

8. Level 3 Repair

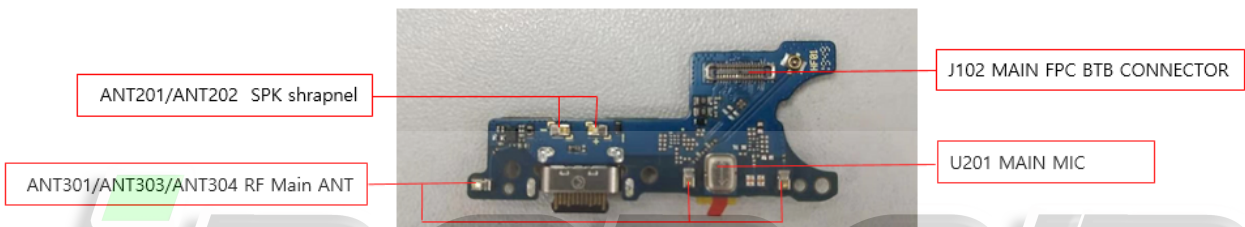
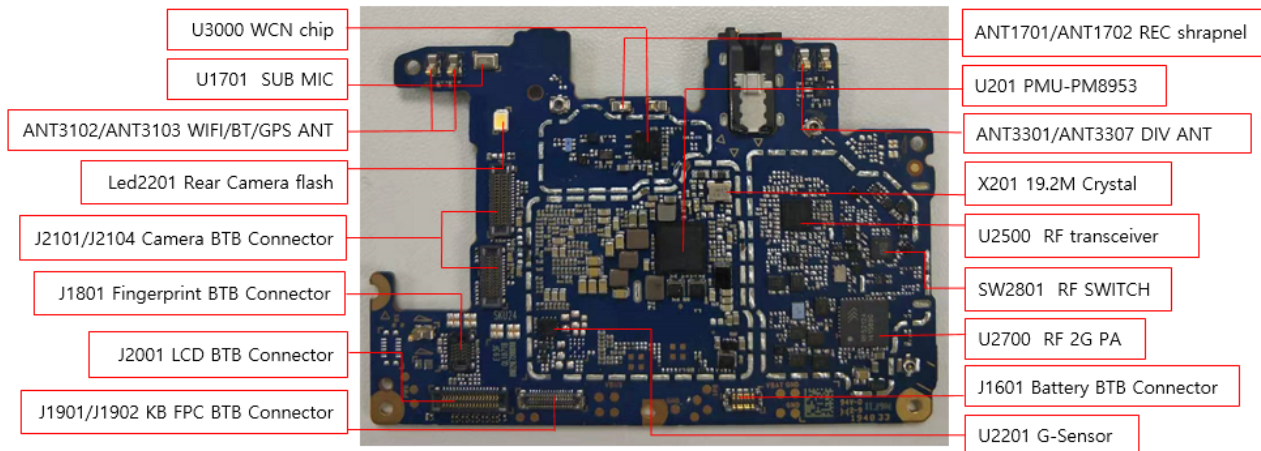
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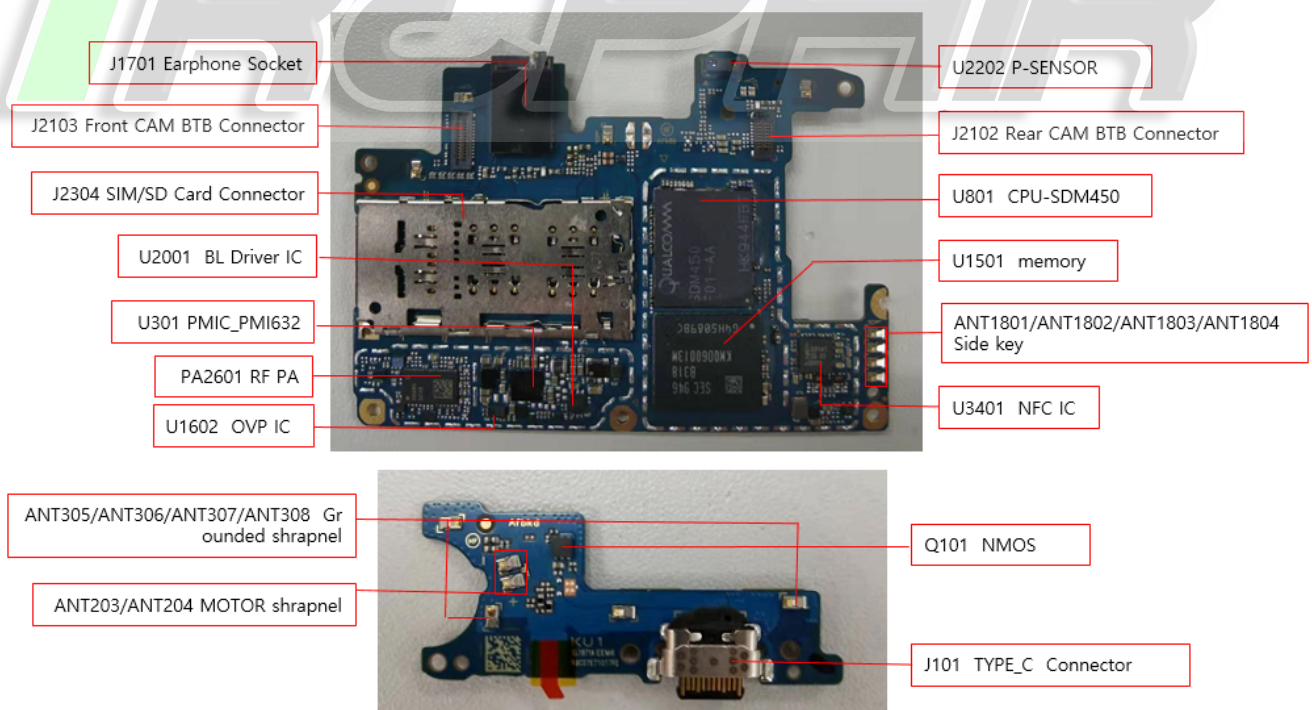
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8-1. Components Layout

PBA (Bottom)



PBA (TOP)



