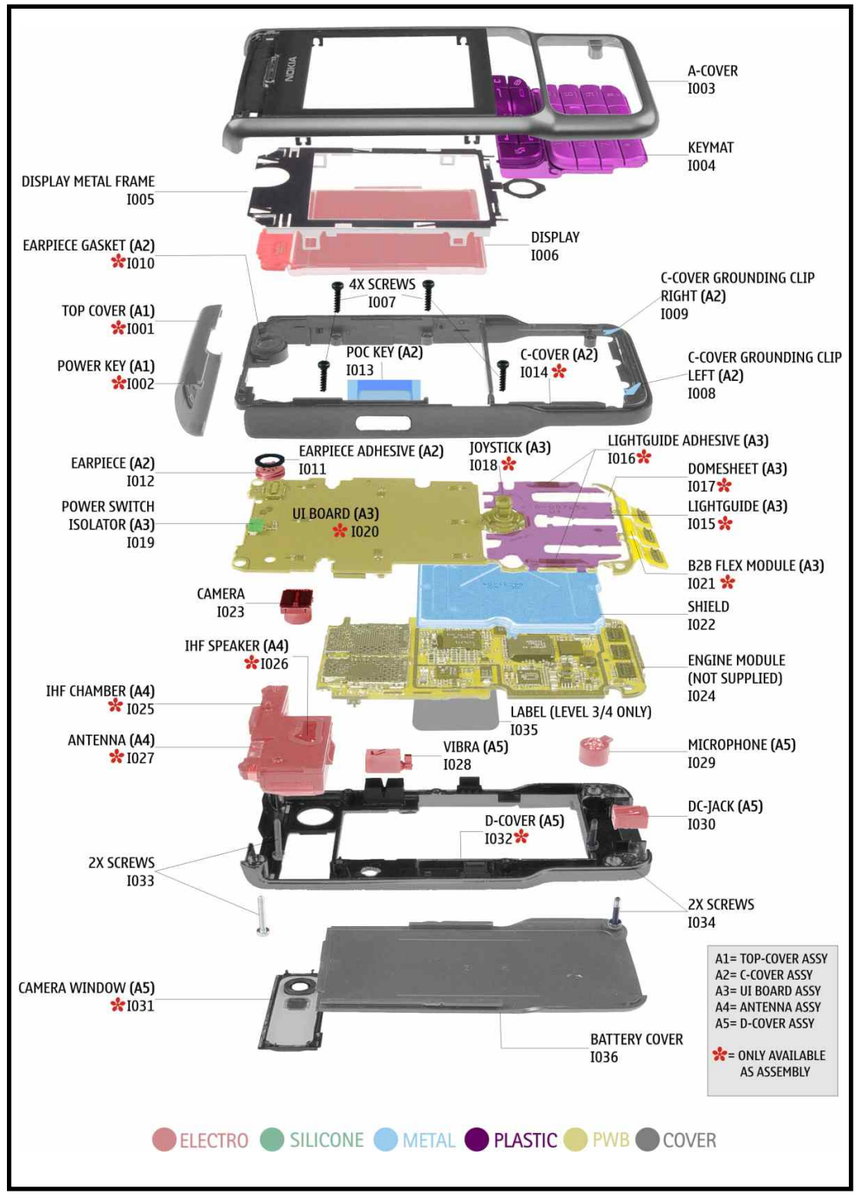
Service Schematics

Introduction

NOKIA 3230

RM-51

Exploded view and component disposal



IMPORTANT:

This document is intended for use by authorized NOKIA service centers only.

"Service Schematics" was created with focus on customer care.
The purpose of this document is to provide further technical repair information for NOKIA mobile phones on Level 3/4 service activities.
It contains additional information such as e.g. "Component finder", "Frequency band table" or "Antenna switch table".
The "Signal overview" page gives a good and fast overview about the most important signals and voltages on board.
Saving process time and improving the repair quality is the aim of this document.
It is to be used additionally to the service manual and other training or service information such as Service Bulletins.

All measurements were made using following equipment:

Nokia repair SW	: Phoenix version 2004.46.4.75
Oscilloscope	: Fluke PM 3380A/B
Spectrum Analyzer	: Advantest R3162 with an analog probe
RF-Generator / GSM Tester	: Rhode & Schwarz CMU 200
Multimeter	: Fluke 73 Series II

While every endeavour has been made to ensure the accuracy of this document, some errors may exist. If the reader finds any errors, NOKIA should be notified in writing.

