



Luiton LT-298

SERVICE MANUAL

-TECNICAL CHARACTERITICS

LUITON LT-298 (config: E d d2 EU EC PL,without ASQ)

1-GENERAL:

-Multiconfiguration(E,d,d2,EU,EC,U,PL)

- E ⇒ 40 channels AM/FM 4W (from 26,965Mhz to 27,405Mhz)
- d ⇒ 80 channels FM 4W (from 26,565Mhz to 27,405Mhz)
12 channels AM 1W (from 27,005Mhz to 27,135Mhz)
- d2 ⇒ 40 channels FM 4W (from 26,565Mhz to 27,405Mhz)
12 channels AM 1W (from 27,005Mhz to 27,135Mhz)
- EU ⇒ 40 channels FM 4W/AM 1W (from 26,965Mhz to 27,405Mhz)
- EC ⇒ 40 channels FM 4W (from 26,965Mhz to 27,405Mhz)
- U ⇒ 40 channels FM 4W (from 26,965Mhz to 27,405Mhz)
40 channels FM 4W (from 27,60125Mhz to 27,99125Mhz)
- PL ⇒ 40 channels AM/FM 4W (from 26,960Mhz to 27,400Mhz)

-Channel step

-10KHz

-Class of emission

-AM(A3E)/FM(F3E)

-Power supply

-13,2V (from 10,8V to 15,6V)

-Antenna impedance

-50Ω

-Dimensions(in mm)

-115(L)x150(H)x38(D)

-Weight

-0,8Kg

2-TRANSMISSION:

-Frequency allowance

-±300Hz

-Transmission interference

-Inferior to 4nW(-54dBm)

-Audio frequency response

-From 300Hz to 3kHz in AM/FM

-Emitted power in the adjacent channel

-Inferior to 20μW

-Microphone sensitivity

-Inferior to 10mV

-Current drain

-1,7A(in transmission mode with modulation)

-Modulated signal distortion

-Inferior to 2%

3-RECEPTION:

-Maximum sensitivity at 20dB sinad

-0,5 μ V(-113dBm) AM/FM

-Audio frequency response

-From 300Hz to 3kHz in AM/FM

-Adjacent channel selectivity

-Superior to 60dB

-Frequency image rejection

-Superior to 60dB

-Intermodulation response

-Superior to 54dB

-Maximum audio power

-5W

-Squelch sensitivity

-Threshold 0,2 μ V(-120dBm)/Tight 1mV(-47dBm)

-Current drain

-500mA nominal/800mA maximum

ALIGNMENT PROCEDURE

LUTION LT-298

* VCO/PLL PORTION

- Alignment procedure
- Test points
- Frequencies chart

* TRANSMITTER

- Alignment procedure
- Test points

* RECEIVER

- Alignment procedure
- Test points

Test equipment required

Frequency counter 200 Mhz	HF Generator
DC Voltmeter	BF Voltmeter
Distortimeter	HF Voltmeter
Wattmeter - Dummy load	Osilloscope
FM linear detector	
AF generator	Load 8 Ω
	Sinad meter

Conditions of Measurements on HF Generator

Reception

AM mode: Level - 107 dBm Frequency 1 KHz with 80% of modulation.

FM mode: Level - 107 dBm Frequency 1 KHz with 1,2KHz of deviation.

Transmission

Frequency 1 KHz 30mV.

ALIGNMENT VCO/PLL

1 - Alignment procedure(13,2V;configuration“PL”)

STEP	CONDITION	ADJUSTMENT	REMARKS OF ADJUSTMENT
1	FM(PL) TX mode Channel 19		Connecting a voltmeter to test TP6,to reach $2.2V \pm 0,2V$.
2	FM(PL) RX mode Channel 19		Connecting a voltmeter to test TP6,to reach $2.2V \pm 0,2V$
3	FM(PL) TX/ RX mode Channel 1		Connect a voltmeter to TP6,and check: Rx Channel 1= $1.8V \pm 0,2V$ Tx Channel 1= $1.8V \pm 0,2V$
4	FM(PL) RX mode Channel 19		Connect a frequency counter to R23 37,880MHz.
5	FM(PL) TX/ RX mode Channel 1 to 40 or 1 to 80(d)		Connect a frequency counter to R23,and check frequencies.

- FREQUENCY LIST (PL)

CH	Channels Frequencies (MHz)	VCO Frequencies (MHz)
1	26,960	37,660
2	26,970	37,670
3	26,980	37,680
4	27,000	37,700
5	27,010	37,710
6	27,020	37,720
7	27,030	37,730
8	27,050	37,750
9	27,060	37,760
10	27,070	37,770
11	27,080	37,780
12	27,100	37,800
13	27,110	37,810
14	27,120	37,820
15	27,130	37,830
16	27,150	37,850
17	27,160	37,860
18	27,170	37,870
19	27,180	37,880
20	27,200	37,900
21	27,210	37,910
22	27,220	37,930
23	27,250	37,950
24	27,230	37,930
25	27,240	37,940
26	27,260	37,960
27	27,270	37,970
28	27,280	37,980
29	27,290	37,990
30	27,300	38,000
31	27,310	38,010
32	27,320	38,020
33	27,330	38,030
34	27,340	38,040
35	27,350	38,050
36	27,360	38,060
37	27,370	38,070
38	27,380	38,080
39	27,390	38,090
40	27,400	38,100

- FREQUENCY LIST (CE,E,EU)

CH	Channels Frequencies (MHz)	VCO Frequencies (MHz)
1	26,965	37,655
2	26,975	37,665
3	26,985	37,675
4	27,005	37,695
5	27,015	37,705
6	27,025	37,715
7	27,035	37,725
8	27,055	37,745
9	27,065	37,755
10	27,075	37,765
11	27,085	37,775
12	27,105	37,795
13	27,115	37,805
14	27,125	37,815
15	27,135	37,825
16	27,155	37,845
17	27,165	37,855
18	27,175	37,865
19	27,185	37,875
20	27,205	37,895
21	27,215	37,905
22	27,225	37,915
23	27,255	37,945
24	27,235	37,925
25	27,245	37,935
26	27,265	37,955
27	27,275	37,965
28	27,285	37,975
29	27,295	37,985
30	27,305	37,995
31	27,315	38,005
32	27,325	38,015
33	27,335	38,025
34	27,345	38,035
35	27,355	38,045
36	27,365	38,055
37	27,375	38,065
38	27,385	38,075
39	27,395	38,085
40	27,405	38,095