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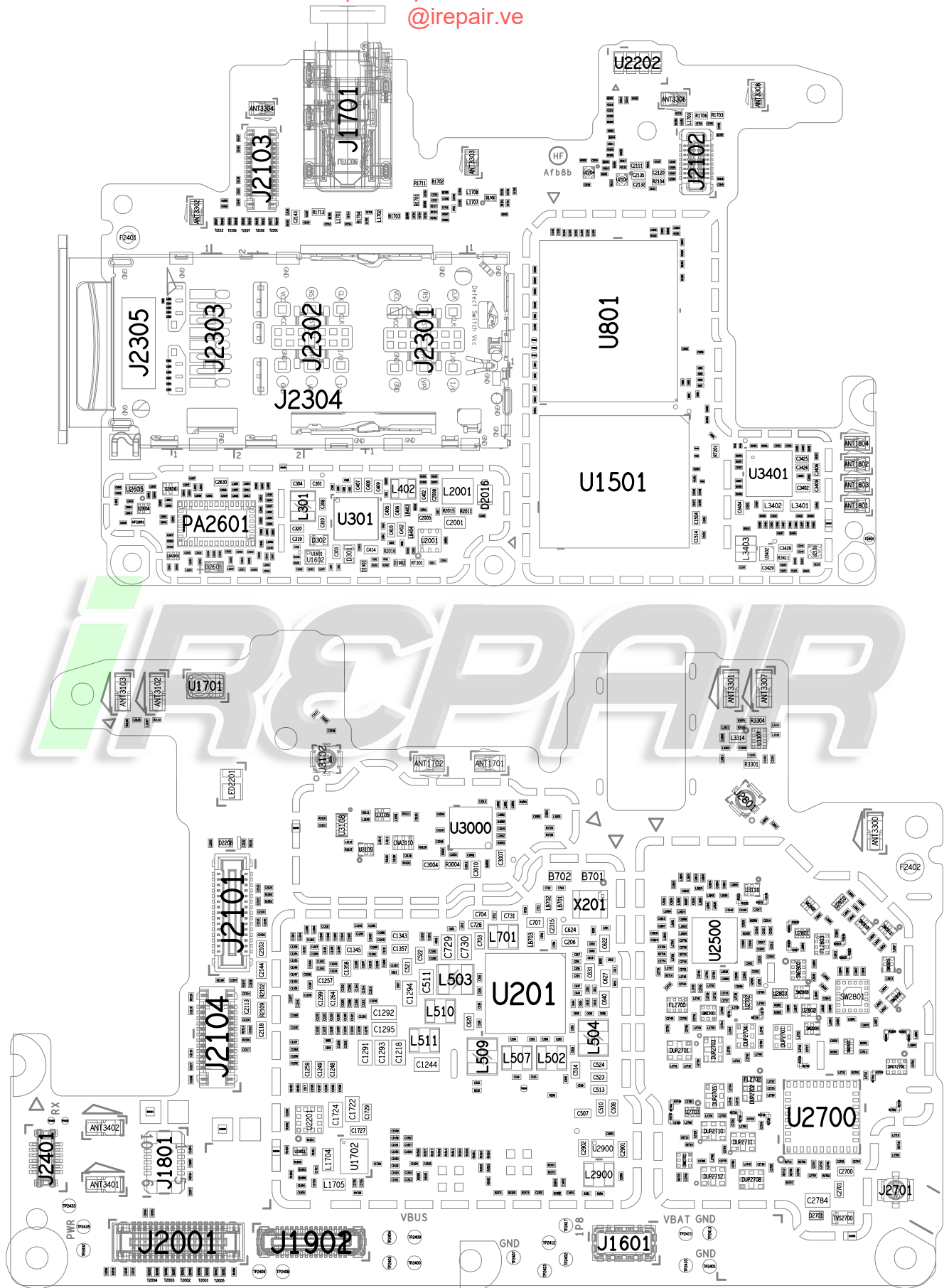
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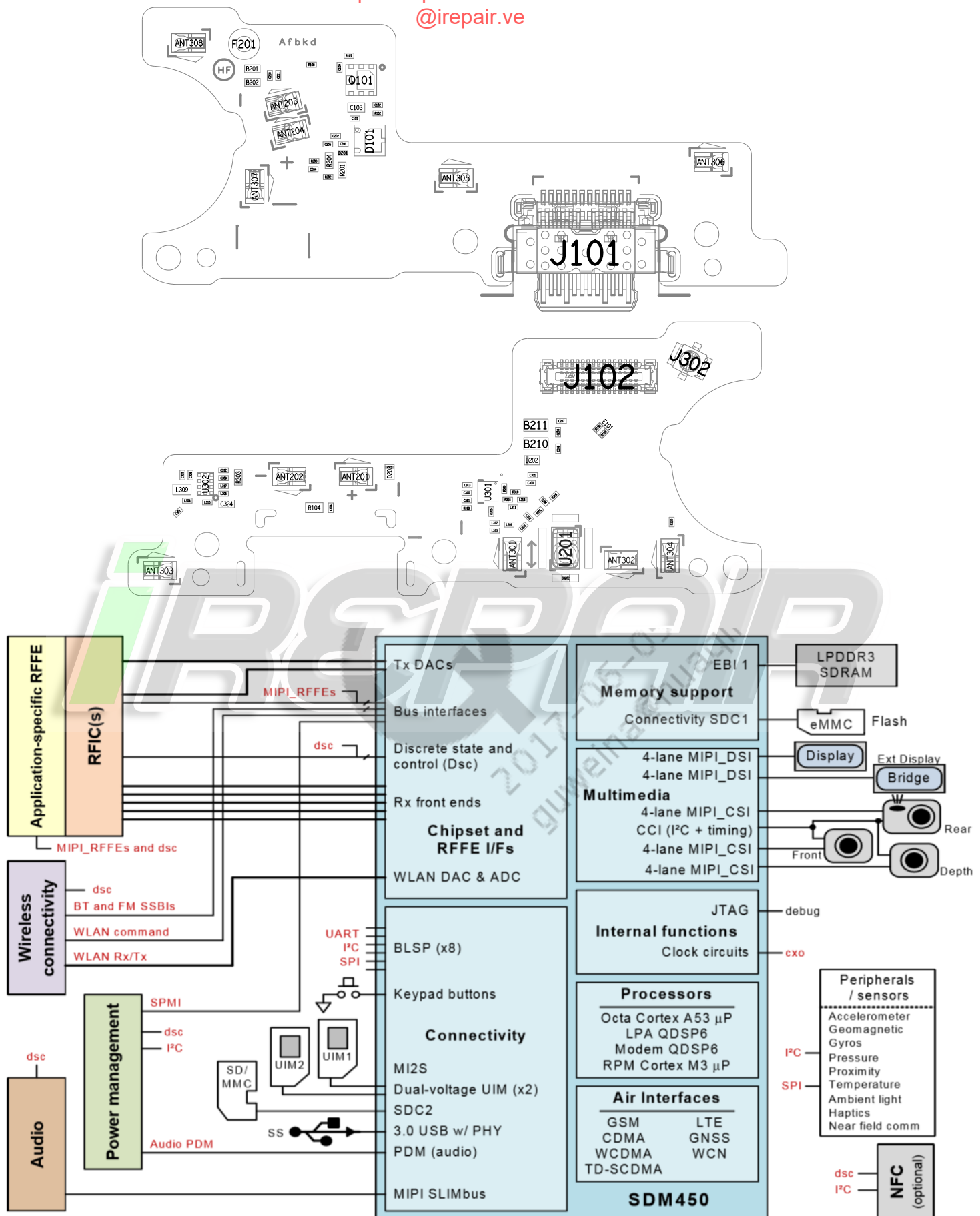
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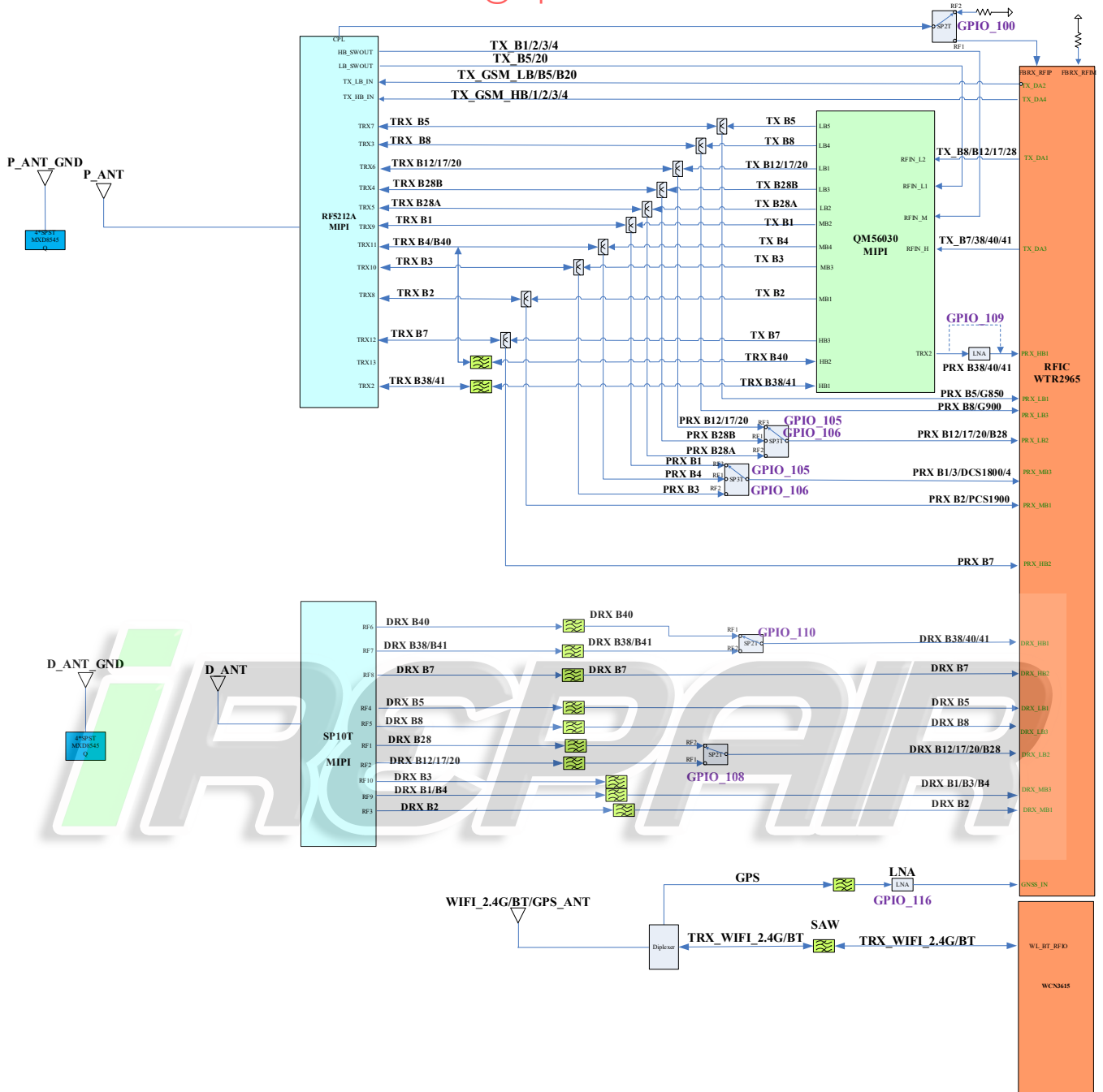
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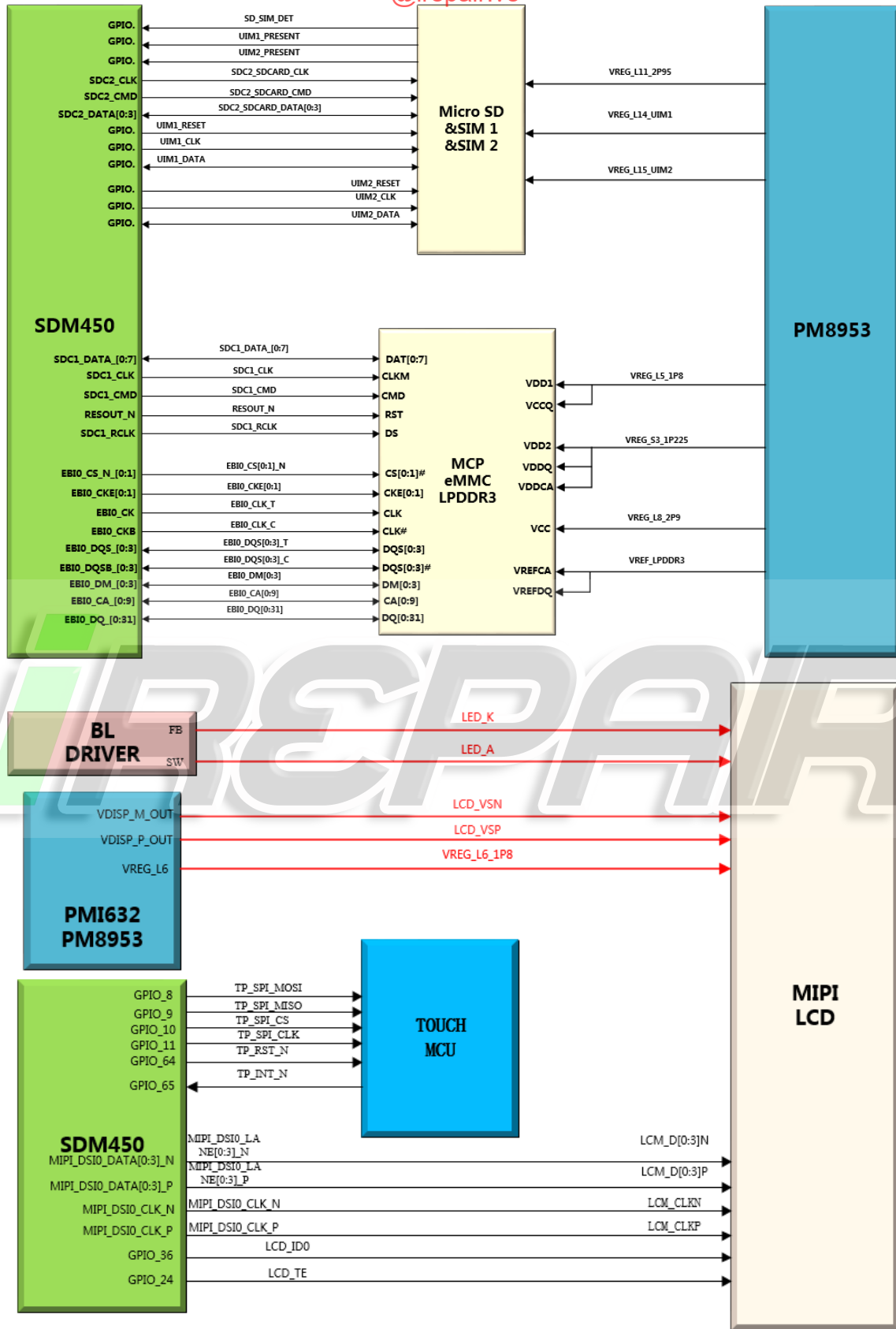
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<https://www.youtube.com/anibalgarciaolivera>

