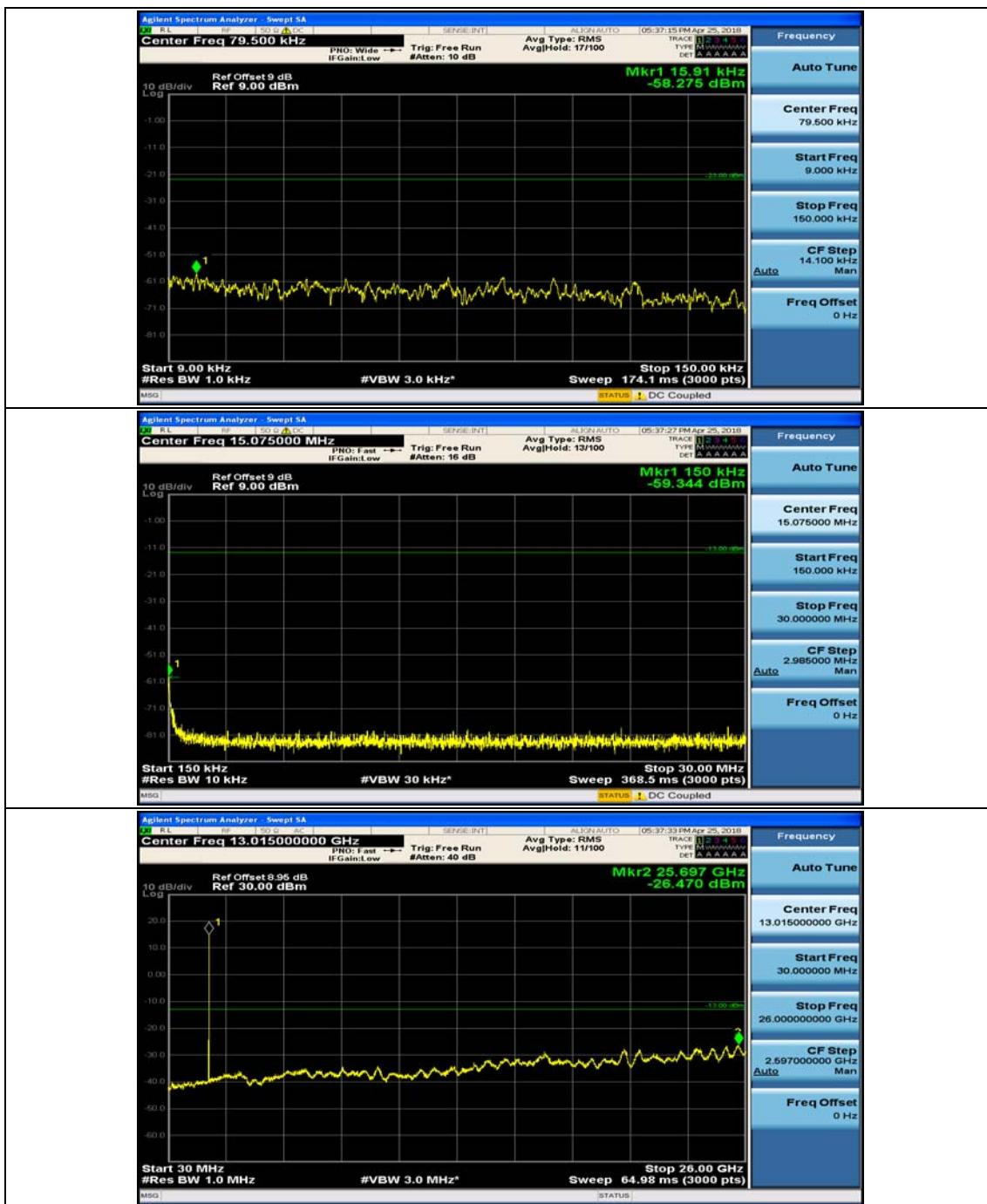
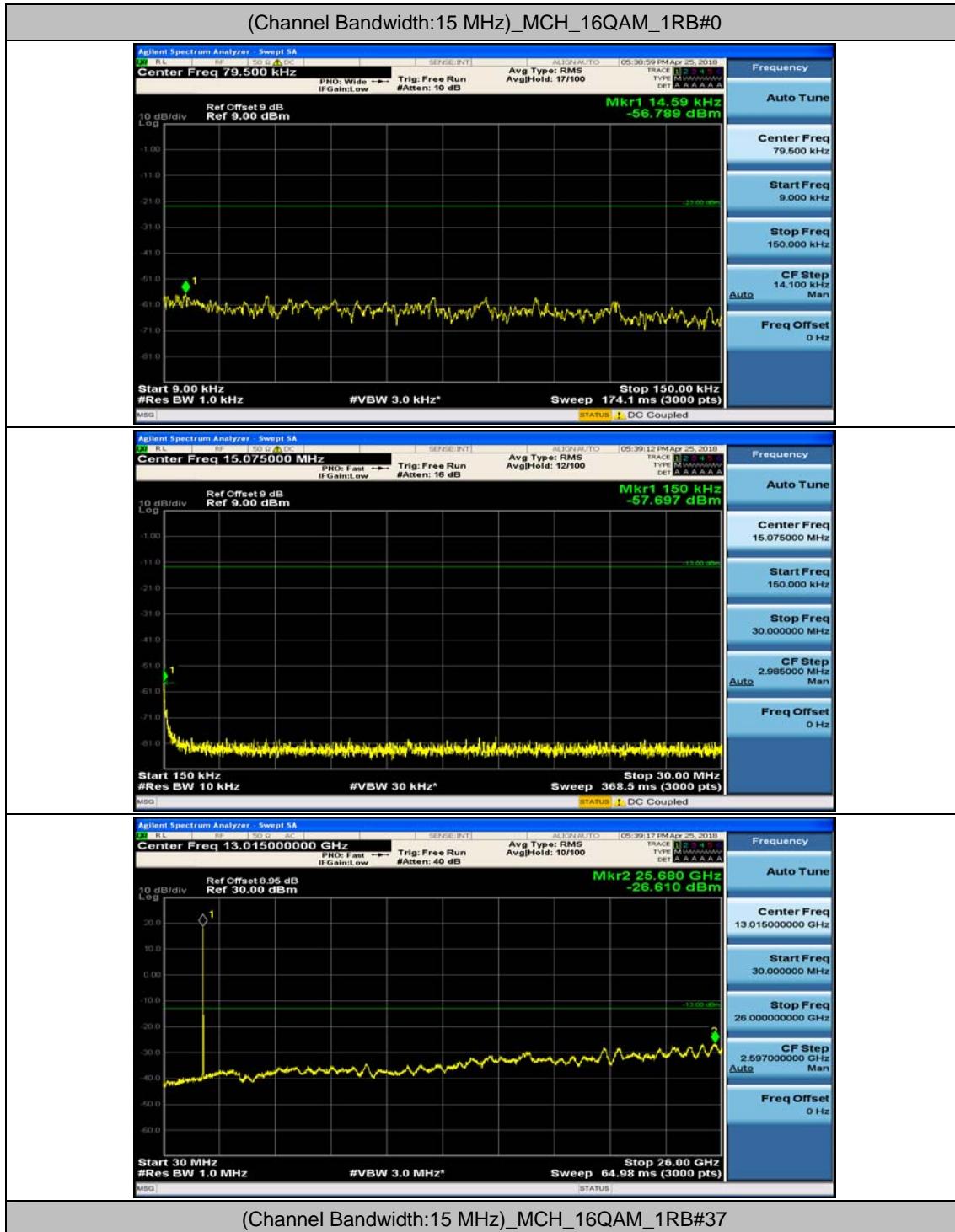
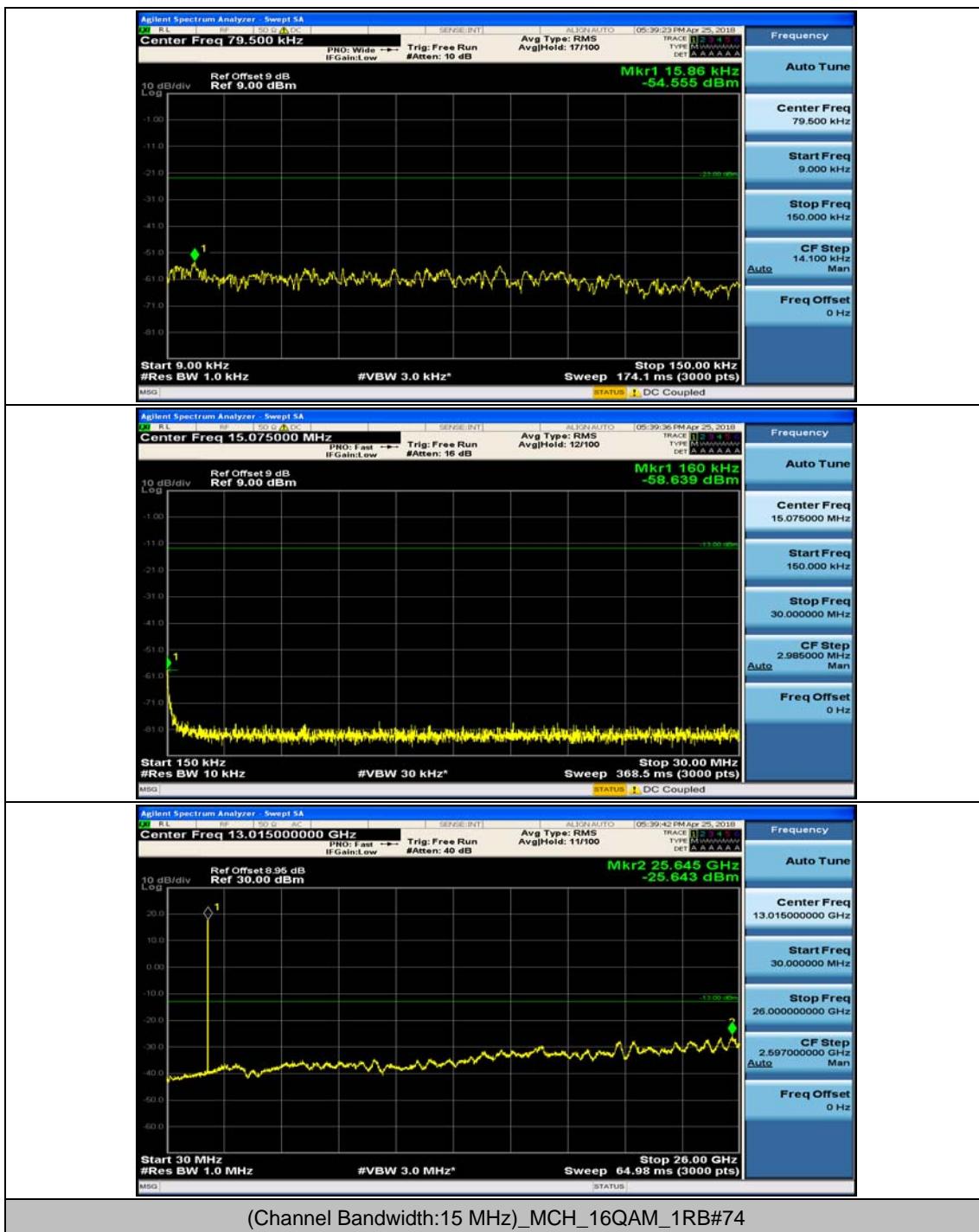
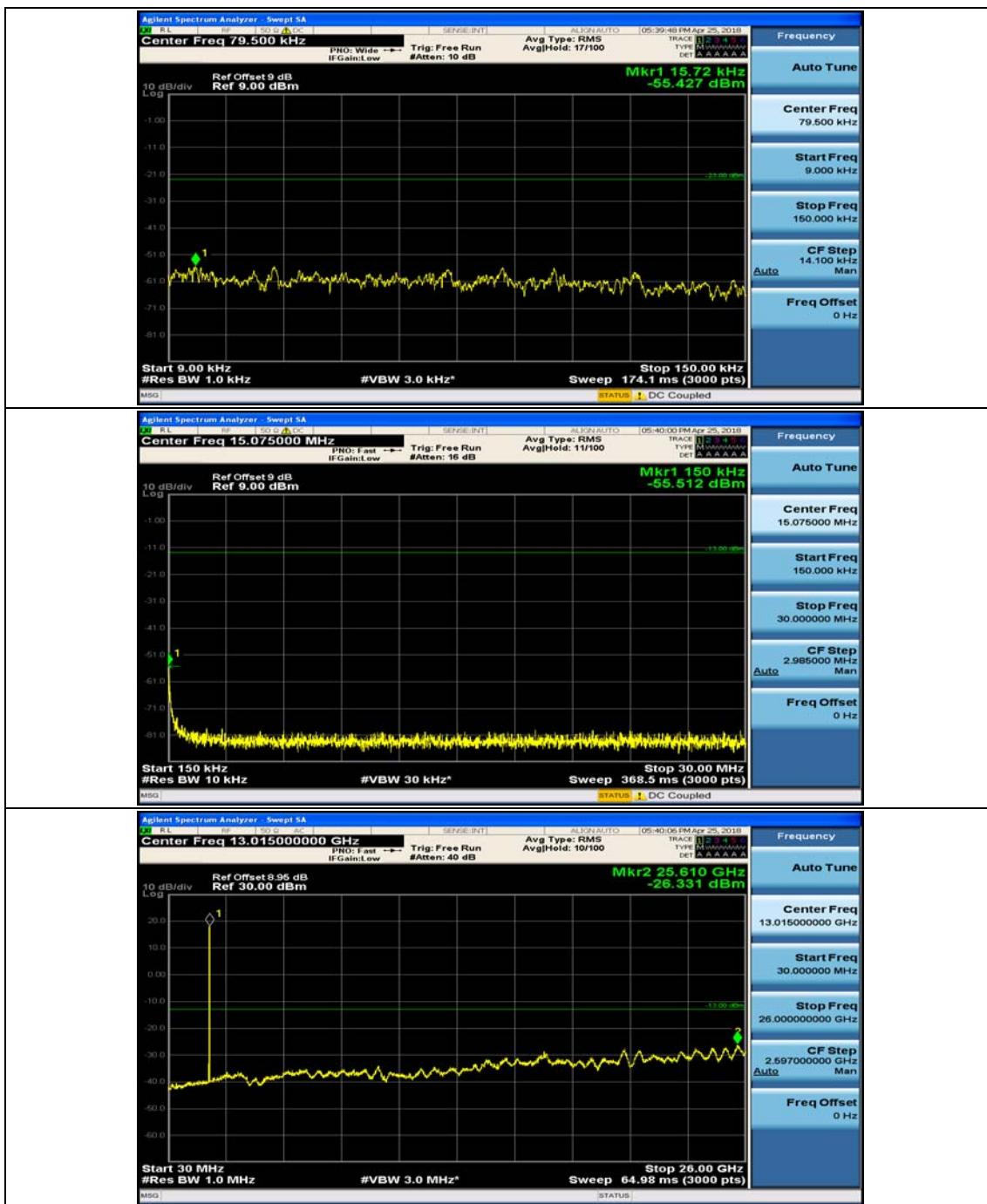


