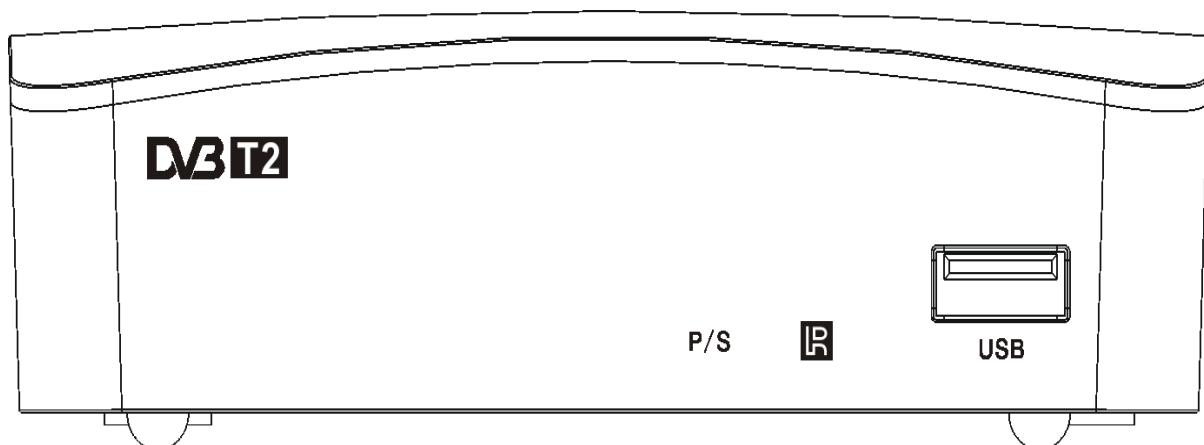


DVB-Terrestrial Receiver

SMP129HDT2(new version)

Service Manual



This service manual should be used with the User Manual together.
Please read this Service Manual and User Manual carefully before service this product.

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PCB Diagram of Decoding Board Top	Ошибка! Закладка не определена.
PCB Diagram of Control Board Bottom	Ошибка! Закладка не определена.
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Safety Instructions

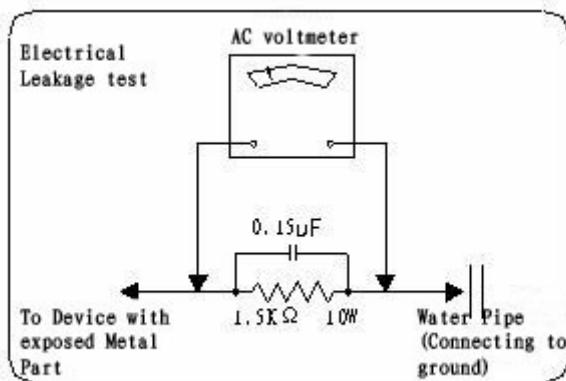
Generally Guide

1. Please check electric circuits before maintenance and change the damaged or over heated components if short-circuit has been found.
2. Please check all protective devices have been installed well after maintenance, such as insulation covering and paper.
3. Please finish following electrical leakage tests after maintenance to avoid electric shock.

Low Voltage Leakage Testing

Take out power cord from an AC outlet and connect a length of wire between the two leads of the plug.

Use Gear R x 10K of the voltmeter to measure the resistance between shorted-out AC plug and exposed metallic parts like screw cap, control shaft etc. which shall be infinite.



Picture 1

High Voltage Leakage Testing

As shown in Picture 1, connect a resistor of 1.5K, 10W and capacitor of 0.15 uF between exposed metallic part and well grounded devices (water pipe etc.).

Plug power cord directly into the socket. Do not use insulated transformer to test.

Use 1000 Ohm/V or more sensitive voltmeter to measure AC voltage of the resistor.

Turn over the AC jack and plug into the socket again to iterate the inspection as above.

Inspect the voltage of the resistor between other exposed metallic parts and the earth in the same way.

Any parts' voltage of the resistor should not over 0.75Vrms. A leakage testing machine with voltage over 2,500 V can also be used for this inspection in which case the electric leakage should not be over 0.5mA. When the leakage exceeds that limit, electric shock may occur. Please check and repair again before hand it over to users.

4. Protect Electrostatic-Sensitive Devices from Electrostatic Discharge

Some solid states made of semiconductors materials can be easily damaged by commonly static charges, those components are usually called electrostatic-sensitive devices. Such like integrated circuits, laser diodes and field effect devices. The following tips will help you to reduce the impacts on those components while electrostatic discharging.

Please release static which build-up on human body before handling electrostatic-sensitive devices by using grounded tools. The antistatic strap which can be found in the market will be a good choice.

Please install the electrostatic-sensitive devices on conductor products such as aluminum foil to prevent static build-up after disassembling from this DVB-T receiver.

The soldering iron must be earthed while soldering and unsoldering the electrostatic-sensitive devices.

Only antistatic solder can be used for electrostatic-sensitive devices disassembly. The electrostatic-sensitive devices will be damaged by static without ESD prevention solder while disassembling.

Do not use Freon Volatile which may damage the electrostatic-sensitive devices by discharging static.

Do not take the new electrostatic-sensitive devices from the antistatic protection package unless you are ready for installation. (Most electrostatic-sensitive devices will be packed with anti-static foam, foil or similar conductive materials. And a lead wire to prevent short circuit.)

Please contact the core or circuit parts of the device to be installed with ESD protection package before carry out the new electrostatic-sensitive devices from it. And make sure no power supply on the device and remember other precautions.

Try to reduce body movements while assembling or disassembling electrostatic-sensitive devices. (Clothes made of fabrics will build-up static by attrition. Feet lifts up from floor will also build-up static.)

Electrical Specifications

A Audio Section (MPEG-1 Layer II, R. L Track Output)

No.	ITEM	UNIT	REQUIREMENTS	Test Environment
1	Audio Output Level	V	1.0~2.0	Output impedance is 10KΩ 1KHz 0dB
2	Frequency Characteristics	dB	+1/-2.0	20Hz-60Hz
			±0.5	60Hz-17.5KHz
			+1/-3	17.5KHz-20KHz
			≥70	1KHz 0dB weighting
3	S/N	dB	≥60	N-CBAR100.TS f= 1KHz P-CBAR75.TS
4	L/R Channel Separation	dB	≤0.5	60Hz-18KHz
5	L/R Channel Level Difference	dB	≤1	60Hz-18KHz
6	Audio THD	%	0.5±20%	75Ω Load
7	Digital Coaxial Output Level	Vp-p		

B Video (MPEG-2MP@ML)

1	Output range	Video	Vp-p	1.0±15%	75Ω Load
		Brightness/RGB		0.7±10%	
		Sync		0.30±8%	
2	Frequency Characteristics (75Ω)	dB	dB	±0.5	0.5-4.8MHz
		dB		≤+0.5/-1.0	4.8-5.0MHz
		dB		≤+0.5/-4	5.0-5.5MHz
3	Brightness S/N	dB	dB	≥56	WTD 5MHz
4	Chromatic S/N	dB		AM≥58 PM≥51	Load 75Ω
5	Differential gain (DG)	%	◦	≤±5	Load 75Ω
6	Differential phase (DP)	◦		≤±5	Load 75Ω
7	Brightness non-linear distortion	%	ns	≤5	Load 75Ω
8	△τ chrominance-luminance delay inequality	ns		≤±30	Load 75Ω
9	△K Chrominance-luminance Gain Inequality	%	Hz	≤±5	Load 75Ω
10	Brightness Waveform Distortion	%		≤3	Load 75Ω
11	Chrominance Subcarrier Offset is not more than	Hz	200	200	Load 75Ω

C Demodulation

1	Input Frequency Range	MHz	174~230MHz, 470~862MHz (VHF/UHF)	
2	Input Level Range	dBm	-75~-20	
3	Frequency Offset	MHz	-0.4MHz~+0.74MHz	

