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|  <b>MOTOROLA SOLUTIONS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <br><b>TESTING CERT # 2518.01</b>                                                                                                                                                                                          |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |
| <b>DECLARATION OF COMPLIANCE: MPE ASSESSMENT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                               |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |
| <b>EME Test Laboratory</b><br>8000 West Sunrise Blvd<br>Fort Lauderdale, FL. 33322                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Date of Report:</b> June 9, 2014<br><b>Report Revision:</b> A                                                                                                                                                                                                                                              |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |
| <table border="0"> <tr> <td style="vertical-align: top;"><b>Responsible Engineer:</b></td> <td>William Elliott (Principal Staff EME Test Engineer)</td> </tr> <tr> <td style="vertical-align: top;"><b>Report author:</b></td> <td>William Elliott (Principal Staff EME Test Engineer)</td> </tr> <tr> <td style="vertical-align: top;"><b>Assessment Date(s):</b></td> <td>05/19/2014</td> </tr> <tr> <td style="vertical-align: top;"><b>Manufacturer/Location:</b></td> <td>Motorola Solutions Inc., Reynosa Mexico</td> </tr> <tr> <td style="vertical-align: top;"><b>Date submitted:</b></td> <td>04/28/2014</td> </tr> <tr> <td style="vertical-align: top;"><b>DUT Description:</b></td> <td>VML750 VzW/AT&amp;T LTE VSM - VSM data modem only for public safety vehicular application, includes LTE, 3G, EVDO, WiFi b/g/n and GPS</td> </tr> <tr> <td style="vertical-align: top;"><b>TX mode(s):</b></td> <td>LTE, 3G, EVDO, and WiFi b/g/n</td> </tr> <tr> <td style="vertical-align: top;"><b>Max. Power output:</b></td> <td>Baseline: LTE BC13 355 mW; LTE BC14 355 mW; WiFi b/g/n 50 mW; Module: LTE BC2 224 mW; LTE BC4 226 mW; LTE BC5 228 mW; LTE BC17 220 mW; LTE BC13 229 mW; LTE BC25 221 mW; 3G BC2 205 mW; 3G BC5 217 mW; EVDO BC0 275 mW; EVDO BC1 275 mW</td> </tr> <tr> <td style="vertical-align: top;"><b>TX Frequency Bands:</b></td> <td>Baseline: LTE BC13 777-787 MHz; LTE BC14 788-798 MHz WiFi 2401-2473 MHz; Module: LTE BC2 1850-1910 MHz; LTE BC4 1710-1755 MHz; LTE BC5 824-849 MHz; LTE BC17 704-716 MHz; LTE BC13 777-787 MHz; LTE BC25 1850-1915 MHz 3G BC2 1850-1910 MHz; 3G BC5 824-849 MHz; EVDO BC0 824-849 MHz; EVDO BC1 1850-1910 MHz</td> </tr> <tr> <td style="vertical-align: top;"><b>Signaling type:</b></td> <td>LTE (3GPP Frequency division duplexing with optional QPSK and 16 QAM), WiFi (WLAN Direct Sequence with seven modulation formats – OFDM with BPSK, DBPSK QPSK, DQPSK, CCK, 16QAM, and 64QAM), CDMA2000: CDMA 1x, CDMA 1x EVDO (Rev0, RevA)</td> </tr> <tr> <td style="vertical-align: top;"><b>Model(s) Certified:</b></td> <td>F0025A (FLN1057A)</td> </tr> <tr> <td style="vertical-align: top;"><b>Classification:</b></td> <td>Occupational/Controlled Environment</td> </tr> <tr> <td style="vertical-align: top;"><b>FCC ID:</b></td> <td>AZ492FT7060</td> </tr> </table> |                                                                                                                                                                                                                                                                                                               | <b>Responsible Engineer:</b> | William Elliott (Principal Staff EME Test Engineer) | <b>Report author:</b> | William Elliott (Principal Staff EME Test Engineer) | <b>Assessment Date(s):</b> | 05/19/2014 | <b>Manufacturer/Location:</b> | Motorola Solutions Inc., Reynosa Mexico | <b>Date submitted:</b> | 04/28/2014 | <b>DUT Description:</b> | VML750 VzW/AT&T LTE VSM - VSM data modem only for public safety vehicular application, includes LTE, 3G, EVDO, WiFi b/g/n and GPS | <b>TX mode(s):</b> | LTE, 3G, EVDO, and WiFi b/g/n | <b>Max. Power output:</b> | Baseline: LTE BC13 355 mW; LTE BC14 355 mW; WiFi b/g/n 50 mW; Module: LTE BC2 224 mW; LTE BC4 226 mW; LTE BC5 228 mW; LTE BC17 220 mW; LTE BC13 229 mW; LTE BC25 221 mW; 3G BC2 205 mW; 3G BC5 217 mW; EVDO BC0 275 mW; EVDO BC1 275 mW | <b>TX Frequency Bands:</b> | Baseline: LTE BC13 777-787 MHz; LTE BC14 788-798 MHz WiFi 2401-2473 MHz; Module: LTE BC2 1850-1910 MHz; LTE BC4 1710-1755 MHz; LTE BC5 824-849 MHz; LTE BC17 704-716 MHz; LTE BC13 777-787 MHz; LTE BC25 1850-1915 MHz 3G BC2 1850-1910 MHz; 3G BC5 824-849 MHz; EVDO BC0 824-849 MHz; EVDO BC1 1850-1910 MHz | <b>Signaling type:</b> | LTE (3GPP Frequency division duplexing with optional QPSK and 16 QAM), WiFi (WLAN Direct Sequence with seven modulation formats – OFDM with BPSK, DBPSK QPSK, DQPSK, CCK, 16QAM, and 64QAM), CDMA2000: CDMA 1x, CDMA 1x EVDO (Rev0, RevA) | <b>Model(s) Certified:</b> | F0025A (FLN1057A) | <b>Classification:</b> | Occupational/Controlled Environment | <b>FCC ID:</b> | AZ492FT7060 |
| <b>Responsible Engineer:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | William Elliott (Principal Staff EME Test Engineer)                                                                                                                                                                                                                                                           |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |
| <b>Report author:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | William Elliott (Principal Staff EME Test Engineer)                                                                                                                                                                                                                                                           |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |
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| <b>Manufacturer/Location:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Motorola Solutions Inc., Reynosa Mexico                                                                                                                                                                                                                                                                       |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |
| <b>Date submitted:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 04/28/2014                                                                                                                                                                                                                                                                                                    |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |
| <b>DUT Description:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | VML750 VzW/AT&T LTE VSM - VSM data modem only for public safety vehicular application, includes LTE, 3G, EVDO, WiFi b/g/n and GPS                                                                                                                                                                             |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |
| <b>TX mode(s):</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | LTE, 3G, EVDO, and WiFi b/g/n                                                                                                                                                                                                                                                                                 |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |
| <b>Max. Power output:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Baseline: LTE BC13 355 mW; LTE BC14 355 mW; WiFi b/g/n 50 mW; Module: LTE BC2 224 mW; LTE BC4 226 mW; LTE BC5 228 mW; LTE BC17 220 mW; LTE BC13 229 mW; LTE BC25 221 mW; 3G BC2 205 mW; 3G BC5 217 mW; EVDO BC0 275 mW; EVDO BC1 275 mW                                                                       |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |
| <b>TX Frequency Bands:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Baseline: LTE BC13 777-787 MHz; LTE BC14 788-798 MHz WiFi 2401-2473 MHz; Module: LTE BC2 1850-1910 MHz; LTE BC4 1710-1755 MHz; LTE BC5 824-849 MHz; LTE BC17 704-716 MHz; LTE BC13 777-787 MHz; LTE BC25 1850-1915 MHz 3G BC2 1850-1910 MHz; 3G BC5 824-849 MHz; EVDO BC0 824-849 MHz; EVDO BC1 1850-1910 MHz |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |
| <b>Signaling type:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | LTE (3GPP Frequency division duplexing with optional QPSK and 16 QAM), WiFi (WLAN Direct Sequence with seven modulation formats – OFDM with BPSK, DBPSK QPSK, DQPSK, CCK, 16QAM, and 64QAM), CDMA2000: CDMA 1x, CDMA 1x EVDO (Rev0, RevA)                                                                     |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |
| <b>Model(s) Certified:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | F0025A (FLN1057A)                                                                                                                                                                                                                                                                                             |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |
| <b>Classification:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Occupational/Controlled Environment                                                                                                                                                                                                                                                                           |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |
| <b>FCC ID:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | AZ492FT7060                                                                                                                                                                                                                                                                                                   |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |
| <p>Based on the information and the testing results provided herein, the undersigned certifies that when used as stated in the operating instructions supplied, said product complies with the national and international reference standards and guidelines listed in section 4.0 of this report. This report shall not be reproduced without written approval from an officially designated representative of the Motorola Solutions Inc. EME Laboratory.</p> <p>I attest to the accuracy of the data and assume full responsibility for the completeness of these measurements.</p> <p>This reporting format is consistent with the suggested guidelines of the TIA TSB-159 April 2006</p> <p>The results and statements contained in this report pertain only to the device(s) evaluated herein.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                               |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |
| <div style="text-align: center;"> <br/> <b>Deanna Zakharia</b><br/>       EME Lab Senior Resource Manager and<br/>       Laboratory Director<br/><br/>       Approval Date: 6/9/2014     </div> <div style="text-align: right; font-size: small;">       edc015@motorolasolutions.com<br/>       Digitally signed by edc015@motorolasolutions.com<br/>       DN: cn=edc015@motorolasolutions.com<br/>       Date: 2014.06.09 14:12:13 -0400     </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <div style="text-align: center;"> <b>Certification Date: 6/9/2014</b><br/><br/> <b>Certification No.: L1140609</b> </div>                                                                                                                                                                                     |                              |                                                     |                       |                                                     |                            |            |                               |                                         |                        |            |                         |                                                                                                                                   |                    |                               |                           |                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                               |                        |                                                                                                                                                                                                                                           |                            |                   |                        |                                     |                |             |