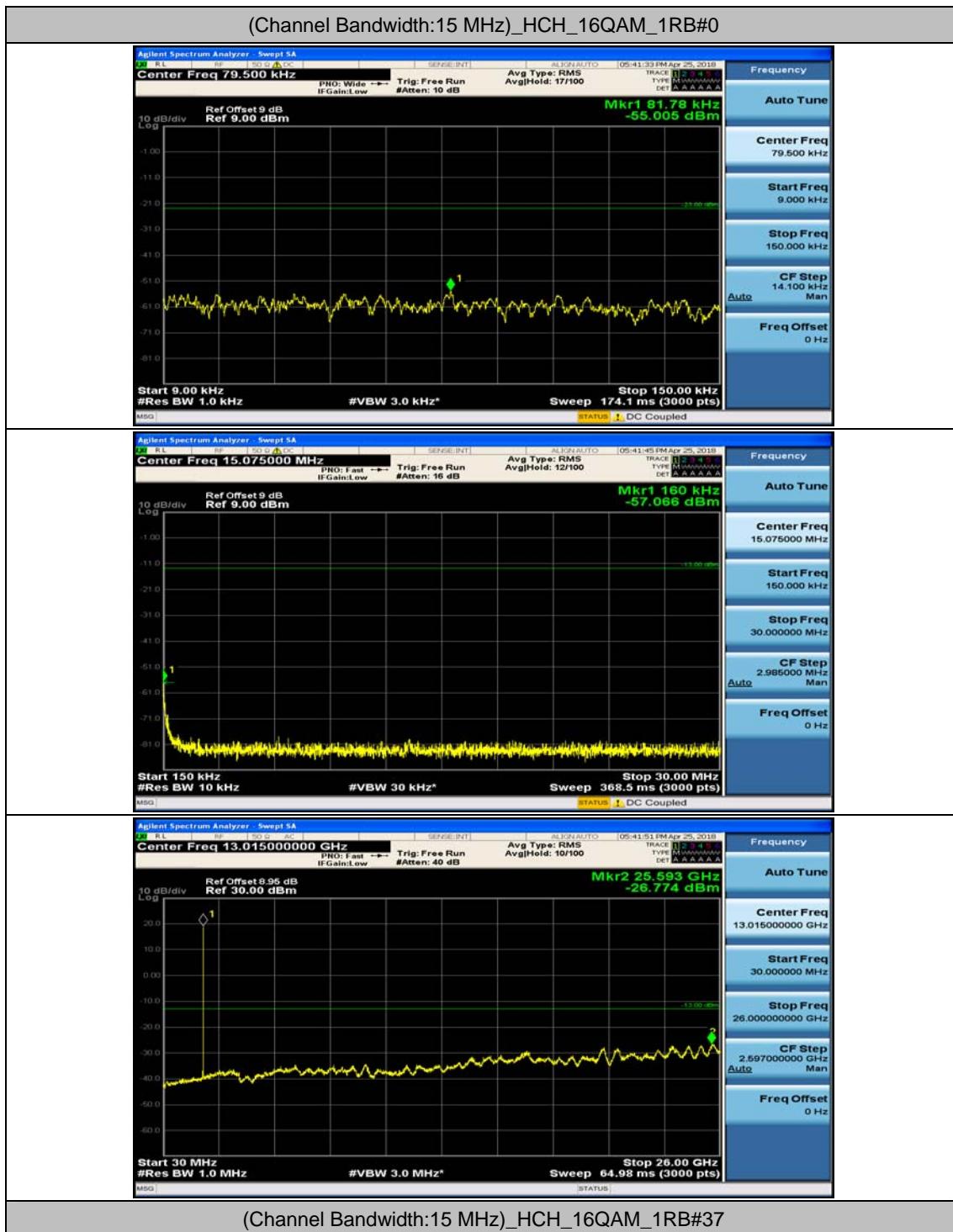
(Channel Bandwidth:15 MHz)\_LCH\_16QAM\_1RB#74

