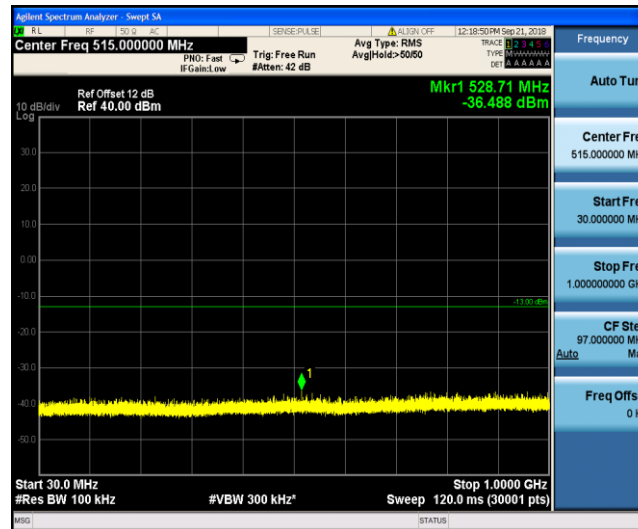
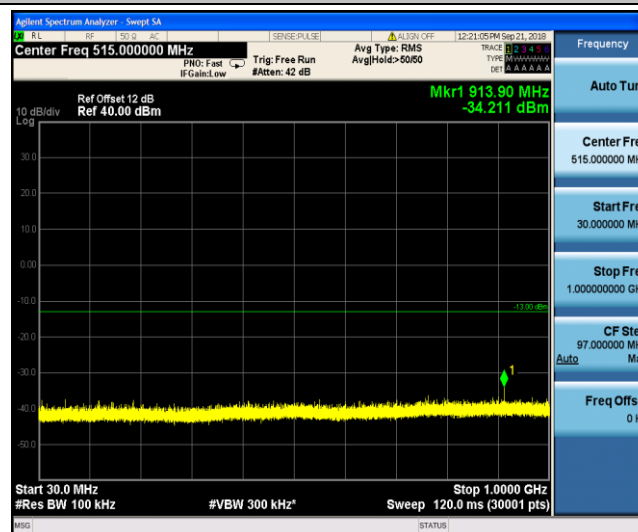




