



# RADIO EXPOSURE TEST REPORT

**FCC ID** : LDKIW9167EH  
**Equipment** : Cisco Catalyst IW9167E Heavy Duty Access Point  
**Brand Name** : CISCO  
**Model Name** : IW9167EH-B  
**Applicant** : Cisco Systems Inc  
125 West Tasman Drive San Jose California United States  
95134-1706  
**Manufacturer** : Cisco Systems Inc  
125 West Tasman Drive San Jose California United States  
95134-1706  
**Standard** : 47 CFR Part 2.1091

The product was received on Sep. 26, 2023, and testing was started from Sep. 26, 2023 and completed on Apr. 20, 2024. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR Part 2.1091 and shown compliance with the applicable technical standards.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.

Approved by: Sam Chen

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### Photographs of EUT v01





## Summary of Test Result

| Report Clause | Ref Std. Clause | Test Items          | Result (PASS/FAIL) | Remark |
|---------------|-----------------|---------------------|--------------------|--------|
| 2             | -               | Exposure evaluation | PASS               | -      |

**Conformity Assessment Condition:**

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the chapter "Measurement Uncertainty".

**Disclaimer:**

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

**Reviewed by: Sam Chen**

**Report Producer: Cathy Chiu**



# 1 General Description

## 1.1 EUT General Information

| RF General Information |  |  |  |
|------------------------|--|--|--|
| Evaluation Mode        | Frequency Range (MHz)                            | Operating Frequency (MHz)                        | Modulation Type  |
| 2.4GHz WLAN            | 2400-2483.5                                      | 2412-2462  | 802.11b: DSSS (DBPSK, DQPSK, CCK)<br>802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)<br>VHT: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)<br>802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM) |
| 5GHz WLAN              | 5150-5250<br>5250-5350<br>5470-5725<br>5725-5850 | 5180-5250<br>5250-5320<br>5500-5720<br>5745-5825 | 802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM)<br>802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)<br>802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)                                 |
| 4.9GHz WLAN            | 4940-4990  | 4945-4985  | OFDM (BPSK, QPSK, 16QAM, 64QAM)  |
| 6GHz WLAN              | 5925-6425<br>6525-6875                           | 5955-6415<br>6535-6855                           | 802.11ax: OFDMA (BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM)  |
| Bluetooth              | 2400-2483.5                                      | 2402-2480  | LE: GFSK   |



## 1.2 Antenna Information

| Set. | CISCO's Brand Name        | CISCO's Model Name        | Antenna Type | Connector     | Gain (dBi) |
|------|---------------------------|---------------------------|--------------|---------------|------------|
|      | Manufacturer's Brand Name | Manufacturer's Model Name |              |               |            |
| 1    | CISCO                     | AIR-ANT2480V-N=           | Dipole       | N Male        | Note 1     |
|      | CUSHCRAFT                 | S2406BFCNM                |              |               |            |
| 2    | CISCO                     | AIR-ANT2413P2M-N=         | Panel        | N Male        |            |
|      | PCTEL                     | 07-1193-01                |              |               |            |
| 3    | CISCO                     | IW-ANT-OMM-53-N=          | Monopole     | N Female      |            |
|      | MP Antenna                | 08-ANT-0985               |              |               |            |
| 4    | CISCO                     | AIR-ANT5180V-N=           | Dipole       | N Male        |            |
|      | Laird TECHNOLOGES         | S4905WBCFNM               |              |               |            |
| 5    | CISCO                     | IW-ANT-PNL-59-N=          | Panel        | SMA Female    |            |
|      | HUBER+SUHNER              | 1356.17.0076              |              |               |            |
| 6    | CISCO                     | IW-ANT-H90-510-N=         | Horn         | N Female      |            |
|      | RF ELEMENTS               | HG3-CC-S90                |              |               |            |
| 7    | CISCO                     | AIR-ANT5114P2M-N=         | Panel        | N Male        |            |
|      | PCTEL                     | 07-1192-01                |              |               |            |
| 8    | CISCO                     | IW-ANT-SKD-513-Q=         | Patch        | QMA Female    |            |
|      | PCTEL                     | 74-133202-01              |              |               |            |
| 9    | CISCO                     | IW-ANT-SKS-514-Q=         | Patch        | QMA Female    |            |
|      | PCTEL                     | 74-133201-01              |              |               |            |
| 10   | CISCO                     | FLMESH-HW-ANT-28          | Panel        | N Female      |            |
|      | HUBER+SUHNER              | 1356.17.0023              |              |               |            |
| 11   | CISCO                     | AIR-ANT2547V-N=           | Dipole       | N Male        |            |
|      | Laird TECHNOLOGES         | OC24527-CS1               |              |               |            |
| 12   | CISCO                     | AIR-ANT2547VG-N=          | Dipole       | N Male        |            |
|      | Laird TECHNOLOGES         | OC24528-CS3               |              |               |            |
| 13   | CISCO                     | AIR-ANT2547VG-NS=         | Dipole       | N Male        |            |
|      | Laird Connectivity        | OC24528-CS4               |              |               |            |
| 14   | CISCO                     | AIR-ANT2568VG-N=          | Dipole       | N Male        |            |
|      | Laird Connectivity        | OCX24529-CS1              |              |               |            |
| 15   | CISCO                     | AIR-ANT2568VG-NS=         | Dipole       | N Male        |            |
|      | Laird Connectivity        | OCX24529-CS2              |              |               |            |
| 16   | CISCO                     | AIR-ANT2588P4M-NS=        | Patch        | N Female      |            |
|      | Laird Connectivity        | PDM24499-CS1              |              |               |            |
| 17   | CISCO                     | AIR-ANT2513P4M-N=         | Patch        | N Female      |            |
|      | Laird Connectivity        | PDM245115H-CS1            |              |               |            |
| 18   | CISCO                     | AIR-ANT2513P4M-NS=        | Patch        | N Female      |            |
|      | Laird Connectivity        | PDM245115H-CS2            |              |               |            |
| 19   | CISCO                     | IW-ANT-OMV-2567-N         | Dipole       | N Male        |            |
|      | TE connectivity           | OCX24688-CS1              |              |               |            |
| 20   | CISCO                     | IW-ANT-OMH-2567-N         | Dipole       | N Male        |            |
|      | TE connectivity           | OCX24688H-CS1             |              |               |            |
| 21   | CISCO                     | ANT-GNSS-OUT-TNC=         | Patch        | TNC Male      |            |
|      | Pulse                     | W4053T4572                |              |               |            |
| 22   | CISCO                     | IW-ANT-PNL-515-N=         | Panel        | N Female      |            |
|      | Amphenol SAA              | IW-ANT-PNL-515-N          |              |               |            |
| 23   | CISCO                     | IW-ANT-OMV-55-N           | Dipole       | N Female      |            |
| 24   | CISCO                     | IW-ANT-OMH-55-N           | Dipole       | N Female      |            |
| 25   | PCTEL                     | IW-ANT-PNL25610-R=        | Sector       | RP-TNC female |            |