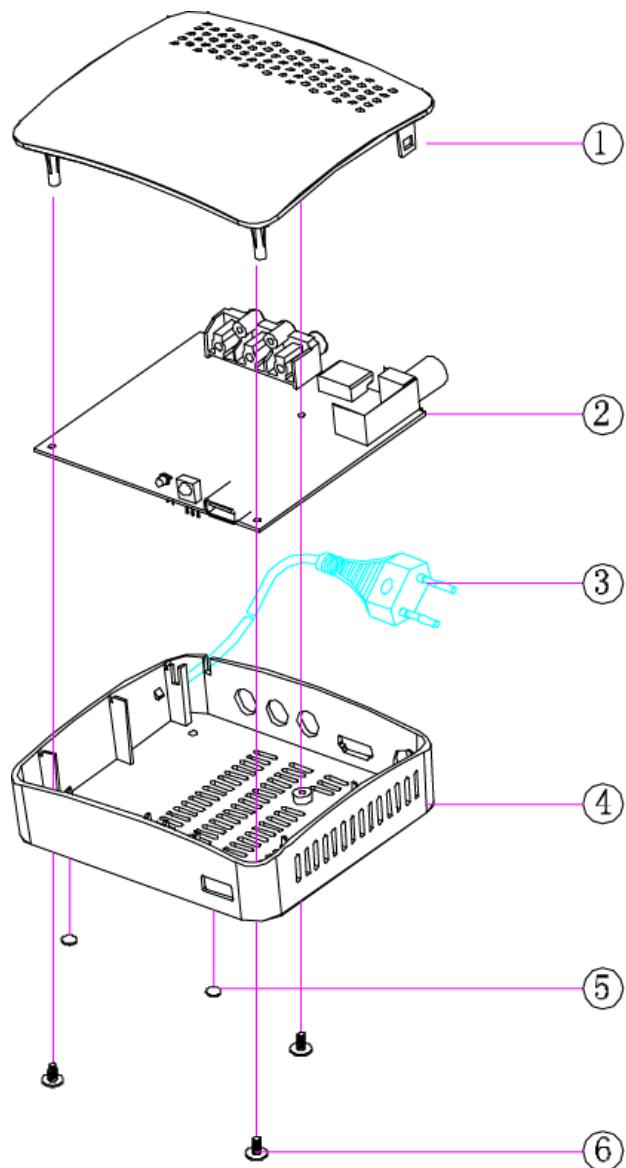
D Power Supply (~165-264V)

1	+5V	mA	2000	5%
2	+12V	mA	120	10%
3	+5V Active Antenna Amplifier	mA	30	5V overload protection

E Others

1	Free Fall	Meets QJ/ET08.02-2005 Standards		
2	Remote Control Distance	M	≥8	In line
			≥6	With range of ±30°
3	Rated Power Consumption	W	10	

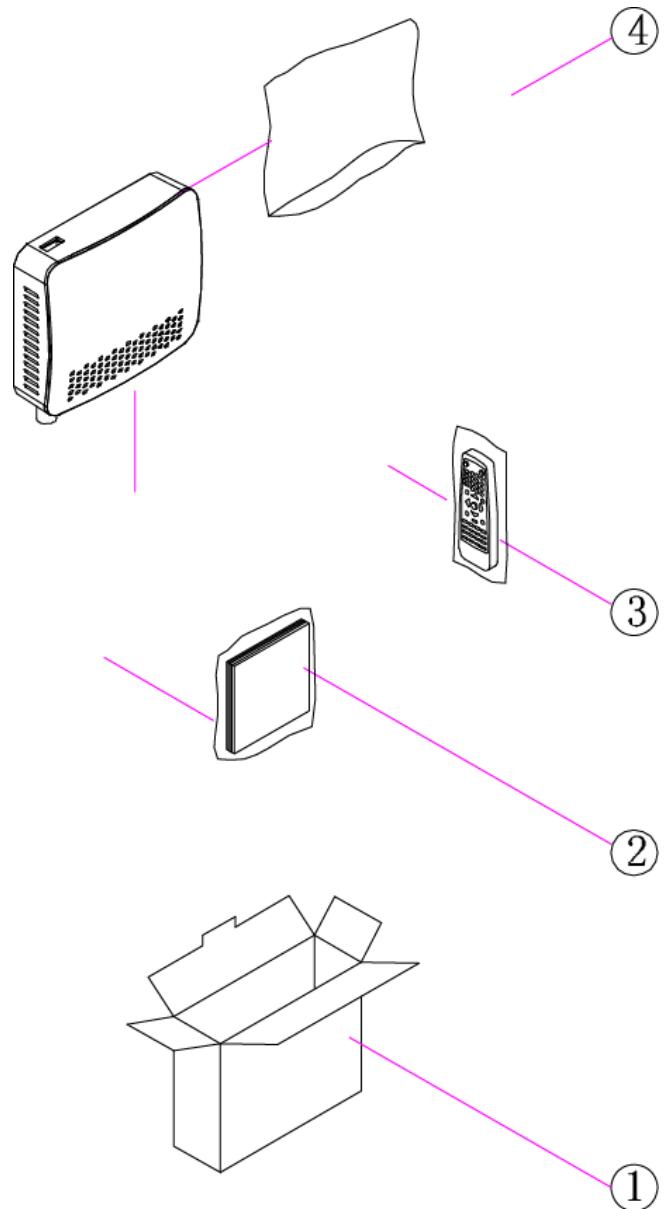
Mechanical Exploded View Drawing



Mechanical Parts List

NO.	Part No.	Part Name	Qty	Notes
1	4110-1656-005H	Front Panel	1	ABS
2	2104-1770-Y00H	Decoding Board	1	
3	3141-5851-0363	Power Cord	1	
4	4111-1656-018H	Bottom Cover	1	Transparent ABS
5	3000-4000-0800	Feet Pads	2	Rubber, Black
6	3211-2008-0005	ST2*8PANi Screws	3	

Packaging and Accessories



Packaging Exploded View Drawing

Material List

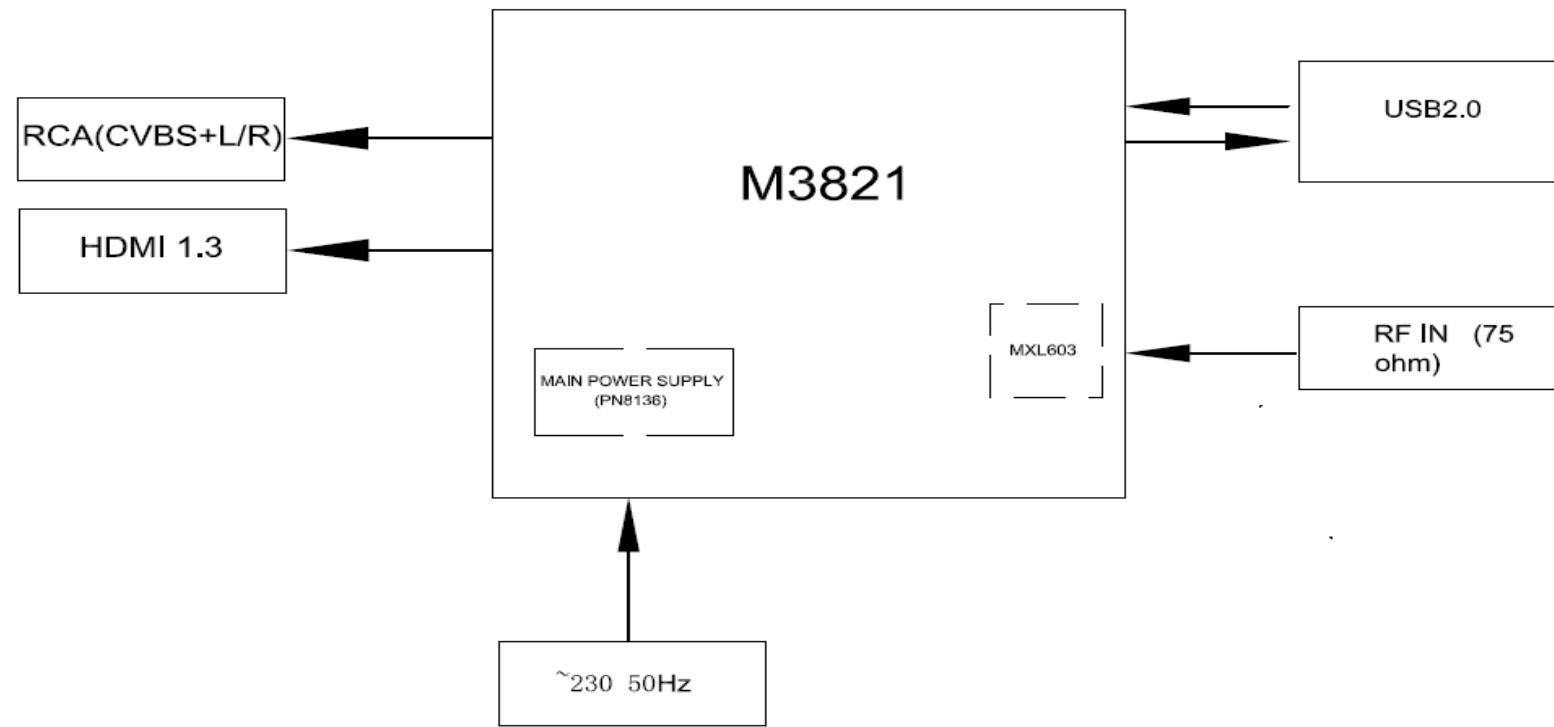
NO.	Material No.	Name	Qty
1		White Box	1
2		User Manual	1
3		Remote Control	1
4		Bubble Bag 180*210mm	1