- FREQUENCY LIST (U)

CH CEPT	Channels Frequencies (MHz)	VCO Frequencies (MHz)
1	26,965	37,665
2	26,975	37,675
3	26,985	37,685
4	27,005	37,705
5	27,015	37,715
6	27,025	37,725
7	27,035	37,735
8	27,055	37,755
9	27,065	37,765
10	27,075	37,775
11	27,085	37,785
12	27,105	37,805
13	27,115	37,815
14	27,125	37,825
15	27,135	37,835
16	27,155	37,855
17	27,165	37,865
18	27,175	37,875
19	27,185	37,885
20	27,205	37,905
21	27,215	37,915
22	27,225	37,935
23	27,255	37,955
24	27,235	37,935
25	27,245	37,945
26	27,265	37,965
27	27,275	37,975
28	27,285	37,985
29	27,295	37,995
30	27,305	38,005
31	27,315	38,015
32	27,325	38,025
33	27,335	38,035
34	27,345	38,045
35	27,355	38,055
36	27,365	38,065
37	27,375	38,075
38	27,385	38,085
39	27,395	38,095
40	27,405	38,105

- FREQUENCY LIST (U)

CH ENG	Channels Frequencies (MHz)	VCO Frequencies (MHz)
1	27,60125	38,30125
2	27,61125	38,31125
3	27,62125	38,32125
4	27,63125	38,33125
5	27,64125	38,34125
6	27,65125	38,35125
7	27,66125	38,36125
8	27,67125	38,37125
9	27,68125	38,38125
10	27,69125	38,39125
11	27,70125	38,40125
12	27,71125	38,41125
13	27,72125	38,42125
14	27,73125	38,43125
15	27,74125	38,44125
16	27,75125	38,45125
17	27,76125	38,46125
18	27,77125	38,47125
19	27,78125	38,48125
20	27,79125	38,49125
21	27,80125	38,50125
22	27,81125	38,51125
23	27,82125	38,52125
24	27,83125	38,53125
25	27,84125	38,54125
26	27,85125	38,55125
27	27,86125	38,56125
28	27,87125	38,57125
29	27,88125	38,58125
30	27,89125	38,59125
31	27,90125	38,60125
32	27,91125	38,61125
33	27,92125	38,62125
34	27,93125	38,63125
35	27,94125	38,64125
36	27,95125	38,65125
37	27,96125	38,66125
38	27,97125	38,67125
39	27,98125	38,68125
40	27,99125	38,69125

- FREQUENCY LIST (d)

CH	Channels	VCO	CH	Channels	VCO
D	Frequencies (MHz)	Frequencies (MHz)	D	Frequencies (MHz)	Frequencies (MHz)
1	26,965	37,665	41	26,565	37,265
2	26,975	37,675	42	26,575	37,275
3	26,985	37,685	43	26,585	37,285
4	27,005	37,055	44	26,595	37,295
5	27,015	37,715	45	26,605	37,305
6	27,025	37,725	46	26,615	37,315
7	27,035	37,735	47	26,625	37,325
8	27,055	37,755	48	26,635	37,335
9	27,065	37,765	49	26,645	37,345
10	27,075	37,775	50	26,655	37,355
11	27,085	37,785	51	26,665	37,365
12	27,105	37,805	52	26,675	37,375
13	27,115	37,815	53	26,685	37,385
14	27,125	37,825	54	26,695	37,395
15	27,135	37,835	55	26,705	37,405
16	27,155	37,855	56	26,715	37,415
17	27,165	37,865	57	26,725	37,425
18	27,175	37,875	58	26,735	37,435
19	27,185	37,885	59	26,745	37,445
20	27,205	37,905	60	26,755	37,455
21	27,215	37,915	61	26,765	37,465
22	27,225	37,935	62	26,775	37,475
23	27,255	37,955	63	26,785	37,485
24	27,235	37,935	64	26,795	37,495
25	27,245	37,945	65	26,805	37,505
26	27,265	37,965	66	26,815	37,515
27	27,275	37,975	67	26,825	37,525
28	27,285	37,985	68	26,835	37,535
29	27,295	37,995	69	26,845	37,545
30	27,305	38,005	70	26,855	37,555
31	27,315	38,015	71	26,865	37,565
32	27,325	38,025	72	26,875	37,575
33	27,335	38,035	73	26,885	37,585
34	27,345	38,045	74	26,895	37,595
35	27,355	38,055	75	26,905	37,605
36	27,365	38,065	76	26,915	37,615
37	27,375	38,075	77	26,925	37,625
38	27,385	38,085	78	26,935	37,635
39	27,395	38,095	79	26,945	37,645
40	27,405	38,105	80	26,955	37,655

ALIGNMENT TRANSMITTER

1 - Alignment procedure(13,2V;configuration"PL,EU")

STEP	CONDITION	ADJUSTMENT	REMARKS OF ADJUSTMENT
1	AM(EU) Channel 20	VR2(LOW)	Connect a wattmeter to jack antenna, adjust VR2 to reach 1W on the wattmeter.
2	FM(PL) Channel 20	VR1(HI)	Connect a wattmeter to jack antenna, adjust VR1 to reach 4W on the wattmeter.
3	FM(UK) Channel 1		JP4 shorted the pin into the C22 there, then look at the first channel frequency transmitter,27.60125MHZ
3	FM(PL) Mod 30 mV 1 KHz CH 20	VR3(DEV)	Adjust VR3 to reach +/- 2KHz of deviation.
4	AM(PL) Mod 30 mV 1 KHz CH 20	VR6(AMC)	AdjustVR6 to reach +/- 60% of modulation.
5	AM(PL) Mod 30 mV 1 KHz CH 20	VR5ALC)	Adjust VR5 to reach +/- 90% of modulation.

