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**TELIT HE910-NA**

**Data Terminal Modules**

**HARDWARE REVISION 0**

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**TECHNICAL  
MANUAL**

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**Code: 1vv0300999**

**Rev. 0**

**2012/03/09**

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| REVISION INDEX |                         |      |
|----------------|-------------------------|------|
| REV.           | SUBJECT OF MODIFICATION | DATE |
|                |                         |      |
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**ANNEX 1**  
**HE910-NA LABEL LAYOUT**

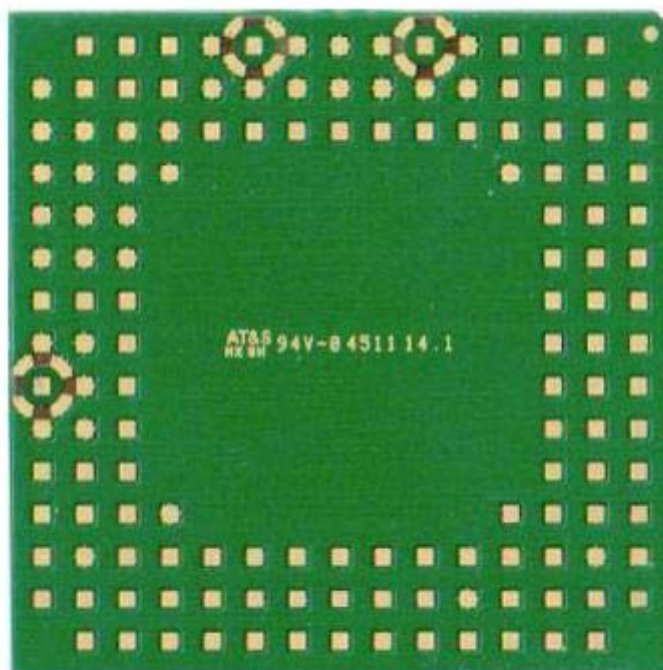


**ANNEX 2**  
**HE910-NA MODULE PHOTOS**

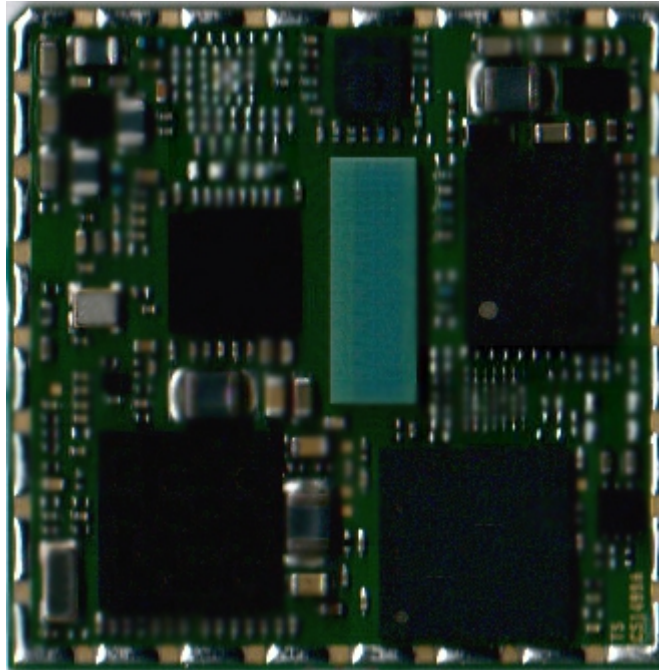
Image #1  
(Top Side)



Image #2  
(Bottom Side)