**Document Revision History**

| <b>Date</b> | <b>Revision</b> | <b>Comments</b>                                                            |
|-------------|-----------------|----------------------------------------------------------------------------|
| 05/19/2014  | O               | Initial release                                                            |
| 06/09/2014  | A               | Max power changed for Baseline LTE bands. Frequency range change for WLAN. |

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## 1.0 Introduction

This report contains calculated Maximum Permissible Exposure (MPE) results for product VML750 model F0025A (FLN1057A). This product (Baseline) contains module FCC ID: N7NMC7355 (Module).

## 2.0 FCC MPE Summary

**Table 1**

| Equipment Class      | Frequency band (MHz)                                       | Max. Power Density (with respect to MPE limits)* (mW/cm <sup>2</sup> ) | % of FCC MPE Limit |
|----------------------|------------------------------------------------------------|------------------------------------------------------------------------|--------------------|
| TNB                  | 788-798                                                    | .223                                                                   | 43.1%              |
| PCB                  | 704-716, 777-787, 824-849, 1710-1755, 1850-1910, 1850-1915 | .348                                                                   | 74.1%              |
| DTS                  | 2401 – 2473                                                | .099                                                                   | 9.9                |
| Simultaneous Results |                                                            | .447                                                                   | 84%                |

\* Although there may be higher power density levels reported in the data tables, these are the highest with respect to the applicable FCC limit at the test frequency and are therefore reported here.