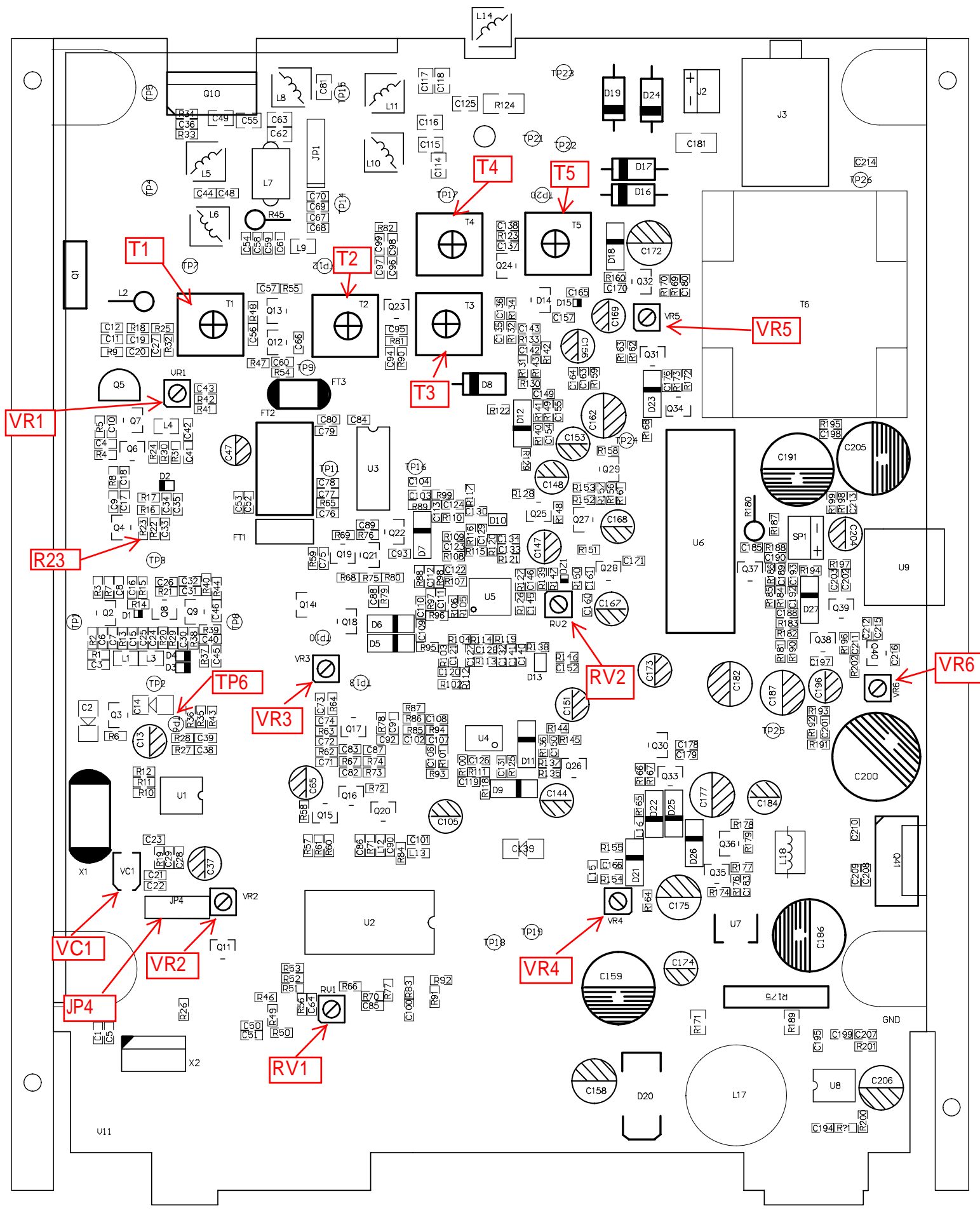
ALIGNMENT RECEIVER

1 - Alignment procedure(13,2V;configuration"PL")

STEP	CONDITION	ADJUSTMENT	REMARKS OF ADJUSTMENT
1	AM(PL) Channel 20 Middle volume level. No squelch active	T1-T2-T3 T4-T5	Connect HF generator to jack antenna adjusted at (-107dBm 1KHz 60%), connect sinad meter to jack EXT speaker and adjust coils for maximum sensitivity(≥ 20 dB sinad).
2	FM(PL) Channel 20 Middle volume level No squelch active		Connect HF generator to jack antenna adjusted at (-107dBm 1KHz 1,2KHz Dev),connect sinad meter to jack EXT speaker and adjust sensitivity(≥ 20 dB sinad).
3	AM(PL) Channel 20 Middle volume level No squelch active	RV2(S-METER)	Connect HF generator to jack antenna adjusted at (-67dBm 1KHz 60%) and adjust RV2 so that the 4th led is lighting.
4	AM(PL) Channel 20 Middle volume level Squelch maximum clockwise	RV4(SQ)	Connect HF generator to jack antenna adjusted at (-47dBm 1KHz 60%) and adjust VR4 so that the signal is audible .
5	AM(EU,E) Channel 20 Middle volume level Squelch maximum counterclockwise (ASQ)	VR1(ASQ)	The microphone in hand in the middle of ASQ open,Then radio PTT LED will light green,AM status, 1K / 80% will signal open -107DB, adjust VR1 so that the squelch open