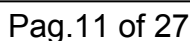


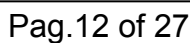
**Image #3**  
**(Inside Top)**

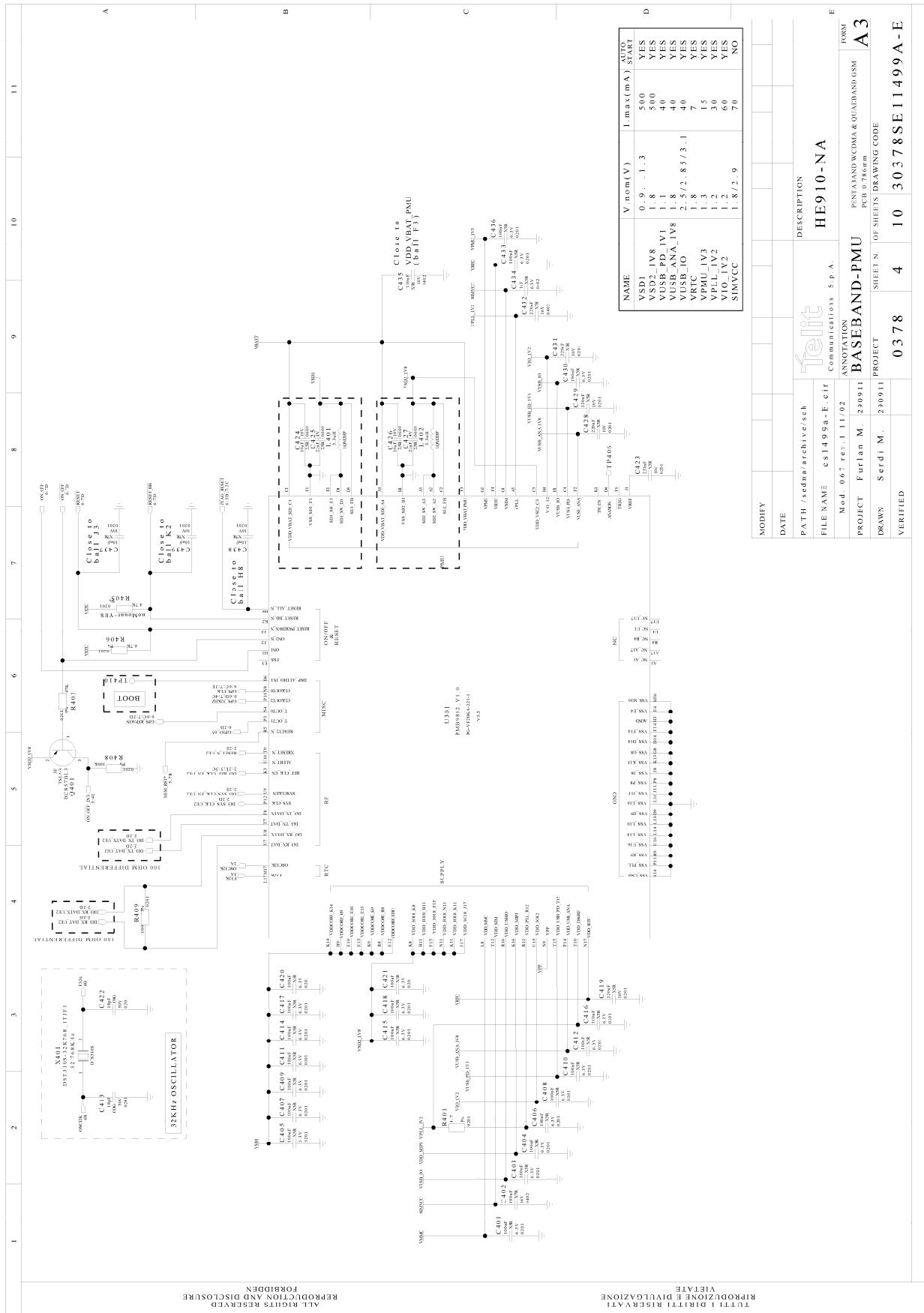


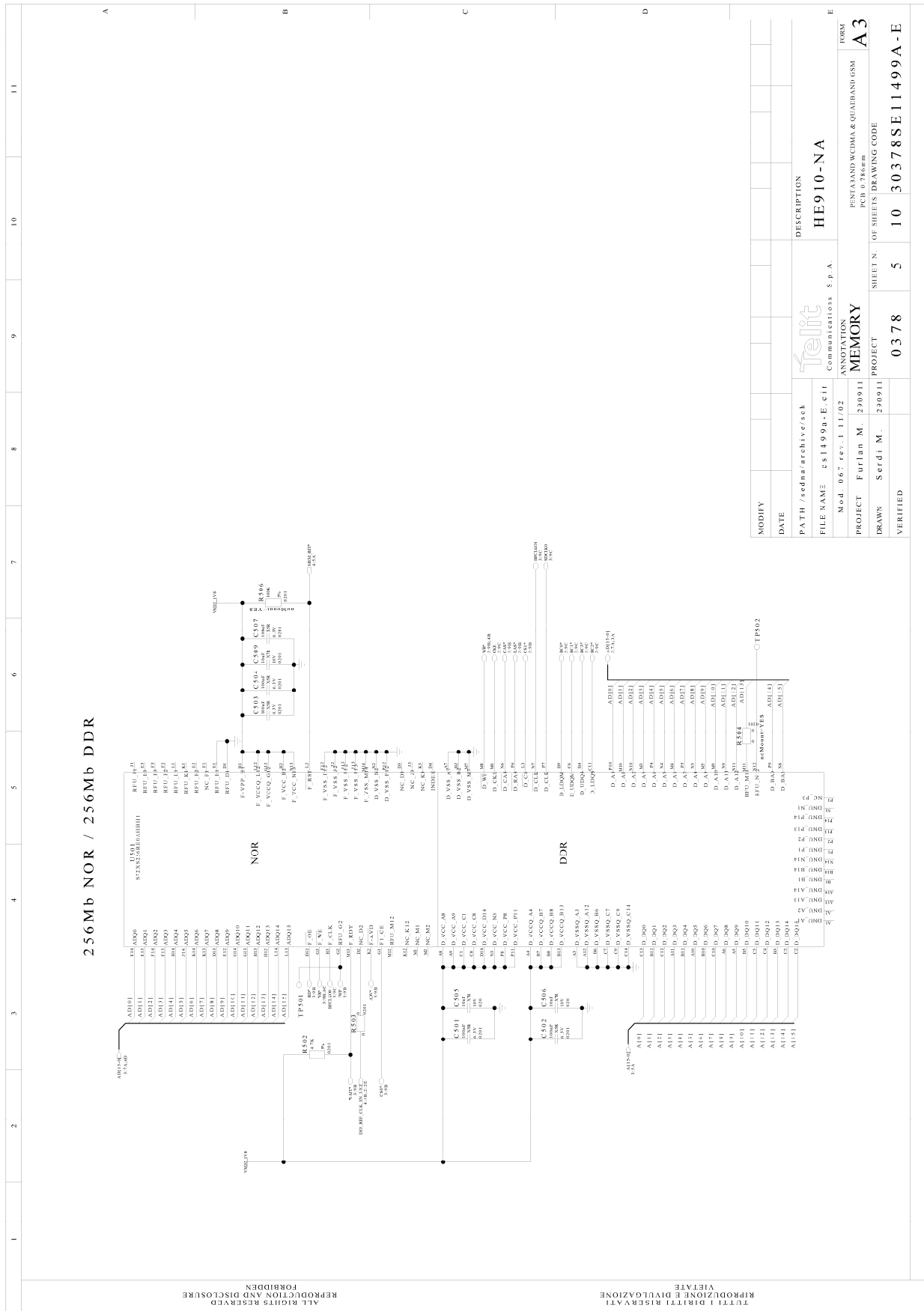
**ANNEX 3**  
**HE910-NA MODULE SCHEMATICS**





