

Final Assembly Procedure Model: LVP-1900 URL TLI

Item	Process flow	Description	Work method/ WI <small>(REF: WIO6P01-163)</small>	ObT <small>(sec)</small>	UPH	NO of worker	Workstation Layout	IPQA process
		MATERIALS PREPARATION						
1	A1	BUTTON & HOUSING ASSY	ASSEMBLE BUTTON ASSY HOUSING ASSY.UPPER	27	133	1	1	
2	A2	LCD & HOUSING ASSY	ASSEMBLE LCD ASSY/ CABLE FLAT/ SPEAKER TO HOUSING ASSY.UPPER	26	138	1	2	
3	A3	MAIN MBU ASSY	PCB.MAIN MBU	23	157	1	3	
4	A4	ADHERE LABELS	ADHERE MODEL LABEL (MAC NO.) & LOGO LABEL	20	180	1	4	
5	A5	SCAN S/N	SCAN S/N (MAC NO.) TO PC	22	164	1	5	
6	A6	FLAT CABLE ASSY	ASSEMBLE FLAT CABLE TO PCB MAIN	22	164	1	6	
7	A7	HOUSINGS ASSY	ASSEMBLE UPPER HOUSING ASSY TO LOWER HOUSING ASSY	25	144	1	7	
8	A8	INSERT CARDS	INSERT SD CARD, SIM COVER AND COVER PROTECTION	20	180	1	8	
9	T1	OFF LINE TEST SETTING	<small>(REF: TEST WI FROM NPI)</small>	22	164	1	9	
10	T2	KEY/LCD/SOUND/CAMERA TEST	<small>(REF: TEST WI FROM NPI)</small> Need 2 persons to test →	42 171	86 171	2	10	
11	T3	ON LINE TEST SETTING	<small>(REF: TEST WI FROM NPI)</small>	23	157	1	11	
12	T4	CALL TEST SETTING	<small>(REF: TEST WI FROM NPI)</small>	23	157	1	12	
13	T5	LAN PING SETTING	<small>(REF: TEST WI FROM NPI)</small>	28	129	1	13	
14	I1	CLEAN & ADHERE TAPE	TAKE OUT ORIGINAL TAPE, CLEAN LCD & REPLACE PROT-TAPE	12	300	1	14	
15	I2	INSPECTION	<small>REF: WIO6P01-163</small>	23	157	1	15	
16	P1	PREPARE ACCESSORIES1	○ PUT MACHINE & HANDSET IN BAG ○ SCAN S/N TO PRINT OUT 3 PCS	26	138	1	16	
17	P2	PREPARE ACCESSORIES2	○ PREPARE ADAPTOR ○ PREPARE TELEPHONE CORD	10	360	1	17	
18	P3	PUT MACHINE TO UNIT BOX	PUT MACHINE AND ACCESSORIES INTO UNIT BOX	26	138	1	18	
19	P4	PUT UNIT BOX TO MASTER	PUT UNIT BOX INTO MASTER BOX ○ 9 UNIT BOXES PER MASTER BOX	10	360	1	19	
20		PREPARE UNIT & MASTER	PREPARE UNIT & MASTER BOXES FOR PACKING	7	514	1	20	
		F/G STORAGE					21	

Observed time (seconds/ unit)	437	8,238	21
Observed time minutes/ units	7.2833		
Observed time (hr/ unit)	0.1214	0.121	

Update by: Sonam

=> OUTPUT = (NO OF WORKER * WORK TIME) / (STD TIME * PRODUCTIVITY)

=> PRODUCTIVITY = (OUTPUT * STD TIME) * 100 / (NO OF WORKER * WORK TIME)

=> EFFICIENCY = (OUTPUT * STD TIME) * 100 / (NO OF WORKER * WORK TIME) - (1-FAILURE RATE) - NON-PRODUCTIVE HOUR

NOTE: NON-PRODUCTIVE HOUR = LOST TIME DUE TO MAINTENANCE, ENGINEERING ISSUES, QUALITY ISSUES AND MATERIALS SHORTAGE

Last update:		Conveyor set No:	n/a
Line No:	1A	Conveyor speed (cms/ second)	n/a
No of worker:	21	Takt time (s)	24
Assembly	8	Output per hour - UPH (max)	150
Functional test	6	Observed time (hr/unit)	0.121
Inspection	2	Productivity (% max)	86.43
Packing	5	O/P of 100% productivity	174

Actual output (units per hour)	
Actual productivity (%)	

