# APPLICATION FOR CERTIFICATION

On Behalf of

Intel Corporation

Notebook

Model No.: HSBUB-SDS

FCC ID: RMXHSBUB-SDS

IC: 1000V-HSBUBSDS

Brand: Intel

Prepared for : Intel Corporation
2200 Mission College Blvd.
Santa Clara, CA 95054-1549, USA

Prepared by : AUDIX Technology Corporation
EMC Department
No. 53-11, Dingfu, Linkou
Dist., New Taipei City 244,
Taiwan, R.O.C.

Tel : (02) 2609-9301, 2609-2133
Fax: (02) 2609-9303

File Number : C1M1212198
Report Number : EM-F1020110
Date of Test : Dec. 25, 2012 ~ Feb. 04, 2013
Date of Report : Feb. 04, 2013

# TABLE OF CONTENTS

Description Page

TEST REPORT CERTIFICATION ..... 4

**1. GENERAL INFORMATION ..... 5**
1.1. Description of Device (EUT) ..... 5
1.2. Antenna Information ..... 8
1.3. Description of Key Component Lists ..... 10
1.4. Data Rate Relative to Output Power ..... 12
1.5. Test Configuration for Each Test Item ..... 13
1.6. Tested Supporting System Details ..... 14
1.7. Description of Test Facility ..... 15
1.8. Measurement Uncertainty ..... 15

**2. CONDUCTED EMISSION MEASUREMENT ..... 16**
2.1. Test Equipment ..... 16
2.2. Block Diagram of Test Setup ..... 16
2.3. Powerline Conducted Emission Limit [§15.207, Class B, RSS-Gen §7.2.2/Table 2] ..... 16
2.4. Operating Condition of EUT ..... 17
2.5. Test Procedure ..... 17
2.6. Powerline Conducted Emission Measurement Results ..... 17

**3. RADIATED EMISSION MEASUREMENT ..... 20**
3.1. Test Equipment ..... 20
3.2. Test Setup ..... 20
3.3. Radiated Emission Limits (§15.209, RSS-210 §2.7/Table 2) ..... 22
3.4. Operating Condition of EUT ..... 22
3.5. Test Procedure ..... 23
3.6. Test Results ..... 24

**4. 26dB BANDWIDTH MEASUREMENT ..... 65**
4.1. Test Equipment ..... 65
4.2. Block Diagram of Test Setup ..... 65
4.3. Operating Condition of EUT ..... 65
4.4. Test Procedure ..... 65
4.5. Test Results ..... 66

**5. FOR DEMONTRATING BE IN COMPLIANCE WITH REQUREMENT IN 15.215 ..... 80**
5.1. Test Equipment ..... 80
5.2. Block Diagram of Test Setup ..... 80
5.3. Limit ..... 80
5.4. Operating Condition of EUT ..... 80
5.5. Test Procedure ..... 80
5.6. Test Results ..... 81

**6. MAXIMUM PEAK OUTPUT POWER MEASUREMENT ..... 84**
6.1. Test Equipment ..... 84
6.2. Block Diagram of Test Setup ..... 84
6.3. Specification Limits [§15.407(a)-(1)(2), RSS-210 A9.2 (1)(2)] ..... 84
6.4. Operating Condition of EUT ..... 85
6.5. Test Procedure ..... 85
6.6. Test Results ..... 85

**7. POWER SPECTRAL DENSITY MEASUREMENT ..... 87**
7.1. Test Equipment ..... 87
7.2. Block Diagram of Test Setup ..... 87
7.3. Specification Limits [§15.407(a)-(1)(2), RSS-210 A9.2 (1)(2)] ..... 87
7.4. Operating Condition of EUT ..... 87

7.5. Test Procedure ..... 87
7.6. Test Results ..... 88
**8. PEAK POWER EXCURSION MEASUREMENT ..... 102**
8.1. Test Equipment ..... 102
8.2. Block Diagram of Test Setup ..... 102
8.3. Specification Limits (§15.407(a)-(6)) ..... 102
8.4. Operating Condition of EUT ..... 102
8.5. Test Procedure ..... 102
8.6. Test Results ..... 103
**9. OCCUPIED BANDWIDTH 99% POWER MEASUREMENT ..... 117**
9.1. Test Equipment ..... 117
9.2. Block Diagram of Test Setup ..... 117
9.3. Specification [RSS-Gen §4.6.1] ..... 117
9.4. Operating Condition of EUT ..... 117
9.5. Test Procedure ..... 117
9.6. Test Results ..... 118
**10. DEVIATION TO TEST SPECIFICATIONS ..... 132**
**11. PHOTOGRAPHS ..... 133**
11.1. Photos of Conducted Emission Measurement ..... 133
11.2. Photos of Radiated Measurement at Semi-Anechoic Chamber ..... 134
11.3. Photo of Section RF Conducted Measurement ..... 135

# TEST REPORT CERTIFICATION

| | | |
|---|---|---|
| Applicant | : | Intel Corporation |
| Manufacturer | : | Intel Corporation |
| EUT Description | : | Notebook |
| FCC ID | : | RMXHSBUB-SDS |
| IC | : | 1000V-HSBUBSDS |

| | | |
|---|---|---|
| (A) Model No. | : | HSBUB-SDS |
| (B) Serial No. | : | N/A |
| (C) Brand | : | Intel |
| (D) Power Supply | : | DC 19V or DC 20V |
| (E) Test Voltage | : | AC 120V, 60Hz (Via AC Adapter) |

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C & E, Oct. 2012
(FCC CFR 47 Part 15C & E, §15.205, §15.207, §15.209 and 15.407)
KDB789033 D01-v01r02
Industry Canada Rules and Regulations RSS-Gen (Issue 3), December 2010 and RSS-210 (Issue 8), December 2010
(Canada RSS-210 §Annex 9)
AND ANSI C63.4:2003

The device described above was tested by AUDIX Technology Corporation to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart C & E and Canada RSS-210 (Issue 8) Annex 9 limits.

The measurement results are contained in this test report and AUDIX Technology Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the requirements of FCC Part 15 and Industry Canada RSS-Gen, RSS-210 standards.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX Technology Corporation.

Date of Test: Dec. 25, 2012 ~ Feb. 004, 2013 Date of Report: Feb. 04, 2013

Producer: _____
(Tina Huang/Administrator)

Signatory: _____
(Leon Liu/Deputy General Manager)

# 1. GENERAL INFORMATION

## 1.1. Description of Device (EUT)

| | |
|---|---|
| Product | Notebook |
| Model Number | HSBUB-SDS |
| Serial Number | N/A |
| Brand Name | Intel |
| Applicant | Intel Corporation<br>2200 Mission College Blvd, Santa Clara, CA 95054-1549, USA |
| Mini HDMI Dongle | Cable: Non-Shielded, Detachable, 0.18m |
| HDMI Cable | Non-Shielded, Detachable, 1.8m |
| FCC ID | RMXHSBUB-SDS |
| IC | 1000V-HSBUBSDS |
| Fundamental Range | 802.11b/g: 2412MHz ~ 2462MHz<br>802.11a: 5180MHz ~ 5240MHz (UNII Band I) and<br>5260MHz ~ 5320MHz (UNII Band II) and<br>5500MHz ~ 5700MHz (UNII Band III, DFS Function, Slave) and<br>5745MHz ~ 5825MHz (UNII Band IV)<br>802.11n-HT20: 2412MHz ~ 2462MHz and<br>5180MHz ~ 5240MHz (UNII Band I) and<br>5260MHz ~ 5320MHz (UNII Band II) and<br>5500MHz ~ 5700MHz (UNII Band III, DFS Function, Slave) and<br>5745MHz ~ 5825MHz (UNII Band IV)<br>802.11n-HT40: 2422MHz ~ 2452MHz and<br>5190MHz ~ 5230MHz (UNII Band I) and<br>5270MHz ~ 5310MHz (UNII Band II) and<br>5510MHz ~ 5670MHz (UNII Band III, DFS Function, Slave) and<br>5755MHz ~ 5795MHz (UNII Band IV)<br>BT and BT Low Energy: 2402MHz ~ 2480MHz<br>GPRS/EGPRS 850: UL: 824MHz to 849MHz<br>DL: 869MHz to 894MHz<br>GPRS/EGPRS 1900: UL: 1850MHz to 1910MHz<br>DL: 1930MHz to 1990MHz<br>WCDMA Band: Band II: UL: 1850MHz to 1910MHz;<br>DL: 1930MHz to 1990MHz<br>Band IV: UL: 1710MHz to 1755MHz;<br>DL: 2110MHz to 2115MHz<br>Band V: UL: 824MHz to 849MHz;<br>DL: 869MHz to 894MHz<br>NFC: 13.56MHz |

| | |
|---|---|
| Fundamental Range | GPRS/EGPRS 850: UL: 824MHz to 849MHz<br>DL: 869MHz to 894MHz<br>GPRS/EGPRS 1900: UL: 1850MHz to 1910MHz<br>DL: 1930MHz to 1990MHz<br>WCDMA Band: Band II: UL: 1850MHz to 1910MHz;<br>DL: 1930MHz to 1990MHz<br>Band IV: UL: 1710MHz to 1755MHz;<br>DL: 2110MHz to 2115MHz<br>Band V: UL: 824MHz to 849MHz;<br>DL: 869MHz to 894MHz<br>NFC: 13.56MHz |
| Frequency Channel | 802.11b/g: 11 channels<br>802.11a: UNII Band I: 4channels<br>UNII Band II: 4 channels<br>UNII Band III: 8 channels<br>UNII Band IV: 4 channels<br>802.11n-HT20: 2.4GHz: 11 channels<br>UNI Band I: 4channels<br>UNII Band II: 4 channels<br>UNII Band III: 8 channels<br>UNII Band IV: 4 channels<br>802.11n-HT40: 2.4GHz: 7 channels<br>UNII Band I: 2channels<br>UNII Band II: 2 channels<br>UNII Band III: 5 channels<br>UNII Band IV: 3 channels<br>Bluetooth: 79 channels (GFSK,π/4DQPSK, 8-DPSK)<br>40 channels (Low Energy)<br>GPRS/EGPRS 850: CH 128- CH 251<br>GPRS/EGPRS 1900: CH 512-CH 810<br>WCDMA Band: Band II: UL: CH 9262-CH9538;<br>DL: CH 9662-CH9938<br>Band IV: UL: CH 1312-CH1513;<br>DL: CH 1537-CH1738<br>Band V: UL: CH 4132-CH4233;<br>DL: CH 4357-CH4458<br>NFC: 1 Channel |
| Radio Technology | 802.11b: DSSS Modulation (DBPSK/DQPSK/CCK)<br>802.11g: OFDM Modulation (BPSK/QPSK/16QAM/64QAM)<br>802.11a: OFDM Modulation (BPSK/QPSK/16QAM/64QAM)<br>802.11n: OFDM Modulation (MIMO)<br>(BPSK/QPSK/16QAM/64QAM)<br>Bluetooth: FHSS (GFSK,π/4DQPSK, 8-DPSK)<br>DSSS (Low Energy)<br>WCDMA/HSPA/HSUPA/HSUPA+<br>GSM/GPRS/EDGE<br>GPS/AGPS |

| | |
|---|---|
| Data Transfer Rate | 802.11b: 1/2/5.5/11Mbps<br>802.11a/g: 6/9/12/18/24/36/48/54Mbps<br>802.11n: up to 300Mbps<br>Bluetooth: 1/2/3Mbps<br>GSM:DL 14.4kbps/UL 14.4kbps<br>GPRS: DL 85.6kbps/UL 85.6kbps<br>EGPRS:DL 236.8kbps/UL 236.8kpbs<br>WCDMA CS: DL 64kbps/UL 64kpbs<br>WCDMA PS: DL 384kbps/UL 384kbps<br>HSPA+:DL 21.6Mbps/UL 5.76Mpbs |
| Date of Receipt of Sample | Dec. 18, 2012 |
| Date of Test | Dec. 25, 2012 ~ Feb. 004, 2013 |
| Note: This EUT has 2.4GHz (WLAN, BT and Low Energy), 5GHz, GPRS/EGPRS, WCDMA and NFC function. See below for related test reports based on radio functionality.<br>1. The 2.4GHz (WLAN and Low Energy) & 5.8GHz (UNII Band IV) function has been test in other report of EM-F1020109.<br>2. The 2.4GHz (BT) function has been test in other report of EM-F1020099.<br>3. The DFS function has been test in other report of EM-F1020111.<br>4. The NFC function has been test in other report of EM-F1020112. | |

## 1.2. Antenna Information

| Antenna Part Number | Manufacture | Antenna Type | Peak Gain | |
|---|---|---|---|---|
| | | | Frequency | Max Gain |
| Project Name: Harris Beach<br><br>WLAN Antenna (Main)<br><br>Part Number: 1556570 | TE Connectivity | PIFA | 2400MHz | 1.24dBi |
| | | | 2442MHz | 0.63dBi |
| | | | 2484MHz | 1.93dBi |
| | | | 5150MHz | 0.74dBi |
| | | | 5250MHz | 0.64dBi |
| | | | 5350MHz | 0.24dBi |
| | | | 5470MHz | -0.54dBi |
| | | | 5600MHz | -0.20dBi |
| | | | 5725MHz | -0.55dBi |
| | | | 5785MHz | 0.84dBi |
| | | | 5800MHz | 0.03dBi |
| | | | 5850MHz | -0.29dBi |
| Project Name: Harris Beach<br><br>WLAN/BT Antenna (AUX)<br><br>Part Number: 1556568 | TE Connectivity | PIFA | 2400MHz | 0.75dBi |
| | | | 2442MHz | 1.39dBi |
| | | | 2484MHz | 1.82dBi |
| | | | 5150MHz | 1.79dBi |
| | | | 5250MHz | 0.79dBi |
| | | | 5350MHz | 1.27dBi |
| | | | 5470MHz | 0.72dBi |
| | | | 5600MHz | 0.36dBi |
| | | | 5725MHz | 1.31dBi |
| | | | 5785MHz | 1.86dBi |
| | | | 5800MHz | 3.04dBi |
| | | | 5850MHz | 2.45dBi |

| Antenna Part Number | Manufacture | Antenna Type | Peak Gain | |
|---|---|---|---|---|
| | | | Frequency (TX) | Max Gain |
| Project Name: Harris Beach<br><br>WWAN Antenna (Main)<br><br>Part Number: 1556567 | TE Connectivity | PIFA | 704MHz | -2.04dBi |
| | | | 710MHz | -1.57dBi |
| | | | 716MHz | -1.45dBi |
| | | | 777MHz | -2.31dBi |
| | | | 782MHz | -2.22dBi |
| | | | 787MHz | -2.61dBi |
| | | | 832MHz | -2.42dBi |
| | | | 847MHz | -3.26dBi |
| | | | 862MHz | -3.20dBi |
| | | | 824MHz | -3.44dBi |
| | | | 836MHz | -4.03dBi |
| | | | 849MHz | -3.89dBi |
| | | | 880MHz | -2.79dBi |
| | | | 900MHz | -2.71dBi |
| | | | 915MHz | -3.08dBi |
| | | | 1710MHz | -4.09dBi |
| | | | 1750MHz | -3.34dBi |
| | | | 1785MHz | -3.77dBi |
| | | | 1710MHz | -3.69dBi |
| | | | 1732MHz | -3.43dBi |
| | | | 1755MHz | -3.34dBi |
| | | | 1850MHz | -3.88dBi |
| | | | 1880MHz | -2.86dBi |
| | | | 1910MHz | -2.97dBi |
| | | | 1920MHz | -3.30dBi |
| | | | 1950MHz | -3.28dBi |
| | | | 1980MHz | -2.86dBi |
| | | | 2500MHz | -1.90dBi |
| | | | 2535MHz | -2.29dBi |
| | | | 2570MHz | -2.08dBi |

| Antenna Part Number | Manufacture | Antenna Type | Peak Gain (dBi) | |
|---|---|---|---|---|
| | | | Frequency (RX) | Max Gain |
| Project Name: Harris Beach<br><br>WWAN Antenna (AUX)<br><br>Part Number: 1556569 | TE Connectivity | PIFA | 1575MHz | -3.67dBi |
| | | | 1602MHz | -3.71dBi |

