

## Antenna Approval Sheet

|              |                                |              |    |
|--------------|--------------------------------|--------------|----|
| Customer     | BYD COMPANY LIMITED Co., Ltd.. |              |    |
| Customer P/N |                                |              |    |
| Model        | MIFI                           |              |    |
| P/N          |                                |              |    |
| Description  | WIFI (FPC)                     |              |    |
| Frequency    | 2.4G & 5G WIFI                 |              |    |
| Initial Date | 2017-07-28                     |              |    |
| Revision     |                                |              |    |
| Author       | RF Engineer                    | ME           |    |
|              | John Li                        | Jiliang Zhou |    |
| Tel.         | 15618549802                    | 18721206524  |    |
| Approval     | R&D                            | PM           | QE |
|              |                                |              |    |

Customer Signature

## Catalog

|                                |   |
|--------------------------------|---|
| 1. SUMMARY .....               | 3 |
| 2. ANTENNA STRUCTURE.....      | 3 |
| 3. DEVICE CONDITIONS.....      | 3 |
| 4. TEST ENVIRONMENT .....      | 4 |
| 5. ANTENNA TEST RESULTS.....   | 4 |
| 5.1 ANTENNA PHOTOS .....       | 4 |
| 5.2 MATCHING NETWORK.....      | 5 |
| 5.3 RETURN LOSS(S11) .....     | 5 |
| 5.4 EFFICIENCY.....            | 6 |
| 5.5 GAIN AND DIRECTIVITY ..... | 6 |
| 5.6 RADIATION PATTERN.....     | 7 |
| 5.7 ACTIVE DATA .....          | 8 |

|                         |            |                             |
|-------------------------|------------|-----------------------------|
| Project Name: MIFI_WIFI |            | Document Name:<br>MIFI_WIFI |
| Date:2017-07-28         | Version: A |                             |

## 1. Summary

This is the WIFI antenna approval sheet  
Working band is 2.4G &5G WIFI.

## 2. Antenna Structure

FPC

## 3. Device Conditions



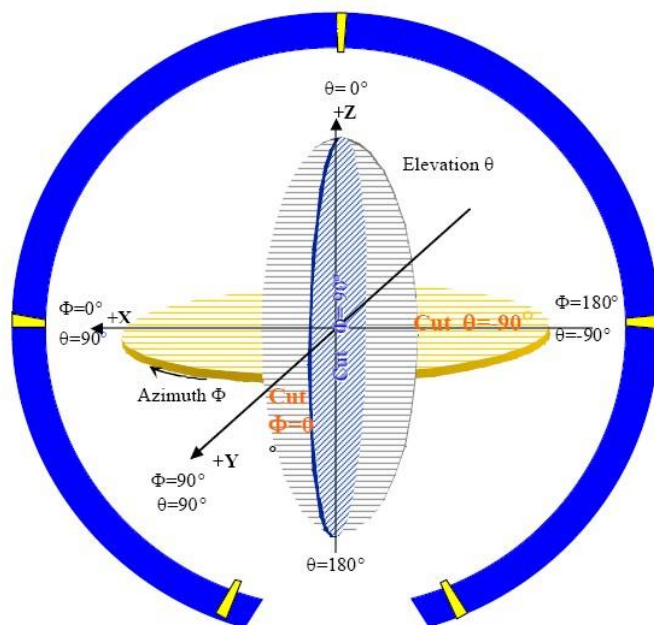
Picture 1 MIFI photograph

|                         |            |                                 |
|-------------------------|------------|---------------------------------|
| Project Name: MIFI_WIFI |            | Document Name:<br><br>MIFI_WIFI |
| Date:2017-07-28         | Version: A |                                 |

## 4. Test Environment

Agilent E5071C VNA is used to test return loss.

SATIMO SG24 chamber is used to test antenna efficiency and radiation pattern.



