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| Prepared (also subject responsible if other)<br>EAB/RBI/R Per Helmersson |         | No.<br>B5KAKRC1311013-2 |          |           |
| Approved<br>KI/EAB/RBI/R (P Helmersson)                                  | Checked | Date<br>2005-03-22      | Rev<br>A | Reference |

## Exhibit 10 - Components, Tune Up

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## **1                    2.1033 (c) (10) Function of Active Circuit Devices**

### **1.1                    Printed Board TBU 1900 MHz GMSK/8-PSK ROA 128 1355/2**

#### **1.1.1                    Function Block CPU**

ROZ 104 410/1

Revision B

| Pos   | Prod name/Func des                          | Product number   |
|-------|---------------------------------------------|------------------|
| Z3001 | MICROCIRCUIT/74'08 LVC TSSOP14 4x 2-INP AND | RYT 331 0008/3C  |
| Z3100 | PROD. ADAPT. CIRCUIT/ASIC POWER GARP        | ROP 101 1192/1   |
| Z3303 | MICROCIRCUIT/74'14 LVC TSSOP14 6x INVERT SC | RYT 331 0014/3C  |
| Z3400 | MICROCIRCUIT/SDRAM 16M16 133MHz CL=3 100MHz | RYT 119 6142/5   |
| Z3401 | MICROCIRCUIT/SDRAM 16M16 133MHz CL=3 100MHz | RYT 119 6142/5   |
| Z3402 | MICROCIRCUIT/74'08 LVC1G SC70-5 1x 2-INP D- | RYT 326 6008/52C |
| Z3403 | MICROCIRCUIT/FLASH TB 2M16 90NS 3.3V I      | RYT 118 6152/6   |
| Z3404 | MICROCIRCUIT/FLASH 8M16 150NS 3.3V E        | RYT 118 6153/1   |
| Z3601 | MICROCIRCUIT/LVDS LINE DRIVER x4 TSSOP16 /9 | RYT 109 6181/2C  |
| Z3602 | MICROCIRCUIT/LVDS LINE RECEIVER x4 TSSOP16  | RYT 109 6158/2C  |
| Z3603 | MICROCIRCUIT/RS485/RS422 TRANSCEIVER x1 3.3 | RYT 109 6243/3   |
| Z3604 | MICROCIRCUIT/RS485/RS422 TRANSCEIVER x1 3.3 | RYT 109 6243/3   |
| Z3605 | MICROCIRCUIT/RS485/RS422 TRANSCEIVER x1 3.3 | RYT 109 6243/3   |
| Z3606 | MICROCIRCUIT/RS485/RS422 TRANSCEIVER x1 3.3 | RYT 109 6243/3   |
| Z3607 | FUNCTIONAL COMPONENT/CDU MUX PLD            | RON 107 496      |
| Z3700 | MICROCIRCUIT/74'244 LVC SSOP20 8x BUFFER NO | RYT 331 0244/C   |
| Z3701 | MICROCIRCUIT/74'244 LVC SSOP20 8x BUFFER NO | RYT 331 0244/C   |
| Z3702 | MICROCIRCUIT/74'244 LVC SSOP20 8x BUFFER NO | RYT 331 0244/C   |

|                                                                          |         |                         |          |           |
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### 1.1.2 Function Block Sparc 1

ROZ 104 404/2  
Revision A

| Pos   | Prod name/Func des                             | Product number   |
|-------|------------------------------------------------|------------------|
| L5200 | FILTER/50ohm 1206 3A 0.025ohm Bead             | REG 706 21/1     |
| L5201 | FILTER/50ohm 1206 3A 0.025ohm Bead             | REG 706 21/1     |
| L5300 | FILTER/50ohm 1206 3A 0.025ohm Bead             | REG 706 21/1     |
| L5301 | FILTER/50ohm 1206 3A 0.025ohm Bead             | REG 706 21/1     |
| Z5000 | MICROCIRCUIT/74'08 LVC TSSOP14 4x 2-INP AND    | RYT 331 0008/3C  |
| Z5001 | MICROCIRCUIT/FLASH SPI 128K8 20MHz 2.7V I      | RYT 118 6154/2   |
| Z5002 | MICROCIRCUIT/74'86 LVC,Z1G SC70-5 1x 2-INP     | RYT 326 6086/42C |
| Z5003 | MICROCIRCUIT/74'08 LVC1G SC70-5 1x 2-INP D-    | RYT 326 6008/52C |
| Z5200 | PROD. ADAPT. CIRCUIT/EDGE BASE BAND ASIC, EBBA | ROP 101 1189/1   |
| Z5201 | MICROCIRCUIT/SDRAM 16M16 133MHz CL=3 100MHz    | RYT 119 6142/5   |
| Z5300 | PROD. ADAPT. CIRCUIT/TARAC_U+                  | ROP 101 1128/2   |

|                                                                          |         |                         |          |           |
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| Approved<br>KI/EAB/RBI/R (P Helmersson)                                  | Checked | Date<br>2005-03-22      | Rev<br>A | Reference |