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COMPONENT LAYOUT



VR1

R23

TP6

VC1

JP4

VR2

RV1

T1

T2

T3

T4

T5

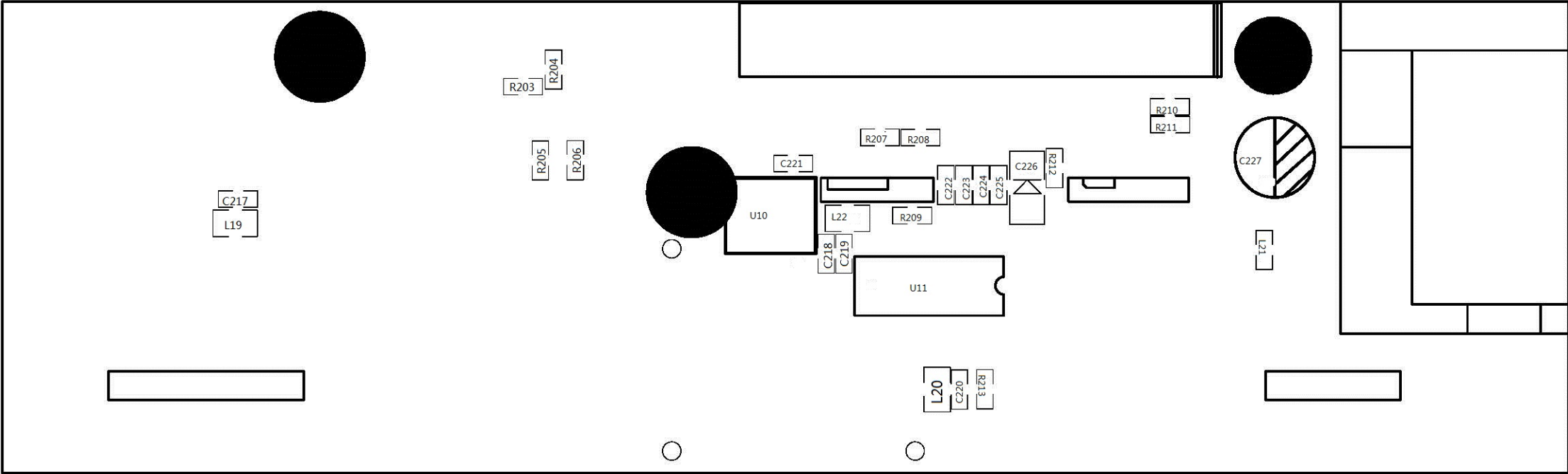
VR3

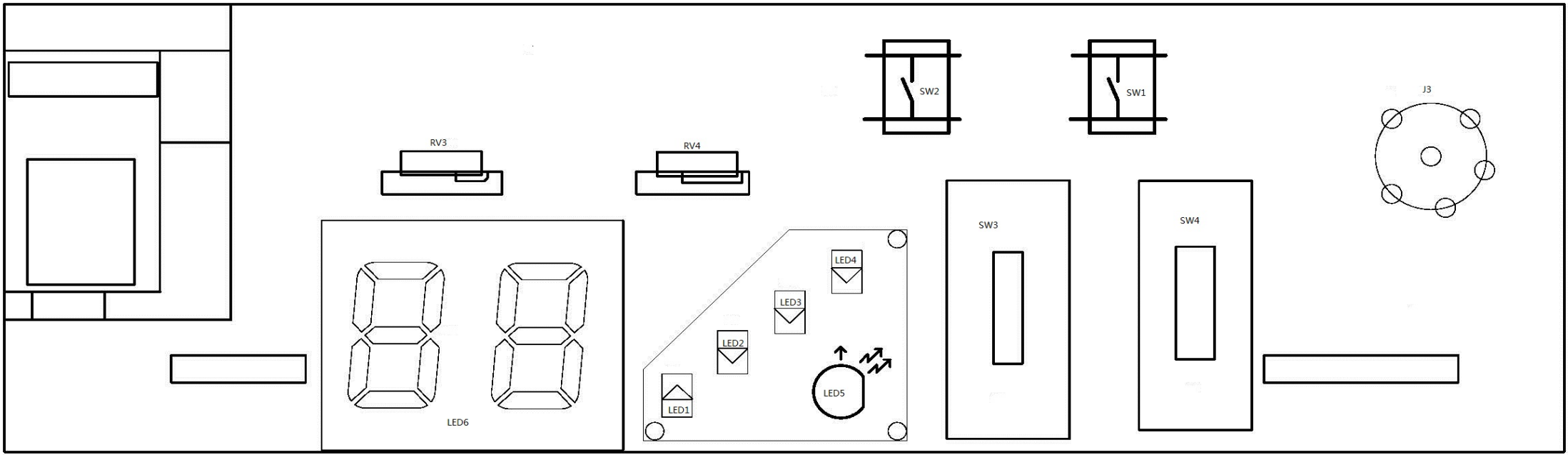
RV2

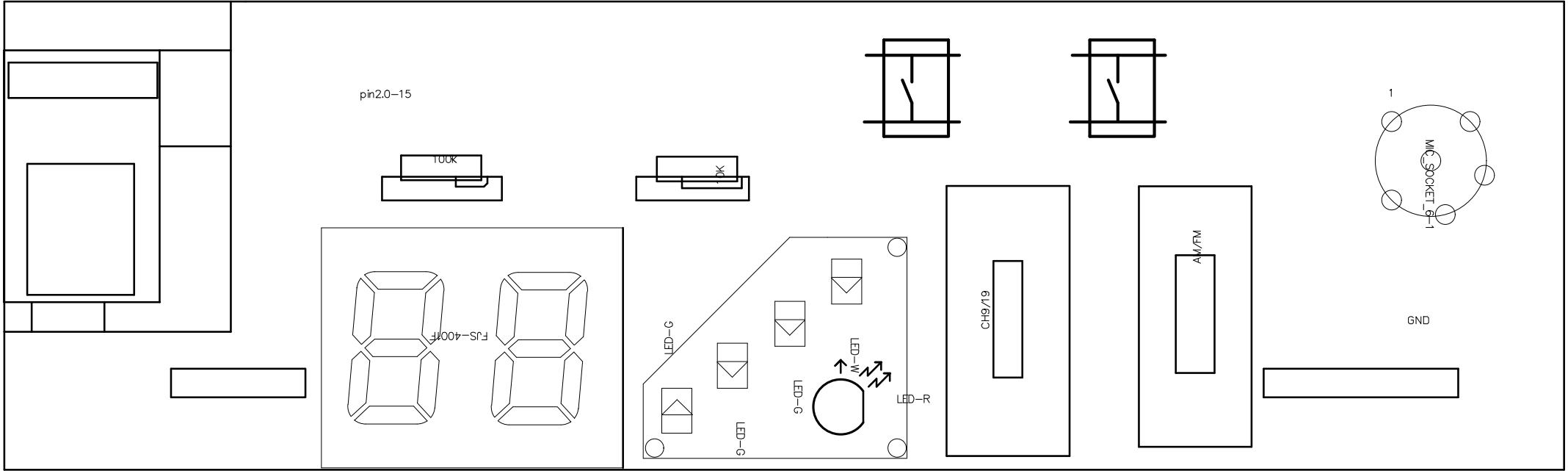
VR4

VR5

VR6

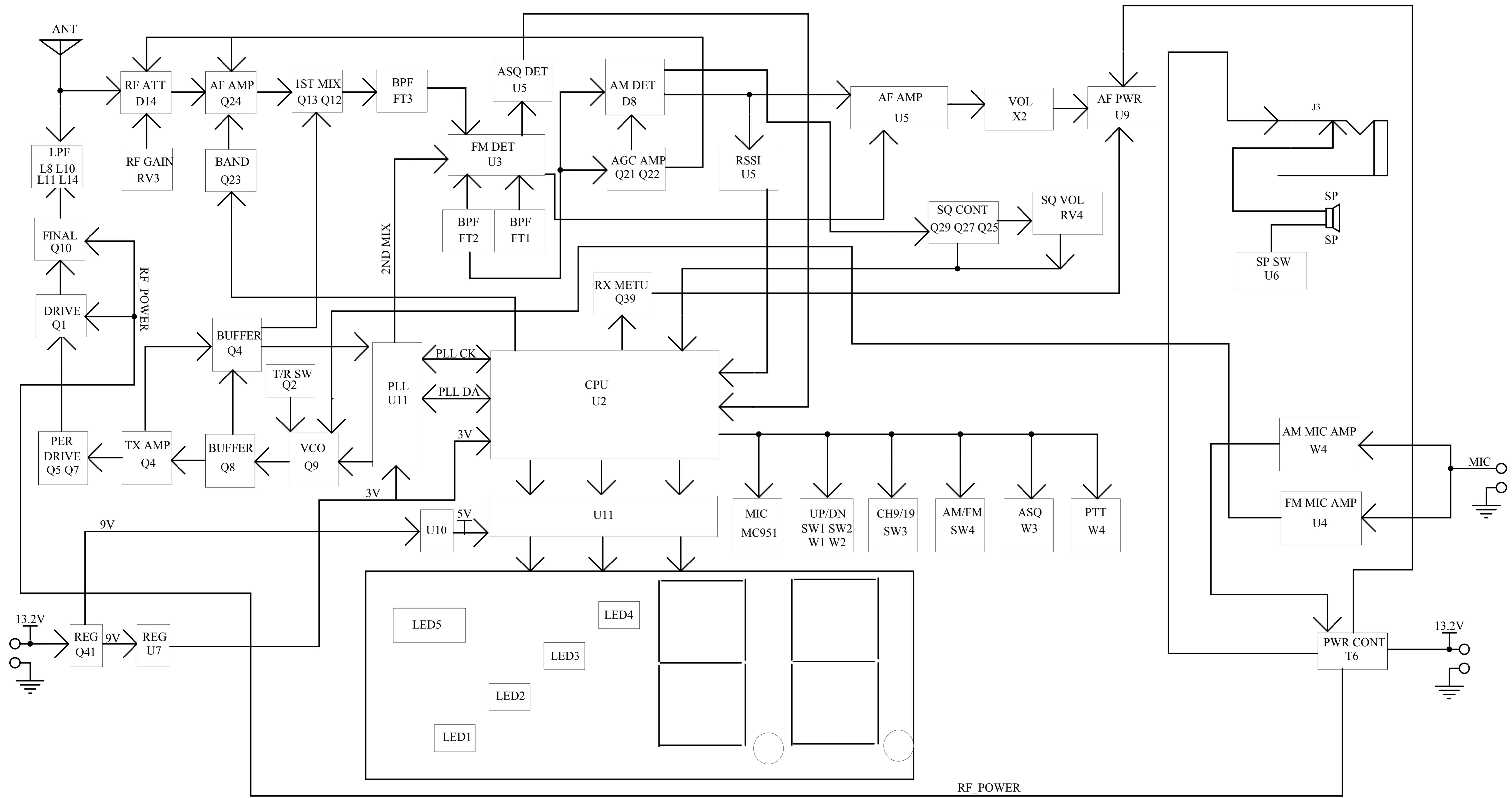






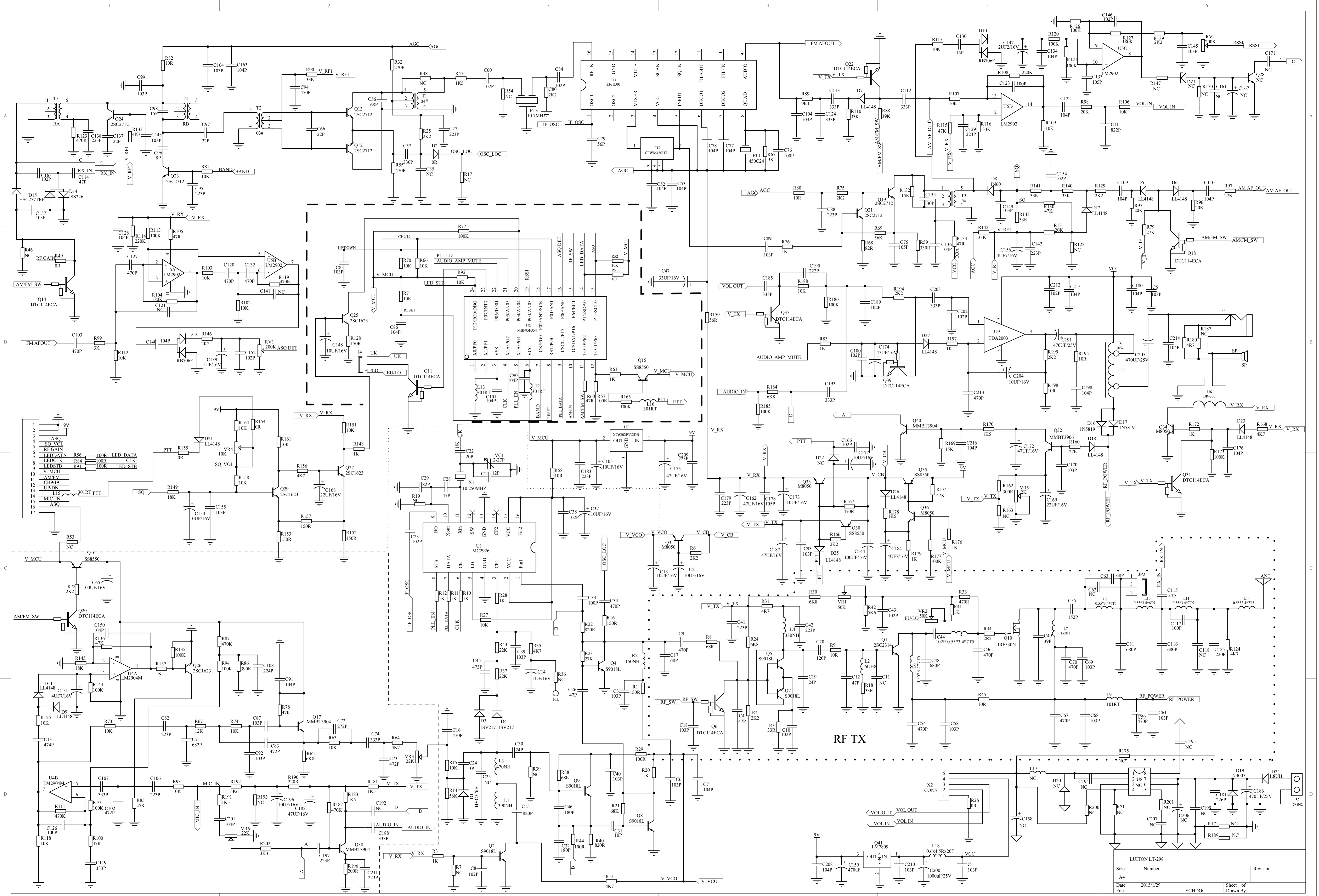
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BLOCK DIAGRAM



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SCHEMATIC DIAGRAM



1	ASQ	ASQ
2	SQ VOL	SQ VOL
3	RF GAIN	RF GAIN
4	LEDDATA	LEDDATA
5	LEDCLK	LEDCLK
6	LEDSIB	LEDSIB
7	V_MCU	V_MCU
8	UPDOWN	UPDOWN
9	CH9/19	CH9/19
10	MIC IN	MIC IN
11	ASQ	ASQ
12	PTT	PTT
13	LED STB	LED STB
14	LED DATA	LED DATA
15	CLK	CLK
16	ASQ DET	ASQ DET
17	LED STB	LED STB

LUITON LT-298		
Size	Number	Revision
A4		
Date:	2015/1/29	
File:	SCHDOC	Sheet of
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LUITON LT-298

COMPONENTS LIST

	Description / Specifications	Remark	amount
1	PCB HED-308(V	Double plate, thickness 1.6mm HASL process size: 114 * 139mm	1
2	PCB 0603 0Ω 5% 1/10W RoHS	R49, R154, R155, R26	4
3	0805 0Ω 5% 1/8W RoHS	D2	1
4	0603 2.2Ω 5% 1/10W RoHS	R34	1