Appendix 1 Flowchart and Circuit Diagram

Flowchart

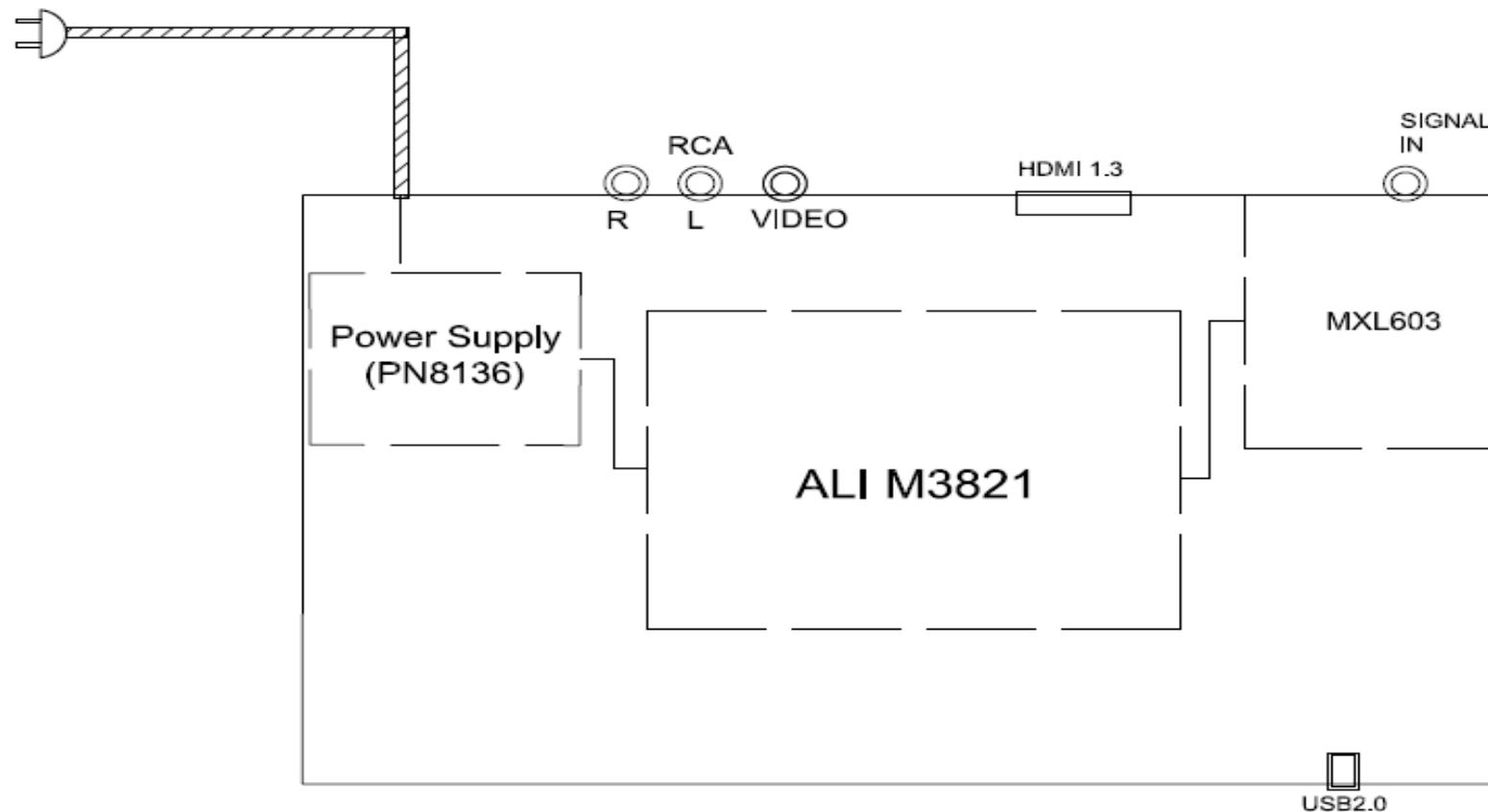
Wiring Diagram

Circuit Diagram of Decoding Board

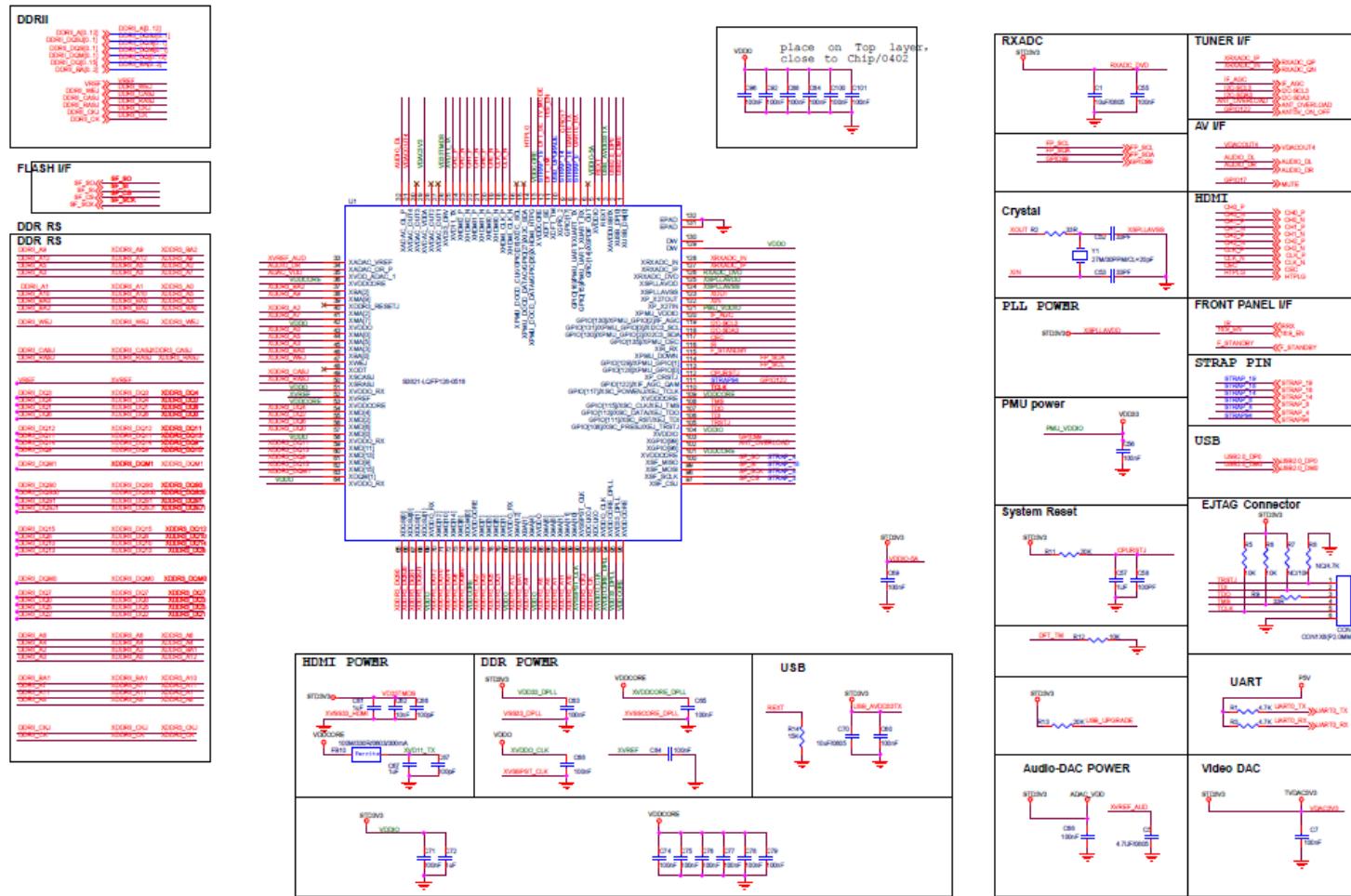


Flowchart

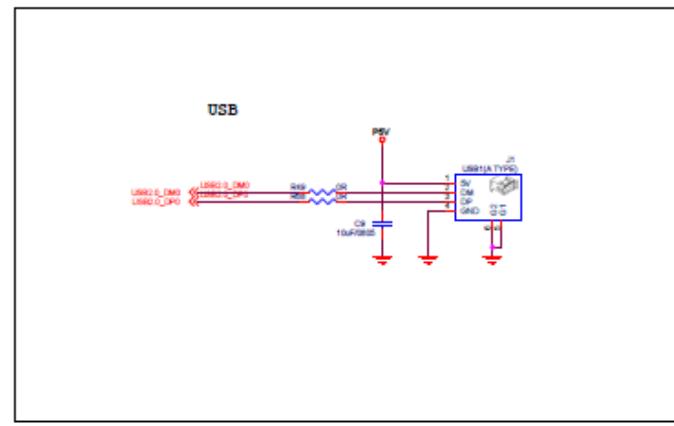
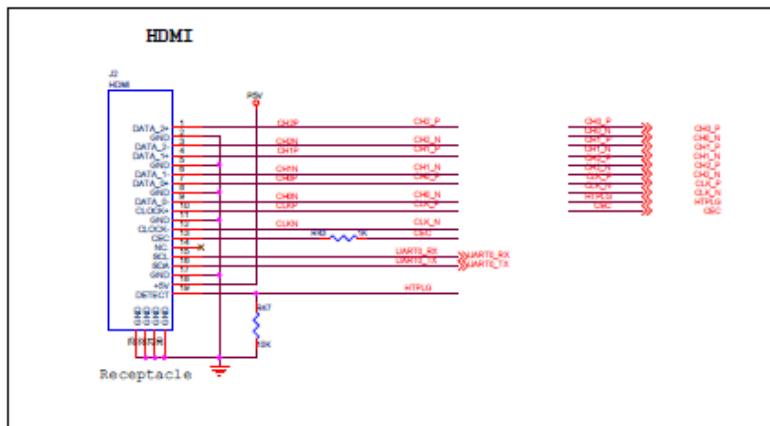
