

## 1. Frequency stability

### 1.1 Test Result

| Test Band: 2 (Frequency Error VS. Voltage) |            |            |                  |          |          |                       |         |         |             |         |
|--------------------------------------------|------------|------------|------------------|----------|----------|-----------------------|---------|---------|-------------|---------|
| Test Mode                                  | Test Temp. | Test Volt. | Freq. Error (Hz) |          |          | Freq. vs. rated (ppm) |         |         | Limit (ppm) | Verdict |
|                                            |            |            | LCH              | MCH      | HCH      | LCH                   | MCH     | HCH     |             |         |
| HSUPA                                      | NT         | LV         | -17.1590         | -31.7788 | -21.8868 | -0.0093               | -0.0169 | -0.0115 | 2.50        | PASS    |
|                                            |            | NV         | -21.0571         | -16.6011 | -20.1988 | -0.0114               | -0.0088 | -0.0106 | 2.50        | PASS    |
|                                            |            | HV         | -24.1399         | -17.1018 | -19.7124 | -0.0130               | -0.0091 | -0.0103 | 2.50        | PASS    |
| HSDPA                                      | NT         | LV         | -21.0500         | -20.4492 | -19.5408 | -0.0114               | -0.0109 | -0.0102 | 2.50        | PASS    |
|                                            |            | NV         | -21.2502         | -20.1917 | -23.8252 | -0.0115               | -0.0107 | -0.0125 | 2.50        | PASS    |
|                                            |            | HV         | -22.1229         | -20.8998 | -22.2301 | -0.0119               | -0.0111 | -0.0117 | 2.50        | PASS    |
| RMC                                        | NT         | LV         | -8.3542          | -13.5469 | -13.9117 | -0.0045               | -0.0072 | -0.0073 | 2.50        | PASS    |
|                                            |            | NV         | -8.5115          | -12.8102 | -13.5112 | -0.0046               | -0.0068 | -0.0071 | 2.50        | PASS    |
|                                            |            | HV         | -11.7159         | -12.5956 | -11.5371 | -0.0063               | -0.0067 | -0.0060 | 2.50        | PASS    |