5	0603 10Ω 5% 1/10W RoHS	R9, R58, R80, R82, R195, R198	6
6	0603 100Ω 5% 1/10W RoHS	R29, R44, R56, R84, R91,	5
7	0603 1kΩ 5% 1/10W RoHS	R3, R10, R11, R12, R20, R28, R61, R76, R83, R137, R148,	15
8	0603 10kΩ 5% 1/10W RoHS	R15, R27, R51, R52, R53, R63, R66, R70, R71, R73, R74,	28
9	0603 100kΩ 5% 1/10W RoHS	R57, R77, R94, R101, R113, R120, R121, R126, R135, R144,	15
10	0603 150Ω 5% 1/10W RoHS	R1, R128, R152, R153, R157, R16	6
11	0603 1.5kΩ 5% 1/10W RoHS	R47, R170, R178, R181, R183, R191	6
12	0603 12kΩ 5% 1/10W RoHS	R67	1
13	0603 15kΩ 5% 1/10W RoHS	R169, R132,	2
14	0603 18kΩ 5% 1/10W RoHS	R145, R149	2
15	0603 180kΩ 5% 1/10W RoHS	R104, R127	2
16	0603 200Ω 5% 1/10W RoHS	R196	1
17	0603 20kΩ 5% 1/10W RoHS	R95, R96, R98, R131,	4
18	0603 220Ω 5% 1/10W RoHS	R190	1
19	0603 2.2kΩ 5% 1/10W RoHS	C80, R4, R6, R25, R72, R75, R129, R139, R146, R166, R194,	12
20	0603 22kΩ 5% 1/10W RoHS	R37, R43,	2
21	0603 220kΩ 5% 1/10W RoHS	R108, R114	2
22	0603 270Ω 5% 1/10W RoHS	R32	1
23	0603 27kΩ 5% 1/10W RoHS	R23, R79, R97, R160	4
24	0603 3kΩ 5% 1/10W RoHS	R65, R99	2
25	0603 300Ω 5% 1/10W RoHS	R162	1
26	0603 33Ω 5% 1/10W RoHS	R5, R18	2
27	0603 330Ω 5% 1/10W RoHS	R59	1
28	0603 3.3kΩ 5% 1/10W RoHS	R202	1