## 3.0 Abbreviations / Definitions

BPSK: Binary Phase-Shift Keying  
 CCK: Complementary Code Keying  
 CDMA: Code Division Multiple Access  
 DBPSK: Differential Binary Phase-Shift Keying  
 DQPSK: Differential Quadrature Phase-Shift Keying  
 DTS: Digital Transmission System  
 DUT: Device Under Test  
 EME: Electromagnetic Energy  
 EVDO: Evolution-Data Optimized  
 GPS: Global Positioning System  
 LTE: Long Term Evolution  
 MPE: Maximum Permissible Exposure  
 OFDM: Orthogonal Frequency-Division Multiplexing  
 QAM: Quadrature Amplitude Modulation  
 QPSK: Quadrature Phase-Shift Keying  
 PCB: PCS Licensed Transmitter  
 TNB: Licensed Non-Broadcast Station Transmitter  
 WLAN: Wireless Local Area Network  
 WiFi: Wireless Fidelity

#### 4.0 Referenced Standards and Guidelines

This product is designed to comply with the following applicable national and international standards and guidelines.

- Federal Communications Commission, “Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields”, OET Bulletin 65, FCC, Washington, D.C.: 1997
- American National Standards Institute (ANSI) / Institute of Electrical and Electronics Engineers (IEEE) C95. 1-1999
- American National Standards Institute (ANSI) / Institute of Electrical and Electronics Engineers (IEEE) C95. 1-1992. Specific to FCC rules and regulations.
- Institute of Electrical and Electronics Engineers (IEEE) C95.3-2002

#### 5.0 Power Density Limits

**Table 2 – Occupational / Controlled Exposure Limits**

| Frequency Range (MHz) | FCC OET Bulletin 65 | IEEE C95.1 1992/1999 | IEEE C95.1 2005  |
|-----------------------|---------------------|----------------------|------------------|
|                       | mW/cm <sup>2</sup>  | mW/cm <sup>2</sup>   | W/m <sup>2</sup> |
|                       |                     |                      |                  |
| 30 – 300              | 1.0                 |                      |                  |
| 10 – 400              |                     |                      |                  |
| 100 – 300             |                     | 1.0                  | 10.0             |
| 300 – 1,500           | f/300               |                      |                  |
| 300 – 3,000           |                     | f/300                | f/30             |
| 400 – 2,000           |                     |                      |                  |
| 1,500 – 15,000        |                     |                      |                  |
| 1,500 – 100,000       | 5.0                 |                      |                  |
| 2,000 – 300,000       |                     |                      |                  |
| 3,000 – 300,000       |                     | 10.0                 | 100.0            |

**Table 3 – General Population / Uncontrolled Exposure Limits**

| Frequency Range (MHz) | FCC OET Bulletin 65 | IEEE C95.1 1992/1999 | IEEE C95.1 2005  |
|-----------------------|---------------------|----------------------|------------------|
|                       | mW/cm <sup>2</sup>  | mW/cm <sup>2</sup>   | W/m <sup>2</sup> |
|                       |                     |                      |                  |
| 30 – 300              | 0.2                 |                      |                  |
| 10 – 400              |                     |                      |                  |
| 100 – 300             |                     | 0.2                  |                  |
| 100 – 400             |                     |                      | 2.0              |
| 300 – 1,500           | f/1,500             |                      |                  |
| 400 – 2,000           |                     |                      | f/200            |
| 300 – 15,000          |                     | f/1,500              |                  |
| 1,500 – 15,000        |                     |                      |                  |
| 1,500 – 100,000       | 1.0                 |                      |                  |
| 2,000 – 100,000       |                     |                      | 10.0             |
| 2,000 – 300,000       |                     |                      |                  |

## 6.0 Product and System Description

VML750 Model F0025A (FLN1057A) is a data modem for vehicular applications. The modem supports LTE Bands 2 / 4 / 5 / 13 / 14 / 17 and 25 (1850 – 1910 / 1710 – 1755 / 824 – 849 / 777-787 / 788-798 / 704 – 716 / 1850 – 1910 MHz), 3G Bands 2 and 5 (1850 – 1910 / 824 – 849 MHz), EVDO Bands 0 and 1 (824 – 829 / 1850 – 1910 MHz) and WiFi (2401-2473MHz). The maximum duty cycles are 100% for LTE / 3G / EVDO and WiFi. Simultaneous transmission is possible between WiFi and one of the other TX bands at any given time.