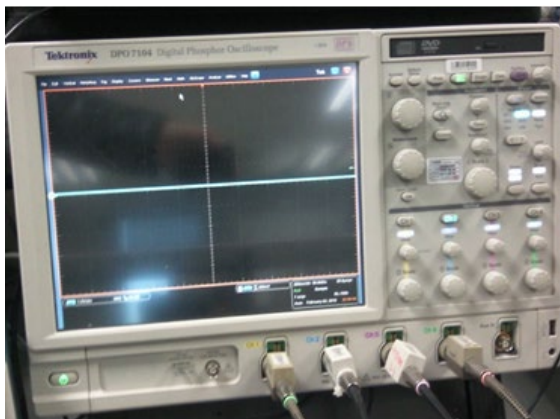
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8-3. Flow chart of Troubleshooting.



Oscilloscope



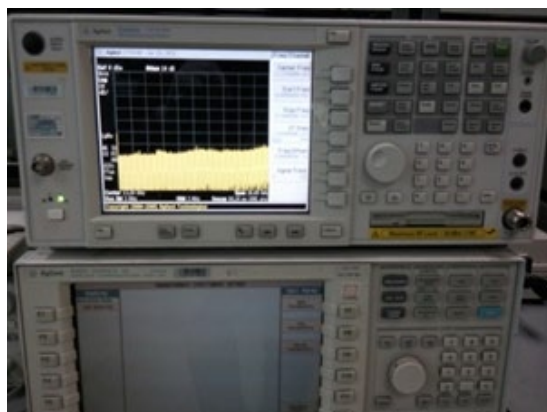
Digital Multimeter



Power Supply



+ driver, ESD Safe Tweezer



8960 & Spectrum Analyzer



Soldering iron

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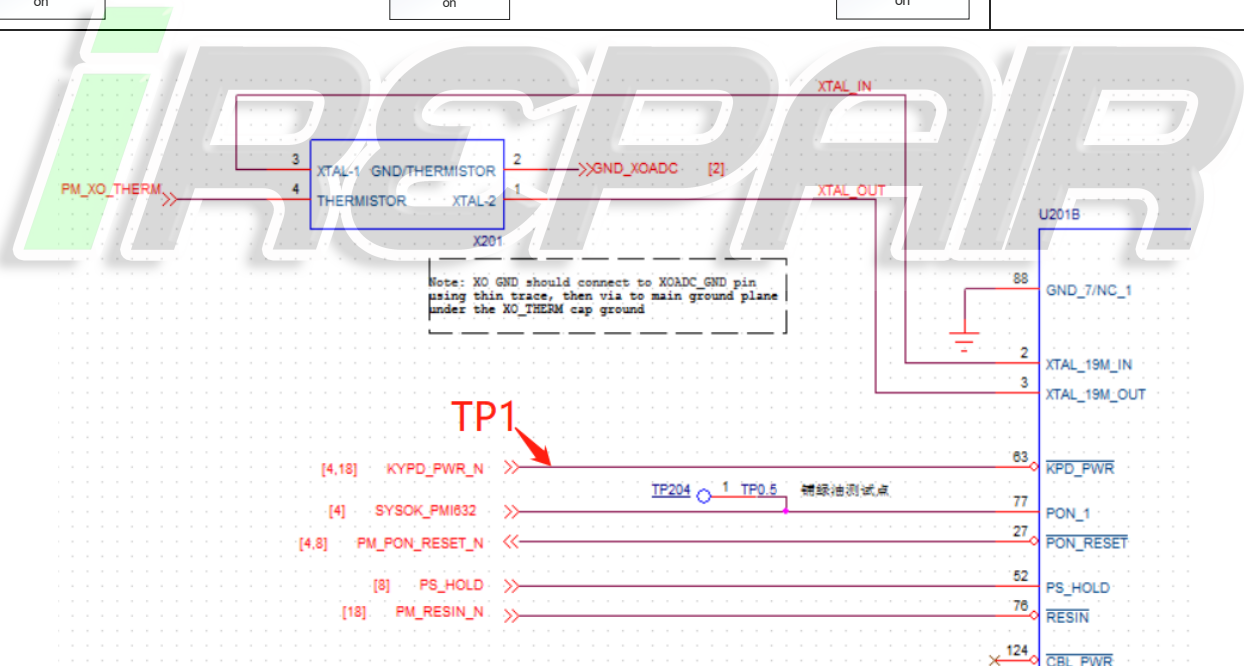
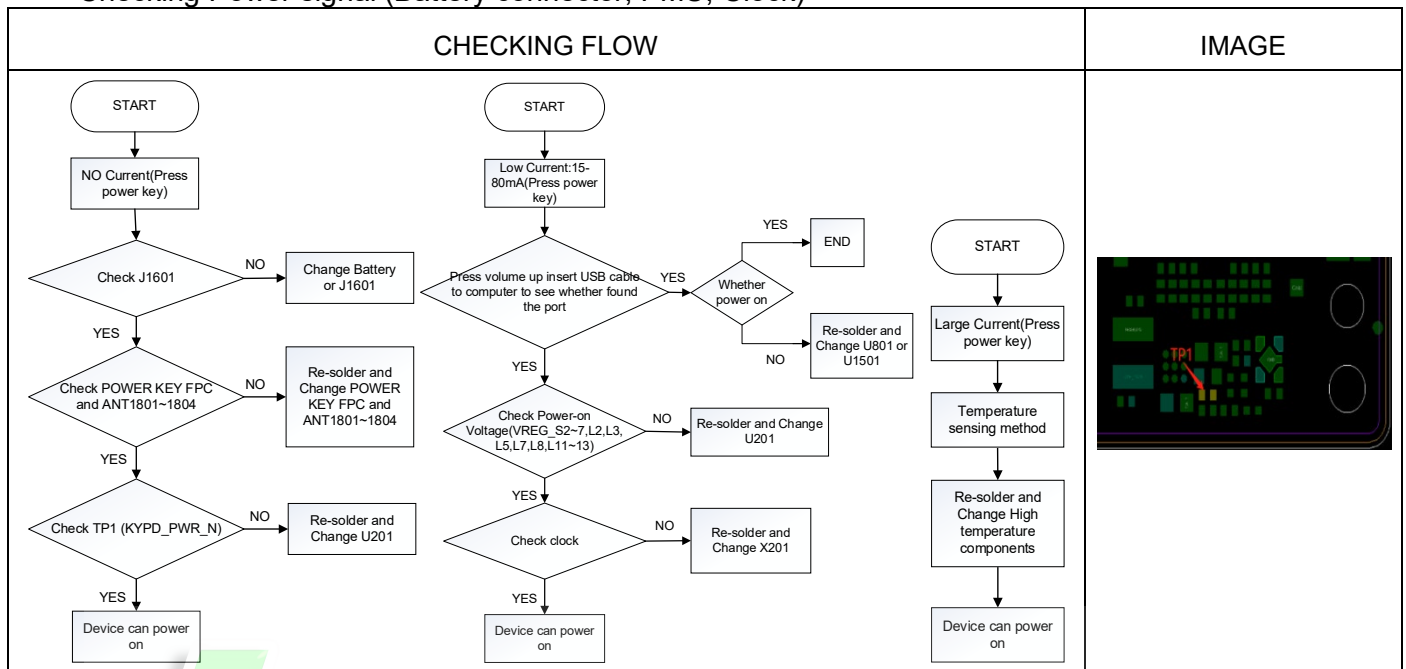
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8-4-1. Power On

■ Checking Power signal (Battery connector, PMU, Clock)

