SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. FCC ID: 2AN4V-HCUBR Report No.: LCS200731038AEB

# Appendix A: Test Data for E-UTRA Band 4

# **Product Name:Siren Gateway** Trade Mark:Siren **Test Model:HCUBR Environmental Conditions**

| Temperature:       | 24.1° C    |
|--------------------|------------|
| Relative Humidity: | 52.3%      |
| ATM Pressure:      | 100.0 kPa  |
| Test Engineer:     | Diamond.Lu |
| Supervised by:     | Tom.Liu    |

### A.1 Conducted Output Power

|                 | Conducted Output Power Test Result (Channel Bandwidth: 1.4 MHz) |        |            |                     |                     |         |  |  |  |  |
|-----------------|---|--------|------------|---------------------|---------------------|---------|--|--|--|--|
| Madulation      | Channel   | RB Con | figuration | Average Power [dBm] | Average Power [dBm] | Verdiet |  |  |  |  |
| Modulation      | Channel   | Size   | Offset     | QPSK                | 16QAM               | Verdict |  |  |  |  |
|                 |   | 1      | 0          | 22.95               | 22.33               | PASS    |  |  |  |  |
|                 |   | 1      | 3          | 22.92               | 22.47               | PASS    |  |  |  |  |
|                 |   | 1      | 5          | 22.89               | 22.31               | PASS    |  |  |  |  |
|                 | LCH   | 3      | 0          | 23.19               | 22.34               | PASS    |  |  |  |  |
|                 |   | 3      | 2          | 23.21               | 22.32               | PASS    |  |  |  |  |
|                 |   | 3      | 3          | 23.18               | 22.20               | PASS    |  |  |  |  |
|                 |   | 6      | 0          | 22.40               | 21.20               | PASS    |  |  |  |  |
|                 |   | 1      | 0          | 22.76               | 21.62               | PASS    |  |  |  |  |
|                 |   | 1      | 3          | 22.62               | 21.56               | PASS    |  |  |  |  |
| QPSK /          |   | 1      | 5          | 22.60               | 21.41               | PASS    |  |  |  |  |
| UPSK /<br>16QAM | MCH   | 3      | 0          | 22.87               | 21.63               | PASS    |  |  |  |  |
| IOQAIN          |   | 3      | 2          | 22.79               | 21.53               | PASS    |  |  |  |  |
|                 |   | 3      | 3          | 22.67               | 21.30               | PASS    |  |  |  |  |
|                 |   | 6      | 0          | 21.72               | 20.84               | PASS    |  |  |  |  |
|                 |   | 1      | 0          | 23.37               | 22.13               | PASS    |  |  |  |  |
|                 |   | 1      | 3          | 23.47               | 22.01               | PASS    |  |  |  |  |
|                 |   | 1      | 5          | 23.34               | 21.93               | PASS    |  |  |  |  |
|                 | НСН   | 3      | 0          | 23.17               | 22.14               | PASS    |  |  |  |  |
|                 |   | 3      | 2          | 23.31               | 22.35               | PASS    |  |  |  |  |
|                 |   | 3      | 3          | 23.22               | 22.24               | PASS    |  |  |  |  |
|                 |   | 6      | 0          | 22.06               | 21.14               | PASS    |  |  |  |  |

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 1 of 215

SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. FCC ID: 2AN4V-HCUBR

|                 |         | Conducte | d Output Pov | ver Test Result (Channel Ban | dwidth: 3 MHz)      |           |
|-----------------|---------|----------|--------------|------------------------------|---------------------|-----------|
| Madulation      | Channel | RB Con   | figuration   | Average Power [dBm]          | Average Power [dBm] | \ /ordiat |
| Modulation      | Channel | Size     | Offset       | QPSK                         | 16QAM               | Verdict   |
|                 |         | 1        | 0            | 23.05                        | 22.72               | PASS      |
|                 |         | 1        | 7            | 23.22                        | 22.38               | PASS      |
|                 |         | 1        | 14           | 23.04                        | 21.94               | PASS      |
|                 | LCH     | 8        | 0            | 22.15                        | 21.51               | PASS      |
|                 |         | 8        | 4            | 21.99                        | 21.51               | PASS      |
|                 |         | 8        | 7            | 22.07                        | 20.98               | PASS      |
|                 |         | 15       | 0            | 22.06                        | 21.16               | PASS      |
|                 |         | 1        | 0            | 22.87                        | 22.25               | PASS      |
|                 |         | 1        | 7            | 22.83                        | 22.23               | PASS      |
|                 |         | 1        | 14           | 22.70                        | 22.15               | PASS      |
| QPSK /<br>16QAM | MCH     | 8        | 0            | 21.75                        | 20.65               | PASS      |
| TOQAM           |         | 8        | 4            | 21.78                        | 20.71               | PASS      |
|                 |         | 8        | 7            | 21.66                        | 20.65               | PASS      |
|                 |         | 15       | 0            | 21.67                        | 20.68               | PASS      |
|                 |         | 1        | 0            | 23.12                        | 21.98               | PASS      |
|                 |         | 1        | 7            | 23.62                        | 22.51               | PASS      |
|                 |         | 1        | 14           | 23.65                        | 22.60               | PASS      |
|                 | НСН     | 8        | 0            | 22.02                        | 20.96               | PASS      |
|                 |         | 8        | 4            | 22.11                        | 21.03               | PASS      |
|                 |         | 8        | 7            | 22.12                        | 21.05               | PASS      |
|                 |         | 15       | 0            | 22.04                        | 21.15               | PASS      |

SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. FCC ID: 2AN4V-HCUBR Report 1

|                 |         | Conducte | d Output Pov | ver Test Result (Channel Ban | dwidth: 5 MHz)      |         |
|-----------------|---------|----------|--------------|------------------------------|---------------------|---------|
| Modulation      | Channel | RB Con   | figuration   | Average Power [dBm]          | Average Power [dBm] | Vardiat |
| wooulation      | Channel | Size     | Offset       | QPSK                         | 16QAM               | Verdict |
|                 |         | 1        | 0            | 22.92                        | 22.16               | PASS    |
|                 |         | 1        | 12           | 22.52                        | 21.78               | PASS    |
|                 |         | 1        | 24           | 22.06                        | 21.34               | PASS    |
|                 | LCH     | 12       | 0            | 22.25                        | 21.19               | PASS    |
|                 |         | 12       | 6            | 22.20                        | 21.29               | PASS    |
|                 |         | 12       | 13           | 22.02                        | 21.17               | PASS    |
|                 |         | 25       | 0            | 22.24                        | 21.40               | PASS    |
|                 |         | 1        | 0            | 22.80                        | 21.91               | PASS    |
|                 |         | 1        | 12           | 23.06                        | 21.42               | PASS    |
|                 |         | 1        | 24           | 23.36                        | 21.48               | PASS    |
| QPSK /<br>16QAM | MCH     | 12       | 0            | 21.73                        | 20.74               | PASS    |
| IOQAIN          |         | 12       | 6            | 21.81                        | 20.95               | PASS    |
|                 |         | 12       | 13           | 21.71                        | 20.91               | PASS    |
|                 |         | 25       | 0            | 21.72                        | 20.86               | PASS    |
|                 |         | 1        | 0            | 23.05                        | 21.84               | PASS    |
|                 |         | 1        | 12           | 23.88                        | 22.46               | PASS    |
|                 |         | 1        | 24           | 24.33                        | 22.41               | PASS    |
|                 | НСН     | 12       | 0            | 22.16                        | 21.14               | PASS    |
|                 |         | 12       | 6            | 22.31                        | 21.46               | PASS    |
|                 |         | 12       | 13           | 22.37                        | 21.43               | PASS    |
|                 |         | 25       | 0            | 22.15                        | 21.18               | PASS    |

SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. FCC ID: 2AN4V-HCUBR Report No.

|                 |         | Conducted | Output Pow | ver Test Result (Channel Band | lwidth: 10 MHz)     |         |
|-----------------|---------|-----------|------------|-------------------------------|---------------------|---------|
| Modulation      | Channel | RB Con    | figuration | Average Power [dBm]           | Average Power [dBm] | Vardiat |
| Modulation      | Channel | Size      | Offset     | QPSK                          | 16QAM               | Verdict |
|                 |         | 1         | 0          | 22.17                         | 21.62               | PASS    |
|                 |         | 1         | 24         | 22.27                         | 21.77               | PASS    |
|                 |         | 1         | 49         | 22.12                         | 21.61               | PASS    |
|                 | LCH     | 25        | 0          | 22.06                         | 21.17               | PASS    |
|                 |         | 25        | 12         | 22.08                         | 21.21               | PASS    |
|                 |         | 25        | 25         | 22.03                         | 21.18               | PASS    |
|                 |         | 50        | 0          | 21.99                         | 21.21               | PASS    |
|                 |         | 1         | 0          | 22.39                         | 21.85               | PASS    |
|                 |         | 1         | 24         | 23.11                         | 22.63               | PASS    |
|                 |         | 1         | 49         | 23.16                         | 21.80               | PASS    |
| QPSK /<br>16QAM | MCH     | 25        | 0          | 21.83                         | 20.96               | PASS    |
| TOQAIN          |         | 25        | 12         | 21.86                         | 20.95               | PASS    |
|                 |         | 25        | 25         | 21.66                         | 20.87               | PASS    |
|                 |         | 50        | 0          | 21.67                         | 20.83               | PASS    |
|                 |         | 1         | 0          | 22.20                         | 21.34               | PASS    |
|                 |         | 1         | 24         | 23.18                         | 22.55               | PASS    |
|                 |         | 1         | 49         | 23.58                         | 22.32               | PASS    |
|                 | НСН     | 25        | 0          | 22.01                         | 21.07               | PASS    |
|                 |         | 25        | 12         | 22.21                         | 21.42               | PASS    |
|                 |         | 25        | 25         | 22.29                         | 21.42               | PASS    |
|                 |         | 50        | 0          | 22.07                         | 21.09               | PASS    |

SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. FCC ID: 2AN4V-HCUBR Report No.: LCS200731038AEB

|                 | Conducted Output Power Test Result (Channel Bandwidth: 15 MHz) |        |            |                     |                     |          |  |  |  |  |  |
|-----------------|--|--------|------------|---------------------|---------------------|----------|--|--|--|--|--|
| Madulation      | Channel  | RB Con | figuration | Average Power [dBm] | Average Power [dBm] | \/ordiat |  |  |  |  |  |
| Modulation      | Channel  | Size   | Offset     | QPSK                | 16QAM               | Verdict  |  |  |  |  |  |
|                 |  | 1      | 0          | 21.78               | 21.13               | PASS     |  |  |  |  |  |
|                 |  | 1      | 37         | 22.33               | 21.73               | PASS     |  |  |  |  |  |
|                 |  | 1      | 74         | 22.80               | 22.18               | PASS     |  |  |  |  |  |
|                 | LCH  | 37     | 0          | 21.67               | 20.79               | PASS     |  |  |  |  |  |
|                 |  | 37     | 18         | 22.17               | 21.27               | PASS     |  |  |  |  |  |
|                 |  | 37     | 38         | 22.73               | 21.79               | PASS     |  |  |  |  |  |
|                 |  | 75     | 0          | 22.20               | 21.30               | PASS     |  |  |  |  |  |
|                 | МСН  | 1      | 0          | 22.81               | 22.12               | PASS     |  |  |  |  |  |
|                 |  | 1      | 37         | 23.14               | 22.54               | PASS     |  |  |  |  |  |
| QPSK /          |  | 1      | 74         | 23.03               | 22.64               | PASS     |  |  |  |  |  |
| UPSK /<br>16QAM |  | 37     | 0          | 22.01               | 20.92               | PASS     |  |  |  |  |  |
| IOQAIVI         |  | 37     | 18         | 21.90               | 20.82               | PASS     |  |  |  |  |  |
|                 |  | 37     | 38         | 21.56               | 20.56               | PASS     |  |  |  |  |  |
|                 |  | 75     | 0          | 21.84               | 20.96               | PASS     |  |  |  |  |  |
|                 |  | 1      | 0          | 22.67               | 22.30               | PASS     |  |  |  |  |  |
|                 |  | 1      | 37         | 22.77               | 22.22               | PASS     |  |  |  |  |  |
|                 |  | 1      | 74         | 23.34               | 22.77               | PASS     |  |  |  |  |  |
|                 | НСН  | 37     | 0          | 21.84               | 20.85               | PASS     |  |  |  |  |  |
|                 |  | 37     | 18         | 21.99               | 21.01               | PASS     |  |  |  |  |  |
|                 |  | 37     | 38         | 22.22               | 21.38               | PASS     |  |  |  |  |  |
|                 |  | 75     | 0          | 22.02               | 21.07               | PASS     |  |  |  |  |  |

SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. FCC ID: 2AN4V-HCUBR Report

|            |          | Conducted | Output Pow | ver Test Result (Channel Band | lwidth: 20 MHz)     |         |      |
|------------|----------|-----------|------------|-------------------------------|---------------------|---------|------|
| Modulation | Channel  | RB Con    | figuration | Average Power [dBm]           | Average Power [dBm] | Verdict |      |
| Modulation | Ondriner | Size      | Offset     | QPSK                          | 16QAM               | Verdiet |      |
|            |          | 1         | 0          | 21.50                         | 20.68               | PASS    |      |
|            |          | 1         | 49         | 23.08                         | 22.29               | PASS    |      |
|            |          | 1         | 99         | 21.92                         | 21.10               | PASS    |      |
|            | LCH      | 50        | 0          | 21.80                         | 20.84               | PASS    |      |
|            |          | 50        | 25         | 22.79                         | 21.80               | PASS    |      |
|            |          | 50        | 50         | 22.41                         | 21.33               | PASS    |      |
|            |          | 100       | 0          | 22.37                         | 21.48               | PASS    |      |
|            |          | 1         | 0          | 22.58                         | 22.01               | PASS    |      |
|            | МСН      | 1         | 49         | 23.01                         | 22.44               | PASS    |      |
| QPSK /     |          |           | 1          | 99                            | 22.63               | 21.20   | PASS |
| 16QAM      |          | 50        | 0          | 22.09                         | 21.17               | PASS    |      |
| TOQAIN     |          | 50        | 25         | 21.94                         | 20.92               | PASS    |      |
|            |          | 50        | 50         | 21.59                         | 20.62               | PASS    |      |
|            |          | 100       | 0          | 21.83                         | 20.93               | PASS    |      |
|            |          | 1         | 0          | 22.59                         | 21.33               | PASS    |      |
|            |          | 1         | 49         | 23.19                         | 21.70               | PASS    |      |
|            |          | 1         | 99         | 23.34                         | 22.08               | PASS    |      |
|            | НСН      | 50        | 0          | 21.61                         | 20.77               | PASS    |      |
|            |          | 50        | 25         | 21.76                         | 20.61               | PASS    |      |
|            |          | 50        | 50         | 21.95                         | 20.81               | PASS    |      |
|            |          | 100       | 0          | 21.83                         | 20.85               | PASS    |      |

# **B.2 Peak-to-Average Ratio**

# **Channel Bandwidth: 1.4 MHz**

|            |         |         | Channel B | andwidth: 1.4 MHz     |       |         |
|------------|---------|---------|-----------|-----------------------|-------|---------|
| Modulation | Channel | RB Conf | iguration | Peak-to-Average Ratio | Limit | Verdict |
| wouldtion  | Channel | Size    | Offset    | (dB)                  | (dB)  | Verdict |
|            |         | 1       | 0         | 5.05                  | <13   | PASS    |
|            |         | 1       | 3         | 4.84                  | <13   | PASS    |
|            |         | 1       | 5         | 5.49                  | <13   | PASS    |
|            | LCH     | 3       | 0         | 5.31                  | <13   | PASS    |
|            |         | 3       | 2         | 4.95                  | <13   | PASS    |
|            |         | 3       | 3         | 5.2                   | <13   | PASS    |
|            |         | 6       | 0         | 5.21                  | <13   | PASS    |
|            |         | 1       | 0         | 4.85                  | <13   | PASS    |
|            |         | 1       | 3         | 4.73                  | <13   | PASS    |
|            |         | 1       | 5         | 4.82                  | <13   | PASS    |
| QPSK       | MCH     | 3       | 0         | 4.96                  | <13   | PASS    |
|            |         | 3       | 2         | 4.86                  | <13   | PASS    |
|            |         | 3       | 3         | 4.92                  | <13   | PASS    |
|            |         | 6       | 0         | 5.28                  | <13   | PASS    |
|            |         | 1       | 0         | 4.71                  | <13   | PASS    |
|            |         | 1       | 3         | 4.57                  | <13   | PASS    |
|            |         | 1       | 5         | 4.61                  | <13   | PASS    |
|            | HCH     | 3       | 0         | 4.82                  | <13   | PASS    |
|            |         | 3       | 2         | 4.69                  | <13   | PASS    |
|            |         | 3       | 3         | 4.78                  | <13   | PASS    |
|            |         | 6       | 0         | 5.17                  | <13   | PASS    |
|            |         | 1       | 0         | 5.44                  | <13   | PASS    |
|            |         | 1       | 3         | 5.75                  | <13   | PASS    |
|            |         | 1       | 5         | 5.86                  | <13   | PASS    |
|            | LCH     | 3       | 0         | 5.84                  | <13   | PASS    |
|            |         | 3       | 2         | 5.88                  | <13   | PASS    |
|            |         | 3       | 3         | 5.93                  | <13   | PASS    |
|            |         | 6       | 0         | 6.01                  | <13   | PASS    |
|            |         | 1       | 0         | 5.62                  | <13   | PASS    |
| 16QAM      |         | 1       | 3         | 5.56                  | <13   | PASS    |
|            |         | 1       | 5         | 5.67                  | <13   | PASS    |
|            | MCH     | 3       | 0         | 5.89                  | <13   | PASS    |
|            |         | 3       | 2         | 5.79                  | <13   | PASS    |
|            |         | 3       | 3         | 5.9                   | <13   | PASS    |
|            |         | 6       | 0         | 6.11                  | <13   | PASS    |
|            |         | 1       | 0         | 5.43                  | <13   | PASS    |
|            | HCH     | 1       | 3         | 5.33                  | <13   | PASS    |
|            |         | 1       | 5         | 5.37                  | <13   | PASS    |

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 7 of 215

SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. FCC ID: 2AN4V-HCUBR Report No.: LCS200731038AEB

| 3 | 0 | 5.69 | <13 | PASS |
|---|---|------|-----|------|
| 3 | 2 | 5.55 | <13 | PASS |
| 3 | 3 | 5.68 | <13 | PASS |
| 6 | 0 | 5.99 | <13 | PASS |