### 1.1.3 Function Block Sparc 2

ROZ 104 405/2  
Revision A

| Pos   | Prod name/Func des                             | Product number   |
|-------|------------------------------------------------|------------------|
| L6200 | FILTER/50ohm 1206 3A 0.025ohm Bead             | REG 706 21/1     |
| L6201 | FILTER/50ohm 1206 3A 0.025ohm Bead             | REG 706 21/1     |
| L6300 | FILTER/50ohm 1206 3A 0.025ohm Bead             | REG 706 21/1     |
| L6301 | FILTER/50ohm 1206 3A 0.025ohm Bead             | REG 706 21/1     |
| Z6000 | MICROCIRCUIT/74'08 LVC TSSOP14 4x 2-INP AND    | RYT 331 0008/3C  |
| Z6001 | MICROCIRCUIT/74'86 LVC,Z1G SC70-5 1x 2-INP     | RYT 326 6086/42C |
| Z6002 | MICROCIRCUIT/74'08 LVC1G SC70-5 1x 2-INP D-    | RYT 326 6008/52C |
| Z6200 | PROD. ADAPT. CIRCUIT/EDGE BASE BAND ASIC, EBBA | ROP 101 1189/1   |
| Z6201 | MICROCIRCUIT/SDRAM 16M16 133MHz CL=3 100MHz    | RYT 119 6142/5   |
| Z6300 | PROD. ADAPT. CIRCUIT/TARAC_U+                  | ROP 101 1128/2   |
| Z6301 | MICROCIRCUIT/FLASH SPI 128K8 20MHz 2.7V I      | RYT 118 6154/2   |

|                                                                          |         |                         |          |           |
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| Approved<br>KI/EAB/RBI/R (P Helmersson)                                  | Checked | Date<br>2005-03-22      | Rev<br>A | Reference |

