

CT-710

技术手册

Circuit Instruction

1. Receiver

The signal input from the antenna convert by the receiver/transmitter, (U section) amplified by T325 amplifier, (V section) the other section amplified by T361; the amplified signal processed by 1846 and then output audio, the audio signal output by the 23 of CMX138E1 and amplified by UTC2822, after that output by speaker.

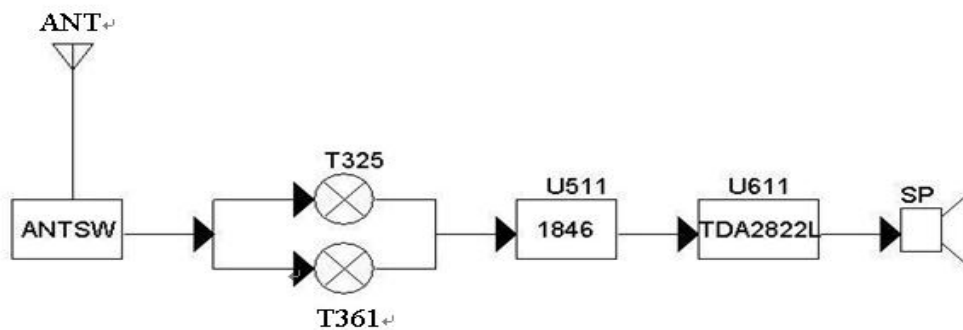


Figure1. RECEIVER CIRCUIT

2. Transmitter

The signal from microphone modulated by 1846 on carrier, the carrier with the modulated signal (U section) buffer drive by the T111、 T121, and then amplified by the T131 to the antenna terminal; (V) The other section buffer drive by T225、 T235, and then amplified by the T251 to the antenna terminal.

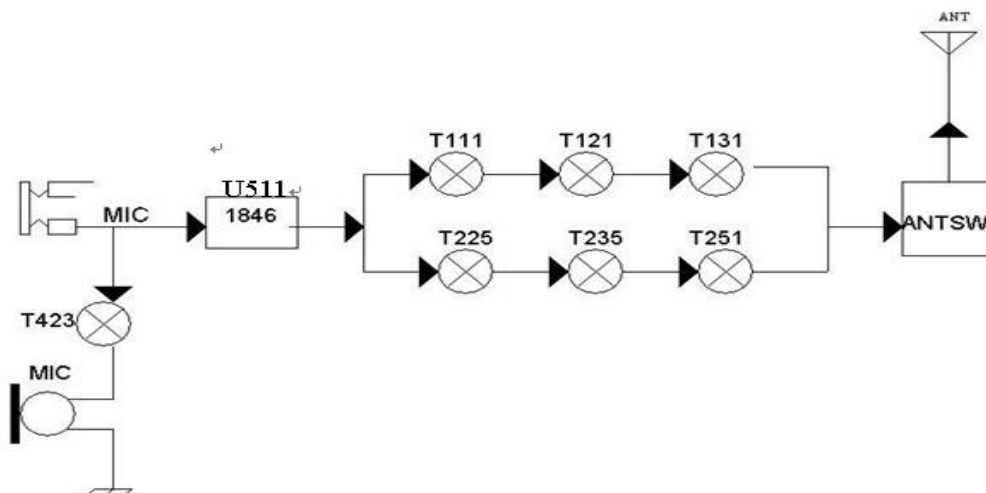


Figure2. TRANSMITTER CIRCUIT

3.TRANSMISSION /RECEPTION SELECTOR CIRCUIT

The transmission output is passed through the transmission/reception selector circuit and low-pass filter to the antenna. The transmission/reception selector circuit, which consists of diodes D154、 D155、 D263 and D264, is turned on during transmission and off during reception to switch the signal.

4 .DIGITAL CONTROL CIRCUIT

SIDE KEY AND ENCODER CIRCUIT

The signal from side key and encoder is directly input to the processor.

Reset and backup circuit

When turn on the power, a positive pulse is output from the reset circuit consisting of U821、 C822and R821 to the 21 feed of reset terminal on U811 microprocessor. When turn off the power, U811detects a 3.3 V drop, and output a low signal, it outputs data to U898 and enter backup mode.

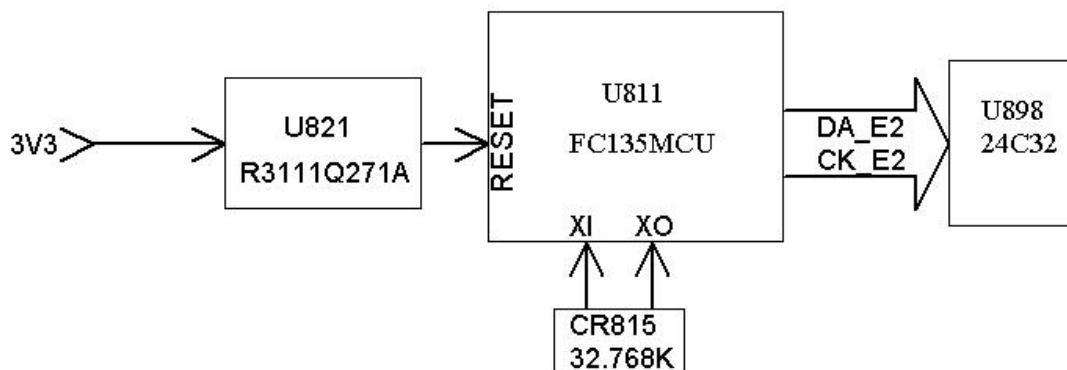


Figure3. DIGITAL CONTROL CIRCUIT

BATTERY VOLTAGE TEST CIRCUIT

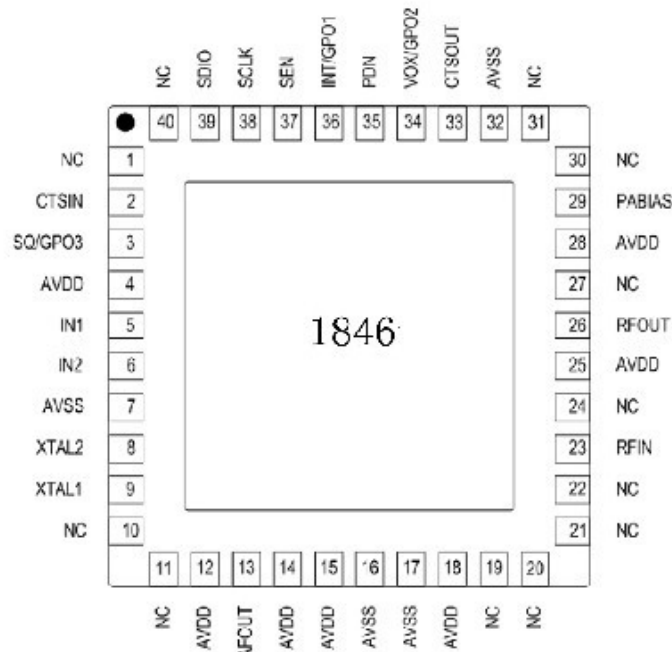
Power supply voltage after partial pressure input to the microprocessor analog interface

BATTERY SAVE CIRCUIT

The squelch is off during receive. The power circuit enters battery save mode if no key has been pressed for five seconds.

The circuit is controlled by microprocessor directly.

5 1846 DESCRIPTION



MAINLY SECTION DESCRIPTION

1.DSP consists of IF amplifier, FM modulation, RSSI calculator, AFC control circuit, audio/audio mixer filter, CTCSS/DCS filter and so on.