## 1.3. Description of Key Component Lists

### 1.3.1.For the All Component Lists

| Item | | Supplier | Description | Character |
|---|---|---|---|---|
| System | | Microsoft | Windows 8 | --- |
| Main Board | | Flex | 832-FIG-ITLH-G71865-400 | PCBA for NB shuold not be listed separately |
| LCD Panel | | Chimei Innolux Corp | N133HSE-EXX | 13.3 inches TFT Type |
| CPU | | Intel | --- | Up to 3.3GHz |
| Graphics | | Intel | Intel® HD Graphics with DX11 | --- |
| Memory | | Samsung | --- | 4GB |
| SSD | | Samsung | #1 MZ-C******<br>#2 MZ-D******<br>#3 MZ-E******<br>#4 MZ-N******<br>(* can be 0-9, A-Z, blank, slash or dash for different market purpose) | 128GB |
| Keyboard | | Kunshan YingHui Precision Electronic Co. | YH-BH12LCxx (xx=01 for US language; 02 for SP language) | -- |
| Battery Pack | | Getac Technology Corp | HB FFRD | 7.5V, 7100 mAh, 53.25Whr |
| Web Camera | | CHICONY Electronics Co., Ltd. | CKFCF01 | --- |
| WLAN+BT Combo Module | | Broadcom | AW-NB136 | IEEE 802.11a/b/g+ 2X2 n Bluetooth 4.0+Low Energy |
| WWAN | | Huawei | MU736 | WCDMA/HSDPA/HSUPA /HSPA GSM/GPRS/EDGE, GPS/A-GPS |
| WWAN Antenna | Main | TE Connectivity Ltd. | 1556567 | --- |
| | AUX | | 1556569 | --- |
| WiFi/BT Antenna | Main | TE Connectivity Ltd. | 1556570 | -- |
| | AUX | | 1556568 | --- |
| AC Adapter #1 | | Chicony | A12-045N2A | I/P: 100-240V~, 1.3A 50-60Hz<br>O/P: 19V, 2.37A |
| | | DC Power Cord: Non-Shielded, Undetached, 1.0m<br>AC Power Cord: Non-Shielded, Detached, 1.8m | | |
| AC Adapter #2 | | Delta | ADP-45BE AA | I/P: 100-240V~, 1.3A 50-60Hz<br>O/P: 20V, 2.25A |
| | | DC Power Cord: Non-Shielded, Undetached, 1.0m<br>AC Power Cord: Non-Shielded, Detached, 1.8m | | |

Remark: For a more detailed features description, please refer to the manufacturer's specifications or the user manual.

1.3.2. For the EUT Test Configuration

| **Configuration** | **SKU #1** |
|---|---|
| System | Microsoft, Windows 8 |
| Main Board | Flex, 832-FIG-ITLH-G71865-400 |
| LCD Panel | Chimei Innolux Corp., N133HSE-EXX |
| CPU | Intel, i7-4650U |
| Graphics | Intel, Intel® HD Graphics with DX11 |
| Memory | Samsung, K4E8E304EB-EGCE, 4GB |
| SSD | Samsung, MZNTD128HAGM |
| Keyboard | YH-BH12LC01 |
| Battery Pack | Getac Technology Corp, M/N HB FFRD |
| Web Camera | CHICONY Electronics Co., Ltd., CKFCF01 |
| WLAN+BT Combo Module | Broadcom, M/N AW-NB136 |
| WWAN | Huawei, M/N MU736 |
| WLAN/BT Antenna | Main: TE Connectivity Ltd., 1556570<br>AUX: TE Connectivity Ltd., 1556570 |
| WWAN Antenna | Main: TE Connectivity Ltd., 1556567<br>AUX: TE Connectivity Ltd., 1556569 |
| AC Adapter | Chicony, M/N A12-045N2A |
| Resolution | 1920*1080 |

## 1.4. Data Rate Relative to Output Power

| 802.11a (UNII Band I) | | | |
|---|---|---|---|
| Channel | Modulation | Date Rate (Mbps) | Peak Power (dBm) |
| 36 | BPSK | 6 | 12.50 |
| 36 | BPSK | 9 | 12.48 |
| 36 | QPSK | 12 | 12.47 |
| 36 | QPSK | 18 | 12.46 |
| 36 | 16-QAM | 24 | 12.43 |
| 36 | 16-QAM | 36 | 12.41 |
| 36 | 64-QAM | 48 | 12.40 |
| 36 | 64-QAM | 54 | 12.37 |

| NII 802.11n-HT20 (UNII Band I) | | | | NII 802.11n-HT40 (UNII Band I) | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | Date Rate (Mbps) | Peak Power (dBm) | Channel | Modulation | Date Rate (Mbps) | Peak Power (dBm) |
| 36 | BPSK | 14.02 | 14.645 | 38 | BPSK | 6.5 | 13.65 |
| 36 | QPSK | 14.01 | 14.375 | 38 | QPSK | 13 | 13.63 |
| 36 | QPSK | 13.98 | 14.394 | 38 | QPSK | 19.5 | 13.61 |
| 36 | 16-QAM | 13.89 | 14.512 | 38 | 16-QAM | 26 | 13.60 |
| 36 | 16-QAM | 13.88 | 14.403 | 38 | 16-QAM | 39 | 13.58 |
| 36 | 64-QAM | 13.87 | 14.568 | 38 | 64-QAM | 52 | 13.56 |
| 36 | 64-QAM | 13.86 | 14.519 | 38 | 64-QAM | 58.6 | 13.52 |
| 36 | 64-QAM | 13.81 | 14.602 | 38 | 64-QAM | 65 | 13.50 |

| 802.11a (UNII Band II) | | | |
|---|---|---|---|
| Channel | Modulation | Date Rate (Mbps) | Peak Power (dBm) |
| 52 | BPSK | 6 | 15.53 |
| 52 | BPSK | 9 | 15.51 |
| 52 | QPSK | 12 | 15.50 |
| 52 | QPSK | 18 | 15.48 |
| 52 | 16-QAM | 24 | 15.47 |
| 52 | 16-QAM | 36 | 15.46 |
| 52 | 64-QAM | 48 | 15.45 |
| 52 | 64-QAM | 54 | 15.41 |

| NII 802.11n-HT20 (UNII Band II) | | | | NII 802.11n-HT40 (UNII Band II) | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | Date Rate (Mbps) | Peak Power (dBm) | Channel | Modulation | Date Rate (Mbps) | Peak Power (dBm) |
| 52 | BPSK | 6.5 | 16.79 | 52 | BPSK | 6.5 | 15.76 |
| 52 | QPSK | 13 | 16.78 | 52 | QPSK | 13 | 15.71 |
| 52 | QPSK | 19.5 | 16.77 | 52 | QPSK | 19.5 | 15.69 |
| 52 | 16-QAM | 26 | 16.76 | 52 | 16-QAM | 26 | 15.69 |
| 52 | 16-QAM | 39 | 16.71 | 52 | 16-QAM | 39 | 15.60 |
| 52 | 64-QAM | 52 | 16.68 | 52 | 64-QAM | 52 | 15.51 |
| 52 | 64-QAM | 58.6 | 16.61 | 52 | 64-QAM | 58.6 | 15.50 |
| 52 | 64-QAM | 65 | 16.60 | 52 | 64-QAM | 65 | 15.48 |

| 802.11a (UNII Band III) | | | |
|---|---|---|---|
| Channel | Modulation | Date Rate (Mbps) | Peak Power (dBm) |
| 100 | BPSK | 6 | 15.57 |
| 100 | BPSK | 9 | 15.56 |
| 100 | QPSK | 12 | 15.55 |
| 100 | QPSK | 18 | 15.51 |
| 100 | 16-QAM | 24 | 15.49 |
| 100 | 16-QAM | 36 | 15.48 |
| 100 | 64-QAM | 48 | 15.47 |
| 100 | 64-QAM | 54 | 15.41 |

| NII 802.11n-HT20 (UNII Band III) | | | | NII 802.11n-HT40 (UNII Band III) | | | |
|---|---|---|---|---|---|---|---|
| Channel | Modulation | Date Rate (Mbps) | Peak Power (dBm) | Channel | Modulation | Date Rate (Mbps) | Peak Power (dBm) |
| 100 | BPSK | 6.5 | 16.87 | 100 | BPSK | 6.5 | 15.76 |
| 100 | QPSK | 13 | 16.82 | 100 | QPSK | 13 | 15.71 |
| 100 | QPSK | 19.5 | 16.81 | 100 | QPSK | 19.5 | 15.70 |
| 100 | 16-QAM | 26 | 16.75 | 100 | 16-QAM | 26 | 15.68 |
| 100 | 16-QAM | 39 | 16.73 | 100 | 16-QAM | 39 | 15.61 |
| 100 | 64-QAM | 52 | 16.71 | 100 | 64-QAM | 52 | 15.59 |
| 100 | 64-QAM | 58.6 | 16.66 | 100 | 64-QAM | 58.6 | 15.58 |
| 100 | 64-QAM | 65 | 16.61 | 100 | 64-QAM | 65 | 15.51 |

## 1.5. Test Configuration for Each Test Item

| Test Item | 802.11a | 802.11n-HT20 | 802.11n-HT40 |
|---|---|---|---|
| | Data Rate for Test(Mbps) | | |
| 26dB Bandwidth | 6 | 6.5 | 13.5 |
| Emission Limitations | 6 | 6.5 | 13.5 |
| Maximum peak output power | 6 | 6.5 | 13.5 |
| Power spectral density | 6 | 6.5 | 13.5 |
| Peak power Excursion | 6 | 6.5 | 13.5 |
| Frequency Stability | 6 | 6.5 | 13.5 |

## 1.6. Tested Supporting System Details

### 1.6.1. Support Peripheral Unit

| No. | Product | Brand | Model No. | Serial No. | FCC ID |
|---|---|---|---|---|---|
| 1. | Monitor | DELL | U3011T | CN-0C34G2-74445-29I-031L | FCC DoC Approved |
| 2. | USB 3.0 External HDD | BUFFALO | HD-LBU3 | 55292020409776 | FCC DoC Approved |
| 3. | USB Mouse | DELL | MS111-T | CN-0KW2YH-71616-282-0XYP | FCC DoC Approved |
| 4. | Earphone | APPLE | N/A | N/A | N/A |
| 5. | SD Card | ADATA | AD4GSDHC4-S | N/A | N/A |
| 6. | SIM Card | Taiwan Mobile | 0907 41 003894 5 | N/A | N/A |
| 7. | AP Server | LG | Di-624 | F34U177001194 | KA2DI624D2 |
| 8. | Bluetooth Headset | INNOSTAR | IH-05 | N/A | UU9MBH200 |

### 1.6.2. Cable Lists

| No. | Signal Cable Description Of The Above Support Units |
|---|---|
| 1. | N/A |
| 2. | USB Cable: Shielded, Detachable, 1.0m |
| 3. | USB Cable: Shielded, Undetachable, 1.8m |
| 4. | Earphone Cable: Non-Shielded, Detachable, 0.9m |
| 5. | N/A |
| 6. | N/A |
| 7. | N/A |
| 8. | N/A |

Note：1. Support Unit 1: Power Cord: Non-Shielded, Detachable, 1.8m

2. Support Unit 2 AC Adapter: BUFFALO, M/N: WA-18H12, S/N: 219019279;
   Cord: Non-Shielded, Undetachable, 1.5m

3 Support Unit 7 AC Adapter: D-Link, M/N: AM-91000A;
   Cord: Non-Shielded, Detachable, 1.8m

4. The support units (7-8) are communicated partner system.

## 1.7. Description of Test Facility

| | | |
|---|---|---|
| Name of Firm | : | **AUDIX Technology Corporation**<br>EMC Department<br>No. 53-11, Dingfu, Linkou Dist.,<br>New Taipei City 244, Taiwan, R.O.C. |
| Test Site<br>(C7/Semi-AC) | : | **No. 7 Shielded Room &**<br>No. 53-11, Dingfu, Linkou Dist.,<br>New Taipei City 244, Taiwan, R.O.C.<br>**Semi-Anechoic Chamber**<br>No. 53-11, Dingfu, Linkou Dist.,<br>New Taipei City 244, Taiwan, R.O.C.<br>May 11, 2012 Renewal on<br>Federal Communication Commission<br>Registration Number: 90993 |
| NVLAP Lab. Code | : | 200077-0 |
| TAF Accreditation No | : | 1724 |

## 1.8. Measurement Uncertainty

| Test Item | Frequency Range | Uncertainty (dB) |
|---|---|---|
| Conduction Test | 150kHz~30MHz | ± 1.73dB |
| Radiation Test<br>(Distance: 3m) | 30MHz~300MHz | ± 2.91dB |
| | 300MHz~1000MHz | ± 2.74dB |
| | Above 1GHz | ± 5.02dB |

Remark：Uncertainty = $ku_c(y)$

| Test Item | Uncertainty |
|---|---|
| 26dB Bandwidth | ± 0.2kHz |
| Maximum peak output power | ± 0.33dBm |
| Power spectral density | ± 0.13dB |
| Peak power Excursion | ± 0.14dB |
| Occupied Bandwidth 99% Power | ± 1kHz |