Picture 2 SATIMO SG24 chamber coordinate system

## 5. Antenna Test Results

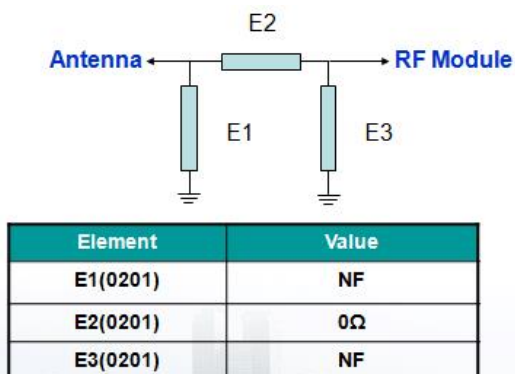
### 5.1 Antenna Photos



Picture 3 WIFI antenna photograph

|                         |            |                             |
|-------------------------|------------|-----------------------------|
| Project Name: MIFI_WIFI |            | Document Name:<br>MIFI_WIFI |
| Date:2017-07-28         | Version: A |                             |

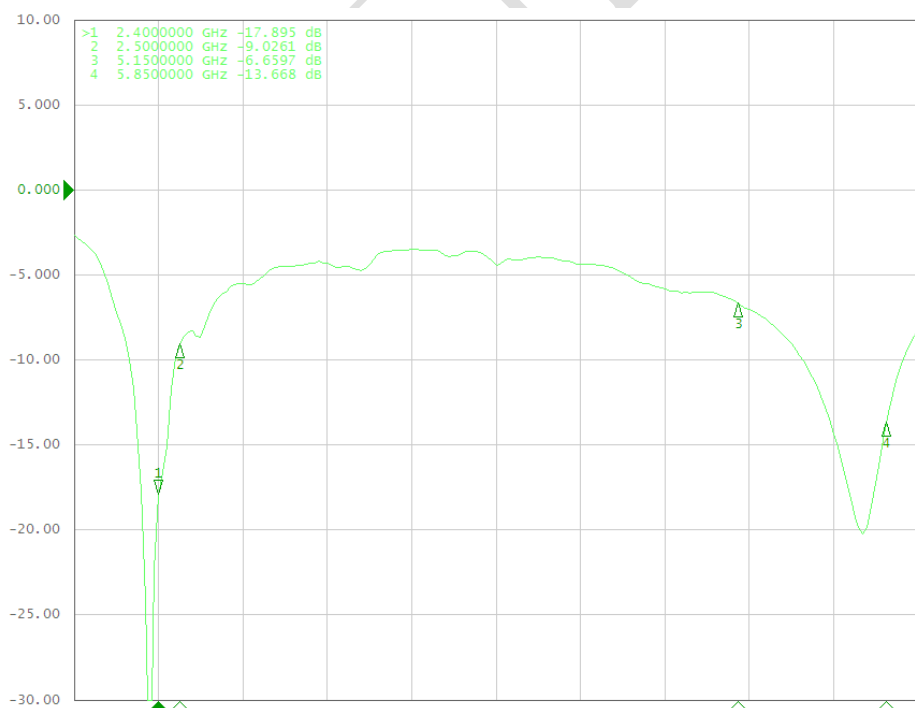
## 5.2 Matching Network



Picture 6 Matching network of WIFI antenna

## 5.3 Return Loss(S11)

| Frequency(MHz) | S11(dB) |
|----------------|---------|
| 2400           | -17.89  |
| 2500           | -9.02   |
| 5150           | -6.65   |
| 5850           | -13.66  |



Picture 7 WIFI antenna reflection coefficients(S11)

|                         |            |                             |
|-------------------------|------------|-----------------------------|
| Project Name: MIFI_WIFI |            | Document Name:<br>MIFI_WIFI |
| Date:2017-07-28         | Version: A |                             |

