Panasonic

EB-G60U

TUNING PROCEDURE

● TUNING PROCEDURE

1. GSM850 AGC Measurement (g-magic)
2. GSM850 AFC Measurement (AFC default value/slope)
3. GSM850 APC Measurement
4. Write GSM850 data into flash memory
5. PCS AGC Measurement (g-magic)
6. PCS AFC Measurement (AFC default value/slope)
7. PCS APC Measurement
8. Write PCS data into flash memory

AGC CALIBRATION (G-MAGIC)

AGC – Automatic Gain Control

Definition of g-magic:

$$\frac{PM}{10} = Input_level + AGC + \frac{g_magic}{2}$$

Example: $$\frac{600}{10} = -85_{(dBm)} + 45_{(dB)} + \frac{200}{2}$$

- ⇨ BS sends –85dBm signal, and base-band will tune the AGC value (45dB in example), until it received an appropriate PM value (600 in example), now we can obtain the g-magic = 200.
- ⇨ While a call is built, we can obtain the certain input_level(RSSI) by above equation with measured PM value, programmable AGC and fixed g-magic.
- ⇨ The specification of g_magic value should be within 190 to 220.

AFC CALIBRATION

AFC – Automatic Frequency Control

Table 3. Tx GSM850 (1 of 3)

Channel	D1 = 9,10,11 or 12	Tx Freq (F_{TX}) (MHz)	UHF LO (F_{VCO}) (MHz)	TxIF (MHz)	Total N	N (Main Divider)	FN (Modulo)
128	11	824.2	1359.930	82.420	101.1100000	101	461373
129	11	824.4	1360.260	82.440	101.1353846	101	567844
130	11	824.6	1360.590	82.460	101.1607692	101	674315
131	11	824.8	1360.920	82.480	101.1861538	101	780786
132	11	825.0	1361.250	82.500	101.2115385	101	887257
133	11	825.2	1361.580	82.520	101.2369231	101	993727
134	11	825.4	1361.910	82.540	101.2623077	101	1100198
135	9	825.6	1393.200	103.200	103.6692308	103	2806957
136	9	825.8	1393.538	103.225	103.6951923	103	2915848
137	9	826.0	1393.875	103.250	103.7211538	103	3024738
138	9	826.2	1394.213	103.275	103.7471154	103	3133629
139	9	826.4	1394.550	103.300	103.7730769	103	3242520
140	9	826.6	1394.888	103.325	103.7990385	103	3351410
141	9	826.8	1395.225	103.350	103.8250000	103	3460301
142	9	827.0	1395.563	103.375	103.8509615	103	3569191
143	9	827.2	1395.900	103.400	103.8769231	103	3678082
144	9	827.4	1396.238	103.425	103.9028846	103	3786973
145	9	827.6	1396.575	103.450	103.9288462	103	3895863
146	9	827.8	1396.913	103.475	103.9548077	103	4004754
147	9	828.0	1397.250	103.500	103.9807692	103	4113644
148	9	828.2	1397.588	103.525	104.0067308	104	28231
149	9	828.4	1397.925	103.550	104.0326923	104	137121
150	9	828.6	1398.263	103.575	104.0586538	104	246012
151	9	828.8	1398.600	103.600	104.0846154	104	354903
152	9	829.0	1398.938	103.625	104.1105769	104	463793
153	9	829.2	1399.275	103.650	104.1365385	104	572684
154	9	829.4	1399.613	103.675	104.1625000	104	681574
155	9	829.6	1399.950	103.700	104.1884615	104	790465
156	9	829.8	1400.288	103.725	104.2144231	104	899356
157	9	830.0	1400.625	103.750	104.2403846	104	1008246
158	9	830.2	1400.963	103.775	104.2663462	104	1117137
159	9	830.4	1401.300	103.800	104.2923077	104	1226027
160	9	830.6	1401.638	103.825	104.3182692	104	1334918
161	11	830.8	1370.820	83.080	101.9476923	101	3974910
162	11	831.0	1371.150	83.100	101.9730769	101	4081380
163	11	831.2	1371.480	83.120	101.9984615	101	4187851
164	11	831.4	1371.810	83.140	102.0238462	102	100018
165	11	831.6	1372.140	83.160	102.0492308	102	206489
166	11	831.8	1372.470	83.180	102.0746154	102	312960
167	11	832.0	1372.800	83.200	102.1000000	102	419430
168	11	832.2	1373.130	83.220	102.1253846	102	525901
169	11	832.4	1373.460	83.240	102.1507692	102	632372

Table 3. Tx GSM850 (2 of 3)

Channel	D1 = 9,10,11 or 12	Tx Freq (F_{TX}) (MHz)	UHF LO (F_{VCO}) (MHz)	TxIF (MHz)	Total N	N (Main Divider)	FN (Modulo)
170	11	832.6	1373.790	83.260	102.1761538	102	738843
171	11	832.8	1374.120	83.280	102.2015385	102	845314
172	11	833.0	1374.450	83.300	102.2269231	102	951784
173	9	833.2	1406.025	104.150	104.6557692	104	2750496
174	9	833.4	1406.363	104.175	104.6817308	104	2859386
175	9	833.6	1406.700	104.200	104.7076923	104	2968277
176	9	833.8	1407.038	104.225	104.7336538	104	3077167
177	9	834.0	1407.375	104.250	104.7596154	104	3186058
178	9	834.2	1407.713	104.275	104.7855769	104	3294948
179	9	834.4	1408.050	104.300	104.8115385	104	3403839
180	9	834.6	1408.388	104.325	104.8375000	104	3512730
181	9	834.8	1408.725	104.350	104.8634615	104	3621620
182	9	835.0	1409.063	104.375	104.8894231	104	3730511
183	9	835.2	1409.400	104.400	104.9153846	104	3839401
184	9	835.4	1409.738	104.425	104.9413462	104	3948292
185	9	835.6	1410.075	104.450	104.9673077	104	4057183
186	9	835.8	1410.413	104.475	104.9932692	104	4166073
187	9	836.0	1410.750	104.500	105.0192308	105	80660
188	9	836.2	1411.088	104.525	105.0451923	105	189550
189	9	836.4	1411.425	104.550	105.0711538	105	298441
190	9	836.6	1411.763	104.575	105.0971154	105	407331
191	9	836.8	1412.100	104.600	105.1230769	105	516222
192	9	837.0	1412.438	104.625	105.1490385	105	625113
193	9	837.2	1412.775	104.650	105.1750000	105	734003
194	9	837.4	1413.113	104.675	105.2009615	105	842894
195	9	837.6	1413.450	104.700	105.2269231	105	951784
196	9	837.8	1413.788	104.725	105.2528846	105	1060675
197	11	838.0	1382.700	83.800	102.8615385	102	3613554
198	11	838.2	1383.030	83.820	102.8869231	102	3720025
199	11	838.4	1383.360	83.840	102.9123077	102	3826496
200	11	838.6	1383.690	83.860	102.9376923	102	3932967
201	11	838.8	1384.020	83.880	102.9630769	102	4039437
202	11	839.0	1384.350	83.900	102.9884615	102	4145908
203	11	839.2	1384.680	83.920	103.0138462	103	58075
204	11	839.4	1385.010	83.940	103.0392308	103	164546
205	11	839.6	1385.340	83.960	103.0646154	103	271017
206	11	839.8	1385.670	83.980	103.0900000	103	377487
207	11	840.0	1386.000	84.000	103.1153846	103	483958
208	11	840.2	1386.330	84.020	103.1407692	103	590429
209	11	840.4	1386.660	84.040	103.1661538	103	696900
210	11	840.6	1386.990	84.060	103.1915385	103	803371
211	11	840.8	1387.320	84.080	103.2169231	103	909841
212	11	841.0	1387.650	84.100	103.2423077	103	1016312

Table 3. Tx GSM850 (3 of 3)

