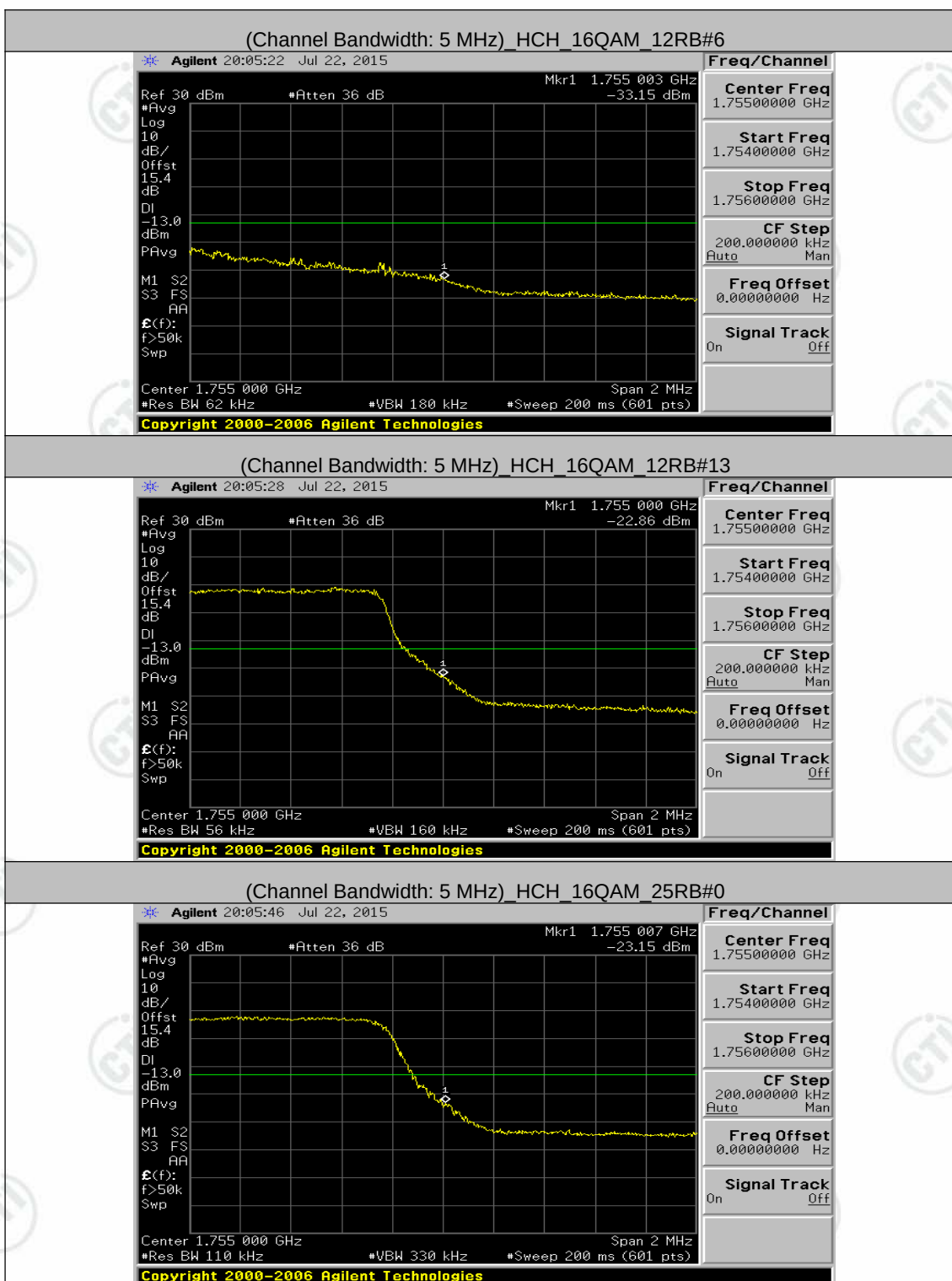
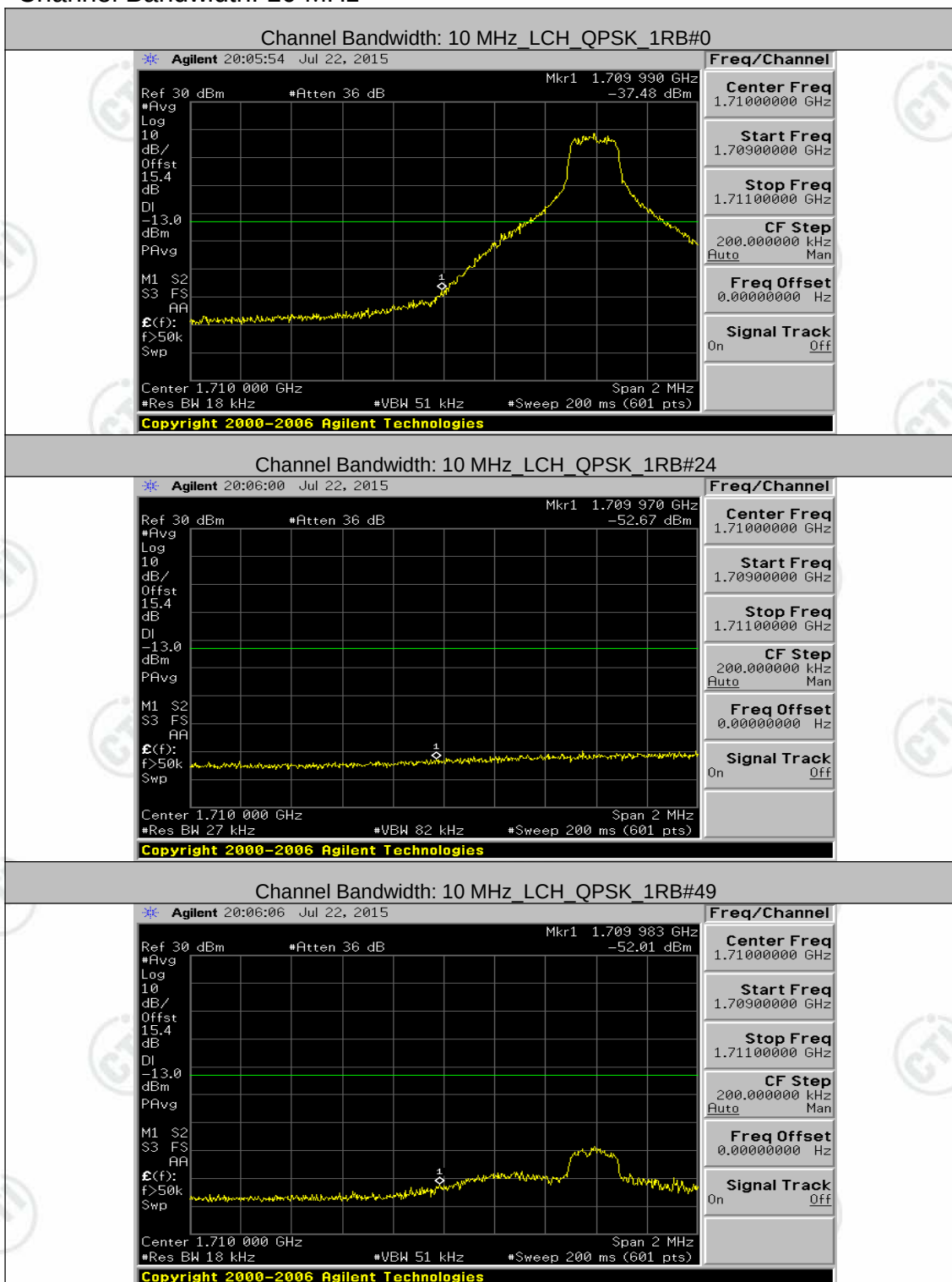
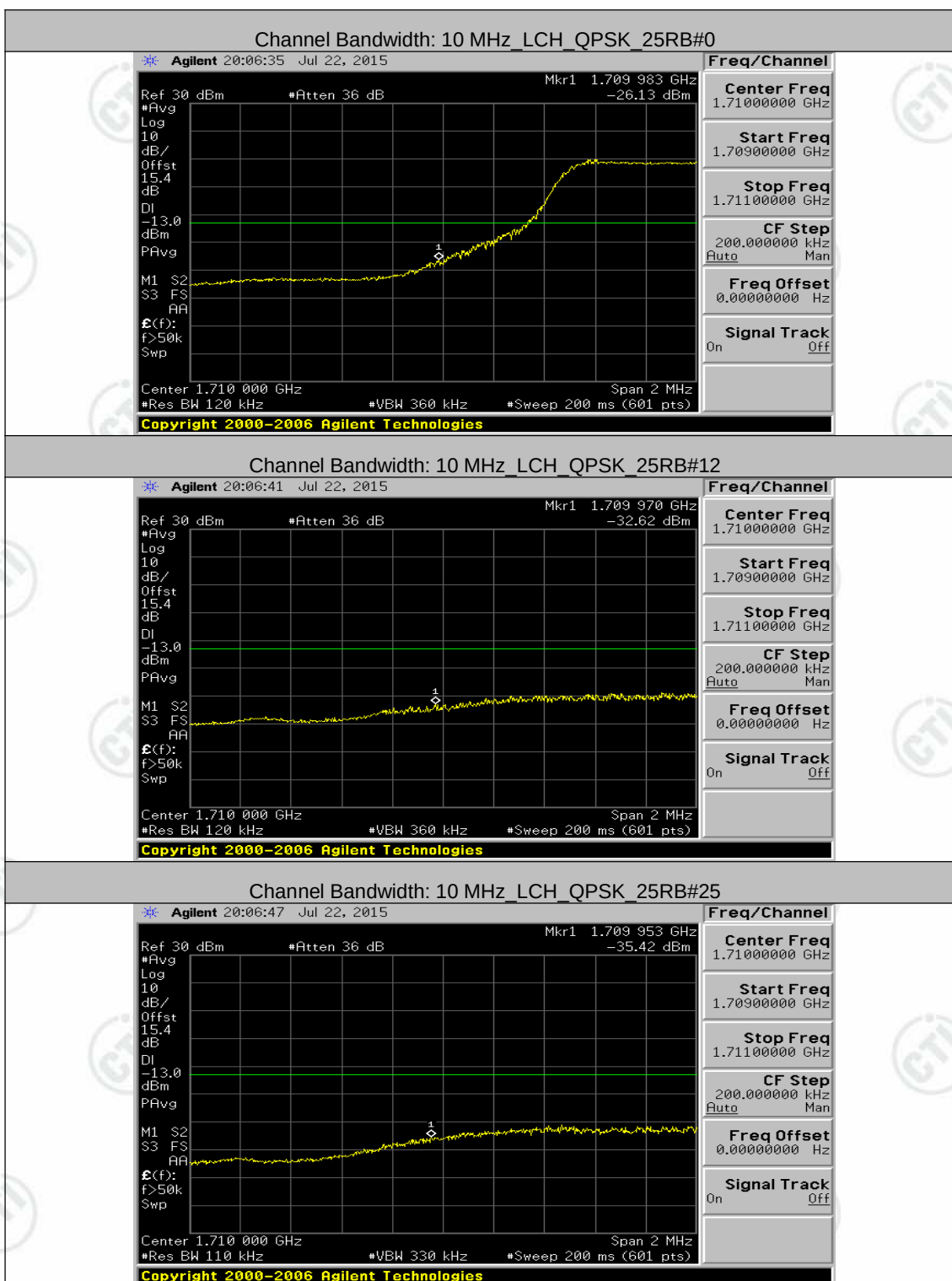
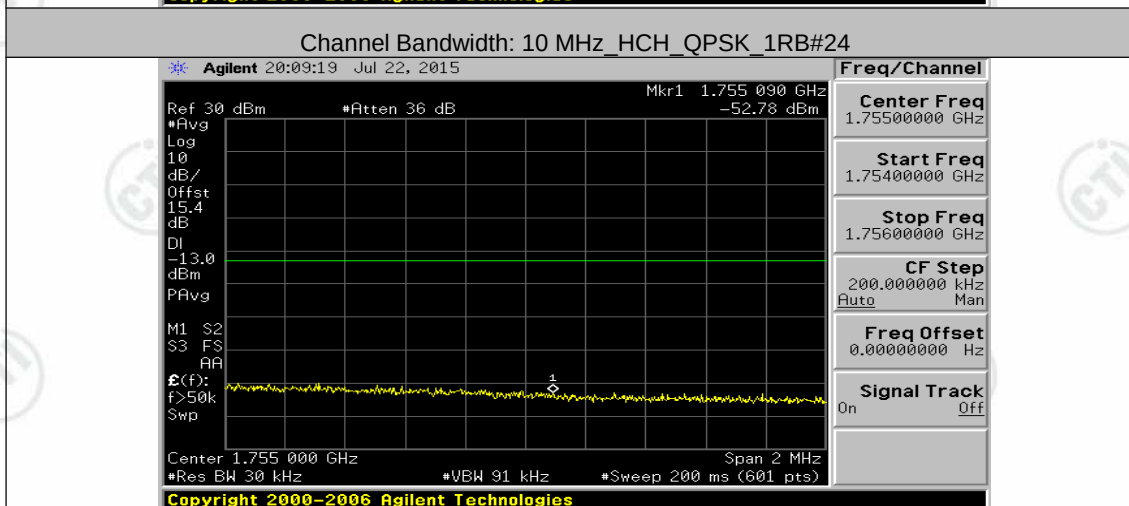
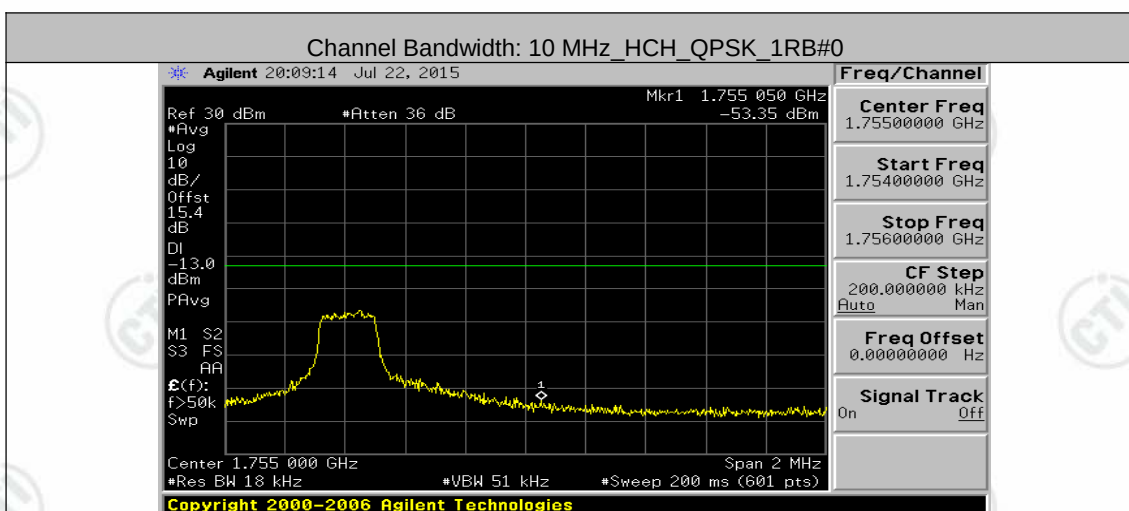
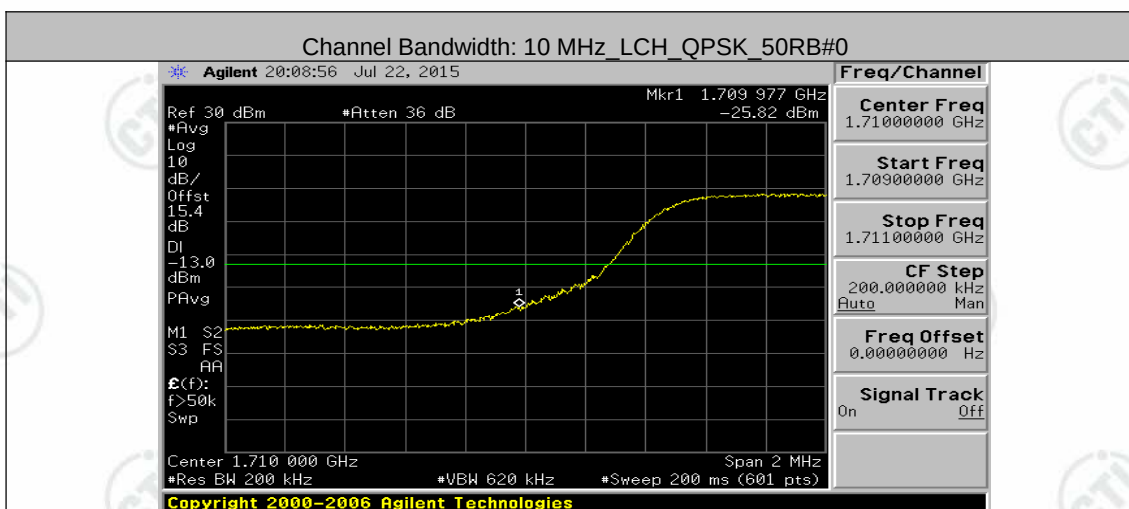


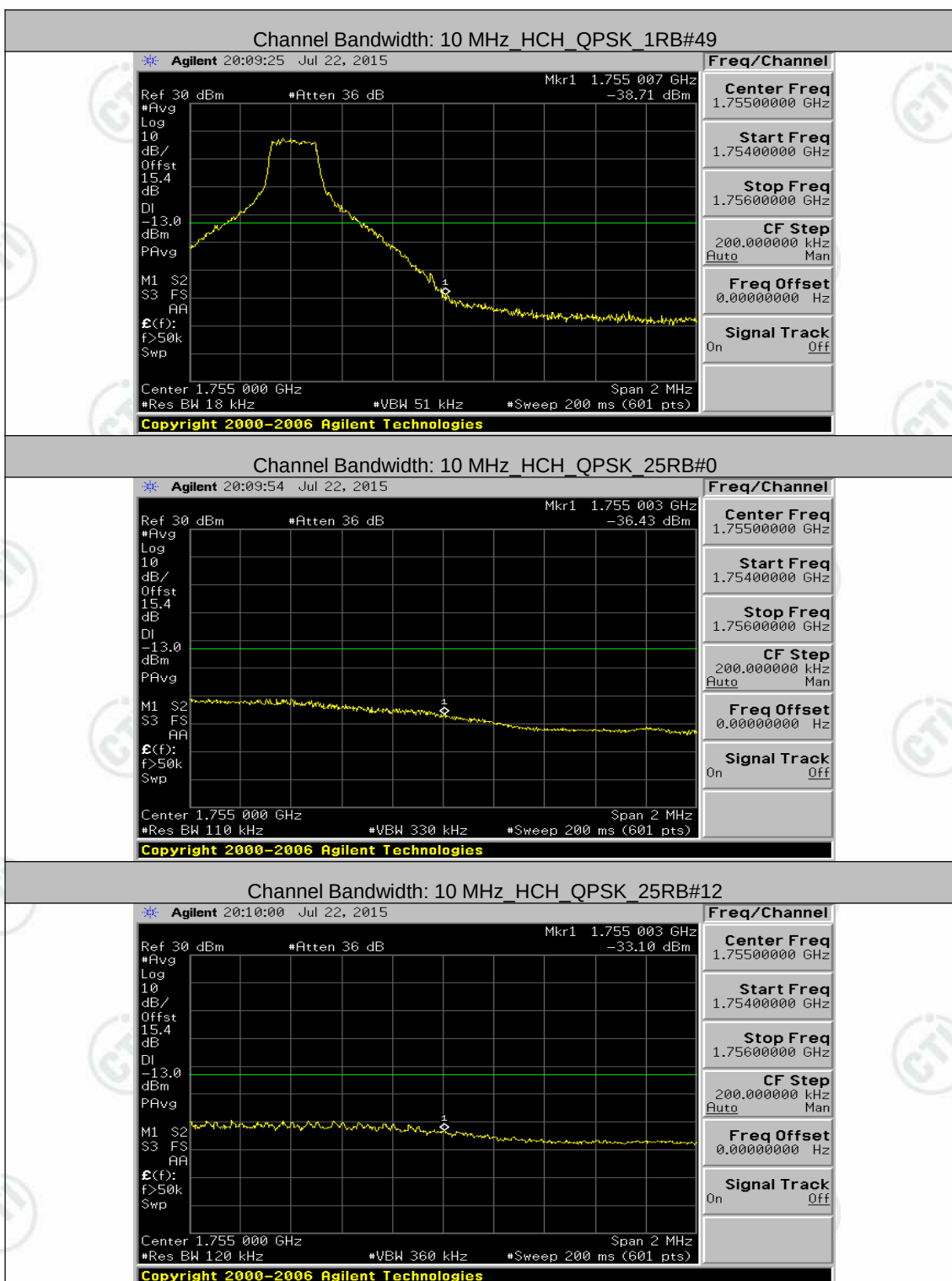


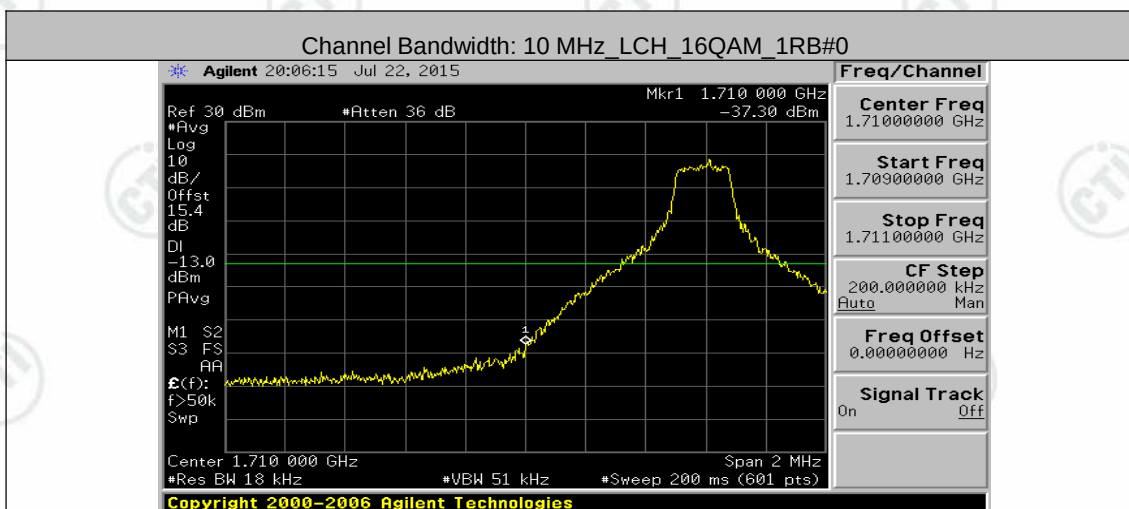
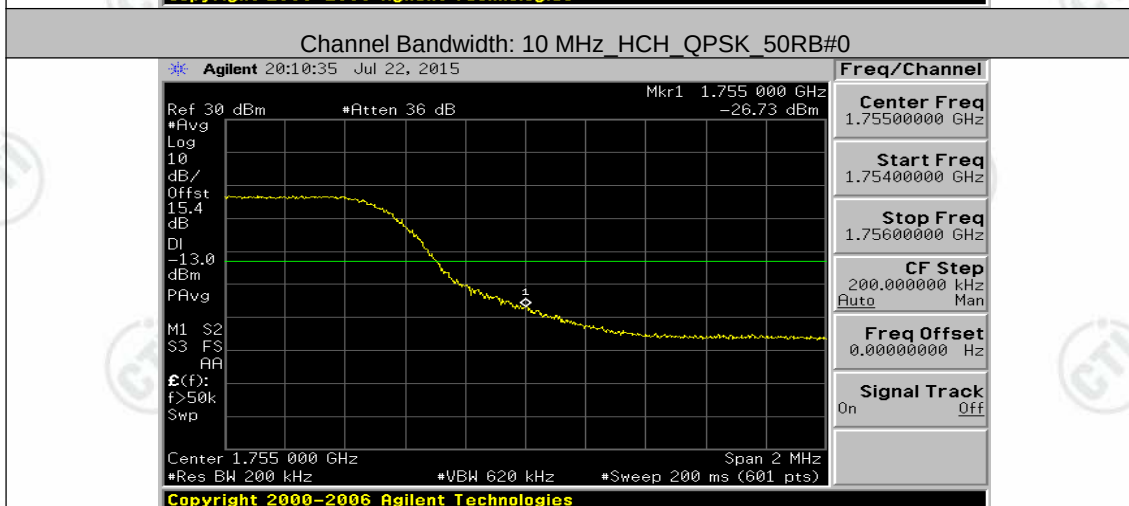
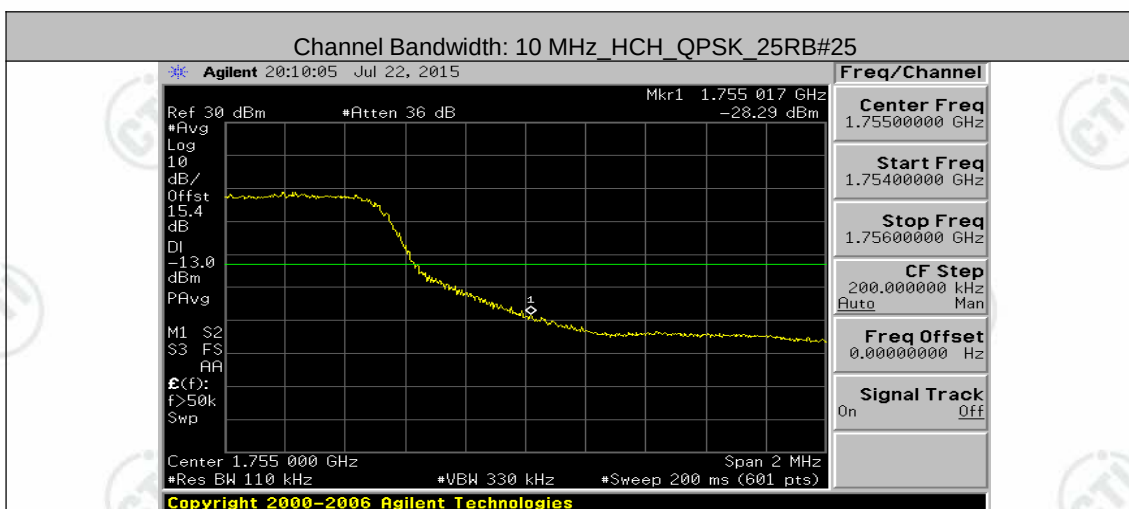
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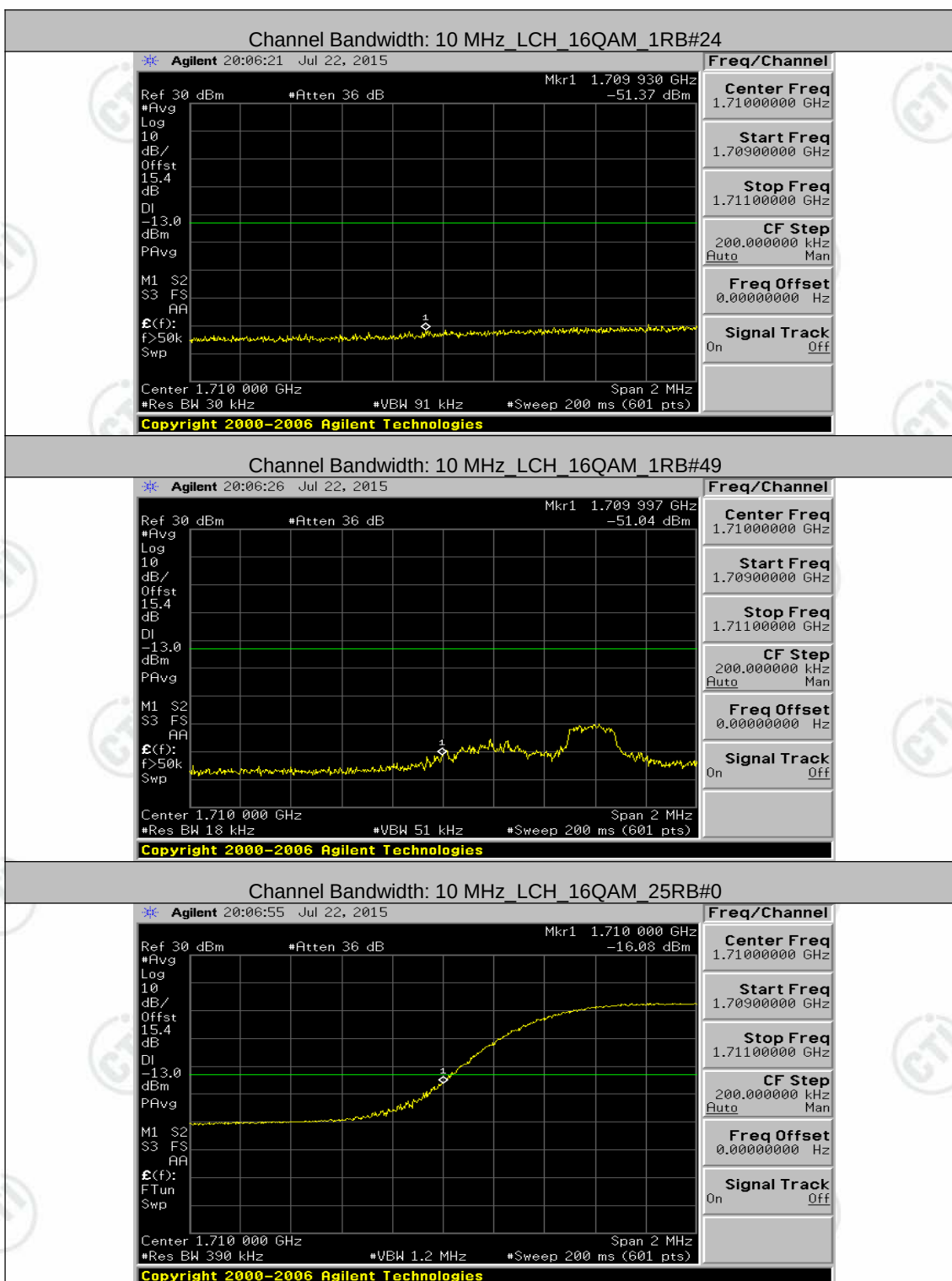


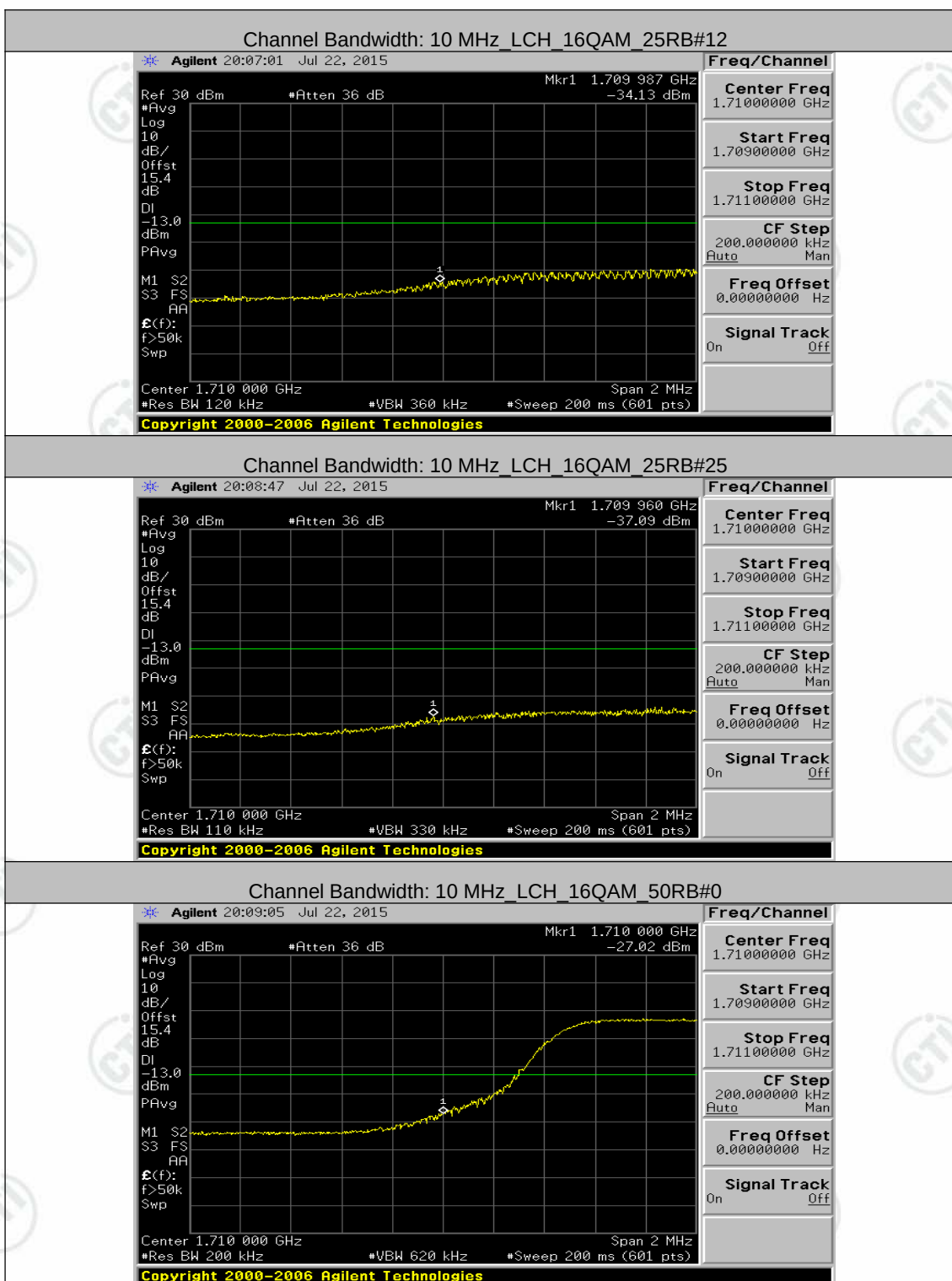


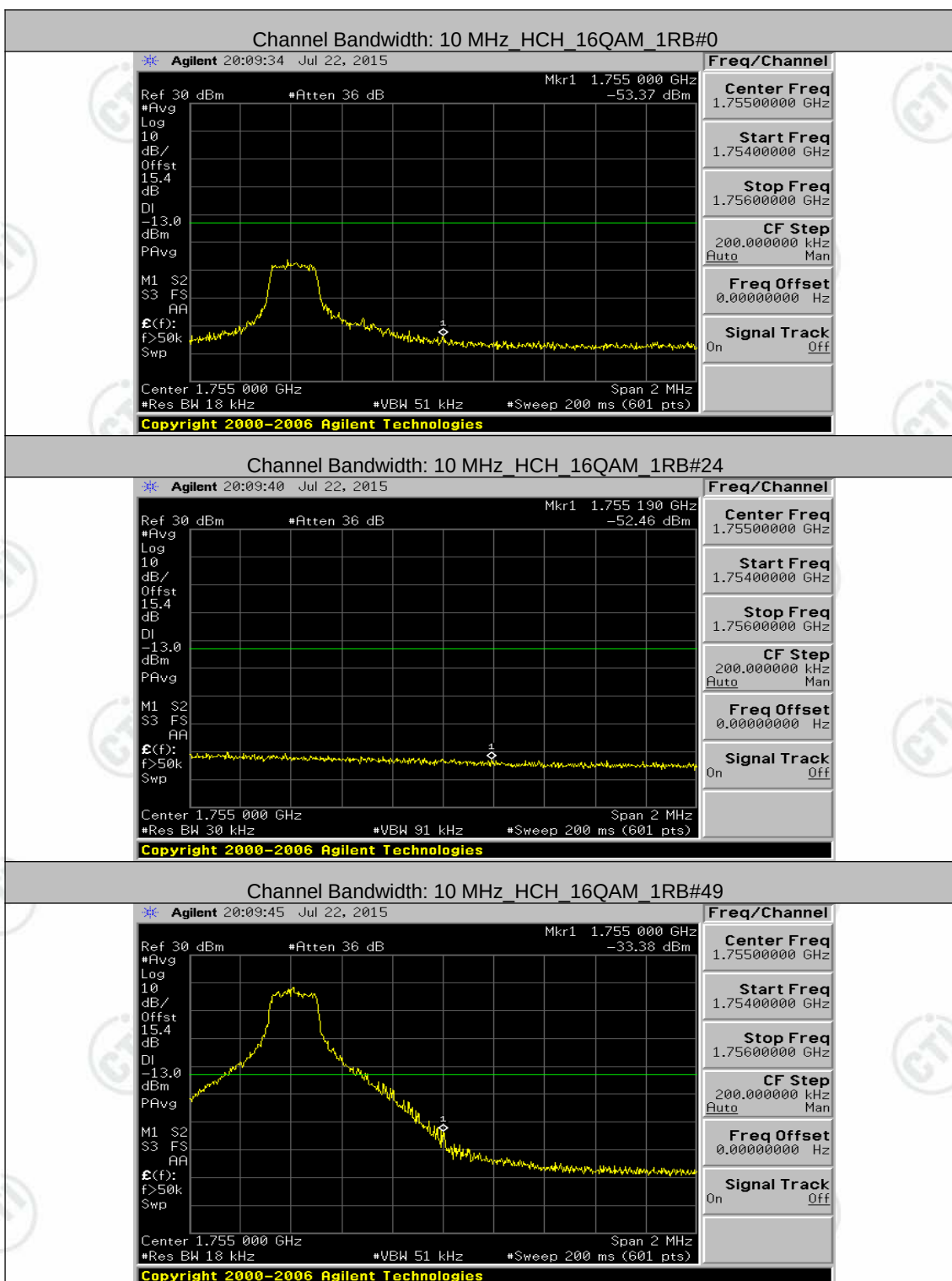


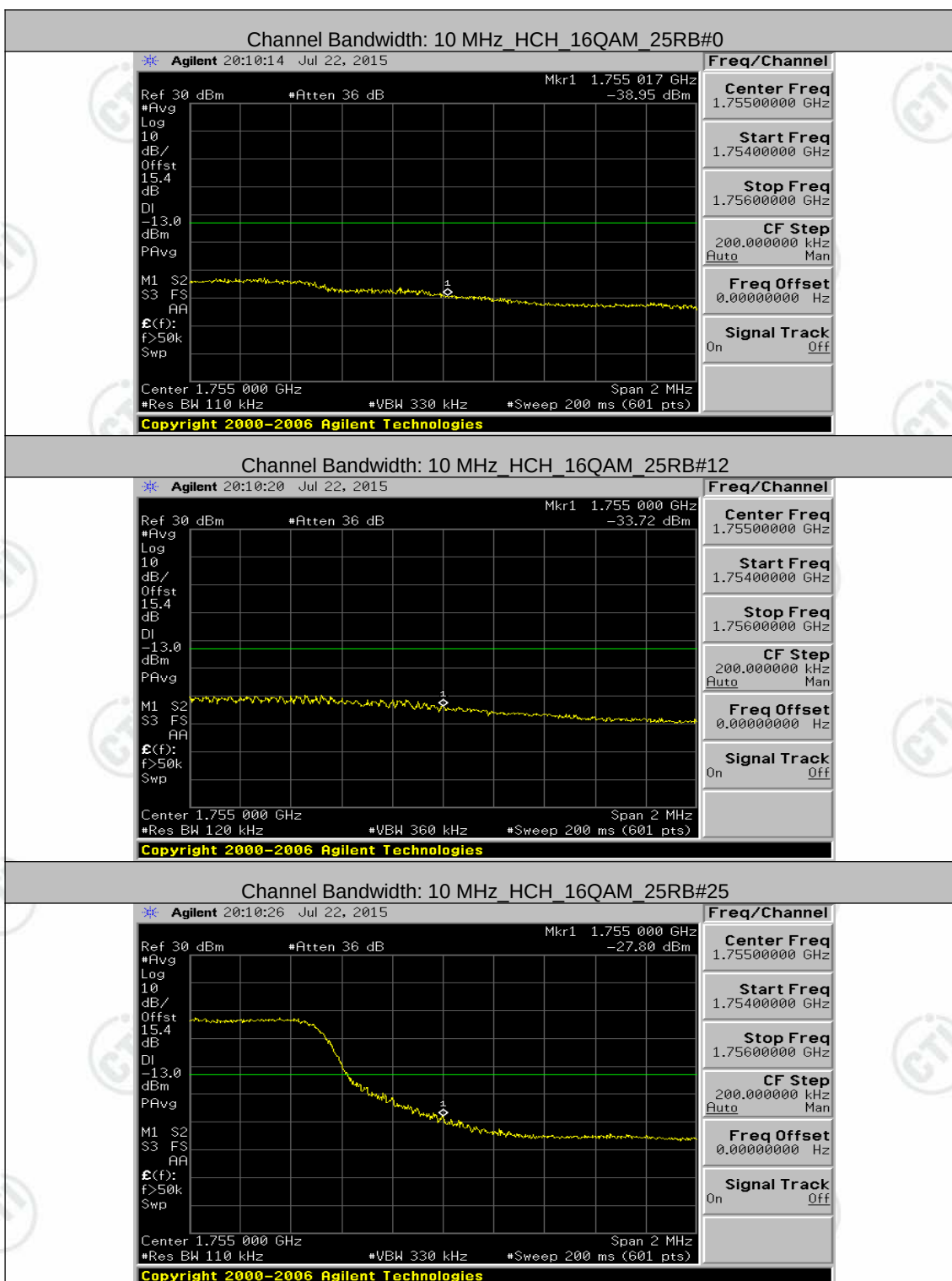


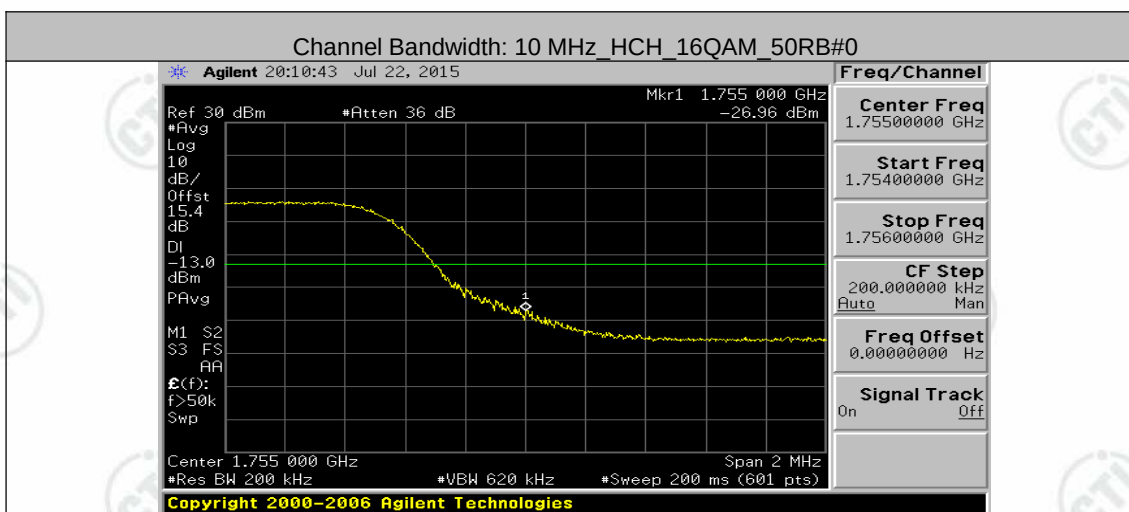




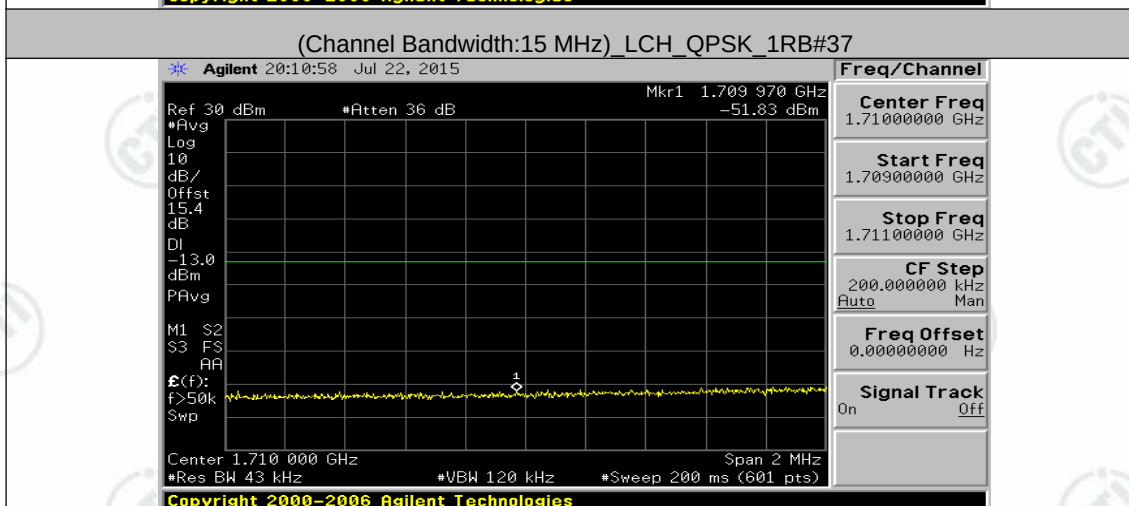
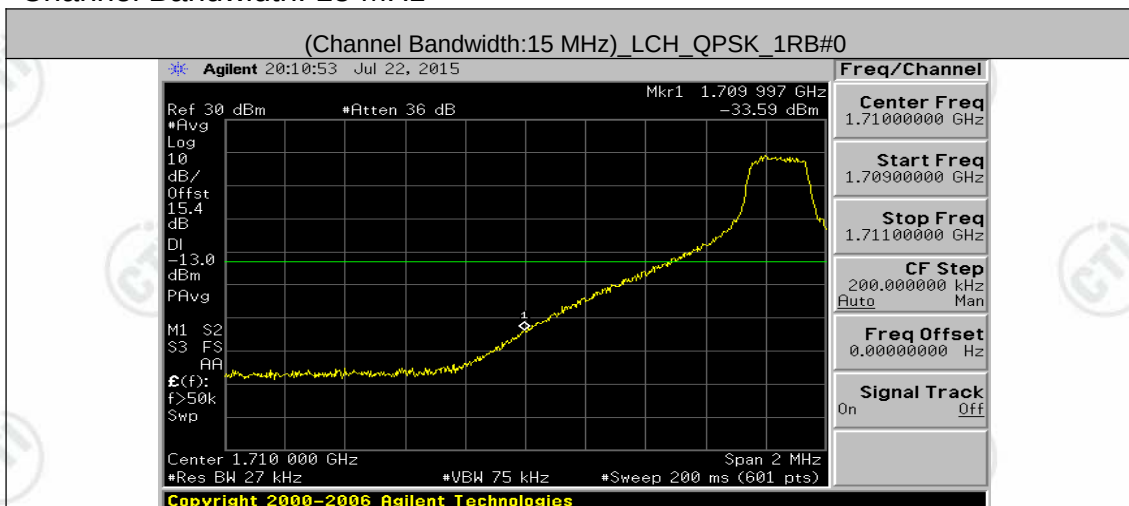


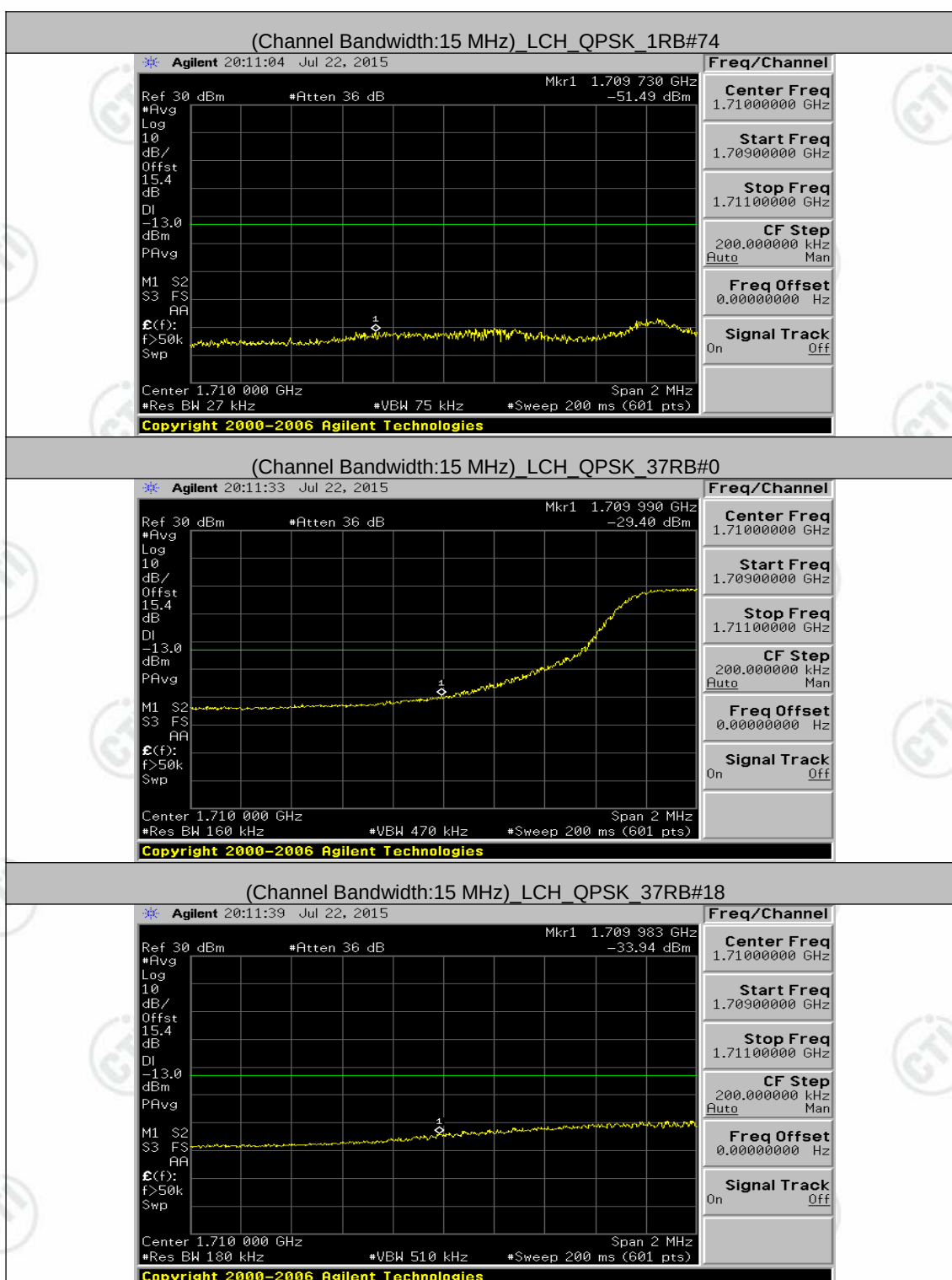


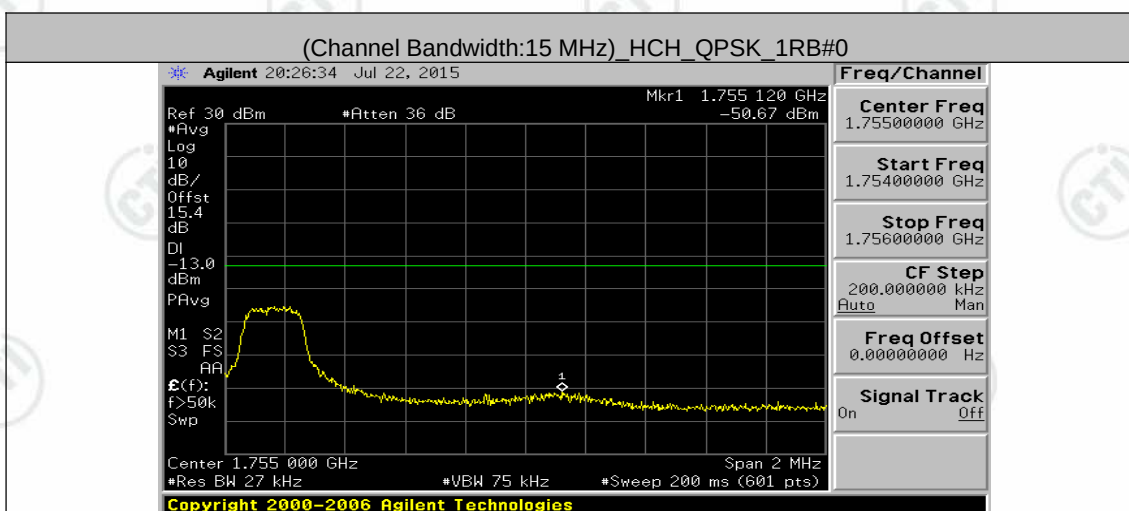
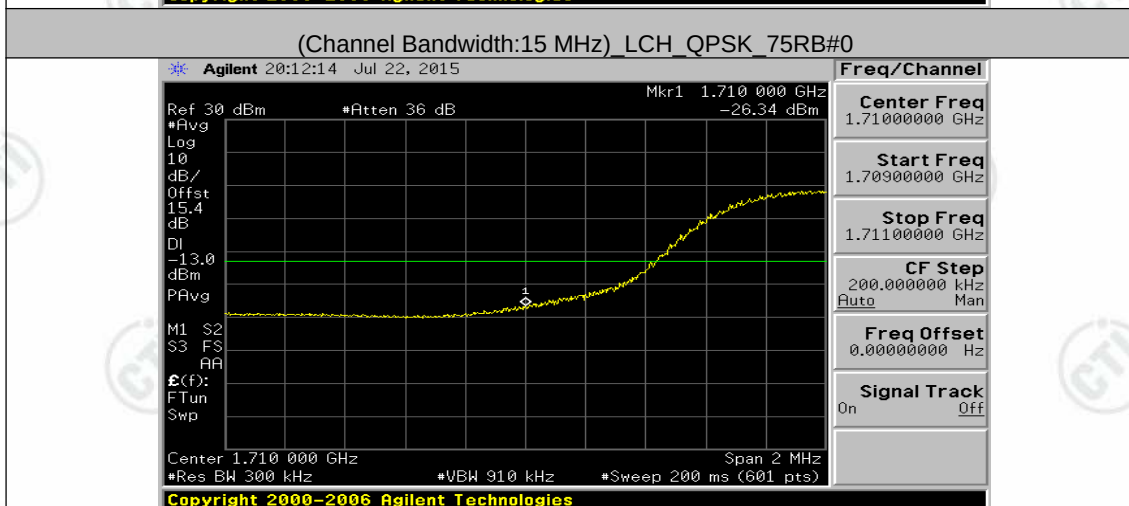
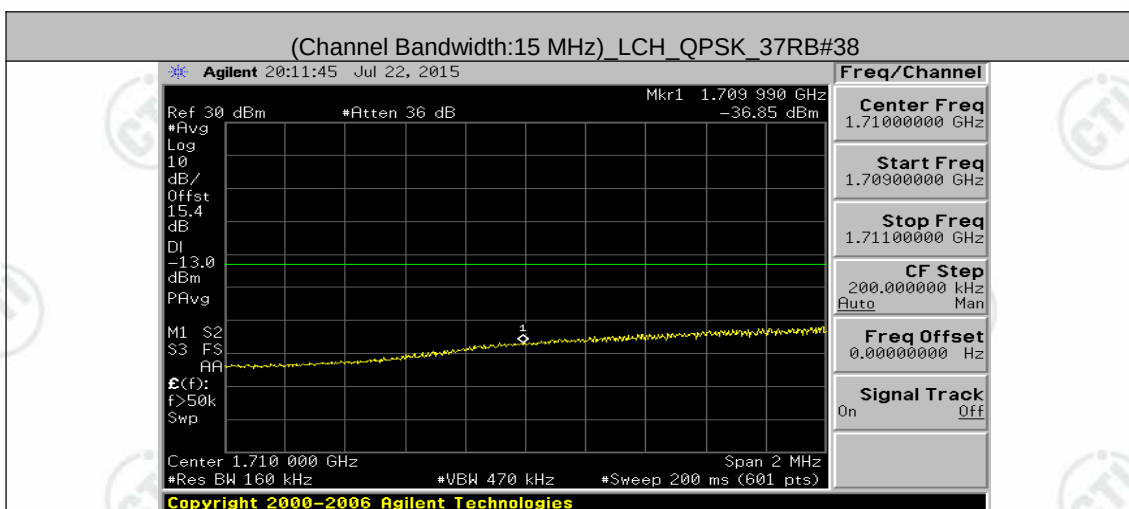


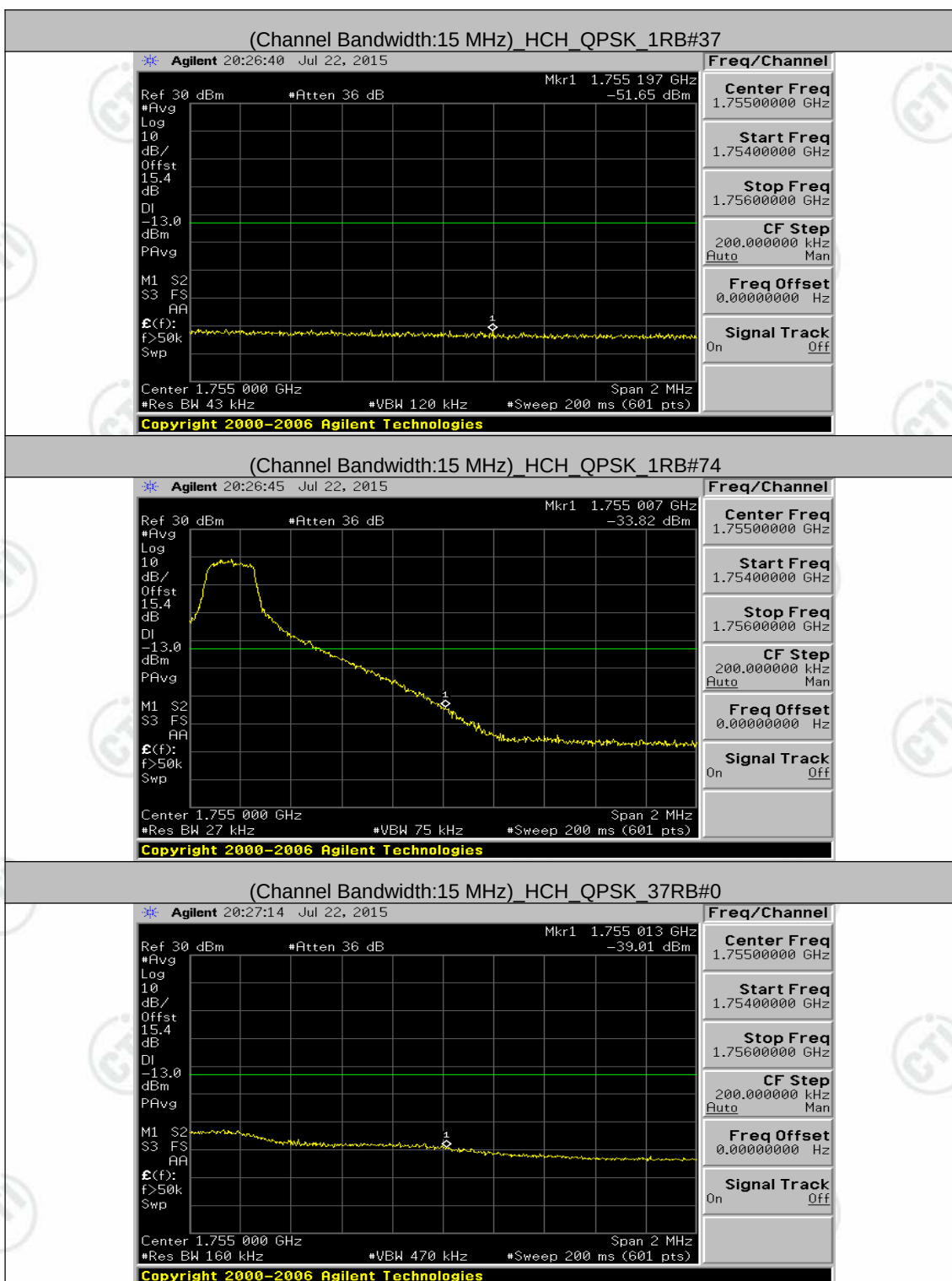


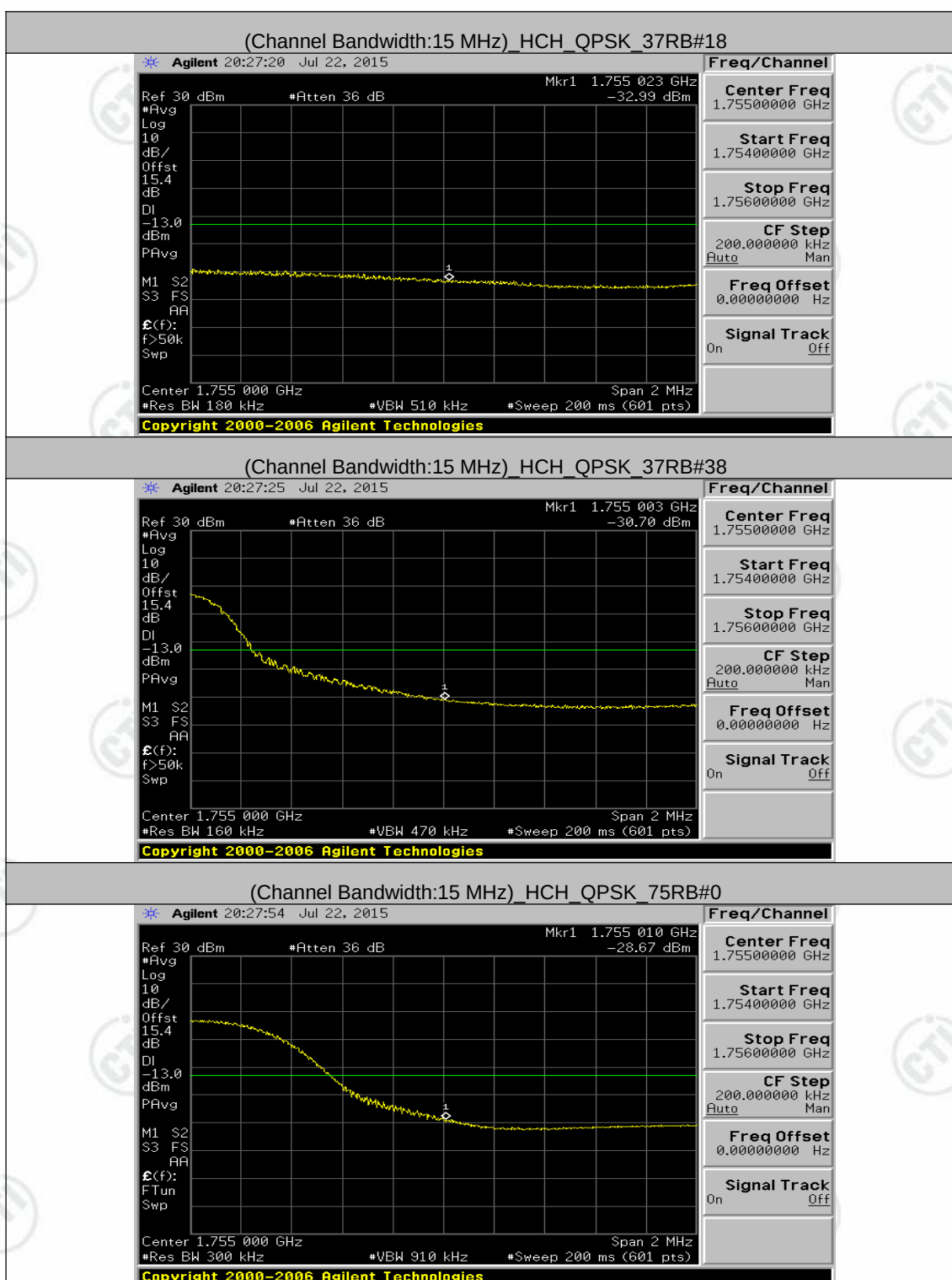
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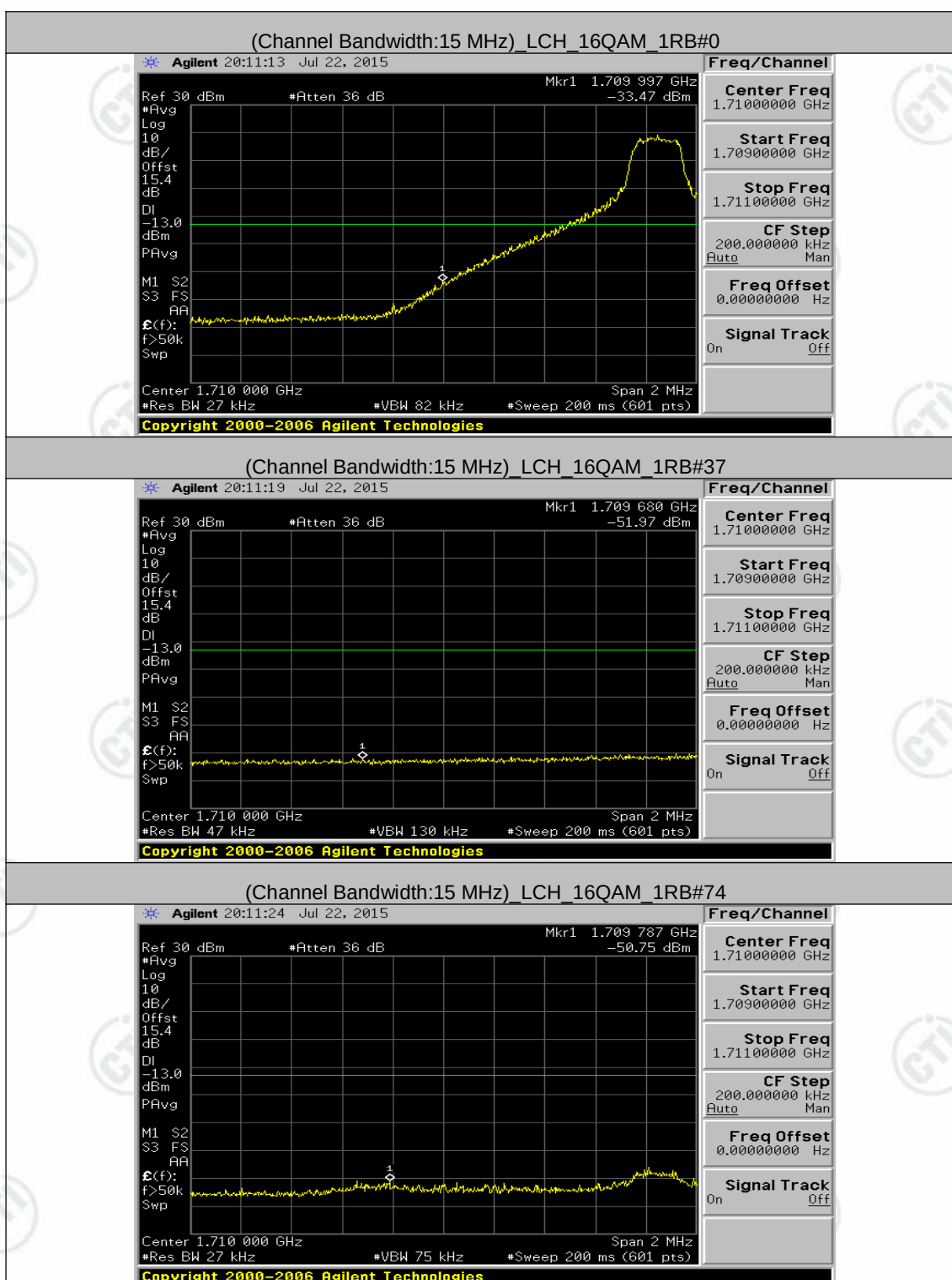


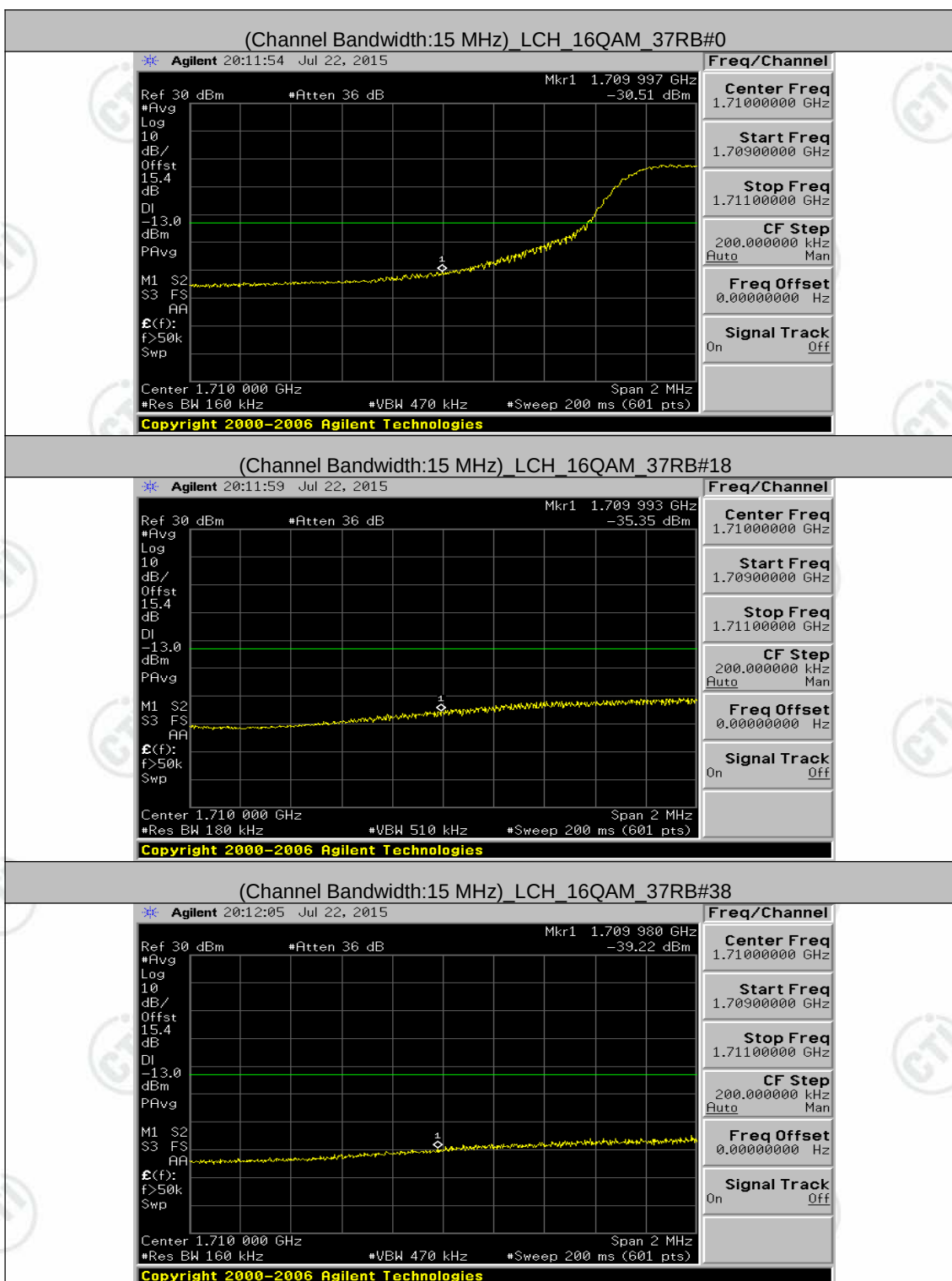


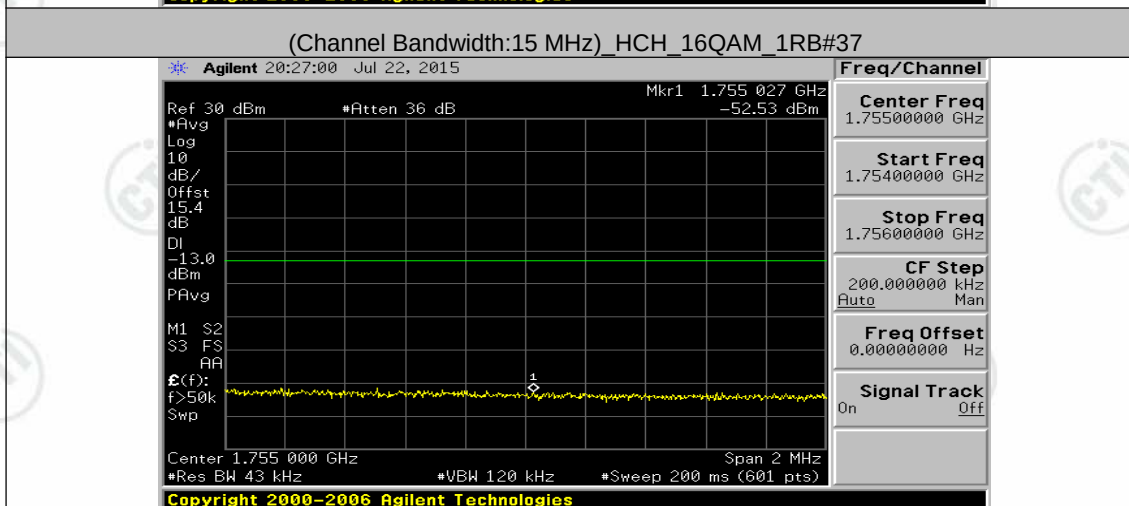
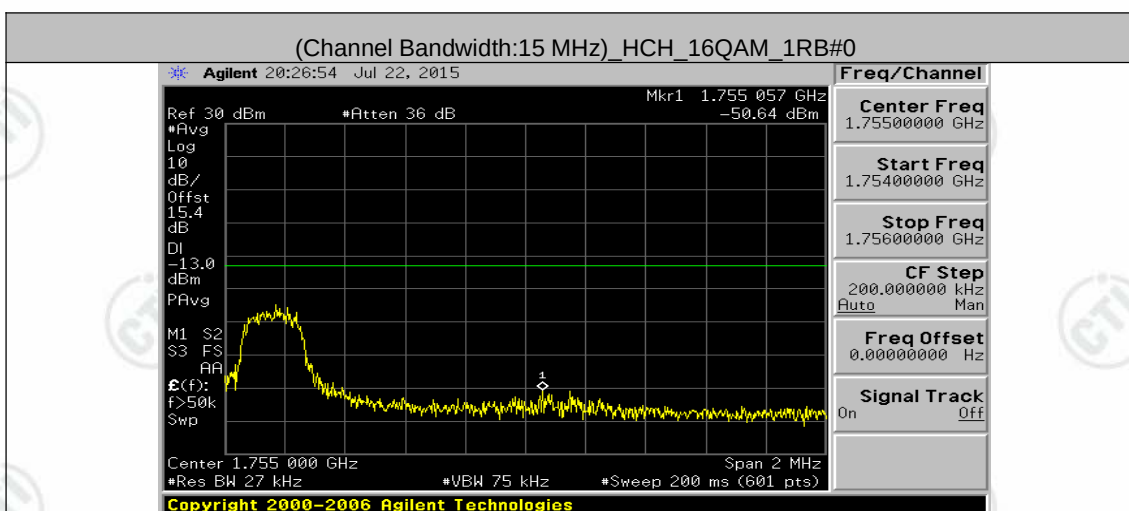
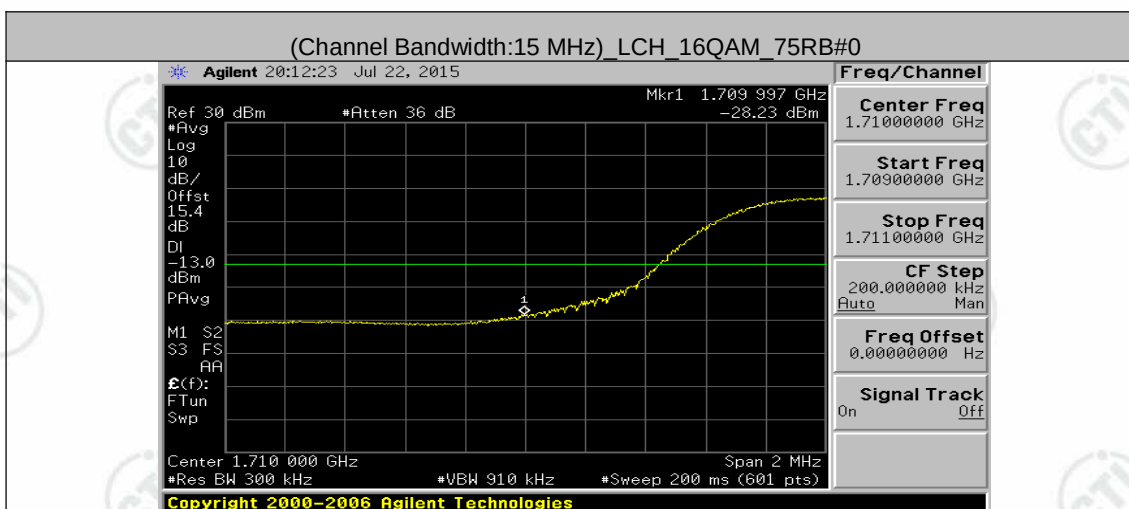


