

MPE Evaluation for Fujitsu Notebook Computers

9th April 2012

1. Introduction

Fujitsu seeks approval for use of the Sierra Wireless module listed under **FCC ID: N7NMC7750** for use in a co-located mobile configuration provided the host system has antenna gains not exceeding 5dBi in the 850MHz band, 3dBi in the 1900MHz band and 7dBi in the 700MHz LTE band. For the Fujitsu host platforms the maximum antenna gains are: 1.33 dBi in the 850MHz band, 2.22 dBi in the 1900MHz band and 1.33 dBi in the 700MHz LTE band

Recent filing for a C2PC for this FCC ID (April 6th, 2012) allows use with WLAN and Bluetooth modules with output power and eirp below the following thresholds (refer to table attached to this document):

- WLAN transmitters (2.4GHz and/or 5GHz) with output power < 29dBm and eirp < 33dBm
- Bluetooth transmitter with output power < 15dBm and eirp < 20dBm

The mobile classification applies when 20 cm or more separation distance is maintained between the end user and both WWAN and WLAN transmission antennas. For the Fujitsu Notebooks that will employ the two-way BIOS Lock detailed in this filing one of the following WLAN transmitters may be collocated with the N7NMC7750 WWAN module:

- FCC ID: PD962205ANH: P out < 21dBm, G <= 3.3dBi
- FCC ID: PD92200BNH: P out < 21dBm, G <= 2.2dBi

In addition, the following Bluetooth module may also be collocated within the host laptops:

- FCC ID: QDS-BRCM1043: P out = 3mW, G = 1.9dBi

As the antenna gains and output powers are all within the limitations for the modular installation in such collocated conditions no additional evaluation is required for rf exposure and this application is limited to allowing user-installation of the WWAN module into host systems containing a 2-way BIOS Lock as described in this filing.

Simultaneous transmission evaluation

The MC7750 modem has been evaluated for collocated transmission and may transmit simultaneously with other collocated radio transmitters within a host device provided the following conditions are met:

- All antennas (MC7750 transmit antenna and other collocated transmit antennas) provide > 20 cm separation distance to the end user (FCC mobile categorization), and
- The collocated transmitter maximum average transmit power and maximum antenna gain do not exceed the levels listed in [Table A-1](#) per the MC7750 platform module-level maximum permissible exposure (MPE) report, or the power defined in a subsequently issued host-specific MPE report.

Table A-1: Summary of Maximum Conducted Power and Antenna Gain

| Device | Technology | Frequency (MHz) | Conducted Power Limit (dBm) | Antenna Gain Limit (dBi) |
|-------------------------------|------------|-----------------|-----------------------------|--------------------------|
| MC7750 | GPRS/EDGE | 824–849 | 33 | 5.0 |
| | UMTS | 824–849 | 24 | 5.0 |
| | CDMA | 824–849 | 25 | 5.0 |
| | GPRS/EDGE | 1850–1910 | 30 | 3.0 |
| | UMTS | 1850–1910 | 24 | 3.0 |
| | CDMA | 1850–1910 | 25 | 3.0 |
| | LTE | 777–787 | 24 | 7.0 |
| Collocated radio transmitters | WLAN | 2400–2500 | 29 | 4.0 |
| | WLAN | 5150–5850 | 29 | 4.0 |
| | WiMAX | 2300–2400 | 27 | 5.0 |
| | WiMAX | 2500–2700 | 27 | 5.0 |
| | WiMAX | 3300–3800 | 27 | 5.0 |
| | BT | 2400–2500 | 15 | 5.0 |