### **Channel Bandwidth: 3 MHz**

|            |         |         | Channel I | 3andwidth: 3 MHz      | -     | -       |
|------------|---------|---------|-----------|-----------------------|-------|---------|
| Modulation | Channel | RB Conf | iguration | Peak-to-Average Ratio | Limit | Verdict |
| Modulation | Channel | Size    | Offset    | [dB]                  | [dB]  | Verdict |
|            |         | 1       | 0         | 4.74                  | <13   | PASS    |
|            |         | 1       | 7         | 4.87                  | <13   | PASS    |
|            |         | 1       | 14        | 5.29                  | <13   | PASS    |
|            | LCH     | 8       | 0         | 4.98                  | <13   | PASS    |
|            |         | 8       | 4         | 5                     | <13   | PASS    |
|            |         | 8       | 7         | 5.07                  | <13   | PASS    |
|            |         | 15      | 0         | 5.26                  | <13   | PASS    |
|            |         | 1       | 0         | 4.8                   | <13   | PASS    |
|            |         | 1       | 7         | 4.72                  | <13   | PASS    |
|            |         | 1       | 14        | 4.77                  | <13   | PASS    |
| QPSK       | MCH     | 8       | 0         | 5.05                  | <13   | PASS    |
|            |         | 8       | 4         | 4.98                  | <13   | PASS    |
|            |         | 8       | 7         | 5.02                  | <13   | PASS    |
|            |         | 15      | 0         | 5.33                  | <13   | PASS    |
|            |         | 1       | 0         | 4.78                  | <13   | PASS    |
|            |         | 1       | 7         | 4.59                  | <13   | PASS    |
|            | НСН     | 1       | 14        | 4.64                  | <13   | PASS    |
|            |         | 8       | 0         | 4.98                  | <13   | PASS    |
|            |         | 8       | 4         | 4.87                  | <13   | PASS    |
|            |         | 8       | 7         | 4.97                  | <13   | PASS    |
|            |         | 15      | 0         | 5.25                  | <13   | PASS    |
|            |         | 1       | 0         | 5.34                  | <13   | PASS    |
|            |         | 1       | 7         | 5.78                  | <13   | PASS    |
|            |         | 1       | 14        | 5.92                  | <13   | PASS    |
|            | LCH     | 8       | 0         | 5.78                  | <13   | PASS    |
|            |         | 8       | 4         | 5.8                   | <13   | PASS    |
|            |         | 8       | 7         | 5.88                  | <13   | PASS    |
| 16QAM      |         | 15      | 0         | 6.16                  | <13   | PASS    |
|            |         | 1       | 0         | 5.64                  | <13   | PASS    |
|            |         | 1       | 7         | 5.48                  | <13   | PASS    |
|            | MOL     | 1       | 14        | 5.57                  | <13   | PASS    |
|            | MCH     | 8       | 0         | 5.87                  | <13   | PASS    |
|            |         | 8       | 4         | 5.82                  | <13   | PASS    |
|            |         | 8       | 7         | 5.84                  | <13   | PASS    |

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 8 of 215

| SHENZHEN LCS COM | PLIANCE TEST | TING LABOR | ATORY LTD. FCC ID: 2/ | AN4V-HCUBR | Report N | o.: LCS200731038AEB |
|------------------|--------------|------------|-----------------------|------------|----------|---------------------|
|                  | 15           | 0          | 6.12                  | <13        | PASS     |                     |
|                  | 1            | 0          | 5.53                  | <13        | PASS     |                     |
|                  | 1            | 7          | 5.32                  | <13        | PASS     |                     |
|                  | 1            | 14         | 5.38                  | <13        | PASS     |                     |
| НСН              | 8            | 0          | 5.78                  | <13        | PASS     |                     |
|                  | 8            | 4          | 5.72                  | <13        | PASS     |                     |
|                  | 8            | 7          | 5.78                  | <13        | PASS     |                     |
|                  | 15           | 0          | 6.08                  | <13        | PASS     |                     |

## **Channel Bandwidth: 5 MHz**

|              |          |         | Channel   | Bandwidth: 5 MHz      |       |               |
|--------------|----------|---------|-----------|-----------------------|-------|---------------|
| Marchaladian | Observat | RB Conf | iguration | Peak-to-Average Ratio | Limit | ) (a mali a t |
| Modulation   | Channel  | Size    | Offset    | [dB]                  | [dB]  | Verdict       |
|              |          | 1       | 0         | 4.69                  | <13   | PASS          |
|              |          | 1       | 12        | 4.92                  | <13   | PASS          |
|              |          | 1       | 24        | 5.33                  | <13   | PASS          |
|              | LCH      | 12      | 0         | 4.99                  | <13   | PASS          |
|              |          | 12      | 6         | 4.96                  | <13   | PASS          |
|              |          | 12      | 13        | 5.35                  | <13   | PASS          |
|              |          | 25      | 0         | 5.85                  | <13   | PASS          |
|              |          | 1       | 0         | 4.78                  | <13   | PASS          |
|              |          | 1       | 12        | 4.7                   | <13   | PASS          |
|              |          | 1       | 24        | 4.68                  | <13   | PASS          |
| QPSK         | MCH      | 12      | 0         | 4.95                  | <13   | PASS          |
|              |          | 12      | 6         | 4.87                  | <13   | PASS          |
|              |          | 12      | 13        | 4.94                  | <13   | PASS          |
|              |          | 25      | 0         | 5.33                  | <13   | PASS          |
|              |          | 1       | 0         | 4.85                  | <13   | PASS          |
|              |          | 1       | 12        | 4.61                  | <13   | PASS          |
|              |          | 1       | 24        | 4.59                  | <13   | PASS          |
|              | HCH      | 12      | 0         | 4.93                  | <13   | PASS          |
|              |          | 12      | 6         | 4.84                  | <13   | PASS          |
|              |          | 12      | 13        | 4.9                   | <13   | PASS          |
|              |          | 25      | 0         | 5.23                  | <13   | PASS          |
|              |          | 1       | 0         | 5.41                  | <13   | PASS          |
|              |          | 1       | 12        | 5.49                  | <13   | PASS          |
|              |          | 1       | 24        | 6.16                  | <13   | PASS          |
|              | LCH      | 12      | 0         | 5.85                  | <13   | PASS          |
| 16QAM        |          | 12      | 6         | 5.79                  | <13   | PASS          |
|              |          | 12      | 13        | 5.93                  | <13   | PASS          |
|              |          | 25      | 0         | 6.06                  | <13   | PASS          |
|              | MCH      | 1       | 0         | 5.58                  | <13   | PASS          |
|              | MCH      | 1       | 12        | 5.38                  | <13   | PASS          |

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 9 of 215 SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. FCC ID: 2AN4V-HCUBR Report No.: LCS200731038AEB

|  |     |    |    |      |     | -    |
|--|-----|----|----|------|-----|------|
|  |     | 1  | 24 | 5.5  | <13 | PASS |
|  |     | 12 | 0  | 5.88 | <13 | PASS |
|  |     | 12 | 6  | 5.75 | <13 | PASS |
|  |     | 12 | 13 | 5.83 | <13 | PASS |
|  |     | 25 | 0  | 6.03 | <13 | PASS |
|  |     | 1  | 0  | 5.66 | <13 | PASS |
|  |     | 1  | 12 | 5.39 | <13 | PASS |
|  | НСН | 1  | 24 | 5.37 | <13 | PASS |
|  |     | 12 | 0  | 5.82 | <13 | PASS |
|  |     | 12 | 6  | 5.71 | <13 | PASS |
|  |     | 12 | 13 | 5.76 | <13 | PASS |
|  |     | 25 | 0  | 6.03 | <13 | PASS |

#### **Channel Bandwidth: 10 MHz**

| Channel Bandwidth: 10 MHz |         |                  |        |                       |       |         |  |
|---------------------------|---------|------------------|--------|-----------------------|-------|---------|--|
| Modulation                | Channel | RB Configuration |        | Peak-to-Average Ratio | Limit | Verdict |  |
| Channel                   |         | Size             | Offset | [dB]                  | [dB]  | verdict |  |
|                           |         | 1                | 0      | 5.13                  | <13   | PASS    |  |
|                           |         | 1                | 24     | 4.99                  | <13   | PASS    |  |
|                           |         | 1                | 49     | 5.37                  | <13   | PASS    |  |
|                           | LCH     | 25               | 0      | 5.47                  | <13   | PASS    |  |
|                           |         | 25               | 12     | 5.05                  | <13   | PASS    |  |
|                           |         | 25               | 25     | 5.16                  | <13   | PASS    |  |
|                           |         | 50               | 0      | 5.76                  | <13   | PASS    |  |
|                           |         | 1                | 0      | 5.21                  | <13   | PASS    |  |
|                           | MCH     | 1                | 24     | 4.78                  | <13   | PASS    |  |
|                           |         | 1                | 49     | 4.54                  | <13   | PASS    |  |
| QPSK                      |         | 25               | 0      | 5.05                  | <13   | PASS    |  |
|                           |         | 25               | 12     | 4.94                  | <13   | PASS    |  |
|                           |         | 25               | 25     | 4.94                  | <13   | PASS    |  |
|                           |         | 50               | 0      | 5.33                  | <13   | PASS    |  |
|                           | НСН     | 1                | 0      | 5.13                  | <13   | PASS    |  |
|                           |         | 1                | 24     | 4.73                  | <13   | PASS    |  |
|                           |         | 1                | 49     | 4.54                  | <13   | PASS    |  |
|                           |         | 25               | 0      | 5.01                  | <13   | PASS    |  |
|                           |         | 25               | 12     | 4.91                  | <13   | PASS    |  |
|                           |         | 25               | 25     | 4.96                  | <13   | PASS    |  |
|                           |         | 50               | 0      | 5.29                  | <13   | PASS    |  |
|                           |         | 1                | 0      | 6.06                  | <13   | PASS    |  |
|                           |         | 1                | 24     | 6.41                  | <13   | PASS    |  |
| 16QAM                     | LCH     | 1                | 49     | 6.13                  | <13   | PASS    |  |
|                           |         | 25               | 0      | 5.93                  | <13   | PASS    |  |
|                           |         | 25               | 12     | 5.99                  | <13   | PASS    |  |