29	0603 33kΩ 5% 1/10W RoHS	R90, R110, R116, R141, R142, R143, R140	7
30	0603 39kΩ 5% 1/10W RoHS	R88	1
31	0603 390kΩ 5% 1/10W RoHS	R86	1
32	0603 47Ω 5% 1/10W RoHS	R60, R100, R105, R134	4
33	0603 470Ω 5% 1/10W RoHS	R33, R167, R55, R123	4
34	0603 4.7kΩ 5% 1/10W RoHS	R13, R35, R64, R133, R156, R168	6
35	1206 4.7kΩ 5% 1/4W RoHS	R124	1
36	0603 47kΩ 5% 1/10W RoHS	R78, R85, R115, R130, R136, R174	6
37	0603 470kΩ 5% 1/10W RoHS	R87, R111, R119, R182	4
38	0603 4.7Ω 5% 1/10W RoHS	R31	1
39	0603 56Ω 5% 1/10W RoHS	R159	1
40	0603 5.6kΩ 5% 1/10W RoHS	R42, R192	2
41	0603 56kΩ 5% 1/10W RoHS	R14, R69	2
42	0603 68Ω 5% 1/10W RoHS	R8	1
43	0603 6.8kΩ 5% 1/10W RoHS	R24, R30, R62, R184	4
44	0603 68kΩ 5% 1/10W RoHS	R21, R38	2
45	0603 82Ω 5% 1/10W RoHS	R68,	
46	0603 820Ω 5% 1/10W RoHS	R22, R40	2
47	0603 9.1kΩ 5% 1/10W RoHS	R89	1
48	0603 10p±0.5p RoHS	C31	1
49	0603 100p±5% RoHS	C33, C76, C123, C126	4
50	0603 102p±10% RoHS	C8, C10, C23, C38, C43, C44, C60, C64, C84, C100, C146,	19
51	0603 103p±10% RoHS	C1, C3, C5, C6, C18, C39, C40, C58, C61, C68, C69, C85,	25
52	0603 104p±10% RoHS	C7, C51, C52, C53, C77, C78, C86, C90, C91, C101, C109,	27
53	0603 105p±80,-20% RoHS	C50, C75, C133, C178	4
54	0603 12p±5% RoHS	C21	1