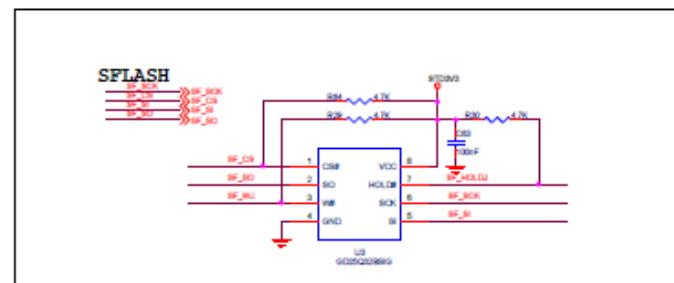
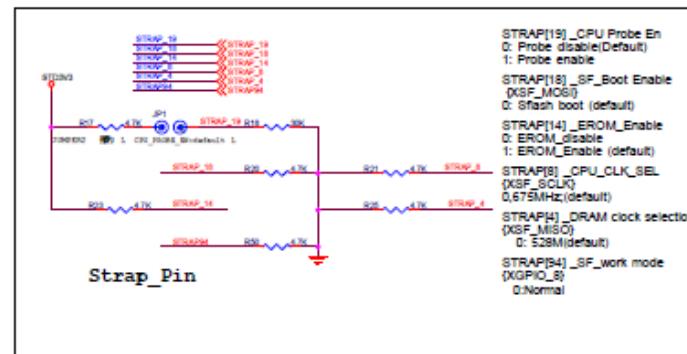
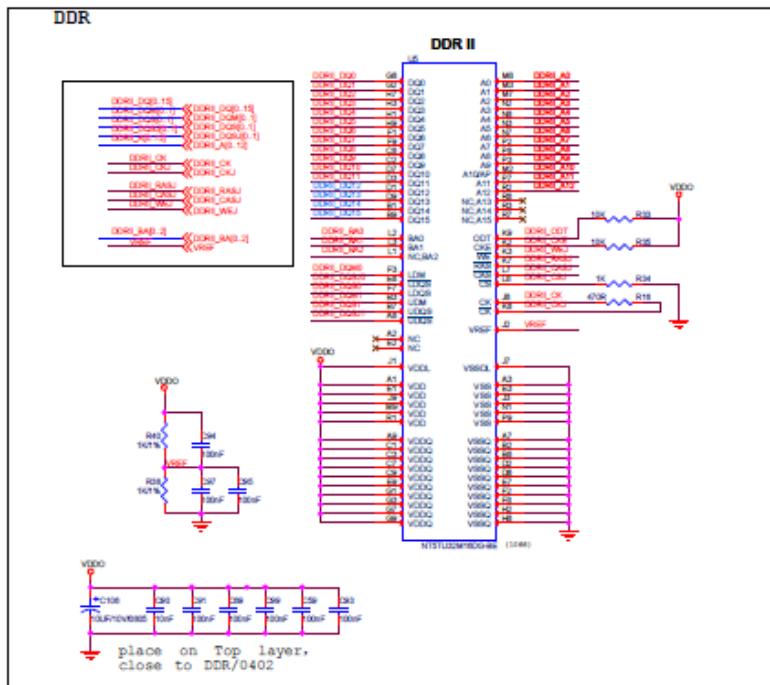
~230V 50Hz



Wiring Diagram

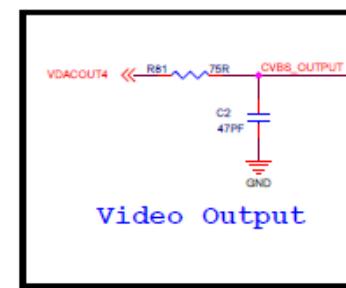
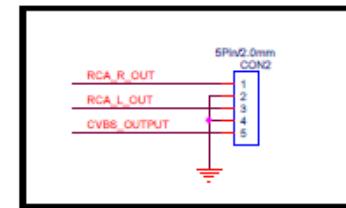
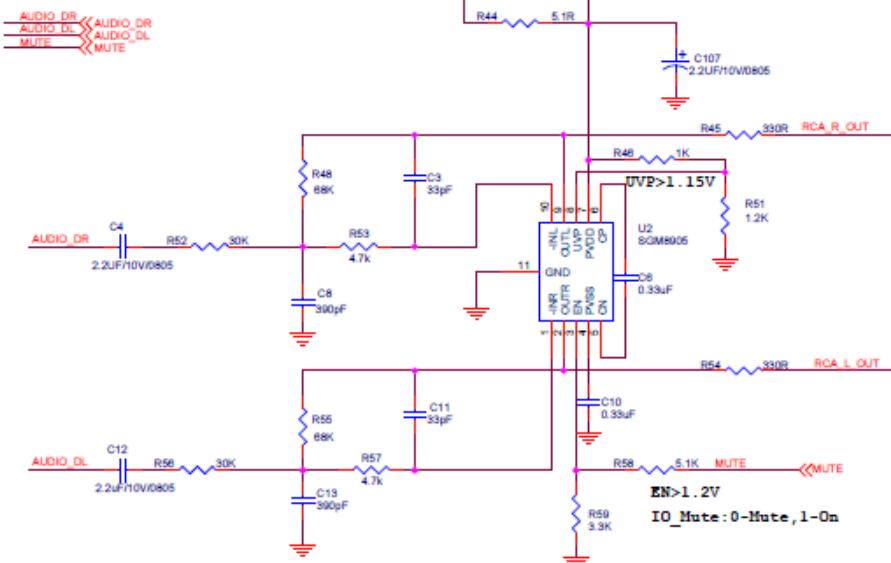


Decoding Board Schematic Diagram (1)