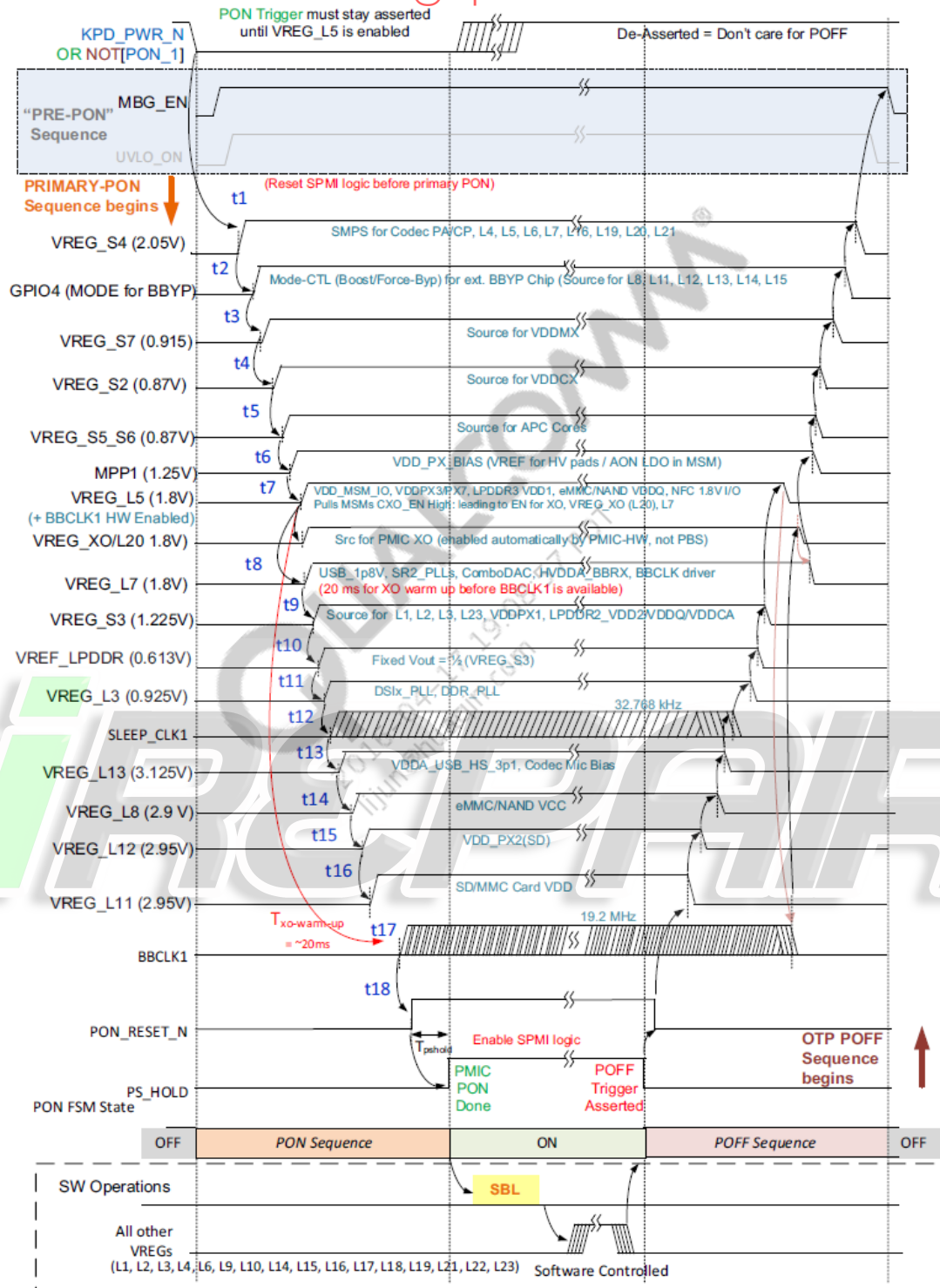


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Power-on Voltage (VREG_S2~7, L2, L3, L5, L7, L8, L11~13)

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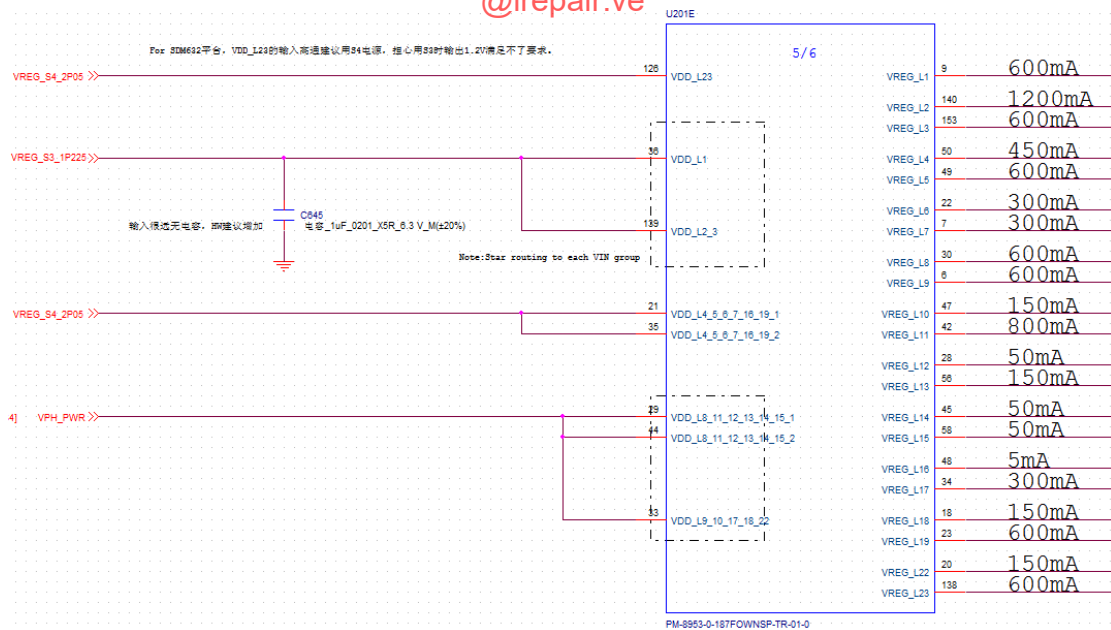
<https://www.youtube.com/anibalgarciaolivera>

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VREG_S2~7, L2, L3, L5, L7, L8, L11~13 schematic diagram

iREPAIR

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8-4-2. Charging

- The charging controlled by PMU chip PMI632 (U301) and OVP chip U1602

CHECKING FLOW	IMAGE
<pre>graph TD; START([START]) --> TP1{Check TP1}; TP1 -- NO --> J102[Re-solder and Change J102 or J101]; TP1 -- YES --> TP2{Check VBUS(TP2)}; TP2 -- NO --> J1901[Re-solder and Change J1901 or FPC]; TP2 -- YES --> TP34{Check TP3 or TP4}; TP34 -- NO --> U1602[Re-solder and Change U1602]; TP34 -- YES --> TP5{Check Vbat(TP5)}; TP5 -- NO --> U301[Re-solder and Change U301]; TP5 -- YES --> BATTERY[Check battery]; BATTERY -- YES --> OK[Charge function OK];</pre>	<p>TP1</p> <p>TP2</p> <p>TP3</p> <p>TP4</p> <p>TP5</p>

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8-4-3. USB

- I/O connector is used as the USB port.

CHECKING FLOW	IMAGE
<pre>graph TD; START([START]) --> TP1_2{Check TP1 and TP2}; TP1_2 -- NO --> R1901[R1901 or R1902]; TP1_2 -- YES --> TP3_4{Check TP3 and TP4}; TP3_4 -- NO --> J1901[J1901 or FPC or J102 or R103 or R106]; TP3_4 -- YES --> J101{Check J101 soldering}; J101 -- NO --> R_J101[Re-solder and Change J101]; J101 -- YES --> USB_OK[USB function OK];</pre>	