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 10 of 215

SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. FCC ID: 2AN4V-HCUBR

Report No.: LCS200731038AEB

|     | 25 | 25  | 6.24  | <13   | PASS                         |
|-----|----|---|---|---|------------------------------|
|     | 50 | 0   | 6.25  | <13   | PASS                         |
|     | 1  | 0   | 5.73  | <13   | PASS                         |
|     | 1  | 24  | 5.53  | <13   | PASS                         |
|     | 1  | 49  | 5.38  | <13   | PASS                         |
| MCH | 25 | 0   | 5.89  | <13   | PASS                         |
|     | 25 | 12  | 5.77  | <13   | PASS                         |
| -   | 25 | 25  | 5.78  | <13   | PASS                         |
|     | 50 | 0   | 6.02  | <13   | PASS                         |
|     | 1  | 0   | 5.66  | <13   | PASS                         |
|     | 1  | 24  | 5.55  | <13   | PASS                         |
|     | 1  | 49  | 5.39  | <13   | PASS                         |
| НСН | 25 | 0   | 5.92  | <13   | PASS                         |
|     | 25 | 12  | 5.81  | <13   | PASS                         |
|     | 25 | 25  | 5.85  | <13   | PASS                         |
|     | 50 | 0   | 6.06  | <13   | PASS                         |
|     |    | 50   1   1   1   1   25   25   50   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   25   25   25   25   25   25 | 50 0   1 0   1 24   1 24   1 49   25 0   25 12   25 25   50 0   1 0   1 24   1 49   25 25   50 0   1 24   1 49   1 24   1 24   1 25   0 25   25 0   25 12   25 12   25 25 | 50 0 6.25   1 0 5.73   1 24 5.53   1 49 5.38   1 49 5.38   25 0 5.89   25 12 5.77   25 25 5.78   50 0 6.02   1 0 5.66   1 24 5.55   1 24 5.55   1 24 5.55   1 24 5.55   1 24 5.55   1 49 5.39   HCH 25 0 5.92   25 12 5.81   25 25 5.85 | 50 0 6.25 <13   1 0 5.73 <13 |

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 11 of 215

# **Channel Bandwidth: 15 MHz**

|                     | Channel Bandwidth: 15 MHz |                  |        |                       |       |         |  |  |
|---------------------|---------------------------|------------------|--------|-----------------------|-------|---------|--|--|
| Madulation Observed |                           | RB Configuration |        | Peak-to-Average Ratio | Limit | Verdict |  |  |
| Modulation          | Channel                   | Size             | Offset | [dB]                  | [dB]  | verdict |  |  |
|                     |                           | 1                | 0      | 5.41                  | <13   | PASS    |  |  |
|                     |                           | 1                | 37     | 5.42                  | <13   | PASS    |  |  |
|                     |                           | 1                | 74     | 5.22                  | <13   | PASS    |  |  |
|                     | LCH                       | 37               | 0      | 5.2                   | <13   | PASS    |  |  |
|                     |                           | 37               | 18     | 5.41                  | <13   | PASS    |  |  |
|                     |                           | 37               | 38     | 4.82                  | <13   | PASS    |  |  |
|                     |                           | 75               | 0      | 5.15                  | <13   | PASS    |  |  |
|                     |                           | 1                | 0      | 4.84                  | <13   | PASS    |  |  |
|                     |                           | 1                | 37     | 4.7                   | <13   | PASS    |  |  |
|                     |                           | 1                | 74     | 5.15                  | <13   | PASS    |  |  |
| QPSK                | MCH                       | 37               | 0      | 4.77                  | <13   | PASS    |  |  |
|                     |                           | 37               | 18     | 5.1                   | <13   | PASS    |  |  |
|                     |                           | 37               | 38     | 4.77                  | <13   | PASS    |  |  |
|                     |                           | 75               | 0      | 5                     | <13   | PASS    |  |  |
|                     |                           | 1                | 0      | 4.85                  | <13   | PASS    |  |  |
|                     |                           | 1                | 37     | 4.89                  | <13   | PASS    |  |  |
|                     |                           | 1                | 74     | 4.67                  | <13   | PASS    |  |  |
|                     | HCH                       | 37               | 0      | 4.7                   | <13   | PASS    |  |  |
|                     |                           | 37               | 18     | 5.11                  | <13   | PASS    |  |  |
|                     |                           | 37               | 38     | 4.83                  | <13   | PASS    |  |  |
|                     |                           | 75               | 0      | 5.05                  | <13   | PASS    |  |  |
|                     |                           | 1                | 0      | 5.9                   | <13   | PASS    |  |  |
|                     |                           | 1                | 37     | 5.98                  | <13   | PASS    |  |  |
|                     |                           | 1                | 74     | 6.51                  | <13   | PASS    |  |  |
|                     | LCH                       | 37               | 0      | 6.55                  | <13   | PASS    |  |  |
|                     |                           | 37               | 18     | 6.22                  | <13   | PASS    |  |  |
|                     |                           | 37               | 38     | 6.03                  | <13   | PASS    |  |  |
|                     |                           | 75               | 0      | 6.6                   | <13   | PASS    |  |  |
|                     |                           | 1                | 0      | 5.62                  | <13   | PASS    |  |  |
| 16QAM               |                           | 1                | 37     | 5.44                  | <13   | PASS    |  |  |
|                     |                           | 1                | 74     | 6.36                  | <13   | PASS    |  |  |
|                     | MCH                       | 37               | 0      | 5.92                  | <13   | PASS    |  |  |
|                     |                           | 37               | 18     | 5.89                  | <13   | PASS    |  |  |
|                     |                           | 37               | 38     | 5.96                  | <13   | PASS    |  |  |
|                     |                           | 75               | 0      | 6.19                  | <13   | PASS    |  |  |
|                     |                           | 1                | 0      | 5.62                  | <13   | PASS    |  |  |
|                     | НСН                       | 1                | 37     | 5.45                  | <13   | PASS    |  |  |
|                     |                           | 1                | 74     | 5.25                  | <13   | PASS    |  |  |
|                     |                           | 37               | 0      | 5.85                  | <13   | PASS    |  |  |

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 12 of 215

| SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. | FCC ID: 2AN4V-HCUBR | Report No |
|---|---------------------|-----------|
|   |                     |           |

| 37 | 18 | 6.94 | <13 | PASS |
|----|----|------|-----|------|
| 37 | 38 | 5.98 | <13 | PASS |
| 75 | 0  | 6.21 | <13 | PASS |

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 13 of 215

# **Channel Bandwidth: 20 MHz**

|                    | Channel Bandwidth: 20 MHz |                  |        |                       |       |         |  |  |
|--------------------|---------------------------|------------------|--------|-----------------------|-------|---------|--|--|
| Modulation Channel |                           | RB Configuration |        | Peak-to-Average Ratio | Limit | Verdict |  |  |
| Modulation         | Channel                   | Size             | Offset | [dB]                  | [dB]  | verdict |  |  |
|                    |                           | 1                | 0      | 4.86                  | <13   | PASS    |  |  |
|                    |                           | 1                | 49     | 4.86                  | <13   | PASS    |  |  |
|                    |                           | 1                | 99     | 4.94                  | <13   | PASS    |  |  |
|                    | LCH                       | 50               | 0      | 5.84                  | <13   | PASS    |  |  |
|                    |                           | 50               | 25     | 5.2                   | <13   | PASS    |  |  |
|                    |                           | 50               | 50     | 5.96                  | <13   | PASS    |  |  |
|                    |                           | 100              | 0      | 5.7                   | <13   | PASS    |  |  |
|                    |                           | 1                | 0      | 5.14                  | <13   | PASS    |  |  |
|                    |                           | 1                | 49     | 4.74                  | <13   | PASS    |  |  |
|                    |                           | 1                | 99     | 3.59                  | <13   | PASS    |  |  |
| QPSK               | MCH                       | 50               | 0      | 5.54                  | <13   | PASS    |  |  |
|                    |                           | 50               | 25     | 5.23                  | <13   | PASS    |  |  |
|                    |                           | 50               | 50     | 5.95                  | <13   | PASS    |  |  |
|                    |                           | 100              | 0      | 5.76                  | <13   | PASS    |  |  |
|                    | НСН                       | 1                | 0      | 4.14                  | <13   | PASS    |  |  |
|                    |                           | 1                | 49     | 4.71                  | <13   | PASS    |  |  |
|                    |                           | 1                | 99     | 4.36                  | <13   | PASS    |  |  |
|                    |                           | 50               | 0      | 5.45                  | <13   | PASS    |  |  |
|                    |                           | 50               | 25     | 5.21                  | <13   | PASS    |  |  |
|                    |                           | 50               | 50     | 5.93                  | <13   | PASS    |  |  |
|                    |                           | 100              | 0      | 5.82                  | <13   | PASS    |  |  |
|                    |                           | 1                | 0      | 4.99                  | <13   | PASS    |  |  |
|                    |                           | 1                | 49     | 5.42                  | <13   | PASS    |  |  |
|                    |                           | 1                | 99     | 4.56                  | <13   | PASS    |  |  |
|                    | LCH                       | 50               | 0      | 6.86                  | <13   | PASS    |  |  |
|                    |                           | 50               | 25     | 6.03                  | <13   | PASS    |  |  |
|                    |                           | 50               | 50     | 6.64                  | <13   | PASS    |  |  |
|                    |                           | 100              | 0      | 6.79                  | <13   | PASS    |  |  |
|                    |                           | 1                | 0      | 4.32                  | <13   | PASS    |  |  |
| 400414             |                           | 1                | 49     | 5.42                  | <13   | PASS    |  |  |
| 16QAM              |                           | 1                | 99     | 3.35                  | <13   | PASS    |  |  |
|                    | MCH                       | 50               | 0      | 6.53                  | <13   | PASS    |  |  |
|                    |                           | 50               | 25     | 6.01                  | <13   | PASS    |  |  |
|                    |                           | 50               | 50     | 6.57                  | <13   | PASS    |  |  |
|                    |                           | 100              | 0      | 6.65                  | <13   | PASS    |  |  |
|                    |                           | 1                | 0      | 4.05                  | <13   | PASS    |  |  |
|                    |                           | 1                | 49     | 5.44                  | <13   | PASS    |  |  |
|                    | HCH                       | 1                | 99     | 4                     | <13   | PASS    |  |  |
|                    |                           | 50               | 0      | 6.41                  | <13   | PASS    |  |  |