Channel	D1 = 9,10,11 or 12	Tx Freq (F_{TX}) (MHz)	UHF LO (F_{VCO}) (MHz)	TxIF (MHz)	Total N	N (Main Divider)	FN (Modulo)
213	9	841.2	1419.525	105.150	105.6942308	105	2911815
214	9	841.4	1419.863	105.175	105.7201923	105	3020705
215	9	841.6	1420.200	105.200	105.7461538	105	3129596
216	9	841.8	1420.538	105.225	105.7721154	105	3238487
217	9	842.0	1420.875	105.250	105.7980769	105	3347377
218	9	842.2	1421.213	105.275	105.8240385	105	3456268
219	9	842.4	1421.550	105.300	105.8500000	105	3565158
220	9	842.6	1421.888	105.325	105.8759615	105	3674049
221	9	842.8	1422.225	105.350	105.9019231	105	3782940
222	9	843.0	1422.563	105.375	105.9278846	105	3891830
223	9	843.2	1422.900	105.400	105.9538462	105	4000721
224	9	843.4	1423.238	105.425	105.9798077	105	4109611
225	9	843.6	1423.575	105.450	106.0057692	106	24198
226	9	843.8	1423.913	105.475	106.0317308	106	133088
227	9	844.0	1424.250	105.500	106.0576923	106	241979
228	9	844.2	1424.588	105.525	106.0836538	106	350870
229	9	844.4	1424.925	105.550	106.1096154	106	459760
230	11	844.6	1393.590	84.460	103.6992308	103	2932786
231	11	844.8	1393.920	84.480	103.7246154	103	3039257
232	11	845.0	1394.250	84.500	103.7500000	103	3145728
233	11	845.2	1394.580	84.520	103.7753846	103	3252199
234	11	845.4	1394.910	84.540	103.8007692	103	3358670
235	11	845.6	1395.240	84.560	103.8261538	103	3465140
236	11	845.8	1395.570	84.580	103.8515385	103	3571611
237	11	846.0	1395.900	84.600	103.8769231	103	3678082
238	11	846.2	1396.230	84.620	103.9023077	103	3784553
239	11	846.4	1396.560	84.640	103.9276923	103	3891024
240	11	846.6	1396.890	84.660	103.9530769	103	3997494
241	11	846.8	1397.220	84.680	103.9784615	103	4103965
242	11	847.0	1397.550	84.700	104.0038462	104	16132
243	11	847.2	1397.880	84.720	104.0292308	104	122603
244	11	847.4	1398.210	84.740	104.0546154	104	229074
245	11	847.6	1398.540	84.760	104.0800000	104	335544
246	11	847.8	1398.870	84.780	104.1053846	104	442015
247	11	848.0	1399.200	84.800	104.1307692	104	548486
248	11	848.2	1399.530	84.820	104.1561538	104	654957
249	11	848.4	1399.860	84.840	104.1815385	104	761427
250	11	848.6	1400.190	84.860	104.2069231	104	867898
251	11	848.8	1400.520	84.880	104.2323077	104	974369

Table 4. GSM850 Tx Minimum and Maximum

Parameter	Minimum	Maximum
Tx Frequency	824.2 MHz	849.0 MHz
UHF LO	1359.93 MHz	1424.9225 MHz
TxIF	82.42 MHz	105.55 MHz
Total N	101.11	106.1096
N (Main Divider)	101	106
FN (Modulo)	16132	4187851

Table 5. Rx GSM850 (1 of 3)

Channel	Rx Freq (F_{RX}) (MHz)	UHF LO (F_{VCO}) (MHz)	Total N	N (Main Divider)	FN (Modulo)
128	869.2	1303.8	96.79230769	96	3323179
129	869.4	1304.1	96.81538462	96	3419971
130	869.6	1304.4	96.83846154	96	3516763
131	869.8	1304.7	96.86153846	96	3613554
132	870.0	1305.0	96.88461538	96	3710346
133	870.2	1305.3	96.90769231	96	3807137
134	870.4	1305.6	96.93076923	96	3903929
135	870.6	1305.9	96.95384615	96	4000721
136	870.8	1306.2	96.97692308	96	4097512
137	871.0	1306.5	97.00000000	97	0
138	871.2	1306.8	97.02307692	97	96792
139	871.4	1307.1	97.04615385	97	193583
140	871.6	1307.4	97.06923077	97	290375
141	871.8	1307.7	97.09230769	97	387167
142	872.0	1308.0	97.11538462	97	483958
143	872.2	1308.3	97.13846154	97	580750
144	872.4	1308.6	97.16153846	97	677541
145	872.6	1308.9	97.18461538	97	774333
146	872.8	1309.2	97.20769231	97	871125
147	873.0	1309.5	97.23076923	97	967916
148	873.2	1309.8	97.25384615	97	1064708
149	873.4	1310.1	97.27692308	97	1161500
150	873.6	1310.4	97.30000000	97	1258291
151	873.8	1310.7	97.32307692	97	1355083
152	874.0	1311.0	97.34615385	97	1451874
153	874.2	1311.3	97.36923077	97	1548666
154	874.4	1311.6	97.39230769	97	1645458
155	874.6	1311.9	97.41538462	97	1742249
156	874.8	1312.2	97.43846154	97	1839041
157	875.0	1312.5	97.46153846	97	1935833
158	875.2	1312.8	97.48461538	97	2032624
159	875.4	1313.1	97.50769231	97	2129416
160	875.6	1313.4	97.53076923	97	2226208
161	875.8	1313.7	97.55384615	97	2322999
162	876.0	1314.0	97.57692308	97	2419791
163	876.2	1314.3	97.60000000	97	2516582
164	876.4	1314.6	97.62307692	97	2613374
165	876.6	1314.9	97.64615385	97	2710166
166	876.8	1315.2	97.66923077	97	2806957
167	877.0	1315.5	97.69230769	97	2903749
168	877.2	1315.8	97.71538462	97	3000541
169	877.4	1316.1	97.73846154	97	3097332
170	877.6	1316.4	97.76153846	97	3194124

Table 5. Rx GSM850 (2 of 3)

Channel	Rx Freq (F_{RX}) (MHz)	UHF LO (F_{VCO}) (MHz)	Total N	N (Main Divider)	FN (Modulo)
171	877.8	1316.7	97.78461538	97	3290915
172	878.0	1317.0	97.80769231	97	3387707
176	878.8	1318.2	97.90000000	97	3774874
177	879.0	1318.5	97.92307692	97	3871665
178	879.2	1318.8	97.94615385	97	3968457
179	879.4	1319.1	97.96923077	97	4065248
180	879.6	1319.4	97.99230769	97	4162040
181	879.8	1319.7	98.01538462	98	64528
182	880.0	1320.0	98.03846154	98	161319
183	880.2	1320.3	98.06153846	98	258111
184	880.4	1320.6	98.08461538	98	354903
185	880.6	1320.9	98.10769231	98	451694
186	880.8	1321.2	98.13076923	98	548486
187	881.0	1321.5	98.15384615	98	645278
188	881.2	1321.8	98.17692308	98	742069
189	881.4	1322.1	98.20000000	98	838861
190	881.6	1322.4	98.22307692	98	935652
191	881.8	1322.7	98.24615385	98	1032444
192	882.0	1323.0	98.26923077	98	1129236
193	882.2	1323.3	98.29230769	98	1226027
194	882.4	1323.6	98.31538462	98	1322819
195	882.6	1323.9	98.33846154	98	1419611
196	882.8	1324.2	98.36153846	98	1516402
197	883.0	1324.5	98.38461538	98	1613194
198	883.2	1324.8	98.40769231	98	1709985
199	883.4	1325.1	98.43076923	98	1806777
200	883.6	1325.4	98.45384615	98	1903569
201	883.8	1325.7	98.47692308	98	2000360
202	884.0	1326.0	98.50000000	98	2097152
203	884.2	1326.3	98.52307692	98	2193944
204	884.4	1326.6	98.54615385	98	2290735
205	884.6	1326.9	98.56923077	98	2387527
206	884.8	1327.2	98.59230769	98	2484319
207	885.0	1327.5	98.61538462	98	2581110
208	885.2	1327.8	98.63846154	98	2677902
209	885.4	1328.1	98.66153846	98	2774693
210	885.6	1328.4	98.68461538	98	2871485
211	885.8	1328.7	98.70769231	98	2968277
212	886.0	1329.0	98.73076923	98	3065068
213	886.2	1329.3	98.75384615	98	3161860
214	886.4	1329.6	98.77692308	98	3258652
215	886.6	1329.9	98.80000000	98	3355443
216	886.8	1330.2	98.82307692	98	3452235
217	887.0	1330.5	98.84615385	98	3549026