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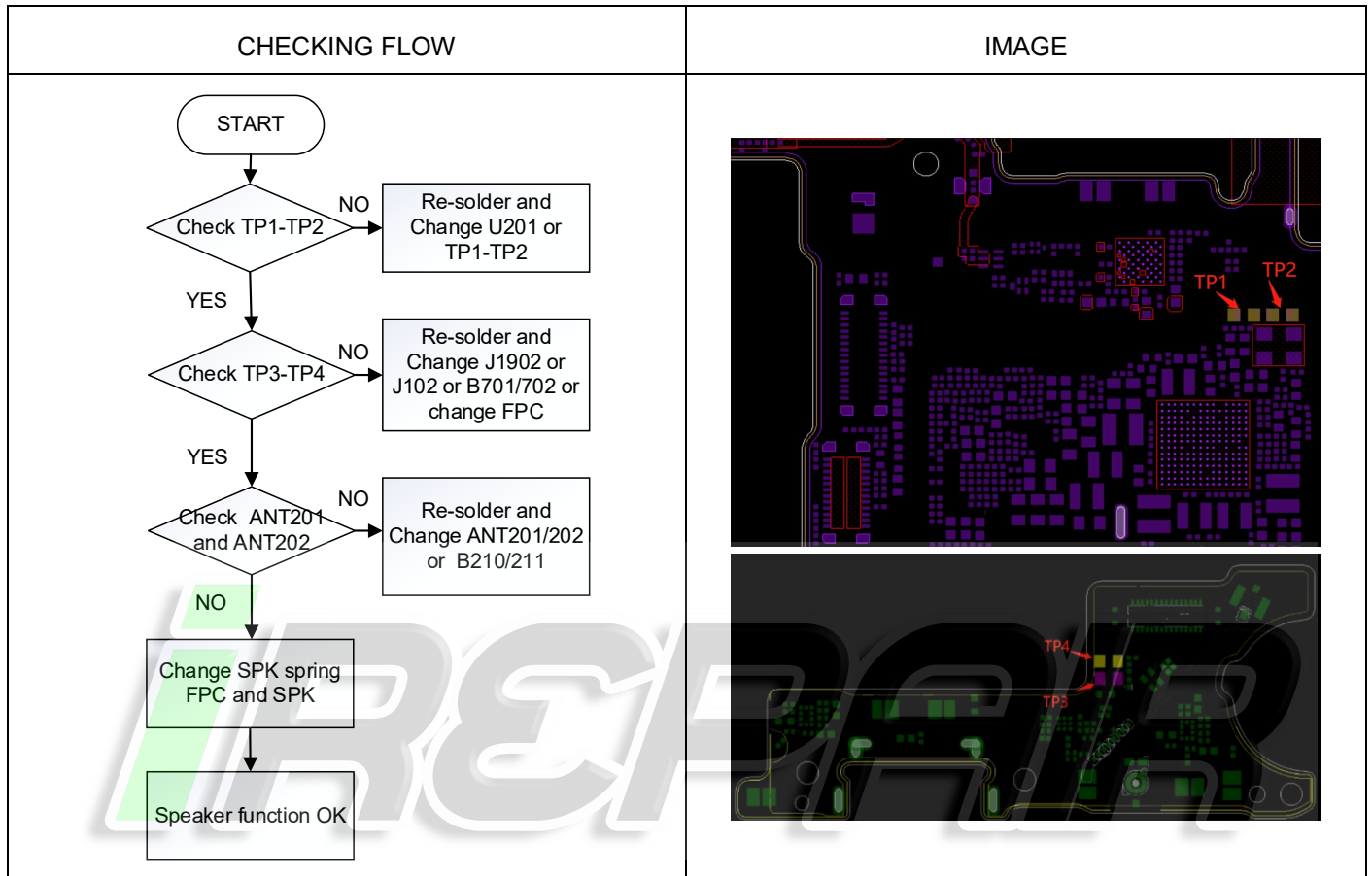
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8-4-4. Audio speaker

- The Speaker control signals are generated by chip PM8953 (U201), the chip and the speaker are to be checked out.



8. Level 3 Repair

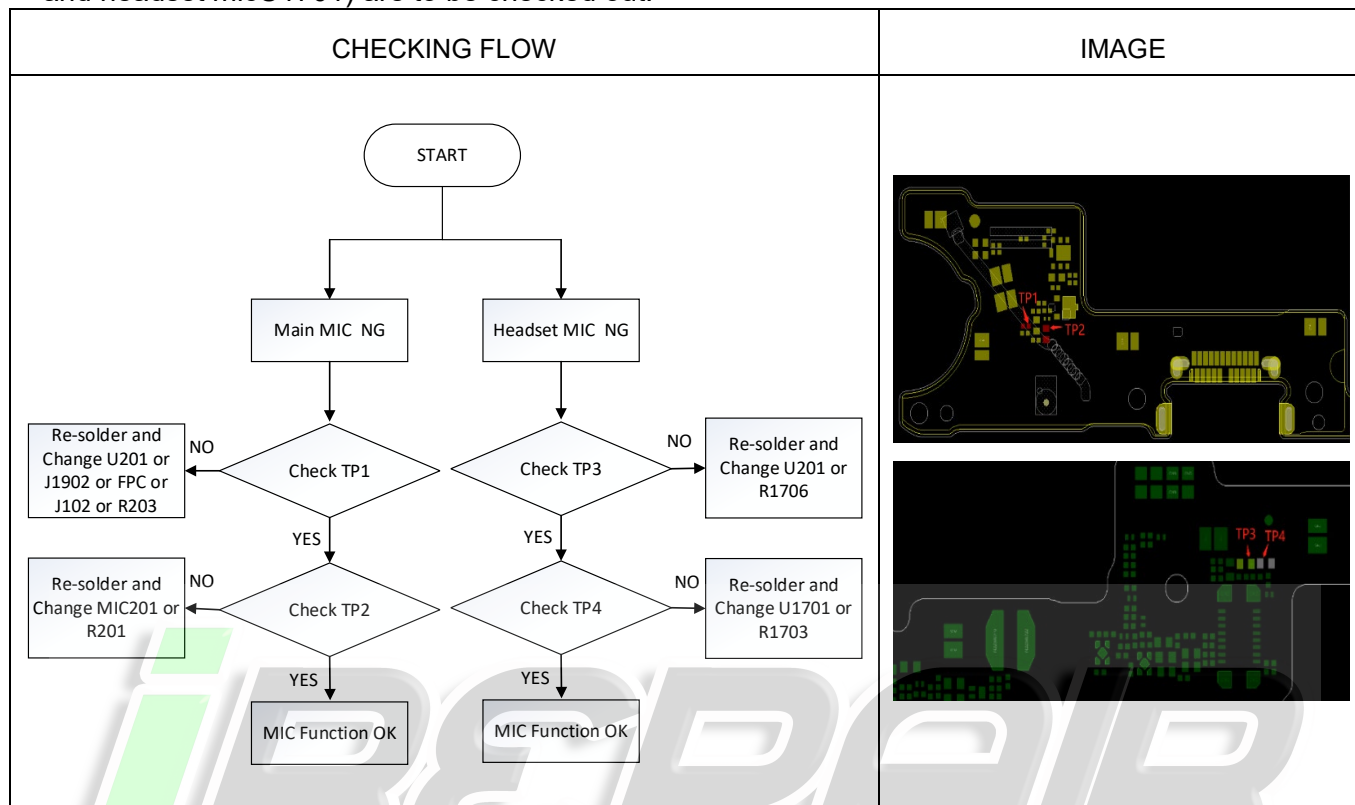
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8-4-5. Audio_ MIC

- The MIC control signals are generated by chip PM8953 (U201), the chip and the MIC (main micU201 and headset micU1701) are to be checked out.



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8-4-6. G sensor

- The G sensor is calibrated by using SW algorithm.

CHECKING FLOW	IMAGE
<pre>graph TD; START([START]) --> CheckVREG{Check VREG_L6_1P8(TP 1)}; CheckVREG -- NO --> ReSolderU201[Re-solder and Change U201]; CheckVREG -- YES --> CheckTP2TP3{Check TP2-TP3}; CheckTP2TP3 -- NO --> ReSolderR[Re-solder and Change R1001 or R1002]; CheckTP2TP3 -- YES --> ReSolderU2201[Re-solder and Change U2201]; ReSolderU2201 --> GSensorOK[G sensor function OK];</pre>	

8. Level 3 Repair

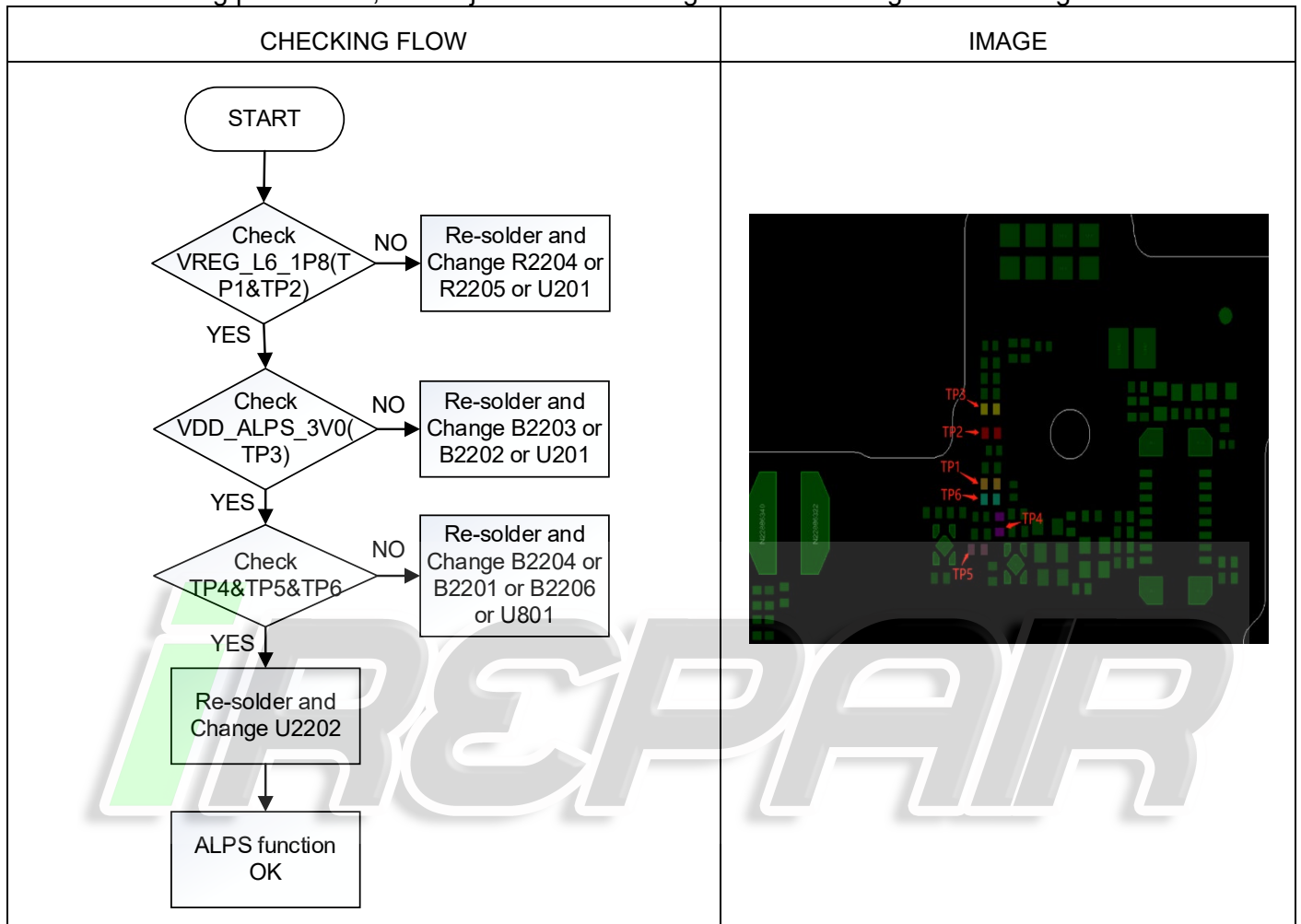
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8-4-7. Proximity and light sensor

- Proximity and Light Sensor is worked as below: Control the screen's on/off operation automatically while making phone calls, and adjust the screen brightness according to ambient light.