### 1.1.4 Function Block DC/DC

ROZ 104 406/1

Revision A

| Pos  | Prod name/Func des                                | Product number  |
|------|---------------------------------------------------|-----------------|
| D701 | DIODE/SWI x2 70V 200mA SOT23 serial               | RKZ 123 03/1    |
| D702 | DIODE/SWI x2 70V 200mA SOT23 com.cat              | RKZ 123 03/3    |
| D704 | DIODE/SWI x2 70V 200mA SOT23 serial               | RKZ 123 03/1    |
| D705 | DIODE/SWI x2 70V 200mA SOT23 serial               | RKZ 123 03/1    |
| D706 | MICROCIRCUIT/MOSFET DRIVERx2 INV/NONINV /44       | RYT 109 6204/1  |
| D707 | MICROCIRCUIT/MOSFET DRIVERx2 INV/NONINV /44       | RYT 109 6204/1  |
| D708 | RECTIFIER/REC 200V 1A SMA 35ns                    | RKZ 123 05/2    |
| D709 | RECTIFIER/REC 200V 1A SMA 35ns                    | RKZ 123 05/2    |
| D711 | DIODE/REC SCH 40V 2A SMB 0.44V(2A)                | RKZ 323 487/2   |
| D712 | DIODE/REC SCH 40V 2A SMB 0.44V(2A)                | RKZ 323 487/2   |
| D713 | DIODE/SWI SCH x2 40V 120mA SOT23 ser              | RKZ 323 17/1    |
| N700 | MICROCIRCUIT/2 Chan Sync Current Mode PWM         | RYT 113 142/C   |
| N701 | MICROCIRCUIT/REG LIN+ ADJ 1.25-13.8 +/-1% 8       | RYT 113 6302/3  |
| N702 | MICROCIRCUIT/REG SW- ADJ 2.0A                     | RYT 113 6373/1  |
| N703 | MICROCIRCUIT/Quad Voltage Supervisory Circu       | RYT 113 296/C   |
| N705 | MICROCIRCUIT/REG SW- ADJ 150kHz 0.5A              | RYT 113 6320/1  |
| N707 | MICROCIRCUIT/OPAMP 2.5V/30V R/R 21MHz             | RYT 101 6339/1  |
| N708 | MICROCIRCUIT/COMP x2 36V                          | RYT 101 6169/1  |
| N709 | MICROCIRCUIT/OPAMP 2.5V/30V R/R 21MHz             | RYT 101 6339/1  |
| N710 | MICROCIRCUIT/COMP x2 36V                          | RYT 101 6169/1  |
| N711 | REGULATOR/REG LIN- 5.0V +/-4% 100mA 1.7V          | RYT 113 6021/1C |
| N712 | MICROCIRCUIT/PWM ADJ 0.8V to 90% of VIN           | RYT 113 6374/1  |
| T700 | TRANSFORMER/DCDC OOPS                             | REG 544 2313    |
| T701 | TRANSFORMER/                                      | REG 520 2310    |
| V700 | TRANSISTOR/NFET 100V 4.5A SO8 60mohm(10V)         | RYN 123 6013/1  |
| V701 | TRANSISTOR/NFET 100V 4.5A SO8 60mohm(10V)         | RYN 123 6013/1  |
| V702 | TRANSISTOR/NFET 30V 14A SO8 10mohm(4.5V)          | RYN 123 6012/1  |
| V706 | TRANSISTOR/NFET 30V 14A SO8 10mohm(4.5V)          | RYN 123 6012/1  |
| V707 | TRANSISTOR/NFET 30V 14A SO8 10mohm(4.5V)          | RYN 123 6012/1  |
| V709 | TRANSISTOR/NPN SS 45V 100mA SOT23 hFE>250         | RYN 121 629/1   |
| V717 | OVERVOLTAGE ARRESTER/TVS ZEN unidir 36V SMC 1.5kW | RKZ 223 485/36  |
| V718 | DIODE/REC SCH 40V 2A SMB 0.44V(2A)                | RKZ 323 487/2   |
| V724 | RECTIFIER/REC SCH x2 30V 2x6A DPAK                | RKZ 323 6047/1  |
| V729 | DIODE/SWI x2 70V 200mA SOT23 serial               | RKZ 123 03/1    |
| V730 | TRANSISTOR/NFET 30V 14A SO8 10mohm(4.5V)          | RYN 123 6012/1  |
| V731 | TRANSISTOR/NFET 30V 14A SO8 10mohm(4.5V)          | RYN 123 6012/1  |
| V732 | TRANSISTOR/NFET 30V 14A SO8 10mohm(4.5V)          | RYN 123 6012/1  |
| V733 | TRANSISTOR/NFET 100V 4.5A SO8 60mohm(10V)         | RYN 123 6013/1  |
| V735 | TRANSISTOR/PNP SS 45V 100mA SOT23 hFE>250         | RYN 120 614/1   |
| V737 | TRANSISTOR/NPN SS 45V 100mA SOT23 hFE>250         | RYN 121 629/1   |

|                                                                          |         |                         |          |           |
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### 1.1.5 Function Block LTU

ROZ 104 225/1  
Revision A

| Pos  | Prod name/Func des                          | Product number   |
|------|---------------------------------------------|------------------|
| V500 | DIODE/SWI SCH x2 70V 70mA SOT23 seri        | RKZ 323 08/2     |
| Z500 | MICROCIRCUIT/REG LIN+ ADJ 1.8-20V +/-1% 500 | RYT 113 6303/1   |
| Z501 | MICROCIRCUIT/74'74 AC SOP14 2xD FLIP-FLOP   | RYT 318 0074/C   |
| Z503 | MICROCIRCUIT/PLL SSOP16 MB15E07 PFV-ER      | RYT 102 6057/1   |
| Z504 | OSCILLATOR/VCXO 26.000MHZ                   | RTL 202 610/02   |
| Z505 | MICROCIRCUIT/74'04 LVC SSOP14 6x INVERTER   | RYT 331 0004/C   |
| Z506 | MICROCIRCUIT/74'04 ACT TSSOP14 6x INVERTER  | RYT 317 6004/22C |
| Z507 | MICROCIRCUIT/74'04 ACT TSSOP14 6x INVERTER  | RYT 317 6004/22C |
| Z508 | MICROCIRCUIT/REG LIN+ 3.3V 150mA 0.575V     | RYT 113 6110/12  |

|                                                                          |         |                         |          |           |
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| Approved<br>KI/EAB/RBI/R (P Helmersson)                                  | Checked | Date<br>2005-03-22      | Rev<br>A | Reference |