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 14 of 215

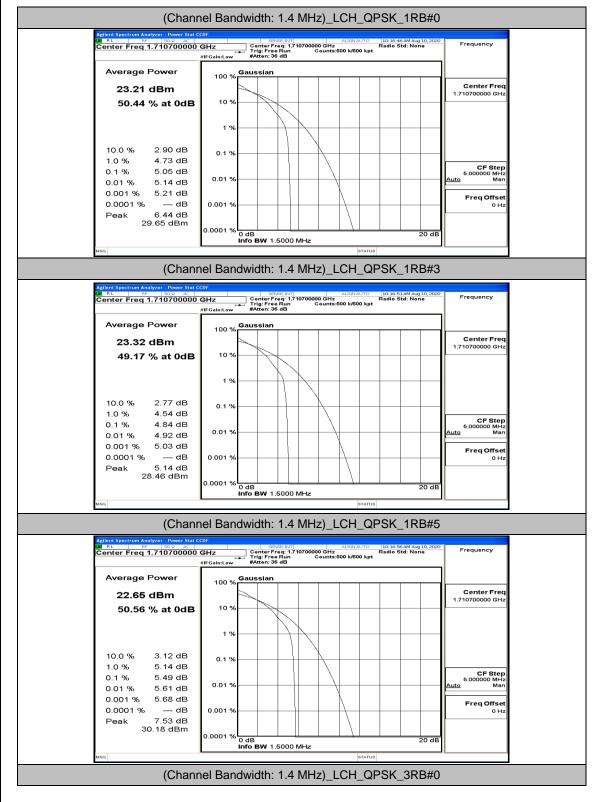
| SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. | FCC ID: 2AN4V-HCUBR | Report No.: LCS2 |
|---|---------------------|------------------|
|   |                     | -                |

| 50  | 25 | 6.01 | <13 | PASS |
|-----|----|------|-----|------|
| 50  | 50 | 6.65 | <13 | PASS |
| 100 | 0  | 6.64 | <13 | PASS |

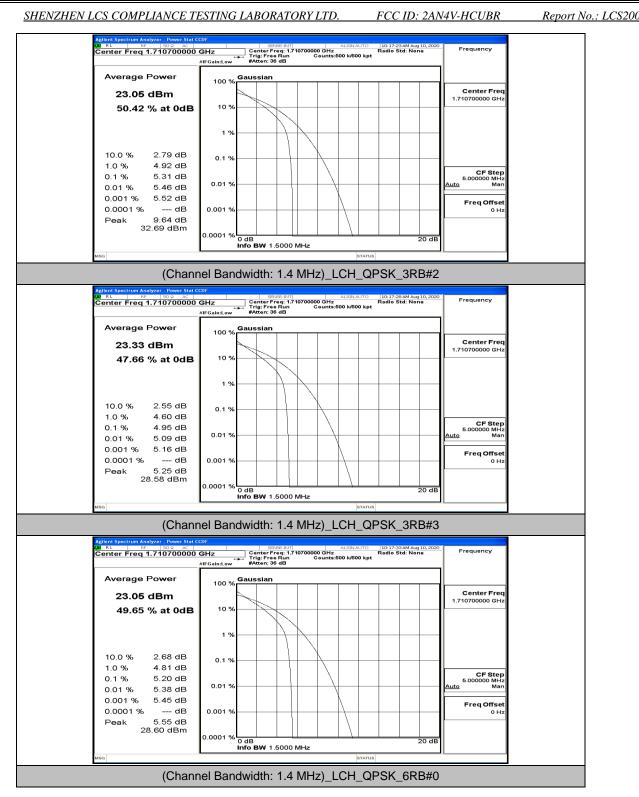
This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 15 of 215

#### **Test Graphs**

#### **Channel Bandwidth: 1.4 MHz**

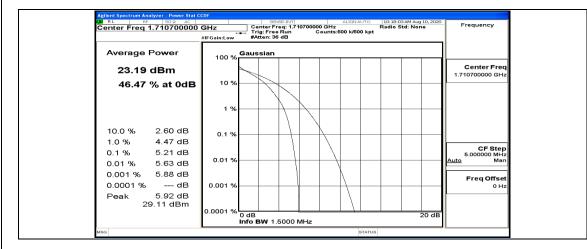


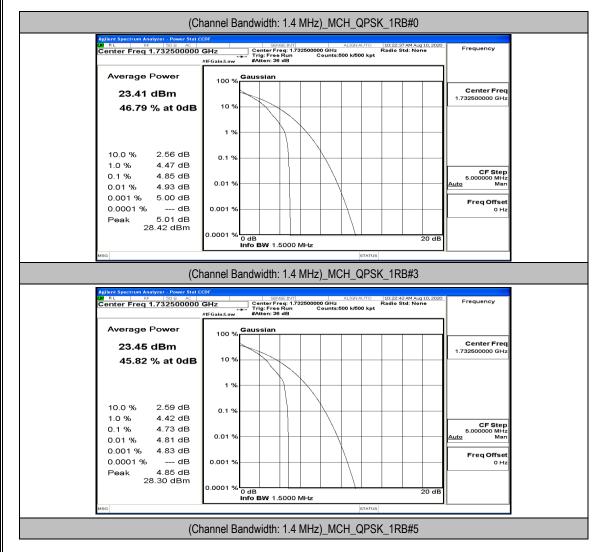
This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 16 of 215



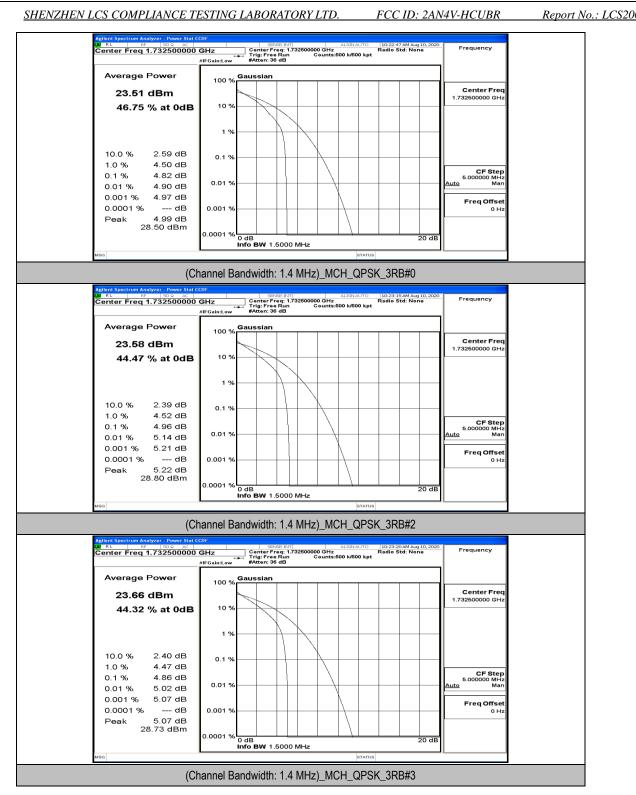
#### SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. FCC ID: 2AN4V-HCUBR