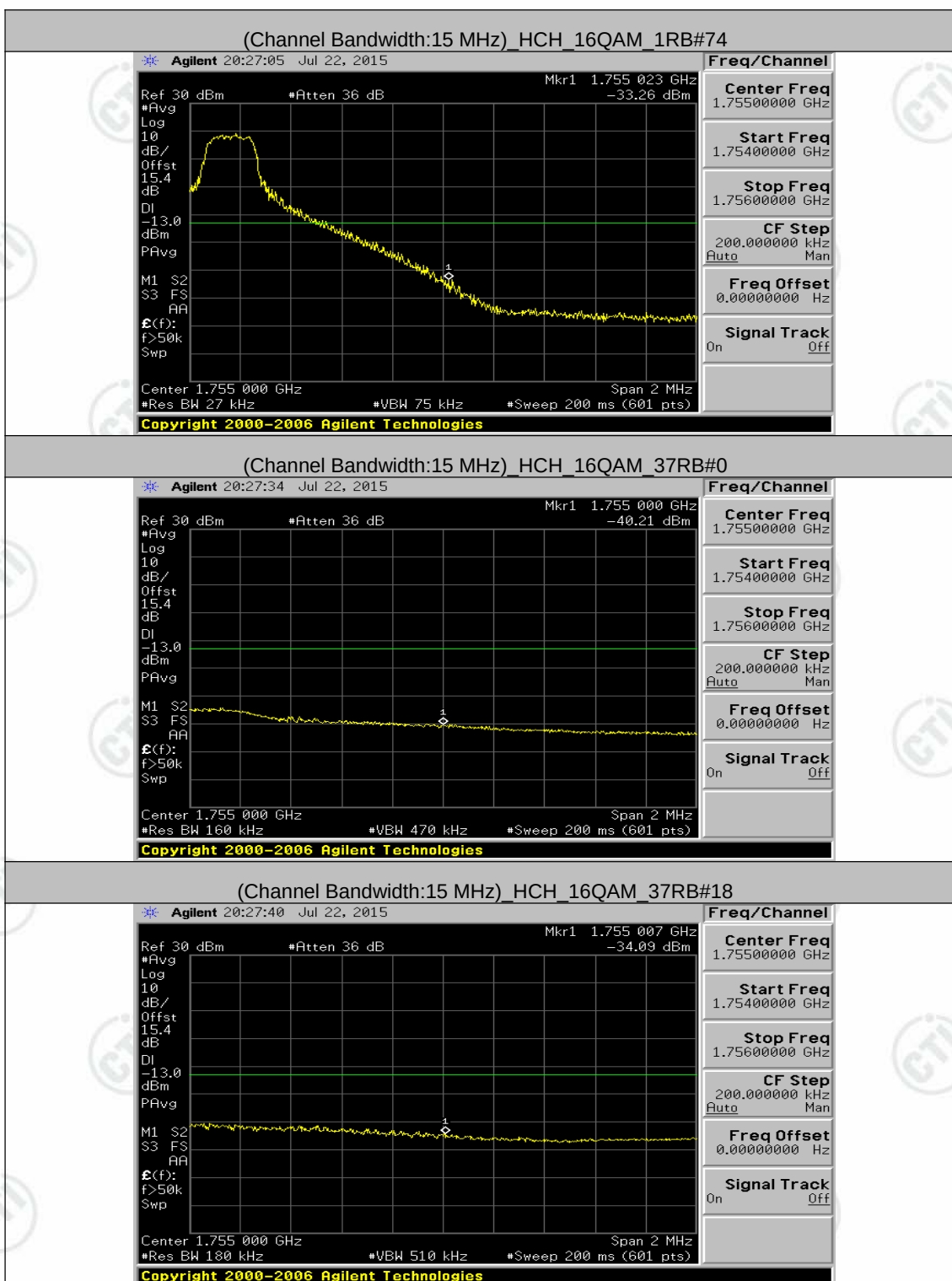


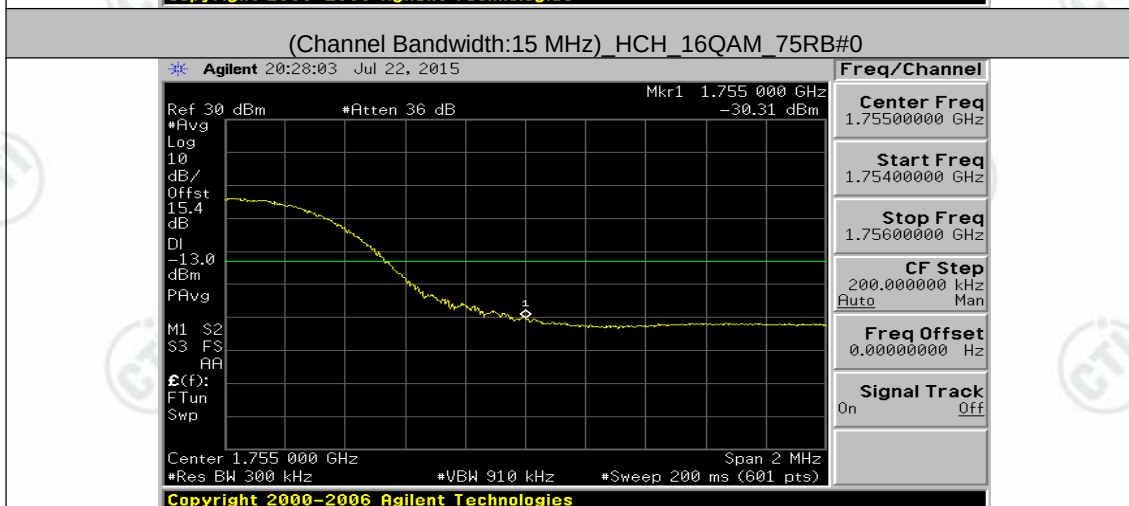
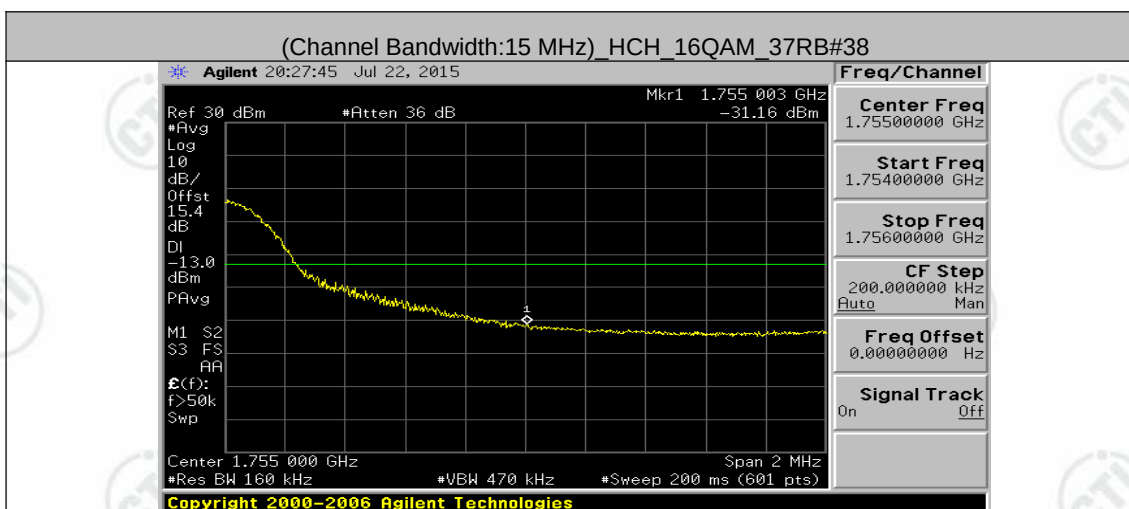




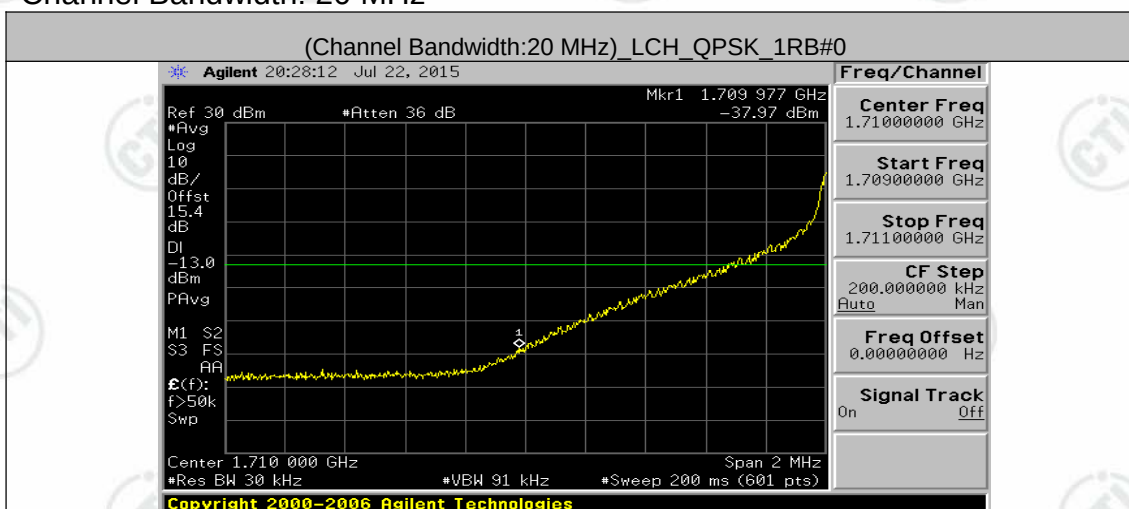


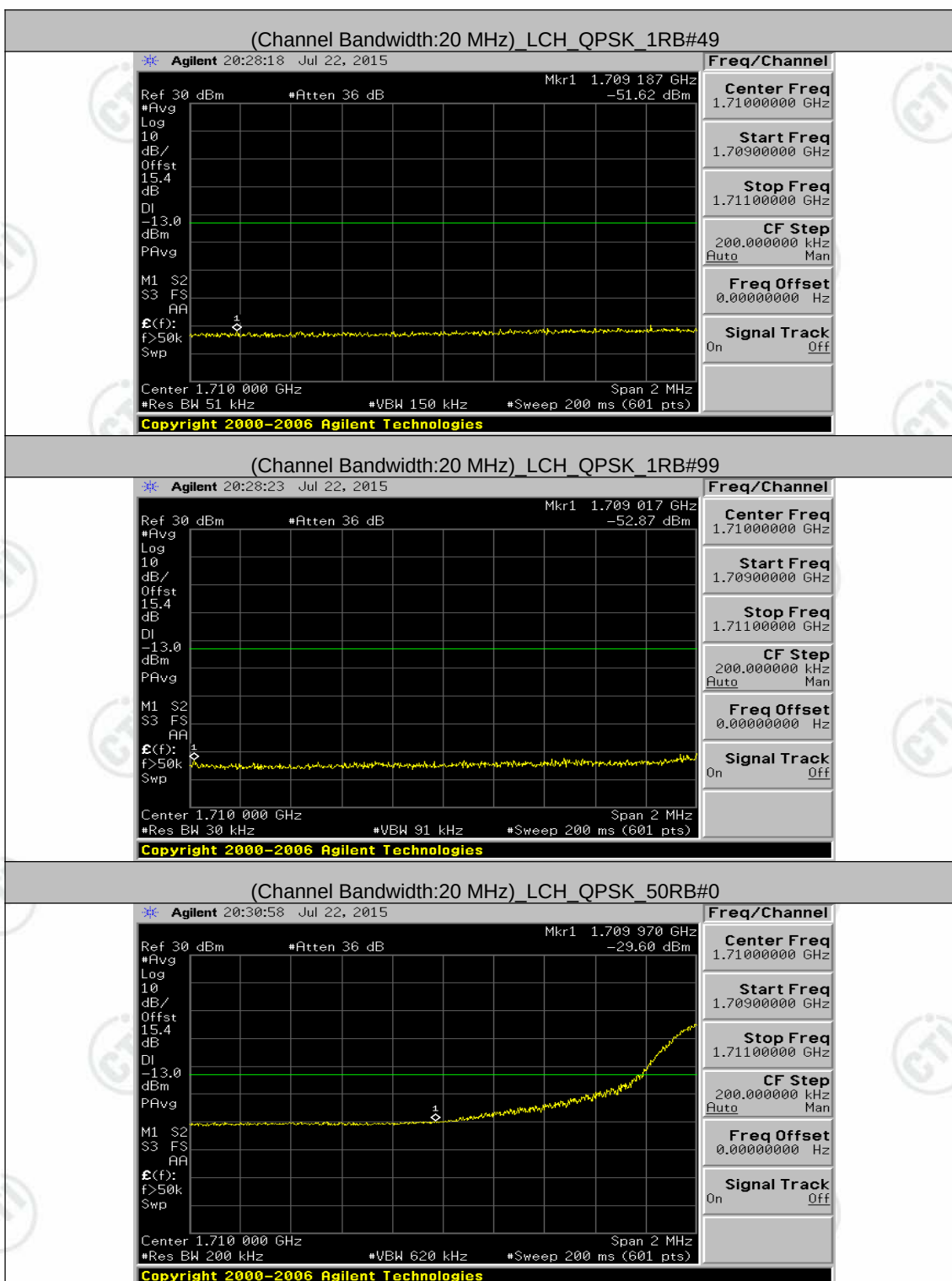


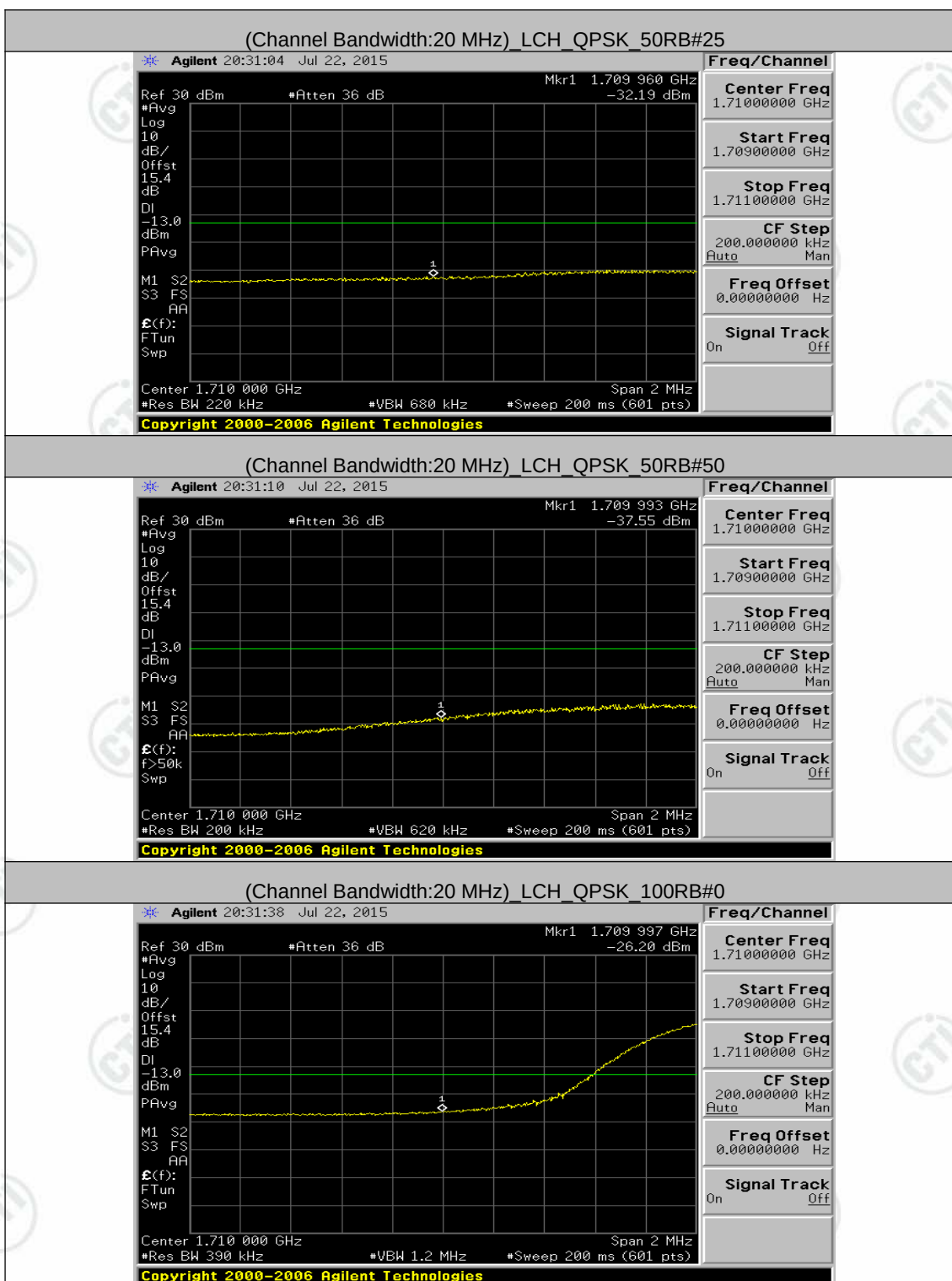


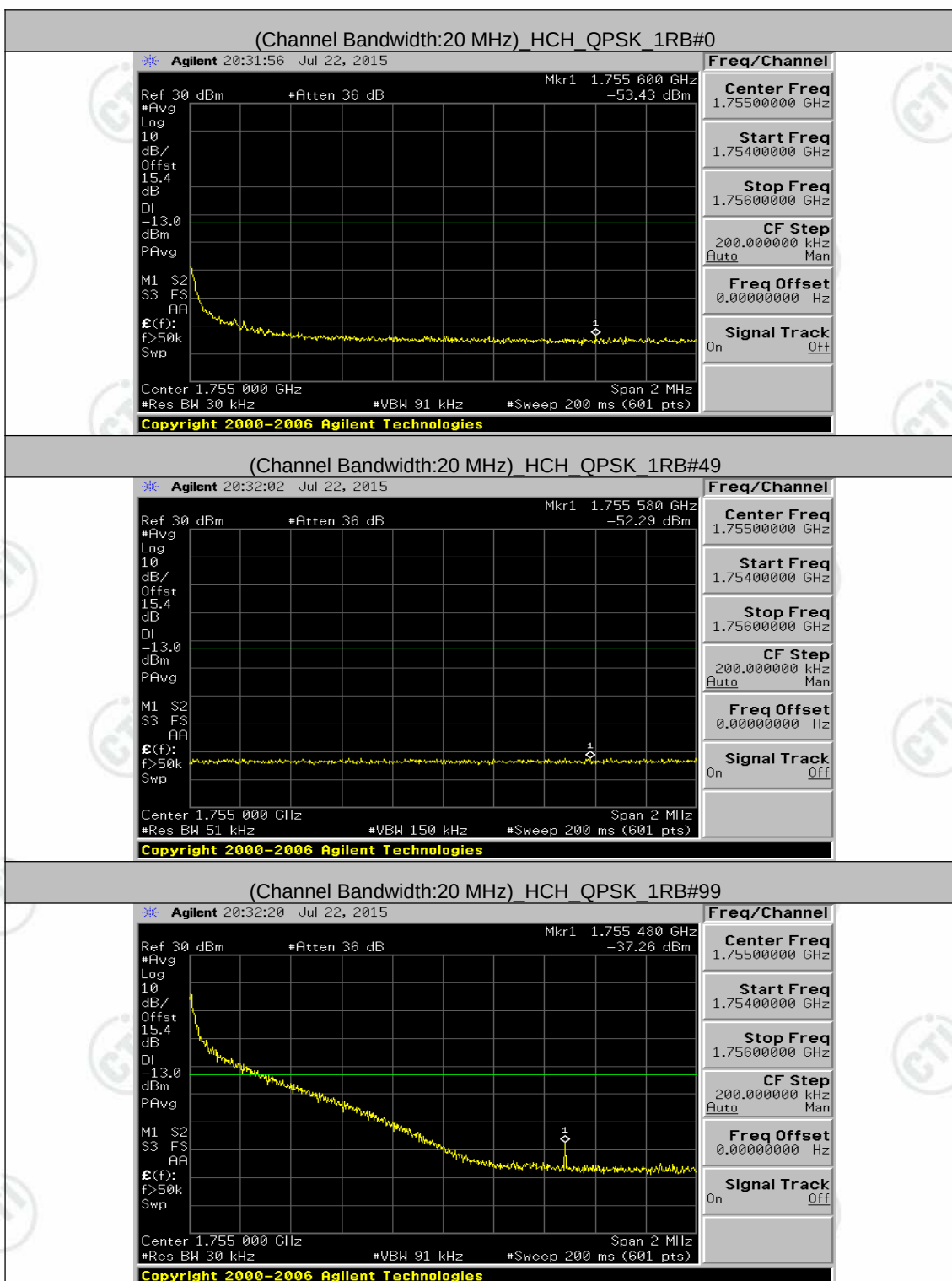


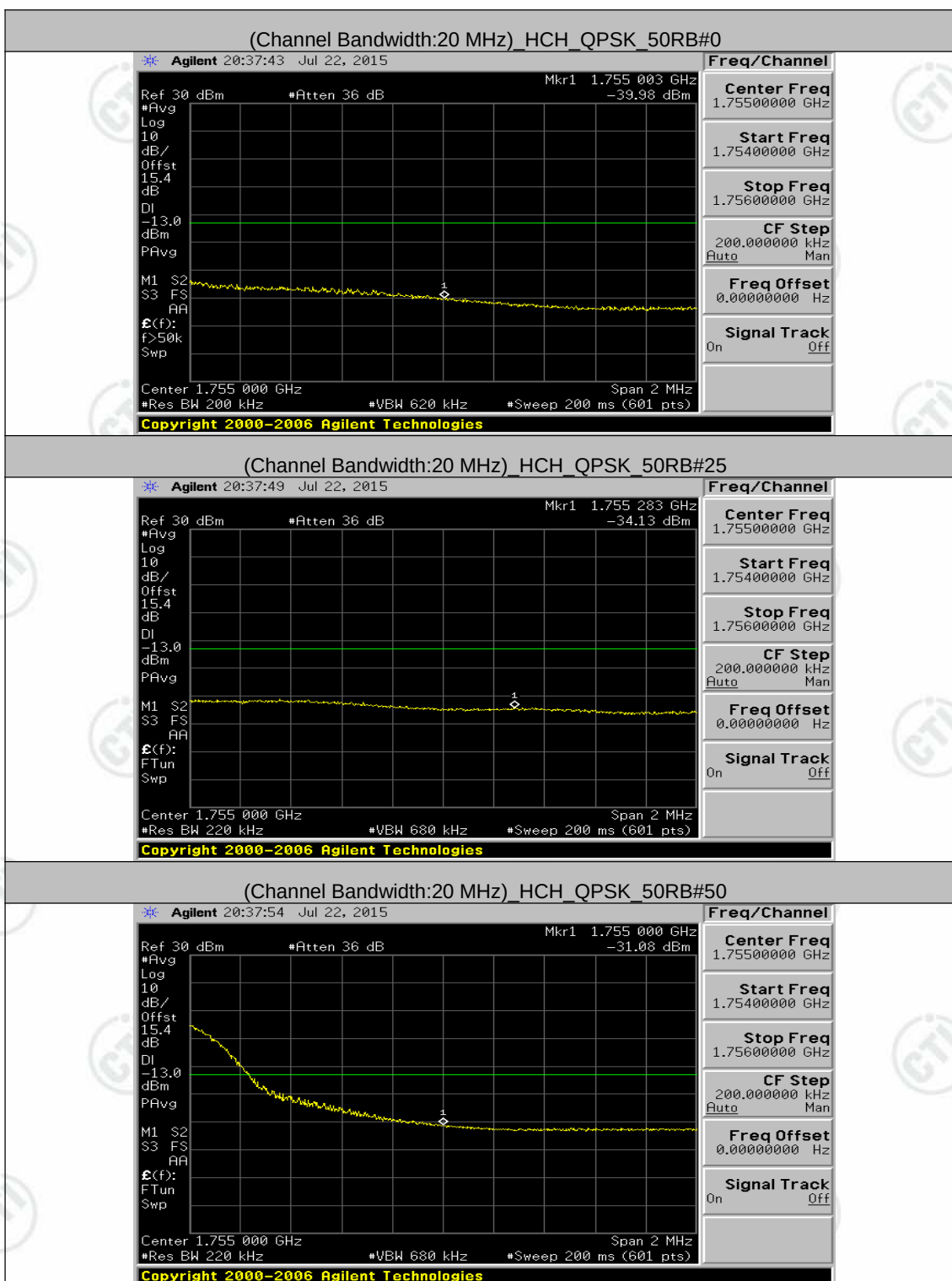
Channel Bandwidth: 20 MHz

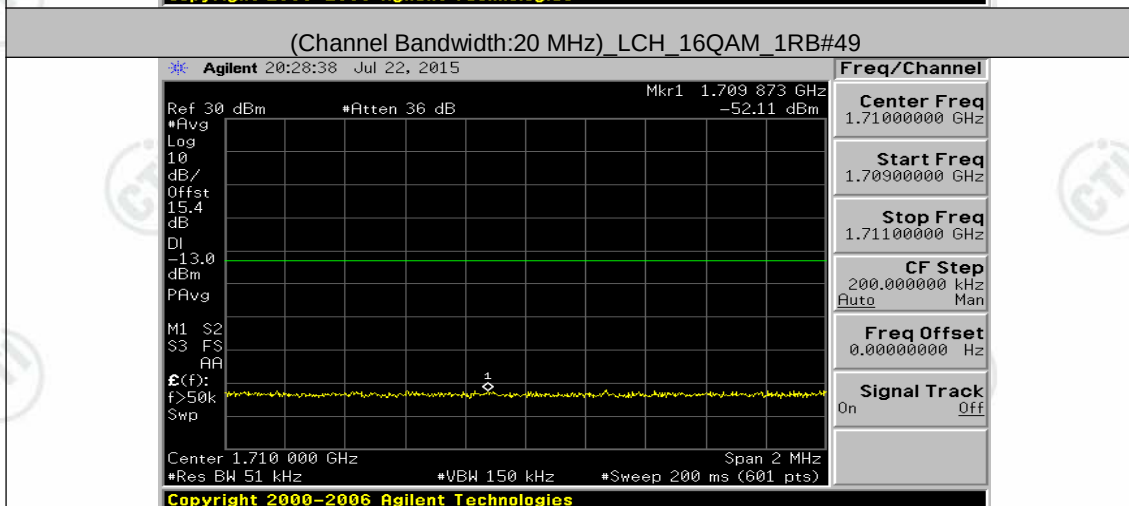
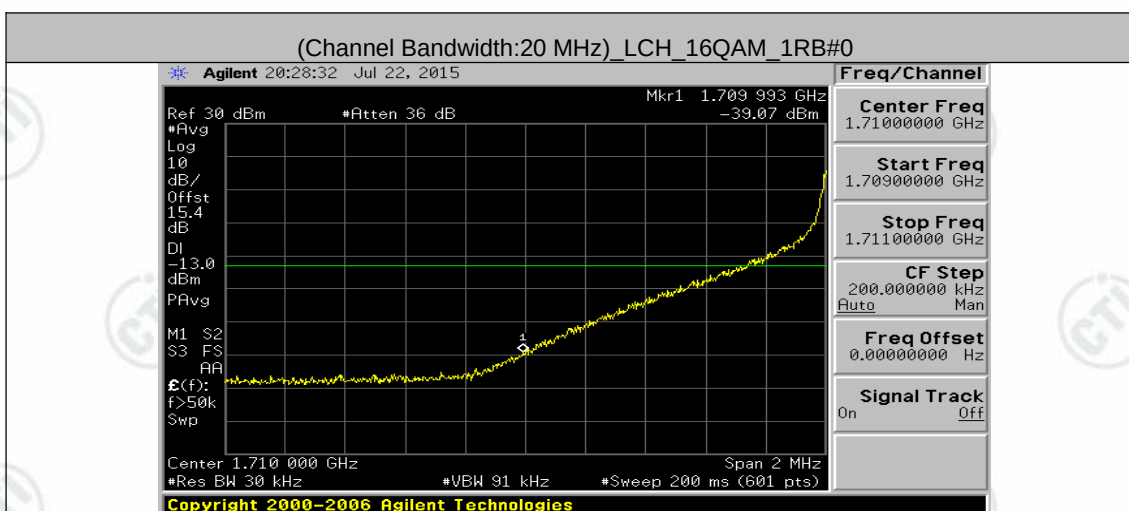
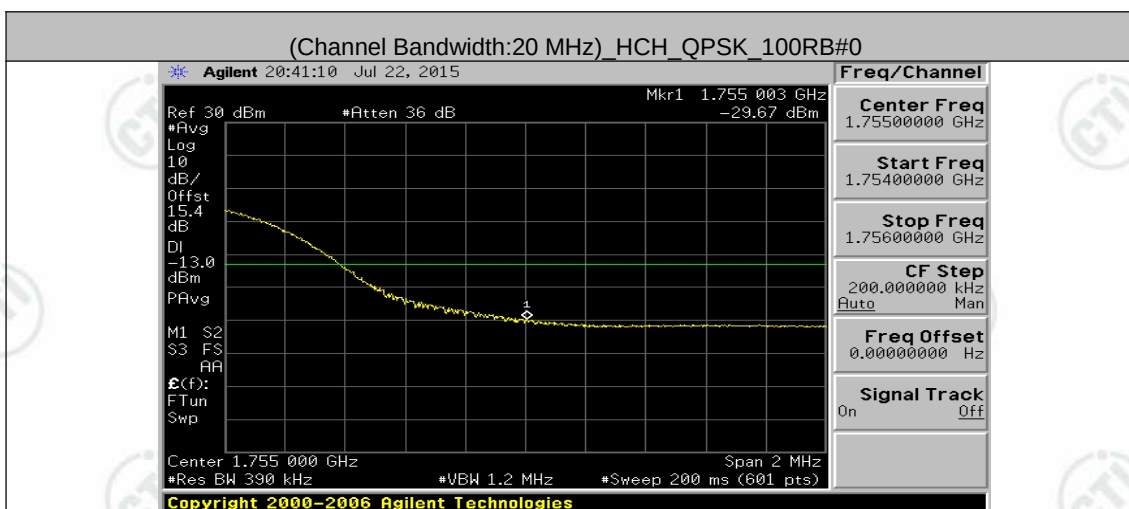


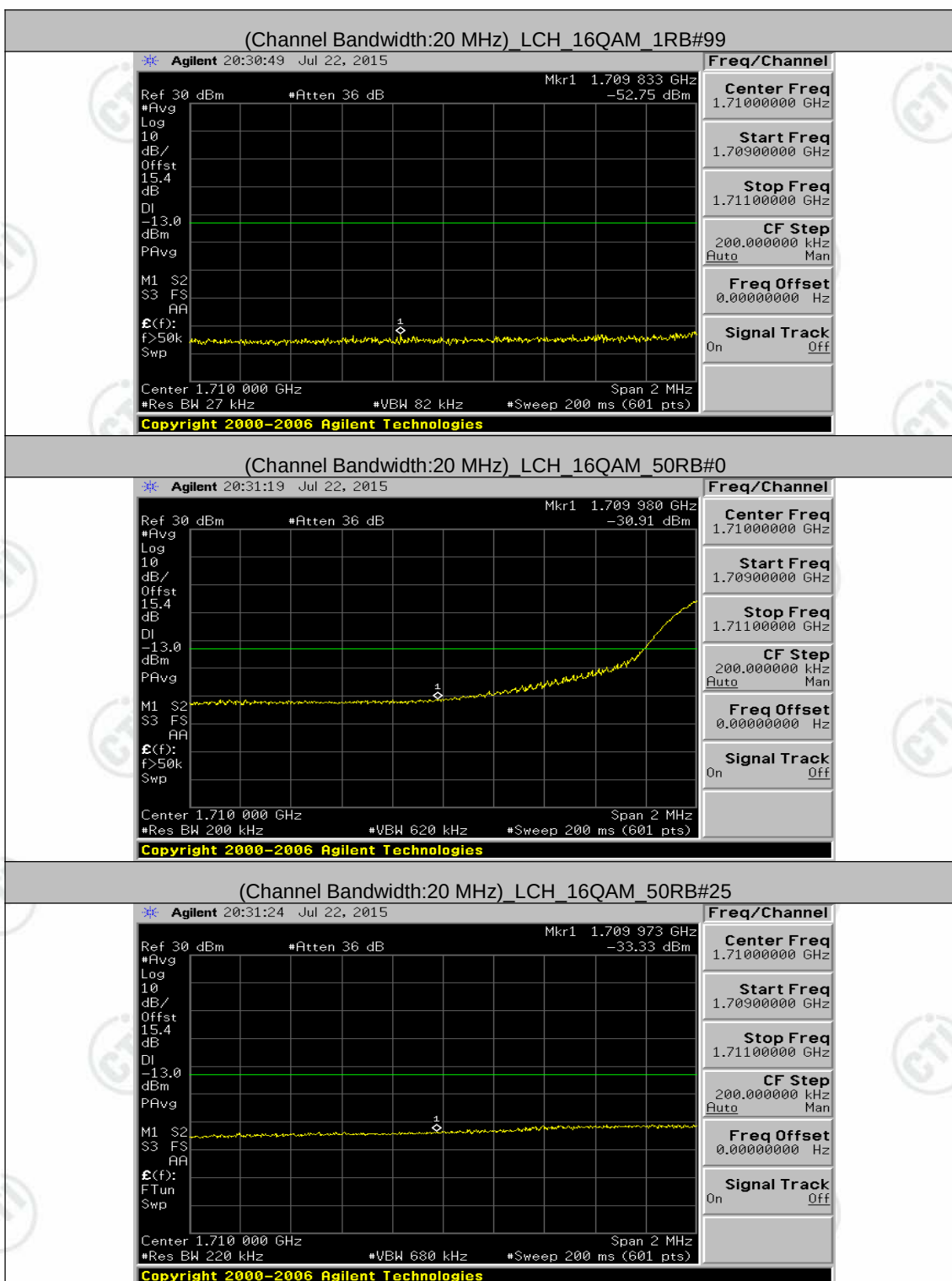


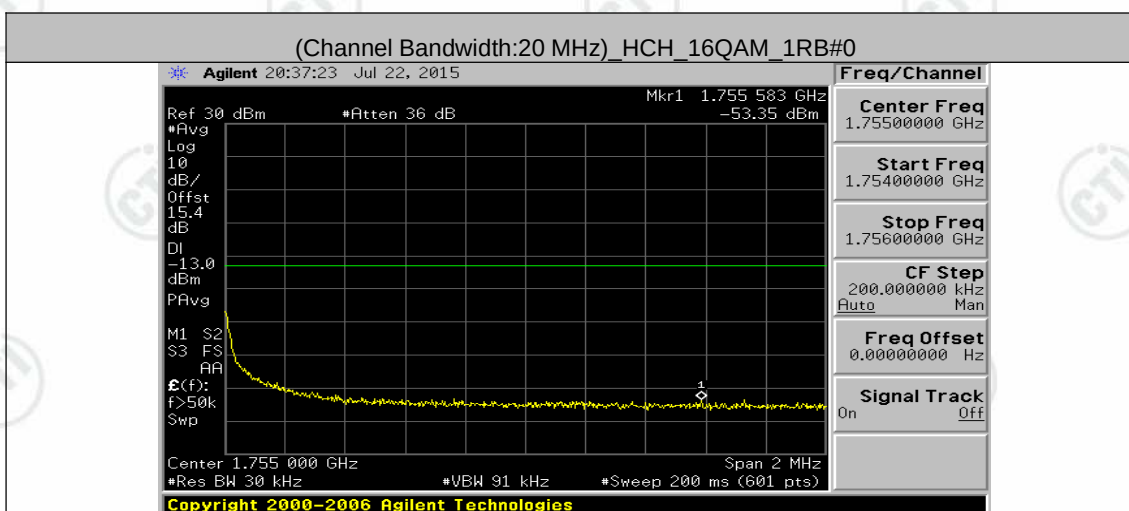
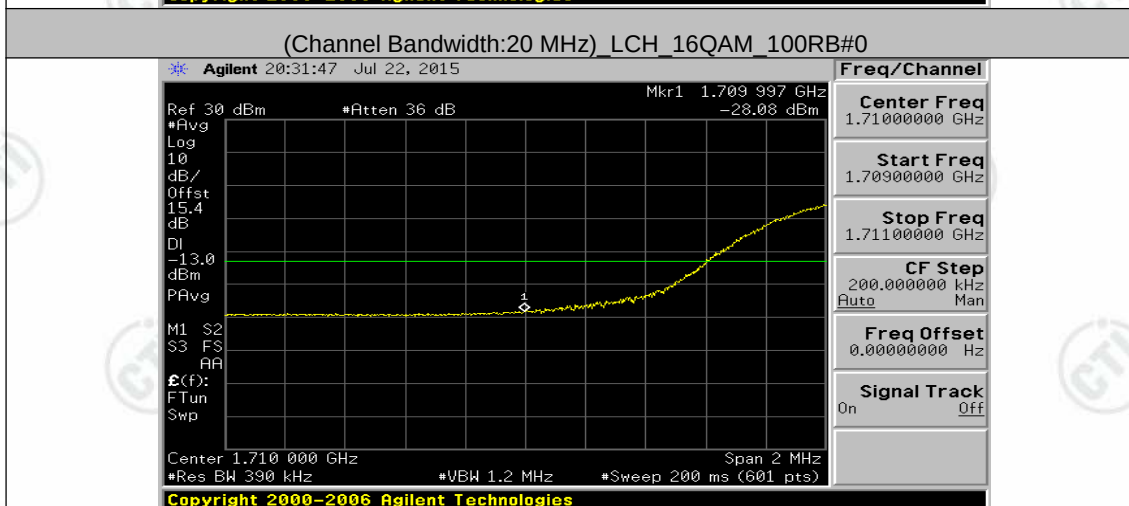
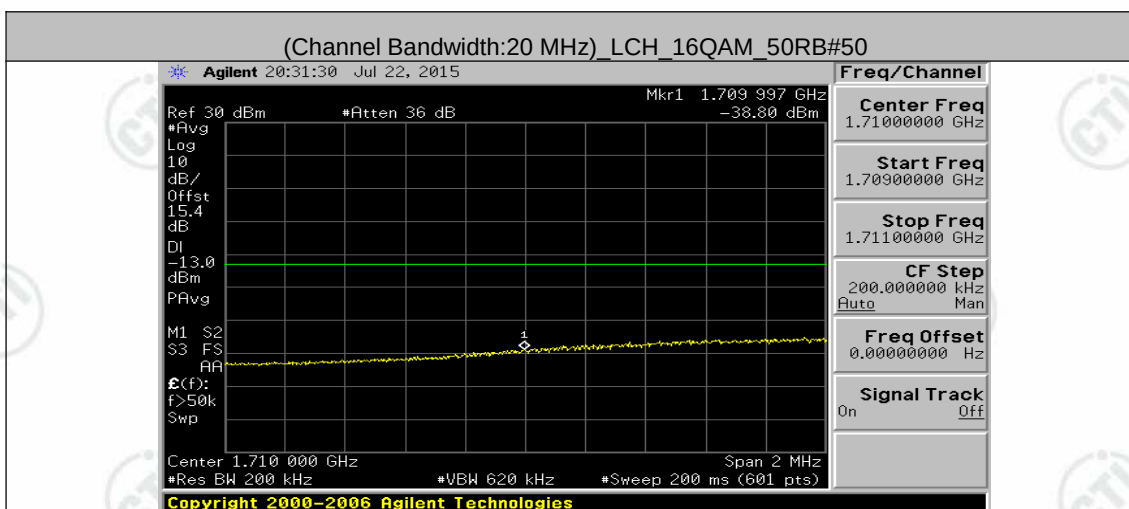


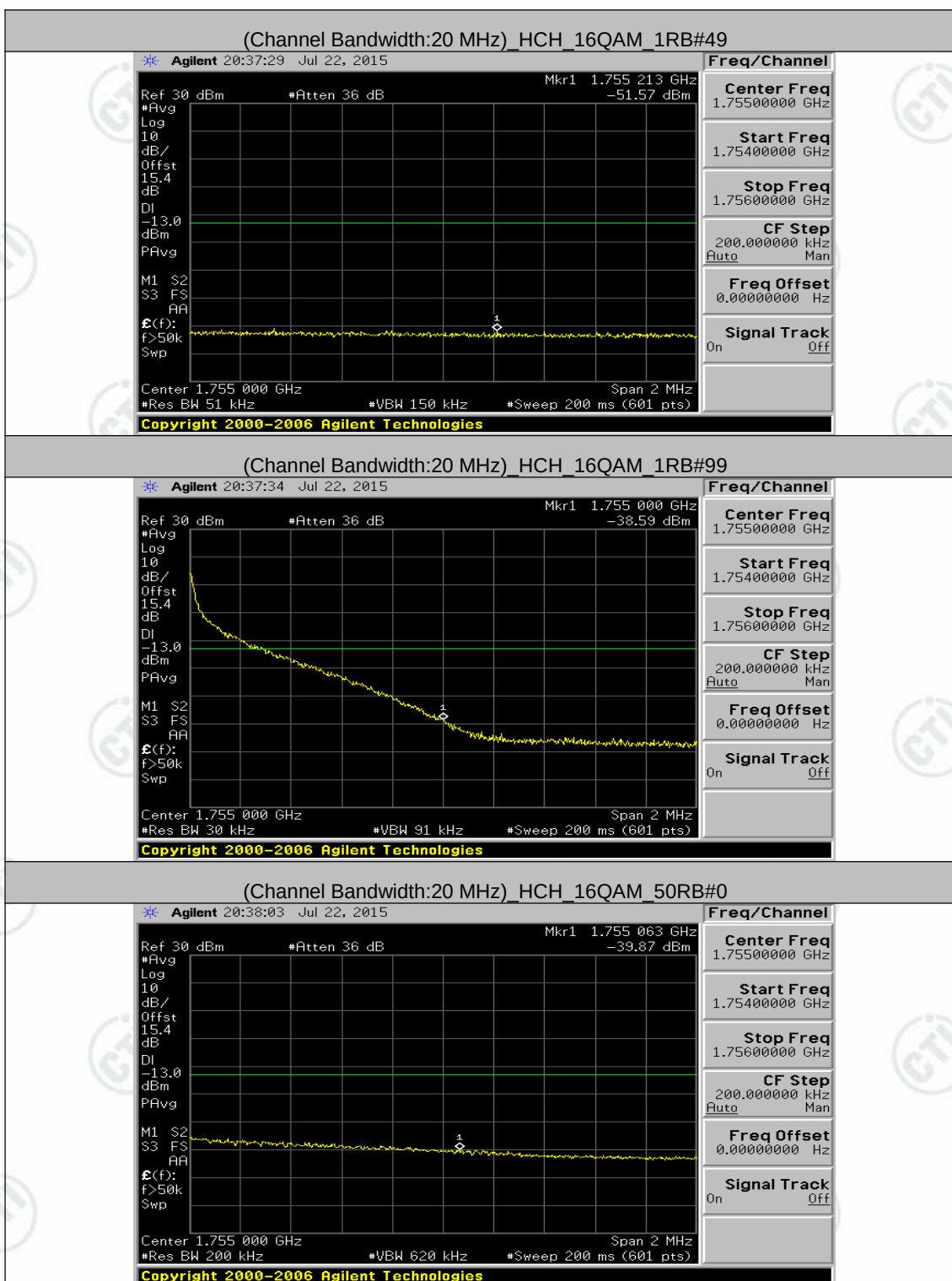


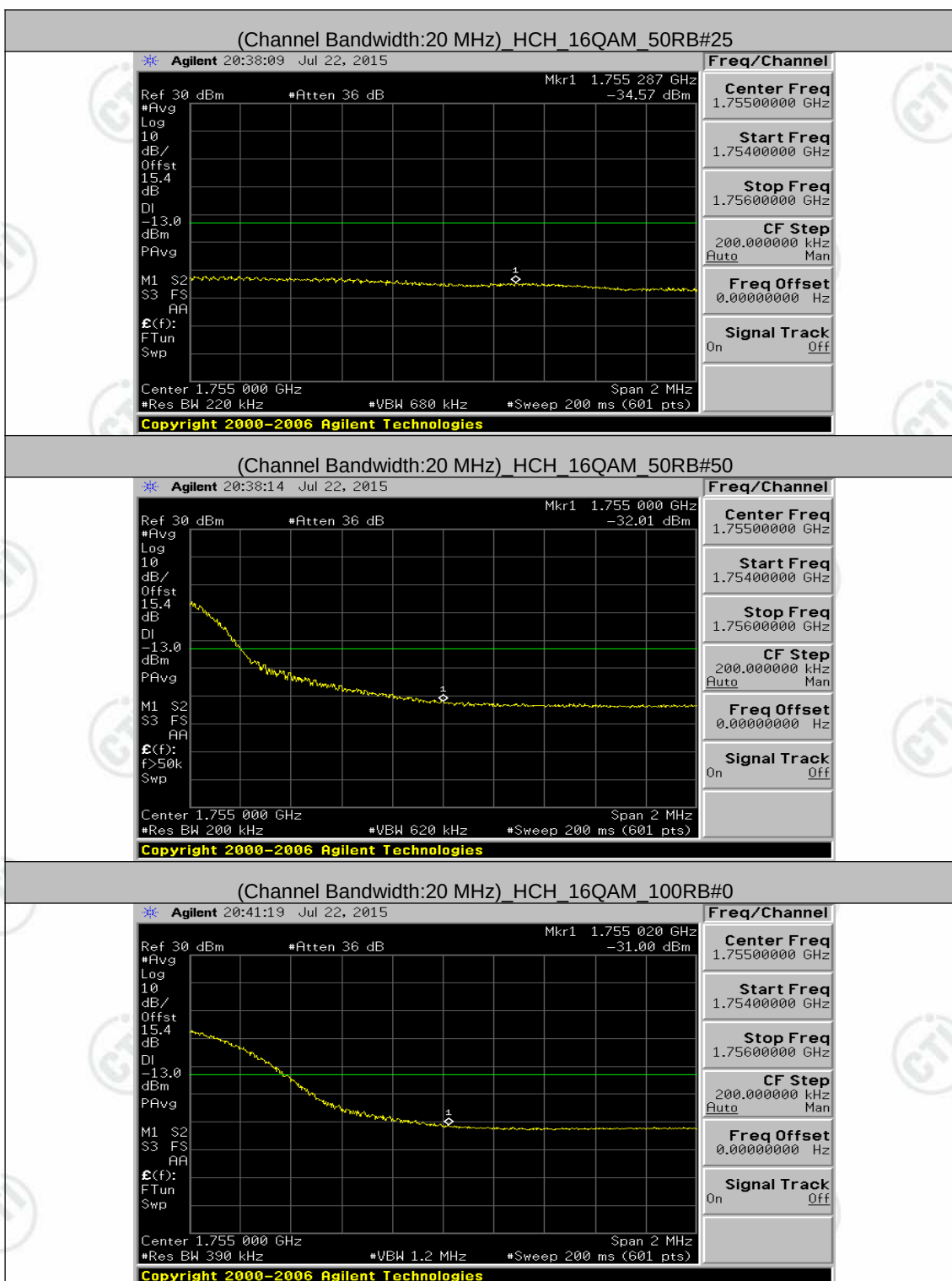








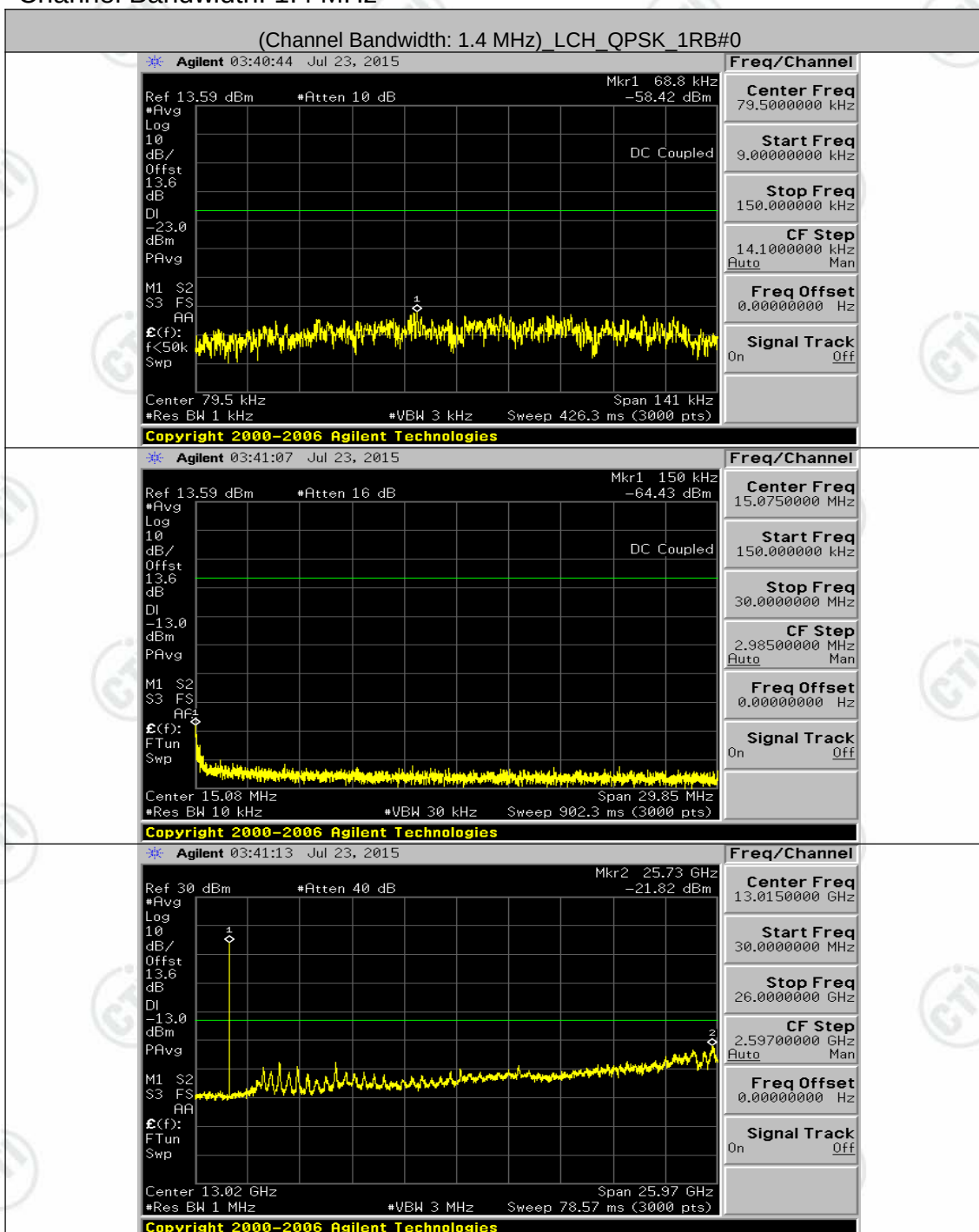


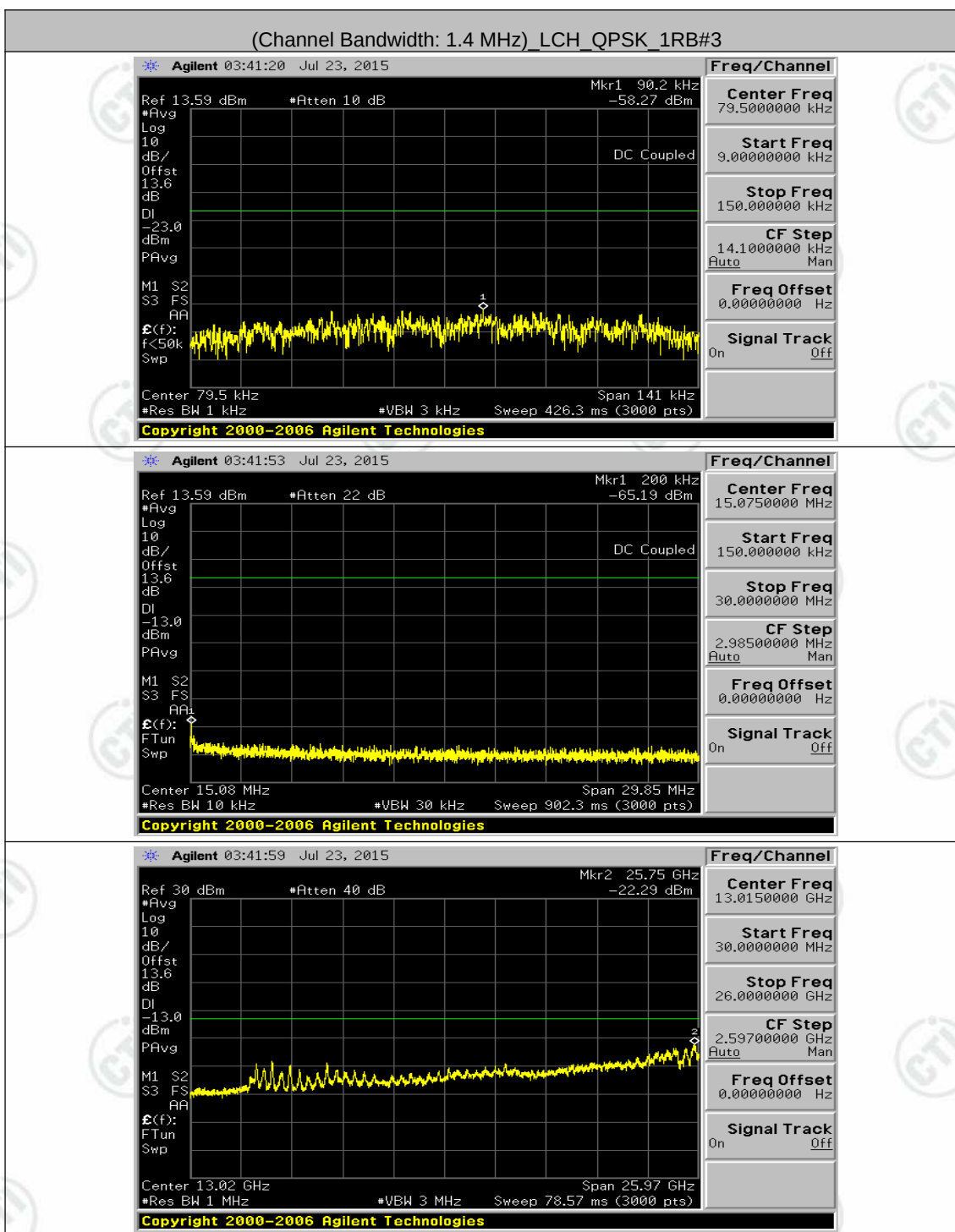


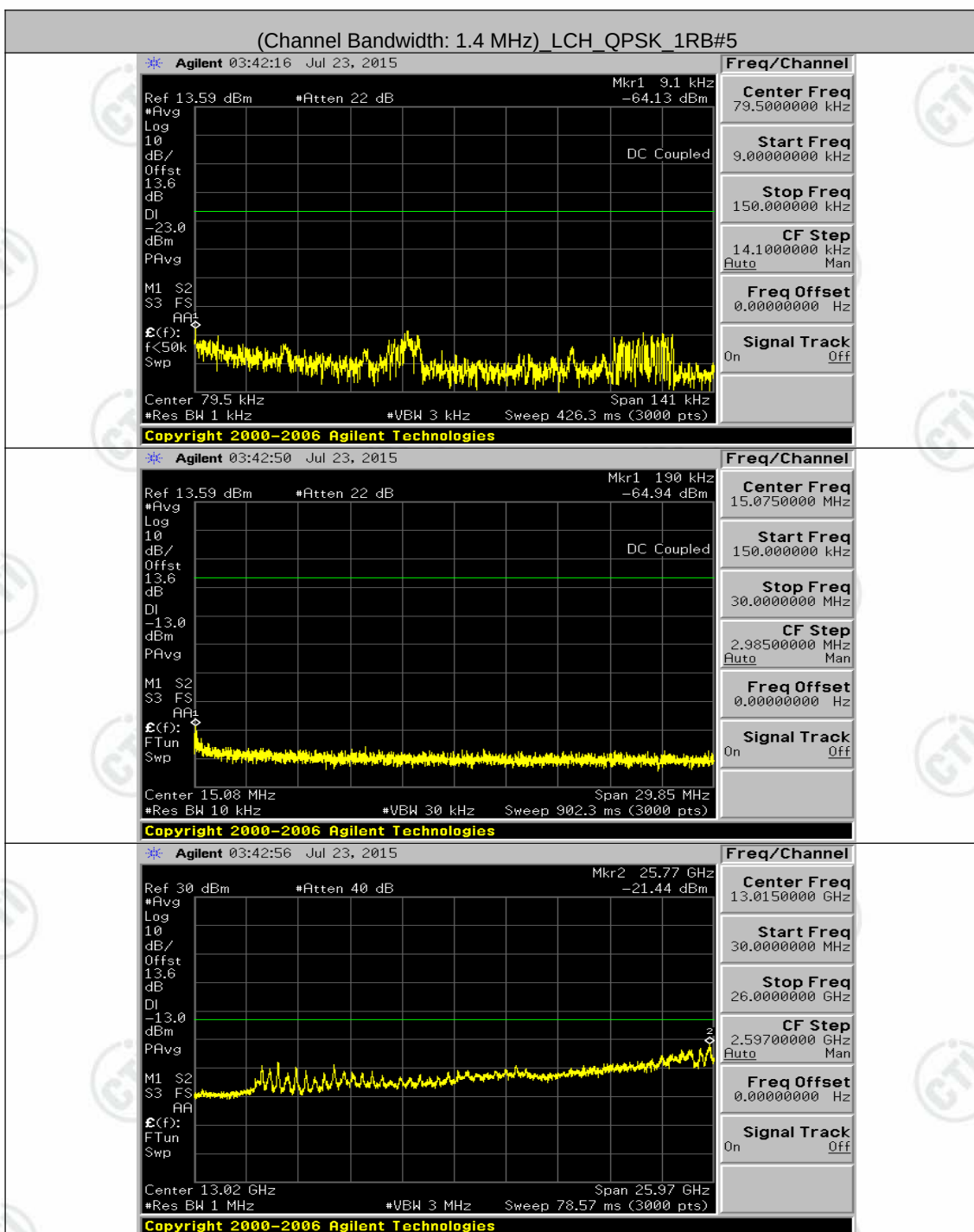
## Appendix E: Conducted Spurious Emission

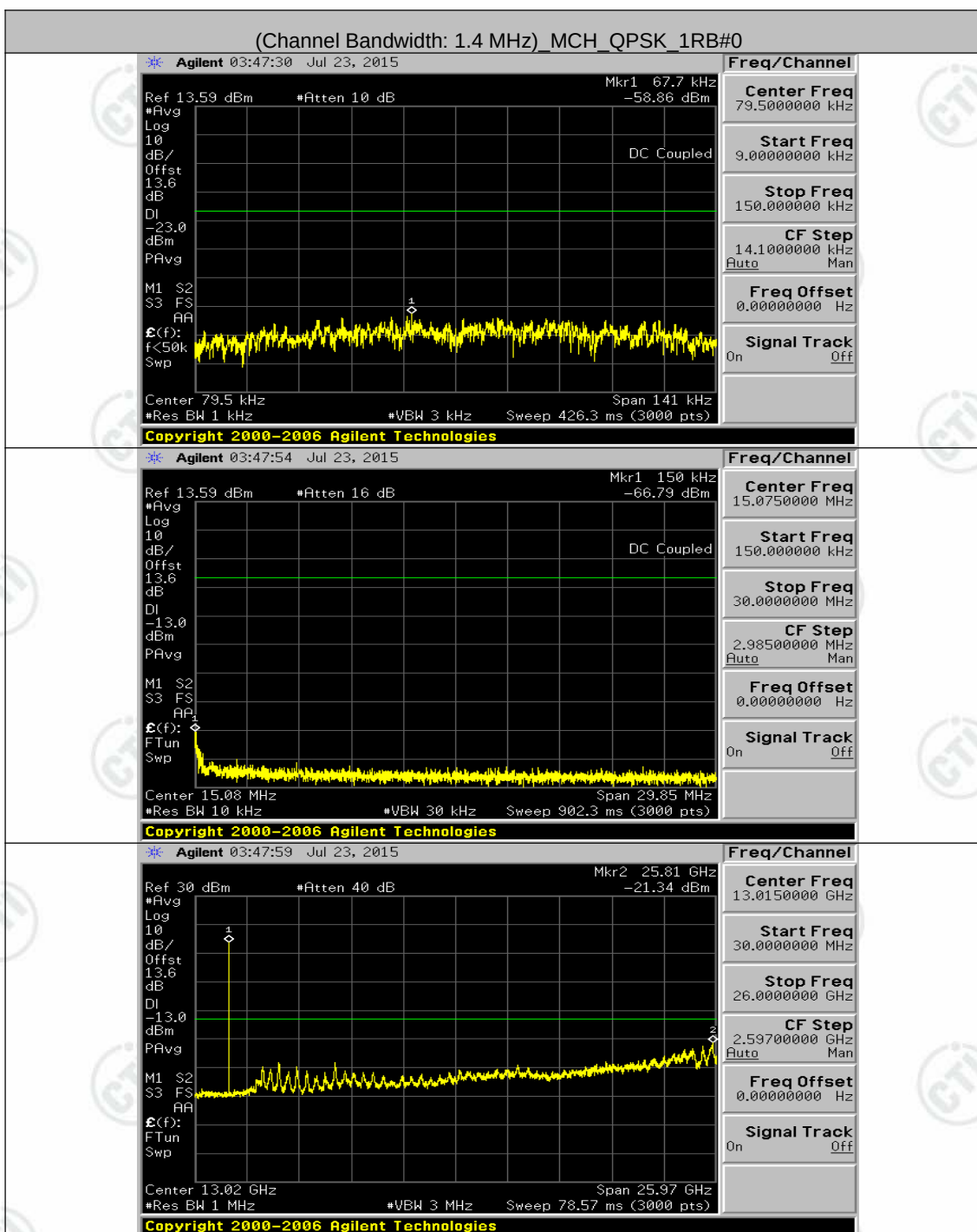
### Test Graphs

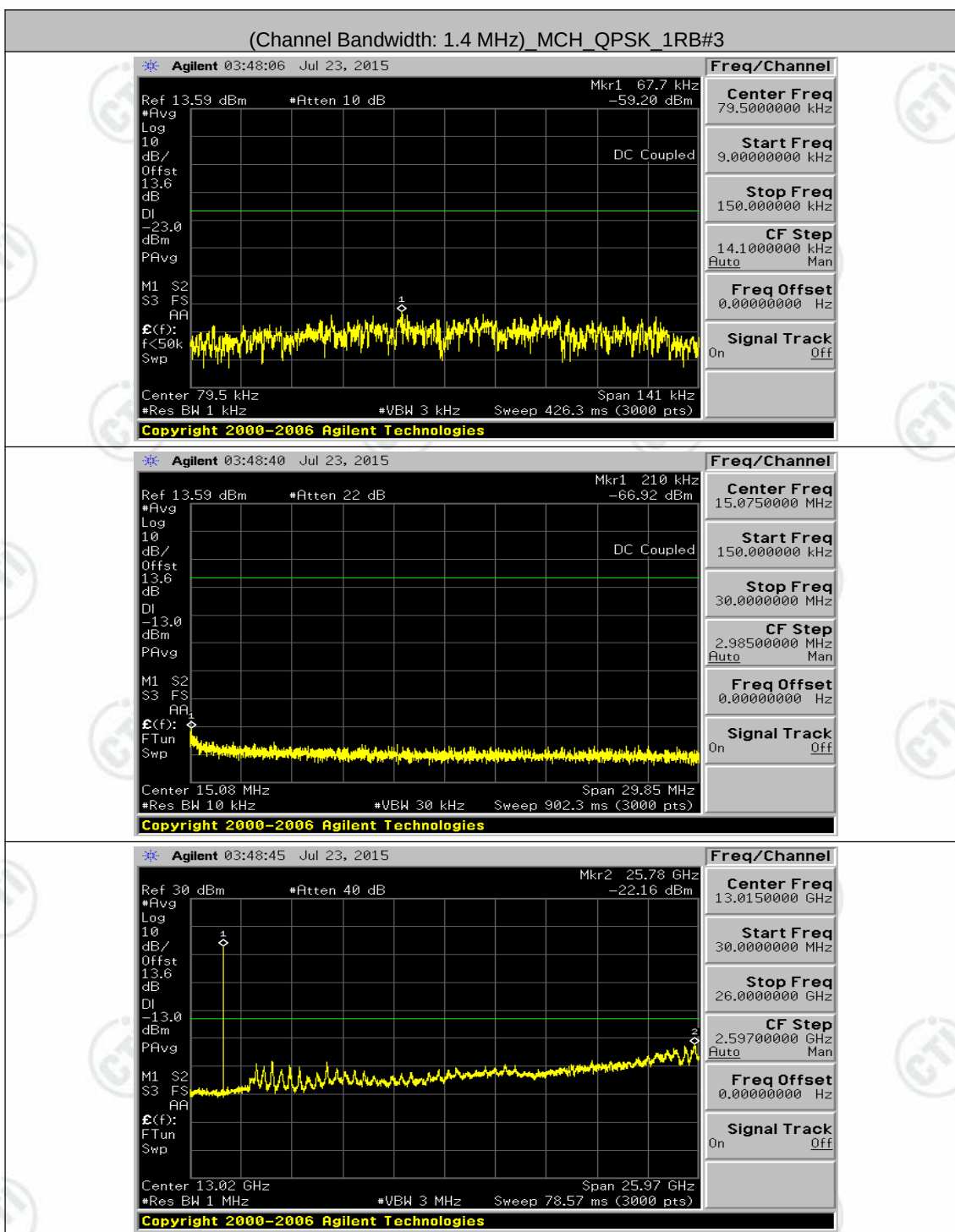
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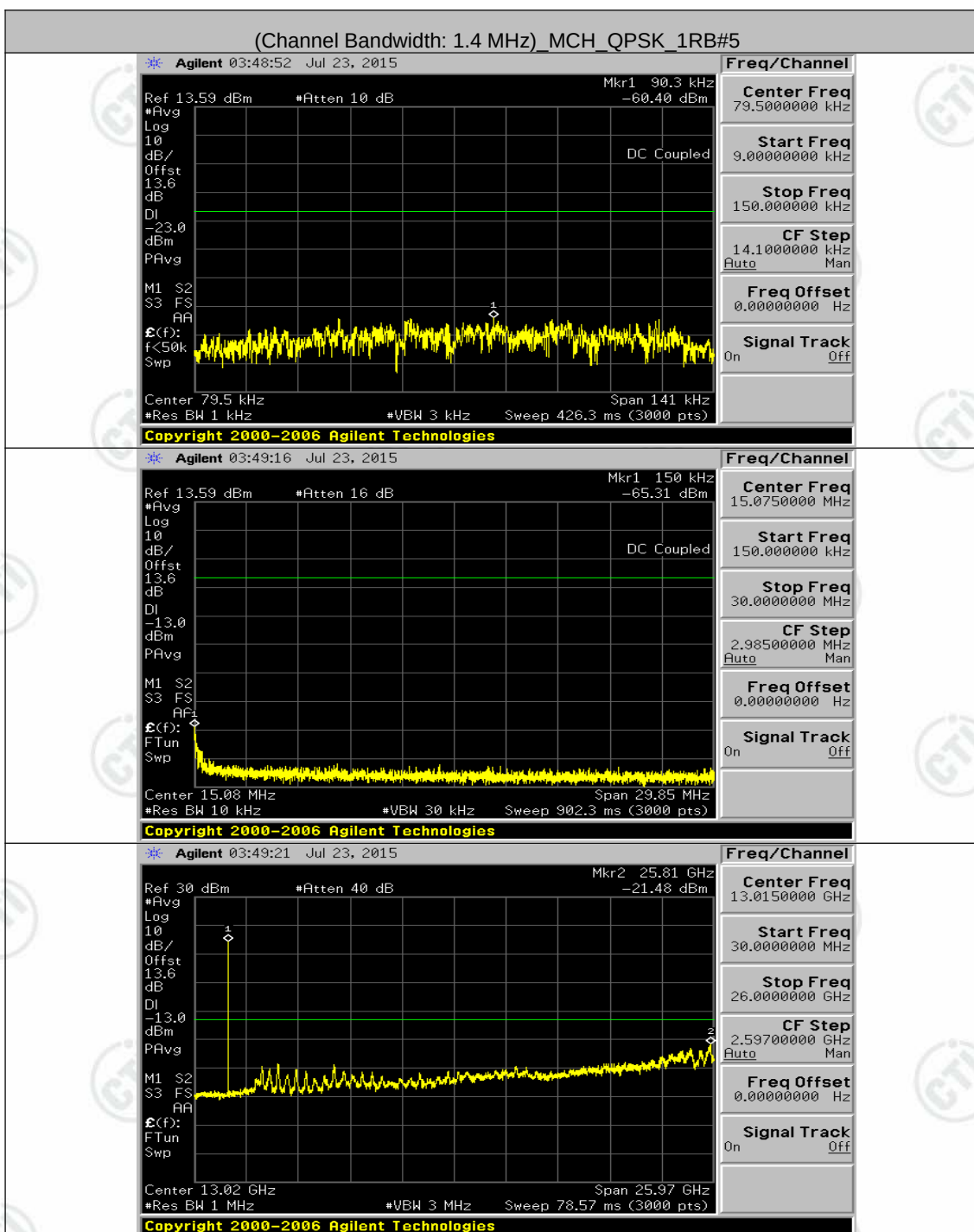