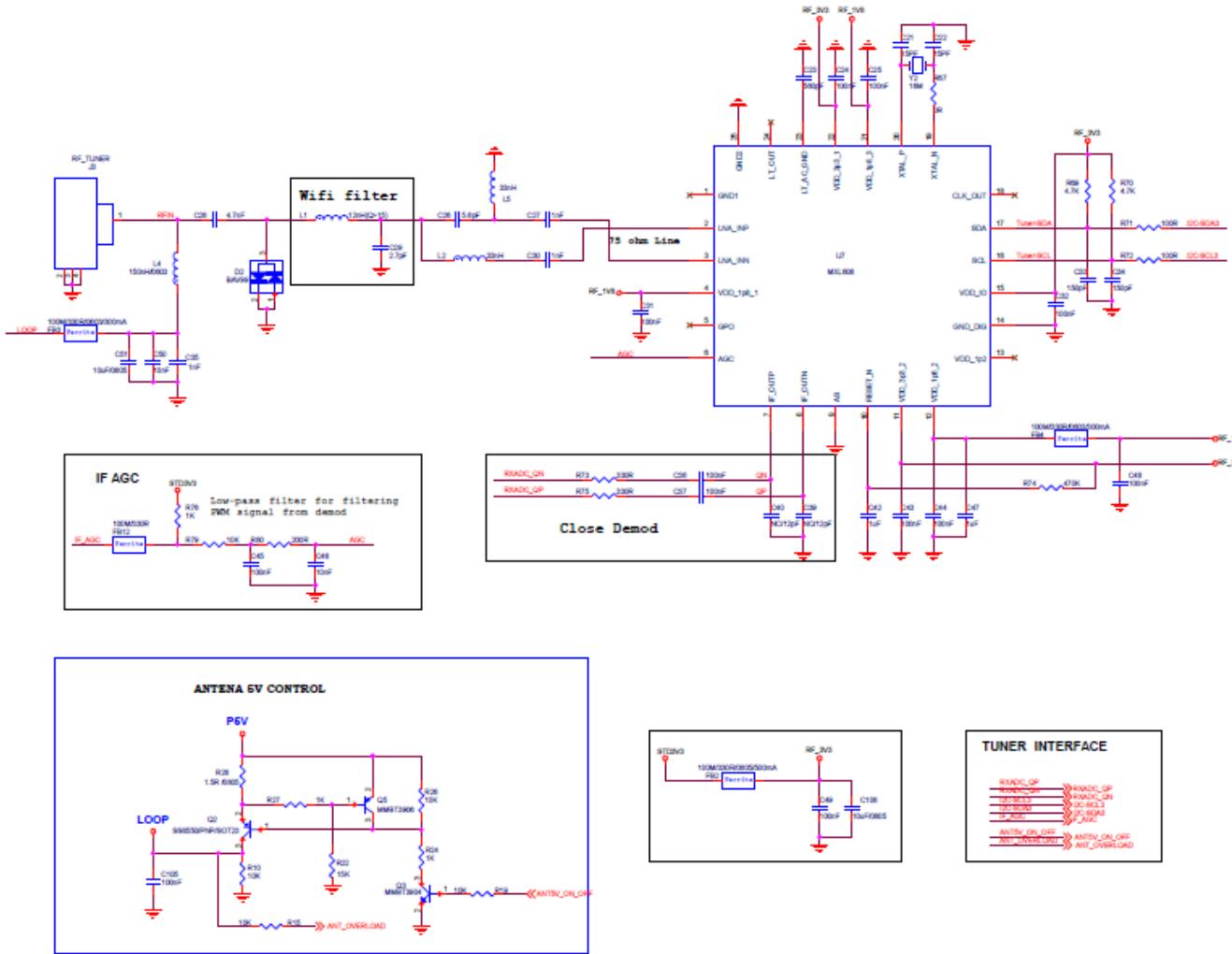


Decoding Board Schematic Diagram (2)

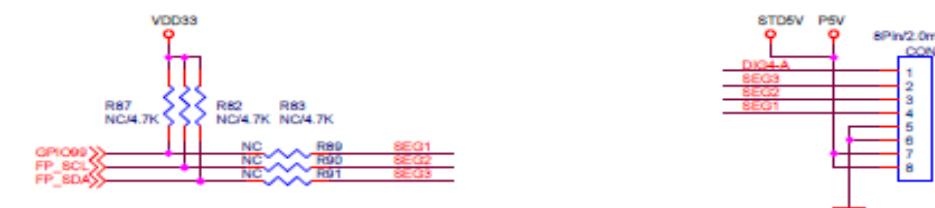
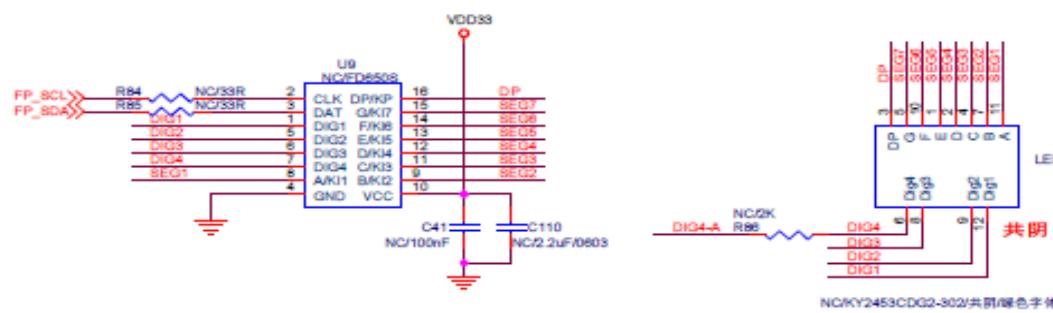
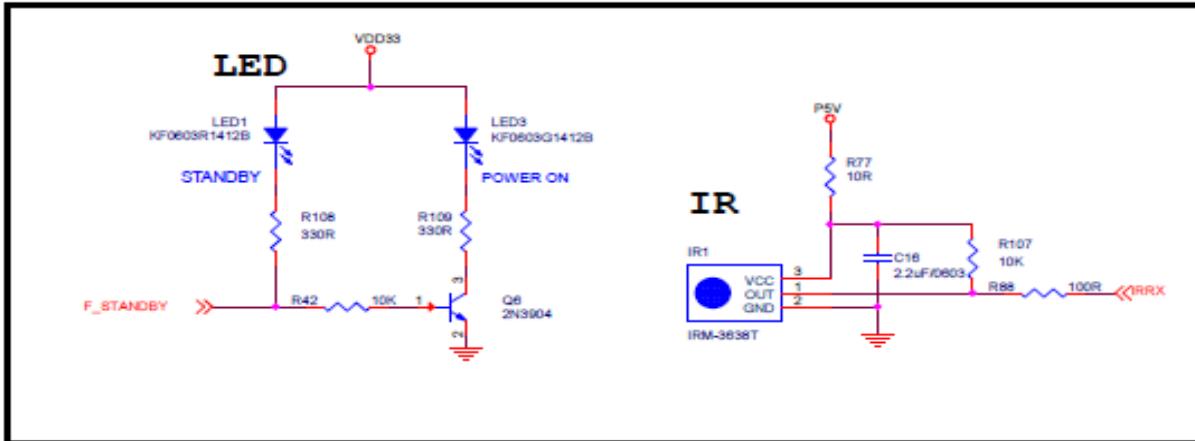
AUDIO AMP



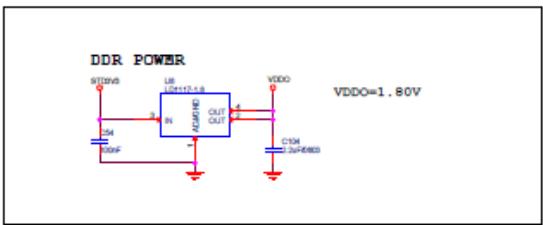
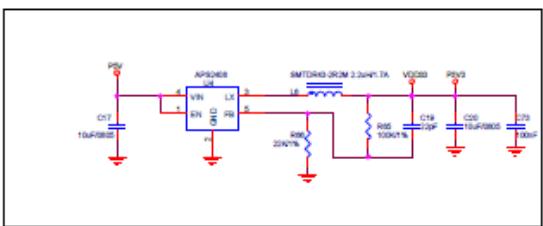
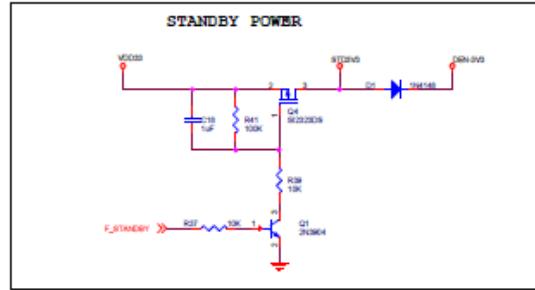
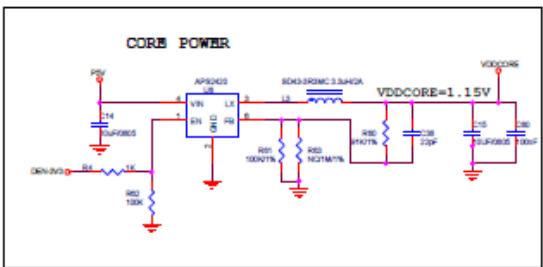
Decoding Board Schematic Diagram (3)



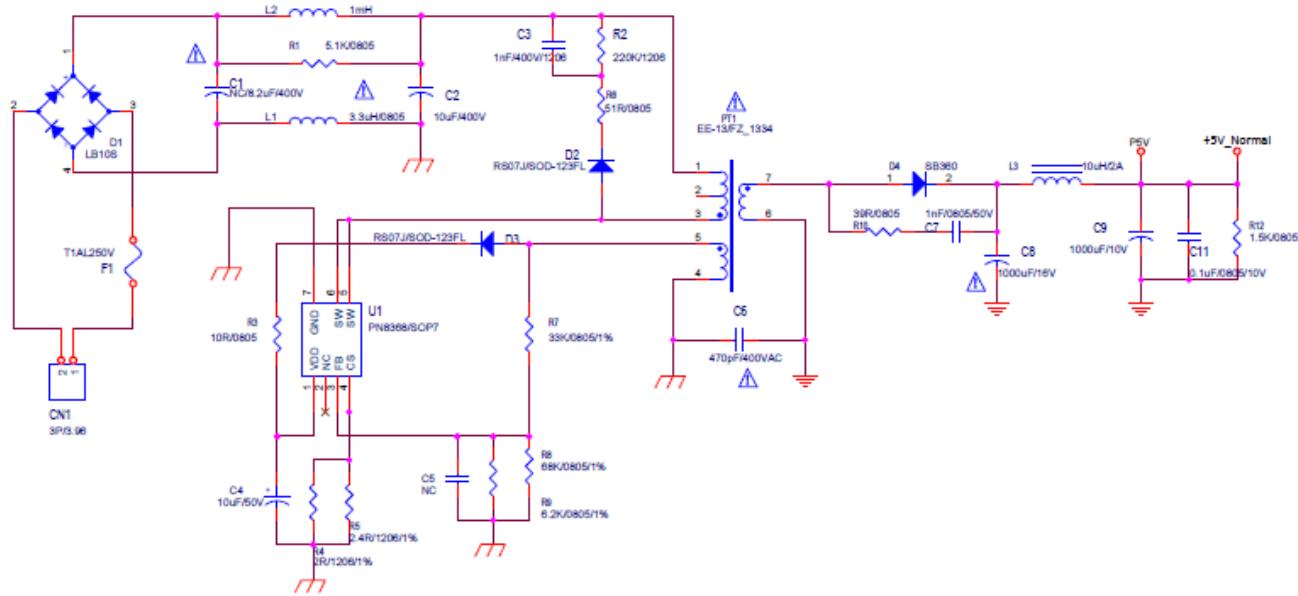
Decoding Board Schematic Diagram (4)



