

06/23/2000 09:08

Novatel Wireless Tech. Ltd

PAGE 1

PDX121

INDENTED BILL OF MATERIALS
 DATES: ALL

BY COMPONENT ID

ASSEMBLY ID LEVEL	COMPONENT ID	DESCRIPTION START END	DWG	SIZE	ECN	UM	ABC	COMM	CLASS	TYPE	ST	PLNR	BUYER	MRP	MPS	YIELD
						EFF	DATE	PENDING	CATG	TOTAL	REQD	BILL	OPER	KIT	LTO	SCRAP
ASM: 649496	00265 7	MERLIN CDPD OEM (SYMBOL TECH)				EA	C	6494		M	A			Y	N	0.0
		2			00040					QTY:		1				
1.....	01016863	0002 PC CARD MODULE (MERLIN CDPD OEM)				EA			M	A	EP		0		0	0.0
		1			00040							1.000000				
..2.....	01016632	0006 PCB MSCH. ASSY (MERLIN)				EA			M	A	EP		0		0	0.0
		2			00044							1.000000				
..3.....	01016582	0001 PCB ASSY PCMCIA CARD (MERLIN)				EA			M	A	EP		0		0	0.0
		3										1.000000				
...4.....	01016603	0001 FLASH ASSY INCLUDING BOOTLOADER (MERLIN)				EA			M	A	EP		0		0	0.0
		1										1.000000				
....5.....	20416383	0002 SW, HEX FILE, MERLIN-EMLV, TRL-07				EA			B	A	EP		0		0	0.0
		TRL0										1.000000				
....5.....	31323916	0006 IC 29LV200BT FLASH 90 NS (TSOP-48)				EA			B	A	EP		0		0	0.0
												1.000000				
		REF: U101														
....5.....	DF-01016603	0002 FLASH ASSY INCLUDING BOOTLOADER (MERLIN)				EA			P	A	EP		0		0	0.0
		1										0.000000				
....5.....	SWI-20416383	0004 SW WORK INSTRUCTIONS HEX FILE TRL-07				EA			P	A	EP		0		0	0.0
												0.000000				
...4.....	01016742	0002 LABEL SERIAL NUMBER PCB ASSY				EA			M	A	EP		0		0	0.0
		1										1.000000				
....5.....	25015458	0006 LABEL BLANK KEYED 12.2MM X 12.2MM				EA			B	A	EP		0		0	0.0
		1										1.000000				
....5.....	32123001	0010 RIBBON PRINTER RESIN 60MM X 450M				MM			B	A	EP		0		0	0.0
												15.200000				
....5.....	DA-01016742	0002 LABEL SERIAL NUMBER PCB ASSY				EA			P	A	EP		0		0	0.0
		1										0.000000				
....5.....	DM-25015458	0008 LABEL BLNK KEYED 12.2MM X 12.2MM				EA			P	A	EP		0		0	0.0
		1										0.000000				

06/23/2000 09:08

Novatel Wireless Tech. Ltd

PAGE 2

PDXIB1

INDENTED BILL OF MATERIALS
DATES: ALL

BY COMPONENT ID

ASSEMBLY ID	DESCRIPTION	UM	ABC	COMM	CLASS	TYPE	ST	PLNR	BUYER	MRP	MPS	YIELD					
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF	DATE	PENDING	CATG	TOTAL	REQD	BILL	OPER	KIT	LTO	SCRAP
ASM: 649496	00265 7	MERLIN CDPD OEM (SYMBOL TECH)					EA	C	6494		M	A			Y	N	0.0
		2				00040					QTY:		1				
....5.....	DF-01016742	0004 LABEL SERIAL NUMBER PCB ASBY					EA			P	A	EP	0			0	0.0
		1											0.000000				
...4.....	15423001	0002 CAP FEEDTHROUGH FILTER NFM41P 0.2 UF SMD EA								B	A	EP	0			0	0.0
													1.000000				
		REF: L408															
...4.....	15723084	0003 CAP TANT CHIP 10UF 10% 10V 3216					EA			B	A	EP	0			0	0.0
													2.000000				
		REF: C130															
		REF: C132															
...4.....	15723085	0004 CAP TANT CHIP 3.3 UF 10% 16V 3216					EA			B	A	EP	0			0	0.0
													3.000000				
		REF: C282															
		REF: C287															
		REF: C332															
...4.....	15923182	0005 CAP CHIP 1.0UF 10% 16V X7R 1206					EA			B	A	EP	0			0	0.0
													12.000000				
		REF: C280															
		REF: C281															
		REF: C283															
		REF: C284															
		REF: C290															
		REF: C131															
		REF: C330															
		REF: C333															
		REF: C331															
		REF: C501															
		REF: C505															
		REF: C278															
...4.....	15990038	0007 CAP CHIP 0.1 UF +80-20 25V Y5V 0603					EA			B	A	EP	0			0	0.0
													1.000000				
		REF: C324															
...4.....	15A102J0	0008 CAP CHIP 1000 PF 5% 50V COG 0805															

PDXIB1

INDENTED BILL OF MATERIALS
DATES: ALL

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION				UM ABC COMM CLASS TYPE ST PLNR BUYER MRP MPB YIELD								
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF DATE	PENDING	CATG	TOTAL REQD	BILL OPER	KIT LTO	SCRAP	
ASM: 649496 00265 7		MERLIN CDPD OEM (SYMBOL TECH)					EA	C	6494	M	A	Y	N	0.0
		2				00040				QTY:	1			
...4.....	15B104K1	0010	CAP CHIP 0.1 UF 10% 25V X7R 0805					EA	B	A	EP	0	0	0.0
		REF: C212								1.000000				
...4.....	15C010C0	0011	CAP CHIP 1PF 0.25PF 50V COG 0402					EA	B	A	EP	0	0	0.0
		REF: C216								3.000000				
		REF: C220												
		REF: C232												
...4.....	15C020C0	0012	CAP CHIP 2PF 0.25PF 50V COG 0402					EA	B	A	EP	0	0	0.0
		REF: C215								3.000000				
		REF: C226												
		REF: C293												
...4.....	15C030C0	0013	CAP CHIP 3PF 0.25PF 50V COG 0402					EA	B	A	EP	0	0	0.0
		REF: C211								3.000000				
		REF: C213												
		REF: C221												
...4.....	15C040C0	0014	CAP CHIP 4PF 0.25PF 50V COG 0402					EA	B	A	EP	0	0	0.0
		REF: C222								3.000000				
		REF: C223												
		REF: C250												
...4.....	15C0R5C0	0016	CAP CHIP 0.5PF 0.25PF 50V COG 0402					EA	B	A	EP	0	0	0.0
		REF: C214								1.000000				
...4.....	15C100D0	0017	CAP CHIP 10PF 0.5PF 50V COG 0402					EA	B	A	EP	0	0	0.0
		REF: C225								4.000000				
		REF: C292												
		REF: C300												
		REF: C219												

PDX1B1

INDENTED BILL OF MATERIALS
DATES: ALL

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION		UM		ABC COMM		CLASS		TYPE		ST		PLNR		BUYER		MRP		MPS		YIELD	
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF DATE	PENDING	CATG	TOTAL	REQD	BILL	OPER	KIT	LTO	SCRAP							
ASM: 649496 00265 7		MERLIN CDPD OEM (SYMBOL TECH)						EA	C	6494		M	A			Y	N						0.0
		2						00040				QTY:		1									
...4.....	15C101J0		0018	CAP	CHIP	100PF	5%	50V	COG	0402		EA	B	A	EP	0		0	0.0				
												8.000000											
		REF: C230																					
		REF: C242																					
		REF: C243																					
		REF: C244																					
		REF: C247																					
		REF: C304																					
		REF: C208																					
		REF: C209																					
...4.....	15C102K1		0019	CAP	CHIP	1000PF	10%	50V	X7R	0402		EA	B	A	EP	0		0	0.0				
												9.000000											
		REF: C237																					
		REF: C251																					
		REF: C252																					
		REF: C253																					
		REF: C210																					
		REF: C233																					
		REF: C202																					
		REF: C504																					
		REF: C218																					
...4.....	15C120J0		0020	CAP	CHIP	12PF	5%	50V	COG	0402		EA	B	A	EP	0		0	0.0				
												1.000000											
		REF: C235																					
...4.....	15C121J0		0021	CAP	CHIP	120PF	5%	50V	COG	0402		EA	B	A	EP	0		0	0.0				
												4.000000											
		REF: C206																					
		REF: C245																					
		REF: C295																					
		REF: C307																					
...4.....	15C150J0		0022	CAP	CHIP	15PF	5%	50V	COG	0402		EA	B	A	EP	0		0	0.0				
												1.000000											
		REF: C100																					
...4.....	15C151J0		0023	CAP	CHIP	150PF	5%	50V	COG	0402		EA	B	A	EP	0		0	0.0				
												1.000000											
		REF: C246																					