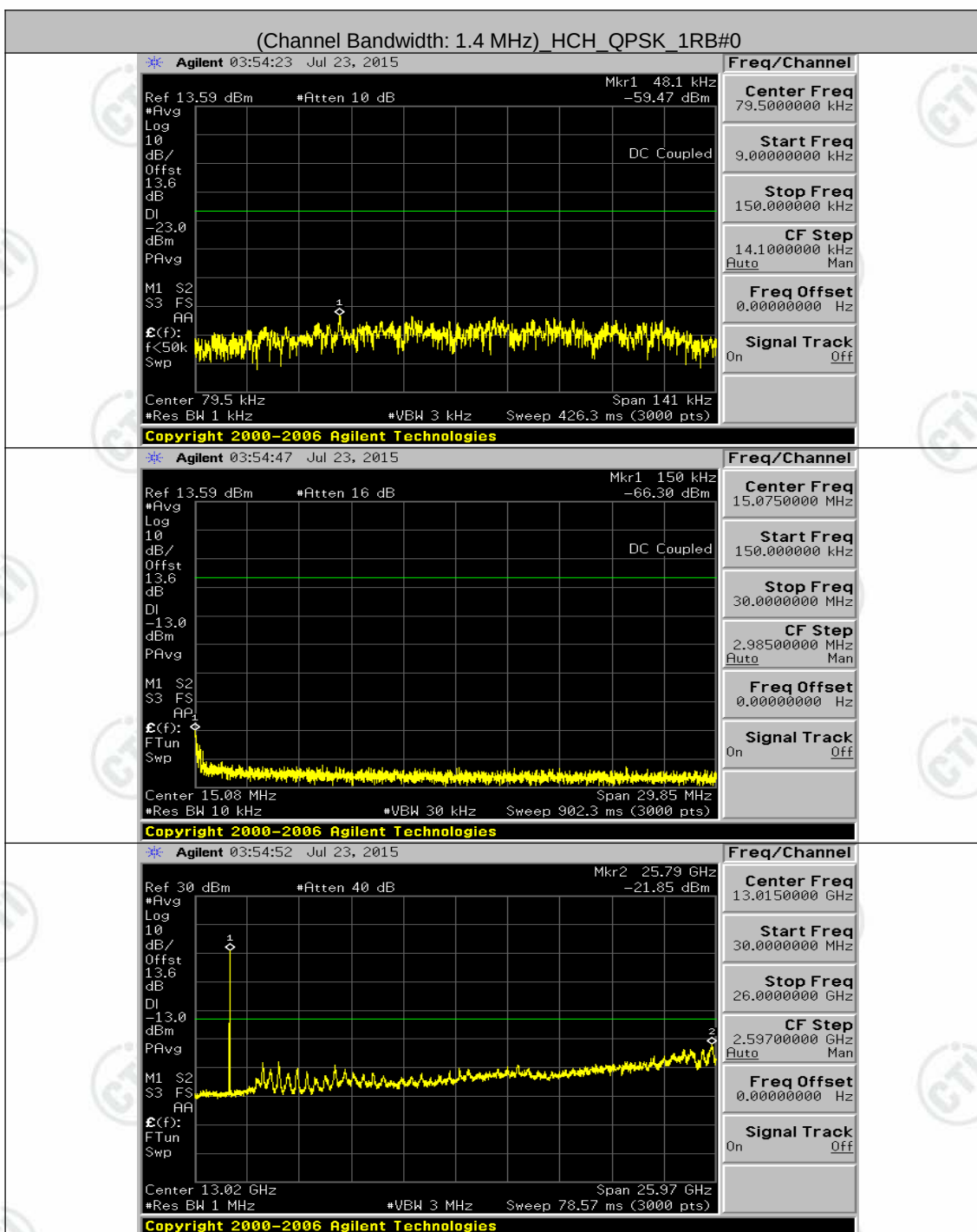


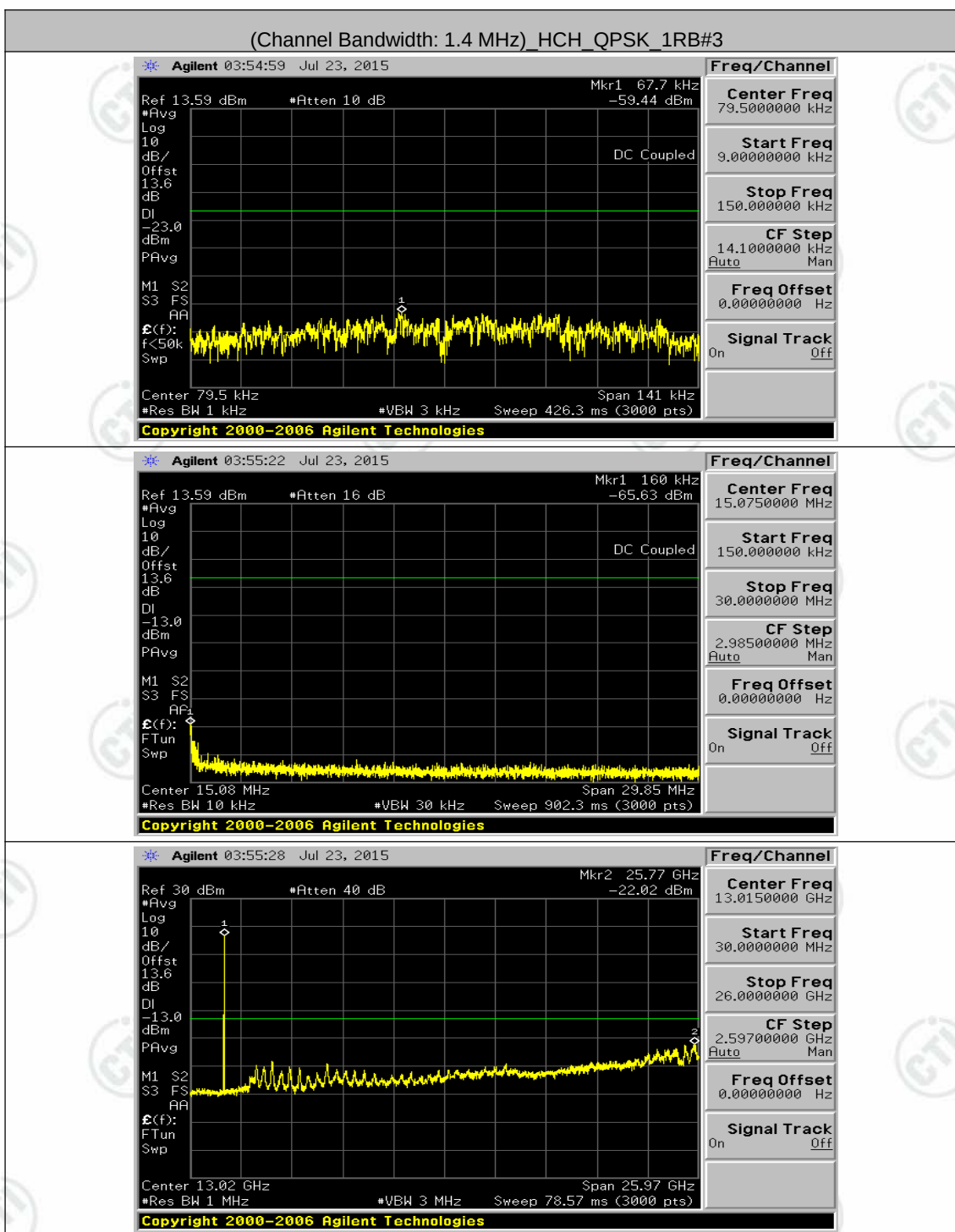


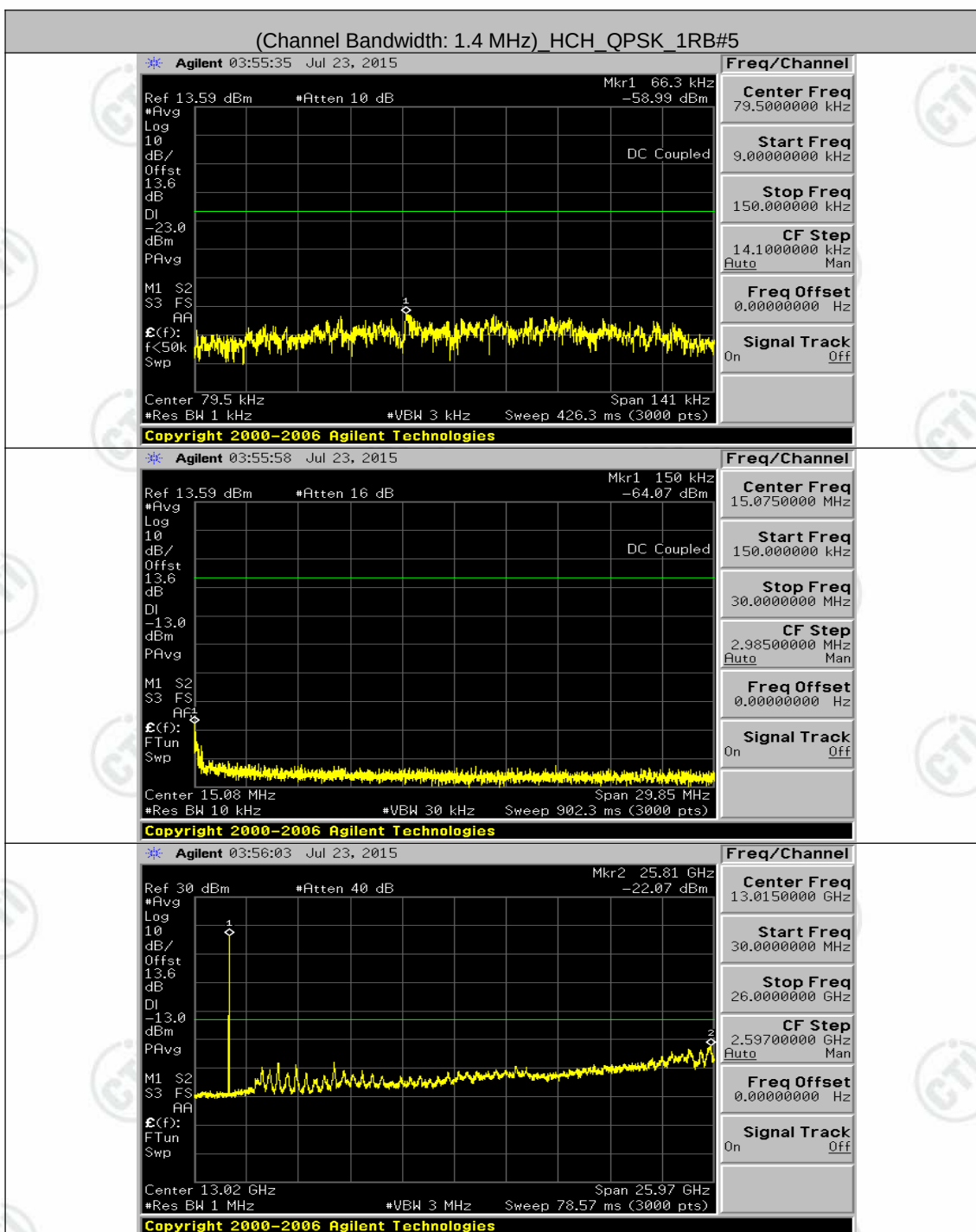


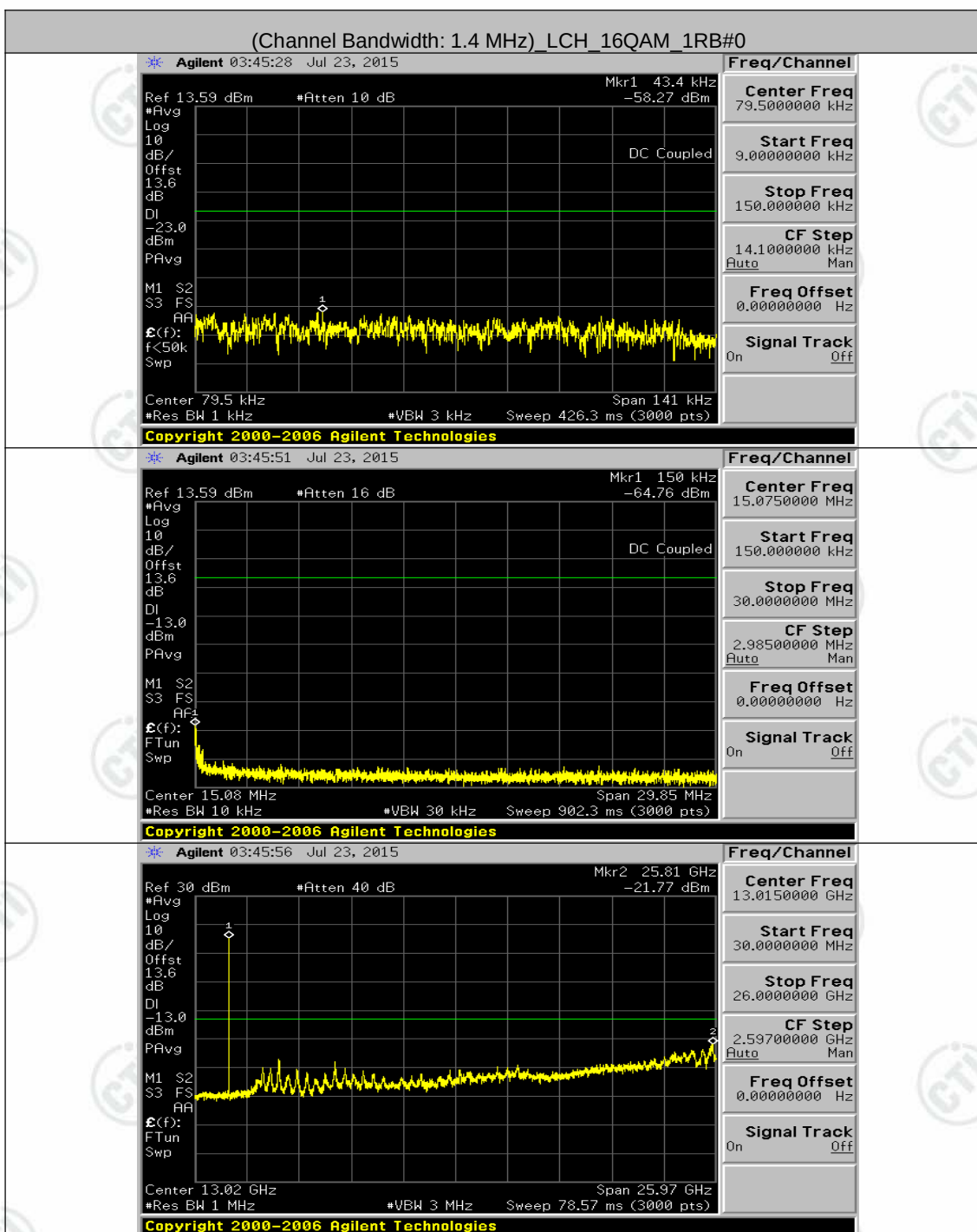


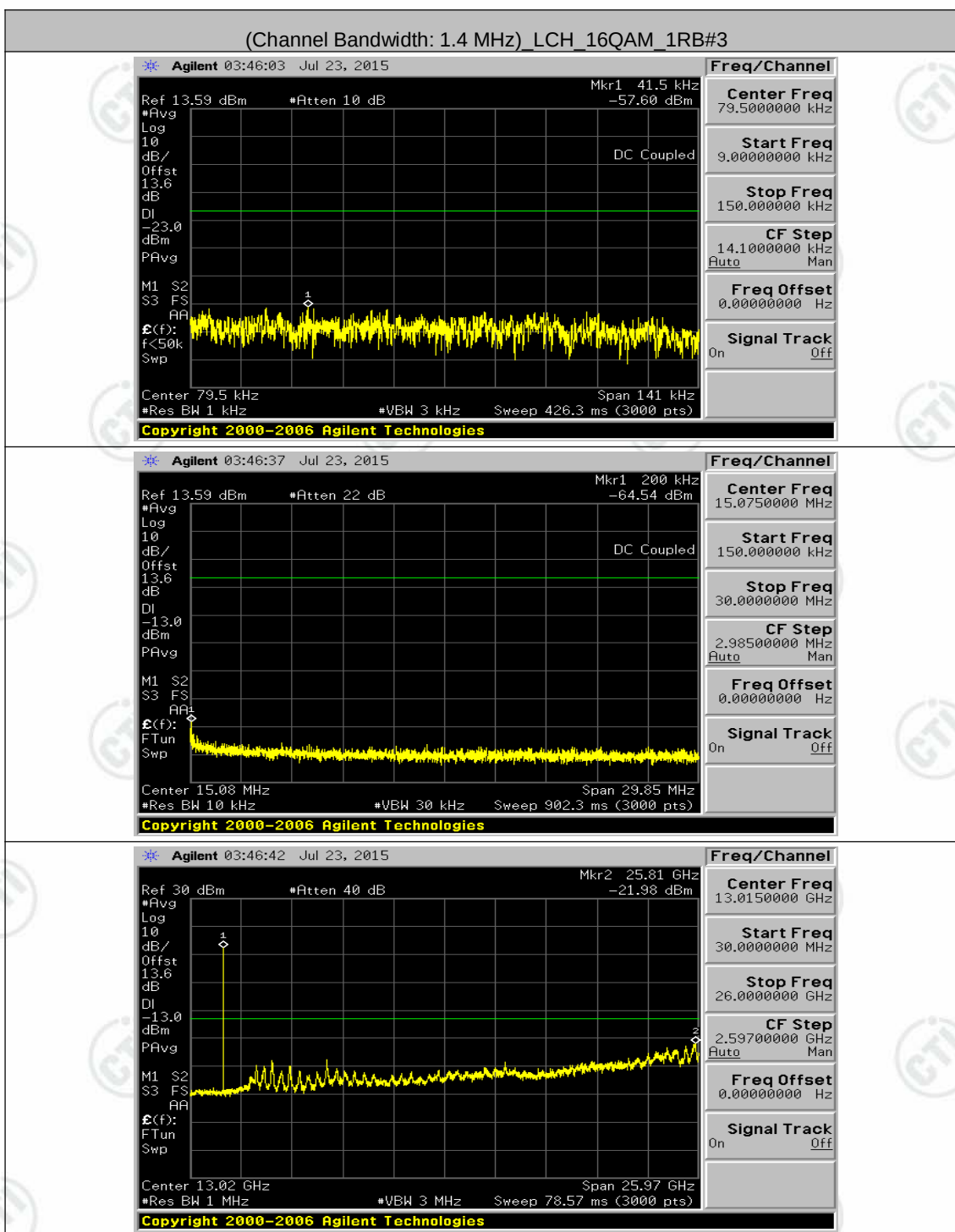


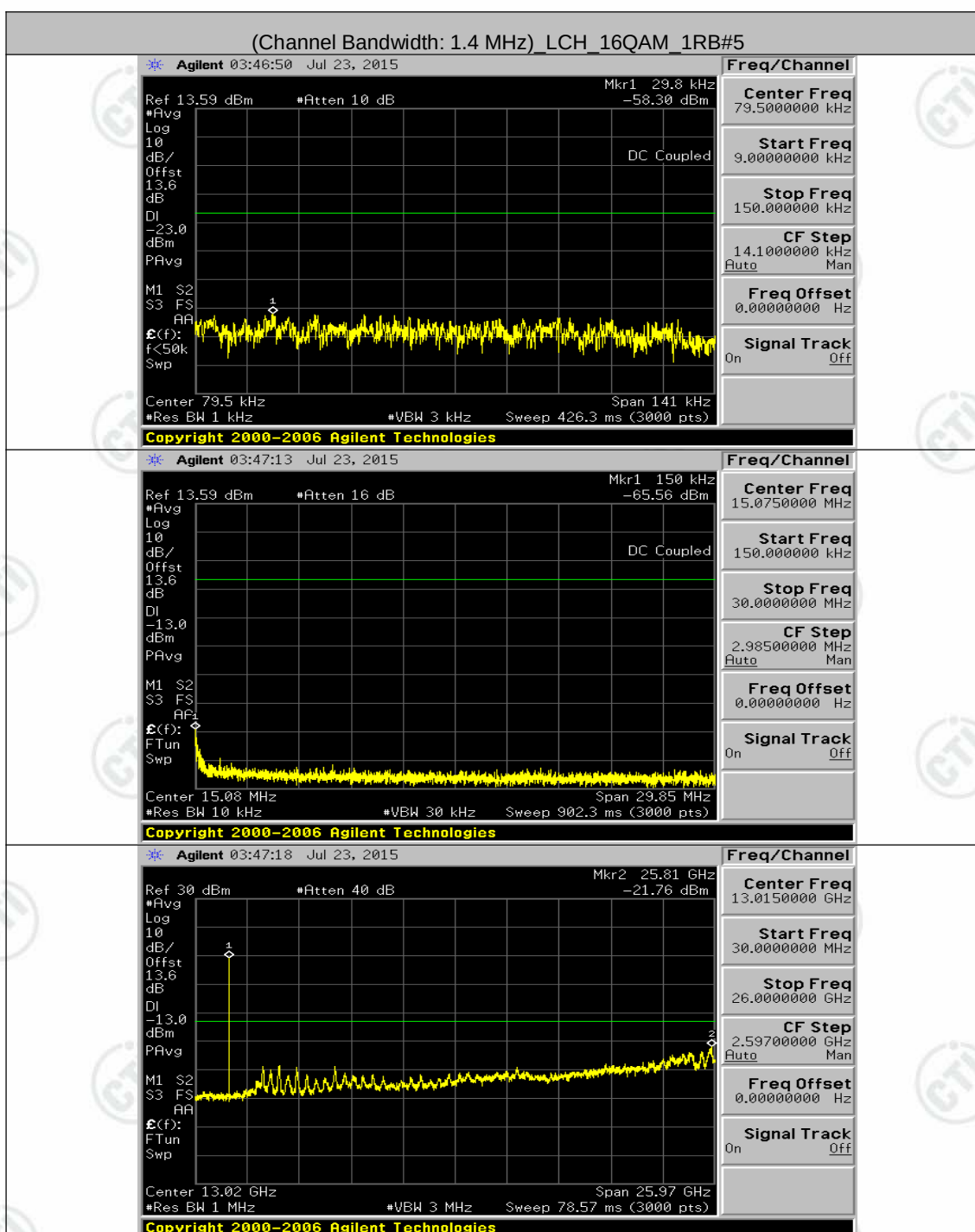


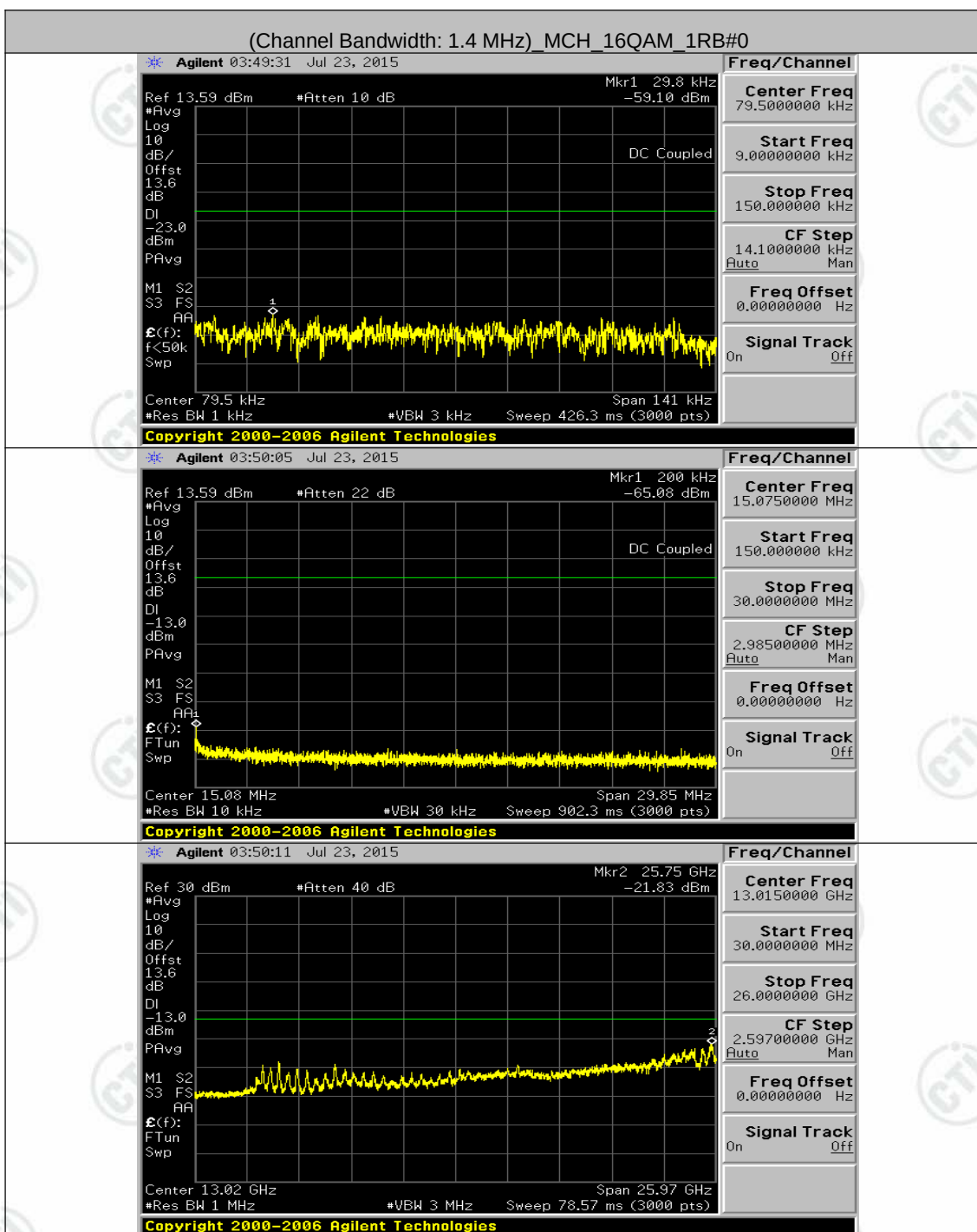


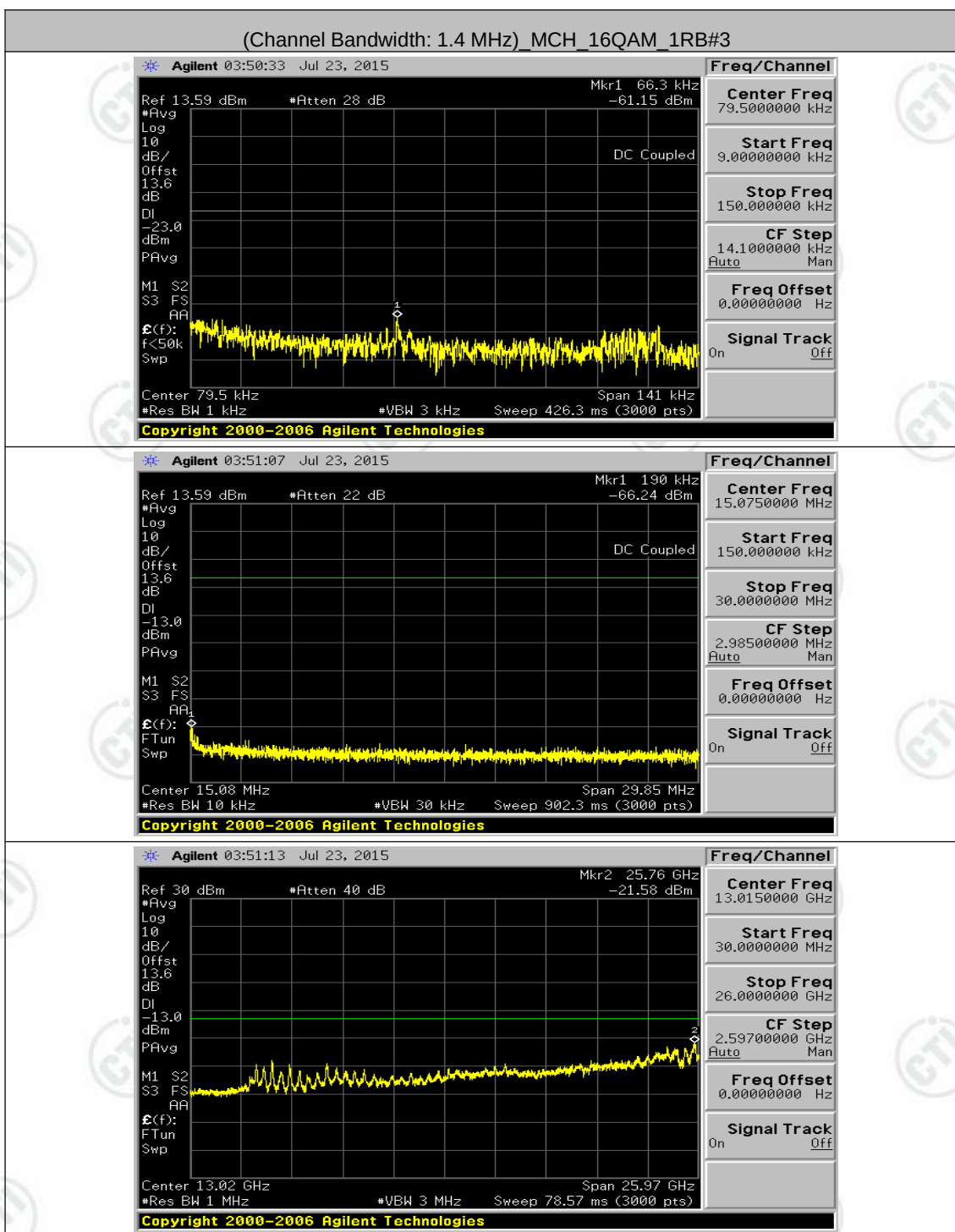


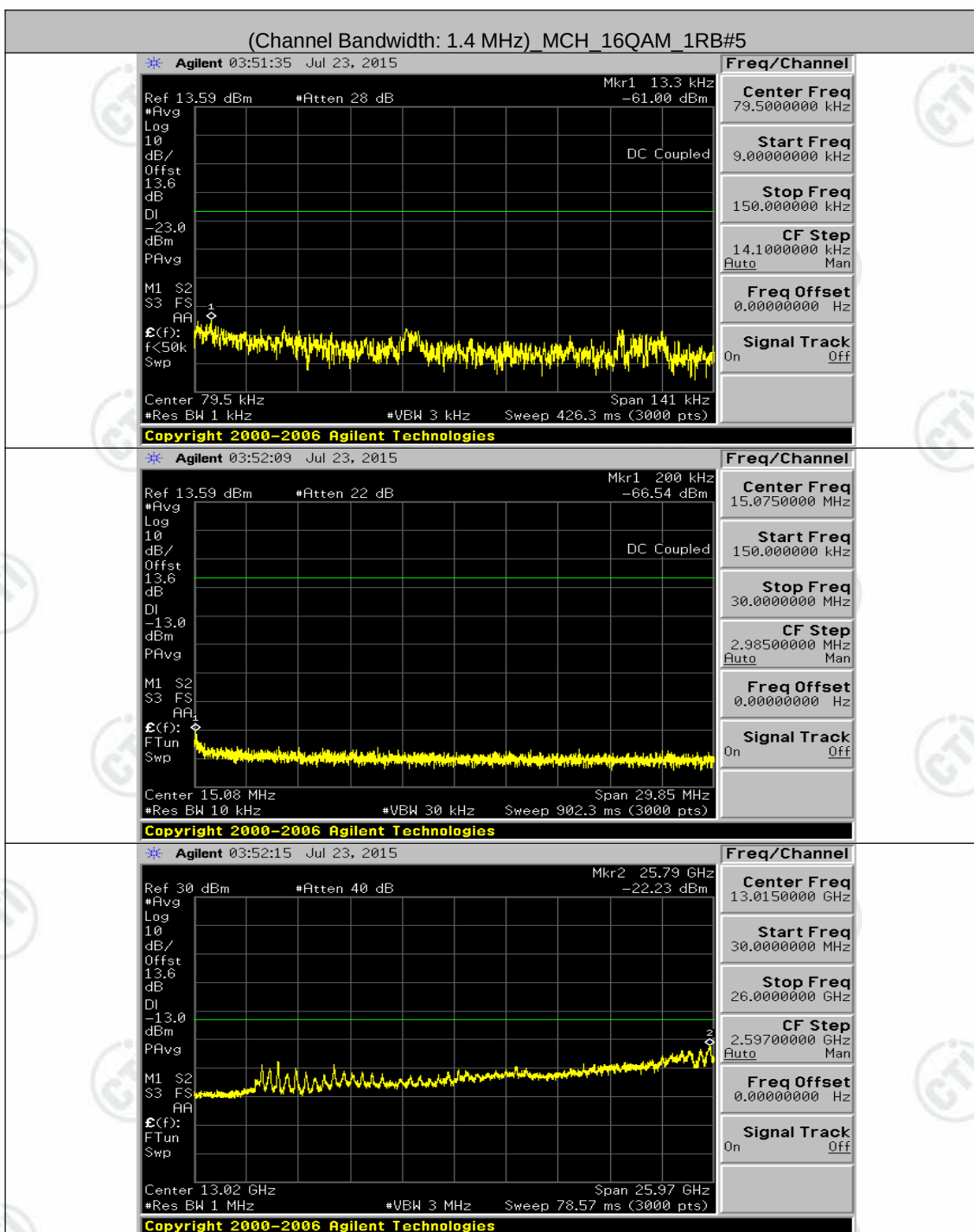


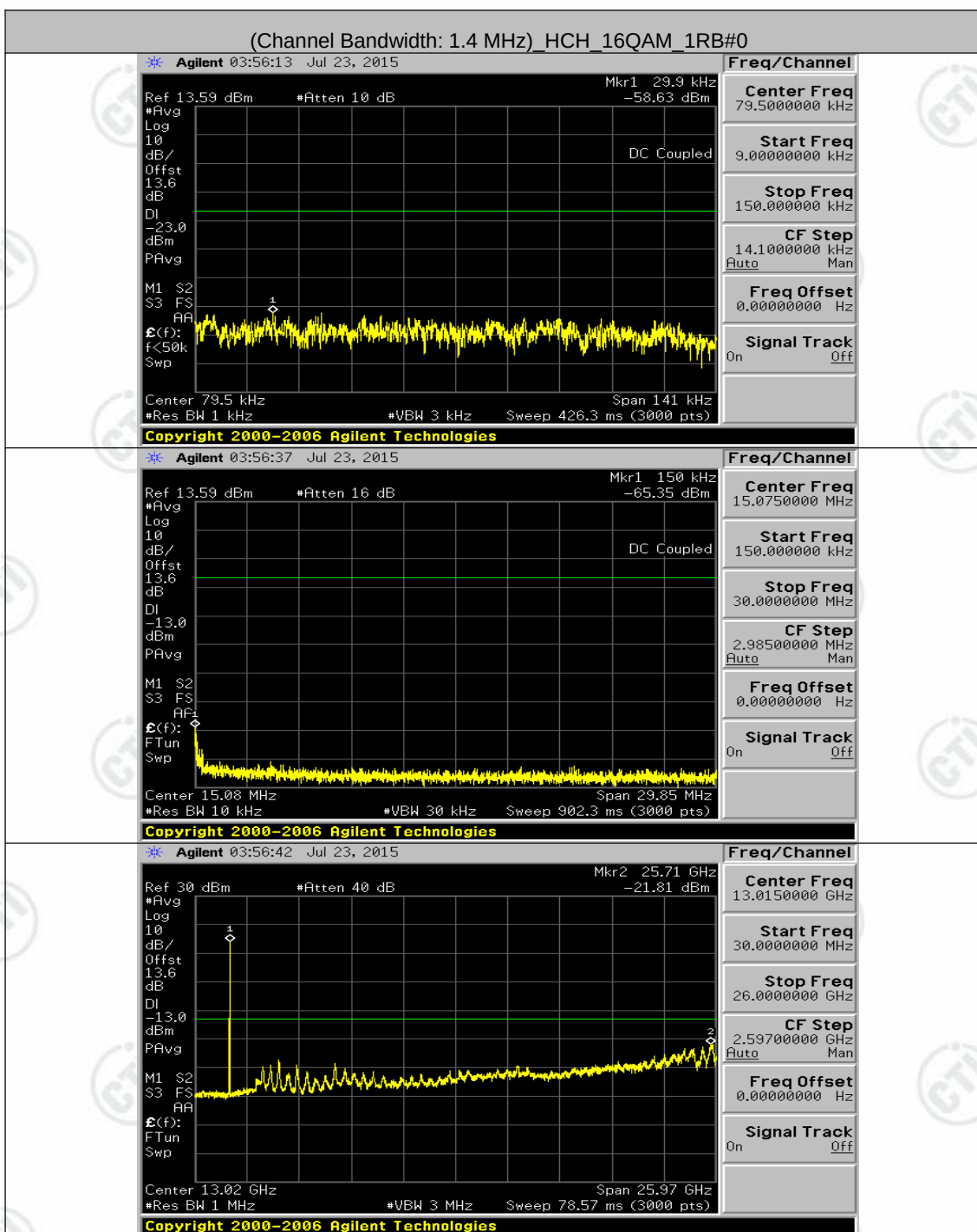


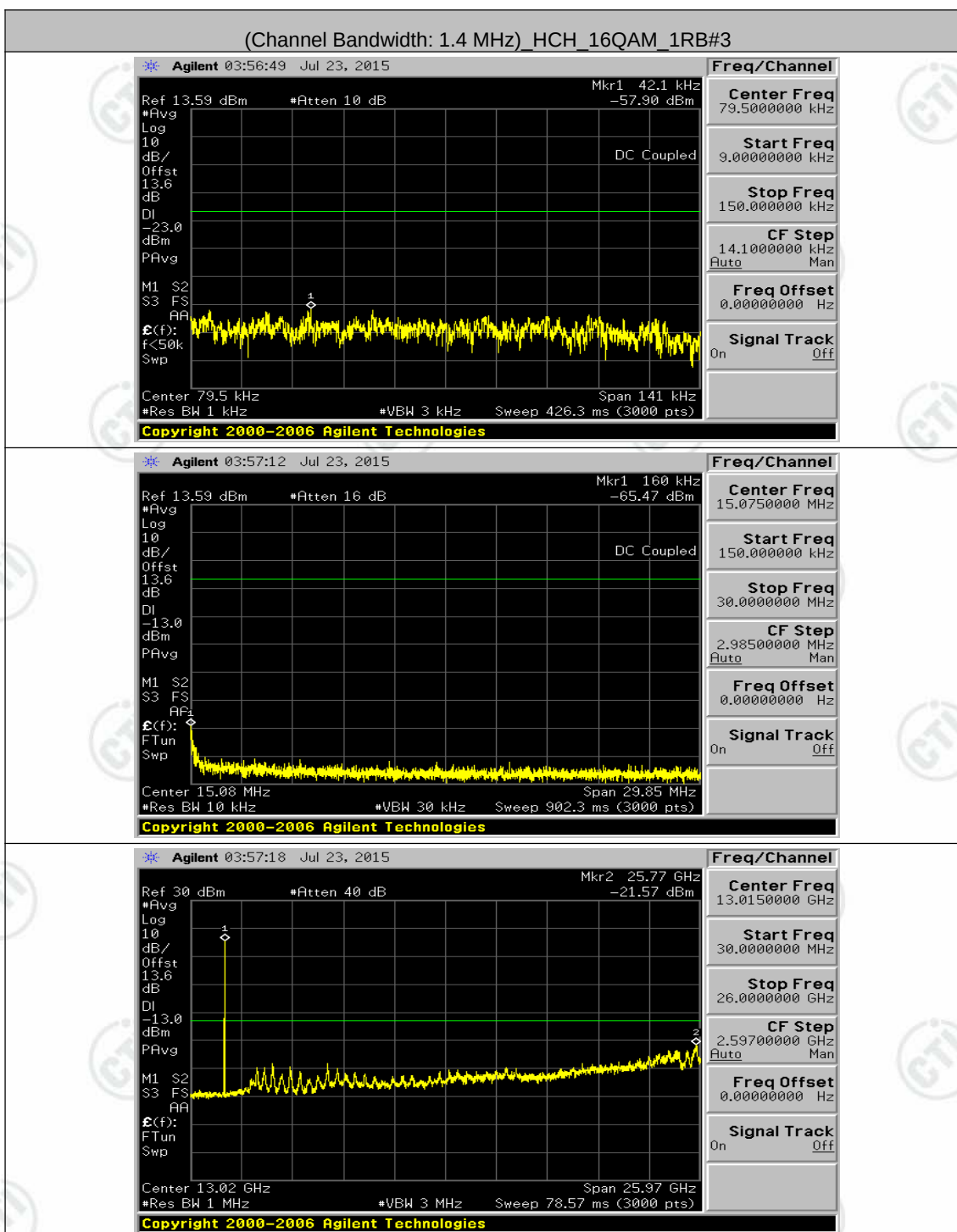


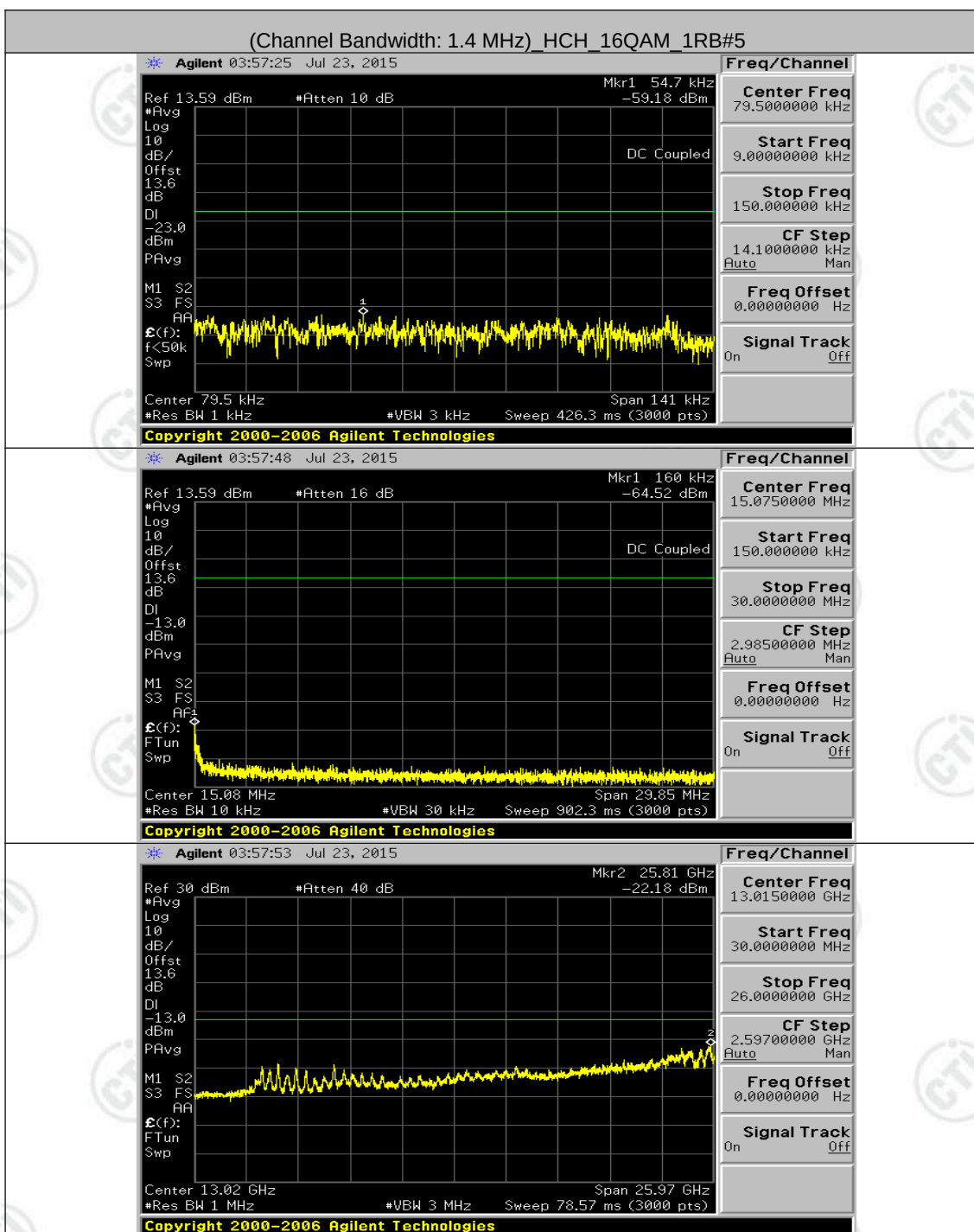




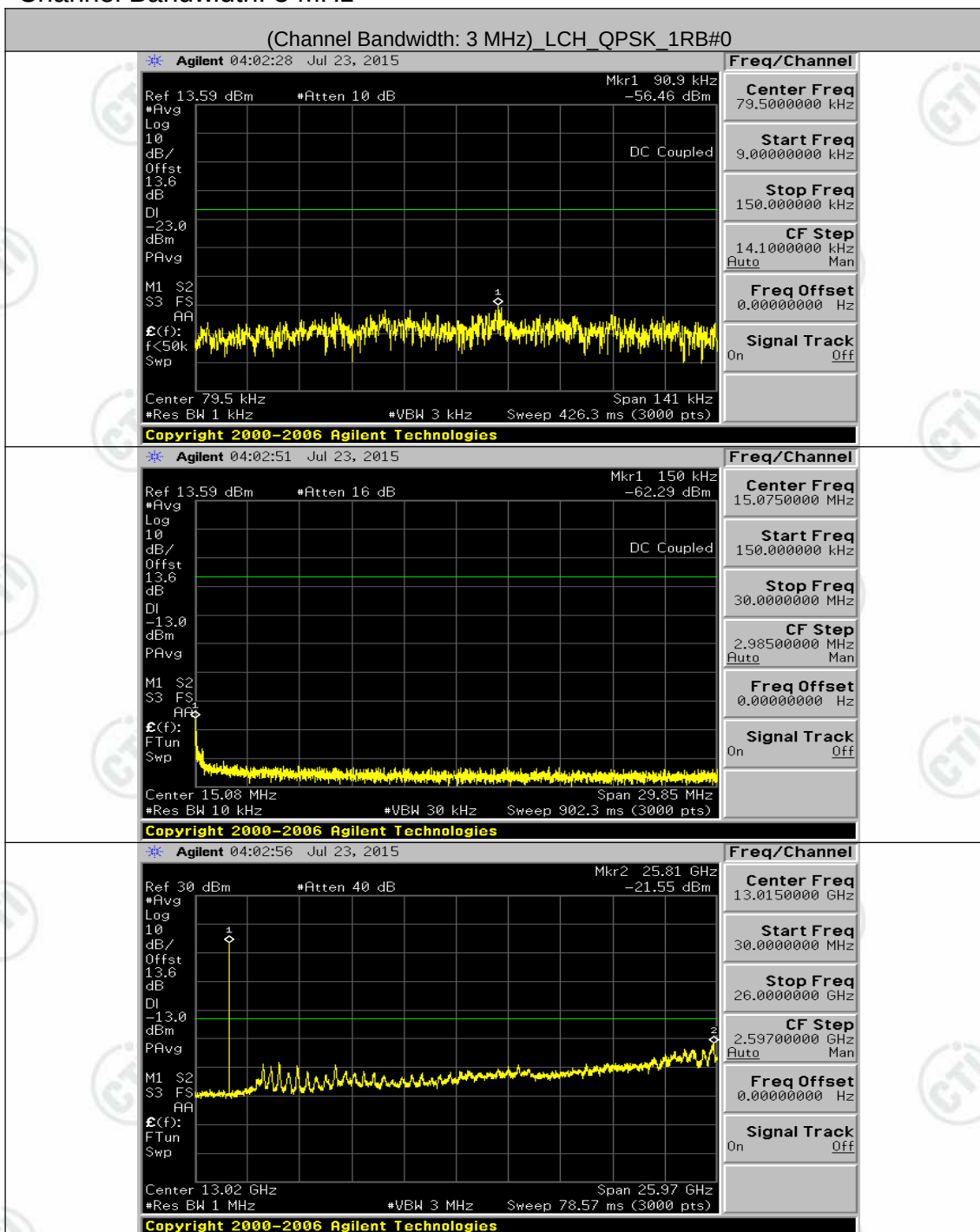


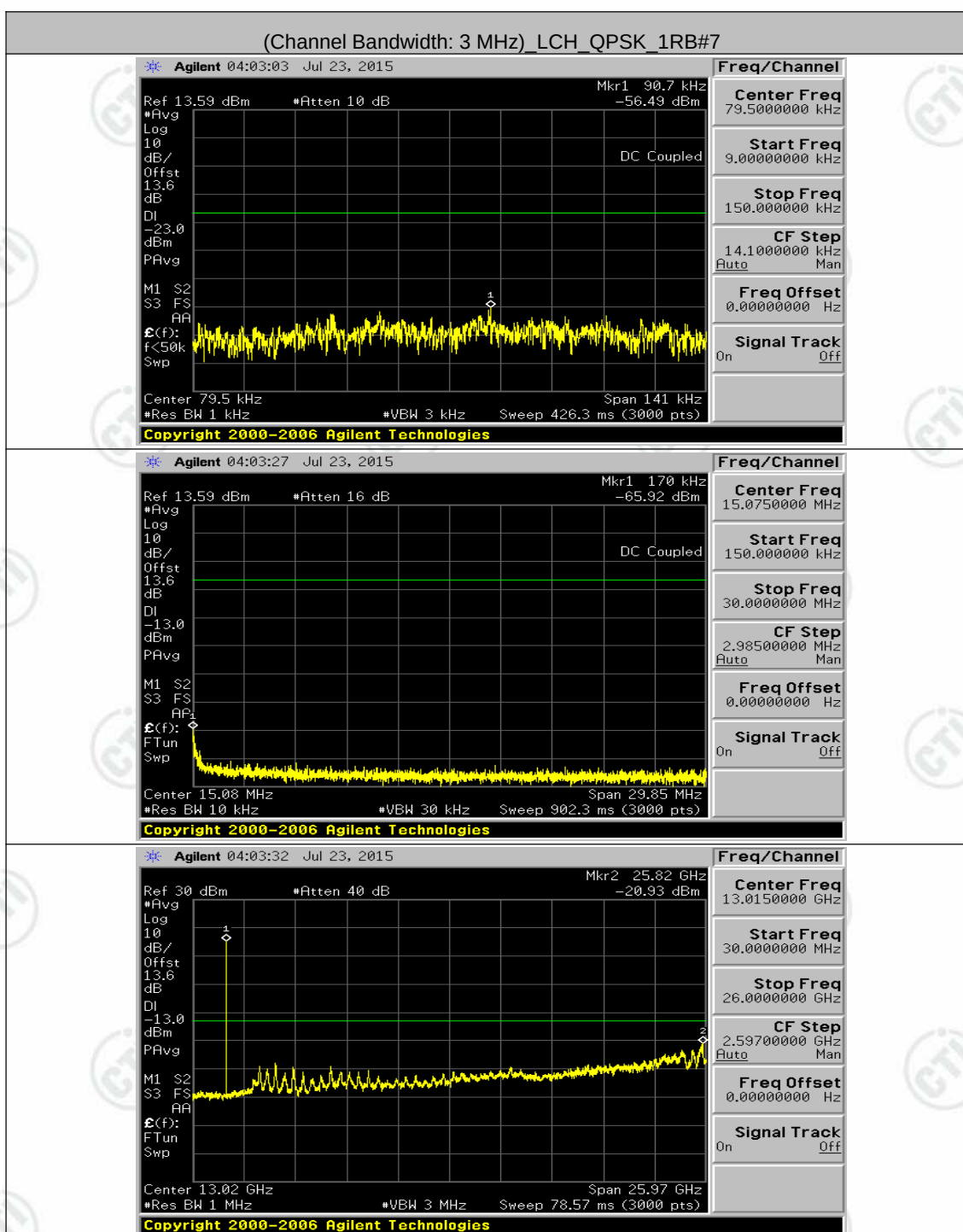


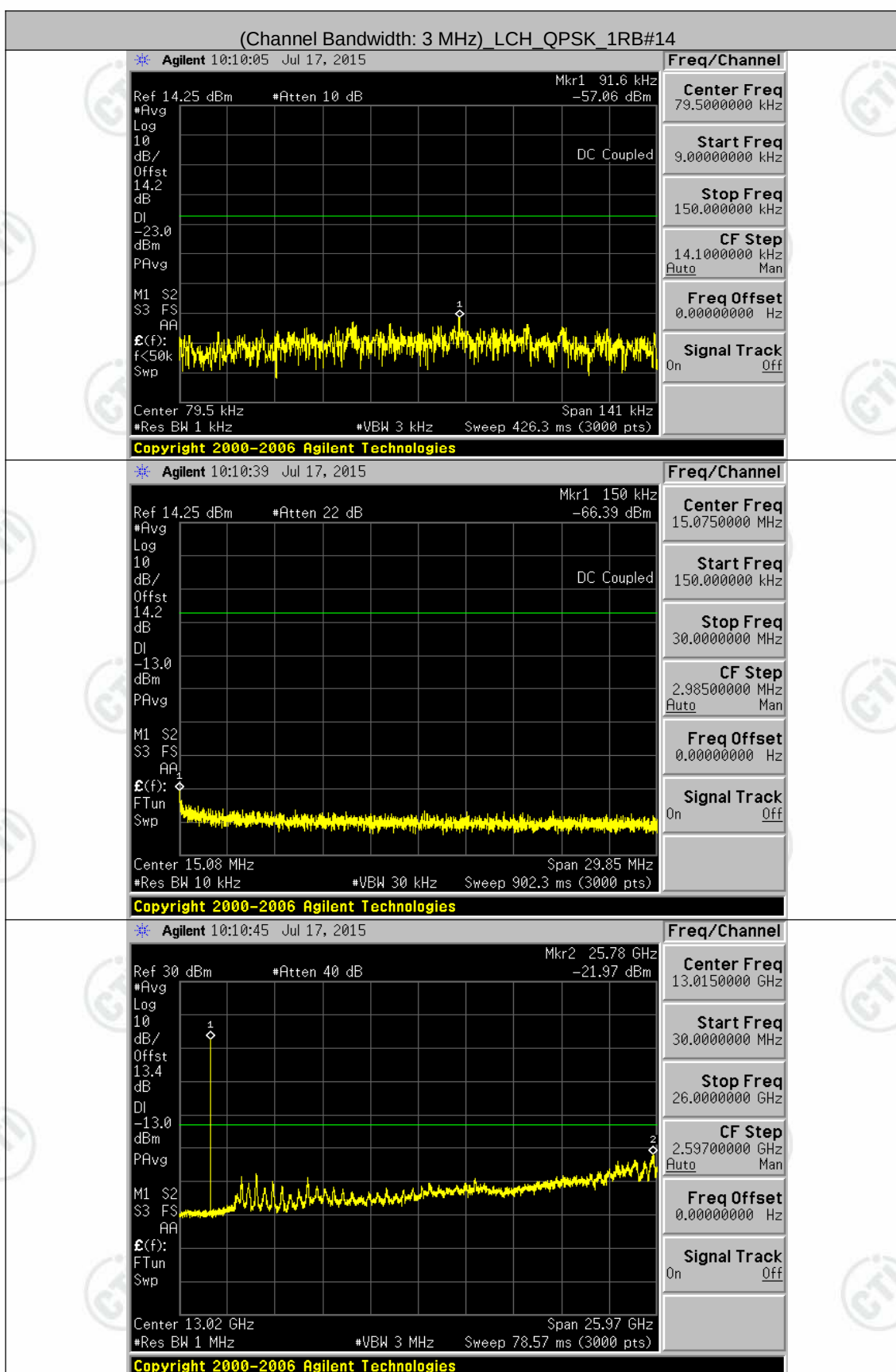




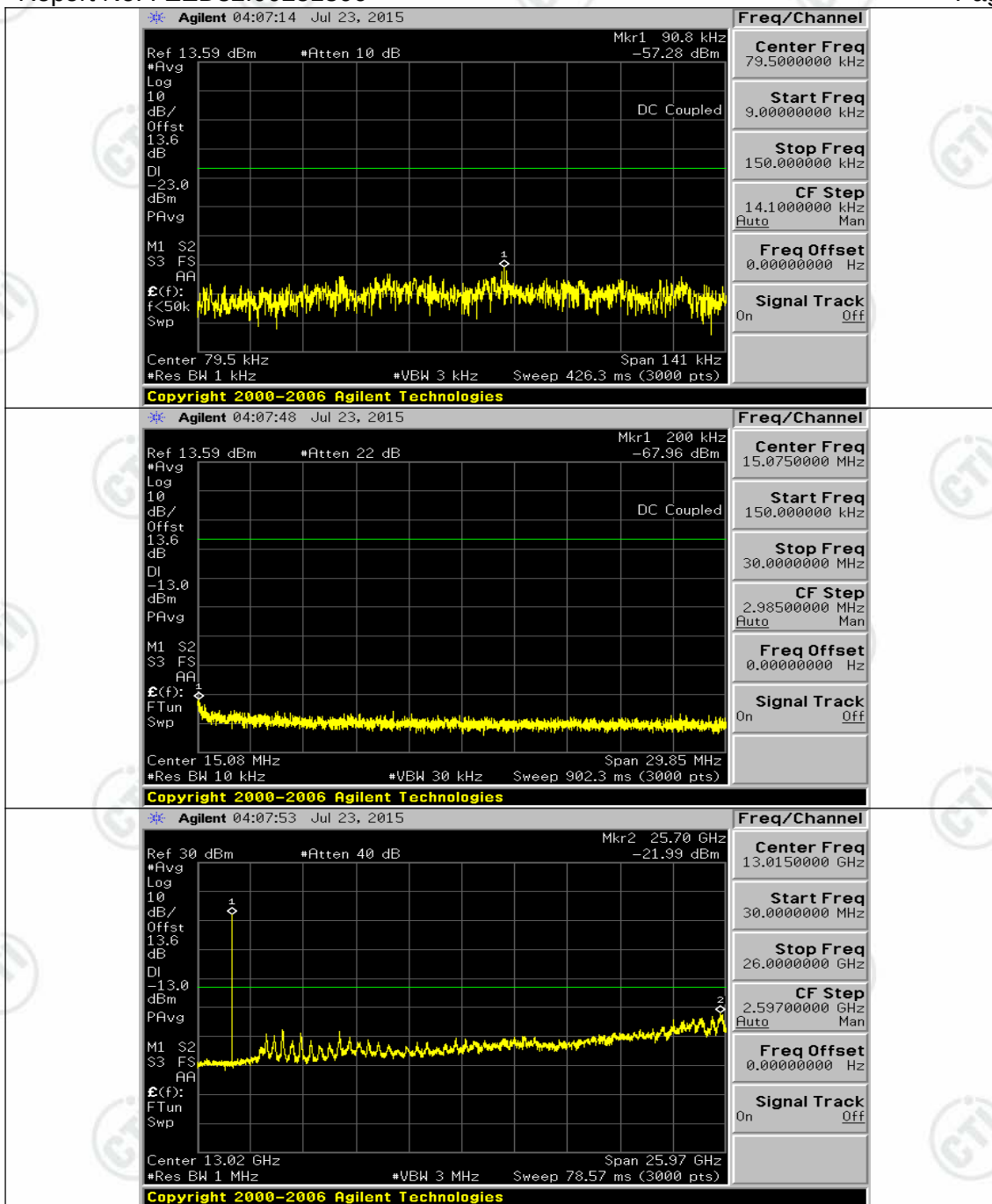
Channel Bandwidth: 3 MHz

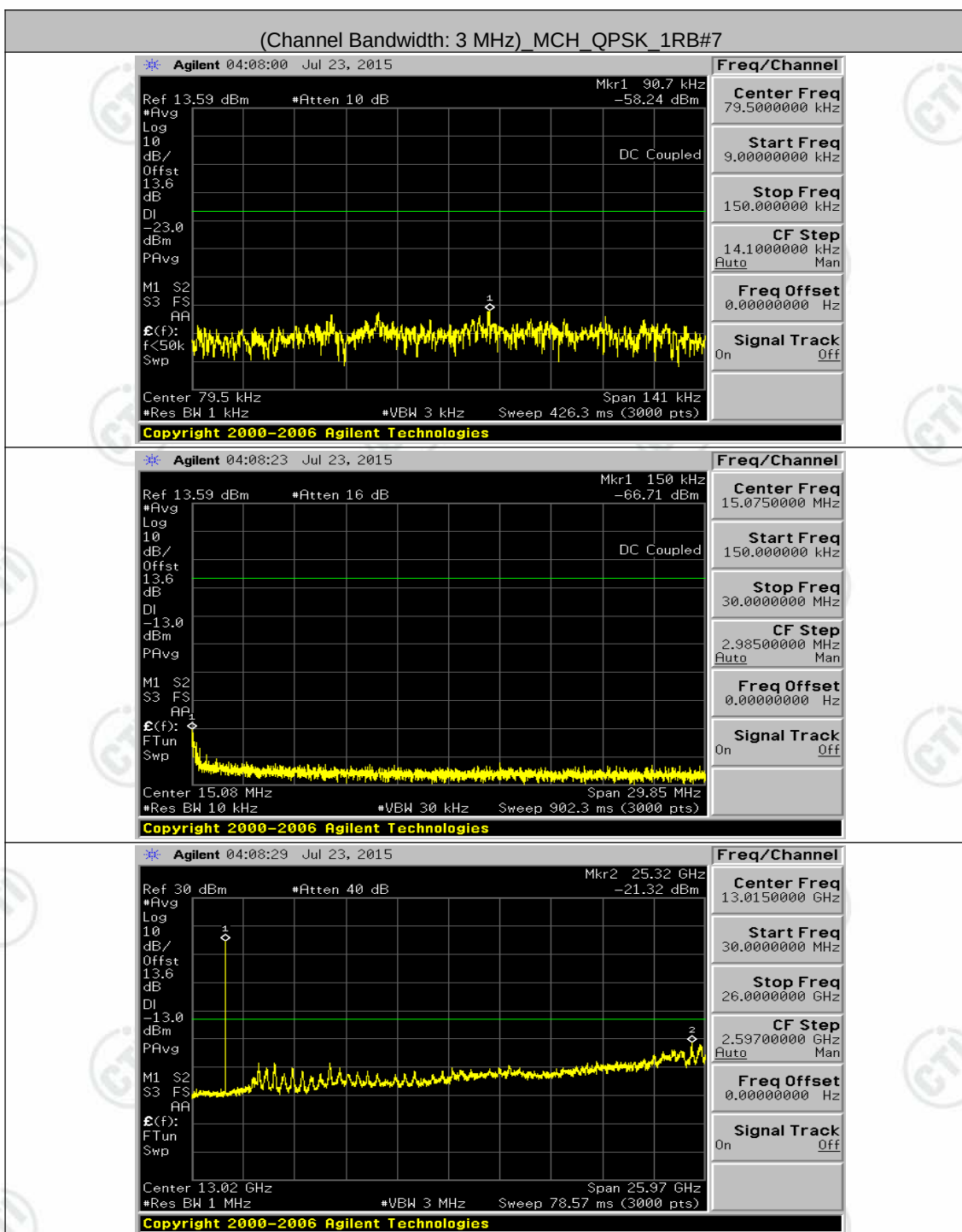


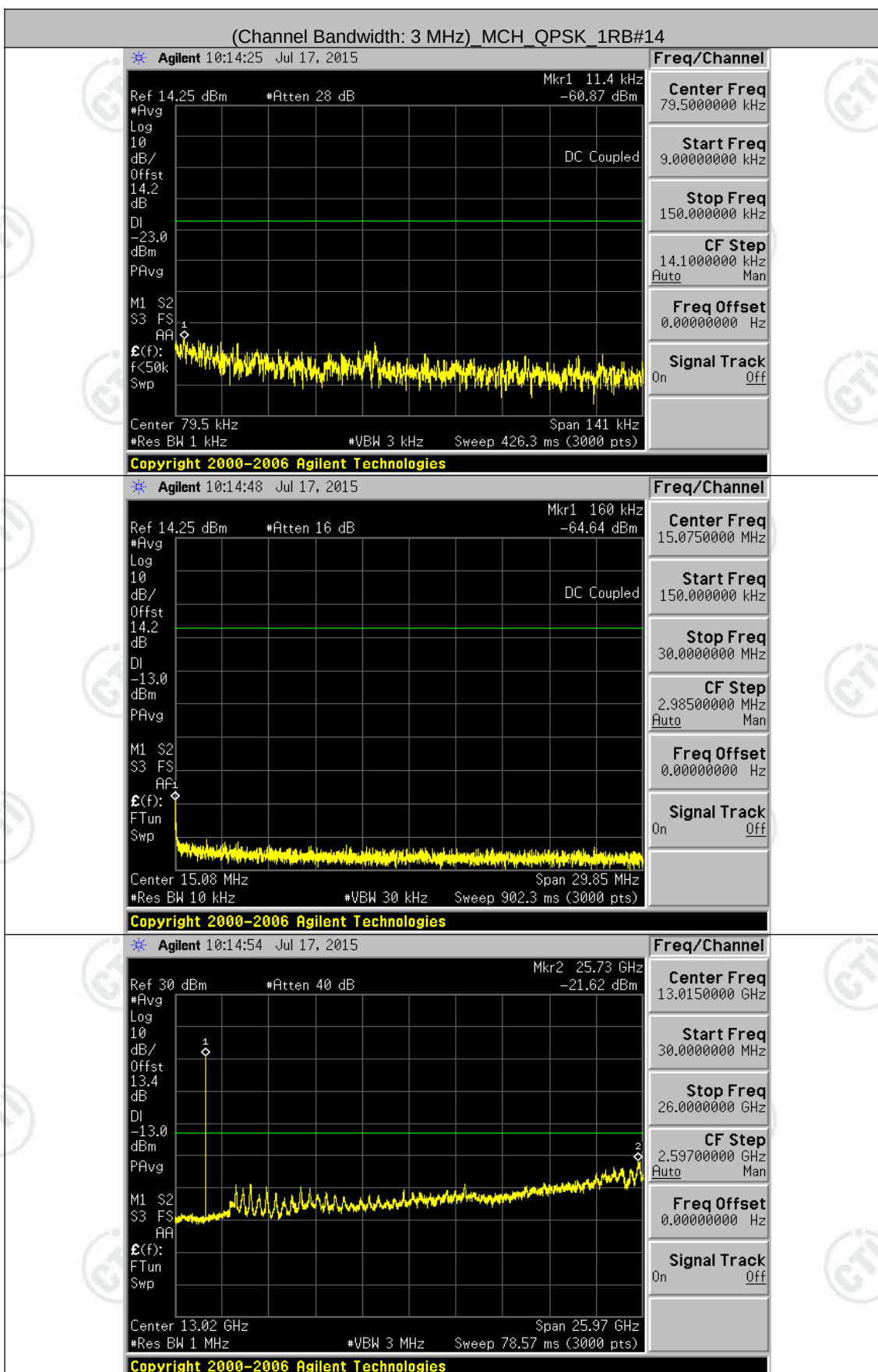


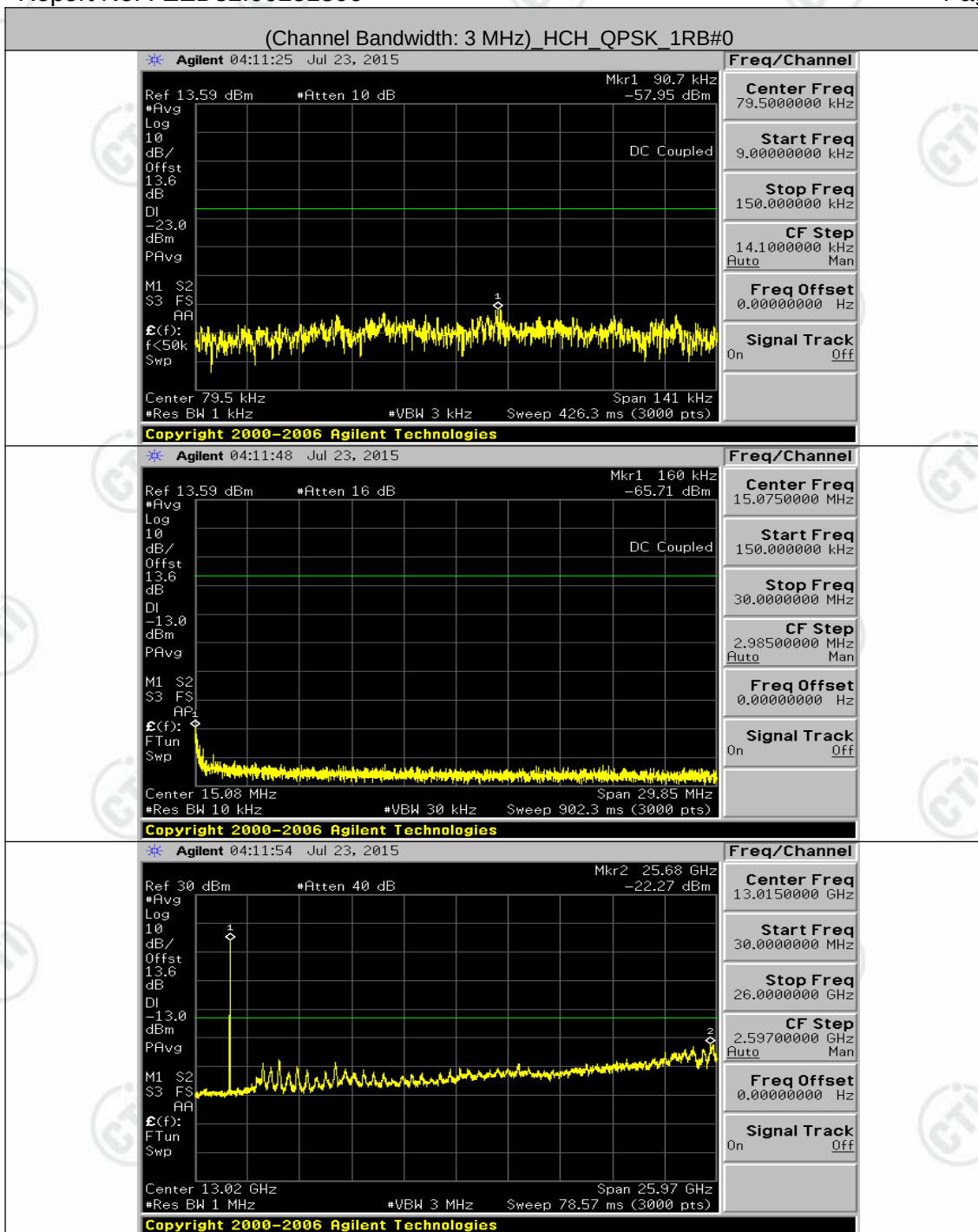


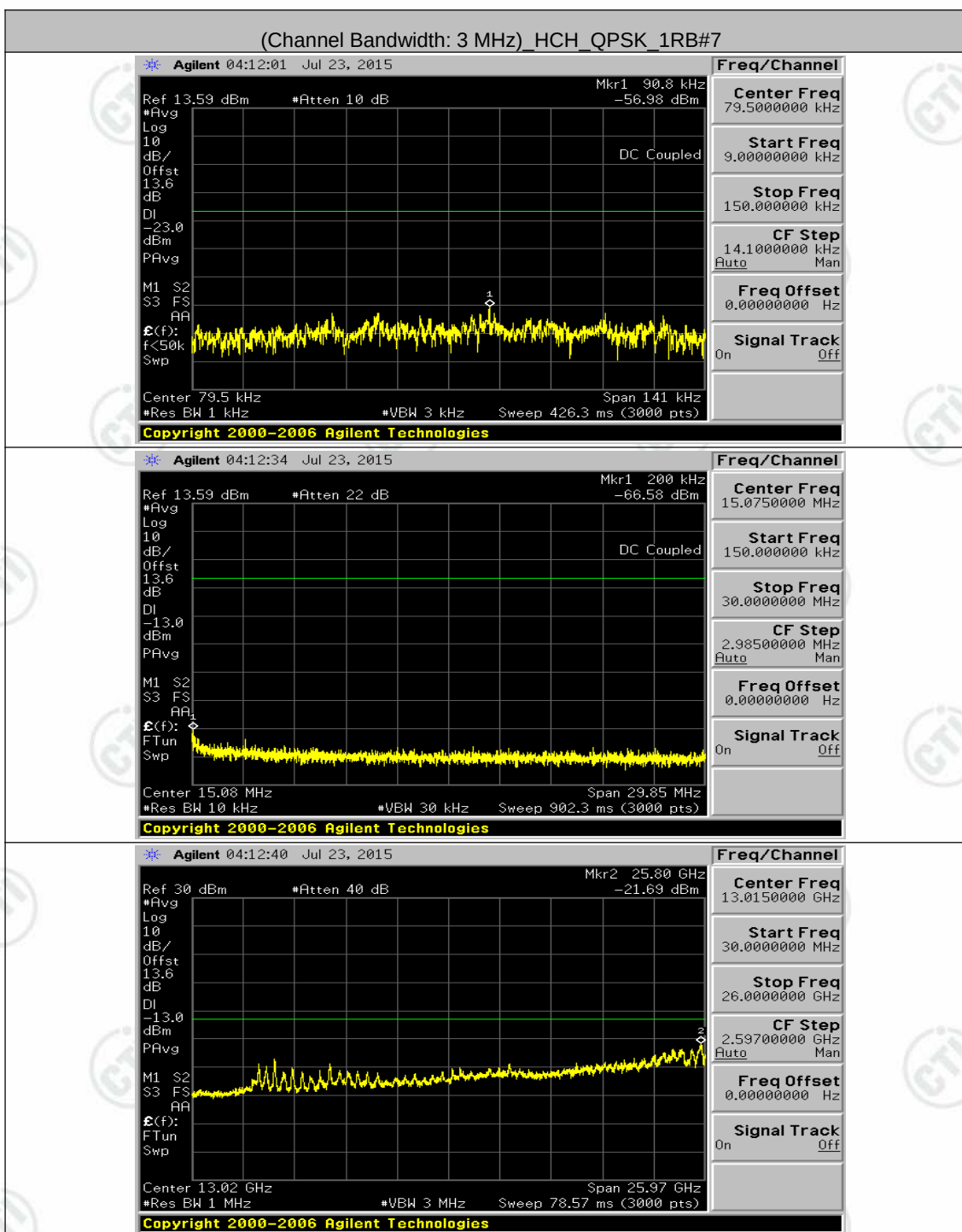
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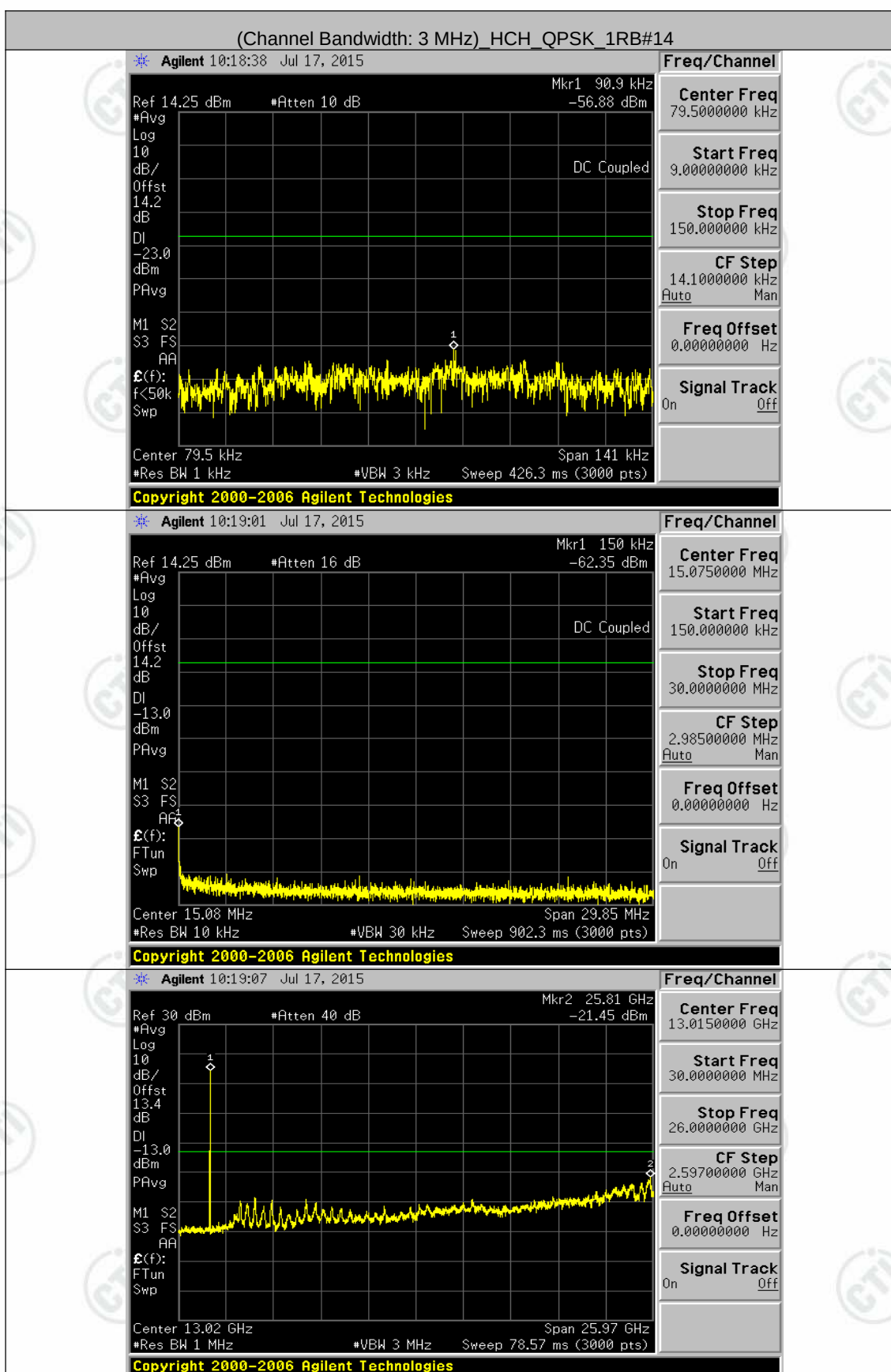


