

## Application **CJ6PA3171WL**

For this Application three antenna types come along with the W-LAN Module, whereof two (Film and Dual Film Antenna) are intended to be inbuilt behind the Display of Notebooks (upper border), for the third one (Stick-on Antenna) a SAR Report has been submitted.

### Prediction of MPE limit at given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

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

where: S = power density  
P = power input to the antenna  
G = power gain of the antenna in the direction of interest relative to an isotropic radiator  
R = distance to the center of radiation of the antenna

	Dual Film Antenna HTL-008	Film Antenna HTL-004	Stick-on Antenna HTL-007
Antenna Gain (dBi)	2.4	-0.8	-0.6

#### Prediction 1

Antenna Type: [Film Antenna HTL-004](#)  
Location of Antenna: [behind Display of Notebook, upper border](#)

Maximum peak output power at antenna input terminal: 19.2 dBm  
Maximum peak output power at antenna input terminal: 83.17637711 mW  
Antenna gain(typical): -0.8 dBi  
Maximum antenna gain: 0.831763771 numeric  
Prediction distance: 20 cm  
Prediction frequency: 2400 MHz  
MPE limit for uncontrolled exposure at prediction frequency: 1  $\frac{mW}{cm^2}$   
Power density at prediction frequency: **0.013763539**  $\frac{mW}{cm^2}$   
Maximum allowable antenna gain: **17,81269842** dBi

#### Prediction 2

Antenna Type: [Dual Film Antenna HTL-008](#)  
Location of Antenna: [behind Display of Notebook, upper border](#)

Maximum peak output power at antenna input terminal: 19.2 dBm  
Maximum peak output power at antenna input terminal: 83.17637711 mW  
Antenna gain(typical): 2.4 dBi  
Maximum antenna gain: 1,7378 numeric  
Prediction distance: 20 cm  
Prediction frequency: 2400 MHz  
MPE limit for uncontrolled exposure at prediction frequency: 1  $\frac{mW}{cm^2}$   
Power density at prediction frequency: **0.0287561**  $\frac{mW}{cm^2}$

This predictions, along with the following picture, demonstrate the following:

- 1) The power density levels at a distance of 20 cm. are well below the maximum levels allowed by the FCC regulations.
- 2) The distance to the antenna where  $1 \frac{mW}{cm^2}$  will be reached is **R= 3,3915 cm** (with an antenna gain of 2.4 dBi)
- 3) A minimum separation distance of 20 cm. can practically be maintained during normal use of the equipment as shown in picture below.