EGPRS1900\_512



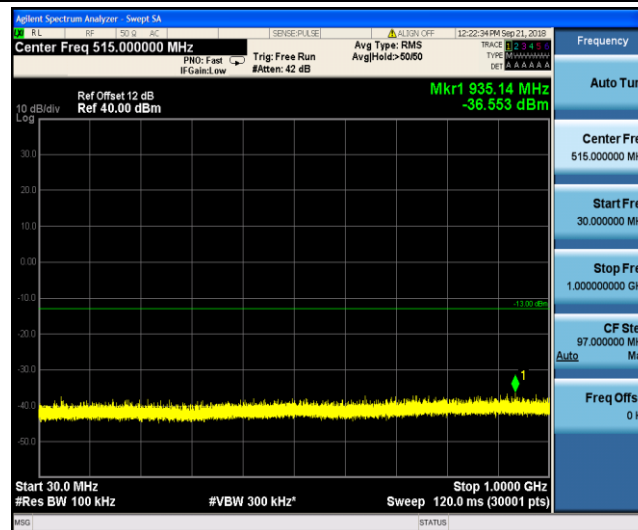
EGPRS1900\_512



EGPRS1900\_661



EGPRS1900\_661



EGPRS1900\_810



EGPRS1900\_810



## 8.6 Appendix F: Frequency Stability

### Test Result

| Voltage   |         |               |                  |                |                 |             |         |
|-----------|---------|---------------|------------------|----------------|-----------------|-------------|---------|
| Band      | Channel | Voltage (Vdc) | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| GSM850    | 128     | VL            | TN               | 15.85          | 0.019234        | 2.5         | PASS    |
| GSM850    | 128     | VN            | TN               | 18.02          | 0.021858        | 2.5         | PASS    |
| GSM850    | 128     | VH            | TN               | 14.88          | 0.018058        | 2.5         | PASS    |
| GSM850    | 190     | VL            | TN               | 21.60          | 0.025818        | 2.5         | PASS    |
| GSM850    | 190     | VN            | TN               | 19.53          | 0.023348        | 2.5         | PASS    |
| GSM850    | 190     | VH            | TN               | 18.98          | 0.022692        | 2.5         | PASS    |
| GSM850    | 251     | VL            | TN               | 16.63          | 0.019589        | 2.5         | PASS    |
| GSM850    | 251     | VN            | TN               | 14.75          | 0.017383        | 2.5         | PASS    |
| GSM850    | 251     | VH            | TN               | 15.95          | 0.018790        | 2.5         | PASS    |
| GPRS850   | 128     | VL            | TN               | 15.53          | 0.018842        | 2.5         | PASS    |
| GPRS850   | 128     | VN            | TN               | 15.79          | 0.019155        | 2.5         | PASS    |
| GPRS850   | 128     | VH            | TN               | 15.69          | 0.019038        | 2.5         | PASS    |
| GPRS850   | 190     | VL            | TN               | 16.14          | 0.019296        | 2.5         | PASS    |
| GPRS850   | 190     | VN            | TN               | 15.92          | 0.019026        | 2.5         | PASS    |
| GPRS850   | 190     | VH            | TN               | 14.17          | 0.016942        | 2.5         | PASS    |
| GPRS850   | 251     | VL            | TN               | 17.37          | 0.020464        | 2.5         | PASS    |
| GPRS850   | 251     | VN            | TN               | 17.14          | 0.020198        | 2.5         | PASS    |
| GPRS850   | 251     | VH            | TN               | 15.14          | 0.017839        | 2.5         | PASS    |
| EGPRS850  | 128     | VL            | TN               | -8.62          | -0.010459       | 2.5         | PASS    |
| EGPRS850  | 128     | VN            | TN               | -2.91          | -0.003526       | 2.5         | PASS    |
| EGPRS850  | 128     | VH            | TN               | -4.71          | -0.005719       | 2.5         | PASS    |
| EGPRS850  | 190     | VL            | TN               | 5.29           | 0.006329        | 2.5         | PASS    |