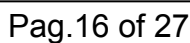






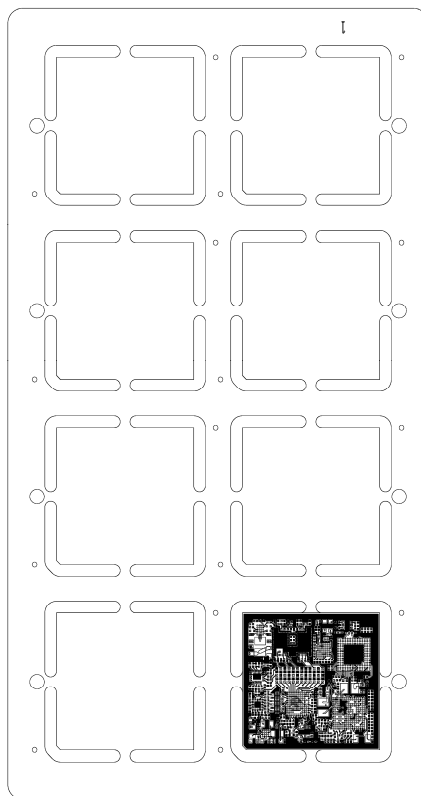
| MODIFY | DATE | DESCRIPTION               |
|--------|------|---------------------------|
|        |      | HE910-NA                  |
|        |      | DESCRIPTION               |
|        |      | FILE NAME: cs11499a-E.cii |
|        |      | Mod. 067, rev. 11/02      |
|        |      | PROJECT: Furlan M. 200911 |
|        |      | PROJECT: Serdi M. 200911  |
|        |      | VERIFIED                  |
|        |      | 0378                      |
|        |      | 5                         |
|        |      | 10                        |
|        |      | 30378SE11499A-E           |
|        |      | 10                        |
|        |      | 30378SE11499A-E           |

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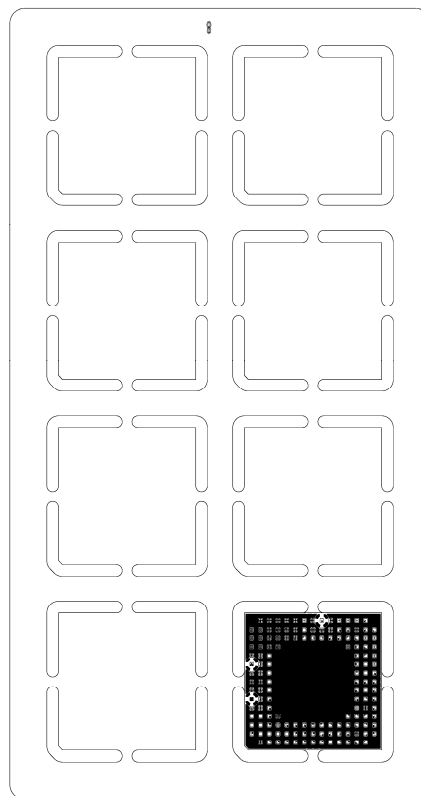
**ANNEX 4**  
**HE910-NA MODULE GERBER LAYOUT**

ALL RIGHTS RESERVED REPRODUCTION AND DISCLOSURE FORBIDDEN / TUTTI I DIRITTI RISERVATI RIPRODUZIONE E DIVULGAZIONE VIETATE



|                              |  |             |  |                 |  |                             |  |
|------------------------------|--|-------------|--|-----------------|--|-----------------------------|--|
| FILE NAME                    |  | CS1499A.c1  |  | CsCode          |  | CS1499A                     |  |
| Mod. Dxx rev.0 06/2009       |  | Description |  | HE910           |  | FORM                        |  |
| Project by<br>Dettin Claudio |  | ANNOTATION  |  | Copper layer 1  |  | A3                          |  |
| Drawn by<br>Serdj Mauro      |  | 29/09/11    |  | SHEET N<br>1    |  | OF SHEETS<br>8              |  |
|                              |  |             |  | Project<br>0378 |  | DRAWING CODE<br>CS1499A.PCM |  |

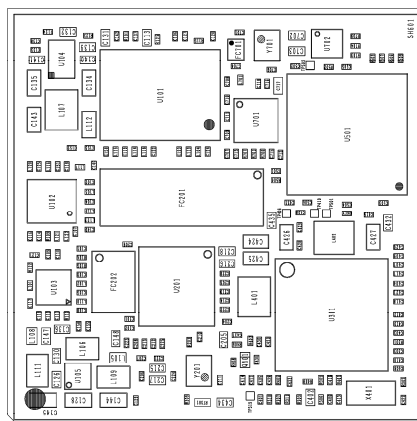
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|                              |  |             |  |                 |  |                             |  |
|------------------------------|--|-------------|--|-----------------|--|-----------------------------|--|
| FILE NAME                    |  | CS1499A.c8  |  | CsCode          |  | CS1499A                     |  |
| Mod. Dxx rev.0 06/2009       |  | Description |  | HE910           |  | FORM                        |  |
| Project by<br>Dettin Claudio |  | ANNOTATION  |  | Copper layer 8  |  | A3                          |  |
| Drawn by<br>Serd Mauro       |  | 29/09/11    |  | SHEET N<br>8    |  | DRAWING CODE<br>CS1499A.PCM |  |
|                              |  |             |  | Project<br>0378 |  |                             |  |