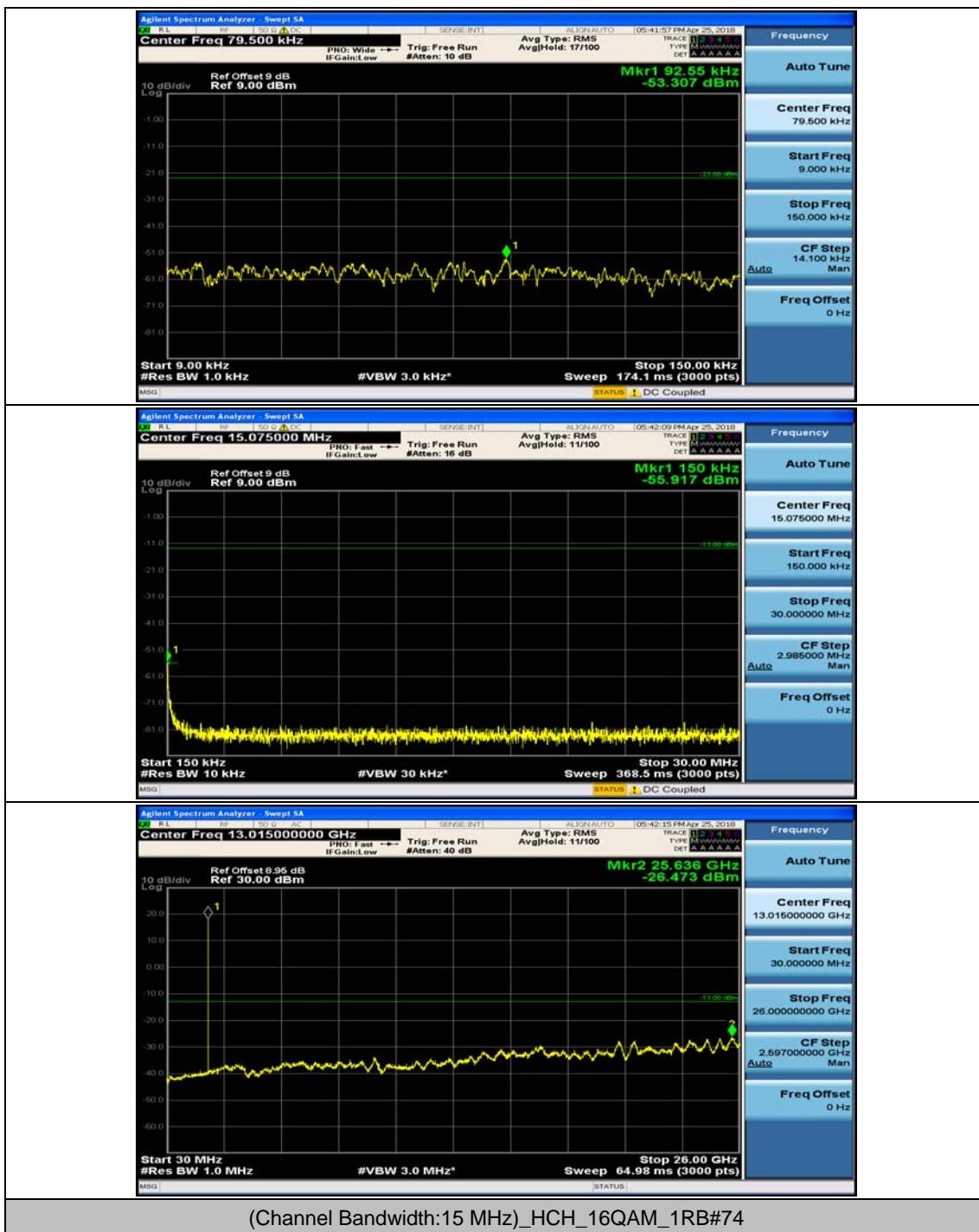


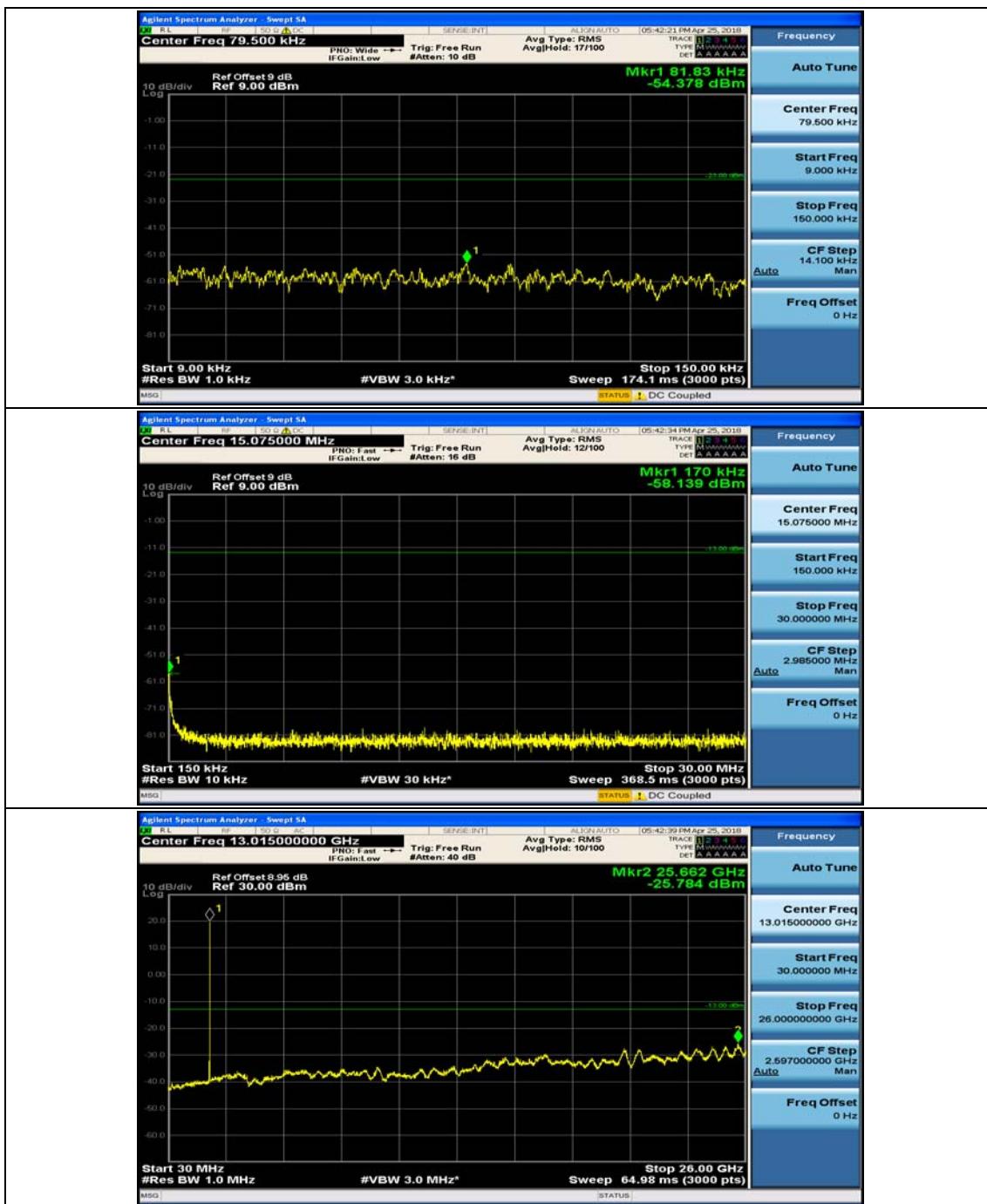




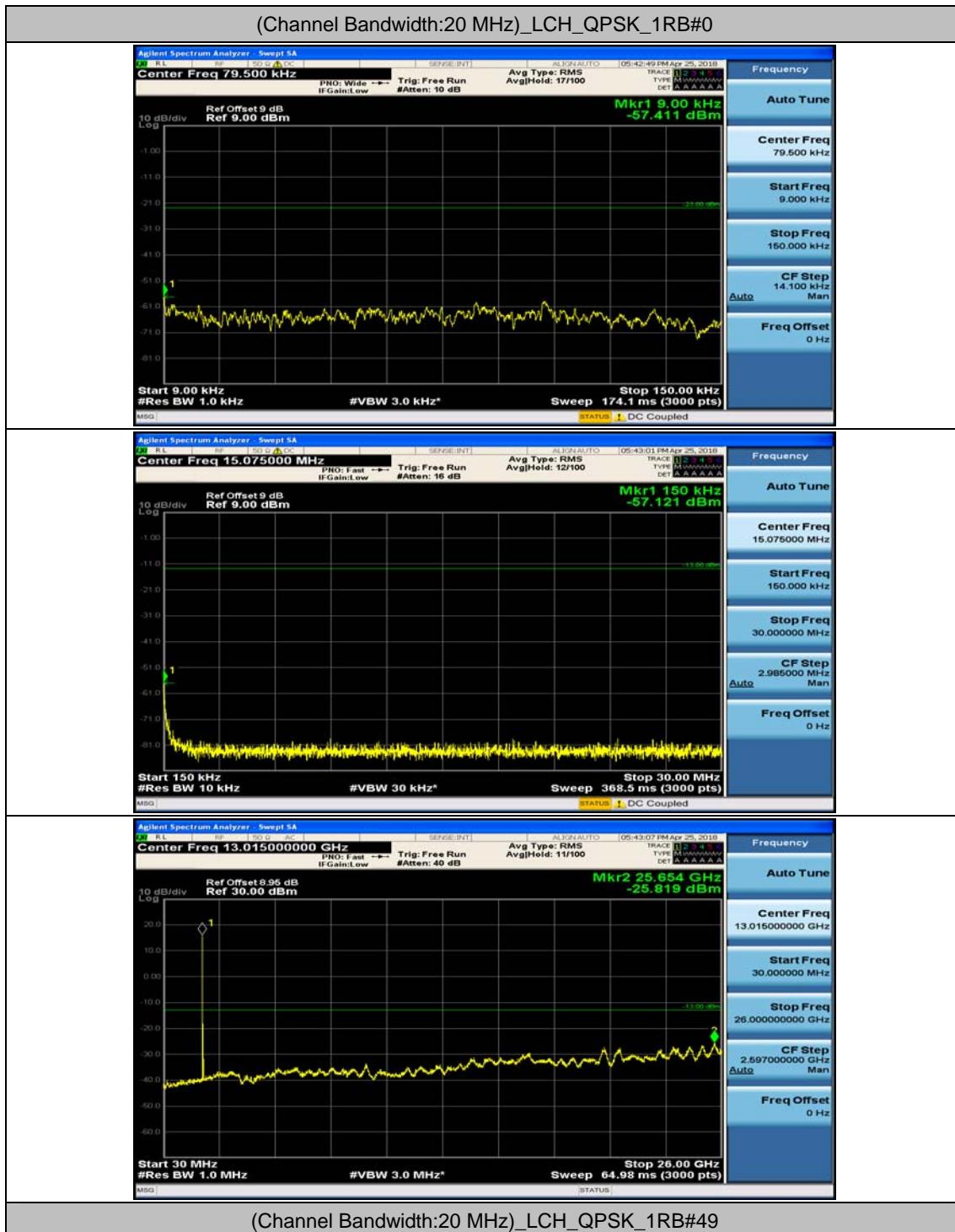


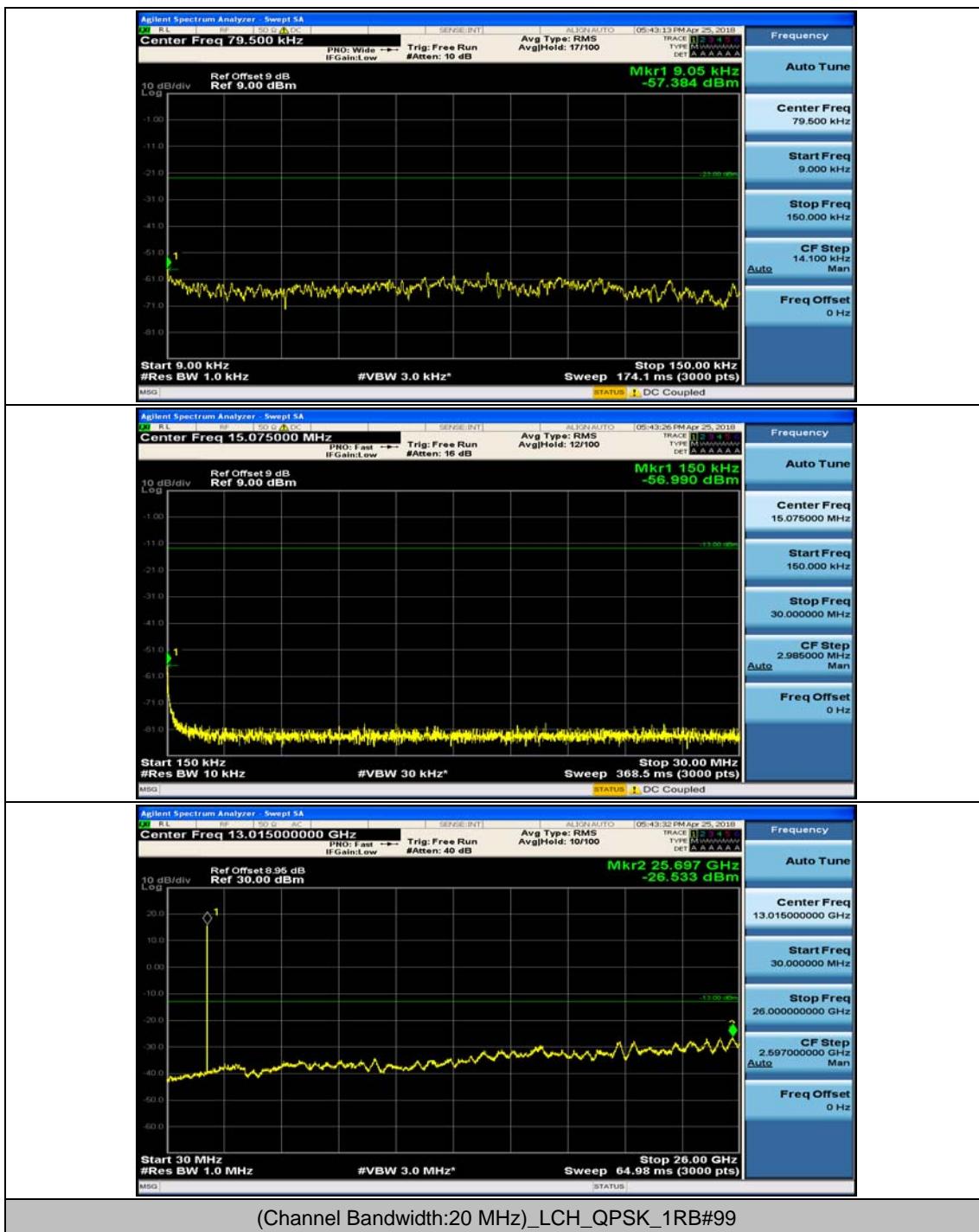




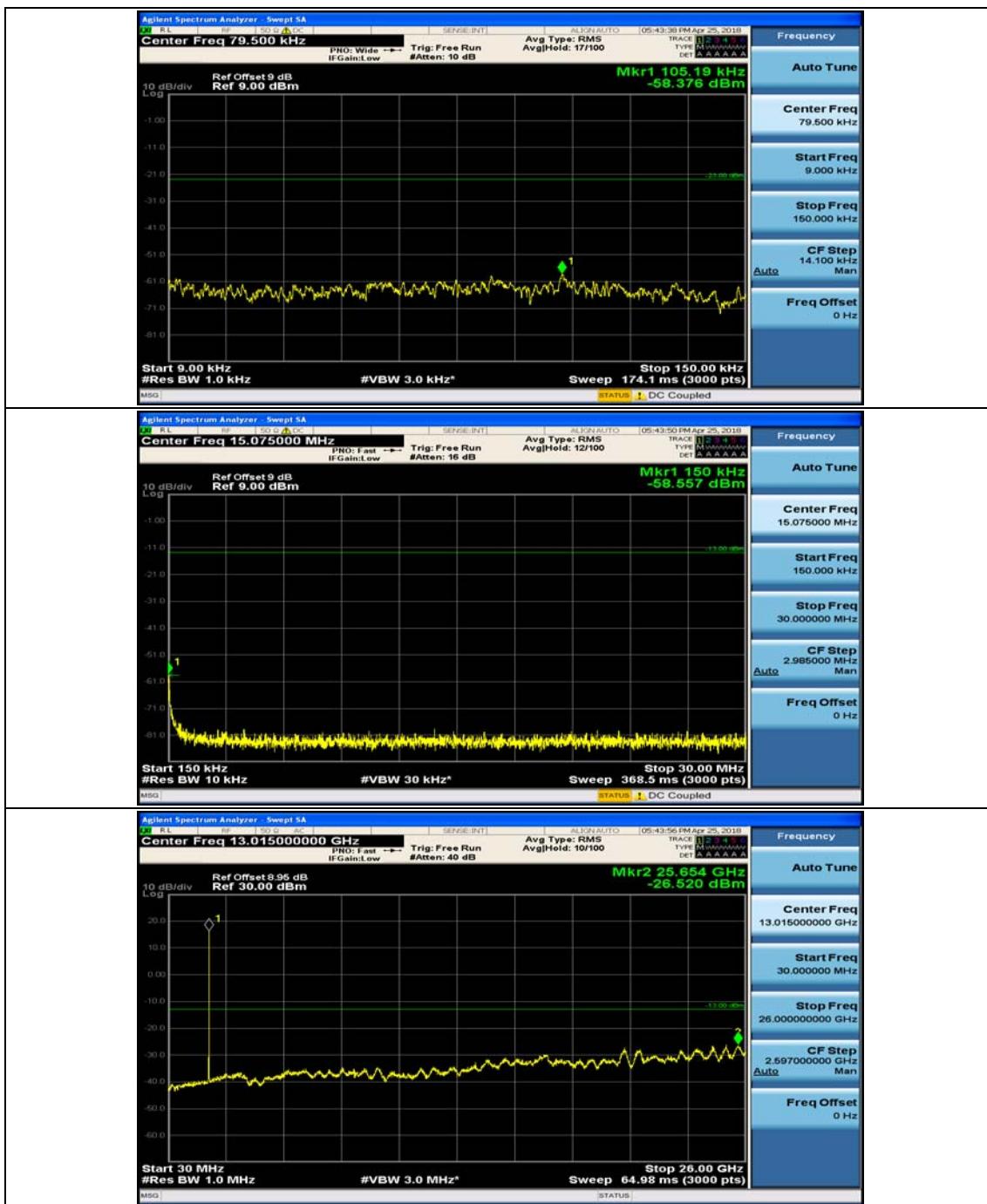


