



# Spot Check Evaluation

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**Reviewed by: Joseph Lin / Supervisor**

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**Approved by: Jones Tsai / Manager**



**SPORTON INTERNATIONAL INC.**

**No. 52, Hwa Ya 1<sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.**

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**SPORTON INTERNATIONAL INC.**

TEL : 886-3-327-3456

FAX : 886-3-328-4978

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## TABLE OF CONTENTS

|                                               |   |
|-----------------------------------------------|---|
| REVISION HISTORY .....                        | 3 |
| 1. INTRODUCTION SECTION .....                 | 4 |
| 2. DIFFERENCE SECTION .....                   | 5 |
| 3. SPOT CHECK VERIFICATION DATA SECTION ..... | 6 |
| 4. REFERENCE DETAIL SECTION .....             | 9 |
| APPENDIX A. SPOT CHECK TEST RESULT            |   |



## REVISION HISTORY

| VERSION | DESCRIPTION                          | ISSUED DATE   |
|---------|--------------------------------------|---------------|
| Rev. 01 | Initial issue of report.             | Feb. 19, 2017 |
| Rev. 02 | Revising conducted power of 802.11b. | Mar. 01, 2017 |
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## 1. Introduction Section

The original model (FCC ID: ZNFX240H) and the variant model (FCC ID: ZNFX240F) has identical PCB layout, antenna, SW implementation for Bluetooth/Wi-Fi/GPS/GSM/WCDMA/LTE. Based on their similarity, the FCC Part 15C (equipment class: DTS, DSS) and Part 22, 24, 27 (equipment class: PCS) test data issued for original model also apply for the variant model.

The applicant takes full responsibility that the test data as referenced in section 4 below represent compliance for this FCC ID (FCC ID: ZNFX240F).



## 2. Difference Section

The original model (FCC ID: ZNFX240H) and the variant model (FCC ID: ZNFX240F) has identical PCB layout, antenna, SW implementation for Bluetooth/Wi-Fi/GPS/GSM/WCDMA/LTE. The details of similarity and difference can be found in the Produce Equality Description.

The product specification is outlined in the following table:

| FCC ID        |                                         |            | ZNFX240H            | ZNFX240F    |
|---------------|-----------------------------------------|------------|---------------------|-------------|
| Wireless Tech | Mode                                    |            | Frequency (MHz)     |             |
| GSM           | GSM Voice                               | Multi-Slot | 850/1900            | 850/1900    |
|               | GPRS (GMSK)                             | Class 12   |                     |             |
|               | EDGE (8PSK)                             | DTM: No    |                     |             |
| UMTS          | AMR/RCM12.2Kbps<br>HSDPA/HSUPA/DC-HSDPA |            | B5/B4/B2            | B5/B4/B2    |
| LTE (FDD)     | QPSK<br>16QAM                           |            | B13/B17/B5/B4/B2/B7 | B5/B4/B2/B7 |
| Wi-Fi         | 11b/11g/11n(HT20)/11n(HT40)             |            | 2412-2462 MHz       |             |
| Bluetooth     | BR/EDR/LE                               |            | 2402-2480 MHz       |             |

### 3. Spot Check Verification Data Section

Summary of the spot check:

| Test Item                                                                  | Mode                         | ZNFX240H<br>Worst Result | ZNFX240F<br>Worst Result | Difference (dB) |
|----------------------------------------------------------------------------|------------------------------|--------------------------|--------------------------|-----------------|
| <b>Average<br/>Conducted Power<br/>(dBm)</b>                               | 802.11b                      | 16.97                    | 16.89                    | 0.08            |
|                                                                            | 802.11g                      | 14.63                    | 14.58                    | 0.05            |
|                                                                            | 11n HT20                     | 11.43                    | 11.18                    | 0.25            |
|                                                                            | 11n HT40                     | 10.99                    | 10.98                    | 0.01            |
|                                                                            | BT (1Mbps)                   | 7.06                     | 7.13                     | -0.07           |
|                                                                            | BT (2Mbps)                   | 4.71                     | 4.78                     | -0.07           |
|                                                                            | BT (3Mbps)                   | 4.67                     | 4.83                     | -0.16           |
|                                                                            | BT-LE                        | -0.93                    | -0.97                    | 0.04            |
|                                                                            | GSM 850 (GPRS)               | 33.85                    | 33.48                    | 0.37            |
|                                                                            | GSM 850 (EDGE)               | 26.86                    | 27.00                    | -0.14           |
|                                                                            | GSM 1900 (GPRS)              | 29.95                    | 30.00                    | -0.05           |
|                                                                            | GSM 1900 (EDGE)              | 25.77                    | 26.00                    | -0.23           |
|                                                                            | UMTS B2 (RMC 12.2Kbps)       | 24.87                    | 24.79                    | 0.08            |
|                                                                            | UMTS B4 (RMC 12.2Kbps)       | 24.85                    | 24.59                    | 0.26            |
|                                                                            | UMTS B5 (RMC 12.2Kbps)       | 24.86                    | 24.65                    | 0.21            |
|                                                                            | LTE B2 (FDD - QPSK)          | 24.43                    | 24.47                    | -0.04           |
|                                                                            | LTE B4 (FDD - QPSK)          | 24.41                    | 24.45                    | -0.04           |
|                                                                            | LTE B5 (FDD - QPSK)          | 24.50                    | 24.39                    | 0.11            |
|                                                                            | LTE B7 (FDD - QPSK)          | 23.02                    | 22.85                    | 0.17            |
| <b>Peak Radiated<br/>Spurious Emission<br/>(Band Edge)<br/>(dBuV/m)</b>    | 11n HT40                     | 59.53                    | 60.27                    | -0.74           |
|                                                                            | BT (1Mbps)                   | 44.26                    | 45.18                    | -0.92           |
|                                                                            | BT-LE                        | 54.28                    | 53.90                    | 0.38            |
| <b>Average Radiated<br/>Spurious Emission<br/>(Band Edge)<br/>(dBuV/m)</b> | 11n HT40                     | 46.76                    | 47.11                    | -0.35           |
|                                                                            | BT (1Mbps)                   | 19.44                    | 20.33                    | -0.89           |
|                                                                            | BT-LE                        | 44.71                    | 45.10                    | -0.39           |
| <b>Peak Radiated<br/>Spurious Emission<br/>(Harmonic)<br/>(dBuV/m)</b>     | 11n HT40                     | 37.88                    | 38.42                    | -0.54           |
|                                                                            | BT (1Mbps)                   | 38.86                    | 39.27                    | -0.41           |
|                                                                            | BT-LE                        | 37.65                    | 38.20                    | -0.55           |
| <b>Radiated Spurious<br/>Emission (dBm)</b>                                | GSM 850 (GPRS)               | -54.68                   | -53.65                   | -1.03           |
|                                                                            | GSM 1900 (GPRS)              | -39.45                   | -41.82                   | 2.37            |
|                                                                            | UMTS B4 (RMC 12.2Kbps)       | -50.37                   | -51.66                   | 1.29            |
|                                                                            | LTE B2 (FDD - QPSK) / 1.4MHz | -42.24                   | -40.84                   | -1.40           |
|                                                                            | LTE B4 (FDD - QPSK) / 10MHz  | -40.82                   | -42.27                   | 1.45            |
|                                                                            | LTE B5 (FDD - QPSK) / 1.4MHz | -44.96                   | -44.94                   | -0.02           |
|                                                                            | LTE B7 (FDD - QPSK) / 15MHz  | -51.34                   | -53.34                   | 2.00            |



| Maximum<br>ERP/EIRP<br>(W) | System                     | Type of<br>Modulation | FCC ID<br>ZNFX240H | FCC ID<br>ZNFX240F |
|----------------------------|----------------------------|-----------------------|--------------------|--------------------|
|                            | GSM850 GPRS class 8        | GMSK                  | 0.4864             | 0.5794             |
|                            | GSM850 EDGE class 8        | 8PSK                  | 0.1710             | 0.1683             |
|                            | WCDMA Band V RMC 12.2Kbps  | BPSK                  | 0.0953             | 0.0944             |
|                            | GSM1900 GPRS class 8       | GMSK                  | 0.7096             | 0.8185             |
|                            | GSM1900 EDGE class 8       | 8PSK                  | 0.2355             | 0.2931             |
|                            | WCDMA Band II RMC 12.2Kbps | BPSK                  | 0.1910             | 0.2123             |
|                            | WCDMA Band IV RMC 12.2Kbps | BPSK                  | 0.2858             | 0.2831             |

| Maximum<br>ERP/EIRP<br>(W) | LTE Band 2 |                             | QPSK               |                    | 16QAM              |                    |
|----------------------------|------------|-----------------------------|--------------------|--------------------|--------------------|--------------------|
|                            | BW (MHz)   | Frequency<br>Range<br>(MHz) | FCC ID<br>ZNFX240H | FCC ID<br>ZNFX240F | FCC ID<br>ZNFX240H | FCC ID<br>ZNFX240F |
|                            | 1.4        | 1850.7 ~ 1909.3             | 0.1803             | -                  | 0.1396             | -                  |
|                            | 3          | 1851.5 ~ 1908.5             | 0.1742             | -                  | 0.1435             | -                  |
|                            | 5          | 1852.5 ~ 1907.5             | <b>0.1968</b>      | 0.1932             | 0.1611             | -                  |
|                            | 10         | 1855.0 ~ 1905.0             | 0.1862             | -                  | 0.1452             | -                  |
|                            | 15         | 1857.5 ~ 1902.5             | 0.1738             | -                  | <b>0.1629</b>      | 0.1153             |
|                            | 20         | 1860.0 ~ 1900.0             | 0.1702             | 0.1393             | 0.1416             | 0.1135             |
|                            | LTE Band 4 |                             | QPSK               |                    | 16QAM              |                    |
|                            | BW (MHz)   | Frequency<br>Range<br>(MHz) | FCC ID<br>ZNFX240H | FCC ID<br>ZNFX240F | FCC ID<br>ZNFX240H | FCC ID<br>ZNFX240F |
|                            | 1.4        | 1710.7 ~ 1754.3             | 0.2138             | -                  | 0.1644             | -                  |
|                            | 3          | 1711.5 ~ 1753.5             | 0.1986             | -                  | 0.1710             | -                  |
|                            | 5          | 1712.5 ~ 1752.5             | 0.1888             | -                  | 0.1671             | -                  |
|                            | 10         | 1715.0 ~ 1750.0             | <b>0.2366</b>      | 0.2307             | 0.1866             | -                  |
|                            | 15         | 1717.5 ~ 1747.5             | 0.2173             | -                  | 0.1936             | -                  |
|                            | 20         | 1720.0 ~ 1745.0             | 0.2084             | 0.2344             | <b>0.1941</b>      | 0.2333             |