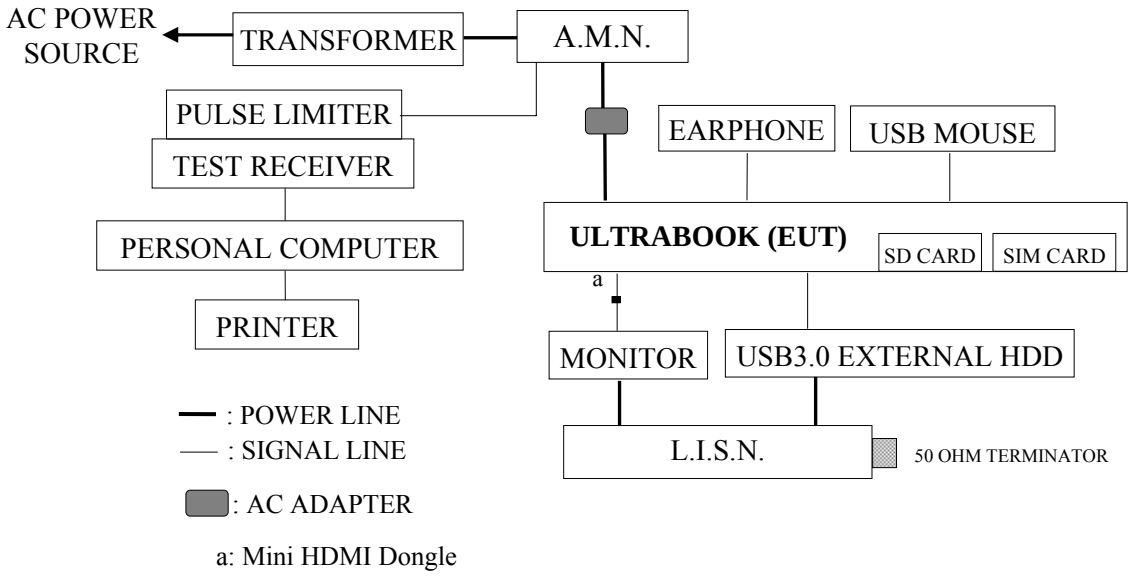
# 2. CONDUCTED EMISSION MEASUREMENT

## 2.1. Test Equipment

The following test equipment was used during the powerline conducted emission measurement: (No. 7 Shielded Room)

| Item | Type | Manufacturer | Model No. | Serial No. | Last Cal. | Next Cal. |
|---|---|---|---|---|---|---|
| 1. | Test Receiver | R&S | ESCI | 101276 | Apr. 30, 12' | Apr. 29, 13' |
| 2. | A.M.N. | R&S | ENV4200 | 100169 | May 04, 12' | May 03, 13' |
| 3. | L.I.S.N. | Kyoritsu | KNW-407 | 8-881-13 | Feb. 01, 12' | Jan. 31, 13' |
| 4. | Pulse Limiter | R&S | ESH3-Z2 | 101495 | Mar. 26, 12' | Mar. 25, 13' |

## 2.2. Block Diagram of Test Setup




## 2.3. Powerline Conducted Emission Limit [§15.207, Class B, RSS-Gen §7.2.2/Table 2]

| Frequency | Maximum RF Line Voltage | |
|---|---|---|
| | Quasi-Peak Level | Average Level |
| 150kHz ~ 500kHz | 66 ~ 56 dBμV | 56 ~ 46 dBμV |
| 500kHz ~ 5MHz | 56 dBμV | 46 dBμV |
| 5MHz ~ 30MHz | 60 dBμV | 50 dBμV |

Remark: 1. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.
2. The lower limit applies at the band edges.

## 2.4. Operating Condition of EUT

2.4.1. Setup the EUT and simulator as shown on 2.2.

2.4.2. Turn on the power of all equipment.

2.4.3. Set to EUT (Notebook) on transmitting and receiving during all testing.

## 2.5. Test Procedure

The EUT was placed on the table which was above the ground by 80cm and it's adapter power cord connected to the AC mains through an Artificial Mains Network (A.M.N.). This provided a 50 ohm coupling impedance for the measuring equipment. (Please refer to the block diagram of the test setup and photographs.)
Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions simulators of the interface cables should be manipulated according to ANSI C63.4-2003, RSS-Gen and RSS-210 regulation during conducted measurement.

The bandwidth of the R&S Test Receiver ESCI was set at 10kHz.

The frequency range from 150kHz to 30MHz was checked.

All the final readings from Test Receiver were measured with the Quasi-Peak detector and Average detector. Remark: If the Average limit is met when using a Quasi-Peak detector, the Average detector is unnecessary)

## 2.6. Powerline Conducted Emission Measurement Results

**PASSED.**
(All the emissions not reported below are too low against the prescribed limits.)

EUT was performed during this section testing and all the test results are attached in next pages.

EUT: Notebook M/N: HSBUB-SDS

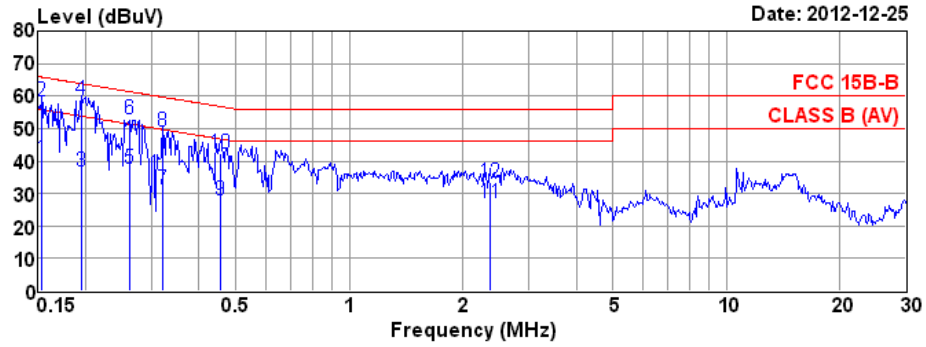
Test Date: Dec. 25, 2012 Temperature: 25℃ Humidity: 52%

The details are as follows：

| Mode | Reference Test Data | |
|---|---|---|
| | Neutral | Line |
| 1. | # 4 | # 3 |

AUDIX TECHNOLOGY Corp. EMC Department
No.53-11, Dinfu, Linkou Dist.,New Taipei City 244, Taiwan R.O.C.
Tel:+886-2-26092133 Fax:+886-2-26099303
Email:emc@audixtech.com

Data: 4 File: D:\test data\REPORT\C1M1212XXX\C1M1212198-C-D.EM6 (12)



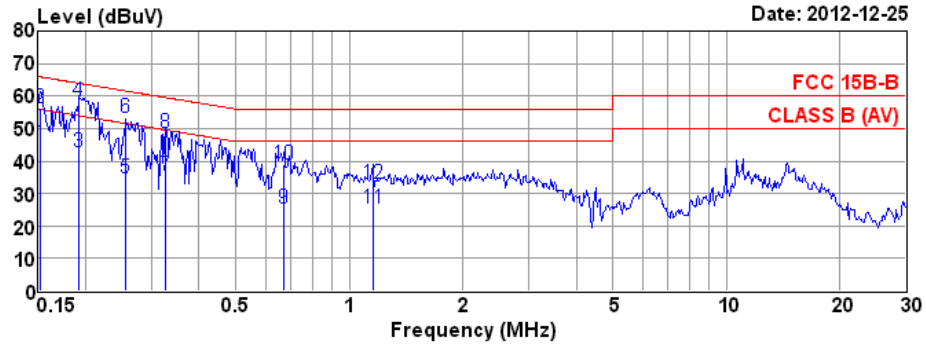

Site no. : No.7 Shielded Room Data no. : 4
Dis. / Ant. : ENV4200 Ant. pol. : NEUTRAL
Limit : FCC 15B-B
Env. / Ins. : 25*C / 52% ESCI (1276) Engineer : Fate
EUT : HSBUB-SDS
Power Rating : 120Vac/60Hz
Test Mode : Operating

| | Freq. (MHz) | AMN. Factor (dB) | Cable Loss (dB) | Reading (dBµV) | Emission Level (dBµV) | Limits (dBµV) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.15 | 10.23 | 9.92 | 20.48 | 40.63 | 55.82 | 15.19 | Average |
| 2 | 0.15 | 10.23 | 9.92 | 38.10 | 58.25 | 65.82 | 7.57 | QP |
| 3 | 0.19 | 10.23 | 9.93 | 16.57 | 36.73 | 53.84 | 17.11 | Average |
| 4 | 0.19 | 10.23 | 9.93 | 38.65 | 58.81 | 63.84 | 5.03 | QP |
| 5 | 0.26 | 10.21 | 9.95 | 17.54 | 37.70 | 51.38 | 13.68 | Average |
| 6 | 0.26 | 10.21 | 9.95 | 32.62 | 52.78 | 61.38 | 8.60 | QP |
| 7 | 0.32 | 10.19 | 9.96 | 10.98 | 31.13 | 49.66 | 18.53 | Average |
| 8 | 0.32 | 10.19 | 9.96 | 28.89 | 49.04 | 59.66 | 10.62 | QP |
| 9 | 0.46 | 10.17 | 9.98 | 7.87 | 28.02 | 46.76 | 18.74 | Average |
| 10 | 0.46 | 10.17 | 9.98 | 22.28 | 42.43 | 56.76 | 14.33 | QP |
| 11 | 2.36 | 10.14 | 10.00 | 6.83 | 26.97 | 46.00 | 19.03 | Average |
| 12 | 2.36 | 10.14 | 10.00 | 13.29 | 33.43 | 56.00 | 22.57 | QP |

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Reading.
2. If the average limit is met when using a quasi-peak detector the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

AUDIX TECHNOLOGY Corp. EMC Department
No.53-11, Dinfu, Linkou Dist.,New Taipei City 244, Taiwan R.O.C.
Tel:+886-2-26092133 Fax:+886-2-26099303
Email:emc@audixtech.com

Data: 3 File: D:\test data\REPORT\C1M1212XXX\C1M1212198-C-D.EM6 (12)




Site no. : No.7 Shielded Room Data no. : 3
Dis. / Ant. : ENV4200 Ant. pol. : LINE
Limit : FCC 15B-B
Env. / Ins. : 25*C / 52% ESCI (1276) Engineer : Fate
EUT : HSBUB-SDS
Power Rating : 120Vac/60Hz
Test Mode : Operating

| | Freq. (MHz) | AMN. Factor (dB) | Cable Loss (dB) | Reading (dBµV) | Emission Level (dBµV) | Limits (dBµV) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 0.15 | 10.22 | 9.92 | 25.10 | 45.24 | 55.91 | 10.67 | Average |
| 2 | 0.15 | 10.22 | 9.92 | 36.25 | 56.39 | 65.91 | 9.52 | QP |
| 3 | 0.19 | 10.24 | 9.93 | 22.73 | 42.90 | 53.93 | 11.03 | Average |
| 4 | 0.19 | 10.24 | 9.93 | 38.38 | 58.55 | 63.93 | 5.38 | QP |
| 5 | 0.26 | 10.23 | 9.95 | 14.65 | 34.83 | 51.56 | 16.73 | Average |
| 6 | 0.26 | 10.23 | 9.95 | 33.06 | 53.24 | 61.56 | 8.32 | QP |
| 7 | 0.33 | 10.21 | 9.96 | 15.50 | 35.67 | 49.57 | 13.90 | Average |
| 8 | 0.33 | 10.21 | 9.96 | 28.65 | 48.82 | 59.57 | 10.75 | QP |
| 9 | 0.67 | 10.19 | 9.99 | 5.06 | 25.24 | 46.00 | 20.76 | Average |
| 10 | 0.67 | 10.19 | 9.99 | 18.76 | 38.94 | 56.00 | 17.06 | QP |
| 11 | 1.15 | 10.18 | 10.00 | 5.19 | 25.37 | 46.00 | 20.63 | Average |
| 12 | 1.15 | 10.18 | 10.00 | 12.71 | 32.89 | 56.00 | 23.11 | QP |

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Reading.
2. If the average limit is met when using a quasi-peak detector the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

# 3. RADIATED EMISSION MEASUREMENT

## 3.1. Test Equipment

The following test equipment was used during the radiated emission measurement:

### 3.1.1. For Frequency Range 30MHz~1000MHz (at Semi-Anechoic Chamber)

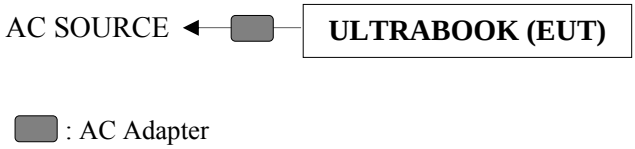
| Item | Type | Manufacturer | Model No. | Serial No. | Last Cal. | Next Cal. |
|---|---|---|---|---|---|---|
| 1. | Spectrum Analyzer | Agilent | E4446A | US44300366 | Aug. 08, 12’ | Aug. 06, 13’ |
| 2. | Test Receiver | R & S | ESCS30 | 100338 | Jul. 04, 12’ | Jul. 03, 13’ |
| 3. | Amplifier | HP | 8447D | 2944A06305 | Feb. 13, 12’ | Feb. 12, 13’ |
| 4. | Biconical Antenna | CHASE | VBA6106A | 1264 | Mar. 03, 12’ | Mar. 02, 13’ |
| 5. | Log Periodic Antenna | Schwarzbeck | UHALP9108-A | 0810 | Mar. 03, 12’ | Mar. 02, 13’ |

### 3.1.2. For Frequency Above 1GHz (at Semi-Anechoic Chamber)

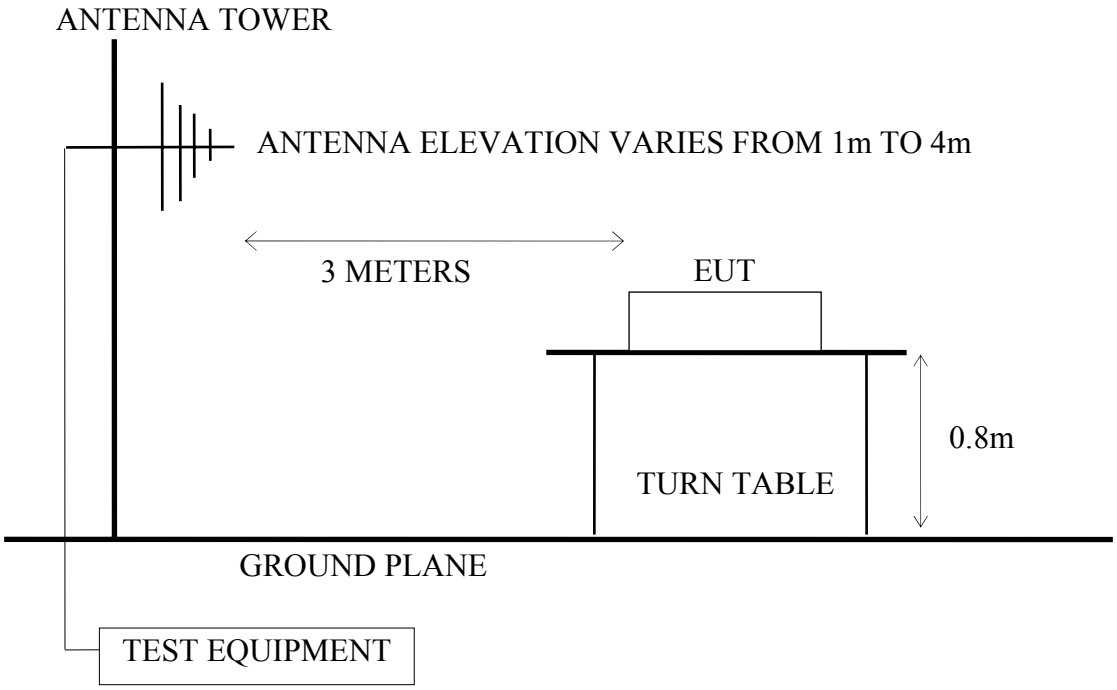
| Item | Type | Manufacturer | Model No. | Serial No. | Last Cal. | Next Cal. |
|---|---|---|---|---|---|---|
| 1. | Spectrum Analyzer | Agilent | E4446A | US44300366 | Aug. 07, 12’ | Aug. 06, 13’ |
| 2. | Test Receiver | R & S | ESCS30 | 100338 | Jul. 04, 12’ | Jul. 03, 13’ |
| 3. | Pre-Amplifier | HP | 8449B | 3008A02678 | Mar. 07, 12’ | Mar. 06, 13’ |
| 4. | 5G High Pass Filter | Microware Circuits | H1G013G1 | 459777 | Dec. 13, 12’ | Dec. 12, 13’ |
| 5. | 5G Notch Filter | Microware Circuits | N0555983 | 459481 | Dec. 31, 12’ | Dec. 30, 13’ |
| 6. | 5G Notch Filter | Microware Circuits | N0258771 | 459776 | Jan. 03, 13’ | Jan. 02, 14’ |
| 7. | Horn Antenna | EMCO | 3115 | 9112-3775 | May 09, 12’ | May 08, 13’ |
| 8. | Horn Antenna | EMCO | 3116 | 2653 | Oct. 15, 12’ | Oct. 14, 13’ |