2.Synthesizer mainly functions:

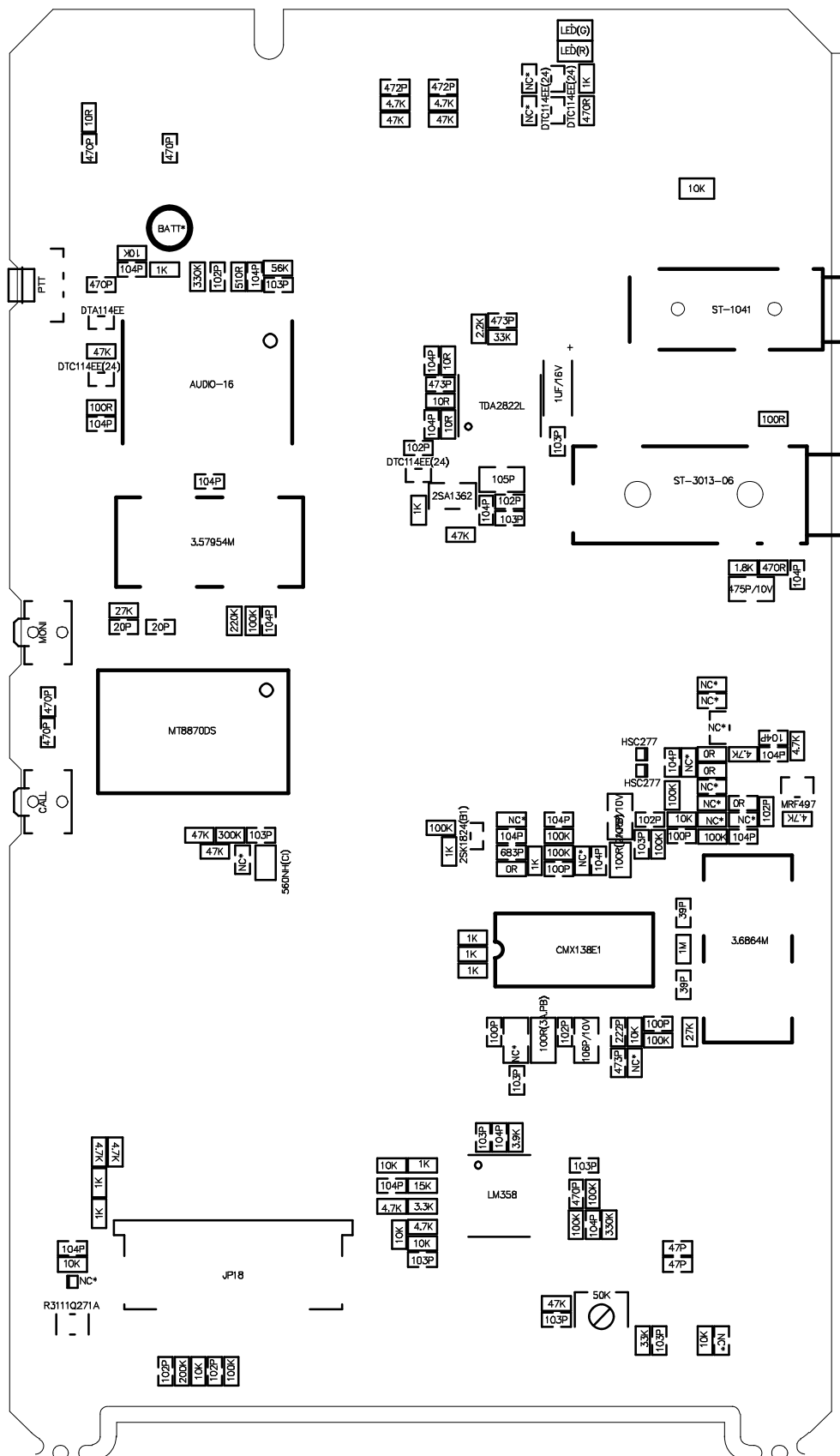
- ① The synthesizer produces a local oscillator signal, used to switch the RF input to a continuous low medium frequency.
- ② Synthesizer provides the base clock to adjust the VCO frequency.

3 .BASE CLOCK

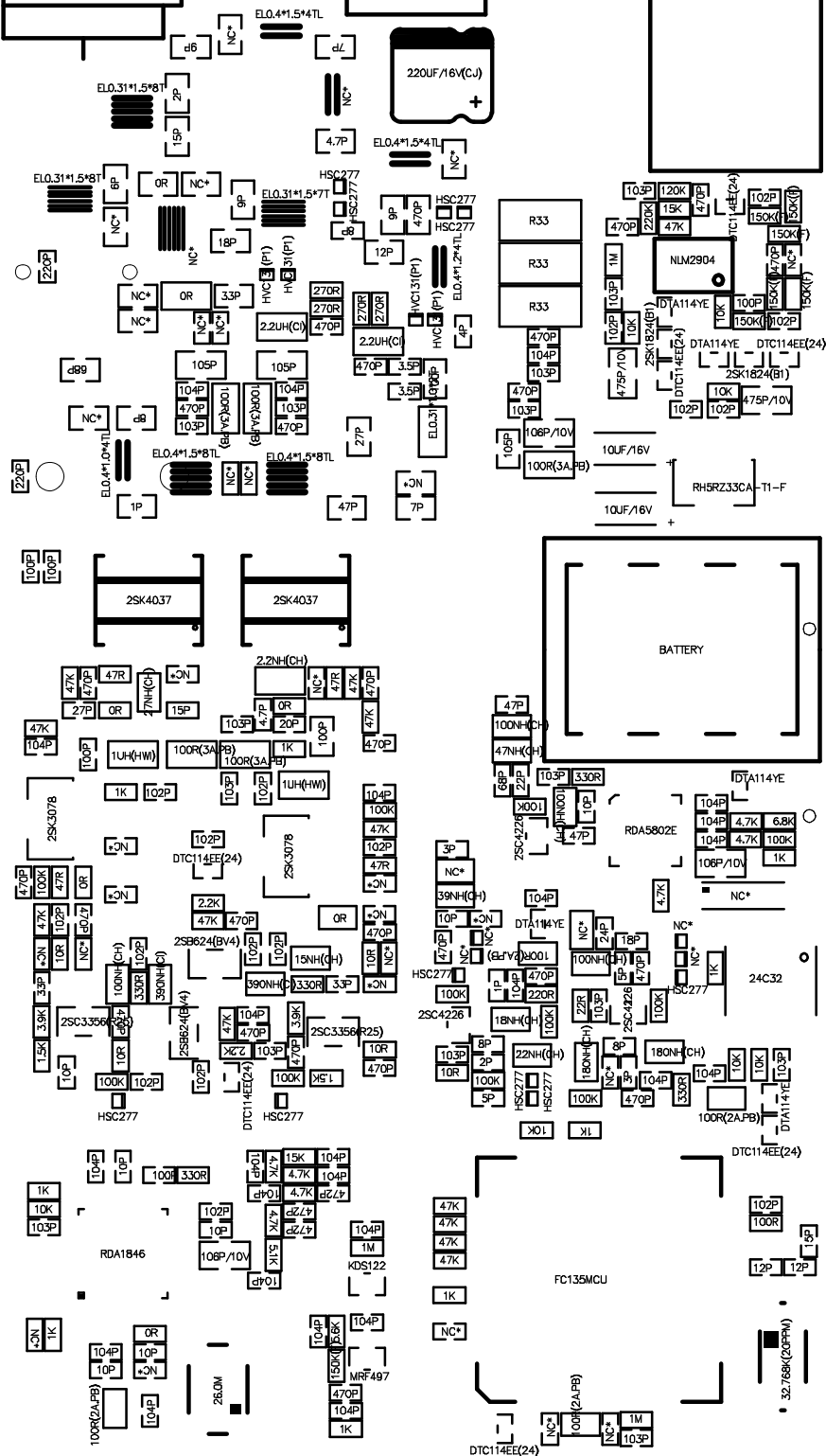
1846 ports more base clocks, for example, 12.8 MHz,13MHz and so on.