### 1.1.6 Function Block RX IF1 EDGE 1900 MHz

ROZ 104 226/2  
Revision C

| Pos   | Prod name/Func des                         | Product number |
|-------|--------------------------------------------|----------------|
| V1300 | DIODE/VAR 15V 6-15pF 10-2V 0.4ohm 1-       | RKZ 323 610/1  |
| V1301 | DIODE/VAR 15V 6-15pF 10-2V 0.4ohm 1-       | RKZ 323 610/1  |
| X1301 | FILTER/201MHz 160kHz BP 15x6.5mm SAW       | RTN 201 851/03 |
| X1302 | FILTER/201MHz 160kHz BP 15x6.5mm SAW       | RTN 201 851/03 |
| Z1301 | PROD. ADAPT. CIRCUIT/ASIC VERDI            | ROP 101 609    |
| Z1302 | PROD. ADAPT. CIRCUIT/ASIC QIM              | ROP 101 1115/C |
| Z1306 | MICROCIRCUIT/REG LIN+ LDO 5.0V +/-1% 800mA | RYT 113 6091/5 |
| Z1401 | MICROCIRCUIT/DELTA-SIGMA_MODULATOR QFP48   | RYT 120 6061/2 |
| Z1402 | MICROCIRCUIT/DELTA-SIGMA_MODULATOR QFP48   | RYT 120 6061/2 |
| Z1403 | MICROCIRCUIT/DELTA-SIGMA_MODULATOR QFP48   | RYT 120 6061/2 |
| Z1404 | MICROCIRCUIT/DELTA-SIGMA_MODULATOR QFP48   | RYT 120 6061/2 |
| Z1406 | MICROCIRCUIT/REG LIN+ LDO 5.0V +/-1% 800mA | RYT 113 6091/5 |

|                                                                          |         |                         |          |           |
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| Approved<br>KI/EAB/RBI/R (P Helmersson)                                  | Checked | Date<br>2005-03-22      | Rev<br>A | Reference |

### 1.1.7 Function Block RX IF2 EDGE 1900 MHz

Product ROZ 104 227/2  
Revision C

| Pos   | Prod name/Func des                         | Product number  |
|-------|--------------------------------------------|-----------------|
| V2300 | DIODE/VAR 15V 6-15pF 10-2V 0.4ohm 1-       | RKZ 323 610/1   |
| V2301 | DIODE/VAR 15V 6-15pF 10-2V 0.4ohm 1-       | RKZ 323 610/1   |
| X2301 | FILTER/201MHz 160kHz BP 15x6.5mm SAW       | RTN 201 851/03  |
| X2302 | FILTER/201MHz 160kHz BP 15x6.5mm SAW       | RTN 201 851/03  |
| Z2301 | PROD. ADAPT. CIRCUIT/ASIC VERDI            | ROP 101 609     |
| Z2302 | PROD. ADAPT. CIRCUIT/ASIC QIM              | ROP 101 1115/C  |
| Z2303 | MICROCIRCUIT/REG LIN+ 3.3V 150mA 0.575V    | RYT 113 6110/12 |
| Z2306 | MICROCIRCUIT/REG LIN+ LDO 5.0V +/-1% 800mA | RYT 113 6091/5  |
| Z2401 | MICROCIRCUIT/DELTA-SIGMA_MODULATOR QFP48   | RYT 120 6061/2  |
| Z2402 | MICROCIRCUIT/DELTA-SIGMA_MODULATOR QFP48   | RYT 120 6061/2  |
| Z2403 | MICROCIRCUIT/DELTA-SIGMA_MODULATOR QFP48   | RYT 120 6061/2  |
| Z2404 | MICROCIRCUIT/DELTA-SIGMA_MODULATOR QFP48   | RYT 120 6061/2  |
| Z2406 | MICROCIRCUIT/REG LIN+ LDO 5.0V +/-1% 800mA | RYT 113 6091/5  |

|                                                                          |         |                         |          |           |
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### 1.1.8 Function Block Front end