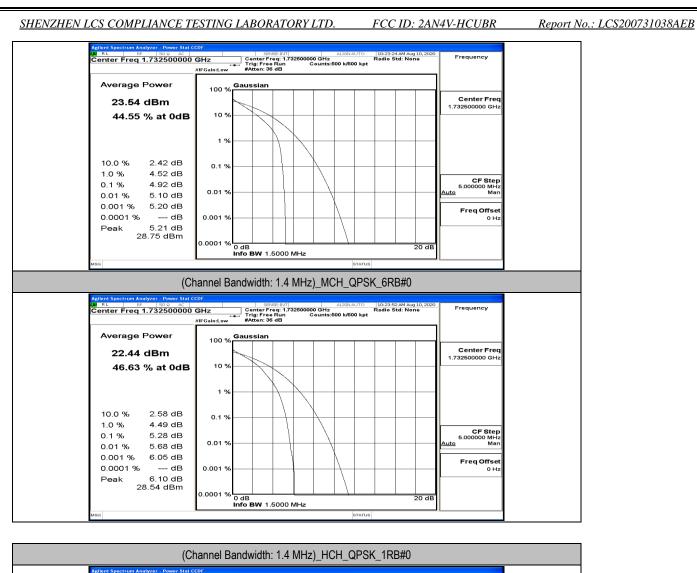
Report No.: LCS200731038AEB

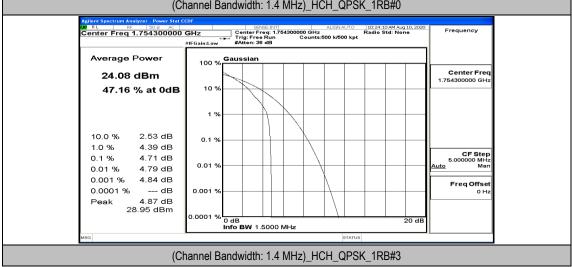




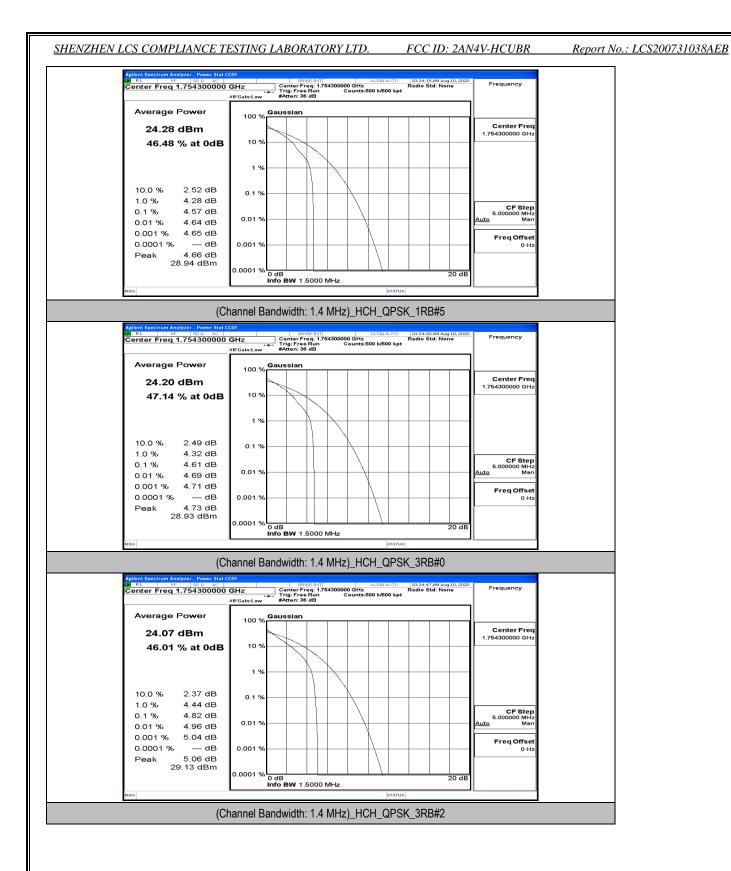
This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 18 of 215

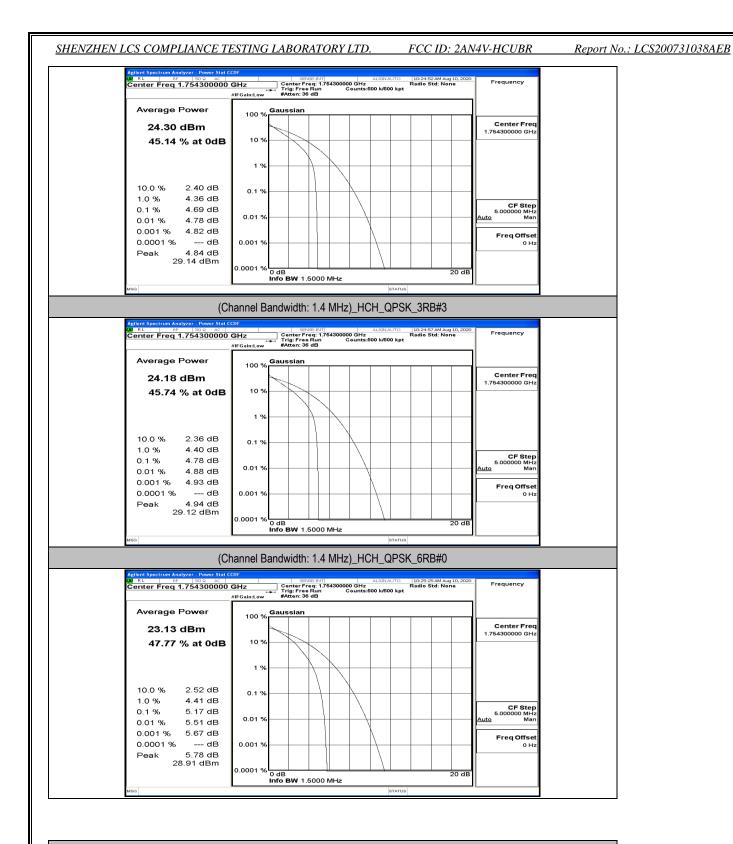






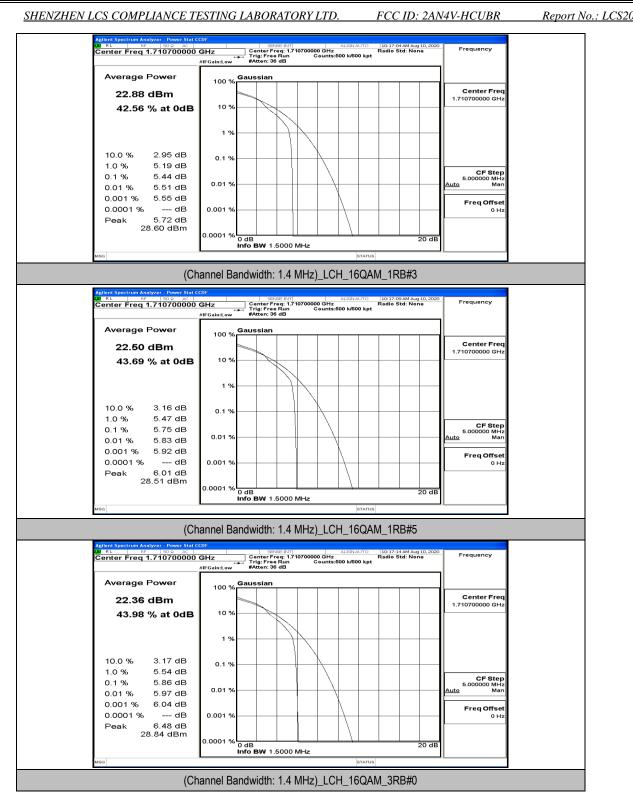
This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 20 of 215

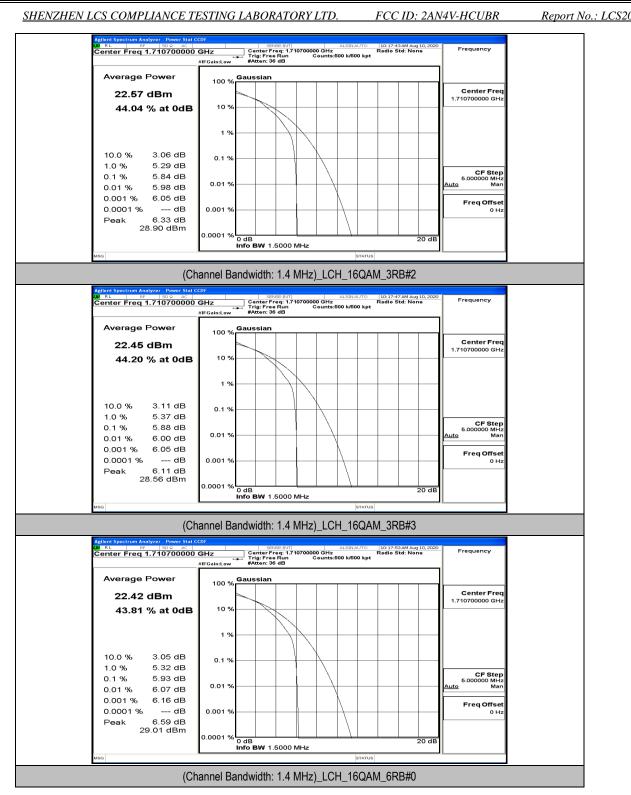




#### (Channel Bandwidth: 1.4 MHz)\_LCH\_16QAM\_1RB#0

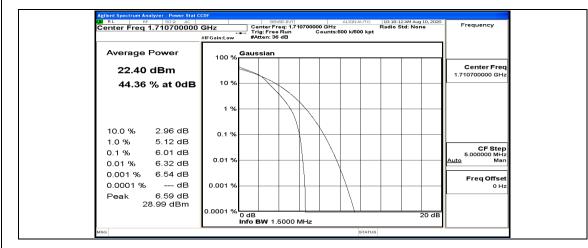
This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 22 of 215