| EGPRS850  | 190     | VN            | TN               | -7.55          | -0.009030       | 2.5         | PASS    |
| EGPRS850  | 190     | VH            | TN               | -4.91          | -0.005866       | 2.5         | PASS    |
| EGPRS850  | 251     | VL            | TN               | -5.75          | -0.006771       | 2.5         | PASS    |
| EGPRS850  | 251     | VN            | TN               | -5.94          | -0.006999       | 2.5         | PASS    |
| EGPRS850  | 251     | VH            | TN               | -5.62          | -0.006618       | 2.5         | PASS    |
| GSM1900   | 512     | VL            | TN               | 7.55           | 0.004083        | 2.5         | PASS    |
| GSM1900   | 512     | VN            | TN               | 11.59          | 0.006265        | 2.5         | PASS    |
| GSM1900   | 512     | VH            | TN               | 10.11          | 0.005462        | 2.5         | PASS    |
| GSM1900   | 661     | VL            | TN               | 8.36           | 0.004448        | 2.5         | PASS    |
| GSM1900   | 661     | VN            | TN               | 11.91          | 0.006337        | 2.5         | PASS    |
| GSM1900   | 661     | VH            | TN               | 14.53          | 0.007728        | 2.5         | PASS    |
| GSM1900   | 810     | VL            | TN               | 14.72          | 0.007709        | 2.5         | PASS    |
| GSM1900   | 810     | VN            | TN               | 7.78           | 0.004074        | 2.5         | PASS    |
| GSM1900   | 810     | VH            | TN               | 10.11          | 0.005291        | 2.5         | PASS    |
| GPRS1900  | 512     | VL            | TN               | 12.33          | 0.006666        | 2.5         | PASS    |
| GPRS1900  | 512     | VN            | TN               | 11.85          | 0.006404        | 2.5         | PASS    |
| GPRS1900  | 512     | VH            | TN               | 12.07          | 0.006526        | 2.5         | PASS    |
| GPRS1900  | 661     | VL            | TN               | 12.07          | 0.006423        | 2.5         | PASS    |
| GPRS1900  | 661     | VN            | TN               | 12.20          | 0.006492        | 2.5         | PASS    |
| GPRS1900  | 661     | VH            | TN               | 13.04          | 0.006938        | 2.5         | PASS    |
| GPRS1900  | 810     | VL            | TN               | 11.14          | 0.005832        | 2.5         | PASS    |
| GPRS1900  | 810     | VN            | TN               | 9.07           | 0.004750        | 2.5         | PASS    |
| GPRS1900  | 810     | VH            | TN               | 8.43           | 0.004412        | 2.5         | PASS    |
| EGPRS1900 | 512     | VL            | TN               | -6.30          | -0.003403       | 2.5         | PASS    |
| EGPRS1900 | 512     | VN            | TN               | 8.59           | 0.004642        | 2.5         | PASS    |
| EGPRS1900 | 512     | VH            | TN               | 3.91           | 0.002111        | 2.5         | PASS    |