| Maximum<br>ERP/EIRP<br>(W) | LTE Band 5 |                       | QPSK               |                    | 16QAM              |                    |
|----------------------------|------------|-----------------------|--------------------|--------------------|--------------------|--------------------|
|                            | BW (MHz)   | Frequency Range (MHz) | FCC ID<br>ZNFX240H | FCC ID<br>ZNFX240F | FCC ID<br>ZNFX240H | FCC ID<br>ZNFX240F |
|                            | 1.4        | 824.7 ~ 848.3         | 0.0895             | -                  | 0.0685             | -                  |
|                            | 3          | 825.5 ~ 847.5         | 0.0968             | -                  | 0.0743             | -                  |
|                            | 5          | 826.5 ~ 846.5         | <b>0.0973</b>      | 0.0989             | <b>0.0748</b>      | 0.0785             |
|                            | 10         | 829.0 ~ 844.0         | 0.0927             | 0.0959             | 0.0721             | 0.0659             |
|                            | LTE Band 7 |                       | QPSK               |                    | 16QAM              |                    |
|                            | BW (MHz)   | Frequency Range (MHz) | FCC ID<br>ZNFX240H | FCC ID<br>ZNFX240F | FCC ID<br>ZNFX240H | FCC ID<br>ZNFX240F |
|                            | 5          | 2502.5 ~ 2567.5       | 0.1346             | -                  | 0.1084             | -                  |
|                            | 10         | 2505.0 ~ 2565.0       | 0.1384             | -                  | 0.1146             | -                  |
|                            | 15         | 2507.5 ~ 2562.5       | <b>0.1384</b>      | 0.1607             | 0.1130             | -                  |
|                            | 20         | 2510.0 ~ 2560.0       | 0.1337             | 0.1500             | <b>0.1146</b>      | 0.1245             |

### Conclusion:

Radiated spurious emission test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model.

Based on the spot check test result (power levels measured are within 0.5dB, and the worst case of RSE spot check verification based on the worst condition from the original model is within 3dB, and are compliance with the limits), the test data from the original model is representative for the variant model.

The unwanted, harmonics, radiated spurious emission is reported peak measurement only due to spurious lower than 20dB than the limit.

The detail test results can be found in this document, Appendix A, hereafter.



## 4. Reference detail Section

| Equipment Class | Reference FCC ID | Type Grant/Permissive Change | Reference Application  | Folder Test/RF Exposure                              | Report Title            |
|-----------------|------------------|------------------------------|------------------------|------------------------------------------------------|-------------------------|
| DTS             | ZNFX240H         | Original Grant               | FR6O1802B<br>FR6O1802C | Part 15C                                             | All sections applicable |
|                 |                  |                              | FA6O1802               | RF Exposure                                          | All sections applicable |
| DSS             | ZNFX240H         | Original Grant               | FR6O1802A              | Part 15C                                             | All sections applicable |
|                 |                  |                              | FA6O1802               | RF Exposure                                          | All sections applicable |
| PCS             | ZNFX240H         | Original Grant               | FG6O1802A<br>FG6O1802B | Part 22(H)<br>Part 24(E)<br>Part 27(L)<br>Part 27(M) | All sections Applicable |
|                 |                  |                              | FA6O1802               | RF Exposure                                          | All sections applicable |



## Appendix A. Spot Check Test Result

### 1.1 Conducted power

#### <2.4GHz WLAN>

|             | Mode         | Channel | Frequency (MHz) | Data Rate | Tune-Up Limit | FCC ID ZNFX240H Average power (dBm) | FCC ID ZNFX240F Average power (dBm) |
|-------------|--------------|---------|-----------------|-----------|---------------|-------------------------------------|-------------------------------------|
| 2.4GHz WLAN | 802.11b      | CH 1    | 2412            | 1Mbps     | 16.0          | 15.93                               | 15.90                               |
|             |              | CH 6    | 2437            |           | 17.0          | 16.97                               | 16.89                               |
|             |              | CH 11   | 2462            |           | 16.0          | 15.99                               | 15.73                               |
|             | 802.11g      | CH 1    | 2412            | 6Mbps     | 12.0          | 11.94                               | 11.90                               |
|             |              | CH 6    | 2437            |           | 15.0          | 14.63                               | 14.58                               |
|             |              | CH 11   | 2462            |           | 13.5          | 13.26                               | 13.03                               |
|             | 802.11n-HT20 | CH 1    | 2412            | MCS0      | 11.5          | 11.13                               | 11.08                               |
|             |              | CH 6    | 2437            |           |               | 11.35                               | 11.16                               |
|             |              | CH 11   | 2462            |           |               | 11.43                               | 11.18                               |
|             | 802.11n-HT40 | CH 3    | 2422            | MCS0      | 9.5           | 9.14                                | 9.13                                |
|             |              | CH 6    | 2437            |           | 11.0          | 10.94                               | 10.93                               |
|             |              | CH 9    | 2452            |           |               | 10.99                               | 10.98                               |

#### <Bluetooth>

| Mode              | Channel | Frequency (MHz) | Tune-Up Limit | FCC ID ZNFX240H Average power (dBm) | FCC ID ZNFX240F Average power (dBm) |
|-------------------|---------|-----------------|---------------|-------------------------------------|-------------------------------------|
| Bluetooth (1Mbps) | CH 00   | 2402            | 8.0           | 6.00                                | 6.10                                |
|                   | CH 39   | 2441            |               | 7.06                                | 7.13                                |
|                   | CH 78   | 2480            |               | 5.87                                | 5.58                                |
| Bluetooth (2Mbps) | CH 00   | 2402            | 5.0           | 3.63                                | 3.77                                |
|                   | CH 39   | 2441            |               | 4.71                                | 4.78                                |
|                   | CH 78   | 2480            |               | 3.44                                | 3.36                                |
| Bluetooth (3Mbps) | CH 00   | 2402            | 5.0           | 3.62                                | 3.73                                |
|                   | CH 39   | 2441            |               | 4.67                                | 4.83                                |
|                   | CH 78   | 2480            |               | 3.45                                | 3.38                                |
| BLE (GFSK)        | CH 00   | 2402            | 0.0           | -1.70                               | -1.77                               |
|                   | CH 19   | 2440            |               | -0.93                               | -0.97                               |
|                   | CH 39   | 2480            |               | -2.17                               | -2.22                               |

**<WWAN>**

| GSM850          |                           | FCC ID<br>ZNFX240H<br>Average power (dBm) |              |       | FCC ID<br>ZNFX240F<br>Average power (dBm) |       |              |
|-----------------|---------------------------|-------------------------------------------|--------------|-------|-------------------------------------------|-------|--------------|
| TX Channel      | Tune-up<br>Limit<br>(dBm) | 128                                       | 189          | 251   | 128                                       | 189   | 251          |
| Frequency (MHz) |                           | 824.2                                     | 836.4        | 848.8 | 824.2                                     | 836.4 | 848.8        |
| GSM 1 Tx slot   | 34.00                     | 33.84                                     | 33.81        | 33.73 | 33.47                                     | 33.38 | 33.40        |
| GPRS 1 Tx slot  | 34.00                     | <b>33.85</b>                              | 33.81        | 33.73 | <b>33.48</b>                              | 33.38 | 33.40        |
| GPRS 2 Tx slots | 30.50                     | 30.17                                     | 30.16        | 30.13 | 30.41                                     | 30.31 | 30.36        |
| GPRS 3 Tx slots | 29.00                     | 28.51                                     | 28.50        | 28.48 | 28.77                                     | 28.63 | 28.70        |
| GPRS 4 Tx slots | 28.00                     | 27.31                                     | 27.30        | 27.27 | 27.56                                     | 27.45 | 27.50        |
| EDGE 1 Tx slot  | 27.00                     | 26.84                                     | <b>26.86</b> | 26.82 | 26.92                                     | 26.96 | <b>27.00</b> |
| EDGE 2 Tx slots | 25.00                     | 24.72                                     | 24.68        | 24.61 | 24.85                                     | 24.86 | 24.95        |
| EDGE 3 Tx slots | 23.50                     | 23.11                                     | 23.08        | 22.98 | 23.19                                     | 23.17 | 23.23        |
| EDGE 4 Tx slots | 22.5                      | 21.94                                     | 21.93        | 21.85 | 22.10                                     | 22.07 | 22.15        |

| GSM1900         |                           | FCC ID<br>ZNFX240H<br>Average power (dBm) |              |        | FCC ID<br>ZNFX240F<br>Average power (dBm) |              |        |
|-----------------|---------------------------|-------------------------------------------|--------------|--------|-------------------------------------------|--------------|--------|
| TX Channel      | Tune-up<br>Limit<br>(dBm) | 512                                       | 661          | 810    | 512                                       | 661          | 810    |
| Frequency (MHz) |                           | 1850.2                                    | 1880         | 1909.8 | 1850.2                                    | 1880         | 1909.8 |
| GSM 1 Tx slot   | 30.00                     | 29.94                                     | 29.87        | 29.80  | 29.93                                     | 29.78        | 29.62  |
| GPRS 1 Tx slot  | 30.00                     | <b>29.95</b>                              | 29.87        | 29.80  | <b>29.94</b>                              | 29.78        | 29.62  |
| GPRS 2 Tx slots | 27.50                     | 27.03                                     | 26.96        | 26.92  | 27.50                                     | 27.36        | 27.20  |
| GPRS 3 Tx slots | 26.00                     | 25.50                                     | 25.50        | 25.51  | 25.98                                     | 25.76        | 25.68  |
| GPRS 4 Tx slots | 25.00                     | 24.43                                     | 24.46        | 24.53  | 24.93                                     | 24.74        | 24.66  |
| EDGE 1 Tx slot  | 26.00                     | 25.75                                     | <b>25.77</b> | 25.65  | 25.99                                     | <b>26.00</b> | 25.83  |
| EDGE 2 Tx slots | 24.00                     | 23.64                                     | 23.64        | 23.45  | 23.93                                     | 23.90        | 23.74  |
| EDGE 3 Tx slots | 22.00                     | 21.86                                     | 21.87        | 21.71  | 22.00                                     | 21.99        | 21.99  |
| EDGE 4 Tx slots | 21.00                     | 20.85                                     | 20.86        | 20.68  | 20.99                                     | 21.00        | 20.97  |