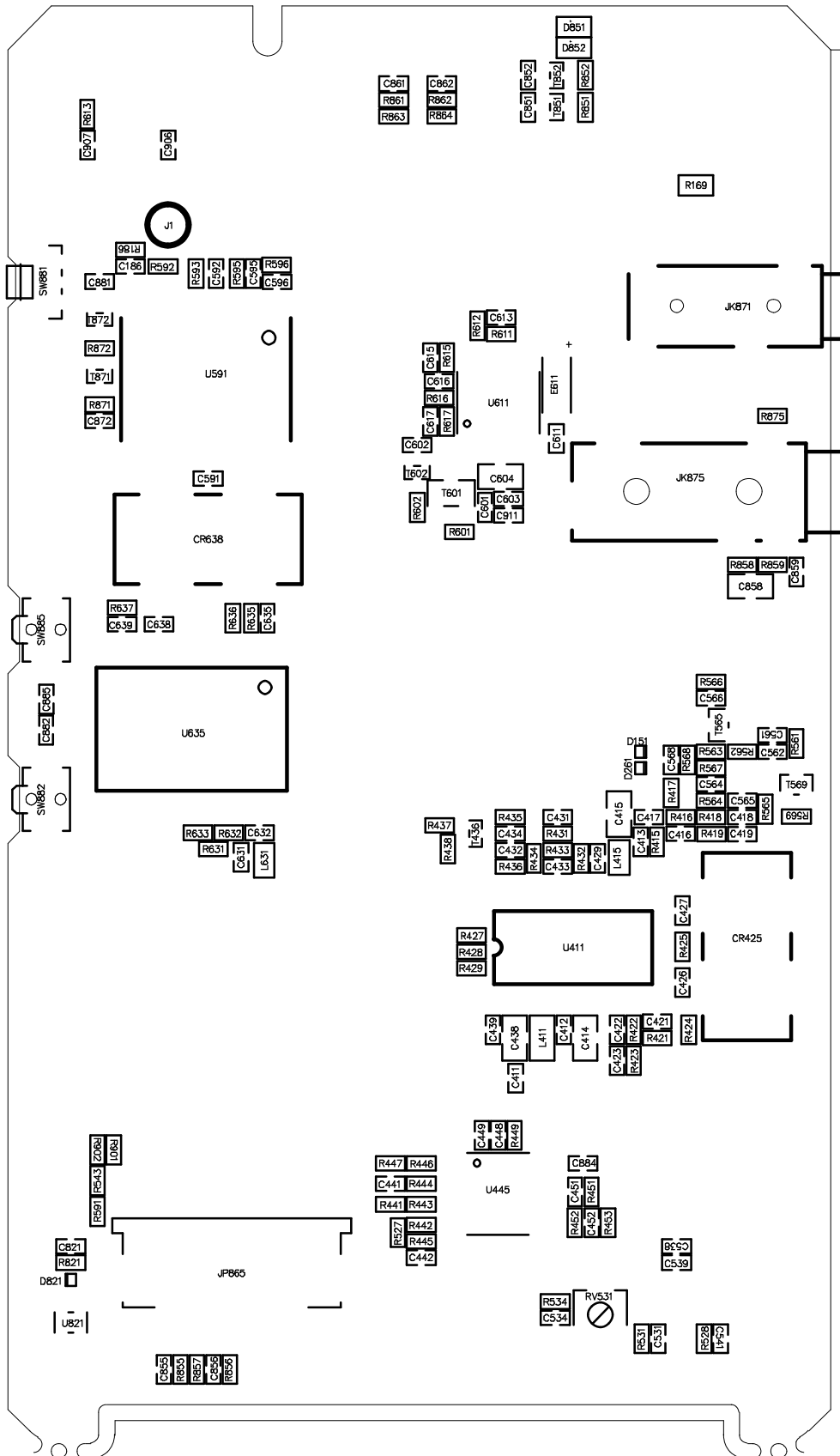
4. SERIAL CONTROL INTERFACE

A three lines serial control interface is used to read the main IC and 1846 control record. Serial control is 24 characters in length, 18 bit numeric string and 6 bit address string.