| Set. | Port                  |                         |                         |                     |                                |                              |                              |              |               |
|------|-----------------------|-------------------------|-------------------------|---------------------|--------------------------------|------------------------------|------------------------------|--------------|---------------|
|      | WLAN 2.4GHz (Radio 1) | 4.9GHz / 5GHz (Radio 1) | 4.9GHz / 5GHz (Radio 2) | WLAN 6GHz (Radio 2) | WLAN 2.4GHz (Scanning Radio 3) | WLAN 5GHz (Scanning Radio 3) | WLAN 6GHz (Scanning Radio 3) | BT (Radio 4) | GPS (Radio 5) |
| 1    | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            | -             |
| 2    | 1                     | -                       | -                       | -                   | 1                              | -                            | -                            | -            | -             |
|      | 2                     | -                       | -                       | -                   | -                              | -                            | -                            | -            | -             |
|      | 3                     | -                       | -                       | -                   | -                              | -                            | -                            | -            | -             |
|      | 4                     | -                       | -                       | -                   | -                              | -                            | -                            | 1            | -             |
| 3    | -                     | 4                       | 1                       | -                   | -                              | 2                            | -                            | -            | -             |
|      | -                     | 3                       | 2                       | -                   | -                              | 1                            | -                            | -            | -             |
|      | -                     | 2                       | 3                       | -                   | -                              | -                            | -                            | -            | -             |
|      | -                     | 1                       | 4                       | -                   | -                              | -                            | -                            | -            | -             |
| 4    | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            |               |
| 5    | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            |               |
| 6    | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            |               |
| 7    | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            |               |
| 8    | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            |               |
| 9    | -                     | 4                       | 1                       | -                   | -                              | -                            | -                            | -            | -             |
|      | -                     | 3                       | 2                       | -                   | -                              | -                            | -                            | -            | -             |
|      | -                     | 2                       | 3                       | -                   | -                              | -                            | -                            | -            | -             |
|      | -                     | 1                       | 4                       | -                   | -                              | -                            | -                            | -            | -             |
| 10   | -                     | 4                       | 1                       | -                   | -                              | 2                            | -                            | -            | -             |
|      | -                     | 3                       | 2                       | -                   | -                              | 1                            | -                            | -            | -             |
|      | -                     | 2                       | 3                       | -                   | -                              | -                            | -                            | -            | -             |
|      | -                     | 1                       | 4                       | -                   | -                              | -                            | -                            | -            | -             |
| 11   | 1                     | -                       | -                       | -                   | 1                              | -                            | -                            | -            | -             |
|      | 2                     | -                       | -                       | -                   | -                              | -                            | -                            | -            | -             |
|      | 3                     | -                       | -                       | -                   | -                              | -                            | -                            | -            | -             |
|      | 4                     | -                       | -                       | -                   | -                              | -                            | -                            | 1            | -             |
| 12   | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            |               |
| 13   | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            |               |
| 14   | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            |               |
| 15   | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            |               |
| 16   | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            |               |
| 17   | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            |               |
| 18   | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            |               |
| 19   | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            | -             |
|      | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            | -             |
|      | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            | -             |
|      | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            | -             |
| 20   | -                     | -                       | -                       | 1                   | -                              | -                            | -                            | -            | -             |
|      | -                     | -                       | -                       | 2                   | -                              | -                            | 1                            | -            | -             |
|      | -                     | -                       | -                       | 3                   | -                              | -                            | -                            | -            | -             |
|      | -                     | -                       | -                       | 4                   | -                              | -                            | -                            | -            | -             |
| 21   | -                     | -                       | -                       | -                   | -                              | -                            | -                            | 1            |               |
| 22   | -                     | -                       | -                       | 1                   | -                              | -                            | -                            | -            | -             |
|      | -                     | -                       | -                       | 2                   | -                              | -                            | 1                            | -            | -             |
|      | -                     | -                       | -                       | 3                   | -                              | -                            | -                            | -            | -             |
|      | -                     | -                       | -                       | 4                   | -                              | -                            | -                            | -            | -             |
| 23   | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            |               |
| 24   | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            |               |
| 25   | -                     | -                       | -                       | -                   | 1                              | -                            | -                            | -            | -             |
|      | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            | -             |
|      | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            | -             |
|      | -                     | -                       | -                       | -                   | -                              | -                            | -                            | -            | -             |



Note 1:

| Set | Antenna Gain (dBi)  |   |  |                  |   | Cable loss (dB)   |  |                  |   |   | Net Gain (dBi)                             |                  |       |  |  |
|-----|---|---|--|------------------|---|---|--|------------------|---|---|--|------------------|-------|--|--|
|     | WLAN<br>2.4GHz<br>(Radio 1)<br>(Scanning<br>Radio 3)<br>BT<br>(Radio 4) | 5GHz<br>(Radio 1)<br>(Radio 2)<br>(Scanning<br>Radio 3) | 6GHz<br>(Radio 2)<br>(Scanning<br>Radio 3) | GPS<br>(Radio 5) | WLAN<br>2.4GHz<br>(Radio 1)<br>(Scanning<br>Radio 3)<br>BT<br>(Radio 4) | 5GHz<br>(Radio 1)<br>(Radio 2)<br>(Scanning<br>Radio 3) | 6GHz<br>(Radio 2)<br>(Scanning<br>Radio 3) | GPS<br>(Radio 5) | WLAN<br>2.4GHz<br>(Radio 1)<br>(Scanning<br>Radio 3)<br>BT<br>(Radio 4) | 5GHz<br>(Radio 1)<br>(Radio 2)<br>(Scanning<br>Radio 3) | 6GHz<br>(Radio 2)<br>(Scanning<br>Radio 3) | GPS<br>(Radio 5) |       |  |  |
|     | 2.4G /<br>Bluetooth   | UNII 1-3<br>4.9G  | UNII 5,<br>UNII 7                          | -                | 2.4G /<br>Bluetooth   | UNII 1-3<br>4.9G  | UNII 5,<br>UNII 7                          | -                | 2.4G /<br>Bluetooth   | UNII 1-3<br>4.9G  | UNII 5,<br>UNII 7                          | -                |       |  |  |
| 1   | 8   | -   | -  | -                | -   | -   | -  | -                | 8   | -   | -  | -                |       |  |  |
| 2   | 13  | -   | -  | -                | -   | -   | -  | -                | 13  | -   | -  | -                |       |  |  |
| 3   | -   | 3   | 3  | -                | -   | -   | -  | -                | -   | 3   | 3  | -                |       |  |  |
| 4   | -   | 8   | 7  | -                | -   | -   | -  | -                | -   | 8   | 7  | -                |       |  |  |
| 5   | -   | 9   | -  | -                | -   | 0.97  | -  | -                | -   | 8.03  | -  | -                |       |  |  |
| 6   | -   | 10  | -  | -                | -   | 0.97  | -  | -                | -   | 9.03  | -  | -                |       |  |  |
| 7   | -   | 13  | -  | -                | -   | -   | -  | -                | -   | 13  | -  | -                |       |  |  |
| 8   | -   | 13  | 13   | -                | -   | 0.97  | 0.97                                       | -                | -   | 12.09   | 12.03                                      | -                |       |  |  |
| 9   | -   | 14  | 14   | -                | -   | 0.97  | 0.97                                       | -                | -   | 13.03   | 13.03                                      | -                |       |  |  |
| 10  | -   | 19.5  | -  | -                | -   | 0.97  | -  | -                | -   | 18.53   | -  | -                |       |  |  |
| 11  | 4   | 7   | -  | -                | -   | -   | -  | -                | 4   | 7   | -  | -                |       |  |  |
| 12  | 4   | 7   | -  | -                | -   | -   | -  | -                | 4   | 7   | -  | -                |       |  |  |
| 13  | 4   | 7   | -  | -                | -   | -   | -  | -                | 4   | 7   | -  | -                |       |  |  |
| 14  | 6   | 8   | -  | -                | -   | -   | -  | -                | 6   | 8   | -  | -                |       |  |  |
| 15  | 6   | 8   | -  | -                | -   | -   | -  | -                | 6   | 8   | -  | -                |       |  |  |
| 16  | Vertical: 9.1<br>Horizontal:<br>7.1                                     | Vertical: 9.6<br>Horizontal:<br>7.8                     | -  | -                | -   | 0.62  | 0.97                                       | -                | Vertical: 8.48<br>Horizontal:<br>6.48                                   | Vertical:<br>8.63<br>Horizontal:<br>6.83                | -  | -                |       |  |  |
| 17  | 13  | 13  | -  | -                | -   | 0.62  | 0.97                                       | -                | 12.38   | 12.03   | -  | -                |       |  |  |
| 18  | 13  | 13  | -  | -                | -   | 0.62  | 0.97                                       | -                | 12.38   | 12.03   | -  | -                |       |  |  |
| 19  | 4   | 7   | 7  | 7                | -   | -   | -  | -                | 4   | 7   | 7  | 7                |       |  |  |
| 20  | 4   | 7   | 7  | 7                | -   | -   | -  | -                | 4   | 7   | 7  | 7                |       |  |  |
| 21  | -   | -   | -  | -                | 2.5   | -   | -  | -                | -   | -   | -  | 2.5              |       |  |  |
| 22  | -   | 15  | 15   | 15               | -   | -   | 2.05                                       | 2                | 2.12  | -   | 12.95                                      | 13               | 12.88 |  |  |
| 23  | -   | 5   | -  | -                | -   | -   | -  | -                | -   | 5   | -  | -                |       |  |  |
| 24  | -   | 5   | -  | -                | -   | -   | -  | -                | -   | 5   | -  | -                |       |  |  |
| 25  | 9   | 9   | -  | 10               | -   | 0.35  | 0.65                                       | -                | 0.75  | -   | 8.65                                       | 8.35             | 9.25  |  |  |