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION		UM		ABC COMM		CLASS		TYPE		ST PLNR		BUYER MRP MPS		YIELD	
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF DATE	PENDING	CATG	TOTAL	REQD	BILL	OPRR	KIT	LTO	SCRAP	
ASM: 649496 00265 7		MERLIN CDPD OEM (SYMBOL TECH)					EA	C	6494		M	A			Y	N	0.0
			2			00040				QTY:		1					
...4.....	15C180J0		0025	CAP CHIP	18PF 5% 50V COG	0402		EA		B	A	EP	0		0	0.0	
												2.000000					
			REF:	C227													
			REF:	C254													
...4.....	15C1R5C0		0024	CAP CHIP	1.5PF 0.25PF 50V COG	0402		EA		B	A	EP	0		0	0.0	
												1.000000					
			REF:	C289													
...4.....	15C220J0		0026	CAP CHIP	22PF 5% 50V COG	0402		EA		B	A	EP	0		0	0.0	
												3.000000					
			REF:	C101													
			REF:	C224													
			REF:	C303													
...4.....	15C221K1		0027	CAP CHIP	220PF 10% 50V X7R	0402		EA		B	A	EP	0		0	0.0	
												1.000000					
			REF:	C248													
...4.....	15C270J0		0028	CAP CHIP	27PF 5% 50V COG	0402		EA		B	A	EP	0		0	0.0	
												2.000000					
			REF:	C228													
			REF:	C234													
...4.....	15C330J0		0029	CAP CHIP	33PF 5% 50V COG	0402		EA		B	A	EP	0		0	0.0	
												1.000000					
			REF:	C236													
...4.....	15C470J0		0030	CAP CHIP	47PF 5% 50V COG	0402		EA		B	A	EP	0		0	0.0	
												1.000000					
			REF:	C229													
...4.....	15C471K1		0031	CAP CHIP	470PF 10% 50V X7R	0402		EA		B	A	EP	0		0	0.0	
												18.000000					
			REF:	C249													
			REF:	C305													
			REF:	C306													
			REF:	C308													
			REF:	C309													
			REF:	C310													
			REF:	C311													
			REF:	C313													
			REF:	C314													
			REF:	C315													
			REF:	C316													
			REF:	C317													
			REF:	C318													
			REF:	C319													

PAGE 6

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION		UM	ASC	COMM	CLASS	TYPE	ST	PLNR	BUYER	MRP	MPS	YIELD	
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF DATE	PENDING	CATG	TOTAL REQD	BILL OPER	KIT	LTO	SCRAP	

AEM: 649496	00265 7	MERLIN CDPD OEM (SYMBOL TECH)					EA	C	6494	M	A		Y	N	0.0
			2		00040				QTY:		1				
...4.....	15C471K1		0031	CAP CHIP	470PF 10% 50V X7R	0402		EA	B	A	EP	0		0 0.0	
											18.000000				
			REF:	C320											
			REF:	C205											
			REF:	C207											
			REF:	C321											
...4.....	15C820J0		0032	CAP CHIP	82PF 5% 50V COG	0402		EA	B	A	EP	0		0 0.0	
											3.000000				
			REF:	C240											
			REF:	C241											
			REF:	C294											
...4.....	15D103K1		0033	CAP CHIP	0.01UF 10% 16V X7R	0402		EA	B	A	EP	0		0 0.0	
											48.000000				
			REF:	C119											
			REF:	C120											
			REF:	C121											
			REF:	C122											
			REF:	C123											
			REF:	C124											
			REF:	C125											
			REF:	C127											
			REF:	C128											
			REF:	C272											
			REF:	C203											
			REF:	C255											
			REF:	C256											
			REF:	C257											
			REF:	C258											
			REF:	C259											
			REF:	C260											
			REF:	C261											
			REF:	C262											
			REF:	C263											
			REF:	C264											
			REF:	C265											
			REF:	C266											
			REF:	C267											
			REF:	C268											
			REF:	C269											
			REF:	C270											
			REF:	C271											
			REF:	C273											
			REF:	C279											
			REF:	C296											
			REF:	C297											
			REF:	C298											

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION		UM		ABC COMM		CLASS		TYPE		ST		PLNR		BUYER		MRP		MPS		YIELD								
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF DATE	PENDING	CATG	TOTAL	REQD	BILL	OPER	KIT	LTO	SCRAP														

ASM:	649496 00265 7	MERLIN CDPD OEM (SYMBOL TECH)						EA	C	6494		M	A			Y	N					0.0								
			2			00040					QTY:		1																	
...	4..... 15D103K1		0033	CAP CHIP	0.01UF	10% 16V X7R	0402		EA		B	A	EP	0		0						0.0								
													48.000000																	
				REF:	C326																									
				REF:	C327																									
				REF:	C328																									
				REF:	C329																									
				REF:	C102																									
				REF:	C401																									
				REF:	C402																									
				REF:	C403																									
				REF:	C404																									
				REF:	C405																									
				REF:	C406																									
				REF:	C407																									
				REF:	C408																									
				REF:	C502																									
				REF:	C217																									
...	4..... 15E222K1		0034	CAP CHIP	2.2 NF	10% 50V X7R	0603		EA		B	A	EP	0		0						0.0								
													1.000000																	
				REF:	C276																									
...	4..... 15E270J0		0035	CAP CHIP	27 PF	5% 50V COG	0603		EA		B	A	EP	0		0						0.0								
													1.000000																	
				REF:	C239																									
...	4..... 15E332K1		0036	CAP CHIP	3.3 NF	10% 50V X7R	0603		EA		B	A	EP	0		0						0.0								
													1.000000																	
				REF:	C275																									
...	4..... 15E680J0		0037	CAP CHIP	68 PF	5% 50V COG	0603		EA		B	A	EP	0		0						0.0								
													1.000000																	
				REF:	C238																									
...	4..... 15H682K1		0039	CAP CHIP	6800PF	10% 25V X7R	0402		EA		B	A	EP	0		0						0.0								
													2.000000																	
				REF:	C322																									
				REF:	C323																									

PAGE 8

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION		UM		ABC COMM		CLASS		TYPE		ST		PLNR		BUYER		MRP		MPS		YIELD	
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF	DATE	PENDING	CATG	TOTAL	REQD	BILL	OPFR	KIT	LTO	SCRAP						
ASM: 649496 00265 7		MERLIN CDPD OEM (SYMBOL TECH)						EA	C	6494	M	A			Y	N	0.0						
		2		00040						QTY:	1												
...	4..... 15I622J0	0040 CAP CHIP 6200PF 50V COG 1206				EA	B	A	EP	0	0	0.0											
		REF: C274																					
		REF: C277																					
		REF: C288																					
...	4..... 15J683K1	0041 CAP CHIP 68NF 10% 25V X7R 1206				EA	B	A	EP	0	0	0.0											
		REF: C291																					
...	4..... 15L106K4	0042 CAP CHIP 10 UF 10% 6.3V X5R 1206				EA	B	A	EP	0	0	0.0											
		REF: C285																					
...	4..... 15L225K1	0044 CAP CHIP 2.2 UF 10% 1206 X7R				EA	B	A	EP	0	0	0.0											
		REF: C286																					
...	4..... 17016582	0045 PC BOARD PCMCIA CARD (MERLIN)				EA	B	A	EP	0	0	0.0											
		1																					
...	4..... 17416582	0046 PANEL PCB PCMCIA CARD (MERLIN)				EA	B	A	EP	0	0	0.0											
		1																					
...	4..... 18523172	0048 INDUCTOR 1.2 OH 10% 1008				EA	B	A	EP	0	0	0.0											
		REF: L221																					
...	4..... 18523188	0049 INDUCTOR CHIP 3.3UH SHIELDED 10% 1008				EA	B	A	EP	0	0	0.0											
		REF: L222																					
...	4..... 18523189	0050 INDUCTOR CHIP 1.0UH SHIELDED 10% 1008				EA	B	A	EP	0	0	0.0											
		REF: L223																					
...	4..... 18523190	0051 INDUCTOR CHIP 10NH 5% 0603 LL1608				EA	B	A	EP	0	0	0.0											
		REF: L210																					
		REF: L212																					

INDENTED BILL OF MATERIALS
DATES: ALL

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION		UM		ABC COMM		CLASS		TYPE		ST		PLNR		BUYER		MRP		MPS		YIELD	
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF	DATE	PENDING	CATG	TOTAL	REQD	BILL	OPER	KIT	LTD	SCRAP						
ASM: 649496 00265 7		MERLIN CDPD ORM (SYMBOL TECH)					EA	C	6494		M	A			Y	N	0.0						
			2		00040						QTY:		1										
...4.....	18523192		0053	INDUCTOR CHIP 5.6NH 5% 0603 LL1608		EA				B	A	EP	0		0	0.0							
			REF:	L225								1.000000											
...4.....	18523194		0055	INDUCTOR CHIP 47NH 5% 0603 LL1608		EA				B	A	EP	0		0	0.0							
			REF:	L220								1.000000											
...4.....	18523196		0057	INDUCTOR CHIP 12NH 5%0603 LL1608		EA				B	A	EP	0		0	0.0							
			REF:	L204								3.000000											
			REF:	L209																			
			REF:	L215																			
...4.....	18523198		0059	INDUCTOR CHIP 100UH SHIELDED 3% 1210		EA				B	A	EP	0		0	0.0							
			REF:	L224								1.000000											
...4.....	18523200		0061	INDUCTOR CHIP 100NH 5% 0603 LL1608		EA				B	A	EP	0		0	0.0							
			REF:	L218								3.000000											
			REF:	L226																			
			REF:	L227																			
...4.....	18523201		0062	INDUCTOR CHIP 6.8NH 5% 0603 LL1608		EA				B	A	EP	0		0	0.0							
			REF:	L201								2.000000											
			REF:	L203																			
...4.....	18523202		0063	INDUCTOR CHIP 15NH 5% 0603 LL1608		EA				B	A	EP	0		0	0.0							
			REF:	L200								2.000000											
			REF:	L211																			
...4.....	18523204		0064	INDUCTOR CHIP 33NH 3% 0805 PTL2012		EA				B	A	EP	0		0	0.0							
			REF:	L208								1.000000											
...4.....	18523206		0065	INDUCTOR CHIP 27NH 5% 0603 LL1608		EA				B	A	EP	0		0	0.0							
			REF:	L202								1.000000											