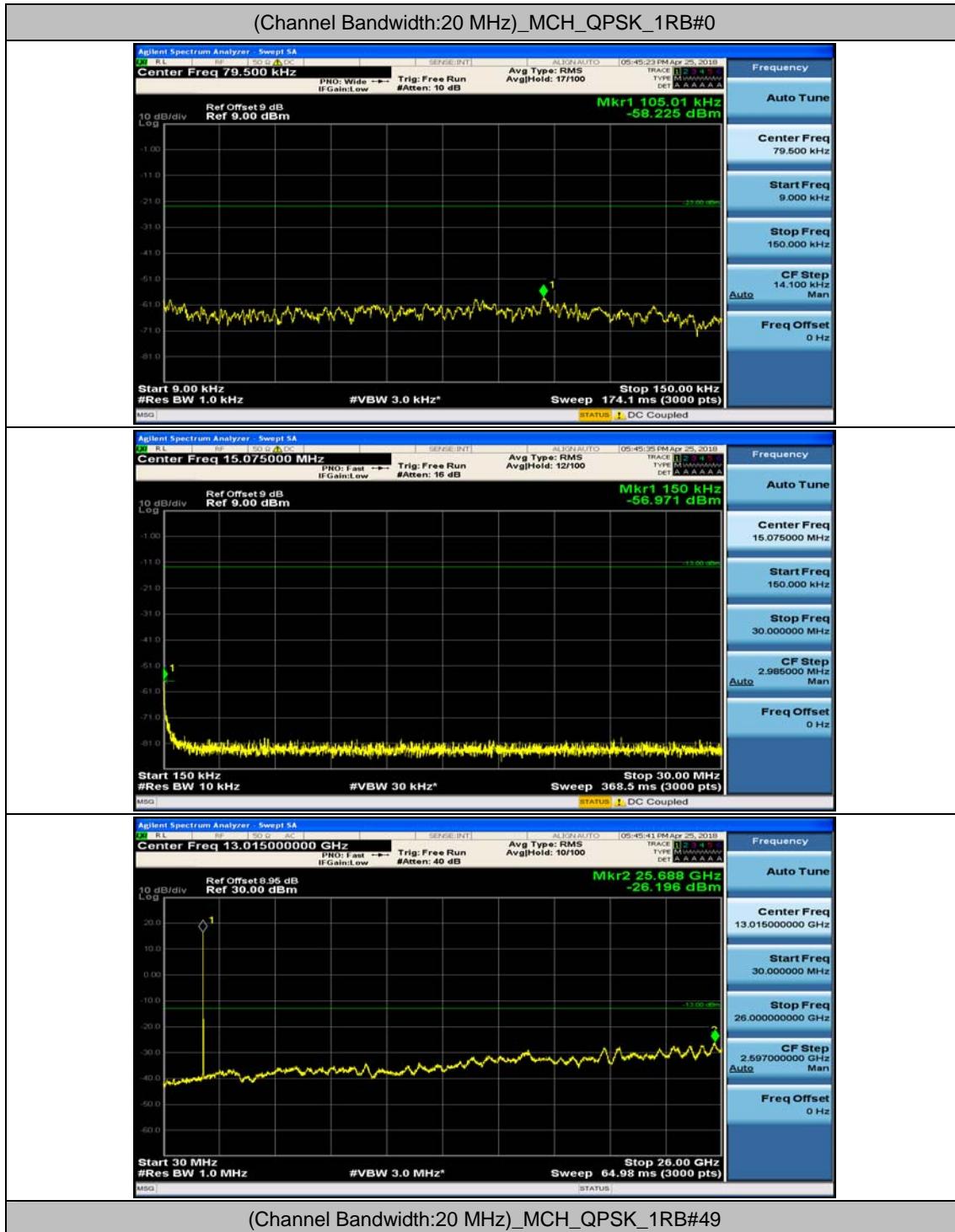
## Channel Bandwidth: 20 MHz

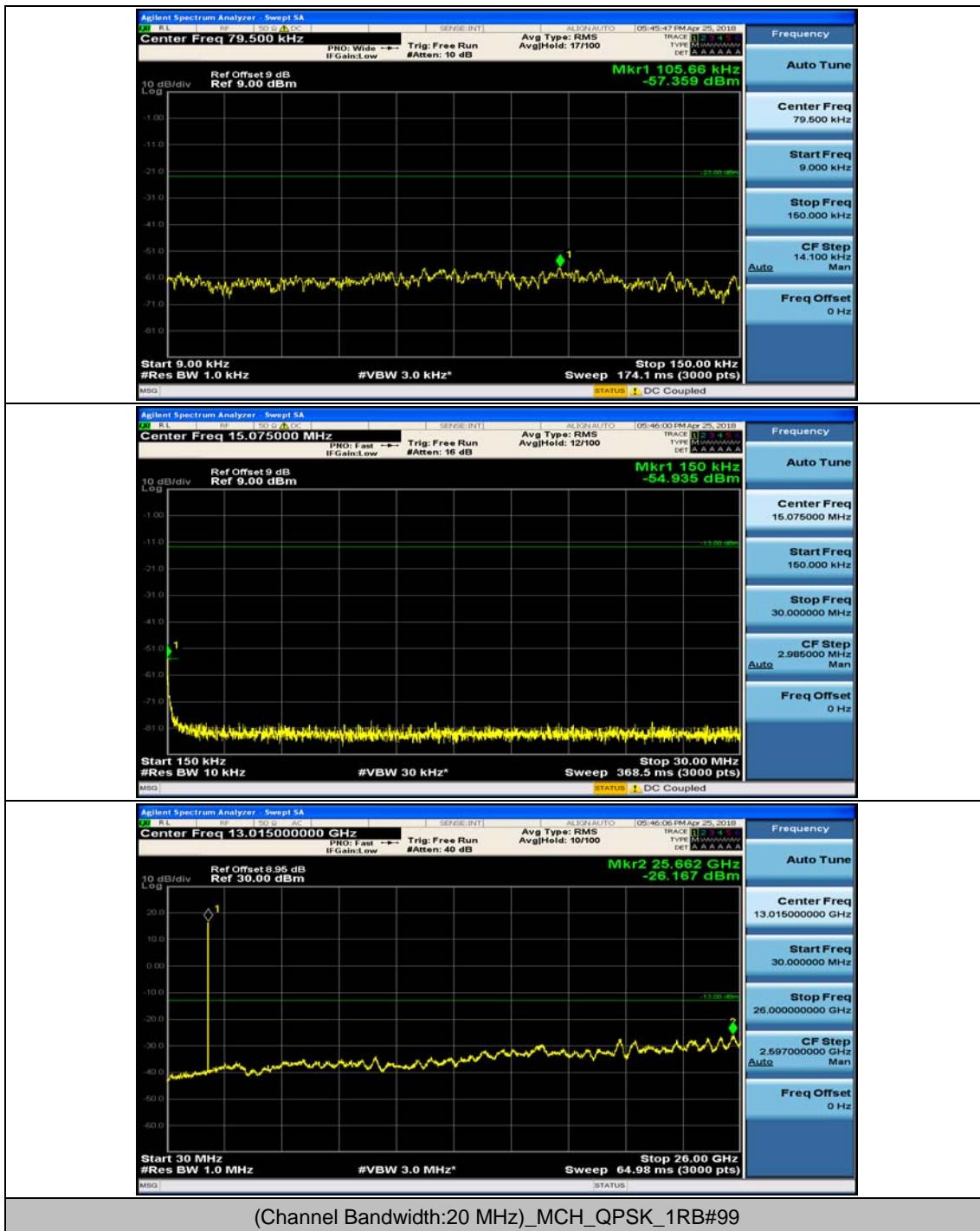


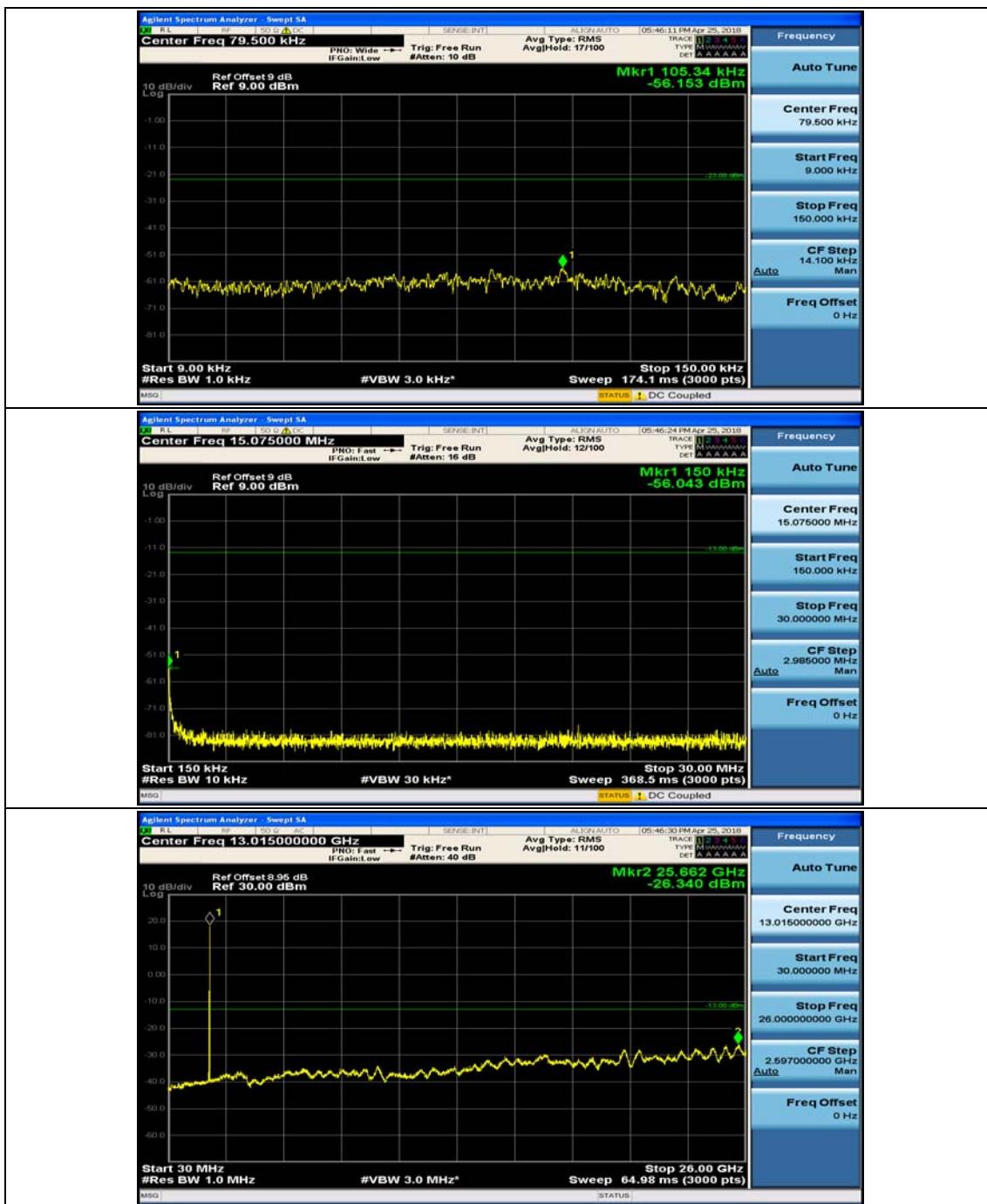


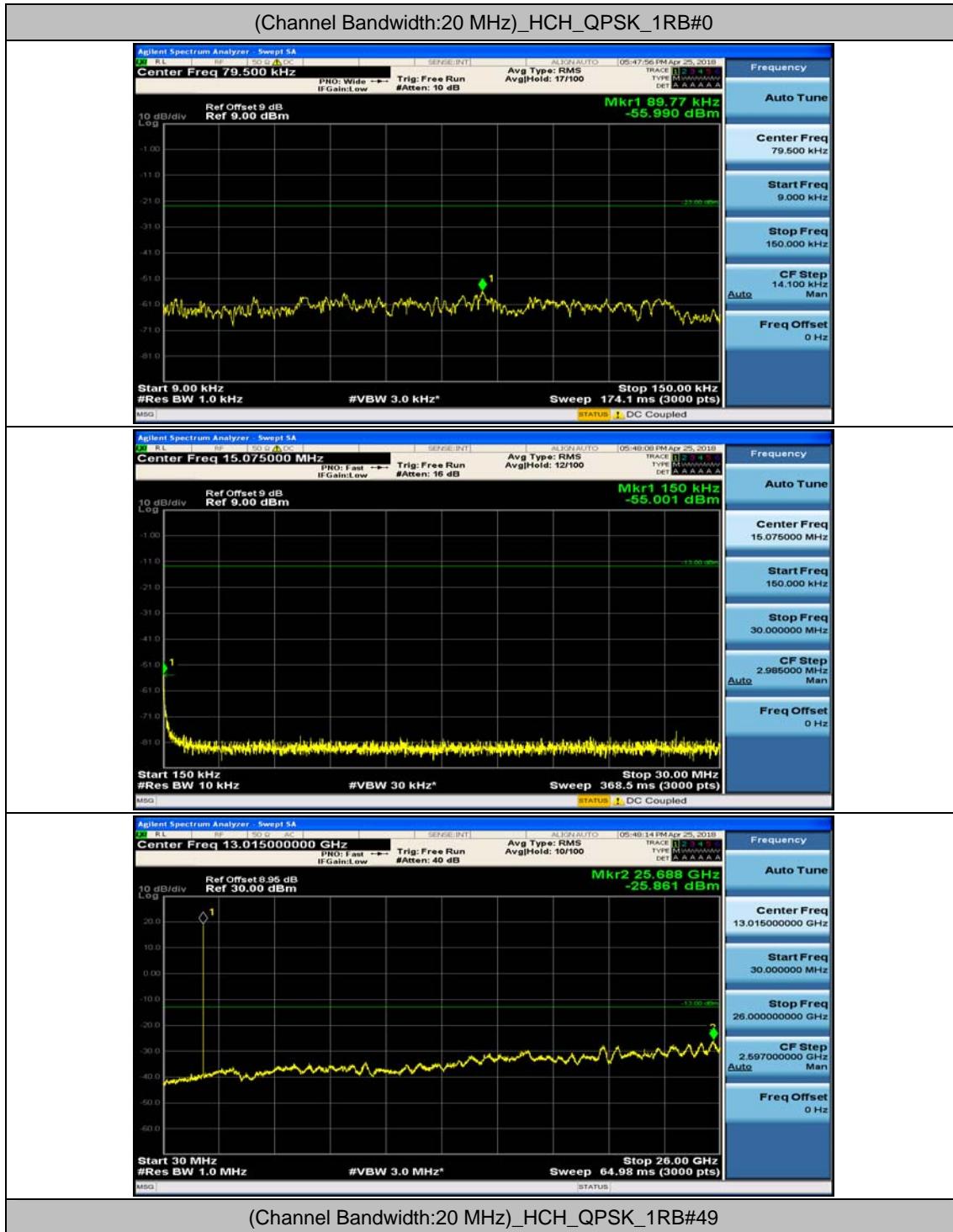
(Channel Bandwidth:20 MHz)\_LCH\_QPSK\_1RB#99