| Test Band: 2 (Frequency Error VS. Temperature) |            |            |                  |          |          |                       |         |         |             |         |
|------------------------------------------------|------------|------------|------------------|----------|----------|-----------------------|---------|---------|-------------|---------|
| Test Mode                                      | Test Volt. | Test Temp. | Freq. Error (Hz) |          |          | Freq. vs. rated (ppm) |         |         | Limit (ppm) | Verdict |
|                                                |            |            | LCH              | MCH      | HCH      | LCH                   | MCH     | HCH     |             |         |
| HSUPA                                          | NV         | -30.00     | -18.9829         | -20.9856 | -25.6276 | -0.0102               | -0.0112 | -0.0134 | 2.50        | PASS    |
|                                                |            | -20.00     | -18.5823         | -18.9972 | -21.7295 | -0.0100               | -0.0101 | -0.0114 | 2.50        | PASS    |
|                                                |            | -10.00     | -21.3432         | -26.7792 | -27.0224 | -0.0115               | -0.0142 | -0.0142 | 2.50        | PASS    |
|                                                |            | 0.00       | -27.6375         | -23.8895 | -25.1985 | -0.0149               | -0.0127 | -0.0132 | 2.50        | PASS    |
|                                                |            | 10.00      | -17.4737         | -18.2605 | -18.6110 | -0.0094               | -0.0097 | -0.0098 | 2.50        | PASS    |
|                                                |            | 20.00      | -18.6753         | -20.2918 | -22.4233 | -0.0101               | -0.0108 | -0.0118 | 2.50        | PASS    |
|                                                |            | 30.00      | -22.0013         | -20.0558 | -20.1130 | -0.0119               | -0.0107 | -0.0105 | 2.50        | PASS    |
|                                                |            | 40.00      | -23.5820         | -25.9209 | -20.3991 | -0.0127               | -0.0138 | -0.0107 | 2.50        | PASS    |
|                                                |            | 50.00      | -22.1658         | -23.6392 | -28.2025 | -0.0120               | -0.0126 | -0.0148 | 2.50        | PASS    |
| HSDPA                                          | NV         | -30.00     | -21.6222         | -21.0500 | -23.4818 | -0.0117               | -0.0112 | -0.0123 | 2.50        | PASS    |
|                                                |            | -20.00     | -27.1511         | -24.2329 | -21.0214 | -0.0147               | -0.0129 | -0.0110 | 2.50        | PASS    |
|                                                |            | -10.00     | -21.2789         | -24.2758 | -27.0438 | -0.0115               | -0.0129 | -0.0142 | 2.50        | PASS    |
|                                                |            | 0.00       | -22.4376         | -22.5520 | -16.8729 | -0.0121               | -0.0120 | -0.0088 | 2.50        | PASS    |
|                                                |            | 10.00      | -24.3330         | -24.1685 | -21.9584 | -0.0131               | -0.0129 | -0.0115 | 2.50        | PASS    |
|                                                |            | 20.00      | -24.3688         | -25.7921 | -16.7155 | -0.0132               | -0.0137 | -0.0088 | 2.50        | PASS    |
|                                                |            | 30.00      | -17.9458         | -22.0728 | -19.9699 | -0.0097               | -0.0117 | -0.0105 | 2.50        | PASS    |
|                                                |            | 40.00      | -20.0987         | -27.3085 | -21.4004 | -0.0109               | -0.0145 | -0.0112 | 2.50        | PASS    |
|                                                |            | 50.00      | -19.0401         | -24.0183 | -21.0571 | -0.0103               | -0.0128 | -0.0110 | 2.50        | PASS    |
| RMC                                            | NV         | -30.00     | -16.8228         | -12.6457 | -14.4267 | -0.0091               | -0.0067 | -0.0076 | 2.50        | PASS    |
|                                                |            | -20.00     | -11.8661         | -12.7172 | -13.9189 | -0.0064               | -0.0068 | -0.0073 | 2.50        | PASS    |
|                                                |            | -10.00     | -12.6171         | -12.5527 | -16.7584 | -0.0068               | -0.0067 | -0.0088 | 2.50        | PASS    |
|                                                |            | 0.00       | -19.3977         | -13.8974 | -16.6798 | -0.0105               | -0.0074 | -0.0087 | 2.50        | PASS    |
|                                                |            | 10.00      | -14.3480         | -10.8719 | -12.3167 | -0.0077               | -0.0058 | -0.0065 | 2.50        | PASS    |
|                                                |            | 20.00      | -14.2336         | -13.7687 | -11.9233 | -0.0077               | -0.0073 | -0.0063 | 2.50        | PASS    |
|                                                |            | 30.00      | -13.6542         | -14.6627 | -13.1464 | -0.0074               | -0.0078 | -0.0069 | 2.50        | PASS    |
|                                                |            | 40.00      | -18.9042         | -15.3351 | -14.6413 | -0.0102               | -0.0082 | -0.0077 | 2.50        | PASS    |
|                                                |            | 50.00      | -10.2353         | -15.5067 | -15.3279 | -0.0055               | -0.0082 | -0.0080 | 2.50        | PASS    |

## 2. Frequency stability

### 2.1 Test Result

| Test Band: 4 (Frequency Error VS. Voltage) |      |            |                  |                       |       |         |
|--------------------------------------------|------|------------|------------------|-----------------------|-------|---------|
| Test Mode                                  | Test | Test Volt. | Freq. Error (Hz) | Freq. vs. rated (ppm) | Limit | Verdict |

|       | Temp. |    | LCH      | MCH      | HCH      | LCH     | MCH     | HCH     | (ppm) |      |
|-------|-------|----|----------|----------|----------|---------|---------|---------|-------|------|
| HSUPA | NT    | LV | -15.8286 | -20.9999 | -18.1532 | -0.0092 | -0.0121 | -0.0104 | 2.50  | PASS |
|       |       | NV | -16.1505 | -22.0585 | -17.1661 | -0.0094 | -0.0127 | -0.0098 | 2.50  | PASS |
|       |       | HV | -18.6110 | -17.3593 | -22.7308 | -0.0109 | -0.0100 | -0.0130 | 2.50  | PASS |
| HSDPA | NT    | LV | -17.9672 | -22.2158 | -14.7986 | -0.0105 | -0.0128 | -0.0084 | 2.50  | PASS |
|       |       | NV | -20.2846 | -20.6494 | -17.9458 | -0.0118 | -0.0119 | -0.0102 | 2.50  | PASS |
|       |       | HV | -23.7608 | -19.9699 | -16.1362 | -0.0139 | -0.0115 | -0.0092 | 2.50  | PASS |
| RMC   | NT    | LV | -10.5572 | -15.4424 | -6.2442  | -0.0062 | -0.0089 | -0.0036 | 2.50  | PASS |
|       |       | NV | -11.4083 | -12.0878 | -8.3327  | -0.0067 | -0.0070 | -0.0048 | 2.50  | PASS |
|       |       | HV | -15.7571 | -16.2935 | -10.6788 | -0.0092 | -0.0094 | -0.0061 | 2.50  | PASS |