This device is capable of operating in the TX frequency range(s), duty cycle(s), maximum output power(s) and antenna gain(s) presented in Table 4 section 7.0 MPE Assessment.

## 7.0 Assessment Method

MPE calculations were used to determine the RF exposure for this device. According to FCC's OET Bulletin 65 Edition 97-01 Section 2, calculations can be made to predict RF field strength and power density levels around typical RF sources. For example, in the case of a single radiating antenna, a prediction for power density in the far-field of the antenna can be made by use of the general Equations (1) or (2) below. These equations are generally accurate in the far-field of an antenna but will over-predict power density in the near field, where they could be used for making a "worst case" or conservative prediction. Equation 2 was used to show compliance for this device.

Equation 1

$$S = \frac{PG}{4\pi R^2} = \frac{EIRP}{4\pi R^2}$$

Where:

- S = power density (mW/cm<sup>2</sup>)
- P = power input to the antenna (mW)
- G = power gain of the antenna in the direction of interest relative to an isotropic radiator (dBi)
- R = distance to center of radiation of the antenna (cm)
- EIRP = equivalent (or effective) isotropically radiated power

Or Equation 2

$$S = \frac{P_t G}{4\pi d^2 L} F$$

Equation (2) accounts for the maximum duty cycle of the signal, and the factor, F, to provide a worst-case prediction of power density per FCC OET Bulletin 65, Edition 97-01 1997.

Where:

- S = power density (mW/cm<sup>2</sup>)
- P<sub>t</sub> = maximum output power scaled by the maximum duty cycle of the signal
- G = power gain of the antenna in the direction of interest relative to an isotropic radiator (dBi)
- d = distance from antenna (cm)
- L = cable loss (dB) (0 dB used as worst case for analysis)
- F = 1.0

## 8.0 MPE Assessment

**Table 4**  
**MPE calculation Results**

| Antenna #       | Max Power (W) | Duty Cycle (%) | Tx Frequency (MHz) | Antenna Gain (dBi) | Cable Loss, L (dB) | Dist., d (cm) | <sup>(4)</sup> Enhance Factor, F | Max Calc. MPE (mW/cm <sup>2</sup> ) | % Result of FCC Spec Limit | MPE Spec Limit (mW/cm <sup>2</sup> ) |
|-----------------|---------------|----------------|--------------------|--------------------|--------------------|---------------|----------------------------------|-------------------------------------|----------------------------|--------------------------------------|
|                 |               |                |                    |                    |                    |               |                                  |                                     |                            | FCC                                  |
| <b>Baseline</b> |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| <b>LTE BC13</b> |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| FTN7686A        | 0.355         | 100%           | 777.0              | 5.00               | 0.00               | 20            | 1.00                             | 0.223                               | 43.1                       | 0.52                                 |
| FTN7686A        | 0.355         | 100%           | 782.0              | 5.00               | 0.00               | 20            | 1.00                             | 0.223                               | 42.8                       | 0.52                                 |
| FTN7686A        | 0.355         | 100%           | 787.0              | 5.00               | 0.00               | 20            | 1.00                             | 0.223                               | 42.6                       | 0.52                                 |
|                 |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| <b>LTE BC14</b> |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| FTN7686A        | 0.355         | 100%           | 788.0              | 5.00               | 0.00               | 20            | 1.00                             | 0.223                               | 42.5                       | 0.53                                 |
| FTN7686A        | 0.355         | 100%           | 793.0              | 5.00               | 0.00               | 20            | 1.00                             | 0.223                               | 42.2                       | 0.53                                 |
| FTN7686A        | 0.355         | 100%           | 798.0              | 5.00               | 0.00               | 20            | 1.00                             | 0.223                               | 42.0                       | 0.53                                 |
|                 |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| <b>WLAN</b>     |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| AN000036A01     | 0.050         | 100%           | 2401.0             | 10.00              | 0.00               | 20            | 1.00                             | 0.099                               | 9.9                        | 1.00                                 |
| AN000036A01     | 0.050         | 100%           | 2437.0             | 10.00              | 0.00               | 20            | 1.00                             | 0.099                               | 9.9                        | 1.00                                 |
| AN000036A01     | 0.050         | 100%           | 2473.0             | 10.00              | 0.00               | 20            | 1.00                             | 0.099                               | 9.9                        | 1.00                                 |