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION		UM		ABC COMM		CLASS		TYPE		ST		PLNR		BUYER		MRP		MPS		YIELD	
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF DATE	PENDING	CATG	TOTAL	REQD	BILL	OPER	KIT	LTO	SCRAP							
ASM:	649496 00265 7	MERLIN CDPD ORM (SYMBOL TECH)					EA	C	6494		M	A			Y	N	0.0						
			2			00040				QTY:		1											
...4.....	185BK390		0066	INDUCTOR CHIP 39NH 10% 0603			EA		B	A	EP	0			0	0.0							
				REF: L216								1.000000											
...4.....	20223055		0067	VCO MQE916-926 2MM HEIGHT			EA		B	A	EP	0			0	0.0							
				REF: U203								1.000000											
...4.....	20223057		0068	TCXO 14.85MHZ TCO-555W 1PPM, -20/+70C			EA		B	A	EP	0			0	0.0							
				REF: U208								1.000000											
...4.....	21323131		0069	CONNECTOR PC CARD 68 PIN			EA		B	A	EP	0			0	0.0							
				REF: J401								1.000000											
...4.....	21723103		0071	CONN COAX MMX JACK EDGE MOUNT			EA		B	A	EP	0			0	0.0							
				REF: J200								1.000000											
...4.....	23023052		0072	CRYSTAL 24.576MHZ SMD (TGX-A1)			EA		B	A	EP	0			0	0.0							
				REF: Y100								1.000000											
...4.....	25323014		0074	BEAD FERRITE X4 ARRAY, 1206 120 OHM SMD			EA		B	A	EP	0			0	0.0							
				REF: L401								7.000000											
				REF: L402																			
				REF: L403																			
				REF: L404																			
				REF: L405																			
				REF: L406																			
				REF: L407																			
...4.....	25615071		0075	EMI CHANNEL (MERLIN			EA		B	A	EP	0			0	0.0							
			2									2.000000											
...4.....	27023089		0077	FILTER CRYSTAL 45MHZ TS2-45A03			EA		B	A	EP	0			0	0.0							
				REF: XF200								1.000000											

PAGE 11

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION	UM	ABC	COMM	CLASS	TYPE	ST	PLNR	BUYER	MRP	MPS	YIELD				
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF	DATE	PENDING	CATG	TOTAL	REQD	BILL	OPER	KIT	LTO	SCRAP

ASM:	649496 00265 7	MERLIN CDPD OEM (SYMBOL TECH)					EA	C	6494		M	A			Y	N	0.0
		2				00040					QTY:		1				
...	4..... 27023092	0080 FILTER CERAMIC 450 KHZ LOW PROFILE					EA			B	A	EP	0			0	0.0
		REF: CF201											2.000000				
		REF: CF200															
...	4..... 27023093	0081 FILTER SAW LIL 869-894 MHZ					EA			B	A	EP	0			0	0.0
		REF: FL200											1.000000				
...	4..... 27023094	0082 FILTER SAW LIL 824-849 MHZ					EA			B	A	EP	0			0	0.0
		REF: FL201											1.000000				
...	4..... 31323679	0083 IC TA31132FN FM DEMODULATOR(SSOP24)					EA			B	A	EP	0			0	0.0
		REF: U211											1.000000				
...	4..... 31323680	0084 IC TC4866F BI SWITCH ANALOG (SSOP5)					EA			B	A	EP	0			0	0.0
		REF: U215											1.000000				
...	4..... 31323853	0085 IC MX589 GMSK MODEM (TSSOP-24)					EA			B	A	EP	0			0	0.0
		REF: U301											1.000000				
...	4..... 31323872	0087 IC LMX1601 DUAL PLL (16-PIN TSSOP					EA			B	A	EP	0			0	0.0
		REF: U210											1.000000				
...	4..... 31323873	0088 IC LMV822 8-PIN MSOP OP-AMP DUAL					EA			B	A	EP	0			0	0.0
		REF: U204											2.000000				
		REF: U302															
...	4..... 31323874	0089 IC UPC2771TB MED PWR SI MMIC AMP SOT-363					EA			B	A	EP	0			0	0.0
		REF: U206											1.000000				
...	4..... 31323876	0090 IC UPC8106TB UPCONVERTER SOT363					EA			B	A	EP	0			0	0.0
		REF: U207											1.000000				

BY COMPONENT ID -

ASSEMBLY ID		DESCRIPTION	UM	ABC COMM	CLASS	TYPE	QT	PLNR	BUYER	MRP	MPS	YIELD		
LEVEL	COMPONENT ID	START	END	DWG	SIZE	RCN	EFF DATE	PENDING	CATG	TOTAL REQD	BILL OPER	KIT LTO	SCRAP	

ASM:	649496 00265 7	MERLIN CDPD OEM (SYMBOL TECH)					EA	C	6494	M	A	Y	N	0.0
		2				00040				QTY:		1		
...	4..... 31323880	0091 IC AM186EM CPU 25MHZ 3.3V (TQFP-100)					EA		B	A	EP	0	0	0.0
		REF: U100									1.000000			
...	4..... 31323885	0093 IC MAX 1111 ADC 8 BIT 4CH (QSOP-16)					EA		B	A	EP	0	0	0.0
		REF: U304									1.000000			
...	4..... 31323890	0094 IC TQ9223C LNA DOWNCONVERTER					EA		B	A	EP	0	0	0.0
		REF: U202									1.000000			
...	4..... 31323891	0095 IC FMM5512ZE PA 800MHZ GAAS (SSOP-16)					EA		B	A	EP	0	0	0.0
		REF: U205									1.000000			
...	4..... 31323893	0097 IC DIGITAL POT 100K QUAD (TSOP-24)					EA		B	A	EP	0	0	0.0
		REF: U300									1.000000			
...	4..... 31323895	0098 IC MIC5205 3.0V REGULATOR (SOT-23-5)					EA		B	A	EP	0	0	0.0
		REF: U212									3.000000			
		REF: U213												
		REF: U303												
...	4..... 31323897	0100 IC MMIC 1GHZ LOW CURRENT AMPLIFIER					EA		B	A	EP	0	0	0.0
		REF: U201									1.000000			
...	4..... 31323904	0103 IC ADP3309-3.3 LDO VOLT REG (SOT-23-5)					EA		B	A	EP	0	0	0.0
		REF: U102									1.000000			
...	4..... 31323906	0104 IC KM616V1000 SRAM 3.3V 85NS TSOP					EA		B	A	EP	0	0	0.0
		REF: U104									1.000000			
...	4..... 31323915	0105 IC ASIC PCIC (TQFP-100)					EA		B	A	EP	0	0	0.0
		1									1.000000			
		REF: U401												

PDXTR1

INDENTED BILL OF MATERIALS
DATES: ALL

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION		UM		ABC COMM		CLASS		TYPE		ST		PLNR		BUYER		MRP		MPS		YIELD	
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF DATE	PENDING	CATG	TOTAL	REQD	BILL	OPER	KIT	LTO	SCRAP							
ASM: 649496	00265 7	MERLIN CDPD OEM (SYMBOL TECH)					EA	C	6494		M	A			Y	N	0.0						
			2		00040					QTY:		1											
...4.....	31323917		0106	IC	EEPROM X25170	2.5V 2KX8	SOIC-8		EA	B	A	EP	0		0	0.0							
												1.000000											
			REF: U103																				
...4.....	34023014		0106	DUPLEXER	- SAW (700 TO 1000MHZ			EA	B	A	EP	0		0	0.0								
												1.000000											
			REF: FL203																				
...4.....	40423004		0107	COUPLER WITH LOW PASS FILTER (PCMCIA)				EA	B	A	EP	0		0	0.0								
												1.000000											
			REF: DC200																				
...4.....	47AF1002		0108	RES CHIP	10K 1% 1/10W	0805		EA	B	A	EP	0		0	0.0								
												1.000000											
			REF: R506																				
...4.....	47AF4752		0109	RES CHIP	47.5K 1% 1/10W	0805 100PPM		EA	B	A	EP	0		0	0.0								
												2.000000											
			REF: R502																				
			REF: R507																				
...4.....	47AF6812		0110	RES CHIP	68.1K 1% 1/10W	0805		EA	B	A	EP	0		0	0.0								
												2.000000											
			REF: R503																				
			REF: R508																				
...4.....	47BJ0000		0111	RES CHIP	0 OHM 5% 1/16W	0603		EA	B	A	EP	0		0	0.0								
												1.000000											
			REF: R319																				
...4.....	47CJ0000		0112	RES CHIP	0 OHM 5% 1/20W	0402		EA	B	A	EP	0		0	0.0								
												19.000000											
			REF: R100																				
			REF: R101																				
			REF: R102																				
			REF: R204																				
			REF: R209																				
			REF: R217																				
			REF: R220																				
			REF: R221																				
			REF: R225																				
			REF: R226																				
			REF: R228																				
			REF: R229																				
			REF: R230																				
			REF: R231																				
			REF: R300																				
			REF: R301																				