## 3.2. Test Setup

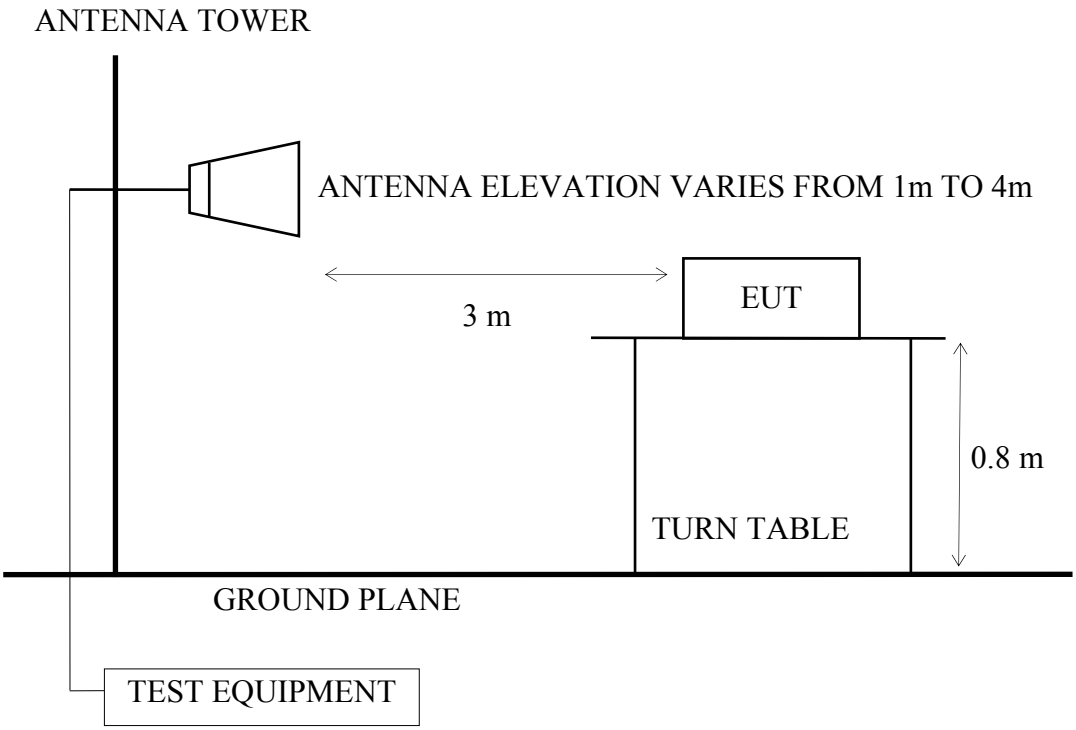
### 3.2.1.Block Diagram of connection between EUT and simulators



3.2.2.Semi-Anechoic Chamber (3m) Setup Diagram for 30-1000MHz




3.2.3.Semi-Anechoic Chamber (3m) Setup Diagram for above 1GHz



## 3.3. Radiated Emission Limits (§15.209, RSS-210 §2.7/Table 2)

| FREQUENCY MHz | DISTANCE Meters | FIELD STRENGTHS LIMITS | |
|---|---|---|---|
| | | μV/m | dBμV/m |
| 30 ~ 88 | 3 | 100 | 40.0 |
| 88 ~ 216 | 3 | 150 | 43.5 |
| 216 ~ 960 | 3 | 200 | 46.0 |
| Above 960 | 3 | 500 | 54.0 |
| Above 1000 | 3 | 74.0 dBμV/m (Peak)<br>54.0 dBμV/m (Average) | |

Remark：(1) Emission level (dBμV/m) = 20 log Emission level (μV/m)
(2) The tighter limit applies at the edge between two frequency bands.
(3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
(4) The limits in this table are based on CFR 47 Part 15.205(a)(b) and Part 15.209 (a).
(5) The over 1GHz limit, FCC limit is used based on CFR 47 Part 15.35 (b) and Part 15.205(b) & Part 15.209(e) and Part 15.207(c).

## 3.4. Operating Condition of EUT

3.4.1. Set up the EUT (Notebook) via Notebook PC and simulator as shown on 3.2.

3.4.2. To turn on the power of all equipments.

3.4.3. The EUT was using test program “WL command”

3.4.4. The EUT supports 802.11a/n-HT20/n-HT40 modes, we performed pre-scan high, middle, low channels for each mode for spurious emission and listed the worst channel of each mode in test report.

The worst channel of each mode as following:

| Mode | Type of Network | UNII Band | Channel |
|---|---|---|---|
| 1. | 802.11a | UNII Band I | CH 48 |
| 2. | | UNII Band II | CH 56 |
| 3. | | UNII Band III | CH 116 |
| 4. | 802.11n-HT20 | UNII Band I | CH 48 |
| 5. | | UNII Band II | CH 52 |
| 6. | | UNII Band III | CH 116 |
| 7. | 802.11n-HT40 | UNII Band I | CH 46 |
| 8. | | UNII Band II | CH 54 |
| 9. | | UNII Band III | CH 118 |

## 3.5. Test Procedure

The EUT and its simulators were placed on a turn table which was 0.8 meter above the ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set 3 meters away from the receiving antenna which was mounted on a antenna tower. The antenna moved up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna such as calibrated biconical and log-periodical antenna or horn antenna were used as a receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4-2003, RSS-Gen and RSS-210 regulation.

The bandwidth of the R&S Test Receiver was set at 120kHz. (For 30MHz to 1000MHz)

The resolution bandwidth and video bandwidth of test spectrum analyzer is 1MHz for peak detection (PK) at frequency above 1GHz.

The resolution bandwidth of test spectrum analyzer is 1MHz and the video bandwidth is 10Hz for average detection (AV) at frequency above 1GHz.

The frequency range from 30MHz to 40GHz (Up to $10^{th}$ harmonics from fundamental frequency) was checked. 30MHz to 1000MHz was measured with Quasi-Peak detector.

Above 1GHz was measured with peak and average detector. For frequency from 2.68GHz to 40GHz, we checked it in 1 meter distance and with a shorter cable 2 meter instead of original's. There is no signal exist.

Pursuant to ANSI C63.4 8.3.1.2, when peak value complies with the average limit, we didn't perform measurement in average detector.

## 3.6. Test Results

**PASSED.**
(All emissions not reported below are too low against the prescribed limits.)

EUT: Notebook M/N: HSBUB-SDS

Test Date: Feb. 01, 2013 Temperature: 26℃ Humidity: 61%

**For Frequency Range 30MHz~1000MHz:**

The EUT with following test modes were performed during this section testing and all the test results are listed in section 3.6.1.

802.11a:

| Mode | UNII Band | Channel | Frequency | Test Mode | Reference Test Data | |
|---|---|---|---|---|---|---|
| | | | | | Horizontal | Vertical |
| 1. | UNII Band I | CH 48 | 5240MHz | Transmit | # 2 | # 1 |
| 2. | UNII Band II | CH 56 | 5280MHz | Transmit | # 2 | # 1 |
| 3. | UNII Band III | CH 116 | 5580MHz | Transmit | # 2 | # 1 |

802.11n-HT20:

| Mode | UNII Band | Channel | Frequency | Test Mode | Reference Test Data | |
|---|---|---|---|---|---|---|
| | | | | | Horizontal | Vertical |
| 4. | UNII Band I | CH 48 | 5240MHz | Transmit | # 2 | # 1 |
| 5. | UNII Band II | CH 52 | 5260MHz | Transmit | # 2 | # 1 |
| 6. | UNII Band III | CH 116 | 5580MHz | Transmit | # 2 | # 1 |

802.11n-H40:

| Mode | UNII Band | Channel | Frequency | Test Mode | Reference Test Data | |
|---|---|---|---|---|---|---|
| | | | | | Horizontal | Vertical |
| 7. | UNII Band I | CH 46 | 5230MHz | Transmit | # 2 | # 1 |
| 8. | UNII Band II | CH 54 | 5270MHz | Transmit | # 2 | # 1 |
| 9. | UNII Band III | CH 118 | 5590MHz | Transmit | # 2 | # 1 |

* Above all final readings were measured with Quasi-Peak detector.

**For Frequency above 1GHz:**

The EUT with following test modes was performed during this section testing and all the test results are listed in section 3.6.2.

802.11a:

| Mode | UNII Band | Channel | Frequency | Test Mode | Reference Test Data | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Horizontal | | Vertical | |
| | | | | | Peak | Average | Peak | Average |
| 1. | UNII Band I | CH 48 | 5240MHz | Transmit | # 5 | -- | # 6 | -- |
| 2. | UNII Band II | CH 56 | 5280MHz | Transmit | # 9 | -- | # 10 | -- |
| 3 | UNII Band III | CH 116 | 5580MHz | Transmit | # 5 | # 17 | # 6 | # 18 |

802.11n-HT20:

| Mode | UNII Band | Channel | Frequency | Test Mode | Reference Test Data | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Horizontal | | Vertical | |
| | | | | | Peak | Average | Peak | Average |
| 4. | UNII Band I | CH 48 | 5240MHz | Transmit | # 8 | -- | # 6 | -- |
| 5. | UNII Band II | CH 52 | 5260MHz | Transmit | # 5 | # 17 | # 10 | # 18 |
| 6. | UNII Band III | CH 116 | 5580MHz | Transmit | # 5 | -- | # 6 | -- |

802.11n-H40:

| Mode | UNII Band | Channel | Frequency | Test Mode | Reference Test Data | |
|---|---|---|---|---|---|---|
| | | | | | Horizontal | Vertical |
| | | | | | Peak | Peak |
| 7. | UNII Band I | CH 46 | 5230MHz | Transmit | # 5 | # 6 |
| 8. | UNII Band II | CH 54 | 5270MHz | Transmit | # 5 | # 6 |
| 9. | UNII Band III | CH 118 | 5590MHz | Transmit | # 5 | # 6 |

Note: 1. Above all final readings were measured with Peak and Average detector.

2. For measurements above 1GHz to 2.68GHz and 5.5GHz to 8.0GHz, the peak measured value complies with the average limit, it is unnecessary to perform an average measurement. (According to ANSI C63.4-2003 section 8.3.1.2)

3. The emissions (up to 40GHz) not reported are too low to be measured.

**For Restricted Bands:**

The EUT was tested in restricted bands and all the test results are listed in section 3.6.3. (The restricted bands defined in part 15.205(a))

802.11a:

| Mode | UNII Band | Channel | Frequency | Test Mode | Reference Test Data | |
|---|---|---|---|---|---|---|
| | | | | | Horizontal | Vertical |
| 1. | UNII Band I | CH 36 | 5180MHz | Transmit | # 1, #2 | # 3, # 4 |
| 2. | UNII Band II | CH 64 | 5320MHz | Transmit | # 1, #2 | # 3, # 4 |
| 3. | UNII Band III | CH 100 | 5500MHz | Transmit | # 1, #2 | # 3, # 4 |

802.11n-HT20:

| Mode | UNII Band | Channel | Frequency | Test Mode | Reference Test Data | |
|---|---|---|---|---|---|---|
| | | | | | Horizontal | Vertical |
| 4. | UNII Band I | CH 36 | 5180MHz | Transmit | # 1, #2 | # 3, # 4 |
| 5. | UNII Band II | CH 64 | 5320MHz | Transmit | # 1, #2 | # 3, # 4 |
| 6. | UNII Band III | CH 100 | 5500MHz | Transmit | # 1, #2 | # 3, # 4 |

802.11n-H40:

| Mode | UNII Band | Channel | Frequency | Test Mode | Reference Test Data | |
|---|---|---|---|---|---|---|
| | | | | | Horizontal | Vertical |
| 7. | UNII Band I | CH 38 | 5190MHz | Transmit | # 1, #2 | # 3, # 4 |
| 8. | UNII Band II | CH 62 | 5310MHz | Transmit | # 1, #2 | # 3, # 4 |
| 9. | UNII Band III | CH 102 | 5510MHz | Transmit | # 1, #2 | # 3, # 4 |

3.6.1.Frequency Range 30-1000MHz

**802.11a (UNII Band I), Frequency: 5240MHz**

```
Site no.      : A/C Chamber                  Data no.  : 2
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                          □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5240(802.11a)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 226.830 | 21.96 | 3.30 | 5.39 | 30.64 | 46.00 | 15.36 | Peak |
| 859.300 | 26.01 | 7.20 | 0.43 | 33.63 | 46.00 | 12.37 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

---

```
Site no.      : A/C Chamber                  Data no.  : 1
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : VERTICAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                          □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5240(802.11a)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 101.280 | 17.17 | 2.10 | 9.75 | 29.02 | 43.50 | 14.48 | Peak |
| 481.300 | 18.74 | 6.10 | 7.11 | 31.95 | 46.00 | 14.05 | Peak |
| 903.400 | 24.90 | 7.40 | 0.64 | 32.94 | 46.00 | 13.06 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11a (UNII Band II), Frequency: 5280MHz

```
Site no.      : A/C Chamber                 Data no.  : 2
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A    Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5280(802.11a)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 226.830 | 21.96 | 3.30 | 4.87 | 30.12 | 46.00 | 15.88 | Peak |
| 672.400 | 22.85 | 6.40 | 1.45 | 30.70 | 46.00 | 15.30 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

---