|           |     |    |    |       |           |     |      |
|-----------|-----|----|----|-------|-----------|-----|------|
| EGPRS1900 | 661 | VL | TN | 4.78  | 0.002542  | 2.5 | PASS |
| EGPRS1900 | 661 | VN | TN | -2.00 | -0.001065 | 2.5 | PASS |
| EGPRS1900 | 661 | VH | TN | 2.52  | 0.001340  | 2.5 | PASS |
| EGPRS1900 | 810 | VL | TN | 3.42  | 0.001792  | 2.5 | PASS |
| EGPRS1900 | 810 | VN | TN | 0.61  | 0.000321  | 2.5 | PASS |
| EGPRS1900 | 810 | VH | TN | 4.23  | 0.002215  | 2.5 | PASS |



| Temperature |         |               |                  |                |                 |             |         |
|-------------|---------|---------------|------------------|----------------|-----------------|-------------|---------|
| Band        | Channel | Voltage (Vdc) | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| GSM850      | 128     | VN            | -30              | 17.66          | 0.021427        | 2.5         | PASS    |
| GSM850      | 128     | VN            | -20              | 16.50          | 0.020017        | 2.5         | PASS    |
| GSM850      | 128     | VN            | -10              | 15.82          | 0.019194        | 2.5         | PASS    |
| GSM850      | 128     | VN            | 0                | 14.66          | 0.017784        | 2.5         | PASS    |
| GSM850      | 128     | VN            | 10               | 17.92          | 0.021741        | 2.5         | PASS    |
| GSM850      | 128     | VN            | 20               | 18.66          | 0.022642        | 2.5         | PASS    |
| GSM850      | 128     | VN            | 30               | 16.95          | 0.020565        | 2.5         | PASS    |
| GSM850      | 128     | VN            | 40               | 15.82          | 0.019194        | 2.5         | PASS    |
| GSM850      | 128     | VN            | 50               | 17.72          | 0.021506        | 2.5         | PASS    |
| GSM850      | 190     | VN            | -30              | 20.31          | 0.024274        | 2.5         | PASS    |
| GSM850      | 190     | VN            | -20              | 15.40          | 0.018408        | 2.5         | PASS    |
| GSM850      | 190     | VN            | -10              | 18.14          | 0.021689        | 2.5         | PASS    |
| GSM850      | 190     | VN            | 0                | 23.73          | 0.028365        | 2.5         | PASS    |
| GSM850      | 190     | VN            | 10               | 20.66          | 0.024699        | 2.5         | PASS    |
| GSM850      | 190     | VN            | 20               | 11.01          | 0.013160        | 2.5         | PASS    |
| GSM850      | 190     | VN            | 30               | 14.98          | 0.017907        | 2.5         | PASS    |
| GSM850      | 190     | VN            | 40               | 17.95          | 0.021457        | 2.5         | PASS    |
| GSM850      | 190     | VN            | 50               | 22.18          | 0.026513        | 2.5         | PASS    |
| GSM850      | 251     | VN            | -30              | 16.47          | 0.019399        | 2.5         | PASS    |
| GSM850      | 251     | VN            | -20              | 16.66          | 0.019627        | 2.5         | PASS    |
| GSM850      | 251     | VN            | -10              | 17.34          | 0.020426        | 2.5         | PASS    |
| GSM850      | 251     | VN            | 0                | 16.59          | 0.019551        | 2.5         | PASS    |
