

# ANTENNA INFORMATION

|                                                           |                                           |
|-----------------------------------------------------------|-------------------------------------------|
| OEM                                                       | DELL                                      |
| ODM                                                       | Compal Electronics, Inc.                  |
| Platform model name                                       | P123F                                     |
| Intel platform (ex: Yes, No or NA)                        | Yes                                       |
| Platform type (ex: regular NB, convertible PC, AIO...etc) | Regular NB                                |
| SAR minimum separation (mm)                               | 6.35 mm (w/bumper)<br>4.85mm (w/o bumper) |

|                                        |                                                                                       |                                                                                      |  |
|----------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--|
| Antenna manufacturer                   | Hong-Bo Corporation                                                                   |                                                                                      |  |
| Address                                | 4F., No.143, Sinhu 1st Rd., Neihu Dist., Taipei City, 11494<br>Taiwan                 |                                                                                      |  |
| Antenna Part number                    | <b>Main:</b><br><b>Antenna P/N:</b><br>330-24025<br><b>Compal P/N:</b><br>DC33002QN0L | <b>Aux:</b><br><b>Antenna P/N:</b><br>330-24025<br><b>Compal P/N:</b><br>DC33002QN0L |  |
| Antenna type (ex: PIFA, Dipole... etc) | PIFA                                                                                  |                                                                                      |  |

| Antenna Peak gain w/ cable loss (dBi)* |                           |                        |                        |                        |                        |                        |                        |                        |                        |                         |
|----------------------------------------|---------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
|                                        | 2.4GHz<br>2400-2483.5 MHz | 5.2GHz<br>5150-5250MHz | 5.3GHz<br>5250-5350MHz | 5.6GHz<br>5470-5725MHz | 5.8GHz<br>5725-5850MHz | 5.9GHz<br>5850-5895MHz | 6.2GHz<br>5925-6425MHz | 6.5GHz<br>6425-6525MHz | 6.7GHz<br>6525-6875MHz | 7.0 GHz<br>6875-7125MHz |
| Main                                   | 2.71                      | 1.06                   | 1.54                   | 2.18                   | 2.19                   | 2.20                   | 2.99                   | 3.64                   | 3.91                   | 3.37                    |
| Aux                                    | 2.37                      | 0.13                   | 0.46                   | 1.67                   | 2.40                   | 2.63                   | 3.82                   | 2.86                   | 3.18                   | 3.81                    |

| Cable Assembly Part Number and Information |                                  |                  |                    |                |                |
|--------------------------------------------|----------------------------------|------------------|--------------------|----------------|----------------|
|                                            | Cable PN                         | Cable length(cm) | Cable diameter(mm) | Impedance(ohm) | Connector type |
| Main                                       | White 1.13 SLLS<br>SY113L/50-143 | 17.5             | 1.13               | 50             | I-PEX MHF4L    |
| Aux                                        | Black 1.13 SLLS<br>SY113L/50-118 | 27.3             | 1.13               | 50             | I-PEX MHF4L    |

\* 3D Antenna Peak Gain required being test in system basis.

# Table of Contents

|                                                             |          |
|-------------------------------------------------------------|----------|
| <b>Cover page.....</b>                                      | <b>1</b> |
| <b>Annex A. Photographs</b>                                 |          |
| A.1 Setup Photo.....                                        | 3        |
| A.2 Test sample.....                                        | 4        |
| <b>Annex B. Antenna Location</b>                            |          |
| B.1 Antenna Host Platform Location Information.....         | 6        |
| B.2 Antenna dimensional information for SAR evaluation..... | 7        |