Please send E-Mail to: training.sace@nokia.com

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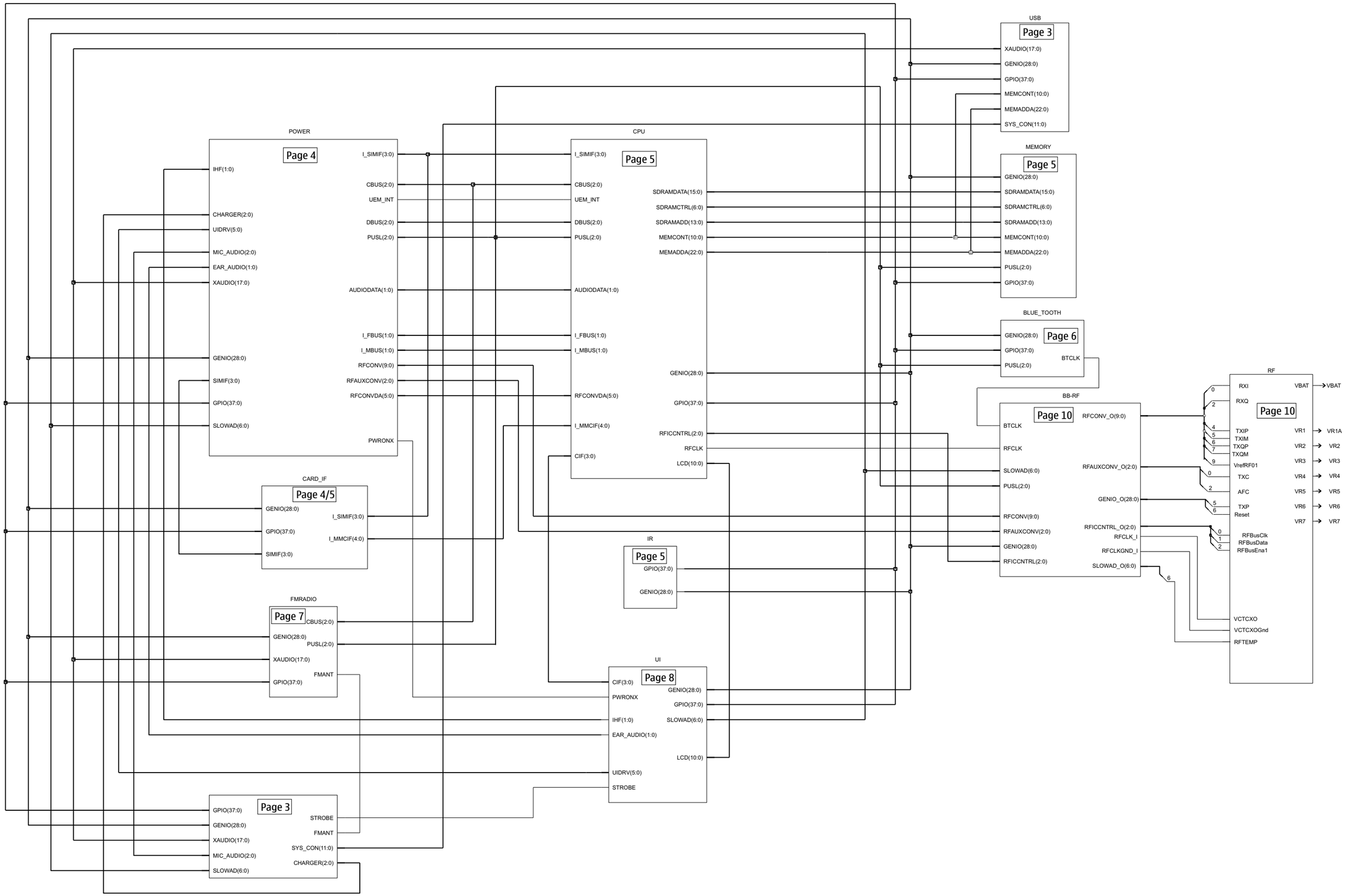
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TXQM