| GSM850      | 251     | VN            | 10               | 16.50          | 0.019437        | 2.5         | PASS    |
| GSM850      | 251     | VN            | 20               | 16.05          | 0.018904        | 2.5         | PASS    |
| GSM850      | 251     | VN            | 30               | 15.72          | 0.018524        | 2.5         | PASS    |
| GSM850      | 251     | VN            | 40               | 16.72          | 0.019703        | 2.5         | PASS    |
| GSM850      | 251     | VN            | 50               | 14.66          | 0.017269        | 2.5         | PASS    |
| GPRS850     | 128     | VN            | -30              | 14.46          | 0.017549        | 2.5         | PASS    |
| GPRS850     | 128     | VN            | -20              | 15.76          | 0.019116        | 2.5         | PASS    |
| GPRS850     | 128     | VN            | -10              | 16.43          | 0.019939        | 2.5         | PASS    |
| GPRS850     | 128     | VN            | 0                | 15.08          | 0.018293        | 2.5         | PASS    |
| GPRS850     | 128     | VN            | 10               | 14.37          | 0.017432        | 2.5         | PASS    |
| GPRS850     | 128     | VN            | 20               | 15.72          | 0.019077        | 2.5         | PASS    |
| GPRS850     | 128     | VN            | 30               | 15.72          | 0.019077        | 2.5         | PASS    |
| GPRS850     | 128     | VN            | 40               | 17.21          | 0.020879        | 2.5         | PASS    |
| GPRS850     | 128     | VN            | 50               | 16.82          | 0.020409        | 2.5         | PASS    |
| GPRS850     | 190     | VN            | -30              | 16.98          | 0.020299        | 2.5         | PASS    |
| GPRS850     | 190     | VN            | -20              | 17.92          | 0.021418        | 2.5         | PASS    |
| GPRS850     | 190     | VN            | -10              | 16.21          | 0.019373        | 2.5         | PASS    |
| GPRS850     | 190     | VN            | 0                | 16.50          | 0.019720        | 2.5         | PASS    |
| GPRS850     | 190     | VN            | 10               | 17.56          | 0.020994        | 2.5         | PASS    |
| GPRS850     | 190     | VN            | 20               | 15.53          | 0.018563        | 2.5         | PASS    |
| GPRS850     | 190     | VN            | 30               | 17.24          | 0.020608        | 2.5         | PASS    |
| GPRS850     | 190     | VN            | 40               | 15.79          | 0.018871        | 2.5         | PASS    |
| GPRS850     | 190     | VN            | 50               | 14.63          | 0.017482        | 2.5         | PASS    |
| GPRS850     | 251     | VN            | -30              | 18.69          | 0.022023        | 2.5         | PASS    |
| GPRS850     | 251     | VN            | -20              | 15.56          | 0.018334        | 2.5         | PASS    |
| GPRS850     | 251     | VN            | -10              | 15.40          | 0.018144        | 2.5         | PASS    |
| GPRS850     | 251     | VN            | 0                | 16.11          | 0.018980        | 2.5         | PASS    |
| GPRS850     | 251     | VN            | 10               | 15.27          | 0.017992        | 2.5         | PASS    |
| GPRS850     | 251     | VN            | 20               | 17.08          | 0.020122        | 2.5         | PASS    |