| WCDMA II           |                           | FCC ID<br>ZNFX240H<br>Average power (dBm) |       |        | FCC ID<br>ZNFX240F<br>Average power (dBm) |       |        |
|--------------------|---------------------------|-------------------------------------------|-------|--------|-------------------------------------------|-------|--------|
| TX Channel         | Tune-up<br>Limit<br>(dBm) | 9262                                      | 9400  | 9538   | 9262                                      | 9400  | 9538   |
| Frequency (MHz)    |                           | 1852.4                                    | 1880  | 1907.6 | 1852.4                                    | 1880  | 1907.6 |
| AMR 12.2Kbps       | 25.00                     | 24.85                                     | 24.80 | 24.75  | 24.75                                     | 24.69 | 24.62  |
| RMC 12.2Kbps       | 25.00                     | <b>24.87</b>                              | 24.81 | 24.79  | <b>24.79</b>                              | 24.73 | 24.63  |
| HSDPA Subtest-1    | 24.00                     | 23.80                                     | 23.68 | 23.68  | 23.89                                     | 23.81 | 23.51  |
| HSDPA Subtest-2    | 24.00                     | 23.79                                     | 23.70 | 23.72  | 23.66                                     | 23.80 | 23.45  |
| HSDPA Subtest-3    | 23.50                     | 23.31                                     | 23.24 | 23.21  | 23.24                                     | 23.34 | 22.97  |
| HSDPA Subtest-4    | 23.50                     | 23.29                                     | 23.22 | 23.18  | 23.21                                     | 23.31 | 22.93  |
| DC-HSDPA Subtest-1 | 24.00                     | 23.74                                     | 23.64 | 23.61  | 23.88                                     | 23.75 | 23.47  |
| DC-HSDPA Subtest-2 | 24.00                     | 23.74                                     | 23.62 | 23.66  | 23.64                                     | 23.78 | 23.43  |
| DC-HSDPA Subtest-3 | 23.50                     | 23.22                                     | 23.23 | 23.15  | 23.15                                     | 23.29 | 22.94  |
| DC-HSDPA Subtest-4 | 23.50                     | 23.25                                     | 23.11 | 23.09  | 23.13                                     | 23.24 | 22.86  |
| HSUPA Subtest-1    | 24.00                     | 22.04                                     | 22.09 | 22.08  | 22.04                                     | 22.04 | 22.09  |
| HSUPA Subtest-2    | 22.00                     | 21.81                                     | 21.72 | 21.64  | 21.87                                     | 21.85 | 21.75  |
| HSUPA Subtest-3    | 23.00                     | 22.76                                     | 22.73 | 22.66  | 22.83                                     | 22.82 | 22.79  |
| HSUPA Subtest-4    | 22.00                     | 21.23                                     | 21.14 | 21.08  | 21.30                                     | 21.34 | 21.27  |
| HSUPA Subtest-5    | 24.00                     | 23.80                                     | 23.70 | 23.60  | 23.80                                     | 23.80 | 23.50  |



| WCDMA IV           |                           | FCC ID<br>ZNFX240H<br>Average power (dBm) |        |              | FCC ID<br>ZNFX240F<br>Average power (dBm) |        |              |
|--------------------|---------------------------|-------------------------------------------|--------|--------------|-------------------------------------------|--------|--------------|
| TX Channel         | Tune-up<br>Limit<br>(dBm) | 1312                                      | 1413   | 1513         | 1312                                      | 1413   | 1513         |
| Frequency (MHz)    |                           | 1712.4                                    | 1732.6 | 1752.6       | 1712.4                                    | 1732.6 | 1752.6       |
| AMR 12.2Kbps       | 25.00                     | 24.74                                     | 24.81  | 24.83        | 24.50                                     | 24.49  | 24.58        |
| RMC 12.2Kbps       | 25.00                     | 24.76                                     | 24.82  | <b>24.85</b> | 24.52                                     | 24.50  | <b>24.59</b> |
| HSDPA Subtest-1    | 24.00                     | 23.95                                     | 23.93  | 23.88        | 23.71                                     | 23.68  | 23.77        |
| HSDPA Subtest-2    | 24.00                     | 23.92                                     | 23.91  | 23.87        | 23.73                                     | 23.69  | 23.78        |
| HSDPA Subtest-3    | 23.50                     | 23.50                                     | 23.46  | 23.45        | 23.26                                     | 23.26  | 23.33        |
| HSDPA Subtest-4    | 23.50                     | 23.45                                     | 23.43  | 23.45        | 23.28                                     | 23.23  | 23.28        |
| DC-HSDPA Subtest-1 | 24.00                     | 23.93                                     | 23.90  | 23.86        | 23.70                                     | 23.57  | 23.74        |
| DC-HSDPA Subtest-2 | 24.00                     | 23.84                                     | 23.82  | 23.83        | 23.70                                     | 23.63  | 23.70        |
| DC-HSDPA Subtest-3 | 23.50                     | 23.39                                     | 23.38  | 23.42        | 23.25                                     | 23.19  | 23.28        |
| DC-HSDPA Subtest-4 | 23.50                     | 23.44                                     | 23.38  | 23.34        | 23.24                                     | 23.22  | 23.23        |
| HSUPA Subtest-1    | 24.00                     | 22.02                                     | 22.09  | 22.05        | 22.03                                     | 22.04  | 22.00        |
| HSUPA Subtest-2    | 22.00                     | 21.91                                     | 21.83  | 21.80        | 21.78                                     | 21.68  | 21.79        |
| HSUPA Subtest-3    | 23.00                     | 22.98                                     | 22.89  | 22.84        | 22.74                                     | 22.68  | 22.77        |
| HSUPA Subtest-4    | 22.00                     | 21.40                                     | 21.34  | 21.31        | 21.22                                     | 21.15  | 21.28        |
| HSUPA Subtest-5    | 24.00                     | 23.90                                     | 23.90  | 23.60        | 23.70                                     | 23.60  | 23.30        |



| WCDMA V            |                           | FCC ID<br>ZNFX240H<br>Average power (dBm) |       |              | FCC ID<br>ZNFX240F<br>Average power (dBm) |       |              |
|--------------------|---------------------------|-------------------------------------------|-------|--------------|-------------------------------------------|-------|--------------|
| TX Channel         | Tune-up<br>Limit<br>(dBm) | 4132                                      | 4182  | 4233         | 4132                                      | 4182  | 4233         |
| Frequency (MHz)    |                           | 826.4                                     | 836.4 | 846.6        | 826.4                                     | 836.4 | 846.6        |
| AMR 12.2Kbps       | 25.00                     | 24.72                                     | 24.66 | 24.83        | 24.60                                     | 24.55 | 24.63        |
| RMC 12.2Kbps       | 25.00                     | 24.75                                     | 24.71 | <b>24.86</b> | 24.63                                     | 24.58 | <b>24.65</b> |
| HSDPA Subtest-1    | 24.00                     | 23.62                                     | 23.56 | 23.57        | 23.67                                     | 23.52 | 23.56        |
| HSDPA Subtest-2    | 24.00                     | 23.62                                     | 23.52 | 23.60        | 23.68                                     | 23.58 | 23.56        |
| HSDPA Subtest-3    | 23.50                     | 23.17                                     | 23.06 | 23.12        | 23.25                                     | 23.11 | 23.10        |
| HSDPA Subtest-4    | 23.50                     | 23.14                                     | 23.06 | 23.07        | 23.27                                     | 23.09 | 23.06        |
| DC-HSDPA Subtest-1 | 24.00                     | 23.60                                     | 23.50 | 23.46        | 23.59                                     | 23.49 | 23.53        |
| DC-HSDPA Subtest-2 | 24.00                     | 23.52                                     | 23.47 | 23.50        | 23.60                                     | 23.48 | 23.55        |
| DC-HSDPA Subtest-3 | 23.50                     | 23.08                                     | 22.96 | 23.07        | 23.15                                     | 23.04 | 23.00        |
| DC-HSDPA Subtest-4 | 23.50                     | 23.05                                     | 23.02 | 23.05        | 23.19                                     | 23.06 | 23.04        |
| HSUPA Subtest-1    | 24.00                     | 22.09                                     | 22.06 | 22.02        | 22.09                                     | 22.08 | 22.09        |
| HSUPA Subtest-2    | 22.00                     | 21.63                                     | 21.52 | 21.69        | 21.67                                     | 21.59 | 21.63        |
| HSUPA Subtest-3    | 23.00                     | 22.61                                     | 22.51 | 22.67        | 22.68                                     | 22.58 | 22.62        |
| HSUPA Subtest-4    | 22.00                     | 21.01                                     | 20.95 | 21.09        | 21.15                                     | 21.06 | 21.13        |
| HSUPA Subtest-5    | 24.00                     | 23.60                                     | 23.50 | 23.60        | 23.60                                     | 23.50 | 23.60        |