ROZ 104 228/1

Revision A

| Pos   | Prod name/Func des                          | Product number  |
|-------|---------------------------------------------|-----------------|
| D1050 | MICROCIRCUIT/74'595 HCT TSSOP16 8B S-IN S/P | RYT 310 6031/2C |
| D1051 | MICROCIRCUIT/74'04 HC1G SSOP5-P 1x INVERTER | RYT 326 6004/C  |
| D1052 | MICROCIRCUIT/74'595 HCT TSSOP16 8B S-IN S/P | RYT 310 6031/2C |
| D1053 | MICROCIRCUIT/74'04 HC1G SSOP5-P 1x INVERTER | RYT 326 6004/C  |
| D1054 | MICROCIRCUIT/74'595 HCT TSSOP16 8B S-IN S/P | RYT 310 6031/2C |
| J1000 | COAXIAL CONNECTOR/QMA;fm;50ohm;ang.;SMD;    | RNT 408 2010/01 |
| J1001 | COAXIAL CONNECTOR/QMA;fm;50ohm;ang.;SMD;    | RNT 408 2010/01 |
| J1002 | COAXIAL CONNECTOR/QMA;fm;50ohm;ang.;SMD;    | RNT 408 2010/01 |
| J1003 | COAXIAL CONNECTOR/QMA;fm;50ohm;ang.;SMD;    | RNT 408 2010/01 |
| N1050 | MICROCIRCUIT/OPAMP x1 +/-6V                 | RYT 101 6161/1  |
| N1051 | MICROCIRCUIT/Switch. AS186-302 MSOP-8       | RYT 101 6438/1  |
| N1052 | MICROCIRCUIT/attenuator AA106-86            | RYT 115 6032/1  |
| N1053 | MICROCIRCUIT/OPAMP x1 +/-6V                 | RYT 101 6161/1  |
| N1054 | MICROCIRCUIT/attenuator AA106-86            | RYT 115 6032/1  |
| N1055 | MICROCIRCUIT/OPAMP x1 +/-6V                 | RYT 101 6161/1  |
| N1057 | MICROCIRCUIT/attenuator AA106-86            | RYT 115 6032/1  |
| N1058 | MICROCIRCUIT/OPAMP x1 +/-6V                 | RYT 101 6161/1  |
| N1059 | MICROCIRCUIT/attenuator AA106-86            | RYT 115 6032/1  |
| N1061 | DIRECTIONAL COUPLER/PD18-73 Y010            | UND 106 039/1   |
| N1062 | DIRECTIONAL COUPLER/PD18-73 Y010            | UND 106 039/1   |
| N1063 | DIRECTIONAL COUPLER/PD18-73 Y010            | UND 106 039/1   |
| N1064 | DIRECTIONAL COUPLER/PD18-73 Y010            | UND 106 039/1   |
| N1065 | DIRECTIONAL COUPLER/PD18-73 Y010            | UND 106 039/1   |
| N1200 | MICROCIRCUIT/microsynth (RX 1900)           | RYT 902 6046/1  |
| N1201 | MICROCIRCUIT/microsynth (RX 1900)           | RYT 902 6046/1  |
| N1202 | MICROCIRCUIT/TEMP SENSOR, SOT-23, LM50C     | RYT 124 6009/C  |
| N1203 | MICROCIRCUIT/IC ASIC ULLA II                | ROP 101 664/C   |
| N1204 | MICROCIRCUIT/IC ASIC ULLA II                | ROP 101 664/C   |
| N1205 | MICROCIRCUIT/TEMP SENSOR, SOT-23, LM50C     | RYT 124 6009/C  |
| N1206 | MICROCIRCUIT/microsynth (RX 1900)           | RYT 902 6046/1  |
| N1207 | MICROCIRCUIT/microsynth (RX 1900)           | RYT 902 6046/1  |
| T1200 | TRANSFORMER/SMD TRANSFORMER                 | REG 135 55/7    |
| T1201 | TRANSFORMER/SMD TRANSFORMER                 | REG 135 55/7    |
| T1202 | TRANSFORMER/BALUN 50/50 OHM 1880 MHZ        | REG 135 58/5    |
| T1203 | TRANSFORMER/BALUN 50/50 OHM 1880 MHZ        | REG 135 58/5    |
| T1204 | TRANSFORMER/SMD TRANSFORMER                 | REG 135 55/7    |
| T1205 | TRANSFORMER/SMD TRANSFORMER                 | REG 135 55/7    |
| T1206 | TRANSFORMER/BALUN 50/50 OHM 1880 MHZ        | REG 135 58/5    |
| T1207 | TRANSFORMER/BALUN 50/50 OHM 1880 MHZ        | REG 135 58/5    |
| V1050 | TRANSISTOR/RF_HEMT 4V 60mA SC70 (SOT343)    | RYN 123 697/1   |
| V1051 | TRANSISTOR/RF_HEMT 4V 60mA SC70 (SOT343)    | RYN 123 697/1   |

|                                                                          |         |                         |          |           |
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| Approved<br>KI/EAB/RBI/R (P Helmersson)                                  | Checked | Date<br>2005-03-22      | Rev<br>A | Reference |