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8-4-11. TOUCH SCREEN

- The Touch control signals are generated by SDM450 (U801). It is assembled with LCD.

CHECKING FLOW	IMAGE
<pre>graph TD; START([START]) --> TP1_6{Check TP1~TP6}; TP1_6 -- NO --> U801[Re-solder and Change U801]; TP1_6 -- YES --> J2001{Check J2001}; J2001 -- NO --> J2001_fix[Re-solder and Change J2001]; J2001 -- YES --> TP_Module{Check TP Module}; TP_Module -- NO --> TP_Module_fix[Change TP Module]; TP_Module -- YES --> OK[Touch function OK];</pre>	<p>The image shows the back of a touch screen assembly. Six specific points are labeled with red arrows and text: TP1, TP2, TP3, TP4, TP5, and TP6. These points are located on the circuit board, likely corresponding to the touch sensor pads.</p>

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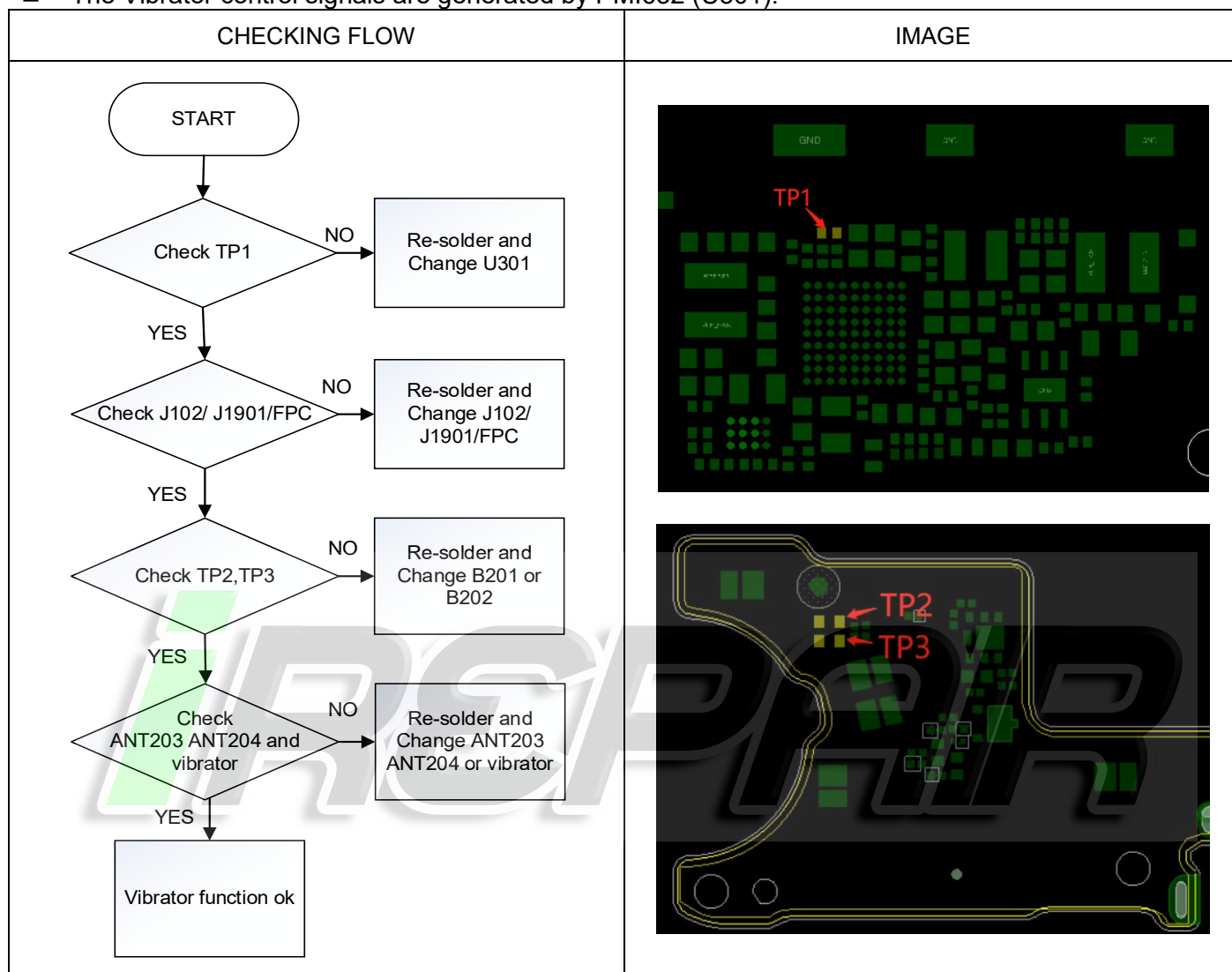
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8-4-12. Vibrator

- The Vibrator control signals are generated by PMI632 (U301).



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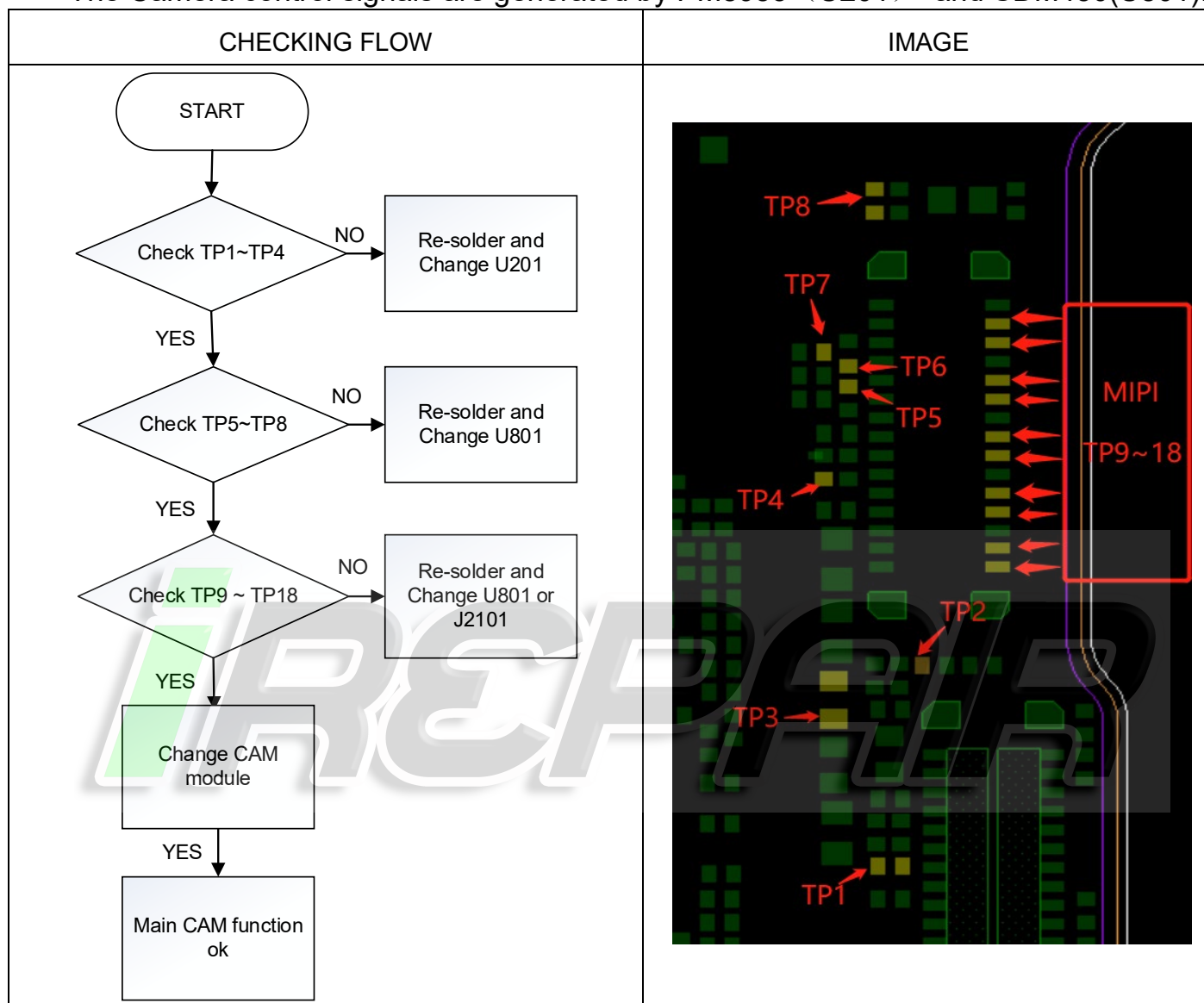
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8-4-13.Main Camera

- The Camera control signals are generated by PM8953 (U201) and SDM450(U801).