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TXC
AFC
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RFBusData
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VCTCXO
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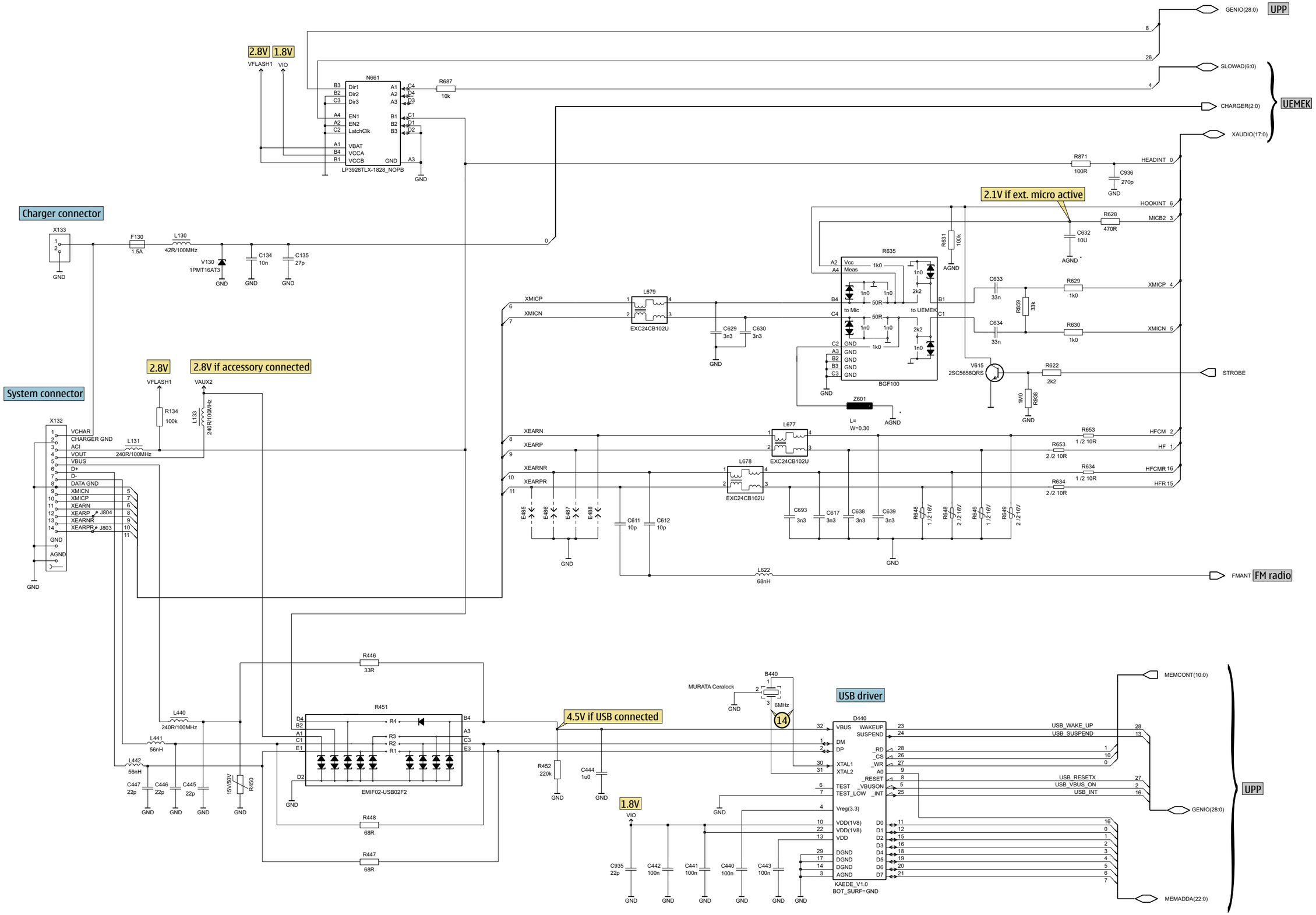
