

WM-N-BM-11/ BM-14 Antenna Application Note

Project Name : WM-N-BM-11-APP01

Subject : Design Guideline for Module Antenna

Date : 2013-06-07

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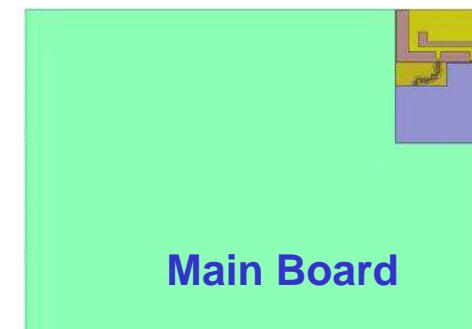
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1. Module Location Recommendation

To get better antenna performance, the following two module locations are advised.

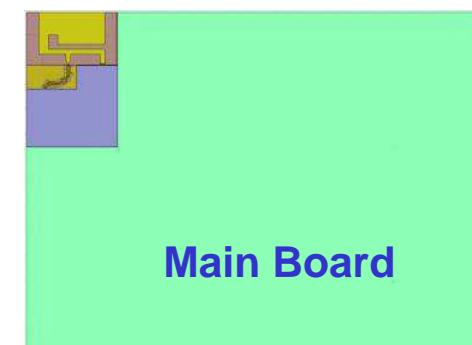
- Location 1:

Module is recommended to be on the upper right corner of main board.



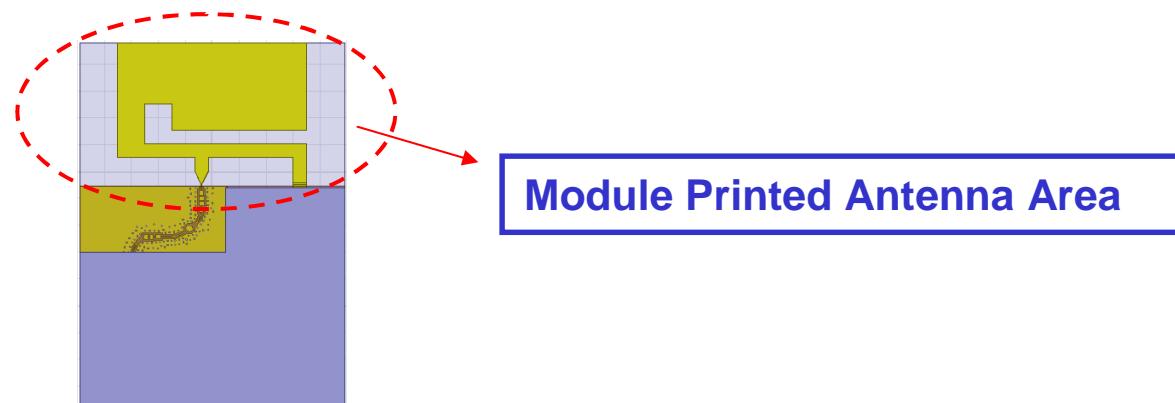
- Location 2:

Module is recommended to be on the upper left corner of main board.



2. Module Layout Guideline

- Main board antenna area under module printed antenna should be clear or empty.
- No signals, GND or power traces can be routed in antenna area for each layers of main board.
- Any metal lid, power trace or metal components should be placed far away from antenna area on main board.
- Keep GND plane as large as you can on main board.



3. Antenna Simulation Results



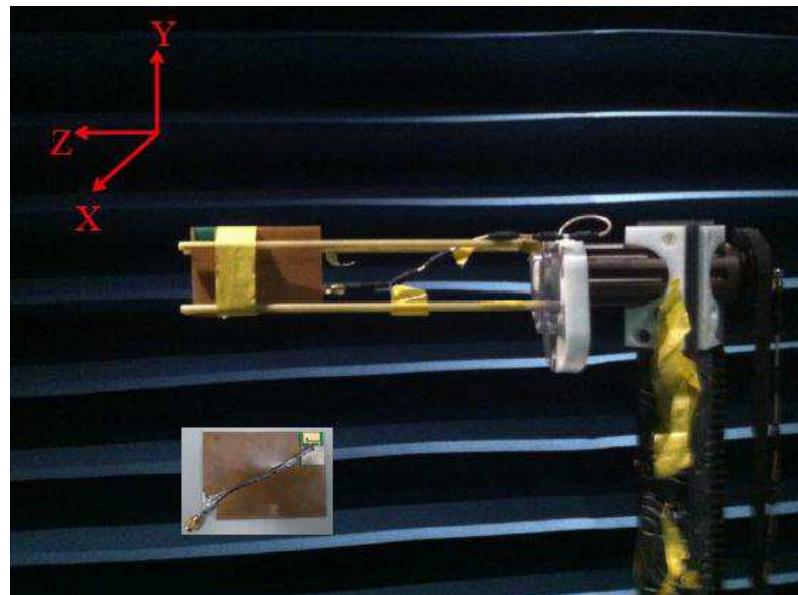
	Ant. on right-up corner	Ant. on left-up corner
Configuration		
S11	<p>-14.75dB @ 2.50GHz</p>	<p>-15.23dB @ 2.40GHz</p>
Gain	<p>4.15dBi @ 2.50GHz</p>	<p>3.88dBi @ 2.40GHz</p>
3D Pattern	<p>Theta</p> <p>Phi</p>	<p>Theta</p> <p>Phi</p>