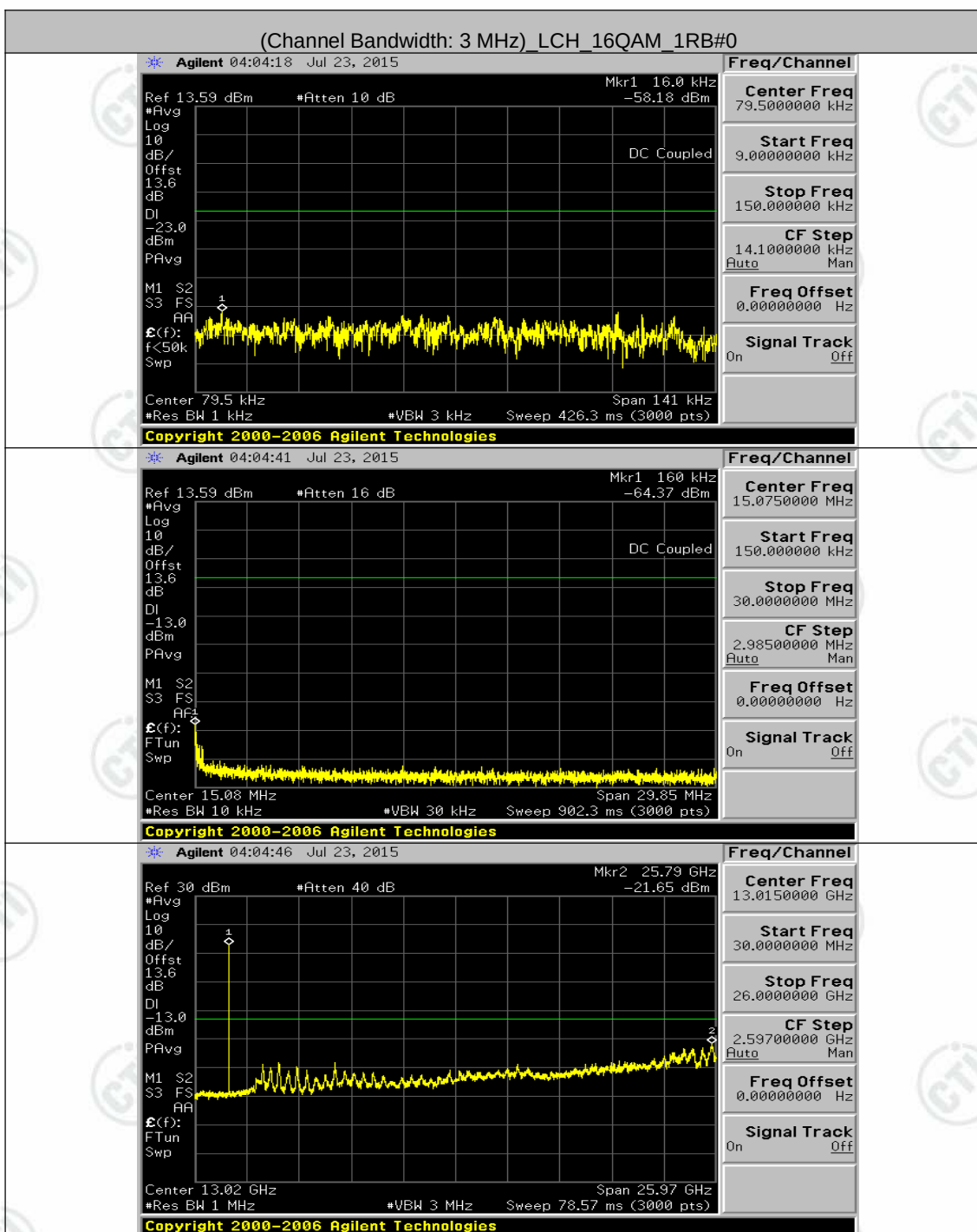


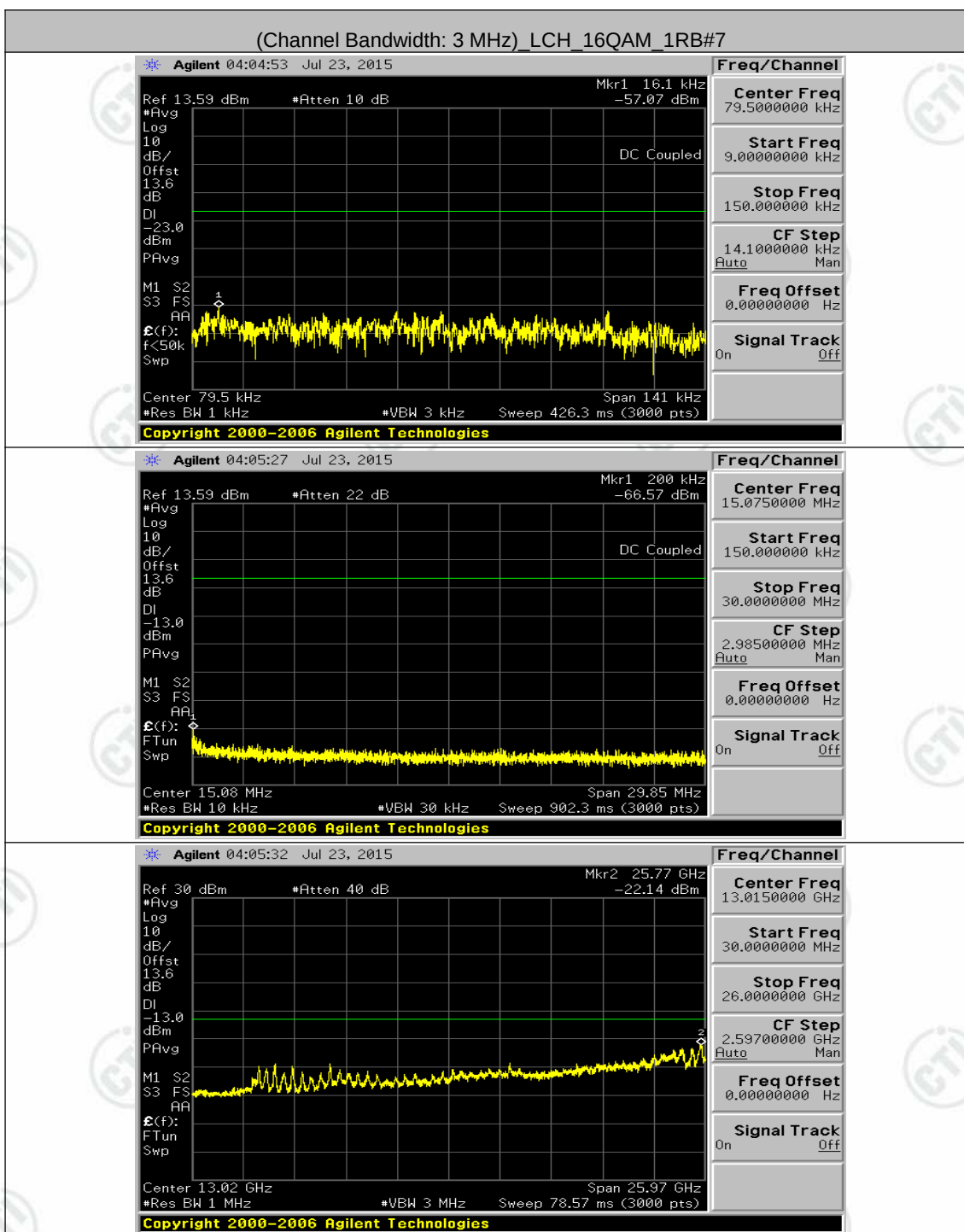


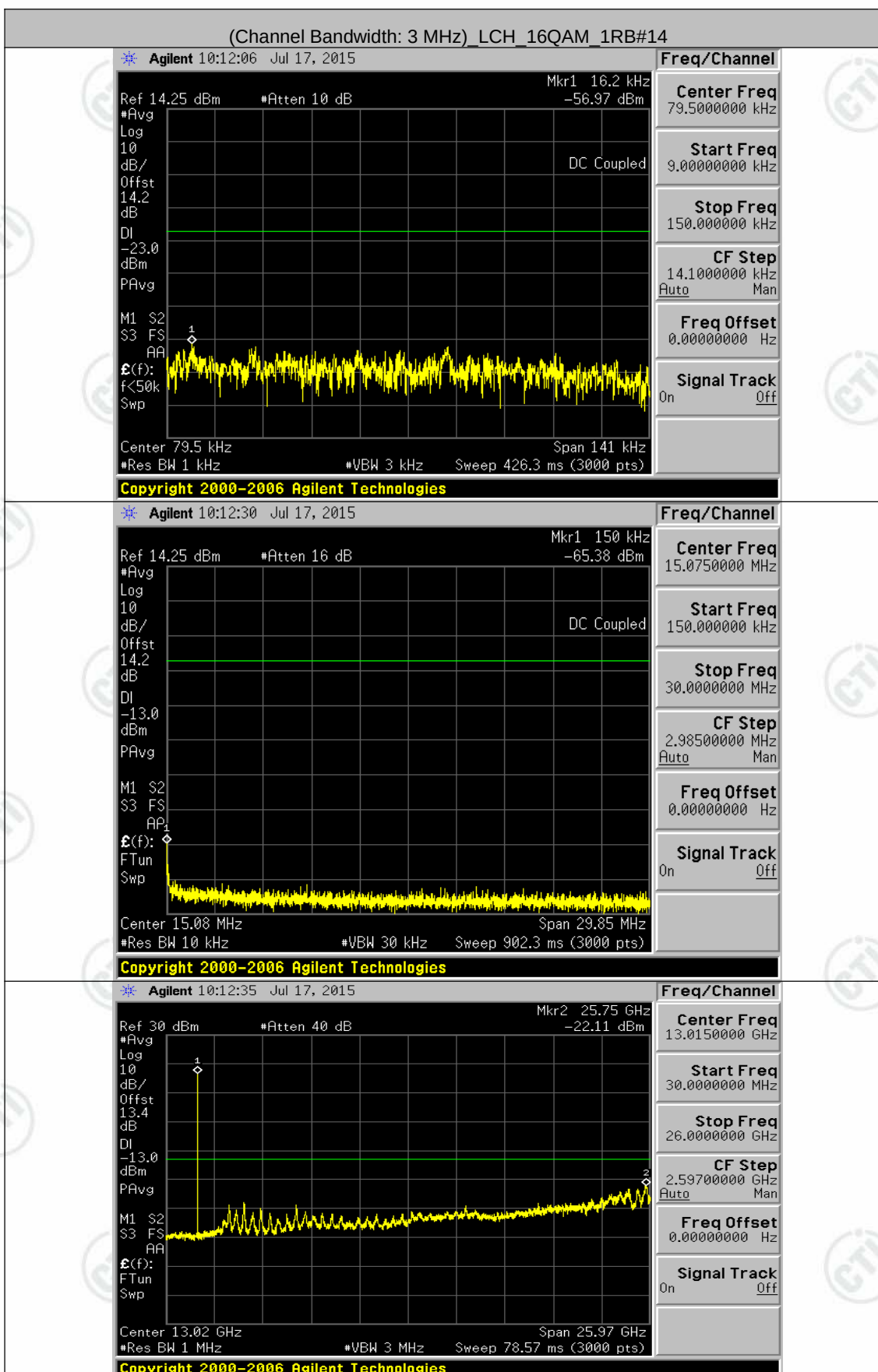


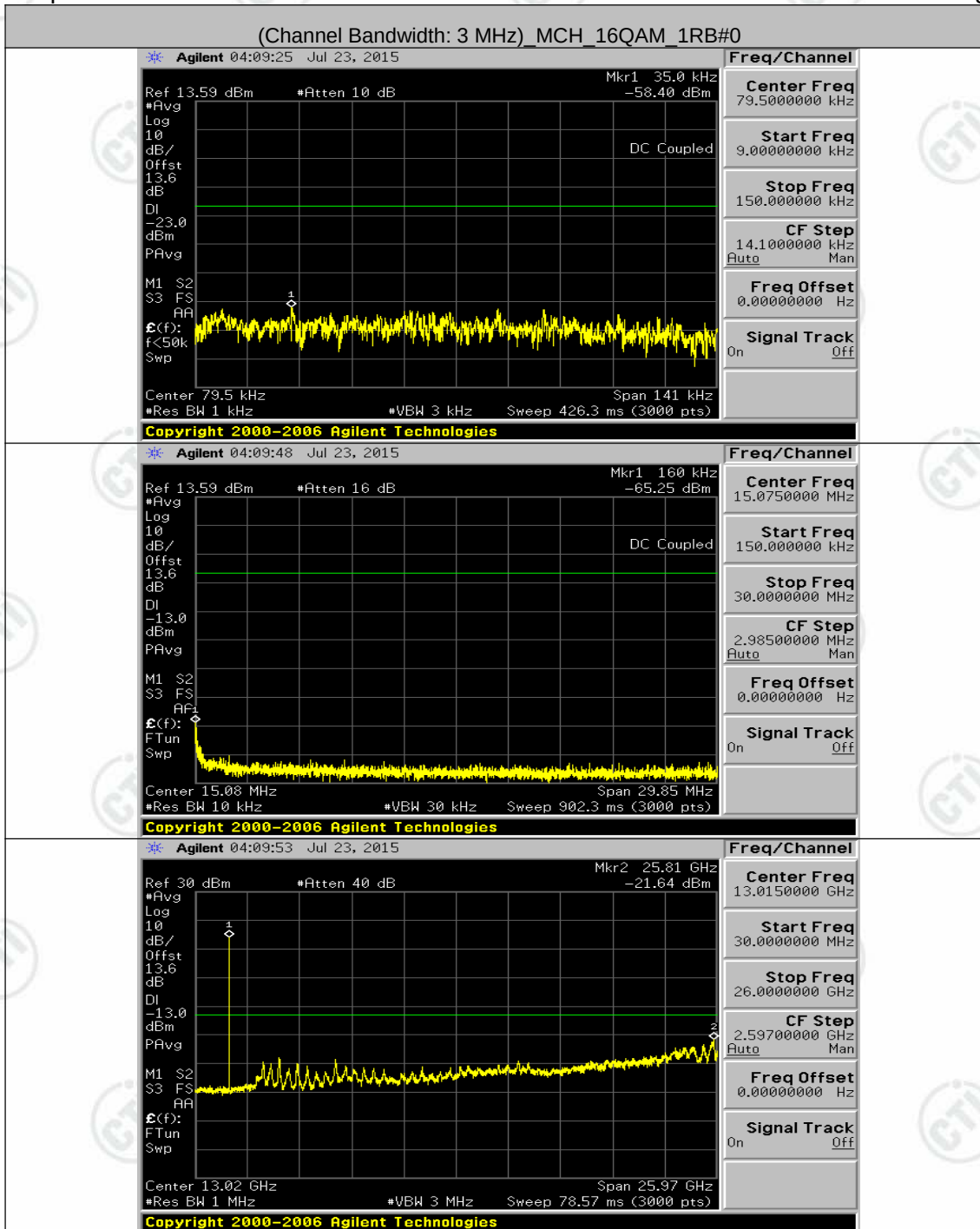


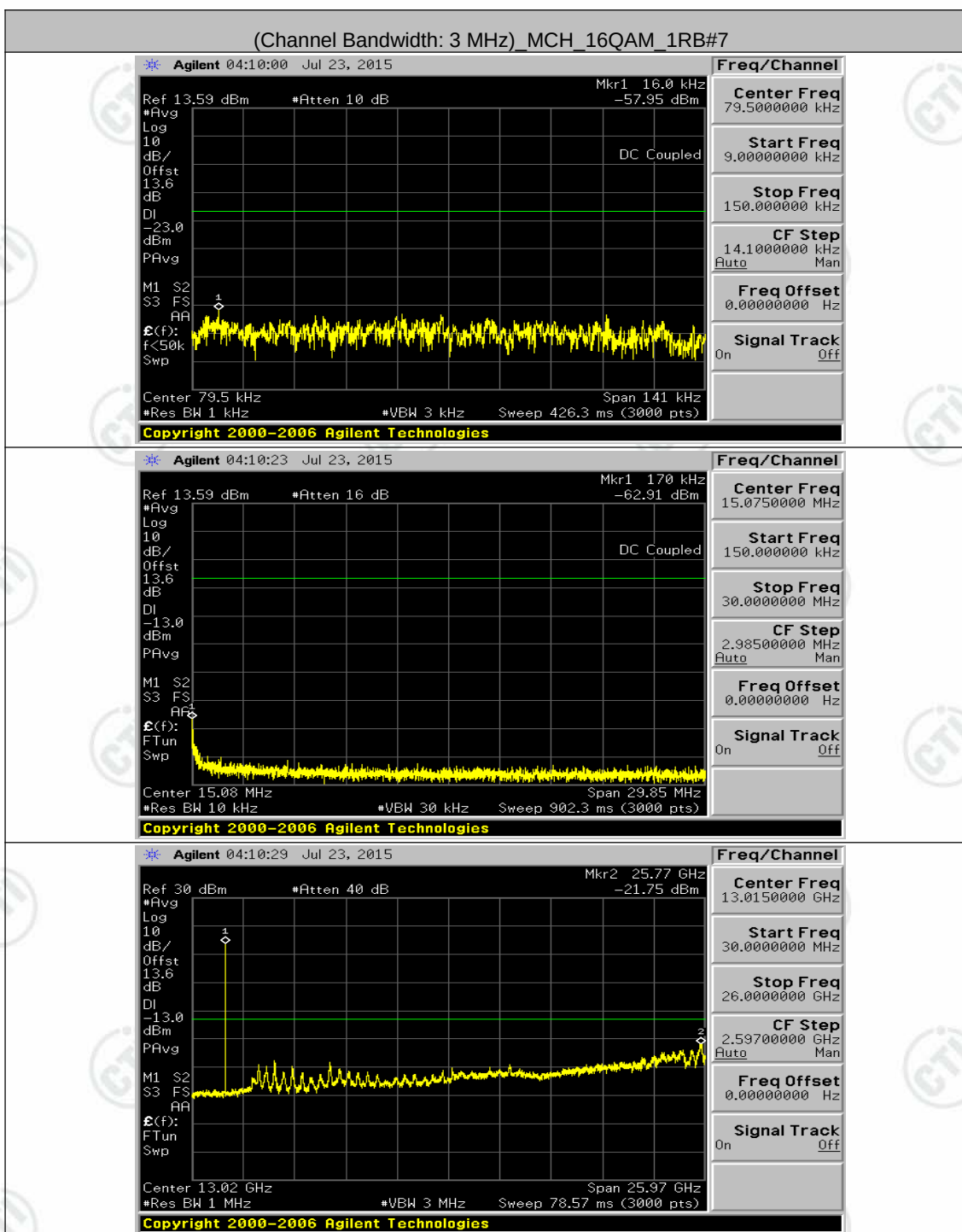


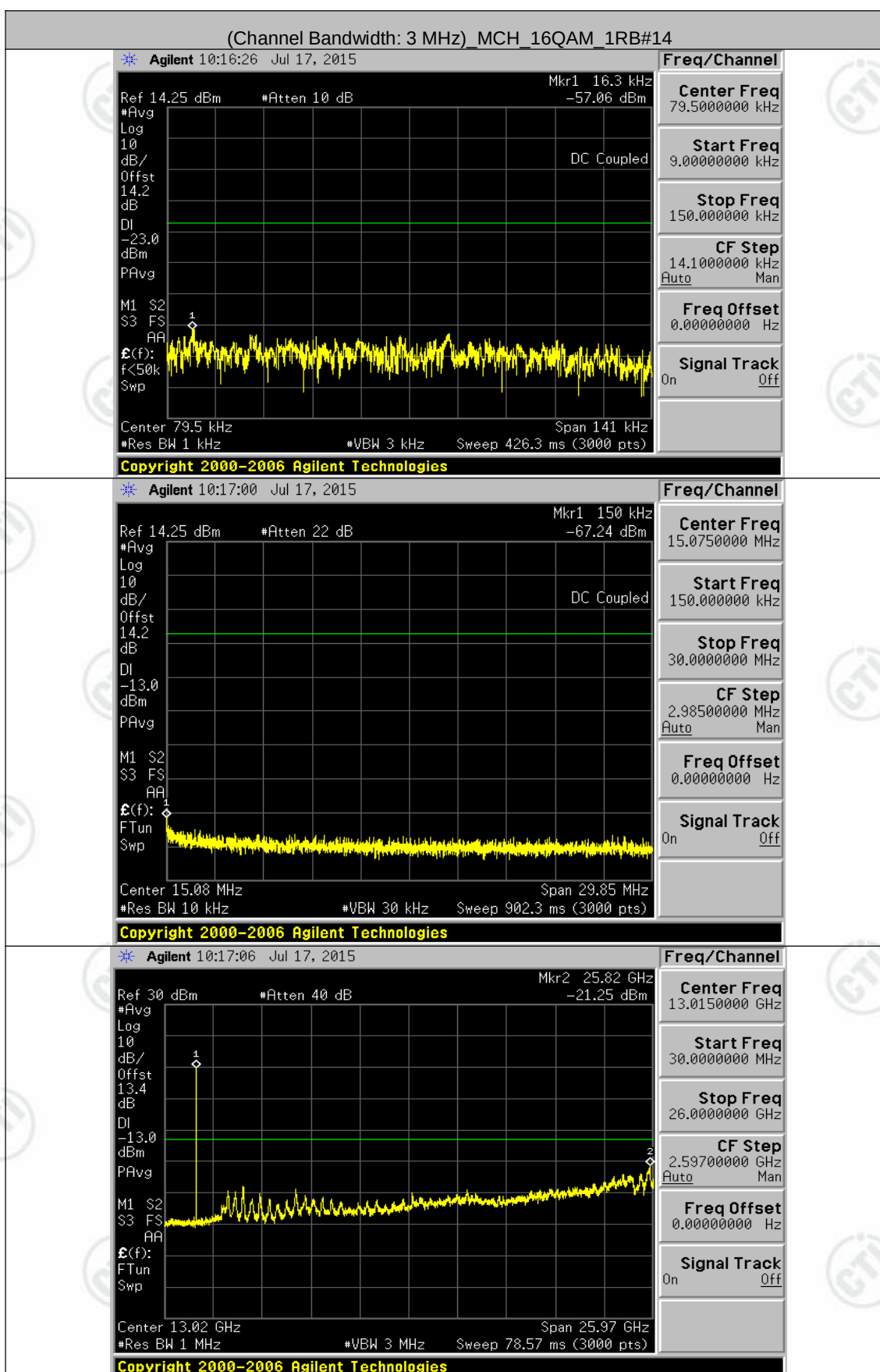


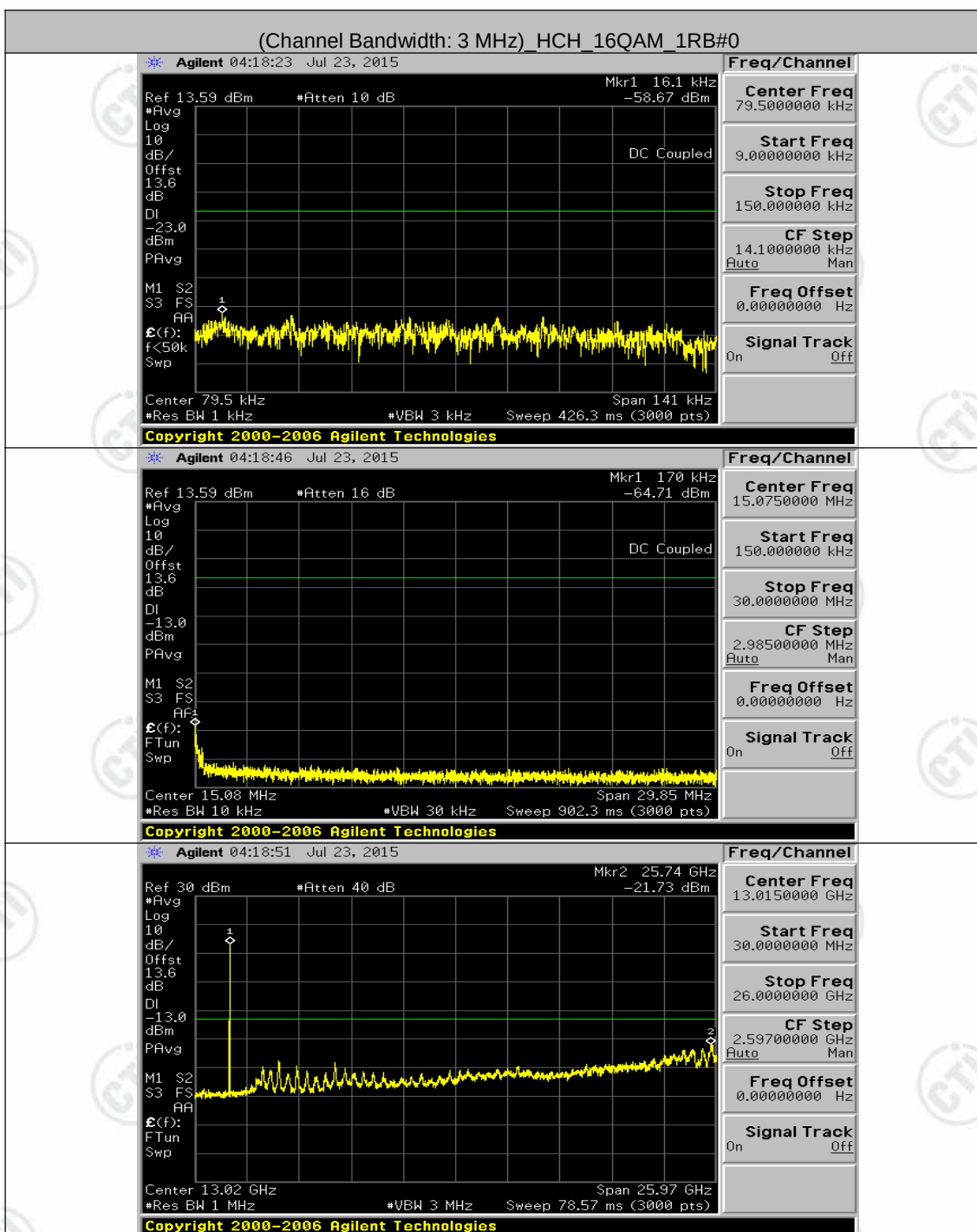


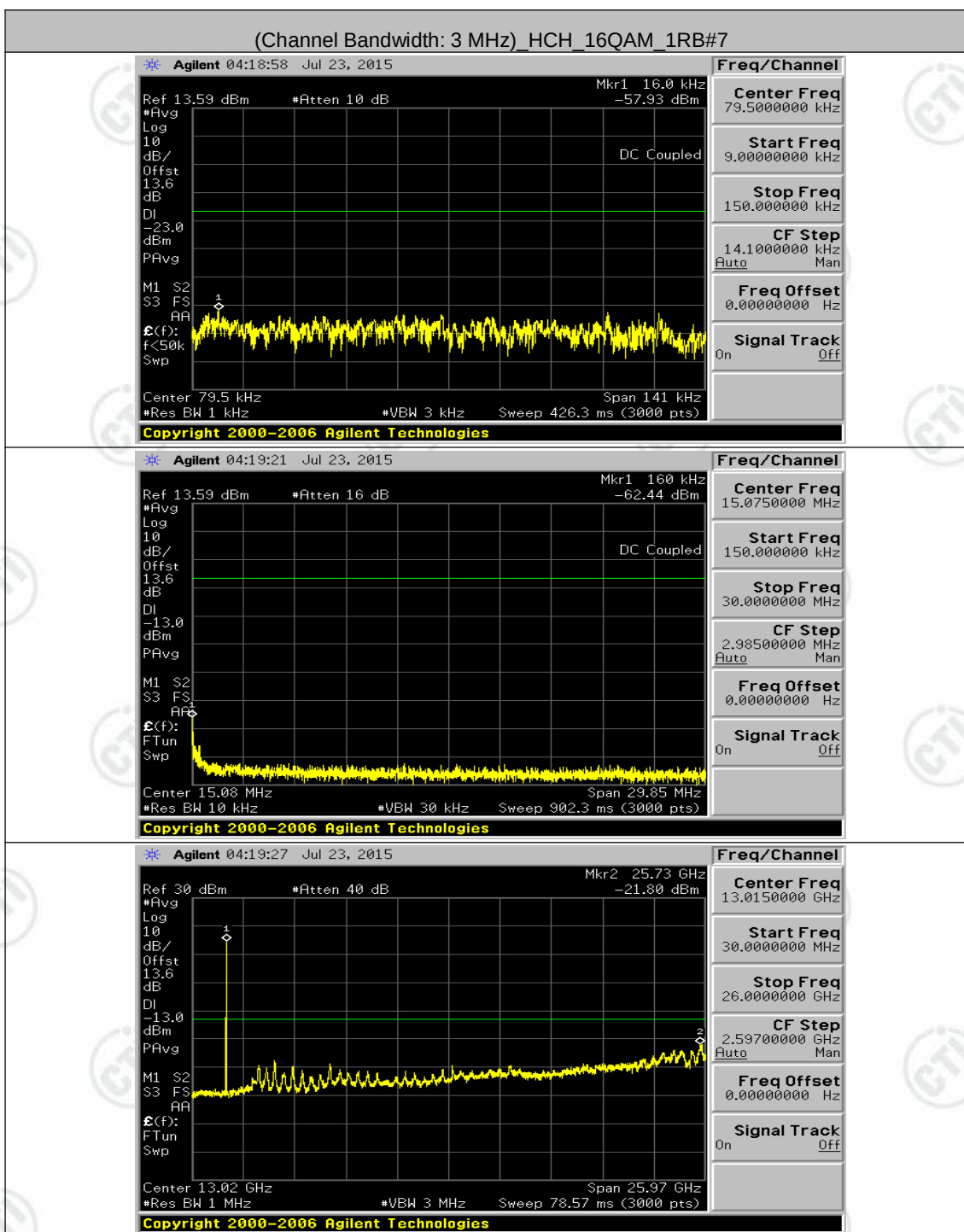


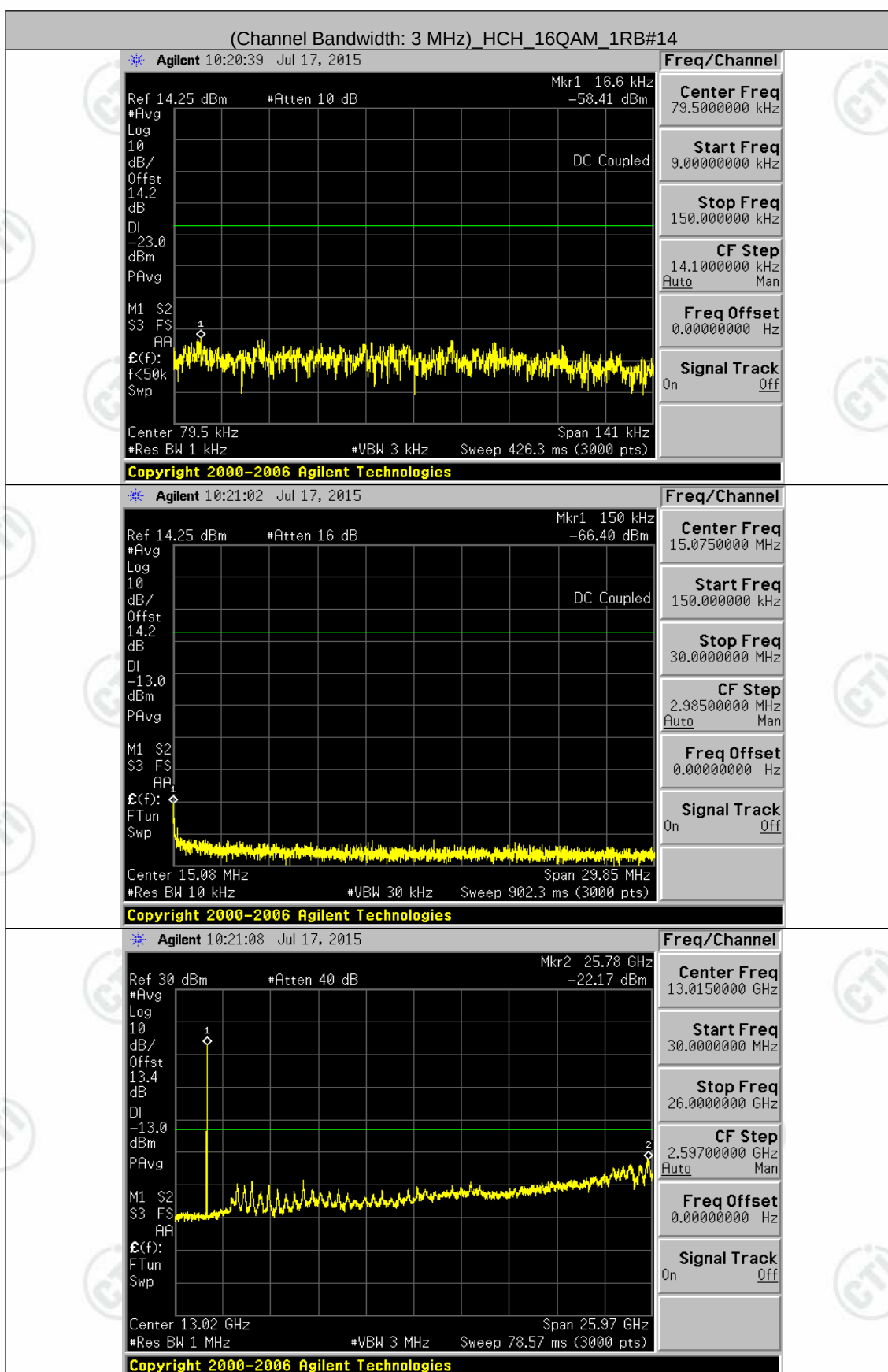




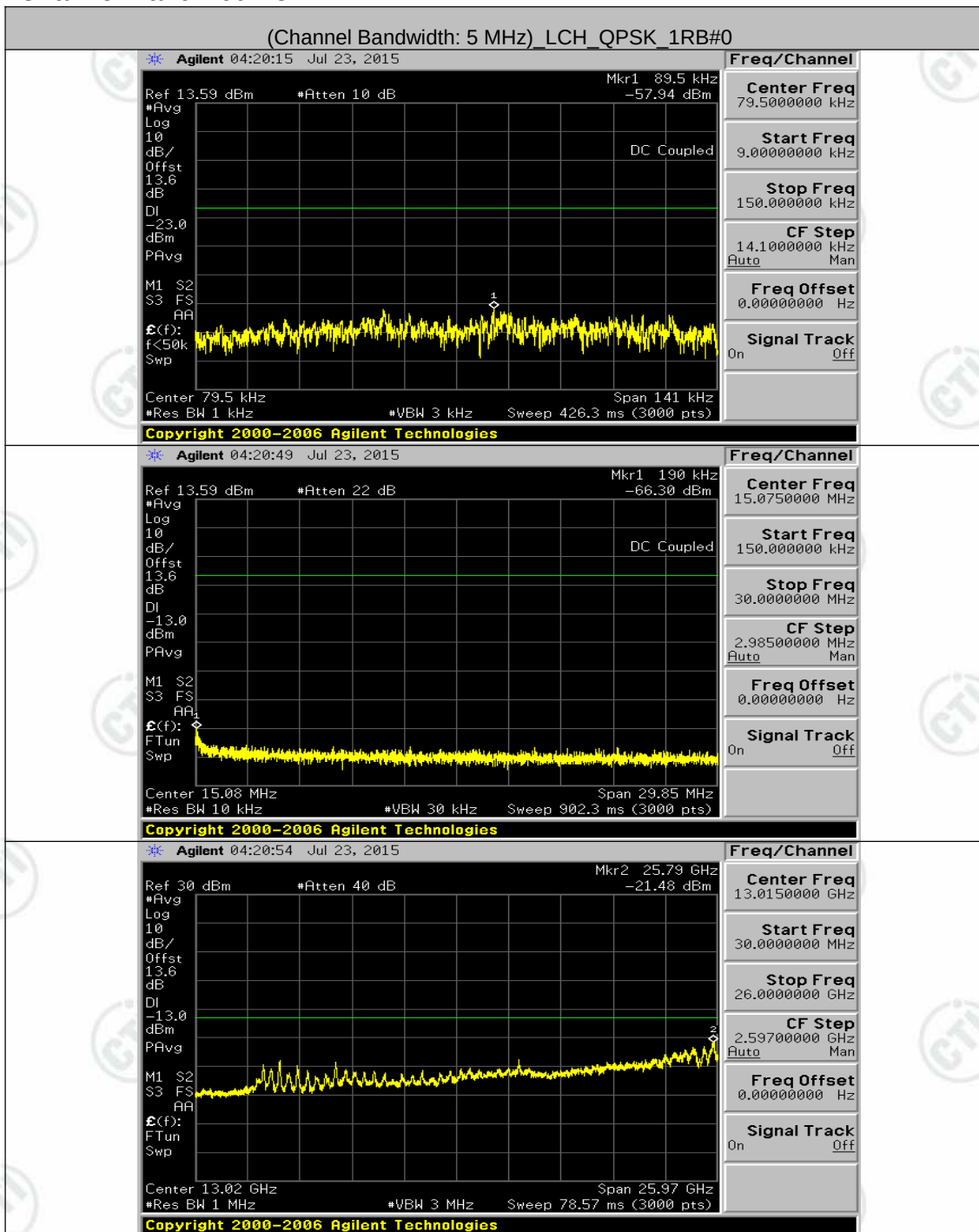


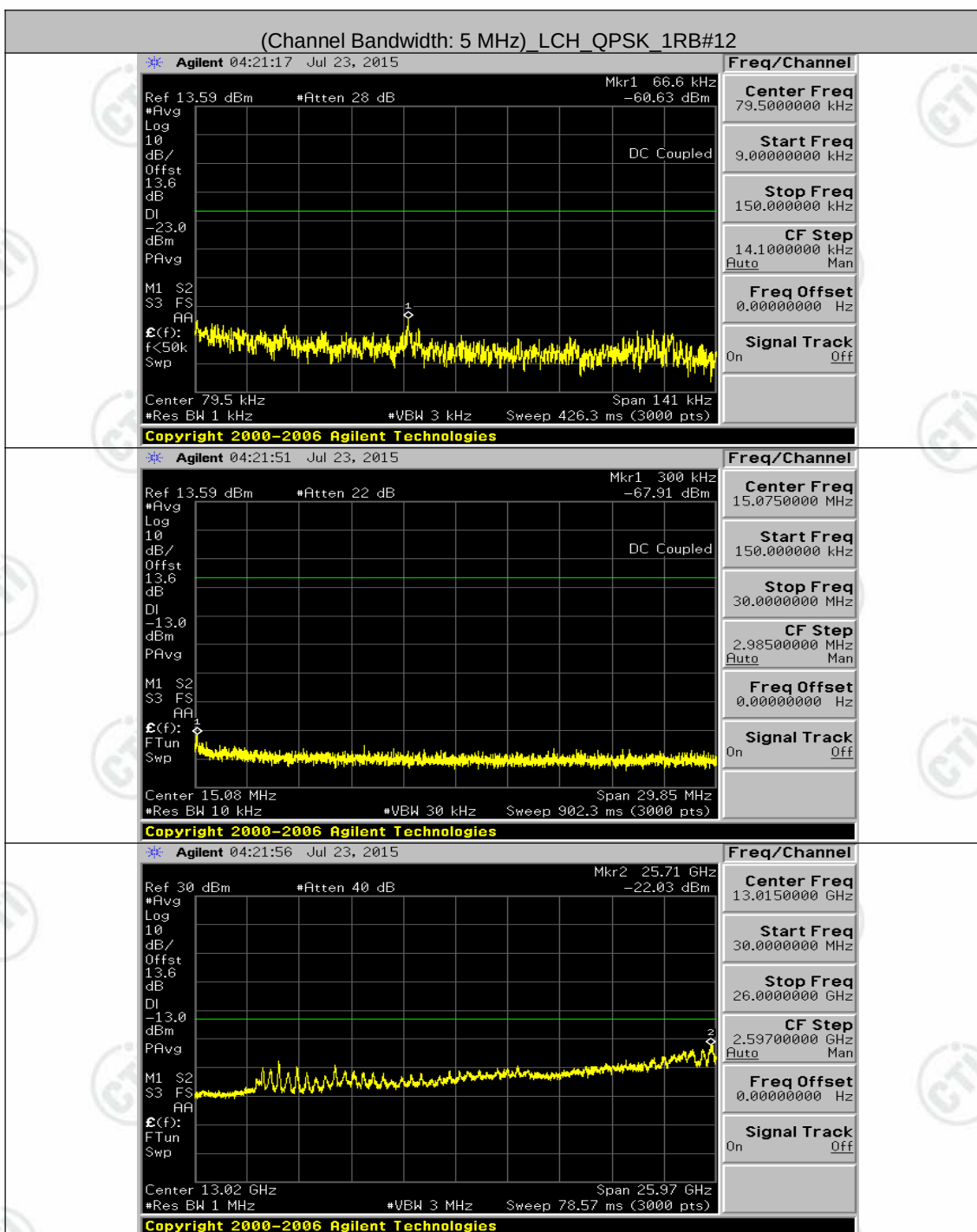


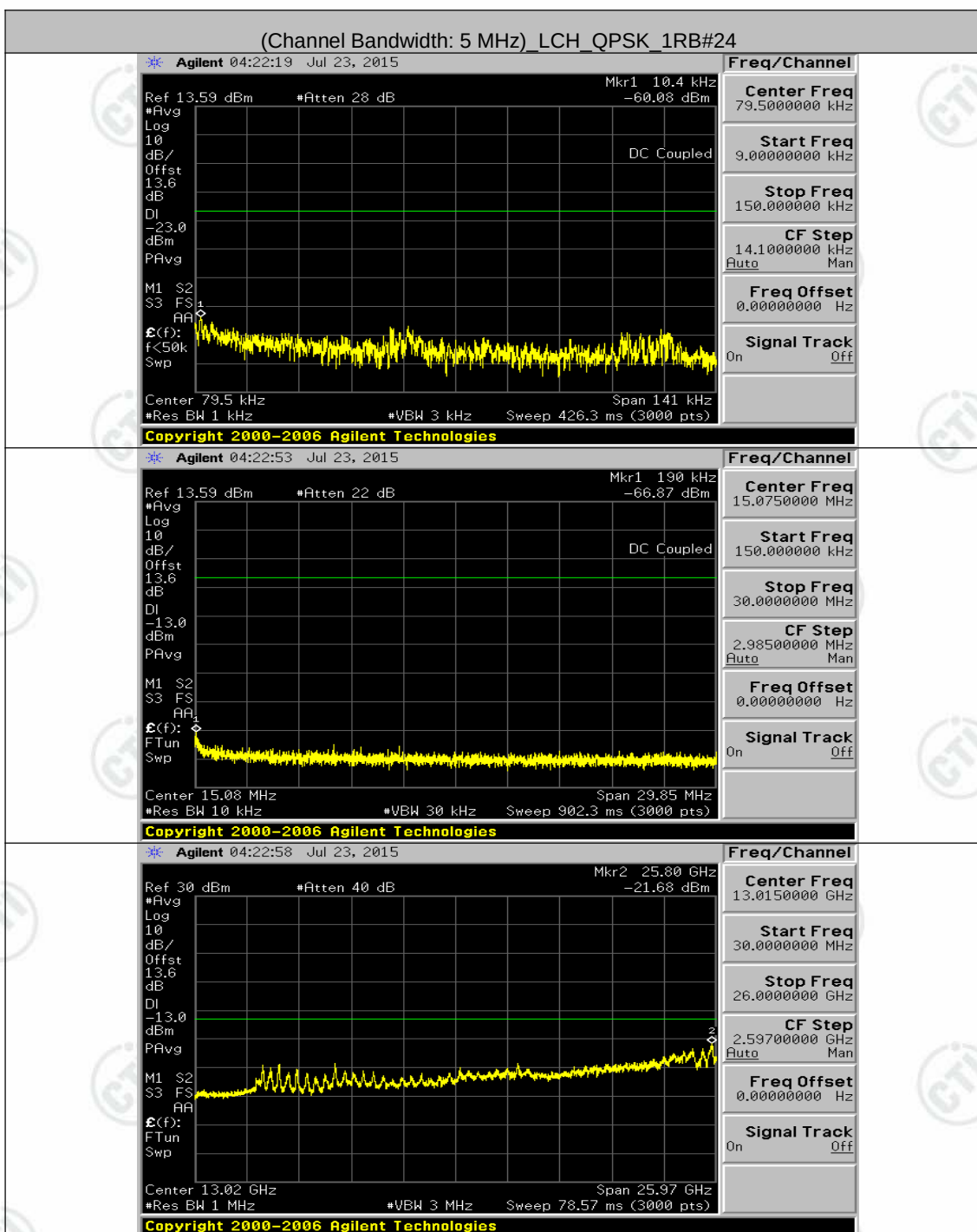


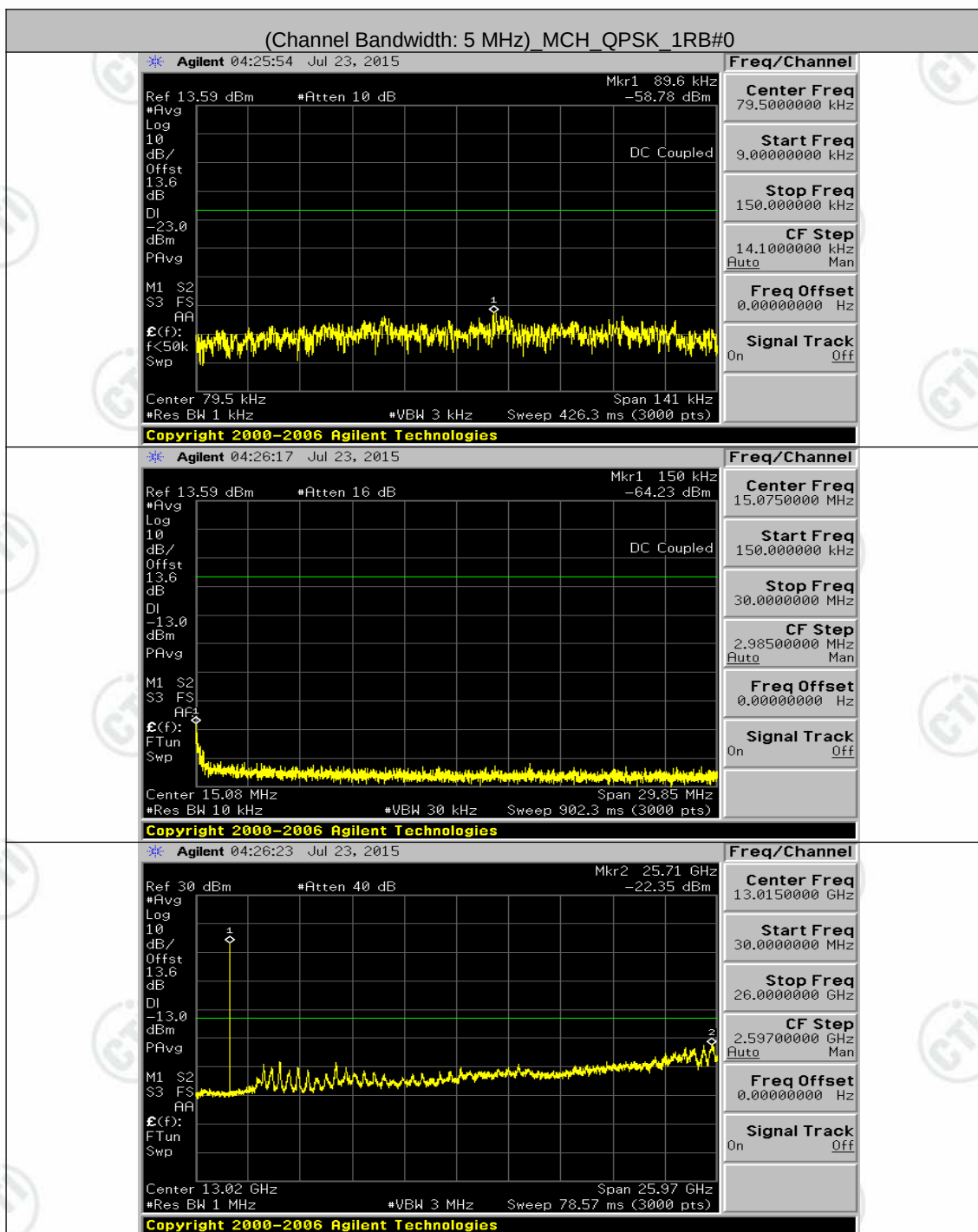


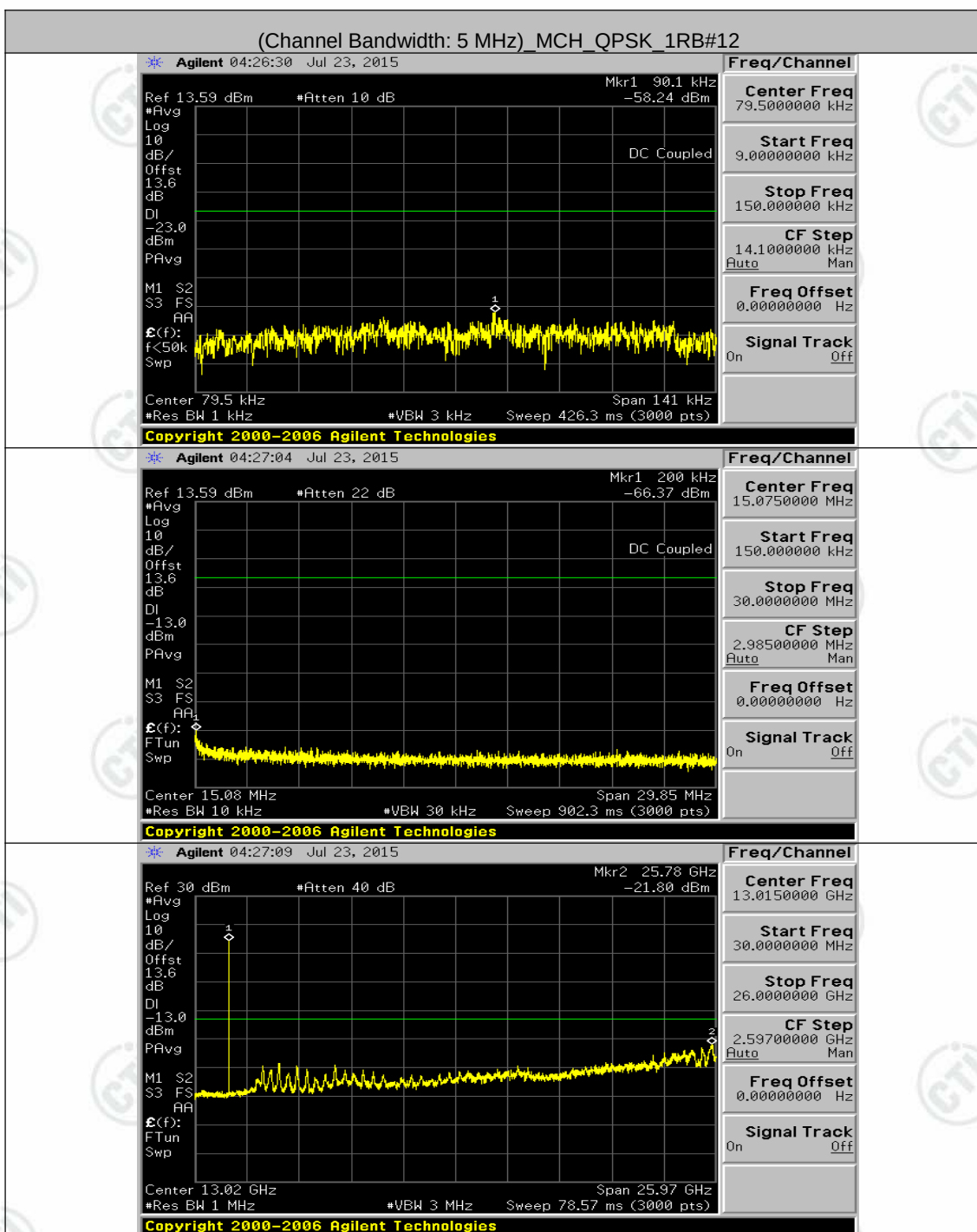
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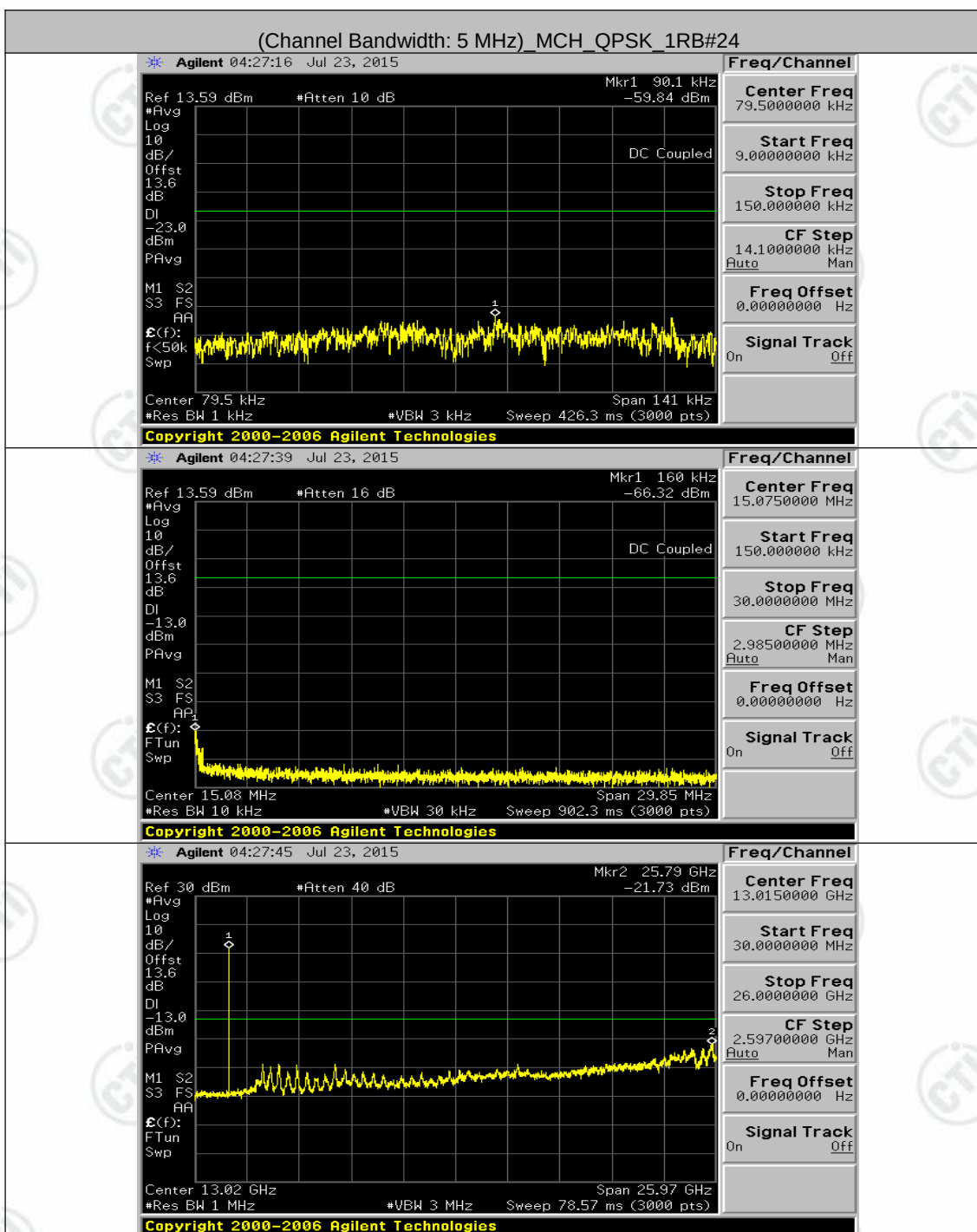