|          |     |    |     |        |           |     |      |
|----------|-----|----|-----|--------|-----------|-----|------|
| GPRS850  | 251 | VN | 30  | 15.98  | 0.018828  | 2.5 | PASS |
| GPRS850  | 251 | VN | 40  | 16.63  | 0.019589  | 2.5 | PASS |
| GPRS850  | 251 | VN | 50  | 15.85  | 0.018676  | 2.5 | PASS |
| EGPRS850 | 128 | VN | -30 | -2.03  | -0.002468 | 2.5 | PASS |
| EGPRS850 | 128 | VN | -20 | -2.97  | -0.003604 | 2.5 | PASS |
| EGPRS850 | 128 | VN | -10 | 1.58   | 0.001919  | 2.5 | PASS |
| EGPRS850 | 128 | VN | 0   | -4.94  | -0.005993 | 2.5 | PASS |
| EGPRS850 | 128 | VN | 10  | 6.59   | 0.007991  | 2.5 | PASS |
| EGPRS850 | 128 | VN | 20  | 13.08  | 0.015865  | 2.5 | PASS |
| EGPRS850 | 128 | VN | 30  | 4.62   | 0.005602  | 2.5 | PASS |
| EGPRS850 | 128 | VN | 40  | 11.01  | 0.013358  | 2.5 | PASS |
| EGPRS850 | 128 | VN | 50  | 10.94  | 0.013279  | 2.5 | PASS |
| EGPRS850 | 190 | VN | -30 | -3.39  | -0.004052 | 2.5 | PASS |
| EGPRS850 | 190 | VN | -20 | -1.03  | -0.001235 | 2.5 | PASS |
| EGPRS850 | 190 | VN | -10 | -1.58  | -0.001891 | 2.5 | PASS |
| EGPRS850 | 190 | VN | 0   | -4.58  | -0.005480 | 2.5 | PASS |
| EGPRS850 | 190 | VN | 10  | 2.71   | 0.003242  | 2.5 | PASS |
| EGPRS850 | 190 | VN | 20  | 12.98  | 0.015514  | 2.5 | PASS |
| EGPRS850 | 190 | VN | 30  | 4.97   | 0.005943  | 2.5 | PASS |
| EGPRS850 | 190 | VN | 40  | 12.40  | 0.014819  | 2.5 | PASS |
| EGPRS850 | 190 | VN | 50  | 7.49   | 0.008953  | 2.5 | PASS |
| EGPRS850 | 251 | VN | -30 | -10.72 | -0.012628 | 2.5 | PASS |
| EGPRS850 | 251 | VN | -20 | -2.49  | -0.002929 | 2.5 | PASS |
| EGPRS850 | 251 | VN | -10 | 3.52   | 0.004146  | 2.5 | PASS |
| EGPRS850 | 251 | VN | 0   | -4.71  | -0.005553 | 2.5 | PASS |
| EGPRS850 | 251 | VN | 10  | -0.32  | -0.000380 | 2.5 | PASS |
| EGPRS850 | 251 | VN | 20  | 15.53  | 0.018296  | 2.5 | PASS |
| EGPRS850 | 251 | VN | 30  | 4.84   | 0.005706  | 2.5 | PASS |
| EGPRS850 | 251 | VN | 40  | 11.91  | 0.014036  | 2.5 | PASS |
| EGPRS850 | 251 | VN | 50  | 4.04   | 0.004755  | 2.5 | PASS |
| GSM1900  | 512 | VN | -30 | 12.04  | 0.006509  | 2.5 | PASS |
| GSM1900  | 512 | VN | -20 | 10.69  | 0.005776  | 2.5 | PASS |
| GSM1900  | 512 | VN | -10 | 11.30  | 0.006107  | 2.5 | PASS |
| GSM1900  | 512 | VN | 0   | 7.55   | 0.004083  | 2.5 | PASS |
| GSM1900  | 512 | VN | 10  | 10.01  | 0.005409  | 2.5 | PASS |
| GSM1900  | 512 | VN | 20  | 8.59   | 0.004642  | 2.5 | PASS |
| GSM1900  | 512 | VN | 30  | 8.01   | 0.004328  | 2.5 | PASS |
| GSM1900  | 512 | VN | 40  | 8.62   | 0.004659  | 2.5 | PASS |
| GSM1900  | 512 | VN | 50  | 11.24  | 0.006073  | 2.5 | PASS |
| GSM1900  | 661 | VN | -30 | 12.43  | 0.006612  | 2.5 | PASS |
| GSM1900  | 661 | VN | -20 | 16.82  | 0.008947  | 2.5 | PASS |
| GSM1900  | 661 | VN | -10 | 17.14  | 0.009119  | 2.5 | PASS |
| GSM1900  | 661 | VN | 0   | 12.91  | 0.006869  | 2.5 | PASS |
| GSM1900  | 661 | VN | 10  | 16.95  | 0.009016  | 2.5 | PASS |
| GSM1900  | 661 | VN | 20  | 14.43  | 0.007676  | 2.5 | PASS |
| GSM1900  | 661 | VN | 30  | 17.76  | 0.009445  | 2.5 | PASS |
| GSM1900  | 661 | VN | 40  | 8.62   | 0.004585  | 2.5 | PASS |
| GSM1900  | 661 | VN | 50  | 12.82  | 0.006818  | 2.5 | PASS |
| GSM1900  | 810 | VN | -30 | 12.20  | 0.006390  | 2.5 | PASS |
| GSM1900  | 810 | VN | -20 | 8.17   | 0.004277  | 2.5 | PASS |
| GSM1900  | 810 | VN | -10 | 11.62  | 0.006086  | 2.5 | PASS |
| GSM1900  | 810 | VN | 0   | 12.17  | 0.006373  | 2.5 | PASS |
| GSM1900  | 810 | VN | 10  | 6.30   | 0.003297  | 2.5 | PASS |
| GSM1900  | 810 | VN | 20  | 13.17  | 0.006897  | 2.5 | PASS |
| GSM1900  | 810 | VN | 30  | 9.49   | 0.004970  | 2.5 | PASS |