|                                                  |                |
|--------------------------------------------------|----------------|
| V1052 TRANSISTOR/RF_HEMT 4V 60mA SC70 (SOT343)   | RYN 123 697/1  |
| V1053 TRANSISTOR/RF_HEMT 4V 60mA SC70 (SOT343)   | RYN 123 697/1  |
| V1112 DIODE/SWI x2 70V 200mA SOT23 serial        | RKZ 123 03/1   |
| X1200 FILTER/1880MHz 60MHz BP 7x8mm              | RTN 202 709/02 |
| X1201 FILTER/1880MHz 60MHz BP 7x8mm              | RTN 202 709/02 |
| X1202 FILTER/1880MHz 60MHz BP 7x8mm              | RTN 202 709/02 |
| X1203 FILTER/1880MHz 60MHz BP 7x8mm              | RTN 202 709/02 |
| Z1051 MICROCIRCUIT/REG LIN+ LDO 5.0V +/-1% 800mA | RYT 113 6091/5 |
| Z1052 MICROCIRCUIT/REG LIN+ LDO 5.0V +/-1% 800mA | RYT 113 6091/5 |
| Z1200 MICROCIRCUIT/Switch. AS186-302 MSOP-8      | RYT 101 6438/1 |
| Z1201 MICROCIRCUIT/Switch. AS186-302 MSOP-8      | RYT 101 6438/1 |

|                                                                          |         |                         |          |           |
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| Approved<br>KI/EAB/RBI/R (P Helmersson)                                  | Checked | Date<br>2005-03-22      | Rev<br>A | Reference |

### 1.1.9 Function Block TX1 1900

ROZ 104 407/1  
Revision C

| Pos   | Prod name/Func des                                | Product number  |
|-------|---------------------------------------------------|-----------------|
| D5500 | MICROCIRCUIT/74'04 HC1G SSOP5-P 1x INVERTER       | RYT 326 6004/C  |
| D5501 | MICROCIRCUIT/74'04 HC1G SSOP5-P 1x INVERTER       | RYT 326 6004/C  |
| D5701 | MICROCIRCUIT/74'595 HCT TSSOP16 8B S-IN S/P       | RYT 310 6031/2C |
| D5702 | MICROCIRCUIT/74'595 HCT TSSOP16 8B S-IN S/P       | RYT 310 6031/2C |
| N5501 | PROD. ADAPT. CIRCUIT/ASIC PENNY                   | ROP 101 612/2   |
| N5503 | PROD. ADAPT. CIRCUIT/ASIC FINJA                   | ROP 101 5005    |
| N5504 | MICROCIRCUIT/Switch. AS186-302 MSOP-8             | RYT 101 6438/1  |
| N5506 | MICROCIRCUIT/Switch. AS186-302 MSOP-8             | RYT 101 6438/1  |
| N5601 | DIRECTIONAL COUPLER/1500-2200MHz 20dB 100W 14x9mm | UND 106 049/1   |
| N5602 | MICROCIRCUIT/OPAMP 2.7V R/R 5.5MHz                | RYT 101 6331/3  |
| N5603 | MICROCIRCUIT/RF detector/controller               | RYT 101 6292/1  |
| N5610 | MICROCIRCUIT/RF Amplifier. SXA-289, MMIC A        | RYT 101 6413/2  |
| N5701 | MICROCIRCUIT/5 bit attenuator 0.5-2.5GHz          | RYT 115 6033/1  |
| N5702 | MICROCIRCUIT/5 bit attenuator 0.5-2.5GHz          | RYT 115 6033/1  |
| T5500 | BALUN/1900MHz 3216 200ohm 1W                      | REG 735 58/16   |
| T5501 | BALUN/1800MHz 3216 200ohm 1W                      | REG 735 58/9    |
| T5504 | BALUN/1900MHz 3216 200ohm 1W                      | REG 735 58/16   |
| T5505 | BALUN/1800MHz 3216 200ohm 1W                      | REG 735 58/9    |
| V5501 | DIODE/VAR 15V 6-15pF 10-2V 0.4ohm 1-              | RKZ 323 610/1   |
| V5502 | DIODE/VAR 15V 6-15pF 10-2V 0.4ohm 1-              | RKZ 323 610/1   |
| Z5500 | FILTER/1880MHz 60MHz BP 3x3mm SAW                 | RTN 201 404/01  |
| Z5501 | MICROCIRCUIT/microsynth (TX 1900)                 | RYT 902 6047/1  |
| Z5502 | MICROCIRCUIT/microsynth (TX 1900)                 | RYT 902 6047/1  |
| Z5503 | MICROCIRCUIT/REG LIN+ LDO 5.0V +/-1% 800mA        | RYT 113 6091/5  |
| Z5504 | AMPLIFIER/RF Amplifier. SGA-6389 SOT              | RYT 101 6414/1  |
| Z5505 | MICROCIRCUIT/REG LIN+ 3.3V 150mA 0.575V           | RYT 113 6110/12 |
| Z5701 | FILTER/1960MHz 60MHz BP 6.6x4.4mm                 | RTN 202 1021/01 |
| Z5702 | AMPLIFIER/RF Amplifier. SGA-6389 SOT              | RYT 101 6414/1  |
| Z5703 | AMPLIFIER/RF Amplifier. SGA-6389 SOT              | RYT 101 6414/1  |
| Z5704 | FILTER/1960MHz 60MHz BP 6.6x4.4mm                 | RTN 202 1021/01 |
| Z5800 | PROD. ADAPT. CIRCUIT/ASIC SPIRA                   | ROP 101 616/C   |