| <b>Set.</b> | <b>Point-to-Multipoint</b> | <b>Point-to-Point</b> |
|-------------|----------------------------|-----------------------|
| 1           | Yes                        | No                    |
| 2           | Yes                        | Yes                   |
| 3           | Yes                        | No                    |
| 4           | Yes                        | No                    |
| 5           | Yes                        | Yes                   |
| 6           | Yes                        | Yes                   |
| 7           | Yes                        | Yes                   |
| 8           | Yes                        | Yes                   |
| 9           | Yes                        | Yes                   |
| 10          | Yes                        | Yes                   |
| 11          | Yes                        | No                    |
| 12          | Yes                        | No                    |
| 13          | Yes                        | No                    |
| 14          | Yes                        | No                    |
| 15          | Yes                        | No                    |
| 16          | Yes                        | No                    |
| 17          | Yes                        | Yes                   |
| 18          | Yes                        | Yes                   |
| 19          | Yes                        | No                    |
| 20          | Yes                        | No                    |
| 21          | -                          | -                     |
| 22          | No                         | Yes                   |
| 23          | Yes                        | No                    |
| 24          | Yes                        | No                    |
| 25          | Yes                        | No                    |

Note 2: The above information was declared by manufacturer.

Note 3: There are 25 set antennas in the antenna table list.

The lowest and highest antenna gain was selected for the test and recorded in this report.

The antennas were selected as below:

For WLAN 2.4GHz/BT: Set 2, 11.

For WLAN 5GHz: Set 3, 10.

For 4.9GHz: Set 3, 9.

For WLAN 6GHz: Set 20, 22.



Note 4: Directional gain information.

| Type   | Maximum Output Power  | Power Spectral Density  |
|--------|---|---|
| Non-BF | Directional gain = Max.gain + array gain.<br>For power measurements on IEEE 802.11 devices<br>Array Gain = 0 dB (i.e., no array gain) for N ANT ≤ 4 | $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{ANT}} \left[ \sum_{k=1}^{N_{ANT}} g_{j,k} \right]^2}{N_{ANT}} \right]$ |
| BF     | $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{ANT}} \left[ \sum_{k=1}^{N_{ANT}} g_{j,k} \right]^2}{N_{ANT}} \right]$                 | $DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{ANT}} \left[ \sum_{k=1}^{N_{ANT}} g_{j,k} \right]^2}{N_{ANT}} \right]$ |

Ex.

Directional Gain (NSS1) formula :

$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{ANT}} \left[ \sum_{k=1}^{N_{ANT}} g_{j,k} \right]^2}{N_{ANT}} \right]$$

$NSS1(g1,1) = 10^{G1/20}$  ;  $NSS1(g1,2) = 10^{G2/20}$  ;  $NSS1(g1,3) = 10^{G3/20}$  ;  $NSS1(g1,4) = 10^{G4/20}$

$g_{j,k} = (NSS1(g1,1) + NSS1(g1,2) + NSS1(g1,3) + NSS1(g1,4))^2$

$DG = 10 \log[(NSS1(g1,1) + NSS1(g1,2) + NSS1(g1,3) + NSS1(g1,4))^2 / N_{ANT}] \Rightarrow 10$

$\log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / N_{ANT}]$

Where ;

2.4G G1 = 4 dBi; G2 = 4 dBi; G3 = 4 dBi; G4 = 4 dBi;

2TDG = 7.01 dBi 4TDG = 10.02 dBi

2.4G G1 = 13 dBi; G2 = 13 dBi; G3 = 13 dBi; G4 = 13 dBi;

2TDG = 16.01 dBi 4TDG = 19.02 dBi

5G G1 = 3 dBi; G2 = 3 dBi; G3 = 3 dBi; G4 = 3 dBi;

2TDG = 6.01 dBi 4TDG = 9.02 dBi

5G G1 = 18.53 dBi; G2 = 18.53 dBi; G3 = 18.53 dBi; G4 = 18.53 dBi;

2TDG = 18.53 dBi 4TDG = 21.54 dBi

4.9G G1 = 3 dBi; G2 = 3 dBi; G3 = 3 dBi; G4 = 3 dBi;

2TDG = 6.01 dBi 4TDG = 9.02 dBi

4.9G G1 = 13.03 dBi; G2 = 13.03 dBi; G3 = 13.03 dBi; G4 = 13.03 dBi;

2TDG = 16.04 dBi 4TDG = 19.05 dBi

6E G1 = 7.0 dBi; G2 = 7.0 dBi; G3 = 7.0 dBi; G4 = 7.0 dBi;

2TDG = 10.01 dBi 4TDG = 13.02 dBi

6E G1 = 12.88 dBi; G2 = 12.88 dBi; G3 = 12.88 dBi; G4 = 12.88 dBi;

2TDG = 15.89 dBi 4TDG = 18.90 dBi



**For Iron Radio 1**

**For 2.4GHz:**

**For IEEE 802.11b/g/n/VHT/ax mode (1TX, 2TX, 4TX/4RX):**

**1TX**

Only Port 1 can be use as transmitting antenna.