| LTE Band 2 / 20MHz |         |           | FCC ID<br>ZNFX240H<br>Average power (dBm) |       |              | FCC ID<br>ZNFX240F<br>Average power (dBm) |              |       |       |
|--------------------|---------|-----------|-------------------------------------------|-------|--------------|-------------------------------------------|--------------|-------|-------|
| TX Channel         |         |           | Tune-up<br>Limit<br>(dBm)                 | 18700 | 18900        | 19100                                     | 18700        | 18900 | 19100 |
| Frequency (MHz)    |         |           |                                           | 1860  | 1880         | 1900                                      | 1860         | 1880  | 1900  |
| Modulation         | RB Size | RB offset |                                           |       |              |                                           |              |       |       |
| QPSK               | 1       | 0         | 24.5                                      | 24.41 | <b>24.43</b> | 24.37                                     | <b>24.47</b> | 24.35 | 24.37 |
| QPSK               | 1       | 49        |                                           | 24.18 | 24.42        | 24.36                                     | 24.22        | 24.21 | 24.20 |
| QPSK               | 1       | 99        |                                           | 24.28 | 23.88        | 23.77                                     | 24.17        | 23.98 | 23.81 |
| QPSK               | 50      | 0         | 23.5                                      | 23.48 | 23.49        | 23.47                                     | 23.49        | 23.45 | 23.39 |
| QPSK               | 50      | 24        |                                           | 23.46 | 23.37        | 23.40                                     | 23.44        | 23.41 | 23.37 |
| QPSK               | 50      | 50        |                                           | 23.45 | 23.31        | 23.42                                     | 23.46        | 23.43 | 23.38 |
| QPSK               | 100     | 0         |                                           | 23.48 | 23.49        | 23.39                                     | 23.46        | 23.50 | 23.39 |
| 16QAM              | 1       | 0         | 23.5                                      | 23.41 | 23.43        | 23.46                                     | 23.44        | 23.42 | 23.44 |
| 16QAM              | 1       | 49        |                                           | 23.41 | 23.43        | 23.44                                     | 23.48        | 23.43 | 23.44 |
| 16QAM              | 1       | 99        |                                           | 23.44 | 23.17        | 23.25                                     | 23.44        | 23.41 | 22.90 |
| 16QAM              | 50      | 0         | 22.5                                      | 22.43 | 22.43        | 22.36                                     | 22.43        | 22.47 | 22.45 |
| 16QAM              | 50      | 24        |                                           | 22.39 | 22.50        | 22.35                                     | 22.39        | 22.35 | 22.41 |
| 16QAM              | 50      | 50        |                                           | 22.33 | 22.44        | 22.40                                     | 22.45        | 22.41 | 22.41 |
| 16QAM              | 100     | 0         |                                           | 22.16 | 22.41        | 22.32                                     | 22.41        | 22.35 | 22.45 |



| LTE Band 4 / 20MHz |         |           | FCC ID<br>ZNFX240H<br>Average power (dBm) |       |              | FCC ID<br>ZNFX240F<br>Average power (dBm) |       |        |              |
|--------------------|---------|-----------|-------------------------------------------|-------|--------------|-------------------------------------------|-------|--------|--------------|
| TX Channel         |         |           | Tune-up<br>Limit<br>(dBm)                 | 20050 | 20175        | 20300                                     | 20050 | 20175  | 20300        |
| Frequency (MHz)    |         |           |                                           | 1720  | 1732.5       | 1745                                      | 1720  | 1732.5 | 1745         |
| Modulation         | RB Size | RB offset |                                           |       |              |                                           |       |        |              |
| QPSK               | 1       | 0         | 24.5                                      | 24.37 | <b>24.41</b> | 24.40                                     | 24.29 | 24.12  | <b>24.45</b> |
| QPSK               | 1       | 49        |                                           | 24.28 | 24.28        | 24.30                                     | 24.06 | 24.15  | 24.23        |
| QPSK               | 1       | 99        |                                           | 24.27 | 24.24        | 24.24                                     | 24.17 | 24.09  | 24.02        |
| QPSK               | 50      | 0         | 23.5                                      | 23.41 | 23.48        | 23.45                                     | 23.19 | 23.24  | 23.16        |
| QPSK               | 50      | 24        |                                           | 23.39 | 23.38        | 23.41                                     | 23.18 | 23.09  | 23.10        |
| QPSK               | 50      | 50        |                                           | 23.38 | 23.38        | 23.38                                     | 23.18 | 23.08  | 23.13        |
| QPSK               | 100     | 0         |                                           | 23.40 | 23.43        | 23.41                                     | 23.15 | 23.19  | 23.16        |
| 16QAM              | 1       | 0         | 23.5                                      | 23.46 | 23.44        | 23.47                                     | 23.36 | 23.25  | 23.42        |
| 16QAM              | 1       | 49        |                                           | 23.44 | 23.45        | 23.50                                     | 23.25 | 23.29  | 23.31        |
| 16QAM              | 1       | 99        |                                           | 23.43 | 23.41        | 23.43                                     | 23.25 | 23.14  | 23.13        |
| 16QAM              | 50      | 0         | 22.5                                      | 22.41 | 22.35        | 22.38                                     | 22.17 | 22.33  | 22.38        |
| 16QAM              | 50      | 24        |                                           | 22.31 | 22.32        | 22.34                                     | 22.10 | 22.49  | 22.44        |
| 16QAM              | 50      | 50        |                                           | 22.31 | 22.31        | 22.32                                     | 22.09 | 22.44  | 22.41        |
| 16QAM              | 100     | 0         |                                           | 22.33 | 22.30        | 22.33                                     | 22.05 | 22.41  | 22.42        |



| LTE Band 5 / 20MHz |         |           | FCC ID<br>ZNFX240H<br>Average power (dBm) |              |       | FCC ID<br>ZNFX240F<br>Average power (dBm) |              |       |       |
|--------------------|---------|-----------|-------------------------------------------|--------------|-------|-------------------------------------------|--------------|-------|-------|
| TX Channel         |         |           | Tune-up<br>Limit<br>(dBm)                 | 20450        | 20525 | 20600                                     | 20450        | 20525 | 20600 |
| Frequency (MHz)    |         |           |                                           | 829          | 836.5 | 844                                       | 829          | 836.5 | 844   |
| Modulation         | RB Size | RB offset |                                           |              |       |                                           |              |       |       |
| QPSK               | 1       | 0         | 24.5                                      | 24.44        | 24.41 | 24.37                                     | 24.38        | 24.36 | 24.27 |
| QPSK               | 1       | 49        |                                           | <b>24.50</b> | 24.39 | 24.37                                     | <b>24.39</b> | 24.31 | 24.30 |
| QPSK               | 1       | 99        |                                           | 24.42        | 24.40 | 24.09                                     | 24.34        | 24.21 | 24.03 |
| QPSK               | 50      | 0         | 23.5                                      | 23.49        | 23.46 | 23.14                                     | 23.43        | 23.41 | 23.35 |
| QPSK               | 50      | 24        |                                           | 23.44        | 23.48 | 23.14                                     | 23.42        | 23.38 | 23.36 |
| QPSK               | 50      | 50        |                                           | 23.45        | 23.43 | 23.17                                     | 23.41        | 23.35 | 23.38 |
| QPSK               | 100     | 0         |                                           | 23.49        | 23.50 | 23.23                                     | 23.47        | 23.43 | 23.42 |
| 16QAM              | 1       | 0         | 23.5                                      | 23.50        | 23.49 | 23.28                                     | 23.49        | 23.45 | 23.41 |
| 16QAM              | 1       | 49        |                                           | 23.44        | 23.44 | 23.36                                     | 23.44        | 23.43 | 23.47 |
| 16QAM              | 1       | 99        |                                           | 23.42        | 23.45 | 23.23                                     | 23.46        | 23.44 | 23.38 |
| 16QAM              | 50      | 0         | 22.5                                      | 22.47        | 22.44 | 22.17                                     | 22.43        | 22.38 | 22.35 |
| 16QAM              | 50      | 24        |                                           | 22.50        | 22.42 | 22.16                                     | 22.42        | 22.35 | 22.36 |
| 16QAM              | 50      | 50        |                                           | 22.49        | 22.45 | 22.07                                     | 22.41        | 22.33 | 22.36 |
| 16QAM              | 100     | 0         |                                           | 22.49        | 22.47 | 22.21                                     | 22.45        | 22.40 | 22.40 |



| LTE Band 7 / 20MHz |         |           | FCC ID<br>ZNFX240H<br>Average power (dBm) |              |       | FCC ID<br>ZNFX240F<br>Average power (dBm) |              |       |       |
|--------------------|---------|-----------|-------------------------------------------|--------------|-------|-------------------------------------------|--------------|-------|-------|
| TX Channel         |         |           | Tune-up<br>Limit<br>(dBm)                 | 20850        | 21100 | 21350                                     | 20850        | 21100 | 21350 |
| Frequency (MHz)    |         |           |                                           | 2510         | 2535  | 2560                                      | 2510         | 2535  | 2560  |
| Modulation         | RB Size | RB offset |                                           |              |       |                                           |              |       |       |
| QPSK               | 1       | 0         | 24.5                                      | <b>23.02</b> | 22.60 | 21.96                                     | <b>22.85</b> | 22.55 | 22.00 |
| QPSK               | 1       | 49        |                                           | 22.95        | 22.49 | 21.49                                     | 22.84        | 22.62 | 21.49 |
| QPSK               | 1       | 99        |                                           | 22.86        | 22.30 | 21.58                                     | 22.66        | 22.76 | 21.68 |
| QPSK               | 50      | 0         | 23.5                                      | 22.11        | 21.59 | 20.65                                     | 21.99        | 21.66 | 20.67 |
| QPSK               | 50      | 24        |                                           | 22.07        | 21.51 | 20.52                                     | 21.95        | 21.71 | 20.54 |
| QPSK               | 50      | 50        |                                           | 22.06        | 21.45 | 20.59                                     | 21.86        | 21.77 | 20.68 |
| QPSK               | 100     | 0         |                                           | 22.04        | 21.49 | 20.58                                     | 21.92        | 21.69 | 20.65 |
| 16QAM              | 1       | 0         | 23.5                                      | 22.17        | 21.74 | 21.15                                     | 22.01        | 21.68 | 21.34 |
| 16QAM              | 1       | 49        |                                           | 22.18        | 21.68 | 20.67                                     | 21.99        | 21.75 | 20.63 |
| 16QAM              | 1       | 99        |                                           | 22.08        | 21.47 | 20.78                                     | 21.81        | 21.94 | 20.87 |
| 16QAM              | 50      | 0         | 22.5                                      | 20.98        | 20.52 | 19.61                                     | 20.86        | 20.57 | 19.60 |
| 16QAM              | 50      | 24        |                                           | 20.96        | 20.43 | 19.48                                     | 20.81        | 20.59 | 19.46 |
| 16QAM              | 50      | 50        |                                           | 20.95        | 20.38 | 19.56                                     | 20.76        | 20.64 | 19.62 |
| 16QAM              | 100     | 0         |                                           | 20.93        | 20.42 | 19.54                                     | 20.78        | 20.54 | 19.57 |