55	0603	120p±10%	RoHS	C20	1
56	0603	15p±5%	RoHS	C130, C98,	2
57	0805	152p±10%	RoHS	C55	1
59	0603	20p±5%	RoHS	C22	1
60	0603	22p±5%	RoHS	C66, C97, C137	3
61	0805	220p±10%	RoHS	C125	1
62	0603	222p±10%	RoHS	C190	1
63	0603	223p±10%	RoHS	C27, C41, C42, C82, C88, C95, C106, C138, C142, C179, C183,	15
64	0603	272p±10%	RoHS	C72	1
65	0603	224p±10%	RoHS	C108, C129	2
66	0603	24p±5%	RoHS	C19, C30	2
67	1206	226p±80, -20%	RoHS	C181	1
68	0603	3.3p±0.1p	RoHS	C24	1
69	0603	333p±10%	RoHS	C74, C107, C112, C113, C124, C185, C188, C193, C203, C119,	10
70	0805	39p±5%	RoHS	C49	1
71	0603	47p±5%	RoHS	C4, C12, C26, C28,	4
72	0805	47p±5%	RoHS	C114, C115	2
73	0603	470p±10%	RoHS	C9, C16, C34, C36, C54, C59, C67, C70, C94, C103, C120,	14
74	0603	472p±10%	RoHS	C73, C83, C102	3
75	0603	473p±10%	RoHS	C45	1
76	0603	474p±80, -20%	RoHS	C131	1
77	0603	56p±5%	RoHS	C79	1
78	0805	100p±5%	RoHS	C117	1
79	0603	330p±10%	RoHS	C57, C135	2
	0603	68p±5%	RoHS	C56, C17	2
80	0805	68p±5%	RoHS	C63	1
81	0603	680p±10%	RoHS	C48	1
82	0805	680p±10%	RoHS	C81, C116	2
83	0603	682p±10%	RoHS	C71	1
84	0603	8p±0.25p	RoHS	C96	1
85	0603	82p±5%	RoHS	C29	2
86	0603	820p±10%	RoHS	C15	1
87	0603	822±10%	RoHS	C111	1
88	0603	180p±10%	RoHS	C32, C46	2
89	1206	1uF/16V ±10%		C14, C139	2
90	1206	10uF/16V	RoHS	C2	1
91	0805	101 ±25%	RoHS	L9	1
92	0603	150nH ±5%	RoHS	R2	1
93	0805	301 ±25%	1A RoHS	L12, L13, L15, L16	4
94	0805	330nH 2%	RoHS	L4	1
95	0805	390nH 2%	RoHS	L1	1
96	0805	470nH 2%	RoHS	L3	1
97	VR 3×3	10k Ω	RoHS	VR4	1
98	VR 3×3	2k Ω	RoHS	VR5	1
99	VR 3×3	22k Ω	RoHS	VR3, VR6	2
100	VR 3×3	220k Ω	RoHS	VR7, VR8	2
101	VR 3×3	50k Ω	RoHS	VR1	1
102	VC 3×4	2p/20p	RoHS	VC1	1
103	SOT523	RB706F-4		D10, D13	2
104	0603	HVC376B(B9)	RoHS	D1	1
105	LL4148	ROHS		D5, D6, D7, D9, D11, D12, D18, D21, D23, D25, D26, D27	12
106	0603	HSC277TRF		D15	1
107	1SV217	SOT-323	RoHS	D3, D4	2
108	M8050	SOT23	RoHS	Q3, Q33, Q34, Q36	4
109	ISS226	SOT23	RoHS	D14	1
110	MMBT3904	SOT23	RoHS	Q17, Q38, Q40	3
111	MMBT3906	SOT23	RoHS	Q32	1
112	DTC114ECA	SOT23	RoHS	Q6, Q14, Q18, Q20, Q22, Q31, Q37, Q39, Q11	9