Table 4 (cont.)

| Antenna #       | Max Power (W) | Duty Cycle (%) | Tx Frequency (MHz) | Antenna Gain (dBi) | Cable Loss, L (dB) | Dist., d (cm) | <sup>(4)</sup> Enhance Factor, F | Max Calc. MPE (mW/cm <sup>2</sup> ) | % Result of FCC Spec Limit | MPE Spec Limit (mW/cm <sup>2</sup> ) |
|-----------------|---------------|----------------|--------------------|--------------------|--------------------|---------------|----------------------------------|-------------------------------------|----------------------------|--------------------------------------|
|                 |               |                |                    |                    |                    |               |                                  |                                     |                            | FCC                                  |
|                 |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| <b>Module</b>   |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| <b>LTE BC2</b>  |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| FTN0073A        | 0.224         | 100%           | 1850.0             | 3.0                | 0.00               | 20            | 1.00                             | 0.089                               | 8.9                        | 1.00                                 |
| FTN0073A        | 0.224         | 100%           | 1880.0             | 3.0                | 0.00               | 20            | 1.00                             | 0.089                               | 8.9                        | 1.00                                 |
| FTN0073A        | 0.224         | 100%           | 1910.0             | 3.0                | 0.00               | 20            | 1.00                             | 0.089                               | 8.9                        | 1.00                                 |
|                 |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| <b>LTE BC4</b>  |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| FTN0073A        | 0.226         | 100%           | 1710.0             | 6.0                | 0.00               | 20            | 1.00                             | 0.179                               | 17.9                       | 1.00                                 |
| FTN0073A        | 0.226         | 100%           | 1732.5             | 6.0                | 0.00               | 20            | 1.00                             | 0.179                               | 17.9                       | 1.00                                 |
| FTN0073A        | 0.226         | 100%           | 1755.0             | 6.0                | 0.00               | 20            | 1.00                             | 0.179                               | 17.9                       | 1.00                                 |
|                 |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| <b>LTE BC5</b>  |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| FTN0073A        | 0.228         | 100%           | 824.0              | 6.5                | 0.00               | 20            | 1.00                             | 0.203                               | 36.9                       | 0.55                                 |
| FTN0073A        | 0.228         | 100%           | 826.5              | 6.5                | 0.00               | 20            | 1.00                             | 0.203                               | 36.8                       | 0.55                                 |
| FTN0073A        | 0.228         | 100%           | 829.0              | 6.5                | 0.00               | 20            | 1.00                             | 0.203                               | 36.7                       | 0.55                                 |
|                 |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| <b>LTE BC13</b> |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| FTN0073A        | 0.229         | 100%           | 777.0              | 9.00               | 0.00               | 20            | 1.00                             | 0.362                               | 69.9                       | 0.52                                 |
| FTN0073A        | 0.229         | 100%           | 782.0              | 9.00               | 0.00               | 20            | 1.00                             | 0.362                               | 69.4                       | 0.52                                 |
| FTN0073A        | 0.229         | 100%           | 787.0              | 9.00               | 0.00               | 20            | 1.00                             | 0.362                               | 69.0                       | 0.52                                 |
|                 |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| <b>LTE BC17</b> |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| FTN0073A        | 0.220         | 100%           | 704.0              | 9.0                | 0.00               | 20            | 1.00                             | 0.348                               | 74.1                       | 0.47                                 |
| FTN0073A        | 0.220         | 100%           | 710.0              | 9.0                | 0.00               | 20            | 1.00                             | 0.348                               | 73.4                       | 0.47                                 |