Final Assembly Procedure Model: LIP-6812 PMN BK

Item	Process flow	Description	Work method/ WI (REF: NPI WI)	ObT (sec)	UPH	NO of worker	Workstation Layout	IPQA process
		MATERIALS PREPARATION	KEYPAD&UPPER HOUSING ASSY BY SUB-CONTRACTOR					
1	A1	SPEAKER ASSY		25	144	1	1	
2	A2	LCD & HOUSING ASSY		23	157	1	2	
3	A3	SCAN S/N	SCAN S/N (MAC NO.) TO PC	28	129	1	3	
4	A4	MAIN & HOUSING ASSY		23	157	1	4	
5	A5	C-MIKE ASSY	SCAN S/N (MAC NO.) TO PC	22	164	1	5	
6	A6	HOUSINGS ASSY	ASSEMBLE UPPER HOUSING ASSY TO LOWER HOUSING ASSY	28	129	1	8	
7	A7	PUT UNDERLAY&OVERLAY		16	225	1	7	
8	T	FUNCTIONAL TEST	Need 4 persons to test →	114 126	32 4	8 10	8 9 10 11	
9	I	INSPECTION		25	144	1	12	
10	P1	PREPARE ACCESSORIES1	O PUT MACHINE INTO BAG O PUT HANDSET INTO BAG	26	138	1	13	
11	P2	PUT MACHINE TO UNIT BOX	PUT MACHINE AND ACCESSORIES INTO UNIT BOX	30	120	1	14	
12	P3	PUT UNIT BOX TO MASTER	PUT UNIT BOX INTO MASTER BOX	10	360	0.5	15	
13		PREPARE UNIT & MASTER	PREPARE UNIT & MASTER BOXES FOR PACKING	7	514	0.5		
		F/G STORAGE						
				Observed time (seconds/ unit)	377	9.549	15	
				Observed time minutes/ units	6.2833			
				Observed time (hr/ unit)	0.1047	0.105		

Site by Somsak

=> OUTPUT = (NO OF WORKER * WORK TIME) / (STD TIME * PRODUCTIVITY)

=> PRODUCTIVITY = (OUTPUT * STD TIME) * 100 / (NO OF WORKER * WORK TIME)

=> EFFICIENCY = (OUTPUT * STD TIME) * 100 / (NO OF WORKER * WORK TIME) - (1-FAILURE RATE) - NON-PRODUCTIVE HOUR

NOTE: NON-PRODUCTIVE HOUR = LOST TIME DUE TO MAINTENANCE, ENGINEERING ISSUES, QUALITY ISSUES AND MATERIALS SHORTAGE

Last update:	08.09.07	Conveyor set No:	12.5
Line No:	4A	Conveyor speed (cms/ second)	2.07
No of worker:	15	Takt time (s)	30
Assembly	7	Output per hour - UPH (max)	120
Functional test	4	Observed time (hr/unit)	0.1047
Inspection	1	Productivity (% max)	83.76
Packing	3	O/P of 100% productivity	143

Actual output (units per hour)

Actual productivity (%)

DISPLAY ASSEMBLIES (ABQ73301301=17 persons, EBR64620701=13 persons)

Item	Process flow	Description	Work method/ WI	ObT (sec)	UPH	Opr (est)	Opr (actual)	Workstation Layout	IPQA process
		Material Preparation							
0	A0	Adhere PE Insulator to Receiver	Note: additional process to replace the old one of receiver	10	360	2.5	3		
1	A1	Insert Harness Single (1) to PCB		4	900	1	1		
2	A2	Insert Capacitor (1) to PCB		3	1200	0.75	1		
3	A3	Insert Connector (1) to PCB		3	1200	0.75	1		
4	A4	Insert LED (3) to PCB		13	277	3.25	4		
4.1		Inspection before Wave Soldering	Note: additional process to inspect PCBA Display.	4	900	1	1		
5	D1	Wave Soldering							
6	A5	Lead cutting and breaking PCB		3	1200	0.75	1		
7	A5	Touch up (manual solder)		3	1200	0.75	1		
8	I1	PCBA Inspection & Marking		7	514	1.75	2		
9	A6	Break PCB & Insert Harness Single		4	900	1	1		
10	I2	Inspect Harness Single, mark and break PCB.		3	1200	0.75	1		
11	A7	Adhere Label on Case		3	1200	0.75	1		
12	A8	Assemble Case to PCBA		3	1200	0.75	1		
13	A8	Adhere Insulator in Cover		8	450	2	2		
14	A10	Assemble Cover to Case		8	450	2	2		
15	T1	Functional Test (Jig Test)		18	200	4.5	5		
16	P1	Packing and put in box		7	514	1.75	2		
		Delivery to F/G area							

Observed time (seconds/ unit)	104	34.62	23.5	30
Observed time minutes/ units	1.7333			
Observed time (hr/ unit)	0.0289	0.029		

Prepared by: JohnP

Rev: April 15, 2011 (Rev. 02)

=> OUTPUT = (NO OF WORKER * WORK TIME) / (STD TIME * PRODUCTIVITY)

=> PRODUCTIVITY = (OUTPUT * STD TIME) * 100 / (NO OF WORKER * WORK TIME)

=> EFFICIENCY = (OUTPUT * STD TIME) * 100 / (NO OF WORKER * WORK TIME) - (1-FAILURE RATE) - NON-PRODUCTIVE HOUR

NOTE: NON-PRODUCTIVE HOUR = LOST TIME DUE TO MAINTENANCE, ENGINEERING ISSUES, QUALITY ISSUES AND MATERIALS SHORTAGE

Last update:	15 Apr 11	Conveyor set No:	n/a
Line No:	PCB & Final Assy Display	Conveyor speed (cms/ second)	n/a
No of worker:	30	Takt time (s)	4
Assembly	19	Output per hour - UPH (max)	900
Inspection	4	Observed time (hr/unit)	0.029
Test	5	Productivity (% max)	87.00
Pack	2	O/P of 100% productivity	1034