## 5.4 Efficiency

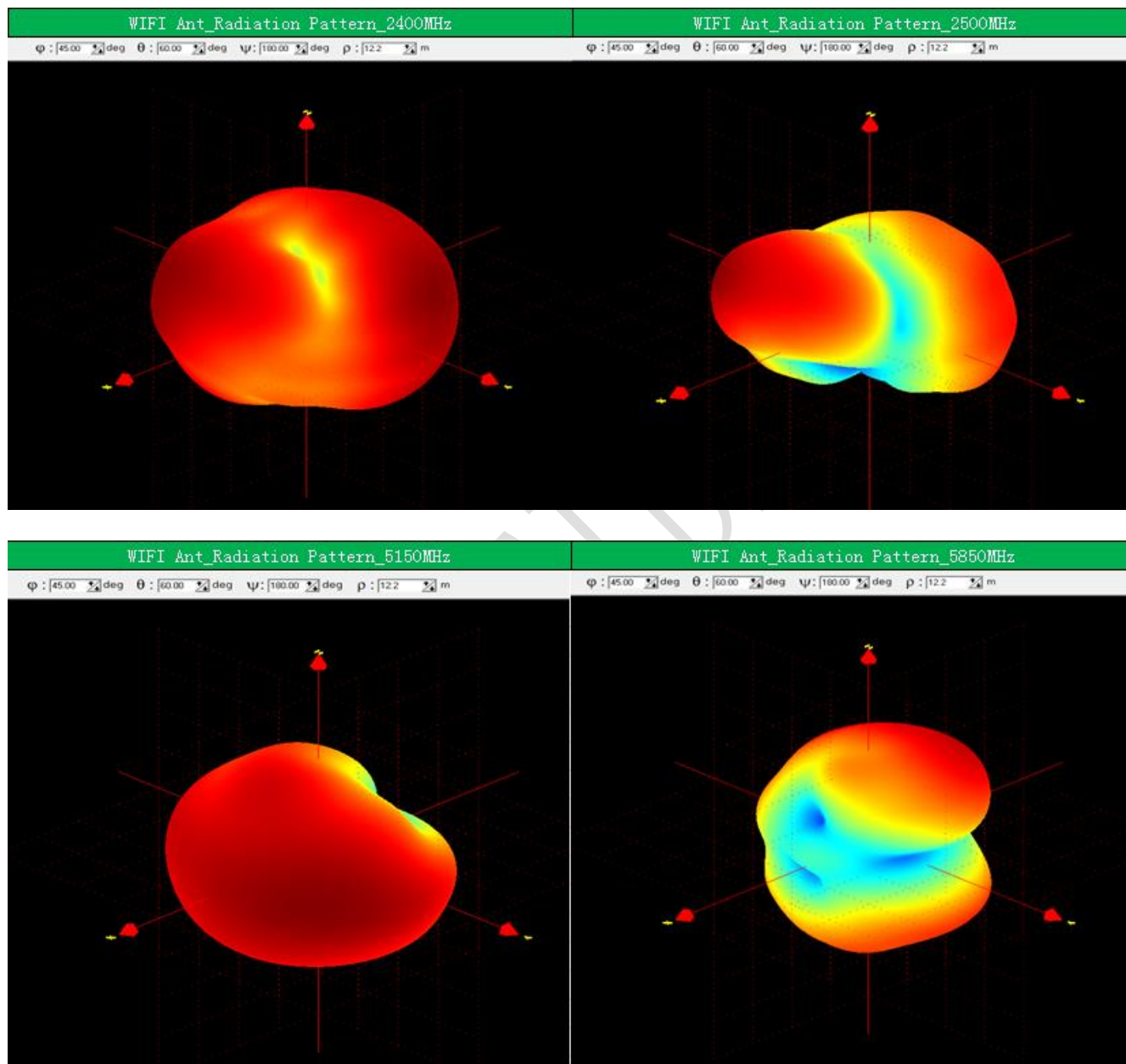
| Freq<br>(MHz) | Effi<br>(dB) | Effi<br>(%) | Freq<br>(MHz) | Effi<br>(dB) | Effi<br>(%) | Freq<br>(MHz) | Effi<br>(dB) | Effi<br>(%) |
|---------------|--------------|-------------|---------------|--------------|-------------|---------------|--------------|-------------|
| 2400          | 42.77        | -3.69       | 5250          | 23.73        | -6.25       | 5570          | 14.29        | -8.45       |
| 2410          | 41.99        | -3.77       | 5270          | 23.90        | -6.22       | 5590          | 14.47        | -8.39       |
| 2420          | 40.28        | -3.95       | 5290          | 24.52        | -6.10       | 5610          | 12.24        | -9.12       |
| 2430          | 43.19        | -3.65       | 5310          | 23.57        | -6.28       | 5630          | 12.02        | -9.20       |
| 2440          | 47.94        | -3.19       | 5330          | 23.56        | -6.28       | 5650          | 10.86        | -9.64       |
| 2450          | 44.31        | -3.53       | 5350          | 23.57        | -6.28       | 5670          | 10.27        | -9.88       |
| 2460          | 40.78        | -3.90       | 5370          | 23.28        | -6.33       | 5690          | 10.57        | -9.76       |
| 2470          | 45.12        | -3.46       | 5390          | 22.69        | -6.44       | 5710          | 9.96         | -10.02      |
| 2480          | 53.45        | -2.72       | 5410          | 22.14        | -6.55       | 5730          | 10.15        | -9.94       |
| 2490          | 53.35        | -2.73       | 5430          | 22.20        | -6.54       | 5750          | 9.72         | -10.13      |
| 2500          | 48.36        | -3.16       | 5450          | 20.37        | -6.91       | 5770          | 10.13        | -9.94       |
| 5150          | 20.15        | -6.96       | 5470          | 20.40        | -6.90       | 5790          | 9.76         | -10.10      |
| 5170          | 20.74        | -6.83       | 5490          | 17.90        | -7.47       | 5810          | 9.63         | -10.16      |
| 5190          | 21.54        | -6.67       | 5510          | 18.23        | -7.39       | 5830          | 10.02        | -9.99       |
| 5210          | 23.98        | -6.20       | 5530          | 15.13        | -8.20       | 5850          | 9.86         | -10.06      |
| 5230          | 23.24        | -6.34       | 5550          | 16.82        | -7.74       |               |              |             |

