

# NOKIA N70

RM-84



## Transceiver characteristics:

- **Dual Band:** EGSM and WCDMA
  - GSM:** Tri-band phone for EGSM 900/1800/1900MHz
  - WCDMA:** 2100MHz
- **Camera:**
  - 1. **Camera:** 2 Mega pixel (1600x1200pixels), 20x digital zoom
  - 2. **Camera:** VGA (640x480pixels), 2x digital zoom
- **Flash LED**
- **Display:** TFT active matrix color display with 262.144 colors, resolution 176 x 208 pixel
- **Bluetooth**
- **FM radio:** Stereo
- **Vibra Alert:** Standard Vibra motor
- **Connector:** Pop Port Connector
- **MMC Reader**

Transceiver with BL-5c 970mAh Li-Ion battery pack

Talk time		Standby		Note
EGSM	WCDMA	EGSM	WCDMA	
215 min	210 min	210 h	250 h	Depends on network parameters

## Environmental characteristics:

- Lead-free soldered

# SERVICE MANUAL

## Service Level 1&2

**TABLE OF CONTENT**

	Page
1. INTRODUCTION.....	3
2. GENERAL REPAIR INFORMATION.....	4
3. PATHFINDER FOR WORKSHOP STAFF.....	5
4. EXPLODED VIEW AND COMPONENT DISPOSAL.....	6
5. SPARE PARTS OVERVIEW.....	7
6. SPARE PARTS LIST.....	8
7. SERVICE TOOLS.....	9
8. SW-UPDATE.....	11
9. DISASSEMBLY INSTRUCTIONS.....	12
10. LEGEND FOR QUICK TROUBLE SHOOTER.....	17
11. QUICK TROUBLE SHOOTER PART 1.....	18
12. QUICK TROUBLE SHOOTER PART 2.....	19
13. QUICK TROUBLE SHOOTER PART 3.....	20
14. QUICK TROUBLE SHOOTER PART 4.....	21
15. CAMERA GONOGO TEST.....	22
16. BLUETOOTH.....	23
17. GONOGO TEST.....	24
18. BATTERY TEST.....	24
19. FORWARDING OF REPAIRS.....	25
20. ESD PROTECTION REQUIREMENTS.....	26

**CHANGE HISTORY**

Status	Version No.	Date	Comments
Draft	0.1	01.07.2005	Initial draft
Approved	1.0	21.07.2005	Approval

## 1. INTRODUCTION

The purpose of this document is to help NOKIA service levels 1 and 2 workshop technicians to carry out service to NOKIA products. This Service Manual is to be used **only** by authorized NOKIA service suppliers, and the content of it is **confidential**. Please note that NOKIA provides also other guidance documents (e.g. Service Bulletins) for service suppliers, follow these regularly and comply with the given instructions.

While every endeavor has been made to ensure the accuracy of this document, some errors may exist. If you find any errors or if you have further suggestions, please notify NOKIA using the address below:

<mailto:cc-ts-rc.documentation@nokia.com>

Please keep in mind also that this documentation is continuously being updated and modified, so watch always out for the newest version.

### Warnings and Cautions

Please refer to the phone's user guide for instructions relating to operation, care and maintenance including important safety information. Note also the following:

#### Warnings:

1. CARE MUST BE TAKEN ON INSTALLATION IN VEHICLES FITTED WITH ELECTRONIC ENGINE MANAGEMENT SYSTEMS AND ANTI-SKID BRAKING SYSTEMS. UNDER CERTAIN FAULT CONDITIONS, EMITTED RF ENERGY CAN AFFECT THEIR OPERATION. IF NECESSARY, CONSULT THE VEHICLE DEALER/MANUFACTURER TO DETERMINE THE IMMUNITY OF VEHICLE ELECTRONIC SYSTEMS TO RF ENERGY.
2. THE HANDPORTABLE TELEPHONE MUST NOT BE OPERATED IN AREAS LIKELY TO CONTAIN POTENTIALLY EXPLOSIVE ATMOSPHERES EG PETROL STATIONS (SERVICE STATIONS), BLASTING AREAS ETC.
3. OPERATION OF ANY RADIO TRANSMITTING EQUIPMENT, INCLUDING CELLULAR TELEPHONES, MAY INTERFERE WITH THE FUNCTIONALITY OF INADEQUATELY PROTECTED MEDICAL DEVICES. CONSULT A PHYSICIAN OR THE MANUFACTURER OF THE MEDICAL DEVICE IF YOU HAVE ANY QUESTIONS. OTHER ELECTRONIC EQUIPMENT MAY ALSO BE SUBJECT TO INTERFERENCE.

#### Cautions:

1. Servicing and alignment must be undertaken by qualified personnel only.
2. Ensure all work is carried out at an anti-static workstation and that an anti-static wrist strap is worn.
3. Use only approved components as specified in the parts list.
4. Ensure all components, modules screws and insulators are correctly re-fitted after servicing and alignment.
5. Ensure all cables and wires are repositioned correctly.



Electrostatic discharge can easily damage the sensitive components of electronic products. Therefore every Service Supplier has to take care of all precautions, which are mentioned in the service level related "Service Partner Requirements", available on NOKIA Online. Also see ESD Protection Requirements in this Service Manual.

## 2. GENERAL REPAIR INFORMATION

In this section the technician will get some general hints how to carry out repairs:

- To familiarize oneself with NOKIA product read the tutorials or user guide on [www.nokia.com](http://www.nokia.com) -->Support--> Phones, by selecting the Phone Model.
  - Before starting the repair you must take care of ESD precautions like being in your ESD Protected Area and connecting your wristband.
  - Use gloves to avoid corrosion and fingerprints.
  - Protect windows and displays with a film to avoid dust and scratches.
  - When cleaning the LCD Module any lint-free cloth can be used (e.g. Micro-Fibre cloth).
  - When cleaning the pads you have to use a soft cloth/ESD brush and Isopropanol. It is not allowed to use a glass fiber pencil because it scratches the surface and will lead later on to corrosion.
  - Mechanical parts (except shielding lids and bent parts), which didn't repair the failure, can be reused, if they are not soldered.
  - When removing the shielding lids make sure to replace them with new ones, otherwise the high-frequency leakage can have an influence on the device.
  - Always use original NOKIA spare parts.
  - Check the soldering joints of the parts, which are concerned regarding the indicated error (e.g. soldered connectors or switches) and resolder them if necessary (Level 2 only).
  - Remove redundant soldering flux after repair.
  - Meet the torque requirements when assembling the unit (see also the document "torques for transceiver assembly" on NOKIA Partner Web Site/NOKIA Online).
  - Always use your own equipment for testing where you are sure that it works. E.g. if the customer complains about charger function, please test the phone with your own charger to be sure if phone or charger causes the malfunction.
  - A SIM card is needed for all GoNoGo tests.
  - When doing the fault log entries, always note the Item code, which caused the malfunction. Also, fill in the appropriate part code from the assembly, if needed.
  - Please be aware that some malfunctions could be software related and solved by an update.
- 
- There are several documents available on NOL, which have to be followed:
  - First, take care for the latest content pages of Service Bulletins, which are always available for each folder on NOKIA Online. This is also important to recognize, if existing documents have become invalid.
  - The service level indicator at the bottom of each document tells the appropriate destination.

### Downloads > Support Library >

1. Instructions
  2. General Service Bulletins
  3. Product related documents
  4. Spare Part Service Bulletins
  5. Service Tools Service Bulletins
  6. Common Software Service Bulletins
- etc,...

Use General SB-217 as a reference or overview.

Please also check NOKIA Online (NOL) for latest news and files on a regular basis.

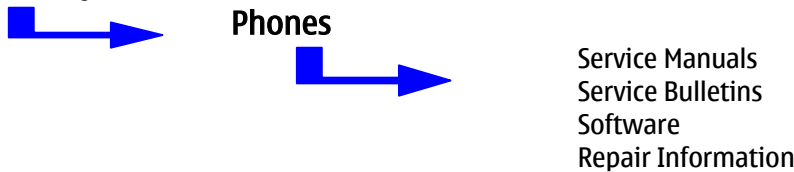
**3. PATHFINDER FOR WORKSHOP STAFF**

In addition to the information in this Service Manual, there are several instructions and information, which have to be followed. Main documentation database is [NOKIA Online](#) with the purpose of serving different multimedia content, like video clips or interactive tutorials.

It is mandatory to watch for newest technical and organizational information on a daily basis to be updated as required (see “**Latest files in Support Library**”). Every new information has to be processed and implemented as soon as possible.

When logged into NOL you can also find needed information in different folder like:

**Support Library**



**Level 1&2 e-learning (former NOKIA CarePoint) on NOKIA Online**

Former NOKIA CarePoint content, such as	<ul style="list-style-type: none"> <li>• <b>Online Troubleshooting</b></li> <li>• <b>Product information</b></li> <li>• <b>Videos – Disassembly/Assembly</b></li> </ul>	can be found on <b>NOKIA Online</b>
		<p><a href="#">NOKIA Online</a></p> <p>↓</p> <p><b>Care Services</b></p> <p>↓</p> <p><b>Training</b></p> <p>↓</p> <p><b>Phone Models</b></p>

**Level 1&2 e-learning** courses offer a quick overview of the NOKIA phone and support for how to repair and use the phone:

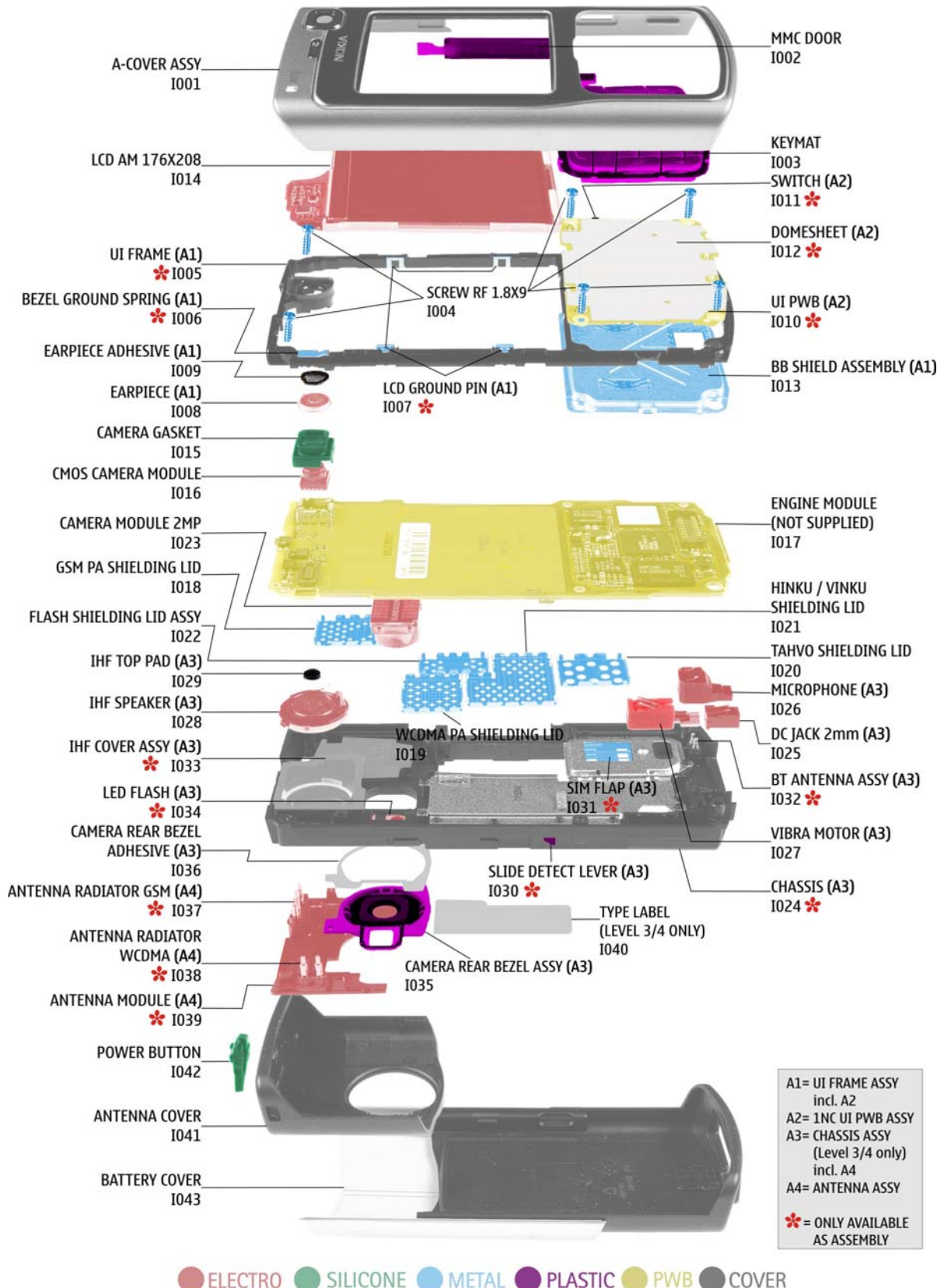
<p><b>Overview &amp; Guides</b>                  Basic information about the phone, features and technologies</p>	<p><b>Disassembly &amp; Assembly</b>                  Instructions how to disassemble and assemble the phone</p>	<p><b>Troubleshooting</b>                  Step-by-step instructions on how to locate and repair the most common problems with the phone</p>
---	--	--

To reduce the server traffic it is recommended to download newest version of huge files like videos, Phoenix packages or Service Manuals only once and distribute it internally for further use.