BY COMPONENT ID

ASSEMBLY ID			DESCRIPTION					UM	ABC COMM	CLASS	TYPE	ST	PLNR	BUYER	MRP	MPS	YIELD	
LEVEL	COMPONENT ID	ID	START	END	DWG	SIZE	ECN	RFF DATE	PENDING	CATG	TOTAL	RQD	BILL	OPER	KIT	LTO	SCRAP	
ASM: 649496 00265 7			MERLIN CDPD ORM (SYMBOL TECH)						EA	C 6494		M	A			Y	N	0.0
				2			00040				QTY:		1					
...4.....	47CJ0000		0112	RES CHIP 0 OHM 5% 1/20W 0402					EA		B	A	EP	0		0	0.0	
													19.000000					
				REF: R302														
				REF: R303														
				REF: R124														
...4.....	47CJ0100		0113	RES CHIP 10 OHM 5% 1/16W 0402					EA		B	A	EP	0		0	0.0	
													5.000000					
				REF: R206														
				REF: R213														
				REF: R214														
				REF: R216														
				REF: R227														
...4.....	47CJ0101		0114	RES CHIP 100 OHM 5% 1/16W 0402					EA		B	A	EP	0		0	0.0	
													2.000000					
				REF: R238														
				REF: R239														
...4.....	47CJ0102		0115	RES CHIP 1K OHM 5% 1/16W 0402					EA		B	A	EP	0		0	0.0	
													2.000000					
				REF: R247														
				REF: R250														
...4.....	47CJ0103		0116	RES CHIP 10K OHM 5% 1/16W 0402					EA		B	A	EP	0		0	0.0	
													11.000000					
				REF: R254														
				REF: R259														
				REF: R260														
				REF: R264														
				REF: R269														
				REF: R271														
				REF: R320														
				REF: R321														
				REF: R323														
				REF: R505														
				REF: R263														
...4.....	47CJ0104		0117	RES CHIP 100K OHM 5% 1/16W 0402					EA		B	A	EP	0		0	0.0	
													9.000000					
				REF: R125														
				REF: R127														
				REF: R270														
				REF: R326														
				REF: R421														
				REF: R207														
				REF: R333														
				REF: R334														

PDX1B1

INDENTED BILL OF MATERIALS
DATES: ALL

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION		UM	ABC	COMM	CLASS	TYPE	ST	PLNR	BUYER	MRP	MPS	YIELD			
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF DATE	PENDING	CATG	TOTAL	REQD	BILL	OPER	KIT	LTO	SCRAP	
ASM: 649496 00265 7		MERLIN CDPD OEM (SYMBOL TECH)						EA	C	6494	M	A			Y	N	0.0
		2				00040					QTY:	1					
...4.....	47CJ0104	0117 RES CHIP 100K OHM 5% 1/16W 0402						EA	B	A	EP	0		0	0.0		
		REF: R424															
...4.....	47CJ0121	0118 RES CHIP 120 OHM 5% 1/16W 0402						EA	B	A	EP	0		0	0.0		
		REF: R215															
		REF: R237															
...4.....	47CJ0122	0119 RES CHIP 1.2K OHM 5% 1/16W 0402						EA	B	A	EP	0		0	0.0		
		REF: R253															
		REF: R304															
		REF: R305															
		REF: R306															
		REF: R307															
		REF: R308															
		REF: R310															
		REF: R311															
		REF: R313															
		REF: R314															
		REF: R315															
		REF: R316															
		REF: R317															
		REF: R318															
		REF: R322															
...4.....	47CJ0123	0120 RES CHIP 12K OHM 5% 1/16W 0402						EA	B	A	EP	0		0	0.0		
		REF: R266															
...4.....	47CJ0151	0121 RES CHIP 150 OHM 5% 1/16W 0402						EA	B	A	EP	0		0	0.0		
		REF: R240															
...4.....	47CJ0153	0122 RES CHIP 15K OHM 5% 1/16W 0402						EA	B	A	EP	0		0	0.0		
		REF: R267															

PDXIB1

INDENTED BILL OF MATERIALS
 DATES: ALL

BY COMPONENT ID

ASSEMBLY ID LEVEL	COMPONENT ID	DESCRIPTION START END	DWG	SIZE	ECN	UM EFF DATE	ABC PENDING	COMM CATG	CLASS CATG	TYPE TOTAL	ST REQD	PLNR BILL	BUYER OPER	MRF KIT	MPS LTO	YIELD SCRAP
ASM: 649496	00265 7	MERLIN CDPD OEM (SYMBOL TECH)				EA	C	6494		M	A			Y	N	0.0
		2			00040					QTY:		1				
...4.....	47CJ0180	0123 RES CHIP 18 OHM 5% 1/16W 0402				EA				B	A	EP	0		0	0.0
		REF: R224										4.000000				
		REF: R234														
		REF: R223														
		REF: R277														
...4.....	47CJ0183	0125 RES CHIP 18K OHM 5% 1/16W 0402				EA				B	A	EP	0		0	0.0
		REF: R501										2.000000				
		REF: R504														
...4.....	47CJ0202	0126 RES CHIP 2K OHM 5% 1/16W 0402				EA				B	A	EP	0		0	0.0
		REF: R246										4.000000				
		REF: R249														
		REF: R251														
		REF: R255														
...4.....	47CJ0203	0127 RES CHIP 20K OHM 5% 1/16W 0402				EA				B	A	EP	0		0	0.0
		REF: R268										2.000000				
		REF: R272														
...4.....	47CJ0242	0131 RES CHIP 2.4K OHM 5% 1/16W 0402				EA				B	A	EP	0		0	0.0
		REF: R219										2.000000				
		REF: R256														
...4.....	47CJ0270	0132 RES CHIP 27 OHM 5% 1/16W 0402				EA				B	A	EP	0		0	0.0
		REF: R233										2.000000				
		REF: R236														
...4.....	47CJ0271	0133 RES CHIP 270 OHM 5% 1/16W 0402				EA				B	A	EP	0		0	0.0
		REF: R241										1.000000				
...4.....	47CJ0272	0134 RES CHIP 2.7K OHM 5% 1/16W 0402				EA				B	A	EP	0		0	0.0
		REF: R248										1.000000				

PAGE 17

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION		UM	ABC	COMM	CLASS	TYPE	ST	PLNR	BUYER	MRP	MPS	YIELD		
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF DATE	PENDING	CATG	TOTAL	REQD	BILL	OPER	KIT	LTO	SCRAP
ASM: 649496 00265 7		MERLIN CDPD OHM (SYMBOL TECH)					EA	C	6494	M	A			Y	N	0.0
			2			00040				QTY:		1				
...4.....	47CJ0274		0135 RES CHIP 270K OHM 5% 1/16W 0402					EA	B	A	EP	0		0	0.0	
			REF: R273								3.000000					
			REF: R274													
			REF: R276													
...4.....	47CJ0334		0138 RES CHIP 330K OHM 5% 1/16W 0402					EA	B	A	EP	0		0	0.0	
			REF: R275								2.000000					
			REF: R335													
...4.....	47CJ0392		0139 RES CHIP 3.9K OHM 5% 1/16W 0402					EA	B	A	EP	0		0	0.0	
			REF: R200								2.000000					
			REF: R211													
...4.....	47CJ0393		0140 RES CHIP 39K 1/16W 5% 0402					EA	B	A	EP	0		0	0.0	
			REF: R325								1.000000					
...4.....	47CJ0472		0141 RES CHIP 4.7K OHM 5% 1/16W 0402					EA	B	A	EP	0		0	0.0	
			REF: R258								5.000000					
			REF: R261													
			REF: R205													
			REF: R257													
			REF: R218													
...4.....	47CJ0473		0142 RES CHIP 47K OHM 5% 1/16W 0402					EA	B	A	EP	0		0	0.0	
			REF: R312								1.000000					
...4.....	47CJ0510		0144 RES CHIP 51 OHM 5% 1/16W 0402					EA	B	A	EP	0		0	0.0	
			REF: R235								2.000000					
			REF: R242													
...4.....	47CJ0560		0145 RES CHIP 56 OHM 5% 1/16W 0402					EA	B	A	EP	0		0	0.0	
			REF: R201								1.000000					

PDXIB1

INDENTED BILL OF MATERIALS
 DATES: ALL

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION		UM	ABC	COMM	CLASS	TYPE	ST	PLNR	BUYER	MRP	MPS	YIELD			
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EPF DATE	PENDING	CATG	TOTAL	REQD	BILL	OPER	KIT	LTO	SCRAP	
ASM: 649496 00265 7		MERLIN CDPD OEM (SYMBOL TECH)					EA	C	6494	M	A				Y	N	0.0
			2			00040			QTY:		1						
...4.....	47CJ0682		0146	RBS	CHIP	6.8K OHM 5% 1/16W 0402		EA	B	A	EP	0		0		0.0	
											1.000000						
			REF: R252														
...4.....	47CJ0821		0149	RBS	CHIP	820 OHM 5% 1/16W 0402		EA	B	A	EP	0		0		0.0	
											2.000000						
			REF: R244														
			REF: R245														
...4.....	47CJ0913		0150	RBS	CHIP	91K OHM 5% 1/16W 0402		EA	B	A	EP	0		0		0.0	
											1.000000						
			REF: R324														
...4.....	48022384		0151	TRANSISTOR	MMBT2222A	NPN (SOT-23)		EA	B	A	EP	0		0		0.0	
											2.000000						
			REF: Q502														
			REF: Q503														
...4.....	48023143		0152	TRANSISTOR	2SC4251	NPN VHF SOT-2EIA		EA	B	A	EP	0		0		0.0	
											3.000000						
			REF: Q200														
			REF: Q201														
			REF: Q202														
...4.....	48023181		0153	TRANSISTOR	NDS8434A	P-CH FET SO-8		EA	B	A	EP	0		0		0.0	
											1.000000						
			REF: Q501														
...4.....	48090017		0154	TRANSISTOR	RN4602-TE85L	(PTR-850)		EA	B	A	EP	0		0		0.0	
											1.000000						
			REF: U307														
...4.....	48223122		0156	DIODE	1SV232	TUNING VARACTOR		EA	B	A	EP	0		0		0.0	
											2.000000						
			REF: CR201														
			REF: CR202														
...4.....	48223167		0157	DIODE	HSMS-2800	SCHOTTKY (SOT-23)		EA	B	A	EP	0		0		0.0	
											1.000000						
			REF: CR200														