## 1.2 Radiated Spurious Emission

### 2.4GHz BT/WLAN

| Mode         | Ch    | Freq.<br>(MHz) | Peak<br>/Avg. | FCC ID<br>ZNFX240H |          |          |           |          |          | FCC ID<br>ZNFX240F |          |          |           |          |          |
|--------------|-------|----------------|---------------|--------------------|----------|----------|-----------|----------|----------|--------------------|----------|----------|-----------|----------|----------|
|              |       |                |               | Band edge          |          |          | Harmonic  |          |          | Band edge          |          |          | Harmonic  |          |          |
|              |       |                |               | Frequency          | Level    | Limit    | Frequency | Level    | Limit    | Frequency          | Level    | Limit    | Frequency | Level    | Limit    |
|              |       |                |               | (MHz)              | (dBuV/m) | (dBuV/m) | (MHz)     | (dBuV/m) | (dBuV/m) | (MHz)              | (dBuV/m) | (dBuV/m) | (MHz)     | (dBuV/m) | (dBuV/m) |
| BT(1Mbps)    | CH 78 | 2480           | P             | 2484.64            | 44.26    | 74       | 7440      | 38.86    | 74       | 2483.84            | 45.18    | 74       | 7440      | 39.27    | 74       |
|              |       |                | A             | 2484.64            | 19.44    | 54       |           |          |          | 2483.84            | 20.33    | 54       |           |          |          |
| BLE          | CH 39 | 2480           | P             | 2491.2             | 54.28    | 74       | 7440      | 37.65    | 74       | 2495.8             | 53.9     | 74       | 7440      | 38.2     | 74       |
|              |       |                | A             | 2488.68            | 44.71    | 54       |           |          |          | 2489.88            | 45.1     | 54       |           |          |          |
| 802.11n-HT40 | CH 03 | 2422           | P             | 2389.94            | 59.53    | 74       | 7266      | 37.88    | 74       | 2388.44            | 60.27    | 74       | 7266      | 38.42    | 74       |
|              |       |                | A             | 2389.38            | 46.76    | 54       |           |          |          | 2389.28            | 47.11    | 54       |           |          |          |



**2.4GHz 2400~2483.5MHz**

**BLE (Band Edge @ 3m)**

| BLE                              | Note | Frequency | Level      | Over   | Limit      | Read     | Antenna  | Cable  | Preamp | Ant    | Table   | Peak  | Pol.  |
|----------------------------------|------|-----------|------------|--------|------------|----------|----------|--------|--------|--------|---------|-------|-------|
|                                  |      |           |            | Limit  | Line       | Level    | Factor   | Loss   | Factor | Pos    | Pos     | Avg.  |       |
|                                  |      | ( MHz )   | ( dBμV/m ) | ( dB ) | ( dBμV/m ) | ( dBμV ) | ( dB/m ) | ( dB ) | ( dB ) | ( cm ) | ( deg ) | (P/A) | (H/V) |
| <b>BLE<br/>CH 39<br/>2480MHz</b> | *    | 2480      | 97.48      | -      | -          | 94.63    | 27.45    | 8.98   | 33.58  | 186    | 347     | P     | H     |
|                                  | *    | 2480      | 96.84      | -      | -          | 93.99    | 27.45    | 8.98   | 33.58  | 186    | 347     | A     | H     |
|                                  |      | 2495.8    | 53.9       | -20.1  | 74         | 50.99    | 27.5     | 8.98   | 33.57  | 186    | 347     | P     | H     |
|                                  |      | 2489.88   | 45.1       | -8.9   | 54         | 42.2     | 27.5     | 8.98   | 33.58  | 186    | 347     | A     | H     |
|                                  | *    | 2480      | 92.11      | -      | -          | 89.26    | 27.45    | 8.98   | 33.58  | 147    | 3       | P     | V     |
|                                  | *    | 2480      | 91.54      | -      | -          | 88.69    | 27.45    | 8.98   | 33.58  | 147    | 3       | A     | V     |
|                                  |      | 2493.96   | 54.16      | -19.84 | 74         | 51.25    | 27.5     | 8.98   | 33.57  | 147    | 3       | P     | V     |
|                                  |      | 2492.68   | 45.03      | -8.97  | 54         | 42.12    | 27.5     | 8.98   | 33.57  | 147    | 3       | A     | V     |

**BLE (Harmonic @ 3m)**

| BLE                              | Note                                                                                        | Frequency | Level      | Over   | Limit      | Read     | Antenna  | Cable  | Preamp | Ant    | Table   | Peak  | Pol.  |
|----------------------------------|---------------------------------------------------------------------------------------------|-----------|------------|--------|------------|----------|----------|--------|--------|--------|---------|-------|-------|
|                                  |                                                                                             |           |            | Limit  | Line       | Level    | Factor   | Loss   | Factor | Pos    | Pos     | Avg.  |       |
|                                  |                                                                                             | ( MHz )   | ( dBμV/m ) | ( dB ) | ( dBμV/m ) | ( dBμV ) | ( dB/m ) | ( dB ) | ( dB ) | ( cm ) | ( deg ) | (P/A) | (H/V) |
| <b>BLE<br/>CH 39<br/>2480MHz</b> |                                                                                             | 4960      | 33.78      | -40.22 | 74         | 41.75    | 31.94    | 11.12  | 51.03  | 100    | 0       | P     | H     |
|                                  |                                                                                             | 7440      | 38.18      | -35.82 | 74         | 38.37    | 37.44    | 12.88  | 50.51  | 100    | 0       | P     | H     |
|                                  |                                                                                             | 4960      | 32.34      | -41.66 | 74         | 40.31    | 31.94    | 11.12  | 51.03  | 100    | 0       | P     | V     |
|                                  |                                                                                             | 7440      | 38.2       | -35.8  | 74         | 38.39    | 37.44    | 12.88  | 50.51  | 100    | 0       | P     | V     |
| <b>Remark</b>                    | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |           |            |        |            |          |          |        |        |        |         |       |       |



**2.4GHz 2400~2483.5MHz**

**BT (Band Edge @ 3m)**

| BT                     | Note | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|------------------------|------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| BT<br>CH 78<br>2480MHz | *    | 2480                 | 104.33              | -                       | -                           | 101.48                    | 27.45                         | 8.98                    | 33.58                      | 184                  | 348                     | P                       | H               |
|                        | *    | 2480                 | 79.48               | -                       | -                           | -                         | -                             | -                       | -                          | -                    | -                       | A                       | H               |
|                        |      | 2483.84              | 45.18               | -28.82                  | 74                          | 42.33                     | 27.45                         | 8.98                    | 33.58                      | 184                  | 348                     | P                       | H               |
|                        |      | 2483.84              | 20.33               | -33.67                  | 54                          | -                         | -                             | -                       | -                          | -                    | -                       | A                       | H               |
|                        | *    | 2480                 | 100.08              | -                       | -                           | 97.23                     | 27.45                         | 8.98                    | 33.58                      | 148                  | 14                      | P                       | V               |
|                        | *    | 2480                 | 75.23               | -                       | -                           | -                         | -                             | -                       | -                          | -                    | -                       | A                       | V               |
|                        |      | 2483.8               | 44.86               | -29.14                  | 74                          | 42.01                     | 27.45                         | 8.98                    | 33.58                      | 148                  | 14                      | P                       | V               |
|                        |      | 2483.8               | 20.01               | -33.99                  | 54                          | -                         | -                             | -                       | -                          | -                    | -                       | A                       | V               |

**BT (Harmonic @ 3m)**

| BT                     | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| BT<br>CH 78<br>2480MHz |                                                                                             | 4960                 | 33.68               | -40.32                  | 74                          | 41.65                     | 31.94                         | 11.12                   | 51.03                      | 100                  | 0                       | P                       | H               |
|                        |                                                                                             | 4960                 | 8.83                | -45.17                  | 54                          | -                         | -                             | -                       | -                          | -                    | -                       | A                       | H               |
|                        |                                                                                             | 7440                 | 39.27               | -34.73                  | 74                          | 39.46                     | 37.44                         | 12.88                   | 50.51                      | 100                  | 0                       | P                       | H               |
|                        |                                                                                             | 7440                 | 14.42               | -39.58                  | 54                          | -                         | -                             | -                       | -                          | -                    | -                       | A                       | H               |
|                        |                                                                                             | 4960                 | 33.4                | -40.6                   | 74                          | 41.37                     | 31.94                         | 11.12                   | 51.03                      | 100                  | 0                       | P                       | V               |
|                        |                                                                                             | 4960                 | 8.55                | -45.45                  | 54                          | -                         | -                             | -                       | -                          | -                    | -                       | A                       | V               |
|                        |                                                                                             | 7440                 | 38.19               | -35.81                  | 74                          | 38.38                     | 37.44                         | 12.88                   | 50.51                      | 100                  | 0                       | P                       | V               |
|                        |                                                                                             | 7440                 | 13.34               | -40.66                  | 54                          | -                         | -                             | -                       | -                          | -                    | -                       | A                       | V               |
| Remark                 | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         |                 |