**2TX**

Port 1, Port 2 can be use as transmitting antenna.

Port 1, Port 2 could transmitting simultaneously.

**4TX**

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.

**4RX**

Port 1, Port 2, Port 3, Port 4 can be used as receiving antennas.

Port 1, Port 2, Port 3, Port 4 could receive simultaneously.

**For Iron 5GHz UNII 1~UNII 3 and 4.9GHz:**

**For IEEE 802.11a/n/ac/ax mode (1TX, 2TX, 4TX/4RX):**

**1TX**

Only Port 1 can be use as transmitting antenna.

**2TX**

Port 1, Port 2 can be use as transmitting antenna.

Port 1, Port 2 could transmitting simultaneously.

**4TX**

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.

**4RX**

Port 1, Port 2, Port 3, Port 4 can be used as receiving antennas.

Port 1, Port 2, Port 3, Port 4 could receive simultaneously.

**For Pine Radio 2**

**For 5GHz UNII 1~UNII 3 and 4.9GHz:**

**For IEEE 802.11a/n/ac/ax mode (1TX, 2TX, 4TX/4RX):**

**1TX**

Only Port 1 can be use as transmitting antenna.

**2TX**

Port 1, Port 2 can be use as transmitting antenna.

Port 1, Port 2 could transmitting simultaneously.

**4TX**

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting antenna.

Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.

**4RX**

Port 1, Port 2, Port 3, Port 4 can be used as receiving antennas.

Port 1, Port 2, Port 3, Port 4 could receive simultaneously.

**For 6GHz UNII 5, UNII 7:**

**For IEEE 802.11ax mode (1TX, 2TX, 4TX/4RX):**

**1TX**

Only Port 1 can be use as transmitting antenna.

**2TX**

Port 1, Port 2 can be use as transmitting antenna.

Port 1, Port 2 could transmitting simultaneously.



**4TX**

Port 1, Port 2, Port 3 and Port 4 can be used as transmitting antenna.  
Port 1, Port 2, Port 3 and Port 4 could transmit simultaneously.

**4RX**

Port 1, Port 2, Port 3, Port 4 can be used as receiving antennas.  
Port 1, Port 2, Port 3, Port 4 could receive simultaneously.

**For Scanning Radio 3**

**For 2.4GHz:**

**For IEEE 802.11b/g/n/VHT/ax mode (1TX/1RX):**

Only Port 1 can be used as transmitting/receiving antenna.

**For 5GHz UNII 1~UNII 3:**

**For IEEE 802.11a/n/ac/ax mode (1TX/1RX):**

The EUT supports the antenna with TX and RX diversity functions.

Both port 1 and port 2 support transmit and receive functions, but only one of them will be used at one time.

The port 1 generated the worst case, so it was selected to test and record in the report.

**For 6GHz UNII 5, UNII 7:**

**For IEEE 802.11ax mode (1RX):**

**1RX**

Only Port 1 can be use as receiving antenna.

**For Radio 4**

**Bluetooth (1TX/1RX):**

Only Port 1 can be used as transmitting/receiving antenna.

**For Radio 5**

**GPS (1RX):**

Only Port 1 can be used as receiving antenna.



### 1.3 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FA281101

Below is the table for the change of the product with respect to the original one.

| Modifications   | Performance Checking   |
|---|--|
| 1. Adding 6GHz (UNII 5, UNII 7) Standard Power Access Point function for the device under Master mode for WNBU image at WLAN 6GHz.<br>2. Adding Set 22~25 antenna (Adding antenna with lower gain at WLAN 2.4GHz, 5GHz, 4.9GHz and Bluetooth than the original report.)   | After evaluating, it was selected to test RF Exposure of 6GHz for set 20 and set 22 antenna. |
| 3. Adding Slave with Radar Detection mode for CURUWB image in P2MP function.<br>4. Adding mesh mode and bridge mode for WNBU image in AP function at WLAN 2.4GHz, 5GHz and Bluetooth.<br>5. Removing Master mode for WNBU image in AP function at WLAN 4.9GHz.<br>6. Removing Master mode for CURUWB image in P2P function at WLAN 2.4GHz/Bluetooth.<br>7. Removing Master/Slave with radar detection mode for CURUWB image in P2MP function at WLAN 2.4GHz /Bluetooth. | After evaluating, it does not affect the test in this report.                                |

Note: Other test results were based on original report.

### 1.4 Table for EUT support function

| Operate Mode                      | Function | Firmware     | Support Band                 |
|-----------------------------------|----------|--------------|------------------------------|
| Master/Mesh/Bridge                | AP       | WNBU image   | Bluetooth, WLAN 2.4GHz, 5GHz |
| Master                            | P2P      | CURUWB image | WLAN 5GHz, 4.9GHz            |
| Master/Slave with radar detection | P2MP     | CURUWB image | WLAN 5GHz, 4.9GHz            |
| Master                            | AP       | WNBU image   | WLAN 6GHz                    |

Note: The above information was declared by manufacturer.



### 1.5 Table for Radio function

| Radio (R)           | WLAN 2.4GHz | 5GHz UNII 1~UNII 3                            | 4.9 GHz | 6GHz UNII 5, UNII 7  | Scanning radio (WLAN 2.4GHz / 5GHz UNII 1~UNII 3 / 6GHz UNII 5, UNII 7)                             | Bluetooth | GPS |
|---------------------|-------------|---|---------|----------------------|---|-----------|-----|
| R1 (Iron Radio)     | V (AP: 20)  | V (AP: 20/40/80) (P2P/P2MP: 20/40/80)         | V       | -                    | -   | -         | -   |
| R2 (Pine Radio)     | -           | V (AP: 20/40/80/160) (P2P/P2MP: 20/40/80/160) | V       | V (AP: 20/40/80/160) | -   | -         | -   |
| R3 (Scanning Radio) | -           | -   | -       | -                    | V (For 2.4GHz/5GHz- AP: 20/40/80/160) (For 5GHz- P2P/P2MP: 20/40/80/160) (For 6GHz-AP: 160-RX only) | -         | -   |
| R4                  | -           | -   | -       | -                    | -   | V         | -   |
| R5                  | -           | -   | -       | -                    | -   | -         | V   |

Note: The above information was declared by manufacturer.

### 1.6 Accessories

| Accessories                          |
|--------------------------------------|
| Sealing collar*3                     |
| Wall-mounted rack*2                  |
| Grounding wire*1, Non shielded, 0.8m |
| DC cable*1, Non shielded, 2.6m       |
| DC cable connect*1                   |
| Ethernet cable*2, Shielded, 3m       |
| Ethernet cable connect*2             |

### 1.7 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 2.1091
- KDB 447498 D04 Interim General RF Exposure Guidance v01

The following reference test guidance is not within the scope of accreditation of TAF.