PDXIB1

INDENTED BILL OF MATERIALS
DATES: ALL

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION		UM			ABC COMM		CLASS	TYPE	ST	PLNR	BUYER	MRP	MPS	YIELD
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF DATE	PENDING	CATG	TOTAL	REQD	BILL	OPFR	KIT	LTO	SCRAP
ASM: 649496	00265 7	MERLIN CDPD ORM (SYMBOL TECH)					EA	C	6494	M	A			Y	N	0.0
			2			00040				QTY:		1				
...4.....	53023020	0159 THERMISTOR CHIP 22K 0603					EA		B	A	EP		0		0	0.0
											1.000000					
		REF: RT201														
...4.....	DA-01016582	0160 PCB ASSY PCMCIA CARD (MERLIN)					EA		P	A	EP		0		0	0.0
			2								0.000000					
...4.....	DC-17416582	0161 PANEL PCB PCMCIA CARD (MERLIN)					EA		P	A	EP		0		0	0.0
			1								0.000000					
...4.....	DDMP-17416582	0164 DESIGN DATA MFG.PKG PCMCIA CARD (MERLIN)					EA		P	A	EP		0		0	0.0
			2								0.000000					
...4.....	DDVP-17416582	0165 DESIGN DATA VEN.PKG PCMCIA CARD (MERLIN)					EA		P	A	EP		0		0	0.0
			1								0.000000					
...4.....	DP-17016582	0162 PC BOARD PCMCIA CARD (MERLIN)					EA		P	A	EP		0		0	0.0
			1								0.000000					
...4.....	DM-25615071	0076 EMI CHANNEL (MERLIN)					EA		P	A	EP		0		0	0.0
			2								0.000000					
...4.....	DS-01016582	0163 PCB ASSY PCMCIA CARD (MERLIN)					EA		P	A	EP		0		0	0.0
			1								0.000000					
...3.....	01016677	0002 LABEL EID (MERLIN)					EA		B	A	EP		0		0	0.0
			1								1.000000					
...4.....	25015435	0003 LABEL BLANK EID (MERLIN)					EA		B	A	EP		0		0	0.0
			1								1.000000					
...4.....	DA-01016677	0001 LABEL EID (MERLIN)					EA		P	A	EP		0		0	0.0
			1								0.000000					
...4.....	DM-25015435	0004 LABEL BLANK EID (MERLIN)					EA		P	A	EP		0		0	0.0
			1								0.000000					
...4.....	DP-01016677	0002 LABEL EID (MERLIN)					EA		P	A	EP		0		0	0.0
			1								0.000000					

FDXIB1 INDENTED BILL OF MATERIALS
DATE: ALL

BY COMPONENT ID

ASSEMBLY ID LEVEL	COMPONENT ID	DESCRIPTION START END	DWG	SIZE	ECN	UM	ABC	COMM	CLASS	TYPE	ST	PLNR	BUYER	MRP	MPS	YIELD
						EFF	DATE	PENDING	CATG	TOTAL	REQD	BILL	OPER	KIT	LTO	SCRAP
ASM: 649496	00265 7	MERLIN CDPD OEM (SYMBOL TECH)				EA	C	6494		M	A			Y	N	0.0
		2		00040						QTY:		1				
..3.....	14215025	0003 END BRACKET (MERLIN)				EA			B	A	EP		0		0	0.0
		1										1.000000				
..3.....	28315064	0005 EMI GASKET TOP (MERLIN)				EA			B	A	EP		0		0	0.0
		2										1.000000				
..3.....	28315065	0007 EMI GASKET BOTTOM (MERLIN)				EA			B	A	EP		0		0	0.0
		2										1.000000				
..3.....	28315066	0009 EMI GASKET FRONT (MERLIN)				EA			B	A	EP		0		0	0.0
		2										1.000000				
..3.....	28315068	0011 EMI GASKET BOTTOM RIGHT (MERLIN)				EA			B	A	EP		0		0	0.0
		2										1.000000				
..3.....	28315069	0013 EMI GASKET BOTTOM MMCK (MERLIN)				EA			B	A	EP		0		0	0.0
		2										1.000000				
..3.....	28523002	0015 SCREW M2 X 3MM MACHINE FLAT HEAD				EA			B	A	EP		0		0	0.0
												2.000000				
..3.....	31015019	0016 INSULATOR BOTTOM SHIELD (MERLIN)				EA			B	A	EP		0		0	0.0
		2										1.000000				
..3.....	31015020	0018 INSULATOR TOP SHIELD (MERLIN)				EA			B	A	EP		0		0	0.0
		2										1.000000				
..3.....	DA-01016632	0004 PCB MECH. ASSY (MERLIN)				EA			P	A	EP		0		0	0.0
		1										0.000000				
..3.....	DM-14215025	0004 END BRACKET (ROADRUNNER)				EA			P	A	EP		0		0	0.0
		1										0.000000				
..3.....	DM-28315064	0006 EMI GASKET TOP (MERLIN)				EA			P	A	EP		0		0	0.0
		2										0.000000				
..3.....	DM-28315065	0008 EMI GASKET BOTTOM (MERLIN)				EA			P	A	EP		0		0	0.0
		2										0.000000				

PDXIB1

INDENTED BILL OF MATERIALS
DATES: ALL

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION		UM			ABC COMM		CLASS	TYPE	ST	PLNR	BUYER	MRP	MPS	YIELD
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF DATE	PENDING	CATG	TOTAL	REQD	BILL	OPER	KIT	LTO	SCRAP
ASM: 649496 00265 7		MERLIN CDPD OEM (SYMBOL TECH)					EA	C	6494	M	A			Y	N	0.0
			2			00040				QTY:		1				
..3.....	DM-28315066	0010	EMI GASKET FRONT (MERLIN)						EA	P	A	EP	0		0	0.0
			2									0.000000				
..3.....	DM-28315068	0012	EMI GASKET BOTTOM RIGHT (MERLIN)						EA	P	A	EP	0		0	0.0
			2									0.000000				
..3.....	DM-28315069	0014	EMI GASKET BOTTOM MCK (MERLIN)						EA	P	A	EP	0		0	0.0
			2									0.000000				
..3.....	DM-31015019	0017	INSULATOR BOTTOM SHIELD (MERLIN)						EA	P	A	EP	0		0	0.0
			2									0.000000				
..3.....	DM-31015020	0019	INSULATOR TOP SHIELD (MERLIN)						EA	P	A	EP	0		0	0.0
			2									0.000000				
..3.....	DP-01016632	0004	PCB MECH. ASSY (MERLIN)						EA	P	A	EP	0		0	0.0
			1									0.000000				
..3.....	STP-01016486	0021	S/W TEST PLAN PCB ASSY (MODEM) EXPEDITE						EA	P	A	EP	0		0	0.0
			3,			00044						0.000000				
..2.....	01016633	0008	TOP COVER ASSY (MERLIN)						EA	M	A	EP	0		0	0.0
			1									1.000000				
..3.....	14223001	0002	COVER TOP, MERLIN						EA	B	A	EP	0		0	0.0
												1.000000				
..3.....	28315070	0005	GASKET CONDUCTIVE ADHESIVE TOP 2 (MERLIN						EA	B	A	EP	0		0	0.0
			1									1.000000				
..3.....	70023001	0007	BRACKET 68 PIN CONNECTOR ADAPTOR						EA	B	A	EP	0		0	0.0
												1.000000				
..3.....	DA-01016633	0001	TOP COVER ASSY (MERLIN)						EA	P	A	EP	0		0	0.0
			1									0.000000				
..3.....	DM-28315070	0006	GASKET CONDUCTIVE ADHESIVE TOP 2						EA	P	A	EP	0		0	0.0
			1									0.000000				

06/23/2000 09:08

Novatel Wireless Tech. Ltd

PAGE 22

FDXIB1

INDENTED BILL OF MATERIALS
 DATES: ALL

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION		UM		ABC	COMM	CLASS	TYPE	ST	PLNR	BUYER	MRP	MPS	YIELD			
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF	DATE	PENDING	CATG	TOTAL	REQD	BILL	OPER	KIT	LTO	SCRAP	
ASM: 649496 00265 7		MERLIN CDPD OEM (SYMBOL TECH)					EA	C	6494		M	A				Y	N	0.0
			2			00040					QTY:		1					
..3.....	DP-01016633	0001	TOP COVER ASSY (MERLIN)				EA		P	A	EP	0		0	0.0			
		1									0.000000							
.2.....	01016634	0010	BOTTOM COVER ASSY (MERLIN)				EA		M	A	EP	0		0	0.0			
		1									1.000000							
..3.....	14223002	0001	COVER BOTTOM, MERLIN				EA		B	A	EP	0		0	0.0			
											1.000000							
..3.....	28315061	0002	GASKET CONDUCTIVE ADHESIVE BOTTOM				EA		B	A	EP	0		0	0.0			
		1									1.000000							
..3.....	DA-01016634	0003	BOTTOM COVER ASSY (MERLIN)				EA		P	A	EP	0		0	0.0			
		1									0.000000							
..3.....	DM-28315061	0003	GASKET CONDUCTIVE ADHESIVE BOTTOM				EA		P	A	EP	0		0	0.0			
		1									0.000000							
.2.....	01016677	0011	LABEL EID (MERLIN)				EA		B	A	EP	0		0	0.0			
		1									1.000000							
..3.....	25015435	0003	LABEL BLANK EID (MERLIN)				EA		B	A	EP	0		0	0.0			
		1									1.000000							
..3.....	DA-01016677	0001	LABEL EID (MERLIN)				EA		P	A	EP	0		0	0.0			
		1									0.000000							
..3.....	DM-25015435	0004	LABEL BLANK EID (MERLIN)				EA		P	A	EP	0		0	0.0			
		1									0.000000							
..3.....	DP-01016677	0002	LABEL EID (MERLIN)				EA		P	A	EP	0		0	0.0			
		1									0.000000							
.2.....	01016864	0012	LABEL ASSY TOP COVER (MERLIN CDPD OEM)				EA		M	A	EP	0		0	0.0			
		1				00040					1.000000							
..3.....	25015433	0006	LABEL TOP COVER (MERLIN)				EA		B	A	EP	0		0	0.0			
		1									1.000000							