**2.4GHz 2400~2483.5MHz**
**WIFI 802.11n HT40 (Band Edge @ 3m)**

| WIFI<br>Ant.<br>1                   | Note | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|-------------------------------------|------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| 802.11n<br>HT40<br>CH 03<br>2422MHz |      | 2388.435             | 60.27               | -13.73                  | 74                          | 57.79                     | 27.19                         | 8.89                    | 33.6                       | 200                  | 334                     | P                       | H               |
|                                     |      | 2389.275             | 47.11               | -6.89                   | 54                          | 44.63                     | 27.19                         | 8.89                    | 33.6                       | 200                  | 334                     | A                       | H               |
|                                     | *    | 2422                 | 102.86              | -                       | -                           | 100.22                    | 27.29                         | 8.94                    | 33.59                      | 200                  | 334                     | P                       | H               |
|                                     | *    | 2422                 | 94.51               | -                       | -                           | 91.87                     | 27.29                         | 8.94                    | 33.59                      | 200                  | 334                     | A                       | H               |
|                                     |      | 2488.03              | 53.8                | -20.2                   | 74                          | 50.9                      | 27.5                          | 8.98                    | 33.58                      | 200                  | 334                     | P                       | H               |
|                                     |      | 2488.31              | 45.22               | -8.78                   | 54                          | 42.32                     | 27.5                          | 8.98                    | 33.58                      | 200                  | 334                     | A                       | H               |
|                                     |      | 2389.485             | 53.96               | -20.04                  | 74                          | 51.48                     | 27.19                         | 8.89                    | 33.6                       | 208                  | 360                     | P                       | V               |
|                                     |      | 2389.275             | 44.81               | -9.19                   | 54                          | 42.33                     | 27.19                         | 8.89                    | 33.6                       | 208                  | 360                     | A                       | V               |
|                                     | *    | 2422                 | 96.78               | -                       | -                           | 94.14                     | 27.29                         | 8.94                    | 33.59                      | 208                  | 360                     | P                       | V               |
|                                     | *    | 2422                 | 88.55               | -                       | -                           | 85.91                     | 27.29                         | 8.94                    | 33.59                      | 208                  | 360                     | A                       | V               |
|                                     |      | 2492.37              | 55.14               | -18.86                  | 74                          | 52.23                     | 27.5                          | 8.98                    | 33.57                      | 208                  | 319                     | P                       | V               |
|                                     |      | 2484.74              | 44.9                | -9.1                    | 54                          | 42.05                     | 27.45                         | 8.98                    | 33.58                      | 208                  | 319                     | A                       | V               |

**WIFI 802.11n HT40 (Harmonic @ 3m)**

| WIFI<br>Ant.<br>1                   | Note                                                                                        | Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>( dBμV ) | Antenna<br>Factor<br>( dB/m ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Peak<br>Avg.<br>( P/A ) | Pol.<br>( H/V ) |
|-------------------------------------|---------------------------------------------------------------------------------------------|----------------------|---------------------|-------------------------|-----------------------------|---------------------------|-------------------------------|-------------------------|----------------------------|----------------------|-------------------------|-------------------------|-----------------|
| 802.11n<br>HT40<br>CH 03<br>2422MHz |                                                                                             | 4844                 | 32.28               | -41.72                  | 74                          | 40.87                     | 31.72                         | 10.77                   | 51.08                      | 100                  | 0                       | P                       | H               |
|                                     |                                                                                             | 7266                 | 38.42               | -35.58                  | 74                          | 38.96                     | 37.23                         | 12.74                   | 50.51                      | 100                  | 0                       | P                       | H               |
|                                     |                                                                                             | 4844                 | 32.05               | -41.95                  | 74                          | 40.64                     | 31.72                         | 10.77                   | 51.08                      | 100                  | 0                       | P                       | V               |
|                                     |                                                                                             | 7266                 | 37.76               | -36.24                  | 74                          | 38.3                      | 37.23                         | 12.74                   | 50.51                      | 100                  | 0                       | P                       | V               |
| Remark                              | 1. No other spurious found.<br>2. All results are PASS against Peak and Average limit line. |                      |                     |                         |                             |                           |                               |                         |                            |                      |                         |                         |                 |



**Note symbol**

|     |                                                                                                                                                          |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| *   | <b>Fundamental Frequency</b> which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency. |
| !   | Test result is <b>over limit</b> line.                                                                                                                   |
| P/A | <b>Peak</b> or <b>Average</b>                                                                                                                            |
| H/V | <b>H</b> orizontal or <b>V</b> ertical                                                                                                                   |
| -L  | <b>Low channel location</b>                                                                                                                              |
| -R  | <b>High channel location</b>                                                                                                                             |



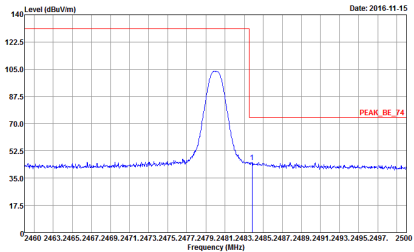
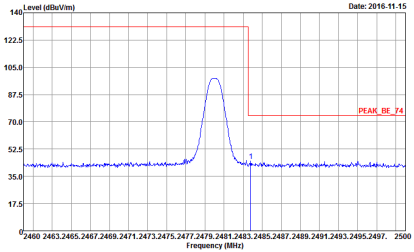
## Note symbol

|    |                       |
|----|-----------------------|
| -L | Low channel location  |
| -R | High channel location |



**2.4GHz 2400~2483.5MHz**

**BT (Band Edge @ 3m)**

| BT   | 2.4GHz 2400~2483.5MHz Band Edge @ 3m                                                                                                                                                                       |                                                                                                                                                                                                           |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | BT CH78 2480MHz                                                                                                                                                                                            |                                                                                                                                                                                                           |
| 1    | Horizontal                                                                                                                                                                                                 | Vertical                                                                                                                                                                                                  |
| Peak |  <p>Site : 03CH11-HV<br/>Condition : PEAK_BE_74 3m HORN 9120D-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 601804</p> |  <p>Site : 03CH11-HV<br/>Condition : PEAK_BE_74 3m HORN 9120D-HF VERTICAL<br/>Detector : Peak<br/>Project : 601804</p> |



2.4GHz 2400~2483.5MHz

BT (Harmonic @ 3m)

| BT           | 2.4GHz 2400~2483.5MHz Harmonic @ 3m                                                                                         |                                                                                                                           |
|--------------|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| ANT          | BT CH78 2480MHz                                                                                                             |                                                                                                                           |
| 1            | Horizontal                                                                                                                  | Vertical                                                                                                                  |
| Peak<br>Avg. | <p>Site : 03CH11-HY<br/>Condition : PEAK_74 3m 9170 SHF HORM_150809 HORIZONTAL<br/>Detector : Peak<br/>Project : 6O1804</p> | <p>Site : 03CH11-HY<br/>Condition : PEAK_74 3m 9170 SHF HORM_150809 VERTICAL<br/>Detector : Peak<br/>Project : 6O1804</p> |



2.4GHz 2400~2483.5MHz

BLE (Band Edge @ 3m)

| BLE  | 2.4GHz 2400~2483.5MHz Band Edge @ 3m                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | BLE CH39 2480MHz                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                |
| 1    | Horizontal                                                                                                                                                                                                                                                                                                                                                         | Vertical                                                                                                                                                                                                                                                                                                                                                       |
| Peak | <p>Horizontal Peak Spectrum Plot showing Level (dBuV/m) vs Frequency (MHz). The plot shows a peak at 2480 MHz. The y-axis ranges from 17.5 to 140 dBuV/m, and the x-axis ranges from 2460 to 2500 MHz. The peak is labeled PEAK_BE_74.</p> <p>Site : 03CH11-HV<br/>Condition : PEAK_BE_74 3m HORN 91200-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 6O1804</p> | <p>Vertical Peak Spectrum Plot showing Level (dBuV/m) vs Frequency (MHz). The plot shows a peak at 2480 MHz. The y-axis ranges from 17.5 to 140 dBuV/m, and the x-axis ranges from 2460 to 2500 MHz. The peak is labeled PEAK_BE_74.</p> <p>Site : 03CH11-HV<br/>Condition : PEAK_BE_74 3m HORN 91200-HF VERTICAL<br/>Detector : Peak<br/>Project : 6O1804</p> |
| Avg. | <p>Horizontal Avg. Spectrum Plot showing Level (dBuV/m) vs Frequency (MHz). The plot shows a peak at 2480 MHz. The y-axis ranges from 17.5 to 140 dBuV/m, and the x-axis ranges from 2460 to 2500 MHz. The peak is labeled AVG_BE_54.</p> <p>Site : 03CH11-HV<br/>Condition : AVG_BE_54 3m HORN 91200-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 6O1804</p>   | <p>Vertical Avg. Spectrum Plot showing Level (dBuV/m) vs Frequency (MHz). The plot shows a peak at 2480 MHz. The y-axis ranges from 17.5 to 140 dBuV/m, and the x-axis ranges from 2460 to 2500 MHz. The peak is labeled AVG_BE_54.</p> <p>Site : 03CH11-HV<br/>Condition : AVG_BE_54 3m HORN 91200-HF VERTICAL<br/>Detector : Peak<br/>Project : 6O1804</p>   |