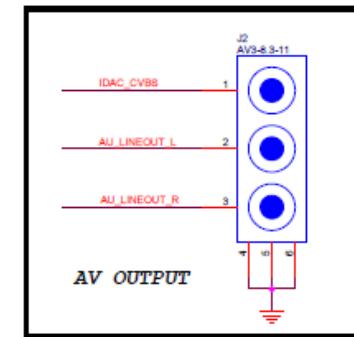
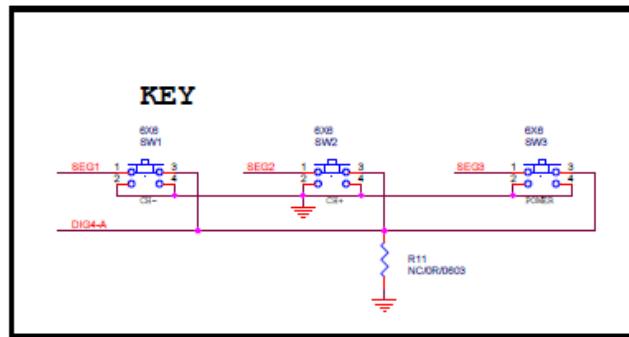
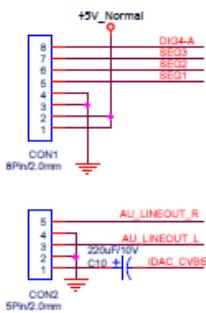
Decoding Board Schematic Diagram (5)



Decoding Board Schematic Diagram (6)



Power Board Schematic Diagram (1)



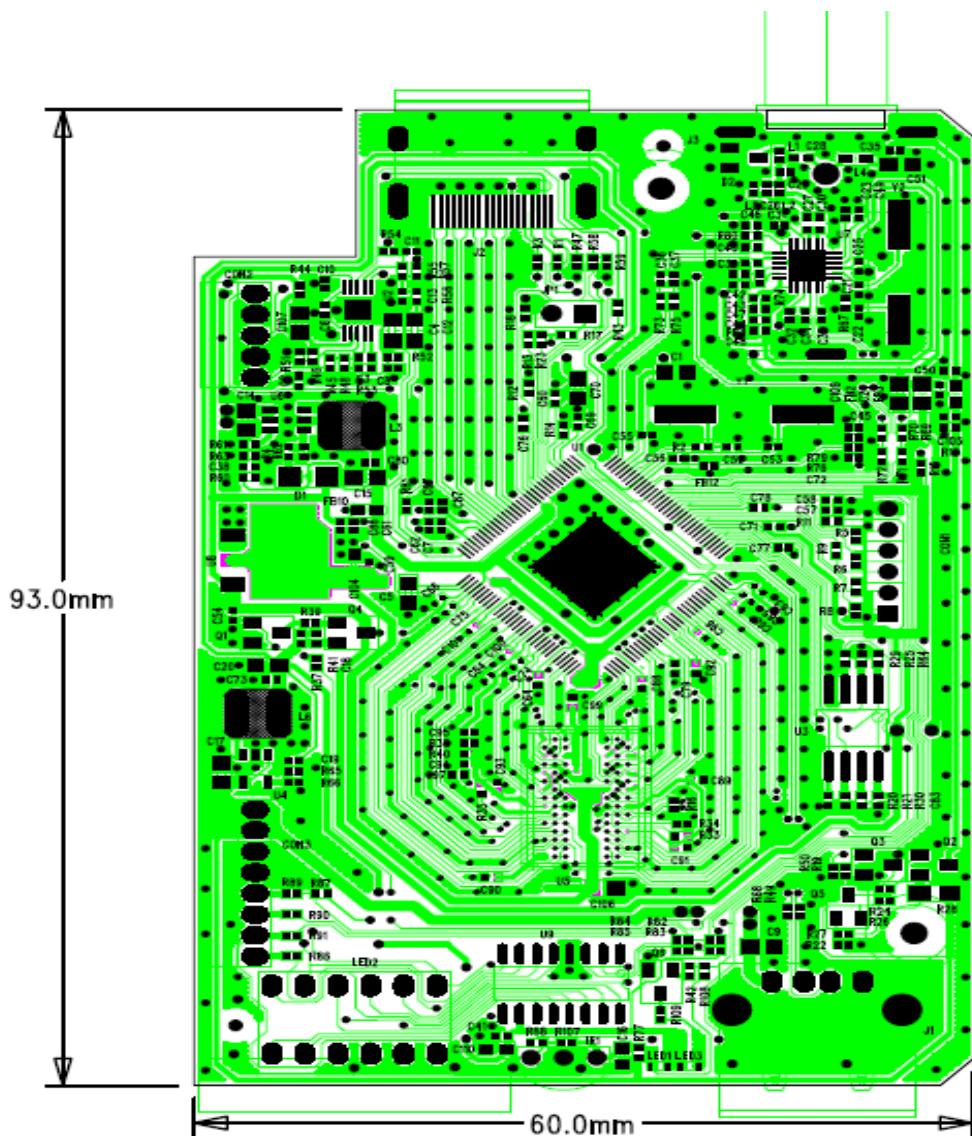
Power Board Schematic Diagram (2)