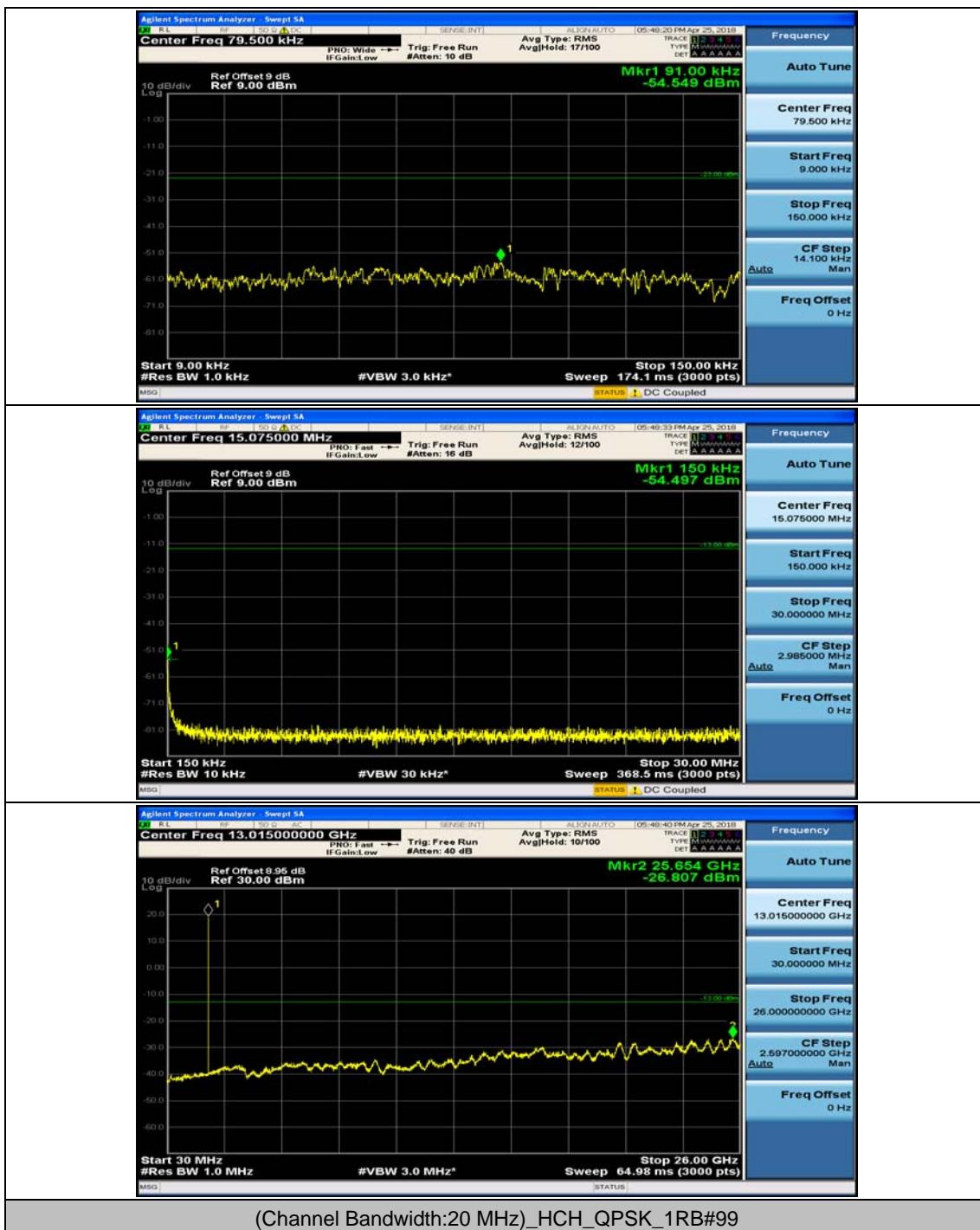


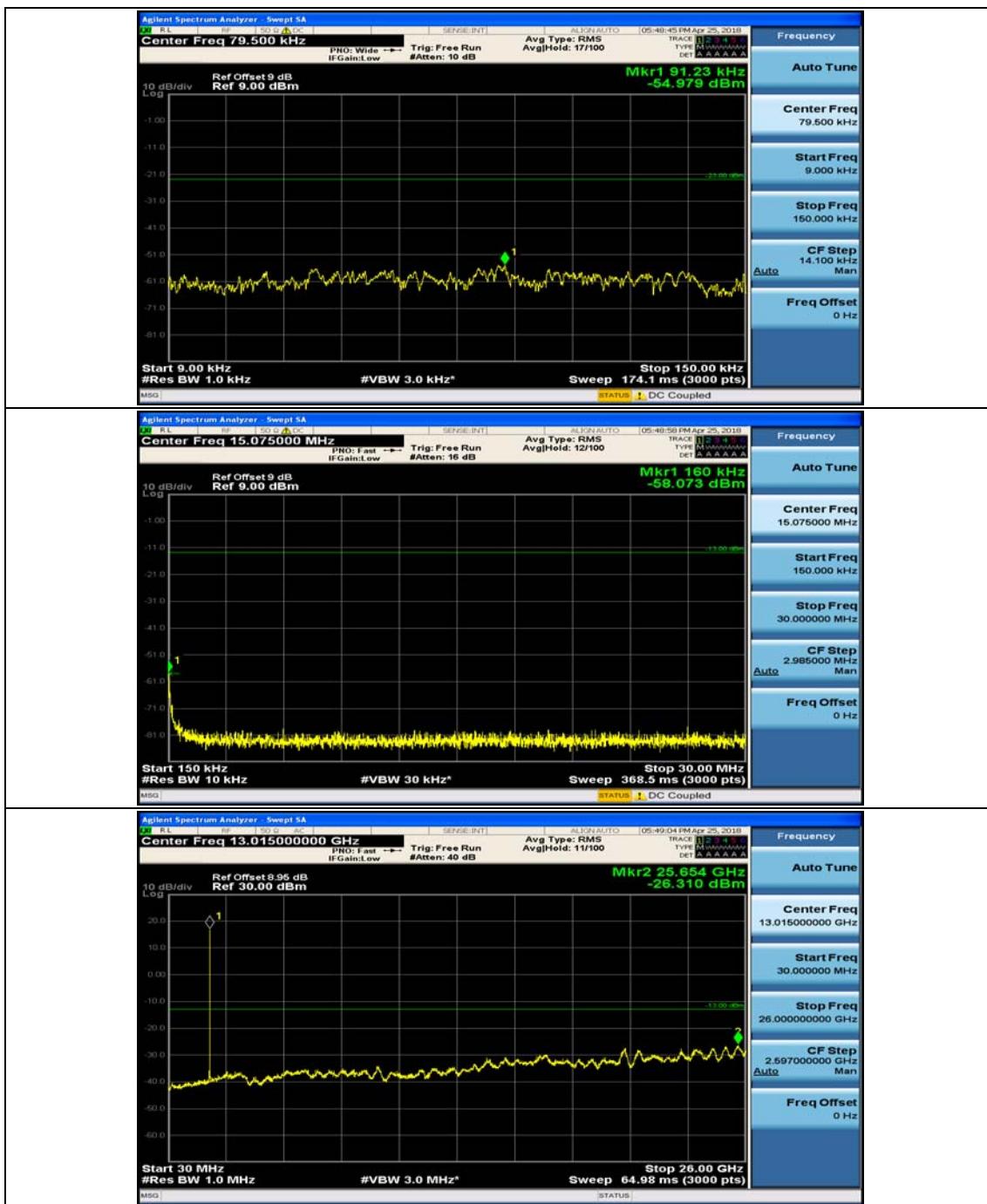


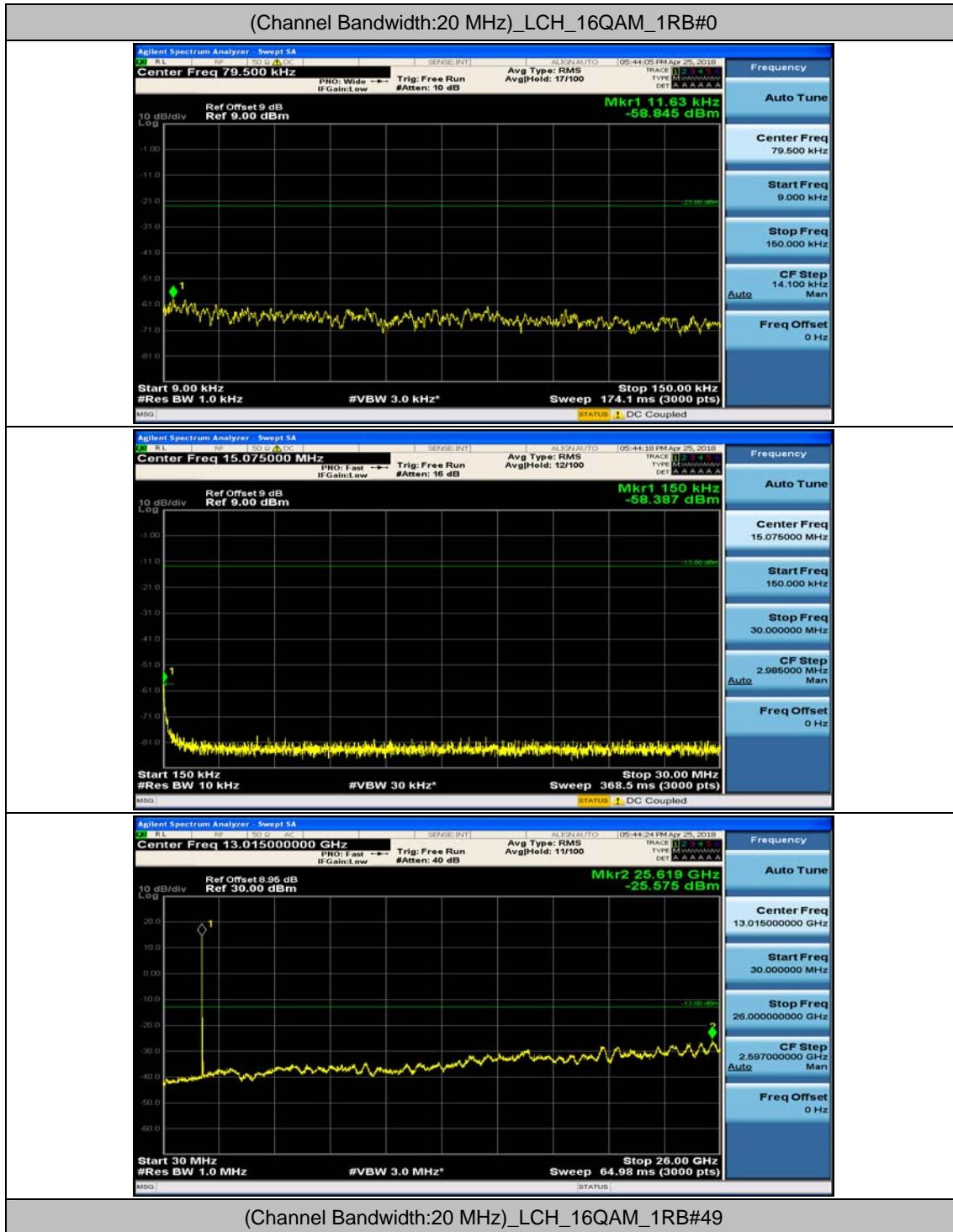


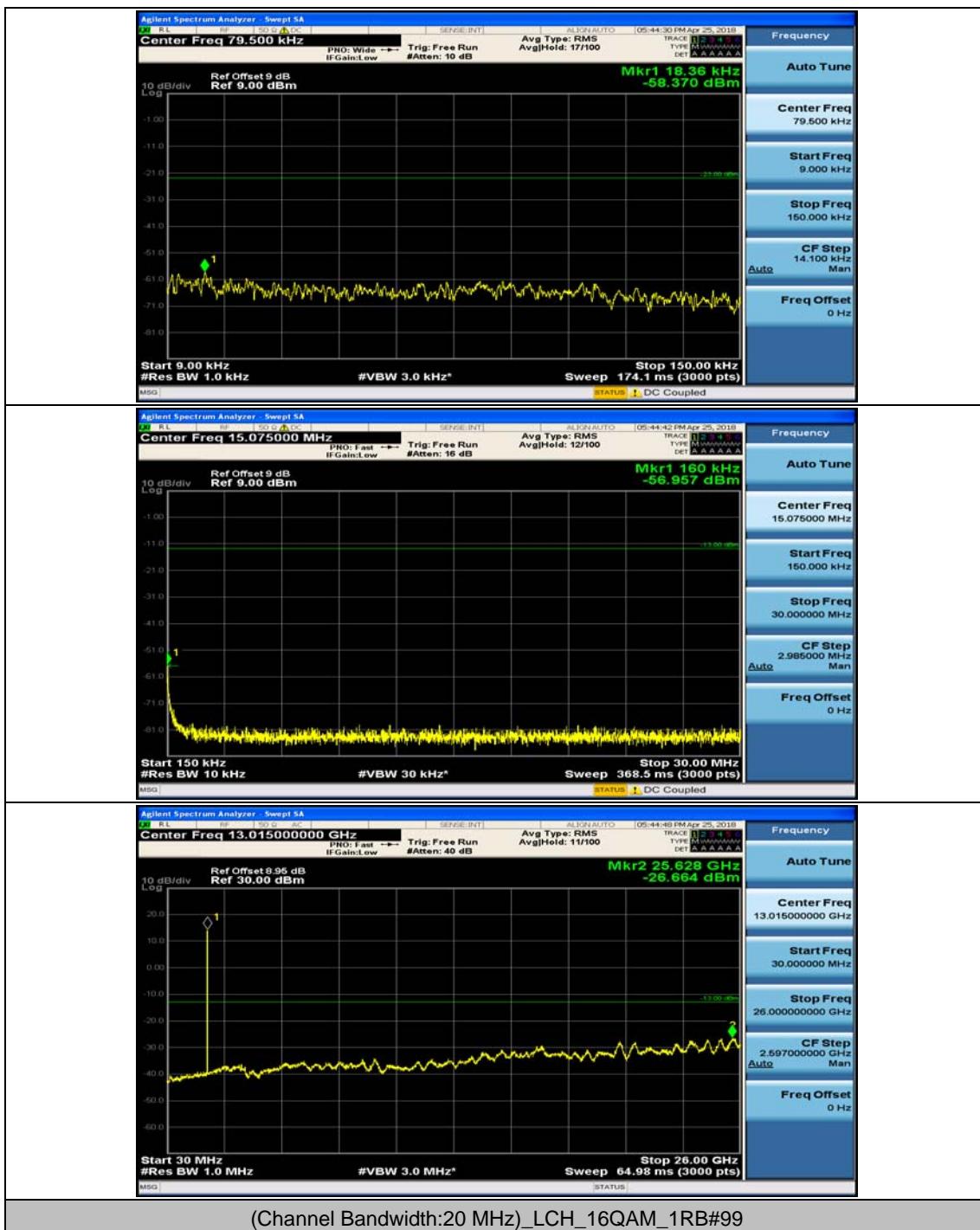


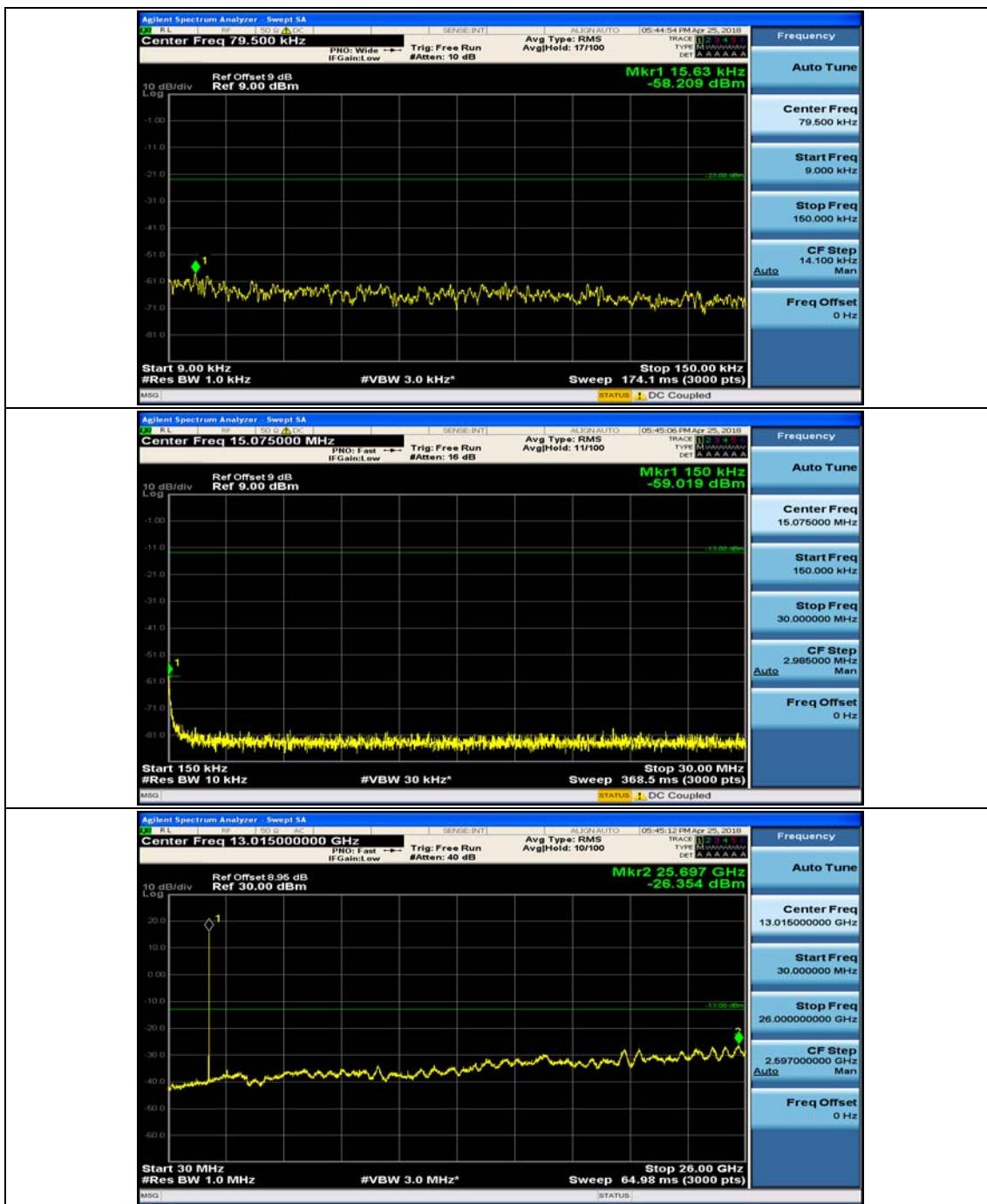


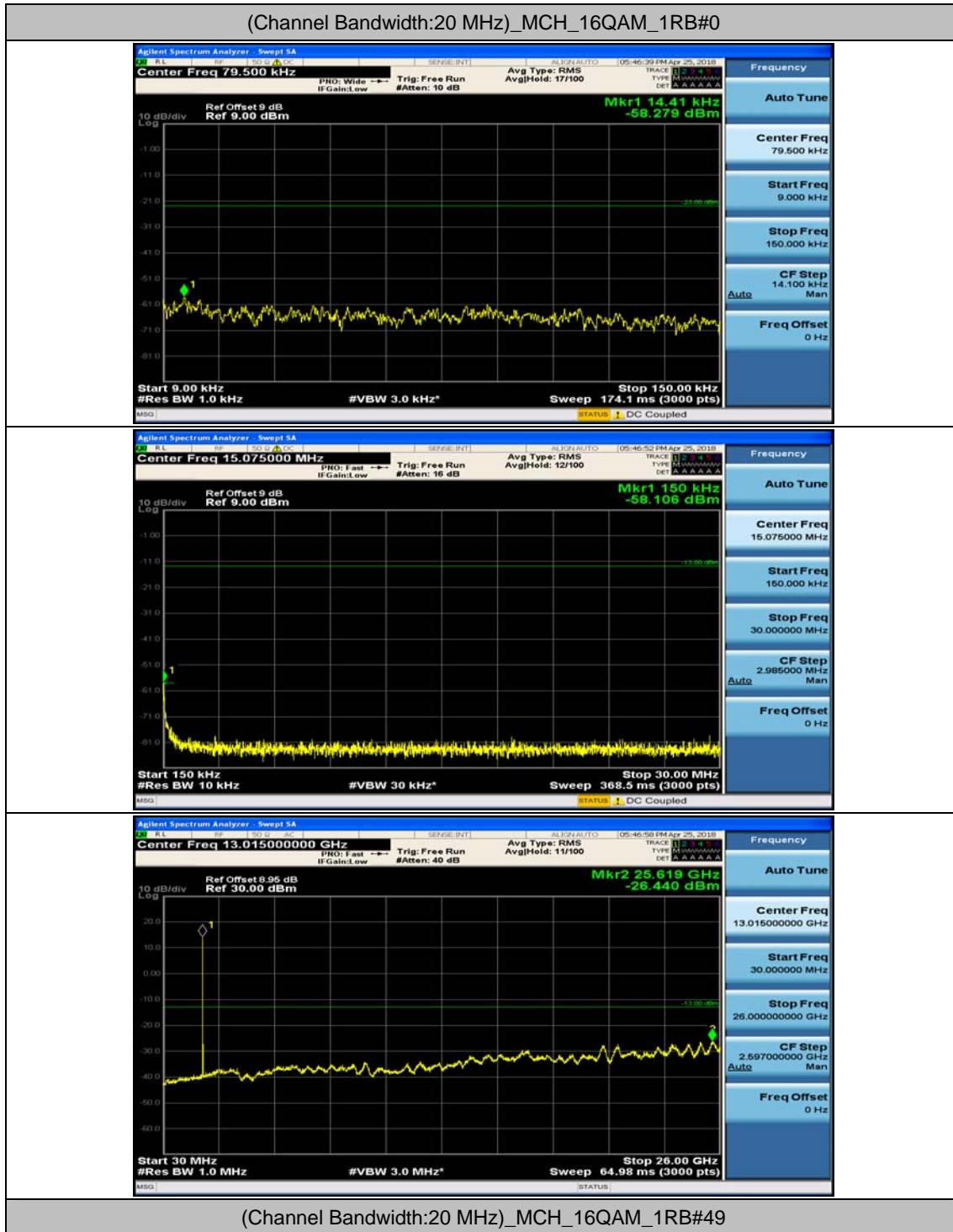


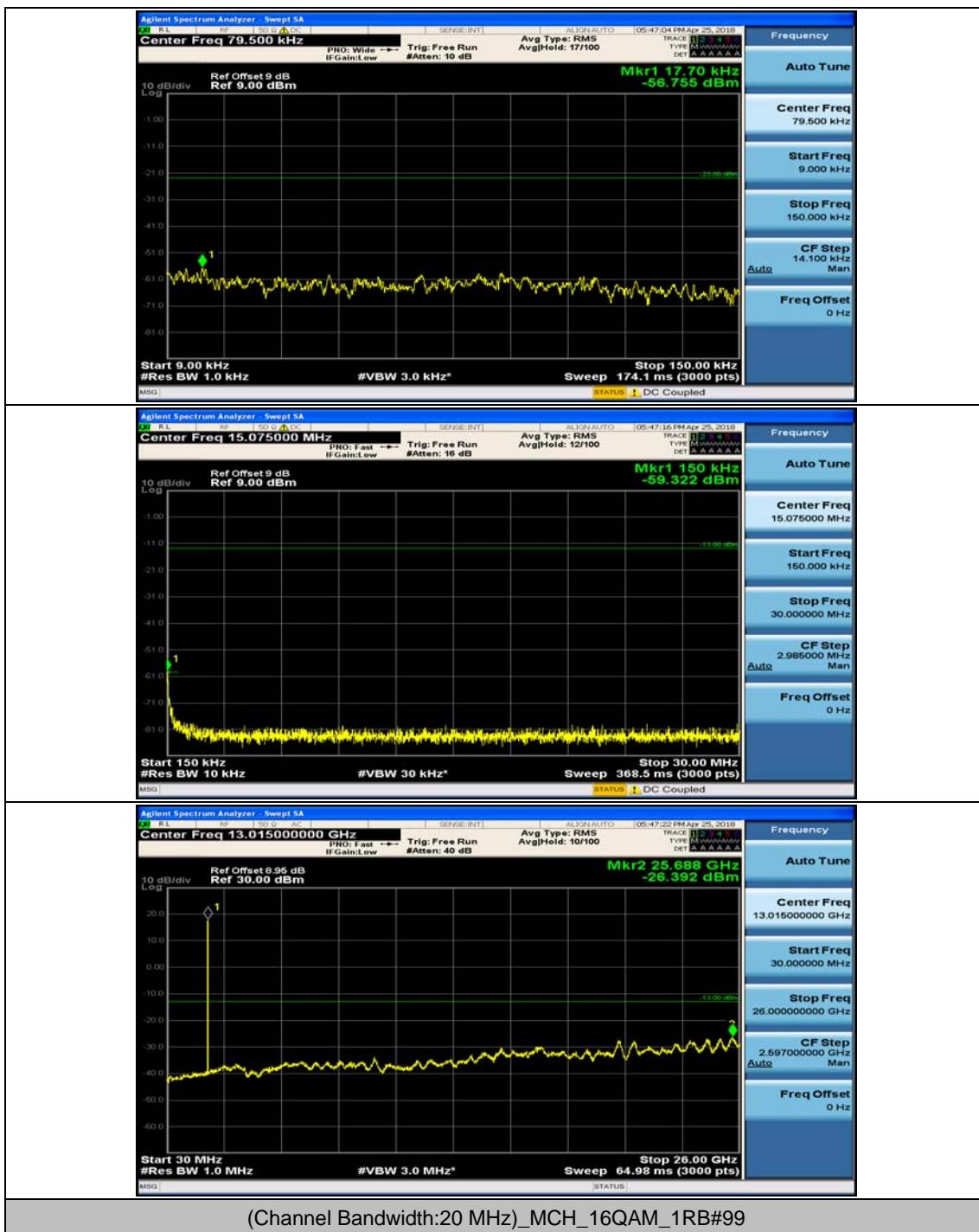


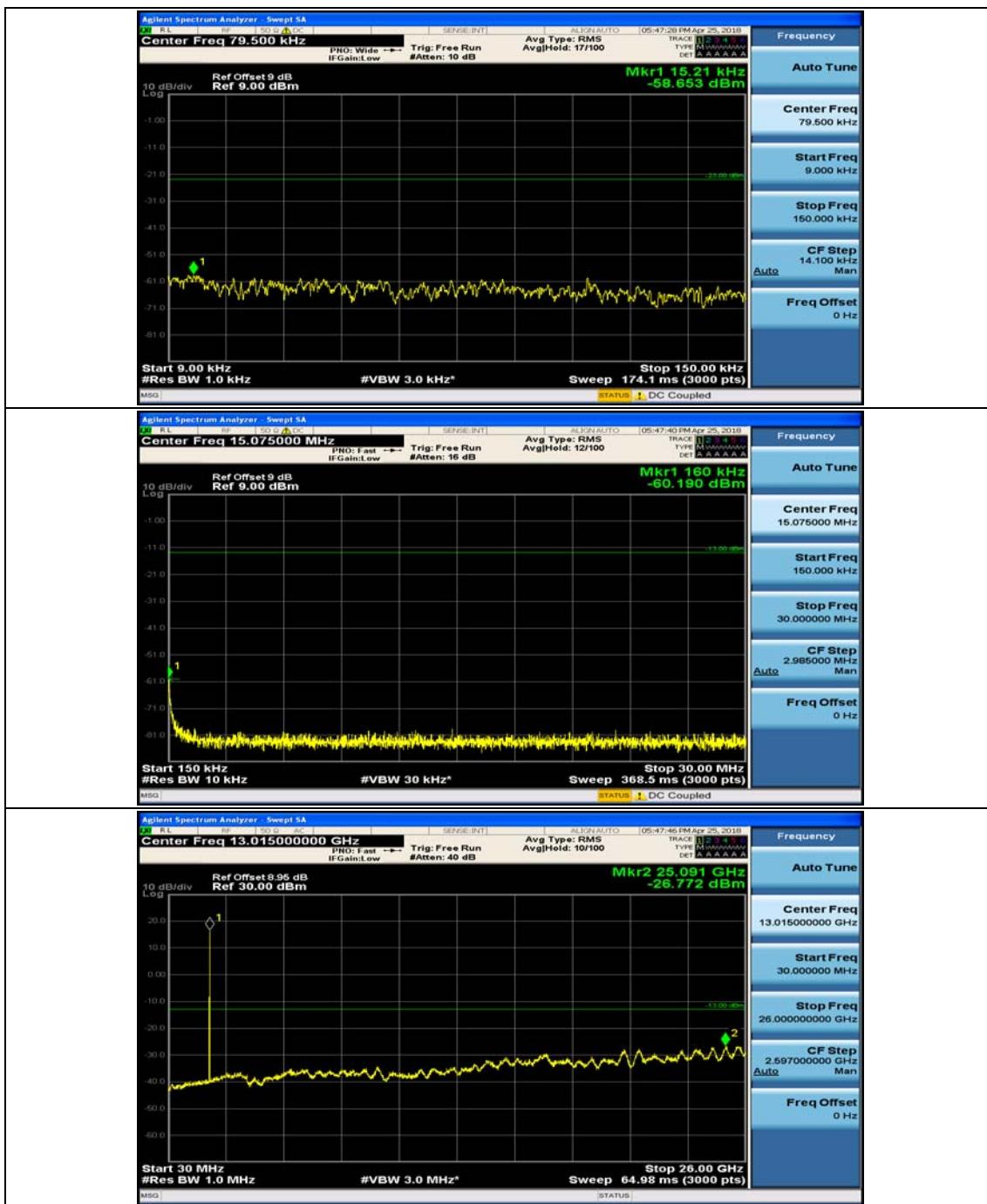


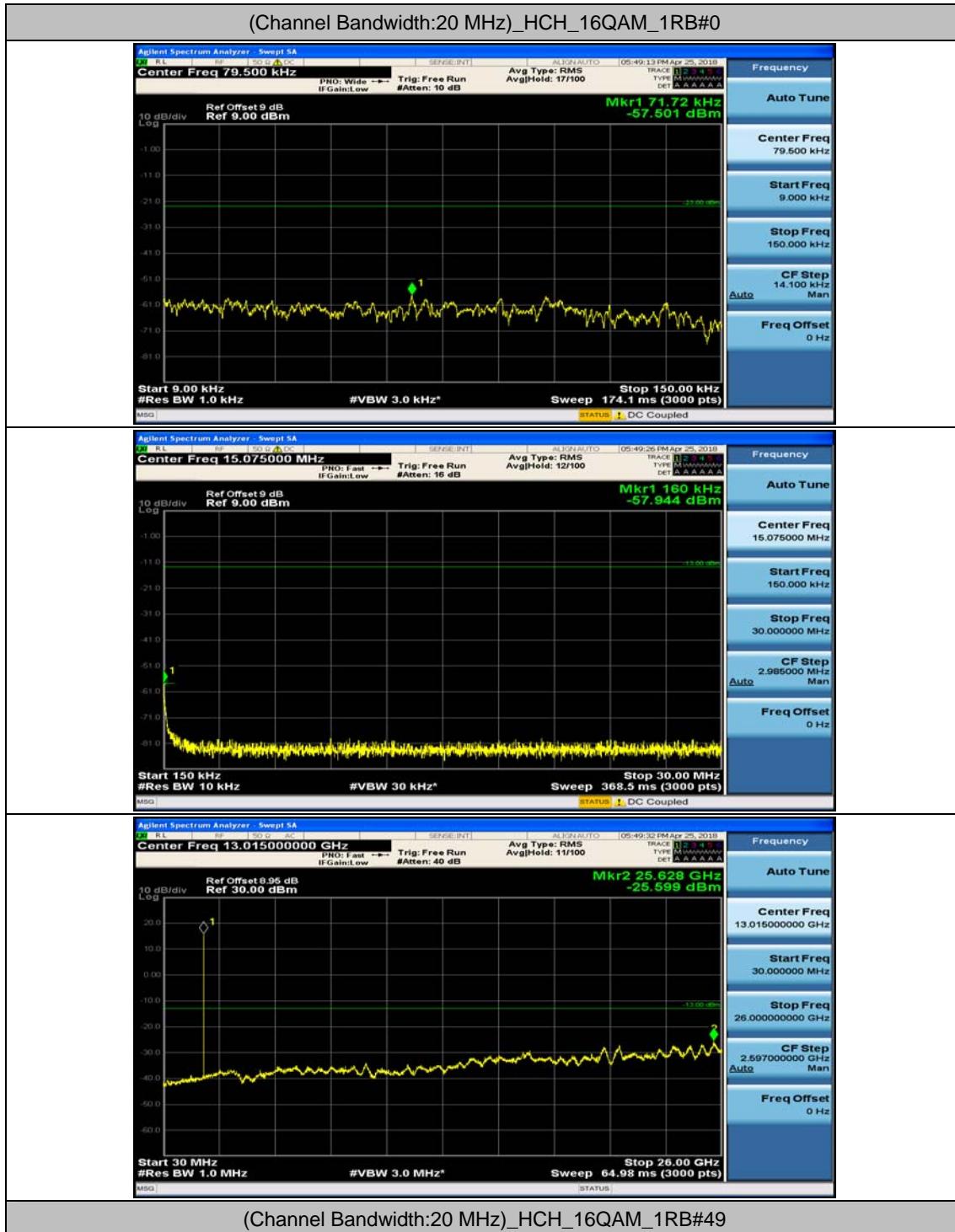


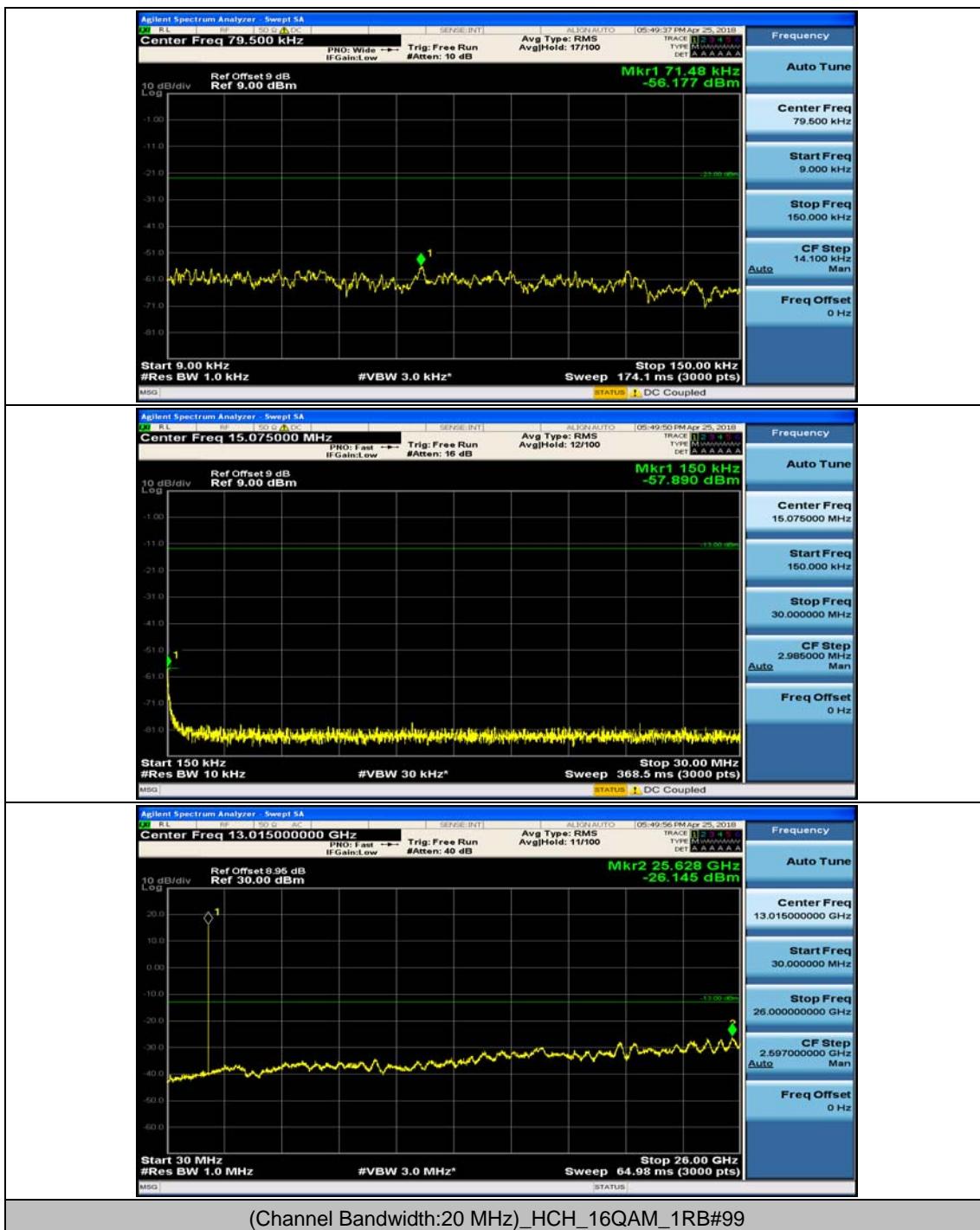


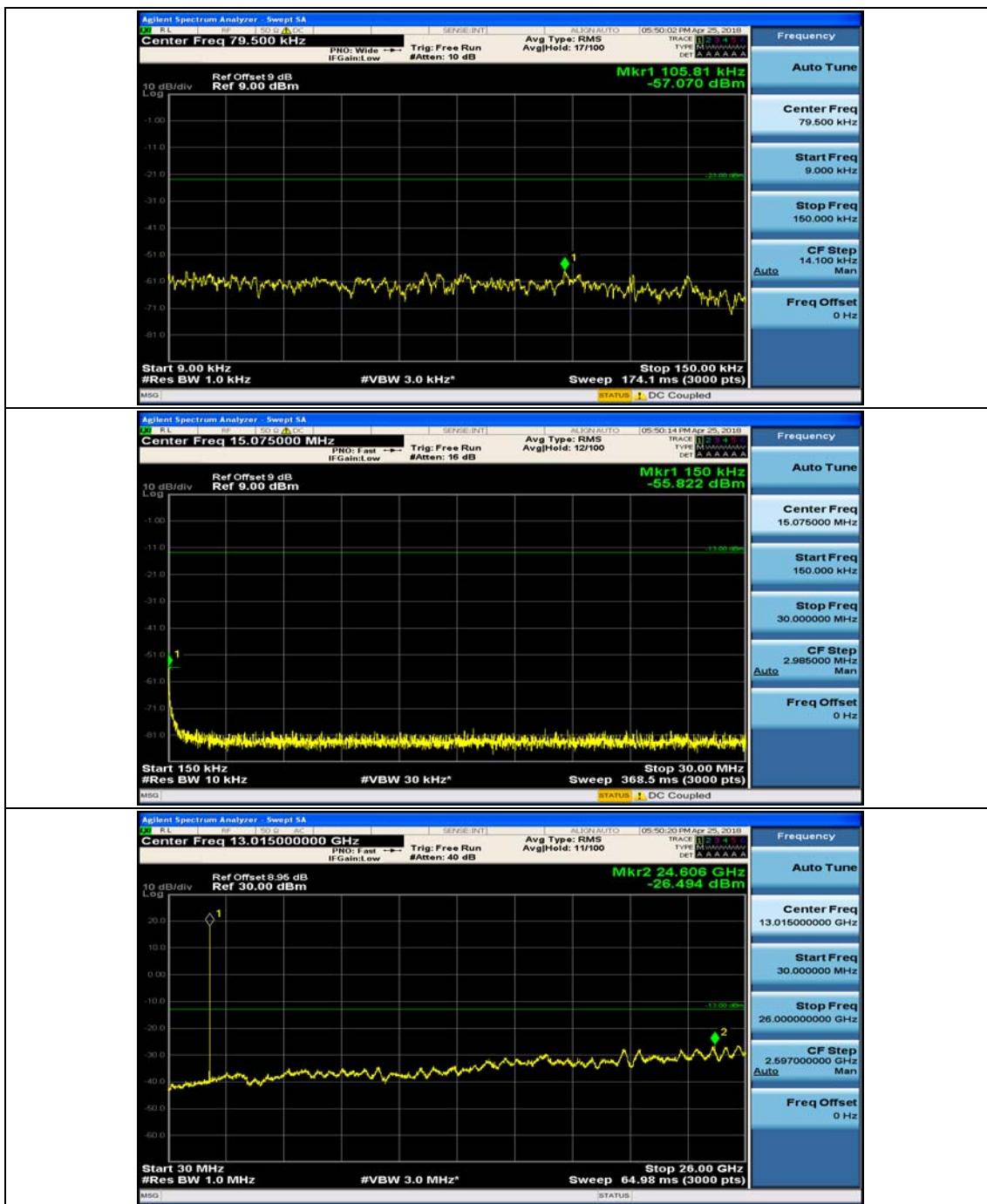












## Appendix F: Frequency Stability

### Test Result

#### 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               | 3.13           | 0.001691        | ± 2.5       | PASS    |
|                            |         | VN            | TN               | -1.76          | -0.000951       | ± 2.5       | PASS    |
|                            |         | VH            | TN               | 2.5            | 0.001351        | ± 2.5       | PASS    |
|                            | MCH     | VL            | TN               | -0.07          | -0.000037       | ± 2.5       | PASS    |
|                            |         | VN            | TN               | 4.32           | 0.002298        | ± 2.5       | PASS    |
|                            |         | VH            | TN               | -1.52          | -0.000809       | ± 2.5       | PASS    |
|                            | HCH     | VL            | TN               | -1.97          | -0.001032       | ± 2.5       | PASS    |
|                            |         | VN            | TN               | 1.96           | 0.001027        | ± 2.5       | PASS    |
|                            |         | VH            | TN               | -0.89          | -0.000466       | ± 2.5       | PASS    |
| 16QAM                      | LCH     | VL            | TN               | -1.86          | -0.001005       | ± 2.5       | PASS    |
|                            |         | VN            | TN               | 3.59           | 0.001940        | ± 2.5       | PASS    |
|                            |         | VH            | TN               | -1.52          | -0.000821       | ± 2.5       | PASS    |
|                            | MCH     | VL            | TN               | -1.17          | -0.000622       | ± 2.5       | PASS    |
|                            |         | VN            | TN               | 4.18           | 0.002223        | ± 2.5       | PASS    |
|                            |         | VH            | TN               | 4.73           | 0.002516        | ± 2.5       | PASS    |
|                            | HCH     | VL            | TN               | 1.45           | 0.000759        | ± 2.5       | PASS    |
|                            |         | VN            | TN               | 4.02           | 0.002105        | ± 2.5       | PASS    |
|                            |         | VH            | TN               | 1.53           | 0.000801        | ± 2.5       | PASS    |
| Temperature                |         |               |                  |                |                 |             |         |
| Modulation                 | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK                       | LCH     | VN            | -30              | 3.16           | 0.001707        | ± 2.5       | PASS    |
|                            |         | VN            | -20              | 4.94           | 0.002669        | ± 2.5       | PASS    |
|                            |         | VN            | -10              | 2              | 0.001081        | ± 2.5       | PASS    |