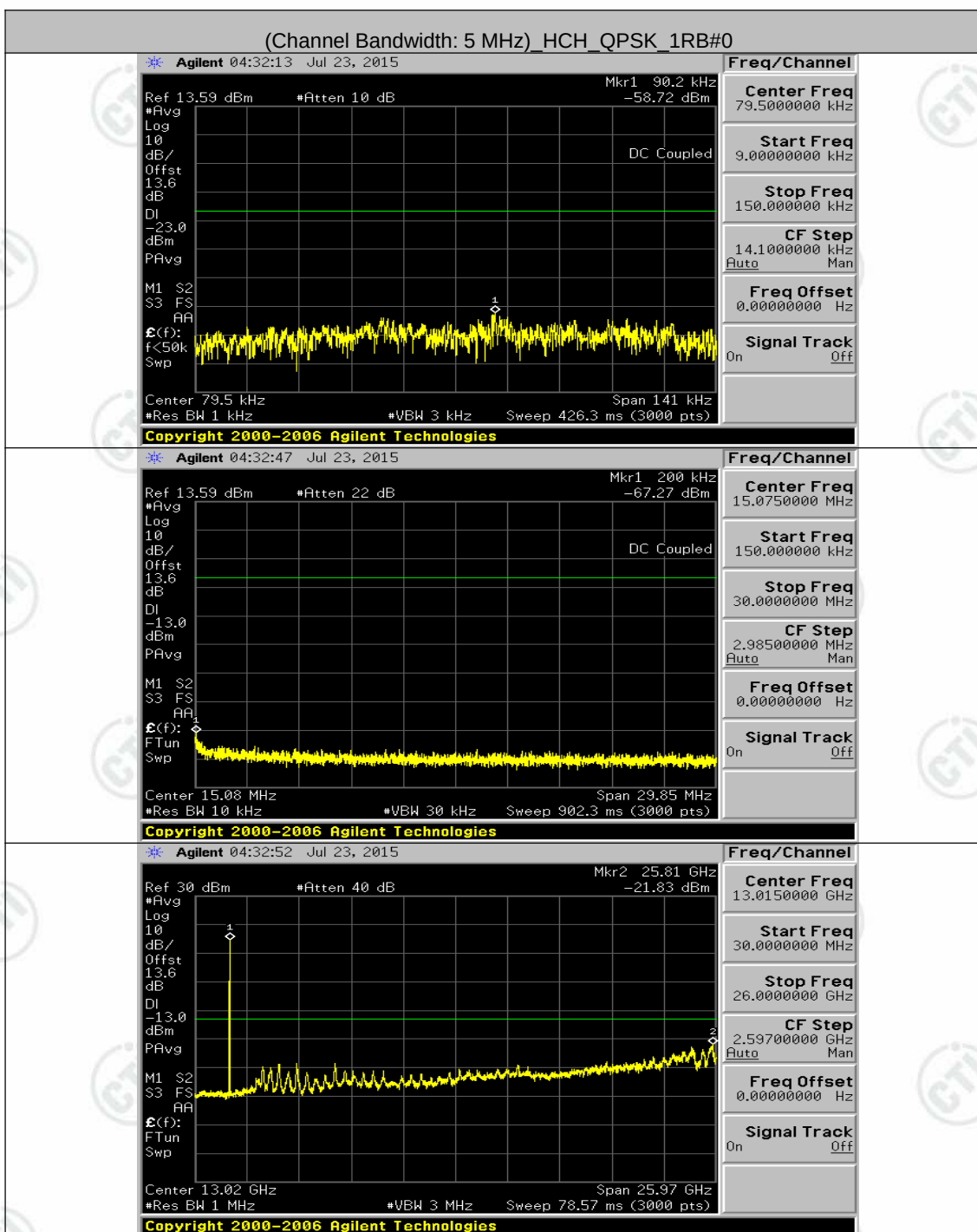


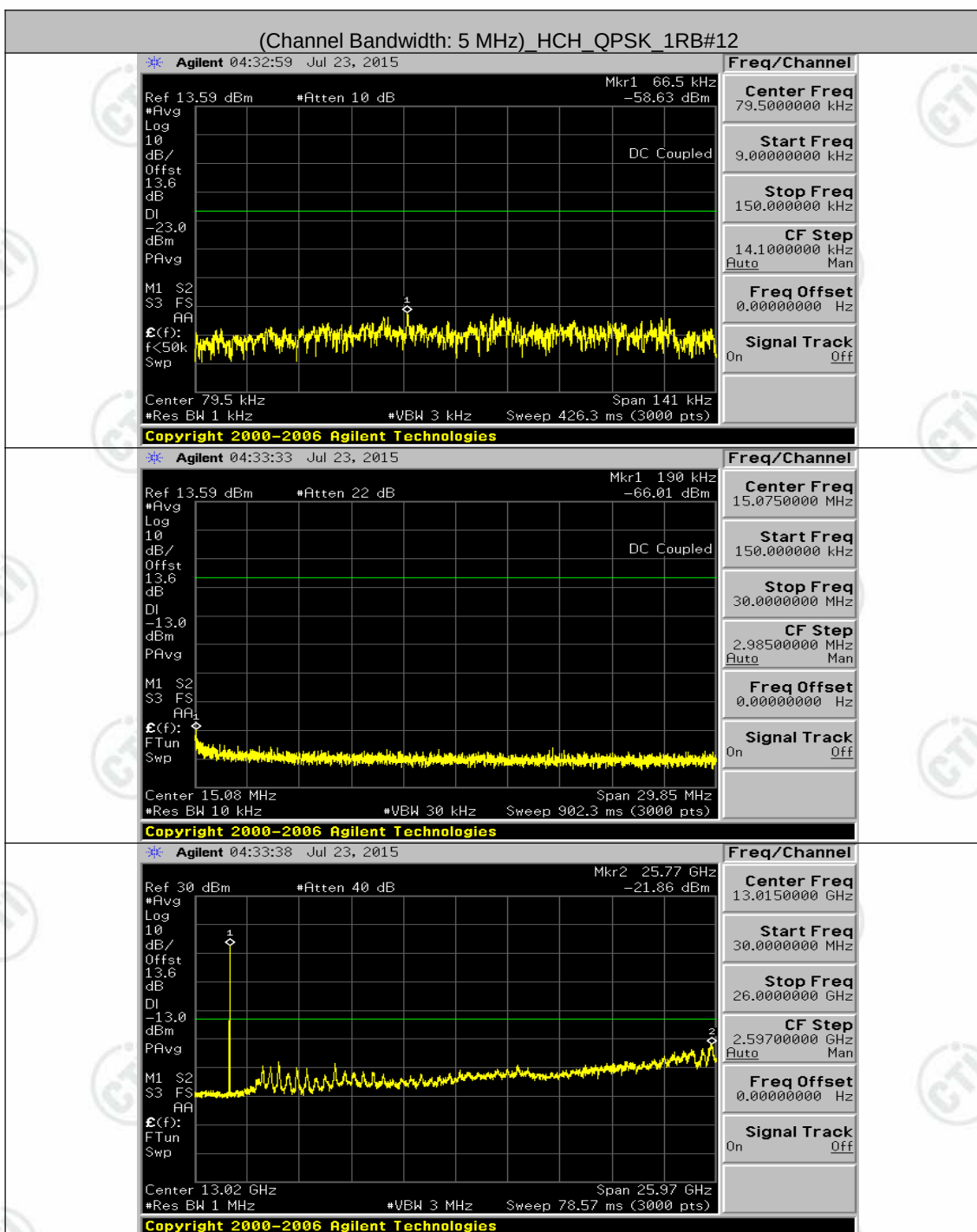


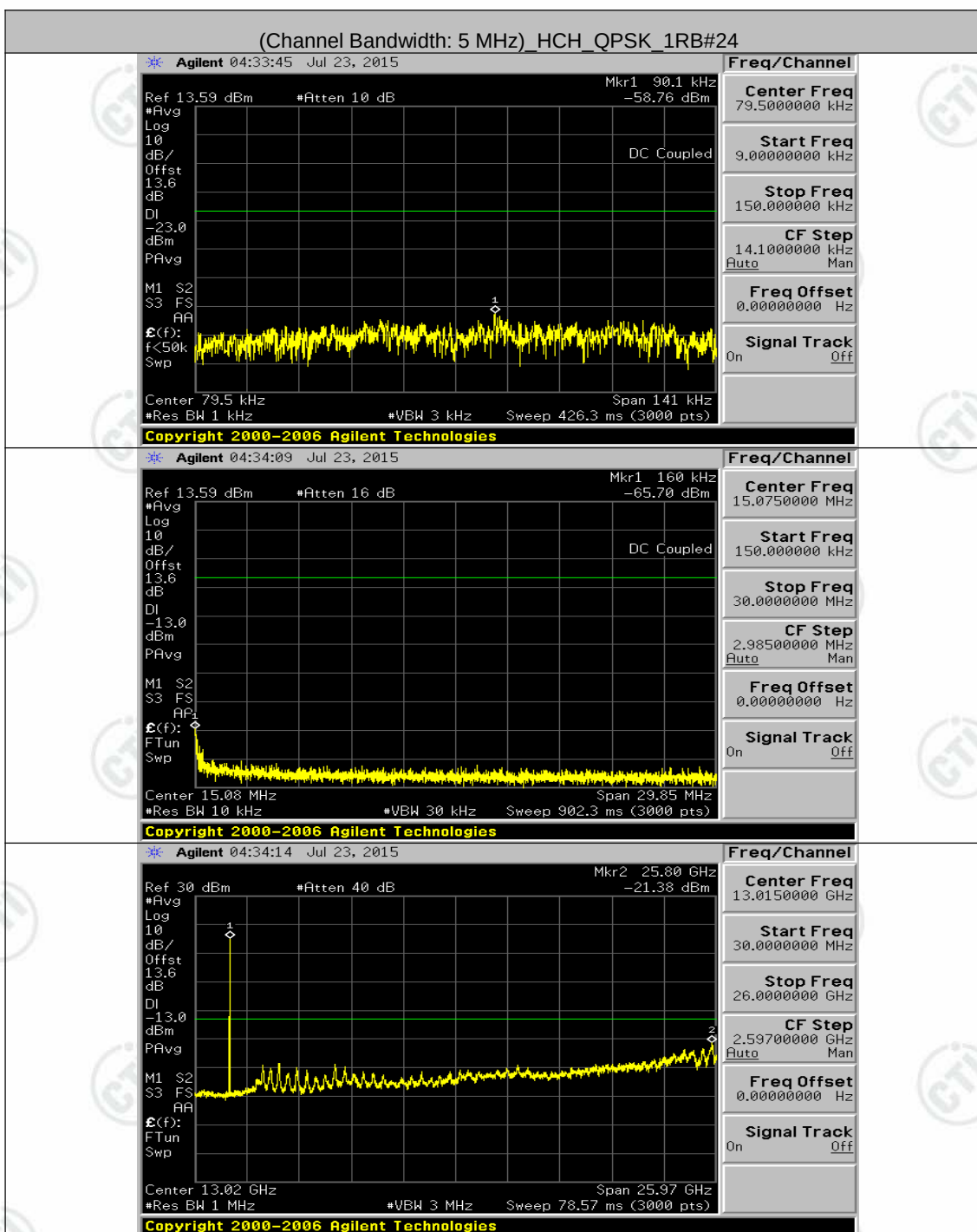


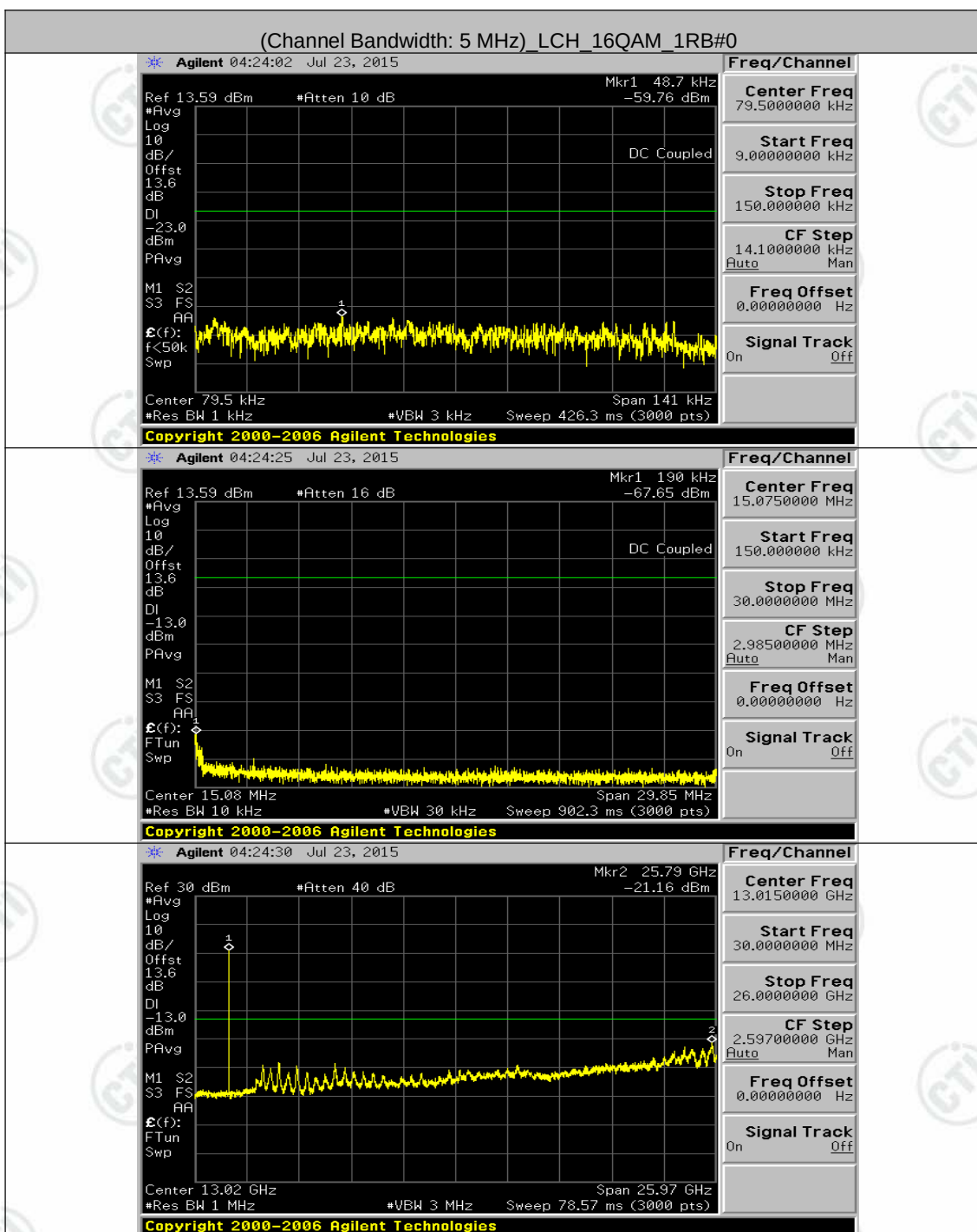


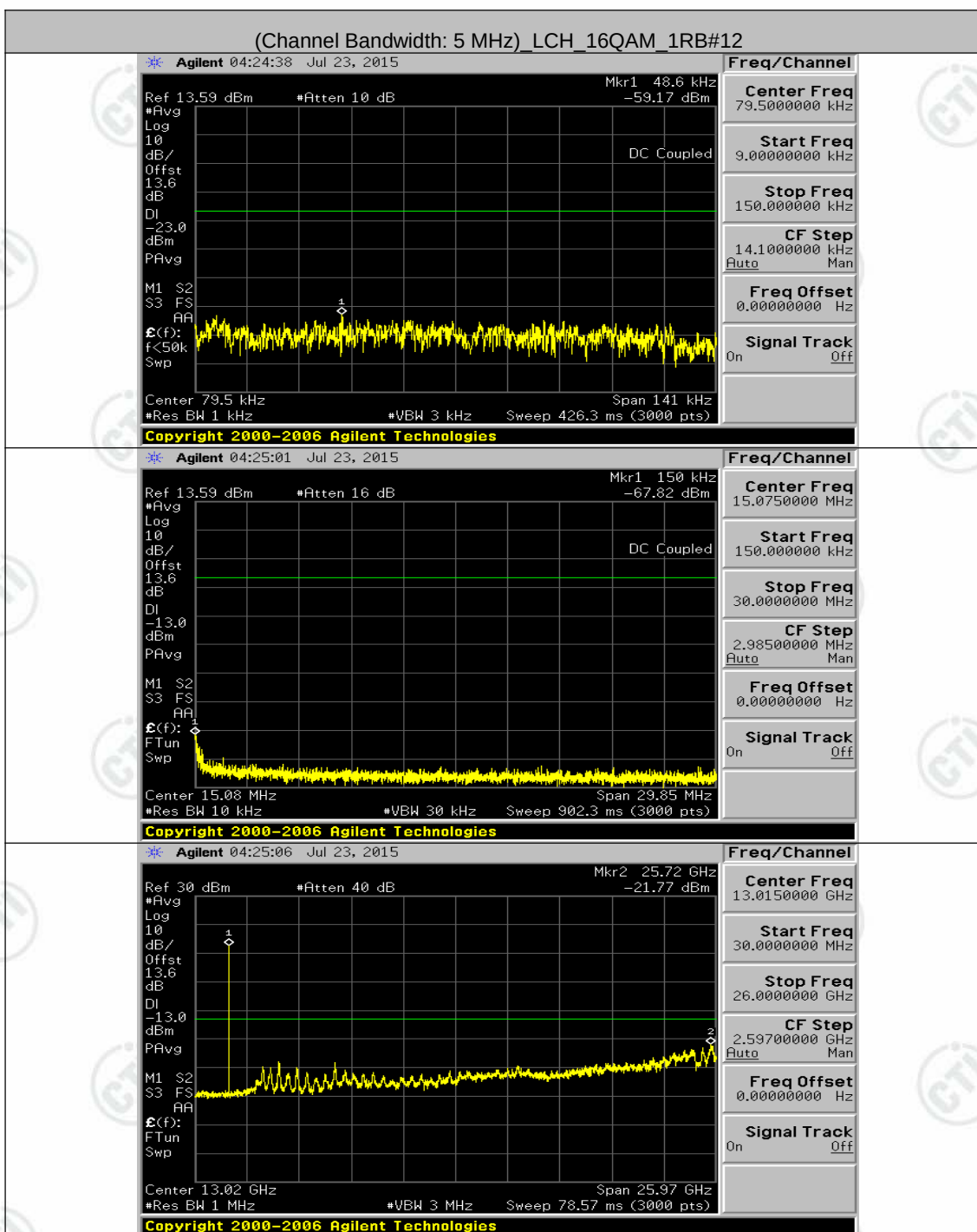


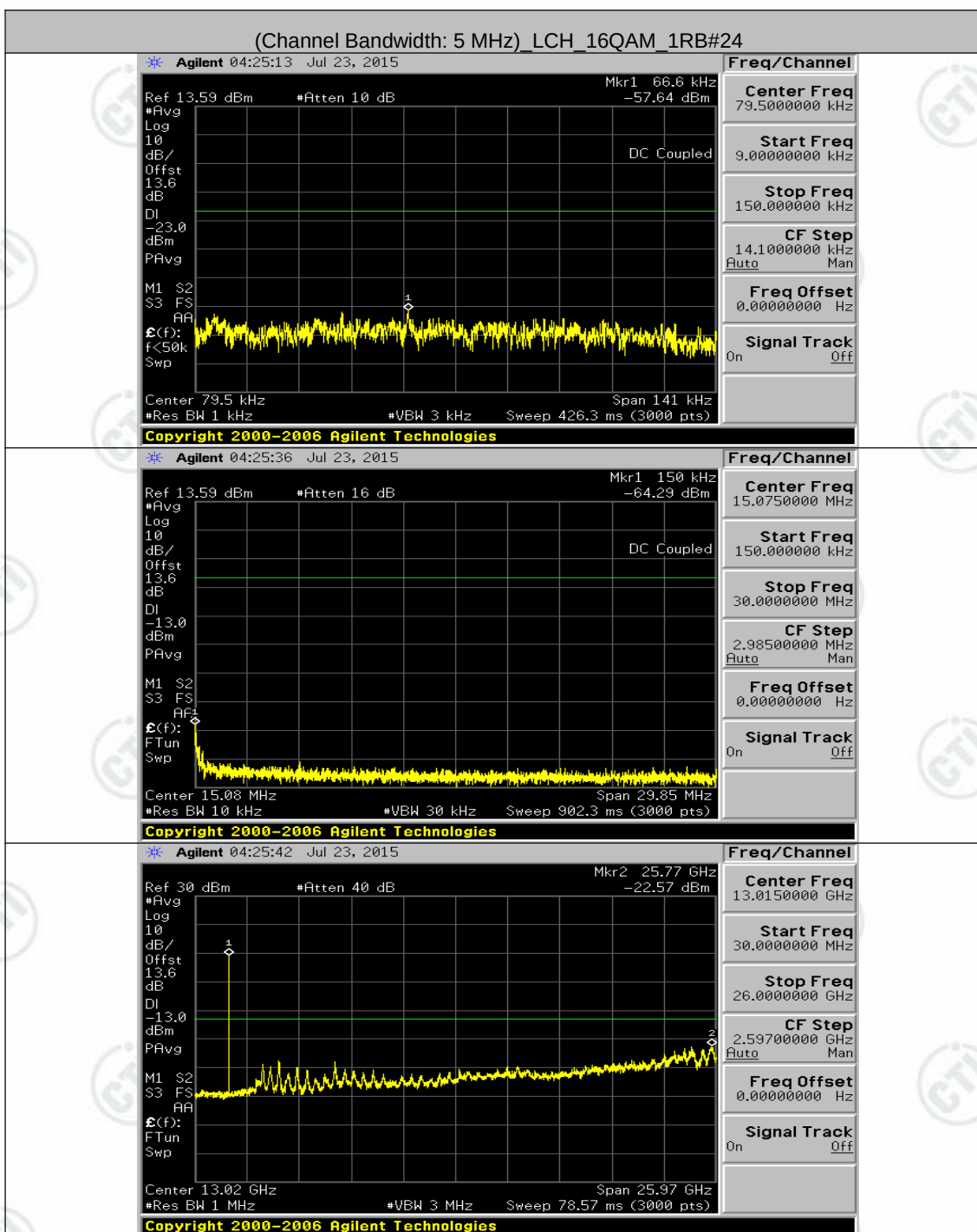


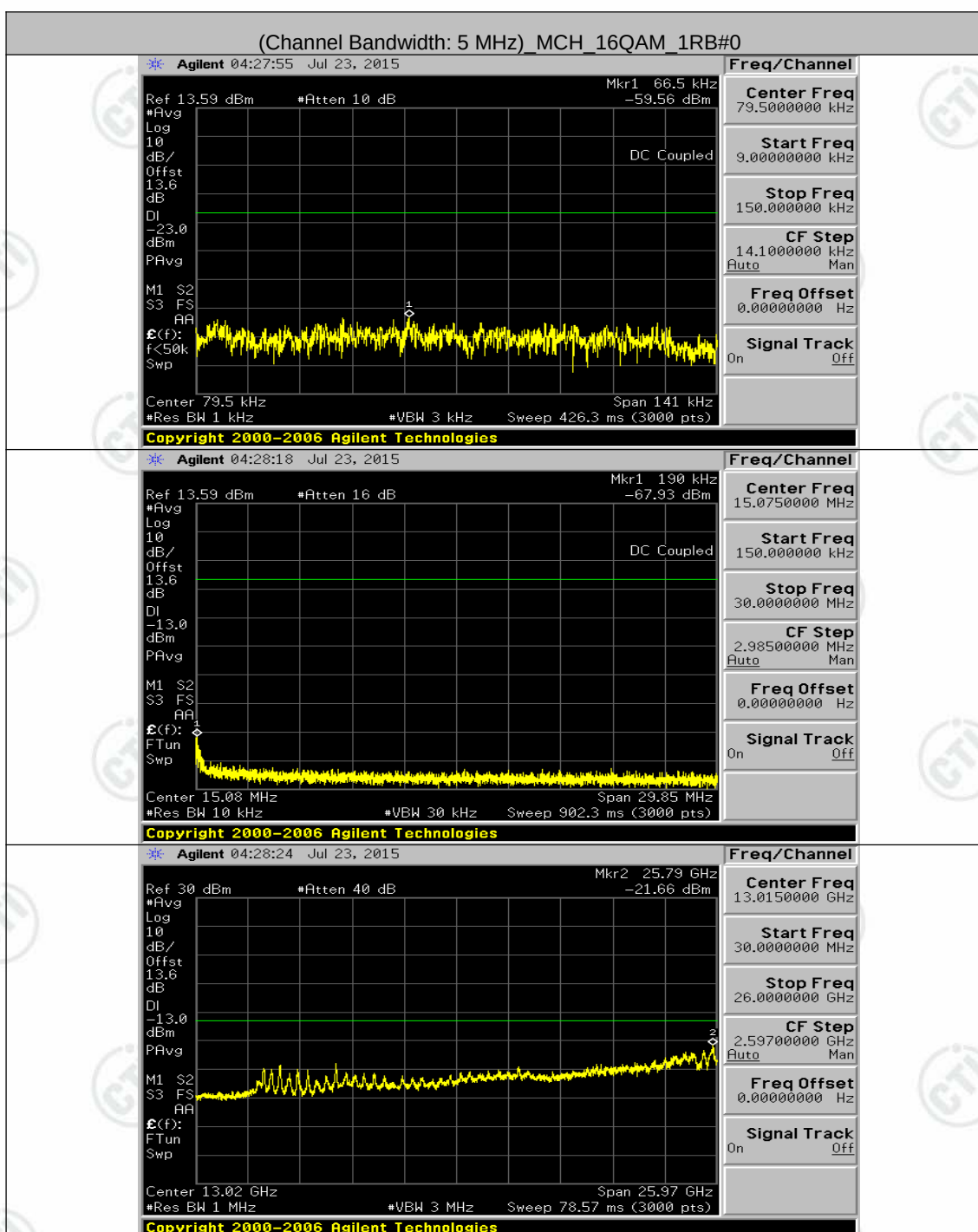


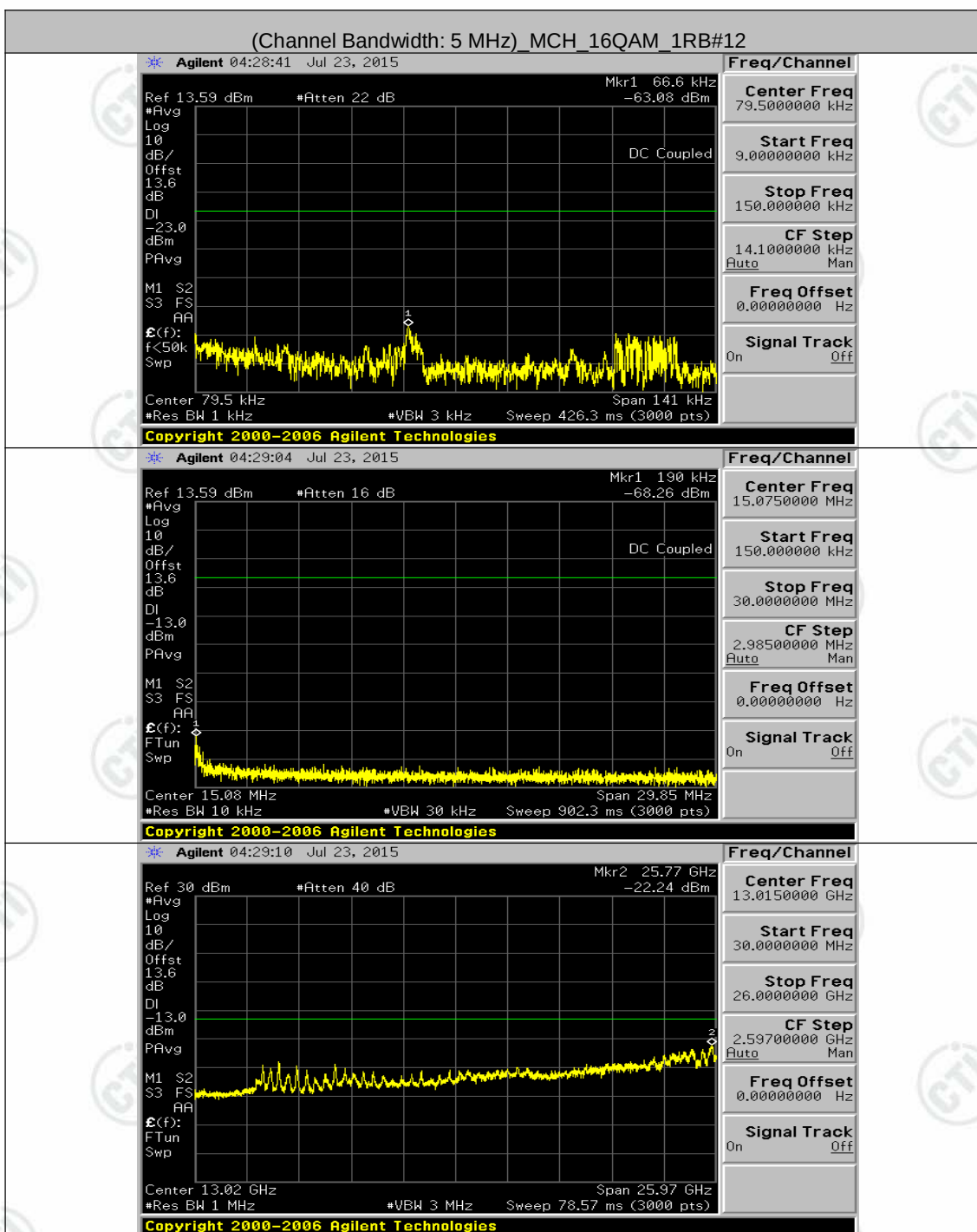


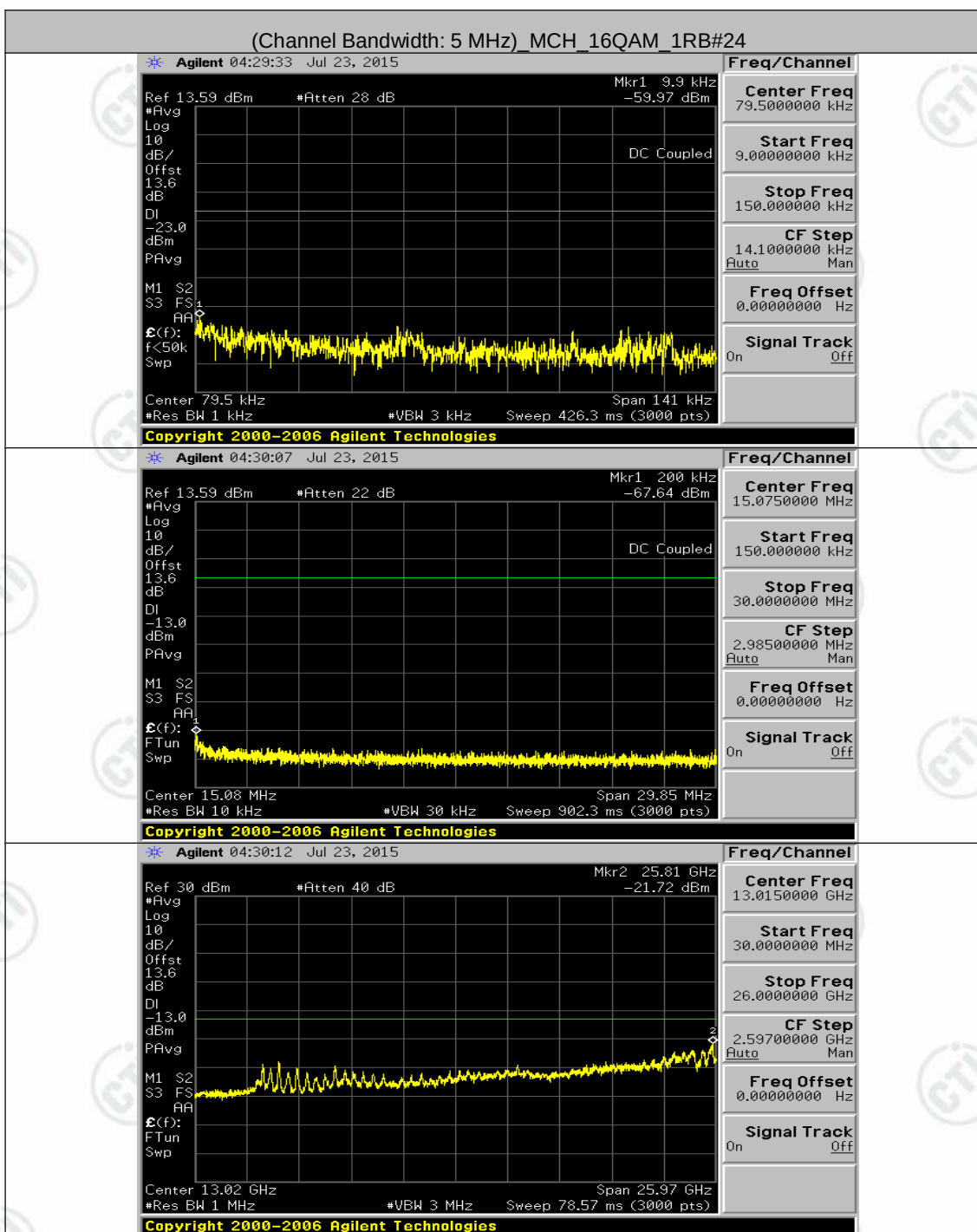


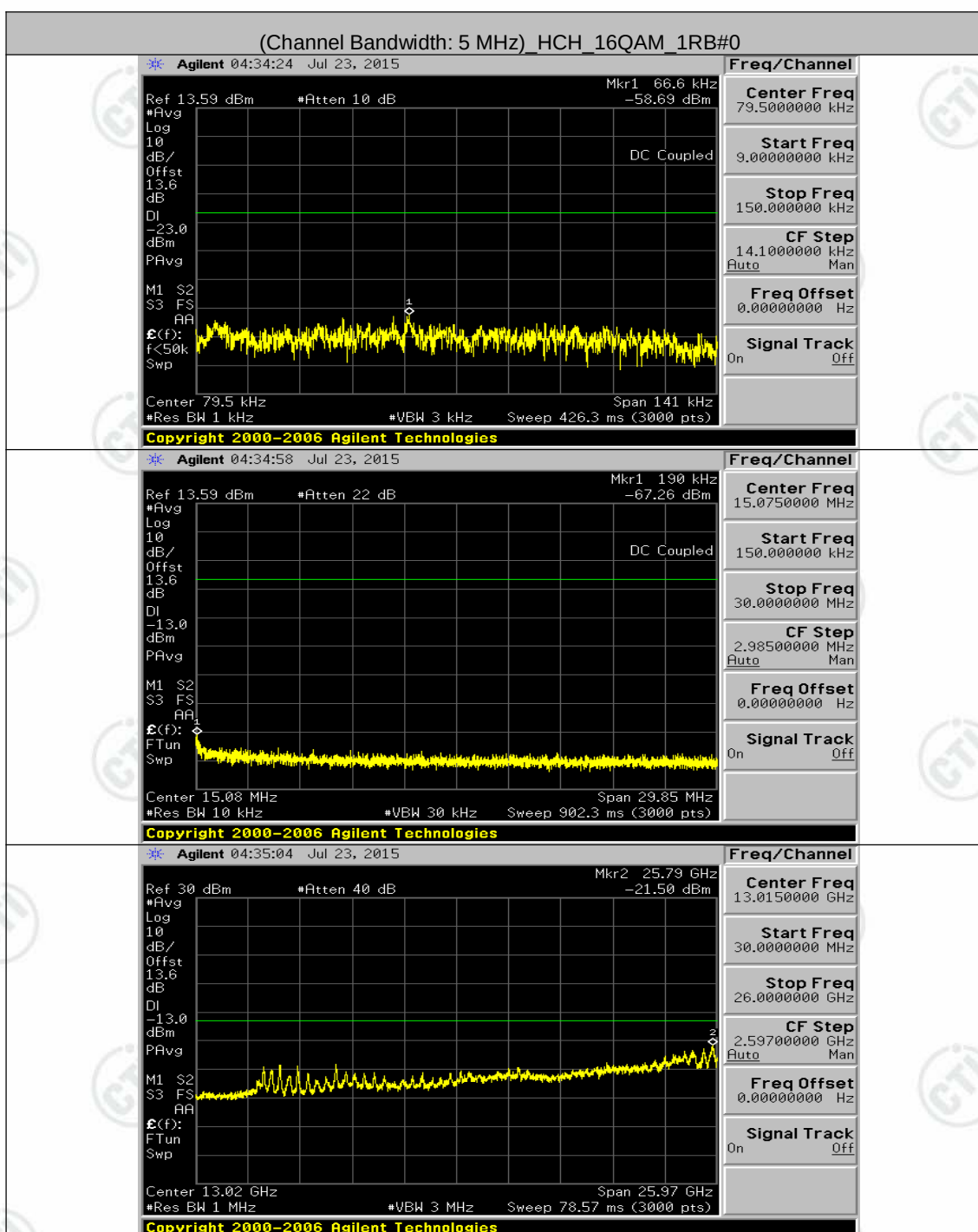


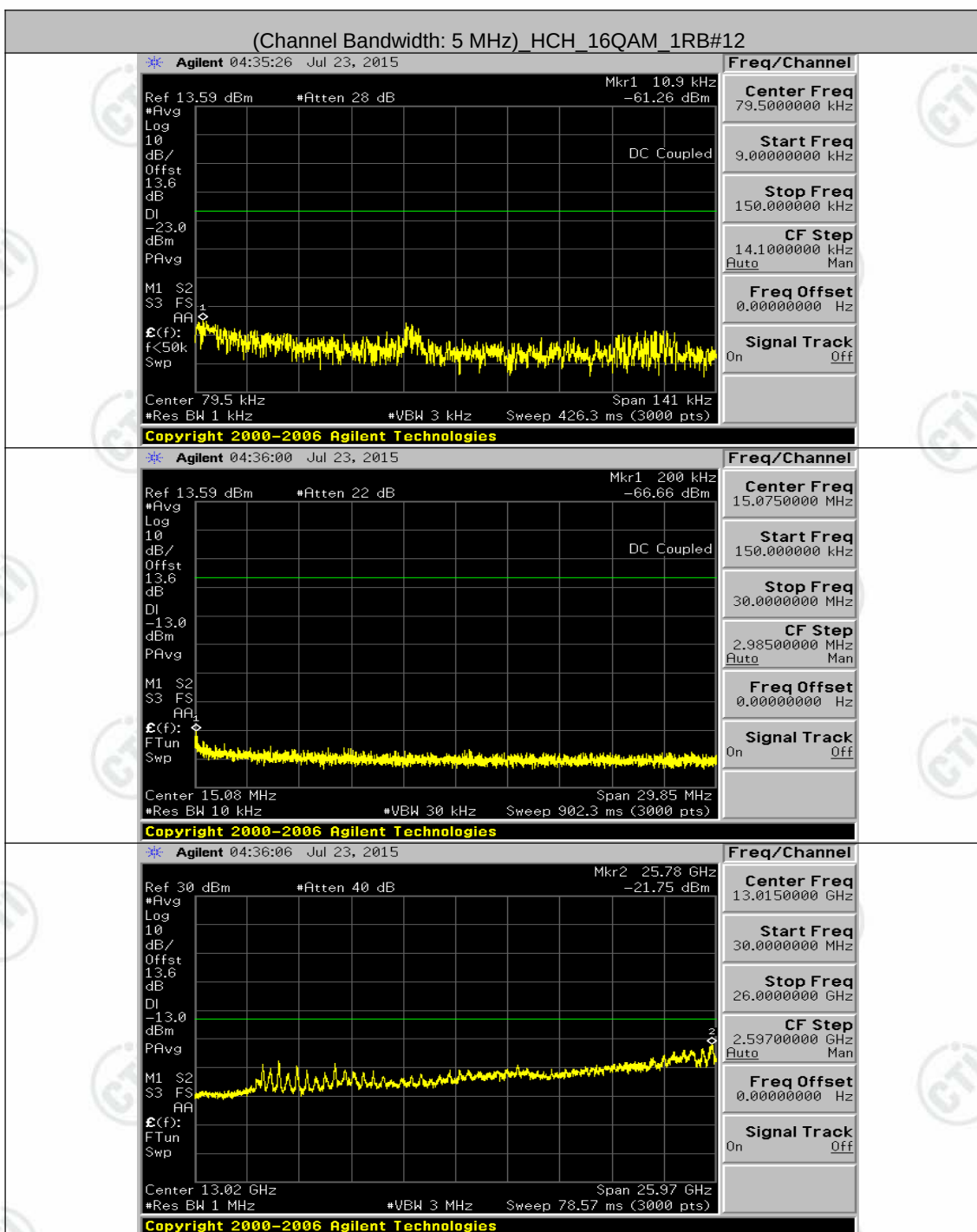


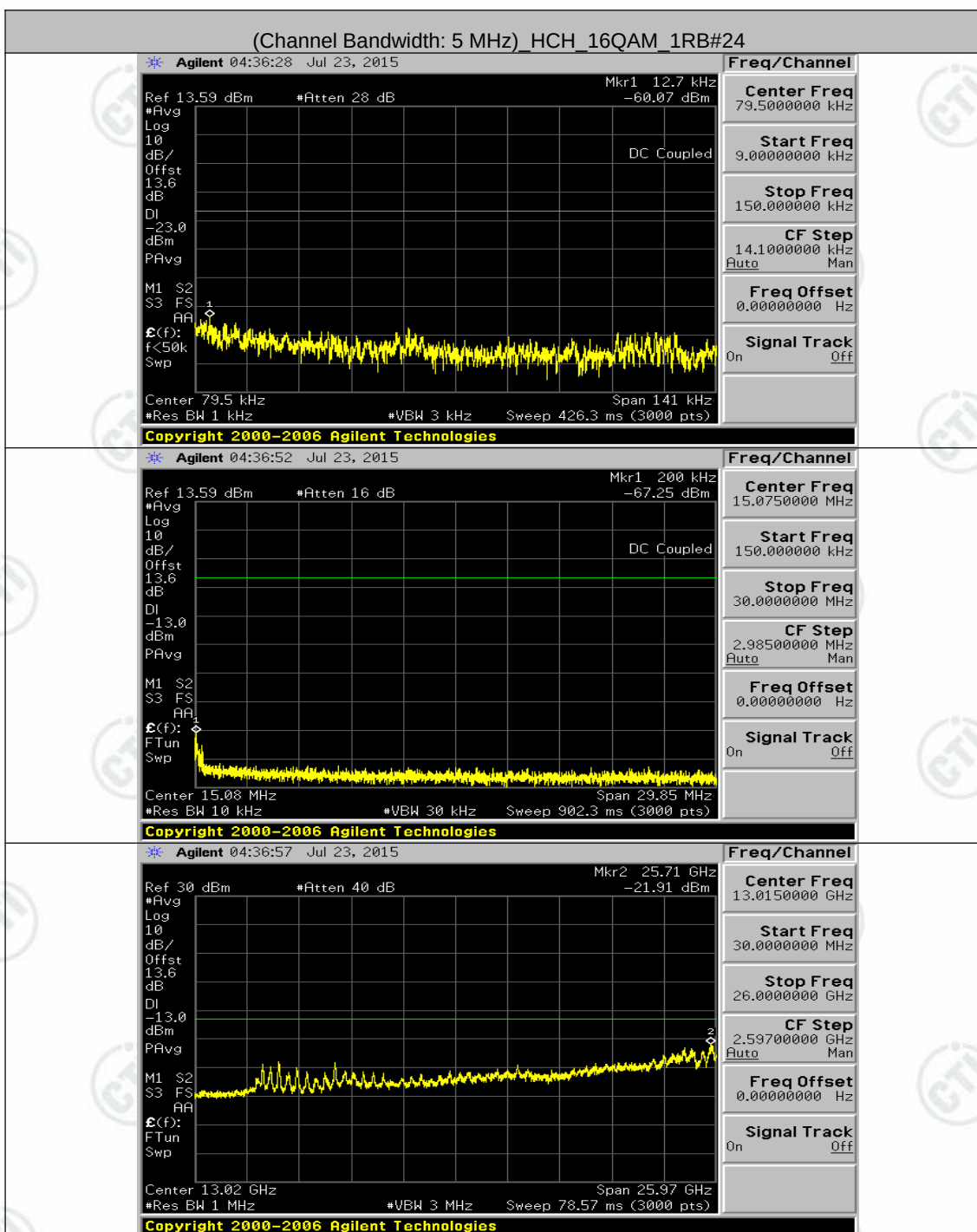




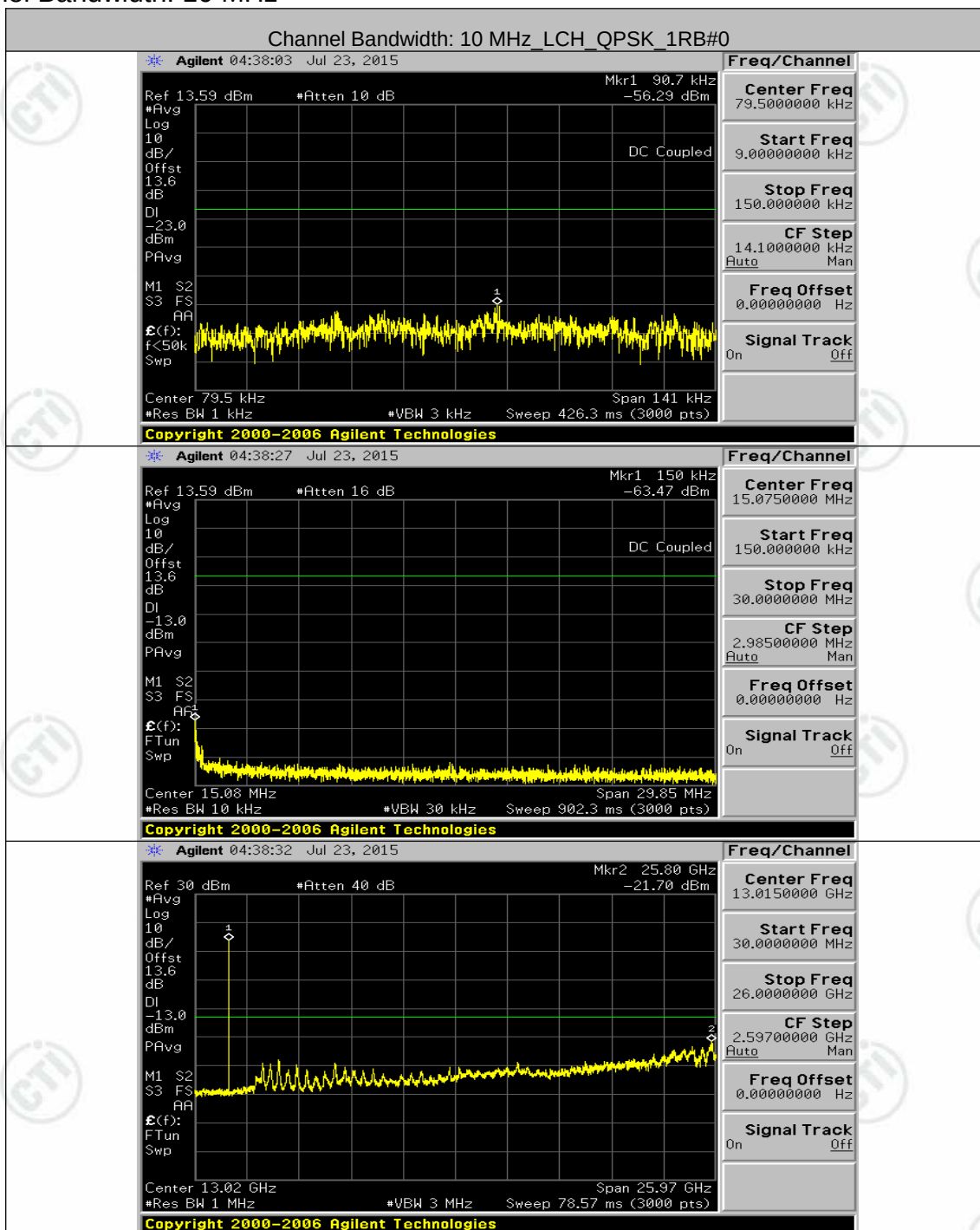


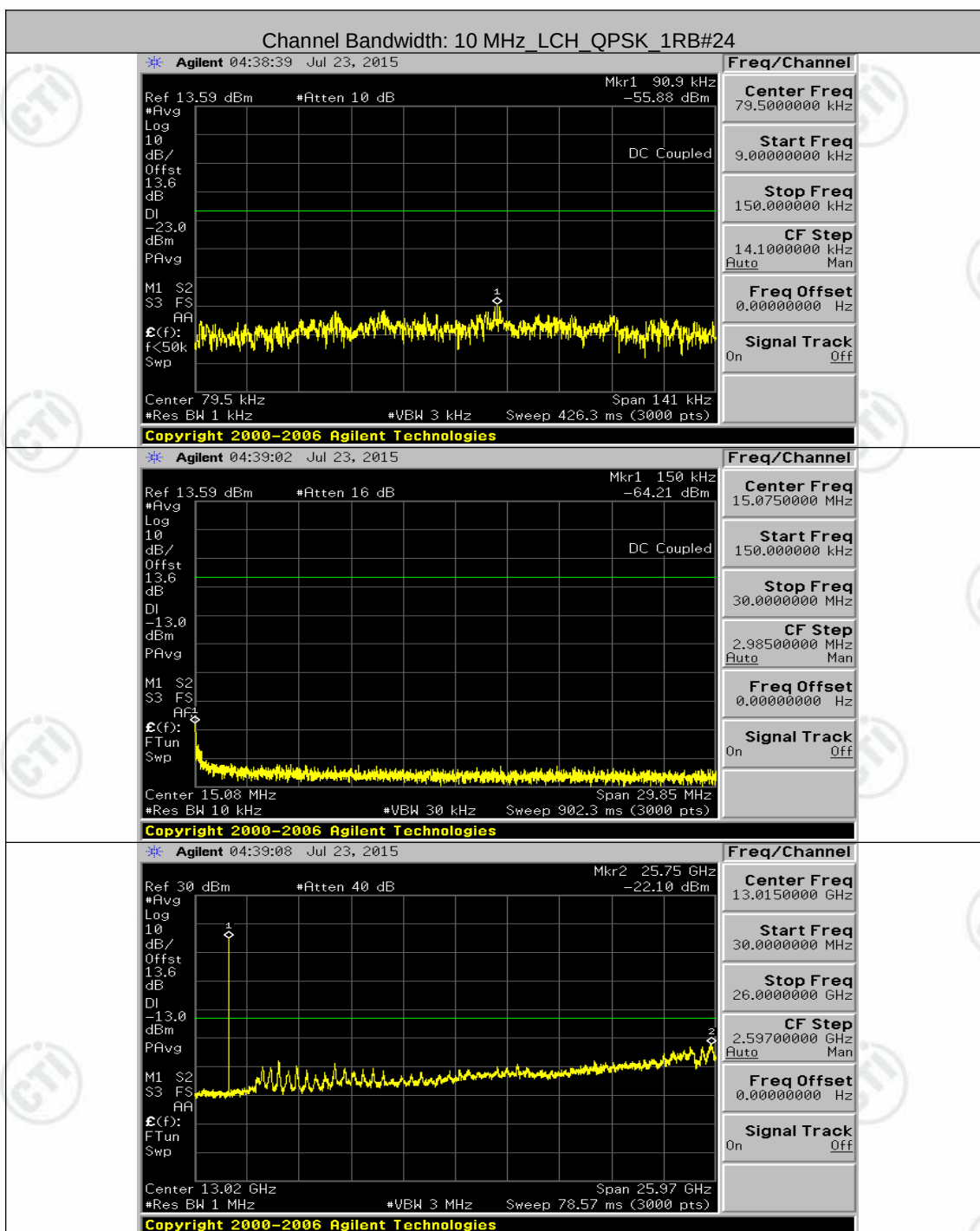


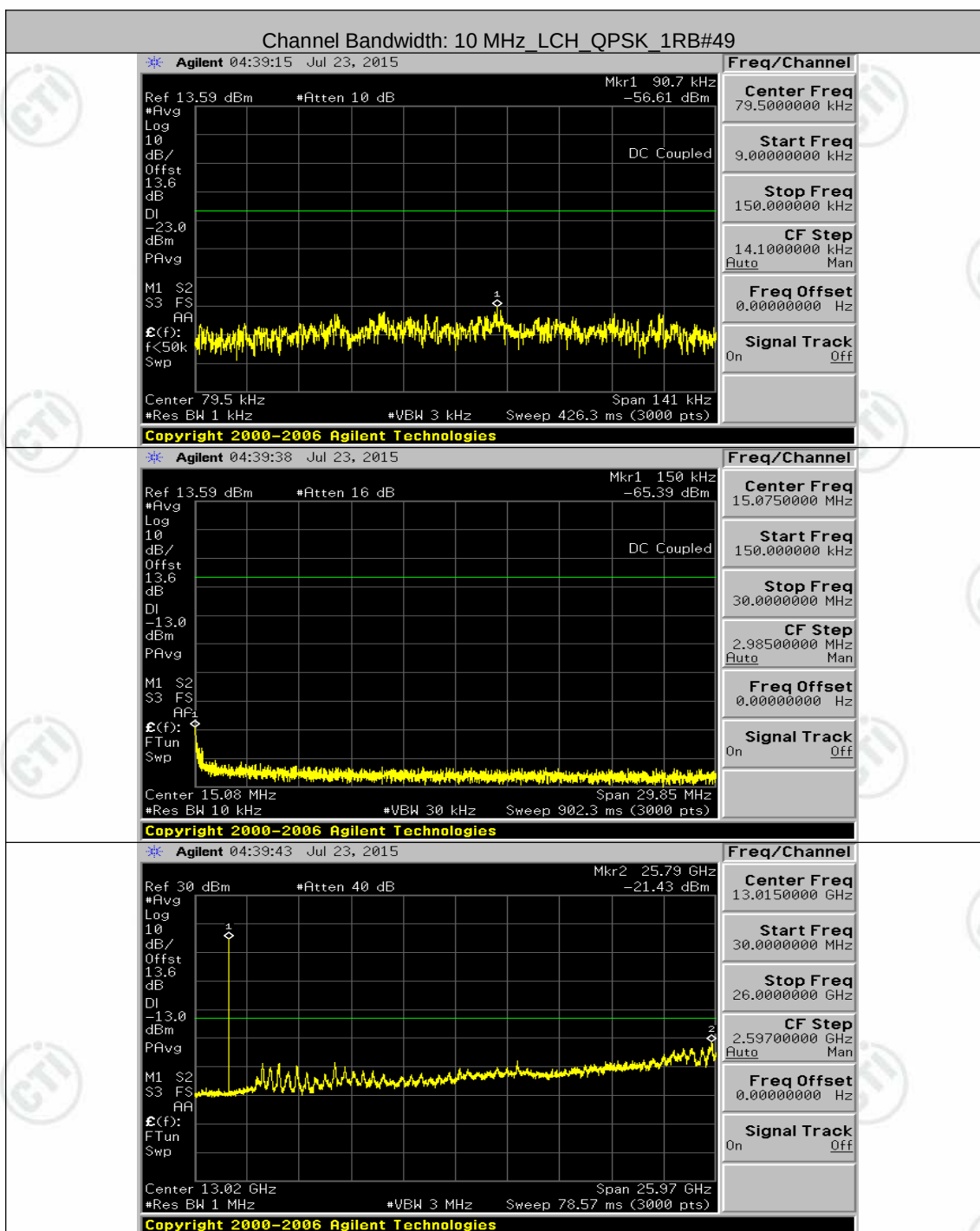


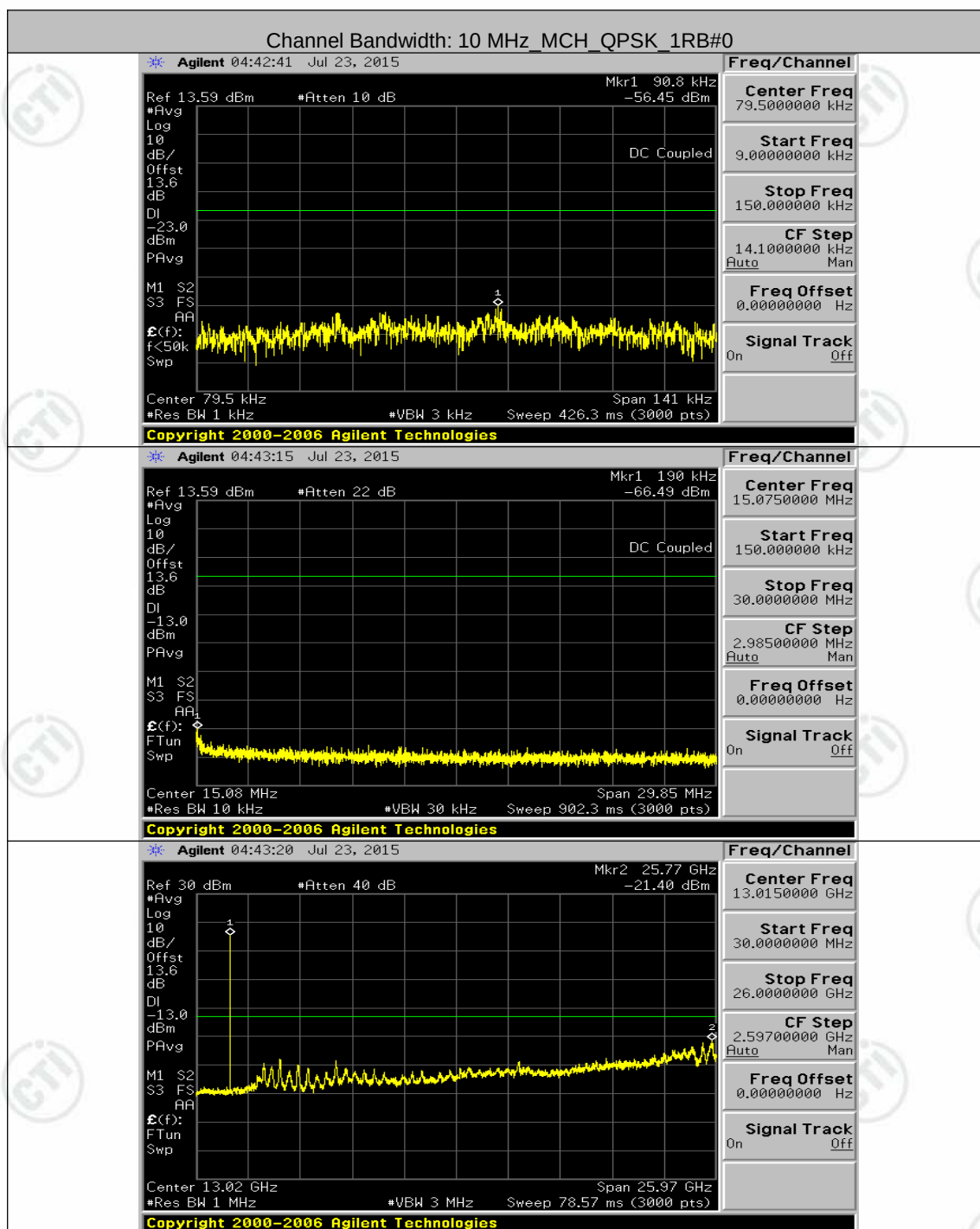


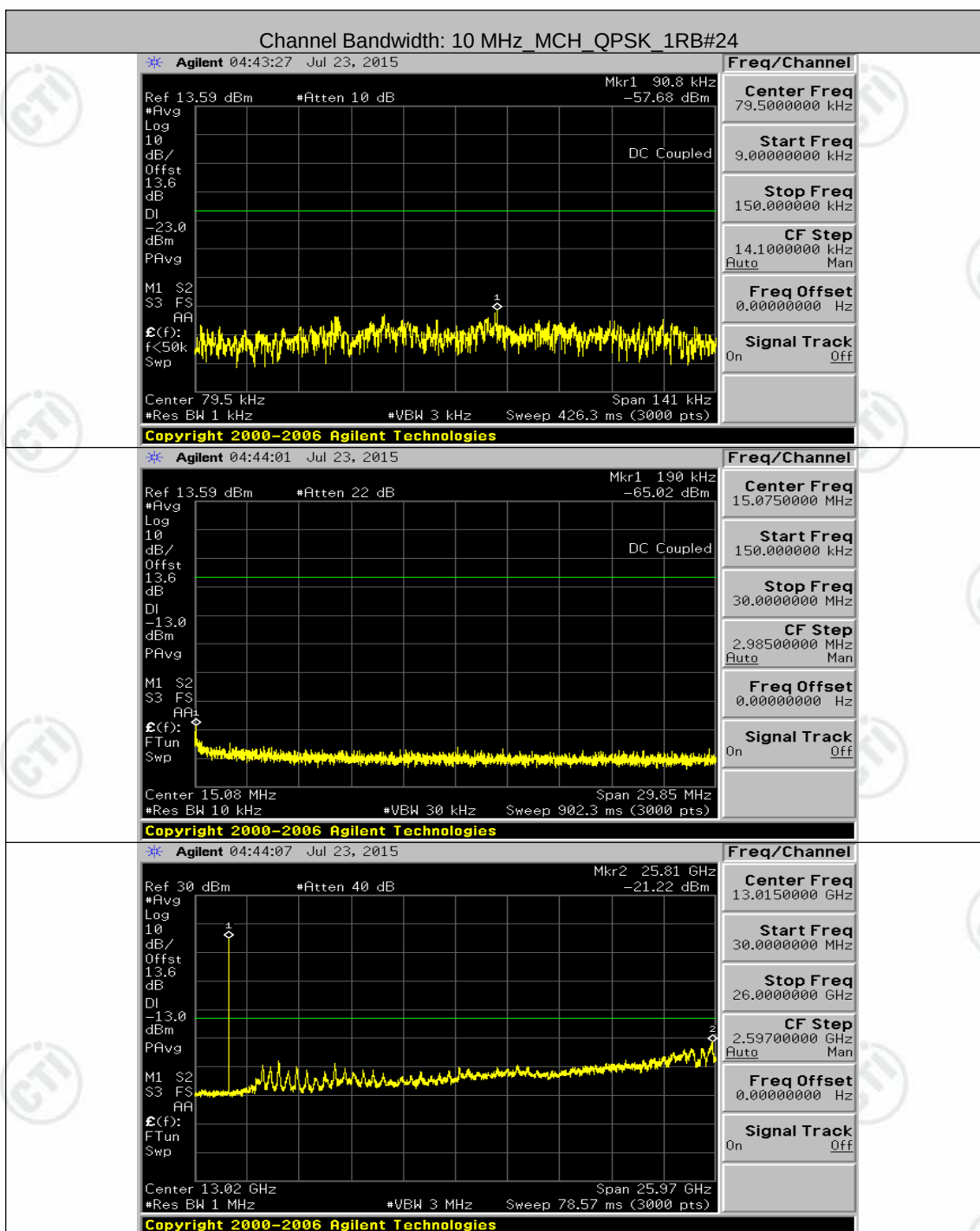
Channel Bandwidth: 10 MHz

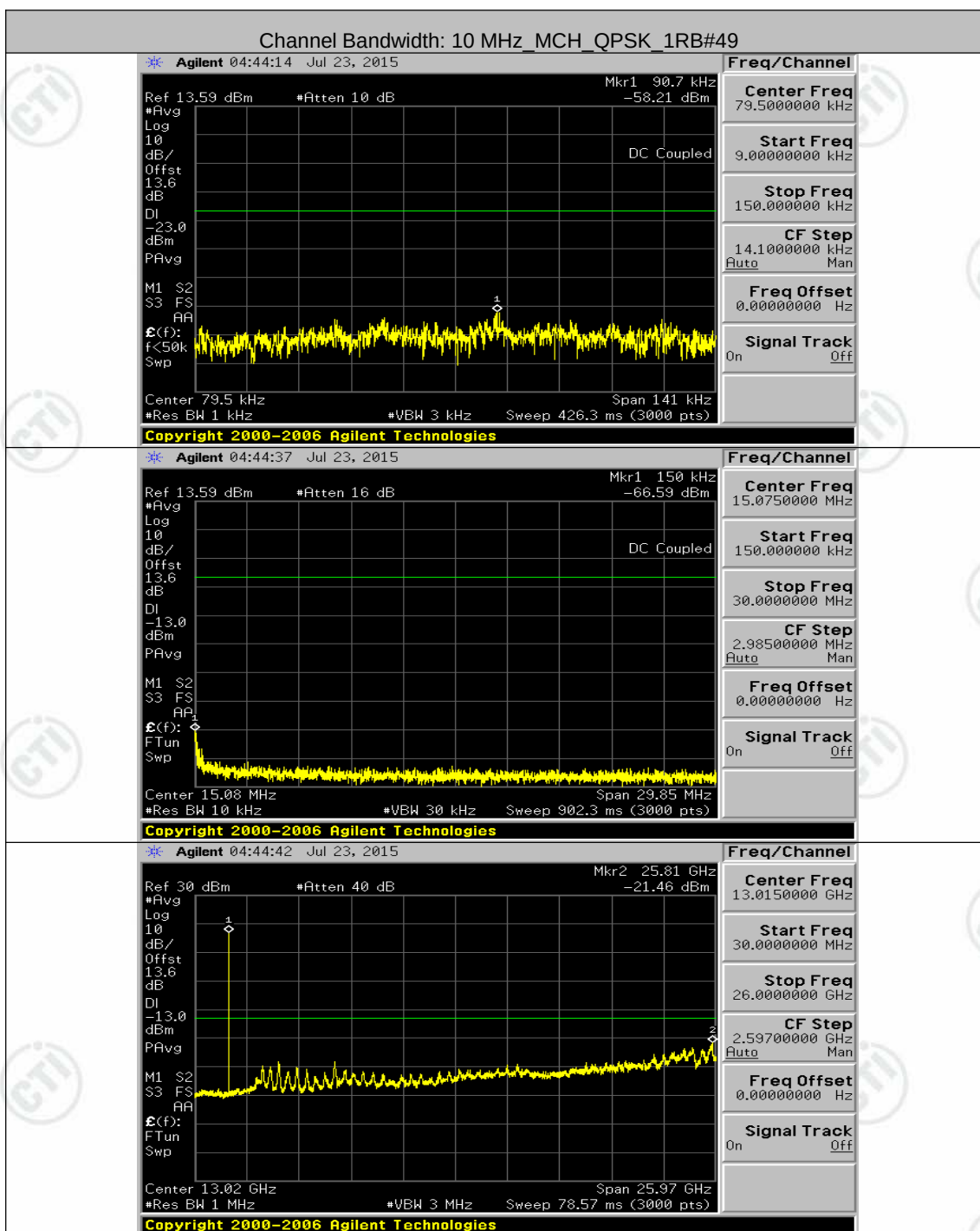


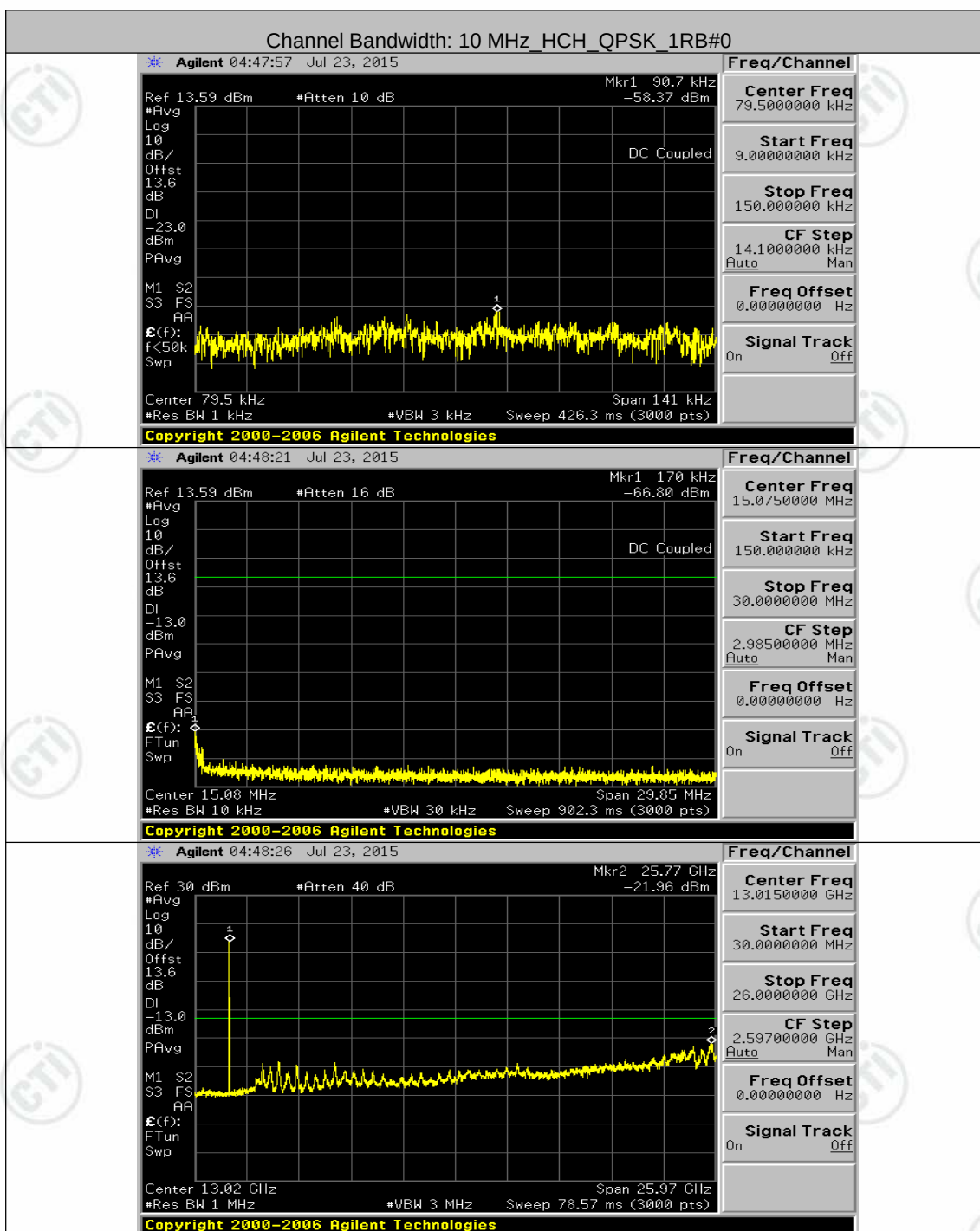


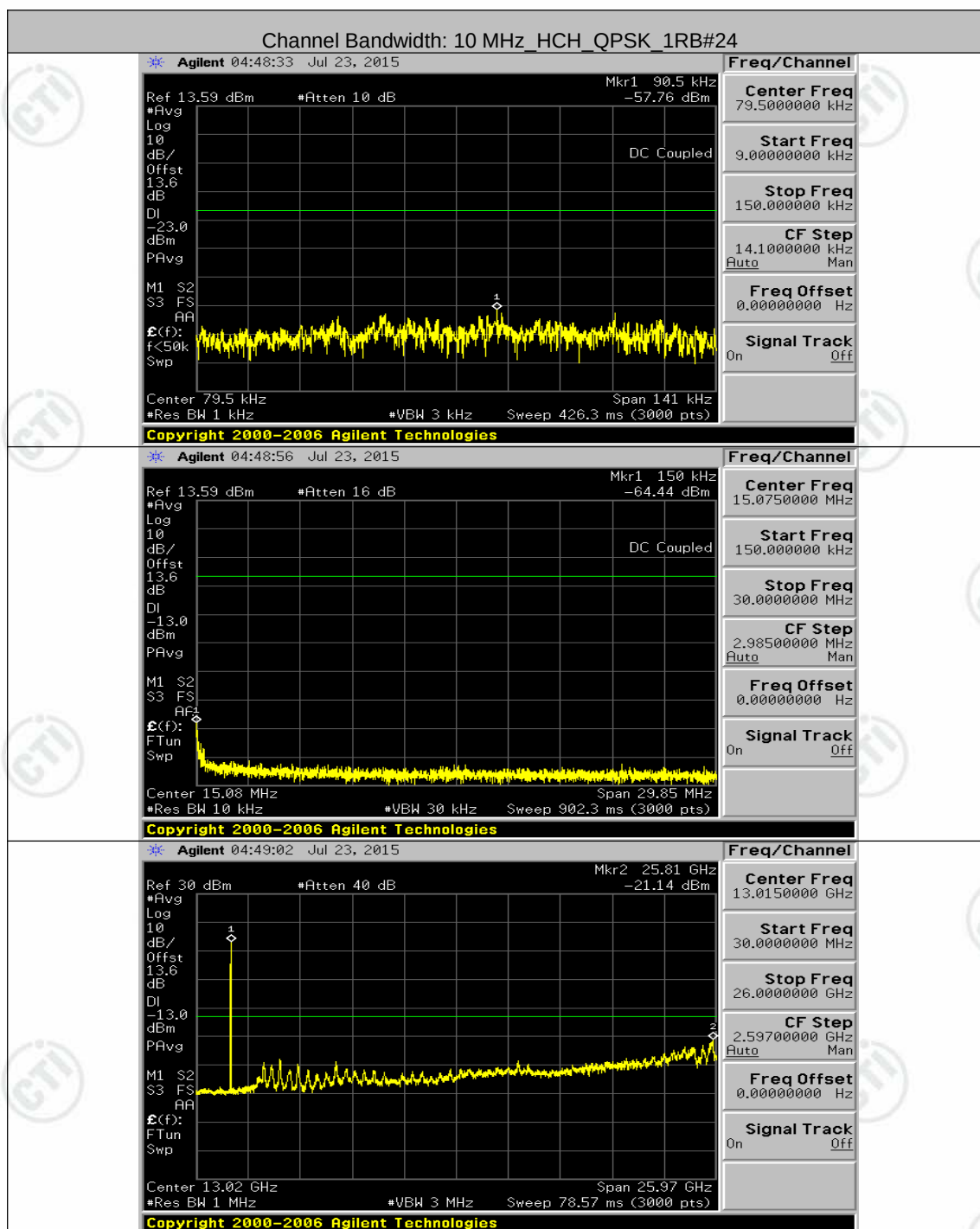


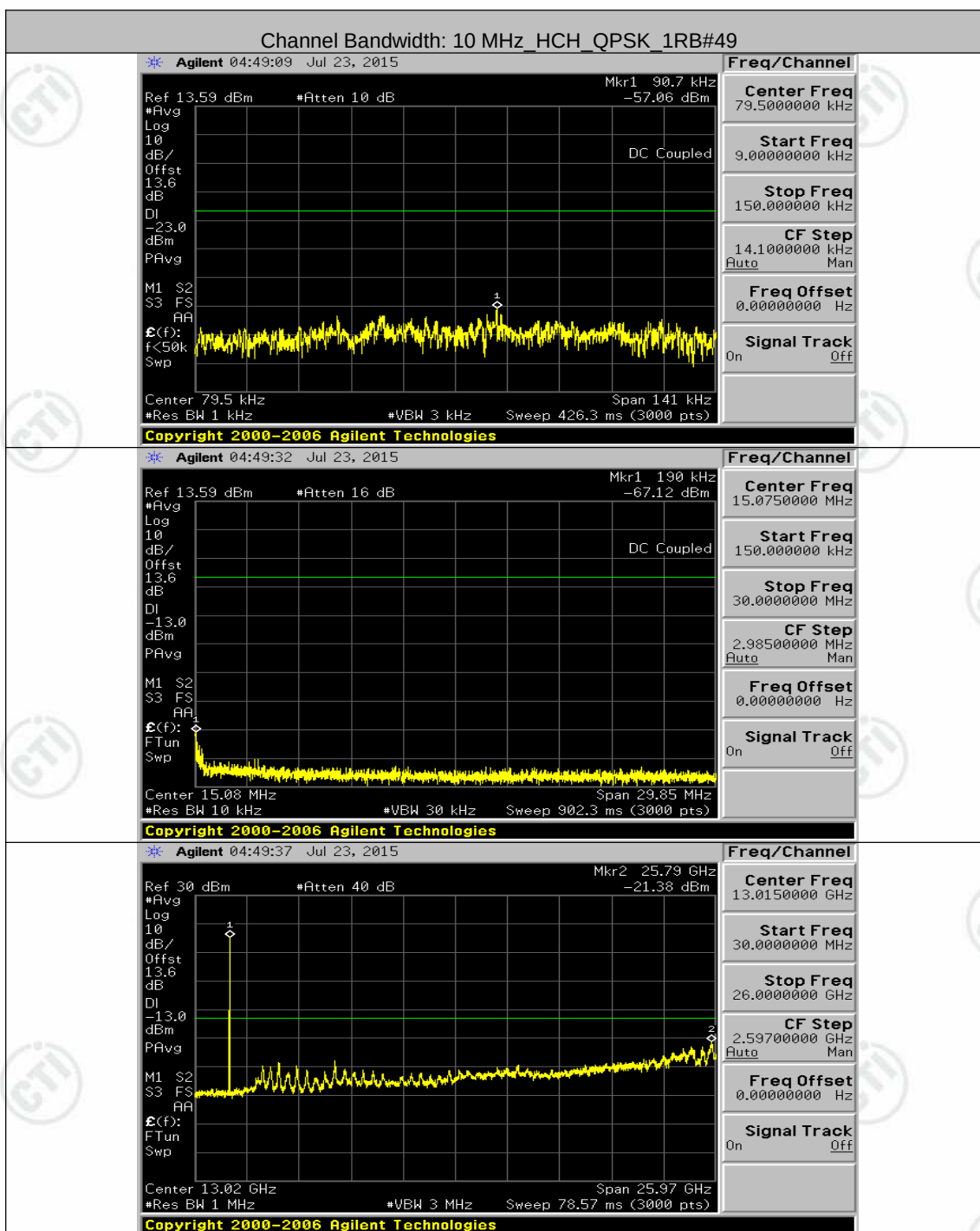


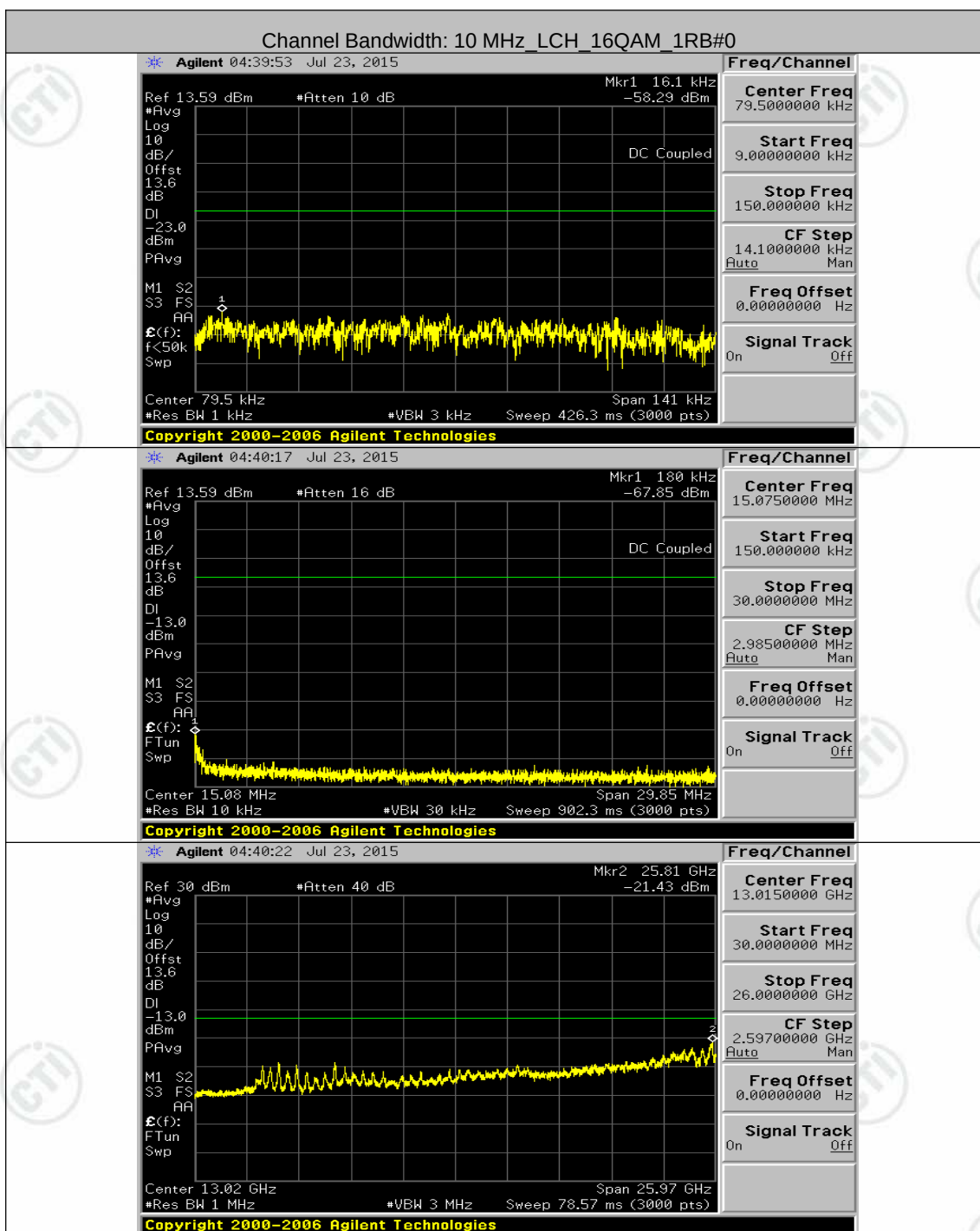


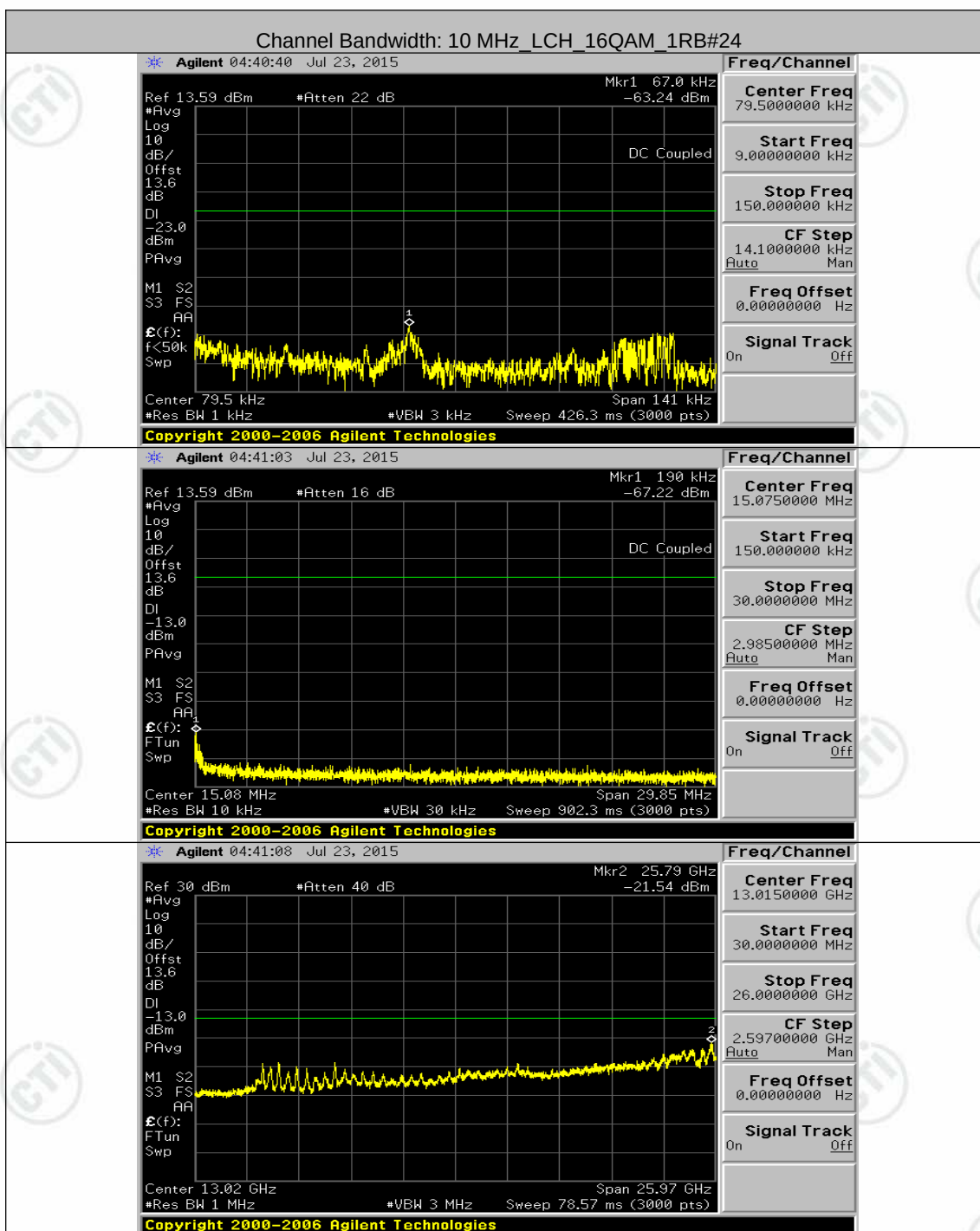


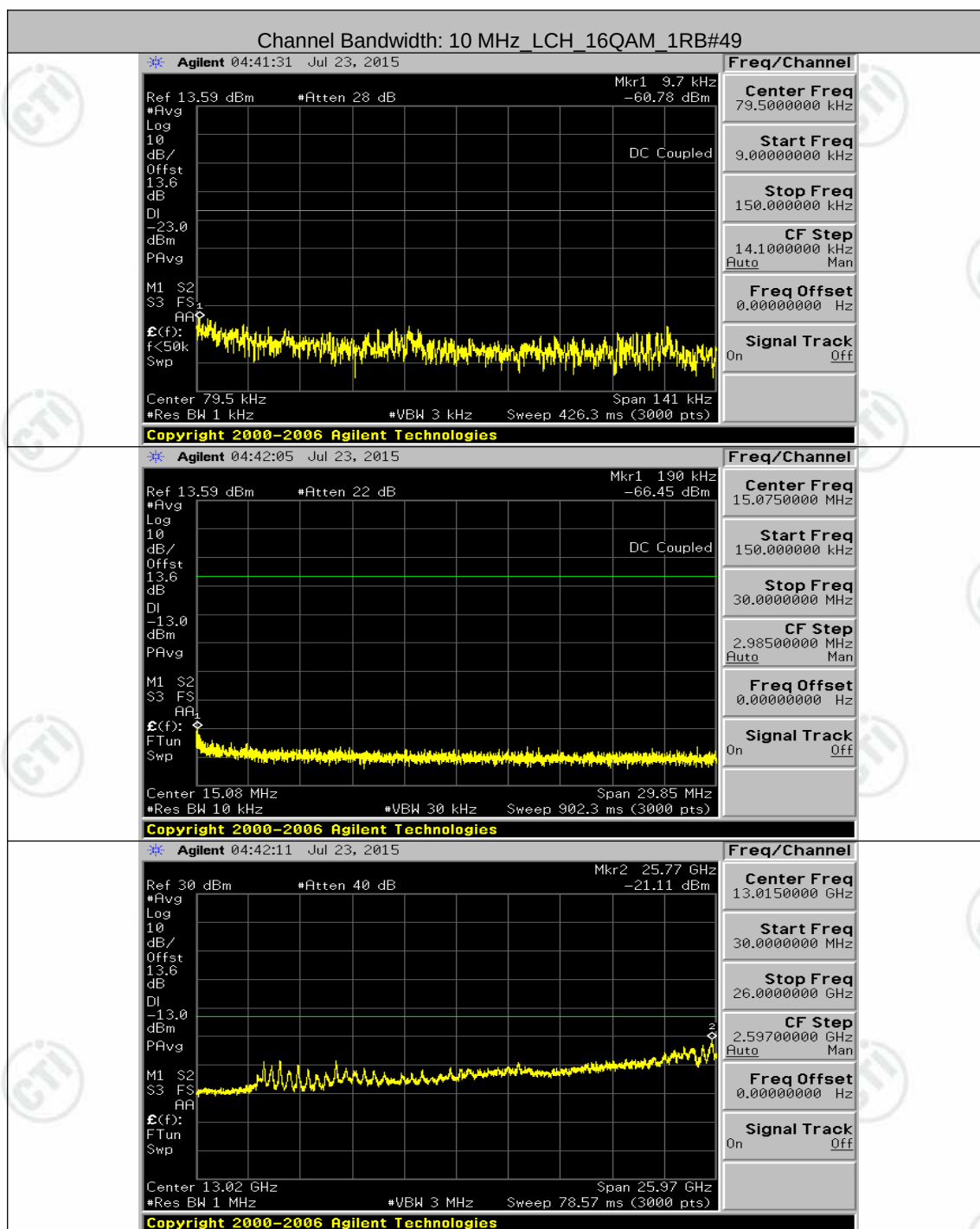


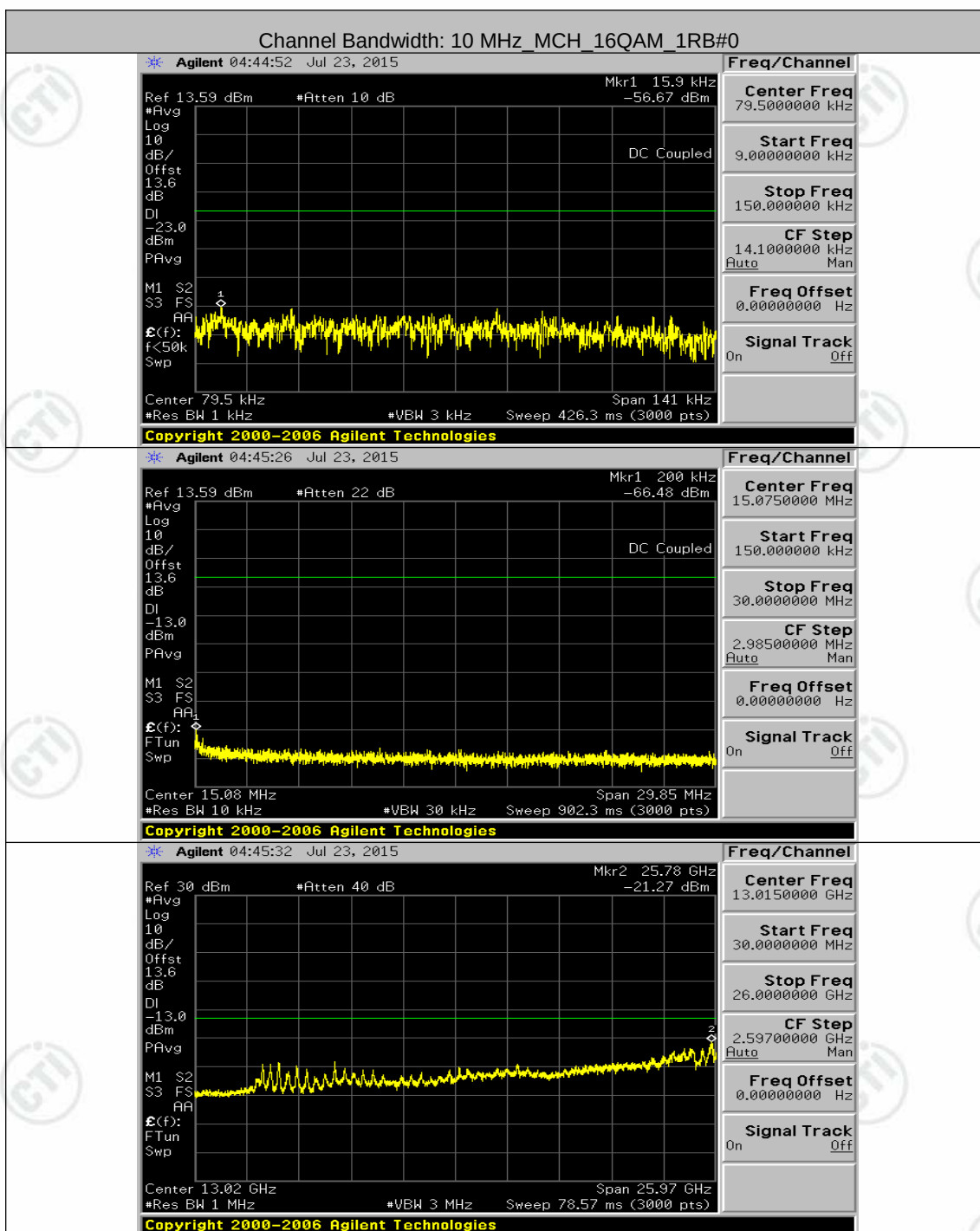


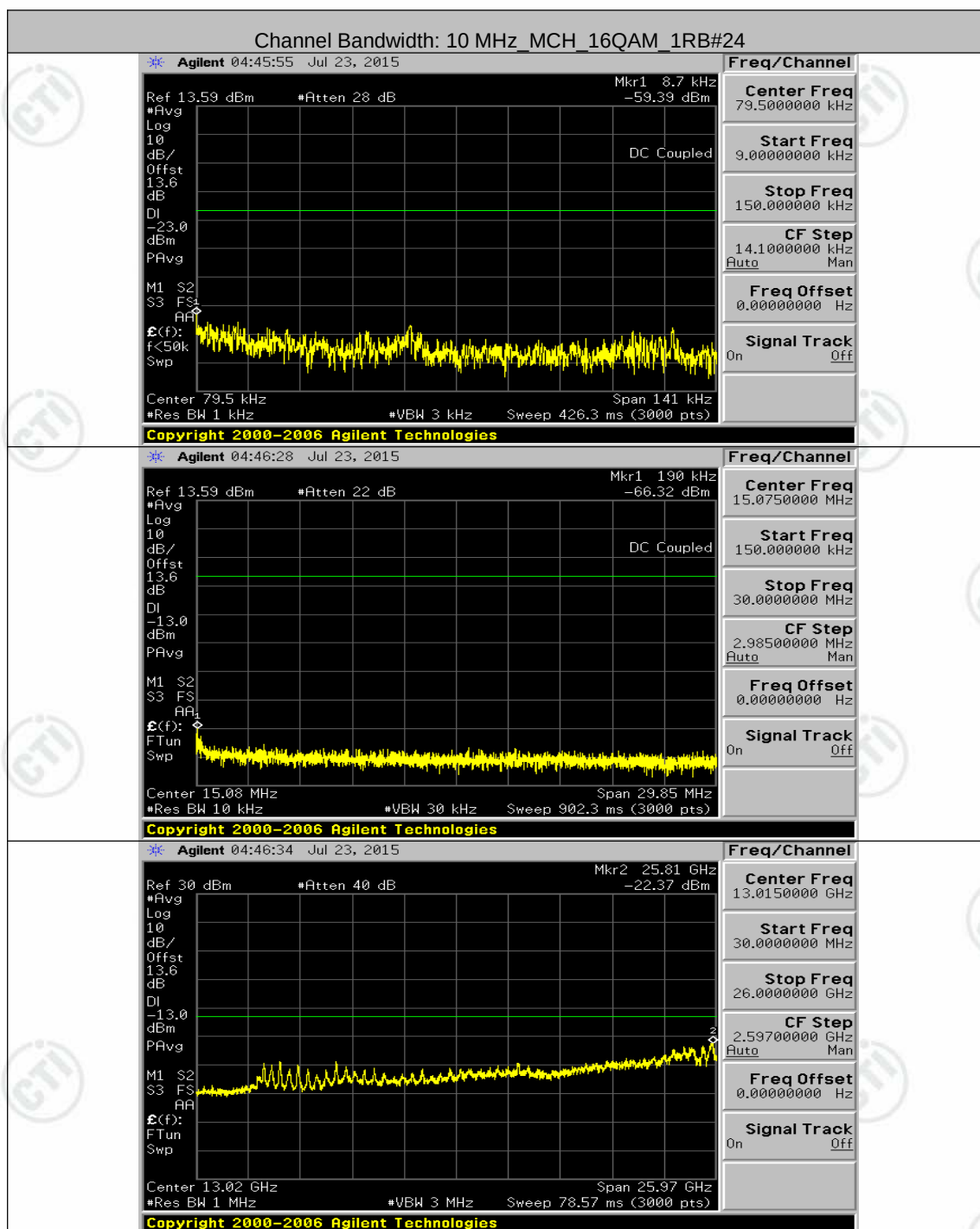


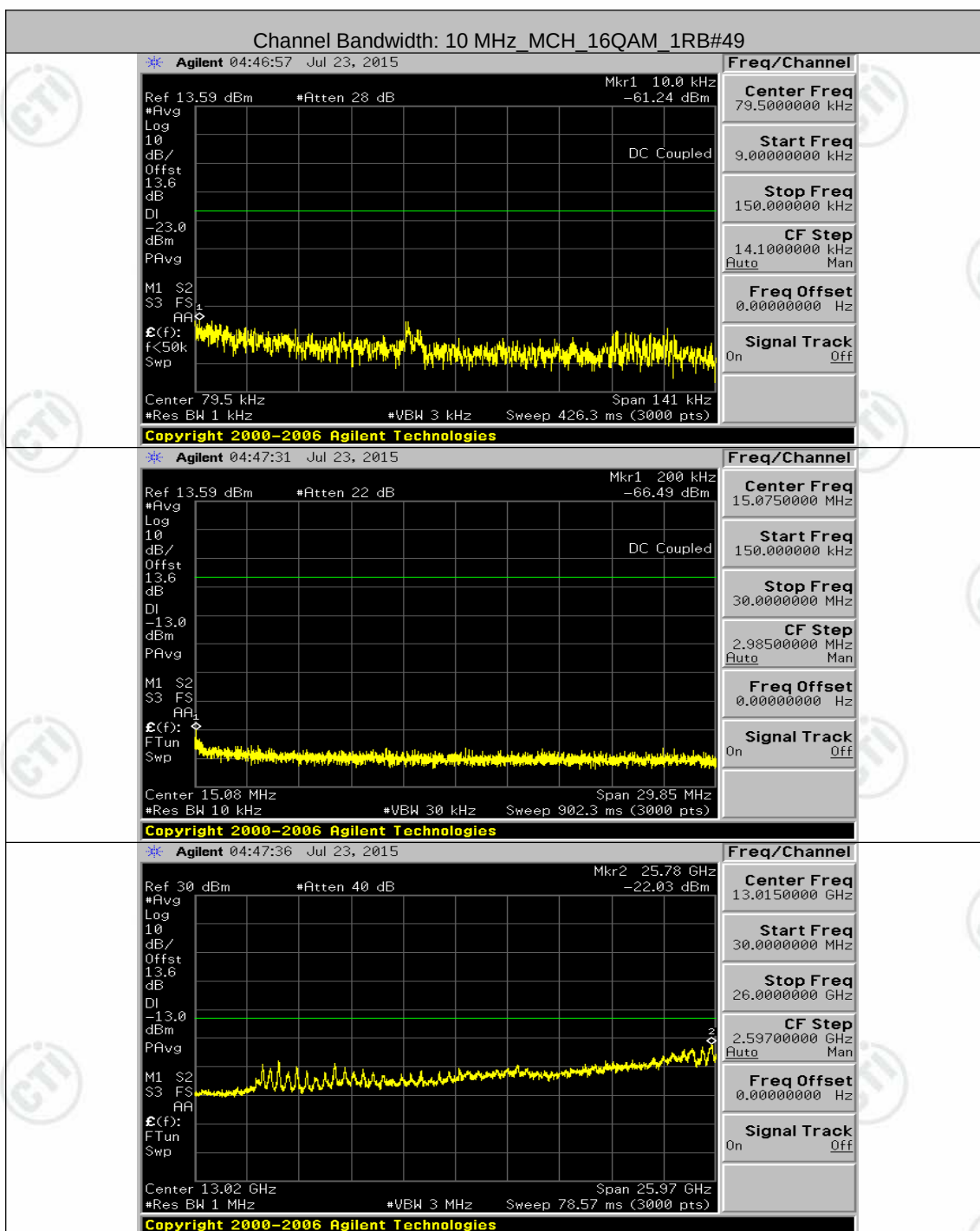


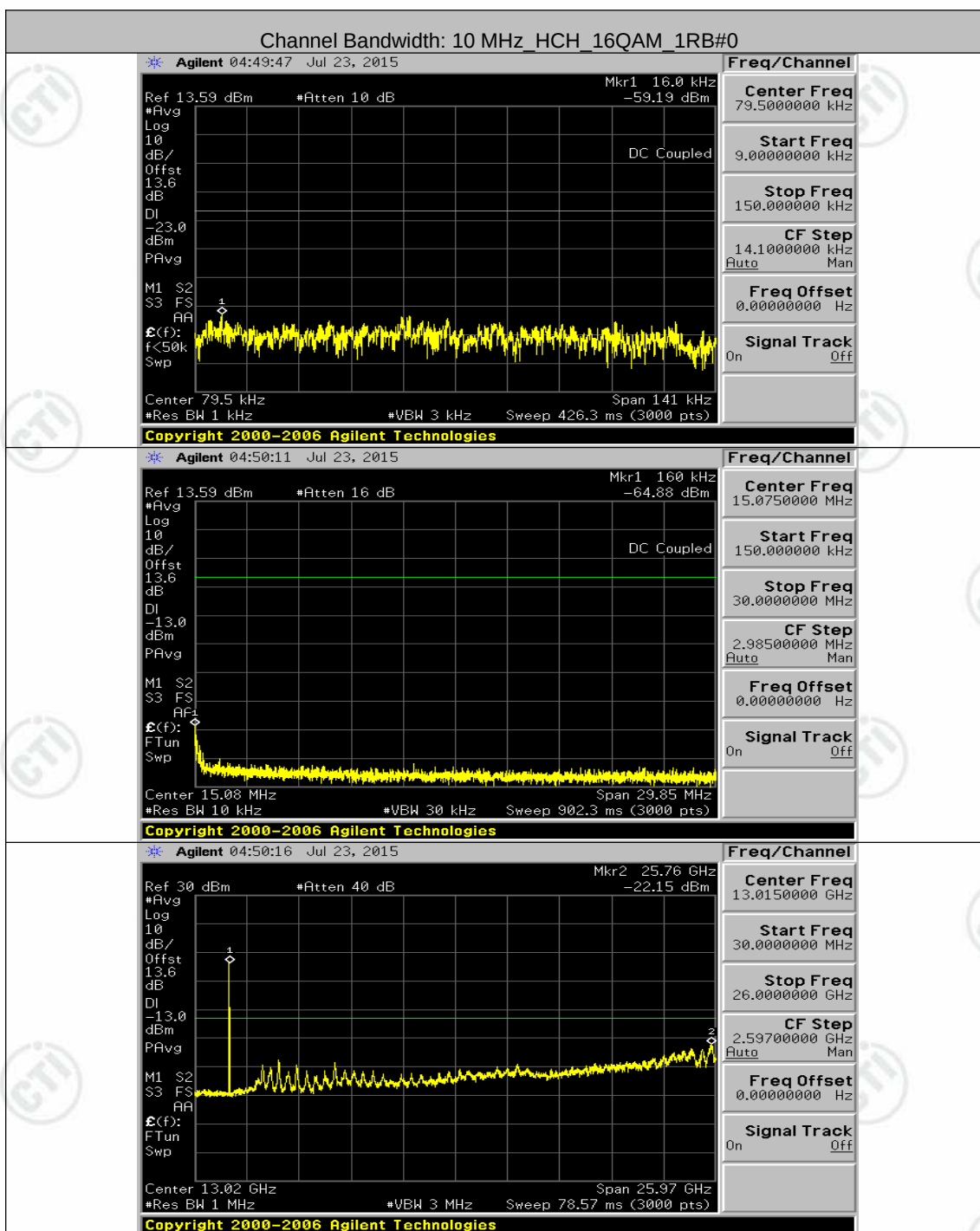


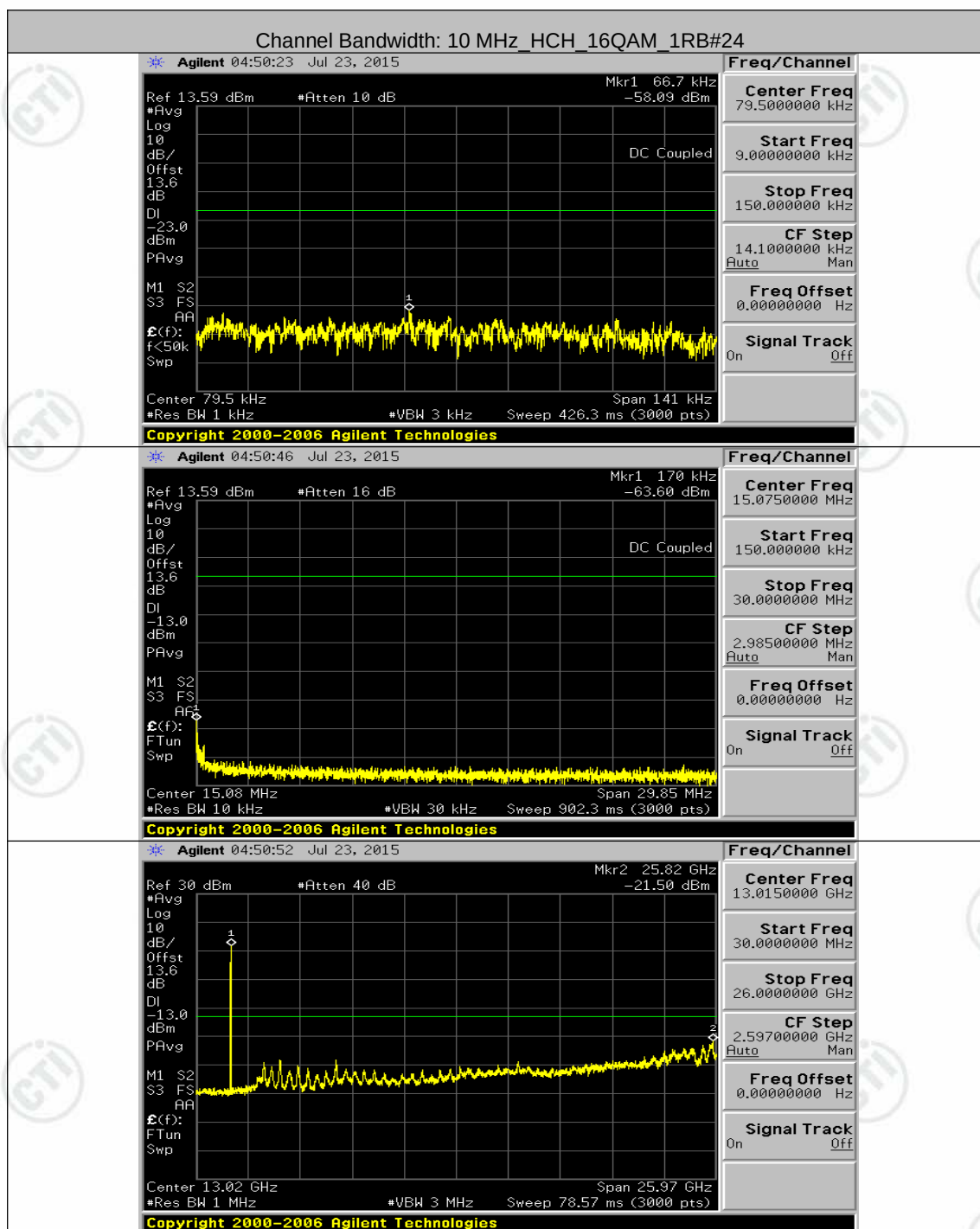


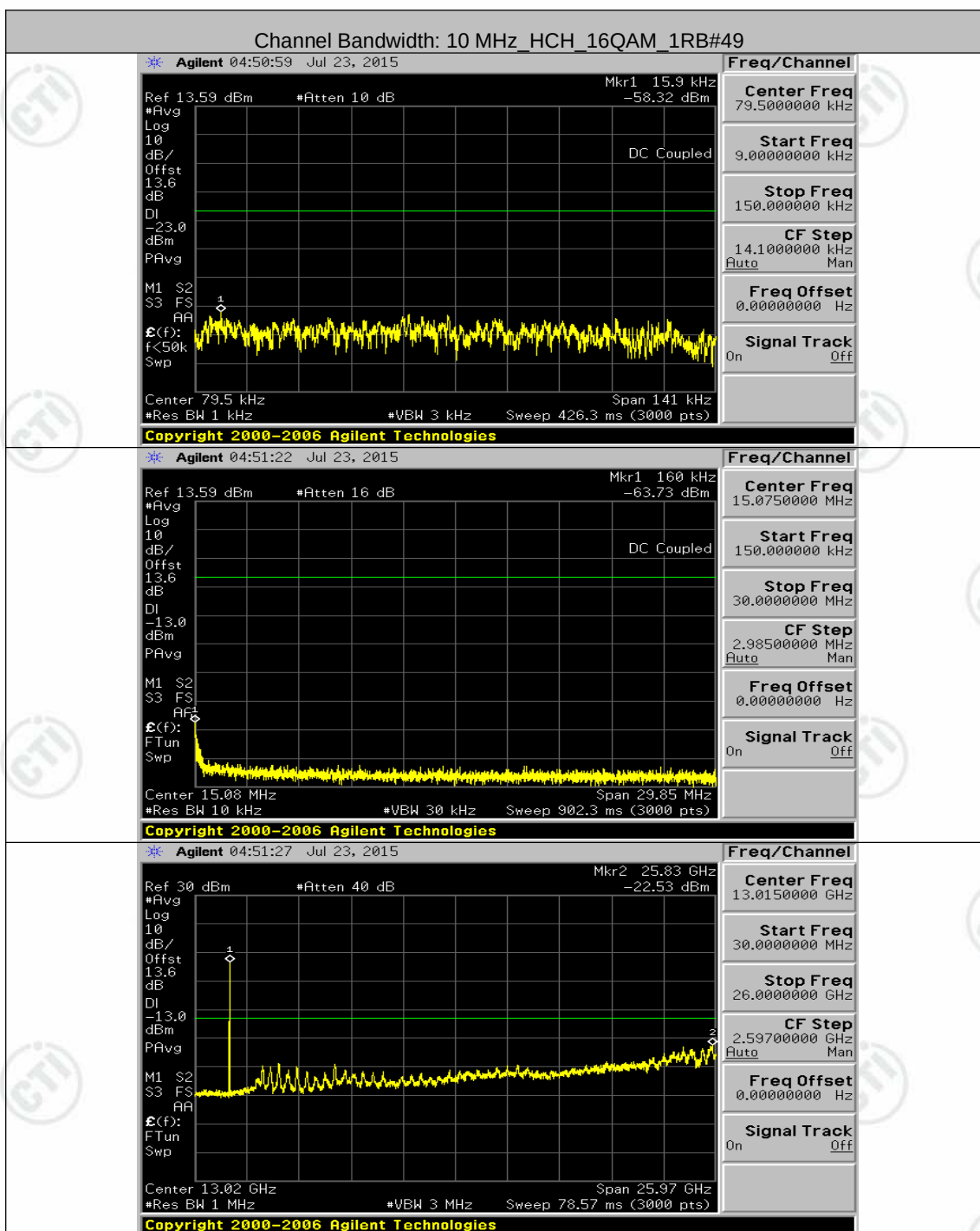




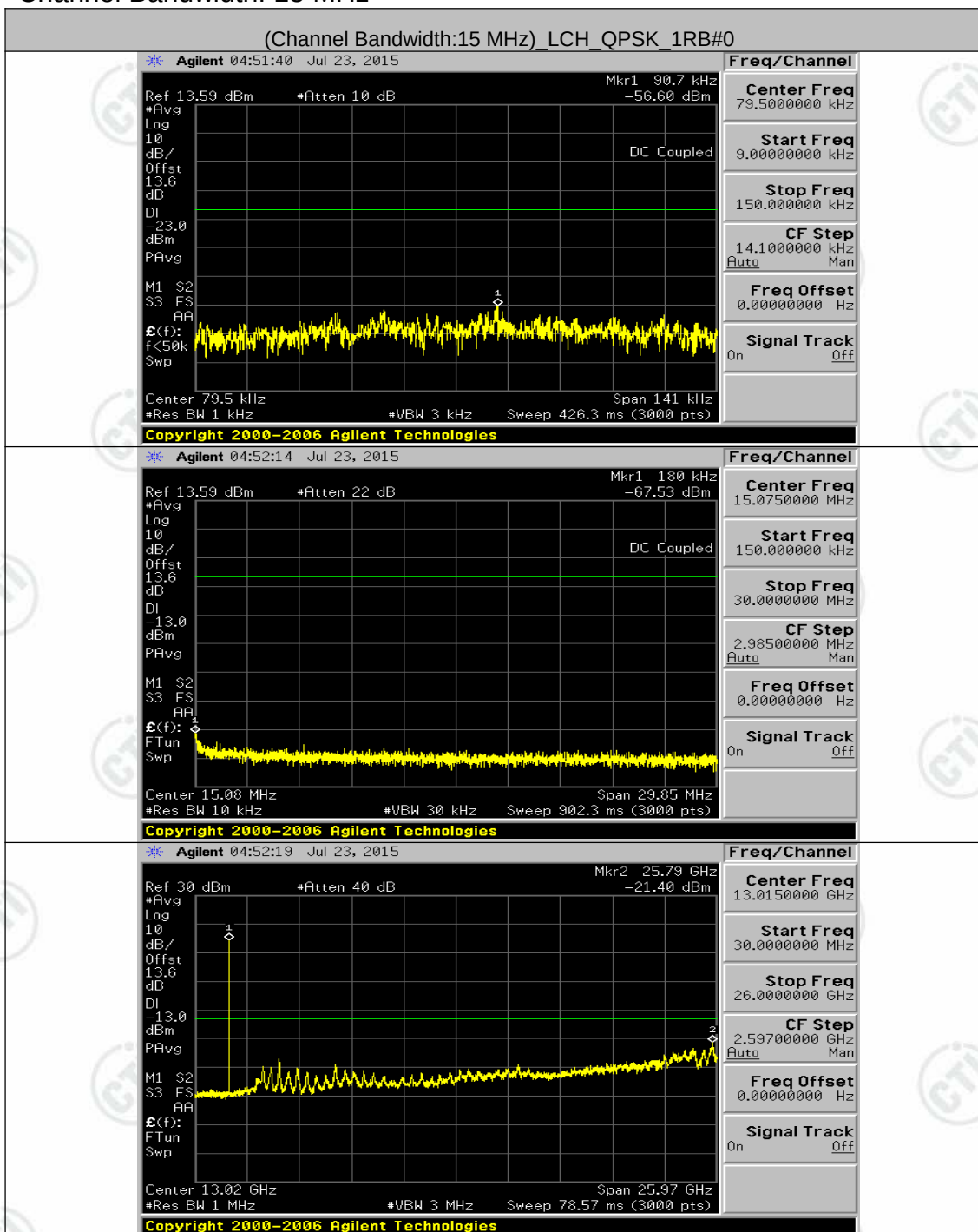


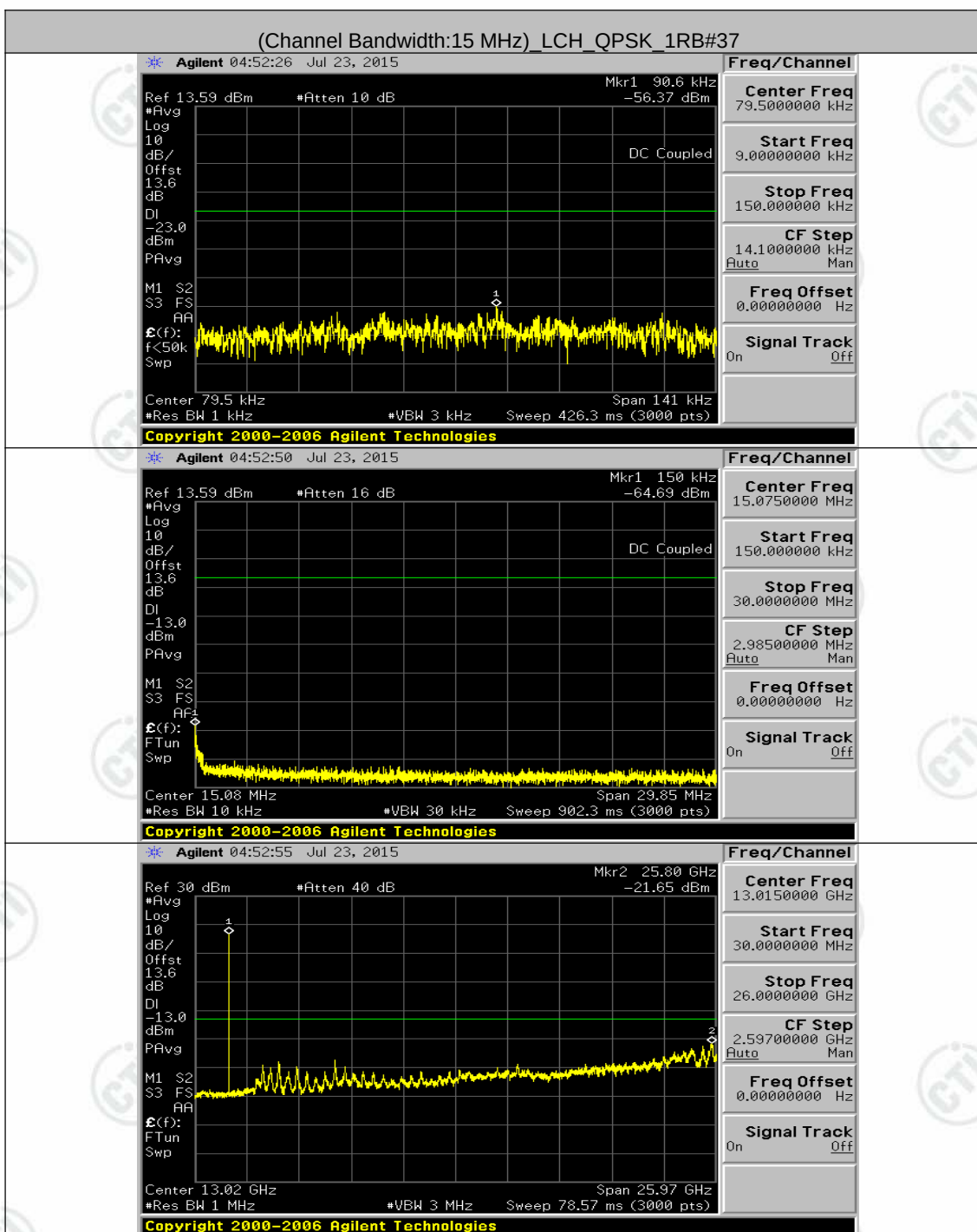


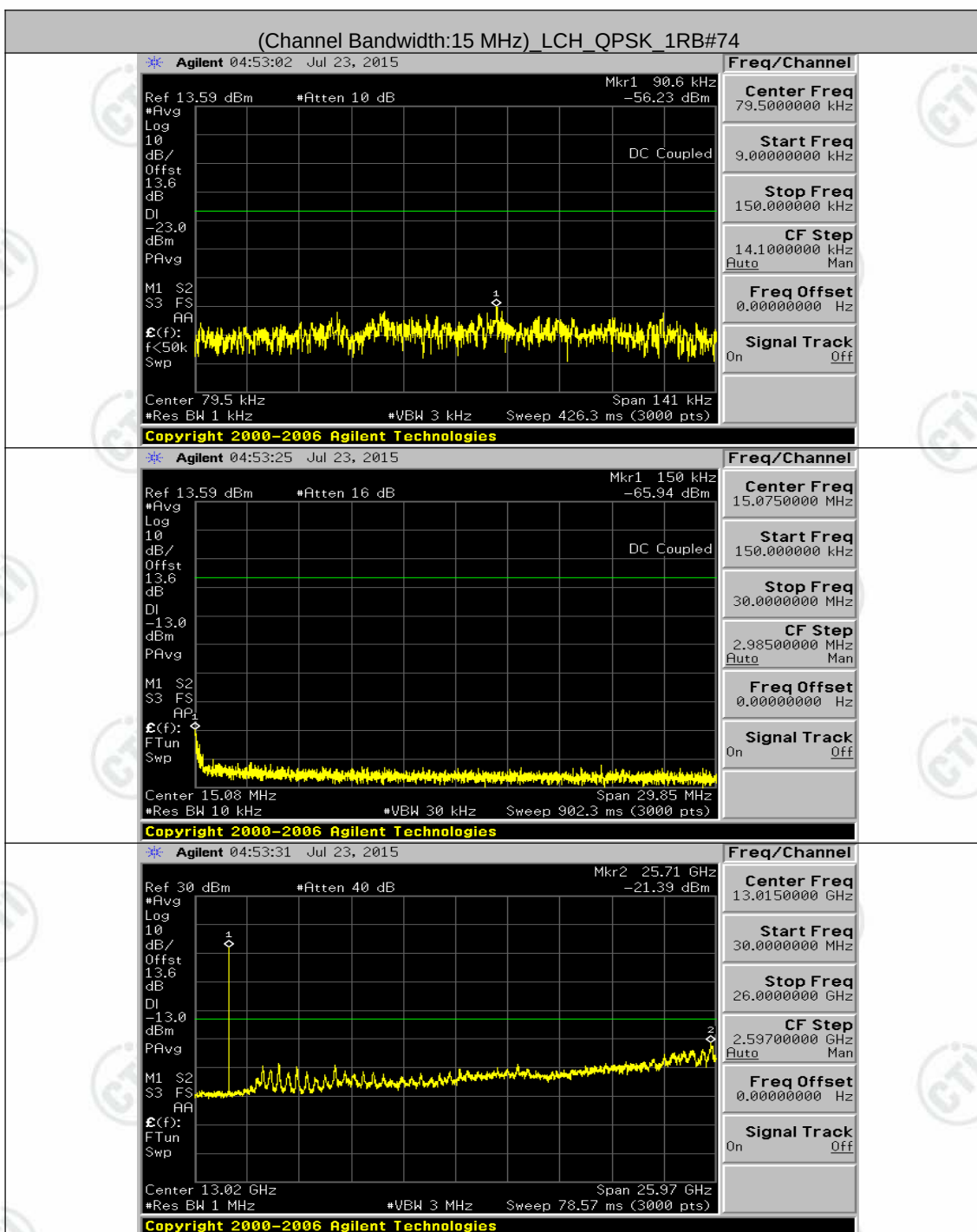


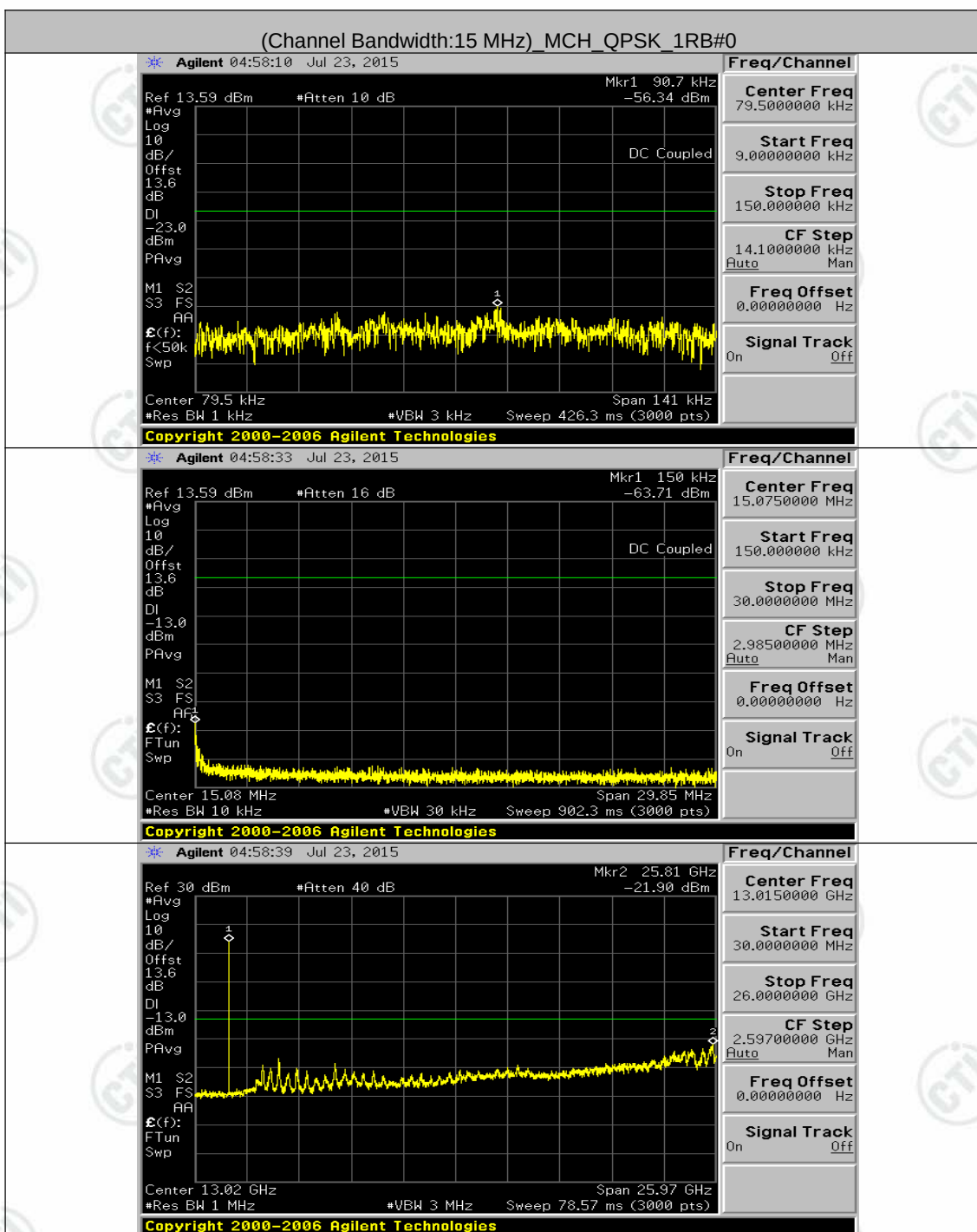


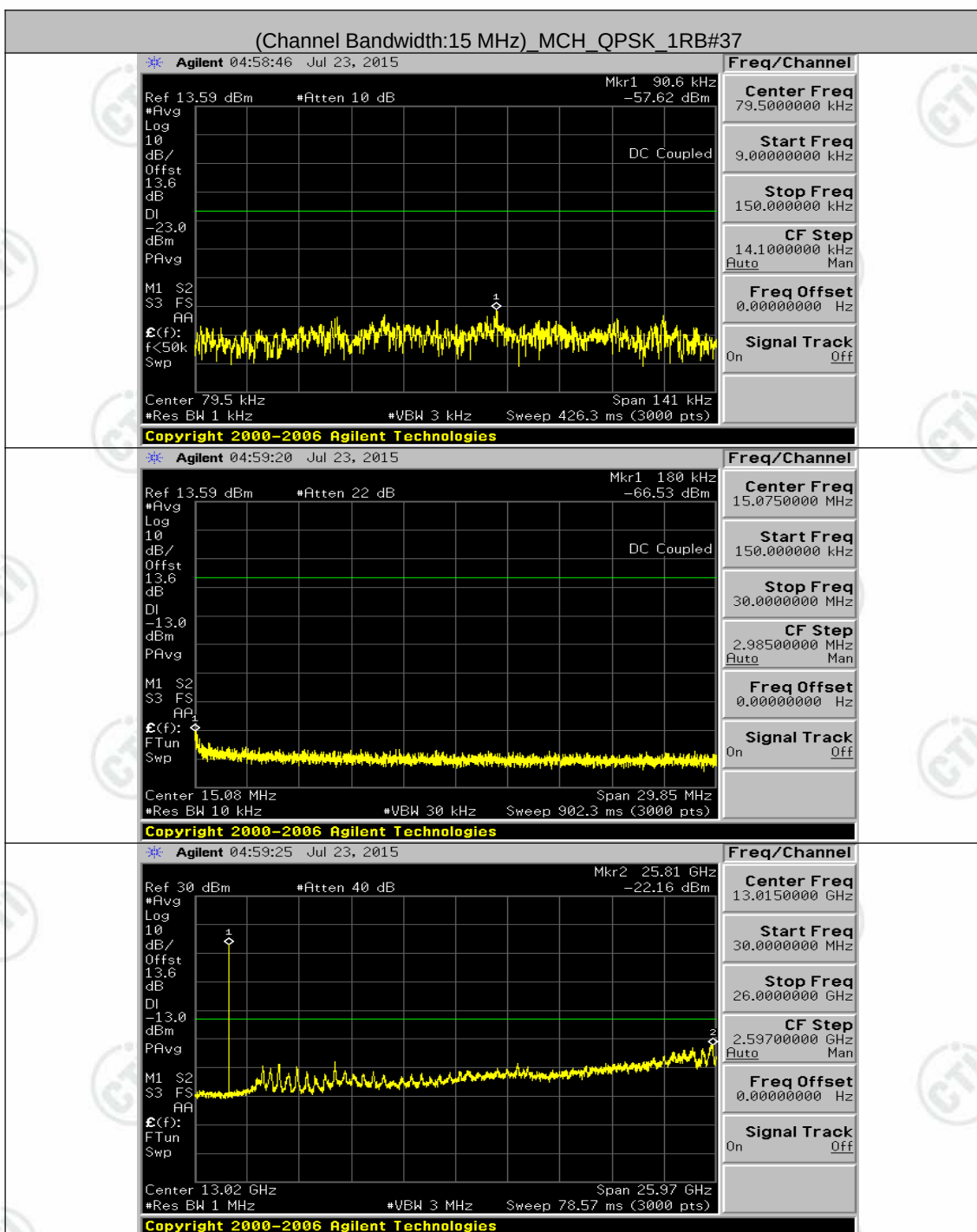
Channel Bandwidth: 15 MHz

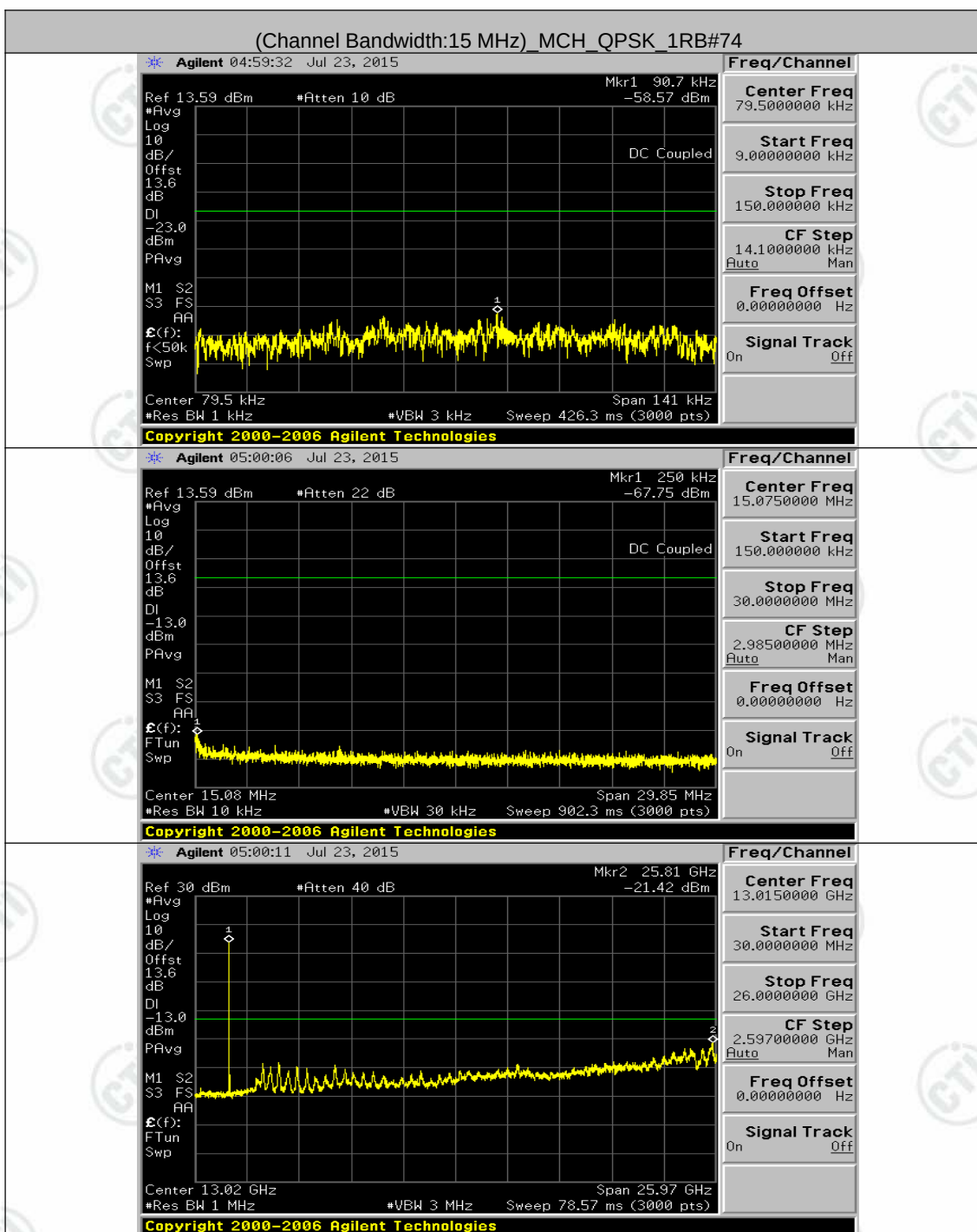


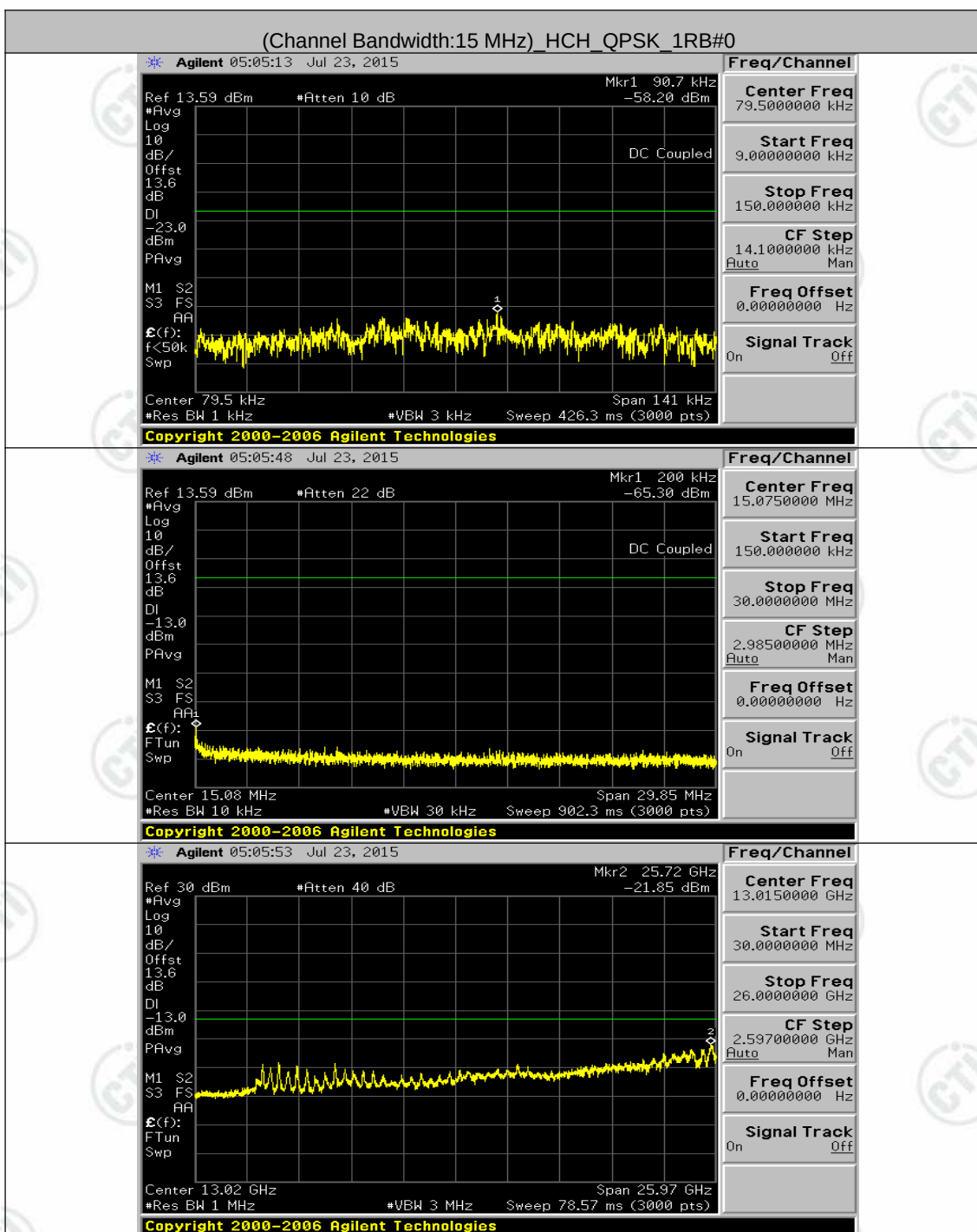


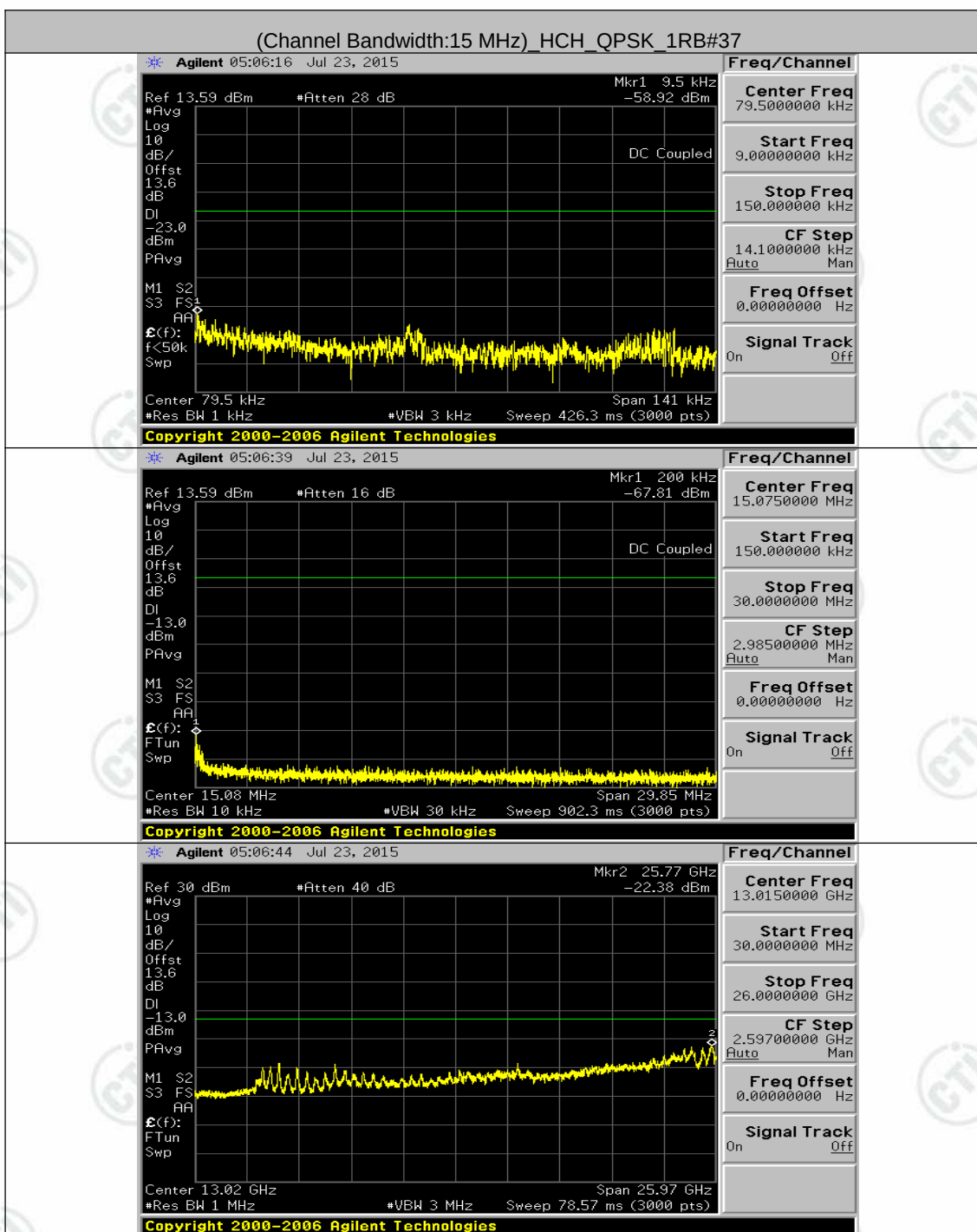


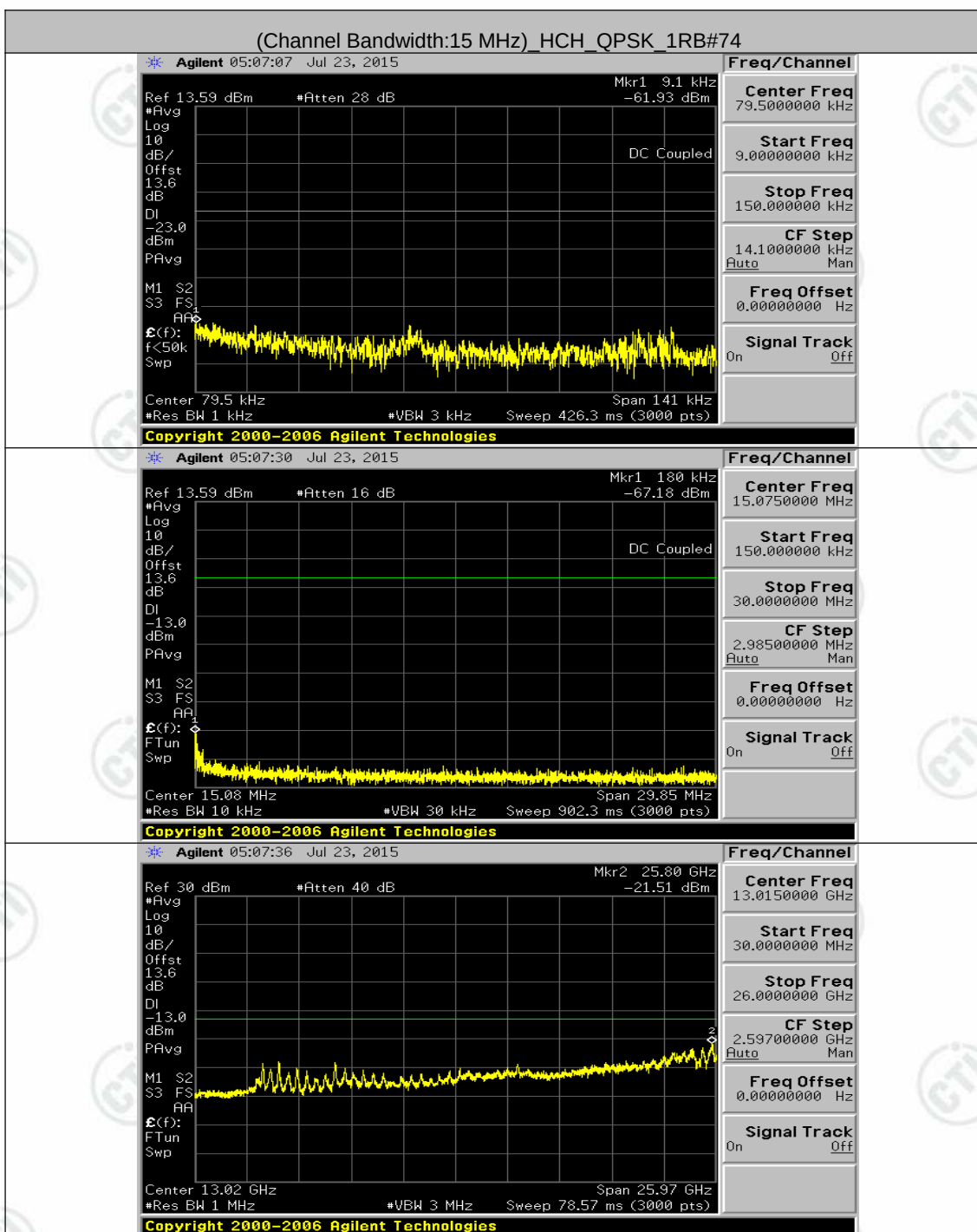


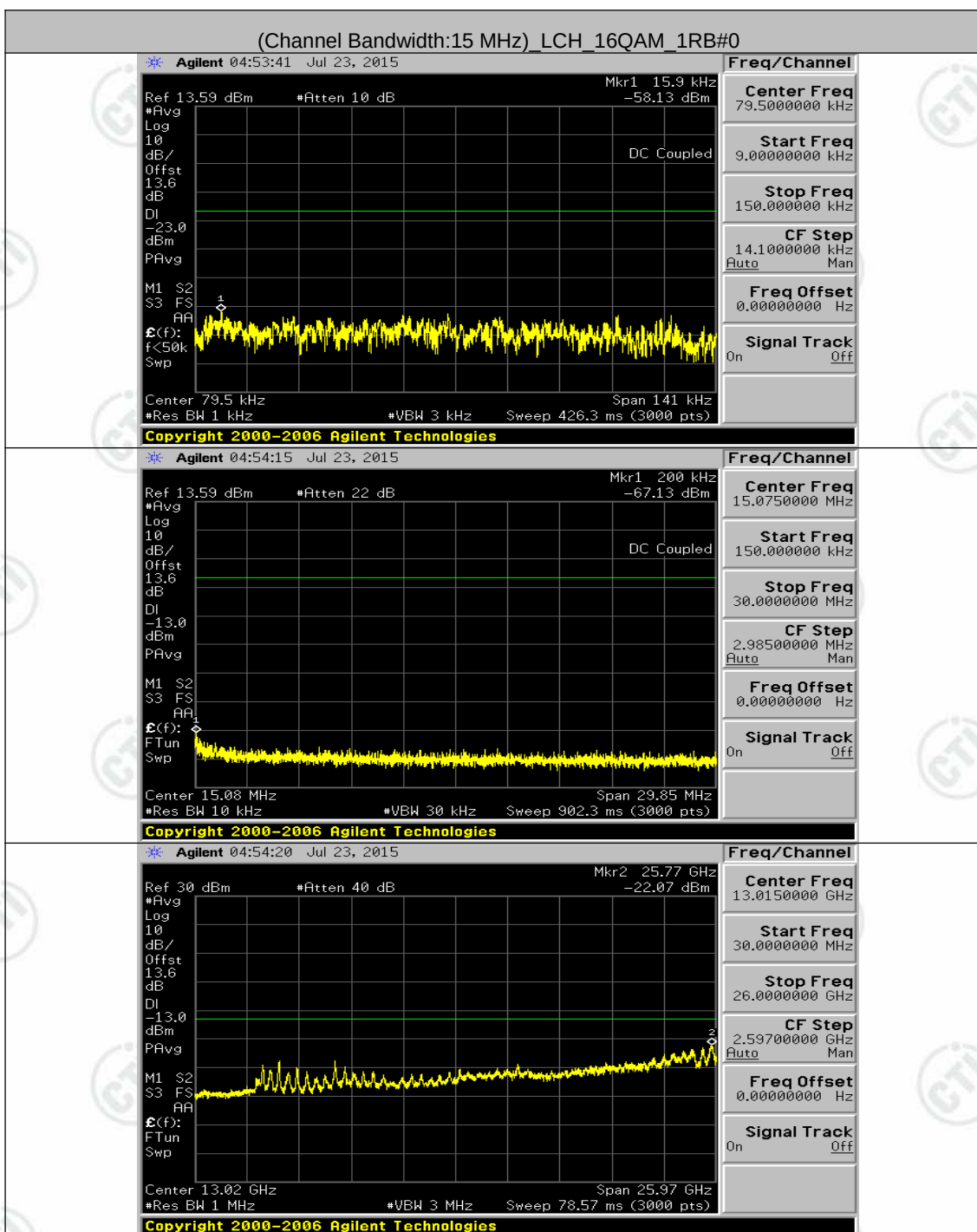


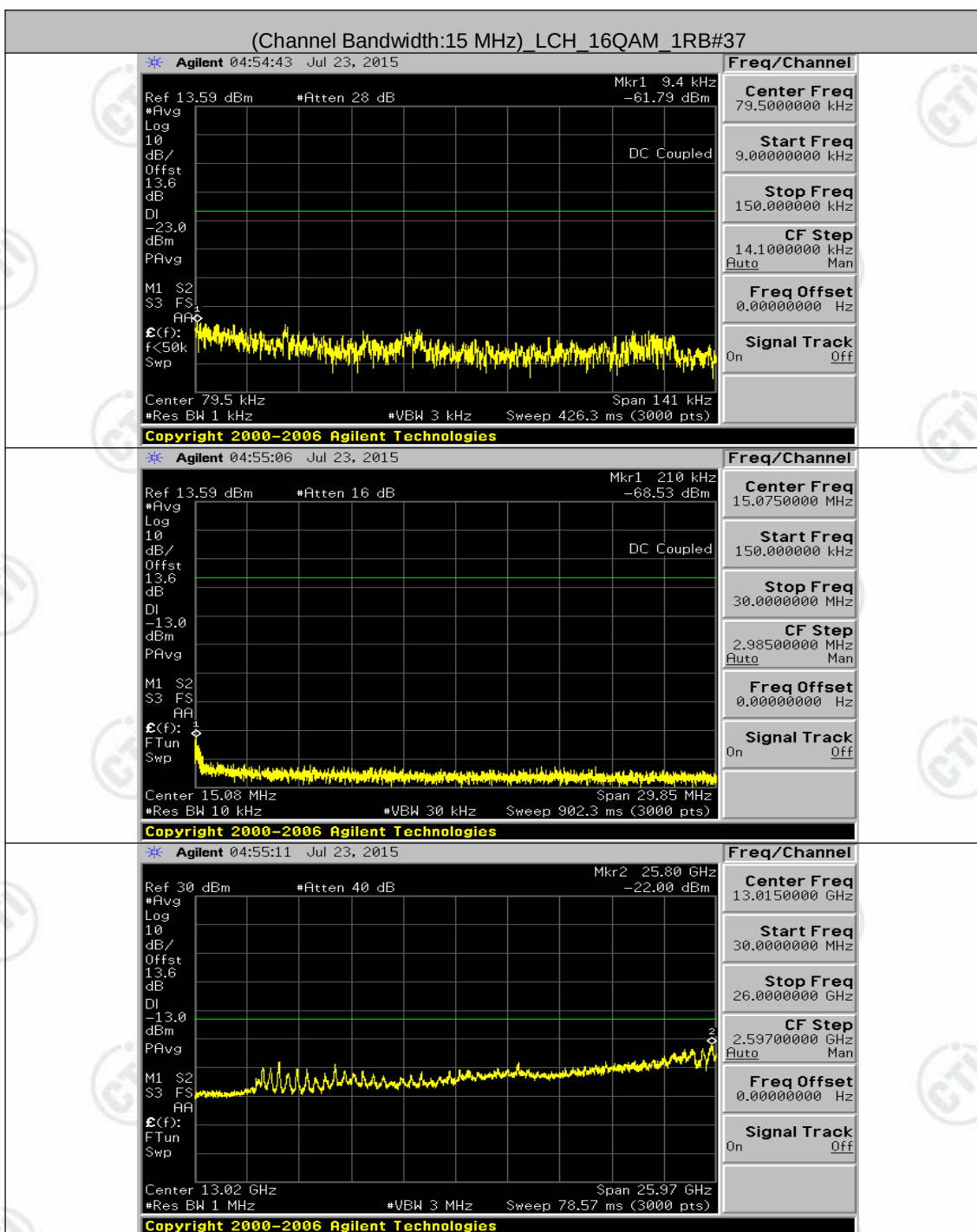


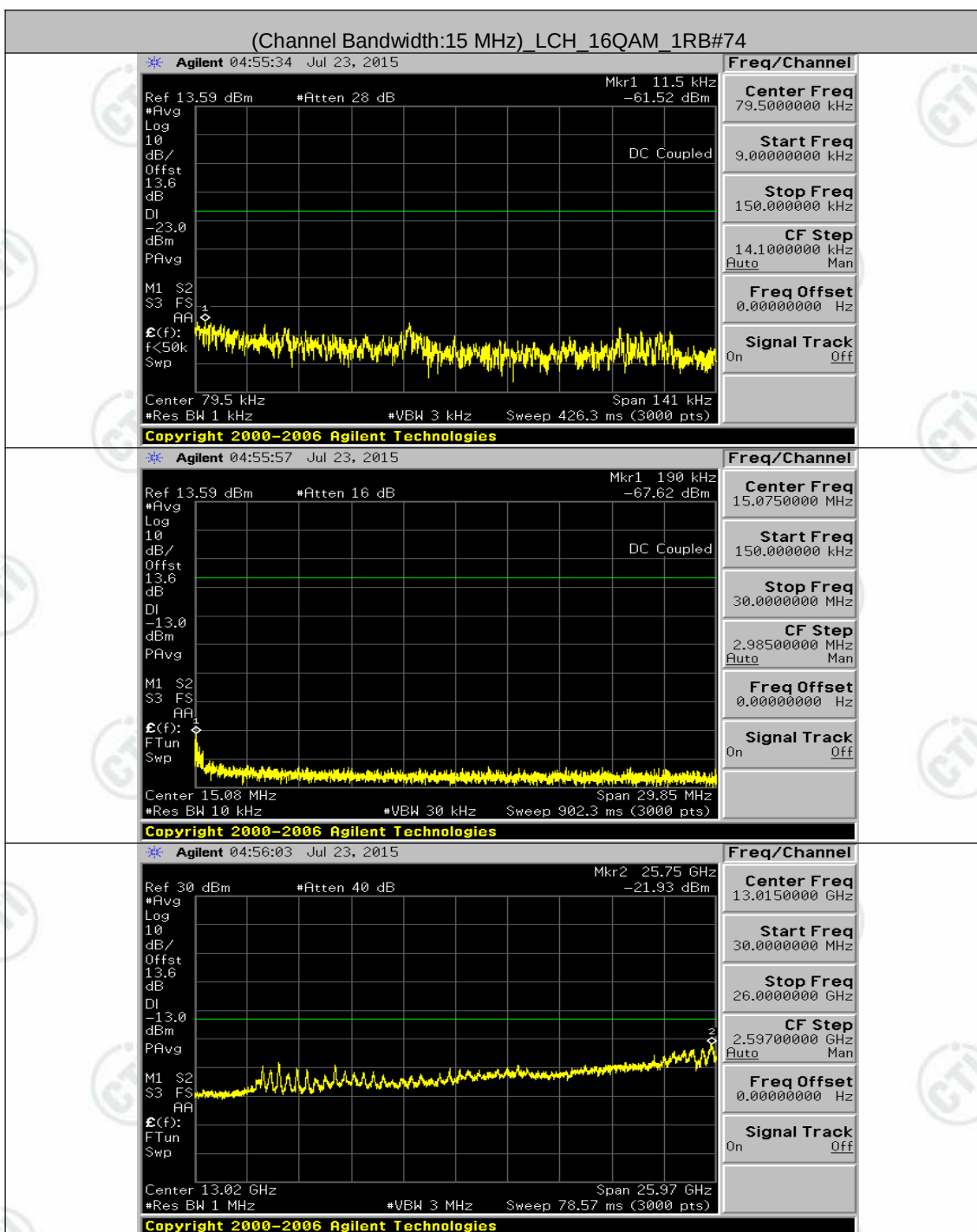


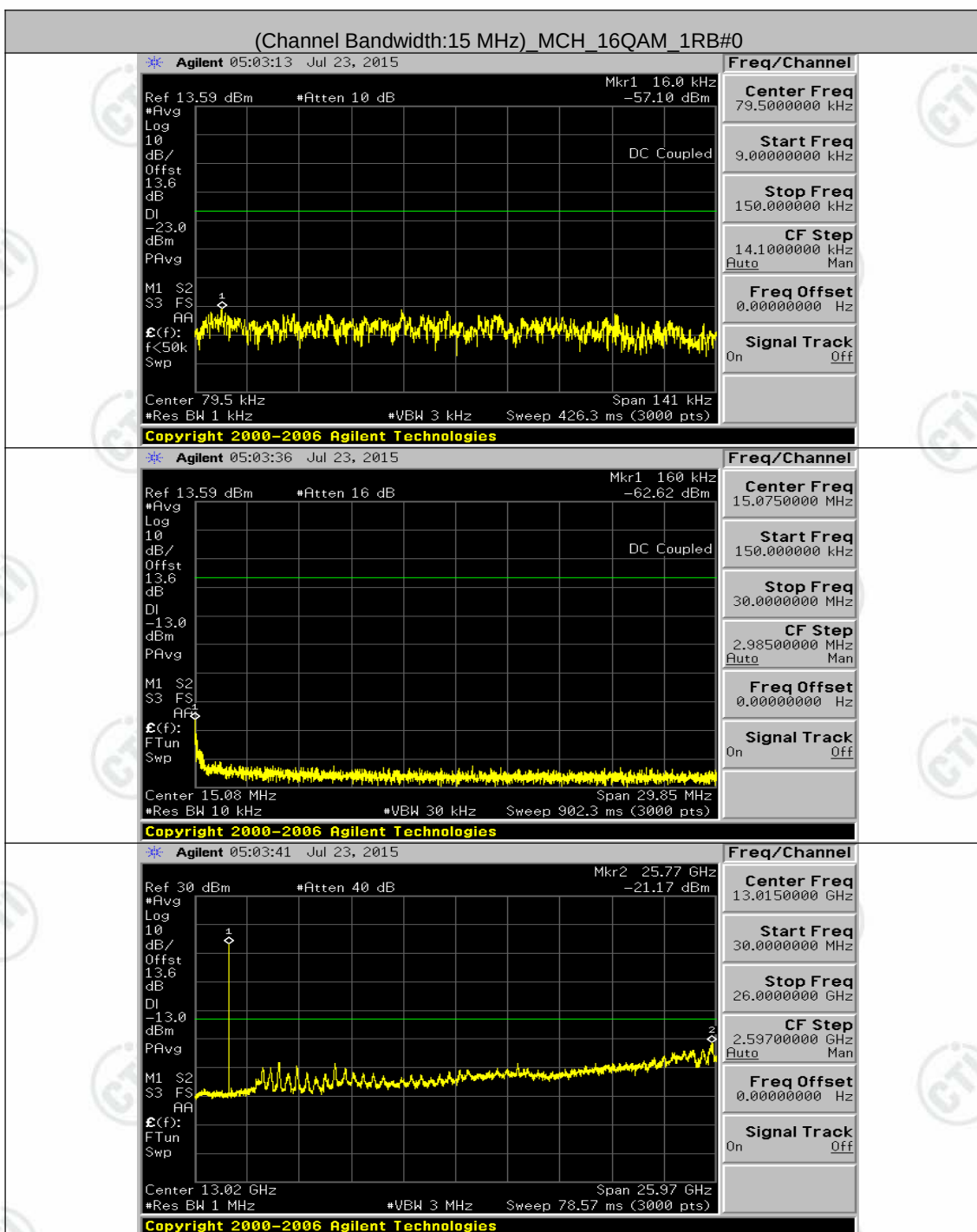


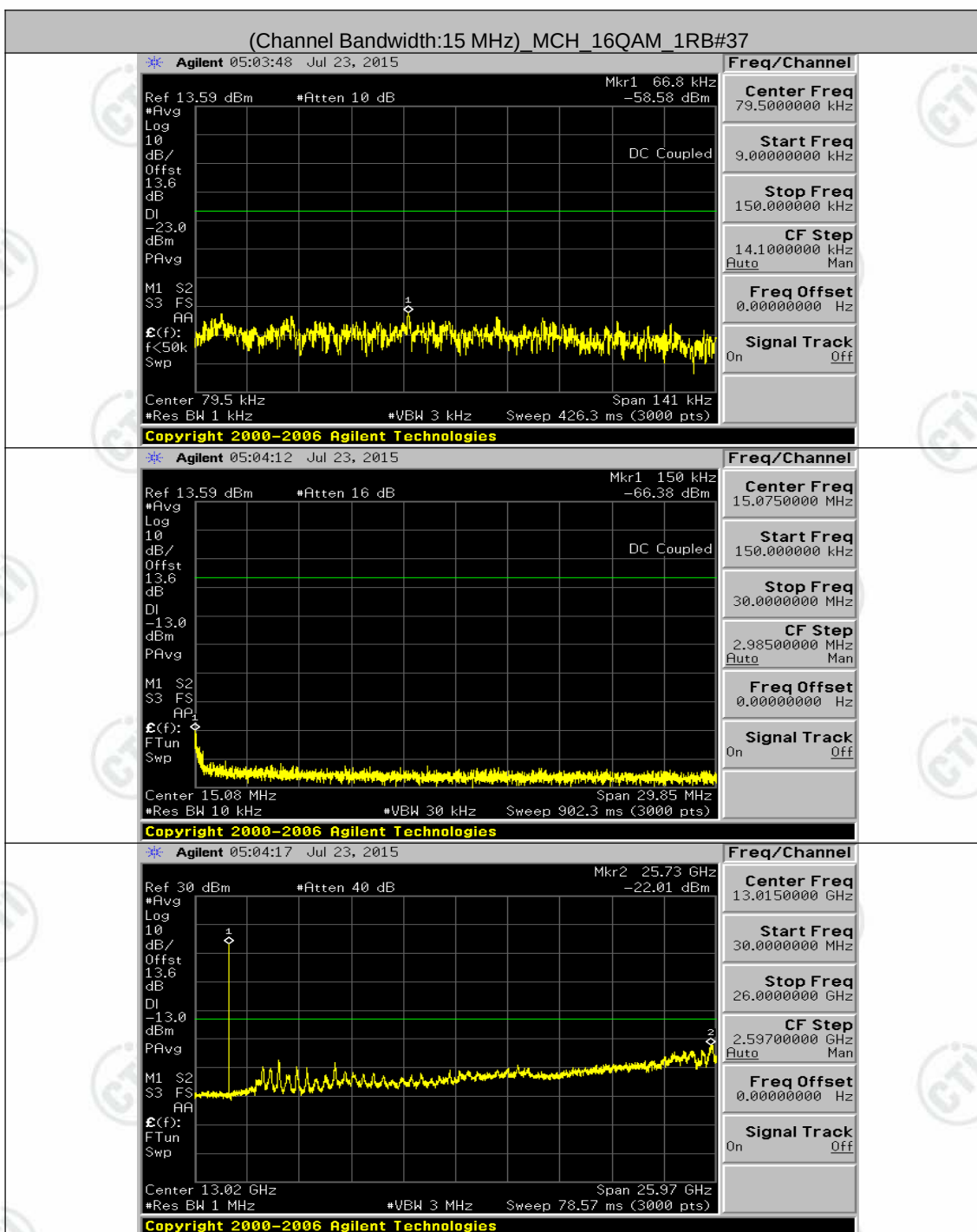


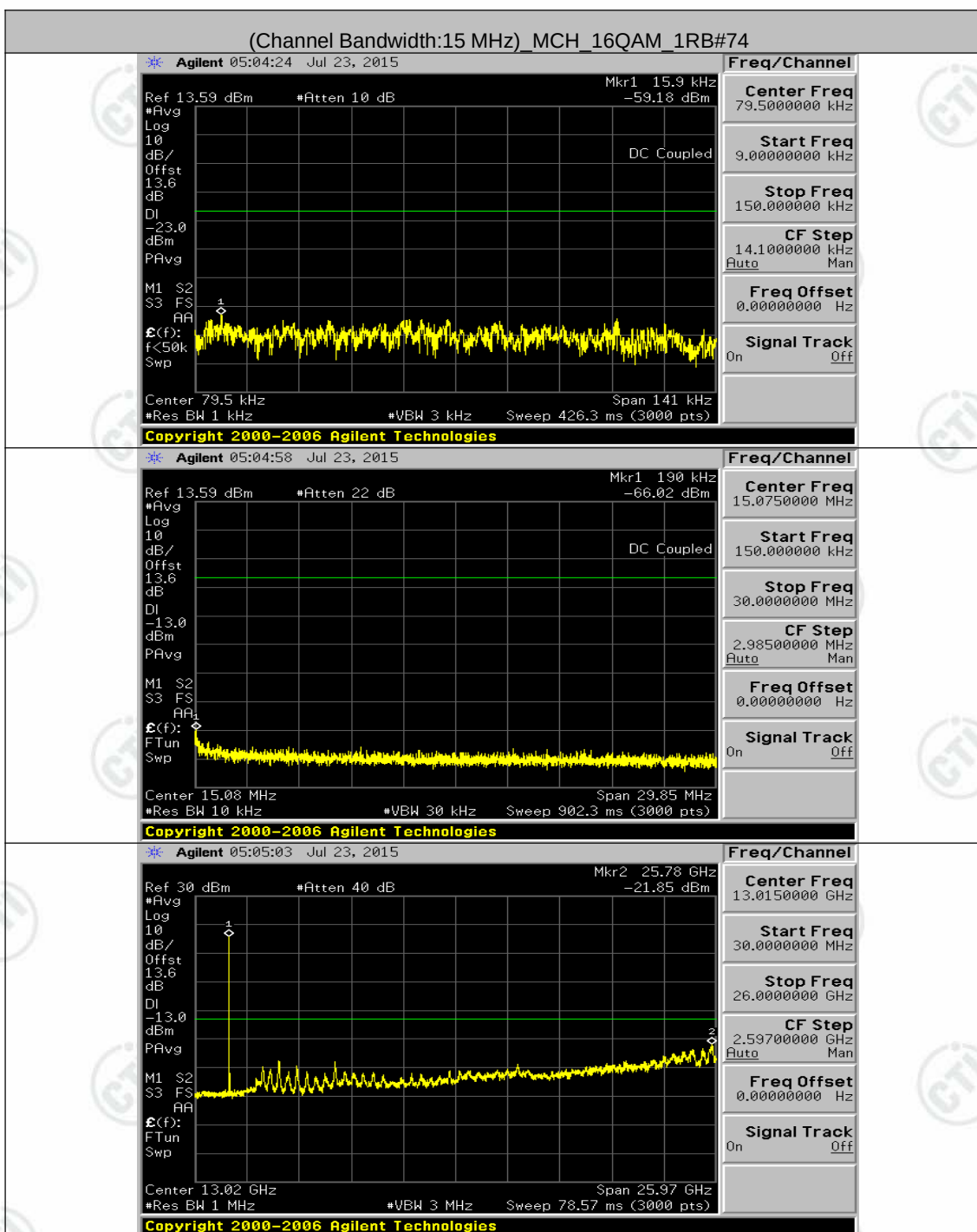


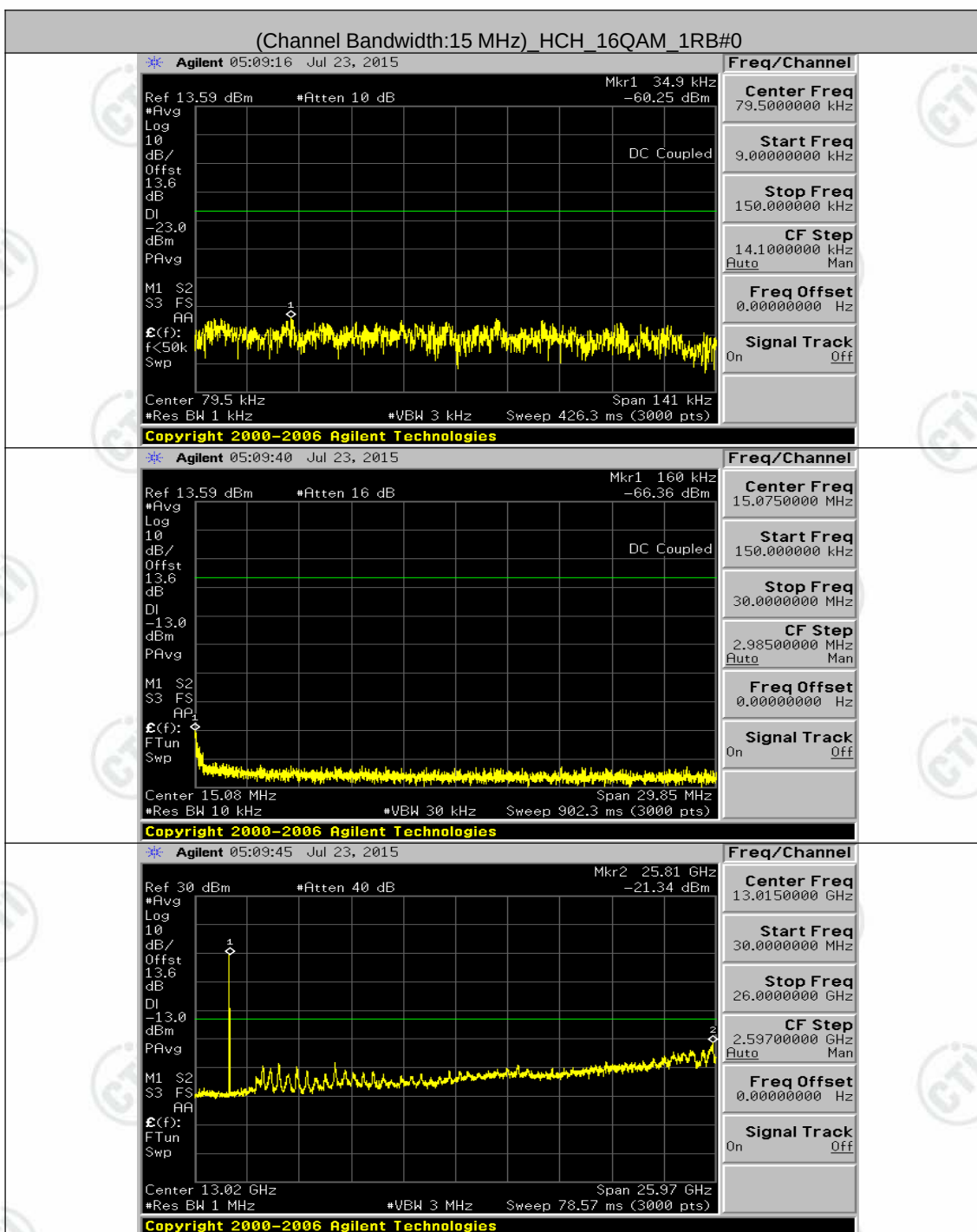


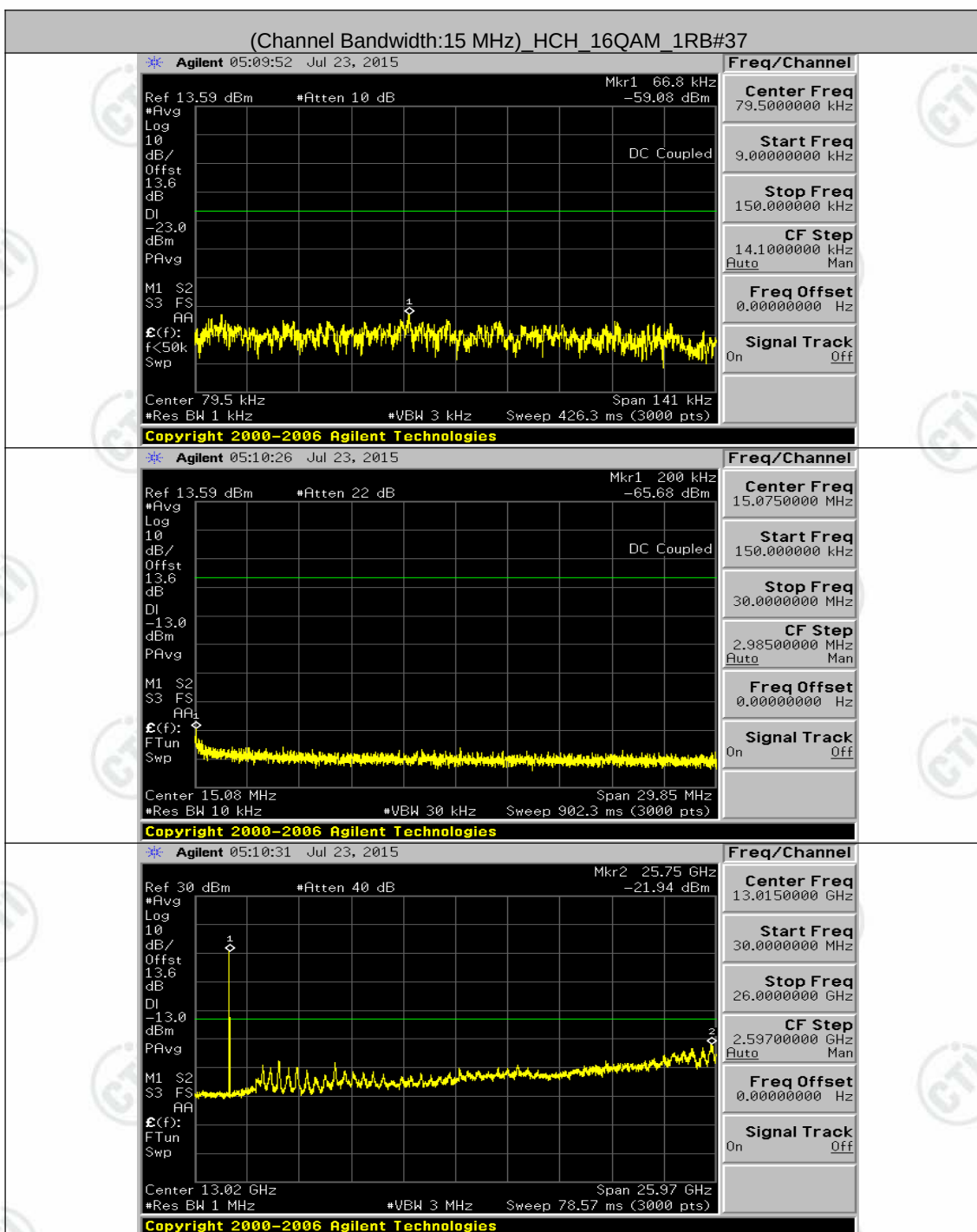


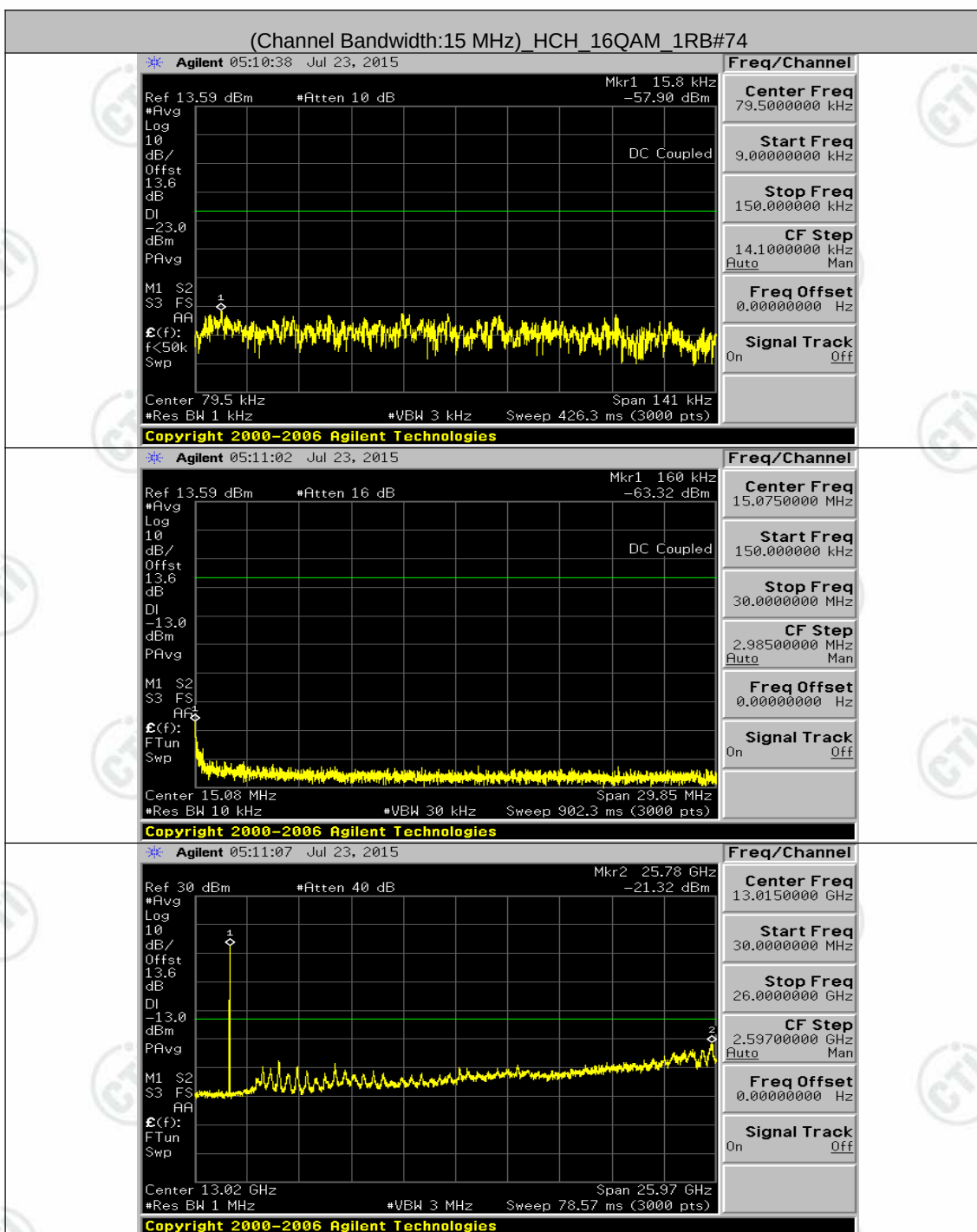




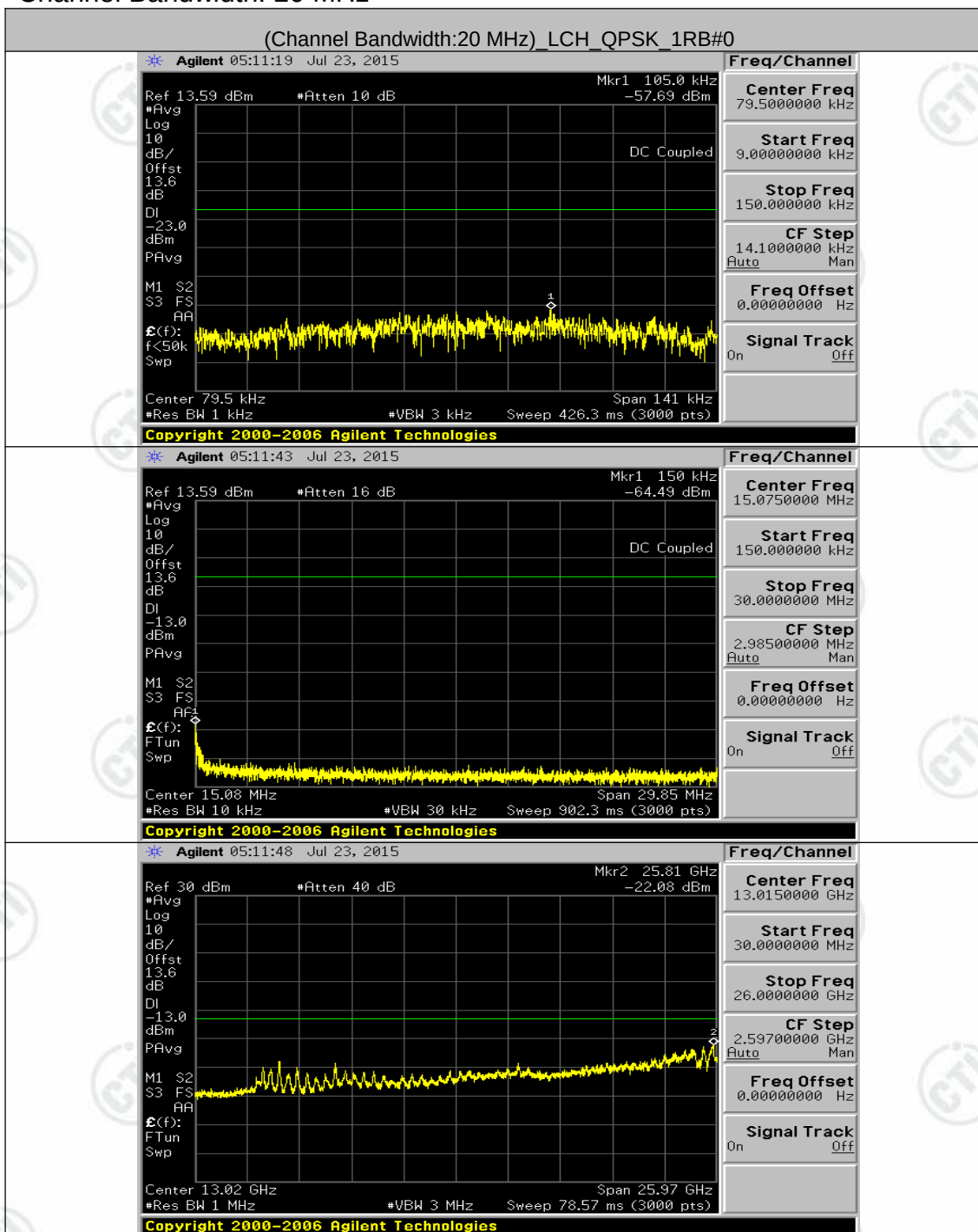


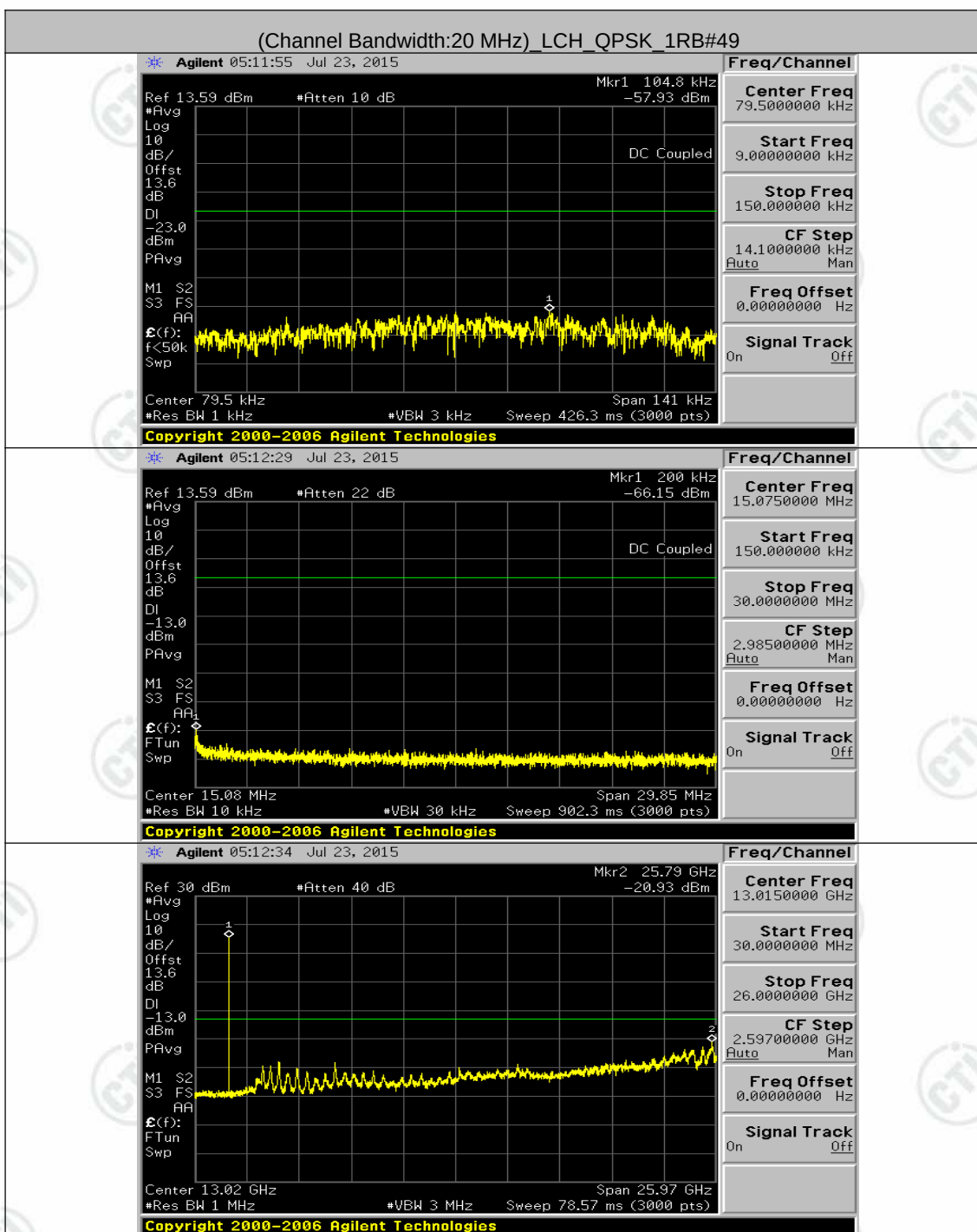


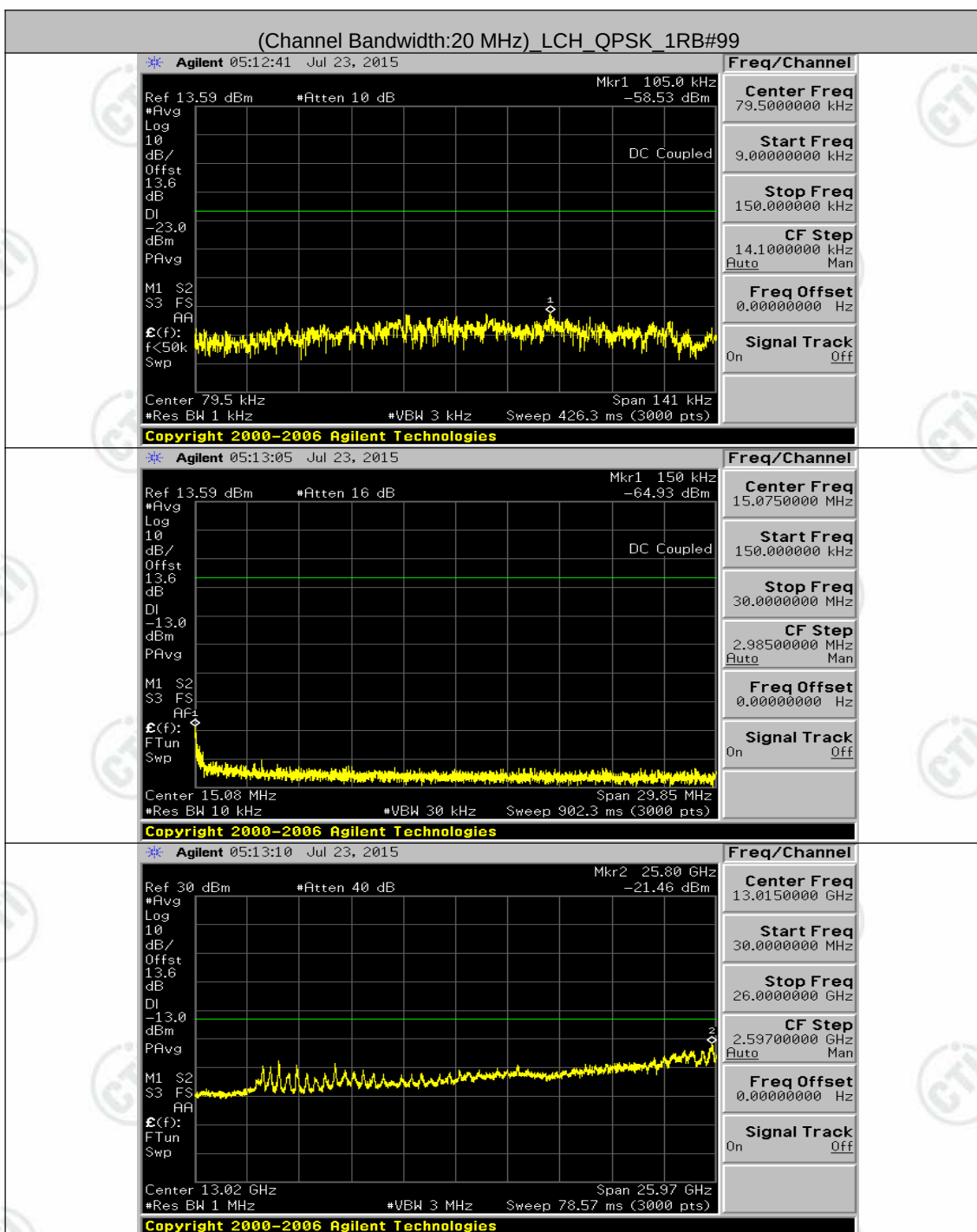


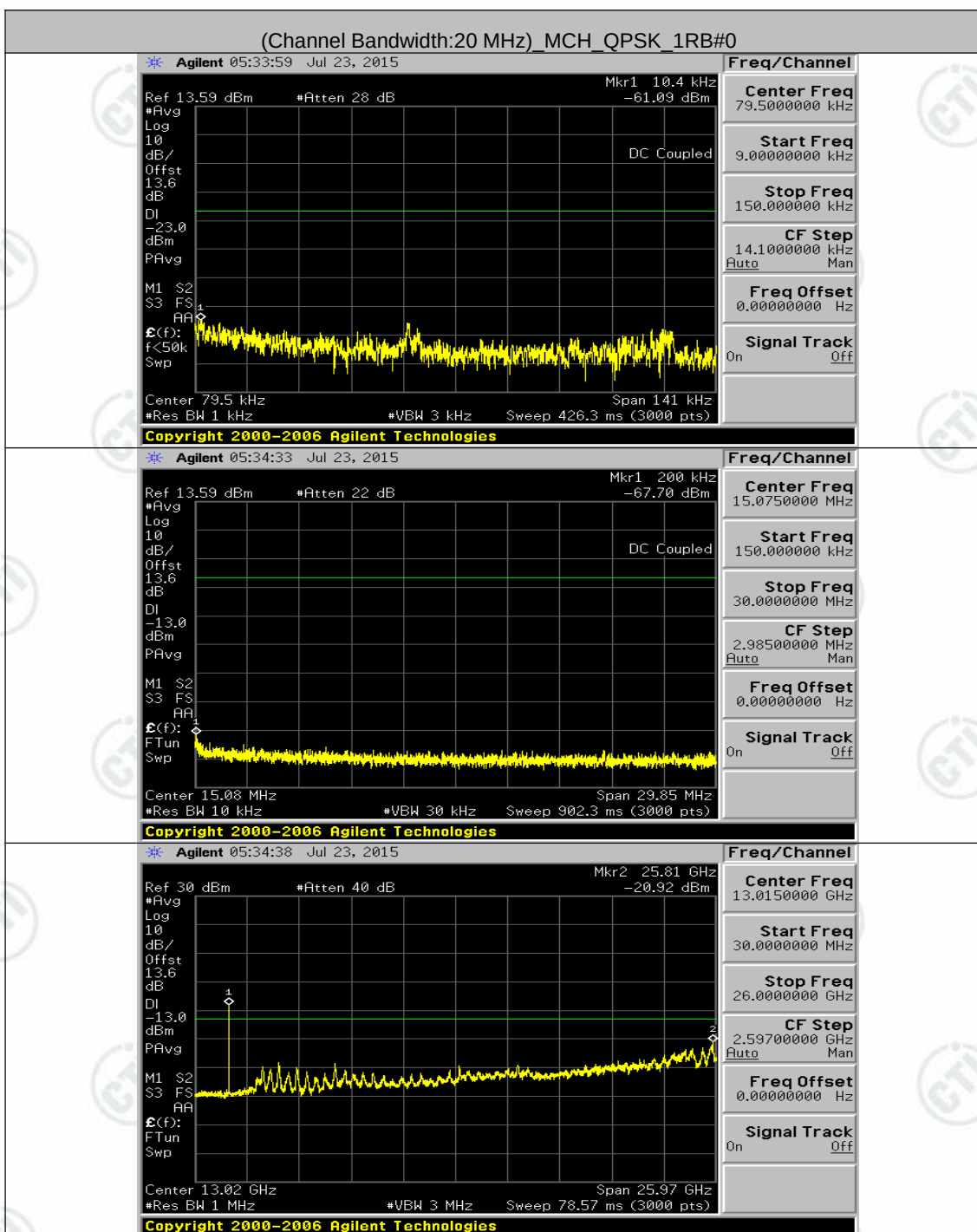


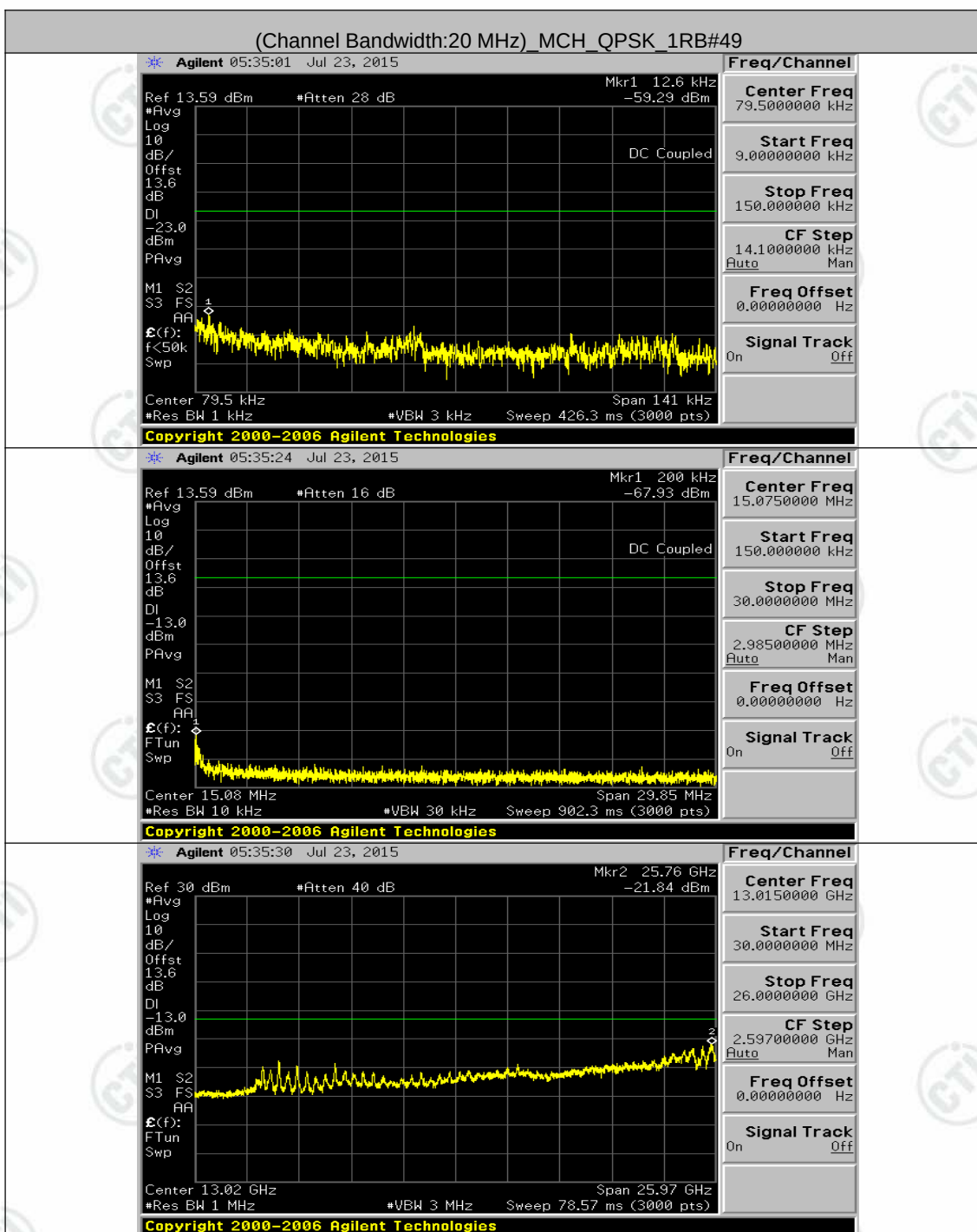
Channel Bandwidth: 20 MHz

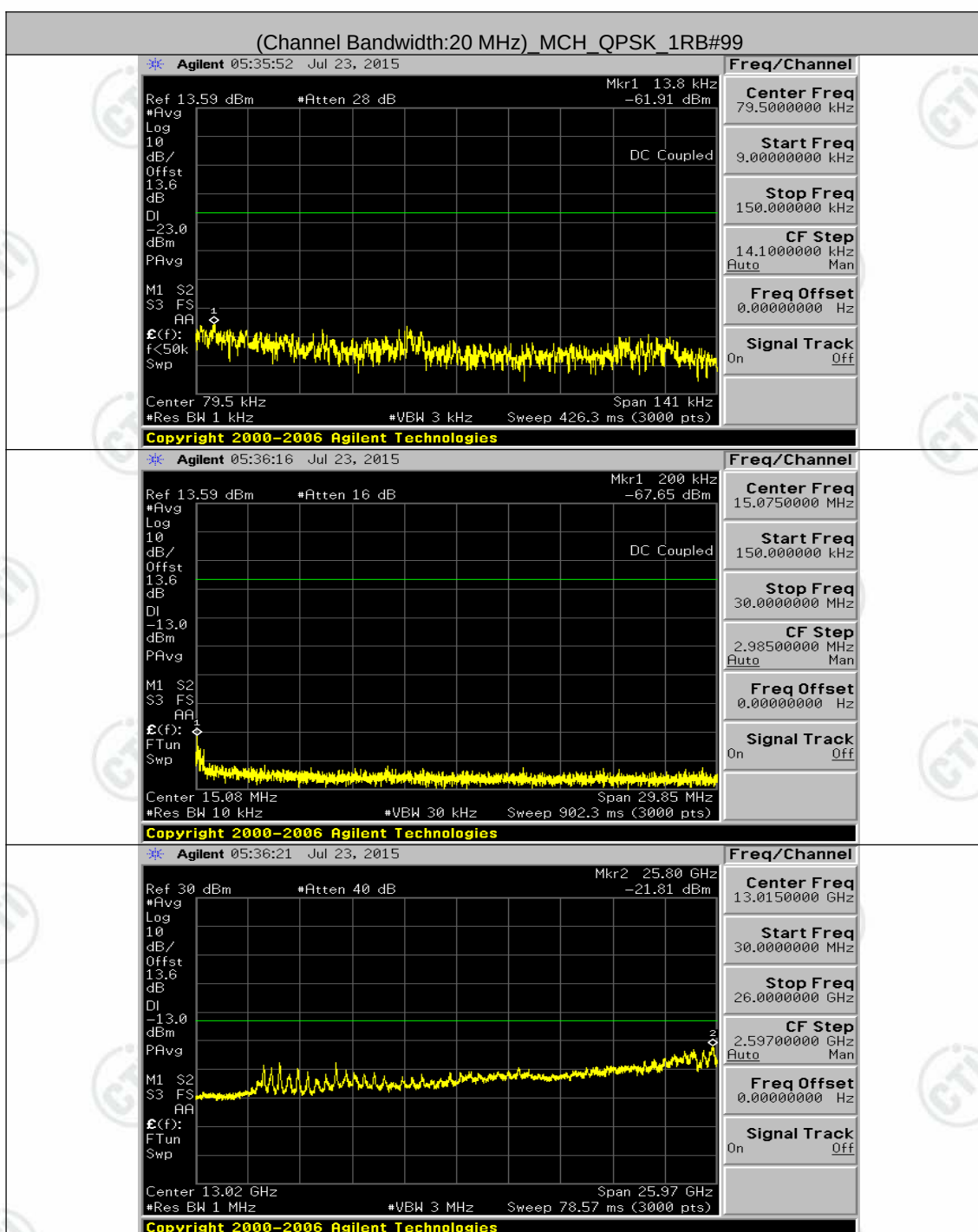


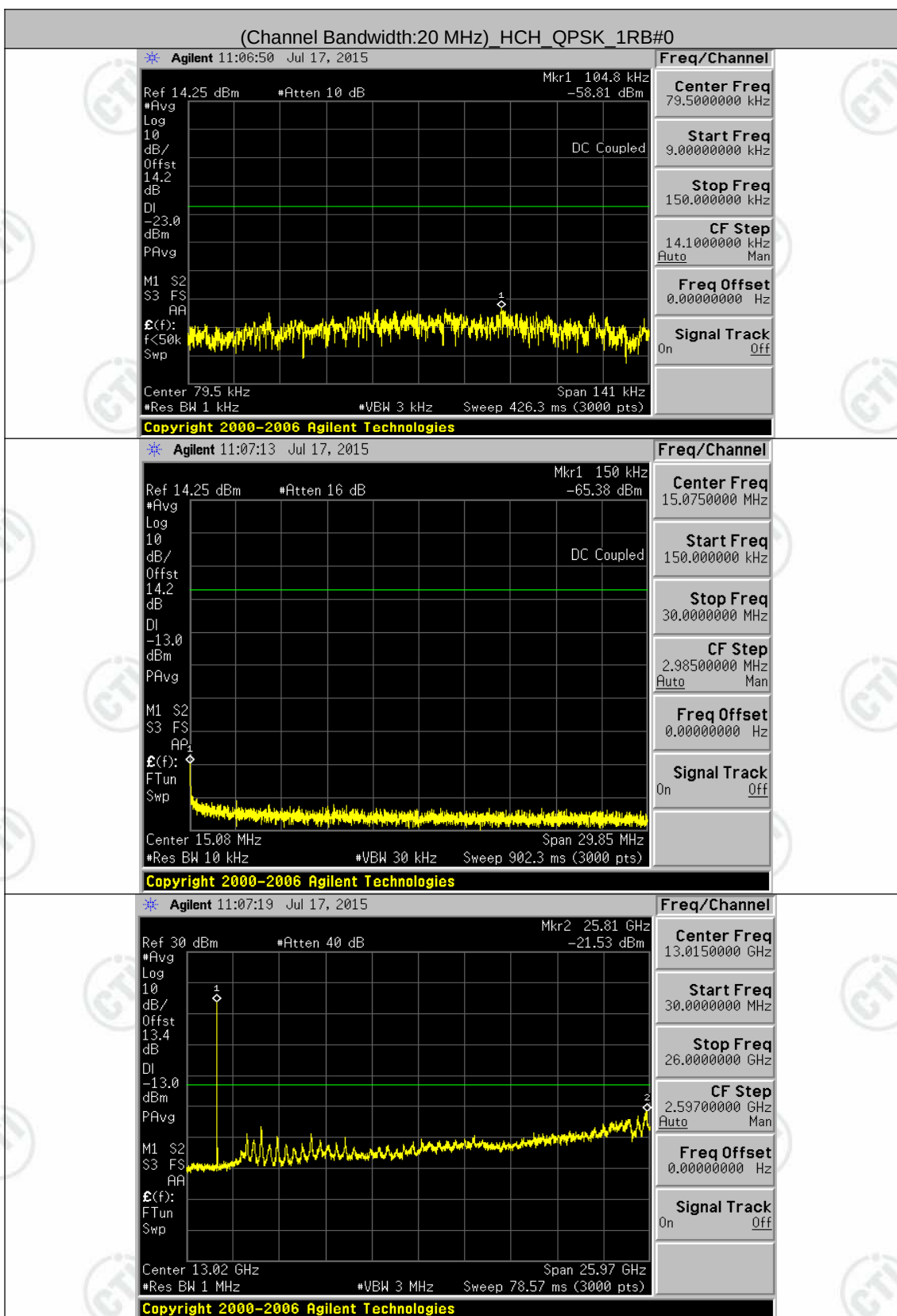


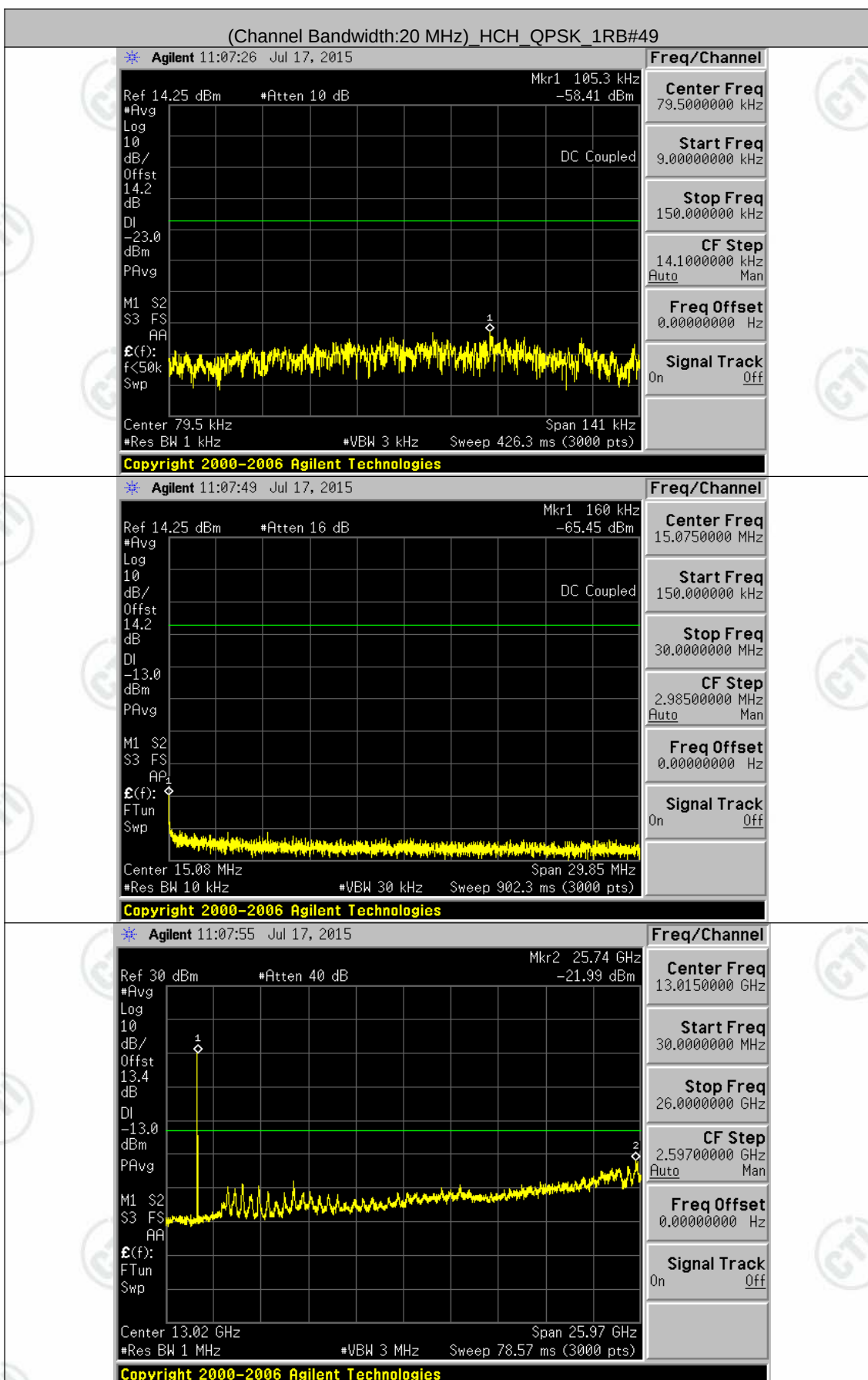


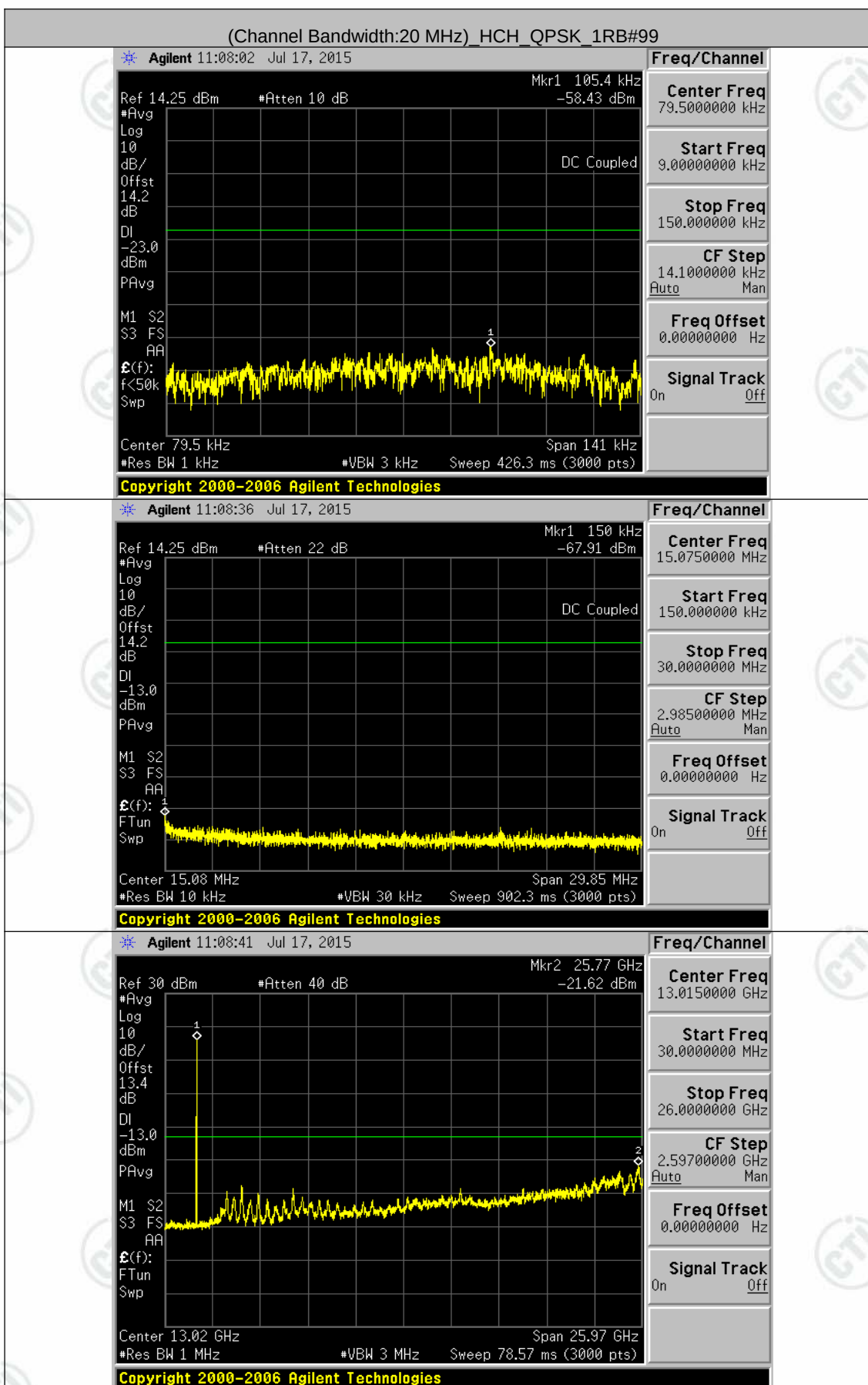


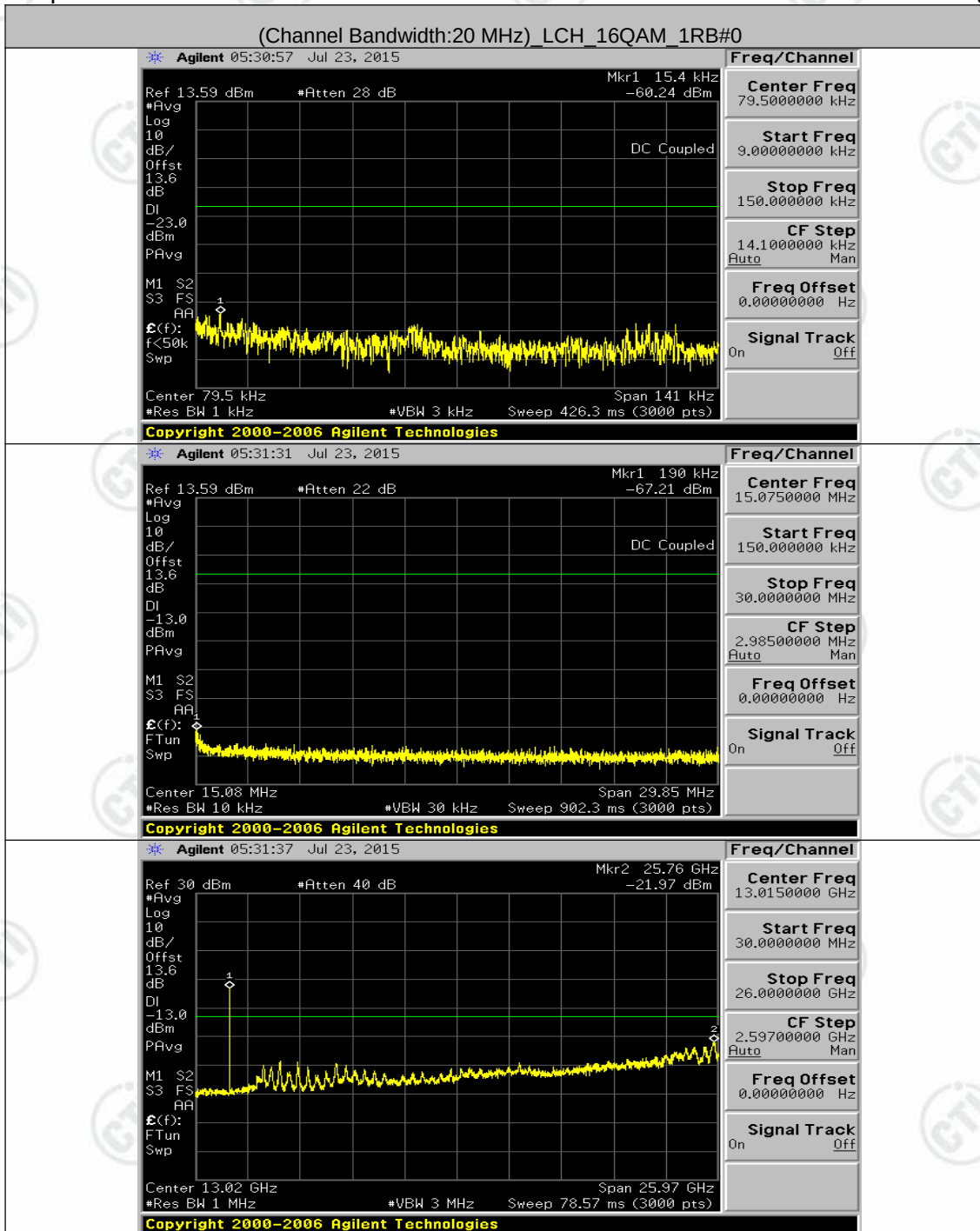


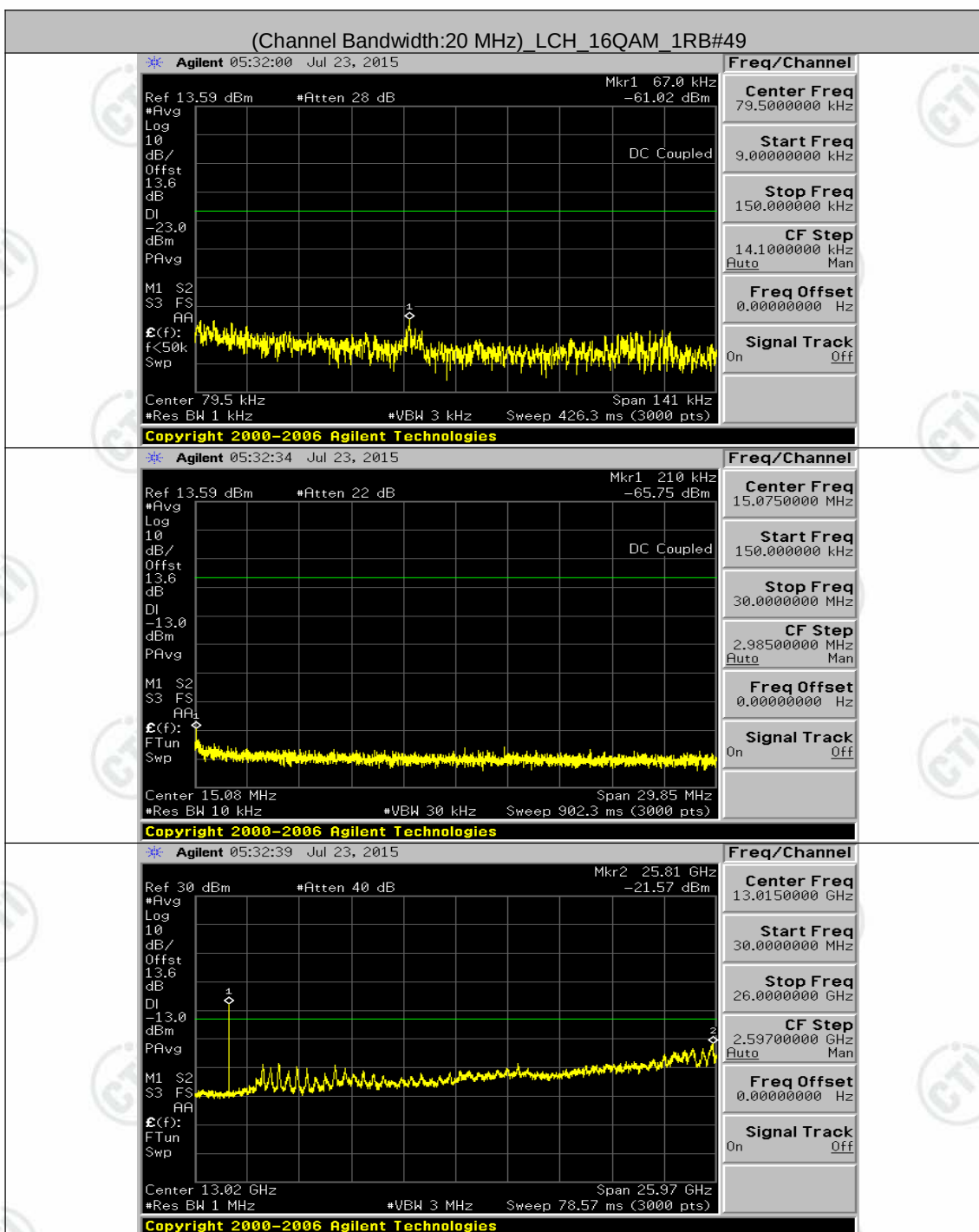


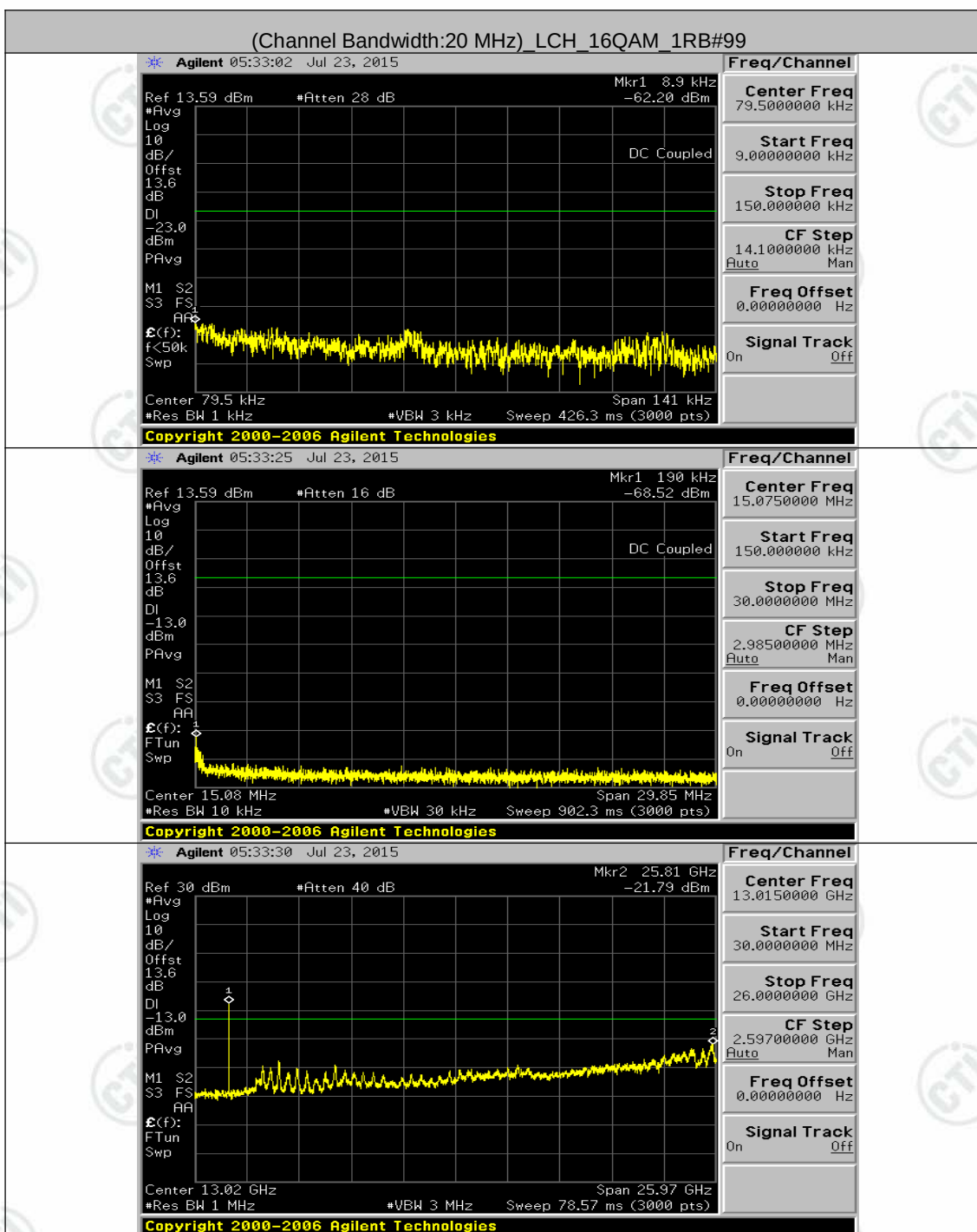


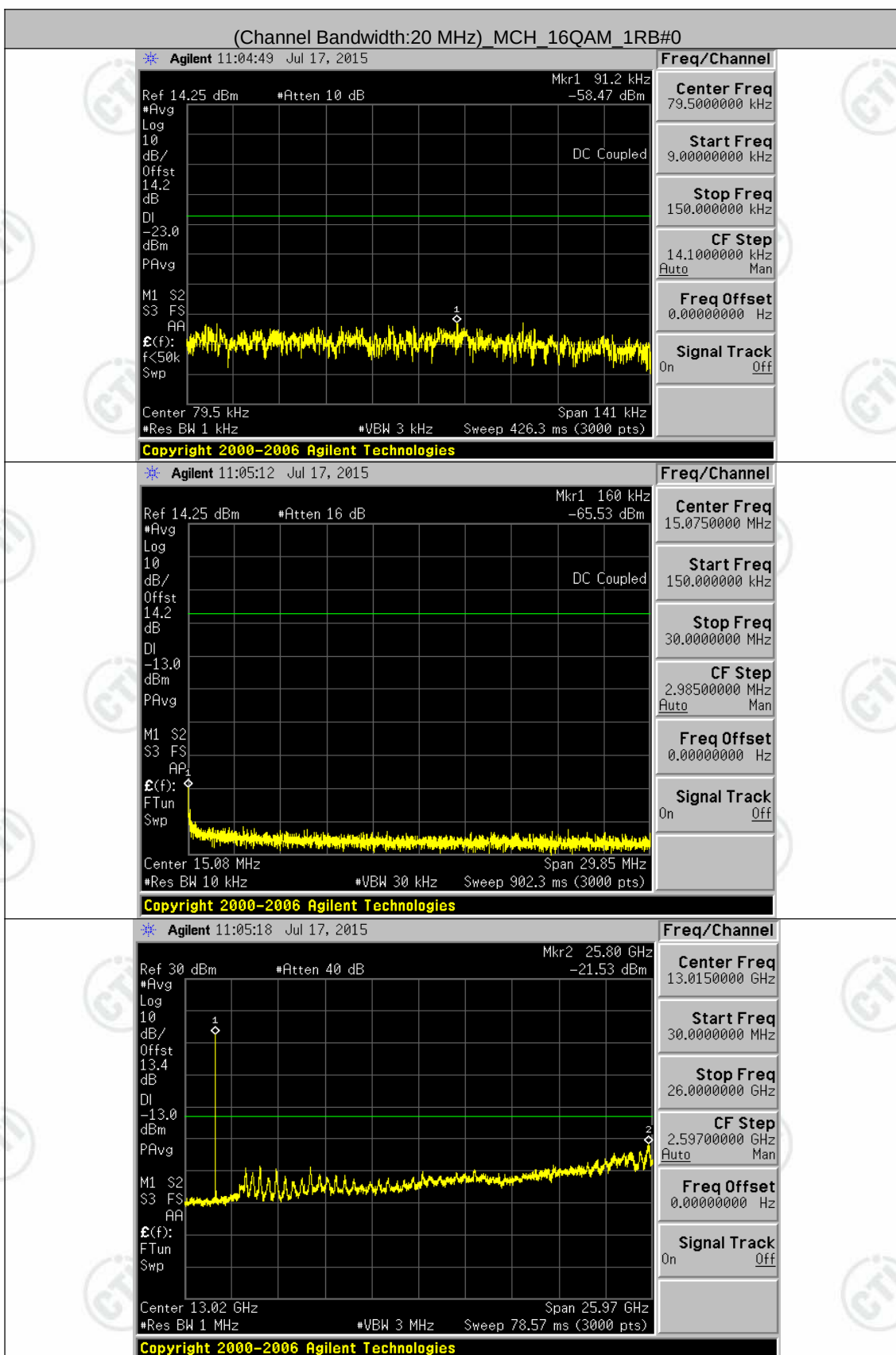


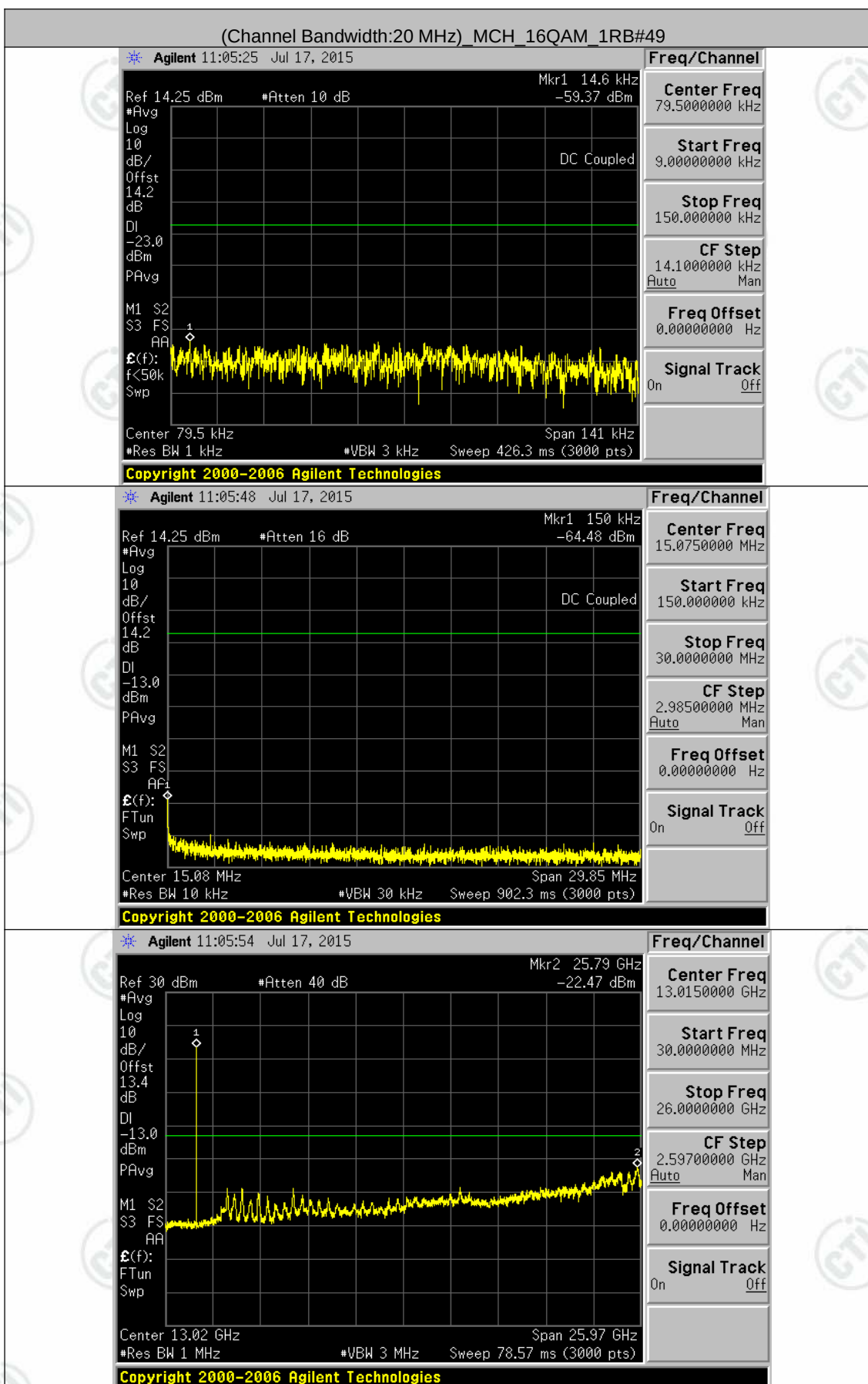


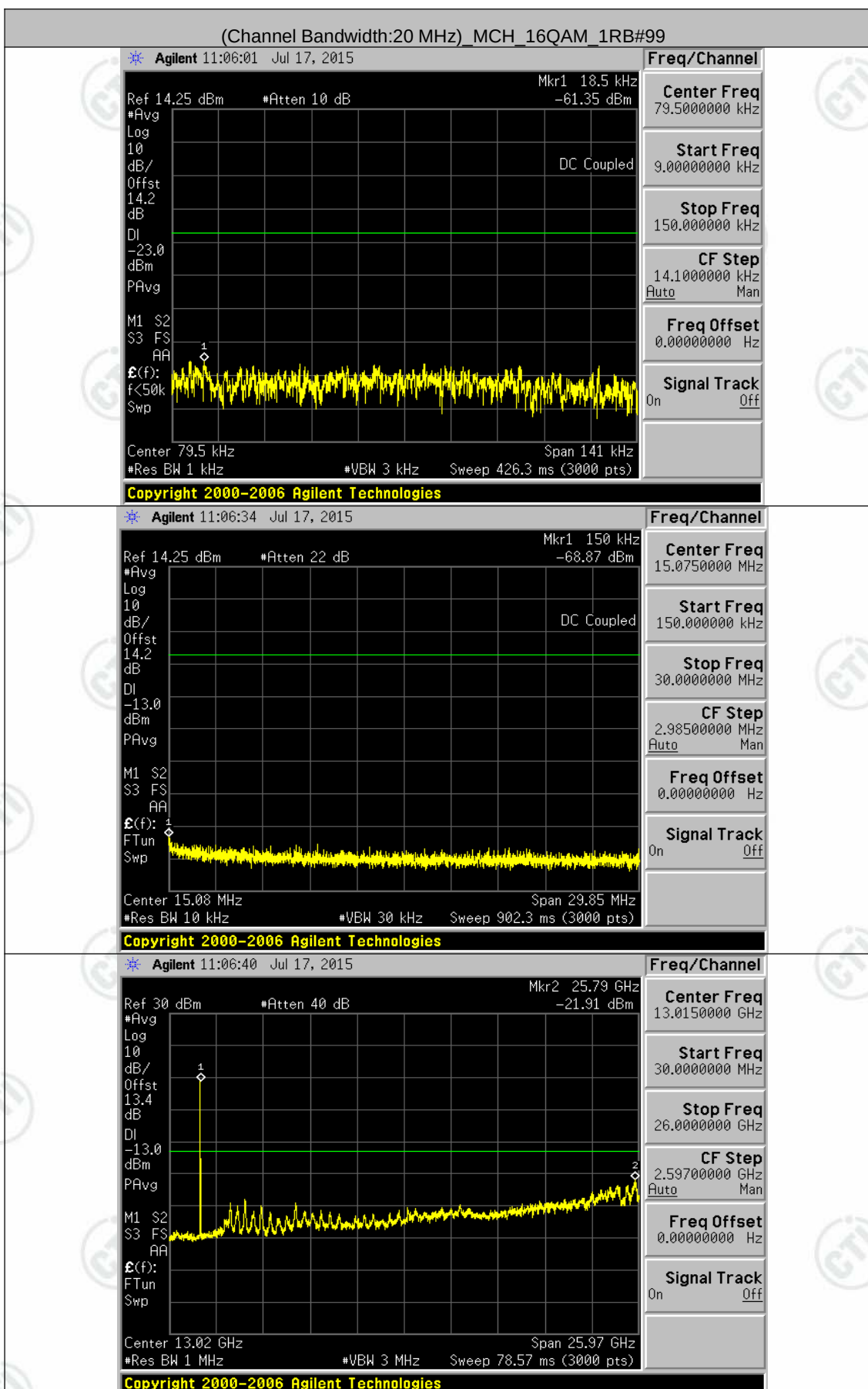


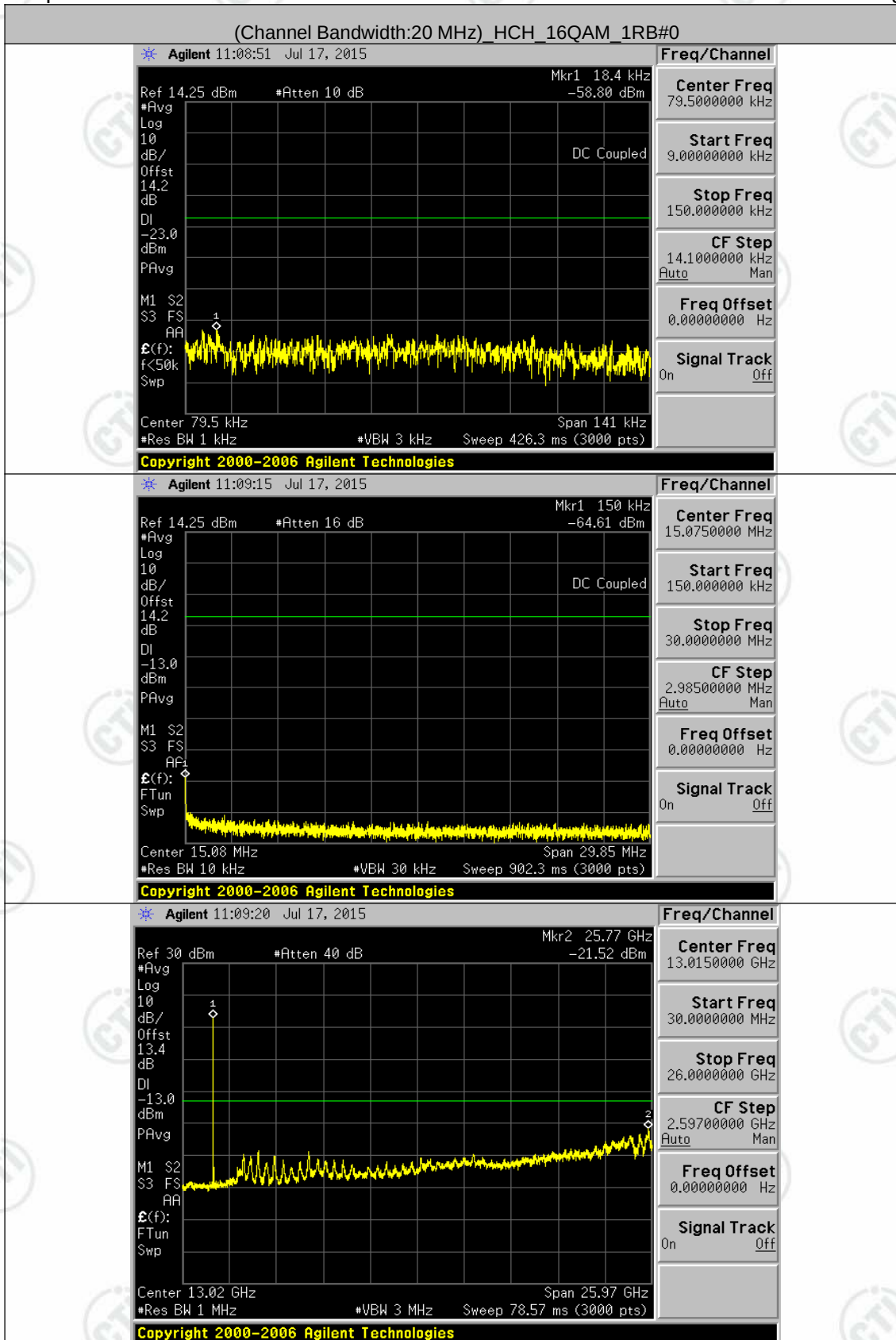


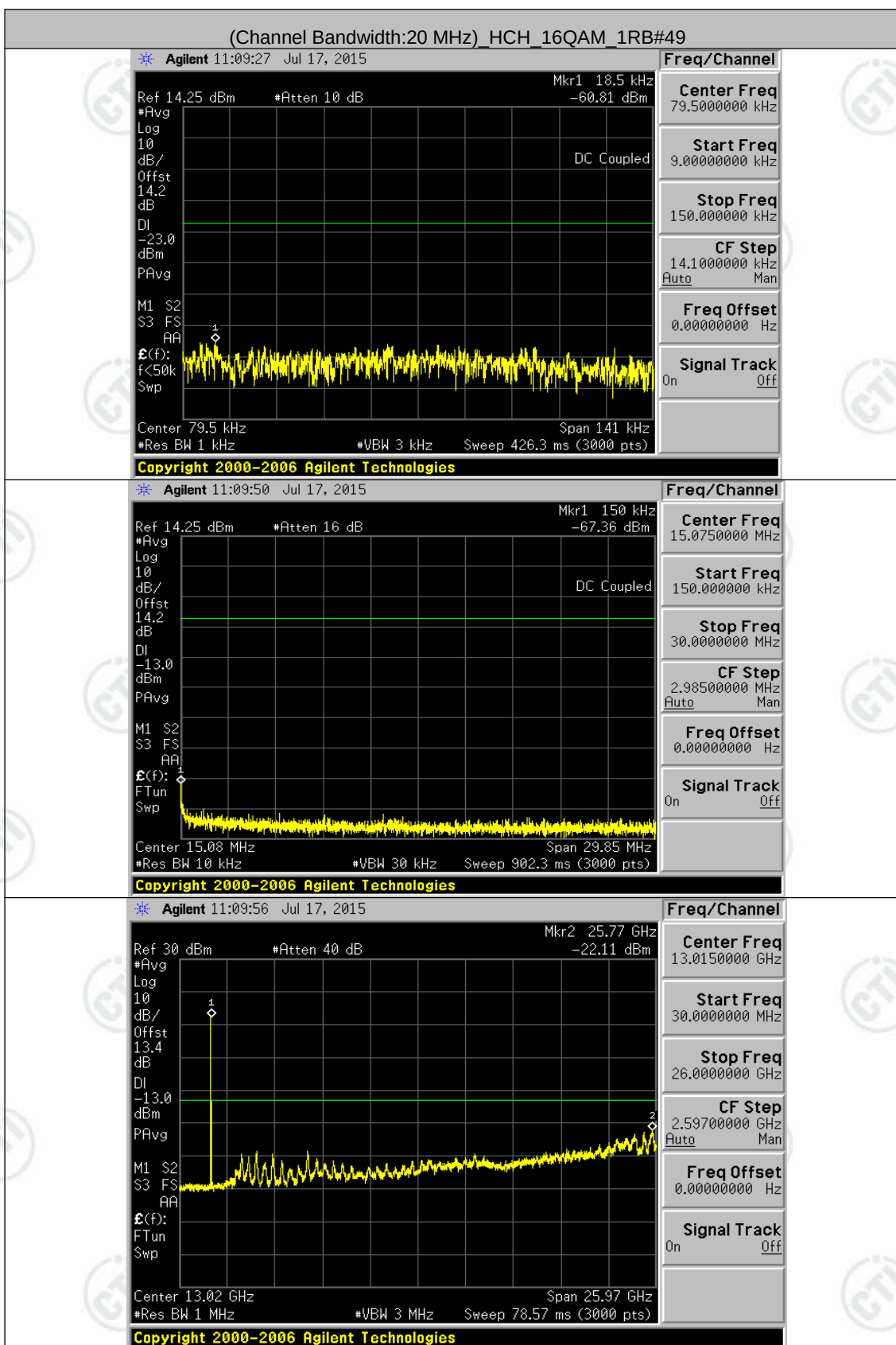


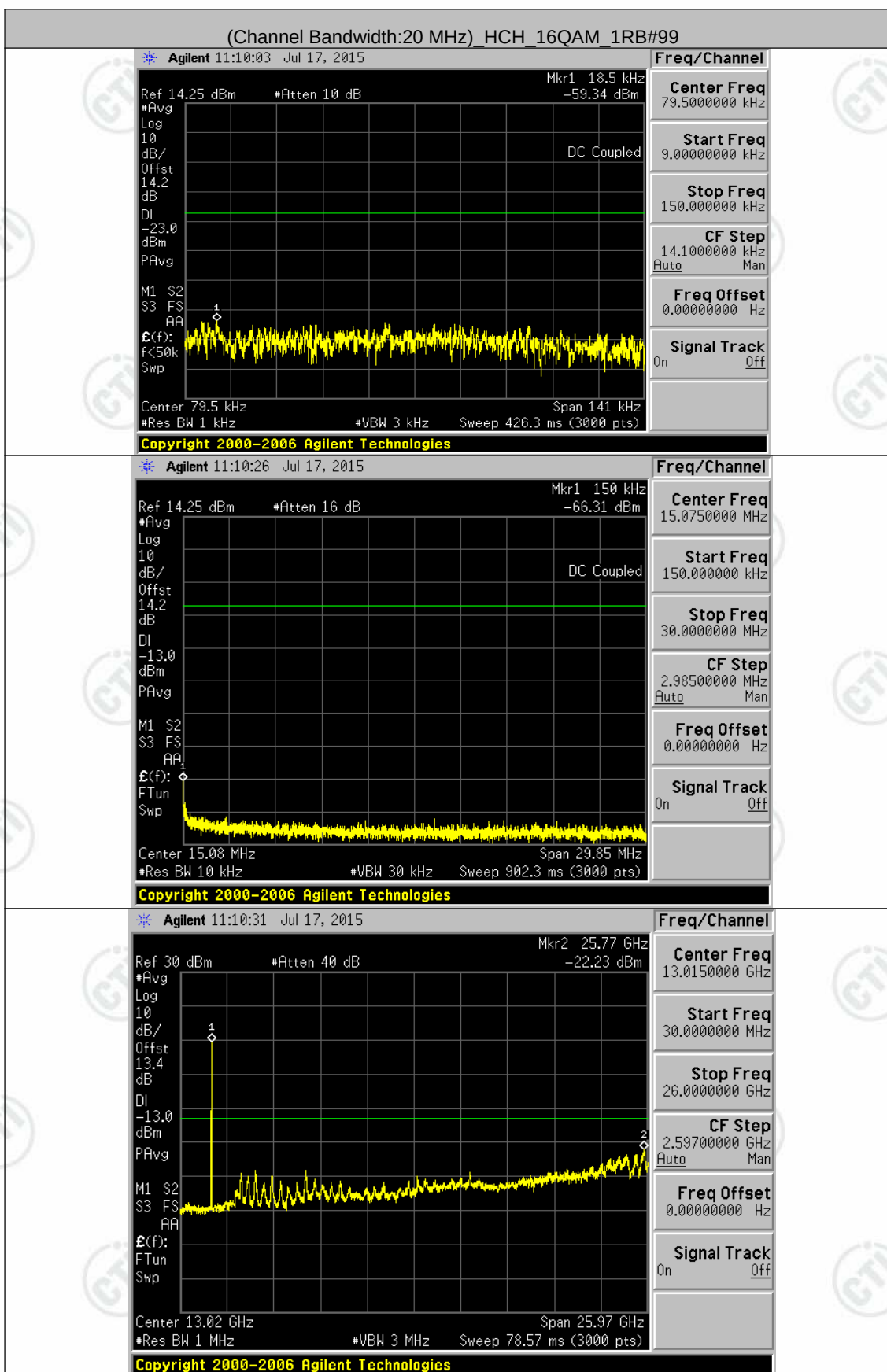












## Appendix F: Frequency Stability

### Test Result

VL is 3.5V, VN is 3.6V, VH is 3.7V.

Channel Bandwidth: 1.4 MHz

| Channel Bandwidth: 1.4 MHz |         |               |                  |                |                 |             |         |
|----------------------------|---------|---------------|------------------|----------------|-----------------|-------------|---------|
| Voltage                    |         |               |                  |                |                 |             |         |
| Modulation                 | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK                       | LCH     | VL            | TN               | 1.19           | 0.000694        | ± 2.5       | PASS    |
|                            |         | VN            | TN               | 1.32           | 0.000769        | ± 2.5       | PASS    |
|                            |         | VH            | TN               | 2.25           | 0.001313        | ± 2.5       | PASS    |
|                            | MCH     | VL            | TN               | -0.06          | -0.000033       | ± 2.5       | PASS    |
|                            |         | VN            | TN               | -0.69          | -0.000396       | ± 2.5       | PASS    |
|                            |         | VH            | TN               | 0.96           | 0.000553        | ± 2.5       | PASS    |
|                            | HCH     | VL            | TN               | -4.49          | -0.002560       | ± 2.5       | PASS    |
|                            |         | VN            | TN               | -3.72          | -0.002120       | ± 2.5       | PASS    |
|                            |         | VH            | TN               | -4.45          | -0.002536       | ± 2.5       | PASS    |
| 16QAM                      | LCH     | VL            | TN               | 1.54           | 0.000903        | ± 2.5       | PASS    |
|                            |         | VN            | TN               | 1.09           | 0.000636        | ± 2.5       | PASS    |
|                            |         | VH            | TN               | 1.76           | 0.001029        | ± 2.5       | PASS    |
|                            | MCH     | VL            | TN               | 1.27           | 0.000735        | ± 2.5       | PASS    |
|                            |         | VN            | TN               | 0.06           | 0.000033        | ± 2.5       | PASS    |
|                            |         | VH            | TN               | 0.30           | 0.000173        | ± 2.5       | PASS    |
|                            | HCH     | VL            | TN               | -1.93          | -0.001101       | ± 2.5       | PASS    |
|                            |         | VN            | TN               | -3.18          | -0.001810       | ± 2.5       | PASS    |
|                            |         | VH            | TN               | -3.00          | -0.001712       | ± 2.5       | PASS    |
| Temperature                |         |               |                  |                |                 |             |         |
| Modulation                 | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK                       | LCH     | VN            | -30              | 0.92           | 0.000535        | ± 2.5       | PASS    |
|                            |         | VN            | -20              | 1.29           | 0.000753        | ± 2.5       | PASS    |
|                            |         | VN            | -10              | 1.33           | 0.000778        | ± 2.5       | PASS    |
|                            |         | VN            | 0                | 0.87           | 0.000510        | ± 2.5       | PASS    |
|                            |         | VN            | 10               | 1.50           | 0.000878        | ± 2.5       | PASS    |
|                            |         | VN            | 20               | 1.67           | 0.000978        | ± 2.5       | PASS    |
|                            |         | VN            | 30               | 1.62           | 0.000945        | ± 2.5       | PASS    |
|                            |         | VN            | 40               | 2.39           | 0.001396        | ± 2.5       | PASS    |
|                            |         | VN            | 50               | 1.72           | 0.001003        | ± 2.5       | PASS    |
|                            | MCH     | VN            | -30              | -0.83          | -0.000479       | ± 2.5       | PASS    |
|                            |         | VN            | -20              | -0.49          | -0.000281       | ± 2.5       | PASS    |
|                            |         | VN            | -10              | 0.54           | 0.000314        | ± 2.5       | PASS    |
|                            |         | VN            | 0                | -0.09          | -0.000050       | ± 2.5       | PASS    |
|                            |         | VN            | 10               | 0.84           | 0.000487        | ± 2.5       | PASS    |
|                            |         | VN            | 20               | -0.57          | -0.000330       | ± 2.5       | PASS    |
|                            |         | VN            | 30               | -1.24          | -0.000718       | ± 2.5       | PASS    |
|                            |         | VN            | 40               | 0.43           | 0.000248        | ± 2.5       | PASS    |
|                            |         | VN            | 50               | -0.04          | -0.000025       | ± 2.5       | PASS    |
|                            | HCH     | VN            | -30              | -7.11          | -0.004053       | ± 2.5       | PASS    |
|                            |         | VN            | -20              | -5.16          | -0.002944       | ± 2.5       | PASS    |
|                            |         | VN            | -10              | -3.09          | -0.001761       | ± 2.5       | PASS    |
|                            |         | VN            | 0                | -2.69          | -0.001533       | ± 2.5       | PASS    |

|       |     |    |     |       |           |       |      |
|-------|-----|----|-----|-------|-----------|-------|------|
| 16QAM |     | VN | 10  | -4.41 | -0.002512 | ± 2.5 | PASS |
|       |     | VN | 20  | -3.06 | -0.001745 | ± 2.5 | PASS |
|       |     | VN | 30  | -3.25 | -0.001851 | ± 2.5 | PASS |
|       |     | VN | 40  | -2.95 | -0.001680 | ± 2.5 | PASS |
|       |     | VN | 50  | -3.03 | -0.001729 | ± 2.5 | PASS |
|       | LCH | VN | -30 | 1.27  | 0.000744  | ± 2.5 | PASS |
|       |     | VN | -20 | 1.65  | 0.000962  | ± 2.5 | PASS |
|       |     | VN | -10 | 0.20  | 0.000117  | ± 2.5 | PASS |
|       |     | VN | 0   | 1.22  | 0.000711  | ± 2.5 | PASS |
|       |     | VN | 10  | 1.13  | 0.000661  | ± 2.5 | PASS |
|       |     | VN | 20  | 0.77  | 0.000452  | ± 2.5 | PASS |
|       |     | VN | 30  | 1.79  | 0.001045  | ± 2.5 | PASS |
|       |     | VN | 40  | 1.26  | 0.000736  | ± 2.5 | PASS |
|       |     | VN | 50  | 1.65  | 0.000962  | ± 2.5 | PASS |
|       | MCH | VN | -30 | 0.96  | 0.000553  | ± 2.5 | PASS |
|       |     | VN | -20 | 0.41  | 0.000239  | ± 2.5 | PASS |
|       |     | VN | -10 | -0.26 | -0.000149 | ± 2.5 | PASS |
|       |     | VN | 0   | -0.89 | -0.000512 | ± 2.5 | PASS |
|       |     | VN | 10  | 0.64  | 0.000372  | ± 2.5 | PASS |
|       |     | VN | 20  | -0.04 | -0.000025 | ± 2.5 | PASS |
|       |     | VN | 30  | -0.23 | -0.000132 | ± 2.5 | PASS |
|       |     | VN | 40  | 0.40  | 0.000231  | ± 2.5 | PASS |
|       |     | VN | 50  | 1.69  | 0.000974  | ± 2.5 | PASS |
|       | HCH | VN | -30 | -2.50 | -0.001427 | ± 2.5 | PASS |
|       |     | VN | -20 | -3.35 | -0.001908 | ± 2.5 | PASS |
|       |     | VN | -10 | -3.53 | -0.002014 | ± 2.5 | PASS |
|       |     | VN | 0   | -3.98 | -0.002267 | ± 2.5 | PASS |
|       |     | VN | 10  | -2.35 | -0.001337 | ± 2.5 | PASS |
|       |     | VN | 20  | -2.83 | -0.001615 | ± 2.5 | PASS |
|       |     | VN | 30  | -2.57 | -0.001468 | ± 2.5 | PASS |
|       |     | VN | 40  | -3.05 | -0.001737 | ± 2.5 | PASS |
|       |     | VN | 50  | -3.19 | -0.001818 | ± 2.5 | PASS |

Channel Bandwidth: 3 MHz

| Channel Bandwidth: 3 MHz |         |               |                  |                |                 |             |         |
|--------------------------|---------|---------------|------------------|----------------|-----------------|-------------|---------|
| Voltage                  |         |               |                  |                |                 |             |         |
| Modulation               | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK                     | LCH     | VL            | TN               | 1.63           | 0.000953        | ± 2.5       | PASS    |
|                          |         | VN            | TN               | -0.03          | -0.000017       | ± 2.5       | PASS    |
|                          |         | VH            | TN               | 1.67           | 0.000978        | ± 2.5       | PASS    |
|                          | MCH     | VL            | TN               | -0.87          | -0.000504       | ± 2.5       | PASS    |
|                          |         | VN            | TN               | 0.33           | 0.000190        | ± 2.5       | PASS    |
|                          |         | VH            | TN               | 0.93           | 0.000537        | ± 2.5       | PASS    |
|                          | HCH     | VL            | TN               | 0.76           | 0.000432        | ± 2.5       | PASS    |
|                          |         | VN            | TN               | -0.11          | -0.000065       | ± 2.5       | PASS    |
|                          |         | VH            | TN               | -0.37          | -0.000212       | ± 2.5       | PASS    |
| 16QAM                    | LCH     | VL            | TN               | -0.16          | -0.000092       | ± 2.5       | PASS    |
|                          |         | VN            | TN               | -0.69          | -0.000401       | ± 2.5       | PASS    |
|                          |         | VH            | TN               | -0.57          | -0.000334       | ± 2.5       | PASS    |
|                          | MCH     | VL            | TN               | 0.96           | 0.000553        | ± 2.5       | PASS    |

|             |         |               |                  |                |                 |             |         |
|-------------|---------|---------------|------------------|----------------|-----------------|-------------|---------|
|             |         | VN            | TN               | -1.16          | -0.000669       | ± 2.5       | PASS    |
|             |         | VH            | TN               | -0.13          | -0.000074       | ± 2.5       | PASS    |
|             | HCH     | VL            | TN               | -0.54          | -0.000310       | ± 2.5       | PASS    |
|             |         | VN            | TN               | -0.70          | -0.000400       | ± 2.5       | PASS    |
|             |         | VH            | TN               | -0.09          | -0.000049       | ± 2.5       | PASS    |
| Temperature |         |               |                  |                |                 |             |         |
| Modulation  | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK        | LCH     | VN            | -30              | -0.33          | -0.000192       | ± 2.5       | PASS    |
|             |         | VN            | -20              | -0.50          | -0.000293       | ± 2.5       | PASS    |
|             |         | VN            | -10              | 0.96           | 0.000560        | ± 2.5       | PASS    |
|             |         | VN            | 0                | 1.49           | 0.000869        | ± 2.5       | PASS    |
|             |         | VN            | 10               | -0.39          | -0.000226       | ± 2.5       | PASS    |
|             |         | VN            | 20               | 0.92           | 0.000535        | ± 2.5       | PASS    |
|             |         | VN            | 30               | 0.33           | 0.000192        | ± 2.5       | PASS    |
|             |         | VN            | 40               | 0.51           | 0.000301        | ± 2.5       | PASS    |
|             |         | VN            | 50               | -0.17          | -0.000100       | ± 2.5       | PASS    |
|             | MCH     | VN            | -30              | -0.23          | -0.000132       | ± 2.5       | PASS    |
|             |         | VN            | -20              | -0.23          | -0.000132       | ± 2.5       | PASS    |
|             |         | VN            | -10              | -2.88          | -0.001660       | ± 2.5       | PASS    |
|             |         | VN            | 0                | 0.66           | 0.000380        | ± 2.5       | PASS    |
|             |         | VN            | 10               | 0.50           | 0.000289        | ± 2.5       | PASS    |
|             |         | VN            | 20               | 1.33           | 0.000768        | ± 2.5       | PASS    |
|             |         | VN            | 30               | 0.84           | 0.000487        | ± 2.5       | PASS    |
|             |         | VN            | 40               | 0.19           | 0.000107        | ± 2.5       | PASS    |
|             |         | VN            | 50               | -0.86          | -0.000495       | ± 2.5       | PASS    |
|             | HCH     | VN            | -30              | -1.00          | -0.000571       | ± 2.5       | PASS    |
|             |         | VN            | -20              | 0.21           | 0.000122        | ± 2.5       | PASS    |
|             |         | VN            | -10              | -0.21          | -0.000122       | ± 2.5       | PASS    |
|             |         | VN            | 0                | 0.37           | 0.000212        | ± 2.5       | PASS    |
|             |         | VN            | 10               | 1.13           | 0.000644        | ± 2.5       | PASS    |
|             |         | VN            | 20               | -1.13          | -0.000644       | ± 2.5       | PASS    |
|             |         | VN            | 30               | 0.70           | 0.000400        | ± 2.5       | PASS    |
|             |         | VN            | 40               | 0.10           | 0.000057        | ± 2.5       | PASS    |
|             |         | VN            | 50               | -0.50          | -0.000286       | ± 2.5       | PASS    |
| 16QAM       | LCH     | VN            | -30              | -0.40          | -0.000234       | ± 2.5       | PASS    |
|             |         | VN            | -20              | 0.01           | 0.000008        | ± 2.5       | PASS    |