| Test Band: 4 (Frequency Error VS. Temperature) |            |            |                  |          |          |                       |         |         |             |         |
|------------------------------------------------|------------|------------|------------------|----------|----------|-----------------------|---------|---------|-------------|---------|
| Test Mode                                      | Test Volt. | Test Temp. | Freq. Error (Hz) |          |          | Freq. vs. rated (ppm) |         |         | Limit (ppm) | Verdict |
|                                                |            |            | LCH              | MCH      | HCH      | LCH                   | MCH     | HCH     |             |         |
| HSUPA                                          | NV         | -30.00     | -18.8470         | -16.8872 | -17.5953 | -0.0110               | -0.0097 | -0.0100 | 2.50        | PASS    |
|                                                |            | -20.00     | -18.5251         | -18.3248 | -18.6181 | -0.0108               | -0.0106 | -0.0106 | 2.50        | PASS    |
|                                                |            | -10.00     | -22.8739         | -22.6164 | -18.7182 | -0.0134               | -0.0131 | -0.0107 | 2.50        | PASS    |
|                                                |            | 0.00       | -19.9056         | -20.3133 | -17.1948 | -0.0116               | -0.0117 | -0.0098 | 2.50        | PASS    |
|                                                |            | 10.00      | -21.8725         | -19.9413 | -18.2104 | -0.0128               | -0.0115 | -0.0104 | 2.50        | PASS    |
|                                                |            | 20.00      | -19.8054         | -20.5636 | -15.5854 | -0.0116               | -0.0119 | -0.0089 | 2.50        | PASS    |
|                                                |            | 30.00      | -22.5162         | -19.2761 | -18.0173 | -0.0131               | -0.0111 | -0.0103 | 2.50        | PASS    |
|                                                |            | 40.00      | -20.4349         | -21.7366 | -13.4325 | -0.0119               | -0.0125 | -0.0077 | 2.50        | PASS    |
|                                                |            | 50.00      | -20.8926         | -20.1988 | -17.5953 | -0.0122               | -0.0117 | -0.0100 | 2.50        | PASS    |
| HSDPA                                          | NV         | -30.00     | -20.4921         | -24.8194 | -16.5510 | -0.0120               | -0.0143 | -0.0094 | 2.50        | PASS    |
|                                                |            | -20.00     | -21.0285         | -22.1872 | -14.1192 | -0.0123               | -0.0128 | -0.0081 | 2.50        | PASS    |
|                                                |            | -10.00     | -23.5391         | -21.1000 | -19.7983 | -0.0137               | -0.0122 | -0.0113 | 2.50        | PASS    |
|                                                |            | 0.00       | -20.5493         | -22.6808 | -16.5582 | -0.0120               | -0.0131 | -0.0094 | 2.50        | PASS    |
|                                                |            | 10.00      | -22.9311         | -26.0210 | -13.7830 | -0.0134               | -0.0150 | -0.0079 | 2.50        | PASS    |
|                                                |            | 20.00      | -21.8940         | -20.2346 | -17.1948 | -0.0128               | -0.0117 | -0.0098 | 2.50        | PASS    |
|                                                |            | 30.00      | -25.0125         | -21.2502 | -15.3995 | -0.0146               | -0.0123 | -0.0088 | 2.50        | PASS    |
|                                                |            | 40.00      | -20.5779         | -24.2186 | -20.7710 | -0.0120               | -0.0140 | -0.0119 | 2.50        | PASS    |
|                                                |            | 50.00      | -22.3088         | -23.5891 | -15.6784 | -0.0130               | -0.0136 | -0.0089 | 2.50        | PASS    |
| RMC                                            | NV         | -30.00     | -11.1365         | -11.3940 | -6.5088  | -0.0065               | -0.0066 | -0.0037 | 2.50        | PASS    |
|                                                |            | -20.00     | -14.3337         | -16.4580 | -10.7431 | -0.0084               | -0.0095 | -0.0061 | 2.50        | PASS    |
|                                                |            | -10.00     | -14.3337         | -12.8317 | -11.9877 | -0.0084               | -0.0074 | -0.0068 | 2.50        | PASS    |
|                                                |            | 0.00       | -10.1066         | -16.6154 | -10.2854 | -0.0059               | -0.0096 | -0.0059 | 2.50        | PASS    |
|                                                |            | 10.00      | -11.7660         | -13.9189 | -12.6171 | -0.0069               | -0.0080 | -0.0072 | 2.50        | PASS    |
|                                                |            | 20.00      | -15.7857         | -14.9775 | -9.4557  | -0.0092               | -0.0086 | -0.0054 | 2.50        | PASS    |
|                                                |            | 30.00      | -11.0364         | -13.7544 | -12.0521 | -0.0064               | -0.0079 | -0.0069 | 2.50        | PASS    |
|                                                |            | 40.00      | -11.5299         | -13.6757 | -6.8378  | -0.0067               | -0.0079 | -0.0039 | 2.50        | PASS    |
|                                                |            | 50.00      | -15.7213         | -14.5626 | -9.4414  | -0.0092               | -0.0084 | -0.0054 | 2.50        | PASS    |