## 5.5 Gain

| Freq<br>(MHz) | Gain<br>(dBi) | Freq<br>(MHz) | Gain<br>(dBi) | Freq<br>(MHz) | Gain<br>(dBi) |
|---------------|---------------|---------------|---------------|---------------|---------------|
| 2400          | 1.03          | 5250          | -1.25         | 5570          | -2.13         |
| 2410          | 1.11          | 5270          | -1.34         | 5590          | -1.97         |
| 2420          | 1.07          | 5290          | -1.32         | 5610          | -2.57         |
| 2430          | 1.36          | 5310          | -1.36         | 5630          | -2.50         |
| 2440          | 1.66          | 5330          | -1.18         | 5650          | -2.78         |
| 2450          | 1.36          | 5350          | -1.18         | 5670          | -3.11         |
| 2460          | 1.24          | 5370          | -1.24         | 5690          | -2.89         |
| 2470          | 1.87          | 5390          | -1.23         | 5710          | -3.07         |
| 2480          | 2.62          | 5410          | -1.38         | 5730          | -3.07         |
| 2490          | 2.76          | 5430          | -1.47         | 5750          | -3.32         |
| 2500          | 2.38          | 5450          | -1.67         | 5770          | -3.12         |
| 5150          | -1.55         | 5470          | -1.35         | 5790          | -3.45         |
| 5170          | -1.37         | 5490          | -1.65         | 5810          | -3.68         |
| 5190          | -1.26         | 5510          | -1.48         | 5830          | -3.51         |
| 5210          | -1.01         | 5530          | -2.07         | 5850          | -3.76         |
| 5230          | -1.23         | 5550          | -1.48         |               |               |

|                         |            |                             |
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## 5.6 Radiation Pattern



|                         |            |                             |
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| Date:2017-07-28         | Version: A |                             |

## 5.7 Active data

| Band      | spec    |       |        |
|-----------|---------|-------|--------|
|           | Channel | TRP   | TIS    |
| 2.4G WIFI | 1       |       |        |
|           | 7       | 14.86 | -80.96 |
|           | 13      |       |        |
|           |         |       |        |
| 2.4G WIFI |         |       |        |
|           |         |       |        |
|           | 161     | 13.72 | -86.46 |
|           |         |       |        |

|                         |            |                             |
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