2.4GHz 2400~2483.5MHz

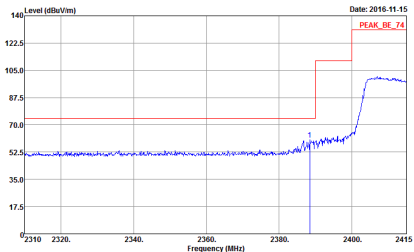
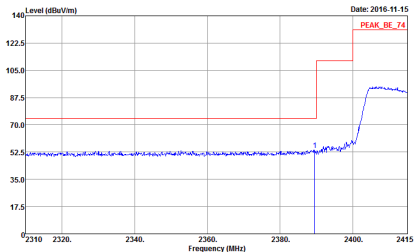
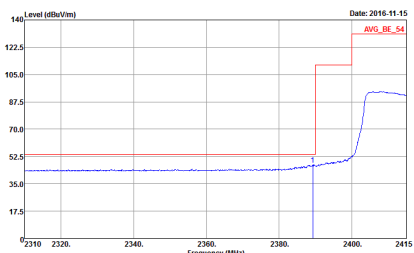
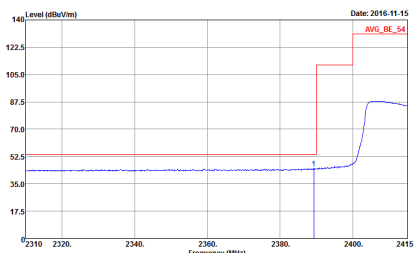
BLE (Harmonic @ 3m)

| BLE          | 2.4GHz 2400~2483.5MHz Harmonic @ 3m                                                                                         |                                                                                                                           |
|--------------|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| ANT          | BLE CH39 2480MHz                                                                                                            |                                                                                                                           |
| 1            | Horizontal                                                                                                                  | Vertical                                                                                                                  |
| Peak<br>Avg. | <p>Site : 03CH11-HY<br/>Condition : PEAK_74 3m 9170 SHF HORM_150809 HORIZONTAL<br/>Detector : Peak<br/>Project : 601804</p> | <p>Site : 03CH11-HY<br/>Condition : PEAK_74 3m 9170 SHF HORM_150809 VERTICAL<br/>Detector : Peak<br/>Project : 601804</p> |



2.4GHz 2400~2483.5MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

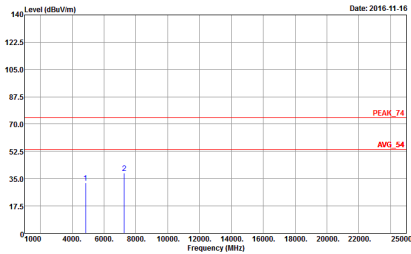
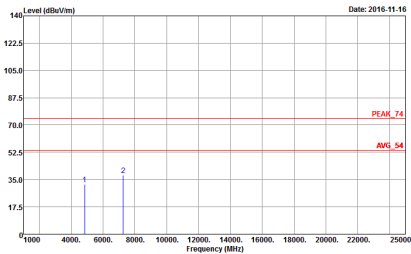
| WIFI | 2.4GHz 2400~2483.5MHz Band Edge @ 3m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11n HT40 CH03 2422MHz - L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 1    | Horizontal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Vertical                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Peak | <p>The plot shows the peak level in dBuV/m versus frequency in MHz for the horizontal polarization. The y-axis ranges from 0 to 140 dBuV/m, and the x-axis ranges from 2310 to 2415 MHz. A red line indicates the peak level, which is constant at approximately 70 dBuV/m until 2380 MHz, then rises to approximately 105 dBuV/m at 2400 MHz. A blue line shows the noise floor, which is constant at approximately 52 dBuV/m until 2380 MHz, then rises to approximately 85 dBuV/m at 2400 MHz. A vertical blue line marks the peak at 2400 MHz.</p> <p>Site : 03CH11-HY<br/>Condition : PEAK_BE_74 3m HORN 91200-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 601804</p>          | <p>The plot shows the peak level in dBuV/m versus frequency in MHz for the vertical polarization. The y-axis ranges from 0 to 140 dBuV/m, and the x-axis ranges from 2310 to 2415 MHz. A red line indicates the peak level, which is constant at approximately 70 dBuV/m until 2380 MHz, then rises to approximately 105 dBuV/m at 2400 MHz. A blue line shows the noise floor, which is constant at approximately 52 dBuV/m until 2380 MHz, then rises to approximately 85 dBuV/m at 2400 MHz. A vertical blue line marks the peak at 2400 MHz.</p> <p>Site : 03CH11-HY<br/>Condition : PEAK_BE_74 3m HORN 91200-HF VERTICAL<br/>Detector : Peak<br/>Project : 601804</p>          |
| Avg. | <p>The plot shows the average level in dBuV/m versus frequency in MHz for the horizontal polarization. The y-axis ranges from 0 to 140 dBuV/m, and the x-axis ranges from 2310 to 2415 MHz. A red line indicates the average level, which is constant at approximately 70 dBuV/m until 2380 MHz, then rises to approximately 105 dBuV/m at 2400 MHz. A blue line shows the noise floor, which is constant at approximately 52 dBuV/m until 2380 MHz, then rises to approximately 85 dBuV/m at 2400 MHz. A vertical blue line marks the average at 2400 MHz.</p> <p>Site : 03CH11-HY<br/>Condition : AVG_BE_54 3m HORN 91200-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 601804</p> | <p>The plot shows the average level in dBuV/m versus frequency in MHz for the vertical polarization. The y-axis ranges from 0 to 140 dBuV/m, and the x-axis ranges from 2310 to 2415 MHz. A red line indicates the average level, which is constant at approximately 70 dBuV/m until 2380 MHz, then rises to approximately 105 dBuV/m at 2400 MHz. A blue line shows the noise floor, which is constant at approximately 52 dBuV/m until 2380 MHz, then rises to approximately 85 dBuV/m at 2400 MHz. A vertical blue line marks the average at 2400 MHz.</p> <p>Site : 03CH11-HY<br/>Condition : AVG_BE_54 3m HORN 91200-HF VERTICAL<br/>Detector : Peak<br/>Project : 601804</p> |



| WIFI | 2.4GHz 2400~2483.5MHz Band Edge @ 3m                                                                                    |                                                                                                                       |
|------|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| ANT  | 802.11n HT40 CH03 2422MHz - R                                                                                           |                                                                                                                       |
| 1    | Horizontal                                                                                                              | Vertical                                                                                                              |
| Peak | <p>Site : 03CH11-HY<br/>Condition : PEAK_BE_74 3m HORN 91200-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 601804</p> | <p>Site : 03CH11-HY<br/>Condition : PEAK_BE_74 3m HORN 91200-HF VERTICAL<br/>Detector : Peak<br/>Project : 601804</p> |
| Avg. | <p>Site : 03CH11-HY<br/>Condition : AVG_BE_54 3m HORN 91200-HF HORIZONTAL<br/>Detector : Peak<br/>Project : 601804</p>  | <p>Site : 03CH11-HY<br/>Condition : AVG_BE_54 3m HORN 91200-HF VERTICAL<br/>Detector : Peak<br/>Project : 601804</p>  |



**2.4GHz 2400~2483.5MHz**  
**WIFI 802.11n HT40 (Harmonic @ 3m)**

| WIFI         | 2.4GHz 2400~2483.5MHz Harmonic @ 3m                                                                                                                                                                               |                                                                                                                                                                                                                  |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ANT          | 802.11n HT40 CH03 2422MHz                                                                                                                                                                                         |                                                                                                                                                                                                                  |
| 1            | Horizontal                                                                                                                                                                                                        | Vertical                                                                                                                                                                                                         |
| Peak<br>Avg. |  <p>Site : 03CH11-HY<br/> Condition : PEAK_74 3m 9170 SHF HORM_150809 HORIZONTAL<br/> Detector : Peak<br/> Project : 601804</p> |  <p>Site : 03CH11-HY<br/> Condition : PEAK_74 3m 9170 SHF HORM_150809 VERTICAL<br/> Detector : Peak<br/> Project : 601804</p> |



| Mode          | Ch       | Freq.<br>(MHz) | Modulation    | FCC ID<br>ZNFX240H |                |                | FCC ID<br>ZNFX240F |                |                |
|---------------|----------|----------------|---------------|--------------------|----------------|----------------|--------------------|----------------|----------------|
|               |          |                |               | Frequency<br>(MHz) | Level<br>(dBm) | Limit<br>(dBm) | Frequency<br>(MHz) | Level<br>(dBm) | Limit<br>(dBm) |
| GSM850        | CH 128   | 824.2          | GPRS class 8  | 4120               | -54.68         | -13            | 1648               | -53.65         | -13            |
| GSM1900       | CH 512   | 1850.2         | GPRS class 8  | 3702               | -39.45         | -13            | 3702               | -41.82         | -13            |
| WCDMA Band IV | CH 1513  | 1752.6         | RMC 12.2Kbps  | 3504               | -50.37         | -13            | 7008               | -51.66         | -13            |
| LTE Band II   | CH 18607 | 1850.7         | QPSK / 1.4MHz | 3702               | -42.24         | -13            | 3702               | -27.84         | -13            |
| LTE Band IV   | CH 20000 | 1715           | QPSK / 10MHz  | 5130               | -40.82         | -13            | 5130               | -42.27         | -13            |
| LTE Band V    | CH 20643 | 848.3          | QPSK / 1.4MHz | 2544               | -44.96         | -13            | 2544               | -44.94         | -13            |
| LTE Band VII  | CH 20825 | 2507.5         | QPSK / 15MHz  | 5004               | -51.34         | -25            | 5004               | -53.34         | -25            |

## GSM850

| GSM850 (GPRS class 8) |                      |                |                  |                         |                         |                          |                            |                             |                       |
|-----------------------|----------------------|----------------|------------------|-------------------------|-------------------------|--------------------------|----------------------------|-----------------------------|-----------------------|
| Channel               | Frequency<br>( MHz ) | ERP<br>( dBm ) | Limit<br>( dBm ) | Over<br>Limit<br>( dB ) | SPA<br>Reading<br>(dBm) | S.G.<br>Power<br>( dBm ) | TX Cable<br>loss<br>( dB ) | TX Antenna<br>Gain<br>(dBi) | Polarization<br>(H/V) |
| Lowest                | 1648                 | -53.65         | -13              | -40.65                  | -40.91                  | -55.41                   | 0.98                       | 4.89                        | H                     |
|                       | 2472                 | -57.95         | -13              | -44.95                  | -51.27                  | -59.83                   | 1.28                       | 5.32                        | H                     |
|                       | 3296                 | -55.95         | -13              | -42.95                  | -51.1                   | -59.36                   | 1.54                       | 7.10                        | H                     |
|                       | 1648                 | -53.83         | -13              | -40.83                  | -42.09                  | -55.59                   | 0.98                       | 4.89                        | V                     |
|                       | 2472                 | -57.59         | -13              | -44.59                  | -51.29                  | -59.47                   | 1.28                       | 5.32                        | V                     |
|                       | 3296                 | -55.65         | -13              | -42.65                  | -51.05                  | -59.06                   | 1.54                       | 7.10                        | V                     |