|             |         | VN            | -10              | 0.51           | 0.000301        | ± 2.5       | PASS    |
|             |         | VN            | 0                | 0.36           | 0.000209        | ± 2.5       | PASS    |
|             |         | VN            | 10               | 0.77           | 0.000451        | ± 2.5       | PASS    |
|             |         | VN            | 20               | 0.17           | 0.000100        | ± 2.5       | PASS    |
|             |         | VN            | 30               | -3.35          | -0.001956       | ± 2.5       | PASS    |
|             |         | VN            | 40               | -3.62          | -0.002115       | ± 2.5       | PASS    |
|             |         | VN            | 50               | -0.06          | -0.000033       | ± 2.5       | PASS    |
|             | MCH     | VN            | -30              | 0.13           | 0.000074        | ± 2.5       | PASS    |
|             |         | VN            | -20              | 0.51           | 0.000297        | ± 2.5       | PASS    |
|             |         | VN            | -10              | 0.07           | 0.000041        | ± 2.5       | PASS    |
|             |         | VN            | 0                | 0.39           | 0.000223        | ± 2.5       | PASS    |
|             |         | VN            | 10               | -0.01          | -0.000008       | ± 2.5       | PASS    |
|             |         | VN            | 20               | -0.66          | -0.000380       | ± 2.5       | PASS    |
|             |         | VN            | 30               | 0.04           | 0.000025        | ± 2.5       | PASS    |
|             |         | VN            | 40               | 0.70           | 0.000405        | ± 2.5       | PASS    |

|  |     |    |     |       |           |       |      |
|--|-----|----|-----|-------|-----------|-------|------|
|  | HCH | VN | 50  | 0.06  | 0.000033  | ± 2.5 | PASS |
|  |     | VN | -30 | -0.62 | -0.000351 | ± 2.5 | PASS |
|  |     | VN | -20 | -0.20 | -0.000114 | ± 2.5 | PASS |
|  |     | VN | -10 | 0.20  | 0.000114  | ± 2.5 | PASS |
|  |     | VN | 0   | -0.10 | -0.000057 | ± 2.5 | PASS |
|  |     | VN | 10  | 0.56  | 0.000318  | ± 2.5 | PASS |
|  |     | VN | 20  | 0.37  | 0.000212  | ± 2.5 | PASS |
|  |     | VN | 30  | 1.23  | 0.000702  | ± 2.5 | PASS |
|  |     | VN | 40  | -0.94 | -0.000538 | ± 2.5 | PASS |
|  |     | VN | 50  | -0.80 | -0.000457 | ± 2.5 | PASS |

Channel Bandwidth: 5 MHz

| Channel Bandwidth: 5 MHz |         |               |                  |                |                 |             |         |
|--------------------------|---------|---------------|------------------|----------------|-----------------|-------------|---------|
| Voltage                  |         |               |                  |                |                 |             |         |
| Modulation               | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK                     | LCH     | VL            | TN               | 2.02           | 0.001178        | ± 2.5       | PASS    |
|                          |         | VN            | TN               | 0.24           | 0.000142        | ± 2.5       | PASS    |
|                          |         | VH            | TN               | 2.13           | 0.001245        | ± 2.5       | PASS    |
|                          | MCH     | VL            | TN               | -0.49          | -0.000281       | ± 2.5       | PASS    |
|                          |         | VN            | TN               | 1.24           | 0.000718        | ± 2.5       | PASS    |
|                          |         | VH            | TN               | 0.13           | 0.000074        | ± 2.5       | PASS    |
|                          | HCH     | VL            | TN               | -4.72          | -0.002694       | ± 2.5       | PASS    |
|                          |         | VN            | TN               | -2.80          | -0.001600       | ± 2.5       | PASS    |
|                          |         | VH            | TN               | -5.11          | -0.002914       | ± 2.5       | PASS    |
| 16QAM                    | LCH     | VL            | TN               | -2.98          | -0.001737       | ± 2.5       | PASS    |
|                          |         | VN            | TN               | -0.66          | -0.000384       | ± 2.5       | PASS    |
|                          |         | VH            | TN               | -1.57          | -0.000919       | ± 2.5       | PASS    |
|                          | MCH     | VL            | TN               | -2.93          | -0.001693       | ± 2.5       | PASS    |
|                          |         | VN            | TN               | -2.78          | -0.001602       | ± 2.5       | PASS    |
|                          |         | VH            | TN               | -2.73          | -0.001577       | ± 2.5       | PASS    |
|                          | HCH     | VL            | TN               | -5.54          | -0.003159       | ± 2.5       | PASS    |
|                          |         | VN            | TN               | -2.59          | -0.001477       | ± 2.5       | PASS    |
|                          |         | VH            | TN               | -5.32          | -0.003037       | ± 2.5       | PASS    |
| Temperature              |         |               |                  |                |                 |             |         |
| Modulation               | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK                     | LCH     | VN            | -30              | -0.96          | -0.000560       | ± 2.5       | PASS    |
|                          |         | VN            | -20              | -0.70          | -0.000409       | ± 2.5       | PASS    |
|                          |         | VN            | -10              | -0.79          | -0.000459       | ± 2.5       | PASS    |
|                          |         | VN            | 0                | 1.83           | 0.001069        | ± 2.5       | PASS    |
|                          |         | VN            | 10               | 2.17           | 0.001270        | ± 2.5       | PASS    |
|                          |         | VN            | 20               | 3.03           | 0.001771        | ± 2.5       | PASS    |
|                          |         | VN            | 30               | 1.50           | 0.000877        | ± 2.5       | PASS    |
|                          |         | VN            | 40               | 1.82           | 0.001061        | ± 2.5       | PASS    |
|                          |         | VN            | 50               | 3.03           | 0.001771        | ± 2.5       | PASS    |
|                          | MCH     | VN            | -30              | 1.03           | 0.000594        | ± 2.5       | PASS    |
|                          |         | VN            | -20              | 0.86           | 0.000495        | ± 2.5       | PASS    |
|                          |         | VN            | -10              | 0.27           | 0.000157        | ± 2.5       | PASS    |
|                          |         | VN            | 0                | 1.39           | 0.000801        | ± 2.5       | PASS    |
|                          |         | VN            | 10               | 0.39           | 0.000223        | ± 2.5       | PASS    |

|       |     |    |     |       |           |       |      |
|-------|-----|----|-----|-------|-----------|-------|------|
| 16QAM |     | VN | 20  | -0.01 | -0.000008 | ± 2.5 | PASS |
|       |     | VN | 30  | 0.13  | 0.000074  | ± 2.5 | PASS |
|       |     | VN | 40  | 1.95  | 0.001123  | ± 2.5 | PASS |
|       |     | VN | 50  | 0.64  | 0.000372  | ± 2.5 | PASS |
|       | HCH | VN | -30 | -4.45 | -0.002539 | ± 2.5 | PASS |
|       |     | VN | -20 | -2.42 | -0.001379 | ± 2.5 | PASS |
|       |     | VN | -10 | -2.55 | -0.001453 | ± 2.5 | PASS |
|       |     | VN | 0   | -1.43 | -0.000816 | ± 2.5 | PASS |
|       |     | VN | 10  | -1.46 | -0.000833 | ± 2.5 | PASS |
|       |     | VN | 20  | -2.99 | -0.001706 | ± 2.5 | PASS |
|       |     | VN | 30  | -1.90 | -0.001086 | ± 2.5 | PASS |
|       |     | VN | 40  | -3.20 | -0.001828 | ± 2.5 | PASS |
|       |     | VN | 50  | -2.62 | -0.001494 | ± 2.5 | PASS |
|       | LCH | VN | -30 | 1.06  | 0.000618  | ± 2.5 | PASS |
|       |     | VN | -20 | 0.74  | 0.000434  | ± 2.5 | PASS |
|       |     | VN | -10 | 0.50  | 0.000292  | ± 2.5 | PASS |
|       |     | VN | 0   | 2.45  | 0.001428  | ± 2.5 | PASS |
|       |     | VN | 10  | 2.15  | 0.001253  | ± 2.5 | PASS |
|       |     | VN | 20  | -1.90 | -0.001111 | ± 2.5 | PASS |
|       |     | VN | 30  | -1.02 | -0.000593 | ± 2.5 | PASS |
|       |     | VN | 40  | -2.75 | -0.001604 | ± 2.5 | PASS |
|       | MCH | VN | 50  | -1.70 | -0.000994 | ± 2.5 | PASS |
|       |     | VN | -30 | -0.70 | -0.000405 | ± 2.5 | PASS |
|       |     | VN | -20 | -0.04 | -0.000025 | ± 2.5 | PASS |
|       |     | VN | -10 | 0.87  | 0.000504  | ± 2.5 | PASS |
|       |     | VN | 0   | 0.06  | 0.000033  | ± 2.5 | PASS |
|       |     | VN | 10  | -1.87 | -0.001082 | ± 2.5 | PASS |
|       |     | VN | 20  | 0.37  | 0.000215  | ± 2.5 | PASS |
|       |     | VN | 30  | -0.70 | -0.000405 | ± 2.5 | PASS |
|       | HCH | VN | 40  | -0.43 | -0.000248 | ± 2.5 | PASS |
|       |     | VN | 50  | -2.40 | -0.001387 | ± 2.5 | PASS |
|       |     | VN | -30 | -2.78 | -0.001584 | ± 2.5 | PASS |
|       |     | VN | -20 | -2.95 | -0.001682 | ± 2.5 | PASS |
|       |     | VN | -10 | -2.36 | -0.001347 | ± 2.5 | PASS |
|       |     | VN | 0   | -3.60 | -0.002057 | ± 2.5 | PASS |
|       |     | VN | 10  | -2.98 | -0.001698 | ± 2.5 | PASS |
|       |     | VN | 20  | -3.33 | -0.001902 | ± 2.5 | PASS |
|       |     | VN | 30  | -3.16 | -0.001804 | ± 2.5 | PASS |
|       |     | VN | 40  | -2.46 | -0.001404 | ± 2.5 | PASS |
|       |     | VN | 50  | -3.36 | -0.001918 | ± 2.5 | PASS |

Channel Bandwidth: 10 MHz

| Channel Bandwidth: 10 MHz |         |               |                  |                |                 |             |         |
|---------------------------|---------|---------------|------------------|----------------|-----------------|-------------|---------|
| Voltage                   |         |               |                  |                |                 |             |         |
| Modulation                | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK                      | LCH     | VL            | TN               | -3.09          | -0.001802       | ± 2.5       | PASS    |
|                           |         | VN            | TN               | -2.73          | -0.001593       | ± 2.5       | PASS    |
|                           |         | VH            | TN               | -2.88          | -0.001677       | ± 2.5       | PASS    |
|                           | MCH     | VL            | TN               | 0.64           | 0.000372        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 0.83           | 0.000479        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 1.27           | 0.000735        | ± 2.5       | PASS    |
|                           | HCH     | VL            | TN               | 1.36           | 0.000777        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 1.13           | 0.000646        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 1.20           | 0.000687        | ± 2.5       | PASS    |
| 16QAM                     | LCH     | VL            | TN               | -2.70          | -0.001576       | ± 2.5       | PASS    |
|                           |         | VN            | TN               | -2.15          | -0.001251       | ± 2.5       | PASS    |
|                           |         | VH            | TN               | -3.96          | -0.002311       | ± 2.5       | PASS    |
|                           | MCH     | VL            | TN               | -0.23          | -0.000132       | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 0.00           | 0.000000        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 0.11           | 0.000066        | ± 2.5       | PASS    |
|                           | HCH     | VL            | TN               | 1.36           | 0.000777        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 1.75           | 0.000997        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 2.20           | 0.001259        | ± 2.5       | PASS    |
| Temperature               |         |               |                  |                |                 |             |         |
| Modulation                | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| 16QAM                     | LCH     | VN            | -30              | -1.32          | -0.000767       | ± 2.5       | PASS    |
|                           |         | VN            | -20              | -2.20          | -0.001285       | ± 2.5       | PASS    |
|                           |         | VN            | -10              | -2.27          | -0.001326       | ± 2.5       | PASS    |
|                           |         | VN            | 0                | -2.16          | -0.001260       | ± 2.5       | PASS    |
|                           |         | VN            | 10               | -1.06          | -0.000617       | ± 2.5       | PASS    |
|                           |         | VN            | 20               | -2.32          | -0.001351       | ± 2.5       | PASS    |
|                           |         | VN            | 30               | -2.90          | -0.001693       | ± 2.5       | PASS    |
|                           |         | VN            | 40               | -3.38          | -0.001969       | ± 2.5       | PASS    |
|                           |         | VN            | 50               | -2.52          | -0.001468       | ± 2.5       | PASS    |
|                           | MCH     | VN            | -30              | 0.64           | 0.000372        | ± 2.5       | PASS    |
|                           |         | VN            | -20              | 0.37           | 0.000215        | ± 2.5       | PASS    |
|                           |         | VN            | -10              | 1.09           | 0.000628        | ± 2.5       | PASS    |
|                           |         | VN            | 0                | 0.89           | 0.000512        | ± 2.5       | PASS    |
|                           |         | VN            | 10               | -0.37          | -0.000215       | ± 2.5       | PASS    |
|                           |         | VN            | 20               | -0.17          | -0.000099       | ± 2.5       | PASS    |
|                           |         | VN            | 30               | -0.16          | -0.000091       | ± 2.5       | PASS    |
|                           |         | VN            | 40               | 0.01           | 0.000008        | ± 2.5       | PASS    |
|                           |         | VN            | 50               | 0.83           | 0.000479        | ± 2.5       | PASS    |
|                           | HCH     | VN            | -30              | 2.32           | 0.001324        | ± 2.5       | PASS    |
|                           |         | VN            | -20              | 2.13           | 0.001218        | ± 2.5       | PASS    |
|                           |         | VN            | -10              | 1.47           | 0.000842        | ± 2.5       | PASS    |
|                           |         | VN            | 0                | 0.99           | 0.000564        | ± 2.5       | PASS    |
|                           |         | VN            | 10               | 1.82           | 0.001038        | ± 2.5       | PASS    |
|                           |         | VN            | 20               | 2.50           | 0.001431        | ± 2.5       | PASS    |
|                           |         | VN            | 30               | 0.92           | 0.000523        | ± 2.5       | PASS    |
|                           |         | VN            | 40               | 2.56           | 0.001463        | ± 2.5       | PASS    |

|      |     |    |     |       |           |       |      |
|------|-----|----|-----|-------|-----------|-------|------|
|      |     | VN | 50  | 2.20  | 0.001259  | ± 2.5 | PASS |
| QPSK | LCH | VN | -30 | -2.09 | -0.001218 | ± 2.5 | PASS |
|      |     | VN | -20 | -2.76 | -0.001610 | ± 2.5 | PASS |
|      |     | VN | -10 | -2.79 | -0.001627 | ± 2.5 | PASS |
|      |     | VN | 0   | -1.62 | -0.000943 | ± 2.5 | PASS |
|      |     | VN | 10  | -2.85 | -0.001660 | ± 2.5 | PASS |
|      |     | VN | 20  | -2.92 | -0.001702 | ± 2.5 | PASS |
|      |     | VN | 30  | -3.76 | -0.002194 | ± 2.5 | PASS |
|      |     | VN | 40  | -2.89 | -0.001685 | ± 2.5 | PASS |
|      |     | VN | 50  | -2.65 | -0.001543 | ± 2.5 | PASS |
|      | MCH | VN | -30 | 0.46  | 0.000264  | ± 2.5 | PASS |
|      |     | VN | -20 | 0.69  | 0.000396  | ± 2.5 | PASS |
|      |     | VN | -10 | -0.04 | -0.000025 | ± 2.5 | PASS |
|      |     | VN | 0   | 1.40  | 0.000809  | ± 2.5 | PASS |
|      |     | VN | 10  | 0.54  | 0.000314  | ± 2.5 | PASS |
|      |     | VN | 20  | 0.57  | 0.000330  | ± 2.5 | PASS |
|      |     | VN | 30  | -2.50 | -0.001445 | ± 2.5 | PASS |
|      |     | VN | 40  | -2.50 | -0.001445 | ± 2.5 | PASS |
|      |     | VN | 50  | -2.36 | -0.001362 | ± 2.5 | PASS |
|      | HCH | VN | -30 | 1.39  | 0.000793  | ± 2.5 | PASS |
|      |     | VN | -20 | 3.28  | 0.001872  | ± 2.5 | PASS |
|      |     | VN | -10 | 2.80  | 0.001602  | ± 2.5 | PASS |
|      |     | VN | 0   | 2.82  | 0.001610  | ± 2.5 | PASS |
|      |     | VN | 10  | 1.76  | 0.001005  | ± 2.5 | PASS |
|      |     | VN | 20  | 1.89  | 0.001079  | ± 2.5 | PASS |