```
Site no.      : A/C Chamber                 Data no.  : 1
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A    Ant. pol. : VERTICAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5280(802.11a)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 113.430 | 18.47 | 2.26 | 5.10 | 25.83 | 43.50 | 17.67 | Peak |
| 887.300 | 25.16 | 7.30 | -0.26 | 32.20 | 46.00 | 13.80 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11a (UNII Band III), Frequency: 5580MHz

```
Site no.      : A/C Chamber                 Data no.  : 2
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A    Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5580(802.11a)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 216.030 | 21.86 | 3.20 | 6.66 | 31.72 | 46.00 | 14.28 | Peak |
| 672.400 | 22.85 | 6.40 | 2.88 | 32.13 | 46.00 | 13.87 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

---

```
Site no.      : A/C Chamber                 Data no.  : 1
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A    Ant. pol. : VERTICAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5580(802.11a)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 114.780 | 18.60 | 2.30 | 9.80 | 30.70 | 43.50 | 12.80 | Peak |
| 481.300 | 18.74 | 6.10 | 4.37 | 29.21 | 46.00 | 16.79 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11n-HT20 (UNII Band I), Frequency: 5240MHz

```
Site no.      : A/C Chamber                 Data no.  : 2
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A    Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5240(802.11n20)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 102.090 | 17.29 | 2.10 | 10.30 | 29.69 | 43.50 | 13.81 | Peak |
| 294.330 | 26.43 | 3.96 | 5.02 | 35.41 | 46.00 | 10.59 | Peak |
| 672.400 | 22.85 | 6.40 | 4.63 | 33.88 | 46.00 | 12.12 | Peak |
| 971.300 | 26.81 | 7.70 | -0.88 | 33.63 | 54.00 | 20.37 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

```
Site no.      : A/C Chamber                 Data no.  : 1
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A    Ant. pol. : VERTICAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5240(802.11n20)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 102.090 | 17.29 | 2.10 | 8.92 | 28.31 | 43.50 | 15.19 | Peak |
| 481.300 | 18.74 | 6.10 | 4.39 | 29.23 | 46.00 | 16.77 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11n-HT20 (UNII Band II), Frequency: 5260MHz

```
Site no.      : A/C Chamber                 Data no.  : 2
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A    Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                          jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5260(802.11n20)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 221.430 | 21.91 | 3.30 | 6.81 | 32.02 | 46.00 | 13.98 | Peak |
| 885.900 | 25.21 | 7.30 | -0.15 | 32.36 | 46.00 | 13.64 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

---

```
Site no.      : A/C Chamber                 Data no.  : 1
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A    Ant. pol. : VERTICAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                          jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5260(802.11n20)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 93.990 | 16.37 | 2.00 | 7.56 | 25.93 | 43.50 | 17.57 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11n-HT20 (UNII Band III), Frequency: 5580MHz

```
Site no.      : A/C Chamber                 Data no.  : 2
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A    Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5580(802.11n20)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 221.430 | 21.91 | 3.30 | 3.92 | 29.13 | 46.00 | 16.87 | Peak |
| 337.800 | 15.09 | 4.25 | 7.12 | 26.46 | 46.00 | 19.54 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

---

```
Site no.      : A/C Chamber                 Data no.  : 1
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A    Ant. pol. : VERTICAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5580(802.11n20)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 103.980 | 17.50 | 2.10 | 6.77 | 26.37 | 43.50 | 17.13 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11n-HT40 (UNII Band I), Frequency: 5230MHz

```
Site no.      : A/C Chamber                  Data no.  : 2
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                          □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5230(802.11n40)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 102.090 | 17.29 | 2.10 | 4.97 | 24.36 | 43.50 | 19.14 | Peak |
| 220.080 | 21.91 | 3.30 | 3.61 | 28.83 | 46.00 | 17.17 | Peak |
| 843.900 | 25.23 | 7.10 | -0.55 | 31.78 | 46.00 | 14.22 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

---

```
Site no.      : A/C Chamber                  Data no.  : 1
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A     Ant. pol. : VERTICAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                          □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5230(802.11n40)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 102.090 | 17.29 | 2.10 | 6.88 | 26.27 | 43.50 | 17.23 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11n-HT40 (UNII Band II), Frequency: 5270MHz

```
Site no.      : A/C Chamber                 Data no.   : 2
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A    Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                          □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5270(802.11n40)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 223.590 | 21.96 | 3.30 | 6.61 | 31.87 | 46.00 | 14.13 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

```
Site no.      : A/C Chamber                 Data no.   : 1
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A    Ant. pol. : VERTICAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                          □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5270(802.11n40)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 106.140 | 17.65 | 2.20 | 9.89 | 29.74 | 43.50 | 13.76 | Peak |
| 959.400 | 26.38 | 7.60 | 3.67 | 37.66 | 46.00 | 8.34 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11n-HT40 (UNII Band III), Frequency: 5590MHz

```
Site no.      : A/C Chamber                 Data no.  : 2
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A    Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5590(802.11n40)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 102.090 | 17.29 | 2.10 | 2.61 | 22.00 | 43.50 | 21.50 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

---

```
Site no.      : A/C Chamber                 Data no.  : 1
Dis. / Ant.   : 3m   VBA6106A/UHALP9108A    Ant. pol. : VERTICAL
Limit         : FCC PART-15C
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5590(802.11n40)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 102.630 | 17.40 | 2.10 | 7.30 | 26.80 | 43.50 | 16.70 | Peak |
| 871.900 | 25.52 | 7.20 | -0.48 | 32.24 | 46.00 | 13.76 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 3.6.2.Above 1GHz Frequency Range Measurement Results

### 802.11a (UNII Band I), Frequency: 5240MHz

```
Site no.      : A/C Chamber                 Data no.  : 5
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5240(802.11a)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1599.760 | 26.08 | 6.14 | 12.88 | 45.09 | 54.00 | 8.91 | Peak |
| 4974.480 | 33.37 | 9.12 | 9.14 | 51.63 | 54.00 | 2.37 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

```
Site no.      : A/C Chamber                 Data no.  : 6
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5240(802.11a)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1594.720 | 26.08 | 6.12 | 13.27 | 45.48 | 54.00 | 8.52 | Peak |
| 4974.480 | 33.37 | 9.12 | 8.00 | 50.49 | 54.00 | 3.51 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11a (UNII Band II), Frequency: 5280MHz

```
Site no.      : A/C Chamber                 Data no.  : 9
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5280(802.11a)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 5282.000 | 33.85 | 9.56 | 10.46 | 53.88 | 54.00 | 0.12 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

---

```
Site no.      : A/C Chamber                 Data no.  : 10
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5280(802.11a)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 5282.000 | 33.85 | 9.56 | 9.00 | 52.42 | 54.00 | 1.58 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11a (UNII Band III), Frequency: 5580MHz

```
Site no.      : A/C Chamber                 Data no.  : 5
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5580(802.11a)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1599.760 | 26.08 | 6.14 | 12.09 | 44.30 | 54.00 | 9.70 | Peak |
| 5576.000 | 34.23 | 9.83 | 10.03 | 54.08 | 74.00 | 19.92 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

```
Site no.      : A/C Chamber                 Data no.  : 6
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5580(802.11a)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1599.760 | 26.08 | 6.14 | 13.77 | 45.98 | 54.00 | 8.02 | Peak |
| 5576.000 | 34.23 | 9.83 | 10.26 | 54.31 | 74.00 | 19.69 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11a (UNII Band III), Frequency: 5580MHz

```
Site no.      : A/C Chamber                 Data no.  : 17
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5580(802.11a)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 5576.000 | 34.23 | 9.83 | 0.03 | 44.08 | 54.00 | 9.92 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

---

```
Site no.      : A/C Chamber                 Data no.  : 18
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5580(802.11a)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 5576.000 | 34.23 | 9.83 | 0.26 | 44.31 | 54.00 | 9.69 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11n-HT20 (UNII Band I), Frequency: 5240MHz

```
Site no.      : A/C Chamber                 Data no.  : 8
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5240(802.11n20)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 4974.480 | 33.37 | 9.12 | 8.91 | 51.40 | 54.00 | 2.60 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

---

```
Site no.      : A/C Chamber                 Data no.  : 6
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5240(802.11n20)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1599.760 | 26.08 | 6.14 | 11.65 | 43.86 | 54.00 | 10.14 | Peak |
| 4974.480 | 33.37 | 9.12 | 7.22 | 49.71 | 54.00 | 4.29 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11n-HT20 (UNII Band II), Frequency: 5260MHz

```
Site no.      : A/C Chamber                 Data no.  : 5
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5260(802.11n20)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1599.760 | 26.08 | 6.14 | 11.88 | 44.09 | 54.00 | 9.91 | Peak |
| 5282.000 | 33.85 | 9.56 | 11.02 | 54.44 | 74.00 | 19.56 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

```
Site no.      : A/C Chamber                 Data no.  : 10
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5260(802.11n20)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 5282.000 | 33.85 | 9.56 | 10.99 | 54.41 | 74.00 | 19.59 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11n-HT20 (UNII Band II), Frequency: 5260MHz

```
Site no.      : A/C Chamber                 Data no.  : 17
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5260(802.11n20)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 5282.000 | 33.85 | 9.56 | 1.02 | 44.44 | 54.00 | 9.56 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

---

```
Site no.      : A/C Chamber                 Data no.  : 18
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5260(802.11n20)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 5282.000 | 33.85 | 9.56 | 0.99 | 44.41 | 54.00 | 9.59 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11n-HT20 (UNII Band III), Frequency: 5580MHz

```
Site no.      : A/C Chamber                 Data no.  : 5
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5580(802.11n20)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1594.720 | 26.08 | 6.12 | 10.80 | 43.01 | 54.00 | 10.99 | Peak |
| 5372.000 | 33.99 | 9.64 | 9.59 | 53.21 | 54.00 | 0.79 | Peak |
| 5576.000 | 34.23 | 9.83 | 9.93 | 53.98 | 54.00 | 0.02 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

```
Site no.      : A/C Chamber                 Data no.  : 6
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5580(802.11n20)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1599.760 | 26.08 | 6.14 | 17.75 | 49.96 | 54.00 | 4.04 | Peak |
| 5372.000 | 33.99 | 9.64 | 9.70 | 53.32 | 54.00 | 0.68 | Peak |
| 5576.000 | 34.23 | 9.83 | 9.75 | 53.80 | 54.00 | 0.20 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11n-HT40 (UNII Band I), Frequency: 5230MHz

```
Site no.      : A/C Chamber                 Data no.  : 5
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5230(802.11n40)
```

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 1599.760 | 26.08 | 6.14 | 11.45 | 43.66 | 54.00 | 10.34 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

```
Site no.      : A/C Chamber                 Data no.  : 6
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5230(802.11n40)
```

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 1594.720 | 26.08 | 6.12 | 12.05 | 44.26 | 54.00 | 9.74 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11n-HT40 (UNII Band II), Frequency: 5270MHz

```
Site no.      : A/C Chamber                 Data no.  : 5
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5270(802.11n40)
```

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 1599.760 | 26.08 | 6.14 | 11.62 | 43.83 | 54.00 | 10.17 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

---

```
Site no.      : A/C Chamber                 Data no.  : 6
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5270(802.11n40)
```

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 1599.760 | 26.08 | 6.14 | 17.54 | 49.75 | 54.00 | 4.25 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

## 802.11n-HT40 (UNII Band III), Frequency: 5590MHz

```
Site no.      : A/C Chamber                 Data no.  : 5
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5590(802.11n40)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1594.720 | 26.08 | 6.12 | 11.11 | 43.32 | 54.00 | 10.68 | Peak |
| 5582.000 | 34.23 | 9.83 | 7.73 | 51.79 | 54.00 | 2.21 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