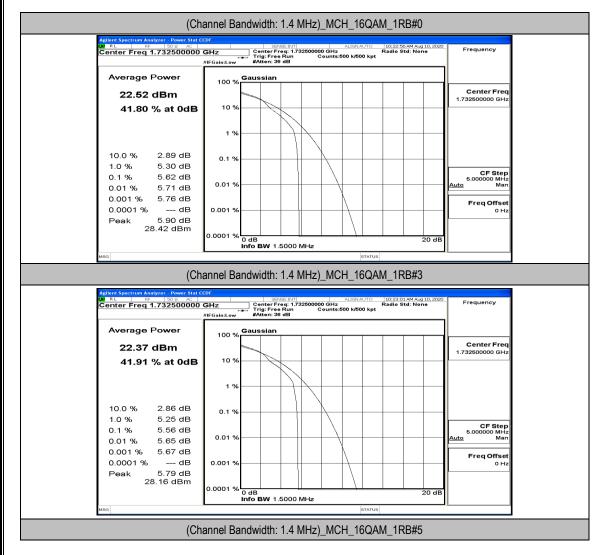




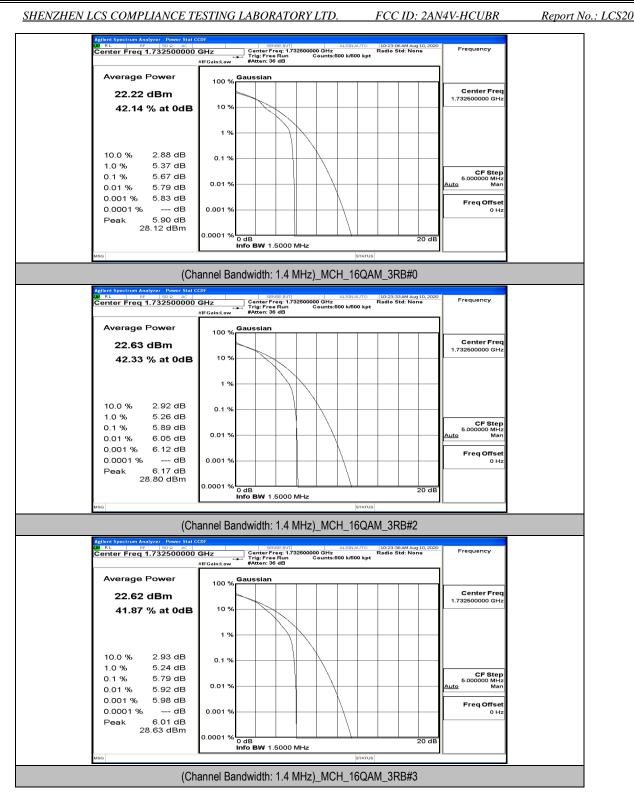
#### SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. FCC ID: 2AN4V-HCUBR

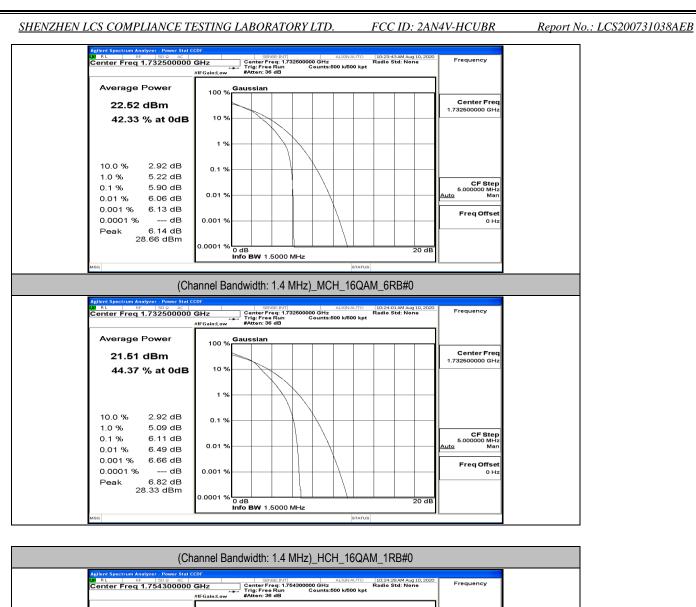
Report No.: LCS200731038AEB

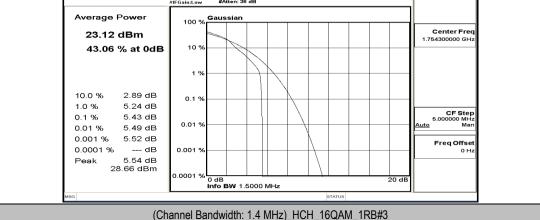




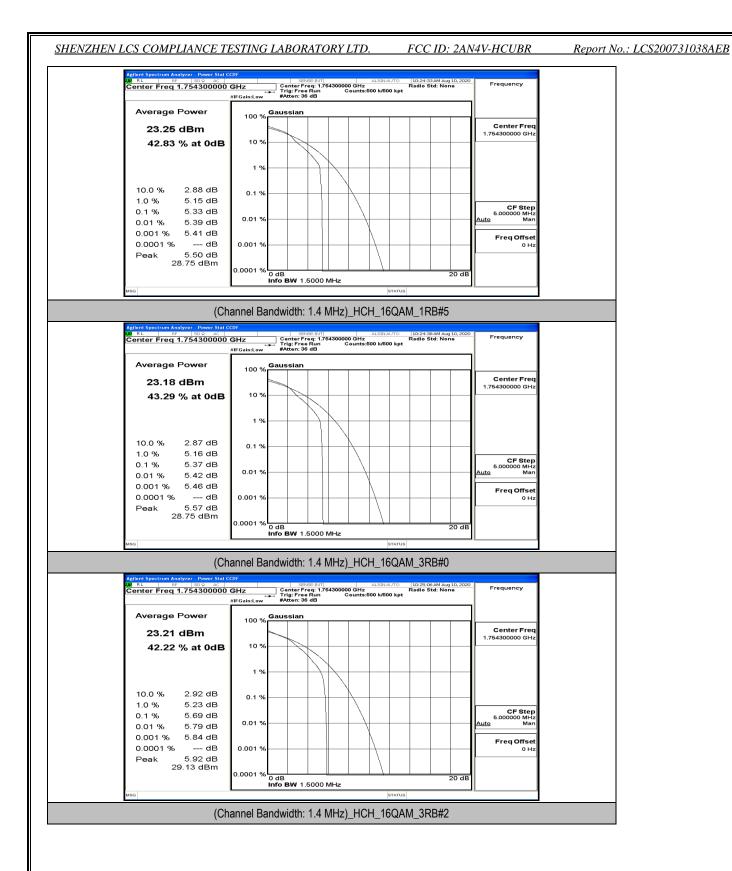
This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 25 of 215