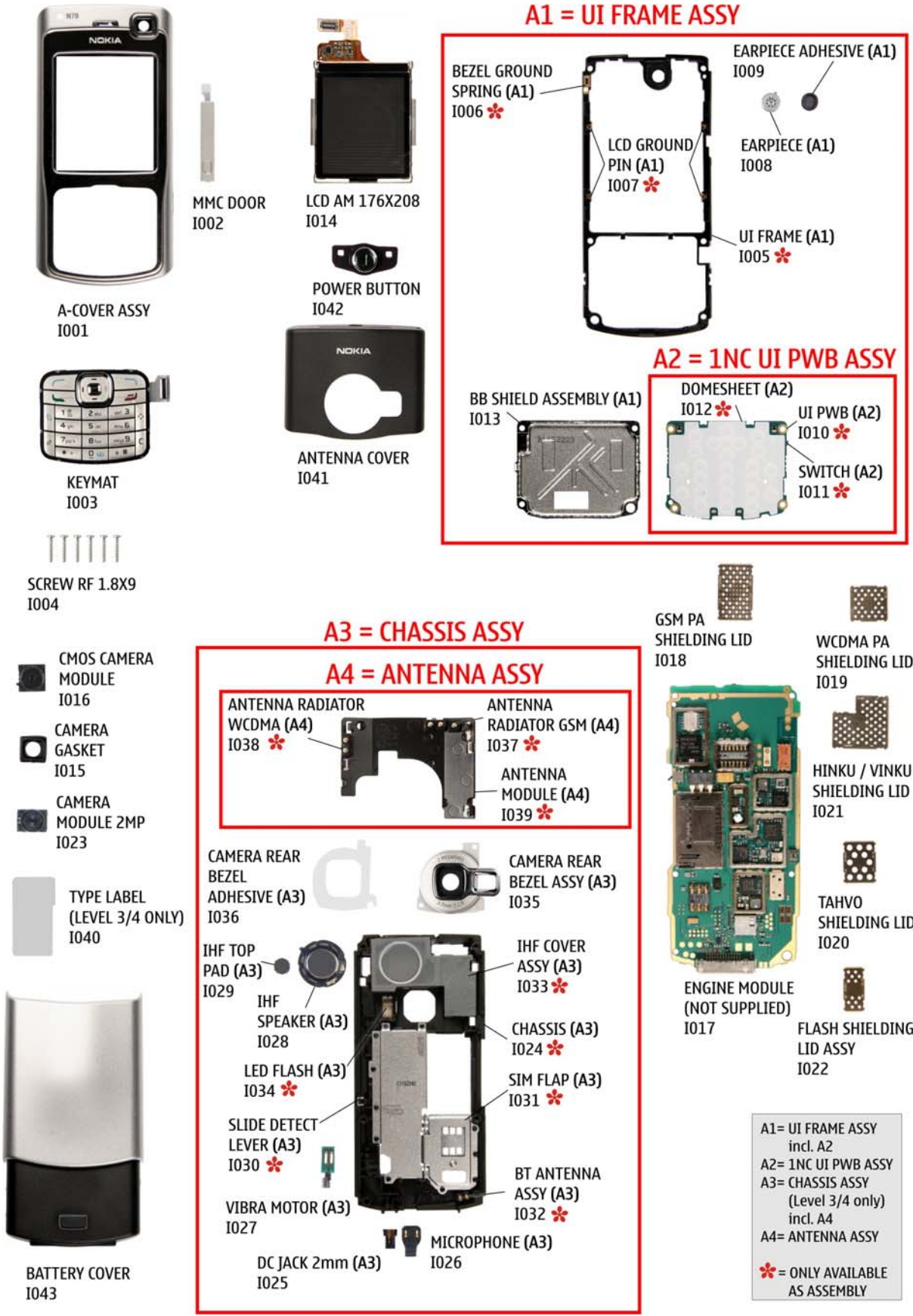


## 4. EXPLODED VIEW AND COMPONENT DISPOSAL

Recommendation for the ecologically friendly disposal of components. Colorized components show the different categories. See corresponding ITEM/CIRCUIT REF in the Spare Parts Service Bulletins on NOL.



## 5. SPARE PARTS OVERVIEW




## 6. SPARE PARTS LIST

Please exchange this page (placeholder) with latest corresponding Service Bulletins (spare parts, SWAP units and service tools) from NOL!

This will ensure, that you are using up-to-date order codes only.

Therefore Service Bulletins have to be checked from NOL on daily basis.

---



Nokia Online

[Home](#) | [User](#) | [Sitemap](#) | [Log Out](#)

Care Services
Support Library
Warranty Info
Service Points
Training

Search  GO

### Support Library

#### Browse files

Latest files

→ Browse files

Select category:

Select subcategory:

Select subcategory:

---

Date range from:  /  /

                  until:  /  /

Search:  SEARCH

**Files for Service level 2** Date:03.02.2005

---

- XXXXXXXXXXXXXXXXXXXX

**Files for Service level 1** Date:16.02.2005

---

- XXXXXXXXXXXXXXXXXXXX
- XXXXXXXXXXXXXXXXXXXX
- XXXXXXXXXXXXXXXXXXXX

© Nokia 2005 [legal notice and site usage terms](#) | [privacy policy](#).



## 7. SERVICE TOOLS

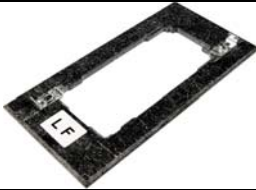
 	<p><b>FLS-4S incl. ACF-8, Driver and User Guide</b> Dongle and flash device incorporated into one package, developed specifically for POS use.</p>
	<p><b>Internal Battery BL-5C</b> Inserted under the back cover, this Li-Ion 850 mAh battery provides power in a lightweight package.</p>
	<p><b>DKU-2</b> USB flash cable</p>
	<p><b>Travel Charger ACP-12</b> Small and lightweight charger for fast charging of your phone battery.</p>
	<p><b>Headset HDS-3</b> Small and lightweight stereo headset for handsfree functionality and listening to FM radio.</p>
	<p><b>SS-15</b> Camera removal tool for <b>Camera Module 2MP</b>. One side is for disassembly, the other side for assembly.</p>



**SS-51**  
Camera Removal Tool for CMOS Camera



**SS-34**  
Flex Opening Tool



**RJ-94**  
Soldering Jig



**Lead-free Solder Wire**  
Mandatory for lead-free products (Level 2 only).

**0772040 NMP Standard Toolkit**



- NOKIA opening tool SRT-6 NOKIA No. 0770431
- Tonichi torque driver NOKIA No. 6901525
- [Hoya](#) micro fibre cloth MX304
- [Dastex](#) gloves S, M, XL
- [Artlux](#) goggles AH166
- [Wera](#) bit T5 867/4TX 5x50
- Wera 867/4 6IP; 50mm (Torx 6 PLUS®)
- Wera bit T6 867/4TX 6x50
- Wera 867/1 5IP; 25mm (Torx 5 PLUS®)
- Wera bit T6 PLUS® 867/4TX 6IP
- [Facom](#) side cutter 416E
- Facom T5 driver SP.14032
- Facom T6 driver SP.14033
- Facom slot screwdriver AEF. 2x35.E
- [Wetec](#) tweezers 7abb SA-ESD
- Wetec tweezers 22 SA-ESD
- Wetec tweezers 13 SA-SMD ESD
- Wetec tweezers PSF SA-ESD
- Wetec ESD brush E1211
- [Kaiser](#) Fototechnik airbrush 6315
- Wetec dental tool DEM83266/0
- [RS Components](#) Scissors 323-5732

## 8. SW-UPDATE

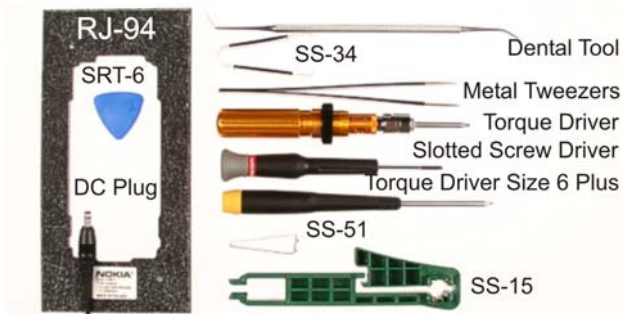
### Flash Concept – (Point of Sales)

To use FLS-4S Flash Dongle you have to follow the user guide inside the sales package. Please check always for the latest version of flash software, which is available on [NOKIA Online](#).





## 9. DISASSEMBLY INSTRUCTIONS



1.) You need the following tools.



2.) Always protect the window with a plastic film.



3.) Remove the **Battery Cover**.



4.) Place the SRT-6 between the **A-Cover** and **Chassis Assy**. Release the 4 plastic clips beginning from the bottom side as shown.



5.) Remove the **Keymat**



6.) Protect the **LCD** with a plastic film.



7.) Also protect the inner side window with a film



8.) Remove the **MMC Door** from **A-Cover**.



9.) Insert the SRT-6 between the **Antenna Cover** and **Chassis Assy**. Additional force may be required while opening the **Antenna Cover** clips.



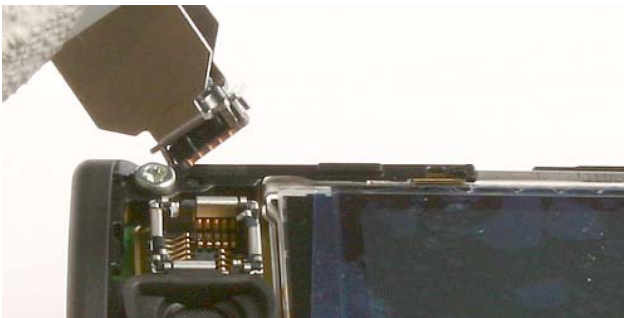
10.) Remove the **Power Button** with tweezers.



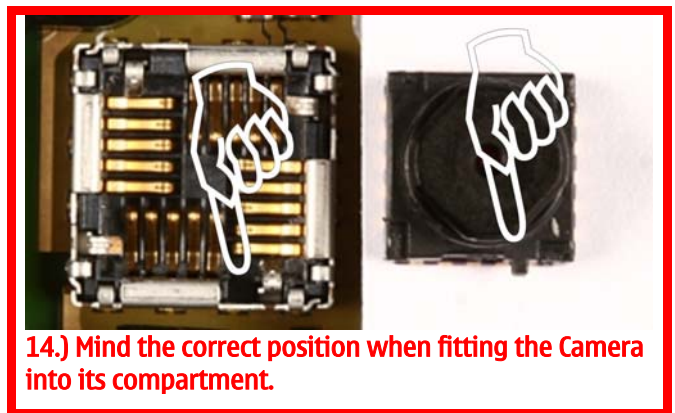
11.) Protect the **Camera Rear Bezel Assy** with a plastic film before turning the unit.



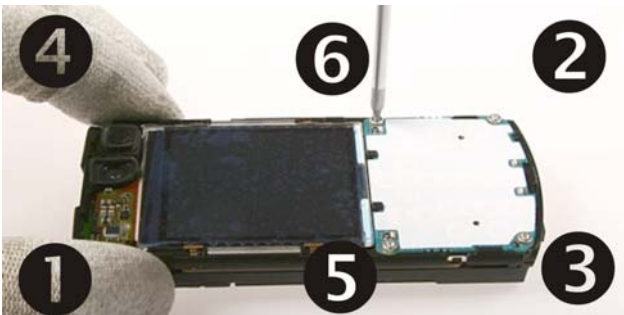
12.) Remove the **Camera gasket**.



13.) Unlock and remove the **VGA Camera** with the **SS-51** camera removal tool.



14.) **Mind the correct position when fitting the Camera into its compartment.**



15.) Unscrew the 6 Torx size 6 plus screws in the shown order. **For Assembly use the reverse order and the torque of 25 Ncm.**

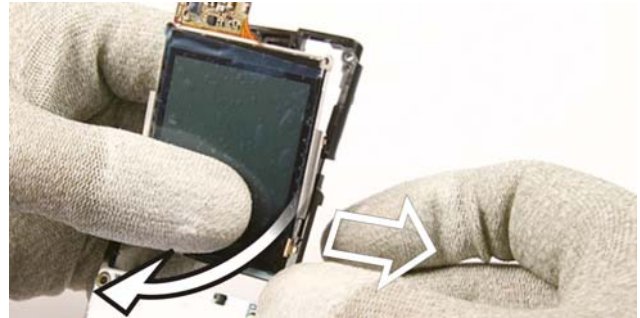


16.) Lift the **UI-frame Assy** from **Chassis Assy**. Mind the still connected flex foil of the LCD.





17.) Open the flex connector with the SS-34 flex connector-opening tool. Mind the surrounding components while placing the tool. Now the **UI-Frame Assy** can be removed.



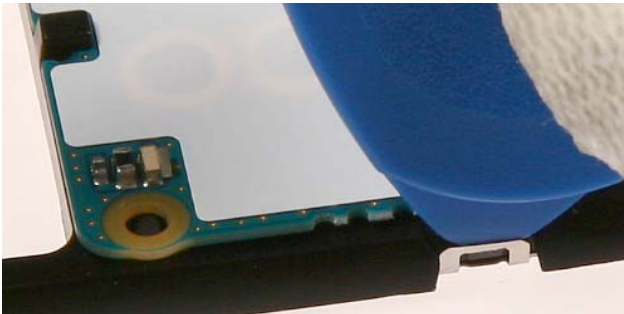
18.) Unlatch each clip of the LCD from the **UI Frame Assy** carefully by pulling the **UI Frame Assy** sideward while pushing the LCD forward.



19.) Remove the **Earpiece** with the dental tool



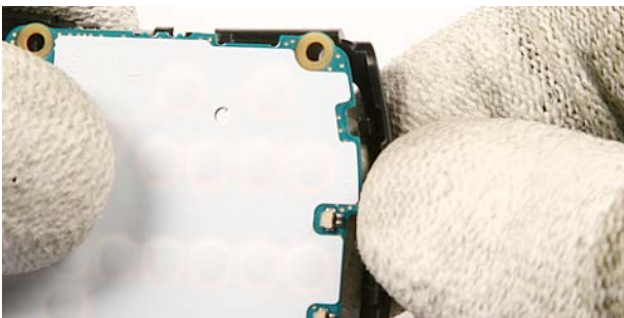
20.) Also remove the **Earpiece Gasket** from its compartment. **Always use a new gasket when reassembling.**



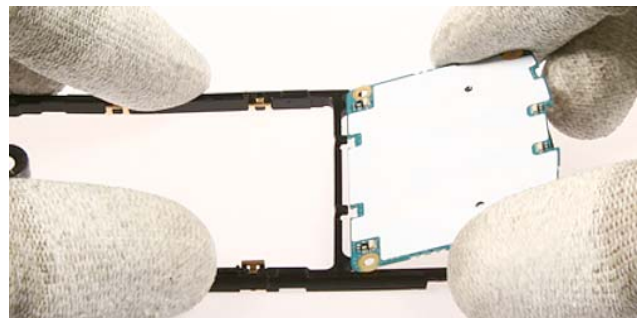
21.) Unlatch the **BB shield Assembly** first.



