EVLA Receivers PDR

Transition Planning

Requirements

- All current bands available before, during, and after transition.
- Receiver performance not degraded.
- Need to test LO, M&C, & digitization/data transmission (FO) system early, on prototype.
- Compressor capacity problem—Get rid of 1020 frig.
- Need space in vertex room—Get rid of A-rack.

Transition Planning

- 1) Insure inter-operability between old FE & new FH, LOs, M&C, & IF systems.
- 2) Early assembly of wide-band K &/or Q band receivers to test out entire system.
- 3) C & U bands high priority.

T-Plan: Inter-operability

- IF converter module part of EVLA sys for < X-band.
- Minor RX mods will allow attachment to new feeds.
- M&C conversion from current bus to FO already necessary.

T-Plan: Inter-operability II

- Current L-band (1340 – 1730 MHz), (with only modified phase shifter) will bolt-on to new FH & work in EVLA antenna.
- Current X-band (8 – 8.8 GHz) will bolt on to new feed & work in EVLA antenna.
- K & Q will need new wide-band mixers to handle both the current C & the EVLA X band IFs (planned). Need new LO chain (mixer, amp) for high-side injection (planned).

Early K & Q

- EVLA “transition 7” K-band receivers include wide frequency mixers—Early prototypes.
- Allows test of LO & FO data transmission system early.
- May/may-not include all 4 channels.

“Early” C & U

- C & U band receivers needed early to avoid A-rack space complications & extra compressor capacity requirements.
- C-band has a VLBA as “prototype”.
- U-band “scaled” from current VLA K-band.
- U-band might slip if schedule problems develop (least harm).

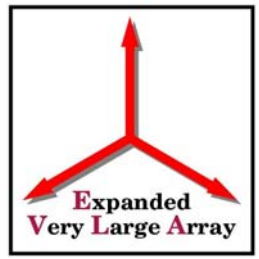
FE & Feed Delivery Schedule:Prototypes

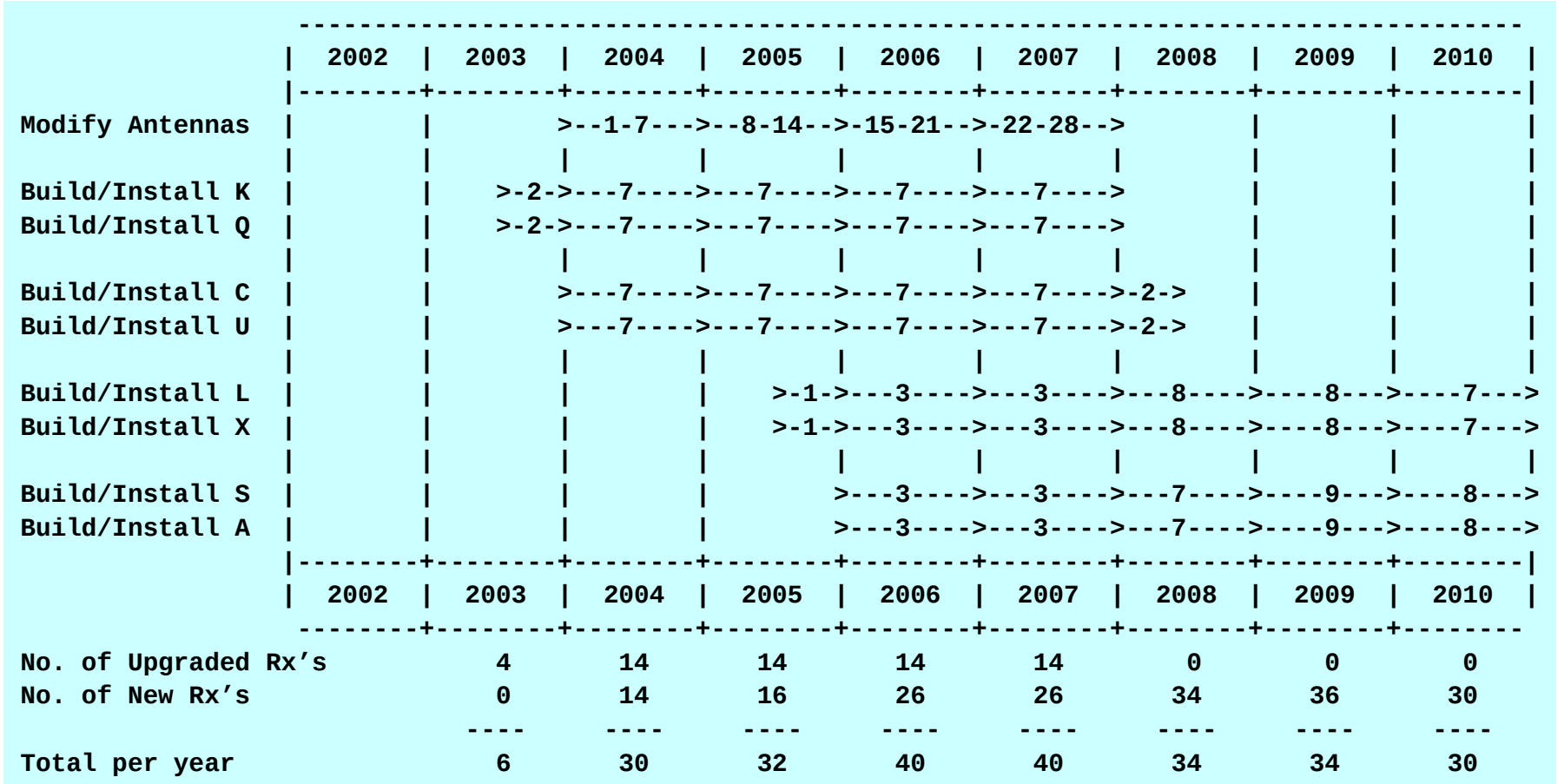
Band	Component	2002	2003	2004	2005
C-Band					
	Receiver	>------ ------->			
	Feed	>------ ------->			
	OMT	>--------->			
Ku-Band					
	Receiver	>------ ------->			
	Feed	>------ ------->			
	OMT	>--------->			
	Polarizer	>--------->			
	Transitions	>--------->			
L-Band					
	Receiver		>------ ------->		
	Feed	>----------> -->			
	OMT		>--------->		
X-Band					
	Receiver		>------ ------->		
	Feed		>------ ------->		
	OMT		>--------->		
	Polarizer		>--------->		
	Transitions		>--------->		
S-Band					
	Receiver			>------ ------->	
	Feed			>------ ------->	
	OMT			>--------->	
Ka-Band					
	Receiver			>------ ------->	
	Feed			>------ ------->	
	OMT			>--------->	
	Polarizer			>--------->	
	Transitions			>--------->	