- 47 CFR Part 1.1307
- 47 CFR Part 1.1310



### 1.8 Testing Location

| Testing Location Information                              |  |
|---|--|
| Test Lab. : Sporton International Inc. Hsinchu Laboratory |  |
| Hsinchu   | ADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.) |
| (TAF: 3787)   | TEL: 886-3-656-9065      FAX: 886-3-656-9085                                       |
|   | Test site Designation No. TW3787 with FCC.   |
|   | Conformity Assessment Body Identifier (CABID) TW3787 with ISED.                    |

Note: The tested sample for WLAN 6GHz tests was received on Sep. 26, 2023.



## 2 Maximum Permissible Exposure

### 2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|--|--|
| 0.3-3.0               | 614                               | 1.63                              | *(100)                                   | <6   |
| 3.0-30                | 1842/f                            | 4.89/f                            | *(900/f <sup>2</sup> )                   | <6   |
| 30-300                | 61.4                              | 0.163                             | 1.0                                      | <6   |
| 300-1500              | -                                 | -                                 | f/300                                    | <6   |
| 1500-100,000          | -                                 | -                                 | 5  | <6   |

(B) Limits for General Population / Uncontrolled Exposure

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/ cm <sup>2</sup> ) | Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|--|--|
| 0.3-1.34              | 614                               | 1.63                              | *(100)                                   | <30  |
| 1.34-30               | 824/f                             | 2.19/f                            | *(180/f <sup>2</sup> )                   | <30  |
| 30-300                | 27.5                              | 0.073                             | 0.2                                      | <30  |
| 300-1500              | -                                 | -                                 | f/1500                                   | <30  |
| 1500-100,000          | -                                 | -                                 | 1.0                                      | <30  |

Note: f = frequency in MHz ; \*Plane-wave equivalent power density

### 2.2 MPE Calculation Method

The MPE was calculated at 102 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

**E** = Electric field (V/m)

**P** = RF output power (W)

**G** = EUT Antenna numeric gain (numeric)

**d** = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$





### 2.3 MPE Exemption

Option (A): 1.1307(b)(3)(i)(A): Available maximum time-averaged power is < 1 mW

Option (B): 1.1307(b)(3)(i)(B): Device operates between 300 MHz and 6 GHz and the maximum time-averaged power or effective radiated power (ERP), whichever is greater, <= Pth.

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

Where

$$x = -\log_{10} \left( \frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right) \text{ and } f \text{ is in GHz;}$$

and

$$ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

d = the separation distance (cm);

Option (C): 1.1307(b)(3)(i)(C): ERP is below a threshold calculated based on the distance R between the person and the antenna / radiating structure, where  $R > \lambda / 2 \pi$ .

| Single RF Sources Subject to Routine Environmental Evaluation |  |
|---|--|
| RF Source frequency (MHz)                                     | Threshold ERP (watts)                  |
| 0.3-1.34  | 1,920 R <sup>2</sup> .                 |
| 1.34-30   | 3,450 R <sup>2</sup> /f <sup>2</sup> . |
| 30-300  | 3.83 R <sup>2</sup> .                  |
| 300-1,500   | 0.0128 R <sup>2</sup> f.               |
| 1,500-100,000   | 19.2R <sup>2</sup> .                   |

Note: R is in meters, f is in MHz.



## 2.4 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

For Iron Radio 1

For Antenna set 11

| Mode        | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|-------------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 2.4G;D1D    | 4        | 25.58       | 27.43     | 0.5            | 620.869          | 102           | C      | 19975.68    | 0.0311   |
| 2.4G;D1D-BF | 10.02    | 23.44       | 31.31     | 0.5            | 1517.050         | 102           | C      | 19975.68    | 0.0759   |

For Antenna set 2

| Mode        | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|-------------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 2.4G;G1D    | 13       | 20.84       | 31.69     | 0.5            | 1655.770         | 102           | C      | 19975.68    | 0.0829   |
| 2.4G;D1D-BF | 16.01    | 19.49       | 33.35     | 0.49           | 2421.029         | 102           | C      | 19975.68    | 0.1212   |

For Antenna set 3

| Mode             | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|------------------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 5.2G;D1D         | 3        | 20.97       | 21.82     | 0.49           | 170.216          | 102           | C      | 19975.68    | 0.0085   |
| 5.2G;D1D-BF 2T1S | 6.01     | 17.8        | 21.66     | 0.5            | 164.437          | 102           | C      | 19975.68    | 0.0082   |
| 5.2G;D1D-BF 4T1S | 9.02     | 14.95       | 21.82     | 0.5            | 170.608          | 102           | C      | 19975.68    | 0.0085   |
| 5.3G;D1D         | 3        | 23.97       | 24.82     | 0.5            | 340.408          | 102           | C      | 19975.68    | 0.0170   |
| 5.3G;D1D-BF 2T1S | 6.01     | 23.79       | 27.65     | 0.5            | 653.131          | 102           | C      | 19975.68    | 0.0327   |
| 5.3G;D1D-BF 4T1S | 9.02     | 20.93       | 27.8      | 0.5            | 676.083          | 102           | C      | 19975.68    | 0.0338   |
| 5.6G;D1D         | 3        | 23.97       | 24.82     | 0.5            | 340.408          | 102           | C      | 19975.68    | 0.0170   |
| 5.6G;D1D-BF 2T1S | 6.01     | 23.95       | 27.81     | 0.5            | 677.642          | 102           | C      | 19975.68    | 0.0339   |
| 5.6G;D1D-BF 4T1S | 9.02     | 20.83       | 27.7      | 0.5            | 660.693          | 102           | C      | 19975.68    | 0.0331   |
| 5.8G;D1D         | 3        | 28.17       | 29.02     | 0.5            | 895.365          | 102           | C      | 19975.68    | 0.0448   |
| 5.8G;D1D-BF 2T1S | 6.01     | 24.66       | 28.52     | 0.5            | 797.995          | 102           | C      | 19975.68    | 0.0399   |
| 5.8G;D1D-BF 4T1S | 9.02     | 26.89       | 33.76     | 0.5            | 2666.859         | 102           | C      | 19975.68    | 0.1335   |
| 4.9G             | 9.02     | 22.16       | 29.03     | 0.5            | 897.429          | 102           | C      | 19975.68    | 0.0449   |



**For Antenna set 9**

| Mode | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 4.9G | 19.05    | 22.13       | 39.03     | 0.5            | 8974.288         | 102           | C      | 19975.68    | 0.4493   |