22.) Then push down and remove the **BB Shield Assembly**. The shield can't be reused again, always use a new one.



23.) Pull the **UI Frame Assy** slightly to unlock the **UI PWB**.



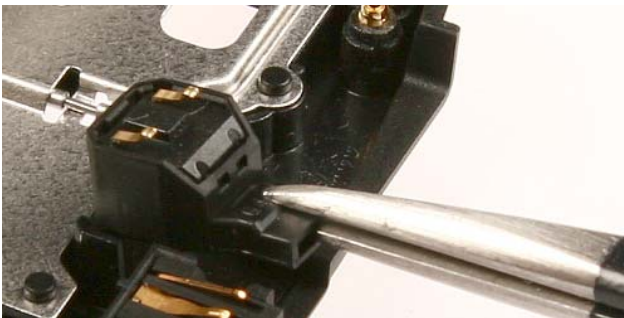
24.) Now the **UI PWB** can be removed easily.



25.) Remove the **Engine Module**. Place it into the RJ-94 jig immediately.



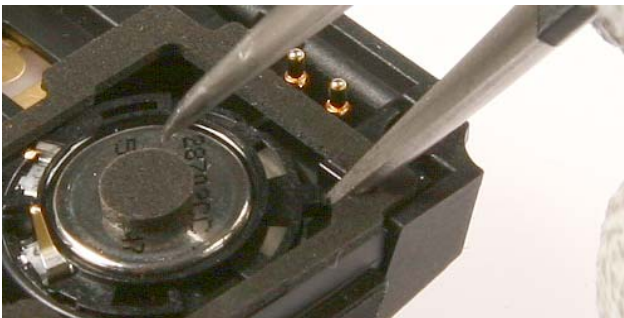
26.) Remove the **Vibra Motor** with tweezers.



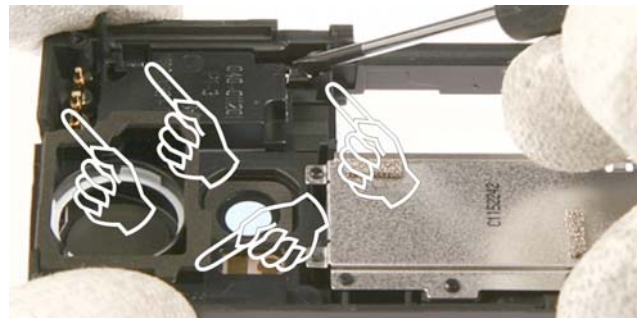
27.) Pull out the **Microphone** with tweezers.



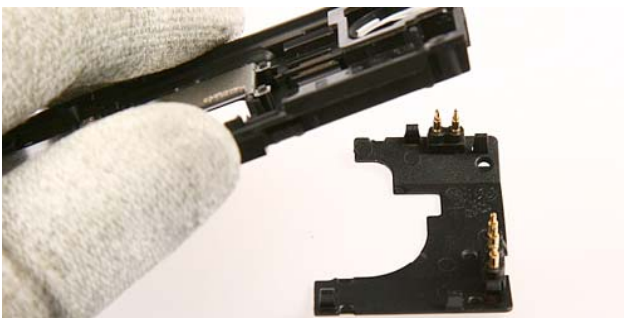
28.) Use the DC plug to remove the **DC Jack**.



29.) Lever out the **IHF speaker**. **Mind the guide pin when reassembling.**



30.) Unlock the 5 plastic clips of the **Antenna Assy** in the area shown.



31.) Carefully separate the **Antenna Assy**.

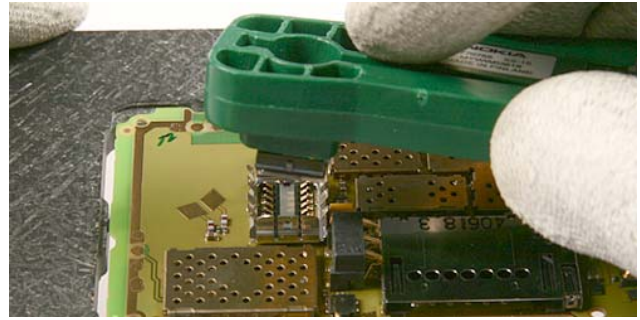


32.) Lever out the **Camera Rear Bezel Assy**.



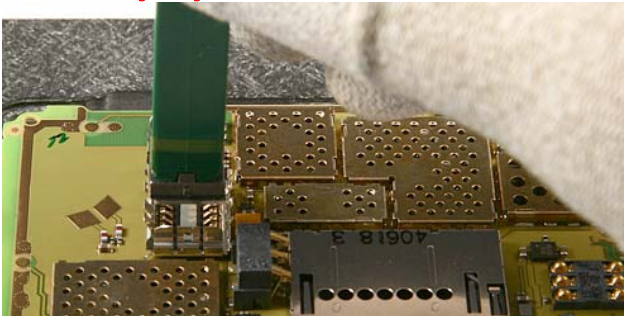


33.) Remove the residues of the **Camera Rear Bezel Assy Adhesive** completely with the SRT-6.  
**For assembly always use a new adhesive.**



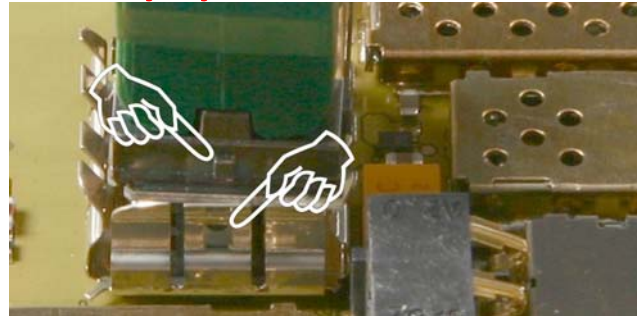
34.) Remove the **Camera Module 2MP** with the SS-15 camera removal tool. Always use the RJ-94 rework jig as support to prevent mechanical stress to the PWB.

**For assembly only!**



35.) Use the **Assembly side of the SS-15** for fitting the **Camera Module 2MP** into its compartment.

**For assembly only!**






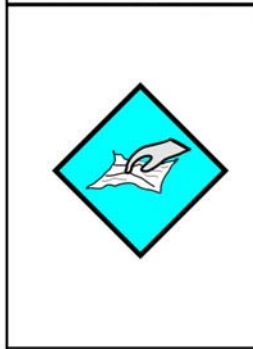
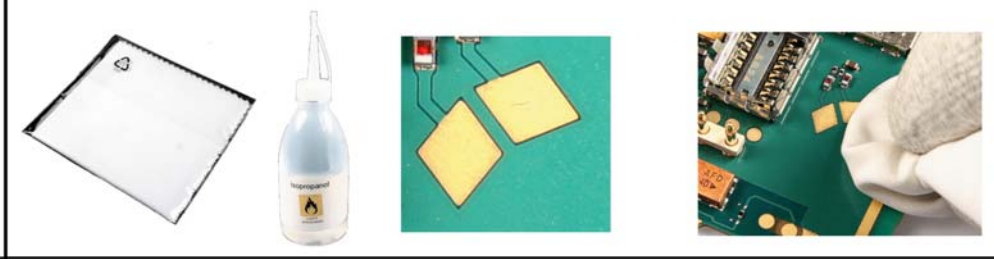
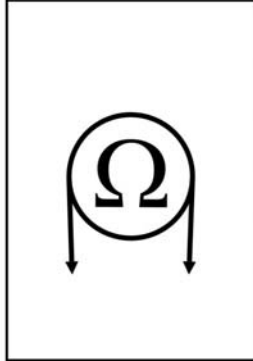

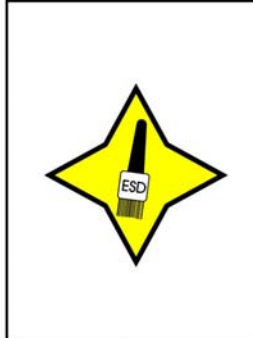


36.) **Mind the correct position of the camera** while assembling.

**10. LEGEND FOR QUICK TROUBLE SHOOTER**

**Legend for Quick Troubleshooter**

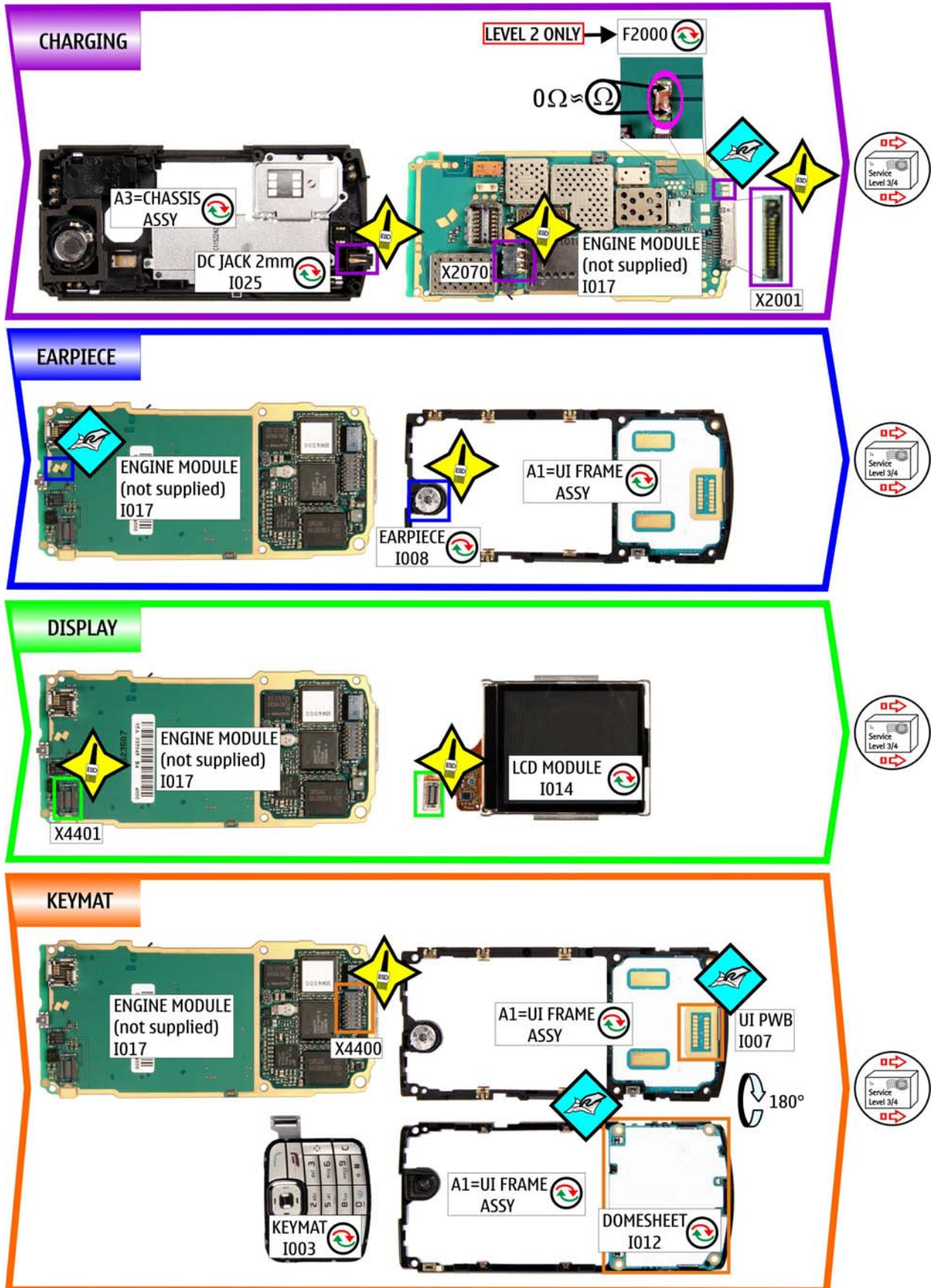
This legend is valid for all parts of the Quick Troubleshooter

Follow the steps until the problem is solved. If this doesn't help, you are not authorized to go forward.