|                            |         | VN            | 0                | 2.12           | 0.001146        | ± 2.5       | PASS    |
|                            |         | VN            | 10               | -0.64          | -0.000346       | ± 2.5       | PASS    |
|                            |         | VN            | 20               | 2.9            | 0.001567        | ± 2.5       | PASS    |
|                            |         | VN            | 30               | 3.72           | 0.002010        | ± 2.5       | PASS    |
|                            |         | VN            | 40               | 3.92           | 0.002118        | ± 2.5       | PASS    |
|                            |         | VN            | 50               | 0.89           | 0.000481        | ± 2.5       | PASS    |
|                            | MCH     | VN            | -30              | 3.43           | 0.001824        | ± 2.5       | PASS    |
|                            |         | VN            | -20              | 0.56           | 0.000298        | ± 2.5       | PASS    |

|       |     |    |     |       |           |           |      |
|-------|-----|----|-----|-------|-----------|-----------|------|
|       | HCH | VN | -10 | 3.09  | 0.001644  | $\pm 2.5$ | PASS |
|       |     | VN | 0   | 0.53  | 0.000282  | $\pm 2.5$ | PASS |
|       |     | VN | 10  | 4.17  | 0.002218  | $\pm 2.5$ | PASS |
|       |     | VN | 20  | 4.15  | 0.002207  | $\pm 2.5$ | PASS |
|       |     | VN | 30  | 4.82  | 0.002564  | $\pm 2.5$ | PASS |
|       |     | VN | 40  | 3.93  | 0.002090  | $\pm 2.5$ | PASS |
|       |     | VN | 50  | 2.38  | 0.001266  | $\pm 2.5$ | PASS |
|       |     | VN | -30 | 4.37  | 0.002289  | $\pm 2.5$ | PASS |
|       |     | VN | -20 | 2.81  | 0.001472  | $\pm 2.5$ | PASS |
|       |     | VN | -10 | 2.88  | 0.001508  | $\pm 2.5$ | PASS |
| 16QAM | LCH | VN | 0   | -1    | -0.000524 | $\pm 2.5$ | PASS |
|       |     | VN | 10  | 2.9   | 0.001519  | $\pm 2.5$ | PASS |
|       |     | VN | 20  | -1.66 | -0.000869 | $\pm 2.5$ | PASS |
|       |     | VN | 30  | 3.54  | 0.001854  | $\pm 2.5$ | PASS |
|       |     | VN | 40  | 4.12  | 0.002158  | $\pm 2.5$ | PASS |
|       |     | VN | 50  | 3.16  | 0.001655  | $\pm 2.5$ | PASS |
|       |     | VN | -30 | -1    | -0.000540 | $\pm 2.5$ | PASS |
|       |     | VN | -20 | 1.94  | 0.001048  | $\pm 2.5$ | PASS |
|       |     | VN | -10 | -0.33 | -0.000178 | $\pm 2.5$ | PASS |
|       | MCH | VN | 0   | -1.43 | -0.000773 | $\pm 2.5$ | PASS |
|       |     | VN | 10  | 2.87  | 0.001551  | $\pm 2.5$ | PASS |
|       |     | VN | 20  | -1.5  | -0.000811 | $\pm 2.5$ | PASS |
|       |     | VN | 30  | 2.33  | 0.001259  | $\pm 2.5$ | PASS |
|       |     | VN | 40  | -1.06 | -0.000573 | $\pm 2.5$ | PASS |
|       |     | VN | 50  | 2.87  | 0.001551  | $\pm 2.5$ | PASS |
|       |     | VN | -30 | 3.6   | 0.001915  | $\pm 2.5$ | PASS |
|       |     | VN | -20 | 3.84  | 0.002043  | $\pm 2.5$ | PASS |
|       |     | VN | -10 | 3.94  | 0.002096  | $\pm 2.5$ | PASS |
|       |     | VN | 0   | 3.47  | 0.001846  | $\pm 2.5$ | PASS |
|       | HCH | VN | 10  | 1.92  | 0.001021  | $\pm 2.5$ | PASS |
|       |     | VN | 20  | -0.21 | -0.000112 | $\pm 2.5$ | PASS |
|       |     | VN | 30  | 4.78  | 0.002543  | $\pm 2.5$ | PASS |
|       |     | VN | 40  | 1.09  | 0.000580  | $\pm 2.5$ | PASS |
|       |     | VN | 50  | -0.92 | -0.000489 | $\pm 2.5$ | PASS |
|       |     | VN | -30 | 4.22  | 0.002210  | $\pm 2.5$ | PASS |
|       |     | VN | -20 | 0.16  | 0.000084  | $\pm 2.5$ | PASS |