|      |     | VN | 30  | 2.37  | 0.001357  | ± 2.5 | PASS |
|      |     | VN | 40  | 1.69  | 0.000965  | ± 2.5 | PASS |
|      |     | VN | 50  | 0.62  | 0.000351  | ± 2.5 | PASS |

Channel Bandwidth: 15 MHz

| Channel Bandwidth: 15 MHz |         |               |                  |                |                 |             |         |
|---------------------------|---------|---------------|------------------|----------------|-----------------|-------------|---------|
| Voltage                   |         |               |                  |                |                 |             |         |
| Modulation                | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK                      | LCH     | VL            | TN               | -0.01          | -0.000008       | ± 2.5       | PASS    |
|                           |         | VN            | TN               | -0.01          | -0.000008       | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 0.10           | 0.000058        | ± 2.5       | PASS    |
|                           | MCH     | VL            | TN               | -2.06          | -0.001189       | ± 2.5       | PASS    |
|                           |         | VN            | TN               | -1.54          | -0.000892       | ± 2.5       | PASS    |
|                           |         | VH            | TN               | -2.35          | -0.001354       | ± 2.5       | PASS    |
|                           | HCH     | VL            | TN               | 0.63           | 0.000360        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 0.33           | 0.000188        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | -0.43          | -0.000246       | ± 2.5       | PASS    |
| 16QAM                     | LCH     | VL            | TN               | -0.56          | -0.000325       | ± 2.5       | PASS    |
|                           |         | VN            | TN               | -0.51          | -0.000300       | ± 2.5       | PASS    |
|                           |         | VH            | TN               | -0.21          | -0.000125       | ± 2.5       | PASS    |
|                           | MCH     | VL            | TN               | 0.10           | 0.000058        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 0.23           | 0.000132        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 0.10           | 0.000058        | ± 2.5       | PASS    |
|                           | HCH     | VL            | TN               | 0.06           | 0.000033        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 0.43           | 0.000246        | ± 2.5       | PASS    |

|             |         | VH            | TN               | 0.09           | 0.000049        | ± 2.5       | PASS    |
|-------------|---------|---------------|------------------|----------------|-----------------|-------------|---------|
| Temperature |         |               |                  |                |                 |             |         |
| Modulation  | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK        | LCH     | VN            | -30              | -0.19          | -0.000108       | ± 2.5       | PASS    |
|             |         | VN            | -20              | 1.16           | 0.000675        | ± 2.5       | PASS    |
|             |         | VN            | -10              | 0.93           | 0.000541        | ± 2.5       | PASS    |
|             |         | VN            | 0                | 0.92           | 0.000533        | ± 2.5       | PASS    |
|             |         | VN            | 10               | -1.79          | -0.001041       | ± 2.5       | PASS    |
|             |         | VN            | 20               | 0.27           | 0.000158        | ± 2.5       | PASS    |
|             |         | VN            | 30               | -0.43          | -0.000250       | ± 2.5       | PASS    |
|             |         | VN            | 40               | -0.19          | -0.000108       | ± 2.5       | PASS    |
|             |         | VN            | 50               | 0.19           | 0.000108        | ± 2.5       | PASS    |
|             | MCH     | VN            | -30              | 0.59           | 0.000339        | ± 2.5       | PASS    |
|             |         | VN            | -20              | -0.23          | -0.000132       | ± 2.5       | PASS    |
|             |         | VN            | -10              | 1.42           | 0.000817        | ± 2.5       | PASS    |
|             |         | VN            | 0                | -0.24          | -0.000140       | ± 2.5       | PASS    |
|             |         | VN            | 10               | 0.10           | 0.000058        | ± 2.5       | PASS    |
|             |         | VN            | 20               | -2.02          | -0.001164       | ± 2.5       | PASS    |
|             |         | VN            | 30               | -2.22          | -0.001280       | ± 2.5       | PASS    |
|             |         | VN            | 40               | -2.69          | -0.001552       | ± 2.5       | PASS    |
|             |         | VN            | 50               | -1.95          | -0.001123       | ± 2.5       | PASS    |
|             | HCH     | VN            | -30              | -0.46          | -0.000262       | ± 2.5       | PASS    |
|             |         | VN            | -20              | 0.09           | 0.000049        | ± 2.5       | PASS    |
|             |         | VN            | -10              | -0.27          | -0.000156       | ± 2.5       | PASS    |
|             |         | VN            | 0                | 0.72           | 0.000409        | ± 2.5       | PASS    |
|             |         | VN            | 10               | 0.56           | 0.000319        | ± 2.5       | PASS    |
|             |         | VN            | 20               | -0.14          | -0.000082       | ± 2.5       | PASS    |
|             |         | VN            | 30               | 0.53           | 0.000303        | ± 2.5       | PASS    |
|             |         | VN            | 40               | -1.97          | -0.001130       | ± 2.5       | PASS    |
|             |         | VN            | 50               | -1.76          | -0.001007       | ± 2.5       | PASS    |
| 16QAM       | LCH     | VN            | -30              | -0.59          | -0.000341       | ± 2.5       | PASS    |
|             |         | VN            | -20              | -0.33          | -0.000192       | ± 2.5       | PASS    |
|             |         | VN            | -10              | -0.80          | -0.000466       | ± 2.5       | PASS    |
|             |         | VN            | 0                | 0.34           | 0.000200        | ± 2.5       | PASS    |
|             |         | VN            | 10               | -0.46          | -0.000267       | ± 2.5       | PASS    |
|             |         | VN            | 20               | -0.16          | -0.000092       | ± 2.5       | PASS    |
|             |         | VN            | 30               | -0.50          | -0.000292       | ± 2.5       | PASS    |
|             |         | VN            | 40               | -0.19          | -0.000108       | ± 2.5       | PASS    |
|             |         | VN            | 50               | 0.60           | 0.000350        | ± 2.5       | PASS    |
|             | MCH     | VN            | -30              | -0.09          | -0.000050       | ± 2.5       | PASS    |
|             |         | VN            | -20              | 1.37           | 0.000793        | ± 2.5       | PASS    |
|             |         | VN            | -10              | 0.01           | 0.000008        | ± 2.5       | PASS    |
|             |         | VN            | 0                | 1.24           | 0.000718        | ± 2.5       | PASS    |
|             |         | VN            | 10               | 0.17           | 0.000099        | ± 2.5       | PASS    |
|             |         | VN            | 20               | 0.36           | 0.000206        | ± 2.5       | PASS    |
|             |         | VN            | 30               | -0.16          | -0.000091       | ± 2.5       | PASS    |
|             |         | VN            | 40               | 0.11           | 0.000066        | ± 2.5       | PASS    |
|             |         | VN            | 50               | 0.56           | 0.000322        | ± 2.5       | PASS    |
|             | HCH     | VN            | -30              | -0.41          | -0.000237       | ± 2.5       | PASS    |
|             |         | VN            | -20              | 0.17           | 0.000098        | ± 2.5       | PASS    |
|             |         | VN            | -10              | 0.67           | 0.000385        | ± 2.5       | PASS    |

|  |    |    |       |           |       |      |
|--|----|----|-------|-----------|-------|------|
|  | VN | 0  | -0.66 | -0.000377 | ± 2.5 | PASS |
|  | VN | 10 | -2.05 | -0.001171 | ± 2.5 | PASS |
|  | VN | 20 | -0.69 | -0.000393 | ± 2.5 | PASS |
|  | VN | 30 | -0.03 | -0.000016 | ± 2.5 | PASS |
|  | VN | 40 | 0.26  | 0.000147  | ± 2.5 | PASS |
|  | VN | 50 | 0.17  | 0.000098  | ± 2.5 | PASS |

Channel Bandwidth: 20 MHz

| Channel Bandwidth: 20 MHz |         |               |                  |                |                 |             |         |
|---------------------------|---------|---------------|------------------|----------------|-----------------|-------------|---------|
| Voltage                   |         |               |                  |                |                 |             |         |
| Modulation                | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK                      | LCH     | VL            | TN               | 0.70           | 0.000408        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 1.80           | 0.001048        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 1.53           | 0.000890        | ± 2.5       | PASS    |
|                           | MCH     | VL            | TN               | 0.24           | 0.000140        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 0.13           | 0.000074        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 0.31           | 0.000182        | ± 2.5       | PASS    |
|                           | HCH     | VL            | TN               | -3.71          | -0.002123       | ± 2.5       | PASS    |
|                           |         | VN            | TN               | -2.83          | -0.001623       | ± 2.5       | PASS    |
|                           |         | VH            | TN               | -3.66          | -0.002099       | ± 2.5       | PASS    |
| 16QAM                     | LCH     | VL            | TN               | 1.54           | 0.000898        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 1.34           | 0.000782        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 1.22           | 0.000707        | ± 2.5       | PASS    |
|                           | MCH     | VL            | TN               | -0.04          | -0.000025       | ± 2.5       | PASS    |
|                           |         | VN            | TN               | -1.80          | -0.001040       | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 0.30           | 0.000173        | ± 2.5       | PASS    |
|                           | HCH     | VL            | TN               | -5.35          | -0.003066       | ± 2.5       | PASS    |
|                           |         | VN            | TN               | -5.11          | -0.002927       | ± 2.5       | PASS    |
|                           |         | VH            | TN               | -5.31          | -0.003041       | ± 2.5       | PASS    |
| Temperature               |         |               |                  |                |                 |             |         |
| Modulation                | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK                      | LCH     | VN            | -30              | 1.90           | 0.001106        | ± 2.5       | PASS    |
|                           |         | VN            | -20              | 0.57           | 0.000333        | ± 2.5       | PASS    |
|                           |         | VN            | -10              | 1.24           | 0.000724        | ± 2.5       | PASS    |
|                           |         | VN            | 0                | 1.39           | 0.000807        | ± 2.5       | PASS    |
|                           |         | VN            | 10               | 1.42           | 0.000823        | ± 2.5       | PASS    |
|                           |         | VN            | 20               | 1.20           | 0.000699        | ± 2.5       | PASS    |
|                           |         | VN            | 30               | 1.26           | 0.000732        | ± 2.5       | PASS    |
|                           |         | VN            | 40               | 1.52           | 0.000882        | ± 2.5       | PASS    |
|                           |         | VN            | 50               | 1.27           | 0.000740        | ± 2.5       | PASS    |
|                           | MCH     | VN            | -30              | 0.37           | 0.000215        | ± 2.5       | PASS    |
|                           |         | VN            | -20              | 0.73           | 0.000421        | ± 2.5       | PASS    |
|                           |         | VN            | -10              | 0.67           | 0.000388        | ± 2.5       | PASS    |
|                           |         | VN            | 0                | -0.06          | -0.000033       | ± 2.5       | PASS    |
|                           |         | VN            | 10               | -0.57          | -0.000330       | ± 2.5       | PASS    |
|                           |         | VN            | 20               | 0.23           | 0.000132        | ± 2.5       | PASS    |
|                           |         | VN            | 30               | 0.93           | 0.000537        | ± 2.5       | PASS    |
|                           |         | VN            | 40               | -0.23          | -0.000132       | ± 2.5       | PASS    |
|                           |         | VN            | 50               | 0.74           | 0.000429        | ± 2.5       | PASS    |

|       |     |    |     |       |           |       |      |
|-------|-----|----|-----|-------|-----------|-------|------|
| 16QAM | HCH | VN | -30 | -3.63 | -0.002082 | ± 2.5 | PASS |
|       |     | VN | -20 | -3.66 | -0.002099 | ± 2.5 | PASS |
|       |     | VN | -10 | -2.78 | -0.001590 | ± 2.5 | PASS |
|       |     | VN | 0   | -2.47 | -0.001418 | ± 2.5 | PASS |
|       |     | VN | 10  | -3.32 | -0.001902 | ± 2.5 | PASS |
|       |     | VN | 20  | -5.91 | -0.003386 | ± 2.5 | PASS |
|       |     | VN | 30  | -5.25 | -0.003009 | ± 2.5 | PASS |
|       |     | VN | 40  | -5.34 | -0.003058 | ± 2.5 | PASS |
|       |     | VN | 50  | -4.52 | -0.002590 | ± 2.5 | PASS |
|       | LCH | VN | -30 | 2.73  | 0.001589  | ± 2.5 | PASS |
|       |     | VN | -20 | -1.42 | -0.000823 | ± 2.5 | PASS |
|       |     | VN | -10 | -1.69 | -0.000981 | ± 2.5 | PASS |
|       |     | VN | 0   | -1.62 | -0.000940 | ± 2.5 | PASS |
|       |     | VN | 10  | -1.39 | -0.000807 | ± 2.5 | PASS |
|       |     | VN | 20  | 2.10  | 0.001223  | ± 2.5 | PASS |
|       |     | VN | 30  | -2.17 | -0.001264 | ± 2.5 | PASS |
|       |     | VN | 40  | -1.72 | -0.000998 | ± 2.5 | PASS |
|       |     | VN | 50  | -1.43 | -0.000832 | ± 2.5 | PASS |
|       | MCH | VN | -30 | -0.70 | -0.000405 | ± 2.5 | PASS |
|       |     | VN | -20 | 0.03  | 0.000017  | ± 2.5 | PASS |
|       |     | VN | -10 | 0.23  | 0.000132  | ± 2.5 | PASS |
|       |     | VN | 0   | 0.50  | 0.000289  | ± 2.5 | PASS |
|       |     | VN | 10  | 0.53  | 0.000306  | ± 2.5 | PASS |
|       |     | VN | 20  | 0.04  | 0.000025  | ± 2.5 | PASS |
|       |     | VN | 30  | 0.46  | 0.000264  | ± 2.5 | PASS |
|       |     | VN | 40  | -0.11 | -0.000066 | ± 2.5 | PASS |
|       |     | VN | 50  | 0.47  | 0.000272  | ± 2.5 | PASS |
|       | HCH | VN | -30 | -2.16 | -0.001238 | ± 2.5 | PASS |
|       |     | VN | -20 | -2.13 | -0.001221 | ± 2.5 | PASS |
|       |     | VN | -10 | -2.65 | -0.001517 | ± 2.5 | PASS |
|       |     | VN | 0   | -3.56 | -0.002041 | ± 2.5 | PASS |
|       |     | VN | 10  | -2.68 | -0.001533 | ± 2.5 | PASS |
|       |     | VN | 20  | -4.79 | -0.002746 | ± 2.5 | PASS |
|       |     | VN | 30  | -5.18 | -0.002968 | ± 2.5 | PASS |
|       |     | VN | 40  | -4.95 | -0.002836 | ± 2.5 | PASS |
|       |     | VN | 50  | -5.35 | -0.003066 | ± 2.5 | PASS |

## Appendix G): Field strength of spurious radiation

|                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |        |        |        |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|--------|--------|
| Receiver Setup:        | Frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Detector | RBW    | VBW    | Remark |
|                        | 0.009MHz-30MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Peak     | 10kHz  | 30kHz  | Peak   |
|                        | 30MHz-1GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Peak     | 120kHz | 300kHz | Peak   |
|                        | Above 1GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Peak     | 1MHz   | 3MHz   | Peak   |