	<p>The start point of repair activities regarding the appeared fault symptoms.</p>
	<p>Only marked components (e.g. I002 ) can be replaced.</p>
	<p><b>Cloth usage:</b> Check pads or contacts for optical and mechanical condition particularly regarding to corrosion. Clean it if necessary.</p> 
	<p>Measure component for electrical functionality and change, if needed. (Level 2 only)</p> 
	<p><b>ESD Brush usage:</b> Check pads or contacts for optical and mechanical condition particularly regarding to corrosion. Clean it if necessary.</p> 
	<p>No more action possible - send product to the appropriate service supplier with higher service level.</p>



## 11. QUICK TROUBLE SHOOTER PART 1





## 12. QUICK TROUBLE SHOOTER PART 2

**IHF SPEAKER**

ENGINE MODULE (not supplied) I017

A3=CHASSIS ASSY

IHF SPEAKER I028

Service Level 3/4

**SERVICE GSM**

ENGINE MODULE (not supplied) I017

ANTENNA RADIATOR GSM I037

A4=ANTENNA ASSY

Service Level 3/4

**SERVICE WCDMA**

ENGINE MODULE (not supplied) I017

A4=ANTENNA ASSY

ANTENNA RADIATOR WCDMA I038

Service Level 3/4

**HEADSET**

ENGINE MODULE (not supplied) I017

X2001

Service Level 3/4

**13. QUICK TROUBLE SHOOTER PART 3**

**VIBRA**

ENGINE MODULE (not supplied) I017

A3=CHASSIS ASSY

VIBRA MOTOR I027

Service Level 3/4

**POWER**

ENGINE MODULE (not supplied) I017

X2070

S2422

LEVEL 2 ONLY

POWER BUTTON I042

ANTENNA COVER I041

How to measure 4-pole switch (built-in)

MEASURE OPEN AND PRESSED STATE ON BOTH SIDES OF SWITCH

Service Level 3/4

**CAMERA 2MP**

ENGINE MODULE (not supplied) I017

X1470

CAMERA MODULE 2MP I023

Service Level 3/4

**CMOS CAMERA**

ENGINE MODULE (not supplied) I017

X1472

CAMERA MODULE VGA I015

Service Level 3/4



## 14. QUICK TROUBLE SHOOTER PART 4

LED FLASH	BLUETOOTH	MICROPHONE	SIM
<p>Diagram showing the LED FLASH component (I034) on the engine module (I017) and the chassis assembly (A3=CHASSIS ASSY). A yellow starburst icon points to the component on the engine module, and a blue diamond icon points to it on the chassis assembly. A 'Service Level 3/4' icon is present.</p>	<p>Diagram showing the BT ANTENNA ASSY (I032) on the engine module (I017) and the chassis assembly (A3=CHASSIS ASSY). A yellow starburst icon points to the component on the chassis assembly, and a blue diamond icon points to it on the engine module. A 'Service Level 3/4' icon is present.</p>	<p>Diagram showing the MICROPHONE (I026) on the engine module (I017) and the chassis assembly (A3=CHASSIS ASSY). A yellow starburst icon points to the component on the chassis assembly, and a blue diamond icon points to it on the engine module. A 'Service Level 3/4' icon is present.</p>	<p>Diagram showing the SIM FLAP (I031) on the engine module (I017) and the chassis assembly (A3=CHASSIS ASSY). A yellow starburst icon points to the component on the engine module, and a blue diamond icon points to it on the chassis assembly. A 'Service Level 3/4' icon is present.</p>

## 15. CAMERA GONOGO TEST

Before starting the GoNoGo test, check that camera window is clean. If not, clean the window with cloth.




Camera Module 2MP





CMOS Camera

### Camera 2MP GoNoGo test:

- Press the red receiver button to reach the Home Menu
- Open the **Slide Cover**
- Press  to take a photo  
This Image will be saved to Gallery into the Photos folder automatically.  
Test was successful, if the Image appears on your Display. The camera is ok.
- Select **Options**
- Select **Delete**
- Select **Yes**
- Close the **Slide Cover**

### CMOS Camera GoNoGo test:

- **Slide Cover** must be closed
- Press  to reach the Menu
- Select **Imaging**
- Select **Camera** (If the display shows only back select **option** and select **use secondary camera**)
- Press  to take a photo  
This Image will be saved to Gallery into the Photos folder automatically.  
Test was successful, if the Image appears on your Display. The camera is ok.
- Select **Options**
- Select **Delete**
- Select **Yes**
- Press the red receiver button to reach the Home Menu  
If the test is failed see Quick Trouble Shooter.

## 16. BLUETOOTH

### Bluetooth test

You need another Bluetooth device (e.g. 6230) to do a GoNoGo test.


Make sure that Bluetooth is activated in the reference unit. The distance of the devices should be not more than 5m from each other.



Reference unit, Bluetooth /infrared activated

Test unit

Settings on the test unit:

- Press the red **End** key to reach the Home Menu
  - Press  to select **Contacts**  
If phone and SIM memory is empty, create one new entry.
  - Select **Options**
  - Select **Send**
  - Select **Via Bluetooth**  
If needed (for e.g. after a sw-update), enter a name for this device  
Search window appears, if all Bluetooth devices in range will be displayed, the test is successful!
  - Press red **End** key to reach the Home Menu
- Note: If the Bluetooth is activated, switch it off!**

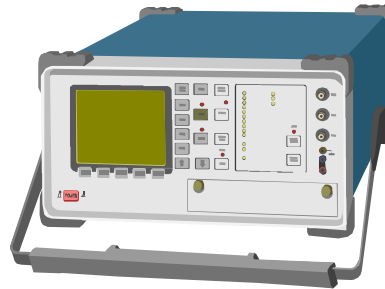


## 17. GONOGO TEST

After the optical check, a GoNoGo test has to be carried out if the unit has been unscrewed to guarantee the functionality of the phone.

Please refer to the actual information on NOKIA Online. When using delivered tester support files, take care of the right setup according to the tester type and product type.

Please refer to "Recommended Service Equipment" on NOKIA Online.



Mobile Phone Tester

## 18. BATTERY TEST

A battery tester lets you test the capacity of NOKIA batteries.

Please refer to the actual information on NOKIA Online.



<http://www.astratec.co.uk/>



<http://www.cadex.com/>

## 19. FORWARDING OF REPAIRS

When it is necessary to forward of repairs to appropriate service supplier with higher service level we recommend using the offered swap phone cartons as described in Spare Parts SB-004.



Always Protect the window with a protection film.



Put the unit under the stretch film.



Add repair documentation e.g. filled-in service note into the swap carton.



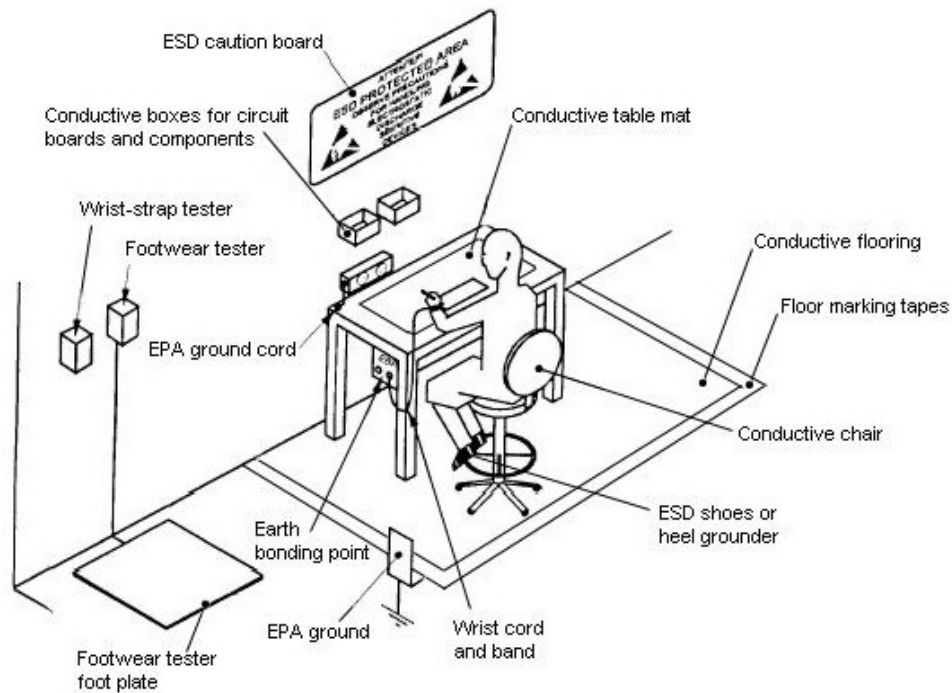
Fold the swap carton as shown in Spare Parts SB-004.



There are two different sizes of swap cartons for common mobile phones.

## 20. ESD PROTECTION REQUIREMENTS

Please refer to the NOKIA Online document [Service Supplier Requirements](#) in folder General instructions.



- USE** Conductive bags and boxes
- USE** ESD compatible service tools
- USE** Conductive wastebaskets
- USE** ESD gloves when handling PWBs/PCBs
- USE** Cleaning material without changing el. Characteristics
- USE** Grounded service equipment, i.e. soldering station
- USE** ESD clothes such as coat or frock

- NO** Smoking
- NO** Drinking
- NO** Eating
- NO** Dust
- NO** Useless Items
- NO** Normal pressured air for cleaning modules/displays



The video covers general issues concerning Electro-Static Discharge (ESD)



# Service Schematics



## Introduction

### 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 2005.12.5.90
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](mailto:training.sace@nokia.com)

Copyright © NOKIA

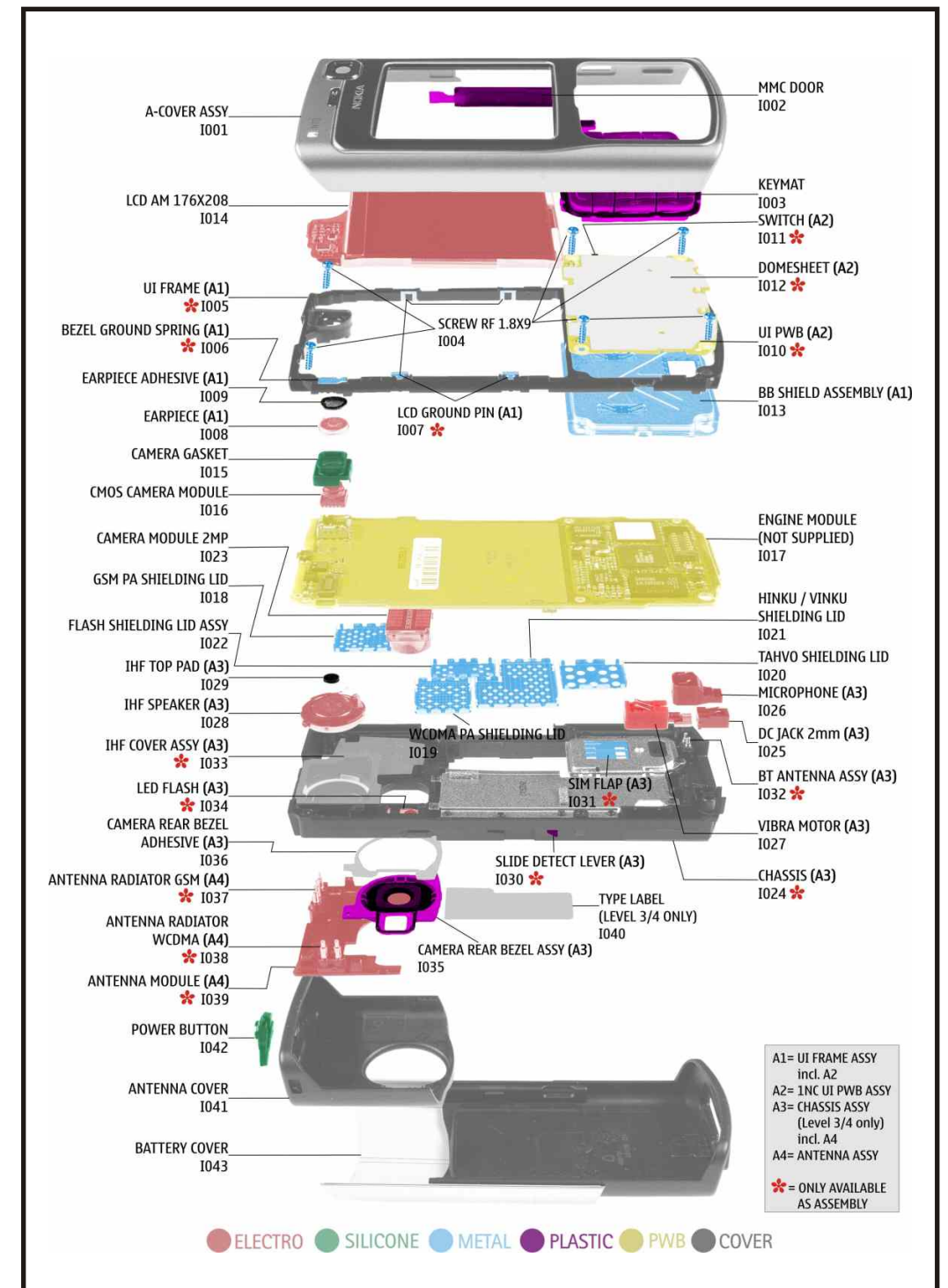
This material, including documentation and any related computer programs is protected by copyright, controlled by NOKIA. All rights are reserved. Copying, including reproducing, modifying, storing, adapting or translating any or all of this material requires the prior written consent of NOKIA. This material also contains confidential information, which may not be disclosed to others without the prior written consent of NOKIA.