| FTN0073A        | 0.220         | 100%           | 716.0              | 9.0                | 0.00               | 20            | 1.00                             | 0.348                               | 72.8                       | 0.48                                 |
|                 |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| <b>LTE BC25</b> |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| FTN0073A        | 0.221         | 100%           | 1810.0             | 3.0                | 0.00               | 20            | 1.00                             | 0.088                               | 8.8                        | 1.00                                 |
| FTN0073A        | 0.221         | 100%           | 1862.5             | 3.0                | 0.00               | 20            | 1.00                             | 0.088                               | 8.8                        | 1.00                                 |
| FTN0073A        | 0.221         | 100%           | 1915.0             | 3.0                | 0.00               | 20            | 1.00                             | 0.088                               | 8.8                        | 1.00                                 |
|                 |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| <b>3G BC2</b>   |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| FTN0073A        | 0.205         | 100%           | 1850.0             | 3.0                | 0.00               | 20            | 1.00                             | 0.081                               | 8.1                        | 1.00                                 |
| FTN0073A        | 0.205         | 100%           | 1880.0             | 3.0                | 0.00               | 20            | 1.00                             | 0.081                               | 8.1                        | 1.00                                 |
| FTN0073A        | 0.205         | 100%           | 1910.0             | 3.0                | 0.00               | 20            | 1.00                             | 0.081                               | 8.1                        | 1.00                                 |
|                 |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| <b>3G BC5</b>   |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| FTN0073A        | 0.217         | 100%           | 824.0              | 6.5                | 0.00               | 20            | 1.00                             | 0.193                               | 35.1                       | 0.55                                 |
| FTN0073A        | 0.217         | 100%           | 826.5              | 6.5                | 0.00               | 20            | 1.00                             | 0.193                               | 35.0                       | 0.55                                 |
| FTN0073A        | 0.217         | 100%           | 829.0              | 6.5                | 0.00               | 20            | 1.00                             | 0.193                               | 34.9                       | 0.55                                 |
|                 |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| <b>EVDO BC0</b> |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| FTN0073A        | 0.275         | 100%           | 824.0              | 6.5                | 0.00               | 20            | 1.00                             | 0.244                               | 44.5                       | 0.55                                 |
| FTN0073A        | 0.275         | 100%           | 826.5              | 6.5                | 0.00               | 20            | 1.00                             | 0.244                               | 44.4                       | 0.55                                 |
| FTN0073A        | 0.275         | 100%           | 829.0              | 6.5                | 0.00               | 20            | 1.00                             | 0.244                               | 44.2                       | 0.55                                 |
|                 |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| <b>EVDO BC1</b> |               |                |                    |                    |                    |               |                                  |                                     |                            |                                      |
| FTN0073A        | 0.275         | 100%           | 1850.0             | 3.0                | 0.00               | 20            | 1.00                             | 0.109                               | 10.9                       | 1.00                                 |
| FTN0073A        | 0.275         | 100%           | 1880.0             | 3.0                | 0.00               | 20            | 1.00                             | 0.109                               | 10.9                       | 1.00                                 |
| FTN0073A        | 0.275         | 100%           | 1910.0             | 3.0                | 0.00               | 20            | 1.00                             | 0.109                               | 10.9                       | 1.00                                 |

The following Table summarizes the highest MPE calculations for each transmit band as well as the direct summation results to evaluate simultaneous transmission condition.