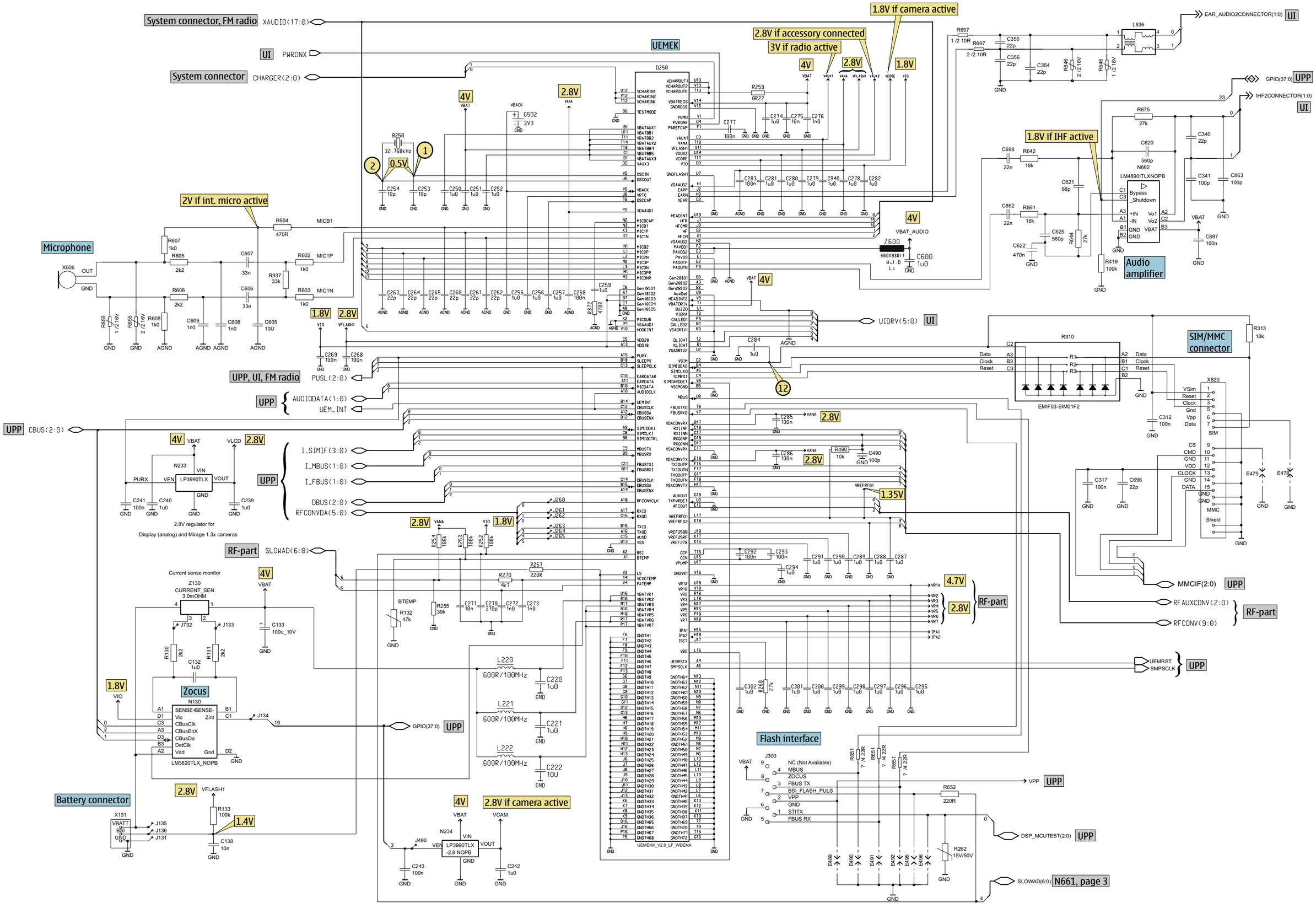
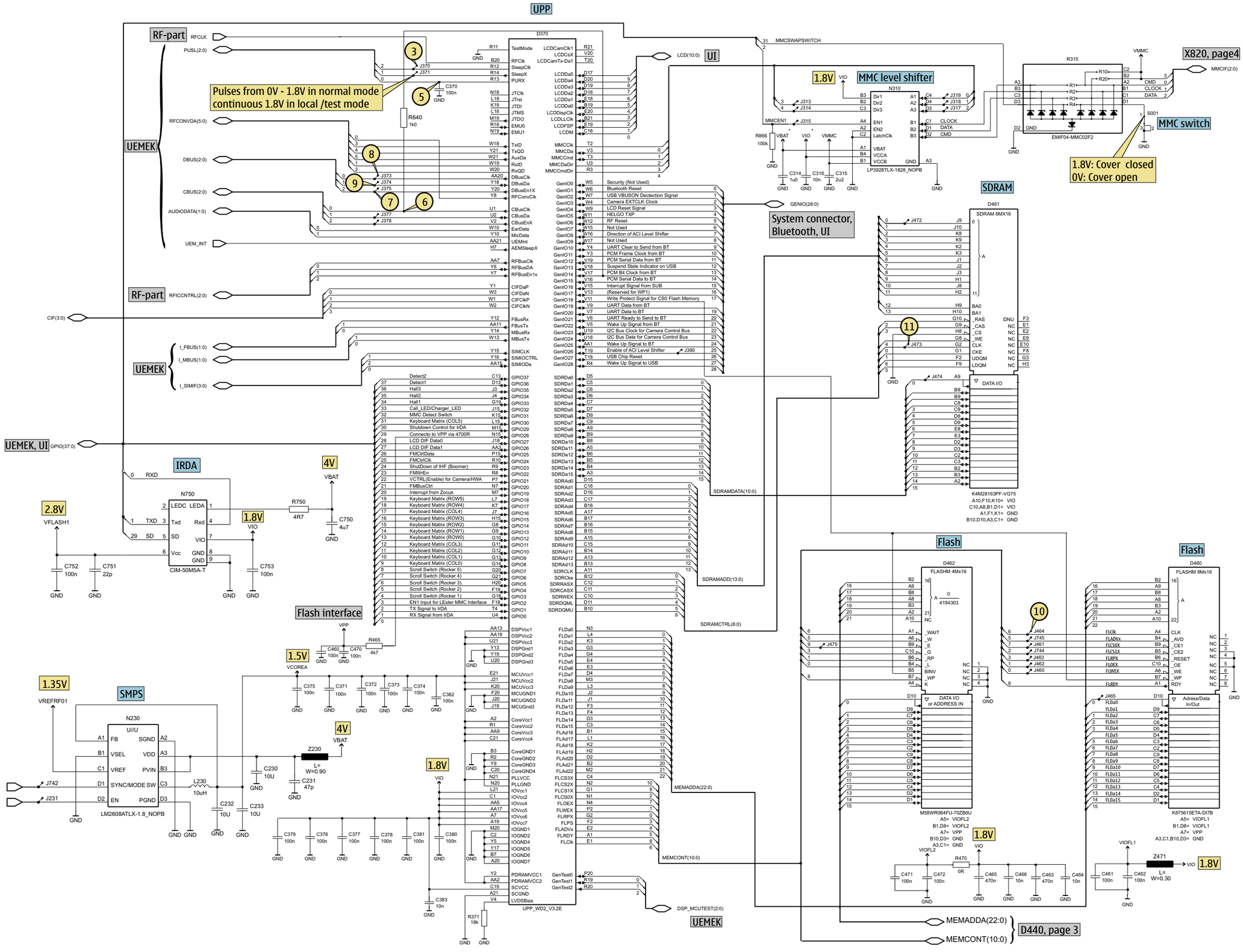
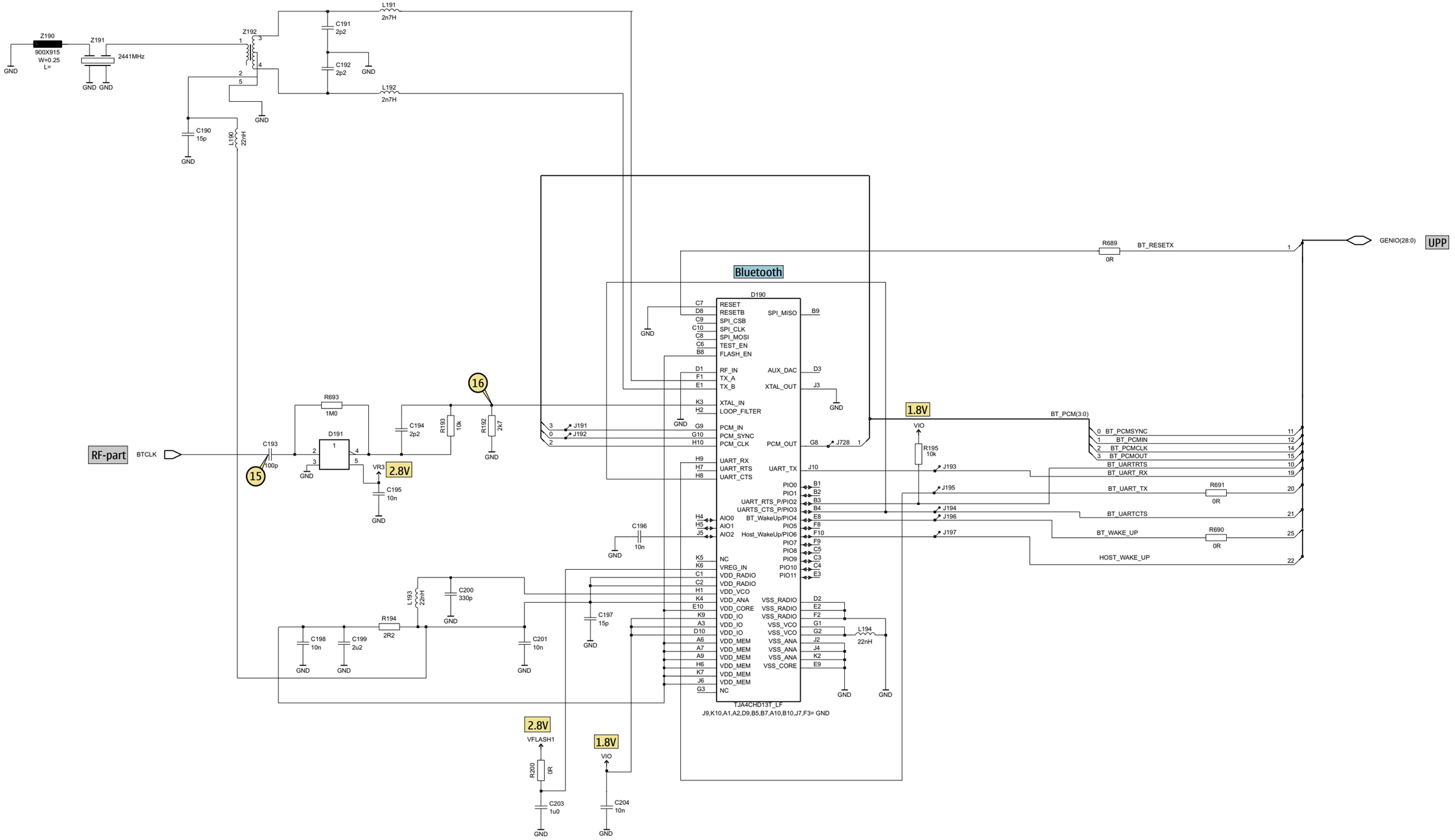
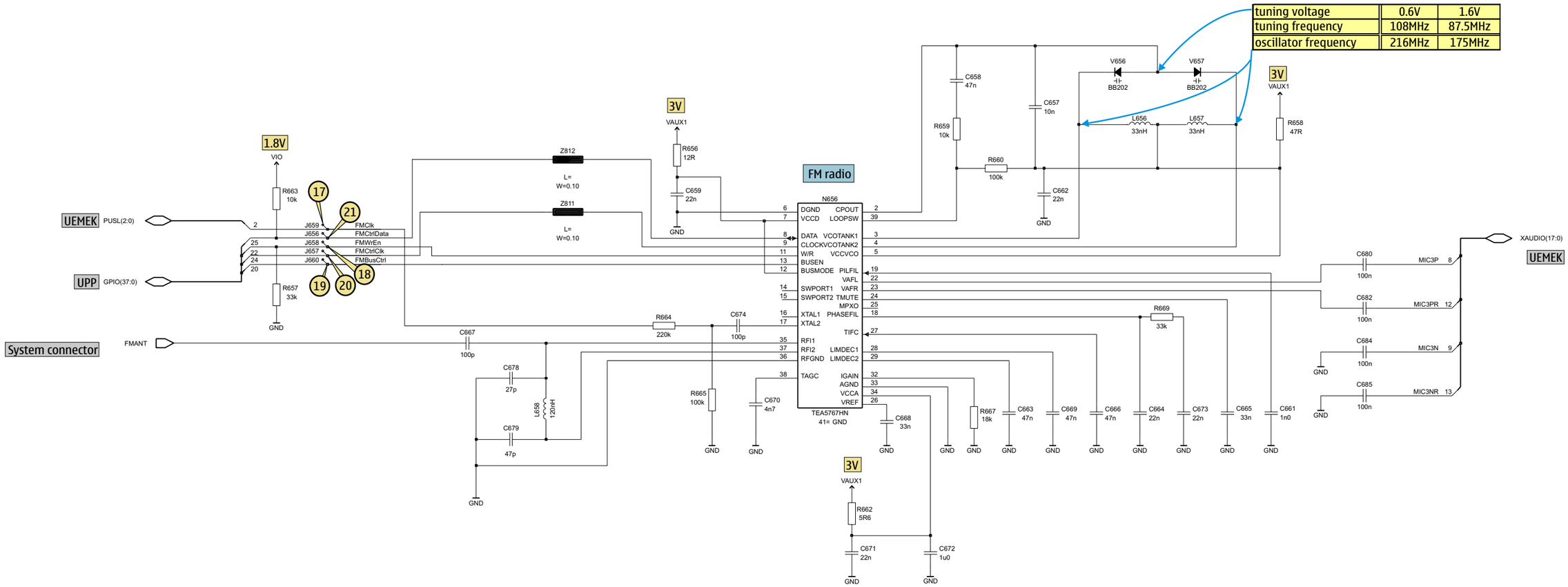
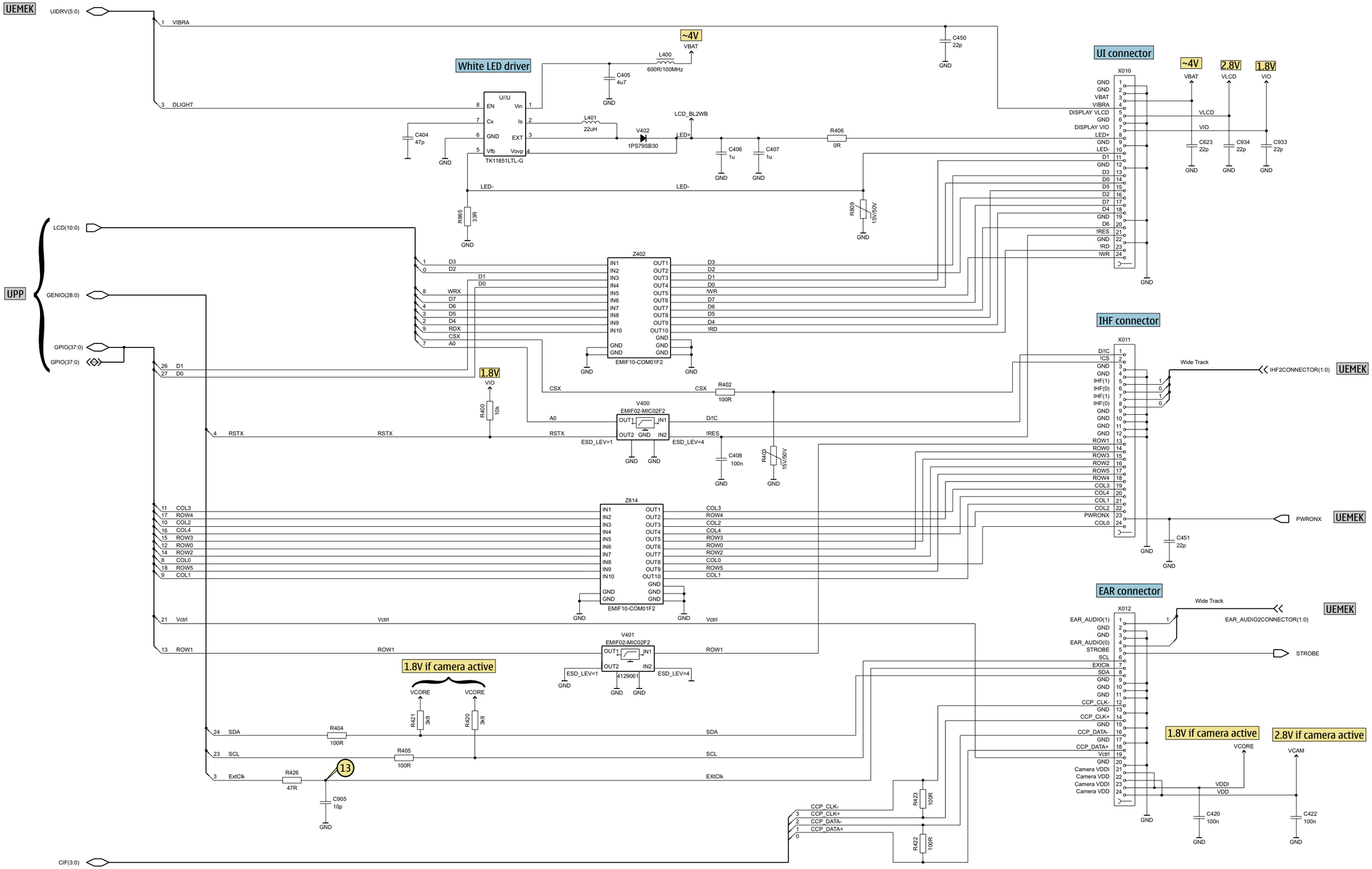