```
Site no.      : A/C Chamber                 Data no.  : 6
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5590(802.11n40)
```

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|
| 1594.720 | 26.08 | 6.12 | 11.63 | 43.84 | 54.00 | 10.16 | Peak |
| 5576.000 | 34.23 | 9.83 | 8.27 | 52.32 | 54.00 | 1.68 | Peak |

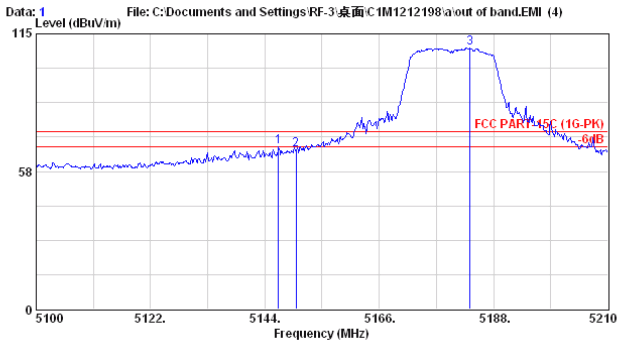
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

3.6.3.Restricted Bands Measurement Results

Date of Test: Feb. 01, 2013 Temperature: 26℃

EUT: Notebook Humidity: 61%

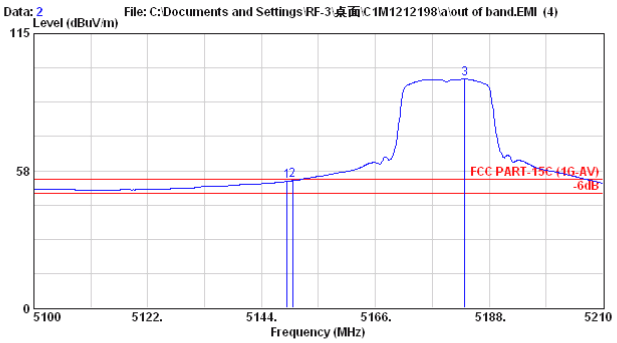
Test Mode: 802.11a (UNII Band I), Frequency: 5180MHz




Site no. : A/C Chamber Data no. : 1
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5180(802.11a)

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5146.640 | 33.64 | 9.43 | 24.81 | 67.88 | 74.00 | 6.12 | Peak |
| 2 | 5150.000 | 33.64 | 9.43 | 23.30 | 66.37 | 74.00 | 7.63 | Peak |
| 3 | 5183.490 | 33.69 | 9.46 | 65.88 | 109.03 | 74.00 | -35.03 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

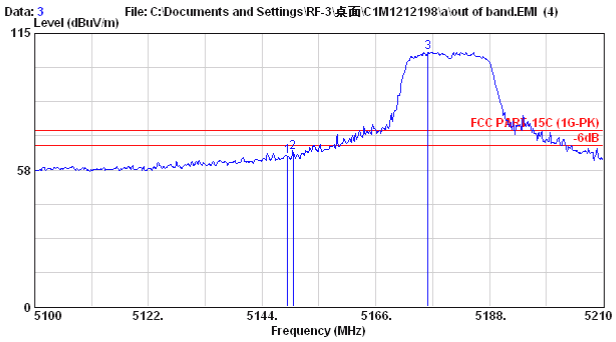



Site no. : A/C Chamber Data no. : 2
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5180(802.11a)

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5148.950 | 33.64 | 9.43 | 9.91 | 52.99 | 54.00 | 1.01 | Average |
| 2 | 5150.000 | 33.64 | 9.43 | 10.27 | 53.34 | 54.00 | 0.66 | Average |
| 3 | 5183.270 | 33.69 | 9.46 | 52.74 | 95.90 | 54.00 | -41.90 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

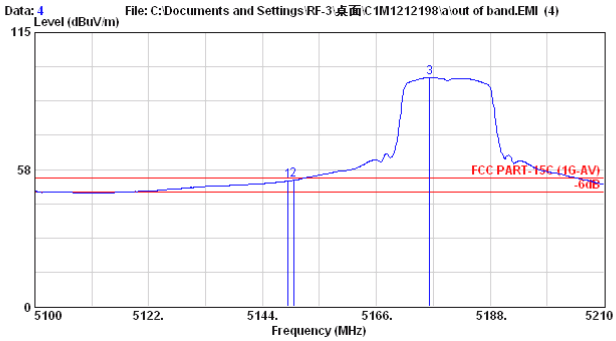
| | | | |
|---|---|---|---|
| Date of Test: | Feb. 01, 2013 | Temperature: | 26°C |
| EUT: | Notebook | Humidity: | 61% |
| Test Mode: | 802.11a (UNII Band I), Frequency: 5180MHz | | |




Site no. : A/C Chamber Data no. : 3
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5180(802.11a)

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5148.950 | 33.64 | 9.43 | 20.21 | 63.28 | 74.00 | 10.72 | Peak |
| 2 | 5150.000 | 33.64 | 9.43 | 21.72 | 64.79 | 74.00 | 9.21 | Peak |
| 3 | 5176.120 | 33.69 | 9.46 | 63.92 | 107.08 | 74.00 | -33.08 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




Site no. : A/C Chamber Data no. : 4
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5180(802.11a)

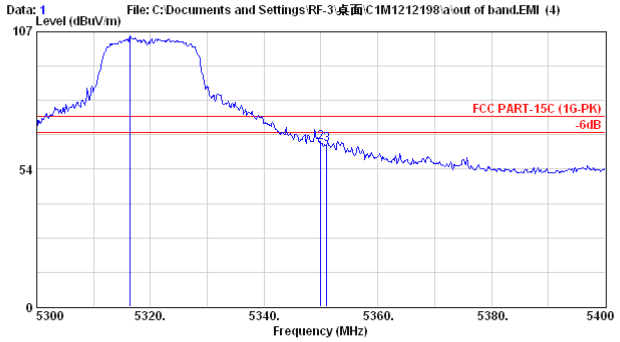
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5148.950 | 33.64 | 9.43 | 9.54 | 52.61 | 54.00 | 1.39 | Average |
| 2 | 5150.000 | 33.64 | 9.43 | 9.87 | 52.94 | 54.00 | 1.06 | Average |
| 3 | 5176.340 | 33.69 | 9.46 | 52.91 | 96.07 | 54.00 | -42.07 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test: Feb. 01, 2013 Temperature: 26°C

EUT: Notebook Humidity: 61%

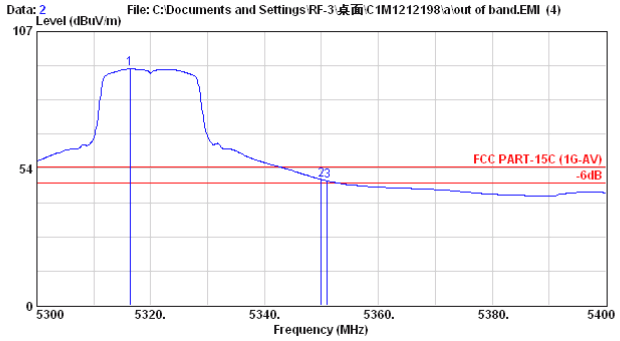
Test Mode: 802.11a (UNII Band II), Frequency: 5320MHz




Site no. : A/C Chamber Data no. : 1
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 26℃/61% jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5320(802.11a)

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBµV) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5316.400 | 33.91 | 9.59 | 62.08 | 105.58 | 74.00 | -31.58 | Peak |
| 2 | 5350.000 | 33.96 | 9.62 | 20.38 | 63.96 | 74.00 | 10.04 | Peak |
| 3 | 5351.000 | 33.96 | 9.62 | 19.46 | 63.03 | 74.00 | 10.97 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




Site no. : A/C Chamber Data no. : 2
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 26℃/61% jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5320(802.11a)

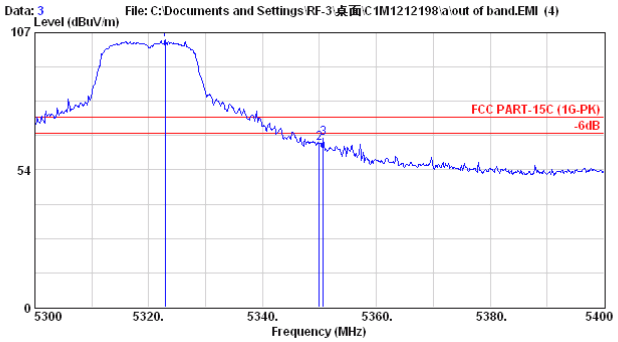
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBµV) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5316.400 | 33.91 | 9.59 | 48.89 | 92.39 | 54.00 | -38.39 | Average |
| 2 | 5350.000 | 33.96 | 9.62 | 5.58 | 49.16 | 54.00 | 4.84 | Average |
| 3 | 5351.000 | 33.96 | 9.62 | 5.09 | 48.66 | 54.00 | 5.34 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test: Feb. 01, 2013 Temperature: 26°C

EUT: Notebook Humidity: 61%

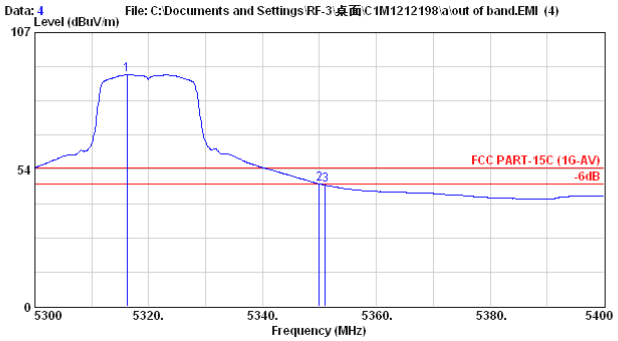
Test Mode: 802.11a (UNII Band II), Frequency: 5320MHz




Site no. : A/C Chamber Data no. : 3
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5320(802.11a)

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5322.900 | 33.91 | 9.59 | 60.65 | 104.15 | 74.00 | -30.15 | Peak |
| 2 | 5350.000 | 33.96 | 9.62 | 20.24 | 63.82 | 74.00 | 10.18 | Peak |
| 3 | 5350.700 | 33.96 | 9.62 | 22.32 | 65.89 | 74.00 | 8.11 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




Site no. : A/C Chamber Data no. : 4
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5320(802.11a)

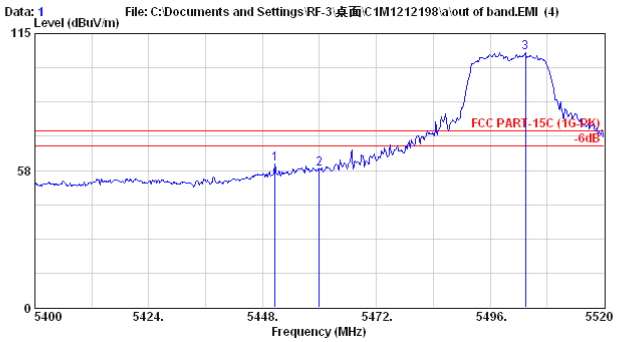
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5316.200 | 33.91 | 9.59 | 46.96 | 90.46 | 54.00 | -36.46 | Average |
| 2 | 5350.000 | 33.96 | 9.62 | 4.24 | 47.82 | 54.00 | 6.18 | Average |
| 3 | 5351.000 | 33.96 | 9.62 | 3.73 | 47.31 | 54.00 | 6.69 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test: Feb. 01, 2013 Temperature: 26°C

EUT: Notebook Humidity: 61%

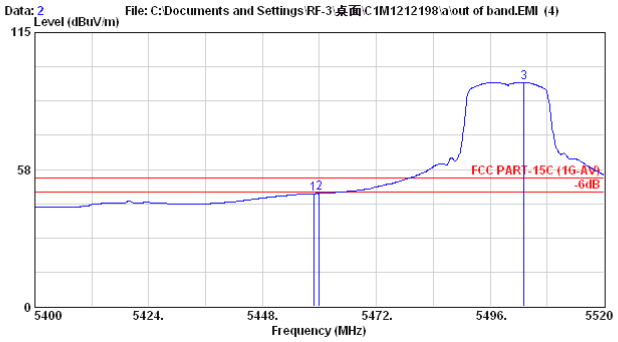
Test Mode: 802.11a (UNII Band III), Frequency: 5500MHz




Site no. : A/C Chamber Data no. : 1
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5500(802.11a)

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5450.640 | 34.12 | 9.71 | 16.40 | 60.23 | 74.00 | 13.77 | Peak |
| 2 | 5460.000 | 34.12 | 9.72 | 14.32 | 58.16 | 74.00 | 15.84 | Peak |
| 3 | 5503.440 | 34.20 | 9.74 | 63.03 | 106.97 | 74.00 | -32.97 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




Site no. : A/C Chamber Data no. : 2
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5500(802.11a)

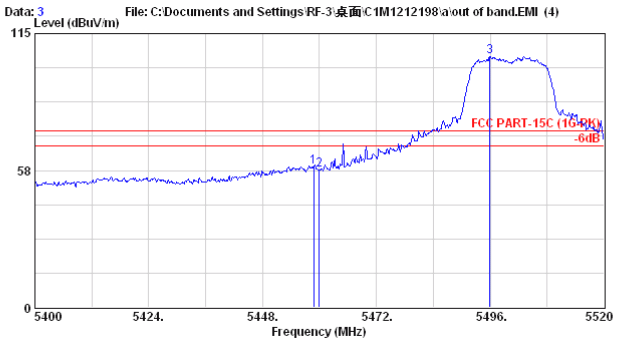
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5458.800 | 34.12 | 9.72 | 3.47 | 47.30 | 54.00 | 6.70 | Average |
| 2 | 5460.000 | 34.12 | 9.72 | 3.60 | 47.44 | 54.00 | 6.56 | Average |
| 3 | 5503.080 | 34.20 | 9.74 | 50.09 | 94.04 | 54.00 | -40.04 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test: Feb. 01, 2013 Temperature: 26°C

EUT: Notebook Humidity: 61%

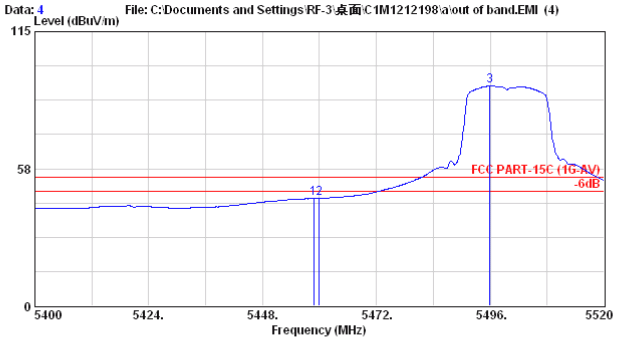
Test Mode: 802.11a (UNII Band III), Frequency: 5500MHz




Site no. : A/C Chamber Data no. : 3
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5500(802.11a)

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5458.800 | 34.12 | 9.72 | 15.19 | 59.03 | 74.00 | 14.97 | Peak |
| 2 | 5460.000 | 34.12 | 9.72 | 13.72 | 57.56 | 74.00 | 16.44 | Peak |
| 3 | 5495.880 | 34.17 | 9.74 | 61.54 | 105.45 | 74.00 | -31.45 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




Site no. : A/C Chamber Data no. : 4
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5500(802.11a)

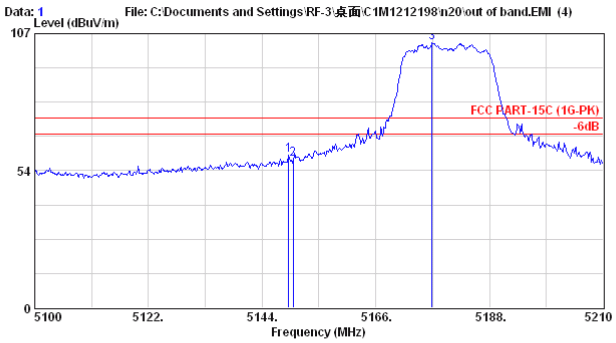
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5458.800 | 34.12 | 9.72 | 1.20 | 45.04 | 54.00 | 8.96 | Average |
| 2 | 5460.000 | 34.12 | 9.72 | 1.26 | 45.10 | 54.00 | 8.90 | Average |
| 3 | 5495.880 | 34.17 | 9.74 | 48.27 | 92.18 | 54.00 | -38.18 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test: Feb. 01, 2013 Temperature: 26°C

EUT: Notebook Humidity: 61%

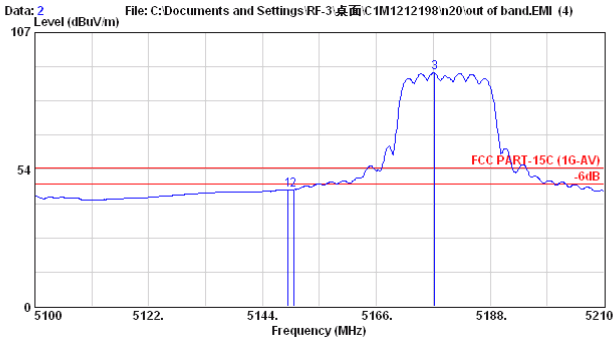
Test Mode: 802.11n-HT20 (UNII Band I), Frequency: 5180MHz




Site no. : A/C Chamber Data no. : 1
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5180(802.11n20)

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5149.170 | 33.64 | 9.43 | 16.32 | 59.40 | 74.00 | 14.60 | Peak |
| 2 | 5150.000 | 33.64 | 9.43 | 14.74 | 57.82 | 74.00 | 16.18 | Peak |
| 3 | 5176.890 | 33.69 | 9.46 | 60.13 | 103.28 | 74.00 | -29.28 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




Site no. : A/C Chamber Data no. : 2
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5180(802.11n20)

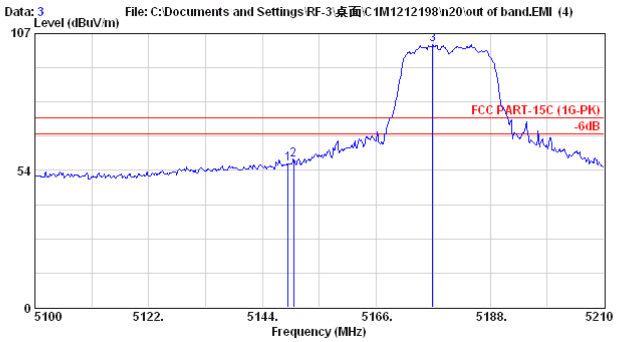
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5148.950 | 33.64 | 9.43 | 2.49 | 45.56 | 54.00 | 8.44 | Average |
| 2 | 5150.000 | 33.64 | 9.43 | 2.57 | 45.65 | 54.00 | 8.35 | Average |
| 3 | 5177.220 | 33.69 | 9.46 | 48.05 | 91.20 | 54.00 | -37.20 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test: Feb. 01, 2013 Temperature: 26°C

EUT: Notebook Humidity: 61%

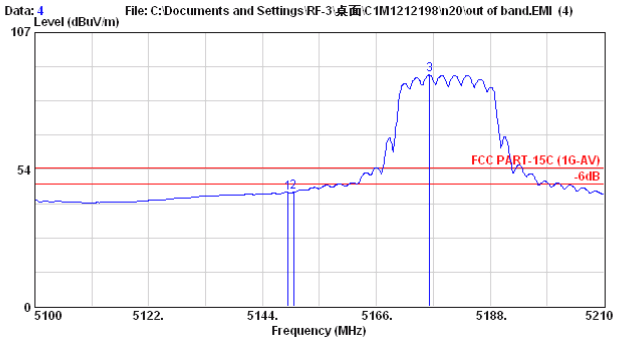
Test Mode: 802.11n-HT20 (UNII Band I), Frequency: 5180MHz