2011
ANT-2



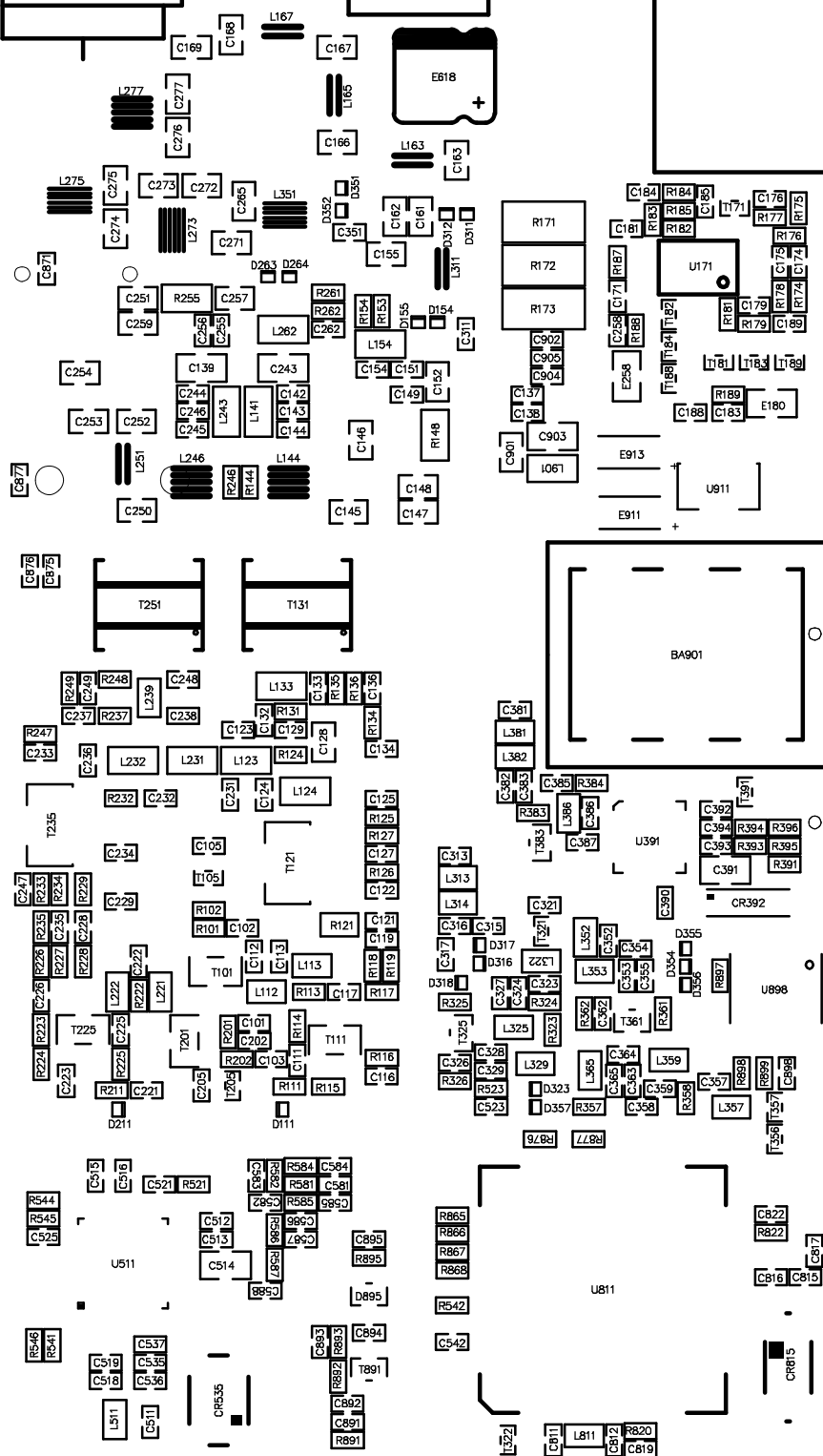


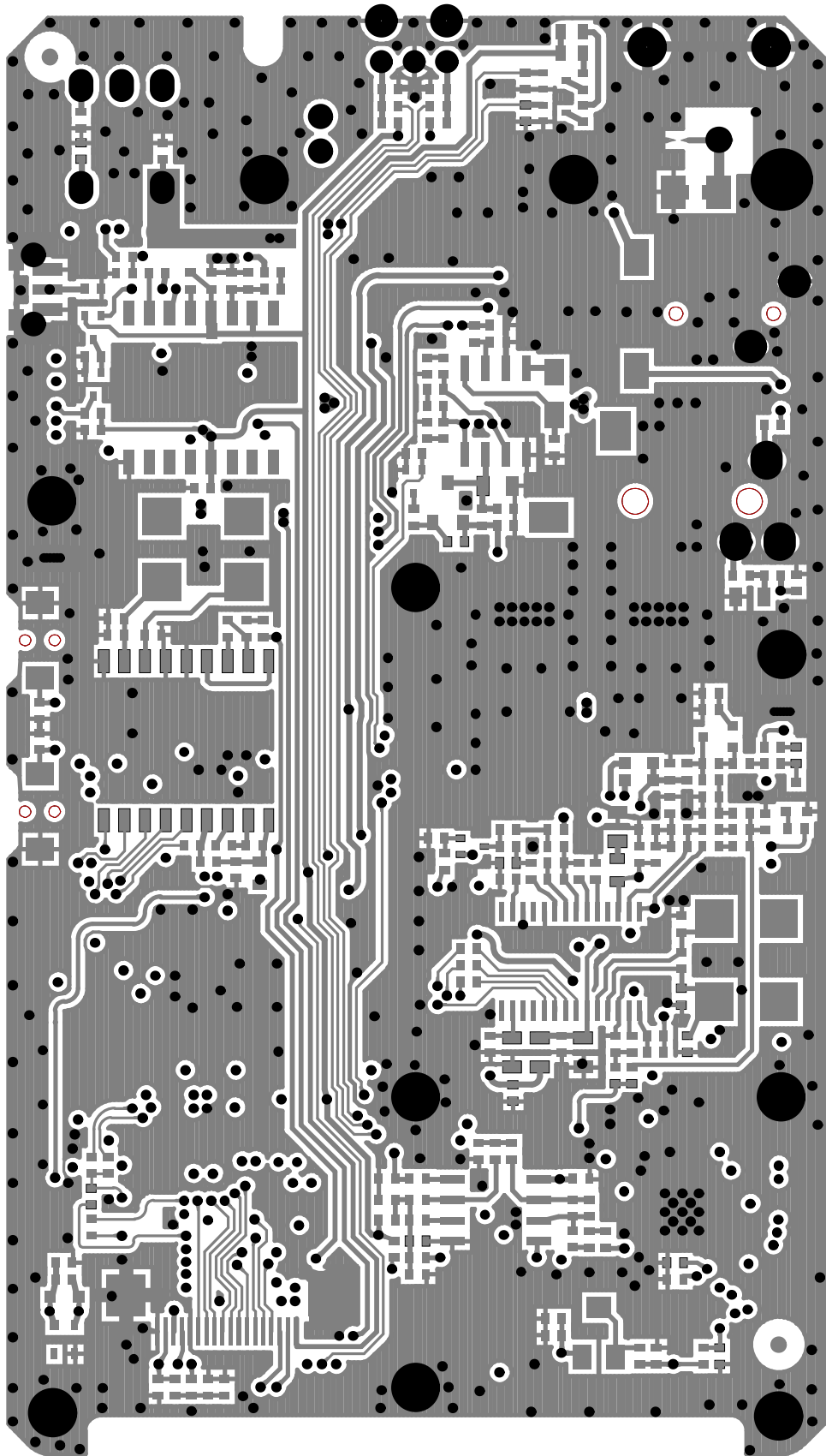
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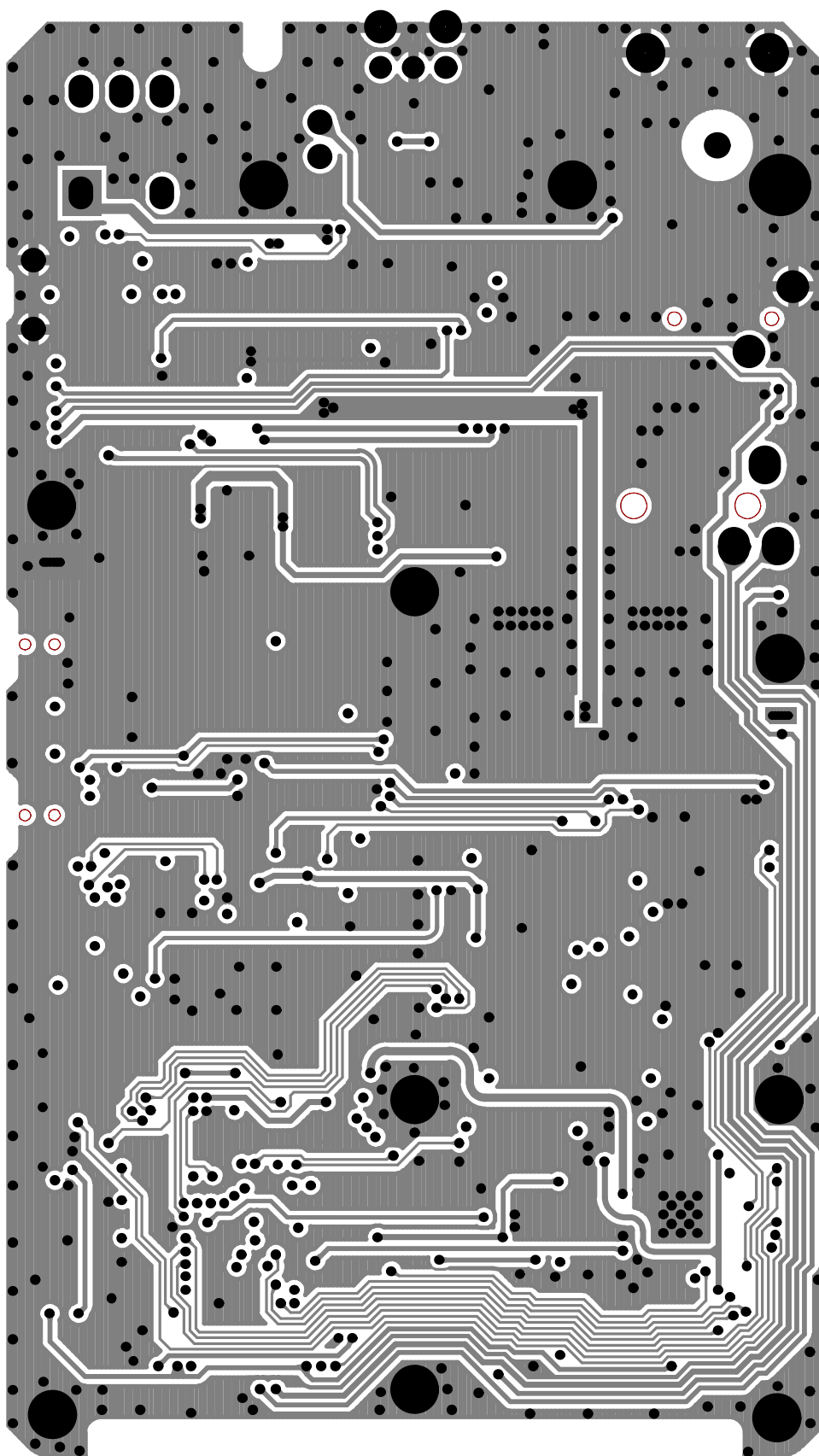
ANTI60