Table 5. Rx GSM850 (3 of 3)

Channel	Rx Freq (F_{RX}) (MHz)	UHF LO (F_{VCO}) (MHz)	Total N	N (Main Divider)	FN (Modulo)
218	887.2	1330.8	98.86923077	98	3645818
219	887.4	1331.1	98.89230769	98	3742610
220	887.6	1331.4	98.91538462	98	3839401
221	887.8	1331.7	98.93846154	98	3936193
222	888.0	1332.0	98.96153846	98	4032985
223	888.2	1332.3	98.98461538	98	4129776
224	888.4	1332.6	99.00769231	99	32264
225	888.6	1332.9	99.03076923	99	129056
226	888.8	1333.2	99.05384615	99	225847
227	889.0	1333.5	99.07692308	99	322639
228	889.2	1333.8	99.10000000	99	419430
229	889.4	1334.1	99.12307692	99	516222
230	889.6	1334.4	99.14615385	99	613014
231	889.8	1334.7	99.16923077	99	709805
232	890.0	1335.0	99.19230769	99	806597
233	890.2	1335.3	99.21538462	99	903389
234	890.4	1335.6	99.23846154	99	1000180
235	890.6	1335.9	99.26153846	99	1096972
236	890.8	1336.2	99.28461538	99	1193763
237	891.0	1336.5	99.30769231	99	1290555
238	891.2	1336.8	99.33076923	99	1387347
239	891.4	1337.1	99.35384615	99	1484138
240	891.6	1337.4	99.37692308	99	1580930
241	891.8	1337.7	99.40000000	99	1677722
242	892.0	1338.0	99.42307692	99	1774513
243	892.2	1338.3	99.44615385	99	1871305
244	892.4	1338.6	99.46923077	99	1968096
245	892.6	1338.9	99.49230769	99	2064888
246	892.8	1339.2	99.51538462	99	2161680
247	893.0	1339.5	99.53846154	99	2258471
248	893.2	1339.8	99.56153846	99	2355263
249	893.4	1340.1	99.58461538	99	2452055
250	893.6	1340.4	99.60769231	99	2548846
251	893.8	1340.7	99.63076923	99	2645638

Table 6. GSM850 Rx Minimum and Maximum

Parameter	Minimum	Maximum
Rx Frequency	869.2 MHz	893.8 MHz
UHF LO	1303.8 MHz	1340.7 MHz
Total N	96.8	99.6
N (Main Divider)	96.0	99.0
FN (Modulo)	0.0	4162040.0

Table 15. Tx PCS (1 of 7)

Channel	D1 = 9,10,11 or 12	Tx Freq (F_{TX}) (MHz)	UHF LO (F_{VCO}) (MHz)	TxIF (MHz)	Total N	N (Main Divider)	FN (Modulo)
512	10	1850.2	1460.684	97.379	108.8603239	108	3608460
513	10	1850.4	1460.842	97.389	108.8724696	108	3659403
514	10	1850.6	1461.000	97.400	108.8846154	108	3710346
515	10	1850.8	1461.158	97.411	108.8967611	108	3761289
516	10	1851.0	1461.316	97.421	108.9089069	108	3812232
517	10	1851.2	1461.474	97.432	108.9210526	108	3863175
518	10	1851.4	1461.632	97.442	108.9331984	108	3914118
519	10	1851.6	1461.789	97.453	108.9453441	108	3965061
520	10	1851.8	1461.947	97.463	108.9574899	108	4016004
521	10	1852.0	1462.105	97.474	108.9696356	108	4066947
522	10	1852.2	1462.263	97.484	108.9817814	108	4117890
523	10	1852.4	1462.421	97.495	108.9939271	108	4168833
524	10	1852.6	1462.579	97.505	109.0060729	109	25471
525	10	1852.8	1462.737	97.516	109.0182186	109	76414
526	10	1853.0	1462.895	97.526	109.0303644	109	127357
527	10	1853.2	1463.053	97.537	109.0425101	109	178300
528	10	1853.4	1463.211	97.547	109.0546559	109	229243
529	10	1853.6	1463.368	97.558	109.0668016	109	280186
530	10	1853.8	1463.526	97.568	109.0789474	109	331129
531	10	1854.0	1463.684	97.579	109.0910931	109	382072
532	10	1854.2	1463.842	97.589	109.1032389	109	433015
533	10	1854.4	1464.000	97.600	109.1153846	109	483958
534	10	1854.6	1464.158	97.611	109.1275304	109	534901
535	10	1854.8	1464.316	97.621	109.1396761	109	585844
536	10	1855.0	1464.474	97.632	109.1518219	109	636787
537	10	1855.2	1464.632	97.642	109.1639676	109	687730
538	10	1855.4	1464.789	97.653	109.1761134	109	738673
539	10	1855.6	1464.947	97.663	109.1882591	109	789616
540	10	1855.8	1465.105	97.674	109.2004049	109	840559
541	10	1856.0	1465.263	97.684	109.2125506	109	891502
542	10	1856.2	1465.421	97.695	109.2246964	109	942445
543	10	1856.4	1465.579	97.705	109.2368421	109	993388
544	10	1856.6	1465.737	97.716	109.2489879	109	1044331
545	10	1856.8	1465.895	97.726	109.2611336	109	1095274
546	10	1857.0	1466.053	97.737	109.2732794	109	1146217
547	10	1857.2	1466.211	97.747	109.2854251	109	1197160
548	10	1857.4	1466.368	97.758	109.2975709	109	1248103
549	10	1857.6	1466.526	97.768	109.3097166	109	1299046
550	9	1857.8	1475.312	109.282	109.9855204	109	4133572
551	9	1858.0	1475.471	109.294	109.9977376	109	4184815
552	9	1858.2	1475.629	109.306	110.0099548	110	41753
553	9	1858.4	1475.788	109.318	110.0221719	110	92996
554	9	1858.6	1475.947	109.329	110.0343891	110	144239
555	9	1858.8	1476.106	109.341	110.0466063	110	195481

Table 15. Tx PCS (2 of 7)