# Annex A. Photographs

---

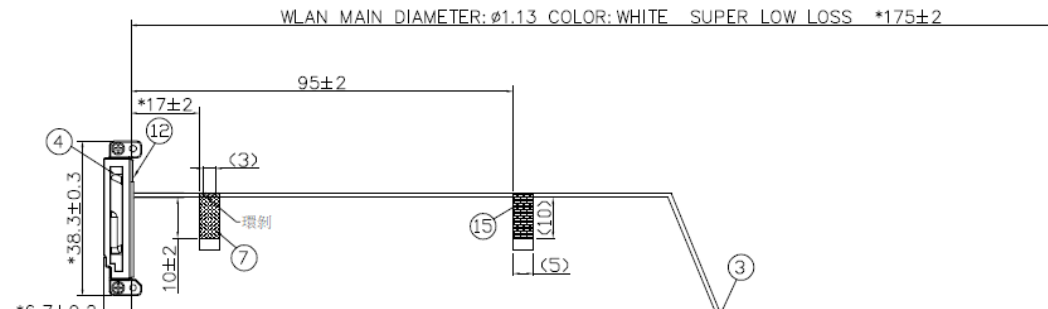
## A.1 Setup Photo



## A.2 Test sample

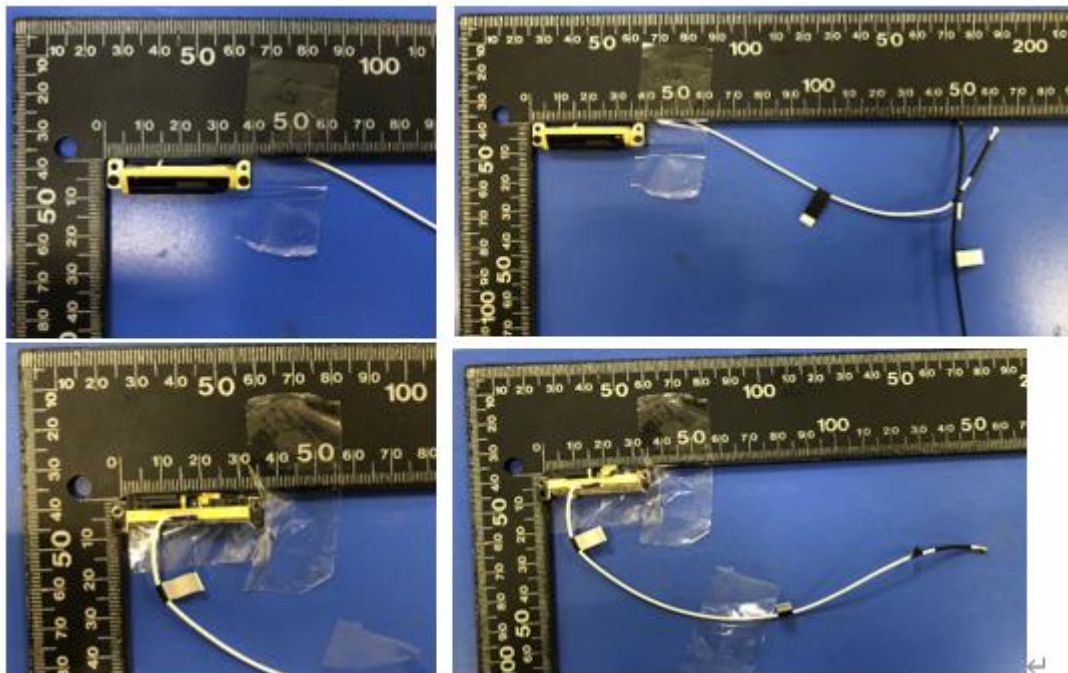
### Main Antenna

#### Antenna Drawing



#### Antenna Photo

##### Front / Back



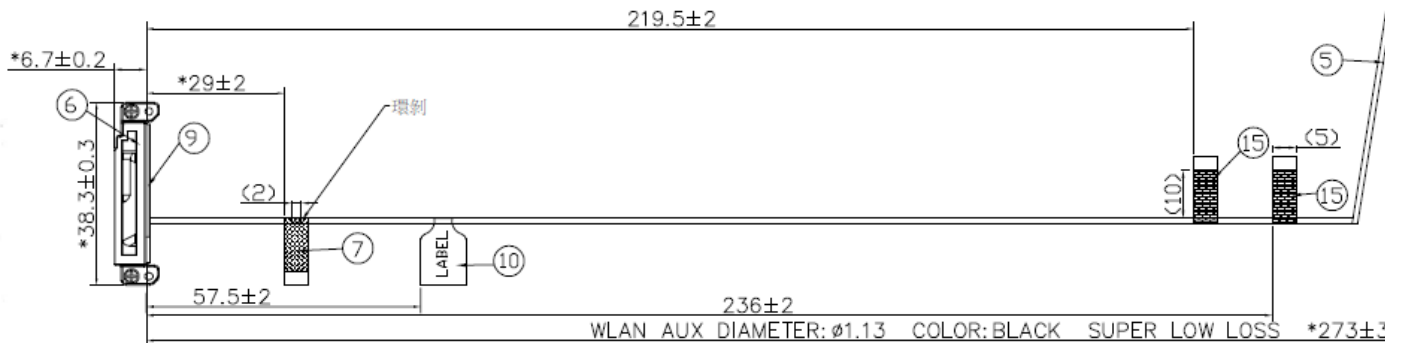
**Note: antenna photo should include L type ruler**