**For Antenna set 10 P to M**

| Mode             | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|------------------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 5.2G;D1D         | 18.53    | 15.84       | 32.22     | 0.5            | 1870.682         | 102           | C      | 19975.68    | 0.0936   |
| 5.2G;D1D-BF 2T1S | 18.53    | 15.84       | 32.22     | 0.5            | 1870.682         | 102           | C      | 19975.68    | 0.0936   |
| 5.2G;D1D-BF 4T1S | 21.54    | 4.92        | 24.31     | 0.5            | 302.691          | 102           | C      | 19975.68    | 0.0152   |
| 5.3G;D1D         | 18.53    | 11.33       | 27.71     | 0.5            | 662.217          | 102           | C      | 19975.68    | 0.0332   |
| 5.3G;D1D-BF 2T1S | 18.53    | 11.08       | 27.46     | 0.5            | 625.173          | 102           | C      | 19975.68    | 0.0313   |
| 5.3G;D1D-BF 4T1S | 21.54    | 4.2         | 23.59     | 0.5            | 256.448          | 102           | C      | 19975.68    | 0.0128   |
| 5.6G;D1D         | 18.53    | 11.44       | 27.82     | 0.5            | 679.204          | 102           | C      | 19975.68    | 0.0340   |
| 5.6G;D1D-BF 2T1S | 18.53    | 11.44       | 27.82     | 0.5            | 679.204          | 102           | C      | 19975.68    | 0.0340   |
| 5.6G;D1D-BF 4T1S | 21.54    | 5.5         | 24.89     | 0.5            | 345.939          | 102           | C      | 19975.68    | 0.0173   |
| 5.8G;D1D         | 18.53    | 16.46       | 32.84     | 0.5            | 2157.744         | 102           | C      | 19975.68    | 0.1080   |
| 5.8G;D1D-BF 2T1S | 18.53    | 16.46       | 32.84     | 0.5            | 2157.744         | 102           | C      | 19975.68    | 0.1080   |
| 5.8G;D1D-BF 4T1S | 21.54    | 4.87        | 24.26     | 0.5            | 299.226          | 102           | C      | 19975.68    | 0.0150   |

**For Antenna set 10 P to P**

| Mode        | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|-------------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 5.2G;D1D    | 18.53    | 15.84       | 32.22     | 0.5            | 1870.682         | 102           | C      | 19975.68    | 0.0936   |
| 5.2G;D1D-BF | 18.53    | 15.84       | 32.22     | 0.5            | 1870.682         | 102           | C      | 19975.68    | 0.0936   |
| 5.3G;D1D    | 18.53    | 11.33       | 27.71     | 0.5            | 662.217          | 102           | C      | 19975.68    | 0.0332   |
| 5.3G;D1D-BF | 18.53    | 11.08       | 27.46     | 0.5            | 625.173          | 102           | C      | 19975.68    | 0.0313   |
| 5.6G;D1D    | 18.53    | 11.44       | 27.82     | 0.5            | 679.204          | 102           | C      | 19975.68    | 0.0340   |
| 5.6G;D1D-BF | 18.53    | 11.44       | 27.82     | 0.5            | 679.204          | 102           | C      | 19975.68    | 0.0340   |
| 5.8G;D1D    | 18.53    | 16.46       | 32.84     | 0.5            | 2157.744         | 102           | C      | 19975.68    | 0.1080   |
| 5.8G;D1D-BF | 18.53    | 16.46       | 32.84     | 0.5            | 2157.744         | 102           | C      | 19975.68    | 0.1080   |



**For Pine Radio 2**

**For Antenna set 3**

| Mode             | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|------------------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 5.2G;D1D         | 3        | 20.91       | 21.76     | 0.5            | 168.267          | 102           | C      | 19975.68    | 0.0084   |
| 5.2G;D1D-BF 2T1S | 6.01     | 17.96       | 21.82     | 0.5            | 170.608          | 102           | C      | 19975.68    | 0.0085   |
| 5.2G;D1D-BF 4T1S | 9.02     | 14.89       | 21.76     | 0.5            | 168.267          | 102           | C      | 19975.68    | 0.0084   |
| 5.3G;D1D         | 3        | 21.77       | 22.62     | 0.5            | 205.116          | 102           | C      | 19975.68    | 0.0103   |
| 5.3G;D1D-BF 2T1S | 6.01     | 18.89       | 22.75     | 0.5            | 211.349          | 102           | C      | 19975.68    | 0.0106   |
| 5.3G;D1D-BF 4T1S | 9.02     | 20.87       | 27.74     | 0.5            | 666.807          | 102           | C      | 19975.68    | 0.0334   |
| 5.6G;D1D         | 3        | 22.48       | 23.33     | 0.5            | 241.546          | 102           | C      | 19975.68    | 0.0121   |
| 5.6G;D1D-BF 2T1S | 6.01     | 18.48       | 22.34     | 0.5            | 192.309          | 102           | C      | 19975.68    | 0.0096   |
| 5.6G;D1D-BF 4T1S | 9.02     | 20.78       | 27.65     | 0.5            | 653.131          | 102           | C      | 19975.68    | 0.0327   |
| 5.8G;D1D         | 3        | 23.33       | 24.18     | 0.5            | 293.765          | 102           | C      | 19975.68    | 0.0147   |
| 5.8G;D1D-BF 2T1S | 6.01     | 19.44       | 23.3      | 0.5            | 239.883          | 102           | C      | 19975.68    | 0.0120   |
| 5.8G;D1D-BF 4T1S | 9.02     | 23.33       | 30.2      | 0.5            | 1174.898         | 102           | C      | 19975.68    | 0.0588   |
| 4.9G             | 9.02     | 19.48       | 26.35     | 0.5            | 484.172          | 102           | C      | 19975.68    | 0.0242   |

**For Antenna set 9**

| Mode | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 4.9G | 19.05    | 19.45       | 36.35     | 0.5            | 4841.724         | 102           | C      | 19975.68    | 0.2424   |



**For Antenna set 10 P to M**

| Mode             | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|------------------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 5.2G;D1D         | 18.53    | 17.17       | 33.55     | 0.5            | 2540.973         | 102           | C      | 19975.68    | 0.1272   |
| 5.2G;D1D-BF 2T1S | 18.53    | 17.17       | 33.55     | 0.5            | 2540.973         | 102           | C      | 19975.68    | 0.1272   |
| 5.2G;D1D-BF 4T1S | 21.54    | 14.25       | 33.64     | 0.5            | 2594.179         | 102           | C      | 19975.68    | 0.1299   |
| 5.3G;D1D         | 18.53    | 11.39       | 27.77     | 0.5            | 671.429          | 102           | C      | 19975.68    | 0.0336   |
| 5.3G;D1D-BF 2T1S | 18.53    | 11.39       | 27.77     | 0.5            | 671.429          | 102           | C      | 19975.68    | 0.0336   |
| 5.3G;D1D-BF 4T1S | 21.54    | 8.15        | 27.54     | 0.5            | 636.796          | 102           | C      | 19975.68    | 0.0319   |
| 5.6G;D1D         | 18.53    | 11.43       | 27.81     | 0.5            | 677.642          | 102           | C      | 19975.68    | 0.0339   |
| 5.6G;D1D-BF 2T1S | 18.53    | 11.43       | 27.81     | 0.5            | 677.642          | 102           | C      | 19975.68    | 0.0339   |
| 5.6G;D1D-BF 4T1S | 21.54    | 8.43        | 27.82     | 0.5            | 679.204          | 102           | C      | 19975.68    | 0.0340   |
| 5.8G;D1D         | 18.53    | 17.45       | 33.83     | 0.01           | 2421.029         | 102           | C      | 19975.68    | 0.1212   |
| 5.8G;D1D-BF 2T1S | 18.53    | 17.42       | 33.8      | 0.5            | 2691.535         | 102           | C      | 19975.68    | 0.1347   |
| 5.8G;D1D-BF 4T1S | 21.54    | 14.38       | 33.77     | 0.5            | 2673.006         | 102           | C      | 19975.68    | 0.1338   |