Appendix 2 Silkscreen of PCB

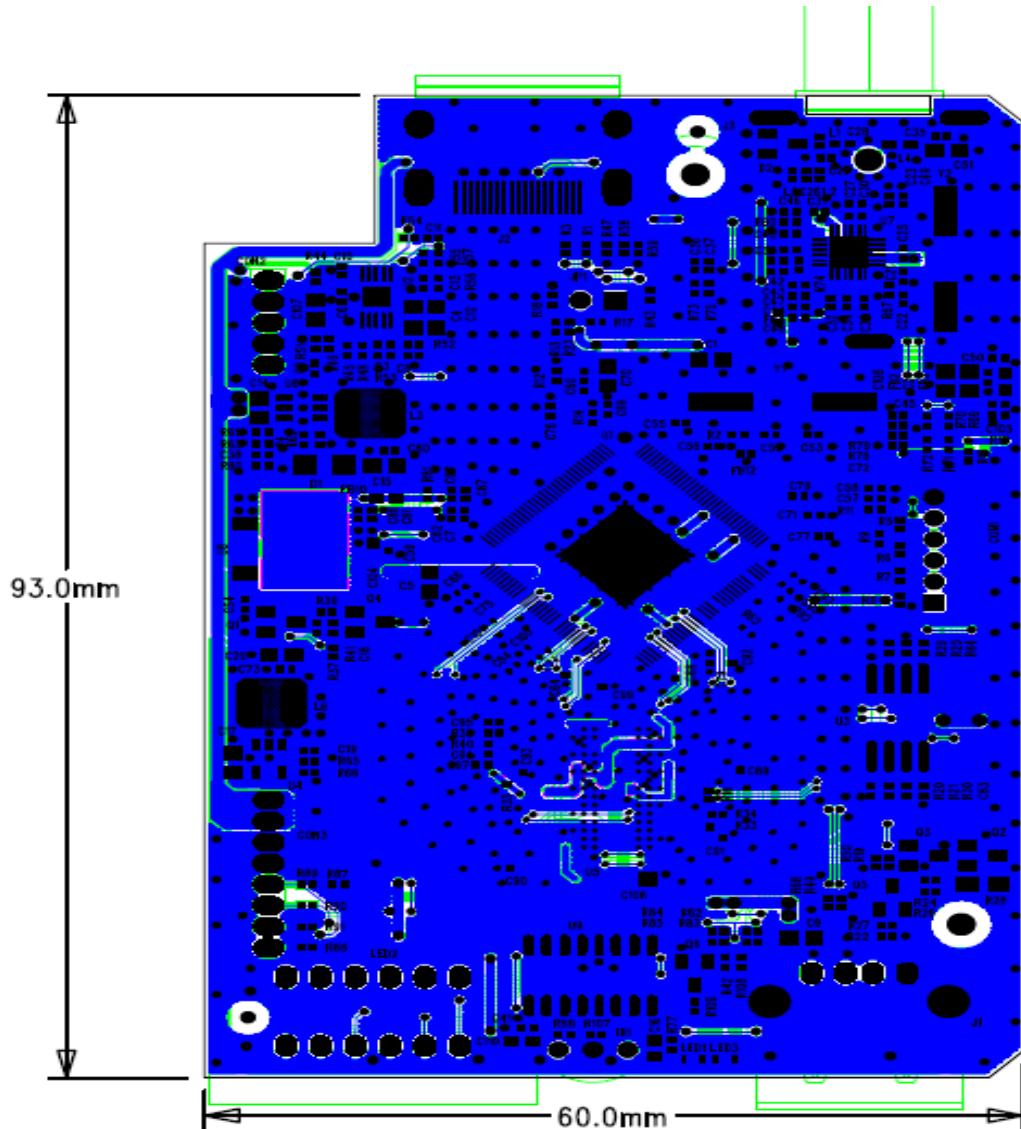
Silkscreen of Decoding Board Top

Silkscreen of Decoding Board Bottom

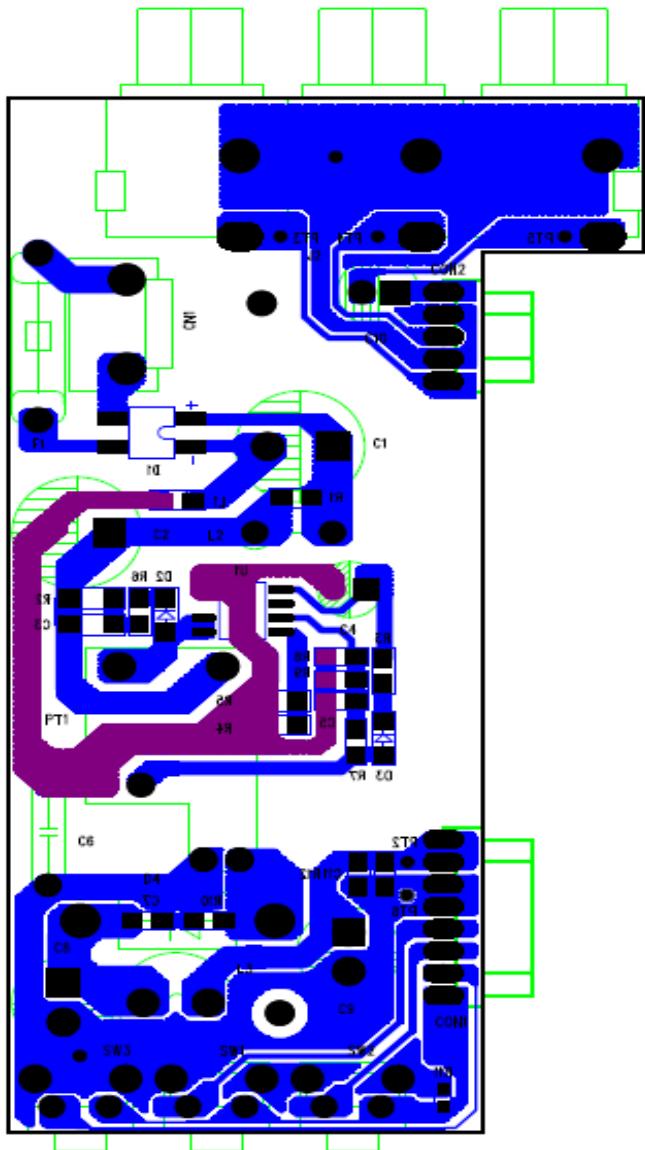
Silkscreen of Power Board Bottom



Silkscreen of Decoding Board Top



Silkscreen of Decoding Board Bottom



Power Board Bottom

Silkscreen of

Appendix 3 Component List

Component List of Decoding Board

Component List of Decoding Board

Component List

Component List of Decoding Board					
NO	Material No.	Name	Specification	Position	Qty
1	WJQTPBGAD3MM01	Shield Cover	0.3mm		1
2	JCQTHW00MYS83801	Receiver Head	MYS-838	IR1	1
3	JCCZQTUSB0000001	USB Socket	USB-A	J1	1
4					
5	WJQTSR20X20X1001	Heat Sink	20*20*10mm	On the top of U1	1
6	JCZZWZ1X05W20001	Curved needle	1*5P*2.0mm	CON2	1
7			FH=4.0mm, H=2.0mm PL=3.0mm		
8	JCZZWZ1X08W20001	Curved needle	1*8P*2.0mm FH=4.0mm	CON3	1
9			, H=2.0mm PL=3.0mm 90°		
10	WJQTPBPBZ09401	Tuner cover	0.3mm RF IN	J3	1
11					
12	DYDZTP000R0402JJ01	SMT Resistor	0R	R49, R67, R68	3
13	DYDZTP05R10402JJ01	SMT Resistor	5.1R	R44	1
14	DYDZTP010R0402JJ01	SMT Resistor	10R	R77	1
15	DYDZTP033R0402JJ01	SMT Resistor	33R	R2, R9	2
16	DYDZTP075R0402JJ01	SMT Resistor	75R	R81	1
17	DYDZTP100R0402JJ01	SMT Resistor	100R	R71, R72, R88	3
18	DYDZTP680R0402JJ01	SMT Resistor	680R	R109	1
19	DYDZTP200R0402JJ01	SMT Resistor	200R	R80	1
20	DYDZTP330R0402JJ01	SMT Resistor	330R	R45, R54, R73, R75	4
21					
22	DYDZTP470R0402JJ01	SMT Resistor	470R	R16	1
23	DYDZTP001K0402JF01	SMT Resistor	1K	R38, R40	2
24	DYDZTP001K0402JJ01	SMT Resistor	1K	R4, R24, R27, R34, R43, R46, R76	7
25	DYDZTP01K20402JJ01	SMT Resistor	1.2K 1/16W	R51	1

26	DYDZTP03K30402JJ01	SMT Resistor	3.3K	R59	1
27	DYDZTP04K70402JF01	SMT Resistor	4.7K	R1, R3, R17, R20, R21, R23, R25, R29, R30,	16
28				R50, R53, R57, R64, R69, R70 R108	
29	DYDZTP05K10402JJ01	SMT Resistor	5.1K	R58	1
30	DYDZTP010K0402JJ01	SMT Resistor	10K	R5, R6, R10, R12, R15, R19, R26, R33, R35,	15
31				R37, R39, R42, R47, R79, R107	
32	DYDZTP015K0402JJ01	SMT Resistor	15K	R14, R22	2
33	DYDZTP020K0402JJ01	SMT Resistor	20K	R11, R13	2
34	DYDZTP022K0402JF01	SMT Resistor	22K	R66	1
35	DYDZTP030K0402JJ01	SMT Resistor	30K	R18,R52,R56	3
36	DYDZTP068K0402JF01	SMT Resistor	68K	R48,R55	2
37	DYDZTP091K0402JF01	SMT Resistor	91K	R60	1
38	DYDZTP100K0402JF01	SMT Resistor	100K	R61,R65,R41,R62	4
39	DYDZTP470K0402JF01	SMT Resistor	470K	R74	1
40	DYDZTP01R50805JJ01	SMT Resistor	1.5R	R28	1
41	DYDRTP02P70402J50V01	SMT Capacitor	2.7P/50V	C29	1
42	DYDRTP05P60402C50V01	SMT Capacitor	5.6pF/50V	C26	1
43	DYDRTP015P0402J50V01	SMT Capacitor	15P/50V	C21,C22	2
44					

Component List of Decoding Board

NO	Material No.	Name	Specification	Position	Qty
1	DYDRTP022P0402J50V01	SMT Capacitor	22pF/50V	C19,C38	2
2	DYDRTP033P0402J50V01	SMT Capacitor	33P/50V	C3,C11,C52,C53	3
3	DYDRTP047P0402J50V01	SMT Capacitor	47pF/50V	C2	1
4	DYDRTP100P0402J50V01	SMT Capacitor	100P/50V	C58,C86,C87	3
5	DYDRTP150P0402J50V01	SMT Capacitor	150P/50V	C33,C34	2
6	DYDRTP390P0402J50V01	SMT Capacitor	391/390P/0.39N/50V	C8,C13	2
7	DYDRTP560P0402J16V01	SMT Capacitor	560PF/16V	C23	1
8	DYDRTP1000P0402J16V1	SMT Capacitor	1000PF/16V	C27,C30,C35	3