PDXIB1
INDENTED BILL OF MATERIALS
DATE: ALL

BY COMPONENT ID

ASSEMBLY ID		DESCRIPTION		UM		ABC	COMM	CLASS	TYPE	ST	PLNR	BUYER	MRP	MPS	YIELD		
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EPF	DATE	PENDING	CATG	TOTAL	REQD	BILL	OPER	KIT	LTO	SCRAP
ASM: 649496 00265 7		MERLIN CDPD OEM (SYMBOL TECH)					EA	C	6494		M	A			Y	N	0.0
			2		00040						QTY:		1				
.3.....	AW-01016864	0002	LABEL ASSY TOP COVER (MERLIN CDPD OEM)				EA			P	A	EP	0		0	0.0	
		1	00040									0.000000					
.3.....	DA-01016864	0002	LABEL ASSY TOP COVER (MERLIN CDPD OEM)				EA			P	A	EP	0		0	0.0	
		1	00040									0.000000					
.3.....	DM-25015433	0010	LABEL TOP COVER (MERLIN)				EA			P	A	EP	0		0	0.0	
		1										0.000000					
.2.....	01016865	0014	LABEL ASSY BOTTOM COVER MERLIN CDPD OEM				EA			M	A	EP	0		0	0.0	
		2	00040									1.000000					
.3.....	25015434	0006	LABEL BOTTOM COVER (MERLIN)				EA			B	A	EP	0		0	0.0	
		1										1.000000					
.3.....	AW-01016865	0002	LABEL ASSY BOTTOM COVER MERLIN CDPD OEM				EA			P	A	EP	0		0	0.0	
		1	00040									0.000000					
.3.....	DA-01016865	0002	LABEL ASSY BOTTOM COVER MERLIN CDPD OEM				EA			P	A	EP	0		0	0.0	
		1	00040									0.000000					
.3.....	DM-25015434	0010	LABEL BOTTOM COVER (MERLIN)				EA			P	A	EP	0		0	0.0	
		1										0.000000					
.2.....	14623039	0016	BAG, BUBBLE WRAP (MERLIN)				EA			B	A	EP	0		0	0.0	
												1.000000					
.2.....	20416419	0018	SW HEX FILE TR01-02				EA			B	A	EP	0		0	0.0	
												1.000000					
.2.....	DA-01016863	0002	PC CARD MODULE (MERLIN CDPD OEM)				EA			P	A	EP	0		0	0.0	
												0.000000					
.2.....	TP-01016863	0004	PC CARD MODULE (MERLIN CDPD OEM)				EA			P	A	EP	0		0	0.0	
												0.000000					
1.....	01016879	0004	BOX MASTER CARTON (OEM)				EA			M	A	EP	0		0	0.0	
		1	00040									1.000000					

06/23/2000 09:08

Novatel Wireless Tech. Ltd

PAGE 24

FDXIB1

INDENTED BILL OF MATERIALS
DATES: ALL

BY COMPONENT ID

ASSEMBLY ID	DESCRIPTION	UM	ABC	COMM	CLASS	TYPE	ST	PLNR	BUYER	MRP	MPS	YIELD					
LEVEL	COMPONENT ID	START	END	DWG	SIZE	ECN	EFF	DATE	PENDING	CATG	TOTAL	REQD	BILL	OPRR	KIT	LTO	SCRAP
ASM: 649496	00265 7	MERLIN CDPD OEM (SYMBOL TECH)	EA	C	6494		M	A			Y	N	0.0				
		2 00040					QTY:				1						
.2.....	14323029	0004 BOX CARTON OEM 100 PCS BULK	EA				B	A	EP		0		0	0.0			
									0.010000								
.2.....	DA-01016495	0002 BOX MASTER CARTON (MINSTREL AND SAGE)	EA				P	A	EP		0		0	0.0			
		2							0.000000								

1 ASSEMBLIES PRINTED

0 COMPONENTS PRINTED WITH SHORTAGES



Test Procedure
for
PC Card Module
TP- 01016602

Novatel Wireless Technologies Ltd. Calgary, Alberta	TITLE: Test Procedure for PC Card Module		
	DOCUMENT NO.: TP-01016602	SHEET: 1 of 15	REV: 1



REVISION HISTORY

REV#	ER/C#	EFF. DATE	DESCRIPTION	PREPARED	APPROVED
0	99007		Vesba - Unreleased	S. Smilar	
1		April 15, 1999	Modified for PC Card	G. May	

**Novatel Wireless
Technologies Ltd.**
Calgary, Alberta

TITLE:

Test Procedure for PC Card Module

DOCUMENT NO.:
TP-01016602

SHEET:
2 of 15

REV:
1



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Novatel Wireless Technologies Ltd. Calgary, Alberta	TITLE: Test Procedure for PC Card Module		
	DOCUMENT NO.: TP-01016602	SHEET: 3 of 15	REV: 1



Table of Contents

1. Introduction.....	4
2. Firmware Upload.....	5
2.1 Description.....	5
2.2 Equipment.....	5
2.3 Procedure	5
2.4 Limits	5
3. Automated alignment and test	6
3.1 Equipment.....	6
3.2 Test Description.....	7
3.3 Hardware Configuration.....	7
3.3.1 BERT Jig	8
3.4 Software Configuration	9
3.5 Calibration of Test Stack.....	10
3.5.1 Method.....	11
3.6 Running The Test And Alignment Program.....	11
3.7 Output Files	12
3.8 Error Messages	12
3.8.1 Equipment Failures.....	12
3.8.2 NRM Fatal Errors	12
3.8.3 Test or Alignment Failures.....	12
4. Registration Test.....	13
4.1 Equipment Required	13
4.2 Test Procedure	14
5. RSSI Test	15
5.1 Equipment Required	15
5.2 Test Procedure	15

1. INTRODUCTION

This document describes the manufacturing tests and alignments required for the PC Card Module (01016602).

Novatel Wireless Technologies Ltd. Calgary, Alberta	TITLE: Test Procedure for PC Card Module		
	DOCUMENT NO.: TP-01016602	SHEET: 4 of 15	REV: 1



2. FIRMWARE UPLOAD

2.1 Description

The bootstrap loader will be programmed in the FLASH before they are placed on the board. The product software will be programmed at this point using the ENGPROG utility. It is necessary to use ENGPROG to program the units rather than programming the complete program in FLASH because ENGPROG is used to program the serial numbers. All PC Card modules will be programmed with the same firmware. The personality of the modem is set in the automated test by changing a parameter. The firmware upload takes approximately 1 minute per PC Card.

2.2 Equipment

Personal Computer or Notebook PC with a PC Card (PCMCIA) slot

Novatel Wireless supplied Engprog program and .cfg file

Novatel Wireless supplied .inf file

2.3 Procedure

1. Insert the PC Card into the PC's PC Card slot. If this is the first time a Novatel Wireless PC Card has been used on the PC; insert the disk with the .inf file and configure the PC to use the driver on the floppy disk.

2. Go to the directory with the programming software and product software. Type the command:

engprog -F product.cfg

where product.cfg is the name of the configuration file. The configuration file may need to be changed depending on the COM port used and the speed of the COM port.

3. ENGPROG will respond with :

Press Enter or Escape to continue

4. Press the ENTER key.
5. ENGPROG will respond with a default EID. Enter the appropriate EID and press enter.
6. ENGPROG will respond with status messages and dots (...) when it is programming.
7. If on completion there are no error codes and the response is "device programming complete" then the module is properly programmed. ENGPROG is then ready to program the next module. Do not hit ESCAPE if you wish to program another module. Remove the module, insert a new module and start at step 3.

For more information on ENGPROG refer to the document NRM Series Flash Blaster User Guide.

2.4 Limits

ENGPROG will generate error codes if the programming has failed. Record the error code if present.

Novatel Wireless Technologies Ltd. Calgary, Alberta	TITLE: Test Procedure for PC Card Module		
	DOCUMENT NO.: TP-01016602	SHEET: 5 of 15	REV: 1



3. AUTOMATED ALIGNMENT AND TEST

The automated test uses software supplied by Novatel Wireless. The description of the hardware setup and test procedure is included below. The automated test and alignment takes approximately 5 minutes per module.

3.1 Equipment

The following pieces of test equipment are necessary for performing the alignment and manufacturing tests of the PC Card Module.