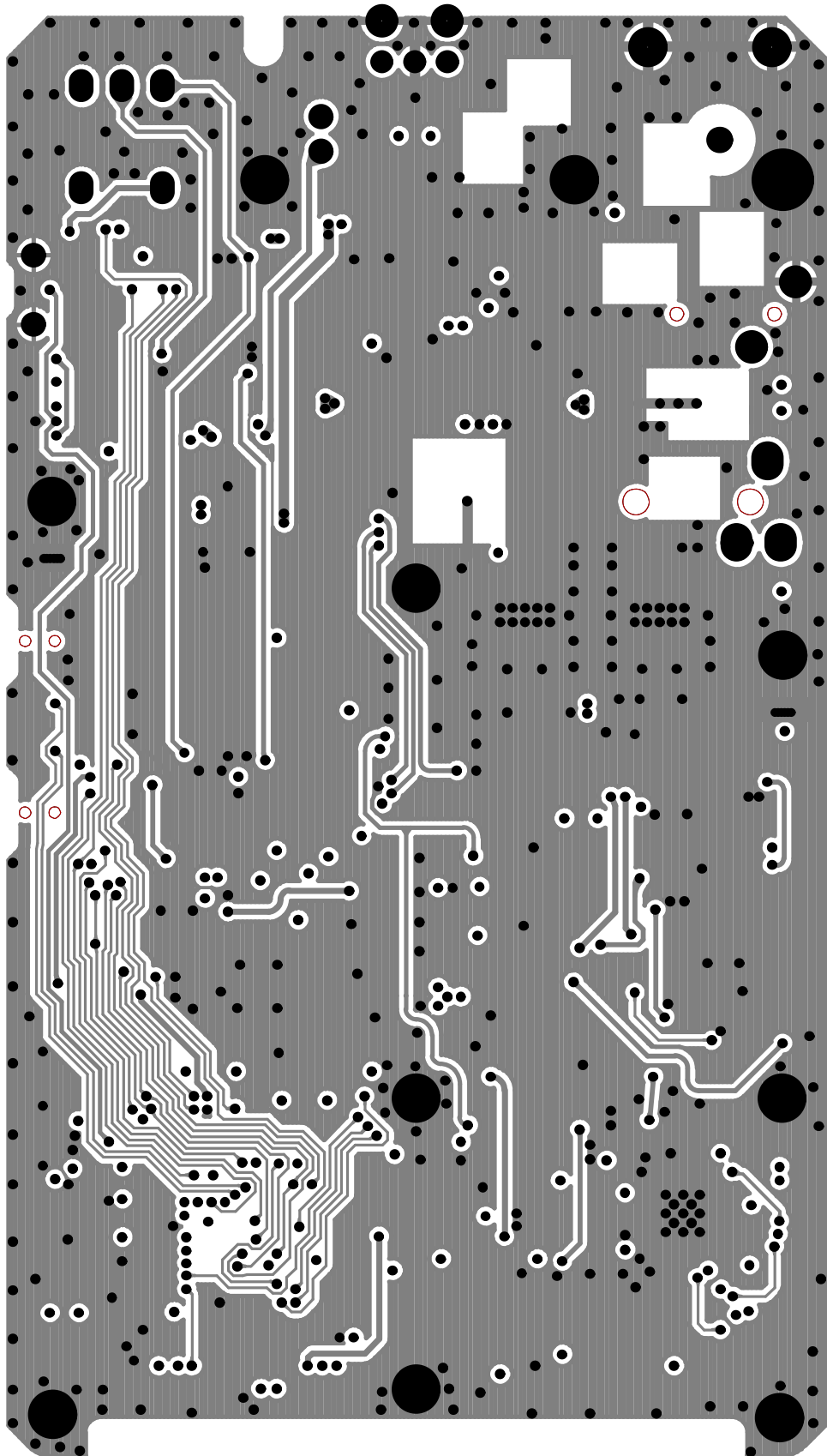
SW613

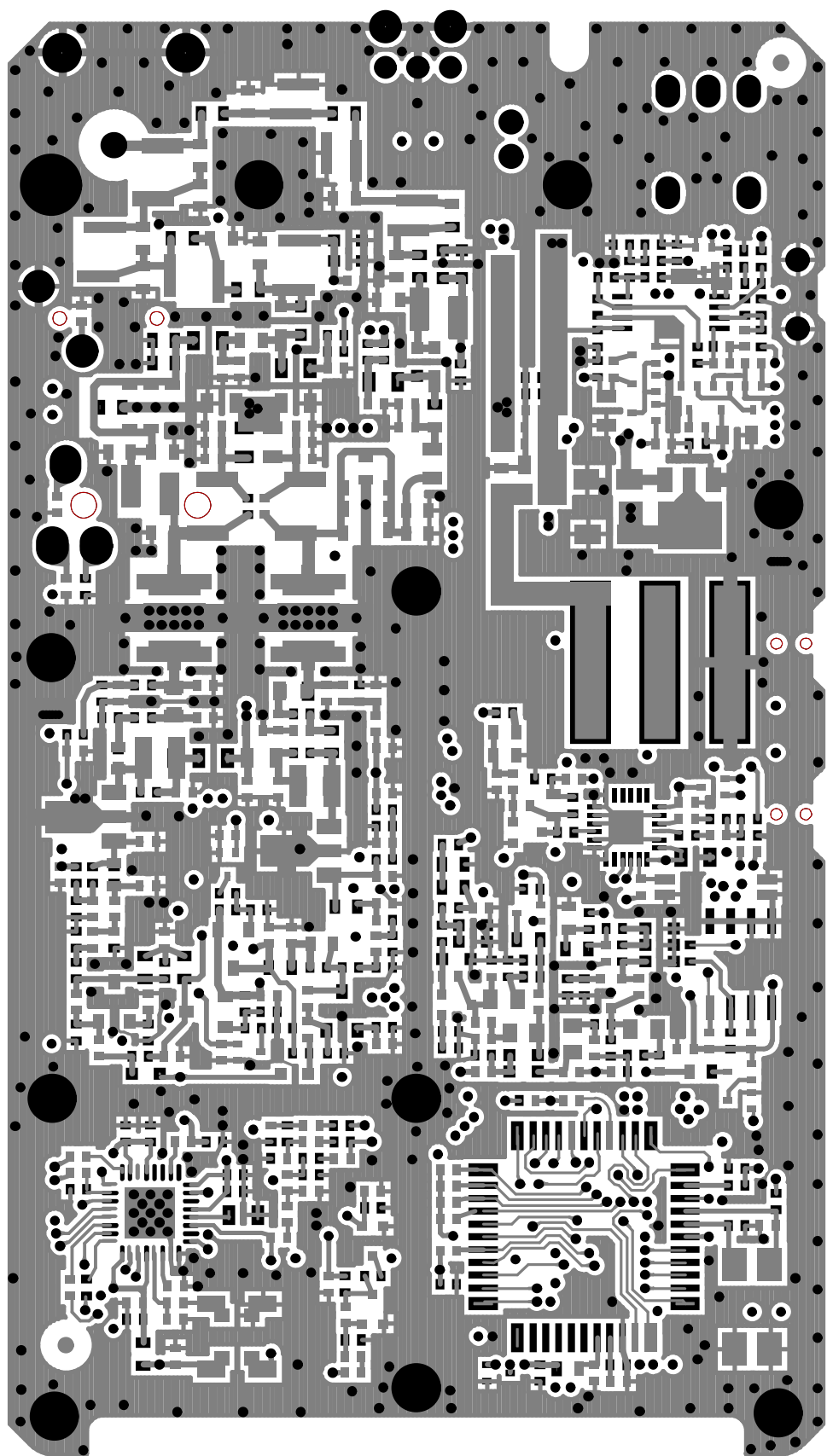
SW613

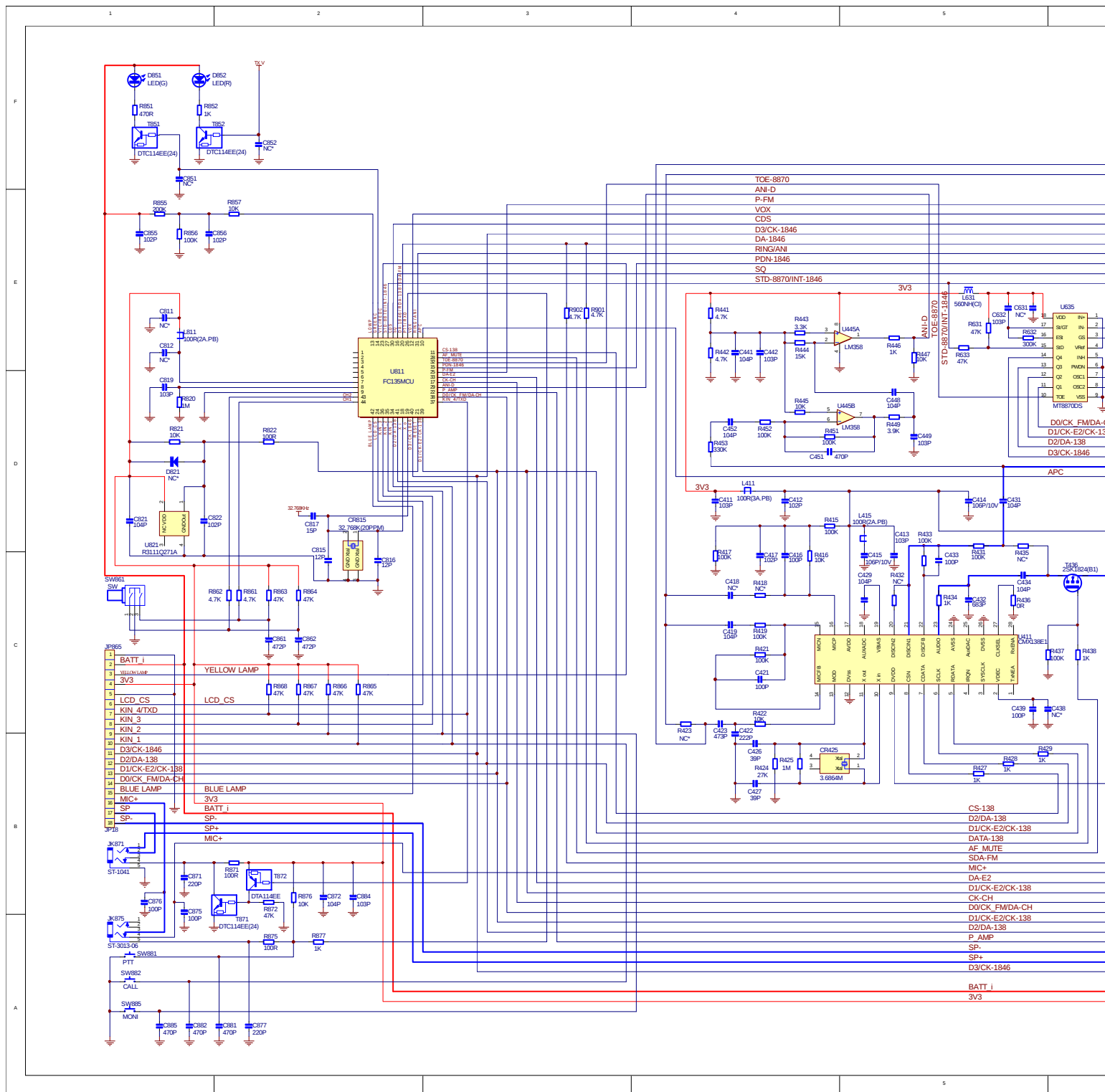




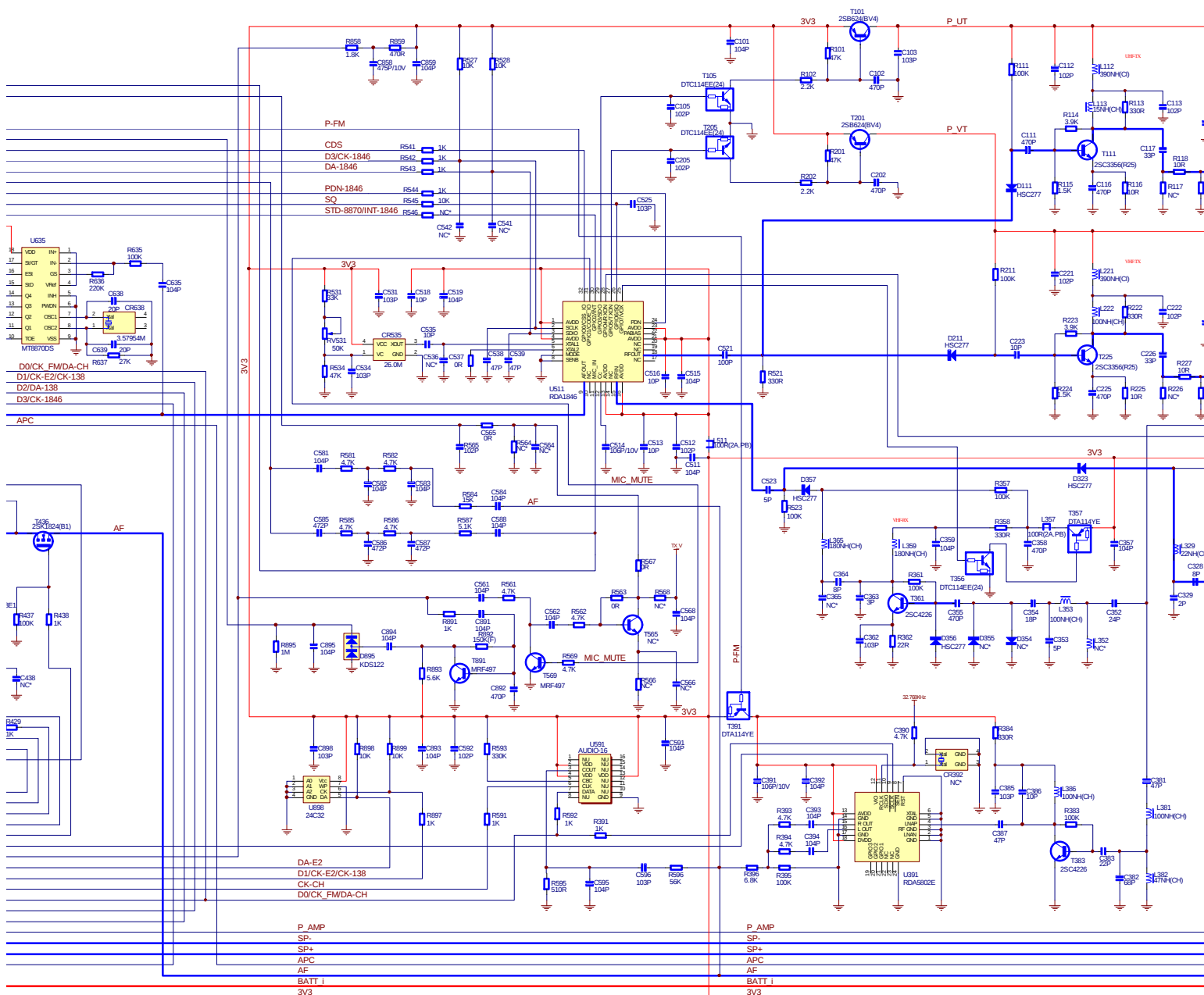




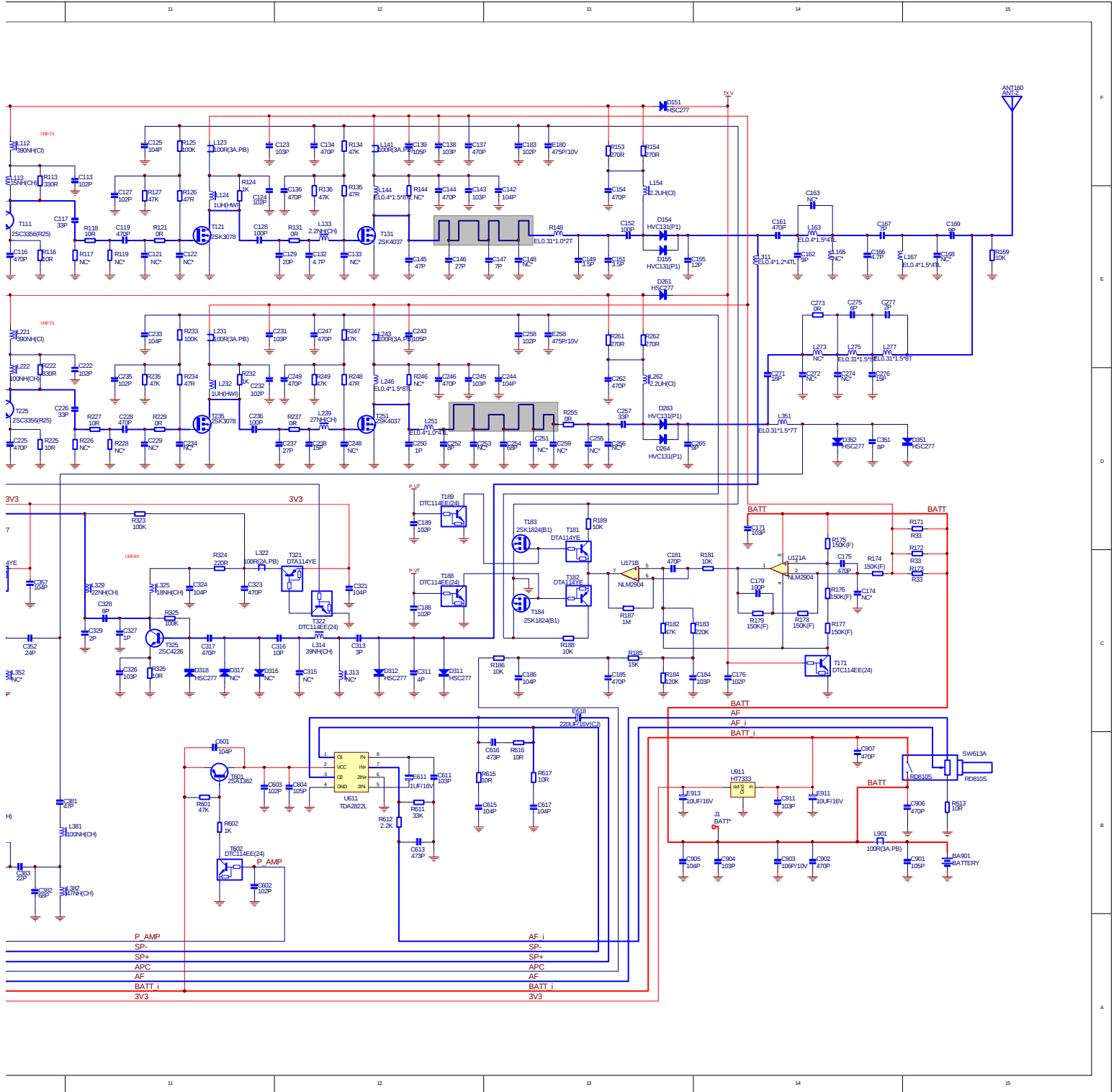


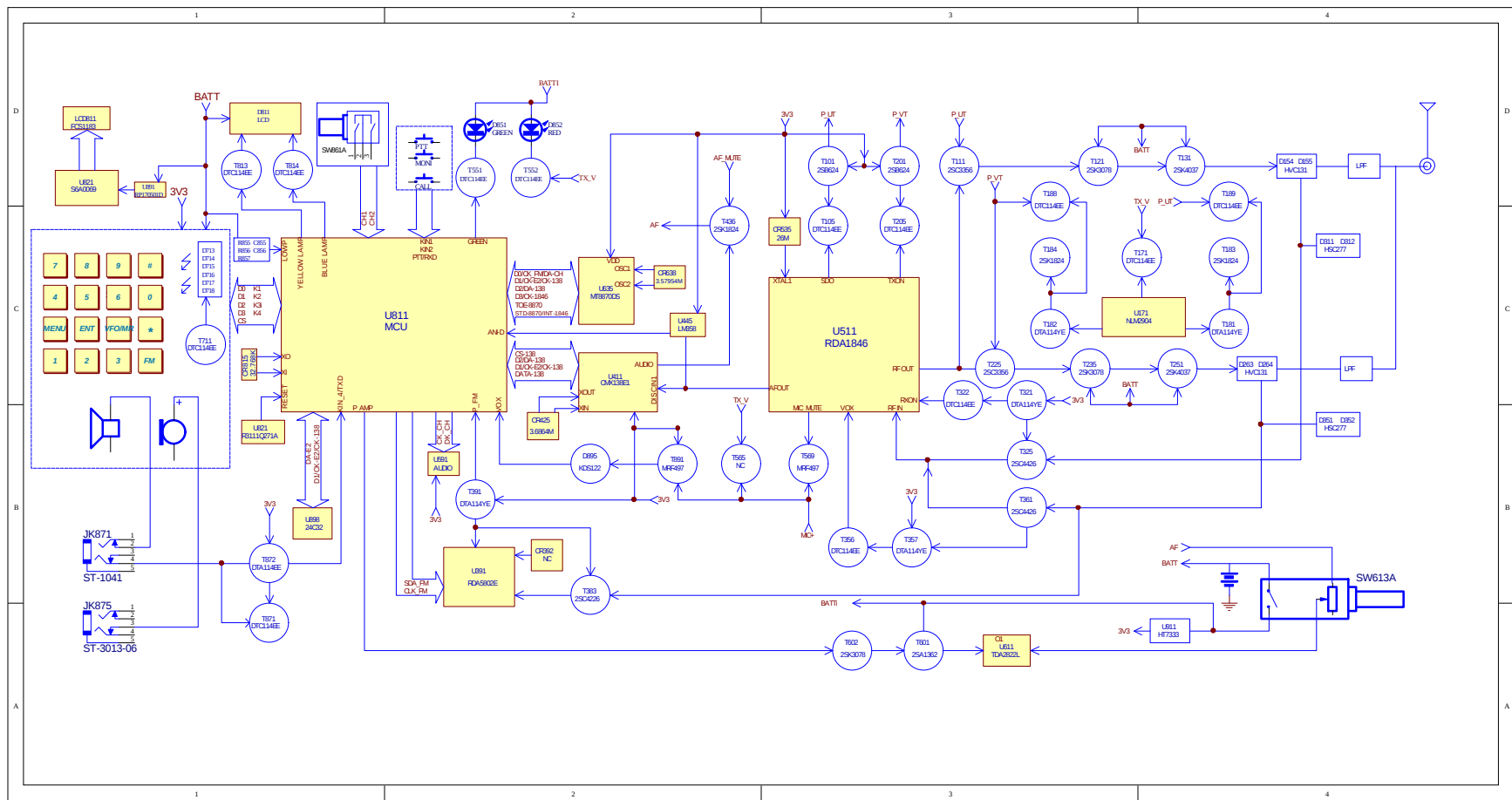


6	7	8	9	10
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6	7	8	9	10
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CPU PIN FUNCTION LIST

Pin NO	Pin NAME	I/O	port name	function description
1	NC	O		
2	NC	O		
3	NC	O		
4	NC	O		
5	NC	O		
6	NC	O		
7	VDD	I		
8	PLLC	I		
9	VSS	I		
10	P6[7]	O	CS - 138	138片选
11	P6[6]	I/O	SDA-FM	5802 data
12	P6[5]	AD	VOX	VOX test
13	P6[4]	AD	LOWP	voltage test
14	P6[3]	O	GREENC	green indicator led control
15	P6[2]	O	PDN- 1846	1846 save power control
16	P6[1]	I	SQ	SQ test
17	P6[0]	O	CK- CH	voice announce clock
18	XIN	I		
19	XOUT	O		
20	P8[0]	I/O	DA- 1846	1846data
21	RESET	I		
22	P7[7]	O	P AMP	2822 power control
23	P7[6]	O	ORANGEC	orange background light
24	P7[5]	O	CLK-LCD	LCD clock
25	P7[4]	O	P FM	Fm radio power control
26	P7[3]	I	TONE -D	audio decode
27	P7[2]	I	STD- 8870	8870 STD
28	P7[1]	O	AF- MUTE	RX mute control