**ANNEX 5**  
**HE910-NA MODULE ASSEMBLY LAYOUT**

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|                      |               |                    |  |                   |  |              |  |
|----------------------|---------------|--------------------|--|-------------------|--|--------------|--|
| FILE NAME            |               | CS1499A.SKP        |  | CsCode            |  | CS1499A      |  |
| Mod. 0xx rev.06/2009 |               | Description        |  | HE910             |  | FORM         |  |
| Project by           | Delin Claudio | ANNOTATION         |  | Silkscreen side A |  | A3           |  |
| Drawn by             | Serdi Mauro   | SHEET N. OF SHEETS |  | 1 2               |  | DRAWING CODE |  |
| 29/09/11             |               | Project            |  | 0378              |  | CS1499A.SM   |  |

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|   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|
| R | P | N | M | L | K | J | H | G | F | E | D | C | B | A  |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   | 1  |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   | 2  |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   | 3  |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   | 4  |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   | 5  |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   | 6  |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   | 7  |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   | 8  |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   | 9  |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   | 10 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   | 11 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   | 12 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   | 13 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   | 14 |
|   |   |   |   |   |   |   |   |   |   |   |   |   |   | 15 |

HE910

|            |  |                      |  |             |  |                   |  |
|------------|--|----------------------|--|-------------|--|-------------------|--|
| FILE NAME  |  | CS1499A.SKS          |  | CaCode      |  | CS1499A           |  |
|            |  | Mod. 0xx rev.06/2009 |  | Description |  | HE910             |  |
| Project by |  | Dellin Claudio       |  | ANNOTATION  |  | Silkscreen side B |  |
| Drawn by   |  | Serdj Mauro          |  | SHEET N.    |  | OF SHEETS         |  |
|            |  | 29/09/11             |  | 0378        |  | 2                 |  |
|            |  |                      |  | Project     |  | DRAWING CODE      |  |
|            |  |                      |  |             |  | CS1499A.SM        |  |