### 3. Frequency stability

#### 3.1 Test Result

| Test Band: 5 (Frequency Error VS. Voltage) |            |            |                  |          |          |                       |         |         |             |         |
|--------------------------------------------|------------|------------|------------------|----------|----------|-----------------------|---------|---------|-------------|---------|
| Test Mode                                  | Test Temp. | Test Volt. | Freq. Error (Hz) |          |          | Freq. vs. rated (ppm) |         |         | Limit (ppm) | Verdict |
|                                            |            |            | LCH              | MCH      | HCH      | LCH                   | MCH     | HCH     |             |         |
| HSUPA                                      | NT         | LV         | -16.6154         | -27.8735 | -8.2970  | -0.0201               | -0.0333 | -0.0098 | 2.50        | PASS    |
|                                            |            | NV         | -15.0776         | -17.9458 | -19.3691 | -0.0182               | -0.0215 | -0.0229 | 2.50        | PASS    |
|                                            |            | HV         | -12.9318         | -19.4120 | -22.6092 | -0.0156               | -0.0232 | -0.0267 | 2.50        | PASS    |
| HSDPA                                      | NT         | LV         | -13.2036         | -9.6202  | -12.2952 | -0.0160               | -0.0115 | -0.0145 | 2.50        | PASS    |
|                                            |            | NV         | -11.8017         | -13.6399 | -13.5255 | -0.0143               | -0.0163 | -0.0160 | 2.50        | PASS    |
|                                            |            | HV         | -10.7002         | -15.3422 | -11.0006 | -0.0129               | -0.0183 | -0.0130 | 2.50        | PASS    |

|     |    |    |         |          |          |         |         |         |      |      |
|-----|----|----|---------|----------|----------|---------|---------|---------|------|------|
| RMC | NT | LV | -5.2142 | -9.2483  | -11.1580 | -0.0063 | -0.0111 | -0.0132 | 2.50 | PASS |
|     |    | NV | -5.0712 | -10.6502 | -13.5469 | -0.0061 | -0.0127 | -0.0160 | 2.50 | PASS |
|     |    | HV | -5.3358 | -11.9448 | -6.8164  | -0.0065 | -0.0143 | -0.0081 | 2.50 | PASS |