Channel	D1 = 9,10,11 or 12	Tx Freq (F_{TX}) (MHz)	UHF LO (F_{VCO}) (MHz)	TxIF (MHz)	Total N	N (Main Divider)	FN (Modulo)
556	9	1859.0	1476.265	109.353	110.0588235	110	246724
557	9	1859.2	1476.424	109.365	110.0710407	110	297966
558	9	1859.4	1476.582	109.376	110.0832579	110	349209
559	9	1859.6	1476.741	109.388	110.0954751	110	400452
560	9	1859.8	1476.900	109.400	110.1076923	110	451694
561	9	1860.0	1477.059	109.412	110.1199095	110	502937
562	9	1860.2	1477.218	109.424	110.1321267	110	554180
563	9	1860.4	1477.376	109.435	110.1443439	110	605422
564	9	1860.6	1477.535	109.447	110.1565611	110	656665
565	9	1860.8	1477.694	109.459	110.1687783	110	707907
566	9	1861.0	1477.853	109.471	110.1809955	110	759150
567	9	1861.2	1478.012	109.482	110.1932127	110	810393
568	9	1861.4	1478.171	109.494	110.2054299	110	861635
569	9	1861.6	1478.329	109.506	110.2176471	110	912878
570	9	1861.8	1478.488	109.518	110.2298643	110	964121
571	9	1862.0	1478.647	109.529	110.2420814	110	1015363
572	9	1862.2	1478.806	109.541	110.2542986	110	1066606
573	9	1862.4	1478.965	109.553	110.2665158	110	1117848
574	9	1862.6	1479.124	109.565	110.278733	110	1169091
575	9	1862.8	1479.282	109.576	110.2909502	110	1220334
576	9	1863.0	1479.441	109.588	110.3031674	110	1271576
577	9	1863.2	1479.600	109.600	110.3153846	110	1322819
578	9	1863.4	1479.759	109.612	110.3276018	110	1374062
579	10	1863.6	1471.263	98.084	109.6740891	109	2827334
580	10	1863.8	1471.421	98.095	109.6862348	109	2878277
581	10	1864.0	1471.579	98.105	109.6983806	109	2929220
582	10	1864.2	1471.737	98.116	109.7105263	109	2980163
583	10	1864.4	1471.895	98.126	109.7226721	109	3031106
584	10	1864.6	1472.053	98.137	109.7348178	109	3082049
585	10	1864.8	1472.211	98.147	109.7469636	109	3132992
586	10	1865.0	1472.368	98.158	109.7591093	109	3183935
587	10	1865.2	1472.526	98.168	109.7712551	109	3234878
588	10	1865.4	1472.684	98.179	109.7834008	109	3285821
589	10	1865.6	1472.842	98.189	109.7955466	109	3336764
590	10	1865.8	1473.000	98.200	109.8076923	109	3387707
591	10	1866.0	1473.158	98.211	109.8198381	109	3438650
592	10	1866.2	1473.316	98.221	109.8319838	109	3489593
593	10	1866.4	1473.474	98.232	109.8441296	109	3540536
594	10	1866.6	1473.632	98.242	109.8562753	109	3591479
595	10	1866.8	1473.789	98.253	109.8684211	109	3642422
596	10	1867.0	1473.947	98.263	109.8805668	109	3693365
597	10	1867.2	1474.105	98.274	109.8927126	109	3744308
598	10	1867.4	1474.263	98.284	109.9048583	109	3795251
599	10	1867.6	1474.421	98.295	109.917004	109	3846194
600	10	1867.8	1474.579	98.305	109.9291498	109	3897137

Table 15. Tx PCS (3 of 7)

Channel	D1 = 9,10,11 or 12	Tx Freq (F_{TX}) (MHz)	UHF LO (F_{VCO}) (MHz)	TxIF (MHz)	Total N	N (Main Divider)	FN (Modulo)
601	10	1868.0	1474.737	98.316	109.9412955	109	3948080
602	10	1868.2	1474.895	98.326	109.9534413	109	3999023
603	10	1868.4	1475.053	98.337	109.965587	109	4049966
604	10	1868.6	1475.211	98.347	109.9777328	109	4100909
605	10	1868.8	1475.368	98.358	109.9898785	109	4151852
606	10	1869.0	1475.526	98.368	110.0020243	110	8490
607	10	1869.2	1475.684	98.379	110.01417	110	59433
608	10	1869.4	1475.842	98.389	110.0263158	110	110376
609	10	1869.6	1476.000	98.400	110.0384615	110	161319
610	10	1869.8	1476.158	98.411	110.0506073	110	212262
611	10	1870.0	1476.316	98.421	110.062753	110	263205
612	10	1870.2	1476.474	98.432	110.0748988	110	314148
613	10	1870.4	1476.632	98.442	110.0870445	110	365091
614	10	1870.6	1476.789	98.453	110.0991903	110	416034
615	9	1870.8	1485.635	110.047	110.779638	110	3270039
616	9	1871.0	1485.794	110.059	110.7918552	110	3321281
617	9	1871.2	1485.953	110.071	110.8040724	110	3372524
618	9	1871.4	1486.112	110.082	110.8162896	110	3423767
619	9	1871.6	1486.271	110.094	110.8285068	110	3475009
620	9	1871.8	1486.429	110.106	110.840724	110	3526252
621	9	1872.0	1486.588	110.118	110.8529412	110	3577495
622	9	1872.2	1486.747	110.129	110.8651584	110	3628737
623	9	1872.4	1486.906	110.141	110.8773756	110	3679980
624	9	1872.6	1487.065	110.153	110.8895928	110	3731222
625	9	1872.8	1487.224	110.165	110.90181	110	3782465
626	9	1873.0	1487.382	110.176	110.9140271	110	3833708
627	9	1873.2	1487.541	110.188	110.9262443	110	3884950
628	9	1873.4	1487.700	110.200	110.9384615	110	3936193
629	9	1873.6	1487.859	110.212	110.9506787	110	3987436
630	9	1873.8	1488.018	110.224	110.9628959	110	4038678
631	9	1874.0	1488.176	110.235	110.9751131	110	4089921
632	9	1874.2	1488.335	110.247	110.9873303	110	4141163
633	9	1874.4	1488.494	110.259	110.9995475	110	4192406
634	9	1874.6	1488.653	110.271	111.0117647	111	49345
635	9	1874.8	1488.812	110.282	111.0239819	111	100587
636	9	1875.0	1488.971	110.294	111.0361991	111	151830
637	9	1875.2	1489.129	110.306	111.0484163	111	203073
638	9	1875.4	1489.288	110.318	111.0606335	111	254315
639	9	1875.6	1489.447	110.329	111.0728507	111	305558
640	9	1875.8	1489.606	110.341	111.0850679	111	356801
641	9	1876.0	1489.765	110.353	111.0972851	111	408043
642	9	1876.2	1489.924	110.365	111.1095023	111	459286
643	9	1876.4	1490.082	110.376	111.1217195	111	510528
644	9	1876.6	1490.241	110.388	111.1339367	111	561771
645	9	1876.8	1490.400	110.400	111.1461538	111	613014

Table 15. Tx PCS (4 of 7)

Channel	D1 = 9,10,11 or 12	Tx Freq (F_{TX}) (MHz)	UHF LO (F_{VCO}) (MHz)	TxIF (MHz)	Total N	N (Main Divider)	FN (Modulo)
646	9	1877.0	1490.559	110.412	111.158371	111	664256
647	9	1877.2	1490.718	110.424	111.1705882	111	715499
648	9	1877.4	1490.876	110.435	111.1828054	111	766742
649	9	1877.6	1491.035	110.447	111.1950226	111	817984
650	9	1877.8	1491.194	110.459	111.2072398	111	869227
651	9	1878.0	1491.353	110.471	111.219457	111	920469
652	9	1878.2	1491.512	110.482	111.2316742	111	971712
653	9	1878.4	1491.671	110.494	111.2438914	111	1022955
654	9	1878.6	1491.829	110.506	111.2561086	111	1074197
655	9	1878.8	1491.988	110.518	111.2683258	111	1125440
656	9	1879.0	1492.147	110.529	111.280543	111	1176683
657	9	1879.2	1492.306	110.541	111.2927602	111	1227925
658	9	1879.4	1492.465	110.553	111.3049774	111	1279168
659	9	1879.6	1492.624	110.565	111.3171946	111	1330410
660	9	1879.8	1492.782	110.576	111.3294118	111	1381653
661	10	1880.0	1484.211	98.947	110.6700405	110	2810353
662	10	1880.2	1484.368	98.958	110.6821862	110	2861296
663	10	1880.4	1484.526	98.968	110.694332	110	2912239
664	10	1880.6	1484.684	98.979	110.7064777	110	2963182
665	10	1880.8	1484.842	98.989	110.7186235	110	3014125
666	10	1881.0	1485.000	99.000	110.7307692	110	3065068
667	10	1881.2	1485.158	99.011	110.742915	110	3116011
668	10	1881.4	1485.316	99.021	110.7550607	110	3166954
669	10	1881.6	1485.474	99.032	110.7672065	110	3217897
670	10	1881.8	1485.632	99.042	110.7793522	110	3268840
671	10	1882.0	1485.789	99.053	110.791498	110	3319783
672	10	1882.2	1485.947	99.063	110.8036437	110	3370726
673	10	1882.4	1486.105	99.074	110.8157895	110	3421669
674	10	1882.6	1486.263	99.084	110.8279352	110	3472612
675	10	1882.8	1486.421	99.095	110.840081	110	3523555
676	10	1883.0	1486.579	99.105	110.8522267	110	3574498
677	10	1883.2	1486.737	99.116	110.8643725	110	3625441
678	10	1883.4	1486.895	99.126	110.8765182	110	3676384
679	10	1883.6	1487.053	99.137	110.888664	110	3727327
680	10	1883.8	1487.211	99.147	110.9008097	110	3778270
681	10	1884.0	1487.368	99.158	110.9129555	110	3829213
682	10	1884.2	1487.526	99.168	110.9251012	110	3880156
683	10	1884.4	1487.684	99.179	110.937247	110	3931099
684	10	1884.6	1487.842	99.189	110.9493927	110	3982042
685	10	1884.8	1488.000	99.200	110.9615385	110	4032985
686	10	1885.0	1488.158	99.211	110.9736842	110	4083928
687	10	1885.2	1488.316	99.221	110.98583	110	4134871
688	10	1885.4	1488.474	99.232	110.9979757	110	4185814
689	10	1885.6	1488.632	99.242	111.0101215	111	42452
690	10	1885.8	1488.789	99.253	111.0222672	111	93395