## GSM1900

| GSM1900 (GPRS class 8) |                      |                 |                  |                         |                         |                          |                            |                             |                       |
|------------------------|----------------------|-----------------|------------------|-------------------------|-------------------------|--------------------------|----------------------------|-----------------------------|-----------------------|
| Channel                | Frequency<br>( MHz ) | EIRP<br>( dBm ) | Limit<br>( dBm ) | Over<br>Limit<br>( dB ) | SPA<br>Reading<br>(dBm) | S.G.<br>Power<br>( dBm ) | TX Cable<br>loss<br>( dB ) | TX Antenna<br>Gain<br>(dBi) | Polarization<br>(H/V) |
| Lowest                 | 3702                 | -43.45          | -13              | -30.45                  | -39.1                   | -50.02                   | 1.67                       | 8.24                        | H                     |
|                        | 7404                 | -52.29          | -13              | -39.29                  | -56.35                  | -61.44                   | 2.46                       | 11.61                       | H                     |
|                        | 9252                 | -50.49          | -13              | -37.49                  | -56.87                  | -60.55                   | 2.54                       | 12.60                       | H                     |
|                        | 3702                 | -41.82          | -13              | -28.82                  | -37.59                  | -48.39                   | 1.67                       | 8.24                        | V                     |
|                        | 7404                 | -48.01          | -13              | -35.01                  | -52.22                  | -57.16                   | 2.46                       | 11.61                       | V                     |
|                        | 9252                 | -49.95          | -13              | -36.95                  | -56.68                  | -60.01                   | 2.54                       | 12.60                       | V                     |

## WCDMA B4

| WCDMA Band IV (RMC 12.2Kbps) |                      |                 |                  |                         |                         |                          |                            |                             |                       |
|------------------------------|----------------------|-----------------|------------------|-------------------------|-------------------------|--------------------------|----------------------------|-----------------------------|-----------------------|
| Channel                      | Frequency<br>( MHz ) | EIRP<br>( dBm ) | Limit<br>( dBm ) | Over<br>Limit<br>( dB ) | SPA<br>Reading<br>(dBm) | S.G.<br>Power<br>( dBm ) | TX Cable<br>loss<br>( dB ) | TX Antenna<br>Gain<br>(dBi) | Polarization<br>(H/V) |
| Highest                      | 3504                 | -65.28          | -13              | -52.28                  | -61.17                  | -71.68                   | 1.61                       | 8.00                        | H                     |
|                              | 5256                 | -63.72          | -13              | -50.72                  | -64.54                  | -70.94                   | 2.48                       | 9.70                        | H                     |
|                              | 7008                 | -51.66          | -13              | -38.66                  | -55.94                  | -59.89                   | 2.59                       | 10.82                       | H                     |
|                              | 3504                 | -65.27          | -13              | -52.27                  | -60.97                  | -71.67                   | 1.61                       | 8.00                        | V                     |
|                              | 5256                 | -63.70          | -13              | -50.70                  | -64.49                  | -70.92                   | 2.48                       | 9.70                        | V                     |
|                              | 7008                 | -54.46          | -13              | -41.46                  | -58.75                  | -62.69                   | 2.59                       | 10.82                       | V                     |

## LTE Band 2

| LTE Band 2 / 1.4MHz / QPSK |                      |                 |                  |                         |                         |                          |                            |                             |                       |
|----------------------------|----------------------|-----------------|------------------|-------------------------|-------------------------|--------------------------|----------------------------|-----------------------------|-----------------------|
| Channel                    | Frequency<br>( MHz ) | EIRP<br>( dBm ) | Limit<br>( dBm ) | Over<br>Limit<br>( dB ) | SPA<br>Reading<br>(dBm) | S.G.<br>Power<br>( dBm ) | TX Cable<br>loss<br>( dB ) | TX Antenna<br>Gain<br>(dBi) | Polarization<br>(H/V) |
| Lowest                     | 3702                 | -40.95          | -13              | -27.95                  | -36.79                  | -47.52                   | 1.67                       | 8.24                        | H                     |
|                            | 5550                 | -59.29          | -13              | -46.29                  | -61.98                  | -66.36                   | 2.65                       | 9.72                        | H                     |
|                            | 7404                 | -52.97          | -13              | -39.97                  | -57.16                  | -62.12                   | 2.46                       | 11.61                       | H                     |
|                            | 3702                 | -40.84          | -13              | -27.84                  | -36.67                  | -47.41                   | 1.67                       | 8.24                        | V                     |
|                            | 5550                 | -52.74          | -13              | -39.74                  | -55.4                   | -59.81                   | 2.65                       | 9.72                        | V                     |
|                            | 7404                 | -58.29          | -13              | -45.29                  | -62.69                  | -67.44                   | 2.46                       | 11.61                       | V                     |

## LTE Band 4

| LTE Band 4 / 10MHz / QPSK |                      |                 |                  |                         |                         |                          |                            |                             |                       |
|---------------------------|----------------------|-----------------|------------------|-------------------------|-------------------------|--------------------------|----------------------------|-----------------------------|-----------------------|
| Channel                   | Frequency<br>( MHz ) | EIRP<br>( dBm ) | Limit<br>( dBm ) | Over<br>Limit<br>( dB ) | SPA<br>Reading<br>(dBm) | S.G.<br>Power<br>( dBm ) | TX Cable<br>loss<br>( dB ) | TX Antenna<br>Gain<br>(dBi) | Polarization<br>(H/V) |
| Lowest                    | 3420                 | -50.33          | -13              | -37.33                  | -46.14                  | -56.4                    | 1.58                       | 7.65                        | H                     |
|                           | 5130                 | -45.55          | -13              | -32.55                  | -46.13                  | -52.84                   | 2.41                       | 9.70                        | H                     |
|                           | 6858                 | -56.25          | -13              | -43.25                  | -60.95                  | -64.24                   | 2.64                       | 10.63                       | H                     |
|                           | 3420                 | -50.00          | -13              | -37.00                  | -45.86                  | -56.07                   | 1.58                       | 7.65                        | V                     |
|                           | 5130                 | -42.27          | -13              | -29.27                  | -42.69                  | -49.56                   | 2.41                       | 9.70                        | V                     |
|                           | 6858                 | -57.05          | -13              | -44.05                  | -61.72                  | -65.04                   | 2.64                       | 10.63                       | V                     |

## LTE Band 5

| LTE Band 5 / 1.4MHz / QPSK |                      |                |                  |                         |                         |                          |                            |                             |                       |
|----------------------------|----------------------|----------------|------------------|-------------------------|-------------------------|--------------------------|----------------------------|-----------------------------|-----------------------|
| Channel                    | Frequency<br>( MHz ) | ERP<br>( dBm ) | Limit<br>( dBm ) | Over<br>Limit<br>( dB ) | SPA<br>Reading<br>(dBm) | S.G.<br>Power<br>( dBm ) | TX Cable<br>loss<br>( dB ) | TX Antenna<br>Gain<br>(dBi) | Polarization<br>(H/V) |
| Highest                    | 1696                 | -60.42         | -13              | -47.42                  | -48.71                  | -62.02                   | 1.00                       | 4.75                        | H                     |
|                            | 2544                 | -59.56         | -13              | -46.56                  | -53                     | -61.54                   | 1.30                       | 5.44                        | H                     |
|                            | 3392                 | -64.02         | -13              | -51.02                  | -59.7                   | -67.82                   | 1.57                       | 7.52                        | H                     |
|                            | 6784                 | -58.42         | -13              | -45.42                  | -63.25                  | -64.15                   | 2.66                       | 10.54                       | H                     |
|                            | 1696                 | -61.11         | -13              | -48.11                  | -49.84                  | -62.71                   | 1.00                       | 4.75                        | V                     |
|                            | 2544                 | -44.94         | -13              | -31.94                  | -38.83                  | -46.92                   | 1.30                       | 5.44                        | V                     |
|                            | 3392                 | -64.92         | -13              | -51.92                  | -60.63                  | -68.72                   | 1.57                       | 7.52                        | V                     |
|                            | 6784                 | -59.12         | -13              | -46.12                  | -63.86                  | -64.85                   | 2.66                       | 10.54                       | V                     |



## LTE Band 7

| LTE Band 7 / 15MHz / QPSK |                      |                 |                  |                         |                         |                          |                            |                             |                       |
|---------------------------|----------------------|-----------------|------------------|-------------------------|-------------------------|--------------------------|----------------------------|-----------------------------|-----------------------|
| Channel                   | Frequency<br>( MHz ) | EIRP<br>( dBm ) | Limit<br>( dBm ) | Over<br>Limit<br>( dB ) | SPA<br>Reading<br>(dBm) | S.G.<br>Power<br>( dBm ) | TX Cable<br>loss<br>( dB ) | TX Antenna<br>Gain<br>(dBi) | Polarization<br>(H/V) |
| Lowest                    | 5004                 | -53.89          | -25              | -28.89                  | -53.87                  | -61.25                   | 2.34                       | 9.70                        | H                     |
|                           | 7500                 | -59.87          | -25              | -34.87                  | -64                     | -69.24                   | 2.43                       | 11.80                       | H                     |
|                           | 10026                | -59.20          | -25              | -34.20                  | -67.09                  | -68.71                   | 2.70                       | 12.21                       | H                     |
|                           | 5004                 | -53.34          | -25              | -28.34                  | -53.13                  | -60.7                    | 2.34                       | 9.70                        | V                     |
|                           | 7500                 | -60.31          | -25              | -35.31                  | -64.68                  | -69.68                   | 2.43                       | 11.80                       | V                     |
|                           | 10026                | -58.92          | -25              | -33.92                  | -66.74                  | -68.43                   | 2.70                       | 12.21                       | V                     |

End of this report