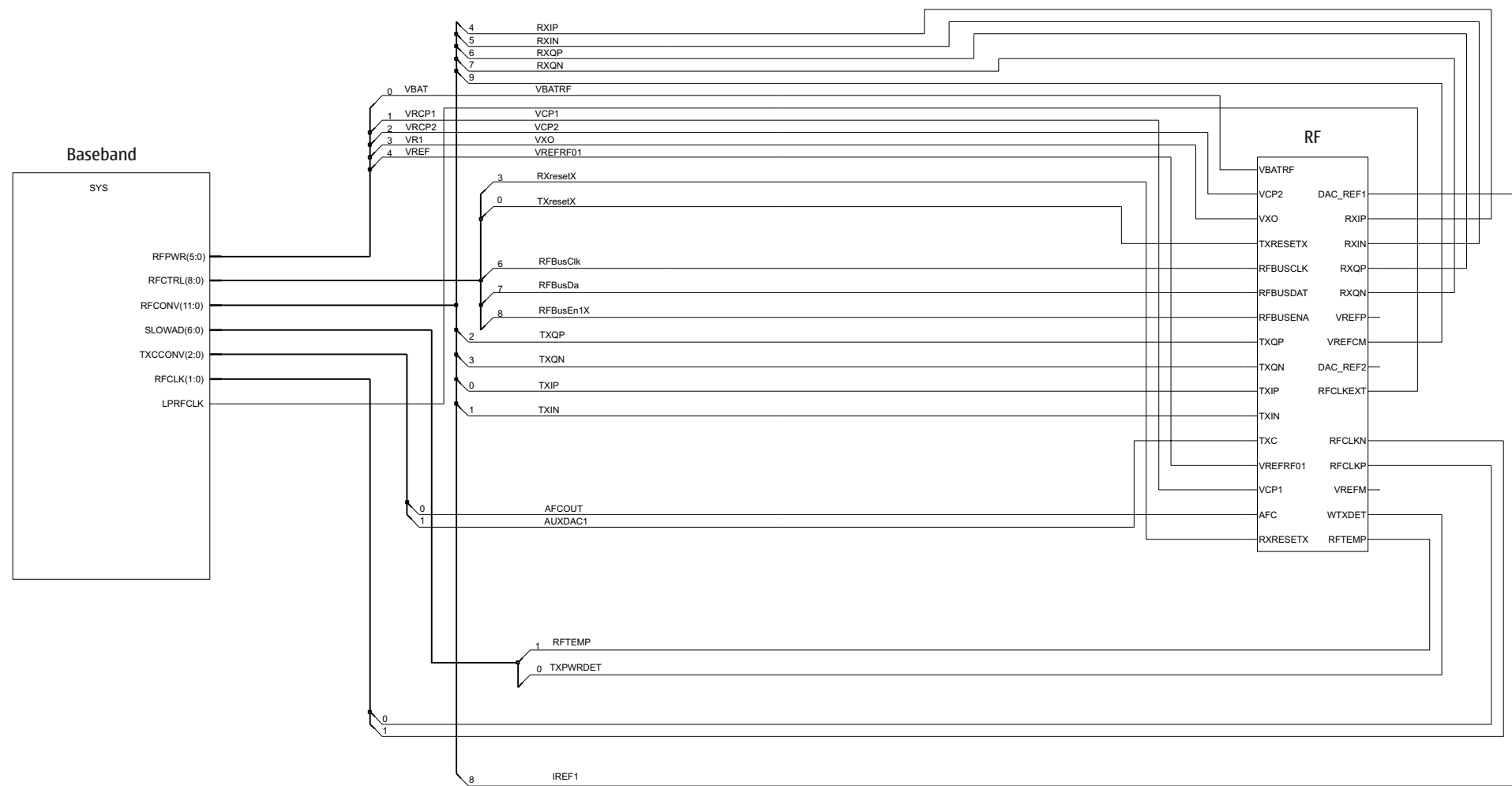
## RM-84

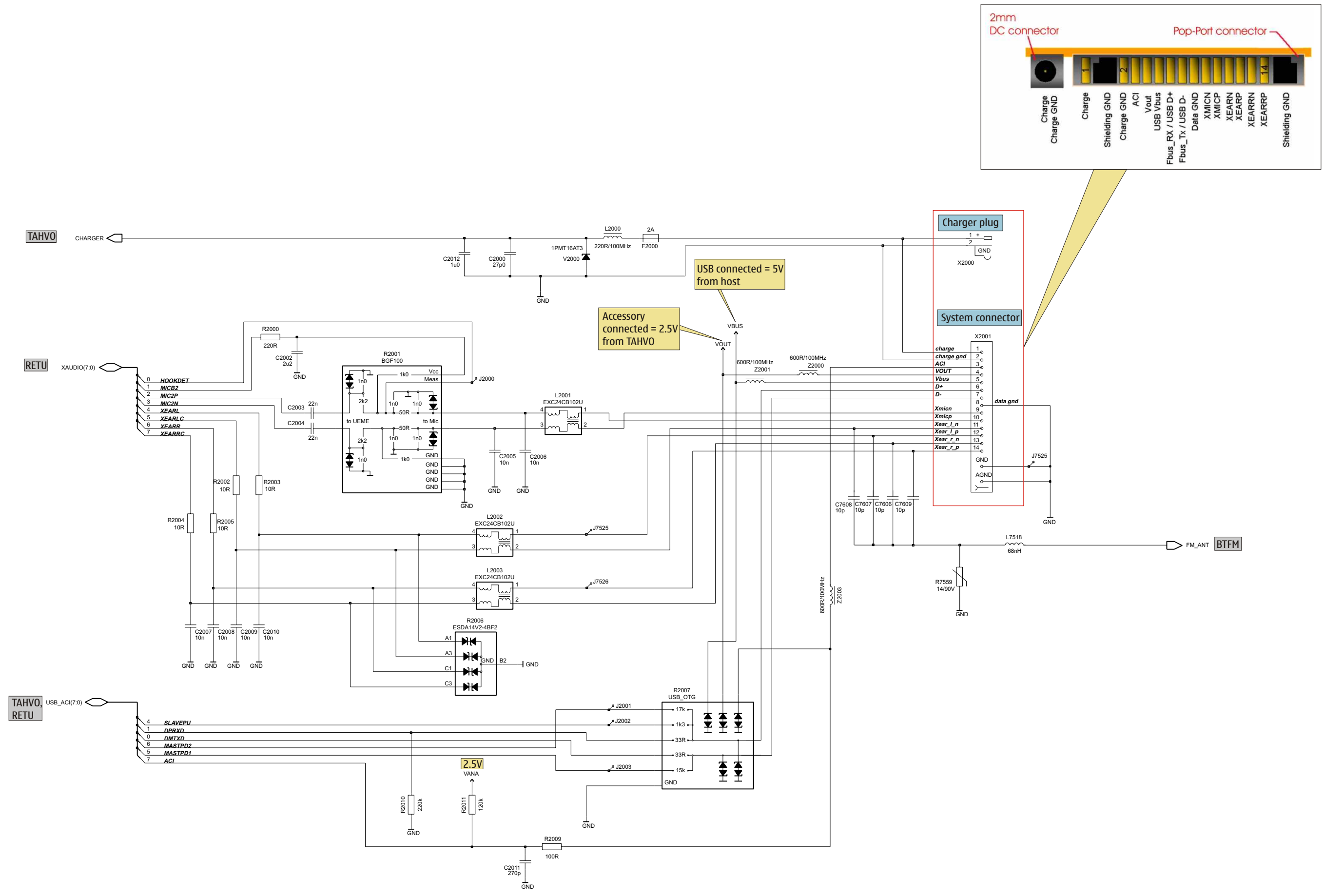


Table of Contents	Page
Frontpage	1
Baseband - RF connections	2
System connector	3
RETU, SIM, Audio	4
TAHVO	5
RAP3G, SDRAM, Flash	6
OMAP, Combo memory, Cameras	7
BTFM	8
B to B connections	9
RF part	10
Signal overview	11
Component finder	12