Description	Qty	Part Number	Manufacturer	Alternate Part Number	Alternate Manufacturer
RF Signal Generator	1	HP-8656B	Hewlett Packard		
Power Meter	1	HP-8901B	Hewlett Packard	HP-437B*	Hewlett Packard
Modulation Analyzer		HP-8901B	Hewlett Packard	HP-8901A*	Hewlett Packard
BERT Jig (New)	1		Novatel		
Power Sensor	1	HP-8482A	Hewlett Packard		
HPIB Card	1	HP-82335B	Hewlett Packard		
5 or 6 dB SMA Attenuator	1				
20 dB Attenuator	2				
10 dB Attenuator	1				
IEEE-488 bus cables	3				
Serial/power cable	1		Novatel		
			Novatel		
Power supply (6V, 1 Amp)	1				
Isolator	1	Si-30	Nippon Microwave Co.		
Power Splitter	1	15542	Mini Circuits		
Dual Directional Coupler	1	HP 775D	Hewlett Packard		
50 ohm Coax terminator	1	HP 908A	Hewlett Packard	Any 50 ohm terminator	
Banana Jack cable	2				
Banana Jack / alligator clip cable	2				
Digital Multimeter	1	HP 3784A	Hewlett Packard		
N- type Cables	2				
SMA type cable	1				
BNC type cable	2				
PC	1				
PC extender card	1	PCCextend 100	SYCARD		

Novatel Wireless Technologies Ltd. Calgary, Alberta	TITLE: Test Procedure for PC Card Module		
	DOCUMENT NO.: TP-01016602	SHEET: 6 of 15	REV: 1



			Technology		
PC Card Bay	1	PCMRDWR	Linksys		
SMA to N adapter	1				

* An HP-8901B Modulation Analyzer contains a power sensor input and can be used for accurate power measurements. Extra components may be required if these two pieces of equipment are used.

3.2 Test Description

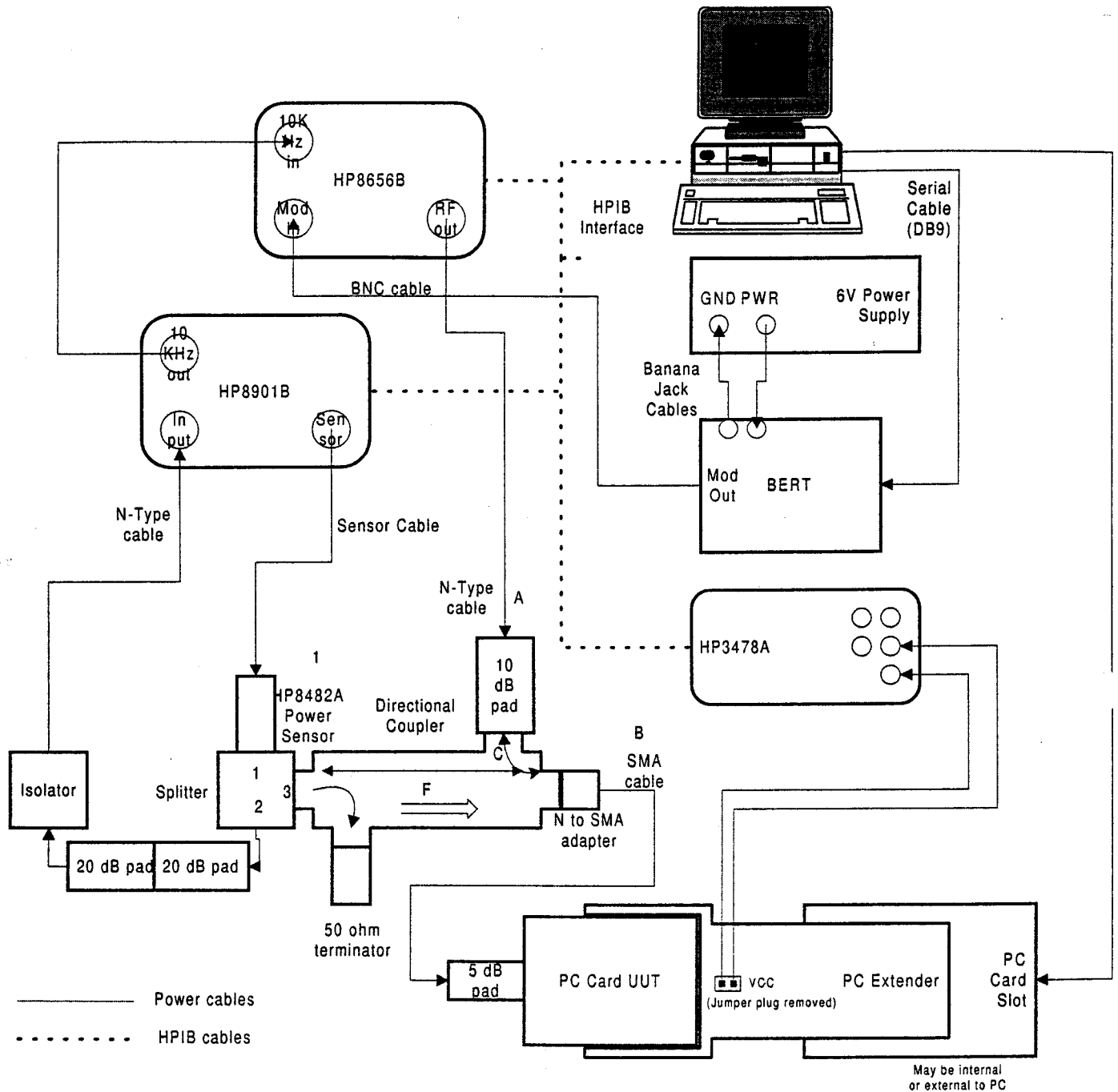
The following tests are performed in the automated test stage:

- RSSI calibration
- Transmitter power level calibration
- Transmit modulation gain calibration
- TCXO Calibration
- RSSI accuracy
- Receiver RF sensitivity
- Transmitter frequency error
- Current consumption

3.3 Hardware Configuration

The hardware configuration is shown below.

Novatel Wireless Technologies Ltd. Calgary, Alberta	TITLE: Test Procedure for PC Card Module		
	DOCUMENT NO.: TP-01016602	SHEET: 7 of 15	REV: 1



3.3.1 BERT Jig

Novatel Wireless Technologies Ltd. Calgary, Alberta	TITLE: Test Procedure for PC Card Module		
	DOCUMENT NO.: TP-01016602	SHEET: 8 of 15	REV: 1



The BERT jig is used to perform the Receive Sensitivity test. There is a 26 pin cable which is not connected. The BNC Mod Out should be connected to the External Modulation input of the signal generator. The DB-9 connector should be connected with a 9 pin cable to the COM1 port of a PC. The GND banana jack should be connected to the GND of the power supply. The PWR banana jack should be connected to the PWR of the power supply.

3.4 Software Configuration

The software is configured using configuration files which saves the need for recompiling when equipment or test limits are changed. The format of the test configuration file is shown below.

TESTNAME

test on/off
number of channels
channel values list
begin level value, end level value, intermediate level value, step value
initial value filename
upper measlimit, lower measlimit
upper dptlimit array - for rssi limits = $2.5 \times x + 110 + \text{upper measlimit}$
lower dptlimit array - for rssi limits = $2.5 \times x + 110 - \text{lower measlimit}$
accuracy - for tcxo,txmcal&powcal-tune meas to $\pm (\text{upmeslim} - \text{lowmeaslim}) \times \text{acc} / 200$
relative tolerance allowed - for rssi test only or current temp in celcius for tempcalibration
debug - 1 means turn debug info on, 0 means turn it off
end of parameters indicator

The format of the equipment configuration file is shown below.

EQUIPNAME

equipment type
address
calibration factor 1
calibration factor 2

For example:

SIGGEN
hp8656b
707
2
.002

The equipment name is the name used to identify the piece of equipment. The equipment type is the part number of the equipment. Valid part numbers are given in section 2. The address is the HPiB address of the equipment. The calibration factors are used to calibrate out deviations in the equipment and cable losses. This should be done before running the tests. The calibration factors are different for each piece of equipment. The table below shows the assignments.

Novatel Wireless Technologies Ltd. Calgary, Alberta	TITLE: Test Procedure for PC Card Module		
	DOCUMENT NO.: TP-01016602	SHEET: 9 of 15	REV: 1



Equipment	Cal factor 1	Units	Cal factor 2	Units
Signal Generator	RF Amplitude	dB	RF Frequency	MHz
Power Meter*	RF Power	dB		
Audio Analyzer	Amplitude	V	Frequency	KHz
Modulation Analyzer	Frequency			
Digital Transmission Analyzer				
Switch Control Unit				
Digital Multimeter	Current of test jig for Vespa testing, 0 for PC Card testing.	A		

* If the 8901B is used as a power meter then the cal factors have to be set up under the Power Meter configuration

3.5 Calibration of Test Stack

After the individual pieces of equipment are calibrated it is necessary to calibrate out cable losses in the test stack. The results of the calibration are entered in the equip.cfg file. Each piece of equipment has two calibration factors. The table below gives a description of each calibration factor for each piece of equipment.

Equip	Cal Factor 1	Cal Factor 2
Signal Generator	Amplitude in dB - gives the total loss from the antenna port to the signal generator RF output, includes losses in cables and attenuators	Frequency in KHz - the difference between the signal generator frequency and the actual measured frequency.
Modulation Analyzer		Frequency in Hz - the difference between the modulation analyzer frequency and the actual input frequency.
Power Meter	Amplitude in dB - gives the total loss from the antenna port to the power meter sensor input, includes losses in cables and attenuators	
Digital Multimeter	PC Card current	

The basic assumption is that the signal generator power output is accurate. The specification is +/- 1dB, but the results from calibration of the test stack in Calgary showed the HP sig gen to be within 0.5 dB. Any errors in this assumption will effect receive sensitivity numbers. If there is any doubt about the signal generator's absolute power or linearity, it should be sent out to HP to obtain calibration data and then the RF levels can be adjusted accordingly.