| Measurement Procedure: | <p>1. Scan up to 10<sup>th</sup> harmonic, find the maximum radiation frequency to measure.</p> <p>2. The technique used to find the Spurious Emissions of the transmitter was the antenna substitution method. Substitution method was performed to determine the actual ERP/EIRP emission levels of the EUT.</p> <p>Test procedure as below:</p> <p>1) The EUT was powered ON and placed on a 1.5m high table at a 3 meter fully Anechoic Chamber. The antenna of the transmitter was extended to its maximum length. modulation mode and the measuring receiver shall be tuned to the frequency of the transmitter under test.</p> <p>2) The EUT was set 3 meters(above 18GHz the distance is 1 meter) away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</p> <p>3) The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.</p> <p>4) Steps 1) to 3) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.</p> <p>5) The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter.</p> <p>6) A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 3) is obtained for this set of conditions.</p> <p>7) The output power into the substitution antenna was then measured.</p> <p>8) Steps 6) and 7) were repeated with both antennas polarized.</p> <p>9) Calculate power in dBm by the following formula:<br/> <math display="block">\text{ERP(dBm)} = \text{Pg(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dBd)}</math> <math display="block">\text{EIRP(dBm)} = \text{Pg(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dBi)}</math> <math display="block">\text{EIRP} = \text{ERP} + 2.15\text{dB}</math> <p>where:<br/> Pg is the generator output power into the substitution antenna.</p> <p>10) Test the EUT in the lowest channel, the middle channel the Highest channel</p> <p>11) The radiation measurements are performed in X, Y, Z axis positioning for EUT operation mode, And found the X axis positioning which it is worse case.</p> <p>12) Repeat above procedures until all frequencies measured was complete.</p> </p> |          |        |        |        |
| Limit:                 | Attenuated at least 43+10log(P)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |        |        |        |

**Test Data:**  
**Above 1GHz**  
**QPSK**

| Band 4 19957 channel/BW1.4(lowest channel) |             |               |                               |             |                 |        |                  |
|--------------------------------------------|-------------|---------------|-------------------------------|-------------|-----------------|--------|------------------|
| Frequency (MHz)                            | Height (cm) | Azimuth (deg) | Spurious Emission Level (dBm) | Limit (dBm) | Over Limit (dB) | Result | Antenna Polaxis. |
| 1115.673                                   | 149         | 5             | -57.35                        | -13.00      | -44.35          | Pass   | H                |
| 1439.090                                   | 150         | 200           | -56.42                        | -13.00      | -43.42          | Pass   | H                |
| 3316.617                                   | 150         | 36            | -51.05                        | -13.00      | -38.05          | Pass   | H                |
| 4760.776                                   | 156         | 78            | -50.24                        | -13.00      | -37.24          | Pass   | H                |
| 6283.164                                   | 149         | 200           | -45.71                        | -13.00      | -32.71          | Pass   | H                |
| 8063.403                                   | 149         | 151           | -47.31                        | -13.00      | -34.31          | Pass   | H                |
| 1198.095                                   | 150         | 47            | -56.92                        | -13.00      | -43.92          | Pass   | V                |
| 3258.042                                   | 150         | 90            | -51.93                        | -13.00      | -38.93          | Pass   | V                |
| 3757.208                                   | 152         | 210           | -49.93                        | -13.00      | -36.93          | Pass   | V                |
| 5177.971                                   | 150         | 22            | -50.27                        | -13.00      | -37.27          | Pass   | V                |
| 6445.156                                   | 150         | 67            | -46.73                        | -13.00      | -33.73          | Pass   | V                |
| 8637.084                                   | 151         | 20            | -47.46                        | -13.00      | -34.46          | Pass   | V                |

| Band 4 20175 channel/BW1.4(middle channel) |             |               |                               |             |                 |        |                  |
|--------------------------------------------|-------------|---------------|-------------------------------|-------------|-----------------|--------|------------------|
| Frequency (MHz)                            | Height (cm) | Azimuth (deg) | Spurious Emission Level (dBm) | Limit (dBm) | Over Limit (dB) | Result | Antenna Polaxis. |
| 1112.837                                   | 150         | 201           | -57.19                        | -13.00      | -44.19          | Pass   | H                |
| 3249.760                                   | 151         | 20            | -51.63                        | -13.00      | -38.63          | Pass   | H                |
| 3757.208                                   | 150         | 36            | -50.05                        | -13.00      | -37.05          | Pass   | H                |
| 4797.271                                   | 151         | 78            | -50.51                        | -13.00      | -37.51          | Pass   | H                |
| 6445.156                                   | 149         | 225           | -45.94                        | -13.00      | -32.94          | Pass   | H                |
| 7981.717                                   | 149         | 56            | -46.49                        | -13.00      | -33.49          | Pass   | H                |
| 1147.354                                   | 150         | 151           | -56.95                        | -13.00      | -43.95          | Pass   | V                |
| 3143.979                                   | 152         | 31            | -50.89                        | -13.00      | -37.89          | Pass   | V                |
| 3747.656                                   | 150         | 207           | -50.00                        | -13.00      | -37.00          | Pass   | V                |
| 4809.499                                   | 151         | 89            | -50.28                        | -13.00      | -37.28          | Pass   | V                |
| 6412.427                                   | 150         | 60            | -45.60                        | -13.00      | -32.60          | Pass   | V                |
| 8022.456                                   | 149         | 3             | -46.49                        | -13.00      | -33.49          | Pass   | V                |

| Band 4 20393 channel/BW1.4(highest channel) |             |               |                               |             |                 |        |                  |
|---------------------------------------------|-------------|---------------|-------------------------------|-------------|-----------------|--------|------------------|
| Frequency (MHz)                             | Height (cm) | Azimuth (deg) | Spurious Emission Level (dBm) | Limit (dBm) | Over Limit (dB) | Result | Antenna Polaxis. |
| 1098.763                                    | 151         | 49            | -57.54                        | -13.00      | -44.54          | Pass   | H                |
| 1573.189                                    | 151         | 215           | -57.82                        | -13.00      | -44.82          | Pass   | H                |
| 3507.652                                    | 150         | 286           | -44.94                        | -13.00      | -31.94          | Pass   | H                |
| 5271.063                                    | 149         | 300           | -42.52                        | -13.00      | -29.52          | Pass   | H                |
| 6445.156                                    | 155         | 58            | -46.69                        | -13.00      | -33.69          | Pass   | H                |
| 7941.185                                    | 152         | 300           | -47.18                        | -13.00      | -34.18          | Pass   | H                |
| 1033.646                                    | 153         | 161           | -57.68                        | -13.00      | -44.68          | Pass   | V                |
| 1346.929                                    | 150         | 20            | -57.72                        | -13.00      | -44.72          | Pass   | V                |
| 3507.652                                    | 149         | 79            | -48.42                        | -13.00      | -35.42          | Pass   | V                |
| 5271.063                                    | 152         | 36            | -41.05                        | -13.00      | -28.05          | Pass   | V                |
| 6544.350                                    | 150         | 360           | -45.96                        | -13.00      | -32.96          | Pass   | V                |
| 7941.185                                    | 150         | 354           | -47.20                        | -13.00      | -34.20          | Pass   | V                |

#### 16QAM

| Band 4 19957 channel/BW1.4(lowest channel) |             |               |                               |             |                 |        |                  |
|--------------------------------------------|-------------|---------------|-------------------------------|-------------|-----------------|--------|------------------|
| Frequency (MHz)                            | Height (cm) | Azimuth (deg) | Spurious Emission Level (dBm) | Limit (dBm) | Over Limit (dB) | Result | Antenna Polaxis. |
| 1195.049                                   | 151         | 120           | -56.89                        | -13.00      | -43.89          | Pass   | H                |
| 3738.129                                   | 150         | 74            | -50.12                        | -13.00      | -37.12          | Pass   | H                |
| 5271.063                                   | 150         | 85            | -49.10                        | -13.00      | -36.10          | Pass   | H                |
| 6594.518                                   | 153         | 228           | -45.71                        | -13.00      | -32.71          | Pass   | H                |
| 7920.996                                   | 150         | 30            | -47.24                        | -13.00      | -34.24          | Pass   | H                |
| 9660.722                                   | 150         | 161           | -47.01                        | -13.00      | -34.01          | Pass   | H                |
| 1082.109                                   | 149         | 20            | -57.63                        | -13.00      | -44.63          | Pass   | V                |
| 1326.513                                   | 151         | 100           | -58.37                        | -13.00      | -45.37          | Pass   | V                |
| 3308.185                                   | 150         | 78            | -50.94                        | -13.00      | -37.94          | Pass   | V                |
| 3747.656                                   | 151         | 360           | -50.29                        | -13.00      | -37.29          | Pass   | V                |
| 5257.662                                   | 152         | 43            | -50.45                        | -13.00      | -37.45          | Pass   | V                |
| 6251.257                                   | 150         | 336           | -47.27                        | -13.00      | -34.27          | Pass   | V                |

| Band 4 20175 channel/BW1.4(middle channel) |             |               |                               |             |                 |        |                  |
|--------------------------------------------|-------------|---------------|-------------------------------|-------------|-----------------|--------|------------------|
| Frequency (MHz)                            | Height (cm) | Azimuth (deg) | Spurious Emission Level (dBm) | Limit (dBm) | Over Limit (dB) | Result | Antenna Polaxis. |
| 1112.837                                   | 150         | 55            | -58.36                        | -13.00      | -45.36          | Pass   | H                |
| 1340.089                                   | 149         | 355           | -57.46                        | -13.00      | -44.46          | Pass   | H                |
| 3291.385                                   | 152         | 151           | -51.42                        | -13.00      | -38.42          | Pass   | H                |
| 4772.910                                   | 150         | 24            | -49.81                        | -13.00      | -36.81          | Pass   | H                |
| 6412.427                                   | 150         | 20            | -46.35                        | -13.00      | -33.35          | Pass   | H                |
| 7900.858                                   | 149         | 11            | -47.02                        | -13.00      | -34.02          | Pass   | H                |
| 1079.357                                   | 150         | 33            | -57.10                        | -13.00      | -44.10          | Pass   | V                |
| 1340.089                                   | 151         | 247           | -57.46                        | -13.00      | -44.46          | Pass   | V                |
| 3747.656                                   | 151         | 229           | -49.27                        | -13.00      | -36.27          | Pass   | V                |
| 4772.910                                   | 153         | 20            | -49.81                        | -13.00      | -36.81          | Pass   | V                |
| 6445.156                                   | 149         | 100           | -45.27                        | -13.00      | -32.27          | Pass   | V                |
| 8615.126                                   | 150         | 80            | -46.08                        | -13.00      | -33.08          | Pass   | V                |

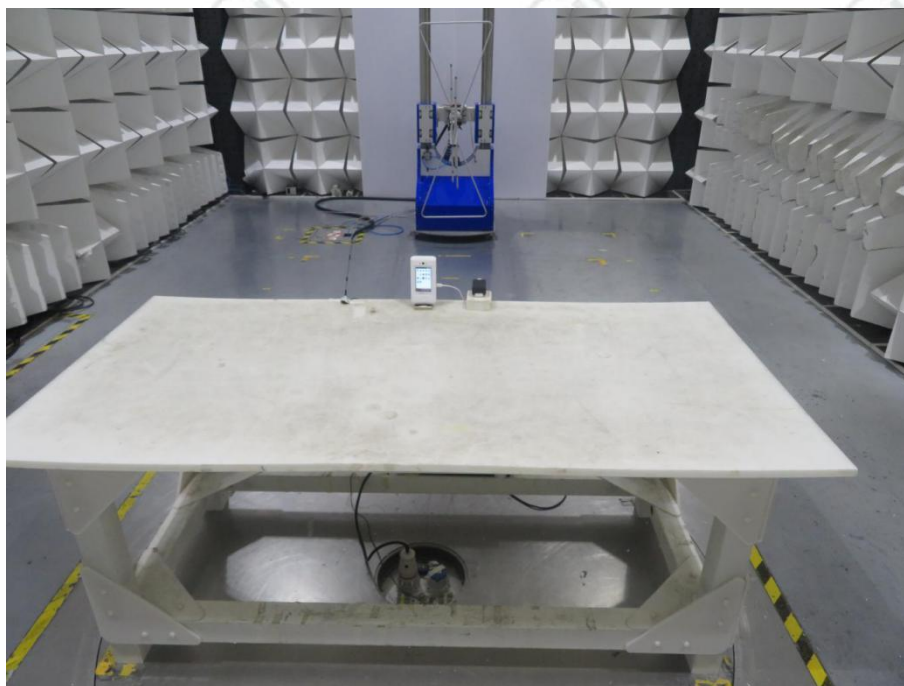
| Band 4 20393 channel/BW1.4(highest channel) |             |               |                               |             |                 |        |                  |
|---------------------------------------------|-------------|---------------|-------------------------------|-------------|-----------------|--------|------------------|
| Frequency (MHz)                             | Height (cm) | Azimuth (deg) | Spurious Emission Level (dBm) | Limit (dBm) | Over Limit (dB) | Result | Antenna Polaxis. |
| 1062.998                                    | 151         | 55            | -56.92                        | -13.00      | -43.92          | Pass   | H                |
| 1357.254                                    | 149         | 360           | -56.58                        | -13.00      | -43.58          | Pass   | H                |
| 3507.652                                    | 150         | 227           | -46.47                        | -13.00      | -33.47          | Pass   | H                |
| 5271.063                                    | 152         | 10            | -40.83                        | -13.00      | -27.83          | Pass   | H                |
| 6544.350                                    | 151         | 50            | -45.66                        | -13.00      | -32.66          | Pass   | H                |
| 8996.121                                    | 149         | 99            | -46.28                        | -13.00      | -33.28          | Pass   | H                |
| 1104.371                                    | 152         | 36            | -57.33                        | -13.00      | -44.33          | Pass   | V                |
| 1329.894                                    | 150         | 227           | -58.16                        | -13.00      | -45.16          | Pass   | V                |
| 3507.652                                    | 150         | 261           | -47.07                        | -13.00      | -34.07          | Pass   | V                |
| 5271.063                                    | 151         | 20            | -40.44                        | -13.00      | -27.44          | Pass   | V                |
| 6544.350                                    | 150         | 100           | -46.11                        | -13.00      | -33.11          | Pass   | V                |
| 7920.996                                    | 151         | 35            | -46.85                        | -13.00      | -33.85          | Pass   | V                |

Note:

- 1) Scan from 9kHz to 25GHz, the disturbance above 13GHz and below 1GHz are attenuated more than 20 dB below the applicable limit and not required to be reported, the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.
- 2) Tested with all kind of bandwidth, RB Size and RB Offset, Found the 1.4MHz with full RB were the worst case; and then Only the worst case is recorded in the report.

## PHOTOGRAPHS OF TEST SETUP

Test model No.: BW-X07HD



**Radiated spurious emission Test Setup-1(Below 1GHz)**



**Radiated spurious emission Test Setup-2(Above 1GHz)**

## PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No.EED32I00251301 for EUT external and internal photos.

\*\*\* End of Report \*\*\*

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