**For Antenna set 10 P to P**

| Mode        | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|-------------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 5.2G;D1D    | 18.53    | 18.1        | 34.48     | 0.5            | 3147.748         | 102           | C      | 19975.68    | 0.1576   |
| 5.2G;D1D-BF | 18.53    | 18.1        | 34.48     | 0.5            | 3147.748         | 102           | C      | 19975.68    | 0.1576   |
| 5.3G;D1D    | 18.53    | 11.39       | 27.77     | 0.5            | 671.429          | 102           | C      | 19975.68    | 0.0336   |
| 5.3G;D1D-BF | 18.53    | 11.39       | 27.77     | 0.5            | 671.429          | 102           | C      | 19975.68    | 0.0336   |
| 5.6G;D1D    | 18.53    | 11.43       | 27.81     | 0.5            | 677.642          | 102           | C      | 19975.68    | 0.0339   |
| 5.6G;D1D-BF | 18.53    | 11.43       | 27.81     | 0.5            | 677.642          | 102           | C      | 19975.68    | 0.0339   |
| 5.8G;D1D    | 18.53    | 18.37       | 34.75     | 0.5            | 3349.654         | 102           | C      | 19975.68    | 0.1677   |
| 5.8G;D1D-BF | 21.54    | 17.44       | 36.83     | 0.5            | 5407.543         | 102           | C      | 19975.68    | 0.2707   |



**For Antenna set 20**

| Mode             | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|------------------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 6.2G;D1D         | 7        | 22.62       | 27.47     | 0.5            | 626.614          | 102           | C      | 19975.68    | 0.0314   |
| 6.2G;D1D-BF 2T1S | 10.01    | 18.74       | 26.6      | 0.5            | 512.861          | 102           | C      | 19975.68    | 0.0257   |
| 6.2G;D1D-BF 4T1S | 13.02    | 19.19       | 30.06     | 0.5            | 1137.627         | 102           | C      | 19975.68    | 0.0570   |
| 6.7G;D1D         | 7        | 22.4        | 27.25     | 0.5            | 595.662          | 102           | C      | 19975.68    | 0.0298   |
| 6.7G;D1D-BF 2T1S | 10.01    | 18.58       | 26.44     | 0.5            | 494.311          | 102           | C      | 19975.68    | 0.0247   |
| 6.7G;D1D-BF 4T1S | 13.02    | 19.22       | 30.09     | 0.5            | 1145.513         | 102           | C      | 19975.68    | 0.0573   |

**For Antenna set 22**

| Mode             | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|------------------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 6.2G;D1D         | 12.88    | 20.09       | 30.82     | 0.5            | 1355.189         | 102           | C      | 19975.68    | 0.0678   |
| 6.2G;D1D-BF 2T1S | 15.89    | 17.08       | 30.82     | 0.5            | 1355.189         | 102           | C      | 19975.68    | 0.0678   |
| 6.2G;D1D-BF 4T1S | 18.9     | 14.08       | 30.83     | 0.5            | 1358.313         | 102           | C      | 19975.68    | 0.0680   |
| 6.7G;D1D         | 12.88    | 19.93       | 30.66     | 0.5            | 1306.171         | 102           | C      | 19975.68    | 0.0654   |
| 6.7G;D1D-BF 2T1S | 15.89    | 17.09       | 30.83     | 0.5            | 1358.313         | 102           | C      | 19975.68    | 0.0680   |
| 6.7G;D1D-BF 4T1S | 18.9     | 14.08       | 30.83     | 0.5            | 1358.313         | 102           | C      | 19975.68    | 0.0680   |

**For Scanning Radio 3**

**For Antenna set 11**

| Mode     | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|----------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 2.4G;D1D | 4        | 21.16       | 23.01     | 0.5            | 224.388          | 102           | C      | 19975.68    | 0.0112   |

**For Antenna set 2**

| Mode     | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|----------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 2.4G;G1D | 13       | 20.93       | 31.78     | 0.5            | 1690.441         | 102           | C      | 19975.68    | 0.0846   |



**For Antenna set 3**

| Mode     | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|----------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 5.2G;D1D | 3        | 16.48       | 17.33     | 0.5            | 60.674           | 102           | C      | 19975.68    | 0.0030   |
| 5.3G;D1D | 3        | 15.81       | 16.66     | 0.5            | 52.000           | 102           | C      | 19975.68    | 0.0026   |
| 5.6G;D1D | 3        | 16.86       | 17.71     | 0.5            | 66.222           | 102           | C      | 19975.68    | 0.0033   |
| 5.8G;D1D | 3        | 17.36       | 18.21     | 0.5            | 74.302           | 102           | C      | 19975.68    | 0.0037   |

**For Antenna set 10 P to M**

| Mode     | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|----------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 5.2G;D1D | 18.53    | 15.33       | 31.71     | 0.5            | 1663.413         | 102           | C      | 19975.68    | 0.0833   |
| 5.3G;D1D | 18.53    | 11.29       | 27.67     | 0.5            | 656.145          | 102           | C      | 19975.68    | 0.0328   |
| 5.6G;D1D | 18.53    | 11.43       | 27.81     | 0.5            | 677.642          | 102           | C      | 19975.68    | 0.0339   |
| 5.8G;D1D | 18.53    | 16.92       | 33.3      | 0.5            | 2398.833         | 102           | C      | 19975.68    | 0.1201   |

**For Antenna set 10 P to P**

| Mode     | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|----------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 5.2G;D1D | 18.53    | 15.33       | 31.71     | 0.5            | 1663.413         | 102           | C      | 19975.68    | 0.0833   |
| 5.3G;D1D | 18.53    | 11.29       | 27.67     | 0.5            | 656.145          | 102           | C      | 19975.68    | 0.0328   |
| 5.6G;D1D | 18.53    | 11.43       | 27.81     | 0.5            | 677.642          | 102           | C      | 19975.68    | 0.0339   |
| 5.8G;D1D | 18.53    | 16.92       | 33.3      | 0.5            | 2398.833         | 102           | C      | 19975.68    | 0.1201   |

**For Radio 4**

**For Antenna set 11**

| Mode     | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|----------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 2.4G;F1D | 4        | 14.89       | 16.74     | 0.5            | 52.966           | 102           | C      | 19975.68    | 0.0027   |

**For Antenna set 2**

| Mode     | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|----------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 2.4G;F1D | 13       | 14.81       | 25.66     | 0.5            | 413.048          | 102           | C      | 19975.68    | 0.0207   |