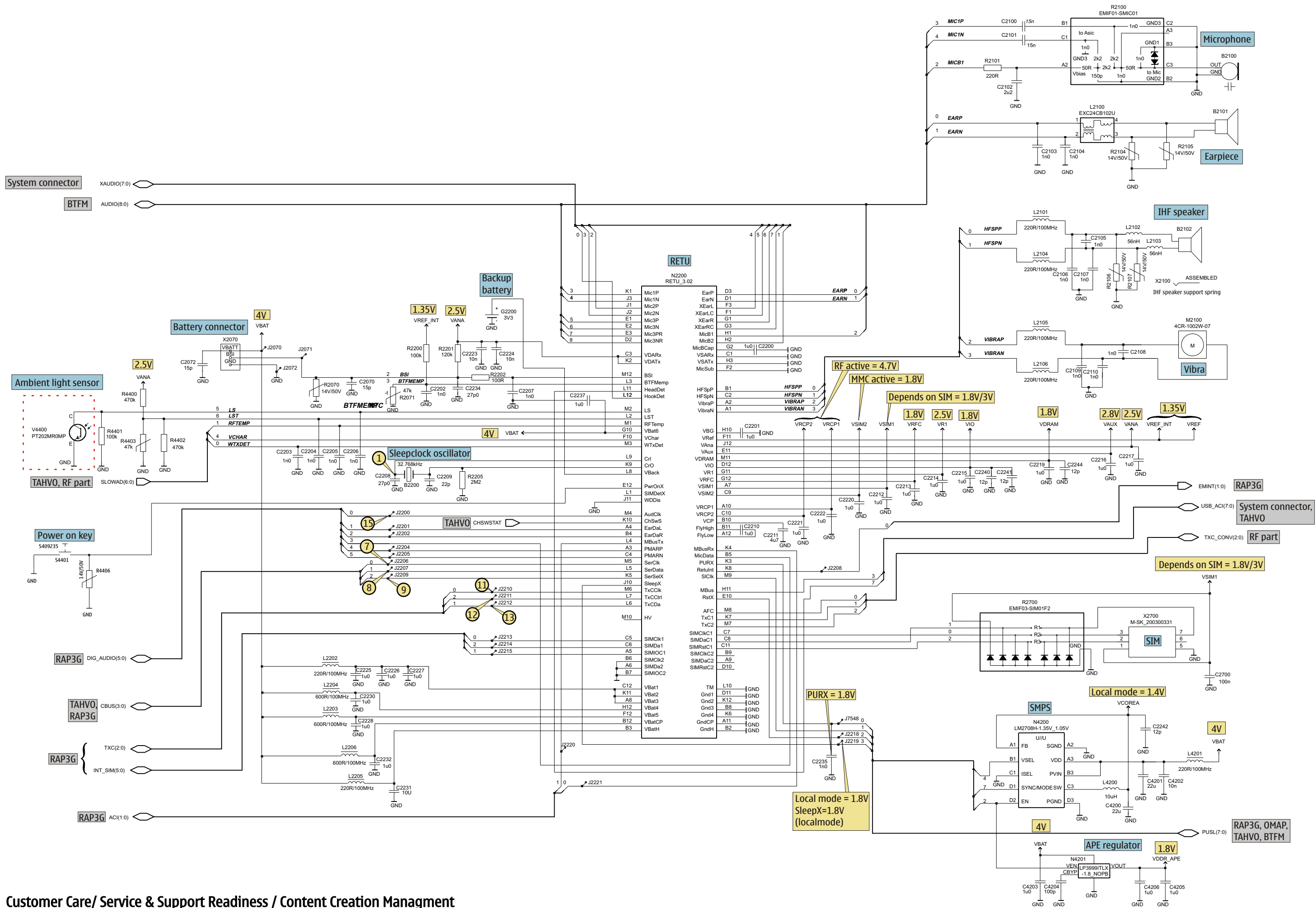
## Exploded view and component disposal

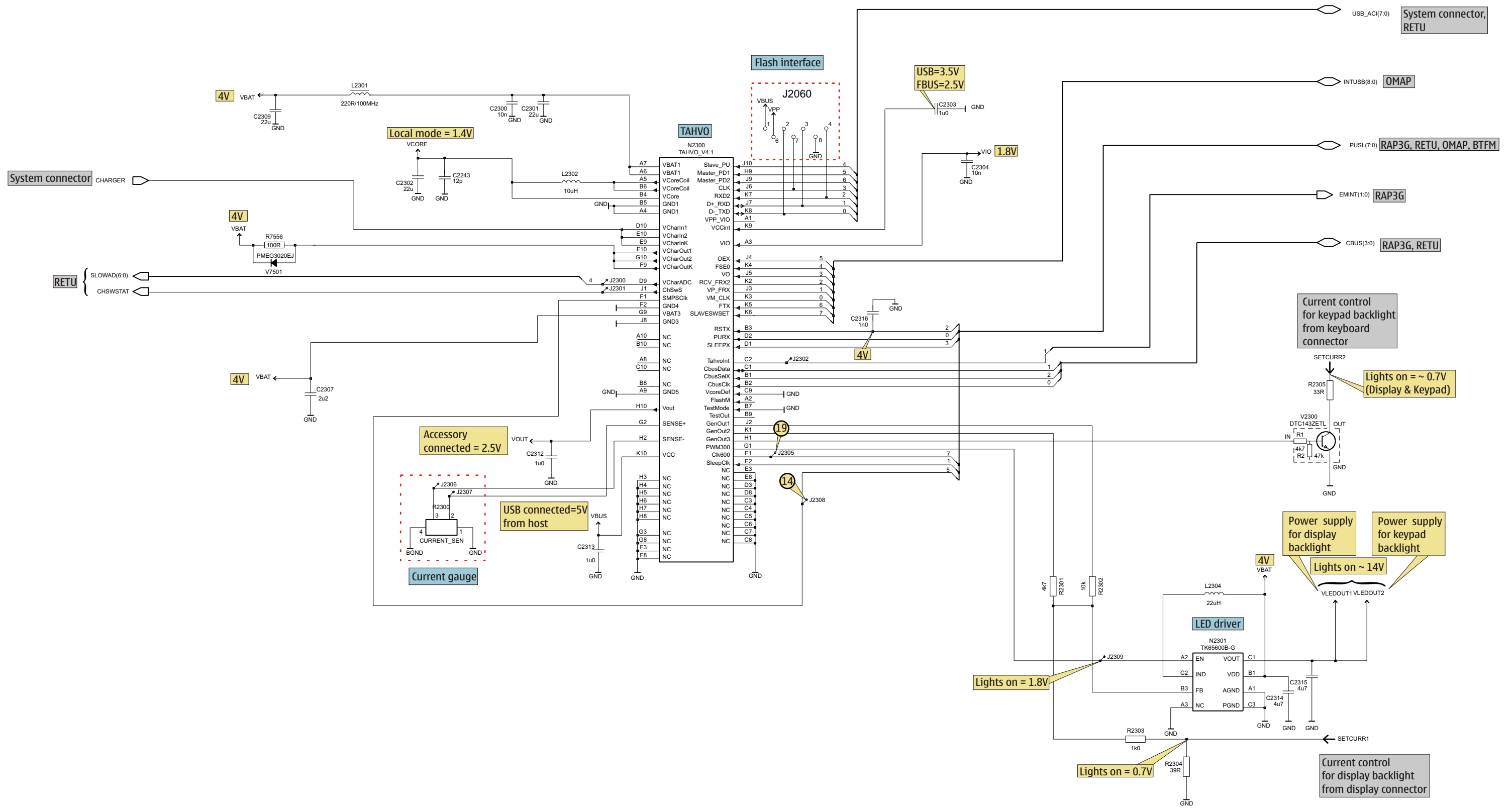


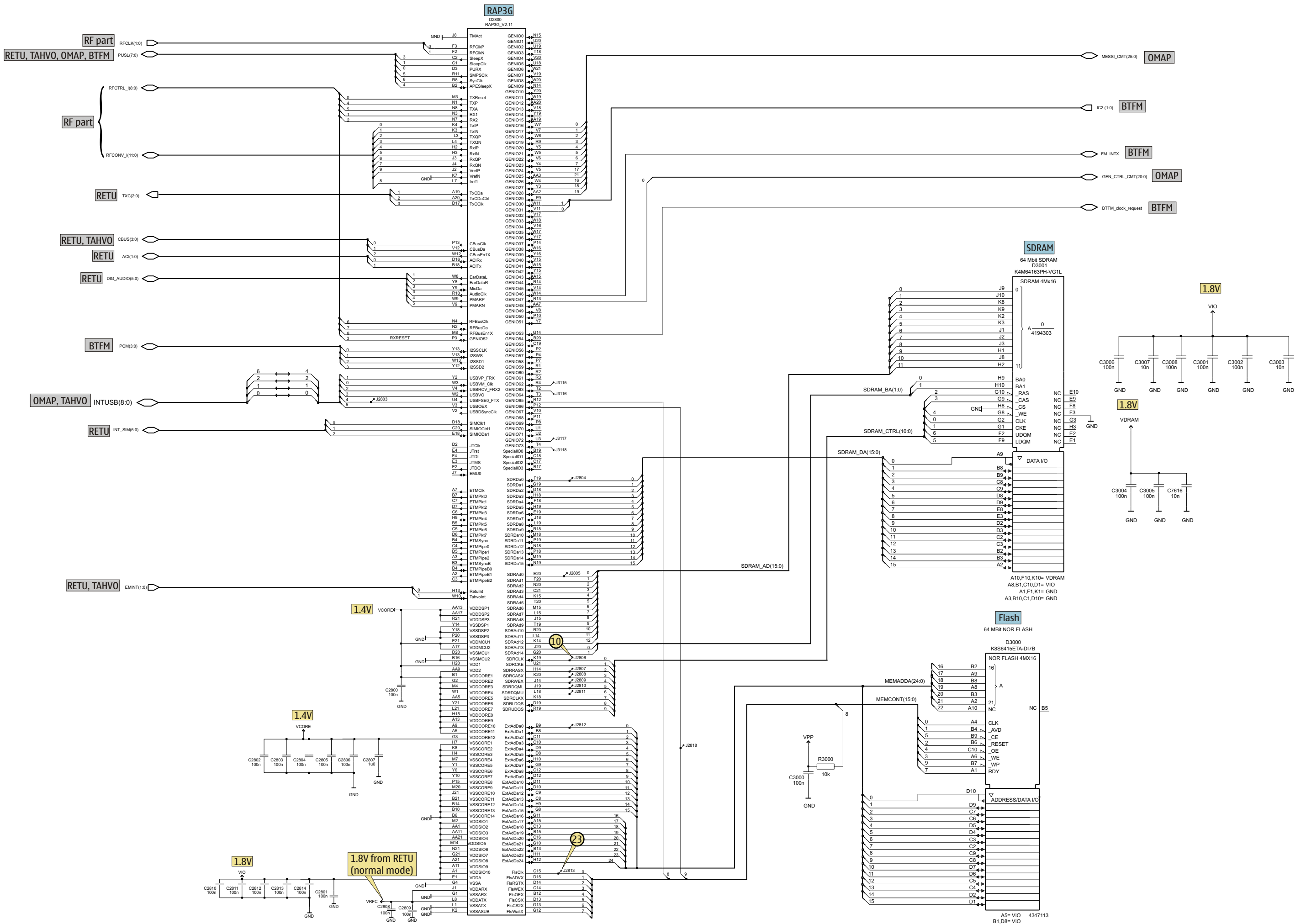




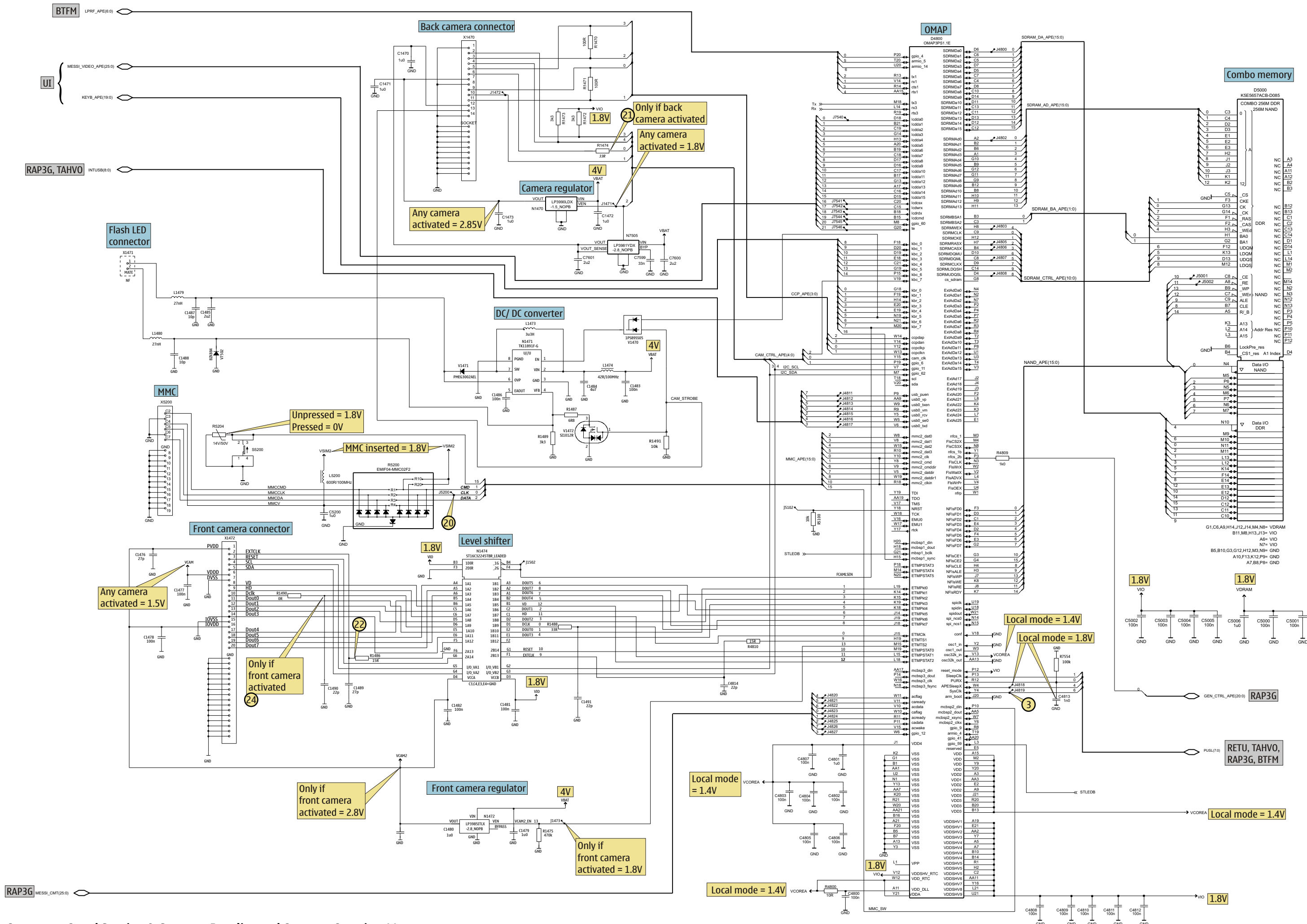


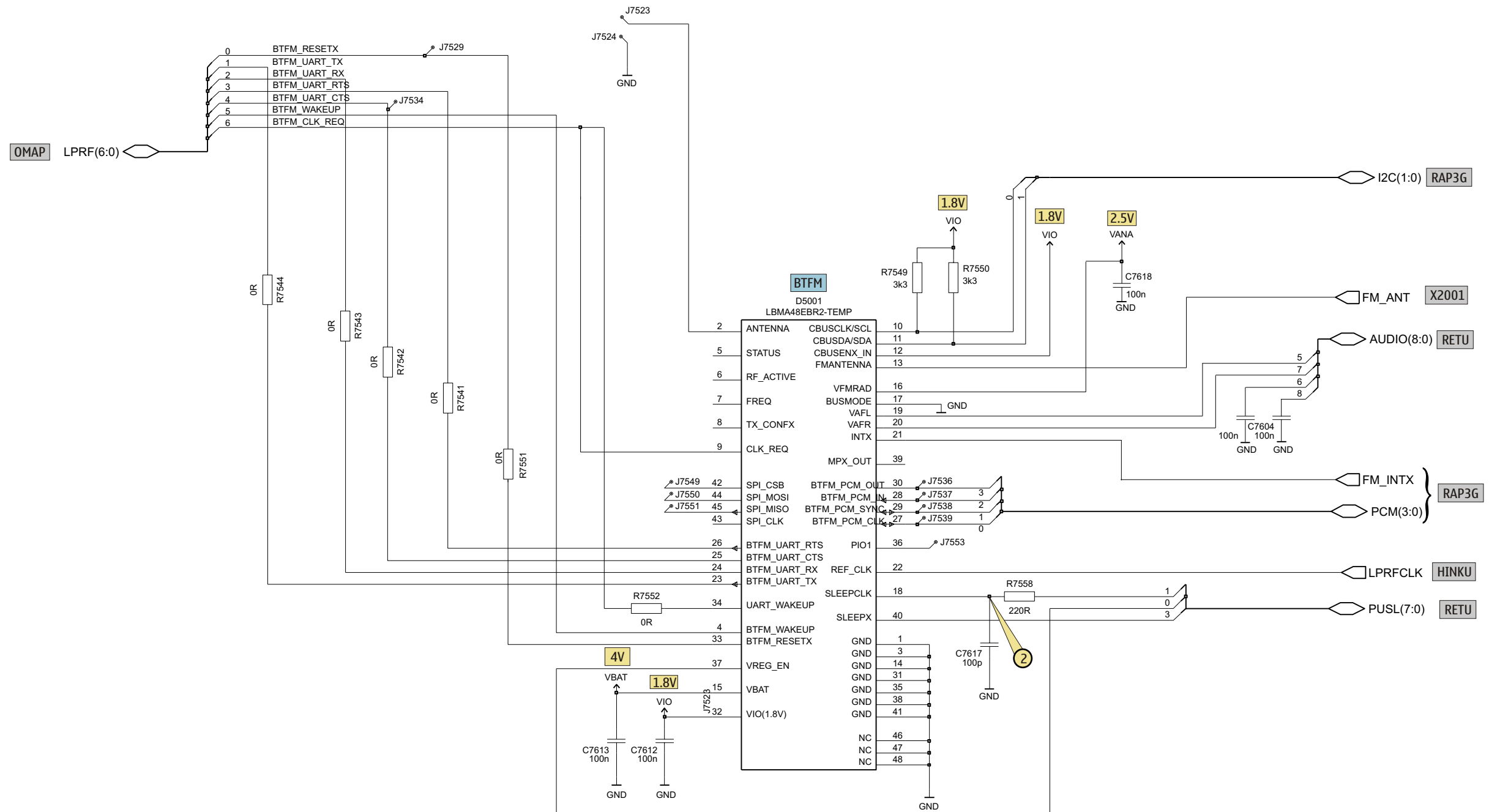


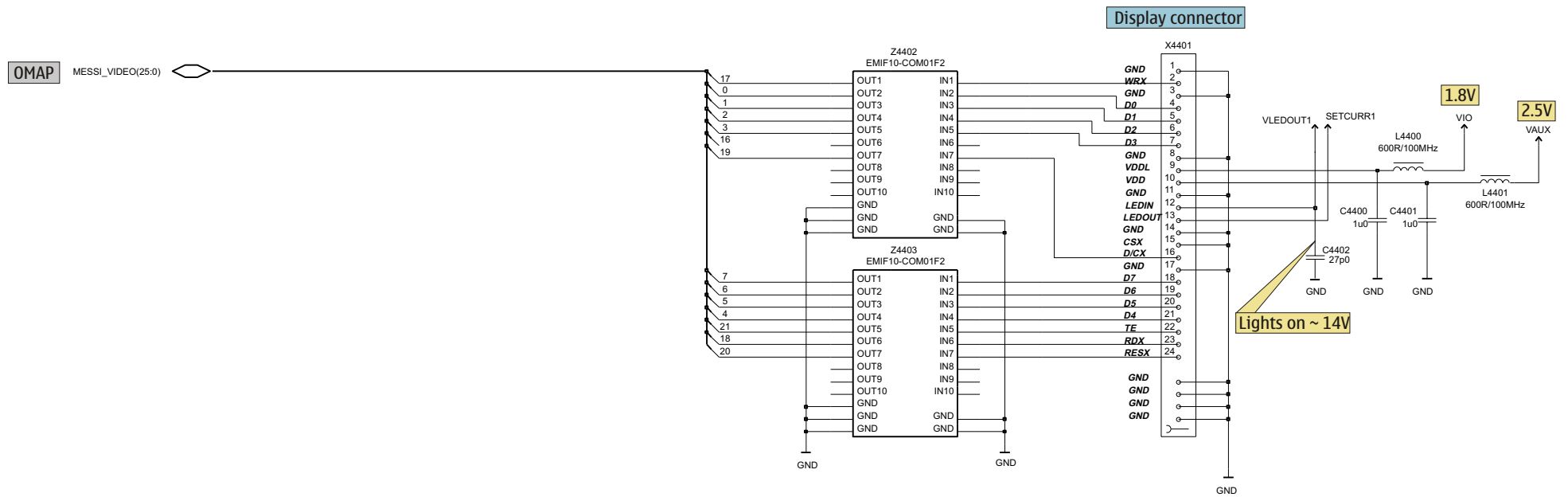
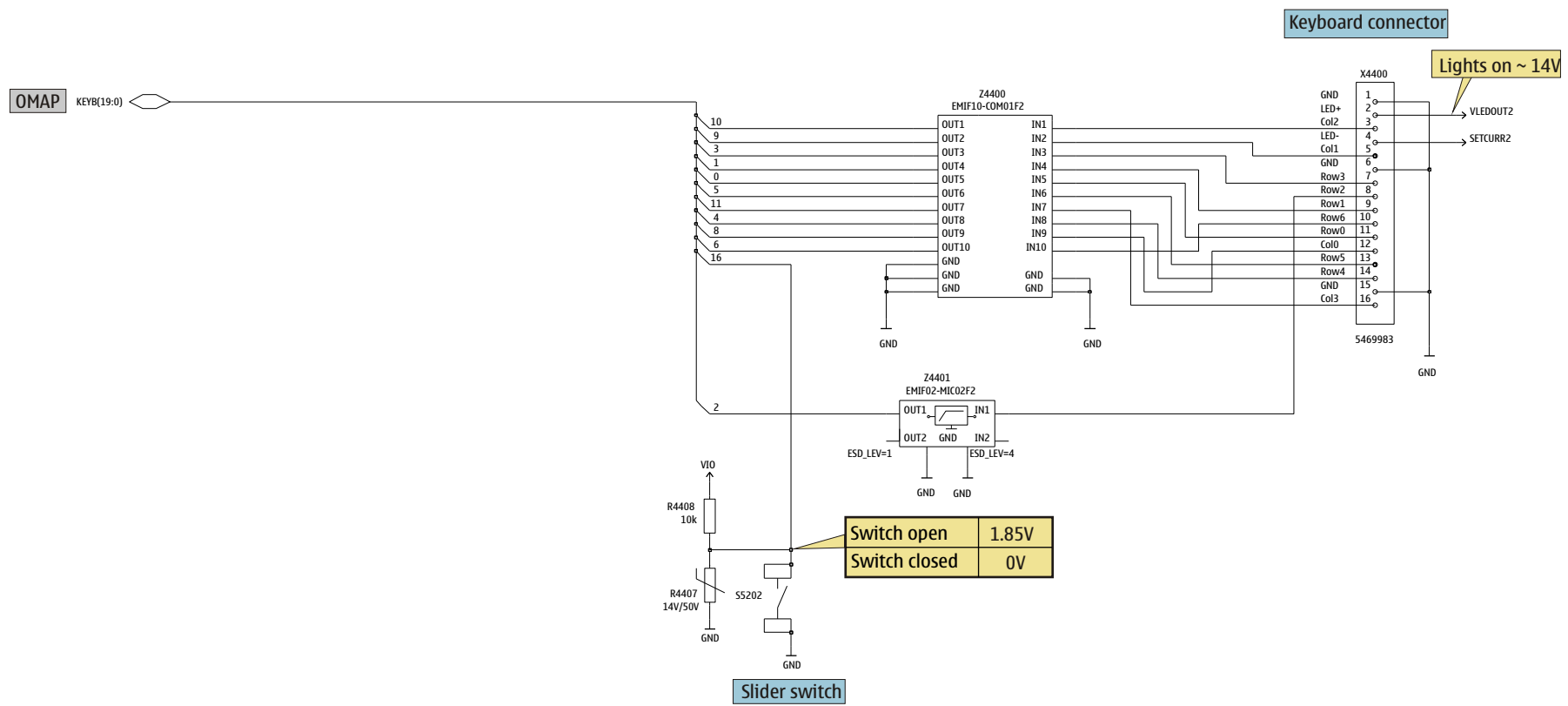




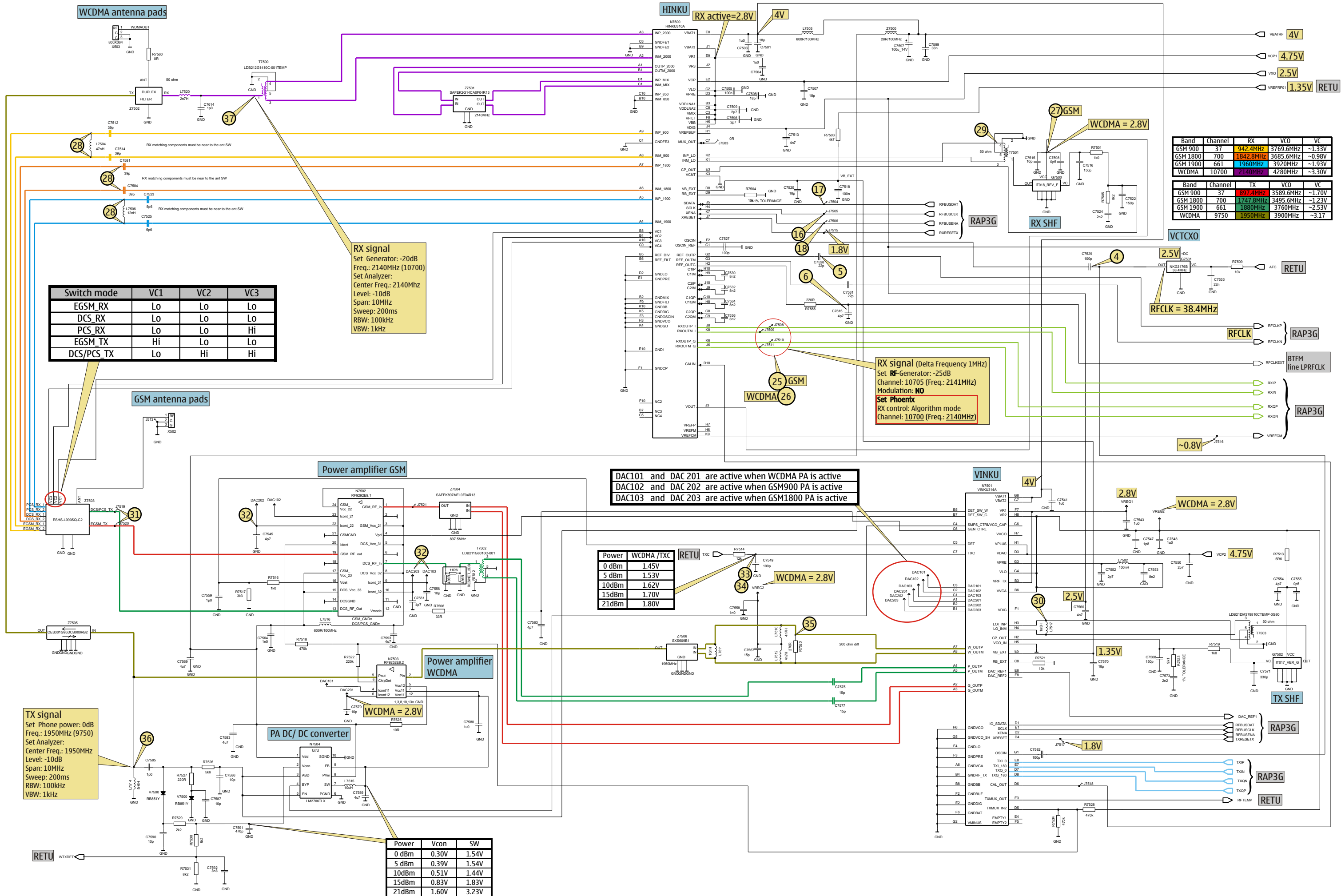












Switch mode	VC1	VC2	VC3
EGSM_RX	Lo	Lo	Lo
DCS_RX	Lo	Lo	Lo
PCS_RX	Lo	Lo	Hi
EGSM_TX	Hi	Lo	Lo
DCS/PCS_TX	Lo	Hi	Hi

**RX signal**  
 Set Generator: -20dB  
 Freq.: 2140MHz (10700)  
 Set Analyzer:  
 Center Freq.: 2140MHz  
 Level: -10dB  
 Span: 10MHz  
 Sweep: 200ms  