29	P7[0]	I	PTT/RXD	PTT key/programming port
30	PC[0]	I	CDS	CTCSS/DCS encode
31	PC[1]	O	RING/MSK	ring、 send MSK
32	PC[2]	O	TOE - 8870	8870 TOE
33	PC[3]	I/O	DA- E2	memory data
34	P9[0]	I	KIN- 1/CALL	key input 1. call key test
35	P9[1]	I	KIN- 2/MONI	key input 2、 monitor key test
36	P9[2]	I	KIN- 3/RS LCD	key input 3/LCD dictate data select
37	P9[3]	I	KIN- 4/TXD	key input 4/read program port
38	P9[4]	O	D0/CK FM/DA-CH	parallel data 0、 Fm radio clock、 voice announce
39	P9[5]	O	D1/CK- E2/CK- 138	parallel data1、 E2P clock、 138 clock
40	P9[6]	O	D3/CK- 1846	parallel data 3、 1846 clock
41	P9[7]	O	D2/DA- 138	parallel data 2、 138 data
42	P5[7]	O	BLUEC	blue led control
43	P5[6]	I	CH1	encode knob 1
44	P5[5]	I	CH2	encode knob 2

BOM表								
MODEL	01-04	approve		auditing		edit		date
								2011-09-08
frequency	UV							
MODEL	spefication	qty	position number					
capacitance								
1P	C0402	1	C327					
2P	C0402	1	C329					
3P	C0402	2	C313	C363				
3.5P	C0402	2	C149	C151				
4P	C0402	1	C311					
4.7P	C0402	1	C132					
5P	C0402	2	C353	C523				
8P	C0402	3	C328	C351	C364			
10P	C0402	7	C386	C316	C513	C535	C518	C516