**Simultaneous Transmission Analysis Mode:**

**Mode 1: Iron R1 (2.4GHz) + Iron R1 (4.9GHz / 5GHz) + Pine R2 (4.9GHz / 5GHz) + Scanning R3 (2.4GHz) + R4 (Bluetooth)**

| Mode           | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|----------------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 2.4G;D1D       | 16.01    | 19.49       | 33.35     | 0.49           | 2421.029         | 102           | C      | 19975.68    | 0.1212   |
| 4.9G           | 19.05    | 22.13       | 39.03     | 0.5            | 8974.288         | 102           | C      | 19975.68    | 0.4493   |
| 5.8G;D1D       | 21.54    | 17.44       | 36.83     | 0.5            | 5407.543         | 102           | C      | 19975.68    | 0.2707   |
| 2.4G;F1D       | 13       | 14.81       | 25.66     | 0.5            | 413.048          | 102           | C      | 19975.68    | 0.0207   |
| 2.4G;G1D       | 13       | 20.93       | 31.78     | 0.5            | 1690.441         | 102           | C      | 19975.68    | 0.0846   |
| Sum TL Ratio_C | 0.9465   |             |           |                |                  |               |        |             |          |
| Ratio Limit    | 1        |             |           |                |                  |               |        |             |          |

**Mode 2: Iron R1 (2.4GHz) + Iron R1 (4.9GHz / 5GHz) + Pine R2 (4.9GHz / 5GHz) + Scanning R3 (5GHz port 2 set 10) + R4 (Bluetooth)**

| Mode           | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|----------------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 2.4G;D1D       | 16.01    | 19.49       | 33.35     | 0.49           | 2421.029         | 102           | C      | 19975.68    | 0.1212   |
| 4.9G           | 19.05    | 22.13       | 39.03     | 0.5            | 8974.288         | 102           | C      | 19975.68    | 0.4493   |
| 5.8G;D1D       | 21.54    | 17.44       | 36.83     | 0.5            | 5407.543         | 102           | C      | 19975.68    | 0.2707   |
| 2.4G;F1D       | 13       | 14.81       | 25.66     | 0.5            | 413.048          | 102           | C      | 19975.68    | 0.0207   |
| 5.8G;D1D       | 18.53    | 16.92       | 33.3      | 0.5            | 2398.833         | 102           | C      | 19975.68    | 0.1201   |
| Sum TL Ratio_C | 0.9819   |             |           |                |                  |               |        |             |          |
| Ratio Limit    | 1        |             |           |                |                  |               |        |             |          |

**Mode 3: Iron R1 (2.4GHz) + Iron R1 (4.9GHz / 5GHz) + Pine R2 (4.9GHz / 5GHz) + Scanning R3 (5GHz port 1 set 10) + R4 (Bluetooth)**

| Mode           | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|----------------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 2.4G;D1D       | 16.01    | 19.49       | 33.35     | 0.49           | 2421.029         | 102           | C      | 19975.68    | 0.1212   |
| 4.9G           | 19.05    | 22.13       | 39.03     | 0.5            | 8974.288         | 102           | C      | 19975.68    | 0.4493   |
| 5.8G;D1D       | 21.54    | 17.44       | 36.83     | 0.5            | 5407.543         | 102           | C      | 19975.68    | 0.2707   |
| 2.4G;F1D       | 13       | 14.81       | 25.66     | 0.5            | 413.048          | 102           | C      | 19975.68    | 0.0207   |
| 5.8G;D1D       | 18.53    | 16.92       | 33.3      | 0.5            | 2398.833         | 102           | C      | 19975.68    | 0.1201   |
| Sum TL Ratio_C | 0.9819   |             |           |                |                  |               |        |             |          |
| Ratio Limit    | 1        |             |           |                |                  |               |        |             |          |





**Mode 4: Iron R1 (2.4GHz) + Iron R1 (4.9GHz / 5GHz) + Pine R2 (6GHz) + Scanning R3 (2.4GHz) + R4 (Bluetooth)**

| Mode           | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|----------------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 2.4G;D1D       | 16.01    | 19.49       | 33.35     | 0.49           | 2421.029         | 102           | C      | 19975.68    | 0.1212   |
| 4.9G           | 19.05    | 22.13       | 39.03     | 0.5            | 8974.288         | 102           | C      | 19975.68    | 0.4493   |
| 6.7G;D1D       | 18.9     | 14.08       | 30.83     | 0.5            | 1358.313         | 102           | C      | 19975.68    | 0.0680   |
| 2.4G;F1D       | 13       | 14.81       | 25.66     | 0.5            | 413.048          | 102           | C      | 19975.68    | 0.0207   |
| 2.4G;G1D       | 13       | 20.93       | 31.78     | 0.5            | 1690.441         | 102           | C      | 19975.68    | 0.0846   |
| Sum TL Ratio_C | 0.7438   |             |           |                |                  |               |        |             |          |
| Ratio Limit    | 1        |             |           |                |                  |               |        |             |          |

**Mode 5: Iron R1 (2.4GHz) + Iron R1 (4.9GHz / 5GHz) + Pine R2 (6GHz) + Scanning R3 (5GHz port 2 set 10) + R4 (Bluetooth)**

| Mode           | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|----------------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 2.4G;D1D       | 16.01    | 19.49       | 33.35     | 0.49           | 2421.029         | 102           | C      | 19975.68    | 0.1212   |
| 4.9G           | 19.05    | 22.13       | 39.03     | 0.5            | 8974.288         | 102           | C      | 19975.68    | 0.4493   |
| 6.7G;D1D       | 18.9     | 14.08       | 30.83     | 0.5            | 1358.313         | 102           | C      | 19975.68    | 0.0680   |
| 2.4G;F1D       | 13       | 14.81       | 25.66     | 0.5            | 413.048          | 102           | C      | 19975.68    | 0.0207   |
| 5.8G;D1D       | 18.53    | 16.92       | 33.3      | 0.5            | 2398.833         | 102           | C      | 19975.68    | 0.1201   |
| Sum TL Ratio_C | 0.7792   |             |           |                |                  |               |        |             |          |
| Ratio Limit    | 1        |             |           |                |                  |               |        |             |          |

**Mode 6: Iron R1 (2.4GHz) + Iron R1 (4.9GHz / 5GHz) + Pine R2 (6GHz) + Scanning R3 (5GHz port 1 set 10) + R4 (Bluetooth)**

| Mode           | DG (dBi) | Power (dBm) | ERP (dBm) | Tolerance (dB) | Tune-up ERP (mW) | Distance (cm) | Option | TL ERP (mW) | TL Ratio |
|----------------|----------|-------------|-----------|----------------|------------------|---------------|--------|-------------|----------|
| 2.4G;D1D       | 16.01    | 19.49       | 33.35     | 0.49           | 2421.029         | 102           | C      | 19975.68    | 0.1212   |
| 4.9G           | 19.05    | 22.13       | 39.03     | 0.5            | 8974.288         | 102           | C      | 19975.68    | 0.4493   |
| 6.7G;D1D       | 18.9     | 14.08       | 30.83     | 0.5            | 1358.313         | 102           | C      | 19975.68    | 0.0680   |
| 2.4G;F1D       | 13       | 14.81       | 25.66     | 0.5            | 413.048          | 102           | C      | 19975.68    | 0.0207   |
| 5.8G;D1D       | 18.53    | 16.92       | 33.3      | 0.5            | 2398.833         | 102           | C      | 19975.68    | 0.1201   |
| Sum TL Ratio_C | 0.7792   |             |           |                |                  |               |        |             |          |
| Ratio Limit    | 1        |             |           |                |                  |               |        |             |          |

————THE END————