**ANNEX 6**  
**HE910-NA MODULE PARTS LIST**

| 3990400721 HE910-NA MODULE cs1499a-E PARTS LIST                                                                                                                                |                                           |     |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----|-----|
| Reference                                                                                                                                                                      | Description                               | Um  | Qty |
| PCB                                                                                                                                                                            | HE910 MODULE PCB cs1499a                  | Pcs | 1   |
| R503 R115 R109 R124 R701 R101 R703                                                                                                                                             | RES SMD 0 OHM JUMPER 1/20W 0201           | Pcs | 7   |
| R125                                                                                                                                                                           | RES SMD 3.3 R 5% 1/20W 0201               | Pcs | 1   |
| R401                                                                                                                                                                           | RES SMD 4.7 R 5% 1/20W 0201               | Pcs | 1   |
| R123                                                                                                                                                                           | RES SMD 10 R 5% 1/20W 0201                | Pcs | 1   |
| R409 R203                                                                                                                                                                      | RES SMD 100 R 5% 1/20W 0201               | Pcs | 2   |
| R310 R311                                                                                                                                                                      | RES SMD 1 K 5% 1/20W 0201                 | Pcs | 2   |
| RKEY                                                                                                                                                                           | RES SMD 3.3 K 1% 1/20W 0201               | Pcs | 1   |
| R303 R305 R406 R502                                                                                                                                                            | RES SMD 4.7 K 5% 1/20W 0201               | Pcs | 4   |
| R403 R307                                                                                                                                                                      | RES SMD 47 K 5% 1/20W 0201                | Pcs | 2   |
| R309 R408 R707 R709                                                                                                                                                            | RES SMD 100 K 5% 1/20W 0201               | Pcs | 4   |
| R301                                                                                                                                                                           | RES SMD 4.02 K 1% 1/20W 0201              | Pcs | 1   |
| RT301                                                                                                                                                                          | RES NTC SMD 10 K 1% 0402 NCP15XH          | Pcs | 1   |
| C102 C110                                                                                                                                                                      | COND CER SMD 1.8pF C0G 0201 +/-0.1pF 25V  | Pcs | 2   |
| C125                                                                                                                                                                           | COND CER SMD 3.0pF C0G 0201 +/-0.1pF 25V  | Pcs | 1   |
| C156 C155                                                                                                                                                                      | COND CER SMD 5.6pF C0G 0201 +/-0.1pF 25V  | Pcs | 2   |
| C122                                                                                                                                                                           | COND CER SMD 6.8pF C0G 0201 +/-0.1pF 25V  | Pcs | 1   |
| C503 C502 C501 C404 C210 C405 C421 C406 C407 C213 C214 C408 C409 C430 C433 C504 C415 C416 C417 C418 C414 C202 C203 C204 C207 C208 C420 C209 C401 C403 C507 C411 C412 C410 C436 | COND CER SMD 100nF X5R 0201 10% 6.3V GRM  | Pcs | 35  |
| C425 C427                                                                                                                                                                      | COND CER SMD 22 uF X5R 0603 20% 4V GRM    | Pcs | 2   |
| C134 C426 C424 C135                                                                                                                                                            | COND CER SMD 10 uF X5R 0603 20% 10V GRM   | Pcs | 4   |
| C216 C148                                                                                                                                                                      | COND CER SMD 4.7uF X5R 0402 20% 6.3V GRM  | Pcs | 2   |
| C141 C140 C136 C205                                                                                                                                                            | COND CER SMD 2.2uF X5R 0402 10% 6.3V GRM  | Pcs | 4   |
| C215 C130                                                                                                                                                                      | COND CER SMD 1uF X5R 0402 10% 10V GRM     | Pcs | 2   |
| C419 C153 C431 C429 C428 C152 C423                                                                                                                                             | COND CER SMD 220 nF X5R 0201 20% 10V      | Pcs | 7   |
| C143                                                                                                                                                                           | COND CER SMD 3.3 uF X5R 0603 10% 10V GRM  | Pcs | 1   |
| C104                                                                                                                                                                           | COND CER SMD 1.0pF COG 0201 +/-0.25pF 25V | Pcs | 1   |
| C114                                                                                                                                                                           | COND CER SMD 27 pF COG 0201 5% 25V        | Pcs | 1   |
| C303                                                                                                                                                                           | COND CER SMD 33 pF COG 0201 5% 25V        | Pcs | 1   |
| C222                                                                                                                                                                           | COND CER SMD 4.7nF X7R 0201 10% 10V       | Pcs | 1   |
| C221 C219                                                                                                                                                                      | COND CER SMD 6.8nF X7R 0201 10% 10V       | Pcs | 2   |
| C133 C505 C506 C509 C116 C138 C439 C106 C438 C224 C437                                                                                                                         | COND CER SMD 10 nF X7R 0201 10% 10V       | Pcs | 11  |
| C147 C703 C702 C434                                                                                                                                                            | COND CER SMD 1 uF X5R 0402 10% 6.3V       | Pcs | 4   |
| C128 C144 C145                                                                                                                                                                 | COND CER SMD 4.7uF X5R 0603 10% 6.3V      | Pcs | 3   |
| C435 C217 C218 C113 C132 C402 C126                                                                                                                                             | COND CER SMD 100 nF X7R 0402 10% 16V      | Pcs | 7   |
| C422 C413                                                                                                                                                                      | COND CER SMD 18 pF COG 0201 +/-5% 50V     | Pcs | 2   |
| C432 C139 C131                                                                                                                                                                 | COND CER SMD 220 nF X7R 0402 10% 16V      | Pcs | 3   |
| C211                                                                                                                                                                           | COND CER SMD 22 nF X5R 0201 10% 6.3V GRM  | Pcs | 1   |
| C201 C212 C223 C206                                                                                                                                                            | COND CER SMD 47 nF X5R 0201 10% 6.3V GRM  | Pcs | 4   |
| C220                                                                                                                                                                           | COND CER SMD 1 nF X7R 0201 10% 25V        | Pcs | 1   |
| C119 C107 C149                                                                                                                                                                 | COND CER SMD 0.5 pF COG 0201 +/-0.05p 50V | Pcs | 3   |
| L111 L109 L106                                                                                                                                                                 | INDUCT SMD 4.7 uH 20% MLZ2012 0805        | Pcs | 3   |