|  |  |    |    |       |           |           |      |
|--|--|----|----|-------|-----------|-----------|------|
|  |  | VN | 40 | -0.72 | -0.000377 | $\pm 2.5$ | PASS |
|  |  | VN | 50 | 1.2   | 0.000629  | $\pm 2.5$ | 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               | 0.45           | 0.000243        | $\pm 2.5$   | PASS    |
|                           |         | VN            | TN               | 3.52           | 0.001901        | $\pm 2.5$   | PASS    |
|                           |         | VH            | TN               | 3.55           | 0.001917        | $\pm 2.5$   | PASS    |
|                           | MCH     | VL            | TN               | 4.41           | 0.002346        | $\pm 2.5$   | PASS    |
|                           |         | VN            | TN               | 0              | 0.000000        | $\pm 2.5$   | PASS    |
|                           |         | VH            | TN               | 2.91           | 0.001548        | $\pm 2.5$   | PASS    |
|                           | HCH     | VL            | TN               | 0.38           | 0.000199        | $\pm 2.5$   | PASS    |
|                           |         | VN            | TN               | 3.56           | 0.001865        | $\pm 2.5$   | PASS    |
|                           |         | VH            | TN               | 4.76           | 0.002494        | $\pm 2.5$   | PASS    |
| 16QAM                     | LCH     | VL            | TN               | -0.13          | -0.000070       | $\pm 2.5$   | PASS    |
|                           |         | VN            | TN               | 3.62           | 0.001955        | $\pm 2.5$   | PASS    |
|                           |         | VH            | TN               | 1.92           | 0.001037        | $\pm 2.5$   | PASS    |
|                           | MCH     | VL            | TN               | 4.19           | 0.002229        | $\pm 2.5$   | PASS    |
|                           |         | VN            | TN               | -1.6           | -0.000851       | $\pm 2.5$   | PASS    |
|                           |         | VH            | TN               | 3.7            | 0.001968        | $\pm 2.5$   | PASS    |
|                           | HCH     | VL            | TN               | -0.41          | -0.000215       | $\pm 2.5$   | PASS    |
|                           |         | VN            | TN               | 3.76           | 0.001970        | $\pm 2.5$   | PASS    |
|                           |         | VH            | TN               | 4.44           | 0.002326        | $\pm 2.5$   | PASS    |
| Temperature               |         |               |                  |                |                 |             |         |
| Modulation                | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK                      | LCH     | VN            | -30              | 4.2            | 0.002268        | $\pm 2.5$   | PASS    |
|                           |         | VN            | -20              | 1.32           | 0.000713        | $\pm 2.5$   | PASS    |
|                           |         | VN            | -10              | 2.8            | 0.001512        | $\pm 2.5$   | PASS    |
|                           |         | VN            | 0                | 2.72           | 0.001469        | $\pm 2.5$   | PASS    |
|                           |         | VN            | 10               | 1.03           | 0.000556        | $\pm 2.5$   | PASS    |
|                           |         | VN            | 20               | 4.39           | 0.002371        | $\pm 2.5$   | PASS    |
|                           |         | VN            | 30               | 1.27           | 0.000686        | $\pm 2.5$   | PASS    |
|                           |         | VN            | 40               | 3.2            | 0.001728        | $\pm 2.5$   | PASS    |
|                           |         | VN            | 50               | -1.42          | -0.000767       | $\pm 2.5$   | PASS    |
|                           | MCH     | VN            | -30              | -1.88          | -0.001000       | $\pm 2.5$   | PASS    |
|                           |         | VN            | -20              | -1.26          | -0.000670       | $\pm 2.5$   | PASS    |
|                           |         | VN            | -10              | 1.75           | 0.000931        | $\pm 2.5$   | PASS    |

|  |     |    |     |       |           |           |      |
|--|-----|----|-----|-------|-----------|-----------|------|
|  |     | VN | 0   | 0.18  | 0.000096  | $\pm 2.5$ | PASS |
|  |     | VN | 10  | -1.32 | -0.000702 | $\pm 2.5$ | PASS |
|  |     | VN | 20  | 4.66  | 0.002479  | $\pm 2.5$ | PASS |
|  |     | VN | 30  | 4.57  | 0.002431  | $\pm 2.5$ | PASS |
|  |     | VN | 40  | 4.25  | 0.002261  | $\pm 2.5$ | PASS |
|  |     | VN | 50  | 0.17  | 0.000090  | $\pm 2.5$ | PASS |
|  |     | VN | -30 | 2.54  | 0.001331  | $\pm 2.5$ | PASS |
|  |     | VN | -20 | 0.04  | 0.000021  | $\pm 2.5$ | PASS |
|  |     | VN | -10 | 3.68  | 0.001928  | $\pm 2.5$ | PASS |
|  |     | VN | 0   | -1.62 | -0.000849 | $\pm 2.5$ | PASS |
|  |     | VN | 10  | 3.98  | 0.002085  | $\pm 2.5$ | PASS |
|  |     | VN | 20  | 2.21  | 0.001158  | $\pm 2.5$ | PASS |
|  |     | VN | 30  | -0.14 | -0.000073 | $\pm 2.5$ | PASS |
|  |     | VN | 40  | 0.64  | 0.000335  | $\pm 2.5$ | PASS |
|  |     | VN | 50  | 1.83  | 0.000959  | $\pm 2.5$ | PASS |
|  | HCH | VN | -30 | 1.27  | 0.000686  | $\pm 2.5$ | PASS |
|  |     | VN | -20 | -1.4  | -0.000756 | $\pm 2.5$ | PASS |
|  |     | VN | -10 | 3.81  | 0.002058  | $\pm 2.5$ | PASS |
|  |     | VN | 0   | 1.06  | 0.000573  | $\pm 2.5$ | PASS |
|  |     | VN | 10  | 1.2   | 0.000648  | $\pm 2.5$ | PASS |
|  |     | VN | 20  | 4.02  | 0.002171  | $\pm 2.5$ | PASS |
|  |     | VN | 30  | 3.44  | 0.001858  | $\pm 2.5$ | PASS |
|  |     | VN | 40  | 0.91  | 0.000491  | $\pm 2.5$ | PASS |
|  | LCH | VN | 50  | 0.46  | 0.000248  | $\pm 2.5$ | PASS |
|  |     | VN | -30 | 3.52  | 0.001872  | $\pm 2.5$ | PASS |
|  |     | VN | -20 | 4.82  | 0.002564  | $\pm 2.5$ | PASS |
|  |     | VN | -10 | -1.1  | -0.000585 | $\pm 2.5$ | PASS |
|  |     | VN | 0   | 2.18  | 0.001160  | $\pm 2.5$ | PASS |
|  |     | VN | 10  | 4.11  | 0.002186  | $\pm 2.5$ | PASS |
|  |     | VN | 20  | -0.67 | -0.000356 | $\pm 2.5$ | PASS |
|  |     | VN | 30  | 4.88  | 0.002596  | $\pm 2.5$ | PASS |
|  | MCH | VN | 40  | 1.38  | 0.000734  | $\pm 2.5$ | PASS |
|  |     | VN | 50  | 0.26  | 0.000138  | $\pm 2.5$ | PASS |
|  |     | VN | -30 | 0.81  | 0.000424  | $\pm 2.5$ | PASS |
|  |     | VN | -20 | 4.44  | 0.002326  | $\pm 2.5$ | PASS |
|  |     | VN | -10 | -1.8  | -0.000943 | $\pm 2.5$ | PASS |
|  |     | VN | 0   | 4.06  | 0.002127  | $\pm 2.5$ | PASS |
|  |     | VN | 10  | 3.51  | 0.001839  | $\pm 2.5$ | PASS |
|  |     | VN | 20  | -0.44 | -0.000231 | $\pm 2.5$ | PASS |
|  | HCH | VN | 30  | 1.93  | 0.001011  | $\pm 2.5$ | PASS |
|  |     | VN | 40  | 0.35  | 0.000183  | $\pm 2.5$ | PASS |

|  |  |    |    |      |          |           |      |
|--|--|----|----|------|----------|-----------|------|
|  |  | VN | 50 | 0.59 | 0.000309 | $\pm 2.5$ | 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               | -1.9           | -0.001026       | $\pm 2.5$   | PASS    |
|                          |         | VN            | TN               | 2.49           | 0.001344        | $\pm 2.5$   | PASS    |
|                          |         | VH            | TN               | -1.14          | -0.000615       | $\pm 2.5$   | PASS    |
|                          | MCH     | VL            | TN               | 1.92           | 0.001021        | $\pm 2.5$   | PASS    |
|                          |         | VN            | TN               | 1.01           | 0.000537        | $\pm 2.5$   | PASS    |
|                          |         | VH            | TN               | -1.77          | -0.000941       | $\pm 2.5$   | PASS    |
|                          | HCH     | VL            | TN               | -0.58          | -0.000304       | $\pm 2.5$   | PASS    |
|                          |         | VN            | TN               | -0.47          | -0.000246       | $\pm 2.5$   | PASS    |
|                          |         | VH            | TN               | -0.37          | -0.000194       | $\pm 2.5$   | PASS    |
| 16QAM                    | LCH     | VL            | TN               | 1.1            | 0.000594        | $\pm 2.5$   | PASS    |
|                          |         | VN            | TN               | -0.87          | -0.000470       | $\pm 2.5$   | PASS    |
|                          |         | VH            | TN               | 2.64           | 0.001425        | $\pm 2.5$   | PASS    |
|                          | MCH     | VL            | TN               | -1.24          | -0.000660       | $\pm 2.5$   | PASS    |
|                          |         | VN            | TN               | 2              | 0.001064        | $\pm 2.5$   | PASS    |
|                          |         | VH            | TN               | 3.19           | 0.001697        | $\pm 2.5$   | PASS    |
|                          | HCH     | VL            | TN               | -0.72          | -0.000377       | $\pm 2.5$   | PASS    |
|                          |         | VN            | TN               | 3.23           | 0.001693        | $\pm 2.5$   | PASS    |
|                          |         | VH            | TN               | -0.45          | -0.000236       | $\pm 2.5$   | PASS    |
| Temperature              |         |               |                  |                |                 |             |         |
| Modulation               | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK                     | LCH     | VN            | -30              | -0.75          | -0.000405       | $\pm 2.5$   | PASS    |
|                          |         | VN            | -20              | 2.44           | 0.001317        | $\pm 2.5$   | PASS    |
|                          |         | VN            | -10              | 0.55           | 0.000297        | $\pm 2.5$   | PASS    |
|                          |         | VN            | 0                | -1.57          | -0.000848       | $\pm 2.5$   | PASS    |
|                          |         | VN            | 10               | 1.31           | 0.000707        | $\pm 2.5$   | PASS    |
|                          |         | VN            | 20               | -0.14          | -0.000076       | $\pm 2.5$   | PASS    |
|                          |         | VN            | 30               | -1.61          | -0.000869       | $\pm 2.5$   | PASS    |
|                          |         | VN            | 40               | 1.87           | 0.001009        | $\pm 2.5$   | PASS    |
|                          |         | VN            | 50               | 0.06           | 0.000032        | $\pm 2.5$   | PASS    |
|                          | MCH     | VN            | -30              | 1.19           | 0.000633        | $\pm 2.5$   | PASS    |
|                          |         | VN            | -20              | -1.94          | -0.001032       | $\pm 2.5$   | PASS    |
|                          |         | VN            | -10              | -0.33          | -0.000176       | $\pm 2.5$   | PASS    |
|                          |         | VN            | 0                | 1.45           | 0.000771        | $\pm 2.5$   | PASS    |

|  |  |    |     |       |           |           |      |
|--|--|----|-----|-------|-----------|-----------|------|
|  |  | VN | 10  | 0.55  | 0.000293  | $\pm 2.5$ | PASS |
|  |  | VN | 20  | 0.24  | 0.000128  | $\pm 2.5$ | PASS |
|  |  | VN | 30  | 3.53  | 0.001878  | $\pm 2.5$ | PASS |
|  |  | VN | 40  | 1.37  | 0.000729  | $\pm 2.5$ | PASS |
|  |  | VN | 50  | -1.39 | -0.000739 | $\pm 2.5$ | PASS |
|  |  | VN | -30 | -1.04 | -0.000545 | $\pm 2.5$ | PASS |
|  |  | VN | -20 | -1.1  | -0.000577 | $\pm 2.5$ | PASS |
|  |  | VN | -10 | 4.1   | 0.002149  | $\pm 2.5$ | PASS |
|  |  | VN | 0   | 3.2   | 0.001678  | $\pm 2.5$ | PASS |
|  |  | VN | 10  | -1.97 | -0.001033 | $\pm 2.5$ | PASS |
|  |  | VN | 20  | 4.48  | 0.002349  | $\pm 2.5$ | PASS |
|  |  | VN | 30  | -0.18 | -0.000094 | $\pm 2.5$ | PASS |
|  |  | VN | 40  | 1.32  | 0.000692  | $\pm 2.5$ | PASS |
|  |  | VN | 50  | 4.5   | 0.002359  | $\pm 2.5$ | PASS |
|  |  | VN | -30 | -1.22 | -0.000659 | $\pm 2.5$ | PASS |
|  |  | VN | -20 | 2.94  | 0.001587  | $\pm 2.5$ | PASS |
|  |  | VN | -10 | 2.55  | 0.001377  | $\pm 2.5$ | PASS |
|  |  | VN | 0   | 1.02  | 0.000551  | $\pm 2.5$ | PASS |
|  |  | VN | 10  | 2.88  | 0.001555  | $\pm 2.5$ | PASS |
|  |  | VN | 20  | 2.01  | 0.001085  | $\pm 2.5$ | PASS |
|  |  | VN | 30  | 4.04  | 0.002181  | $\pm 2.5$ | PASS |
|  |  | VN | 40  | 1.07  | 0.000578  | $\pm 2.5$ | PASS |
|  |  | VN | 50  | 3.88  | 0.002094  | $\pm 2.5$ | PASS |
|  |  | VN | -30 | 4.1   | 0.002181  | $\pm 2.5$ | PASS |
|  |  | VN | -20 | 0.4   | 0.000213  | $\pm 2.5$ | PASS |
|  |  | VN | -10 | 4.36  | 0.002319  | $\pm 2.5$ | PASS |
|  |  | VN | 0   | -1.29 | -0.000686 | $\pm 2.5$ | PASS |
|  |  | VN | 10  | 2.73  | 0.001452  | $\pm 2.5$ | PASS |
|  |  | VN | 20  | 3.36  | 0.001787  | $\pm 2.5$ | PASS |
|  |  | VN | 30  | 3.43  | 0.001824  | $\pm 2.5$ | PASS |
|  |  | VN | 40  | 3.98  | 0.002117  | $\pm 2.5$ | PASS |
|  |  | VN | 50  | 3.38  | 0.001798  | $\pm 2.5$ | PASS |
|  |  | VN | -30 | -0.49 | -0.000257 | $\pm 2.5$ | PASS |
|  |  | VN | -20 | 3.28  | 0.001720  | $\pm 2.5$ | PASS |
|  |  | VN | -10 | 0.7   | 0.000367  | $\pm 2.5$ | PASS |
|  |  | VN | 0   | 2.36  | 0.001237  | $\pm 2.5$ | PASS |
|  |  | VN | 10  | 4.43  | 0.002322  | $\pm 2.5$ | PASS |
|  |  | VN | 20  | 3.33  | 0.001746  | $\pm 2.5$ | PASS |
|  |  | VN | 30  | 1.8   | 0.000944  | $\pm 2.5$ | PASS |
|  |  | VN | 40  | 0.88  | 0.000461  | $\pm 2.5$ | PASS |
|  |  | VN | 50  | 2.19  | 0.001148  | $\pm 2.5$ | 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               | 4              | 0.002156        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 1.27           | 0.000685        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 0.45           | 0.000243        | ± 2.5       | PASS    |
|                           | MCH     | VL            | TN               | 3.22           | 0.001713        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 4.07           | 0.002165        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | -1.74          | -0.000926       | ± 2.5       | PASS    |
|                           | HCH     | VL            | TN               | -1.12          | -0.000588       | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 2.29           | 0.001202        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | -1.93          | -0.001013       | ± 2.5       | PASS    |
| 16QAM                     | LCH     | VL            | TN               | 2.03           | 0.001094        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 0.47           | 0.000253        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 4.69           | 0.002528        | ± 2.5       | PASS    |
|                           | MCH     | VL            | TN               | 3.68           | 0.001957        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | -1.49          | -0.000793       | ± 2.5       | PASS    |
|                           |         | VH            | TN               | -0.34          | -0.000181       | ± 2.5       | PASS    |
|                           | HCH     | VL            | TN               | -0.76          | -0.000399       | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 3.85           | 0.002021        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | -0.67          | -0.000352       | ± 2.5       | PASS    |
| Temperature               |         |               |                  |                |                 |             |         |
| Modulation                | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| 16QAM                     | LCH     | VN            | -30              | 2.02           | 0.001089        | ± 2.5       | PASS    |
|                           |         | VN            | -20              | -1.91          | -0.001030       | ± 2.5       | PASS    |
|                           |         | VN            | -10              | -1.52          | -0.000819       | ± 2.5       | PASS    |
|                           |         | VN            | 0                | 1.65           | 0.000889        | ± 2.5       | PASS    |
|                           |         | VN            | 10               | 2.68           | 0.001445        | ± 2.5       | PASS    |
|                           |         | VN            | 20               | -0.05          | -0.000027       | ± 2.5       | PASS    |
|                           |         | VN            | 30               | 1.87           | 0.001008        | ± 2.5       | PASS    |
|                           |         | VN            | 40               | 0.72           | 0.000388        | ± 2.5       | PASS    |
|                           |         | VN            | 50               | -1.81          | -0.000976       | ± 2.5       | PASS    |
|                           | MCH     | VN            | -30              | 2.65           | 0.001410        | ± 2.5       | PASS    |
|                           |         | VN            | -20              | -0.21          | -0.000112       | ± 2.5       | PASS    |
|                           |         | VN            | -10              | -0.19          | -0.000101       | ± 2.5       | PASS    |
|                           |         | VN            | 0                | 1.29           | 0.000686        | ± 2.5       | PASS    |
|                           |         | VN            | 10               | 1.8            | 0.000957        | ± 2.5       | PASS    |
|                           |         | VN            | 20               | 3.05           | 0.001622        | ± 2.5       | PASS    |