```
Site no.      : A/C Chamber                Data no.  : 3
Dis. / Ant.   : 3m   3115(4927)            Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 26℃/61%                       □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5180(802.11n20)
```

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5148.950 | 33.64 | 9.43 | 13.04 | 56.11 | 74.00 | 17.89 | Peak |
| 2 | 5150.000 | 33.64 | 9.43 | 14.61 | 57.68 | 74.00 | 16.32 | Peak |
| 3 | 5176.890 | 33.69 | 9.46 | 59.64 | 102.79 | 74.00 | -28.79 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




```
Site no.      : A/C Chamber                Data no.  : 4
Dis. / Ant.   : 3m   3115(4927)            Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                       □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5180(802.11n20)
```

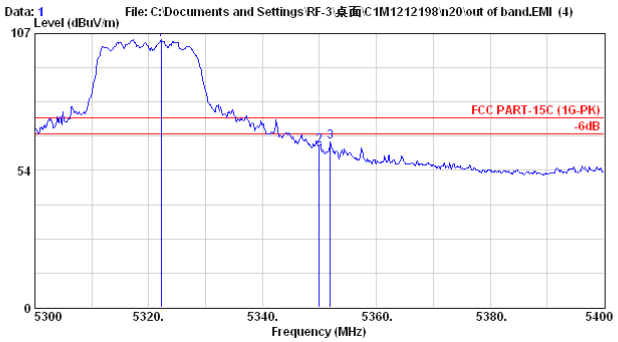
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5148.950 | 33.64 | 9.43 | 1.41 | 44.48 | 54.00 | 9.52 | Average |
| 2 | 5150.000 | 33.64 | 9.43 | 1.48 | 44.55 | 54.00 | 9.45 | Average |
| 3 | 5176.340 | 33.69 | 9.46 | 47.22 | 90.38 | 54.00 | -36.38 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test: Feb. 01, 2013 Temperature: 26°C

EUT: Notebook Humidity: 61%

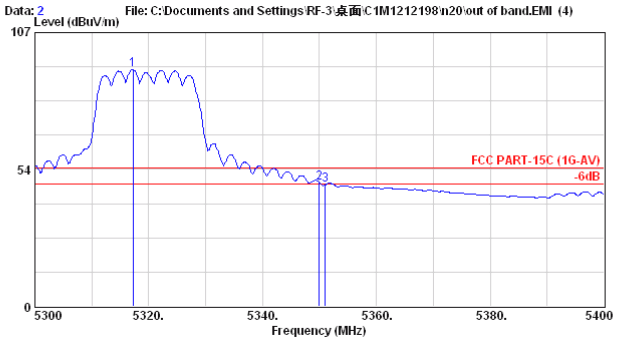
Test Mode: 802.11n-HT20 (UNII Band II), Frequency: 5320MHz




```
Site no.      : A/C Chamber                Data no.  : 1
Dis. / Ant.   : 3m   3115(4927)            Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 26℃/61%                       □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5320(802.11n20)
```

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5322.200 | 33.91 | 9.59 | 61.14 | 104.63 | 74.00 | -30.63 | Peak |
| 2 | 5350.000 | 33.96 | 9.62 | 19.63 | 63.21 | 74.00 | 10.79 | Peak |
| 3 | 5351.900 | 33.96 | 9.62 | 20.93 | 64.51 | 74.00 | 9.49 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




```
Site no.      : A/C Chamber                Data no.  : 2
Dis. / Ant.   : 3m   3115(4927)            Ant. pol. : HORIZONTAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                       □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5320(802.11n20)
```

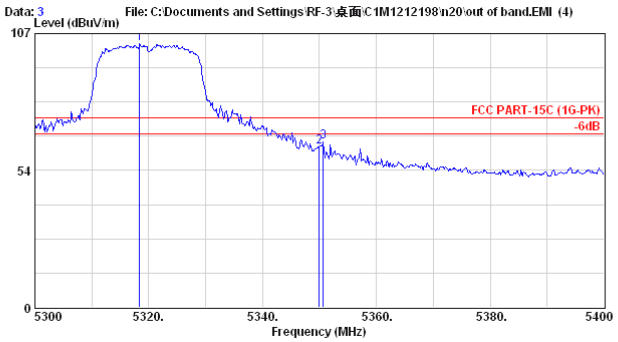
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5317.200 | 33.91 | 9.59 | 48.91 | 92.41 | 54.00 | -38.41 | Average |
| 2 | 5350.000 | 33.96 | 9.62 | 4.81 | 48.39 | 54.00 | 5.61 | Average |
| 3 | 5351.000 | 33.96 | 9.62 | 3.97 | 47.55 | 54.00 | 6.45 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test: Feb. 01, 2013 Temperature: 26°C

EUT: Notebook Humidity: 61%

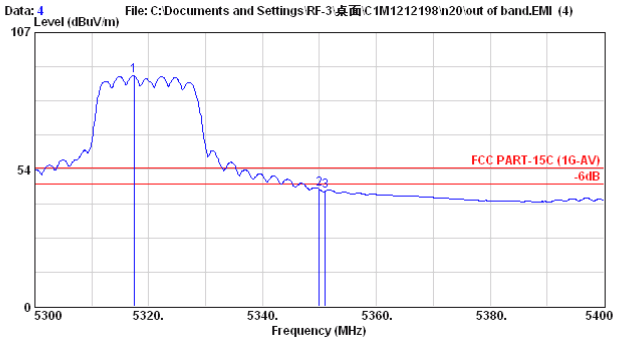
Test Mode: 802.11n-HT20 (UNII Band II), Frequency: 5320MHz




```
Site no.      : A/C Chamber                Data no.  : 3
Dis. / Ant.   : 3m   3115(4927)            Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 26℃/61%                       □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5320(802.11n20)
```

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5318.400 | 33.91 | 9.59 | 59.53 | 103.02 | 74.00 | -29.02 | Peak |
| 2 | 5350.000 | 33.96 | 9.62 | 19.30 | 62.88 | 74.00 | 11.12 | Peak |
| 3 | 5350.700 | 33.96 | 9.62 | 20.92 | 64.49 | 74.00 | 9.51 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