Table 15. Tx PCS (5 of 7)

Channel	D1 = 9,10,11 or 12	Tx Freq (F_{TX}) (MHz)	UHF LO (F_{VCO}) (MHz)	TxIF (MHz)	Total N	N (Main Divider)	FN (Modulo)
691	10	1886.0	1488.947	99.263	111.034413	111	144338
692	10	1886.2	1489.105	99.274	111.0465587	111	195281
693	10	1886.4	1489.263	99.284	111.0587045	111	246224
694	10	1886.6	1489.421	99.295	111.0708502	111	297167
695	10	1886.8	1489.579	99.305	111.082996	111	348110
696	10	1887.0	1489.737	99.316	111.0951417	111	399053
697	10	1887.2	1489.895	99.326	111.1072874	111	449996
698	10	1887.4	1490.053	99.337	111.1194332	111	500939
699	10	1887.6	1490.211	99.347	111.1315789	111	551882
700	10	1887.8	1490.368	99.358	111.1437247	111	602825
701	10	1888.0	1490.526	99.368	111.1558704	111	653768
702	10	1888.2	1490.684	99.379	111.1680162	111	704711
703	10	1888.4	1490.842	99.389	111.1801619	111	755654
704	10	1888.6	1491.000	99.400	111.1923077	111	806597
705	10	1888.8	1491.158	99.411	111.2044534	111	857540
706	10	1889.0	1491.316	99.421	111.2165992	111	908483
707	10	1889.2	1491.474	99.432	111.2287449	111	959426
708	10	1889.4	1491.632	99.442	111.2408907	111	1010369
709	10	1889.6	1491.789	99.453	111.2530364	111	1061312
710	10	1889.8	1491.947	99.463	111.2651822	111	1112255
711	10	1890.0	1492.105	99.474	111.2773279	111	1163198
712	10	1890.2	1492.263	99.484	111.2894737	111	1214141
713	10	1890.4	1492.421	99.495	111.3016194	111	1265084
714	10	1890.6	1492.579	99.505	111.3137652	111	1316027
715	9	1890.8	1501.518	111.224	112.0013575	112	5694
716	9	1891.0	1501.676	111.235	112.0135747	112	56936
717	9	1891.2	1501.835	111.247	112.0257919	112	108179
718	9	1891.4	1501.994	111.259	112.038009	112	159422
719	9	1891.6	1502.153	111.271	112.0502262	112	210664
720	9	1891.8	1502.312	111.282	112.0624434	112	261907
721	9	1892.0	1502.471	111.294	112.0746606	112	313149
722	9	1892.2	1502.629	111.306	112.0868778	112	364392
723	9	1892.4	1502.788	111.318	112.099095	112	415635
724	9	1892.6	1502.947	111.329	112.1113122	112	466877
725	9	1892.8	1503.106	111.341	112.1235294	112	518120
726	9	1893.0	1503.265	111.353	112.1357466	112	569363
727	9	1893.2	1503.424	111.365	112.1479638	112	620605
728	9	1893.4	1503.582	111.376	112.160181	112	671848
729	9	1893.6	1503.741	111.388	112.1723982	112	723090
730	9	1893.8	1503.900	111.400	112.1846154	112	774333
731	9	1894.0	1504.059	111.412	112.1968326	112	825576
732	9	1894.2	1504.218	111.424	112.2090498	112	876818
733	9	1894.4	1504.376	111.435	112.221267	112	928061
734	9	1894.6	1504.535	111.447	112.2334842	112	979304

Table 15. Tx PCS (6 of 7)

Channel	D1 = 9,10,11 or 12	Tx Freq (F_{TX}) (MHz)	UHF LO (F_{VCO}) (MHz)	TxIF (MHz)	Total N	N (Main Divider)	FN (Modulo)
735	9	1894.8	1504.694	111.459	112.2457014	112	1030546
736	9	1895.0	1504.853	111.471	112.2579186	112	1081789
737	9	1895.2	1505.012	111.482	112.2701357	112	1133031
738	9	1895.4	1505.171	111.494	112.2823529	112	1184274
739	9	1895.6	1505.329	111.506	112.2945701	112	1235517
740	9	1895.8	1505.488	111.518	112.3067873	112	1286759
741	9	1896.0	1505.647	111.529	112.3190045	112	1338002
742	9	1896.2	1505.806	111.541	112.3312217	112	1389245
743	10	1896.4	1497.158	99.811	111.6659919	111	2793373
744	10	1896.6	1497.316	99.821	111.6781377	111	2844315
745	10	1896.8	1497.474	99.832	111.6902834	111	2895258
746	10	1897.0	1497.632	99.842	111.7024291	111	2946201
747	10	1897.2	1497.789	99.853	111.7145749	111	2997144
748	10	1897.4	1497.947	99.863	111.7267206	111	3048087
749	10	1897.6	1498.105	99.874	111.7388664	111	3099030
750	10	1897.8	1498.263	99.884	111.7510121	111	3149973
751	10	1898.0	1498.421	99.895	111.7631579	111	3200916
752	10	1898.2	1498.579	99.905	111.7753036	111	3251859
753	10	1898.4	1498.737	99.916	111.7874494	111	3302802
754	10	1898.6	1498.895	99.926	111.7995951	111	3353745
755	10	1898.8	1499.053	99.937	111.8117409	111	3404688
756	10	1899.0	1499.211	99.947	111.8238866	111	3455631
757	10	1899.2	1499.368	99.958	111.8360324	111	3506574
758	10	1899.4	1499.526	99.968	111.8481781	111	3557517
759	10	1899.6	1499.684	99.979	111.8603239	111	3608460
760	10	1899.8	1499.842	99.989	111.8724696	111	3659403
761	10	1900.0	1500.000	100.000	111.8846154	111	3710346
762	10	1900.2	1500.158	100.011	111.8967611	111	3761289
763	10	1900.4	1500.316	100.021	111.9089069	111	3812232
764	10	1900.6	1500.474	100.032	111.9210526	111	3863175
765	10	1900.8	1500.632	100.042	111.9331984	111	3914118
766	10	1901.0	1500.789	100.053	111.9453441	111	3965061
767	10	1901.2	1500.947	100.063	111.9574899	111	4016004
768	10	1901.4	1501.105	100.074	111.9696356	111	4066947
769	10	1901.6	1501.263	100.084	111.9817814	111	4117890
770	10	1901.8	1501.421	100.095	111.9939271	111	4168833
771	10	1902.0	1501.579	100.105	112.0060729	112	25471
772	10	1902.2	1501.737	100.116	112.0182186	112	76414
773	10	1902.4	1501.895	100.126	112.0303644	112	127357
774	10	1902.6	1502.053	100.137	112.0425101	112	178300
775	10	1902.8	1502.211	100.147	112.0546559	112	229243
776	10	1903.0	1502.368	100.158	112.0668016	112	280186
777	10	1903.2	1502.526	100.168	112.0789474	112	331129
778	10	1903.4	1502.684	100.179	112.0910931	112	382072
779	10	1903.6	1502.842	100.189	112.1032389	112	433015