|  |     |    |     |       |           |           |      |
|--|-----|----|-----|-------|-----------|-----------|------|
|  |     | VN | 30  | 2.04  | 0.001085  | $\pm 2.5$ | PASS |
|  |     | VN | 40  | -0.91 | -0.000484 | $\pm 2.5$ | PASS |
|  |     | VN | 50  | -1.21 | -0.000644 | $\pm 2.5$ | PASS |
|  | HCH | VN | -30 | 1.98  | 0.001039  | $\pm 2.5$ | PASS |
|  |     | VN | -20 | 4.72  | 0.002478  | $\pm 2.5$ | PASS |
|  |     | VN | -10 | -1.12 | -0.000588 | $\pm 2.5$ | PASS |
|  |     | VN | 0   | -1.91 | -0.001003 | $\pm 2.5$ | PASS |
|  |     | VN | 10  | 1.08  | 0.000567  | $\pm 2.5$ | PASS |
|  |     | VN | 20  | 3.43  | 0.001801  | $\pm 2.5$ | PASS |
|  |     | VN | 30  | 1.57  | 0.000824  | $\pm 2.5$ | PASS |
|  | LCH | VN | 40  | 2.45  | 0.001286  | $\pm 2.5$ | PASS |
|  |     | VN | 50  | 0.56  | 0.000294  | $\pm 2.5$ | PASS |
|  | MCH | VN | -30 | -1.53 | -0.000825 | $\pm 2.5$ | PASS |
|  |     | VN | -20 | 2.18  | 0.001175  | $\pm 2.5$ | PASS |
|  |     | VN | -10 | 0.99  | 0.000534  | $\pm 2.5$ | PASS |
|  |     | VN | 0   | 1.38  | 0.000744  | $\pm 2.5$ | PASS |
|  |     | VN | 10  | 3.17  | 0.001709  | $\pm 2.5$ | PASS |
|  |     | VN | 20  | 2.14  | 0.001154  | $\pm 2.5$ | PASS |
|  |     | VN | 30  | 3.42  | 0.001844  | $\pm 2.5$ | PASS |
|  |     | VN | 40  | 4.11  | 0.002216  | $\pm 2.5$ | PASS |
|  |     | VN | 50  | 3.76  | 0.002027  | $\pm 2.5$ | PASS |
|  | HCH | VN | -30 | 1.78  | 0.000947  | $\pm 2.5$ | PASS |
|  |     | VN | -20 | 3.66  | 0.001947  | $\pm 2.5$ | PASS |
|  |     | VN | -10 | 1.76  | 0.000936  | $\pm 2.5$ | PASS |
|  |     | VN | 0   | -1.2  | -0.000638 | $\pm 2.5$ | PASS |
|  |     | VN | 10  | 1.29  | 0.000686  | $\pm 2.5$ | PASS |
|  |     | VN | 20  | 0.8   | 0.000426  | $\pm 2.5$ | PASS |
|  |     | VN | 30  | 1.02  | 0.000543  | $\pm 2.5$ | PASS |
|  |     | VN | 40  | 2.58  | 0.001372  | $\pm 2.5$ | PASS |
|  |     | VN | 50  | 3.66  | 0.001947  | $\pm 2.5$ | PASS |
|  |     | VN | -30 | 2.35  | 0.001234  | $\pm 2.5$ | 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              | 0.000000        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 4.35           | 0.002342        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 1.09           | 0.000587        | ± 2.5       | PASS    |
|                           | MCH     | VL            | TN               | -0.71          | -0.000378       | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 1.04           | 0.000553        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | -1.9           | -0.001011       | ± 2.5       | PASS    |
|                           | HCH     | VL            | TN               | 3.15           | 0.001656        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 4.25           | 0.002234        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 4.13           | 0.002171        | ± 2.5       | PASS    |
| 16QAM                     | LCH     | VL            | TN               | 2.16           | 0.001163        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | -1.3           | -0.000700       | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 3.31           | 0.001782        | ± 2.5       | PASS    |
|                           | MCH     | VL            | TN               | 2.49           | 0.001324        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 4.56           | 0.002426        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 4.66           | 0.002479        | ± 2.5       | PASS    |
|                           | HCH     | VL            | TN               | 3.6            | 0.001892        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 0.9            | 0.000473        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 1.35           | 0.000710        | ± 2.5       | PASS    |
| Temperature               |         |               |                  |                |                 |             |         |
| Modulation                | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK                      | LCH     | VN            | -30              | 4.92           | 0.002649        | ± 2.5       | PASS    |
|                           |         | VN            | -20              | 3.78           | 0.002035        | ± 2.5       | PASS    |
|                           |         | VN            | -10              | 4.67           | 0.002514        | ± 2.5       | PASS    |
|                           |         | VN            | 0                | 0.06           | 0.000032        | ± 2.5       | PASS    |
|                           |         | VN            | 10               | -1.71          | -0.000921       | ± 2.5       | PASS    |
|                           |         | VN            | 20               | 4.59           | 0.002471        | ± 2.5       | PASS    |
|                           |         | VN            | 30               | -1.29          | -0.000694       | ± 2.5       | PASS    |
|                           |         | VN            | 40               | 1.13           | 0.000608        | ± 2.5       | PASS    |
|                           |         | VN            | 50               | 2.02           | 0.001087        | ± 2.5       | PASS    |
|                           | MCH     | VN            | -30              | 4.08           | 0.002170        | ± 2.5       | PASS    |
|                           |         | VN            | -20              | -0.1           | -0.000053       | ± 2.5       | PASS    |
|                           |         | VN            | -10              | 4.03           | 0.002144        | ± 2.5       | PASS    |
|                           |         | VN            | 0                | -1.47          | -0.000782       | ± 2.5       | PASS    |
|                           |         | VN            | 10               | 1.46           | 0.000777        | ± 2.5       | PASS    |
|                           |         | VN            | 20               | 3.88           | 0.002064        | ± 2.5       | PASS    |

|       |     |    |     |       |           |           |      |
|-------|-----|----|-----|-------|-----------|-----------|------|
|       |     | VN | 30  | 0.12  | 0.000064  | $\pm 2.5$ | PASS |
|       |     | VN | 40  | 0.39  | 0.000207  | $\pm 2.5$ | PASS |
|       |     | VN | 50  | 1.41  | 0.000750  | $\pm 2.5$ | PASS |
|       | HCH | VN | -30 | -1.8  | -0.000946 | $\pm 2.5$ | PASS |
|       |     | VN | -20 | 3.07  | 0.001614  | $\pm 2.5$ | PASS |
|       |     | VN | -10 | -0.41 | -0.000216 | $\pm 2.5$ | PASS |
|       |     | VN | 0   | -1.62 | -0.000852 | $\pm 2.5$ | PASS |
|       |     | VN | 10  | 4.83  | 0.002539  | $\pm 2.5$ | PASS |
|       |     | VN | 20  | 4.95  | 0.002602  | $\pm 2.5$ | PASS |
|       |     | VN | 30  | -1.81 | -0.000951 | $\pm 2.5$ | PASS |
| 16QAM | LCH | VN | 40  | -1.38 | -0.000725 | $\pm 2.5$ | PASS |
|       |     | VN | 50  | -0.62 | -0.000326 | $\pm 2.5$ | PASS |
|       | MCH | VN | -30 | -1.52 | -0.000818 | $\pm 2.5$ | PASS |
|       |     | VN | -20 | -1.35 | -0.000727 | $\pm 2.5$ | PASS |
|       |     | VN | -10 | 4.92  | 0.002649  | $\pm 2.5$ | PASS |
|       |     | VN | 0   | -0.48 | -0.000258 | $\pm 2.5$ | PASS |
|       |     | VN | 10  | 0.61  | 0.000328  | $\pm 2.5$ | PASS |
|       |     | VN | 20  | 0.34  | 0.000183  | $\pm 2.5$ | PASS |
|       |     | VN | 30  | 4.52  | 0.002433  | $\pm 2.5$ | PASS |
|       |     | VN | 40  | 0.59  | 0.000318  | $\pm 2.5$ | PASS |
|       |     | VN | 50  | 4.02  | 0.002164  | $\pm 2.5$ | PASS |
|       | HCH | VN | -30 | -1.58 | -0.000840 | $\pm 2.5$ | PASS |
|       |     | VN | -20 | 4.31  | 0.002293  | $\pm 2.5$ | PASS |
|       |     | VN | -10 | 0.67  | 0.000356  | $\pm 2.5$ | PASS |
|       |     | VN | 0   | -0.63 | -0.000335 | $\pm 2.5$ | PASS |
|       |     | VN | 10  | -0.1  | -0.000053 | $\pm 2.5$ | PASS |
|       |     | VN | 20  | 1.32  | 0.000702  | $\pm 2.5$ | PASS |
|       |     | VN | 30  | 0.71  | 0.000378  | $\pm 2.5$ | PASS |
|       |     | VN | 40  | 0.35  | 0.000186  | $\pm 2.5$ | PASS |
|       |     | VN | 50  | 2.01  | 0.001069  | $\pm 2.5$ | 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               | 1.44           | 0.000774        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 4.84           | 0.002602        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 0.19           | 0.000102        | ± 2.5       | PASS    |
|                           | MCH     | VL            | TN               | 3.51           | 0.001867        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 3.69           | 0.001963        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | -0.43          | -0.000229       | ± 2.5       | PASS    |
|                           | HCH     | VL            | TN               | 3.49           | 0.001837        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 2.58           | 0.001358        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 1.48           | 0.000779        | ± 2.5       | PASS    |
| 16QAM                     | LCH     | VL            | TN               | 4.03           | 0.002167        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | -0.74          | -0.000398       | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 0.84           | 0.000452        | ± 2.5       | PASS    |
|                           | MCH     | VL            | TN               | -1.77          | -0.000941       | ± 2.5       | PASS    |
|                           |         | VN            | TN               | -0.65          | -0.000346       | ± 2.5       | PASS    |
|                           |         | VH            | TN               | -0.11          | -0.000059       | ± 2.5       | PASS    |
|                           | HCH     | VL            | TN               | 4.02           | 0.002116        | ± 2.5       | PASS    |
|                           |         | VN            | TN               | 1.24           | 0.000653        | ± 2.5       | PASS    |
|                           |         | VH            | TN               | 0.89           | 0.000468        | ± 2.5       | PASS    |
| Temperature               |         |               |                  |                |                 |             |         |
| Modulation                | Channel | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK                      | LCH     | VN            | -30              | -0.59          | -0.000317       | ± 2.5       | PASS    |
|                           |         | VN            | -20              | 4.24           | 0.002280        | ± 2.5       | PASS    |
|                           |         | VN            | -10              | 2.75           | 0.001478        | ± 2.5       | PASS    |
|                           |         | VN            | 0                | -0.32          | -0.000172       | ± 2.5       | PASS    |
|                           |         | VN            | 10               | 4.44           | 0.002387        | ± 2.5       | PASS    |
|                           |         | VN            | 20               | 0.59           | 0.000317        | ± 2.5       | PASS    |
|                           |         | VN            | 30               | -0.64          | -0.000344       | ± 2.5       | PASS    |
|                           |         | VN            | 40               | 1.93           | 0.001038        | ± 2.5       | PASS    |
|                           |         | VN            | 50               | -0.78          | -0.000419       | ± 2.5       | PASS    |
|                           | MCH     | VN            | -30              | 1.46           | 0.000777        | ± 2.5       | PASS    |
|                           |         | VN            | -20              | 3.15           | 0.001676        | ± 2.5       | PASS    |
|                           |         | VN            | -10              | 4.58           | 0.002436        | ± 2.5       | PASS    |
|                           |         | VN            | 0                | 1.81           | 0.000963        | ± 2.5       | PASS    |
|                           |         | VN            | 10               | 4.16           | 0.002213        | ± 2.5       | PASS    |
|                           |         | VN            | 20               | 1.26           | 0.000670        | ± 2.5       | PASS    |

|       |     |    |     |       |           |           |      |
|-------|-----|----|-----|-------|-----------|-----------|------|
|       |     | VN | 30  | 4.33  | 0.002303  | $\pm 2.5$ | PASS |
|       |     | VN | 40  | 4.62  | 0.002457  | $\pm 2.5$ | PASS |
|       |     | VN | 50  | -0.33 | -0.000176 | $\pm 2.5$ | PASS |
|       | HCH | VN | -30 | 3.07  | 0.001616  | $\pm 2.5$ | PASS |
|       |     | VN | -20 | -0.41 | -0.000216 | $\pm 2.5$ | PASS |
|       |     | VN | -10 | -0.84 | -0.000442 | $\pm 2.5$ | PASS |
|       |     | VN | 0   | 2.8   | 0.001474  | $\pm 2.5$ | PASS |
|       |     | VN | 10  | -0.79 | -0.000416 | $\pm 2.5$ | PASS |
|       |     | VN | 20  | 3.94  | 0.002074  | $\pm 2.5$ | PASS |
|       |     | VN | 30  | 4.47  | 0.002353  | $\pm 2.5$ | PASS |
| 16QAM | LCH | VN | 40  | 0.4   | 0.000211  | $\pm 2.5$ | PASS |
|       |     | VN | 50  | -0.05 | -0.000026 | $\pm 2.5$ | PASS |
|       | MCH | VN | -30 | 1.6   | 0.000860  | $\pm 2.5$ | PASS |
|       |     | VN | -20 | 1.19  | 0.000640  | $\pm 2.5$ | PASS |
|       |     | VN | -10 | 1.32  | 0.000710  | $\pm 2.5$ | PASS |
|       |     | VN | 0   | -1.69 | -0.000909 | $\pm 2.5$ | PASS |
|       |     | VN | 10  | -1.36 | -0.000731 | $\pm 2.5$ | PASS |
|       |     | VN | 20  | 0.22  | 0.000118  | $\pm 2.5$ | PASS |
|       |     | VN | 30  | 2.8   | 0.001505  | $\pm 2.5$ | PASS |
|       |     | VN | 40  | -0.52 | -0.000280 | $\pm 2.5$ | PASS |
|       |     | VN | 50  | 2.48  | 0.001333  | $\pm 2.5$ | PASS |
|       | HCH | VN | -30 | 0.36  | 0.000191  | $\pm 2.5$ | PASS |
|       |     | VN | -20 | 0.69  | 0.000367  | $\pm 2.5$ | PASS |
|       |     | VN | -10 | -1.21 | -0.000644 | $\pm 2.5$ | PASS |
|       |     | VN | 0   | -0.57 | -0.000303 | $\pm 2.5$ | PASS |
|       |     | VN | 10  | -0.83 | -0.000441 | $\pm 2.5$ | PASS |
|       |     | VN | 20  | 2.81  | 0.001495  | $\pm 2.5$ | PASS |
|       |     | VN | 30  | 1.5   | 0.000798  | $\pm 2.5$ | PASS |
|       |     | VN | 40  | 4.09  | 0.002176  | $\pm 2.5$ | PASS |
|       |     | VN | 50  | -1.24 | -0.000660 | $\pm 2.5$ | PASS |