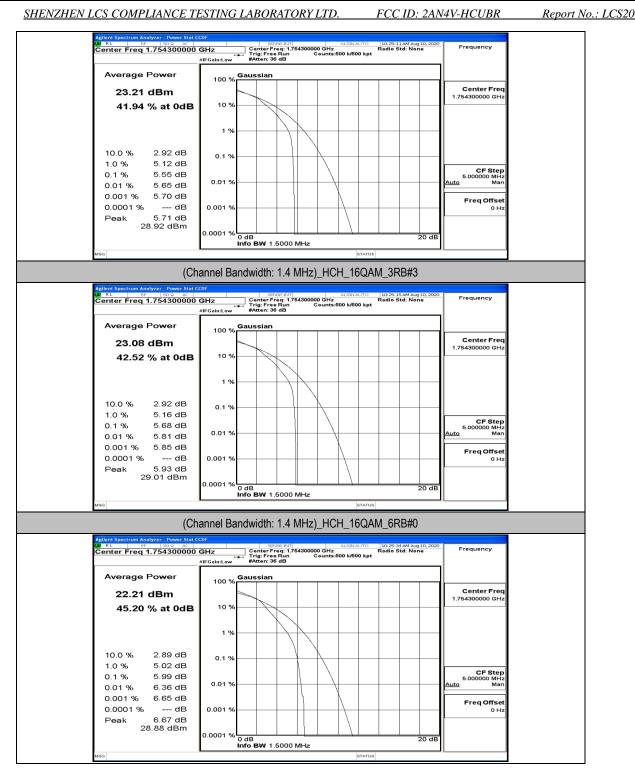




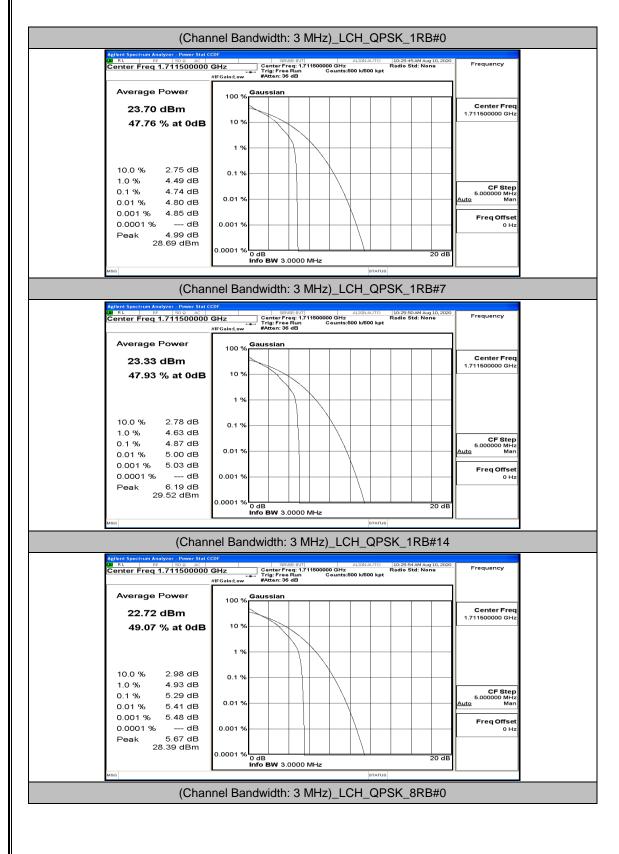


This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 27 of 215

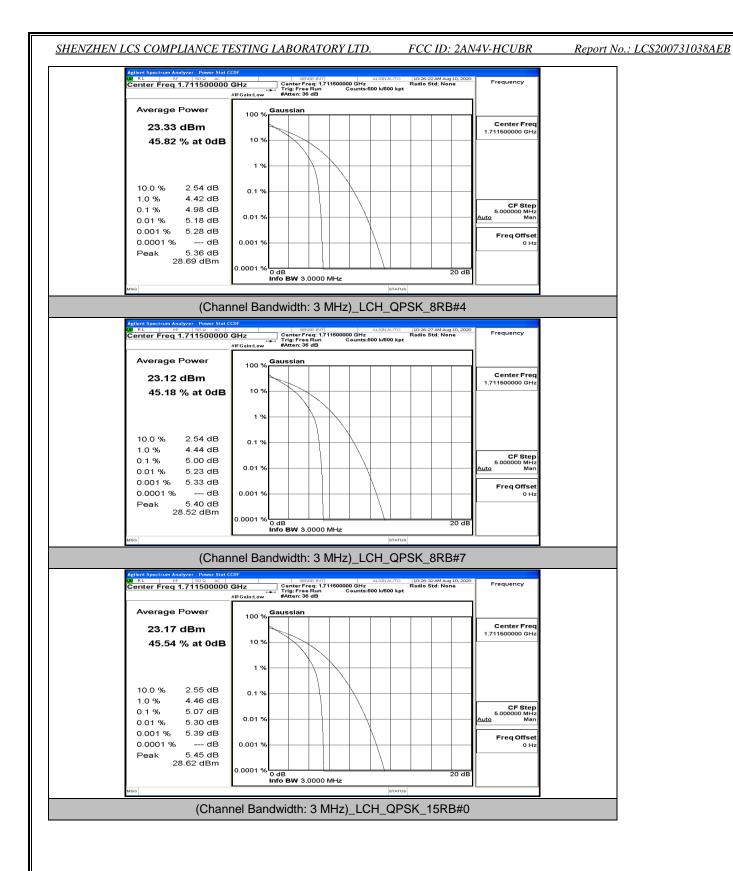




#### **Channel Bandwidth: 3 MHz**

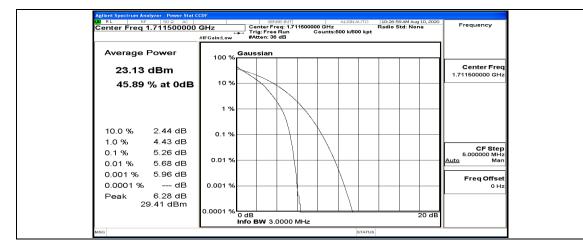


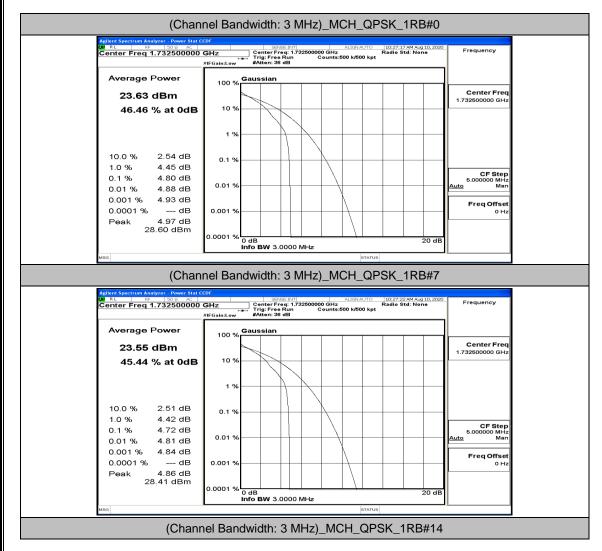
This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 30 of 215



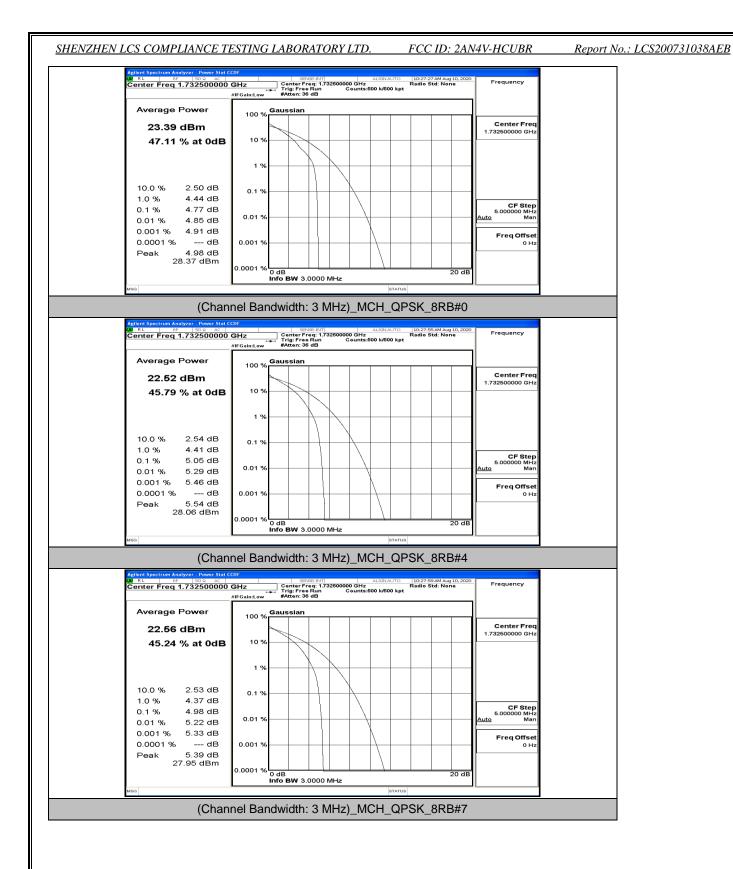
#### SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. FCC ID: 2AN4V-HCUBR

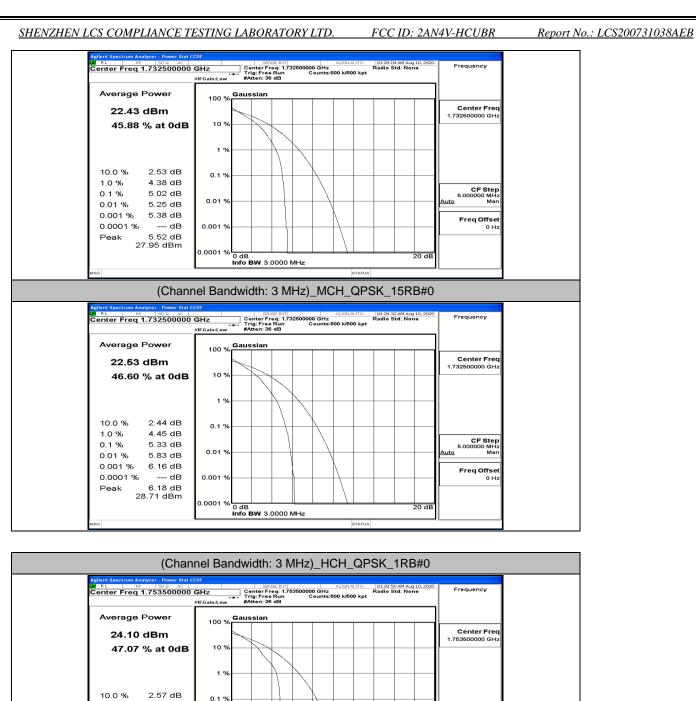
Report No.: LCS200731038AEB

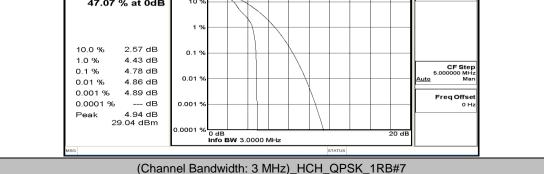


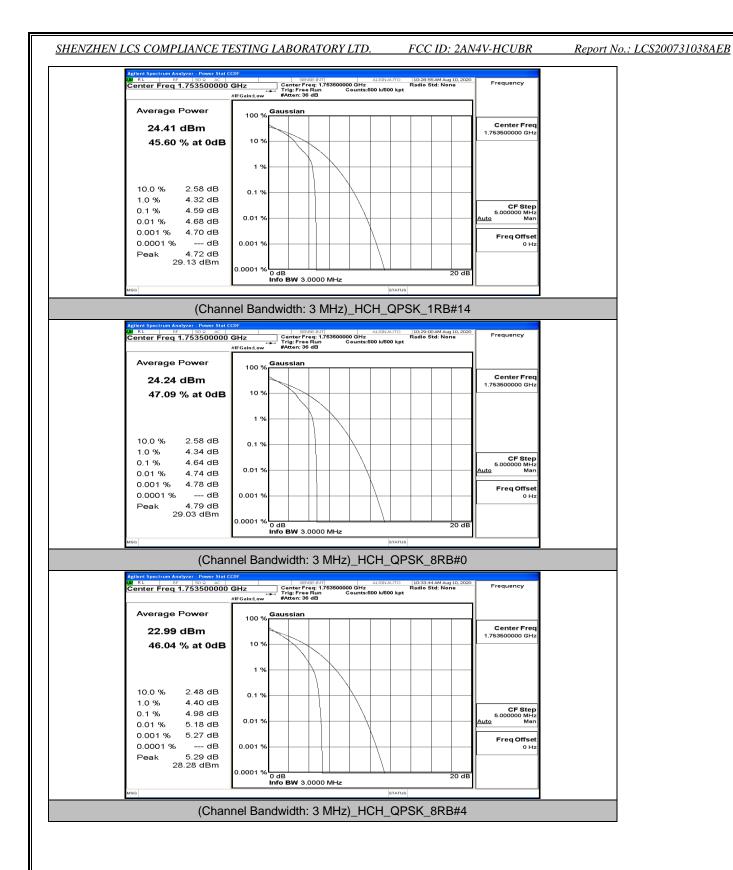


This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 32 of 215









This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 35 of 215

