EXHIBIT 10: RF Exposure Considerations

The location of the antennas in the PP04S host chassis is above the display of the host laptop. This proposed antenna configuration should classify the host device as a mobile device, and so only MPE calculations are being provided to support the FCC's rf exposure requirements in this application.

- The output power of the device was measured to be 16.5 dBm.
- The maximum antenna gain of the two new antenna systems being proposed is 1.7 dBi.
- The maximum EIRP from the modified system will be 17.7dBm (58.8mW).

The location of the antennas is such that a separation distance of 20cm from the end user is achieved. The maximum power spectral density can be calculated from the following equation, where d is the distance from the antenna:

$$\text{Power density (mW/cm}^2\text{)} = \frac{\text{EIRP (mW)}}{[\text{d (cm)}]^2}$$

At 20cm, therefore, the power spectral density is:

$$\text{Power density at 20cm} = \frac{58.8}{20^2} = \mathbf{0.15\ mW/cm^2}$$

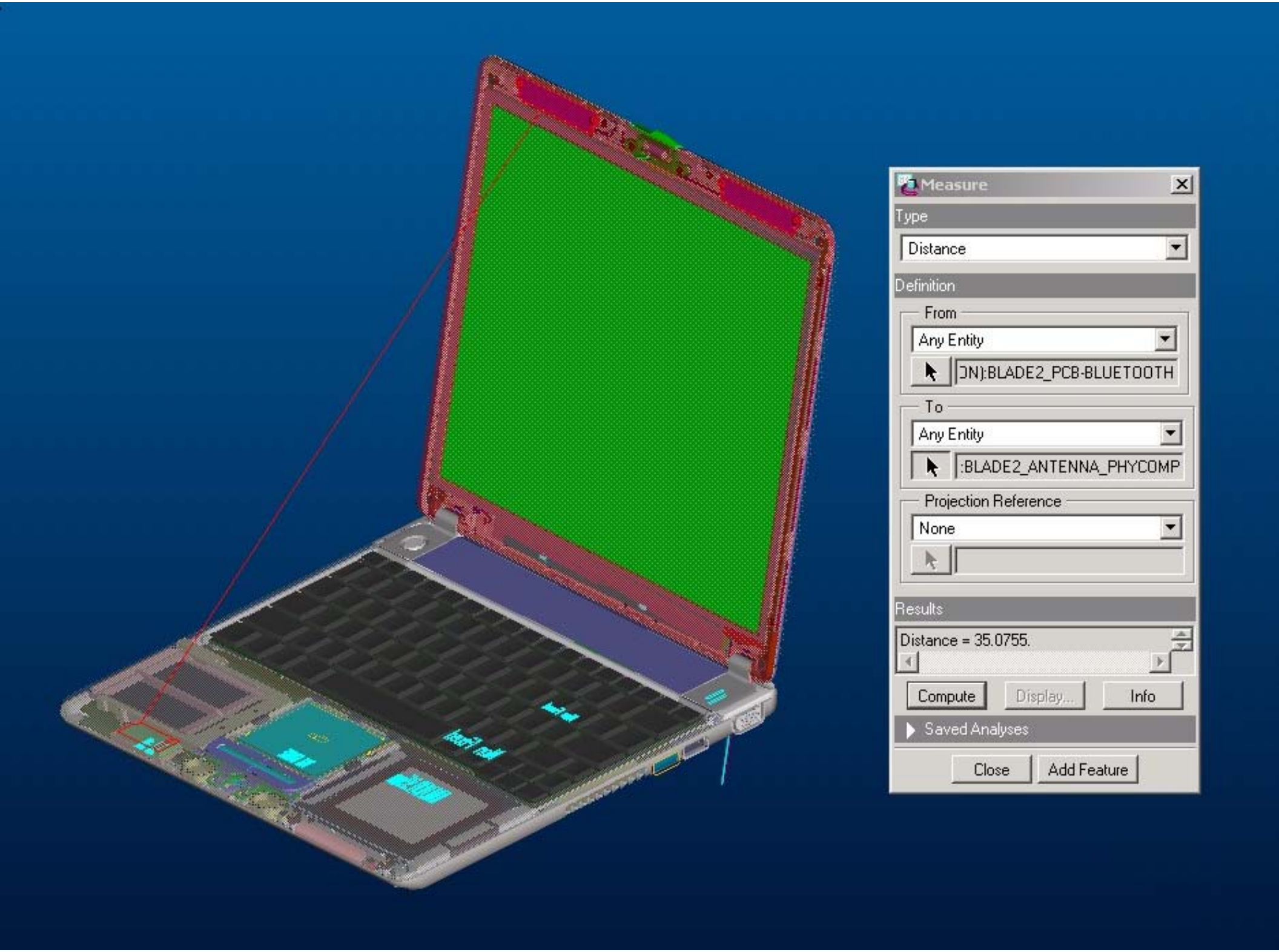
The maximum power density for devices operating in the 2.4GHz band for uncontrolled exposure is 1 mW/cm^2. The device meets this requirement.

Using the formula for power density and re-arranging to determine the distance at which the power density would equal 1mW/cm^2 gives:

$$\text{d (cm)} = \frac{\sqrt{58.8\text{mW}}}{1\text{mW/cm}^2} = \mathbf{7.7\ cm}$$

The contribution of the BlueTooth transmitter that may be located in the chassis is not considered significant in the above calculation based on:

- The separation distance of more than 30cm between the BlueTooth module's antenna (located along the front edge of the laptop) and the Intel Wireless LAN card antennas (located along the top edge of the display), as detailed in the attached drawings;
- The low power output from the BlueTooth device (< 1mW eirp)
- The fact that the calculations above show the power density from the Intel Wireless LAN card is below the threshold of 1mW/cm^2 at a distance of 10cm from the antenna.


Measure
Type
Distance
Definition
From
Any Entity
JN):BLADE2_PCB-BLUETOOTH
To
Any Entity
:BLADE2_ANTENNA_PHYCOMP
Projection Reference
None
Results
Distance = 35.0755.
Compute
Display...
Info
Saved Analyses
Close
Add Feature

Measure

Type

Distance

Definition

From

Any Entity

ON):BLADE2_PCB-BLUETOOTH

To

Any Entity

:BLADE2_ANTENNA_PHYCOMP

Projection Reference

None

Results

Distance = 36.7790.

Compute | Display... | Info

Saved Analyses

Close | Add Feature