			C223					
12P	C0402	2	C815	C816				
15P	C0402	2	C817	C238				
18P	C0402	1	C354					
20P	C0402	3	C638	C639	C129			
22P	C0402	1	C383					
24P	C0402	1	C352					
27P	C0402	1	C237					
33P	C0402	2	C117	C226				
39P	C0402	2	C427	C426				
47P	C0402	4	C538	C539	C387	C381		
68P	C0402	1	C382					
100P	C0402	9	C421	C439	C416	C433	C236	C521
			C876	C875	C179			
102P	C0402	25	C412	C417	C603	C602	C592	C856
			C855	C822	C127	C124	C235	C222
			C221	C205	C512	C113	C112	C232
			C189	C176	C258	C105	C188	C183
			R565					
103P	C0402	26	C632	C411	C884	C531	C449	C534
			C442	C413	C911	C611	C596	C898
			C362	C385	C326	C231	C123	C103
			C525	C143	C245	C184	C171	C819
			C904	C138				
104P	C0402	45	C821	C419	C186	C452	C448	C441
			C568	C561	C562	C859	C601	C617
			C615	C595	C591	C635	C434	C429
			C431	C872	C357	C321	C324	C125
			C101	C511	C519	C515	C583	C584
			C582	C581	C895	C894	C893	C891
			C233	C142	C244	C394	C392	C393
			C359	C905	C588			
220P	C0402	2	C877	C871				
222P	C0402	1	C422					
470P	C0402	31	C451	C881	C885	C882	C906	C907
			C355	C323	C317	C119	C134	C136
			C249	C228	C225	C111	C202	C892
			C116	C247	C154	C144	C246	C262