Actual output (units per hour)	
Actual productivity (%)	0.00

PCBA P/N: EBR62406302 Manual Component Placement and Insertion

Item	Process flow	Description	Work method/ WI	Obt (sec)	UPH	Opr (est)	Opr (actual)	Workstation Layout	IPQA process
	➔	Material Preparation							
1	A1	Attached barcode S/N		3	1200	0.2		1	
2		Put fuse (Fuse)		3	1200	0.2			
3		Insert Diode (D06D)		3	1200	0.2			
4		Insert Thyristor Triac (TR01P)		3	1200	0.2			
5	A2	Insert Capacitor (C03U)		3	1200	0.2		2	
6		Connector (CN-OUT/N1)		3	1200	0.2			
7		Connector (CN-IN/N)		3	1200	0.2			
8		Varistor (ZNR01J)		3	1200	0.2			
9		Connector Wafer (CN-M0tor)		3	1200	0.2			
10	A3	Thyristor Triac (IC01P)		3	1200	0.2		3	
11		Capacitor 0.1uF (C01J)		3	1200	0.2			
12		Capacitor 0.1uF (C02J)		3	1200	0.2			
13		Capacitor 0.1uF (C01P)		3	1200	0.2			
14	A4	Photo Coupler (IC01T)		3	1200	0.2		4	
15		IC Analog Switch (IC10D)		3	1200	0.2			
16		Thermister (NTC)		3	1200	0.2			
17		Capacitor 10uF (C08D)		3	1200	0.2			
18	A5	Resistor 110KOhm (R02D)		3	1200	0.2		5	
19		Varistor 270pF (ZNR01P)		3	1200	0.2			
20		IC EEPROM (EEPROM)		4	1800	0.2667			
21		Capacitor 220uF (C01D)		3	1200	0.2			
22	A6	Buzzer 1.245KOhm (BZ01E)		3	1200	0.2		6	
23		Filter Line noise 40MH (NF01J)		4	1800	0.2667			
24		Transformer Switching (SMPS)		4	1800	0.2667			
25		Connector 5P BL (CN-L/R)		3	1200	0.2			
26	A7	Connector 5P WH (CN-U/DR)		3	1200	0.2		7	
27		Connector 7P BL (CN-DISP2)		3	1200	0.2			
28		Connector 3P BL (CN-12V)		3	1200	0.2			
29		Capacitor 0.47uF (C01M)		3	1200	0.2			
30	A8	Connector 3P BL (CN-HVB)		3	1200	0.2		8	
31		Relay Contact (RY-COMP)		4	900	0.2667			
32		Harness 8P (N-DISP1)		4	900	0.2667			
33		Connector 4P WH (CN-TH1)		3	1200	0.2			
34	A9	Connector 7P WH (CN-LINK)		3	1200	0.2		9	
35		Capacitor 10uF (C03J)		3	1200	0.2			
36	I1	100% Visual Inspection		15	240	1	1	10	
37	D1	Wave Soldering							
38	A9	Lead cutting and breaking PCB		25	144	1.6667	2	11	
39		Touch up (manual solder)		45	80	3	3	12	
40		100% Visual check, Break PCB & Marking		15	240	1	1	13	
41	T1	ICT		10	360	0.6667	1	14	
42	T2	Functional Test		15	240	1	1	15	
43	QC	100% Visual Inspection by LQC	-17seconds (UPH=212)					16	
44	P1	Stamp datecode and put in box		8	450	0.5333	1	17	
	▽	Delivery to C-Box line							

Observed time (seconds/ unit)	243	14.81	16.2	17
Observed time minutes/ units	4.05			
Observed time (hr/ unit)	0.0675	0.068		

Prepared by: JSM/P
Date: March 25, 2011

- ==> OUTPUT = (NO OF WORKER * WORK TIME)/ (STD TIME * PRODUCTIVITY)
- ==> PRODUCTIVITY = (OUTPUT * STD TIME) * 100/ (NO OF WORKER * WORK TIME)
- ==> EFFICIENCY = (OUTPUT * STD TIME) * 100/ (NO OF WORKER * WORK TIME) - (1-FAILURE RATE) - NON-PRODUCTIVE HOUR
- NOTE: NON-PRODUCTIVE HOUR = LOST TIME DUE TO MAINTENANCE, ENGINEERING ISSUES, QUALITY ISSUES AND MATERIALS SHORTAGE

Last update:		Conveyor set No:	n/a
Line No:	PCBA #1	Conveyor speed (cms/ second)	n/a
No of worker:	17	Takt time (s)	15
Assembly	12	Output per hour - UPH (max)	240
Inspection	2	Observed time (hr/unit)	0.068
Test	2	Productivity (% max)	96.00
Stamp&Pack	1	O/P of 100% productivity	250

Actual output (units per hour)	
Actual productivity (%)	0.00