**Table 5**  
**Simultaneous Transmit Condition MPE Evaluation**

| Frequency Band/Mode/<br>Option | Highest Max Calc.<br>MPE | % of FCC Spec<br>Limit | Combined % results of FCC spec limit for Simultaneous Tx |                             |                          |                          |                          |                           |                           |                              |                         |                         |                           |                              |
|--------------------------------|--------------------------|------------------------|----------------------------------------------------------|-----------------------------|--------------------------|--------------------------|--------------------------|---------------------------|---------------------------|------------------------------|-------------------------|-------------------------|---------------------------|------------------------------|
|                                |                          |                        | Baseline LTE<br>BC13 + WLAN                              | Baseline LTE<br>BC14 + WLAN | Module LTE<br>BC2 + WLAN | Module LTE<br>BC4 + WLAN | Module LTE<br>BC5 + WLAN | Module LTE<br>BC13 + WLAN | Module LTE<br>BC17 + WLAN | Module LTE<br>BC25 +<br>WLAN | Module 3G BC2<br>+ WLAN | Module 3G BC5<br>+ WLAN | Module EVDO<br>BC0 + WLAN | Module<br>EVDO BC1 +<br>WLAN |
| Baseline                       |                          |                        |                                                          |                             |                          |                          |                          |                           |                           |                              |                         |                         |                           |                              |
| LTEBC13                        | 0.223                    | 43.1                   |                                                          |                             |                          |                          |                          |                           |                           |                              |                         |                         |                           |                              |
| LTEBC14                        | 0.223                    | 42.5                   |                                                          |                             |                          |                          |                          |                           |                           |                              |                         |                         |                           |                              |
| WLAN                           | 0.099                    | 9.9                    | 53                                                       | 52.4                        | 18.8                     | 27.8                     | 46.8                     | 79.8                      | <b>84.0</b>               | 18.7                         | 18.0                    | 45.0                    | 54.4                      | 20.8                         |
| Module                         |                          |                        |                                                          |                             |                          |                          |                          |                           |                           |                              |                         |                         |                           |                              |
| LTEBC2                         | 0.081                    | 8.9                    |                                                          |                             |                          |                          |                          |                           |                           |                              |                         |                         |                           |                              |
| LTEBC4                         | 0.179                    | 17.9                   |                                                          |                             |                          |                          |                          |                           |                           |                              |                         |                         |                           |                              |
| LTEBC5                         | 0.203                    | 36.9                   |                                                          |                             |                          |                          |                          |                           |                           |                              |                         |                         |                           |                              |
| LTEBC13                        | 0.144                    | 69.9                   |                                                          |                             |                          |                          |                          |                           |                           |                              |                         |                         |                           |                              |
| LTEBC17                        | 0.348                    | 74.1                   |                                                          |                             |                          |                          |                          |                           |                           |                              |                         |                         |                           |                              |
| LTEBC25                        | 0.088                    | 8.8                    |                                                          |                             |                          |                          |                          |                           |                           |                              |                         |                         |                           |                              |
| 3GBC2                          | 0.089                    | 8.1                    |                                                          |                             |                          |                          |                          |                           |                           |                              |                         |                         |                           |                              |
| 3GBC5                          | 0.193                    | 35.1                   |                                                          |                             |                          |                          |                          |                           |                           |                              |                         |                         |                           |                              |
| EVDO BC0                       | 0.244                    | 44.5                   |                                                          |                             |                          |                          |                          |                           |                           |                              |                         |                         |                           |                              |
| EVDO BC1                       | 0.109                    | 10.9                   |                                                          |                             |                          |                          |                          |                           |                           |                              |                         |                         |                           |                              |

## 9.0 Conclusion

The MPE results per the assessment in section 8.0 are compliant to the FCC General population/Uncontrolled RF exposure limits per FCC OET Bulletin 65.