			C181	C185	C175	C358	C102	C902
			C137					
472P	C0402	5	C862	C861	C585	C586	C587	
473P	C0402	3	C423	C616	C613			
683P	C0402	1	C432					
1P	C0603	1	C250					
2P	C0603	1	C277					
4.7P	C0603	1	C166					
6P	C0603	1	C275					
7P	C0603	2	C147	C167				
8P	C0603	1	C252					
9P	C0603	3	C265	C169	C162			
12P	C0603	1	C155					
15P	C0603	1	C276					
18P	C0603	1	C271					
27P	C0603	1	C146					
33P	C0603	1	C257					
47P	C0603	1	C145					
68P	C0603	1	C254					
100P	C0603	2	C128	C152				
105P	C0603	1	C901					
470P	C0603	1	C161					
105P	C0805	3	C604	C139	C243			
106P/10V	C0805	5	C414	C415	C514	C391	C903	
475P/10V	C0805	3	C858	E258	E180			
220UF/16V(CJ)	E-6*7	1	E618					
10UF/16V	EIA3216(A)	2	E913	E911				
1UF/16V	EIA3216(A)	1	E611					
resistance								
0R	R0402	8	R563	R567	R436	R131	R237	R229
			C537	C565				
1K	R0402	20	R591	R543	R427	R428	R429	R438
			R446	R602	R852	R592	R434	R897
			R124	R541	R544	R891	R542	R232
			R391	R877				
1.5K	R0402	2	R115	R224				
1.8K	R0402	1	R858					
2.2K	R0402	3	R612	R202	R102			
3.3K	R0402	1	R443					
3.9K	R0402	3	R449	R114	R223			
4.7K	R0402	16	R442	R441	R569	R561	R562	R862
			R861	R901	R902	R582	R581	R585
			R393	R394	C390	R586		
5.1K	R0402	1	R587					
5.6K	R0402	1	R893					
6.8K	R0402	1	R396					
10K	R0402	16	R821	R422	R186	R528	R445	R527
			R447	R416	R857	R898	R899	R545
			R181	R188	R876	R189		
10R	R0402	9	R617	R616	R615	R613	R326	R118
			R227	R225	R116			
15K	R0402	3	R444	R584	R185			
22R	R0402	1	R362					
27K	R0402	2	R424	R637				

33K	R0402	2	R531	R611				
47K	R0402	20	R631	R534	R601	R864	R863	R872
			R633	R127	R134	R136	R235	R201
			R868	R867	R866	R865	R101	R247
			R249	R182				
47R	R0402	4	R126	R135	R234	R248		
56K	R0402	1	R596					
100K	R0402	22	R437	R419	R421	R451	R452	R415
			R417	R635	R856	R433	R431	R323
			R383	R325	R523	R125	R233	R211
			R111	R395	R361	R357		
100R	R0402	3	R875	R871	R822			
120K	R0402	1	R184					
150K(F)	R0402	7	R892	R179	R178	R174	R176	R175
			R177					
200K	R0402	1	R855					
220K	R0402	2	R636	R183				
220R	R0402	1	R324					
270R	R0402	4	R261	R262	R154	R153		
300K	R0402	1	R632					
330K	R0402	2	R453	R593				
330R	R0402	5	R384	R222	R521	R113	R358	
470R	R0402	2	R859	R851				
510R	R0402	1	R595					
1M	R0402	4	R425	R895	R187	R820		
0R	R0603	2	R121	C273				
10K	R0603	1	R169					
0R	R0805	1	R255					
R33	R1206	3	R171	R172	R173			
50K	RV-3*3	1	RV531					
induction								
15NH(CH)	L0603	1	L113					
18NH(CH)	L0603	1	L325					
22NH(CH)	L0603	1	L329					
27NH(CH)	L0603	1	L239					
39NH(CH)	L0603	1	L314					
47NH(CH)	L0603	1	L382					
100NH(CH)	L0603	4	L353	L386	L381	L222		
180NH(CH)	L0603	2	L365	L359				
390NH(CI)	L0603	2	L221	L112				
560NH(CI)	L0603	1	L631					
100R(2A.PB)	L0603	5	L415	L357	L322	L511	L811	
100R(3A.PB)	L0805	6	L411	L123	L231	L141	L243	L901
1UH(HWI)	L0805	2	L124	L232				
2.2NH(CH)	L0603	1	L133					
2.2UH(CI)	L0805	2	L154	L262				
EL0.31*1.0*2T	2T	1	R148					
EL0.31*1.5*7T	7T	1	L351					
EL0.31*1.5*8T	8T	2	L275	L277				
EL0.4*1.0*4TL	4T	1	L251					
EL0.4*1.2*4TL	4T	1	L311					
EL0.4*1.5*4TL	4T	2	L167	L163				
EL0.4*1.5*8TL	8T	2	L246	L144				
diode								

LED(G)	D0603	1	D851					
LED(R)	D0603	1	D852					
HSC277	D-ESC	12	D261	D151	D356	D318	D211	D111
			D351	D352	D312	D311	D323	D357
HVC131(P1)	D-ESC	4	D155	D154	D263	D264		
KDS122	D-USM(D)	1	D895					
audion								
2SK4037	T-2N1A-2SK3476	2	T251	T131				
DTA114EE	T-ESM(C)	1	T872					
DTA114YE	T-ESM(C)	5	T357	T321	T391	T181	T182	
DTC114EE(24)	T-ESM(C)	11	T602	T852	T851	T871	T356	T205
			T105	T171	T188	T322	T189	
2SK1824(B1)	T-ESM(G)	3	T436	T184	T183			
2SK3078	T-SOT89(T1)	2	T235	T121				
2SA1362	T-TSM(C)	1	T601					
2SB624(BV4)	T-TSM(C)	2	T201	T101				
2SC3356(R25)	T-TSM(C)	2	T111	T225				
R31110271A	T-US4	1	U821					
2SC4226	T-USM(C)	3	T383	T325	T361			
MRF497	T-USM(C)	2	T569	T891				
integration								
RDA5802E	U-QFN24-0404-P050	1	U391					
RDA1846	U-QFN32(RDA1846)	1	U511					
FC135MCU	U-QFP44	1	U811					
AUDIO-16	U-SO1C16	1	U591					
MT8870DS	U-SO1C18	1	U635					
24C32	U-SOP8	1	U898					
LM358	U-SOP8	1	U445					
TDA2822L	U-SOP8	1	U611					
RH5RZ33CA-T1-F(3.3V)	U-SOT89(V)	1	U911					
CMX138E1	U-SSOP28(T)	1	U411					
NLM2904	U-SSOP8	1	U171					
other								
ANT-2	ANT-888	1	ANT160					
BATTERY	BATT-PX888	1	BA901					
3.57954M	FX-11.8*5.5	1	CR638					
3.6864M	FX-11.8*5.5	1	CR425					
26.0M	FX-3.0*5.0	1	CR535					
32.768K(20PPM)	FX-8*3.8	1	CR815					
ST-1041	JK-ST-1041	1	JK871					
ST-3013-06	JK-ST-3013-06	1	JK875					
JP18	JP-18-2	1	JP865					
BATT*	J-TEST POINT	1	J1					
SW	S-RD81-T02	1	SW861					

RD810S	S-RD910S	1	SW613					
CALL	S-SKRE	1	SW882					
MONI	S-SKRE	1	SW885					
PTT	S-SKRT-1	1	SW881					

SPECIFICATION

Frequency range	UV
Channel number(simplex)	128
channel space	25KHz
antenna impedance	50 Ω
mic impedance	2K Ω
speaker impedance	16 Ω
working voltage	7.4 V DC
frequency stability	$\pm 2.5 \times 10^{-6}$ ppm
Transmitter	
frequency deviation	± 250 Hz
carrier output power	≤ 5 W
modulation sensitivity	8-12 (mV)
modulation distortion	$\leq 5\%$
modulation limit	≤ 5 KHz
Adjacent Channel Power(ratio)	≥ 65 dB
Intermodulation attenuation	≥ 40 dB
spurious component	≤ 7.5 uW
RECEIVER	
reference sensitivity	≤ -120 dBm
Audio distortion	$\leq 5\%$
signal-to-residual output-power ratio	≥ 40 dB
co-channel reject	≥ -8 dB
Block	≥ 85 dB
Adjacent Channel Selectivity	≥ 55 dB
Spurious Response	≥ 55 dB