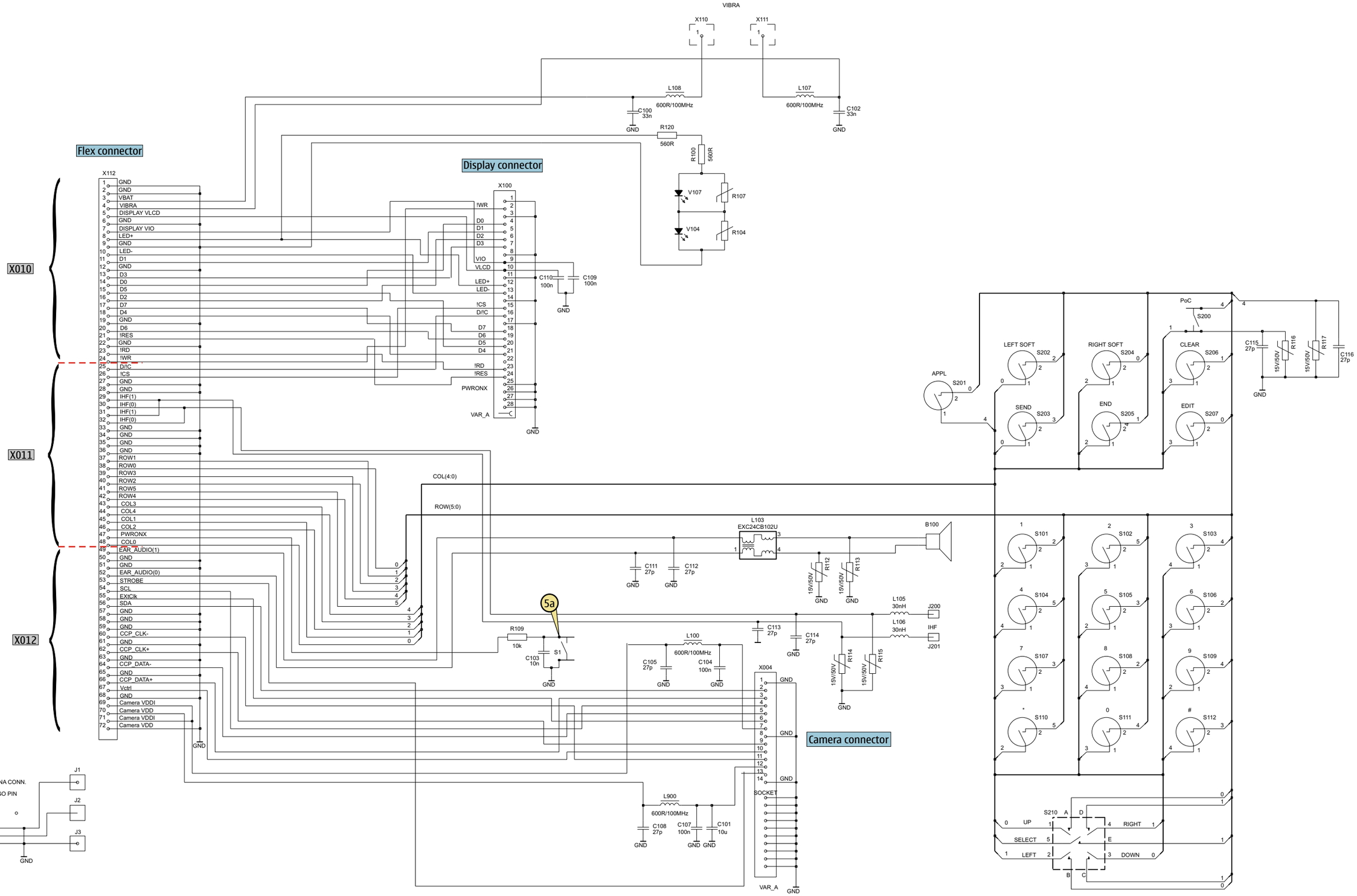







tuning voltage | 0.6V | 1.6V
tuning frequency | 108MHz | 87.5MHz
oscillator frequency | 216MHz | 175MHz
FM radio
1.8V
VIO
3V
VAUX1
UEMEK
PUSL(2:0)
UPP
GPIO(37:0)
System connector
FMANT
J659 FMClk
J656 FMCtrlData
J658 FMWrEn
J657 FMCtrlClk
J660 FMBusCtrl
R663 10k
R657 33k
R656 12R
C659 22n
Z812
Z811
L=
W=0.10
N656
TEA5767HN
41= GND
DGND CPOUT
VCCD LOOPSW
DATA VCOTANK1
CLOCK VCOTANK2
W/R VCCVCO
BUSEN
BUSMODE PILFIL
VAFL
SWPORT1 VAFR
SWPORT2 TMUTE
MPXO
XTAL1 PHASEFIL
XTAL2
TIFC
RFI1
RFI2 LIMDEC1
RFGND LIMDEC2
TAGC IGAIN
AGND
VCCA
VREF
C658 47n
C657 10n
R659 10k
R660 100k
C662 22n
V656
V657
BB202
L656 33nH
L657 33nH
R658 47R
R664 220k
C674 100p
C667 100p
C678 27p
C679 47p
L658 120nH
R665 100k
C670 4n7
C668 33n
R669 33k
R667 18k
C663 47n
C669 47n
C666 47n
C664 22n
C673 22n
C665 33n
C661 1n0
C680 100n
C682 100n
C684 100n
C685 100n
MIC3P
MIC3PR
MIC3N
MIC3NR
XAUDIO(17:0)
UEMEK
R662 5R6
C671 22n
C672 1u0
GND




Flex connector
Display connector
Camera connector
X010
X011
X012
X112
X100
X004
VIBRA
X110
X111
L108
600R/100MHz
L107
600R/100MHz
C100
33n
C102
33n
GND
R120
560R
R100
560R
V107
R107
V104
R104
C110
100n
C109
100n
!WR
D0
D1
D2
D3
VIO
VLCD
LED+
LED-
!CS
D/!C
D7
D6
D5
D4
!RD
!RES
PWRONX
VAR_A
GND
COL(4:0)
ROW(5:0)
L103
EXC24CB102U
B100
C111
27p
C112
27p
R112
R113
15V/50V
L105
30nH
L106
30nH
J200
J201
IHF
5a
R109
10k
C103
10n
S1
L100
600R/100MHz
C105
27p
C104
100n
C113
27p
C114
27p
R114
R115
L900
600R/100MHz
C108
27p
C107
100n
C101
10u
SOCKET
VAR_A
J1
ANTENNA CONN.
POGO PIN
J2
J3
X14
PoC
S200
APPL
S201
LEFT SOFT
S202
RIGHT SOFT
S204
CLEAR
S206
SEND
S203
END
S205
EDIT
S207
C115
27p
C116
27p
R116
R117
S101
S102
S103
S104
S105
S106
S107
S108
S109
S110
S111
S112
S210
UP
SELECT
LEFT
RIGHT
DOWN

	Vc1	Vc2	Vc3
EGSM 900 RX	-	-	-
DCS 1800 RX	-	-	-
PCS 1900 RX	-	2.7Vpp	-
EGSM 900 TX	-	-	2.7Vpp
DCS 1800 TX	2.7Vpp	2.7Vpp	-
PCS 1900 TX	2.7Vpp	2.7Vpp	-