Table 15. Tx PCS (7 of 7)

Channel	D1 = 9,10,11 or 12	Tx Freq (F_{TX}) (MHz)	UHF LO (F_{VCO}) (MHz)	TxIF (MHz)	Total N	N (Main Divider)	FN (Modulo)
780	10	1903.8	1503.000	100.200	112.1153846	112	483958
781	10	1904.0	1503.158	100.211	112.1275304	112	534901
782	10	1904.2	1503.316	100.221	112.1396761	112	585844
783	10	1904.4	1503.474	100.232	112.1518219	112	636787
784	10	1904.6	1503.632	100.242	112.1639676	112	687730
785	10	1904.8	1503.789	100.253	112.1761134	112	738673
786	10	1905.0	1503.947	100.263	112.1882591	112	789616
787	10	1905.2	1504.105	100.274	112.2004049	112	840559
788	10	1905.4	1504.263	100.284	112.2125506	112	891502
789	10	1905.6	1504.421	100.295	112.2246964	112	942445
790	10	1905.8	1504.579	100.305	112.2368421	112	993388
791	10	1906.0	1504.737	100.316	112.2489879	112	1044331
792	10	1906.2	1504.895	100.326	112.2611336	112	1095274
793	10	1906.4	1505.053	100.337	112.2732794	112	1146217
794	10	1906.6	1505.211	100.347	112.2854251	112	1197160
795	10	1906.8	1505.368	100.358	112.2975709	112	1248103
796	9	1907.0	1514.382	112.176	112.9909502	112	4156346
797	9	1907.2	1514.541	112.188	113.0031674	113	13285
798	9	1907.4	1514.700	112.200	113.0153846	113	64528
799	9	1907.6	1514.859	112.212	113.0276018	113	115770
800	9	1907.8	1515.018	112.224	113.039819	113	167013
801	9	1908.0	1515.176	112.235	113.0520362	113	218256
802	9	1908.2	1515.335	112.247	113.0642534	113	269498
803	9	1908.4	1515.494	112.259	113.0764706	113	320741
804	9	1908.6	1515.653	112.271	113.0886878	113	371984
805	9	1908.8	1515.812	112.282	113.100905	113	423226
806	9	1909.0	1515.971	112.294	113.1131222	113	474469
807	9	1909.2	1516.129	112.306	113.1253394	113	525711
808	9	1909.4	1516.288	112.318	113.1375566	113	576954
809	9	1909.6	1516.447	112.329	113.1497738	113	628197
810	9	1909.8	1516.606	112.341	113.161991	113	679439

Table 16. PCS Tx Minimum and Maximum

Parameter	Minimum	Maximum
Tx Frequency	1850.2	1909.8
UHF LO	1460.684	1516.606
TxIF	97.379	112.341
Total N	108.8603239	113.1619910
N (Main Divider)	108	113
FN (Modulo)	5694	4192406

Table 17. Rx PCS (1 of 7)

Channel	Rx Freq (F_{RX}) (MHz)	UHF LO (F_{VCO}) (MHz)	Total N	N (Main Divider)	FN (Modulo)
512	1930.2	1447.7	107.8576923	107	3597422
513	1930.4	1447.8	107.8692308	107	3645818
514	1930.6	1448.0	107.8807692	107	3694214
515	1930.8	1448.1	107.8923077	107	3742610
516	1931.0	1448.3	107.9038462	107	3791006
517	1931.2	1448.4	107.9153846	107	3839401
518	1931.4	1448.6	107.9269231	107	3887797
519	1931.6	1448.7	107.9384615	107	3936193
520	1931.8	1448.9	107.9500000	107	3984589
521	1932.0	1449.0	107.9615385	107	4032985
522	1932.2	1449.2	107.9730769	107	4081380
523	1932.4	1449.3	107.9846154	107	4129776
524	1932.6	1449.5	107.9961538	107	4178172
525	1932.8	1449.6	108.0076923	108	32264
526	1933.0	1449.8	108.0192308	108	80660
527	1933.2	1449.9	108.0307692	108	129056
528	1933.4	1450.1	108.0423077	108	177451
529	1933.6	1450.2	108.0538462	108	225847
530	1933.8	1450.4	108.0653846	108	274243
531	1934.0	1450.5	108.0769231	108	322639
532	1934.2	1450.7	108.0884615	108	371035
533	1934.4	1450.8	108.1000000	108	419430
534	1934.6	1451.0	108.1115385	108	467826
535	1934.8	1451.1	108.1230769	108	516222
536	1935.0	1451.3	108.1346154	108	564618
537	1935.2	1451.4	108.1461538	108	613014
538	1935.4	1451.6	108.1576923	108	661409
539	1935.6	1451.7	108.1692308	108	709805
540	1935.8	1451.9	108.1807692	108	758201
541	1936.0	1452.0	108.1923077	108	806597
542	1936.2	1452.2	108.2038462	108	854993
543	1936.4	1452.3	108.2153846	108	903389
544	1936.6	1452.5	108.2269231	108	951784
545	1936.8	1452.6	108.2384615	108	1000180
546	1937.0	1452.8	108.2500000	108	1048576
547	1937.2	1452.9	108.2615385	108	1096972
548	1937.4	1453.1	108.2730769	108	1145368
549	1937.6	1453.2	108.2846154	108	1193763
550	1937.8	1453.4	108.2961538	108	1242159
551	1938.0	1453.5	108.3076923	108	1290555
552	1938.2	1453.7	108.3192308	108	1338951
553	1938.4	1453.8	108.3307692	108	1387347
554	1938.6	1454.0	108.3423077	108	1435743
555	1938.8	1454.1	108.3538462	108	1484138

Table 17. Rx PCS (2 of 7)

Channel	Rx Freq (F_{RX}) (MHz)	UHF LO (F_{VCO}) (MHz)	Total N	N (Main Divider)	FN (Modulo)
556	1939.0	1454.3	108.3653846	108	1532534
557	1939.2	1454.4	108.3769231	108	1580930
558	1939.4	1454.6	108.3884615	108	1629326
559	1939.6	1454.7	108.4000000	108	1677722
560	1939.8	1454.9	108.4115385	108	1726117
561	1940.0	1455.0	108.4230769	108	1774513
562	1940.2	1455.2	108.4346154	108	1822909
563	1940.4	1455.3	108.4461538	108	1871305
564	1940.6	1455.5	108.4576923	108	1919701
565	1940.8	1455.6	108.4692308	108	1968096
566	1941.0	1455.8	108.4807692	108	2016492
567	1941.2	1455.9	108.4923077	108	2064888
568	1941.4	1456.1	108.5038462	108	2113284
569	1941.6	1456.2	108.5153846	108	2161680
570	1941.8	1456.4	108.5269231	108	2210076
571	1942.0	1456.5	108.5384615	108	2258471
572	1942.2	1456.7	108.5500000	108	2306867
573	1942.4	1456.8	108.5615385	108	2355263
574	1942.6	1457.0	108.5730769	108	2403659
575	1942.8	1457.1	108.5846154	108	2452055
576	1943.0	1457.3	108.5961538	108	2500450
577	1943.2	1457.4	108.6076923	108	2548846
578	1943.4	1457.6	108.6192308	108	2597242
579	1943.6	1457.7	108.6307692	108	2645638
580	1943.8	1457.9	108.6423077	108	2694034
581	1944.0	1458.0	108.6538462	108	2742430
582	1944.2	1458.2	108.6653846	108	2790825
583	1944.4	1458.3	108.6769231	108	2839221
584	1944.6	1458.5	108.6884615	108	2887617
585	1944.8	1458.6	108.7000000	108	2936013
586	1945.0	1458.8	108.7115385	108	2984409
587	1945.2	1458.9	108.7230769	108	3032804
588	1945.4	1459.1	108.7346154	108	3081200
589	1945.6	1459.2	108.7461538	108	3129596
590	1945.8	1459.4	108.7576923	108	3177992
591	1946.0	1459.5	108.7692308	108	3226388
592	1946.2	1459.7	108.7807692	108	3274784
593	1946.4	1459.8	108.7923077	108	3323179
594	1946.6	1460.0	108.8038462	108	3371575
595	1946.8	1460.1	108.8153846	108	3419971
596	1947.0	1460.3	108.8269231	108	3468367
597	1947.2	1460.4	108.8384615	108	3516763
598	1947.4	1460.6	108.8500000	108	3565158
599	1947.6	1460.7	108.8615385	108	3613554

