +23 dBm P1dBc	Minicircuits	AR5, AR6	2	4	2	16	4	20	\$254.95	\$5,099.00	18-Nov-11	RC
13	7IL40-2193/T5000-O/O	Lowpass filter, -3 dB at 2.25 GHz	K&L	FL4, FL5	2	4	2	16	6	22	\$250.00	\$5,500.00	9-Dec-11	DK
14	ZX73-2500M-S+	Attenuator, variable, SMA male/female, 10 - 2500 MHz, 5 to 25 dB	Minicircuits	AT20, AT21	2	4	2	16	2	18	\$49.95	\$899.10	18-Nov-11	RC
15	ZFSC-2-2500+	Power divider, 2-way, 10 - 2500 MHz	Minicircuits	PD3 - 6	4	4	2	32	4	36	\$74.95	\$2,698.20	18-Nov-11	RC
16	NA	DC amplifier board, 3 channels	ASIAA	A1, A2	2	4	2	16	2	18	\$0.00	\$0.00	2-Dec-11	JH
17	SF-SF50+	Connector, bulkhead, SMA(f)/SMA(f), D-hole, DC - 18 GHz	Minicircuits	J1 - J8	8	4	2	64	34	98	\$4.95	\$485.10	18-Nov-11	RC
18		Connector, 9-pin D, subminiature, solder		J9	1	4	2	8	4	12		\$0.00		
19		Connector, 25-pin D, subminiature, solder		J10	1	4	2	8	4	12		\$0.00		
20	18AH-0	Attenuator, 0 dB, DC - 18 GHz, m/f	Aeroflex	-	0	4	2	0	4	4	\$31.00	\$124.00		
21	18AH-1	Attenuator, 1 dB, DC - 18 GHz, m/f	Aeroflex	-	0	4	2	0	4	4	\$31.00	\$124.00		
22	18AH-2	Attenuator, 2 dB, DC - 18 GHz, m/f	Aeroflex	-	0	4	2	0	4	4	\$31.00	\$124.00		
23	18AH-3	Attenuator, 3 dB, DC - 18 GHz, m/f	Aeroflex	AT3, 5, 9, 11, 12, 15 - 19	10	4	2	80	10	90	\$28.00	\$2,520.00		
24	18AH-3M	Attenuator, 3 dB, DC - 18 GHz, m/m	Aeroflex	AT1, 2, 4, 10, 13, 14	6	4	2	48	10	58	\$40.00	\$2,320.00		
25	18AH-4M	Attenuator, 4 dB, DC - 18 GHz, m/m	Aeroflex	AT7	1	4	2	8	10	18	\$40.00	\$720.00		
26	18AH-5	Attenuator, 5 dB, DC - 18 GHz, m/f	Aeroflex	AT3	1	4	2	8	4	12	\$31.00	\$372.00		
27	18AH-6	Attenuator, 6 dB, DC - 18 GHz, m/f	Aeroflex	-	0	4	2	0	4	4	\$29.00	\$116.00		
28	18AH-7	Attenuator, 7 dB, DC - 18 GHz, m/f	Aeroflex	AT6	1	4	2	8	4	12	\$31.00	\$372.00		
29	18AH-8	Attenuator, 8 dB, DC - 18 GHz, m/f	Aeroflex	-	0	4	2	0	4	4	\$31.00	\$124.00		
30	SM-SM50+	Adapter, SMA-m to SMA-m	Minicircuits	-	20	4	2	160	4	164	\$6.00	\$984.00	18-Nov-11	RC
31	ZJL-4HG+	Amplifier, 17 dB gain, 20 - 4000 MHz, +12 dBm P1dBc	Minicircuits	AR3, AR4	2	4	2	16	4	20	\$130.00	\$2,600.00	18-Nov-11	RC
32		Semi-rigid coax, 0.86, tin plated, SMA(m), SMA(m)	RF Coax	Wx										
												\$91,733.33		

* Quantity for 8 Downconverter sub-assemblies, supports 8 antennas, dual polarization



Design History:
 V0 - Original
 V1 - Added DC power

D. Kubo
 Filename: BDC_LO_assy
 Version: 2011dec15

Downconverter Design Package, LO Subassembly, V1

Assembly Number or Name	Requester	Reference Memo	BC										
RF Sub-Assembly	Derek Kubo												

Item	Part Number	Description	Manufacturer	Circuit Ref.	Quantity/Assy	Qty of Assy's/Dwr	Qty of Drawers	Total Quantity*	Quantity of Spares	Order Quantity	Est. Unit Cost	Est. Total Cost	Date Ordered	PO#
1	ZX10-2-126-S+	Power divider, 2-way, 7.4 - 12.6 GHz	Minicircuits	PD1-PD6	6	1	2	12	0	12	\$39.95	\$479.40	18-Nov-11	RC
2	PE2205-10	Directional coupler, 10 dB, 7.0 - 12.4 GHz	Pasternack	CP1, CP2	2	1	2	4	0	4	\$345.00	\$1,380.00	9-Dec-11	RC
3	CA48-306	Amplifier, 4 - 8 GHz, 32 dB gain, P1dBc 27 dBm, NF 3.5 dB	Ciao	AR1, AR2	2	1	2	4	2	6	\$400.00	\$2,400.00		
4	CA1213-3011	Amplifier, 12.2 - 12.7 GHz, 28 dB gain, P1dBc 27 dBm, NF 4.0 dB	Ciao	AR3, AR4	2	1	2	4	2	6	\$400.00	\$2,400.00		
5	SF-SF50+	Connector, bulkhead, SMA(f)/SMA(f), D-hole, DC - 18 GHz	Minicircuits	J1 - J12	12	1	2	24	0	24	\$4.95	\$118.80	18-Nov-11	RC
6		Connector, 9-pin D, subminiature, solder		J9	1	1	2	2	0	2		\$0.00		
7	18AH-3	Attenuator, 3 dB, DC - 18 GHz, m/f	Aeroflex	AT3, AT4	2	1	2	4	0	4	\$28.00	\$112.00		
8	18AH-4	Attenuator, 4 dB, DC - 18 GHz, m/f	Aeroflex	AT1, AT2	2	1	2	4	0	4	\$40.00	\$160.00		
9	SM-SM50+	Adapter, SMA-m to SMA-m	Minicircuits	-	6	1	2	12	0	12	\$6.00	\$72.00	18-Nov-11	RC
10		Coax, semi-rigid, 0.086, tin plated, SMA(m), SMA(m)	RF Coax	Wx										
												\$7,122.20		