Band	Channel	RX	VCO/RX	VC/RX	TX	VCO/TX	VC/TX
GSM 900	37	942,4MHz	3769,6MHz	~2.7V	897.4MHz	3589,6MHz	~1.98V
GSM 1800	700	1842,8MHz	3685,6MHz	~2.38V	1747.8MHz	3495,6MHz	~1.58V
GSM 1900	661	1960MHz	3920MHz	~3.27V	1880MHz	3760MHz	~2.67V

Antenna

Power amplifier

RF Chip

0.9Vpp - 1.5Vpp dep. on TX powerlevel

0.9Vpp - 1.45Vpp dep. on TX powerlevel

VC = 0.7- 3.8V

0.3-1.7Vpp dep. on TX PL

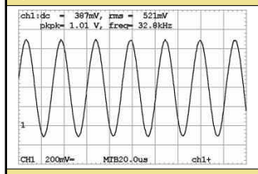
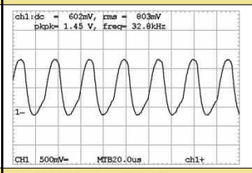
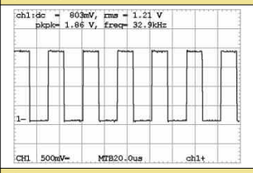
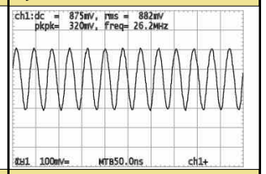
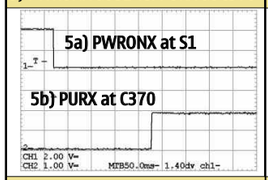
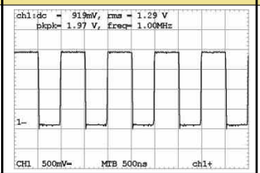
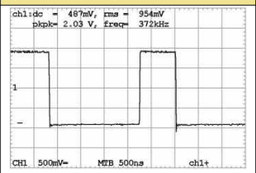
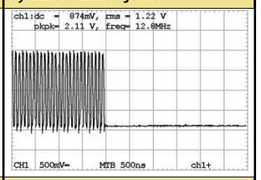
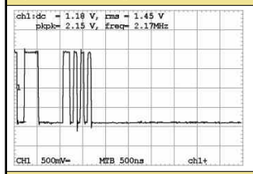
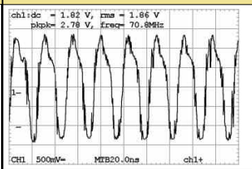
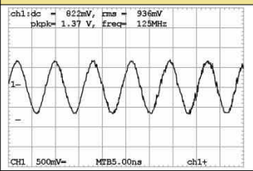
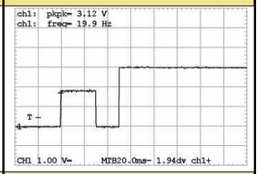
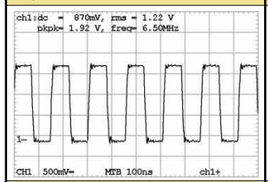
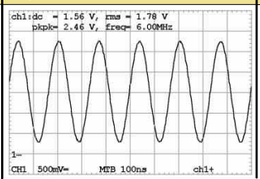
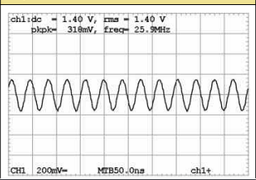
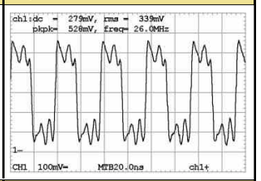
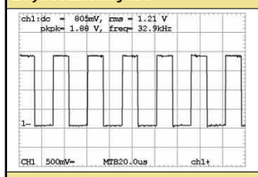
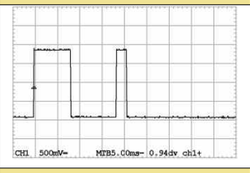
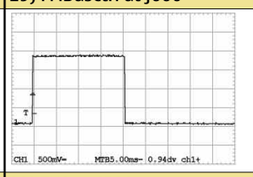
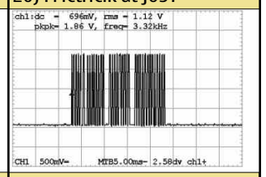
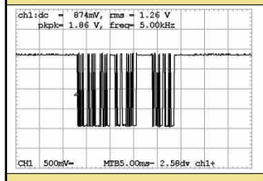
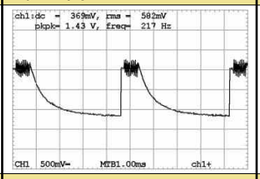
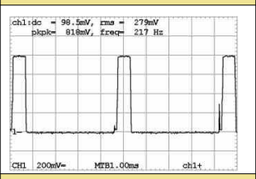
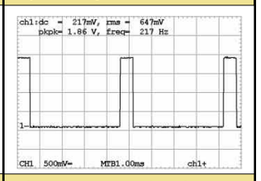
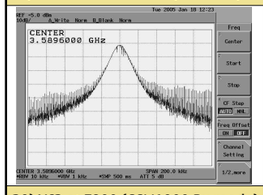
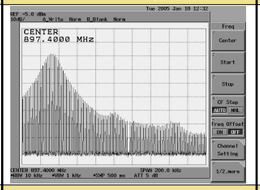
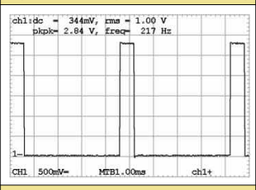
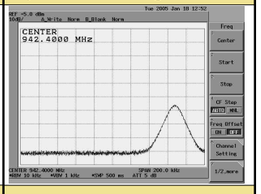
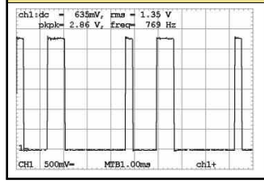
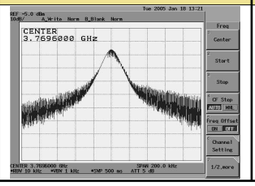
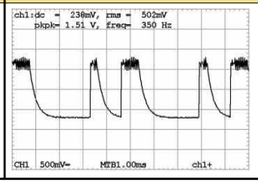
1.5pF in US variant