|                                                                          |         |                         |          |           |
|--------------------------------------------------------------------------|---------|-------------------------|----------|-----------|
| Prepared (also subject responsible if other)<br>EAB/RBI/R Per Helmersson |         | No.<br>B5KAKRC1311013-2 |          |           |
| Approved<br>KI/EAB/RBI/R (P Helmersson)                                  | Checked | Date<br>2005-03-22      | Rev<br>A | Reference |

### 1.1.10 Function Block TX2 1900

ROZ 104 408/1  
Revision C

| Pos   | Prod name/Func des                                | Product number  |
|-------|---------------------------------------------------|-----------------|
| D6500 | MICROCIRCUIT/74'04 HC1G SSOP5-P 1x INVERTER       | RYT 326 6004/C  |
| D6501 | MICROCIRCUIT/74'04 HC1G SSOP5-P 1x INVERTER       | RYT 326 6004/C  |
| D6701 | MICROCIRCUIT/74'595 HCT TSSOP16 8B S-IN S/P       | RYT 310 6031/2C |
| D6702 | MICROCIRCUIT/74'595 HCT TSSOP16 8B S-IN S/P       | RYT 310 6031/2C |
| N6501 | PROD. ADAPT. CIRCUIT/ASIC PENNY                   | ROP 101 612/2   |
| N6503 | PROD. ADAPT. CIRCUIT/ASIC FINJA                   | ROP 101 5005    |
| N6504 | MICROCIRCUIT/Switch. AS186-302 MSOP-8             | RYT 101 6438/1  |
| N6506 | MICROCIRCUIT/Switch. AS186-302 MSOP-8             | RYT 101 6438/1  |
| N6601 | DIRECTIONAL COUPLER/1500-2200MHz 20dB 100W 14x9mm | UND 106 049/1   |
| N6602 | MICROCIRCUIT/OPAMP 2.7V R/R 5.5MHz                | RYT 101 6331/3  |
| N6603 | MICROCIRCUIT/RF detector/controller               | RYT 101 6292/1  |
| N6610 | MICROCIRCUIT/RF Amplifier. SXA-289, MMIC A        | RYT 101 6413/2  |
| N6701 | MICROCIRCUIT/5 bit attenuator 0.5-2.5GHz          | RYT 115 6033/1  |
| N6702 | MICROCIRCUIT/5 bit attenuator 0.5-2.5GHz          | RYT 115 6033/1  |
| T6500 | BALUN/1900MHz 3216 200ohm 1W                      | REG 735 58/16   |
| T6501 | BALUN/1800MHz 3216 200ohm 1W                      | REG 735 58/9    |
| T6504 | BALUN/1900MHz 3216 200ohm 1W                      | REG 735 58/16   |
| T6505 | BALUN/1800MHz 3216 200ohm 1W                      | REG 735 58/9    |
| V6501 | DIODE/VAR 15V 6-15pF 10-2V 0.4ohm 1-              | RKZ 323 610/1   |
| V6502 | DIODE/VAR 15V 6-15pF 10-2V 0.4ohm 1-              | RKZ 323 610/1   |
| Z6500 | FILTER/1880MHz 60MHz BP 3x3mm SAW                 | RTN 201 404/01  |
| Z6501 | MICROCIRCUIT/microsynth (TX 1900)                 | RYT 902 6047/1  |
| Z6502 | MICROCIRCUIT/microsynth (TX 1900)                 | RYT 902 6047/1  |
| Z6503 | MICROCIRCUIT/REG LIN+ LDO 5.0V +/-1% 800mA        | RYT 113 6091/5  |
| Z6504 | AMPLIFIER/RF Amplifier. SGA-6389 SOT              | RYT 101 6414/1  |
| Z6505 | MICROCIRCUIT/REG LIN+ 3.3V 150mA 0.575V           | RYT 113 6110/12 |
| Z6701 | FILTER/1960MHz 60MHz BP 6.6x4.4mm                 | RTN 202 1021/01 |
| Z6702 | AMPLIFIER/RF Amplifier. SGA-6389 SOT              | RYT 101 6414/1  |
| Z6703 | AMPLIFIER/RF Amplifier. SGA-6389 SOT              | RYT 101 6414/1  |
| Z6704 | FILTER/1960MHz 60MHz BP 6.6x4.4mm                 | RTN 202 1021/01 |
| Z6800 | PROD. ADAPT. CIRCUIT/ASIC SPIRA                   | ROP 101 616/C   |