```
Site no.      : A/C Chamber                Data no.  : 4
Dis. / Ant.   : 3m   3115(4927)            Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                       □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5320(802.11n20)
```

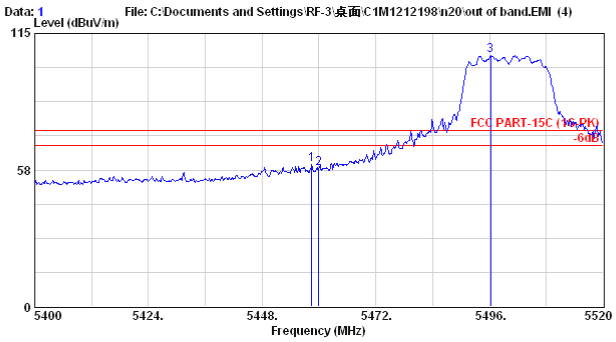
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5317.400 | 33.91 | 9.59 | 46.56 | 90.06 | 54.00 | -36.06 | Average |
| 2 | 5350.000 | 33.96 | 9.62 | 2.25 | 45.83 | 54.00 | 8.17 | Average |
| 3 | 5351.000 | 33.96 | 9.62 | 1.34 | 44.92 | 54.00 | 9.08 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test: Feb. 01, 2013 Temperature: 26℃

EUT: Notebook Humidity: 61%

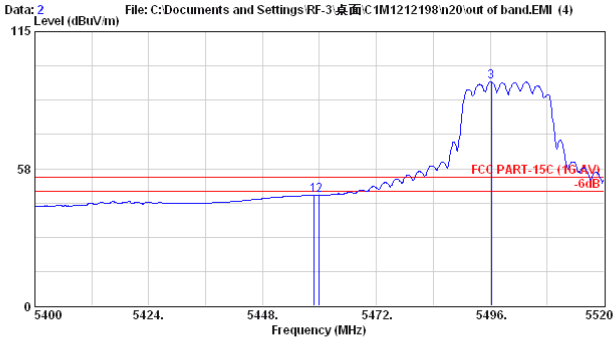
Test Mode: 802.11n-HT20 (UNII Band III), Frequency: 5500MHz




Site no. : A/C Chamber Data no. : 1
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5500(802.11n20)

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5458.440 | 34.12 | 9.72 | 16.00 | 59.84 | 74.00 | 14.16 | Peak |
| 2 | 5460.000 | 34.12 | 9.72 | 14.23 | 58.07 | 74.00 | 15.93 | Peak |
| 3 | 5496.240 | 34.17 | 9.74 | 62.01 | 105.92 | 74.00 | -31.92 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




Site no. : A/C Chamber Data no. : 2
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5500(802.11n20)

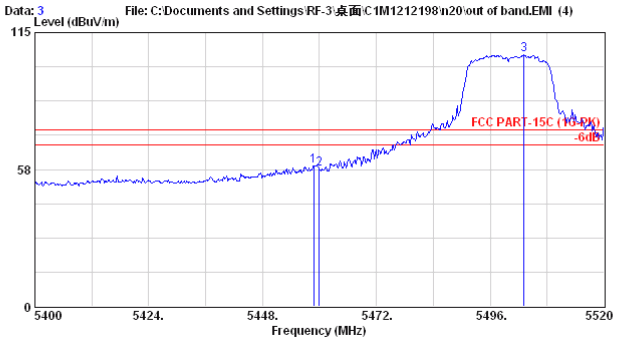
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5458.800 | 34.12 | 9.72 | 2.47 | 46.31 | 54.00 | 7.69 | Average |
| 2 | 5460.000 | 34.12 | 9.72 | 2.49 | 46.33 | 54.00 | 7.67 | Average |
| 3 | 5496.240 | 34.17 | 9.74 | 49.99 | 93.90 | 54.00 | -39.90 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test: Feb. 01, 2013 Temperature: 26°C

EUT: Notebook Humidity: 61%

Test Mode: 802.11n-HT20 (UNII Band III), Frequency: 5500MHz



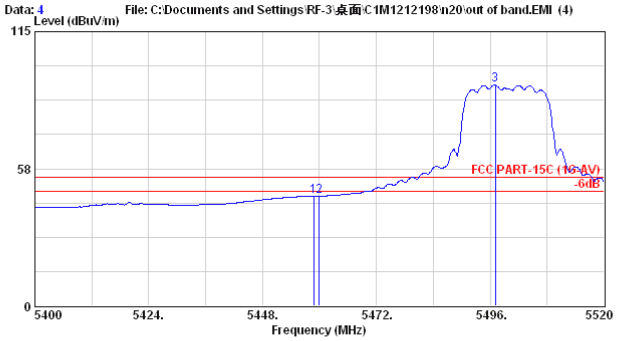

Site no. : A/C Chamber
Dis. / Ant. : 3m 3115(4927)
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 26℃/61%
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5500(802.11n20)

Data no. : 3
Ant. pol. : VERTICAL

□jianlun_hung

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBµV) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5458.800 | 34.12 | 9.72 | 15.02 | 58.86 | 74.00 | 15.14 | Peak |
| 2 | 5460.000 | 34.12 | 9.72 | 13.82 | 57.66 | 74.00 | 16.34 | Peak |
| 3 | 5503.080 | 34.20 | 9.74 | 61.70 | 105.65 | 74.00 | -31.65 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




Site no. : A/C Chamber
Dis. / Ant. : 3m 3115(4927)
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 26℃/61%
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5500(802.11n20)

Data no. : 4
Ant. pol. : VERTICAL

□jianlun_hung

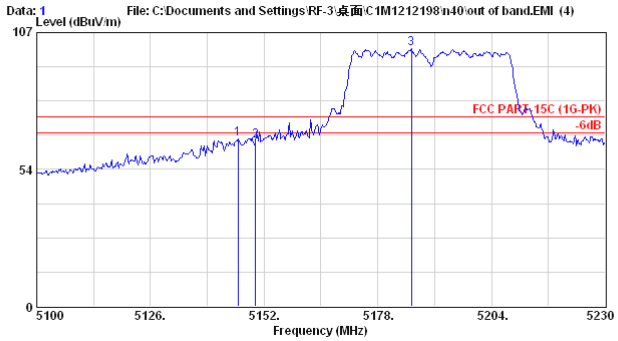
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBµV) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5458.800 | 34.12 | 9.72 | 2.15 | 45.99 | 54.00 | 8.01 | Average |
| 2 | 5460.000 | 34.12 | 9.72 | 2.18 | 46.02 | 54.00 | 7.98 | Average |
| 3 | 5497.080 | 34.20 | 9.74 | 48.69 | 92.64 | 54.00 | -38.64 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test: Feb. 01, 2013 Temperature: 26°C

EUT: Notebook Humidity: 61%

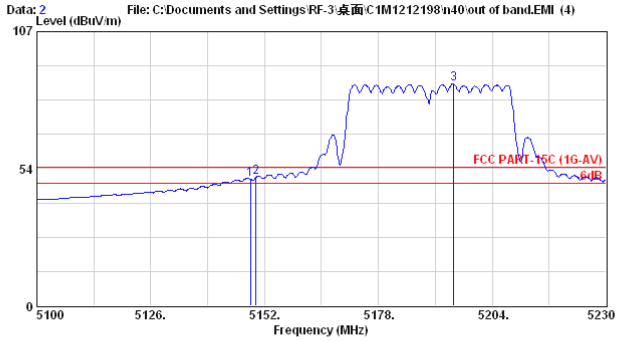
Test Mode: 802.11n-HT40 (UNII Band I), Frequency: 5190MHz




Site no. : A/C Chamber Data no. : 1
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 26℃/61% jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5190(802.11n40)

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5146.020 | 33.64 | 9.43 | 22.41 | 65.48 | 74.00 | 8.52 | Peak |
| 2 | 5150.000 | 33.64 | 9.43 | 21.59 | 64.67 | 74.00 | 9.33 | Peak |
| 3 | 5185.670 | 33.69 | 9.46 | 57.39 | 100.54 | 74.00 | -26.54 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




Site no. : A/C Chamber Data no. : 2
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 26℃/61% jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5190(802.11n40)

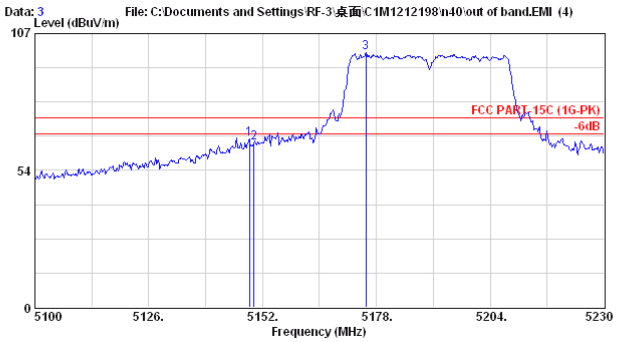
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5148.750 | 33.64 | 9.43 | 6.38 | 49.45 | 54.00 | 4.55 | Average |
| 2 | 5150.000 | 33.64 | 9.43 | 7.03 | 50.11 | 54.00 | 3.89 | Average |
| 3 | 5195.160 | 33.72 | 9.48 | 43.33 | 86.53 | 54.00 | -32.53 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test: Feb. 01, 2013 Temperature: 26°C

EUT: Notebook Humidity: 61%

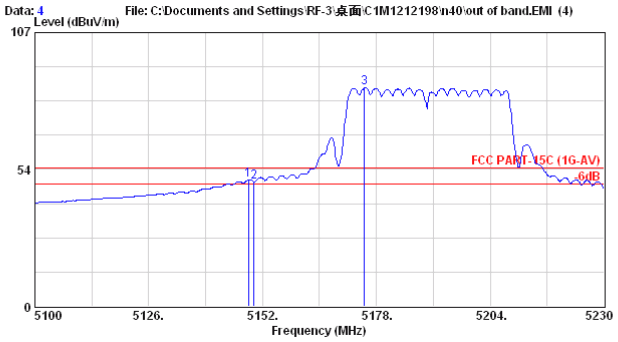
Test Mode: 02.11n-HT40 (UNII Band I), Frequency: 5190MHz




Site no. : A/C Chamber Data no. : 3
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5190(802.11n40)

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5149.010 | 33.64 | 9.43 | 22.67 | 65.75 | 74.00 | 8.25 | Peak |
| 2 | 5150.000 | 33.64 | 9.43 | 21.10 | 64.18 | 74.00 | 9.82 | Peak |
| 3 | 5175.660 | 33.69 | 9.46 | 56.39 | 99.54 | 74.00 | -25.54 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




Site no. : A/C Chamber Data no. : 4
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5190(802.11n40)

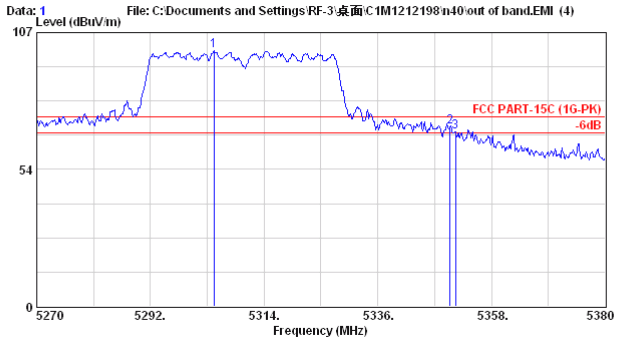
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5148.750 | 33.64 | 9.43 | 6.28 | 49.35 | 54.00 | 4.65 | Average |
| 2 | 5150.000 | 33.64 | 9.43 | 5.69 | 48.76 | 54.00 | 5.24 | Average |
| 3 | 5175.270 | 33.69 | 9.46 | 42.16 | 85.31 | 54.00 | -31.31 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test: Feb. 01, 2013 Temperature: 26°C

EUT: Notebook Humidity: 61%

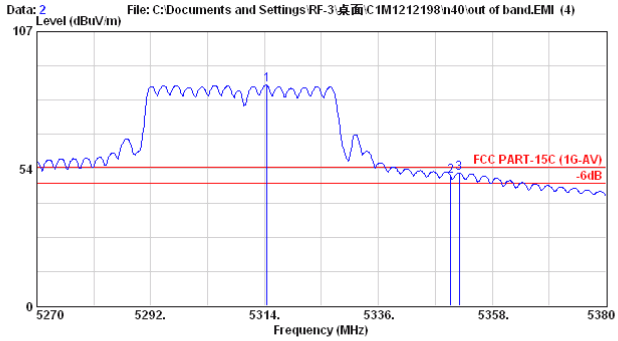
Test Mode: 802.11n-HT40 (UNII Band II), Frequency: 5310MHz




Site no. : A/C Chamber Data no. : 1
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5310(802.11n40)

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5304.320 | 33.88 | 9.58 | 56.37 | 99.83 | 74.00 | -25.83 | Peak |
| 2 | 5350.000 | 33.96 | 9.62 | 26.46 | 70.04 | 74.00 | 3.96 | Peak |
| 3 | 5351.070 | 33.96 | 9.62 | 24.81 | 68.39 | 74.00 | 5.61 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

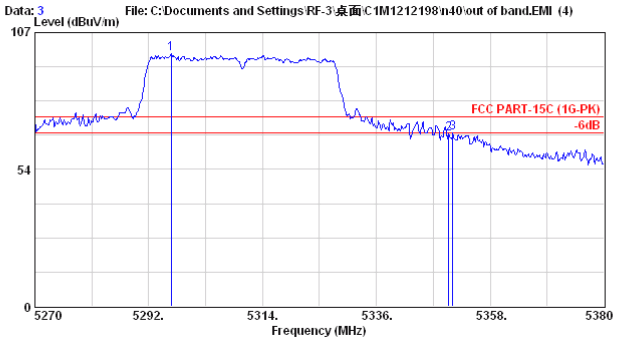



Site no. : A/C Chamber Data no. : 2
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5310(802.11n40)

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5314.440 | 33.91 | 9.59 | 42.56 | 86.06 | 54.00 | -32.06 | Average |
| 2 | 5350.000 | 33.96 | 9.62 | 6.93 | 50.51 | 54.00 | 3.49 | Average |
| 3 | 5351.620 | 33.96 | 9.62 | 8.27 | 51.85 | 54.00 | 2.15 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

| | | | |
|---|---|---|---|
| Date of Test: | Feb. 01, 2013 | Temperature: | 26℃ |
| EUT: | Notebook | Humidity: | 61% |
| Test Mode: | 802.11n-HT40 (UNII Band II), Frequency: 5310MHz | | |



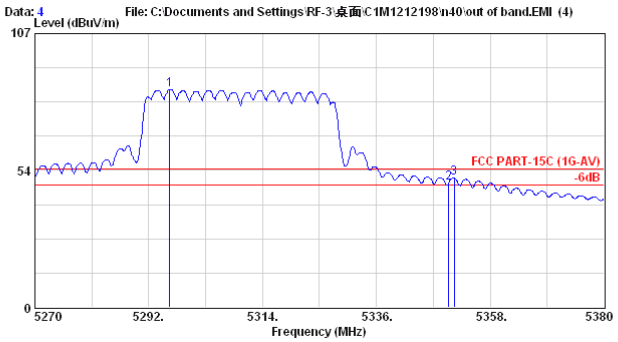

Site no. : A/C Chamber
Dis. / Ant. : 3m 3115(4927)
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 26℃/61%
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5310(802.11n40)

Data no. : 3
Ant. pol. : VERTICAL

□jianlun_hung

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBµV) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5296.290 | 33.88 | 9.56 | 55.14 | 98.58 | 74.00 | -24.58 | Peak |
| 2 | 5350.000 | 33.96 | 9.62 | 23.96 | 67.54 | 74.00 | 6.46 | Peak |
| 3 | 5350.740 | 33.96 | 9.62 | 24.11 | 67.68 | 74.00 | 6.32 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




Site no. : A/C Chamber
Dis. / Ant. : 3m 3115(4927)
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 26℃/61%
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5310(802.11n40)

Data no. : 4
Ant. pol. : VERTICAL

□jianlun_hung

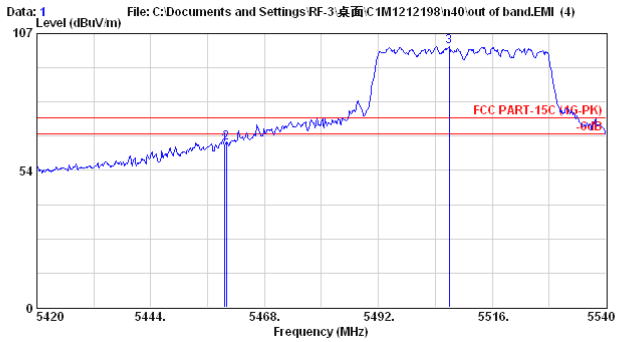
| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBµV) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5296.070 | 33.88 | 9.56 | 41.70 | 85.14 | 54.00 | -31.14 | Average |
| 2 | 5350.000 | 33.96 | 9.62 | 5.01 | 48.59 | 54.00 | 5.41 | Average |
| 3 | 5351.070 | 33.96 | 9.62 | 6.81 | 50.39 | 54.00 | 3.61 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test: Feb. 01, 2013 Temperature: 26°C

EUT: Notebook Humidity: 61%

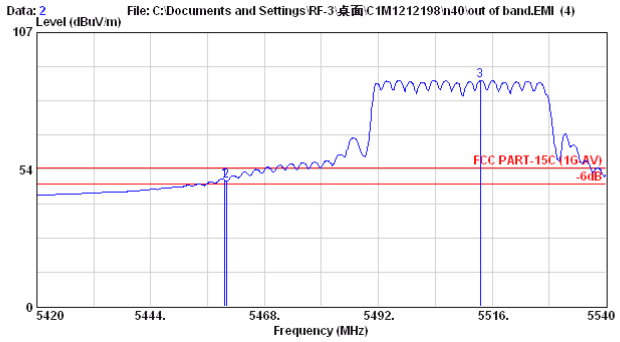
Test Mode: 802.11n-HT40 (UNII Band III), Frequency: 5510MHz




Site no. : A/C Chamber Data no. : 1
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-PK)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5510(802.11n40)

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5459.600 | 34.12 | 9.72 | 19.58 | 63.42 | 74.00 | 10.58 | Peak |
| 2 | 5460.000 | 34.12 | 9.72 | 20.59 | 64.43 | 74.00 | 9.57 | Peak |
| 3 | 5506.880 | 34.20 | 9.74 | 57.84 | 101.79 | 74.00 | -27.79 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

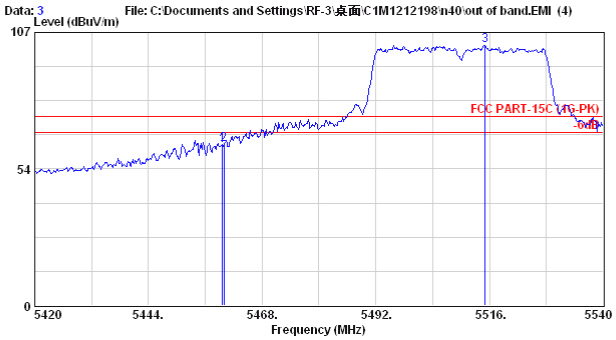



Site no. : A/C Chamber Data no. : 2
Dis. / Ant. : 3m 3115(4927) Ant. pol. : HORIZONTAL
Limit : FCC PART-15C (1G-AV)
Env. / Ins. : E4446A 26℃/61% □jianlun_hung
EUT : HSBUB-SDS
Power Rating : AC120 / 60Hz
Test Mode : TX5510(802.11n40)

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5459.600 | 34.12 | 9.72 | 5.47 | 49.31 | 54.00 | 4.69 | Average |
| 2 | 5460.000 | 34.12 | 9.72 | 5.15 | 48.99 | 54.00 | 5.01 | Average |
| 3 | 5513.480 | 34.20 | 9.78 | 44.37 | 88.34 | 54.00 | -34.34 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

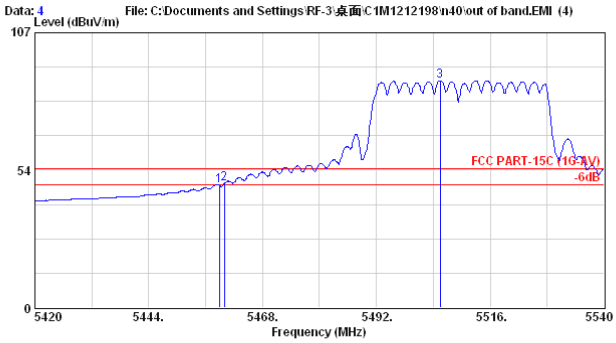
| | | | |
|---|---|---|---|
| Date of Test: | Feb. 01, 2013 | Temperature: | 26℃ |
| EUT: | Notebook | Humidity: | 61% |
| Test Mode: | 802.11n-HT40 (UNII Band III), Frequency: 5510MHz | | |




```
Site no.      : A/C Chamber                 Data no.  : 3
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-PK)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5510(802.11n40)
```

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5459.600 | 34.12 | 9.72 | 18.96 | 62.80 | 74.00 | 11.20 | Peak |
| 2 | 5460.000 | 34.12 | 9.72 | 19.19 | 63.03 | 74.00 | 10.97 | Peak |
| 3 | 5515.040 | 34.21 | 9.78 | 58.05 | 102.03 | 74.00 | -28.03 | Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.




```
Site no.      : A/C Chamber                 Data no.  : 4
Dis. / Ant.   : 3m   3115(4927)             Ant. pol. : VERTICAL
Limit         : FCC PART-15C (1G-AV)
Env. / Ins.   : E4446A 26℃/61%                        □jianlun_hung
EUT           : HSBUB-SDS
Power Rating  : AC120 / 60Hz
Test Mode     : TX5510(802.11n40)
```

| | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|---|---|---|---|---|---|---|---|
| 1 | 5458.880 | 34.12 | 9.72 | 3.58 | 47.42 | 54.00 | 6.58 | Average |
| 2 | 5460.000 | 34.12 | 9.72 | 4.52 | 48.36 | 54.00 | 5.64 | Average |
| 3 | 5505.440 | 34.20 | 9.74 | 44.41 | 88.35 | 54.00 | -34.35 | Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.