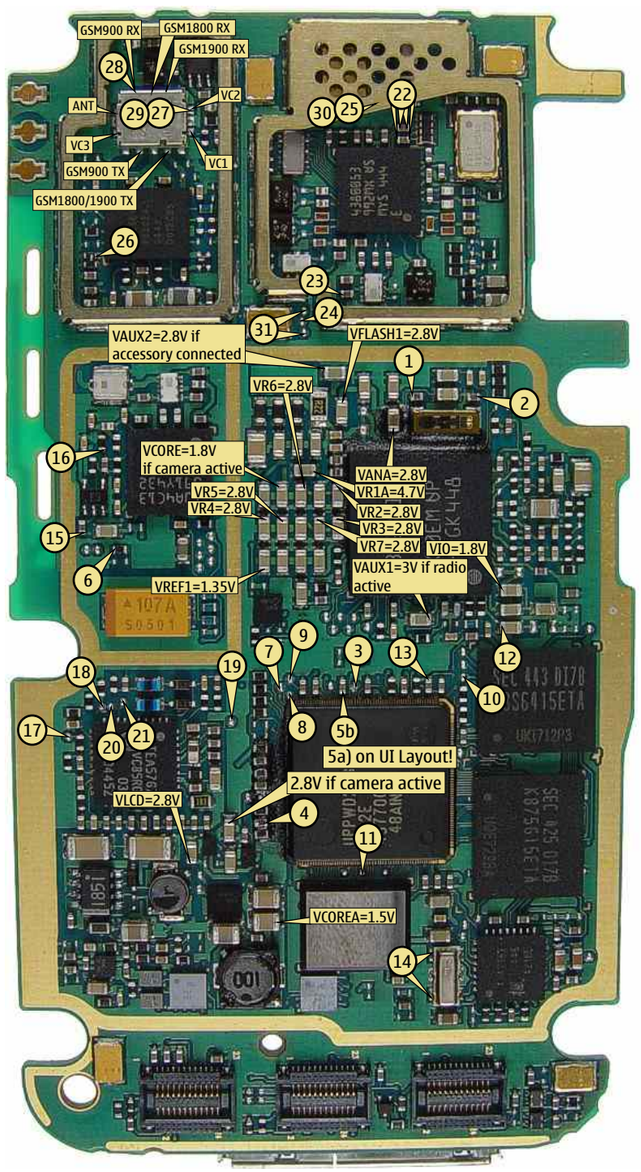
2.8Vpp GSM1800 TX

2.8Vpp GSM900 TX

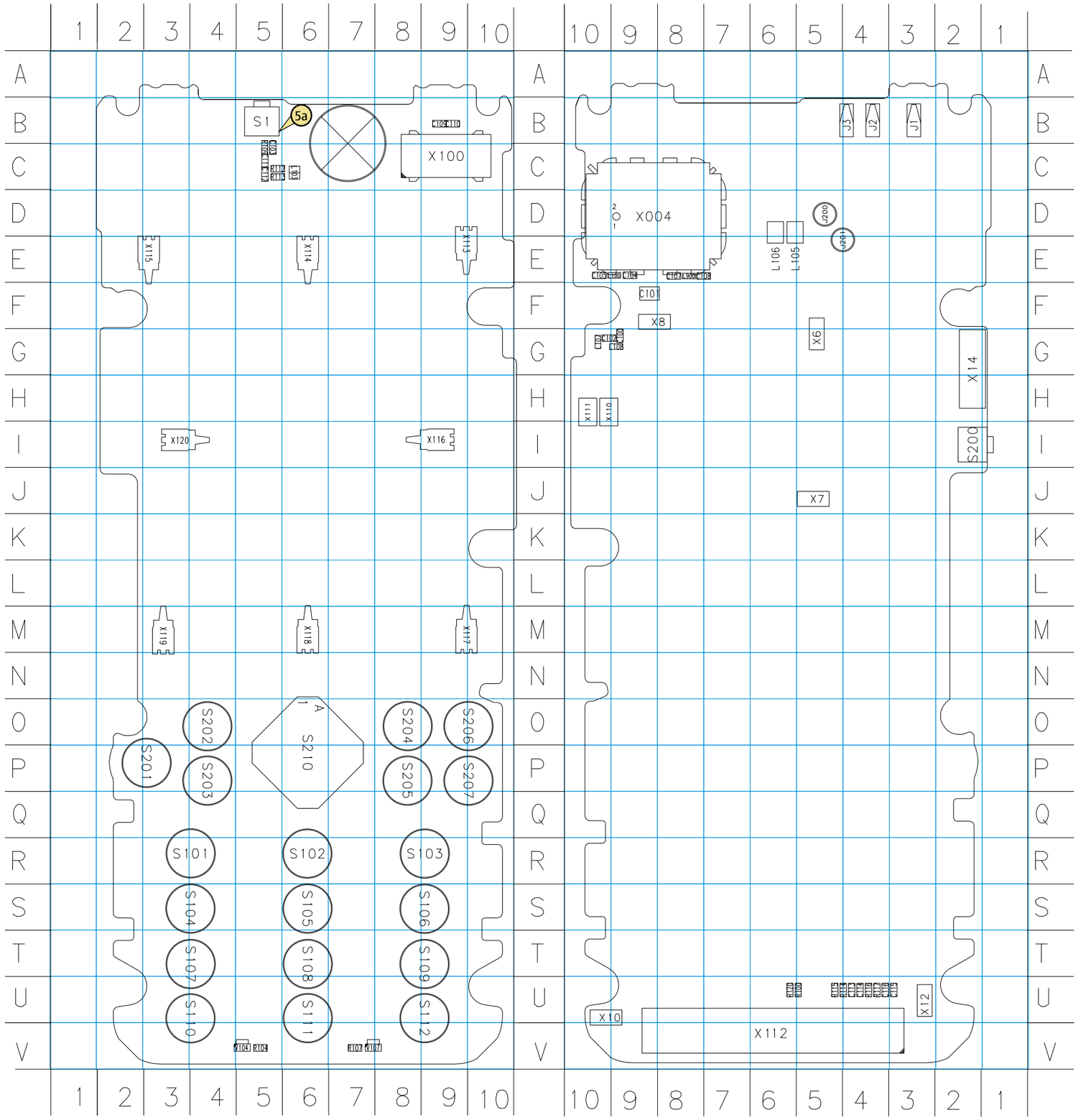
0.05V - 2.5V

0.5V - 1.9Vpp dep. on TX PL

1) 32.768kHz at C253	2) 32.768kHz at C254	3) Sleepclock at J370	4) RFCLK at C491
			
5) PWRONX at S1 vs. PURX at C370	**6) CBUSCLK at R640**	**7) DBUSEN at J375**	**8) DBUSCLK at J373**
			
9) DBUSDA at J374	**10) Flashclock at J464**	**11) SDRAMCLK at J473**	**12) VSIM at C284**
			
13) Cameraclock at C905	**14) 6MHz at B440**	**15) BTCLK at C193**	**16) BTCLK at R192**
			
17) FMCLK at J659	**18) FMWrEn at J658**	**19) FMBusCtrl at J660**	**20) FMCtrlClk at J657**
			
21) FMCtrlData at J656	**22) TX I/Q at C529 & C530**	**23) TXC at C528**	**24) TXP at J200**
			
25) 3589.6MHz at R503 (Tx mode)	**26) 897.4MHz Tx signal at R717**	**27) VC2 at Z800 (GSM1900 Tx mode)**	**28) 942.4MHz Rx signal at Z800**
			
29) VC2 at Z800 (GSM1900 Rx mode)	**30) 3769.6MHz at R503 (Rx mode)**	**31) RX I/Q at J730 & J731**	
			



B		R104	V5
B100	C7	R107	V7
C		R109	C5
C100	G9	R112	C5
C101	F9	R113	C5
C102	G10	R114	U5
C103	C5	R115	U5
C104	E9	R116	U4
C105	E10	R117	U4
C107	E8	R120	U6
C108	E8	V	
C109	B9	V104	V5
C110	B9	V107	V7
C111	C5	X	
C112	C5	X004	D9
C113	U4	X6	G5
C114	U4	X7	J5
C115	U4	X8	F9
C116	U4	X10	U10
J		X12	U3
J1	B3	X14	G2
J2	B4	X100	C9
J3	B5	X110	H10
J200	D5	X111	H10
J201	E5	X112	V6
L		X112	V6
L100	E9	X113	E9
L103	C6	X114	E6
L105	D6	X115	E3
L106	D6	X116	I9
L107	G10	X117	M9
L108	G9	X118	M6
L900	E8	X119	M3
R		X120	I3
R100	U6		