Antenna Manufacturer: Hong-Bo Corporation

Antenna Part Number: DC33002QN0L / 330-24025 (Main), DC33002QN0L / 330-24025 (Aux)

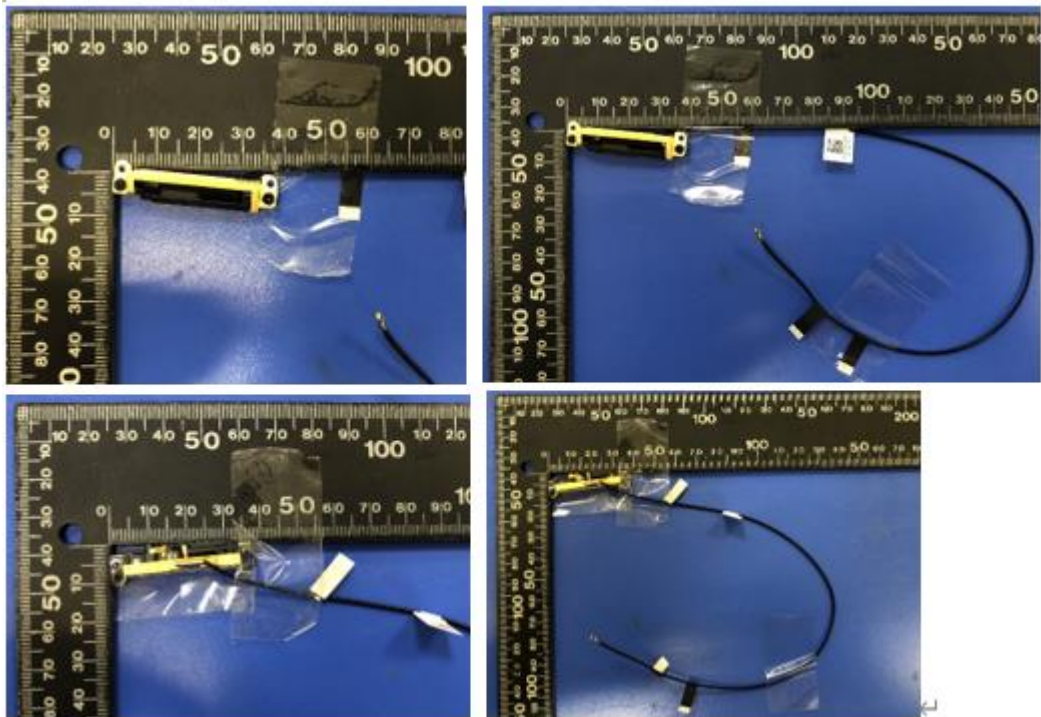
## Aux Antenna

### Antenna Drawing



### Antenna Photo

#### Front / Back



**Note: antenna photo should include L type ruler**

Antenna Manufacturer: Hong-Bo Corporation

Antenna Part Number: DC33002QN0L / 330-24025 (Main), DC33002QN0L / 330-24025 (Aux)