Table 17. Rx PCS (3 of 7)

Channel	Rx Freq (F_{RX}) (MHz)	UHF LO (F_{VCO}) (MHz)	Total N	N (Main Divider)	FN (Modulo)
600	1947.8	1460.9	108.8730769	108	3661950
601	1948.0	1461.0	108.8846154	108	3710346
602	1948.2	1461.2	108.8961538	108	3758742
603	1948.4	1461.3	108.9076923	108	3807137
604	1948.6	1461.5	108.9192308	108	3855533
605	1948.8	1461.6	108.9307692	108	3903929
606	1949.0	1461.8	108.9423077	108	3952325
607	1949.2	1461.9	108.9538462	108	4000721
608	1949.4	1462.1	108.9653846	108	4049117
609	1949.6	1462.2	108.9769231	108	4097512
610	1949.8	1462.4	108.9884615	108	4145908
611	1950.0	1462.5	1090000000	109	0
612	1950.2	1462.7	109.0115385	109	48396
613	1950.4	1462.8	109.0230769	109	96792
614	1950.6	1463.0	109.0346154	109	145187
615	1950.8	1463.1	109.0461538	109	193583
616	1951.0	1463.3	109.0576923	109	241979
617	1951.2	1463.4	109.0692308	109	290375
618	1951.4	1463.6	109.0807692	109	338771
619	1951.6	1463.7	109.0923077	109	387167
620	1951.8	1463.9	109.1038462	109	435562
621	1952.0	1464.0	109.1153846	109	483958
622	1952.2	1464.2	109.1269231	109	532354
623	1952.4	1464.3	109.1384615	109	580750
624	1952.6	1464.5	109.1500000	109	629146
625	1952.8	1464.6	109.1615385	109	677541
626	1953.0	1464.8	109.1730769	109	725937
627	1953.2	1464.9	109.1846154	109	774333
628	1953.4	1465.1	109.1961538	109	822729
629	1953.6	1465.2	109.2076923	109	871125
630	1953.8	1465.4	109.2192308	109	919520
631	1954.0	1465.5	109.2307692	109	967916
632	1954.2	1465.7	109.2423077	109	1016312
633	1954.4	1465.8	109.2538462	109	1064708
634	1954.6	1466.0	109.2653846	109	1113104
635	1954.8	1466.1	109.2769231	109	1161500
636	1955.0	1466.3	109.2884615	109	1209895
637	1955.2	1466.4	109.3000000	109	1258291
638	1955.4	1466.6	109.3115385	109	1306687
639	1955.6	1466.7	109.3230769	109	1355083
640	1955.8	1466.9	109.3346154	109	1403479
641	1956.0	1467.0	109.3461538	109	1451874
642	1956.2	1467.2	109.3576923	109	1500270
643	1956.4	1467.3	109.3692308	109	1548666

Table 17. Rx PCS (4 of 7)

Channel	Rx Freq (F_{RX}) (MHz)	UHF LO (F_{VCO}) (MHz)	Total N	N (Main Divider)	FN (Modulo)
644	1956.6	1467.5	109.3807692	109	1597062
645	1956.8	1467.6	109.3923077	109	1645458
646	1957.0	1467.8	109.4038462	109	1693854
647	1957.2	1467.9	109.4153846	109	1742249
648	1957.4	1468.1	109.4269231	109	1790645
649	1957.6	1468.2	109.4384615	109	1839041
650	1957.8	1468.4	109.4500000	109	1887437
651	1958.0	1468.5	109.4615385	109	1935833
652	1958.2	1468.7	109.4730769	109	1984228
653	1958.4	1468.8	109.4846154	109	2032624
654	1958.6	1469.0	109.4961538	109	2081020
655	1958.8	1469.1	109.5076923	109	2129416
656	1959.0	1469.3	109.5192308	109	2177812
657	1959.2	1469.4	109.5307692	109	2226208
658	1959.4	1469.6	109.5423077	109	2274603
659	1959.6	1469.7	109.5538462	109	2322999
660	1959.8	1469.9	109.5653846	109	2371395
661	1960.0	1470.0	109.5769231	109	2419791
662	1960.2	1470.2	109.5884615	109	2468187
663	1960.4	1470.3	109.6000000	109	2516582
664	1960.6	1470.5	109.6115385	109	2564978
665	1960.8	1470.6	109.6230769	109	2613374
666	1961.0	1470.8	109.6346154	109	2661770
667	1961.2	1470.9	109.6461538	109	2710166
668	1961.4	1471.1	109.6576923	109	2758561
669	1961.6	1471.2	109.6692308	109	2806957
670	1961.8	1471.4	109.6807692	109	2855353
671	1962.0	1471.5	109.6923077	109	2903749
672	1962.2	1471.7	109.7038462	109	2952145
673	1962.4	1471.8	109.7153846	109	3000541
674	1962.6	1472.0	109.7269231	109	3048936
675	1962.8	1472.1	109.7384615	109	3097332
676	1963.0	1472.3	109.7500000	109	3145728
677	1963.2	1472.4	109.7615385	109	3194124
678	1963.4	1472.6	109.7730769	109	3242520
679	1963.6	1472.7	109.7846154	109	3290915
680	1963.8	1472.9	109.7961538	109	3339311
681	1964.0	1473.0	109.8076923	109	3387707
682	1964.2	1473.2	109.8192308	109	3436103
683	1964.4	1473.3	109.8307692	109	3484499
684	1964.6	1473.5	109.8423077	109	3532895
685	1964.8	1473.6	109.8538462	109	3581290
686	1965.0	1473.8	109.8653846	109	3629686
687	1965.2	1473.9	109.8769231	109	3678082

Table 17. Rx PCS (5 of 7)