| <b>3990400721 HE910-NA MODULE cs1499a-E PARTS LIST</b> |                                          |           |            |
|--------------------------------------------------------|------------------------------------------|-----------|------------|
| <b>Reference</b>                                       | <b>Description</b>                       | <b>Um</b> | <b>Qty</b> |
| L402 L401                                              | INDUT SMD 3.3 uH 20% LQM2HP_G0 1008      | Pcs       | 2          |
| L107                                                   | INDUT SMD 1.0 uH 20% LQM2HP_G0 1008      | Pcs       | 1          |
| L108 L105                                              | INDUCT SMD 15 nH 5% LQW15AN 0402         | Pcs       | 2          |
| L112                                                   | PWR INDUCT SMD 85 nH 5% 0603 LQW18CN     | Pcs       | 1          |
| L114 L113                                              | INDUT SMD 2.7 nH +/-0.1nH 0201 LQP03T_02 | Pcs       | 2          |
| L103                                                   | INDUT SMD 2.0 nH +/-0.1nH 0201 LQP03T_02 | Pcs       | 1          |
| L122 L123 L117                                         | INDUT SMD 1.0 nH +/-0.1nH 0201 LQP03T_02 | Pcs       | 3          |
| L120 L119 L121 L115                                    | INDUT SMD 1.5 nH +/-0.1nH 0201 LQP03T_02 | Pcs       | 4          |
| L104                                                   | INDUT SMD 3.3 nH +/-0.1nH 0201 LQP03T_02 | Pcs       | 1          |
| L116                                                   | INDUT SMD 5.6 nH +/-3% 0201 LQP03T_02    | Pcs       | 1          |
| L118                                                   | INDUT SMD 6.8 nH +/-3% 0201 LQP03T_02    | Pcs       | 1          |
| U105                                                   | POWER MANAGEMENT IC RF6590               | Pcs       | 1          |
| U702                                                   | IC ANALOG R5326K004B-TR DFN(PLP)1820-6   | Pcs       | 1          |
| U104                                                   | PWR MNG. BOOST BUCK DCDC RF6561          | Pcs       | 1          |
| U501                                                   | IC MEM S72XS256RE0AHBH13 256Mb+256Mb     | Pcs       | 1          |
| U301                                                   | IC uP PMB9812V1.0 PG-VF2BGA-221-1        | Pcs       | 1          |
| U101                                                   | 3G MULTIBAND MULTIMODE P.A. RF6261Y      | Pcs       | 1          |
| U102                                                   | IC RF SP8T ANTENNA SWITCH BGSF18DM20     | Pcs       | 1          |
| U201                                                   | IC TRANSCEIVER PMB5712 A1                | Pcs       | 1          |
| FC201                                                  | DUPLEX BANK 1/2/4/5/8+G1800 B40761AY2045 | Pcs       | 1          |
| X401                                                   | CRYSTAL DST310S-32K768_1TJF125DP1AI001   | Pcs       | 1          |
| Y201                                                   | VC-TCXO NT2016SA END4184A 26.0MHZ        | Pcs       | 1          |
| Q401                                                   | TRANS PNP BC857BL3 TSLP-3                | Pcs       | 1          |
| SH601                                                  | METALLIC SHIELD HE910                    | Pcs       | 1          |
|                                                        | <b>Tot</b>                               | <b>Pz</b> | <b>171</b> |

**ANNEX 7**  
**HE910-NA MODULE BLOCK DIAGRAMS**