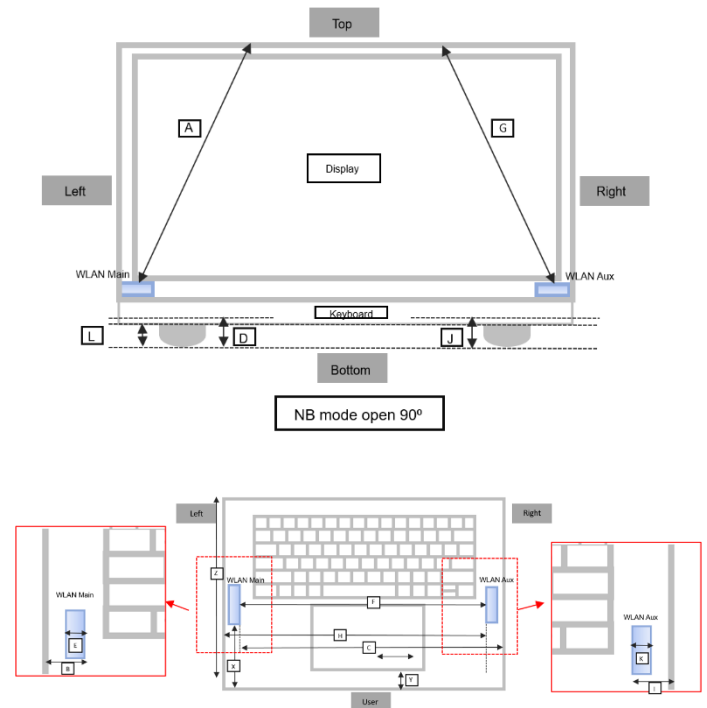
# Annex B. Antenna Location

## B.1 Antenna Host Platform Location Information

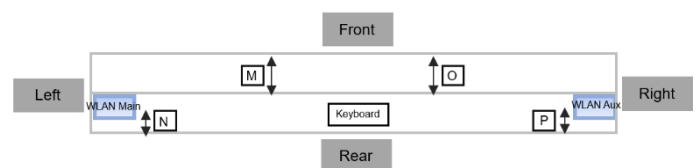
Include a dimensioned photo(s) or dimensioned drawing(s) of Main and Aux antenna placements (measurements are not required for receive-only antenna).

Any antenna that transmits must show dimensions to bottom of laptop. Provide a description of the materials that are used for supporting or surrounding transmit antennas; for example, non-conductive plastics vs. conductive coated plastic or metallic materials.

| Minimum Separation Distance |           |                     |               |
|-----------------------------|-----------|---------------------|---------------|
| Item                        | Antenna   | Position            | Distance (mm) |
| A                           | WLAN-Main | To top              | 350           |
| B                           | WLAN-Main | To left             | 8.83          |
| C                           | WLAN-Main | To right            | 334.84        |
| D                           | WLAN-Main | To bottom           | 15.7          |
| E                           | WLAN-Main | Main antenna length | 6.7           |
| F                           | Main-Aux  | Main to Aux         | 336           |
| G                           | WLAN-Aux  | To top              | 350           |
| H                           | WLAN-Aux  | To left             | 334.84        |
| I                           | WLAN-Aux  | To right            | 8.83          |
| J                           | WLAN-Aux  | To bottom           | 15.7          |
| K                           | WLAN-Aux  | Aux antenna length  | 6.7           |
| L                           | NB        | Bumper thickness    | 1.5           |
| X                           | WLAN-Main | To user             | 80.6          |
| Y                           | WLAN-Aux  | To user             | 80.6          |
| Z                           | NB        | Keyboard depth      | 238           |



| Minimum Separation Distance |           |          |               |
|-----------------------------|-----------|----------|---------------|
| Item                        | Antenna   | Position | Distance (mm) |
| M                           | WLAN-Main | To front | 6.82          |
| N                           | WLAN-Main | To rear  | 4.35          |
| O                           | WLAN-Aux  | To front | 6.82          |
| P                           | WLAN-Aux  | To rear  | 4.35          |



## B.2 Antenna dimensional information for SAR evaluation

Include a dimensioned photo(s) or dimensioned drawing(s) showing the distance (mm) between the transmit antennas and the user. For notebook/laptop hosts show lapheld position (example below). For tablet hosts show all orientations including lapheld, primary & secondary portrait, primary & secondary landscape positions. Include a description of any proximity sensors or power throttling implementations that limit or exclude use of any host orientation.