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8-4-14. Rear auxiliary Camera

- The Camera control signals are generated by PM8953 (U201) and SDM450(U801).

CHECKING FLOW(5M Wide CAM)	IMAGE
<pre>graph TD; START([START]) --> TP1_3{Check TP1~TP3}; TP1_3 -- NO --> RS1[Re-solder and Change U201]; TP1_3 -- YES --> TP4_7{Check TP4~TP7}; TP4_7 -- NO --> RS2[Re-solder and Change U801]; TP4_7 -- YES --> MIPI{Check MIPI signal}; MIPI -- NO --> RS3[Re-solder and Change U801 or J2104]; MIPI -- YES --> CAM[Change CAM module]; CAM -- YES --> OK1[5M Wide CAM function ok];</pre>	<p>Microscope image of the 5M Wide CAM module. Test points TP1, TP2, TP3, TP4, TP5, TP6, and TP7 are marked with red arrows. The MIPI signal lines are highlighted in red. A red box indicates the area around the MIPI signal lines.</p>
CHECKING FLOW(2M Depth CAM)	IMAGE
<pre>graph TD; START([START]) --> TP1_2{Check TP1~TP2}; TP1_2 -- NO --> RS1[Re-solder and Change U201]; TP1_2 -- YES --> TP3_7{Check TP3, TP5~TP7}; TP3_7 -- NO --> RS2[Re-solder and Change U801]; TP3_7 -- YES --> MIPI{Check MIPI signal}; MIPI -- NO --> RS3[Re-solder and Change U801 or J2102]; MIPI -- YES --> CAM[Change CAM module]; CAM -- YES --> OK2[2M Depth CAM function ok];</pre>	<p>Microscope image of the 2M Depth CAM module. Test points TP1, TP2, TP3, TP4, TP5, TP6, and TP7 are marked with red arrows. The MIPI signal lines are highlighted in red.</p>

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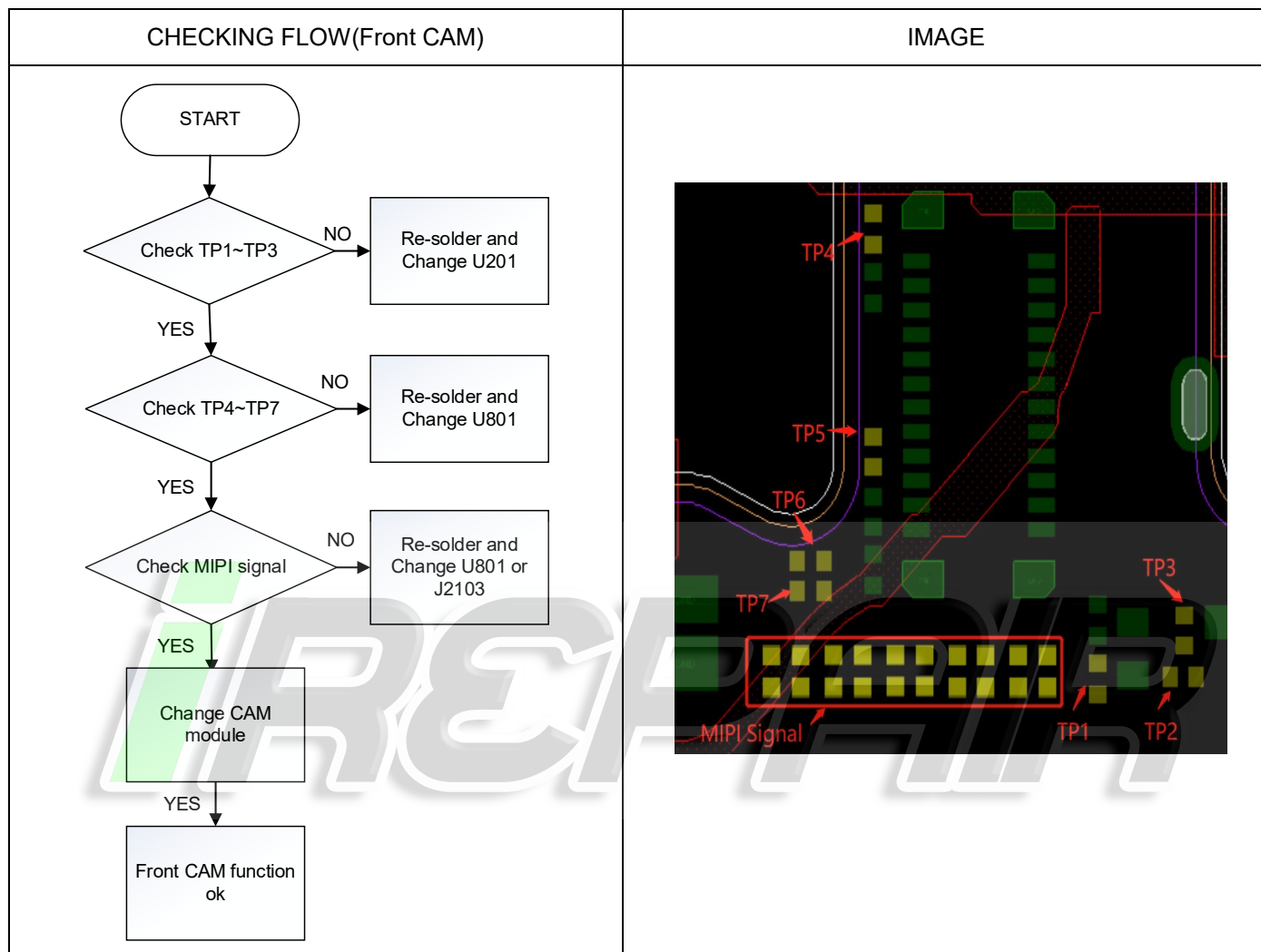
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8-4-15. Front Camera

- The Camera control signals are generated by PM8953 (U201) and SDM450(U801).



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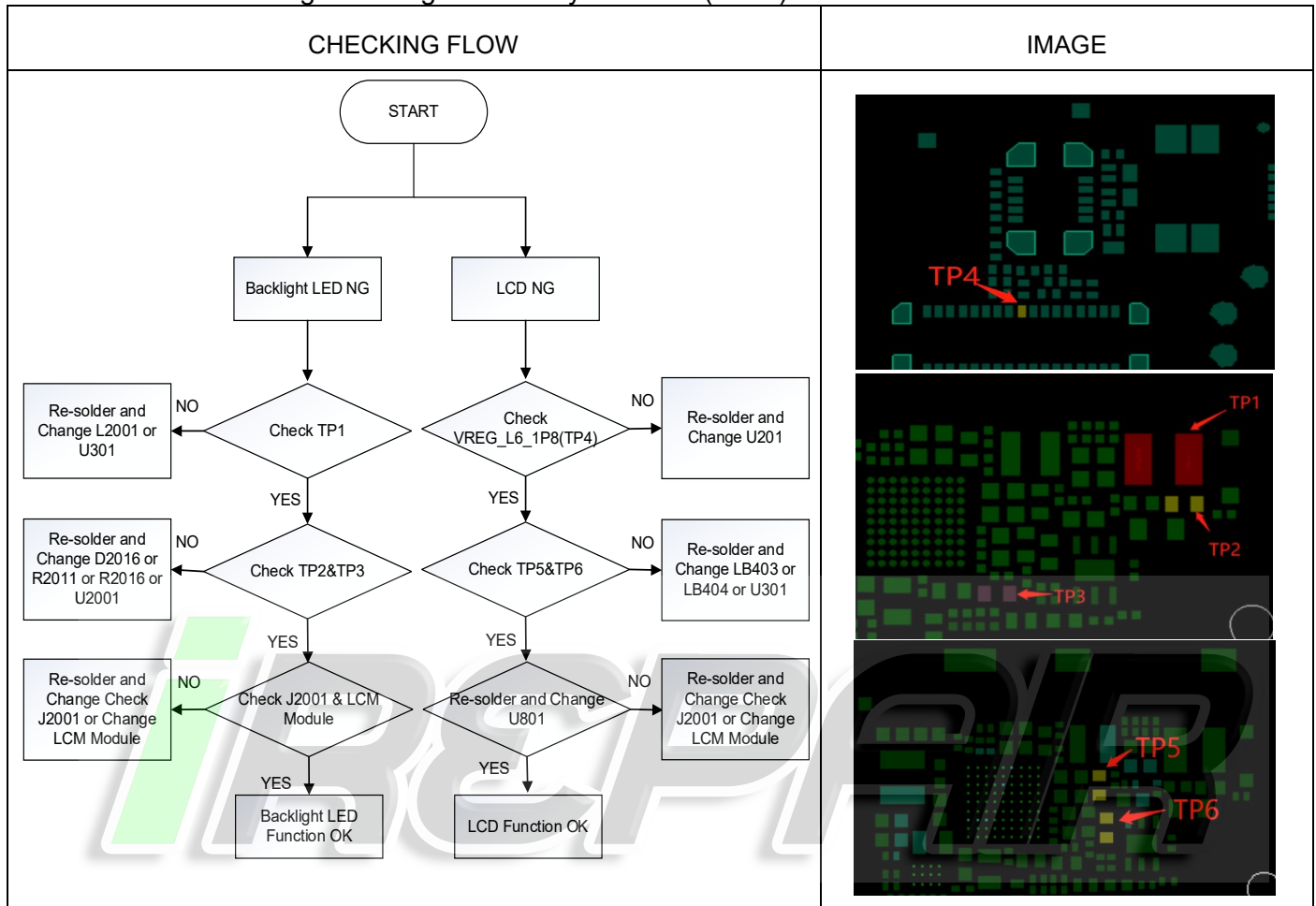
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8-4-16. LCD

- The LCD control signals are generated by SDM450 (U801).