9	DYDRTP04N70402K50V01	SMT Capacitor	4.7nF/50V	C28	1
10	DYDRTP010N0402M50V01	SMT Capacitor	103/10N/0.01uF/50V	C46,C50,C62,C90	4
11	DYDRTP330N0402K10V01	SMT Capacitor	334/330N/0.33U/10V	C6,C10	2
12	DYDRTP100N0402M16V01	SMT Capacitor	104/100N/0.1U/16V	C7,C24,C25,C31,C32,C36,C37,C43,C44,C45,C48,C49,C54,C55,C56,C59,C60,C63,C64,C65,C66,C68,C69,C71,C73,C74,C75,C76,C77,C78,C79,C80,C83,C84,C88,C89,C91,C92,C93,C94,C95,C96,C97,C99,C100,C101,C105	47
13	DYDRTP001U0402M16V01	SMT Capacitor	1UF/16V	C18,C42,C47,C57,C61,C67,C72	7
14	DYDRTP02U20603M10V01	SMT Capacitor	2.2uF/10V	C16, C104	2
15	DYDRTP02U20805M10V01	SMT Capacitor	2.2uF/10V	C4,C12,C107	3
16	DYDRTP04U70805M10V01	SMT Capacitor	4.7UF/10V	C5	1
17	DYDRTP010U0805M16V01	SMT Capacitor	10U/16V	C1,C9,C14,C15,C17,C20,C51,C70,C106,C108	10
18	DYDGTP012N0402JJ01	Inductance	12nH/ MLG1005	L1	1
19	DYDGTP033N0402JJ01	Inductance	33nH/ MLG1005	L2,L5	2
20	DYDGTP150N0603JJ02	Inductance	150nH	L4	1
21	DYDGGL02U2SMD4X402	Inductance	MD43-2R2MC, 2.2UH, 2.6A	L6	1
22	DYDGGL02U2SMD4X403	Inductance	2.2UH \pm 20%,	L6	1
23			2.6A,GDCD4532-2R2MTF		
24					
25	DYDGGL03U3SMD4X402	Inductance	3.3uH \pm 20%,	L3	1
26			2.5A,GDCD4532-3R3MTF		
27					
28	DYCZTP330R0402K0A102	chip Bead	0402,330 Ω ,100mHz,100mA,	FB12	1
29	DYCZTP330R0603K0A201	chip Bead	330 Ω ,100mHz,200mA,	FB3,FB4,FB10	3
30	DYCZTP330R0805K1A501	chip Bead	330 Ω ,100mHz,1.5A,	FB2	1
31	DYEJZLT0LL4148LL3401	Diode	LL4148	D1	1
32	DYEJFGTPRED0603002	Diode	KF0603R1412B	LED1	1
33	DYEJFGTPGREEN0603002	Diode	KF0603PG1412B	LED3	1
34	DYEJSDBAV99SOT230001	Diode	BAV99 (LBAV99LT1G)	D2	1
35	DYJZWYF000016M05	Crystal	16MHZ, 20PF,	Y2	1
36	DYJZWYT000027M01	Crystal	27MHZ	Y1	1

37	DYSJNPMMBT3904SO230 1	Triode(NPN)	MMBT3904/LMBT3904LT1G(NPN)	Q1,Q3,Q6	3
38					
39					
40					

Component List of Decoding Board

NO	Material No.	Name	Specification	Position	Qty
1	DYSJPNMMBT3906SO230 1	Triode(PNP)	MMBT3906/LMBT3906LT1G(P NP)	Q5	1
2	DYSJ00TS85500SOT01	Triode	S8550	Q2	1
3	DYSJPNT0008550SO2301	Triode	L8550HQLT1G	Q2	1
4	DYSJMSSI2323DSST2301	Triode	SI2323DS	Q4	1
5	DYSJMSWTM4PE020SOT 01	MOS tube	WTM4PE02EA	Q4	1
6	DYXPQTT0LD11170SOP01	CHIP IC	LD1117-1.8V (OR LM1117-1.8V)	U8	1
7	DYXPAS1117LX1D8V01	CHIP IC (LDO)	AS1117L-1.8	U8	1
8	DYXPWY0LC1117SOT03	CHIP IC	LC1117-1.8	U8	1
9	DYXPDYJY1117180SOT01	CHIP IC(POWER (LDO))	JY1117-1.8V,SOT223,	U8	1
10	DYXPM14D5121632BGA0 2	CHIP IC	M14D5121632A-1.8BG2K,FBG A-84	U5	1
11	DYXPA3R12E40FBGA01	CHIP IC(DDR2)	A3R12E40CBF-AH IC-84P-FBGA-DDR2 (64M)(zentel)	U5	1
12	DYXPNTTU32M16DG02	CHIP IC(DDR2)	NT5TU32M16DG-BE(64MB)	U5	1
13	DYXPDYAPS2408E0SOT0 1	CHIP IC(DC-DC POWER)	APS2408ES5-ADJ	U4	1
14	DYXPDYAPS2420E0SOT0 1	CHIP IC(DC-DC POWER)	APS2420TBER-ADJ SOT23-6L	U6	1
15	DYXPM3821LQFP12801	MAIN CHIP IC(CPU)	M3821-ALAAA(WITHOUT DOBLY)	U1	1
16	DYXPMXL6080QFN01	CHIP IC	MXL608-AG	U7	1
17	DYXPSGM8905MSOP001	CHIP IC	SGM8905YPMS10G/TR	U2	1
18	DYXPGD25Q32CSOP801	CHIP IC(FLASH)	GD25Q32CSIG (4MB)	U3	1

19	JCCZHDMISOCKET01	HDMI Socket	HDMI SOCKET, :JCJ-CZL-018	J2	1
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Component List of POWER Board

NO	Material No.	Name	Specification	Position	Qty
1	DYDRDJ04U70000MK4005	Capacitor	4.7UF/400V,105°	C1	1
2	DYDRDJ010U0000M50V01	Capacitor	106/10U/50V	C4	1
3	DYDRDJ010U0000MK4005	Capacitor	10UF/400V,105° ,	C2	1

4	DYDRDJ220U0000M10V03	Capacitor	227/220U/0.22M/10V	C10	1
5	DYDRDJ001M0000M10V13	Capacitor	108/1000U/1M/10V	C9	1
6	DYDRDJ001M0000M10V05	Capacitor	10V1000uF 105°C	C8	1
7	DYDRCP000470PK400V01	Capacitor (YCapacitor)	470PF M 400V (K) (CT7Y5PAC400V471K)	C6	1
8	DYDGSH001M0000JK03	Inductance	1mH, 100mA, 0510	L2	1
9	DYDGBX10U00000JK02	Inductance	10UH, 2A	L3	1
10	DYEJXTF00SB360DO2701	Diode	SB360	D4	1
11	DYBXBX001A250V02	FUSE	,1A,250V,,Φ3.6×10mm	F1	1
12	JCZZZ03PW396004	Line of needle plate		CN1	1
13	JCAVAV3X8X4X1408	AV Socket	AV3-8.4-14D	J2	1
14	DYBYBYEE13005V1D5A01	Transformer	EE-13, out put 5V, 1.5A	PT1	1
15	JCZTWC1X05F2000001	Curved needle	5Pin*2.0mm 90° H=2.0mm, PC=2.8mm	CON2 Curved needle	1
16	JCZTWC1X08F2000001	Curved needle	8Pin*2.0mm 90° H=2.0mm, PC=2.8mm	CON1	1
17					
18	DYDZTP000R0805JJ01	SMT Resistor	0R	L1	1
19	DYDZTP010R0805JJ01	SMT Resistor	10R	R3	1
20	DYDZTP039R0805JJ01	SMT Resistor	39R	R10	1
21	DYDZTP200R0805JJ01	SMT Resistor	200R	R6	1
22	DYDZTP01K50805JJ01	SMT Resistor	1.5K	R12	1
23	DYDZTP06K20805JF01	SMT Resistor	6.2K	R9	1
24	DYDZTP033K0805JF01	SMT Resistor	33K	R7	1
25	DYDZTP068K0805JF01	SMT Resistor	68K	R8	1
26	DYDZTP02R41206JF01	SMT Resistor	2.4R	R5 R4	2
27	DYDZTP220K1206JJ01	SMT Resistor	220K	R2	1
28	DYDRTP001N0805K50V01	SMT Capacitor	102/1000P/1N/50V	C7	1
29	DYDRTP100N0805K50V01	SMT Capacitor	104/100N/0.1U/50V	C11	1
30	DYDRTP001N1206K1KV01	SMT Capacitor	1000P/1N/1KV	C3	1
31	DYEJT00RS07J0SOD01	Diode	RS07J	D3	1

32	DYEJZLT0LB10SSOPA01	Rectifier	LB10S	D1	1
33	DYXPPN8368SOP701	CHIP IC(power)	PN8368SSC-R1	U1	1
34	DYEJZLTD71KV1A0SOD01	Diode	D7,1000V,1A	D2	1
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