Co-Located RF Exposure Condition

WLAN Radio Module: FCC ID: EJE-WB0056 (IC ID: 337J-WB0056)
EV-DO Radio Module: FCC ID: N7N-MC5725-F (IC ID: 2417C-MC5725)

The intention of this Class II Permissive Change application is to enable the certified MC5725 Sierra Wireless EV-DO module (FCC ID: N7N-MC5725-F (IC ID: 2417C-MC5725)) to be co-located with WLAN radio module. The Intel Shirley Peak 533 WLAN module, have been recently certified by Fujitsu under the FCC ID: EJE-WB0056 (IC ID: 337J-WB0056). Independent antennas are used for each of the Radio modules and simultaneous transmission is possible.

SAR is not required as the WLAN and EVDO transmitting antennas are located more than 20 cm to the body of user in this host notebook E8420. MPE estimation is provided below as the WLAN transmitting antenna is within 20 cm to EVDO transmitting antenna

In accordance with Section 1.1310, the Maximum Permissible Exposure (MPE) limit for the General Population/Uncontrolled Exposure of 1.0 has been applied, i.e 1mW/cm^2.

Friis transmission formula: $Pd = (P*G) / (4*\pi*r^2)$
where: Pd = power density (mW/cm^2)
P = power input to the antenna (mW)
G = antenna gain (numeric)
r = distance to the center of radiation of the antenna (cm)

The MPE calculations shown below are for the UMTS, *WLAN and *BT modules.

Transmitter Modules	FCC ID	Frequency GHz	Peak Power dBm	Antenna Type	Antenna Gain (dBi)	Power Density @ 20 cm mW/cm^2	MPE Limit mW/cm^2
EVDO	N7N-MC5725-F	0.85	25.0	Nissei Electric Inverted-F	2.22	0.104	0.55
		1.9			4.49	**0.177**	1.0
*WLAN (802.11abgn)	EJE-WB0056	2.4	29.85		2.46	0.339	1.0
		5.0			3.17	**0.399**	1.0
Sum of Worst Case Power Densities of Co-located Transmitters						**0.576**	**1.0**

Conclusion:

Calculations show that the radio modules with prescribed antennas complied with Maximum Permissible Exposure (MPE) limit for the General Population/Uncontrolled Exposure.