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8-5. Service Schematics

■ U801_SDM450_BB chip IC , Digital Baseband Processor(Top)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41			
A	GND		SRD_DSL_25	SRD_DSL_26	SRD_DSL_27	SRD_DSL_28			GND			SRD_DSL_29	SRD_DSL_30	SRD_DSL_31			SRD_DSL_32	SRD_DSL_33	SRD_DSL_34			SRD_DSL_35	SRD_DSL_36	SRD_DSL_37	SRD_DSL_38	SRD_DSL_39	SRD_DSL_40			GND			SRD_DSL_41	SRD_DSL_42	SRD_DSL_43	SRD_DSL_44			SRD_DSL_45		GND			
B		GND		GND		GND			SRD_DSL_46	SRD_DSL_47				SRD_DSL_48	SRD_DSL_49			GND					SRD_DSL_50		GND	SRD_DSL_51	SRD_DSL_52			GND				SRD_DSL_53	SRD_DSL_54			SRD_DSL_55	SRD_DSL_56			GND		GND
C	SRD_DSL_57	SRD_DSL_58	SRD_DSL_59	SRD_DSL_60	SRD_DSL_61	SRD_DSL_62			SRD_DSL_63	SRD_DSL_64			SRD_DSL_65	SRD_DSL_66	SRD_DSL_67			SRD_DSL_68	SRD_DSL_69			GND		GND	SRD_DSL_70	SRD_DSL_71	SRD_DSL_72	SRD_DSL_73	SRD_DSL_74			GND			SRD_DSL_75	SRD_DSL_76			SRD_DSL_77	SRD_DSL_78			GND	
D		GND		GND		GND			GND		GND		GND	GND			GND					GND		GND		GND		GND			GND				GND		GND		GND		GND		GND	
E	SRD_DSL_79	SRD_DSL_80	SRD_DSL_81	SRD_DSL_82		GND		SRD_DSL_83	SRD_DSL_84	SRD_DSL_85	SRD_DSL_86	SRD_DSL_87	SRD_DSL_88	SRD_DSL_89	SRD_DSL_90			GND		SRD_DSL_91	SRD_DSL_92			GND		SRD_DSL_93	SRD_DSL_94	SRD_DSL_95	SRD_DSL_96	SRD_DSL_97			GND			SRD_DSL_98	SRD_DSL_99			SRD_DSL_100	SRD_DSL_101			SRD_DSL_102
F		GND		GND		GND			GND		GND		GND	GND			GND					GND		GND		GND		GND			GND				GND		GND		GND		GND		GND	
G	SRD_DSL_103	SRD_DSL_104	SRD_DSL_105	SRD_DSL_106					GND		GND		GND		GND			GND					GND		GND		GND		GND			GND				GND		GND		GND		GND		GND
H		SRD_DSL_107	SRD_DSL_108	SRD_DSL_109	SRD_DSL_110			SRD_DSL_111																																				
J	GND		SRD_DSL_112	SRD_DSL_113	SRD_DSL_114			SRD_DSL_115																																				
K	SRD_DSL_116	SRD_DSL_117	SRD_DSL_118	SRD_DSL_119	SRD_DSL_120			SRD_DSL_121	SRD_DSL_122																																			
M		SRD_DSL_123	SRD_DSL_124	SRD_DSL_125	SRD_DSL_126			SRD_DSL_127	SRD_DSL_128																																			
N	GND		SRD_DSL_129	SRD_DSL_130	SRD_DSL_131			SRD_DSL_132	SRD_DSL_133																																			
P		SRD_DSL_134	SRD_DSL_135	SRD_DSL_136	SRD_DSL_137			SRD_DSL_138	SRD_DSL_139																																			
R	SRD_DSL_140	SRD_DSL_141	SRD_DSL_142	SRD_DSL_143	SRD_DSL_144			SRD_DSL_145	SRD_DSL_146																																			
T		SRD_DSL_147	SRD_DSL_148	SRD_DSL_149	SRD_DSL_150			SRD_DSL_151	SRD_DSL_152																																			
U	SRD_DSL_153	SRD_DSL_154	SRD_DSL_155	SRD_DSL_156	SRD_DSL_157			SRD_DSL_158	SRD_DSL_159																																			
V		GND		SRD_DSL_160	SRD_DSL_161			SRD_DSL_162	SRD_DSL_163																																			
W	SRD_DSL_164	SRD_DSL_165	SRD_DSL_166	SRD_DSL_167	SRD_DSL_168			SRD_DSL_169	SRD_DSL_170																																			
Y		SRD_DSL_171	SRD_DSL_172	SRD_DSL_173	SRD_DSL_174			SRD_DSL_175	SRD_DSL_176																																			
AA	SRD_DSL_177	SRD_DSL_178	SRD_DSL_179	SRD_DSL_180	SRD_DSL_181			SRD_DSL_182	SRD_DSL_183																																			
AB		SRD_DSL_184	SRD_DSL_185	SRD_DSL_186	SRD_DSL_187			SRD_DSL_188	SRD_DSL_189																																			
AC	SRD_DSL_190	SRD_DSL_191	SRD_DSL_192	SRD_DSL_193	SRD_DSL_194			SRD_DSL_195	SRD_DSL_196																																			
AD		SRD_DSL_197	SRD_DSL_198	SRD_DSL_199	SRD_DSL_200			SRD_DSL_201	SRD_DSL_202																																			
AE	SRD_DSL_203	SRD_DSL_204	SRD_DSL_205	SRD_DSL_206	SRD_DSL_207			SRD_DSL_208	SRD_DSL_209																																			
AF		SRD_DSL_210	SRD_DSL_211	SRD_DSL_212	SRD_DSL_213			SRD_DSL_214	SRD_DSL_215																																			
AG	SRD_DSL_216	SRD_DSL_217	SRD_DSL_218	SRD_DSL_219	SRD_DSL_220			SRD_DSL_221	SRD_DSL_222																																			
AH		SRD_DSL_223	SRD_DSL_224	SRD_DSL_225	SRD_DSL_226			SRD_DSL_227	SRD_DSL_228																																			
AJ	SRD_DSL_229	SRD_DSL_230	SRD_DSL_231	SRD_DSL_232	SRD_DSL_233			SRD_DSL_234	SRD_DSL_235																																			
AK		SRD_DSL_236	SRD_DSL_237	SRD_DSL_238	SRD_DSL_239			SRD_DSL_240	SRD_DSL_241																																			
AL	SRD_DSL_242	SRD_DSL_243	SRD_DSL_244	SRD_DSL_245	SRD_DSL_246			SRD_DSL_247	SRD_DSL_248																																			
AM		SRD_DSL_249	SRD_DSL_250	SRD_DSL_251	SRD_DSL_252			SRD_DSL_253	SRD_DSL_254																																			
AN	SRD_DSL_255	SRD_DSL_256	SRD_DSL_257	SRD_DSL_258	SRD_DSL_259			SRD_DSL_260	SRD_DSL_261																																			
AP		SRD_DSL_262	SRD_DSL_263	SRD_DSL_264	SRD_DSL_265			SRD_DSL_266	SRD_DSL_267																																			
AR	SRD_DSL_268	SRD_DSL_269	SRD_DSL_270	SRD_DSL_271	SRD_DSL_272			SRD_DSL_273	SRD_DSL_274																																			
AT		SRD_DSL_275	SRD_DSL_276	SRD_DSL_277	SRD_DSL_278			SRD_DSL_279	SRD_DSL_280																																			
AU	SRD_DSL_281	SRD_DSL_282	SRD_DSL_283	SRD_DSL_284	SRD_DSL_285			SRD_DSL_286	SRD_DSL_287																																			
AV		SRD_DSL_288	SRD_DSL_289	SRD_DSL_290	SRD_DSL_291			SRD_DSL_292	SRD_DSL_293																																			
AW	SRD_DSL_294	SRD_DSL_295	SRD_DSL_296	SRD_DSL_297	SRD_DSL_298			SRD_DSL_299	SRD_DSL_300																																			
AY		SRD_DSL_301	SRD_DSL_302	SRD_DSL_303	SRD_DSL_304			SRD_DSL_305	SRD_DSL_306																																			
BA	SRD_DSL_307	SRD_DSL_308	SRD_DSL_309	SRD_DSL_310	SRD_DSL_311			SRD_DSL_312	SRD_DSL_313																																			
BB		SRD_DSL_314	SRD_DSL_315	SRD_DSL_316	SRD_DSL_317			SRD_DSL_318	SRD_DSL_319																																			
BC	SRD_DSL_320	SRD_DSL_321	SRD_DSL_322	SRD_DSL_323	SRD_DSL_324			SRD_DSL_325	SRD_DSL_326																																			
BD		SRD_DSL_327	SRD_DSL_328	SRD_DSL_329	SRD_DSL_330			SRD_DSL_331	SRD_DSL_332																																			
BE	SRD_DSL_333	SRD_DSL_334	SRD_DSL_335	SRD_DSL_336	SRD_DSL_337			SRD_DSL_338	SRD_DSL_339																																			
BF		SRD_DSL_340	SRD_DSL_341	SRD_DSL_342	SRD_DSL_343			SRD_DSL_344	SRD_DSL_345																																			
BG	GND		SRD_DSL_346	SRD_DSL_347	SRD_DSL_348			SRD_DSL_349	SRD_DSL_350																																			
BH		GND		SRD_DSL_351	SRD_DSL_352			SRD_DSL_353	SRD_DSL_354																																			

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