FE & Feed Delivery Schedule:Production

Band	Component	2003	2004	2005	2006	2007	2008	2009	2010
C-Band									
	Receiver	>-2->	-------7----->	-------7----->	-------7----->	-------7----->			
	Feed	>-3->	-------7----->	-------7----->	-------7----->	-------4----->	-------2----->		
	OMT	>----10---->	------10---->	-------4----->					
Ku-Band									
	Receiver	>--2-->	-------7----->	-------7----->	-------7----->	-------7----->			
	Feed	>----10---->	-------12--->	-------6----->	-------2----->				
	OMT	>----10---->	-------12--->	-------6----->	-------2----->				
	Polarizer	>----10---->	-------12--->	-------6----->	-------2----->				
	Transitions	>----10---->	-------12--->	-------6----->	-------2----->				
L-Band									
	Receiver			>-1->	-------3----->	-------3----->	-------8----->	-------8----->	-------7----->
	Feed	>----6--->	-------7----->	-------7----->	-------4----->	-------4----->	-------2----->		
	OMT			>-----4----->	-------6----->	-------6----->	-------6----->	-------6----->	--2-->
X-Band									
	Receiver			>-1->	-------3----->	-------3----->	-------8----->	-------8----->	-------7----->
	Feed			>-----4---->	-------5----->	-------6----->	-------6----->	-------6----->	---3--->
	OMT			>-----4---->	-------5----->	-------6----->	-------6----->	-------6----->	---3--->
	Polarizer			>-----4---->	-------5----->	-------6----->	-------6----->	-------6----->	---3--->
	Transitions			>-----4---->	-------5----->	-------6----->	-------6----->	-------6----->	---3--->
S-Band									
	Receiver				>-----3----->	-------3----->	-------7----->	-------9----->	-------8----->
	Feed				>-----3----->	-------6----->	-------10--->	-------11--->	
	OMT			>-----4----->	-------6----->	-------6----->	-------6----->	-------6----->	--2-->
Ka-Band									
	Receiver				>-----3----->	-------3----->	-------7----->	-------9----->	-------8----->
	Feed			>-2->	-------5----->	-------6----->	-------6----->	-------6----->	---5--->
	OMT			>-2->	-------5----->	-------6----->	-------6----->	-------6----->	---5--->
	Polarizer			>-2->	-------5----->	-------6----->	-------6----->	-------6----->	---5--->
	Transitions			>-2->	-------5----->	-------6----->	-------6----->	-------6----->	---5--->

EVLA Receiver Production Schedule





	2002	2003	2004	2005	2006	2007	2008	2009	2010
No. of Upgraded Rx's		4	14	14	14	14	0	0	0
No. of New Rx's		0	14	16	26	26	34	36	30
Total per year		6	30	32	40	40	34	34	30

EVLA Amplifier Production Schedule

	2002	2003	2004	2005	2006	2007	2008	2009	2010	
Antennas			>--1-7--->--8-14-->-15-21-->-22-28-->							Sub-total
K-Amps			2 2 2	2 2 2	2 2 2	2 2 2				= 24
Q-Amps			2 2 2 2	2 2 2 2	2 2 2 2	2 2 2 2				= 32
C-Amps		P4 4	4 4 4 4	4 4 4 4	4 4 4 4	4 4 4 4				= 72
U-Amps		P4 4	4 4 4 4	4 4 4 4	4 4 4 4	4 4 4 4				= 72
L-Amps			P4 2	2 2 2	2 2 2	2 2 2	4 4 4 4	4 4 4 4	4 4 4 4	= 72
X-Amps			P4 2	2 2 2	2 2 2	2 2 2	4 4 4 4	4 4 4 4	4 4 4 4	= 72
S-Amps				P4 2	2 2 2	4 4 4	4 4 4 4	4 4 4 4	4 4 4 4	= 72
A-Amps				P4 2	2 2 2	4 4 4	4 4 4 4	4 4 4 4	4 4 4 4	= 72
	2002	2003	2004	2005	2006	2007	2008	2009	2010	
Prototypes	0	8	8	8	0	0	0	0	0	
Production	0	8	50	62	70	82	64	64	64	
Total/year	0	16	58	70	70	82	64	64	64	488