4. Antenna Measurement Setup

- Module is on the upper right corner of main board for performance measurement.

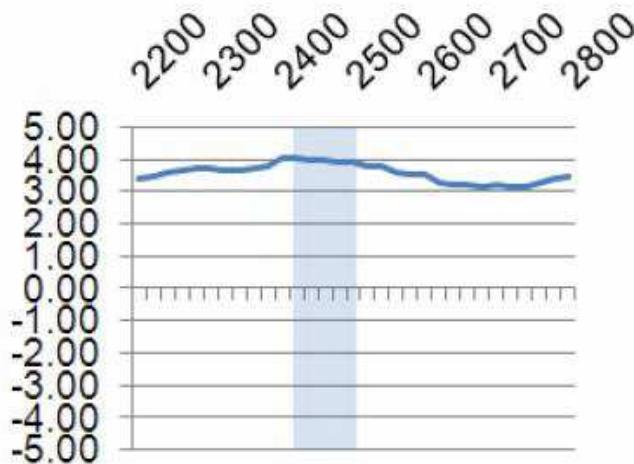
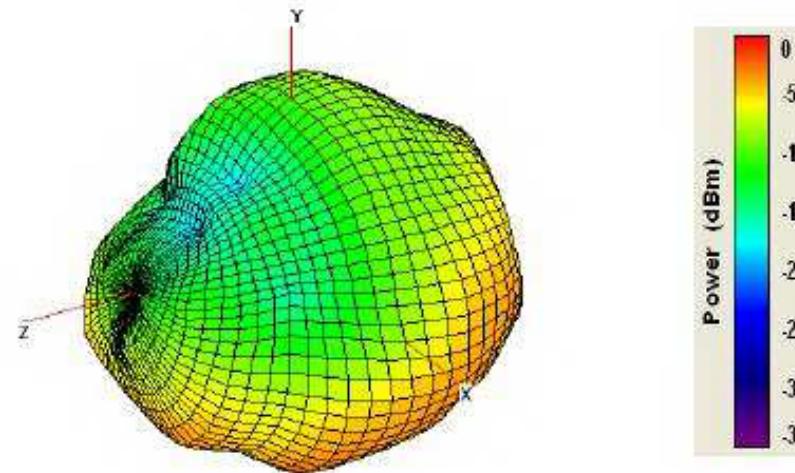


- Antenna measurement setup as the figure.

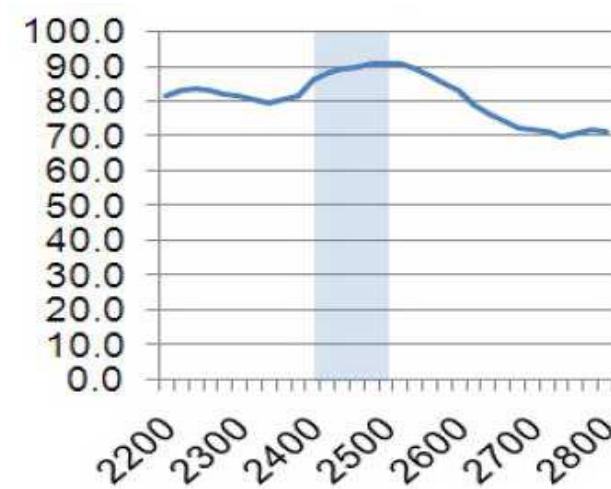


5. Antenna Measurement Result

Antenna Pattern



Antenna Gain (dBi)



Antenna Efficiency (%)



Realizing IDEAS Together

Innovation
Delivery

Effectiveness
Speed
Accountability