113	S9018L SOT23 RoHS	Q2, Q4, Q8, Q9, Q7,	5
114	2SC1623 (L6) SOT23 RoHS	Q25, Q26, Q27, Q29	4
115	2SC2712 (LY) SOT23 RoHS	Q12, Q13, Q19, Q21, Q23, Q24,	6
116	SS8550 SOT23 RoHS	Q15, Q16, Q30, Q35	4
117	3361D01 SOP16 RoHS	U3	1
118	1CMCD2926 SSOP16 RoHS	U1	1
119	NJM2902V-TE2 SSOP14 RoHS	U5	1
120	NJM2904V-TE2 SSOP8 RoHS	U4	1
121	MB95F354EPF-G-SNE2 SOP-24	U2	1
122	3V3 (XC6202P332PR) SOT89	U7	1
123	VC0 shield box		1
124	10 Ω 1% 1W RoHS	R45	1
125	4.7 Ω 5% 1W RoHS	R180	1
126	Φ 4 \times 7 10uF/25V \pm 20%	C13, C37, C105, C148, C153, C173, C196, C204, C177	9
127	Φ 5 \times 11 100uF/16V \pm 20% RoHS	C65, C144	2
128	Φ 10 \times 16 1000uF/25V \pm 20% RoHS	C200	1
129	Φ 4 \times 5 22uF/16V \pm 20% RoHS	C168, C169	2
130	Φ 4 \times 7 33uF/16V \pm 20% RoHS	C47	1
131	Φ 4 \times 7 4.7uF/25V \pm 20% RoHS	C151, C184	2
132	Φ 6.3 \times 8 47uF/16V \pm 20% RoHS	C162, C172, C175, C182, C187, C174	6
133	Φ 8 \times 14 470uF/25V \pm 20% RoHS	C159, C186, C191, C205	4
134	2.2uF/16V \pm 20% RoHS	C147	1
135	1uF/16V \pm 20% RoHS	C156	1
136	6.8uH/0.5W	L2	1
137	0.55 \times 3.4 \times 6.5T RoHS	L8, L10	2
138	0.55 \times 3.4 \times 7.5T RoHS	L5, L6, L11, L14	4
139	0.6 \times 4.5 \times 20T(立式) RoHS	L7, L18	2
140	TN4007	D19	1
141	TDA2003 TO-220B	U9	1
142	L1503 03# 7X7	T2	1
143	L1504 04# 7X7	T1	1
144	L1055 RA 7X7	T5	1
145	L1056 RB 7X7	T4	1
146	L2035 5# 7X7	T3	1
147	10.25M RoHS	X1	1
148	10.7MHZ (UM-5 \pm 3.75KHZ/3dB) RoHS	FT3	1
149	LTW450HT RoHS	FT2	1
150	MGH-500 Ω	U6	1
151	10W-CB278	T6	1
152	2.0X2P	SP-1	1
153	R3.5 (3 pin plug headphone jack)	T3	1
154	1N5819 ROHS	D16, D17	2
155	S9018	Q5	1
156	1N60 (RoHS)	D8	1
157	WBRH-35908	D24, R175	1
158	1TBM450C24 (RoHS)	FT1	1
159	2SC2314	Q1	1
160	1RF530N	Q10	1
161	LM7809	Q41	1
162	power box shielded copper pipe		1
163	antenna head shielded copper box		1
164	CB308HK (V10) -A	Double plate, thickness 1.6mm HAL / gold plating	1
165	0603 0 Ω 5% 1/10W RoHS	R212	1
166	0603 47 Ω 5% 1/10W RoHS	R209	1
167	0603 1k Ω 5% 1/10W RoHS	R208, R211	2
168	0603 10k Ω 5% 1/10W RoHS	R213	1
169	0603 47k Ω 5% 1/10W RoHS	R203, R206	2
170	0603 100k Ω 5% 1/10W RoHS	R205, R204	2

171	0603 100p±5% RoHS	C223, C224, C225	3
172	0603 103p±10% RoHS	C222, C221, C217	3
173	0603 104p±10% RoHS	C218, C219, C220	3
174	0603 301 ±25% RoHS	121	1
175	0805 101 ±25% RoHS	L19, 120, 122	3
176	SOT-89 78L05 ROHS	U10	1
177	SOP-16 TM1616 ROHS	U11	1
178	6*6*5 Tact Switch	SW1, SW2	2
179	Φ6.3×8 47uF/16V±20% RoHS	C141	1
180	LED (Red hair) 3*2*4mm	LED3	1
181	LED (Red and green) 2*5*7mm ROHS	LED1	1
182	LED (green) 3*2*4mm	LED4, LED5, LED6	3
183	R087DONS-KQ15C6.0-A103-00AROHS		1
184	10K R087DONO-KQ15C6.0-B103-000 ROHS	VR3	1
185	100K R087DONO-KQ15C6.0-B104-000) ROHS	VR4	1
186	2P2T SS-22F006-AT8	SW3	1
187	SS-23D02-AT8	SW4	1
188	FJS-4201E ROHS		1
189	0.5-10 X120mm		1
190	120mm Single-ended 2P-row seat feet		1
191	away from 2.0mm)		1
192	SL16-KY Antenna head ROHS		1
193	UL2468-18AWG 270mm		1
194	CB308 ABS LT-298		1
195	CB308 ABS		2
196	CB308 SQ/RF ABS		2
197	CB308 VOL ABS		1
198	CB308 LED Mirror		2
199	Power clip buckle 2P-4 ROHS		1
200	Insulation pads (6*3*1)		2
201	CB308 painting on steel shell ROHS		1
202	CB308 steel under the hood		1
203	Airline seat (16M-6B)	MC951	1
204	CB308 host box		1
205	grounding copper (CB308) ROHS		1
206	M3X5mm ROHS		4
207	M3.0×5.0mm		4
208	M3X8mm ROHS		14
209	ST2.3X4.5 ROHS		5
210	M3 ROHS		8
220	M701-2.0		3
221	7.1X12X0.65mm ROHS		3
222	R3X1		5
223	110*85mm Non-woven ROHS		1