|                                                                          |         |                         |          |           |
|--------------------------------------------------------------------------|---------|-------------------------|----------|-----------|
| Prepared (also subject responsible if other)<br>EAB/RBI/R Per Helmersson |         | No.<br>B5KAKRC1311013-2 |          |           |
| Approved<br>KI/EAB/RBI/R (P Helmersson)                                  | Checked | Date<br>2005-03-22      | Rev<br>A | Reference |

**1.2            Function Block Back end 1900**

ROZ 104 409/1  
Revision B

| Pos   | Prod name/Func des                                 | Product number  |
|-------|----------------------------------------------------|-----------------|
| J5903 | COAXIAL CONNECTOR/TNC;fm;50ohm;ang.;SMC;SMC cent   | RNT 408 4004/01 |
| W5901 | ISOLATOR/Isolator 1930 to 1990 MHz                 | UNH 102 3006/02 |
| W5902 | ISOLATOR/Isolator 1930 to 1990 MHz                 | UNH 102 3006/02 |
| W5904 | ISOLATOR/Isolator 1930 to 1990 MHz                 | UNH 102 3003/04 |
| W5905 | ISOLATOR/Isolator 1930 to 1990 MHz                 | UNH 102 3003/04 |
| W5907 | DIRECTIONAL COUPLER/1805-1990MHz 3dB 16x12mm Hybri | UND 106 087/2   |

|                                                                          |         |                         |          |           |
|--------------------------------------------------------------------------|---------|-------------------------|----------|-----------|
| Prepared (also subject responsible if other)<br>EAB/RBI/R Per Helmersson |         | No.<br>B5KAKRC1311013-2 |          |           |
| Approved<br>KI/EAB/RBI/R (P Helmersson)                                  | Checked | Date<br>2005-03-22      | Rev<br>A | Reference |

## 2            2.1033(c)(9) Tune-Up Procedure

All the necessary adjustments will be set in the factory, and no adjustments are needed. The output power level is remotely controlled by the Base Station Controller (BSC). If the TRX (one half of dTRU) is not able to maintain the requirements for power output, frequency stability, etc an alarm is sent to the BSC. On severe faults the TRX will disable transmission.

|                                                                          |         |                         |          |           |
|--------------------------------------------------------------------------|---------|-------------------------|----------|-----------|
| Prepared (also subject responsible if other)<br>EAB/RBI/R Per Helmersson |         | No.<br>B5KAKRC1311013-2 |          |           |
| Approved<br>KI/EAB/RBI/R (P Helmersson)                                  | Checked | Date<br>2005-03-22      | Rev<br>A | Reference |

### 3                    2.1033(c)(9,10) Power Tune-Up – Power Limiting

The TRX (one half of dTRU) measures the output power at its output connector via a RF-detector and the detected value is used by the power loop control block to steer two variable gain amplifiers between the modulator and the power amplifier.

The transmitter in each TRX contains three synthesized oscillators. One PLL gives a 160 MHz signal to the I/Q modulator. The two other generate a 1770 to 1830 MHz signal to the mixer where the modulated signal is converted to the transmit frequency. Two oscillators are needed in frequency hopping mode, one is retuning while the other is active. All three synthesized oscillators have a reference of 13 MHz, which is downmixed by 2, generated in a central synthesized oscillator (PLL) of 26 MHz in the LTU part of the dTRU. This PLL frequency reference is extracted from the 13 MHz signal on the Y-link, which is generated and distributed, by the DXU (Distribution Switch Unit), to all dTRU:s in the basestation.

The frequency reference 13 MHz in the DXU is generated in a voltage controlled oscillator placed in an oven together with and phase-locked to a long term stable oven heated oscillator. As an option the oscillator can be phase-locked to the incoming PCM-link frequency or an incoming GPS-link frequency.