| Test Band: 5 (Frequency Error VS. Temperature) |            |            |                  |          |           |                       |         |         |             |         |
|------------------------------------------------|------------|------------|------------------|----------|-----------|-----------------------|---------|---------|-------------|---------|
| Test Mode                                      | Test Volt. | Test Temp. | Freq. Error (Hz) |          |           | Freq. vs. rated (ppm) |         |         | Limit (ppm) | Verdict |
|                                                |            |            | LCH              | MCH      | HCH       | LCH                   | MCH     | HCH     |             |         |
| HSUPA                                          | NV         | -30.00     | -11.8446         | -23.1171 | -17.4451  | -0.0143               | -0.0276 | -0.0206 | 2.50        | PASS    |
|                                                |            | -20.00     | -11.1294         | -18.8398 | -24.2472  | -0.0135               | -0.0225 | -0.0286 | 2.50        | PASS    |
|                                                |            | -10.00     | -11.1222         | -17.5095 | 1000.0000 | -0.0135               | -0.0209 | -1.1812 | 2.50        | PASS    |
|                                                |            | 0.00       | -12.0378         | -17.4308 | -9.0694   | -0.0146               | -0.0208 | -0.0107 | 2.50        | PASS    |
|                                                |            | 10.00      | -12.0521         | -14.3981 | -3.4118   | -0.0146               | -0.0172 | -0.0040 | 2.50        | PASS    |
|                                                |            | 20.00      | -11.6301         | -13.2823 | -38.3806  | -0.0141               | -0.0159 | -0.0453 | 2.50        | PASS    |
|                                                |            | 30.00      | -8.4615          | -17.8313 | -23.1671  | -0.0102               | -0.0213 | -0.0274 | 2.50        | PASS    |
|                                                |            | 40.00      | -7.8464          | -11.0221 | -16.6082  | -0.0095               | -0.0132 | -0.0196 | 2.50        | PASS    |
|                                                |            | 50.00      | -13.0677         | -13.6042 | -9.6989   | -0.0158               | -0.0163 | -0.0115 | 2.50        | PASS    |
| HSDPA                                          | NV         | -30.00     | -11.9877         | -16.7298 | -7.0953   | -0.0145               | -0.0200 | -0.0084 | 2.50        | PASS    |
|                                                |            | -20.00     | -13.0606         | -10.7002 | -4.5991   | -0.0158               | -0.0128 | -0.0054 | 2.50        | PASS    |
|                                                |            | -10.00     | -16.0503         | -14.4982 | -5.0998   | -0.0194               | -0.0173 | -0.0060 | 2.50        | PASS    |
|                                                |            | 0.00       | -15.4352         | -15.5067 | -4.8423   | -0.0187               | -0.0185 | -0.0057 | 2.50        | PASS    |
|                                                |            | 10.00      | -16.8371         | -17.4093 | -4.1699   | -0.0204               | -0.0208 | -0.0049 | 2.50        | PASS    |
|                                                |            | 20.00      | -13.6471         | -10.7646 | -4.3774   | -0.0165               | -0.0129 | -0.0052 | 2.50        | PASS    |
|                                                |            | 30.00      | -13.1750         | -13.5612 | -4.1842   | -0.0159               | -0.0162 | -0.0049 | 2.50        | PASS    |
|                                                |            | 40.00      | -12.2595         | -12.5384 | -3.9482   | -0.0148               | -0.0150 | -0.0047 | 2.50        | PASS    |
|                                                |            | 50.00      | -11.8303         | -16.0074 | -3.4547   | -0.0143               | -0.0191 | -0.0041 | 2.50        | PASS    |
| RMC                                            | NV         | -30.00     | -5.3716          | -13.7401 | -10.3354  | -0.0065               | -0.0164 | -0.0122 | 2.50        | PASS    |
|                                                |            | -20.00     | -6.0868          | -15.1491 | -12.8031  | -0.0074               | -0.0181 | -0.0151 | 2.50        | PASS    |
|                                                |            | -10.00     | -6.2585          | -6.8593  | -5.9366   | -0.0076               | -0.0082 | -0.0070 | 2.50        | PASS    |
|                                                |            | 0.00       | -6.4802          | -8.1468  | -8.5831   | -0.0078               | -0.0097 | -0.0101 | 2.50        | PASS    |
|                                                |            | 10.00      | -6.8378          | -9.5201  | -10.2353  | -0.0083               | -0.0114 | -0.0121 | 2.50        | PASS    |
|                                                |            | 20.00      | -7.8964          | -11.1222 | -10.5286  | -0.0096               | -0.0133 | -0.0124 | 2.50        | PASS    |
|                                                |            | 30.00      | -9.2697          | -12.9676 | -5.2285   | -0.0112               | -0.0155 | -0.0062 | 2.50        | PASS    |
|                                                |            | 40.00      | -9.4271          | -14.3910 | -7.8464   | -0.0114               | -0.0172 | -0.0093 | 2.50        | PASS    |
|                                                |            | 50.00      | -10.5071         | -10.0565 | -9.7919   | -0.0127               | -0.0120 | -0.0116 | 2.50        | PASS    |