 RBW: 100kHz  
 VBW: 1kHz

**TX signal**  
 Set Phone power: 0dB  
 Freq.: 1950MHz (9750)  
 Set Analyzer:  
 Center Freq.: 1950MHz  
 Level: -10dB  
 Span: 10MHz  
 Sweep: 200ms  
 RBW: 100kHz  
 VBW: 1kHz

**DAC101 and DAC 201 are active when WCDMA PA is active**  
**DAC102 and DAC 202 are active when GSM900 PA is active**  
**DAC103 and DAC 203 are active when GSM1800 PA is active**

Power	WCDMA /TXC	RETU
0 dBm	1.45V	
5 dBm	1.53V	
10dBm	1.62V	
15dBm	1.70V	
21dBm	1.80V	

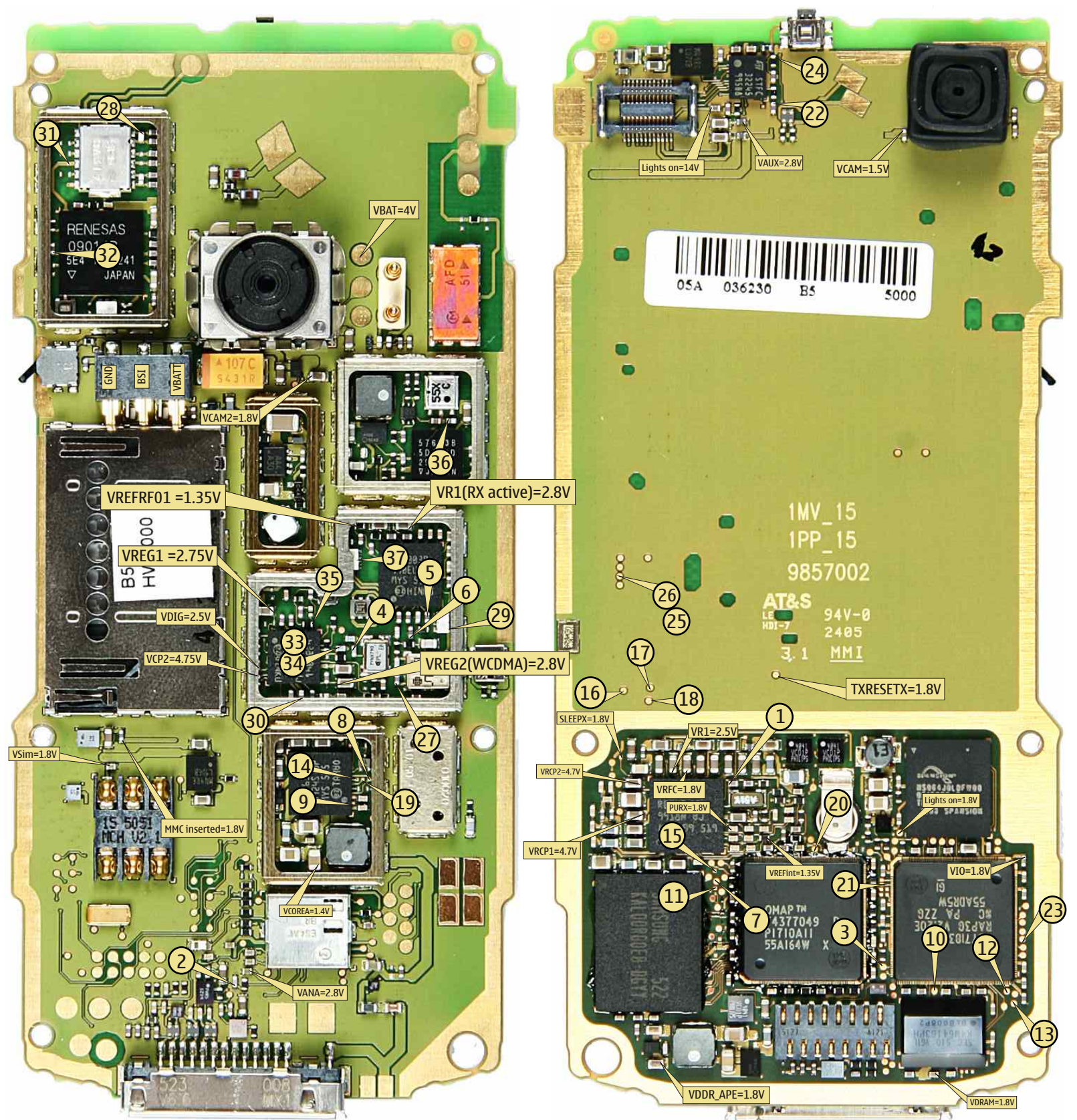
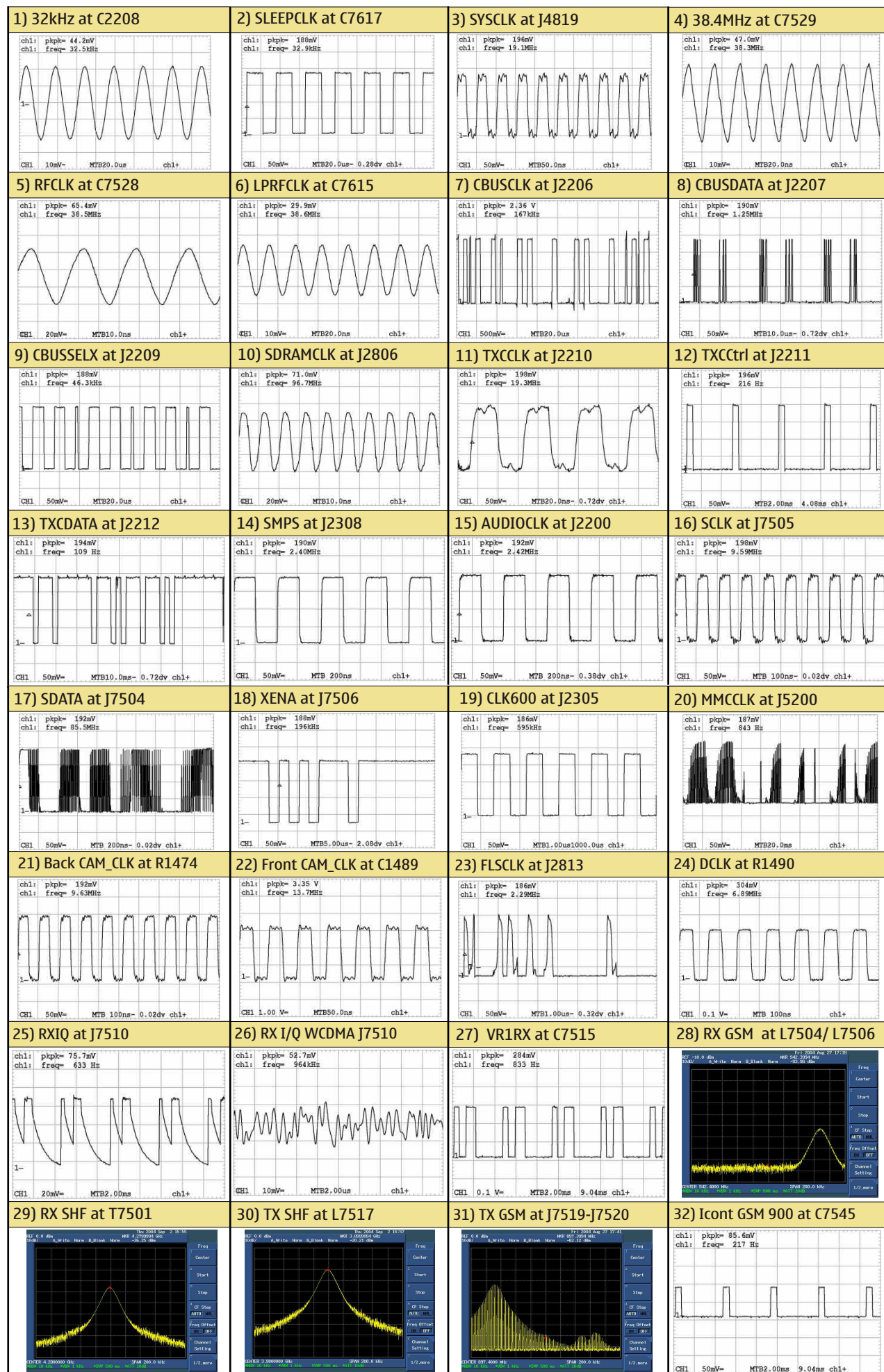
Power	Vcon	SW
0 dBm	0.30V	1.54V
5 dBm	0.39V	1.54V
10dBm	0.51V	1.44V
15dBm	0.83V	1.83V
21dBm	1.60V	3.23V