Novatel Wireless Technologies Ltd. Calgary, Alberta	TITLE: Test Procedure for PC Card Module		
	DOCUMENT NO.: TP-01016602	SHEET: 10 of 15	REV: 1



3.5.1 Method

1. Establish a reference by directly connecting the 8482A power sensor to the type N connector on the signal generator. Set the signal generator to the mid band of the AMPS cellular receive frequency of 881 MHz. Set the signal generator to +15 dBm. This is out of the calibrated range of the signal generator, but it will not effect the measurement, because the measurement will be relative not absolute. Using a higher RF level on the signal generator will improve the accuracy, of measurement taken with the HP 8482A power sensor, because it is most linear in the range of +20 dBm to +10 dBm. To zero the reference, use the "rel" function on the modulation analyzer.
2. First measure the N-type cable (A) and the directional coupler in the RX path by inserting it between the signal generator and the power sensor. All other terminals on the directional coupler should be terminated with 50 ohm. Measure the attenuation. The attenuation can be read directly from the modulation analyzer display, because it is in "rel" mode.
3. Remove the directional coupler and connect the SMA cable (B) and the 5 dB attenuator. By using a blank PCB with a coaxial SMA pig tail, the test jig cables and barrel connector can be factored into the total attenuation of the receive path. Measure the attenuation of the SMA cable and the test jig cables.
4. The total attenuation in the receive path is A+B+C.
5. The transmit path attenuation is measured in the same manner but with the signal generator set to 836 MHz. Make sure any unused terminals are terminated with 50 ohm.
6. The DMM should be checked as follows. The test jig is connected and power is applied. No unit is inserted in the PC Card slot. The power switch is moved to the ON position. The current on the DMM should be 0.0 Amps, and this is recorded and entered in the equip.cfg file in Amps.

3.6 Running The Test And Alignment Program

Files needed to run the program are stored in the directory c:\6832test. The files should be copied to the network as the directory the program is run from is the directory used to store results. The program should be started once each day or every time the type of module being assembled is changed. The files are:

a.bat: batch file which runs the test with the necessary configuration files.
nts.exe: the executable program file
equip.cfg: equipment configuration file
test.cfg: test configuration file

The following steps are taken to run the program:

1. Type the command 'a'
2. Select a number for the unit configuration
3. Plug unit in to PC Card slot
4. Plug antenna connector in to unit

Novatel Wireless Technologies Ltd. Calgary, Alberta	TITLE: Test Procedure for PC Card Module		
	DOCUMENT NO.: TP-01016602	SHEET: 11 of 15	REV: 1



5. Press Enter
6. Test will run and display tests which have failed
7. Repeat steps 3 through 6 for each unit

3.7 Output Files

The NTS system produces two types of output files. The first is a file for each unit tested with results of each test and alignment. The format of this file is xxxxxx.out, where xxxxxx is the last 6 digits (hex) of the serial number of the unit. The second is a file for each test with results for each unit tested. The format of the second file is xxxxxx.txt where xxxxxx is the name of the test or calibration performed.

3.8 Error Messages

3.8.1 Equipment Failures

- 100: Unknown error
- 101: Invalid selector code or device address
- 102: Command parameter out of range
- 103: Timeout error
- 104: HPIB card is not active controller

Result: Test will exit for this unit for any of these failures.

3.8.2 NRM Fatal Errors

200: Power Up Failure

Description: The unit is not responding with a '9' on power up. This can be caused by a number of things. Serial communications may not be working, which is not likely if the unit has been programmed. The more likely cause of the failure is the VHF synthesizer not locked. A third possibility is that the module has been set to communicate at a different baud rate than the 9600 or 19200 the test program uses.

Result: Test will exit for this unit

201: Serial Communications Failure

Description: The unit does not respond to a serial communications command sent to the unit. The test should be repeated for this unit. If the problem persists debugging is necessary.

Result: Test will exit for this unit

202: FSU lock failure

Description: One of the synthesizers is not locked due to a problem on the board

Result: Test will exit for this unit

203: NVM Failure

Description: The module is unable to store the calibration factors in NVM, likely due to a problem with the serial EEPROM on the board

Result: Test will exit for this unit

3.8.3 Test or Alignment Failures

300: RSSI Calibration Failure

Novatel Wireless Technologies Ltd. Calgary, Alberta	TITLE: Test Procedure for PC Card Module		
	DOCUMENT NO.: TP-01016602	SHEET: 12 of 15	REV: 1



301: Rx Demod Calibration Failure
302: Tx Power Calibration Failure
303: Tx Modulation Calibration Failure
304: RSSI Test Failure
305: Rx Sensitivity Test Failure
306: Tx Freq Test Failure
307: Tx Power Test
308: Rx Demod Test Failure
309: Tx Modulation Test
310: Current Test Failure

Result: The results of the test will be recorded as usual.

4. REGISTRATION TEST

The functional test consists of connecting the unit under test to a CDPD base station emulator, and performing a registration procedure. Successful registration indicates that the unit is indeed functional.

4.1 Equipment Required

1. IFR-uCell-100 with CDPD option
2. PC or notebook PC with a type II PC Card slot and with terminal utility (Hyperterminal or Procomm Communications)
3. MMCX interface cable
4. PC Card (UUT) to be tested.

The equipment will be wired as indicated:

Novatel Wireless Technologies Ltd. Calgary, Alberta	TITLE: Test Procedure for PC Card Module		
	DOCUMENT NO.: TP-01016602	SHEET: 13 of 15	REV: 1

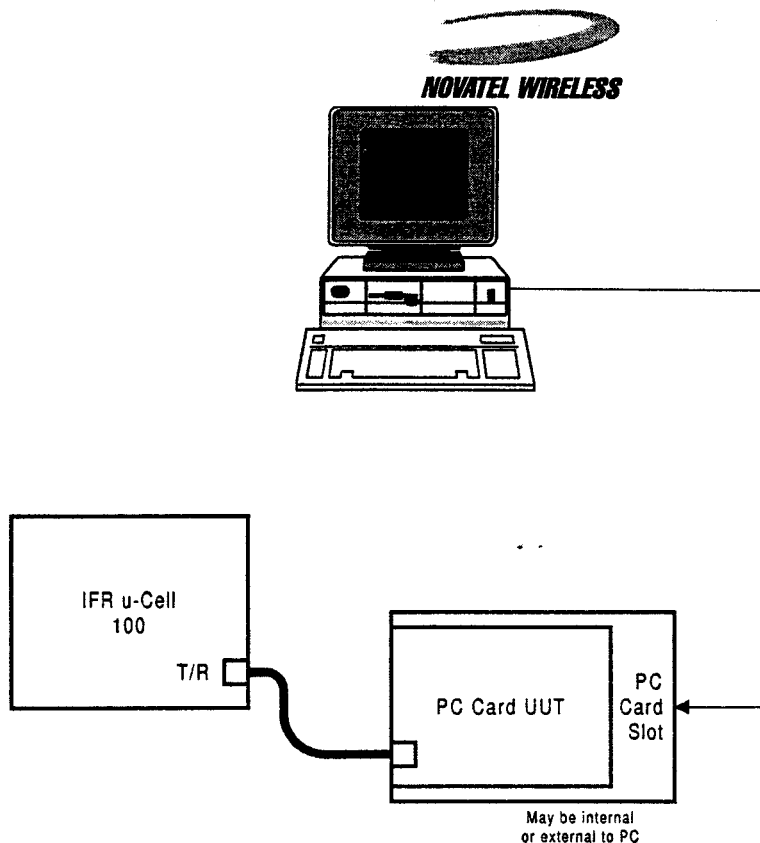


Figure 9.2.1. Functional Test Connection Diagram.

4.2 Test Procedure

The IFR should be set-up as follows: (This set-up will only have to be performed once at the start of testing and not before each unit is tested)

1. Power up the IFR
2. From the Menu press 9 CDPD TESTS
3. Press 2 MANUAL. The settings for the MANUAL screen should be:

SEND MESSAGE	ICMP PING	RF LEVEL	-40
CHANNEL	991	MAX POWER	2
TEST MODE	BURST	POWER PRODUCT	39
CDPD SPEC	1.1	PING MODE	AUTOMATIC

4. Press CABLE
5. Attach the cable to be used between the T/R connector and the CABLE TEST connector
6. Press START
7. Press MANUAL, and add 0.5 dB to the measured cable loss to compensate for the NRM antenna cable
8. Insert the PC Card into the PC Card slot and attach the cable to the PC Card.
9. Start the terminal session to the PC Card.
10. Press START on the IFR. Within 30 seconds the IFR should indicate that registration has taken place. Once the unit responds with an ABCDE on the terminal the unit passes. Record a PASS/FAIL for the registration test
11. Record the modulation index for the unit. Unit passed if between 0.45 and 0.54. Record the Frequency error for the unit.

Novatel Wireless Technologies Ltd. Calgary, Alberta	TITLE: Test Procedure for PC Card Module		
	DOCUMENT NO.: TP-01016602	SHEET: 14 of 15	REV: 1



12. Check that the EID on the label matches the EID displayed on the IFR.
 13. Perform test **5. RSSI Test**
 14. Close the terminal session to the PC Card
- Repeat steps 8 to 11 for each module tested.

5. RSSI TEST

The purpose of this test is to check the RSSI to confirm that the antenna connector and antenna matching components were properly placed.

5.1 Equipment Required

1. IFR-uCell-100 with CDPD option
2. PC or notebook PC with a type II PC Card slot and with terminal utility (Hyperterminal or Procomm Communications)
3. MMCX interface cable
4. PC Card (UUT) to be tested.

5.2 Test Procedure

While still connected to the IFR enter the following commands in the terminal:
ats202?

Record the result. The unit has passed if the result is between 62 and 66. Enter the command *ath4* and press the STOP button on the IFR.

Novatel Wireless Technologies Ltd. Calgary, Alberta	TITLE: Test Procedure for PC Card Module		
	DOCUMENT NO.: TP-01016602	SHEET: 15 of 15	REV: 1