A		C278	I7	C450	S3	C659	M2	D370	N6	J465	Q10	N		R505	G8	R861	Q3
A300	F7	C279	I6	C451	S7	C661	O2	D400	P3	J472	P6	N130	P2	R506	G8	R865	Q4
A400	F3	C280	H6	C460	Q9	C662	M3	D440	Q9	J473	P6	N230	P4	R511	E5	R866	E3
B		C281	J5	C461	P9	C663	O4	D460	O9	J474	P7	N233	O4	R512	E6	R871	Q6
B250	I8	C282	K8	C462	P9	C664	N2	D461	P6	J475	L10	N234	O5	R513	D8	R872	J9
B440	Q8	C283	K8	C463	P7	C665	O3	D462	M9	J490	N5	N310	D3	R514	G6	R937	K9
C		C284	L8	C464	P7	C666	O4	E		J656	M3	N500	F7	R515	E7	R938	S7
C132	P2	C285	L6	C465	P7	C667	N4	E478	F3	J657	M3	N500	F7	R516	F8	R942	G8
C133	L3	C286	K6	C466	Q7	C668	O4	E479	D4	J658	M3	N656	N3	R519	F8	R943	G8
C134	R6	C287	K5	C470	Q9	C669	O4	E485	S8	J659	N2	N661	L5	R602	K9	R944	G8
C135	R5	C288	K5	C471	L8	C670	M4	E486	S8	J660	M4	N662	Q3	R603	K9	R947	F3
C138	L7	C289	K6	C472	L8	C671	N4	E487	S7	J728	K4	N700	F3	R604	J9	R948	F4
C190	H4	C290	K5	C490	L6	C672	N4	E488	S7	J730	H6	N750	P10	R605	K9	S	
C191	I3	C291	L5	C491	O5	C673	O2	E489	O8	J731	H6	R		R606	K9	S001	E2
C192	I4	C292	J6	C500	D6	C674	N2	E490	O7	J742	P4	R130	Q2	R607	K9	T	
C193	K2	C293	J6	C501	D6	C678	N4	E491	O6	J744	P8	R131	Q2	R608	J9	T500	D7
C194	J3	C294	J5	C502	D7	C679	M4	E492	O7	J745	M8	R132	J10	R622	S7	T700	G7
C195	I2	C295	J6	C503	D7	C680	O3	E495	O6	J800	D2	R133	L7	R628	I8	T800	G5
C196	J3	C296	J6	C504	D7	C682	O3	E496	O8	J801	E2	R134	Q6	R629	J9	V	
C197	I4	C297	K6	C506	G8	C684	O3	F		J802	E2	R192	I3	R630	J9	V130	R5
C198	K4	C298	K5	C510	F8	C685	O3	F130	S4	J803	S7	R193	J3	R631	I9	V400	Q3
C199	K4	C299	K5	C511	F7	C693	S8	G		J804	R7	R194	I3	R634	S9	V401	Q3
C200	I3	C300	J5	C512	F8	C696	E5	G500	D6	L		R195	K4	R635	R7	V402	P3
C201	I3	C301	K6	C513	F8	C697	Q3	G501	E8	L130	S5	R200	K3	R640	K3	V615	S7
C203	K3	C302	K5	C516	F8	C698	Q3	G502	M10	L131	R6	R252	L8	R642	Q3	V656	M4
C204	J3	C312	D8	C517	E7	C702	F3	J		L133	R6	R253	L8	R644	Q3	V657	M4
C220	I5	C314	E3	C518	E6	C703	F3	J131	O5	L190	I4	R254	I8	R646	S9	V800	D4
C221	I5	C315	D3	C519	E6	C704	F4	J134	O2	L191	I4	R255	H8	R648	S9	X	
C222	I5	C316	E3	C520	G6	C705	G3	J135	O4	L192	I4	R257	L7	R649	R7	X001	D8
C230	P4	C317	E5	C521	E6	C706	G4	J136	O4	L193	I3	R259	I6	R651	L10	X002	D5
C231	P5	C340	Q2	C522	F7	C707	G3	J191	K4	L194	I3	R260	K6	R652	K10	X003	H5
C232	P5	C341	Q2	C523	E5	C710	F4	J192	K4	L220	I5	R262	K10	R653	R7	X004	R3
C233	P5	C354	S9	C524	E5	C711	G3	J193	K3	L221	I5	R270	I8	R655	S9	X005	S9
C239	O4	C355	S9	C525	E7	C712	G3	J194	K4	L222	I5	R310	E4	R656	M2	X010	S4
C240	O4	C356	S9	C526	D8	C713	G7	J195	K2	L230	Q5	R313	E4	R657	M3	X011	S6
C241	L9	C370	M6	C527	D8	C714	G7	J196	K4	L400	P3	R315	E5	R658	M3	X012	S8
C242	O4	C371	M5	C528	G6	C716	G4	J197	K4	L401	P4	R371	M7	R659	M4	X131	R4
C243	O5	C372	P7	C529	E7	C750	N10	J200	H6	L440	S6	R400	Q4	R660	M4	X132	S6
C250	I6	C373	N8	C530	E7	C751	Q10	J231	P4	L441	S6	R402	S5	R662	N4	X820	F6
C251	J6	C374	M6	C531	G6	C752	Q10	J260	L6	L442	S6	R403	S5	R663	M2	X821	J10
C252	L8	C375	N5	C532	G6	C753	Q9	J261	L6	L500	F8	R404	M5	R664	N2	Z	
C253	I7	C376	P8	C600	L9	C800	D4	J262	L6	L501	F8	R405	M5	R665	N2	Z130	Q2
C254	I8	C377	M7	C605	J9	C801	D3	J263	L6	L502	F8	R406	S3	R667	N4	Z190	K2
C255	H8	C378	M6	C606	K9	C802	D4	J264	L6	L503	F8	R419	Q3	R669	N2	Z191	I3
C256	I7	C379	N5	C607	K9	C803	D4	J265	L6	L504	F7	R420	M5	R675	Q3	Z192	I4
C257	I8	C380	P5	C608	K9	C804	E4	J300	O8	L505	D6	R421	M5	R687	L5	Z230	P5
C258	J8	C381	P7	C609	K9	C805	G6	J313	D2	L622	S10	R422	M8	R689	L4	Z402	Q4
C259	J9	C382	M7	C611	T9	C806	G6	J314	E2	L656	M3	R423	M8	R690	L4	Z471	P9
C260	J8	C383	N5	C612	T9	C862	Q3	J315	N5	L657	M3	R426	M7	R691	L4	Z600	K9
C261	K9	C404	P2	C617	S9	C863	Q2	J317	E2	L658	N4	R446	R6	R693	J3	Z601	I9
C262	K9	C405	P3	C620	Q2	C905	M7	J318	E2	L677	S7	R447	R8	R697	S9	Z700	G7
C263	I8	C406	O3	C621	Q3	C933	R4	J319	E2	L678	S9	R448	R8	R701	F3	Z800	E3
C264	J9	C407	O2	C622	Q2	C934	R3	J370	M6	L679	R7	R450	S6	R702	F4	Z801	D3
C265	J9	C408	R4	C623	R3	C935	Q9	J371	M6	L700	G4	R451	R6	R703	F4	Z802	F5
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C270	L8	C440	R9	C630	R6	C941	G8	J375	M5	L801	E4	R470	L8	R717	G3	Z812	M3
C271	L8	C441	Q9	C632	J9	C943	G3	J377	P2	L802	F6	R490	K6	R718	G4	Z814	Q6
C272	H8	C442	P8	C633	J9	C948	G8	J378	O2	L803	F6	R491	O5	R750	O10	Z815	J9
C273	H8	C443	Q9	C634	J9	D		J460	P8	L804	F6	R492	O5	R800	D4		
C274	I6	C444	R8	C638	R7	D190	J4	J461	N8	L805	F6	R501	D7	R801	E4		
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C276	I6	C446	R6	C657	M4	D191	J3	J463	L8	L836	S9	R503	D7	R809	S3		
C277	K9	C447	R6	C658	M4	D250	K7	J464	M8	L839	G3	R504	G8	R859	J9