Channel	Rx Freq (F_{RX}) (MHz)	UHF LO (F_{VCO}) (MHz)	Total N	N (Main Divider)	FN (Modulo)
688	1965.4	1474.1	109.8884615	109	3726478
689	1965.6	1474.2	109.9000000	109	3774874
690	1965.8	1474.4	109.9115385	109	3823269
691	1966.0	1474.5	109.9230769	109	3871665
692	1966.2	1474.7	109.9346154	109	3920061
693	1966.4	1474.8	109.9461538	109	3968457
694	1966.6	1475.0	109.9576923	109	4016853
695	1966.8	1475.1	109.9692308	109	4065248
696	1967.0	1475.3	109.9807692	109	4113644
697	1967.2	1475.4	109.9923077	109	4162040
698	1967.4	1475.6	110.0038462	110	16132
699	1967.6	1475.7	110.0153846	110	64528
700	1967.8	1475.9	110.0269231	110	112924
701	1968.0	1476.0	110.0384615	110	161319
702	1968.2	1476.2	110.0500000	110	209715
703	1968.4	1476.3	110.0615385	110	258111
704	1968.6	1476.5	110.0730769	110	306507
705	1968.8	1476.6	110.0846154	110	354903
706	1969.0	1476.8	110.0961538	110	403298
707	1969.2	1476.9	110.1076923	110	451694
708	1969.4	1477.1	110.1192308	110	500090
709	1969.6	1477.2	110.1307692	110	548486
710	1969.8	1477.4	110.1423077	110	596882
711	1970.0	1477.5	110.1538462	110	645278
712	1970.2	1477.7	110.1653846	110	693673
713	1970.4	1477.8	110.1769231	110	742069
714	1970.6	1478.0	110.1884615	110	790465
715	1970.8	1478.1	110.2000000	110	838861
716	1971.0	1478.3	110.2115385	110	887257
717	1971.2	1478.4	110.2230769	110	935652
718	1971.4	1478.6	110.2346154	110	984048
719	1971.6	1478.7	110.2461538	110	1032444
720	1971.8	1478.9	110.2576923	110	1080840
721	1972.0	1479.0	110.2692308	110	1129236
722	1972.2	1479.2	110.2807692	110	1177632
723	1972.4	1479.3	110.2923077	110	1226027
724	1972.6	1479.5	110.3038462	110	1274423
725	1972.8	1479.6	110.3153846	110	1322819
726	1973.0	1479.8	110.3269231	110	1371215
727	1973.2	1479.9	110.3384615	110	1419611
728	1973.4	1480.1	110.3500000	110	1468006
729	1973.6	1480.2	110.3615385	110	1516402
730	1973.8	1480.4	110.3730769	110	1564798
731	1974.0	1480.5	110.3846154	110	1613194

Table 17. Rx PCS (6 of 7)

Channel	Rx Freq (F_{RX}) (MHz)	UHF LO (F_{VCO}) (MHz)	Total N	N (Main Divider)	FN (Modulo)
732	1974.2	1480.7	110.3961538	110	1661590
733	1974.4	1480.8	110.4076923	110	1709985
734	1974.6	1481.0	110.4192308	110	1758381
735	1974.8	1481.1	110.4307692	110	1806777
736	1975.0	1481.3	110.4423077	110	1855173
737	1975.2	1481.4	110.4538462	110	1903569
738	1975.4	1481.6	110.4653846	110	1951965
739	1975.6	1481.7	110.4769231	110	2000360
740	1975.8	1481.9	110.4884615	110	2048756
741	1976.0	1482.0	110.5000000	110	2097152
742	1976.2	1482.2	110.5115385	110	2145548
743	1976.4	1482.3	110.5230769	110	2193944
744	1976.6	1482.5	110.5346154	110	2242339
745	1976.8	1482.6	110.5461538	110	2290735
746	1977.0	1482.8	110.5576923	110	2339131
747	1977.2	1482.9	110.5692308	110	2387527
748	1977.4	1483.1	110.5807692	110	2435923
749	1977.6	1483.2	110.5923077	110	2484319
750	1977.8	1483.4	110.6038462	110	2532714
751	1978.0	1483.5	110.6153846	110	2581110
752	1978.2	1483.7	110.6269231	110	2629506
753	1978.4	1483.8	110.6384615	110	2677902
754	1978.6	1484.0	110.6500000	110	2726298
755	1978.8	1484.1	110.6615385	110	2774693
756	1979.0	1484.3	110.6730769	110	2823089
757	1979.2	1484.4	110.6846154	110	2871485
758	1979.4	1484.6	110.6961538	110	2919881
759	1979.6	1484.7	110.7076923	110	2968277
760	1979.8	1484.9	110.7192308	110	3016672
761	1980.0	1485.0	110.7307692	110	3065068
762	1980.2	1485.2	110.7423077	110	3113464
763	1980.4	1485.3	110.7538462	110	3161860
764	1980.6	1485.5	110.7653846	110	3210256
765	1980.8	1485.6	110.7769231	110	3258652
766	1981.0	1485.8	110.7884615	110	3307047
767	1981.2	1485.9	110.8000000	110	3355443
768	1981.4	1486.1	110.8115385	110	3403839
769	1981.6	1486.2	110.8230769	110	3452235
770	1981.8	1486.4	110.8346154	110	3500631
771	1982.0	1486.5	110.8461538	110	3549026
772	1982.2	1486.7	110.8576923	110	3597422
773	1982.4	1486.8	110.8692308	110	3645818
774	1982.6	1487.0	110.8807692	110	3694214
775	1982.8	1487.1	110.8923077	110	3742610

Table 17. Rx PCS (7 of 7)

Channel	Rx Freq (F_{RX}) (MHz)	UHF LO (F_{VCO}) (MHz)	Total N	N (Main Divider)	FN (Modulo)
776	1983.0	1487.3	110.9038462	110	3791006
777	1983.2	1487.4	110.9153846	110	3839401
778	1983.4	1487.6	110.9269231	110	3887797
779	1983.6	1487.7	110.9384615	110	3936193
780	1983.8	1487.9	110.9500000	110	3984589
781	1984.0	1488.0	110.9615385	110	4032985
782	1984.2	1488.2	110.9730769	110	4081380
783	1984.4	1488.3	110.9846154	110	4129776
784	1984.6	1488.5	110.9961538	110	4178172
785	1984.8	1488.6	111.0076923	111	32264
786	1985.0	1488.8	111.0192308	111	80660
787	1985.2	1488.9	111.0307692	111	129056
788	1985.4	1489.1	111.0423077	111	177451
789	1985.6	1489.2	111.0538462	111	225847
790	1985.8	1489.4	111.0653846	111	274243
791	1986.0	1489.5	111.0769231	111	322639
792	1986.2	1489.7	111.0884615	111	371035
793	1986.4	1489.8	111.1000000	111	419430
794	1986.6	1490.0	111.1115385	111	467826
795	1986.8	1490.1	111.1230769	111	516222
796	1987.0	1490.3	111.1346154	111	564618
797	1987.2	1490.4	111.1461538	111	613014
798	1987.4	1490.6	111.1576923	111	661409
799	1987.6	1490.7	111.1692308	111	709805
800	1987.8	1490.9	111.1807692	111	758201
801	1988.0	1491.0	111.1923077	111	806597
802	1988.2	1491.2	111.2038462	111	854993
803	1988.4	1491.3	111.2153846	111	903389
804	1988.6	1491.5	111.2269231	111	951784
805	1988.8	1491.6	111.2384615	111	1000180
806	1989.0	1491.8	111.2500000	111	1048576
807	1989.2	1491.9	111.2615385	111	1096972
808	1989.4	1492.1	111.2730769	111	1145368
809	1989.6	1492.2	111.2846154	111	1193763
810	1989.8	1492.4	111.2961538	111	1242159

APC CALIBRATION

APC – Automatic Power Control

The output power is not exactly the same with the same APC value in every handset because of the device tolerance. It needs to set proper APC value into every handset to have specified output power.

Table 1 list the FTA spec and our target setting.

Please note that the higher levels are not exactly same because of current consumption issue, and it follows spec with within ±2dBm in peak power.

GSM850 BAND			PCS BAND		
Power control level	Transmitter output power	Our setting value	Power control level	Transmitter output power	Our setting value
Level 5	29	30	Level 0	30	30
Level 6	29	30	Level 1	28	28
Level 7	29	30	Level 2	26	26
Level 8	27	27.5	Level 3	24	24
Level 9	25	25	Level 4	22	22
Level 10	23	23	Level 5	20	20
Level 11	21	21	Level 6	18	18
Level 12	19	19	Level 7	16	16
Level 13	17	17	Level 8	14	14
Level 14	15	15	Level 9	12	12
Level 15	13	13	Level 10	10	10
Level 16	11	11	Level 11	8	8
Level 17	9	9	Level 12	6	6
Level 18	7	7	Level 13	4	4
Level 19	5	5	Level 14	2	2
			Level 15	0	0