|           |     |    |     |       |           |     |      |
|-----------|-----|----|-----|-------|-----------|-----|------|
| GSM1900   | 810 | VN | 40  | 11.91 | 0.006238  | 2.5 | PASS |
| GSM1900   | 810 | VN | 50  | 16.30 | 0.008537  | 2.5 | PASS |
| GPRS1900  | 512 | VN | -30 | 8.39  | 0.004537  | 2.5 | PASS |
| GPRS1900  | 512 | VN | -20 | 10.43 | 0.005636  | 2.5 | PASS |
| GPRS1900  | 512 | VN | -10 | 8.65  | 0.004677  | 2.5 | PASS |
| GPRS1900  | 512 | VN | 0   | 13.04 | 0.007050  | 2.5 | PASS |
| GPRS1900  | 512 | VN | 10  | 7.97  | 0.004310  | 2.5 | PASS |
| GPRS1900  | 512 | VN | 20  | 8.72  | 0.004711  | 2.5 | PASS |
| GPRS1900  | 512 | VN | 30  | 11.98 | 0.006474  | 2.5 | PASS |
| GPRS1900  | 512 | VN | 40  | 9.36  | 0.005060  | 2.5 | PASS |
| GPRS1900  | 512 | VN | 50  | 9.69  | 0.005235  | 2.5 | PASS |
| GPRS1900  | 661 | VN | -30 | 12.62 | 0.006715  | 2.5 | PASS |
| GPRS1900  | 661 | VN | -20 | 10.30 | 0.005478  | 2.5 | PASS |
| GPRS1900  | 661 | VN | -10 | 10.23 | 0.005444  | 2.5 | PASS |
| GPRS1900  | 661 | VN | 0   | 11.88 | 0.006320  | 2.5 | PASS |
| GPRS1900  | 661 | VN | 10  | 10.69 | 0.005684  | 2.5 | PASS |
| GPRS1900  | 661 | VN | 20  | 11.14 | 0.005925  | 2.5 | PASS |
| GPRS1900  | 661 | VN | 30  | 14.75 | 0.007848  | 2.5 | PASS |
| GPRS1900  | 661 | VN | 40  | 12.07 | 0.006423  | 2.5 | PASS |
| GPRS1900  | 661 | VN | 50  | 11.78 | 0.006268  | 2.5 | PASS |
| GPRS1900  | 810 | VN | -30 | 8.52  | 0.004463  | 2.5 | PASS |
| GPRS1900  | 810 | VN | -20 | 12.66 | 0.006627  | 2.5 | PASS |
| GPRS1900  | 810 | VN | -10 | 8.39  | 0.004395  | 2.5 | PASS |
| GPRS1900  | 810 | VN | 0   | 10.56 | 0.005528  | 2.5 | PASS |
| GPRS1900  | 810 | VN | 10  | 10.75 | 0.005629  | 2.5 | PASS |
| GPRS1900  | 810 | VN | 20  | 7.26  | 0.003804  | 2.5 | PASS |
| GPRS1900  | 810 | VN | 30  | 9.23  | 0.004835  | 2.5 | PASS |
| GPRS1900  | 810 | VN | 40  | 12.17 | 0.006373  | 2.5 | PASS |
| GPRS1900  | 810 | VN | 50  | 10.01 | 0.005241  | 2.5 | PASS |
| EGPRS1900 | 512 | VN | -30 | 7.01  | 0.003787  | 2.5 | PASS |
| EGPRS1900 | 512 | VN | -20 | 0.81  | 0.000436  | 2.5 | PASS |
| EGPRS1900 | 512 | VN | -10 | 0.77  | 0.000419  | 2.5 | PASS |
| EGPRS1900 | 512 | VN | 0   | 0.48  | 0.000262  | 2.5 | PASS |
| EGPRS1900 | 512 | VN | 10  | 10.88 | 0.005881  | 2.5 | PASS |
| EGPRS1900 | 512 | VN | 20  | 14.37 | 0.007765  | 2.5 | PASS |
| EGPRS1900 | 512 | VN | 30  | 13.62 | 0.007364  | 2.5 | PASS |
| EGPRS1900 | 512 | VN | 40  | 11.78 | 0.006369  | 2.5 | PASS |
| EGPRS1900 | 512 | VN | 50  | 6.10  | 0.003298  | 2.5 | PASS |
| EGPRS1900 | 661 | VN | -30 | 1.49  | 0.000790  | 2.5 | PASS |
| EGPRS1900 | 661 | VN | -20 | -2.29 | -0.001219 | 2.5 | PASS |
| EGPRS1900 | 661 | VN | -10 | -1.29 | -0.000687 | 2.5 | PASS |
| EGPRS1900 | 661 | VN | 0   | 1.32  | 0.000704  | 2.5 | PASS |
| EGPRS1900 | 661 | VN | 10  | -6.33 | -0.003366 | 2.5 | PASS |
| EGPRS1900 | 661 | VN | 20  | 4.16  | 0.002215  | 2.5 | PASS |
| EGPRS1900 | 661 | VN | 30  | 1.45  | 0.000773  | 2.5 | PASS |
| EGPRS1900 | 661 | VN | 40  | -0.13 | -0.000069 | 2.5 | PASS |
| EGPRS1900 | 661 | VN | 50  | 2.62  | 0.001391  | 2.5 | PASS |
| EGPRS1900 | 810 | VN | -30 | 4.39  | 0.002299  | 2.5 | PASS |
| EGPRS1900 | 810 | VN | -20 | -0.32 | -0.000169 | 2.5 | PASS |
| EGPRS1900 | 810 | VN | -10 | -2.52 | -0.001319 | 2.5 | PASS |
| EGPRS1900 | 810 | VN | 0   | -4.84 | -0.002536 | 2.5 | PASS |
| EGPRS1900 | 810 | VN | 10  | 0.81  | 0.000423  | 2.5 | PASS |
| EGPRS1900 | 810 | VN | 20  | 8.65  | 0.004531  | 2.5 | PASS |
| EGPRS1900 | 810 | VN | 30  | 3.52  | 0.001843  | 2.5 | PASS |
| EGPRS1900 | 810 | VN | 40  | -0.94 | -0.000490 | 2.5 | PASS |



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|           |     |    |    |      |          |     |      |
|-----------|-----|----|----|------|----------|-----|------|
| EGPRS1900 | 810 | VN | 50 | 3.00 | 0.001572 | 2.5 | PASS |
|-----------|-----|----|----|------|----------|-----|------|

-----End of the Report -----