Band	Channel	RX	VCO	VC
GSM 900	37	942.4MHz	3769.6MHz	~1.33V
GSM 1800	700	1842.8MHz	3685.6MHz	~0.98V
GSM 1900	661	1960MHz	3920MHz	~1.93V
WCDMA	10700	2140MHz	4280MHz	~3.30V

Band	Channel	TX	VCO	VC
GSM 900	37	897.4MHz	3589.6MHz	~1.70V
GSM 1800	700	1747.8MHz	3495.6MHz	~1.23V
GSM 1900	661	1880MHz	3760MHz	~2.53V
WCDMA	9750	1950MHz	3900MHz	~3.17V







B	C2235	D6	C7508	B10	C7617	F3	J3108	H3	J7544	D5	R1491	E12	R7558	F3		
B2200	D6	C2237	E7	C7509	C11	C7618	F3	J3109	H3	J7545	E7	R2000	F3	R7559	G2	
C	C2240	B2	C7512	G19	D	J3110	I5	J7546	E6	R2001	F3	R7560	A17			
C1470	D15	C2241	G3	C7513	B11	D2800	H4	J3111	H3	J7547	D3	R2002	G3	S		
C1471	F18	C2242	E5	C7514	H19	D3000	H7	J3112	H3	J7548	F4	R2003	G3	S4401	E21	
C1472	F6	C2243	I3	C7515	C9	D3001	H2	J3113	G3	J7549	C4	R2004	G3	S5200	I14	
C1473	G7	C2244	G1	C7516	C9	D4800	E4	J3114	H3	J7550	E3	R2005	H3	S5202	A9	
C1476	I19	C2300	D5	C7518	E9	D5000	B4	J3115	G5	J7551	D3	R2006	G2	T		
C1477	G19	C2301	D6	C7520	C11	D5001	D4	J3116	H6	J7553	F4	R2007	F1	T7500	D11	
C1478	I19	C2302	D5	C7522	C9	F	J3117	G6	J7554	H20	R2009	G1	T7501	B10		
C1479	E14	C2303	D7	C7523	G18	F2000	C2	J3118	G5	L	R2010	F1	T7502	H16		
C1480	D14	C2304	C6	C7524	B9	G	J3119	H4	J4800	D3	L1473	E11	R2011	G1	T7503	B7
C1481	D20	C2307	E7	C7525	G18	G2200	F6	J4802	D3	L1474	E7	R2070	G14	V		
C1482	D20	C2309	E5	C7527	B10	G7500	B9	J4803	D3	L1479	C15	R2071	E6	V1470	F14	
C1483	E6	C2312	E7	C7528	B10	G7501	C9	J4805	D3	L1480	C15	R2100	F2	V1471	E13	
C1484	E12	C2313	E7	C7529	D9	G7502	B7	J4806	D3	L2000	C2	R2101	E2	V1472	E12	
C1485	E13	C2314	G7	C7530	B11	J	J4807	D3	L2001	F2	R2104	E19	V2000	C3		
C1486	E13	C2315	G6	C7531	C10	J1471	G7	J4808	D3	L2002	G2	R2105	E19	V2300	C7	
C1487	C15	C2316	C6	C7532	B11	J1472	F6	J4811	D7	L2003	G2	R2106	F18	V4400	B20	
C1488	C15	C2700	H7	C7533	C8	J1473	E14	J4812	G5	L2100	E19	R2107	F18	V7500	C14	
C1489	E19	C2800	H3	C7534	B11	J502	E19	J4813	F3	L2101	B6	R2200	E6	V7501	E6	
C1490	E20	C2801	H5	C7536	B11	J2000	F3	J4814	G6	L2102	F18	R2201	E6	V7502	C15	
C1491	D19	C2802	I3	C7541	D9	J2001	G1	J4815	H6	L2103	F18	R2202	E6	X		
C2000	C3	C2803	I5	C7543	E10	J2002	G1	J4816	G3	L2104	B6	R2205	E7	X1470	E16	
C2002	F3	C2804	G4	C7545	I17	J2003	G1	J4817	G3	L2105	B6	R2301	G6	X1472	H20	
C2003	F3	C2805	G3	C7547	D9	J2060	C4	J4818	G3	L2106	A6	R2302	G6	X2001	F1	
C2004	G3	C2806	G5	C7548	D8	J2070	C17	J4819	G3	L2202	E7	R2303	F6	X2060	A9	
C2005	F2	C2807	H5	C7549	D9	J2071	C16	J4820	G5	L2203	C7	R2304	F6	X2070	H14	
C2006	G2	C2808	G4	C7550	E8	J2072	C16	J4821	G5	L2204	D7	R2305	C7	X2700	H6	
C2007	G2	C2809	H5	C7552	D8	J2200	D5	J4822	G5	L2205	B5	R2700	I6	X4400	F2	
C2008	G2	C2810	G5	C7553	D8	J2201	B7	J4823	G4	L2206	B7	R3000	G6	X4401	B19	
C2009	G2	C2811	I5	C7554	B6	J2202	B7	J4824	G5	L2301	E6	R4400	E6	X5200	H11	
C2010	G3	C2812	H3	C7555	B6	J2204	B6	J4825	G5	L2302	D5	R4401	E6	X5207	H4	
C2011	F1	C2813	I3	C7556	G16	J2205	B7	J4826	G5	L2304	G7	R4402	E6	X5208	B5	
C2012	C3	C2814	I3	C7558	E10	J2206	D5	J4827	G4	L4200	C2	R4403	B20	X5209	B4	
C2070	G14	C3000	G7	C7559	I18	J2207	C7	J5001	D4	L4201	E2	R4406	E20	X5210	A4	
C2072	I15	C3001	I5	C7560	E9	J2208	D8	J5002	D5	L4400	D19	R4407	A8	X5211	A5	
C2100	F2	C3002	G6	C7561	G17	J2209	D6	J5100	G5	L4401	D19	R4408	A8	X5212	C16	
C2101	F2	C3003	I5	C7563	G17	J2210	D5	J5101	G4	L5200	H7	R4800	D5	Z		
C2102	F2	C3004	H1	C7564	H18	J2211	I3	J5102	G4	L7502	D8	R4809	E3	Z2000	E1	
C2103	E6	C3005	I1	C7567	E10	J2212	I3	J5103	F5	L7503	E10	R4810	E6	Z2001	E1	
C2104	E6	C3006	I2	C7568	E8	J2213	I3	J5105	G4	L7504	H19	R5100	G5	Z2003	E1	
C2105	A6	C3007	H1	C7569	G17	J2214	J3	J5106	H3	L7506	H18	R5200	I7	Z4400	D2	
C2106	A6	C3008	I2	C7570	E9	J2215	I3	J5107	H3	L7510	E10	R5204	I15	Z4401	G3	
C2107	A6	C4200	D2	C7571	B6	J2218	D6	J5108	F4	L7511	D10	R7501	C9	Z4402	E7	
C2108	B6	C4201	D1	C7573	A6	J2219	B7	J5109	F4	L7512	D10	R7503	C11	Z4403	F7	
C2109	B7	C4203	B2	C7575	E10	J2220	I3	J5110	F4	L7514	B13	R7504	C11	Z7500	F14	
C2110	A7	C4204	C2	C7577	E10	J2221	I4	J5112	H20	L7515	C14	R7505	C9	Z7501	C10	
C2200	C5	C4205	B5	C7579	A13	J2300	C6	J5200	E5	L7516	G16	R7506	G17	Z7502	B16	
C2201	C7	C4206	B1	C7580	A14	J2301	D7	J5404	H3	L7517	E8	R7509	C8	Z7503	H18	
C2202	D6	C4400	D19	C7581	G19	J2302	H6	J7503	A10	L7518	G3	R7512	H16	Z7504	I16	
C2203	D6	C4401	D19	C7582	D9	J2305	C7	J7504	B8	L7520	D11	R7513	B7	Z7505	B14	
C2204	E6	C4402	D19	C7583	D13	J2306	G13	J7505	B8	N	R7514	D9	Z7506	D10		
C2205	D5	C4800	D4	C7584	G18	J2307	H13	J7506	B8	N1470	G7	R7516	I18			
C2206	D6	C4801	E2	C7585	B13	J2308	D7	J7508	B11	N1471	E13	R7517	D10			
C2207	E6	C4802	G5	C7586	B14	J2309	G6	J7509	B11	N1472	E14	R7518	I17			
C2208	D7	C4803	G5	C7587	C14	J2802	H3	J7510	B11	N1474	D20	R7519	B6			
C2209	D7	C4804	E5	C7589	D13	J2803	H6	J7511	B10	N2200	C6	R7520	D10			
C2210	B7	C4805	G3	C7590	C13	J2804	I2	J7516	B12	N2300	D7	R7521	D9			
C2211	B6	C4806	E3	C7591	C13	J2805	G1	J7517	E9	N2301	G6	R7522	D12			
C2212	B6	C4807	D4	C7592	C12	J2806	H3	J7518	D9	N4200	D1	R7523	A6			
C2213	C7	C4808	G3	C7593	G16	J2807	H1	J7519	I18	N4201	B2	R7525	C13			
C2214	C7	C4809	G4	C7596	C11	J2808	H3	J7520	I18	N7500	C11	R7526	B14			
C2215	C7	C4810	F3	C7597	F14	J2809	H1	J7521	I16	N7501	E9	R7527	C14			
C2216	D7	C4811	E3	C7598	B8	J2810	H1	J7522	G4	N7502	H17	R7528	C8			
C2217	D7	C4812	E5	C7599	D20	J2812	J4	J7523	H1	N7503	B13	R7529	C13			
C2219	D6	C4813	G4	C7600	B20	J2813	J4	J7524	I2	N7504	C13	R7530	C13			
C2220	B6	C4814	E6	C7601	B20	J2814	J4	J7525	H2	N7505	C20	R7531	C12			
C2221	B7	C5000	B2	C7602	B2	J2815	J4	J7526	H2	R	R7534	C8				
C2222	B6	C5001	D3	C7604	F3	J2816	J4	J7527	I2	R1470	G4	R7541	F4			
C2223	C5	C5002	D4	C7605	F3	J2817	J4	J7529	C4	R1471	G4	R7542	F4			
C2224	D5	C5003	B2	C7606	H2	J2818	H4	J7534	F5	R1472	F3	R7543	F4			
C2225	D7	C5004	D3	C7607	H2	J3100	I5	J7536	C3	R1473	F3	R7544	F5			
C2226	D7	C5005	D5	C7608	H2	J3101	I6	J7537	C3	R1474	G5	R7549	F4			
C2227	B7	C5200	H7	C7609	G2	J3102	I5	J7538	C3	R1475	F7	R7550	F4			
C2228	C7	C7501	C11	C7612	C4	J3103	I5	J7539	D3	R1486	E20	R7551	C4			
C2230	D7	C7503	C11	C7613	F3	J3104	I5	J7540	D5	R1487	E12	R7552	F5			
C2231	A5	C7504	C11	C7614	D11	J3105	I5	J7541	D5	R1488	D19	R7554	G3			
C2232	C7	C7505	B11	C7615	C9	J3106	I5	J7542	D4	R1489	E13	R7555	B9			
C2234	D6	C7507	C10	C7616	F3	J3107	G3	J7543	D5	R1490	E20	R7556	E6			

